ALSEP Performance Summary Reports

1977

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APOLLO ALSEP PERFORMANCE SUMMARY REPORT

5 January 1977
G.m.t.: 1700

This report covers the two-week period from 1700 G.m.t., 22 December 1976, to 1700 G.m.t., 5 January 1977.

On 31 December a significant event was observed on the Lunar Seismic Profiling Experiment geophones. The event began at 1620 G.m.t., and continued for approximately 23 minutes. It is believed that the event may have been of such intensity that the Passive Seismic Experiments of the other ALSEPs may have recorded the event. Playback of the ALSEP 15 and 16 data for that time proved difficult to interpret due to Feedback Filter In operation.

Apollo 17 ALSEP

Sunrise of the 51st lunation occurred on 26 December at the Taurus Littrow site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Transmission of command octal 174 (delay uplink switchover), to inhibit automatic selection of the redundant command signal processing chain by the internally generated 61-hour pulses, continues during real-time support periods.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 5 January the lunar surface temperature, as measured by the HFE thermocouples, was 369 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day on 29 December.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 27 December for the 59th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operational plan initiated 6 May 1972. *The DSS-1 (10 watt) Heater is OFF for lunar day operation. On 1 January the data printouts indicated that the Y data processor was intermittently resetting to Frame counter 90 during a sending sequence. The frequency of resetting increased during real-time support on 2 January. A switch was made to the X processor and normal operation was observed in the data.*

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Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 31 December and the uncage-arm fire circuitry to UNCAGED on 29 December in an attempt to minimize heating in the experiment during lunar day. The sensor temperature was offscale HIGH on 3 January at a sun angle of 87.0°. In previous lunations the sensor temperature has been HIGH at or near sun angles of 66.3°. Since 29 December the uncage-arm fire circuitry has been cycling from OT to Uncaged. This anomaly was first observed in February 1973 (Ref. ASTIR #5, A16 PSE Functional Changes).

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of *1250* have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

Apollo 15 ALSEP

Sunrise of the 68th lunation at the Hadley Rille site occurred on 28 December. *On 27 December the Merritt Island and Goldstone Tracking Stations reported telemetry data point AB-05 out of limits. A special real-time support was called and data indicated that the Power Conditioning Units (PCU) had switched from 1 to 2 and the SIDE was in standby power ON. At 0619 G.m.t., 27 December, mission control reselected PCU 1 (octal 060) and commanded the SIDE to ON (octal 153) and the station was in the normal configuration again. The switch of the PCU from 1 to 2 is believed to have been caused by a spurious command (octal 062, PCU 2 select). A CVW would not be seen nor reported by the tracking stations.*

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains 0 db, and feedback loop filter IN. *The uncage-arm fire circuitry switched from OT to UNCAGED between support periods of 31 December and 1 January. The functional change is believed to have been caused by a spurious command (octal 073, uncage-arm/fire), but a command verification word (CVW) was not observed by the tracking stations. As the operation of the experiment is not affected by this change, corrective action was not needed. The sensor temperature (DL-07) was offscale HIGH on 2 January at a sun angle of 62.8°.*

The Suprathermal Ion Detector Experiment is in STANDBY. The experiment is presently being cycled from STANDBY to ON during real-time support periods to avoid exceeding an internal temperature of 85°C (Apollo 15 ALSEP, SMEAR 47). During these periods the instrument is operated in the Reset SIDE

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Apollo 15 ALSEP (continued)

Frame Counter at 39 with Channeltron high voltages ON. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

The Heat Flow Experiment was commanded ON, 29 December, and all science data appears normal after the seven days of operation. The instrument is presently operating in the gradient mode and all sensors are being sampled in full sequence. The lunar surface temperature was 368.2°K on 5 January as measured by the cable thermocouples. The subsurface temperature was 253.9°K at the bottom of the lowest section of probe #1. Probe #2 indicated a temperature of 250.3°K at its lowermost point. A ring bridge survey was obtained on 3 January.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974. *The instrument experienced a functional change to operational power ON (octal 042) between the support periods of 2 and 3 January. A CVW was not seen in the downlink by the tracking stations. The LSM was commanded OFF (octal 044) and an increase of 5 watts in reserve power was noted. This is an indication the instrument electronics are still functioning but the data processor is not, as all ones are being received.*

Apollo 14 ALSEP

Sunrise of the 74th lunation at the Apollo 14 site occurred on 30 December. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 1 January. This action should relieve some of the heat dissipation into the Power Conditioning Unit (PCU) and central station thermal plate and may assist in preventing the loss of downlink signal as the central station approaches lunar noon.*

The Passive Seismic Experiment is ON with the thermal control, *Forced OFF;* component gain 0 db; and feedback loop filter, OUT. *The heater was commanded to Forced OFF for lunar day operation on 3 January.*

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 1 January. Between support periods of 29 and 30 December the CPLEE experienced a functional change to the + 3500 vdc range. On 31 December the instrument was in full voltage sequencing (+ 3500 to - 3500 vdc). As the first required two commands (octal 115) and the second occurring in close conjunction it is not believed the changes were caused by spurious external commands. The instrument was reset to - 35 vdc range in both

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Apollo 14 ALSEP (continued)

instances during real-time support

Apollo 12 ALSEP

Sunrise of the 89th lunation occurred on 30 December. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation.*

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period Z axis component gain - 20 db, and feedback loop filter IN. At 2353 G.m.t., 29 December, the instrument experienced a functional change (feedback loop filter OUT) as reported by the Madrid tracking station in observing the CVW (octal 101) in the downlink. This was confirmed by mission control during real-time support on 30 December. The filter was commanded IN (octal 101) at 2340 G.m.t., 30 December. The instrument assembly temperature (DL-07, 126.3°F) returned on-scale at a sun angle of 3.3° on 30 December. The Z-motor was commanded OFF for lunar day operation on 30 December.

The Solar Wind Spectrometer Experiment was commanded ON, 30 December, and is recording solar wind plasma data in the normal gain mode. The instrument was in STANDBY during lunar night to increase the temperature of the PSE electronics located in the central station. From 1609 G.m.t., 1 January, to 1530 G.m.t., 2 January, the experiment was operated in the extended gain mode because of an observed increase in solar wind activity.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

5 January 1977

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	88	88
Sun Angle	92.4°	255.6°
Sig Strth (9m)	-141.0 dbm	-140.0 dbm
Input Power	50.0w	47.7w
Reserve Power	24.3w	10.1w
Av Ther Pl T.	92.8°F	3.5°F
PSE T. (DL-07)	HIGH	LOW
SWS T. (DW-13)	68.0°C	STBY

APOLLO 14 ALSEP

	Noon	Night
Lunation	73	73
Sun Angle	85.7°	261.9°
Sig Strth (9m)	-139.0 dbm	-142.0 dbm
Input Power	60.6w	59.8w
Reserve Power	14.3w	14.8w
Av Ther Pl T.	113.5°F	24.7°F
PSE T. (DL-07)	134.6°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	67	67
Sun Angle	94.6°	264.9°
Sig Strth (9m)	-138.5 dbm	-141.5 dbm
Input Power	52.1w	50.1w
Reserve Power	17.3w	11.3w
Av Ther Pl T.	112.9°F	-13.6°F
PSE T. (DL-07)	HIGH	124.5°F
SIDE T. (DI-05)	67.7°C	7.2°C
CCGE T. (DI-04)	372.6°K	110.3°K
HFE T. (DH-13)	STBY	STBY

APOLLO 16 ALSEP

	Noon	Night
Lunation	58	58
Sun Angle	94.3°	276.9°
Sig Strth (9m)	-137.5 dbm	-135.5 dbm
Input Power	63.5w	63.2w
Reserve Power	31.2w	14.3w
Av Ther Pl T.	106.0°F	28.1°F
PSE T. (DL-07)	HIGH	125.9°F
LSM T. (DM-05)	49.5°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	50	50
Sun Angle	85.5°	255.0°
Sig Strth (9m)	-137.0 dbm	-138.5 dbm
Input Power	63.7w	64.8w
Reserve Power	28.5w	15.9w
Av Ther Pl T.	93.9°F	10.0°F
LACE T. (AM-41)	161.4°F	-16.1°F
LEAM T. (AJ-11)	183.5°F	-52.0°F
HFE T. (DH-13)	330.3°K	284.8°K
LSG T. (DG-04)	STBY	STBY
LSP T. (AP-01)	97.3°F	14.3°F

ALSEP STATUS as of week ending 1700 Z (G.m.t.) 5 January 1977					
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	89/2604	74/2028	68/1985	59/1720	51/1485
Phase, Sun Angle	Sunrise, 73.3°	Sunrise, 79.3°	Noon, 99.5°	Noon, 112.3°	Noon, 127.6°
Cmds - Total/Week	31377/149	17131/75	38706/228	23692/185	36291/83
Spurious Changes	116	98	121	11	0
RTG Initial/Present Reserve Power	73.6w/49.4w 23.8w	72.5w/60.6w 14.0w	74.7w/ 50.7w 16.4w	70.9w/ 62.8w 31.6w	75.4w/63.3w 28.5w
CENTRAL STATION Avg. Therm. Plate	94.8°F	113.4°F	112.8°F	103.4°F	88.7°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 2/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 12/27/76	Inhibited 5/72 Reset:	Operative Inhibited: 1/5/77
CENTRAL STATION Heaters	DSS-1 (10w) - OFF 12/30/76	DSS-1 (10w) OFF 12/30 21w PDR ON, 1/1/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 12/27/76	APM STATUS: ON
PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
PSE Heaters Z motor (A1)	Auto On OFF, 12/30/76	Forced OFF, 1/3/77	Auto On	Forced OFF, 12/31/76	NBR Real Time Mon, Wed, Fri
PSE Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
PSE DL-07 Temp.	138.6°F	134.5°F	HIGH, 1/2/77	HIGH, 1/3/77	Data Mon, Wed, Fri,
PSE Uncage Ckt.	Uncaged	Uncaged	Uncaged	Uncaged, 12/29/76	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	SWS - ON, 12/30/76 Range: Norm. 1/1/77 Ext. 1/2/77	CPLEE- STBY, 1/1/77 Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals 1250 Z Failed 3/3/75	LEAM-OFF, 12/29/76 Static @ night since 7/16/76
EXPERIMENTS ACTIVE/OPERABLE			HFE Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 1/5/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
26 December	HAW/GWM	Higher Priority	LOS 26/0103 AOS 26/0123	ALL	20^m
29 December	ORR/GWM	Higher Priority	LOS 29/1040 AOS 29/1220	ALL	1^h40^m
31 December	MAD	Higher Priority	LOS 31/1905 AOS 31/1941	ALL	36^m
31 December	MAD	Station Problem	LOS 31/2224 AOS 31/2228	ALL	04^m
1977			LOS AOS		
01 January	ACN/MAD	Higher Priority	LOS 01/2010 AOS 01/2035	ALL	25^m
02 January	ACN/MAD	Schedule	LOS 02/2005 AOS 02/2011	ALL	06^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

JAN 02/002	03/003	04/004	05/005	06/006	07/007	08/008
0900-1100 ALSEP 15 CYCLE SIDE	0900-1300 ALSEP 15 SIDE SUPPORT HFE RBS ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 1^h11^m HFE RBS ALSEP 14 PSE HTR OFF	0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 16^m HFE RBS	0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - LEAM STBY	0900-1100 ALSEP 15 SIDE ON
JAN 09/009	10/010	11/011	12/012	13/013	14/014	15/015
0900-1100 1900-2000 ALSEP 17	0300-0400 1200-1300 2100-2200 ALSEP 16 C/S HTR ON LSM FLIP CAL	0900-1100 ALSEP 16 ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON PDRs OFF ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 14	0700-1100 ALSEP 12 C/S HTR ON PSE Z MTR ON ALSEP 14 C/S HTR ON ALSEP 17 NBR -	0900-1100
JAN 16/016	17/017	18/018	19/019	20/020	21/021	22/022
0900-1100 ALSEP 12 SWS STBY	0900-1100 ALSEP 17 NBR -	NO SUPPORT	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT

TIMES - CST

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

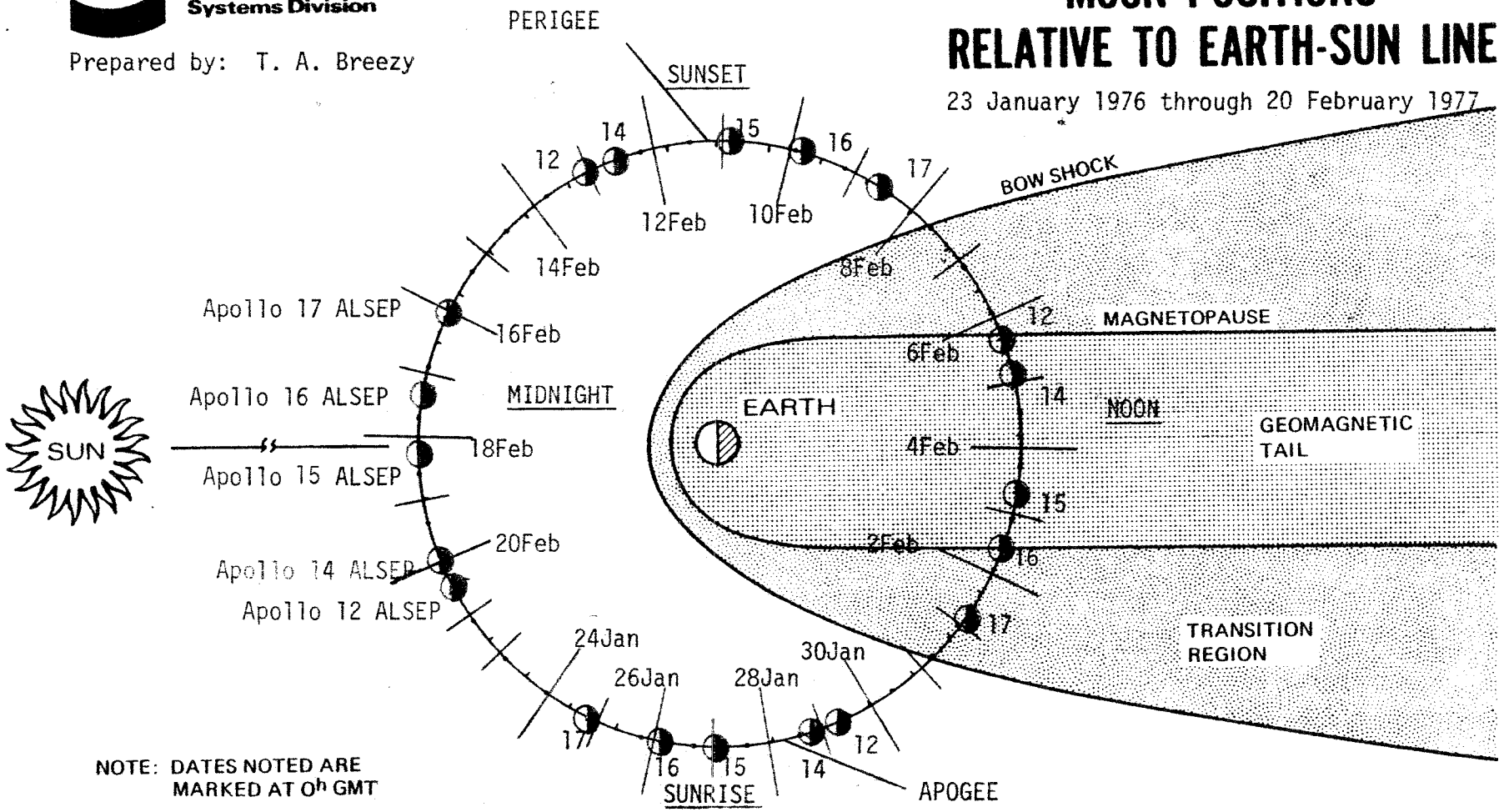
JAN 23/023	24/024	25/025	26/026	27/027	28/028	29/029
NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT ALSEP 16	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR OFF TIMER RESET LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 17 LEAM OFF	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0600-0800 ALSEP 12 C/S HTR OFF PSE Z MTR OFF SWS ON ALSEP 14 C/S HTR OFF 1700-1800
JAN 30/030	31/031	FEB 01/032	02/033	03/034	04/035	05/036
0900-1100 ALSEP 14 CPLEE STBY	0900-1100 ALSEP 15 SIDE STBY ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 14 PSE HTR OFF	0000-0400 ALSEP 15 SIDE SUPPORT ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 17 LEAM STBY
FEB 06/037	07/038	08/039	09/040	10/041	11/042	12/043
0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 SIDE ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0400-0500 ALSEP 17 1400-1500 2300-2400	0700-0800 1600-1700 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON	0900-1100 ALSEP 17 NBR -	0900-1100 ALSEP 14 C/S HTR ON 2200-2400 ALSEP 12 C/S HTR ON PSE Z MTR ON

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

23 January 1976 through 20 February 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO	DAY/HOUR (GMT)				
(ALSEP)	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	17Jan/1023	24Jan/1937	(52)01Feb/0520	08Feb/1520	16Feb/0047
16	18Jan/1622	26Jan/0139	(60)02Feb/1127	09Feb/2124	17Feb/0646
15	19Jan/1542	27Jan/0102	(69)03Feb/1055	10Feb/2049	18Feb/0606
14	21Jan/0920	28Jan/1848	(75)05Feb/0445	12Feb/1431	19Feb/2341
12	21Jan/2101	29Jan/0658	(90)05Feb/1630	13Feb/0108	20Feb/1123

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

12 January 1977
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Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 12 January the lunar surface temperature, as measured by the HFE thermocouples, was 118 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to STANDBY for lunar night 8 January.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 10 January. Operation is normal since X processor selected on 2 January.

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded to AUTO ON for lunar night operation on 10 January. The operation of the PSE with the heater Forced OFF and uncaged status has shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required. The instrument assembly temperature (DL-07) was offscale High from 3 to 9 January between the sun angles of 87.0 to 171.7° or 3 days less than previous lunar days.

The Lunar Surface Magnetometer is ON. *Flip calibrations have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. A total of 1254 calibrations have been executed and verified by the experiment engineering data since deployment.*

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 January between the sun angles of 62.8° to*

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Apollo 15 ALSEP (continued)

147.7°. The experiment received a spurious function command (PSE Thermal Control Mode to Auto OFF, Octal 076) as observed by the Madrid Tracking Station at 2232 G.m.t., 7 January. At the request of mission control the Madrid Tracking Station uplinked in Mode I the required three Octal 076 commands to return the experiment to its normal Auto ON thermal control mode. This commanding was accomplished between 2310 and 2315 G.m.t., 7 January.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded to OPERATE ON 8 Janaury. It is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

The Heat Flow Experiment was commanded to STANDBY 9 January. From OPERATE ON 29 December 1976 until 5 January, the science data and ring bridge surveys gave valid outputs, however on 6 January (sun angle 111.0°) a degradation of the absolute temperature measurements was observed. This anomaly was the same as had occurred back in December 1975. The experiment will remain in STANDBY for the lunar night.

Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November, 1976.

The external 7 and 14 watt power dissipation resistors were commanded OFF during real-time support on 11 January, with the approach of lunar sunset.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. *The heater was commanded to AUTO ON for lunar night operation 11 January. The instrument assembly temperature (DL-07) was offscale High from 8 to 10 January between the sun angles of 114.7° to 139.3°.*

The Charged Particle Lunar Environment Experiment was commanded from STANDBY to ON 11 January. It is operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20

ALSEP PERFORMANCE SUMMARY REPORT (continued)

12 January 1977
G.m.t.: 1700

Apollo 12 ALSEP (continued)

db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The instrument assembly temperature (DL-07) was offscale HIGH on 6 January at a sun angle of 85.0° and is expected to return onscale 14 January.*

The Solar Wind Spectrometer Experiment is ON and in the normal gain mode.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS		as of week ending 1700 Z (G.m.t.) 12 January 1977				
		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		*89/2611*	*74/2035*	*68/1992*	*59/1727*	*51/1492*
Phase, Sun Angle		*Noon, 158.3°*	*Noon, 164.3°*	*Sunset, 185.4°*	*Sunset, 197.3°*	*Sunset, 212.5°*
Cmds - Total/Week		*51420/43*	*17169/167*	*38873/167*	*23835*	*36303/12*
Spurious Changes		116	98	*122*	11	0
CENTRAL STATION RTG	Initial/Present Reserve Power	73.6w/ *49.0w* *24.3w*	*72.5w/ 60.3w* *33.1w*	74.7w/*49.7w* *11.1w*	70.9w/ *64.0w* *14.8w*	75.4w/ *64.8w* *15.6w*
	Avg. Therm. Plate	*65.5°F*	*66.3°F*	*7.6°F*	*30.4°F*	*9.7°F*
	Transmitter	B, 7/8/74	B,	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 12/27/76 .	Inhibited 5/72 Reset: 12/27/76	Operative Inhibited: *1/12/77*
	Heaters	DSS-1 (10w) -OFF 12/30/76	DSS-1 (10w) OFF12/30 *21w PDR OFF 1/11/77*	DSS-1 (10w) -OFF	DSS-1 (10w) - *ON 1/10/77*	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (A1)	Auto On OFF, 12/30/76	*Auto ON, 1/11/77*	Auto On	*Auto ON, 1/10/77*	NBR Real Time Mon, Wed, Fri
	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	DL-07 Temp.	*HIGH, 1/6/77*	*127.8°F*	*124.9°F*	*126.0°F*	Data Mon, Wed, Fri,
	Uncage Ckt.	Uncaged	Uncaged	Uncaged	Uncaged, 12/29/76	RBS weekly
	ACTIVE/ OPERABLE	SWS - ON, 12/30/76 Range: Norm. 1/1/77 Ext. 1/2/77	CPLEE-*ON, 1/11/77* Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals*1254* Z Failed 3/3/75	LEAM-*STBY, 1/8/77* Static @ night since 7/16/76
				HFE - *STBY, 1/9/77* Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
	INACTIVE/ INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11		Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 1/12/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
07 January	ROS/MIL	Higher Priority	LOS 07/0300 AOS 07/0330	ALL	30^{m}
08 January	ORR/ACN	Antenna masking	LOS 08/2149 AOS 08/2155	ALL	06^{m}
10 January	HAW/GWM	Schedule	LOS 10/1301 AOS 10/1305	ALL	04^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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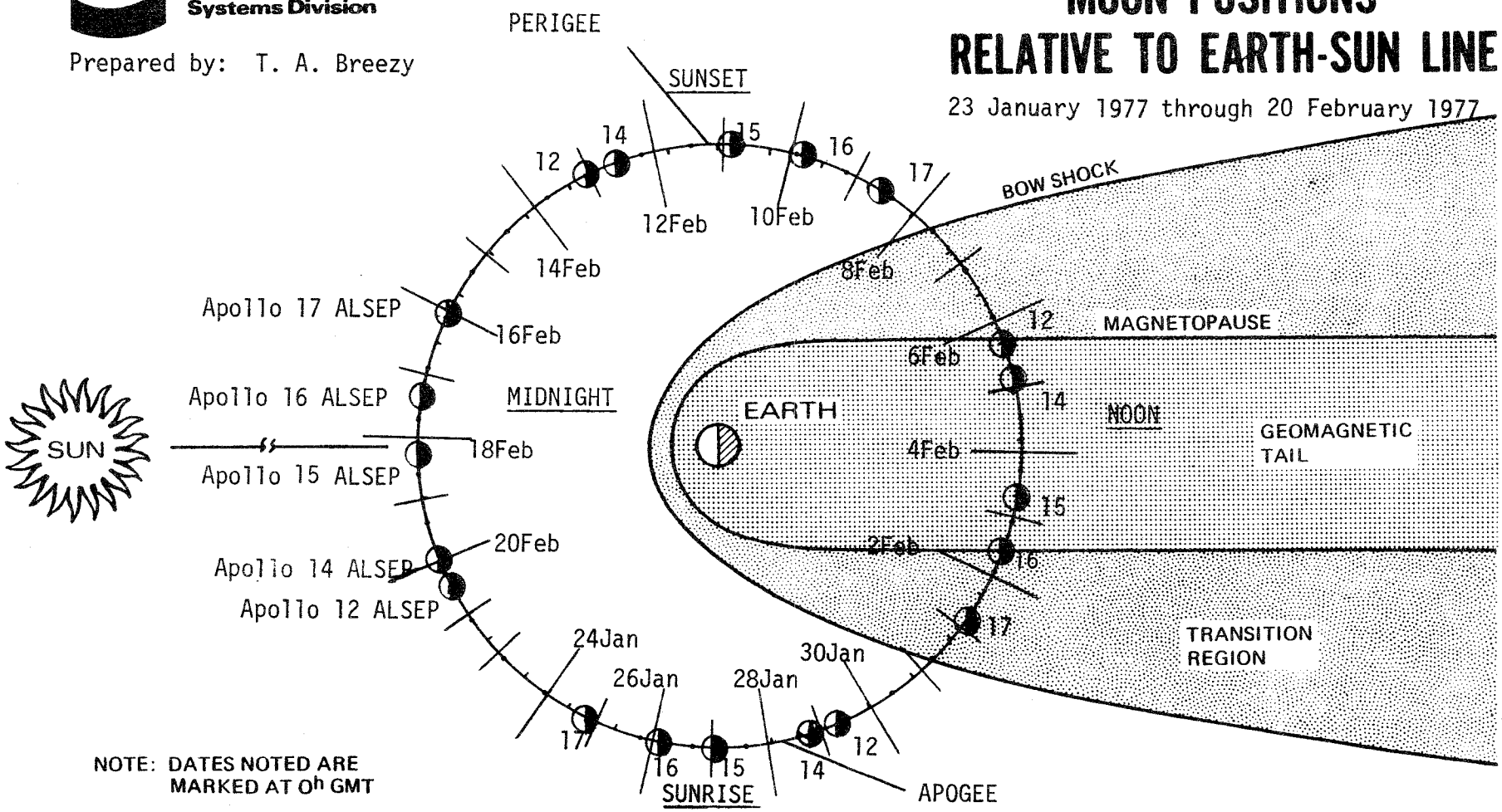
			LOS AOS		

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

23 January 1977 through 20 February 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR (GMT)				
	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	17Jan/1023	24Jan/1937	(52)01Feb/0520	08Feb/1520	16Feb/0047
16	18Jan/1622	26Jan/0139	(60)02Feb/1127	09Feb/2124	17Feb/0646
15	19Jan/1542	27Jan/0102	(69)03Feb/1055	10Feb/2049	18Feb/0606
14	21Jan/0920	28Jan/1848	(75)05Feb/0445	12Feb/1431	19Feb/2341
12	21Jan/2101	29Jan/0658	(90)05Feb/1630	13Feb/0108	20Feb/1123

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

19 January 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 14 January the lunar surface temperature, as measured by the HFE thermocouples, was 111 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night. Operation is normal since X processor selected on 2 January.

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The operation of the PSE with the heater Forced OFF and uncaged status during lunar day has shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required.

The Lunar Surface Magnetometer is ON. Flip calibrations have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

19 January 1977
G.m.t.: 1700

Apollo 15 ALSEP (continued)

The Heat Flow Experiment was commanded OFF permanently on 13 January. This action was taken to provide an adequate margin of reserve power during lunar night. The reserve power had dropped to a minimum of 4 watts. If a spurious functional command (10 watt heater or 14 watt power dissipation resistor ON) were to occur the power system would be overloaded and cause the loss of the central station. The HFE had been operated intermittently since 28 April 1976 and science data had been anamolous since December 1975.

Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November.

The DSS-1 (10 watt) heater was turned ON for lunar night on 14 January. The external 7 and 14 power dissipation resistors are OFF for lunar night.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON: component gain 0 db; and feedback loop filter, OUT.

The Charged Particle Lunar Environment Experiment is ON and operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The DSS-1 (10 watt) heater was turned ON for lunar night on 14 January.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The instrument assembly temperature (DL-07) was onscale at a temperature of 140.48°F and a sun angle of 169.7° on 13 January. The temperature was offscale LOW on 19 January at a sun angle of 243.1°. The Z-motor is ON to maximize heating in the instrument during lunar night.*

The Solar Wind Spectrometer Experiment was commanded OFF on 15 January. This action was necessary to maintain the central station average thermal plate temperature above 1°F during lunar night. Below this temperature the PSE electronics do not operate correctly. The additional reserve power (4 watts) will provide the needed heat and extend acquisition of useful PSE data for another 5 or 6 months.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1700* Z (G.m.t.) *19 January 1977*

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		89/*2618*	*74/2042*	68/*1999*	59/*1734*	51/*1499*
Phase, Sun Angle		*Sunset, 243.6°*	*Sunset, 249.5°*	*Midnight, 270.7°*	*Midnight, 306.6°*	*Midnight, 321.6°*
Cmds - Total/Week		*31486/66*	*17209/40*	*38997/124*	*23883/48*	*36328/25*
Spurious Changes		116	98	*119*	11	0
CENTRAL STATION	RTG Initial/Present Reserve Power	73.6w/ *47.1w* *13.0w*	72.5w/ *59.4w* *14.5w*	74.7w/ *49.0w* *9.9w*	70.9w/ *62.2w* *13.7w*	75.4w/ *64.4w* *15.6w*
	Avg. Therm. Plate	*9.1°F*	*24.5°F*	*-7.1°F*	*27.6°F*	*7.8°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 12/27/76	Inhibited 5/72 Reset: 12/27/76	Operative Inhibited: *1/17/77*
	Heaters	DSS-1 (10w) - *ON, 1/14/77*	DSS-1 (10w) - *ON, 1/14/77*	DSS-1 (10w) - OFF	DSS-1 (10w) ON 1/10/77	APM STATUS: ON
EXPERIMENTS PSE ACTIVE/OPERABLE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (Al)	Auto On *ON, 1/14/77*	Auto On, 1/11/77	Auto On	Auto On 1/10/77	NBR Real Time Mon, Wed, Fri
	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	DL-07 Temp.	*LOW, 1/19/77*	*124.1°F*	*124.6°F*	*125.8°F*	Data Mon, Wed, Fri, RBS weekly
	Urcage Ckt.	Uncaged	Uncaged	*OT*	Uncaged, 12/29/76	
	SWS - *OFF, 1/15/77* Range: Norm. Ext.	CPLEE-ON, 1/11/77 Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals Z Failed 3/3/75	LEAM-STBY 1/8/77 Static @ night since 7/16/76	
	HFE - *OFF, 1/13/77* Degraded 12/75				LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or closed Loop Ops	
	Dust Detector - ON	DTREM - ON	DTREM - ON			
INACTIVE/INOPERABLE		SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 1/19/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
14 January	GWM/ACN	Higher Priority	LOS 14/0112 AOS 14/0156	ALL	44^{m}
16/17 January	HAW/GWM	Higher Priority	LOS 16/2315 AOS 17/0010	ALL	55^{m}
17 January	GWM/ACN	Schedule	LOS 17/0414 AOS 17/0446	ALL	32^{m}
17 January	ACN/AGO	Higher Priority	LOS 17/0820 AOS 17/0849	ALL	29^{m}
18 January	ACN/AGO	Higher Priority	LOS 18/0939 AOS 18/0945	ALL	06^{m}
18 January	BDA/MIL	Higher Priority	LOS 18/1630 AOS 18/1730	ALL	$1^{h}00^{m}$
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

26 January 1977
G.m.t.: 1700

Apollo 17 ALSEP

Sunrise of the 52nd lunation occurred on 24 January at the Taurus Littrow site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 26 January the lunar surface temperature, as measured by the HFE thermocouples, was 295 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is in STANDBY.

Apollo 16 ALSEP

Sunrise at the Descartes site occurred on 26 January for the 60th lunation. *The Central Station DSS-1 (10w) Heater is OFF for lunar day.*

The Passive Seismic Experiment is configured for seismic network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN).

The Lunar Surface Magnetometer is ON. The science data from the Z-axis sensor continues to remain static. *Flip calibrations that were discontinued due to lunar night low temperatures will be resumed this lunar day during the real-time support period on 28 January.*

Apollo 15 ALSEP

On 24 January the Merritt Island Tracking Station reported telemetry data point AB-05 out of limits. A special real-time support was called and data indicated that the Power Conditioning Units (PCU) had switched from 1 to 2, the SIDE was in standby power ON, and an 18 hour timer pulse had occurred. At 0516 G.m.t., 24 January, mission control reselected PCU 1 (octal 060). Following the return to PCU 1 the Passive Seismic Experiment (PSE) changed to feedback loop filter OUT (octal 101), level mode forced (octal 103), and the uncaged status (octal 073). The PSE was commanded to its normal operational mode and the SIDE was commanded to ON (octal 153). This returned

26 January 1977
G.m.t.: 1700

Apollo 15 ALSEP (continued)

the station to the normal configuration again. The switch of the PCU from 1 to 2 happened approximately one month ago on 27 December during late lunar night and is believed to have been caused by a spurious command (octal 062, PCU 2 select). A CVW would not be seen nor reported by the tracking stations.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real-time support period. The CCGE high voltage (+ 4.5 KVDC) remains OFF.

The Heat Flow Experiment was commanded OFF permanently on 13 January.

Apollo 14 ALSEP

Acquisition of Signal of the Apollo 14 ALSEP has continued since 12 November.

The DSS-1 (10 watt) heater is ON for lunar night.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT.

The Charged Particle Lunar Environment Experiment is ON and operating in the manual mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The DSS-1 (10 watt) heater is ON for lunar night.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument during lunar night. *The instrument assembly temperature (DL-07) has remained offscale LOW since 19 January and is expected to return onscale 29 January. At 0816 G.m.t., 22 January, the PSE responded to a spurious functional change (Long Period Z gain change - 10 db, octal 064) as reported by the Guam Tracking Station. The change was confirmed by mission control during a special real-time support period. The LP Z gain was commanded to 0 db (3 octal 064s) by mission control at 0522 G.m.t., 24 January.*

ALSEP PERFORMANCE SUMMARY REPORT (continued)

26 January 1977
G.m.t.: 1700

Apollo 12 ALSEP (continued)

The Solar Wind Spectrometer was commanded OFF on 15 January to increase central station heating during lunar night.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending 1700 Z (G.m.t.) 26 January 1977					
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	89/2625	74/2049	68/2006	60/1741	52/1506
Phase, Sun Angle	Midnight, 328.8°	Midnight, 334.8°	Midnight, 355.9°	Sunrise, 7.8°	Sunrise, 23.0°
Cmds - Total/Week	31495/9	17221/12	39059/62	23914/31	36378/50
Spurious Changes	117	98	120	11	0
CENTRAL STATION RTG Initial/Present Reserve Power	73.6w/46.8w 12.5w	72.5w/59.1w 13.9w	74.7w/48.0w 13.3w	70.9w/62.8w 19.8w	75.4w/62.9w 22.5w
CENTRAL STATION Avg. Therm. Plate	7.5°F	23.2°F	-10.0°F	46.6°F	59.4°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 1/26/77	Inhibited 5/72 Reset: 1/26/77	Operative Inhibited: 1/26/77
CENTRAL STATION Heaters	DSS-1 (10w) - 1/14/77	DSS-1 (10w) - 1/14/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 1/26/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
EXPERIMENTS PSE Heaters Z motor (A1)	Auto On ON, 1/14/77	Auto On, 1/11/77	Auto On	Auto On 1/10/77	NBR Real Time Mon, Wed, Fri.
EXPERIMENTS PSE Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	LOW, 1/19/77	124.1°F	124.4°F	126.1°F	Data Mon, Wed, Fri, RBS weekly
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged, 12/29/76	
EXPERIMENTS ACTIVE/OPERABLE	SWS - OFF, 1/15/77 Range: Norm. Ext.	CPLEE- ON 1/11/77 Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals Z Failed 3/3/75	LEAM-STBY 8/15/76 Static @ night since 7/16/76
EXPERIMENTS ACTIVE/OPERABLE			HFE-OFF, 1/13/77 Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
SEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 1/26/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
19 January	MAD/ACN	Higher Priority	LOS 19/1001 AOS 19/1028	ALL	27^{m}
20 January	ACN/MAD	Higher Priority	LOS 20/0923 AOS 20/1050	ALL	$1^{h}27^{m}$
21 January	GWM/ACN	Higher Priority	LOS 21/0920 AOS 21/1020	ALL	$1^{h}00^{m}$
21 January	ACN	Higher Priority	LOS 21/1050 AOS 21/1155	ALL	$1^{h}05^{m}$
22 January	HAW/GWM	Higher Priority	LOS 22/0407 AOS 22/0440	ALL	33^{m}
22 January	GWM/MAD	Higher Priority	LOS 22/1042 AOS 22/1044	ALL	02^{m}
23 January	ORR/GWM	Higher Priority	LOS 23/1031 AOS 23/1049	ALL	18^{m}
25 January	ORR/GWM	Higher Priority	LOS 25/1000 AOS 25/1021	ALL	21^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

2 February 1977
G.m.t.: 1700

Apollo 17 ALSEP

Noon of the 52nd lunation occurred on 1 February at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 2 February the lunar surface temperature, as measured by the HFE thermocouples, was 380 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day on 27 January.

Apollo 16 ALSEP

Noon at the Descartes Site occurred today for the 60th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972.

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 30 January and the uncage-arm fire circuitry to UNCAGED on 31 January in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunation had shown a decrease in the sensor temperature and a reduction in the frequency of levelling normally required. The sensor temperature was offscale HIGH on 2 February at a sun angle of 87.7°.

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1260 have been executed and verified by the experiment engineering data since deployment.

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

ALSEP PERFORMANCE SUMMARY REPORT (continued)

2 February 1977
G.m.t.: 1700

Apollo 15 ALSEP

Sunrise of the 69th lunation at the Hadley Rille Site occurred on 27 January.

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains 0 db, and feedback loop filter IN. *On 28 January the sensor was saturating with the filter in, so the filter was left out. On 30 January, filter in operation was resumed since onscale operation had returned. The uncage-arm fire circuitry switched from OT to UNCAGED between support periods of 28 and 29 January. The functional change is believed to have been caused by a spurious command (octal 073, uncage-arm/fire), but a command verification word (CVW) was not observed by the tracking stations. On 31 January the PSE was reset to UNCAGED (octal 073). The sensor temperature (DL-07) was offscale HIGH on 1 February at a sun angle of 67.8°.*

The Suprathermal Ion Detector Experiment is in STANDBY. The experiment is presently being cycled from STANDBY to ON during real-time support periods to avoid exceeding an internal temperature of 85°C (Apollo 15 ALSEP, SMEAR 47). During these periods the instrument is operated in the Reset SIDE Frame Counter at 39 with Channeltron high voltages ON. The CCGE high voltage (+ 4.5 Kvdc) remains OFF. Between real-time support periods of 29 and 30 January the SIDE experienced a change from Reset Frame Counter at 39 to Master Reset (0-127 frames). As the Master Reset (Load 008) requires two separate commands to occur, the change is attributed to an internal instrument change and not to any spurious commands. The SIDE was commanded back to Reset Frame Counter at 39 on 30 January at 1541 G.m.t.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

Apollo 14 ALSEP

Sunrise of the 75th lunation at the Apollo 14 site occurred on 28 January. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 30 January.*

The Passive Seismic Experiment is ON with the thermal control, *Forced OFF;* component gain 0 db; and feedback loop filter, OUT. *The heater was commanded to Forced OFF for lunar day operation on 1 February.*

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

2 February 1977
G.m.t.: 1700

Apollo 14 ALSEP (continued)

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 30 January. At 2243 G.m.t., 29 January, the instrument experienced a functional change (operational heater ON) as reported by the Merritt Island Tracking Station that observed the CVW (octal 111) in the downlink. This was confirmed by mission control during real time support on 30 January. The heater was commanded OFF (octal 112) at 1600 G.m.t., 30 January.

Apollo 12 ALSEP

Sunrise of the 90th lunation occurred on 29 January. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation.*

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period z axis component gain -20 db, and feedback loop filter IN. The instrument assembly temperature (DL-07, 125.0°F) returned onscale at a sun angle of 2.7° on 29 January. The Z-motor was commanded OFF for lunar day operation on 29 January.

The Solar Wind Spectrometer Experiment was commanded from OFF to STANDBY 29 January. At 1528 G.m.t., 31 January, the SWS was commanded ON for an operational check and it was observed that the instrument was not sequencing. Detailed data analysis showed that the sequencer would not stop and was outputting proton science data at level 7 $\pm$ 1 from cups 1/2 or 6/7. During real time support on 1 February the same condition was observed and at the completion of support the instrument was commanded back to STANDBY. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending	Z (G.m.t.)	2 February 1977		
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*90/2632*	*75/2056*	*69/2013*	60/*1748*	52/*1513*
Phase, Sun Angle	*Sunrise, 53.7°*	*Sunrise, 60.8°*	*Sunrise, 82.0°*	*Noon, 93.8°*	*Noon, 109.0°*
Cmds - Total/Week	*31557/62*	*17291/70*	*39227/168*	*24067/153*	*36417/39*
Spurious Changes	*117*	*99*	*121*	11	0
RTG — Initial/Present Reserve Power	73.6w/*48.7w* *23.0w*	72.5w/*60.9w* *14.3w*	74.7w/*50.3w* *19.2w*	70.9w/*62.8w* *31.8w*	75.4w/*62.5w* *23.3w*
CENTRAL STATION — Avg. Therm. Plate	*92.8°F*	*104.8°F*	*109.8°F*	*105.5°F*	*94.7°F*
CENTRAL STATION — Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION — Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION — PCU	1	1	1	1	2
CENTRAL STATION — Timer	Inoperative	Inoperative	Operative Reset:1/26/77	Inhibited 5/72 Reset:1/26/77	Operative Inhibited: *2/2/77*
CENTRAL STATION — Heaters	DSS-1 (10w)-*OFF 1/29/77*	DSS-1 (10w)-*OFF 1/29/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF *1/26/77*	APM STATUS: ON
EXPERIMENTS — PSE — LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
EXPERIMENTS — PSE — Heaters Z motor (Al)	Auto On *OFF, 1/29/77*	*Forced OFF, 2/1/77*	Auto On	*Forced OFF 1/30/77*	NBR Real Time Mon, Wed, Fri
EXPERIMENTS — PSE — Filter	IN - 6/29/75	OUT - 11/17/76	*IN - 1/30/77*	IN - 6/29/75	HFE - ON, NBR Data Mon, Wed, Fri, RBS weekly
EXPERIMENTS — PSE — DL-07 Temp.	*127.8°F*	*125.3°F*	*Offscale HIGH 2/1/77*	*Offscale HIGH 2/2/77*	
EXPERIMENTS — PSE — Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged, 12/29/76	
EXPERIMENTS — ACTIVE/OPERABLE	SWS - *STBY, 1/29/77* Range: Norm. Ext.	CPLEE-*STBY, 1/30/77* Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals Z Failed 3/3/75	LEAM-*OFF 1/27/77* Static @ night since 7/16/76
EXPERIMENTS — ACTIVE/OPERABLE			HFE Degraded 12/75		LSG-STBY 8/15/76 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS — ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS — INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS — INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

2 February 1977

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	89	89
Sun Angle	85.0°	267.0°
Sig Strth (9m)	-142.0 dbm	-137.0 dbm
Input Power	49.4w	46.8w
Reserve Power	23.8w	13.0w
Av Ther Pl T.	94.8°F	8.5°F
PSE T. (DL-07)	HIGH	LOW
SWS T. (DW-13)	68.0°C	OFF

APOLLO 14 ALSEP

	Noon	Night
Lunation	74	74
Sun Angle	91.0°	272.8°
Sig Strth (9m)	-141.0 dbm	-140.0 dbm
Input Power	60.6w	59.4w
Reserve Power	14.0w	14.2w
Av Ther Pl T.	114.3°F	24.5°F
PSE T. (DL-07)	138.2°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	68	68
Sun Angle	87.2°	270.2°
Sig Strth (9m)	-135.0 dbm	-140.0 dbm
Input Power	51.0w	49.0w
Reserve Power	14.8w	10.0w
Av Ther Pl T.	111.2°F	-7.1°F
PSE T. (DL-07)	HIGH	124.6°F
SIDE T. (DI-05)	67.8°C	7.2°C
CCGE T. (DI-04)	372.6°K	110.3°K
HFE T. (DH-13)	331.2°K	OFF

APOLLO 16 ALSEP

	Noon	Night
Lunation	59	59
Sun Angle	87.0°	282.3°
Sig Strth (9m)	-140.0 dbm	-133.0 dbm
Input Power	62.8w	62.2w
Reserve Power	32.1w	13.7w
Av Ther Pl T.	105.8°F	27.6°F
PSE T. (DL-07)	HIGH	125.8°F
LSM T. (DM-05)	49.5°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	51	51
Sun Angle	103.9°	276.7°
Sig Strth (9m)	-140.0 dbm	-136.0 dbm
Input Power	62.9w	64.4w
Reserve Power	23.9w	15.6w
Av Ther Pl T.	94.8°F	7.8°F
LACE T. (AM-41)	163.2°F	-16.1°F
LEAM T. (AJ-11)	202.0°F	-58.0°F
HFE T. (DH-13)	330.5°K	285.8°K
LSG T. (DG-04)	STBY	STBY
LSP T. (AP-01)	98.0°F	11.1°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 2/02/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
28 January	HAW/MAD	Higher Priority	LOS 28/1145 AOS 28/1246	ALL	1^h01^m
30 January	ROS	Station Problem	LOS 28/0325 AOS 28/0328	ALL	03^m
01 February	ACN/MIL	Higher Priority	LOS 01/2226 AOS 01/2231	ALL	05^m
01 February	MIL/ACN	Higher Priority	LOS 01/2308 AOS 01/2335	ALL	27^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

JAN 23/023	24/024	25/025	26/026	27/027	28/028	29/029
NO SUPPORT	0900-1100 ALSEP 17 NBR - 12m	NO SUPPORT ALSEP 16	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 17m NBR -56m HFE RBS	0900-1100 ALSEP 17 LEAM OFF NBR - 13m	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 21m	0600-0800 ALSEP 12 C/S HTR OFF PSE Z MTR OFF SWS ON ALSEP 14 C/S HTR OFF 1700-1800
JAN 30/030	31/031	FEB 01/032	02/033	03/034	04/035	05/036
0900-1100 ALSEP 14 CPLEE STBY	0900-1100 ALSEP 15 SIDE STBY ALSEP 16 LSM FLIP CAL ALSEP 17m NBR - 18m	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 14 PSE HTR OFF	0000-0400 ALSEP 15 SIDE SUPPORT ALSEP 16 LSM FLIP CAL ALSEP 17m NBR - 56m HFE RBS	0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 17 LEAM STBY
FEB 06/037	07/038	08/039	09/040	10/041	11/042	12/043
0900-1100 ALSEP 15 CYCLE SIDE	0900-1100 ALSEP 15 SIDE ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0400-0500 ALSEP 17 1400-1500 2300-2400	0700-0800 1600-1700 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON	0900-1100 ALSEP 17 NBR -	0900-1100 ALSEP 14 C/S HTR ON 2200-2400 ALSEP 12 C/S HTR ON PSE Z MTR ON

TIMES - CST

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

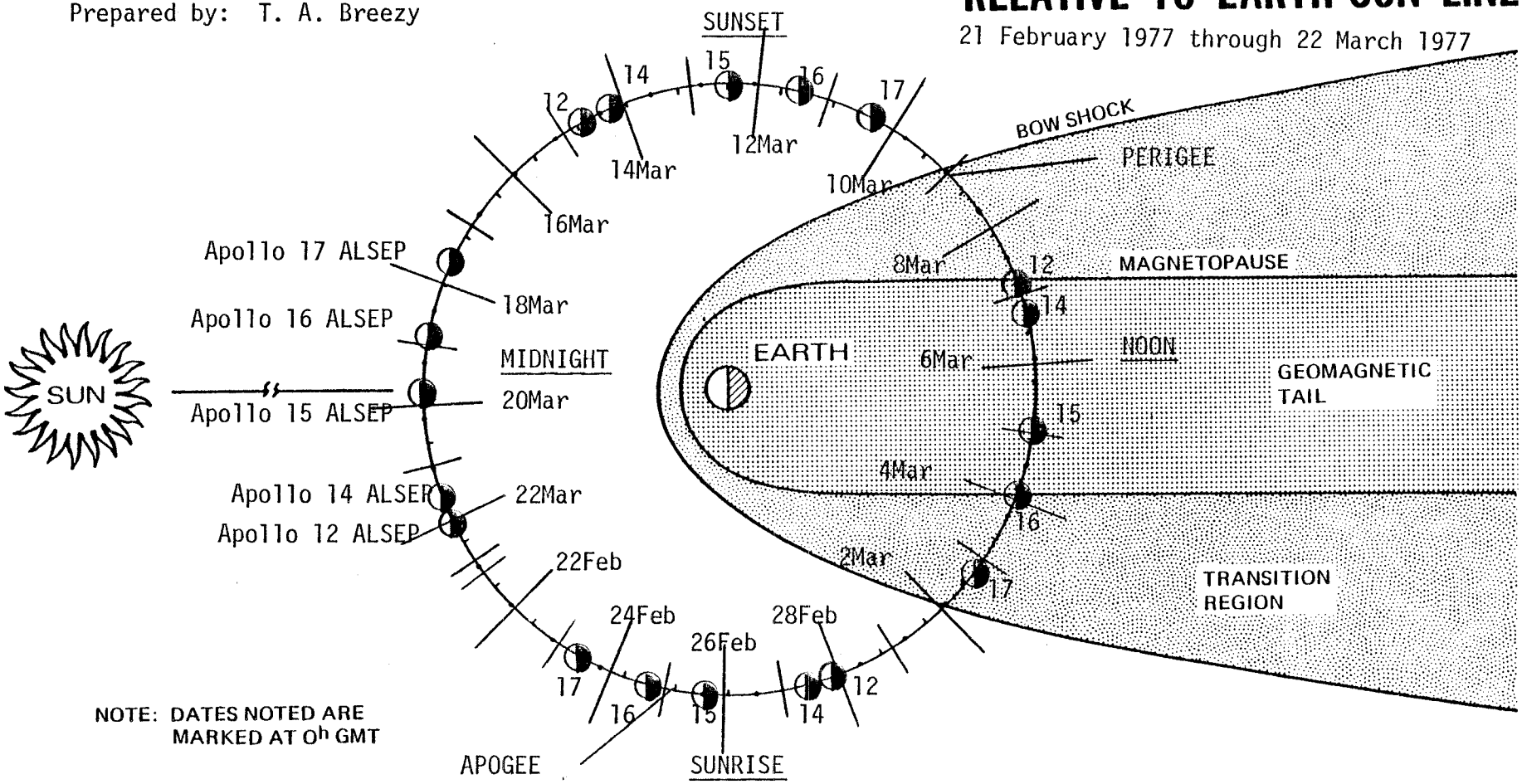
FEB 13/044	14/045	15/046	16/047	17/048	18/049	19/050
0000-0200 1400-1600	0900-1100 ALSEP 17 NBR - ALSEP 12 SWS STBY	0900-1100	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT
FEB 20/051	**21/052**	**22/053**	**23/054**	**24/055**	**25/056**	**26/057**
NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT	0900-1100 ALSEP 17 NBR - HFE RBS	1900-2100 ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 15 TIMER RESET	0900-1100 ALSEP 15 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 17 LEAM OFF
FEB 27/058	**28/059**	**MAR 01/060**	**02/061**	**03/062**	**04/063**	**05/064**
0900-1100 ALSEP 14 C/S HTR OFF 2300-2400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF SWS ON	0000-0300 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL 1500-1600	0900-1100 ALSEP 14 CPLEE STBY ALSEP 15 SIDE STBY	0900-1100 ALSEP 14 PSE HTR OFF ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	1300-1700 ALSEP 15 SIDE SUPPORT	0900-1100 ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 15 CYCLE SIDE

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

21 February 1977 through 22 March 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR (GMT)				
	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	16Feb/0047	23Feb/0954	(53)02Mar/1926	10Mar/0954	17Mar/1430
16	17Feb/0646	24Feb/1554	(61)04Mar/0132	11Mar/1119	18Mar/2026
15	18Feb/0606	25Feb/1517	(70)05Mar/0059	12Mar/1041	19Mar/1945
14	19Feb/2341	27Feb/0859	(76)06Mar/1846	14Mar/0420	21Mar/1317
12	20Feb/1123	27Feb/2104	(91)07Mar/0631	14Mar/1459	22Mar/0058

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

9 February 1977
G.m.t.: 1900

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded from STANDBY to ON at 1931 G.m.t., 4 February, for a trouble shooting test. This is an attempt to center the beam at low temperatures during lunar night. The instrument is presently configured: all masses on, backlash out, seismic low gain, integrator shorted, bias out, post amplifier gain step 2, and slave heater off.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 9 February the lunar surface temperature, as measured by the HFE thermocouples, was 122 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to STAND-BY for lunar night 6 February.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night 9 February.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 February. The instrument assembly temperature (DL-07) was off-scale HIGH from 1 to 9 February between the sun angles of 87.2° to 171.1°.

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1264 have been executed and verified by the experiment engineering data since deployment.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

9 February 1977
G.m.t.: 1900

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The instrument assembly temperature (DL-07) was offscale HIGH from 1 to 7 February between the sun angles of 67.8° to 143.5°. The experiment received a spurious functional command (PSE, calibration SP OFF, octal 065) as observed by the Goldstone Tracking Station at 0909 G.m.t., 6 February. Between real time support periods of 6 and 7 February a spurious functional command (18 hour timer reset, octal 150) was apparent from the data readouts at mission control. No command verification word (CVW) was noted in the downlink. At 0400 G.m.t., 9 February, the 18 hour timer was reset (octal 150) by mission control.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded to OPERATE ON 6 February. It is operating in the Reset SIDE Frame Counter at 39 with the channeltron high voltages ON. The instrument is commanded to full sequencing (0-127 Frames) briefly during each real- time support period. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

Apollo 14 ALSEP

At the start of real time support on 6 February the data showed that the Power Conditioning Unit (PCU) had switched from 1 to 2. During the real time support period at 1506 G.m.t., PCU 1 (octal 060) was reselected returning the station to its normal configuration.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. *The heater was commanded from Forced OFF to AUTO ON for lunar night operation 9 February.*

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). At 1331 G.m.t., 4 February the Hawaii Tracking Station reported telemetry data point AB-04 out of limits. Telemetry readout by the station verified that a spurious functional change had occurred, ASE OFF (octal 044). At 1851 G.m.t., 4 February, during real time support the experiment was commanded back to STANDBY (octal 043).

The Charged Particle Lunar Environment Experiment is in STANDBY.

Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. *The experiment re-*

9 February 1977
G.m.t.: 1900

Apollo 12 ALSEP (continued)

ceived a spurious functional command (PSE Gain change LPX, LPY - 10 db, octal 063) as observed by the Merritt Island Tracking Station at 1017 G.m.t., 4 February. At the request of mission control the Goldstone Tracking Station uplinked in mode I the required three octal 063 commands to return the experiment to its normal 0 db range at 1105 G.m.t., 4 February. The instrument assembly temperature (DL-07) has remained offscale HIGH since 6 February (sun angle 101.2°) and is expected to return onscale 11 February.

The Solar Wind Spectrometer Experiment is currently in STANDBY.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1900* Z (G.m.t.) *9 February* 1976

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		90/*2639*	75/*2063*	69/*2070*	60/*1755*	52/*1520*
Phase, Sun Angle		*Noon, 139.8°*	*Noon, 145.8°*	*Noon, 166.9°*	*Noon, 178.8°*	*Sunset, 194.0°*
Cmds - Total/Week		*31582/25*	*17324/33*	*39340/113*	*24184/117*	*36733/316*
Spurious Changes		*118*	*101*	*123*	11	0
CENTRAL STATION	RTG Initial/Present Reserve Power	73.6w/ *48.7w* *23.0w*	72.5w/ *60.6w* *15.0w*	74.7w/ *49.3w* *13.9w*	70.9w/ *63.0w* *31.8w*	75.4w/ *64.1w* *22.8w*
	Avg. Therm. Plate	*82.1°F*	*83.3°F*	*68.7°F*	*41.9°F*	*15.2°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B *w/Z*
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: *2/9/77*	Inhibited 5/72 Reset: 1/26/77	Operative Inhibited: *2/9/77*
	Heaters	DSS-1 (10w) - OFF	DSS-1 (10w) -OFF 1/29 21PDR ON - 1/30/77	DSS-1 (10w) - OFF	DSS-1 (10w) *ON 2/9/77*	APM STATUS: ON
EXPERIMENTS PSE ACTIVE/ OPERABLE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (Al)	Auto On *OFF*	*Auto On, 2/09/77*	Auto On	*Auto On, 2/09/77*	NBR Real Time Mon, Wed, Fri.
	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	DL-07 Temp.	*Offscale HIGH 2/6/77*	*132.4°F*	*125.8°F*	*126.4°F*	Data Mon, Wed, Fri.
	Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged, 12/29/76	RBS weekly
		SWS - STBY, 1/29/77 Range: Norm. Ext.	CPLEE - STBY, 1/30/77 Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals Z Failed 3/3/75	LEAM-*STBY, 2/06/77* Static @ night since 7/16/76
				HFE - OFF Degraded 12/75		LSG- *ON, 2/04/77* Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
	INACTIVE/ INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-*STBY 2/4/77* Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 2/09/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
03 February	MAD/ACN	Higher Priority	LOS 03/0307 AOS 03/0327	ALL	20^{m}
03 February	GDS/ORR	Antenna Masking	LOS 03/1306 AOS 03/1315	ALL	09^{m}
05 February	MIL/ACN	Higher Priority	LOS 05/0130 AOS 05/0150	ALL	20^{m}
06 February	MAD	Higher Priority	LOS 06/0105 AOS 06/0138	ALL	33^{m}
07 February	MAD/ACN	Higher Priority	LOS 07/0057 AOS 07/0137	ALL	40^{m}
08 February	MAD	Higher Priority	LOS 08/0049 AOS 08/0141	ALL	52^{m}
08 February	GWM/ORR	Higher Priority	LOS 08/2049 AOS 08/2051	ALL	02^{m}
February	ORR/MAD	Higher Priority	LOS 08/2335 AOS 08/2347	ALL	12^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

ALSEP PERFORMANCE SUMMARY REPORT

16 February 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded to STANDBY at 1600 G.m.t., 14 February. During the trouble shooting test conducted from 4 to 14 February it is estimated the instrument temperature dropped to -15°C. However, the beam remained at the top stop. In future testing the experiment will be commanded OFF at lunar night in an attempt to remove the beam from the top stop by reducing the temperature below -15°C.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 16 February the lunar surface temperature, as measured by the HFE thermocouples, was 108 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY. An operational check of the instrument was performed from 1549 to 1621 G.m.t., 14 February. No change was observed in the high voltage and sweep lock anomalies. The command register again contained a load of octal 132. The experiment had been previously checked on 22 July 1976. On 14 February the bake out heater was inadvertently left ON. The heater was turned OFF on 16 February.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

16 February 1977
G.m.t.: 1700

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The experiment received a spurious functional command (PSE, calibration SP OFF, octal 065) between the support periods of 12 and 13 February. As this change does not affect the operation of the instrument no corrective command was executed by mission control. A CVW was not reported in the downlink by the remote tracking stations.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON. It was commanded to full sequencing (0-127 frames) on 10 February for this lunation. It is expected that the SIDE will be turned OFF permanently the next lunar night as the reserve power will become critically low. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 13 February. The external 14 and 7-watt power dump resistors were commanded OFF, 10 February, for lunar night operation.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Charged Particle Lunar Environment Experiment was commanded to ON, 10 February, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 13 February.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. *The Z-motor was commanded to ON, 13 February, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 137.6°F, sun angle 143.5°), 7 February, and had been offscale HIGH since 6 February.*

The Solar Wind Spectrometer Experiment was commanded from STANDBY to OFF, 13 February, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power provides the additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

16 February 1977
G.m.t.: 1700

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1700* Z (G.m.t.) *16 February* 1976

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		90/*2646*	*75/2070*	69/*2027*	60/*1762*	52/*1527*
Phase, Sun Angle		*Sunset, 222.9°*	*Sunset, 229.1°*	*Sunset, 250.1°*	*Sunset, 261.1°*	*Midnight, 277.4°*
Cmds - Total/Week		*31672/90*	*17370/46*	*39418/78*	*24257/73*	*36912/179*
Spurious Changes		118	101	*127*	11	0
RTG	Initial/Present Reserve Power	73.6w/*46.5w* *12.7w*	72.5w/*59.8w* *14.2w*	74.7w/ *47.7w* *13.8w*	70.9w/ *62.6w* *14.0w*	75.4w/ *64.0w* *12.4w*
CENTRAL STATION	Avg. Therm. Plate	*8.1°F*	*24.5°F*	*-10.5°F*	*27.6°F*	*-1.4°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 2/9/77	Inhibited 5/72 Reset: 1/26/77	Operative Inhibited: *2/14/77*
	Heaters	DSS-1 (10w)- *ON 2/13/77*	DSS-1 (10w)-*ON 2/13* *21 PDR OFF-2/13/77*	DSS-1 (10w) - OFF	DSS-1 (10w)- ON 2/9/77	APM STATUS: ON
EXPERIMENTS ACTIVE/ OPERABLE	PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	PSE Heaters Z motor (Al)	Auto On *ON, 2/13/77*	Auto On, 2/9/77	Auto On	Auto On, 2/9/77	NBR Real Time Mon, Wed, Fri.
	PSE Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	PSE DL-07 Temp.	*126.2°F*	*124.6°F*	*124.6°F*	*124.8°F*	Data Mon, Wed, Fri,
	PSE Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	Uncaged 1/31/77	RBS weekly
	SWS - *OFF, 2/13/77* Range: Norm. Ext.		CPLEE- *ON, 2/10/77* Anal B Failed 4/71	SIDE - ON, *Full Seq.* OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals Z Failed 3/3/75	LEAM - STBY 2/6/77 Static @ night since 7/16/76
				HFE - OFF, 1/13/77 Degraded 12/75		LSG-*STBY, 2/14/77* Auto Htr Failed No Free Modes or closed Loop Ops
	Dust Detector - ON		DTREM - ON	DTREM - ON		
INACTIVE/ INOPERABLE		SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 2/16/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
9 February	GWM/ORR	Higher Priority	LOS 09/2045 AOS 09/2140	ALL	55^{m}
10 February	GWM	Station Problem	LOS 10/1720 AOS 10/1810	ALL	50^{m}
10 February	GWM	Higher Priority	LOS 10/2109 AOS 10/2208	ALL	59^{m}
10/11 February	GWM/ACN	Higher Priority	LOS 10/2318 AOS 11/0045	ALL	1^{h}27^{m}
11 February	GWM/ORR	Higher Priority	LOS 11/1952 AOS 11/2033	ALL	41^{m}
12 February	ORR/ACN	Antenna Masking	LOS 12/0115 AOS 12/0142	ALL	27^{m}
13 February	ORR/GWM	Higher Priority	LOS 13/0056 AOS 13/0125	ALL	29^{m}
13 February	ORR/ACN	Antenna Masking	LOS 13/0156 AOS 13/0237	ALL	04^{m}
13 February	AGO/ROS	Higher Priority	LOS 13/1514 AOS 13/1609	ALL	55^{m}
14 February	ORR/MAD	Schedule	LOS 14/0431 AOS 14/0440	ALL	09^{m}
14 February	ORR/GWM	Higher Priority	LOS 14/2315 AOS 14/2333	ALL	18^{m}
15 February	GWM	Higher Priority	LOS 15/0022 AOS 15/0117	ALL	55^{m}
15 February	ROS/MIL	Higher Priority	LOS 15/1725 AOS 15/1748	ALL	23^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

ALSEP PERFORMANCE SUMMARY REPORT

23 February 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 23 February the lunar surface temperature, as measured by the HFE thermocouples, was 147 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON and operating in full sequence (0-127 frames) for this lunation. The CCGE high voltage (+ 4.5 Kvdc) remains OFF.

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

23 February 1977
G.m.t.: 1700

Apollo 14 ALSEP (continued)

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Charged Particle Lunar Environment Experiment is ON and is operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature was offscale LOW at a sun angle of 247.5° on 12 February.*

The Solar Wind Spectrometer Experiment is in STANDBY to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The added reserve power provides additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 23 February 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	90/2653	75/2077	69/2034	60/1769	53/1534
Phase, Sun Angle	Midnight, 308.3°	Midnight, 314.5°	Midnight, 334.5°	Midnight, 347.5°	Sunrise, 2.9°
Cmds - Total/Week	31684/12	17385/15	39430/12	24269/12	36943/31
Spurious Changes	118	101	127	11	0
CENTRAL STATION ITEMS: Initial/Present Reserve Power	73.6w/ 46.2w 11.2w	72.5w/ 59.4w 13.6w	74.7w/47.0w 13.3w	70.9w/ 62.4w 13.5w	75.4w/ 63.6w 14.5w
Avg. Therm. Plate	6.5°F	22.9°F	-13.6°F	28.6°F	5.2°F
Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8/7
PCU	1	1	1	1	2
Timer	Inoperative	Inoperative	Operative Reset: 2/9/77	Inhibited 5/72 Reset: 1/26/77	Operative Inhibited: 2/23/77
Heaters	DSS-1 (10w)- ON 2/13/77	DSS-1 (10w)-ON 2/13 21 PDR OFF 2/13/77	DSS-1 (10w) - OFF	DSS-1 (10w)- ON 2/9/77	APM STATUS: ON
PSE: LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
PSE: Heaters Z motor (A1)	Auto On ON, 2/13/77	Auto On, 2/9/77	Auto On	Auto On	NBR Real Time Mon, Wed, Fri.
PSE: Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
PSE: DL-07 Temp.	LOW, 2/18/77	124.6°F	124.5°F	125.8°F	Data Mon, Wed, Fri
PSE: Uncage Ckt.	Uncaged	Uncaged	Uncaged	OT	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	SWS - OFF, 2/13/77 Increase reserve power for C/S heat	CPLEE-ON, 2/10/77 Anal B Failed 4/71	SIDE - ON, Full Seq OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos, 180° Flip Cals 1264 Z Failed 3/3/75	LEAM-STBY 2/6/77 Static @ night since 7/16/76
			HFE - OFF, 1/13/77 Degraded 12/75		LSG-STBY 2/14/77 Auto Htr Failed No Free Modes or closed Loop Ops
	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

ALSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 2/23/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
16 February	ORR	Station Problem	LOS 16/2030 AOS 16/2042	A-12	12^m
17 February	GDS/GWM	Scheduling	LOS 17/2309 AOS 17/2313	ALL	04^m
18 February	GWM	Higher Priority	LOS 18/0305 AOS 18/0403	ALL	58^m
18 February	GWM/ORR	Higher Priority	LOS 18/0443 AOS 18/0520	ALL	37^m
19 February	ORR/GWM	Higher Priority	LOS 19/0505 AOS 19/0729	ALL	2^h24^m
19 February	GDS/MIL	Scheduling	LOS 19/2150 AOS 19/2207	ALL	17^m
21 February	ORR/GWM	Higher Priority	LOS 21/0649 AOS 21/0749	ALL	1^h
22 February	ORR/GWM	Higher Priority	LOS 22/0720 AOS 22/0731	ALL	11^m
22 February	MAD	Higher Priority	LOS 22/1308 AOS 22/1351	ALL	43^m
22 February	MAD/GDS	Scheduling	LOS 22/2118 AOS 22/2133	ALL	15^m
			LOS AOS		
			LOS AOS		
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			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

FEB 13/044	14/045	15/046	16/047	17/048	18/049	19/050
0000-0200 1200-1400 ALSEP 17 NBR - 13m	0900-1100 ALSEP 17 NBR - 43m LSG - STBY LSM - ON/STBY	0900-1100	0900-1100 ALSEP 17 NBR - 1h10m HFE RBS LMS ON/STBY	NO SUPPORT	0900-1100 ALSEP 17 NBR -11m	NO SUPPORT
FEB 20/051	**21/052**	**22/053**	**23/054**	**24/055**	**25/056**	**26/057**
NO SUPPORT	0900-1100 ALSEP 17 NBR - 16m	NO SUPPORT	0900-1100 ALSEP 17 NBR -1h03m HFE RBS	1900-2100 ALSEP 16 C/S HTR OFF TIMER RESET ALSEP 15 TIMER RESET	0900-1100 ALSEP 15 ALSEP 17 NBR -36m ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 17 LEAM OFF NBR - 21m
FEB 27/058	**28/059**	**MAR 01/060**	**02/061**	**03/062**	**04/063**	**05/064**
0900-1100 ALSEP 14 C/S HTR OFF 2300-2400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF	0000-0300 ALSEP 17 NBR - 47m ALSEP 16 LSM FLIP CAL 1500-1600	0900-1100 ALSEP 14 CPLEE STBY PDRs ON (7 & 14) ALSEP 15 ALSEP 12 SWS STBY ALSEP 16 PSE HTR FRCD OFF	0900-1100 ALSEP 14 PSE HTR OFF ALSEP 15 CYCLE SIDE ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	1300-1700 ALSEP 15 SIDE SUPPORT	0900-1100 ALSEP 15 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 15

ALSEP PERFORMANCE SUMMARY REPORT

2 March 1977
G.m.t.: 1700

Apollo 17 ALSEP

Sunrise of the 53rd lunation occurred on 23 February at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is in STANDBY.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic work.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 2 March the lunar surface temperature as measured by the HFE thermocouples, was 380 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. *Between the real-time support periods of 18 and 21 February an anomaly occurred in probe #2 at the 230 cm level. DTH 22 bridge reference currents and voltages are reading full scale. T22 bridge reference voltages are also reading full scale while bridge reference currents are normal. DTL 22 bridge reference voltages and currents appear normal. As a result the subsurface temperatures at a depth of 230 cm cannot be determined. Further analysis of this anomaly is being conducted.*

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is OFF for lunar day.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 February for the 61st lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. *The DSS-1 (10w) heater was commanded OFF, 25 February, for lunar day operation.*

The Passive Seismic Experiment is ON with thermal control Forced OFF, component gains 0 db, and feedback loop filter IN. The thermal control was commanded to Forced OFF on 1 March and the uncage-arm fire circuitry to UNCAGED on 25 February in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequence of levelling required.

2 March 1977
G.m.t.: 1700

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1271 have been executed and verified by the experiment engineering data since deployment. The LSM was commanded to STANDBY on 24 February for a short period of cool-down prior to lunar sunrise and then commanded ON during real-time support on 27 February. The cool-down and a reinitialization of the LSM were an attempt to regain science data from the Z-axis sensor which had been static since March 1975. The attempt was unsuccessful as the science data remains static from the Z-axis sensor. This operation was accomplished at the request of the Principal Investigator.*

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

Apollo 15 ALSEP

Sunrise of the 70th lunation at the Hadley Rille Site occurred on 25 February.

The Passive Seismic Experiment is ON with the thermal control Auto ON, component gains 0 db, and feedback loop filter IN.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is ON. It was commanded to full sequencing (0-127 frames) on 10 February for this lunation. It is expected that the SIDE will be turned OFF permanently the next lunar night as the reserve power will become critically low. The CCGE high voltage (+ 4.5 Kvdc) remains OFF. The SIDE is being operated throughout this lunar day in an attempt to obtain a full lunar day of data. The last effort for this was in May 1976. This operation is being accomplished at the request of the Principal Investigator.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 76th lunation at the Apollo 14 site occurred on 27 February. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 1 March.*

The Passive Seismic Experiment is ON with the thermal control, Auto ON; component gain 0 db; and feedback loop filter, OUT.

2 March 1977
G.m.t.: 1700

Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 1 March.

Apollo 12 ALSEP

Sunrise of the 91st lunation occurred on 27 February. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation.*

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period z axis component gain -20 db, and feedback loop filter IN. The instrument assembly temperature (DL-07, 126.4°F) returned onscale at a sun angle of 4.1° on 28 February. The Z-motor was commanded OFF for lunar day operation on 28 February.

The Solar Wind Spectrometer Experiment was commanded from OFF to STANDBY on 1 March. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 2 March 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*91/2660*	*76/2084*	*70/2041*	*61/1776*	53/*1541*
Phase, Sun Angle	*Sunrise, 33.4°*	*Sunrise, 39.7°*	*Sunrise, 60.8°*	*Sunrise, 72.4°*	*Sunrise, 88.2°*
Cmds - Total/Week	*31762/78*	*17438/53*	*39501/71*	*24433/174*	*36991/48*
Spurious Changes	118	101	127	11	0
RTG Initial/Present Reserve Power	73.6w/ *47.7w* *21.6w*	72.5w/*60.5w* *13.7w*	74.7w/*48.9w* *13.6w*	70.9w/ *62.4w* *31.6w*	75.4w/ *62.1w* *23.3w*
CENTRAL STATION Avg. Therm. Plate	*86.4°F*	*90.1°F*	*98.9°F*	*102.8°F*	*93.9°F*
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: *2/25/77*	Inhibited 5/72 Reset: *2/25/77*	Operative Inhibited: *3/2/77*
CENTRAL STATION Heaters	DSS-1 (10w) - *OFF, 2/28/77*	DSS-1 (10w) *OFF 2/28* *21w PDR ON 3/1/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - *OFF 2/25/77*	APM STATUS: ON
PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
PSE Heaters Z motor (A1)	Auto On *OFF, 2/28/77*	Auto On 2/9/77	Auto On	*Forced OFF 3/1/77*	NBR Real Time Mon, Wed, Fri
PSE Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR Data Mon, Wed, Fri, RBS weekly
PSE DL-07 Temp.	*126.7°F*	*126.2°F*	*140.7°F*	*139.0°F*	
PSE Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	*Uncaged*	
EXPERIMENTS ACTIVE/OPERABLE	SWS - *STBY, 3/1/77* *decrease reserve power for C/S cool*	CPLEE- *STBY, 3/1/77* Anal B Failed 4/71	SIDE - ON, Full sequence CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals *1271* Z Failed 3/3/75	LEAM-*OFF, 2/26/77* Static @ night since 7/16/76
EXPERIMENTS ACTIVE/OPERABLE			HFE - OFF, 1/13/77 Degraded 12/75		LSG-STBY *2/14/77* Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

NOON and NIGHT DATA
(Latest Lunation)

2 March 1977

APOLLO 12 ALSEP

	Noon	Night
Lunation	90	90
Sun Angle	101.2°	283.9°
Sig Strth (9m)	-145.0 dbm	-140.0dbm
Input Power	48.7w	46.2w
Reserve Power	22.7w	12.2w
Av Ther Pl T.	90.7°F	6.9°F
PSE T. (DL-07)	HIGH	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	75	75
Sun Angle	85.0°	290.1°
Sig Strth (9m)	-139.0 dbm	-140.0 dbm
Input Power	60.9w	59.5w
Reserve Power	14.3w	13.8w
Av Ther Pl T.	113.4°F	23.2°F
PSE T. (DL-07)	133.2°F	124.6°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	69	69
Sun Angle	91.9°	274.7°
Sig Strth (9m)	-136.0 dbm	-142.0 dbm
Input Power	49.6w	47.3w
Reserve Power	18.9w	9.9w
Av Ther Pl T.	113.5°F	-11.8°F
PSE T. (DL-07)	HIGH	124.6°F
SIDE T. (DI-05)	STBY	7.2°C
CCGE T. (DI-04)	STBY	110.3°K

APOLLO 16 ALSEP

	Noon	Night
Lunation	60	60
Sun Angle	87.7°	261.1°
Sig Strth (9m)	-137.0 dbm	-134.0 dbm
Input Power	62.8w	62.6w
Reserve Power	31.8w	14.0w
Av Ther Pl T.	105.5°F	27.6°F
PSE T. (DL-07)	HIGH	124.8°F
LSM T. (DM-05)	49.5°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	53	52
Sun Angle	88.2°	277.4°
Sig Strth (9m)	-141.0 dbm	-136.0 dbm
Input Power	62.1w	64.0w
Reserve Power	23.3w	12.4w
Av Ther Pl T.	93.9°F	-1.4°F
LACE T. (AM-41)	161.4°F	LOW
LEAM T. (AJ-11)	185.0°F	-58.0°F
HFE T. (DH-13)	329.7°K	285.7°K
LSG T. (DG-04)	STBY	STBY
LSP T. (AP-01)	96.7°F	3.0°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 3/02/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
23 February	ACN/BDA	Scheduling	LOS 23/1410 AOS 23/1428	ALL	18^{m}
24 February	GWM	Station Problem	LOS 24/0141 AOS 24/0144	A15	03^{m}
24 February	GWM	Station Problem	LOS 24/0251 AOS 24/0253	A15	02^{m}
25 February	MAD/GDS	Higher Priority	LOS 25/0004 AOS 25/0017	ALL	13^{m}
25 February	GDS/GWM	Higher Priority	LOS 25/0353 AOS 25/0541	ALL	$1^{h}58^{m}$
27 February	GWM/MAD	Higher Priority	LOS 27/1129 AOS 27/1251	ALL	$1^{h}22^{m}$
28 February	ULA/ORR	Higher Priority	LOS 28/1334 AOS 28/1348	ALL	14^{m}
01 March	GWM/ORR	Higher Priority	LOS 01/1255 AOS 01/1330	ALL	35^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

TIMES - CST

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

MAR 06/065	07/066	08/067	09/068	10/069	11/070	12/071
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR LEAM STBY	0900-1100	0900-1100 ALSEP 17 NBR - HFE RBS ALSEP 16 LSM FLIP CAL 2200-2300	0700-0800 1600-1700	0100-0200 0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15
MAR 13/072	**14/073**	**15/074**	**16/075**	**17/076**	**18/077**	**19/078**
0900-1100 ALSEP 14 CPLEE ON PDRs OFF	1600-2000 ALSEP 12 C/S HTR ON PSE Z MTR ON SWS OFF ALSEP 14 C/S HTR ON ALSEP 17 NBR -	0900-1100	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT
MAR 20/079	**21/080**	**22/081**	**23/082**	**24/083**	**25/084**	**26/085**
NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT ALSEP 17	0900-1100 ALSEP 16 ALSEP 17 NBR -	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR ON TIMER RESET

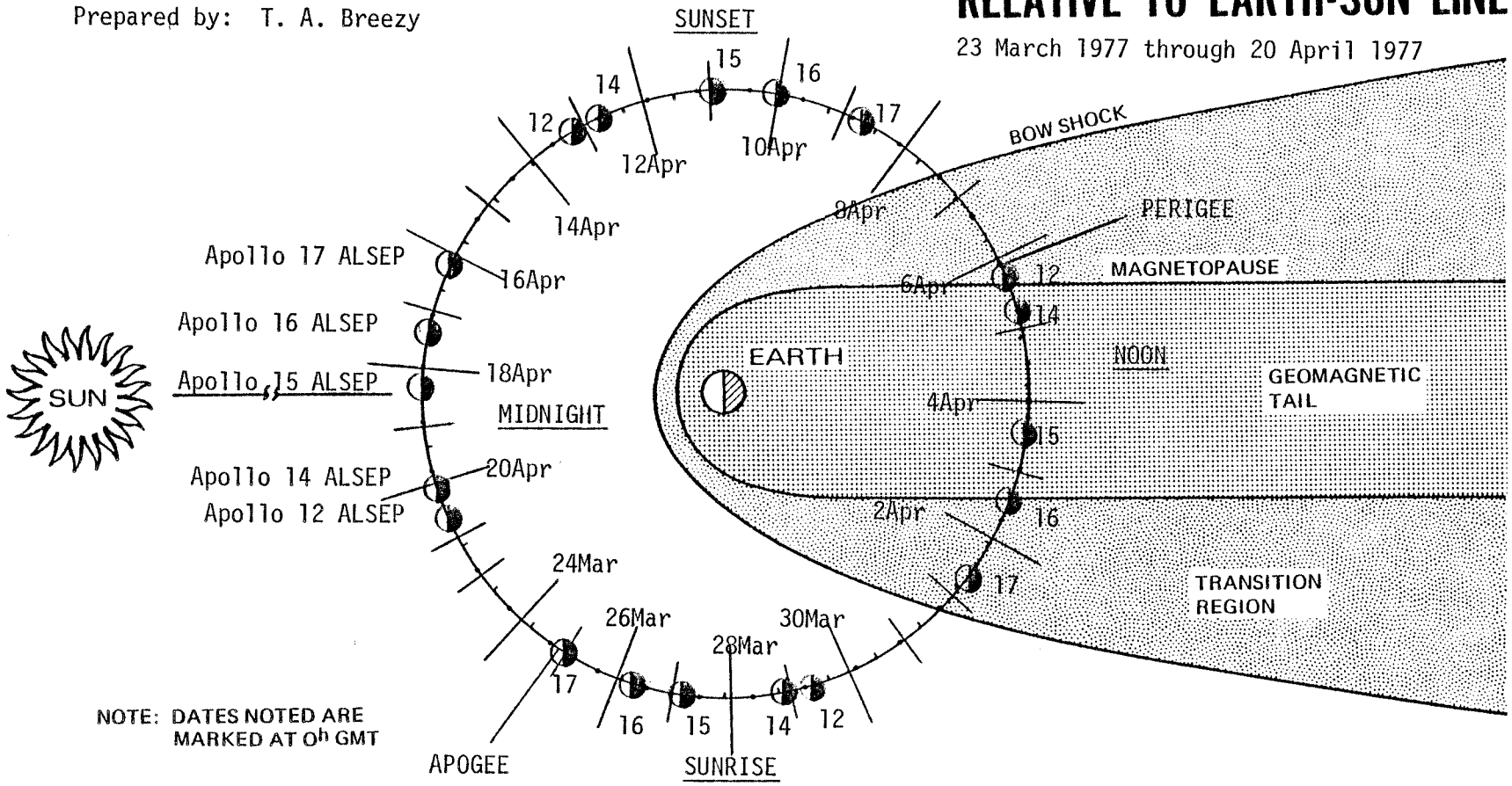
MAR 27/086	28/087	29/088	30/089	31/090	APR 01/091	02/092
0900-1100 ALSEP 17 NBR - LEAM OFF	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL	1000-1200 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF 2000-2100	0900-1100 ALSEP 14 CPLEE STBY PDRs ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 12 SWS STBY	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR OFF	0300-0700
APR 03/093	04/094	05/095	06/096	07/097	08/098	09/099
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 17 NBR - LEAM STBY	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	0100-0200 1000-1100 1900-2100 ALSEP 16 C/S HTR ON
APR 10/100	11/101	12/102	13/103	14/104	15/105	16/106
0900-1100 ALSEP 15	0900-1100 ALSEP 14 CPLEE ON PDRs OFF ALSEP 17 NBR -	0900-1100 ALSEP 14 ALSEP 12	0100-0500 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON SWS OFF ALSEP 17 NBR - HFE RBS 1400-1500	0900-1100	0900-1100 ALSEP 17 NBR -	NO SUPPORT

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

23 March 1977 through 20 April 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	Midnight	DAY/HOUR (GMT) Sunrise	Lunation/Noon	Sunset	Midnight
17	17Mar/1430	24Mar/2324	(54)01Apr/0842	08Apr/1817	16Apr/0317
16	18Mar/2026	26Mar/0522	(62)02Apr/1446	10Apr/0018	17Apr/0909
15	19Mar/1945	27Mar/0442	(71)03Apr/1410	10Apr/2337	18Apr/0827
14	21Mar/1317	28Mar/2220	(77)05Apr/0754	12Apr/1713	20Apr/0155
12	22Mar/0058	29Mar/1017	(92)05Apr/1937	13Apr/0357	20Apr/1336

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

9 March 1977
G.m.t.: 2000

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded from STANDBY to ON at 1923 G.m.t., 9 March, for a trouble shooting test. This is an attempt to center the beam at low temperatures during lunar night. The instrument is presently configured: all masses on, backlash out, seismic low gain, integrator shorted, bias out, post amplifier gain step 3, and slave heater off. This is a continuation of the cold soak that was performed during the last lunar night.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 9 March the lunar surface temperature, as measured by the HFE thermocouples, was 275 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 *and 257.0 °K at probe #2. Between support periods of 2 and 4 March (sun angles 88° to 112°) the HFE readings DTH 22, DTL 22, and T 22 returned to normal. The temperature can again be determined at the 230 cm level of probe 2.*

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to ON and to STANDBY for lunar night 7 March. The science data was static at turn ON. When the 90 Frame pulse occurred the data went to all "0"s and remained at "0" until the experiment was commanded to STANDBY. This problem had been previously encountered only at lunar night. The sun angle at this time was approximately 150°.

Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control, Forced OFF; component gain 0 db; and feedback loop filter IN. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) has been offscale HIGH since 3 March at a sun angle of 87.0 and is expected to return onscale 10 March.*

ALSEP PERFORMANCE SUMMARY REPORT (continued)

9 March 1977
G.m.t.: 2000

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1277 have been executed and verified by the experiment engineering data since deployment.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured thermal control, Auto ON; component gain 0 db and feedback loop filter IN. *The instrument assembly temperature (DL-07) was offscale HIGH from 3 to 8 March between the sun angles of 74.9° to 132.9°. The experiment received a spurious functional command between support periods of 4 and 5 March (PSE, Long Period Z gain change to -10 db, octal 064) with no command verification word (CVW) being observed in the downlink signal. During real time support at 1902 G.m.t., 5 March the required three octal 064 commands were sent to return the experiment to its normal 0 db range.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment has been operating in the full sequence mode (0-127 frames) throughout this lunar day at the request of the Principal Investigator. Between real time support periods of 5 to 7 March the channeltron high voltage (-3.5 Kvdc) arced OFF. During this time period the internal temperature T-2 was reading between 93.6°C to 92.2°C and sun angles between 99.1° to 121.2° respectively. At 1632 G.m.t., 7 March, the channeltron high voltage (-3.4 Kvdc) was commanded back ON for the remainder of the lunar day. The CCGE high voltage (+4.5 Kvdc) remains OFF.

Apollo 14 ALSEP

At the start of real time support on 3 March the data showed that the transmitters had switched from B to A. No reported drop or degradation of signal was noted by the tracking stations. During the real time support period at 2026 G.m.t., 3 March, transmitter B (octal 015) was reselected returning the station to its normal configuration.

The Passive Seismic Experiment is ON with the thermal control, Forced OFF; component gain 0 db; and feedback loop filter, OUT. The heater is being operated in the Forced OFF mode to minimize experiment heating during lunar day.

Apollo 12 ALSEP

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter IN, except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary

ALSEP PERFORMANCE SUMMARY REPORT (continued)

9 March 1977
G.m.t.: 2000

Apollo 12 ALSEP (continued)

Report. *The instrument assembly temperature (DL-07) has remained off-scale HIGH since 7 March (sun angle 95.2°) and is expected to return onscale 12 March.*

The Solar Wind Spectrometer Experiment is in STANDBY to reduce heating in the central station.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending 2000 Z (G.m.t.) 9 March 1977		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		91/2667	76/2091	70/2048	61/1783	53/1548
Phase, Sun Angle		Noon, 121.1°	Noon, 127.1°	Noon, 148.2°	Noon, 160.1°	Noon, 175.3°
Cmds - Total/Week		31083/41	17469/31	39565/64	24514/81	37034/43
Spurious Changes		118	102	128	11	0
CENTRAL STATION	RTG Initial/Present Reserve Power	73.6w/ 48.0w 22.4w	72.5w/ 60.5w 14.3w	74.7w/48.6w 14.2w	70.9w/62.8w 32.1w	75.4w/ 62.9w 22.2w
	Avg. Therm. Plate	90.1°F	98.0°F	89.8°F	73.1°F	68.2°F
	Transmitter	B, 7/8/74	B, 3/3/77	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X,R,S,W,DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset: 2/25/77	Operative Inhibited: 3/9/77
	Heaters	DSS-1 (10w) - OFF 2/28/77	DSS-1 (10w) OFF 2/28 21w PDR ON 3/1/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 2/25/77	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (A1)	Auto On OFF, 2/28/77	Forced OFF 3/3/76	Auto On	Forced OFF 3/1/77	NBR Real Time Mon, Wed, Fri.
	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR Data Mon, Wed, Fri, RBS weekly
	DL-07 Temp.	Offscale HIGH	138.1°F	133.0°F	Offscale HIGH	
	Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged	
	ACTIVE/ OPERABLE	SWS - STBY, 3/1/77 decrease reserve power for C/S cool	CPLEE- STBY, 3/1/77 Anal B Failed 4/71	SIDE - ON, Cycle OFF T2 >85°C CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos. 180° Flip Cals 1277 Z Failed 3/3/75	LEAM- STBY, 3/ /77 Static @ night since 7/16/76
				HFE Degraded 12/75		LSG- ON, 3/9/77 Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
	INACTIVE/ INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11		Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 3/09/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
01 March	ORR/MAD	Higher Priority	LOS 01/1430 AOS 01/1445	ALL	15^{m}
02 March	GWM/ORR	Higher Priority	LOS 02/1427 AOS 02/1435	ALL	08^{m}
04 March	GWM/ACN	Higher Priority	LOS 04/1900 AOS 04/1915	ALL	15^{m}
05 March	ACN/AGO	Higher Priority	LOS 05/0531 AOS 05/0553	ALL	22^{m}
06 March	GDS/ORR	Higher Priority	LOS 06/1325 AOS 06/1400	ALL	35^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

16 March 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment was commanded OFF for cool-down between the support periods of 13 to 14, 14 to 15, and 15 to 16 March. It is estimated the instrument temperature dropped to -75°C following these periods. The LSG was commanded ON during support periods on 13, 14, 15, and 16 March. The digital data from the digital multiplexer is scrambled, but the analog data remains valid at these low temperatures. Attempts to move the beam from the top stop position have been unsuccessful. On 16 March the decoder would not execute commands transmitted by ground control.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 16 March the lunar surface temperature, as measured by the HFE thermocouples, was 109 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 11 March.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 10 March. The instrument assembly temperature (DL-07) was off-scale HIGH from 3 to 10 March between the sun angles of 87.0° and 172.2°.

The lunar Surface Magnetometer was commanded OFF at 1857 G.m.t., 14 March, and commanded back ON at 2202 G.m.t., 14 March, for a brief cool-down period. The cool-down and reinitialization of the LSM were an attempt to regain science data from the Z-axis sensor which has been static since March 1975. The attempt was unsuccessful. This operation was accomplished at the request of the Principal Investigator.

16 March 1977
G.m.t.: 1700

Apollo 15 ALSEP

On 14 March the LSM, SIDE, SWS, and HFE were individually commanded to STANDBY briefly and then to OFF. Reserve power deltas for the experiments were 0w, -5.18w, -3.79w, and -4.34w, respectively. The cause of the reserve power drops is that the standby heaters are still operable in the SIDE, SWS, and HFE. The LSM does not have a standby heater.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment was commanded OFF, permanently, on 12 March as the reserve power has become critically low. The execution of a spurious command, requiring high power, could cause the experiment ripple sequence (OFF to STANDBY) to commence and possibly shutdown the central station.

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 14 March. The external 14 and 7-watt power dump resistors were commanded OFF, 12 March, for lunar night operation.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater was commanded to AUTO ON for lunar night operation on 11 March.

The Charged Particle Lunar Environment Experiment was commanded ON, 12 March, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 14 March.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The Z-motor was commanded ON, 14 March, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07=140.2°F, sun angle 168.0°), 13 March, and had been offscale offscale HIGH since 7 March.*

The Solar Wind Spectrometer Experiment was commanded from STANDBY TO OFF,

16 March 1977
G.m.t., 1700

Apollo 12 ALSEP (continued)

12 March, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power provides the additional heat and will extend the acquisition of useful PSE data for 5 or 6 months.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending 1700 Z (G.m.t.) 16 March 1977

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		91/2674	76/2098	70/2055	61/1790	53/1555
Phase, Sun Angle		Sunset, 203.8°	Sunset, 209.9°	Sunset, 230.9°	Susnet, 242.9°	Sunset, 258.3°
Cmds - Total/Week		31893?90	17531/84	39655/90	24637/123	37140/106
Spurious Changes		118	102	128	11	0
RTG	Initial/Present Reserve Power	73.6w/ 46.2w 12.5w	72.5w/59.5w 14.1w	74.7w/46.4w 17.9w	70.9w/ 62.3w 19.0w	75.4w/ 63.3w 18.7w
CENTRAL STATION	Avg. Therm. Plate	7.8°F	24.5°F	0.8°F	27.6°F	17.0°F
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8'
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset: 2/25/77	Operative Inhibited: 3/14/77
	Heaters	DSS-1 (10w) - ON 3/14/77	DSS-1 (10w) - ON 3/14 21wPDRs OFF 3/12/77	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 3/11/77	APM STATUS: ON
EXPERIMENTS PSE ACTIVE/OPERABLE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76 NBR Real Time Mon, Wed, Fri.
	Heaters Z motor (Al)	Auto On ON, 3/14/77	Auto ON 3/11/77	Auto On	Auto On 3/10/77	
	Filter	IN - 6/29/75	OUT - 11/17/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR Data Mon, Wed, Fri, RBS weekly
	DL-07 Temp.	126.4°F	124.6°F	124.7°F	125.9°F	
	Uncage Ckt.	Uncaged	Uncaged	Uncaged	OT	
		SWS - OFF, 3/12/77 Increase reserve power for C/S heat	CPLEE- ON, 3/12/77 Anal B Failed 4/71	SIDE OFF, 3/12/77 CCGE-Failed 7/18/75	LSM-ON X, Y, Z Pos. 180° Flip Cals 1277 Z Failed 3/3/75	LEAM-STBY 3/7/77 Static @ night since 7/16/76
				HFE--OFF 1/13/77		LSG-STBY 3/16/77 Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
INACTIVE/INOPERABLE		SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 3/16/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
14 March	GWM/ORR	Higher Priority	LOS 14/0027 AOS 14/0100	ALL	33m
14 March	GWM/ORR	Higher Priority	LOS 14/0217 AOS 14/0239	ALL	22m
14 March	GDS/BDA	Higher Priority	LOS 14/1506 AOS 14/1512	ALL	06m
15March	ORR/GWM	Higher Priority	LOS 15/0245 AOS 15/0301	ALL	16m
15 March	GWM/ACN	Higher Priority	LOS 15/0334 AOS 15/0400	ALL	26m
16 March	ORR/GWM	Higher Priority	LOS 16/0203 AOS 16/0247	ALL	44m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

23 March 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently in STANDBY. *During the cool down test performed last reporting period it was observed that the buss voltages were operating at approximately 30% lower (max cool down period on 16 March) than normal, causing scrambled digital multiplexer data and the decoder not to accept commands. With the experiment commanded to STANDBY (Heater ON) the temperature increased and on 18 March both problems cleared, however, the beam remained at the top stop. The experiment is presently being commanded from STANDBY to ON to obtain data points for analysis.*

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 23 March the lunar surface temperature, as measured by the HFE thermocouples, was 106 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric and Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is in STANDBY for lunar night.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter IN).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network contruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiment is OFF.

23 March
G.m.t.: 1700

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is ON with the thermal control, AUTO ON; component gain 0 db; and feedback loop filter, OUT. The heater is in thermal control AUTO ON for lunar night operation. *At the beginning of real time support, 23 March, it was noted that the long period Z-axis (vertical) was oscillating with an amplitude of 5 microradians. The gain was commanded to -30 db and the amplitude of the oscillations was reduced to zero. The Z-axis was leveled to determine that these oscillations were not caused by the axis being off center. The experiment was commanded to STANDBY and back to ON with the db gain set to 0 and the Z-axis data was static. This problem has previously been observed in the instrument.*

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). *At 0039 G.m.t., 17 March, the Orroral Valley Tracking Station observed parameter AB-04 out of limits (ASE OFF), without a command verification word (CVW) in the downlink. At 0229 G.m.t., 17 March, the Guam Tracking Station uplinked by Mode I command ASE STANDBY (octal 043) at the request of mission control.*

The Charged Particle Lunar Environment Experiment is ON and is operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature remains offscale LOW since 12 March.

The Solar Wind Spectrometer Experiment is OFF during the lunar night.

The Suprathermal Ion Detector Experiment is OFF. At 1658 G.m.t., 20 March, the Ascension Island Tracking Station observed a spurious command verification word (CVW) SIDE to STANDBY (octal 053). At the request of mission control at 1922 G.m.t., 20 March, the Goldstone Tracking Station in mode I commanded the SIDE to OFF (octal 054).

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1200* Z (G.m.t.) *23 March* 1976

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		91/*2681*	76/*2105*	70/*2062*	61/*1797*	53/*1562*
Phase, Sun Angle		*Midnight, 290.4°*	*Midnight, 296.3°*	*Midnight, 317.5°*	*Midnight, 329.2°*	*Midnight, 344.5°*
Cmds - Total/Week		*31914/21*	*17558/27*	*39673/18*	*24687/50*	*37184/44*
Spurious Changes		*119*	*103*	128	11	0
RTG	Initial/Present Reserve Power	73.6w/*45.5w* *11.4w*	72.5w/*58.3w* *13.4w*	74.7w/ *46.1w* *17.4w*	70.9w/ *62.4w* *13.5w*	75.4w/ *62.9w* *20.2w*
CENTRAL STATION	Avg. Therm. Plate	*5.9°F*	*22.7°F*	*-1.8°F*	*26.4°F*	*3.1°F*
	Transmitter	B, 7/8/74	B,	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 2/25/77	Inhibited 5/72 Reset:2/25/77	Operative Inhibited: *3/23/77*
	Heaters	DSS-1 (10w) - ON 3/14/77	DSS-1 (10w) -ON 3/14 21wPDRS OFF 3/12/77	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 3/11/77	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (Al)	Auto On ON, 3/14/77	Auto ON 3/11/77	Auto On	Auto On 3/10/77	NBR Real Time Mon, Wed, Fri.
	Filter	IN - 6/29/75	IN - 9/18/76	IN - 6/29/75	IN - 6/29/75	HFE - ON, NBR
	DL-07 Temp.	*Offscale LOW*	*124.1°F*	*124.5°F*	*125.8°F*	Data Mon, Wed, Fri, RBS weekly
	Uncage Ckt.	Uncaged	Uncaged		OT	
	ACTIVE/ OPERABLE	SWS - OFF, 3/12/77 Increase reserve power for C.S heat	CPLEE-ON, 3/12/77 Anal B Failed 4/71	SIDE -OFF, 3/12/77 CCGE-Failed 7/18/75	LSM-ON X, Y, Z Pos. 180° Flip Cals 1277 Z Failed 3/3/75	LEAM-STBY 3/7/77 Static @ night since 7/16/76
				HFE OFF, 1/13/77		LSG-STBY 3/16/77 Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
	INACTIVE/ INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 3/23/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
17 March	GWM/ORR	Higher Priority	LOS 17/0134 AOS 17/0212	ALL	38^{m}
17 March	GDS/GWM	Station Problem	LOS 17/2257 AOS 17/2306	ALL	09^{m}
18 March	GWM	Higher Priority	LOS 18/0336 AOS 18/0545	ALL	$2^{h}09^{m}$
18 March	MAD/ACN	Higher Priority	LOS 18/0724 AOS 18/0823	ALL	59^{m}
18 March	GWM	Station Problem	LOS 18/2150 AOS 18/2155	A5	05^{m}
19 March	GWM/ACN	Higher Priority	LOS 19/0607 AOS 19/0644	ALL	37^{m}
19 March	ACN	Higher Priority	LOS 19/0835 AOS 19/0940	ALL	$1^{h}05^{m}$
20 March	ULA/GWM	Higher Priority	LOS 20/0325 AOS 20/0343	ALL	18^{m}
20 March	GWM/ACN	Higher Priority	LOS 20/0732 AOS 20/0906	ALL	$1^{h}34^{m}$
21 March	GDS/ORR	Station Problem	LOS 21/0103 AOS 21/0120	ALL	17^{m}
22 March	GWM/ORR	Higher Priority	LOS 22/0730 AOS 22/0749	ALL	19^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

ALSEP PERFORMANCE SUMMARY REPORT

30 March 1977
G.m.t.: 1700

All Passive Seismometer Experiments feedback loop filters were commanded OUT during the past report period. This configuration returned the seismic network to the high response mode at the request of the Principal Investigator.

Apollo 17 ALSEP

Sunrise of the 54th lunation occurred on 24 March at the Taurus Littrow Site. The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked. Also during these periods the 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *The timer pulse was verified during real time support on 27 March.*

The Lunar Surface Gravimeter Experiment is currently ON and operating with the slave heater OFF, seismic low gain, and power amplifier at step #2. During real time support at 0053 G.m.t., 30 March, the slave heater was commanded OFF because the sensor temperature (DG-04) had exceeded the regulation temperature. This problem was last encountered 9 September 1975.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 30 March the lunar surface temperature as measured by the HFE thermocouples, was 356 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded from STANDBY to OFF for lunar day 27 March.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 26 March for the 62nd lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. *The DSS-1 (10w) heater was commanded OFF, 26 March, for lunar day operation.*

30 March 1977
G.m.t.: 1700

Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Forced OFF, component gains 0 db, and feedback loop filter OUT.) The thermal control was commanded to Forced OFF on 30 March and the uncage-arm fire circuitry to UNCAGED on 26 March in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1282 have been executed and verified by the experiment engineering data since deployment.*

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27).

Apollo 15 ALSEP

Sunrise of the 71st lunation at the Hadley Rille Site occurred on 27 March.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is AUTO ON. *Between real time supports of 24 and 25 March an apparent command verification word (CVW) occurred reversing the UNCAGED/OUT OF TOLERANCE (OT) state (octal 073). A normal reversal occurs as an 18 hour timer function, therefore no corrective action is required.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are OFF. At 1511 G.m.t., 28 March the SIDE was commanded ON. The initial indication was that the analog data was invalid due to low temperature, however the digital data was valid and indicating intermittent high voltage arcing. The SIDE was commanded to STANDBY after 12 minutes of operation to allow for a warm up period. At 1032 G.m.t., 29 March, the SIDE was commanded ON and the analog and digital data were valid. The digital data indicated intermittent arcing. After approximately 2 minutes the instrument started drawing excessive current and approximately 2 minutes later the channeltron (-3.5 kv) high voltage arced off. The Cold Cathode Ion Gauge (+ 4.5 kv) high voltage was commanded OFF, however the SIDE continued to draw excessive current, so the experiment was commanded to STANDBY at 1035 G.m.t., 29 March. At 1553 G.m.t., 30 March, the experiment was commanded ON and it immediately went to STANDBY. Another ON command was sent approximately 1 minute later and the experiment came on for about 20 seconds but due to excessive current the STANDBY circuit breaker was automatically activated and the SIDE went to STANDBY. The instrument was commanded OFF at 1558 G.m.t., 30 March, and no further attempts will be made this lunation to turn the SIDE ON.

30 March 1977
G.m.t.: 1700

Apollo 15 ALSEP (continued)

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 77th lunation at the Apollo 14 site occurred on 28 March. *The central station DSS-1 (10 watt) heater is OFF for lunar day operation. The external 14 and 7-watt power dump resistors were commanded ON, 30 March.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 30 March. Between real time support periods of 26 and 27 March a spurious functional change occurred, CPLEE to Automatic Voltage Sequence, (octal 114) without a command verification word (CVW) being observed in the downlink signal. During support on 27 March the CPLEE was commanded back to the -35 volt range.

Apollo 12 ALSEP

Sunrise of the 92nd lunation occurred on 29 March. *The RTG (Radioisotope Thermoelectric Generator) power was checked and 45 minutes after sunrise the total output power had decreased by 2.77 watts. Recovery to normal RTG output occurred 1 hour later. The central station DSS-1 (10 watt) heater is OFF for lunar day operation.*

The Passive Seismic Experiment is ON with the thermal control Auto ON, long period XY and Z-axes component gains 0 db, short period Z-axis component gain -20 db, and feedback loop filter OUT. The instrument assembly temperature (DL-07 = 125.4°F) returned onscale at a sun angle of 7.0° on 29 March. The Z-motor was commanded OFF for lunar day operation on 29 March.

The Solar Wind Spectrometer Experiment was commanded form OFF to STANDBY on 30 March. The SWS will remain in STANDBY during the lunar day time to reduce central station heating.

30 March 1977
G.m.t.: 1700

Apollo 12 ALSEP (continued)

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 30 March 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	32/2688	77/2112	71/2069	62/1804	54/1569
Phase, Sun Angle	Sunrise, 15.7°	Sunrise, 21.6°	Sunrise, 42.8°	Sunrise, 54.6°	Sunrise, 68.9°
Cmds - Total/Week	31978/64	17594/46	39750/77	24766/79	37270/96
Spurious Changes	119	104	129	11	0
RTG Initial/Present Reserve Power	73.6w/ 46.5w 23.7w	72.5w/59.1w 30.7w	74.7w/ 47.0w 16.9w	70.9w/ 62.4w 31.0w	75.4w/61.7w 24.2w
CENTRAL STATION Avg. Therm. Plate	62.2°F	71.5°F	86.9°F	94.9°F	88.9°F
CENTRAL STATION Transmitter	B, 7/8/74	B,	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	Y, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: 3/30/77
CENTRAL STATION Heaters	DSS-1 (10w) - OFF 3/29/77	DSS-1 (10w) OFF 3/24 21wPDRs ON 3/30/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 3/26/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
EXPERIMENTS PSE Heaters Z motor (A1)	Auto On OFF, 3/29/77	Auto ON 3/11/77	Auto On	Forced OFF 3/30/77	NBR Real Time Mon, Wed, Fri.
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 9/18/76	OUT - 3/27/77	OUT - 3/26/77	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	126.0°	124.8°F	129.3°F	130.6°F	Data Mon, Wed, Fri, RBS weekly
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	OT	UNCAGED	
EXPERIMENTS ACTIVE/OPERABLE	SWS - STBY, 3/30/77 Range: Norm. Exten.	CPLEE- STBY, 3/30/77 Anal B Failed 4/71	SIDE - OFF, 3/30/77 CCGE-Failed 7/18/75	LSM-ON X, Y, Z Pos. 180° Flip Cals 1282 Z Failed 3/3/75	LEAM-OFF 3/27/77 Static @ night since 7/16/76
EXPERIMENTS ACTIVE/OPERABLE			HFE Degraded 12/75		LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 3/30/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
23 March	GWM/ORR	Higher Priority	LOS 23/0730 AOS 23/0741	ALL	11^{m}
25 March	GWM	Higher Priority	LOS 25/0952 AOS 25/1052	ALL	$1^{h}00^{m}$
27 March	ULA/GWM	Higher Priority	LOS 27/1030 AOS 27/1035	ALL	05^{m}
29 March	GWM/MAD	Wx Problem	LOS 29/1030 AOS 29/1054	ALL	24^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NOON and NIGHT DATA
(Latest Lunation)

20 March 1977

APOLLO 12 ALSEP

	Noon	Night
Lunation	91	91
Sun Angle	95.2°	289.4°
Sig Strth (9m)	-142.0 dbm	-137.0 dbm
Input Power	48.0w	45.5w
Reserve Power	22.4w	11.4w
Av Ther Pl T.	90.5°F	5.9°F
PSE T. (DL-07)	HIGH	LOW
SWS T. (DW-13)		

APOLLO 14 ALSEP

	Noon	Night
Lunation	76	76
Sun Angle	78.0°	270.7°
Sig Strth (9m)	-134.0 dbm	-140.0 dbm
Input Power	60.6w	58.4w
Reserve Power	13.7w	13.4w
Av Ther Pl T.	111.2°F	22.7°F
PSE T. (DL-07)	131.1°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	70	70
Sun Angle	35.5°	292.2°
Sig Strth (9m)	-139.0 dbm	-137.0 dbm
Input Power	48.3w	45.6w
Reserve Power	13.4w	17.4w
Av Ther Pl T.	107.1°F	-1.2°F
PSE T. (DL-07)	HIGH	124.6°F
SIDE T. (DI-05)	93.6°C	OFF
CCGE T. (DI-04)	364.0°K	OFF
HFE T. (DH-13)		

APOLLO 16 ALSEP

	Noon	Night
Lunation	61	61
Sun Angle	87.0°	267.6°
Sig Strth (9m)	-135.0 dbm	-136.0 dbm
Input Power	62.4w	62.4w
Reserve Power	31.8w	13.7w
Av Ther Pl T.	104.7°F	27.3°F
PSE T. (DL-07)	HIGH	125.8°F
LSM T. (DM-05)	40.8°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	53	53
Sun Angle	88.2°	283.2°
Sig Strth (9m)	-141.0 dbm	-138.0 dbm
Input Power	62.1w	63.2w
Reserve Power	23.3w	14.2w
Av Ther Pl T.	93.9°F	3.8°F
LACE T. (AM-41)	161.4°F	-16.1°F
LEAM T. (AJ-11)	185.0°F	-58.0°K
HFE T. (DH-13)	329.7°K	285.7°K
LSG T. (DG-04)	STBY	STBY
LSP T. (AP-01)	96.7°F	7.8°F

TIMES - CST

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

MAR 06/065	07/066	08/067	09/068	10/069	11/070	12/071
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 20m LEAM STBY	0900-1200	1200-1400 ALSEP 17 NBR -1h02m HFE RBS LSG ON ALSEP 16 LSM FLIP CAL	0100-0200 1400-1600	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL ALSEP 17 NBR - 49m ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 SIDE OFF ALSEP 12 SWS OFF ALSEP 14 CPLEE ON PDRs OFF ALSEP 17 NBR - 15m
MAR 13/072	14/073	15/074	16/075	17/076	18/077	19/078
0900-1100 ALSEP 17 NBR - 13m LSG OFF	1600-2000 ALSEP 12 C/S HTR ON PSE Z MTR ON SWS OFF ALSEP 14 C/S HTR ON ALSEP 17 NBR - 27m	0900-1100 ALSEP 17 NBR - 35m ALSEP 16 LSM OFF/ON OFF - 3h05m	0900-1100 ALSEP 17 NBR -1h04m HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR - 32m	NO SUPPORT
MAR 20/079	21/080	22/081	23/082	24/083	25/084	26/085
NO SUPPORT	0900-1100 ALSEP 17 NBR - 20m	NO SUPPORT	0900-1100 ALSEP 17 NBR - 26m HFE RBS	NO SUPPORT ALSEP 17	0900-1100 ALSEP 16 ALSEP 17 NBR - 54m LSG ON	0900-1100 ALSEP 15 TIMER RESET ALSEP 16 C/S HTR ON TIMER RESET ALSEP 17 NBR - 09m

TIMES - CST

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

MAR 27/086	28/087	29/088	30/089	31/090	APR 01/091	02/092
0900-1100 ALSEP 17 NBR - 1^h35^m LEAM OFF LSG STBY	0900-1100 ALSEP 14 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - 26^m LSG ON	0400-0700 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF 1730-1900	0900-1100 ALSEP 14 CPLEE STBY PDRs ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - HFE RBS	0900-1100 ALSEP 12 SWS STBY	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR - ALSEP 14 PSE HTR OFF	0300-0700
APR 03/093	04/094	05/095	06/096	07/097	08/098	09/099
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100 ALSEP 17 NBR - LEAM STBY	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 NBR - ALSEP 16 LSM FLIP CAL	0100-0200 1000-1100 1900-2100 ALSEP 16 C/S HTR ON
APR 10/100	11/101	12/102	13/103	14/104	15/105	16/106
0900-1100 ALSEP 15	0900-1100 ALSEP 14 CPLEE ON PDRs OFF ALSEP 17 NBR -	0900-1100 ALSEP 14 ALSEP 12 2200-24	0000-0200 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON SWS OFF ALSEP 17 NBR - HFE RBS 1100-1200	0900-1100	0900-1100 ALSEP 17 NBR -	NO SUPPORT

TIMES - CST THROUGH 23 APRIL 1977
CDT AFTER 23 APRIL 1977

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

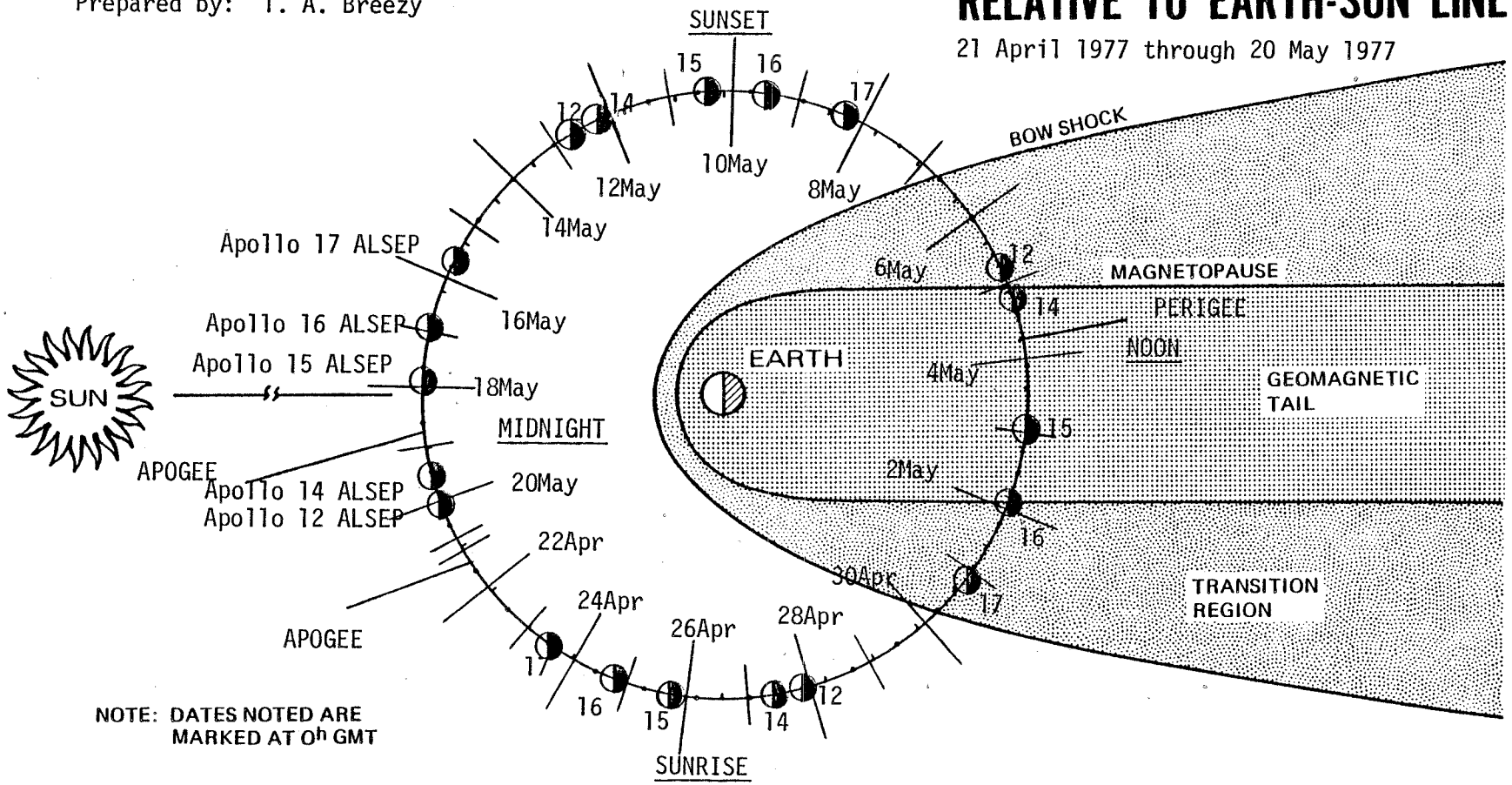
APR 17/107	18/108	19/109	20/110	21/111	22/112	23/113
NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT	0900-1100 ALSEP 17 NBR - HFE RBS	NO SUPPORT	0900-1100 ALSEP 17 NBR -	NO SUPPORT ALSEP 17
APR 24/115	25/116	26/117	27/118	28/119	29/120	30/121
1900-2100 ALSEP 16 C/S HTR OFF TIMER RST ALSEP 15 TIMER RST	0900-1100 ALSEP 15 ALSEP 17 NBR -	0900-1100 ALSEP 17 LEAM OFF	0900-1100 ALSEP 12 ALSEP 14 ALSEP 17 NBR - HFE RBS	0200-0400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF 1200-1300	0900-1100 ALSEP 14 CPLEE STBY PDRs ON ALSEP 16 LSM FLIP CAL ALSEP 17 NBR -	0900-1100
MAY 01/122	02/123	03/124	04/125	05/126	06/127	07/128
0900-1100	0900-1100 ALSEP 17 NBR -	0900-1100	0900-1100 ALSEP 17 NBR - HFE RBS	0900-1100	0900-1100 ALSEP 17 LEAM STBY NBR -	0900-1100 2200-2300

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

21 April 1977 through 20 May 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	Midnight	DAY/HOUR (GMT) Sunrise	Lunation/Noon	Sunset	Midnight
17	16Apr/0317	23Apr/1156	(55) 30Apr/2100	08May/0623	15May/1508
16	17Apr/0909	24Apr/1752	(63) 02May/0301	-09May/1221	16May/2100
15	18Apr/0827	25Apr/1709	(72) 03May/0225	10May/1139	17May/2016
14	20Apr/0155	27Apr/1045	(78) 04May/2005	12May/0511	19May/1342
12	20Apr/1336	27Apr/2240	(93) 05May/0747	12May/1559	20May/0122

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

6 April 1977
G.m.t.: 1700

A partial eclipse of the moon occurred from 0206 G.m.t. to 0632 G.m.t., 4 April. All ALSEP sites were affected by the eclipse. This is the sixteenth event which one or all of the ALSEPs have experienced.

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently ON. An attempt was made to center the beam by partially caging the masses on 4 April. Detailed data analysis indicated that the beam pivot point was shifted. On 6 April the beam centering was exercised again. The data indicated that the beam was near center with the pivot point at the normal position. The experiment is presently configured as follows: seismic high gain, integrator shorted mode, bias out, post amplifier gain at increment 2, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the sensor beam near center, and heater is OFF.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 6 April the lunar surface temperature, as measured by the HFE thermocouples, was 276 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment was commanded from OFF to ON and to STANDBY for lunar night 6 April. The science data was valid at turn ON for approximately one minute. When the 90 Frame pulse occurred the data went to all "1"s and remained at "1" until the experiment was commanded to STANDBY.

Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) has been offscale HIGH since 2 April at a sun angle of 90.1° and is expected to return onscale 9 April.*

6 April 1977
G.m.t.: 1700

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1288 have been executed and verified by the experiment engineering data since deployment.

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. *The sensor temperature returned onscale (DL-07 = 141.9°F, sun angle 126.9°), 6 April, and had been offscale HIGH since 2 April.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments are currently OFF.

Apollo 14 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The thermal control was commanded to the Forced OFF mode for this lunar day on 2 April. The experiment received a spurious functional command (PSE to STANDBY, octal 037) as observed by the Madrid Tracking Station at 2350 G.m.t., 2 April. At the request of mission control the Ascension Island Tracking Station uplinked in Mode I PSE ON (octal 036) at 0146 G.m.t., 3 April, and reconfigured the experiment to its normal operational mode. During real time support at 1438 G.m.t., 3 April, the thermal control was again commanded from Auto ON to Forced OFF.*

The Charged Particle Lunar Environment Experiment is in STANDBY.

Apollo 12 ALSEP

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report. *The instrument assembly temperature (DL-07) was offscale HIGH on 6 April at a sun angle of 99.7° and is expected to return onscale 11 April.*

The Solar Wind Spectrometer Experiment is in STANDBY to reduce heating in the central station.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 6 April 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*92/2695*	*77/2117*	*71/2076*	*62/1811*	*54/1576*
Phase, Sun Angle	*Noon, 100.6°*	*Noon, 106.8°*	*Noon, 127.9°*	*Noon, 139.8°*	*Noon, 155.0°*
Cmds - Total/Week	*32024/46*	*17643/49*	*39807/57*	*24854/88*	*37593/323*
Spurious Changes	119	*105*	129	11	0
RTG Initial/Present	73.6w/ *48.7w*	72.5w/*59.4w*	74.7w/*46.3w*	70.9w/ *62.1w*	75.4w/ *62.1w*
RTG Reserve Power	*21.6w*	*13.7w*	*18.3w*	*31.3w*	*25.1w*
CENTRAL STATION Avg. Therm. Plate	*89.0°F*	*106.0°F*	*105.4°F*	*90.3°F*	*63.7°F*
CENTRAL STATION Transmitter	B, 7/8/74	B,11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: *4/4/77*
CENTRAL STATION Heaters	DSS-1 (10w) - OFF 3/29/77	DSS-1 (10w) OFF 3/24 21w PDR ON 3/30/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 2/26/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
EXPERIMENTS PSE Heaters Z motor (Al)	Auto On OFF, 3/29/77	*Forced OFF 3/2/77*	Auto On	Forced OFF 3/30/77	NBR Real Time Mon, Wed, Fri.
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 9/18/76	OUT - 3/27/77	OUT - 3/26/77	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	*Offscale HIGH*	*134.7°F*	*141.9°F*	*Offscale HIGH*	Data Mon, Wed, Fri,
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	Uncaged	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	SWS - STBY, 3/30/77 Range: Norm. Ext.	CPLEE-STBY, 3/30/77 Anal B Failed 4/71	SIDE - OFF, 3/30/77 CCGE-Failed 7/18/75	LSM -ON X, Y, Z Pos, 180° Flip Cals *1288* Z Failed 3/3/75	LEAM-*STBY, 4/6/77* Static @ night since 7/16/76
EXPERIMENTS ACTIVE/OPERABLE			HFE 1/13/77 Degraded 12/75		LSG- 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
EXPERIMENTS INACTIVE/INOPERABLE	LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	
PSEP - Apollo 11	Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69				

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 4/6/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
29 March	GWM/MAD	Wx Problem	LOS 29/1530 AOS 29/1554	ALL	24m
01 April	ORR/MAD	Antenna Masking	LOS 01/1706 AOS 01/1720	ALL	14m
02 April	ACN/MAD	Higher Priority	LOS 02/2227 AOS 02/2251	ALL	24m
03 April	ACN/MAD	Higher Priority	LOS 03/2224 AOS 03/2244	ALL	20m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

13 April 1977
G.m.t.: 0800

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is ON. During checks conducted on 11, 12, and 13 April it has been determined that the instrument heater box heater circuit (1/2 watt) has failed in the OFF position. The OFF condition causes the temperature to decrease and drift offscale LOW (transducer range is 48.2° to 52.0°C). The heater will not heat the instrument internally in this condition and thermal regulation is assumed to be lost. The only heating available to the instrument is the external heat activated by placing the LSG in STANDBY. Previous failures in this circuit have been in the full ON (loss of regulation) position. Temperature could be controlled by commanding the slave heater ON/OFF. This capability is not available in the OFF position failure.

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 13 April the lunar surface temperature, as measured by the HFE thermocouples, was 111 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 9 April.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON: component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 April. The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 April between the sun angles of 90.1° and 169.6°.

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 8 April it was noted that the science data from the y-axis sensor was static. A flip calibration sequence indicated that the sensor head does respond to the commands. This failure is identical to the z-axis sensor failure of 3 March 1975. Flip calibration sequences have been discontinued for the lunar night. As of 8 April 1,290 calibration sequences have been executed by the sensor heads.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

13 April 1977
G.m.t.: 0800

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The experiment received a spurious functional command between the support periods of 9 and 10 April (PSE, Short Period Z gain change to -10 db, octal 067) without a command verification word (CVW) being observed in the downlink signal. During real time support on 10 April the experiment was reset to 0 db gain (3 octal 067s) at 1913 G.m.t.*

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night, 13 April. The external 14 and 7-watt power dump resistors were commanded OFF, 10 April, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The heater was commanded to AUTO ON for lunar night operation on 9 April.*

The Charged Particle Lunar Environment Experiment was commanded ON, 10 April, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater was turned ON for lunar night on 13 April.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The Z-motor was commanded ON, 13 April, to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07=135.0°F, sun angle 172.7°), 12 April, and had been offscale HIGH since 6 April.*

The Solar Wind Spectrometer Experiment was commanded from STANDBY to OFF, 10 April, to maintain the central station average thermal plate temperature above 1°F during lunar night. The PSE electronics do not operate correctly below this temperature. The additional reserve power should extend the acquisition of useful PSE data to June 1977.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSE STATUS as of week ending 0800 Z (G.m.t.) 13 April 1977

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		92/*2702*	*77/2126*	*71/2083*	62/*1818*	54/*1583*
Phase, Sun Angle		*Sunset, 179.3°*	*Sunset, 185.3°*	*Sunset, 206.6°*	*Sunset, 218.5°*	*Sunset, 234.0°*
Cmds - Total/Week		*33092/68*	*17689/46*	*39892/85*	*24969/115*	*37676/83*
Spurious Changes		119	105	*130*	11	0
CENTRAL STATION RTG	Initial/Present Reserve Power	73.6w/*49.1w* *28.2w*	72.5w/*58.7w* *24.7w*	74.7w/*45.1w* *17.1w*	70.9w/ *62.4w* *14.0w*	75.4w/ *63.6w* *15.6w*
	Avg. Therm. Plate	*27.1°F*	*13.4°F*	*-1.2°F*	*28.1°F*	*7.8°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: *4/12/77*
	Heaters	DSS-1 (10w)- *ON 4/13/77*	DSS-1 (10w) *ON 4/13 21w PDR OFF 4/10/77*	DSS-1 (10w) - OFF	DSS-1 (10w)- *ON 4/9/77*	APM STATUS: ON
EXPERIMENTS PSE ACTIVE/OPERABLE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
	Heaters Z motor (A1)	Auto On *ON, 4/13/77*	*Auto ON 4/9/77*	Auto On	Auto On *4/9/77*	NBR Real Time Mon, Wed, Fri.
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
	DL-07 Temp.	*127.8°F*	*124.2°F*	*124.7°F*	*125.9°F*	Data Mon, Wed, Fri,
	Uncage Ckt.	Uncaged	Uncaged	*OT*	OT	RBS weekly
		SWS - *OFF, 4/10/77* *Increase reserve power for C/S heat*	CPLEE-*ON, 4/10/77* Anal B Failed 4/71	SIDE /CCGE - OFF, 3/12/77	LSM -ON X, Y, Z Pos. 180° Flip Cals *1290* Z Failed 3/3/75 *Y Failed 4/8/77*	LEAM-STBY 4/6/77 Static @ night since 7/16/76
				HFE - OFF 1/13/77 Degraded 12/75		LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		Dust Detector - ON	DTREM - ON	DTREM - ON		
INACTIVE/INOPERABLE		SIDE-OFF 5/3/76 Increase reserve power for C/S heat	SIDE-OFF 1/5/75 Failed	SWS-OFF 6/74 Failed	HFE-OFF Since deployment, cable severed.	LACE-STBY 7/22/76 HV failed 10/73
		LSM-OFF 6/74 Failed	ASE-STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	LSM-OFF 6/74 Failed	ASE-OFF 12/23/74 Mortar #1 unfired. Sensors failed.	

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N- Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 4/13/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
7 April	ORR/ACN	Higher Priority	LOS 07/2200 AOS 07/2223	ALL	23^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

20 April 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operated in the LSP Format ON (High Bit Rate, 3533.3 bits per second). During real-time support on Mondays, Wednesdays, and Fridays the station is operated briefly in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second) and engineering data from the central station and the other experiments is checked.

The Lunar Surface Gravimeter Experiment is currently ON. *The experiment is presently configured as follows: seismic low gain, integrator shorted mode, bias out, post amplifier gain at increment 2, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the sensor beam near center, and heater is ON. The Decoder was commanded ON, 14 April, to add 0.4 watts of heat for temperature stabilization during the lunar night. On 20 April during real time support it was noted that the internal heater was functioning normally and the experiment temperature was increasing.*

The Lunar Seismic Profiling Experiment is ON and is a part of the ALSEP seismic network.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 20 April the lunar surface temperature, as measured by the HFE thermocouples, was 107 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

Apollo 15 ALSEP

At 0724 G.m.t., 14 April, the Ascension Island Tracking Station reported a spurious command verification word, 18 hour Timer Inhibit (octal 033). On 14 April, during the real time support period, the timer pulse did not occur at the scheduled time. Three minutes later a Timer Output Accept command (octal 032) was sent and the timer responded normally.

20 April 1977
G.m.t.: 1700

Apollo 15 ALSEP (continued)

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. *During real time support on 14 April it was observed that the long period Z-axis seismic data was static, however the tidal data was normal. LP-Z calibration commands (octal 066) were sent to the experiment and no response from this axis was observed. LP-Z seismic data has remained static throughout this reporting period. The sensor temperature remains offscale LOW since 18 April and it is expected to return onscale 27 April.*

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 20 April 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	92/2709	77/2134	71/2090	62/1825	54/1600
Phase, Sun Angle	Midnight, 271.7°	Midnight, 277.7°	Midnight, 298.8°	Midnight, 310.7°	Midnight, 325.9°
Cmds - Total/Week	33135/43	17715/26	39921/29	25008/38	37744/68
Spurious Changes	119	105	131	11	0
RTG Initial/Present	73.6w/44.9w	72.5w/57.9w	74.7w/44.4w	70.9w/62.4w	75.4w/62.5w
RTG Reserve Power	10.9w	13.3w	16.3w	13.2w	21.3w
CENTRAL STATION Avg. Therm. Plate	4.4°F	21.8°F	-3.6°F	26.4°F	7.8°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 3/26/77	Inhibited 5/72 Reset: 3/26/77	Operative Inhibited: 3/20/77
CENTRAL STATION Heaters	DSS-1 (10w) - ON 4/13/77	DSS-1 (10w) ON 4/13 21w PDR OFF 4/10/77	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 4/9/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -HBR 8/15/76
EXPERIMENTS PSE Heaters	Auto On Z Motor ON 4/13/77	Auto ON	Auto On	Auto On	NBR Real Time Mon, Wed, Fri.
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	Offscale LOW	124.1°F	124.1°F	125.8°F	Data Mon, Wed, Fri, RBS weekly
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	Uncaged	OT	
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - ON 4/10/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - STBY 8/15/76 Static @ night 7/76 Static @ day 4/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 4/20/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
15 April	GWM/ACN	Antenna Masking	LOS 15/0430 AOS 15/0441	ALL	11^{m}
17 April	ACN/MIL	Schedule	LOS 17/1022 AOS 17/1032	ALL	10^{m}
18 April	MAD/ACN	Schedule	LOS 18/0919 AOS 18/1027	ALL	$1^{h}08^{m}$
20 April	GWM	Station Problem	LOS 20/0243 AOS 20/0245	ALL	02^{m}
20 April	MAD	Higher Priority	LOS 20/0813 AOS 20/1045	ALL	$2^{h}32^{m}$
20 April	MAD/BDA	Higher Priority	LOS 20/1246 AOS 20/1333	ALL	47^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

27 April 1977
G.m.t.: 1700

Apollo 16 ALSEP, the fourth nuclear-powered scientific data station installed on the moon, completed the fifth year of uninterrupted operation on 21 April 1977.

Apollo 17 ALSEP

Sunrise of the 55th lunation occurred on 23 April at the Taurus Littrow Site. *The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). It was commanded to NBR on 25 April.* The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position. The LSG had been operating in PA gain step #1, but on 27 April the beam had drifted nearer center allowing operation in PA gain step #2 with valid seismic data. The internal heater is still failed in the OFF position.

The Lunar Seismic Profiling Experiment was commanded to STANDBY on 25 April.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. *Ring bridge surveys are being achieved on a periodic basis.* On 27 April the lunar surface temperature as measured by the HFE thermocouples, was 320 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment was commanded ON, 25 April. Initial data received was static. Later on 25 April all engineering and science data was normal. However, data was again invalid on 26 April. On 27 April the data appeared normal and the calibration was good. The LEAM is being operated to obtain science data throughout the lunar day.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 April for the 63rd lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. *The DSS-1 (10w) heater was commanded OFF, 25 April. The central station was operated in high bit rate (HBR) for six minutes on 27 April and during this period a short period calibration was transmitted to and executed by the PSE.*

27 April 1977
G.m.t.: 1700

Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Auto ON, component gains 0 db, and feedback loop filter OUT.) *The uncage-arm fire circuitry was commanded to UNCAGED on 25 April in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration and heater in Forced OFF during the previous lunations had shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.*

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1294 have been executed and verified by the experiment engineering data since deployment.*

The Active Seismic Experiment is OFF (Apollo 16 ALSEP, SMEAR 27). *The ASE was operated in ON for 32 minutes from 2354 G.m.t., 26 April to 0026 G.m.t., 27 April. The experiment was in HBR for 6 minutes from 0017 to 0023 G.m.t., 27 April. All geophones appeared normal and calibrations look good. A small event was observed on all geophones. This is the first operation of the ASE since 23 December 1974.*

Apollo 15 ALSEP

Sunrise of the 72nd lunation at the Hadley Rille Site occurred on 25 April.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 78th lunation at the Apollo 14 site occurred on 27 April. *The central station DSS-1 (10 watt) heater will be commanded OFF and the external 14 and 7-watt power dump resistors will be commanded ON for day operation on 28 April.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

ALSEP PERFORMANCE SUMMARY REPORT (continued)

27 April 1977
G.m.t.: 1700

Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

Sunrise of the 93rd lunation will occur later today, 27 April. *The central station DSS-1 (10 watt) heater will be commanded OFF on 28 April.*

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis component gain is -20 db. The instrument assembly temperature (DL-07) has been offscale LOW since 18 April. *The long period Z-axis seismic data returned to normal on 22 April and the axis responded to calibration commands. The Z-motor will be commanded OFF on 28 April.*

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1700 Z (G.m.t.) 27 April 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	92/2716	78/2140	72/2097	63/1832	55/1597
Phase, Sun Angle	Midnight, 357.2°	Sunrise, 3.2°	Sunrise, 24.2°	Sunrise, 36.2°	Sunrise, 51.4°
Cmds - Total/Week	33145/10	17735/46	39990/98	25085/116	37878/202
Spurious Changes	119	104	129	11	0
RTG Initial/Present Reserve Power	73.6w/44.6w 10.6w	72.5w/ 57.6w 12.8w	74.7w/ 44.7w 17.2w	70.9w/ 61.9w 30.8w	75.4w/ 61.3w 25.9w
CENTRAL STATION Avg. Therm. Plate	5.2°F	21.3°F	60.8°F	78.9°F	64.9°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/2/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited: 4/27/77
CENTRAL STATION Heaters	DSS-1 (10w)- ON 4/13/77	DSS-1 (10w)-ON 4/13 21w PDR OFF 4/10/77	DSS-1 (10w) - OFF	DSS-1 (10w)- OFF 4/25/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS PSE Heaters	Auto On Z Motor ON 4/13/77	Auto ON 4/19/77	Auto On	Auto On 4/7/77	
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	Offscale LOW	124.0°F	126.0°F	126.9°F	
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged 4/25/77	RBS weekly
EXPERIMENTS ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - ON 4/10/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG - ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 For Reserve Power		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Data O.K. 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - ON 4/27/77 Mortar #1 Unfired. Geophones O.K.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

NOON and NIGHT DATA
(Latest Lunation)

27 April 1977

APOLLO 12 ALSEP

	Noon	Night
Lunation	92	92
Sun Angle	99.7°	271.0°
Sig Strth (9m)	-143.0 dbm	-139.0 dbm
Input Power	48.7w	44.9w
Reserve Power	21.6w	10.9w
Av Ther Pl T.	89.0°F	4.4°F
PSE T. (DL-07)	HIGH	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	77	77
Sun Angle	81.4°	277.2°
Sig Strth (9m)	-137.0 dbm	-140.0 dbm
Input Power	59.8w	57.9w
Reserve Power	13.7w	13.3w
Av Ther Pl T.	106.6°F	21.8°F
PSE T. (DL-07)	132.7°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	71	71
Sun Angle	90.4°	273.3°
Sig Strth (9m)	-139.0 dbm	-144.0 dbm
Input Power	47.3w	44.8w
Reserve Power	18.6w	16.3w
Av Ther Pl T.	109.4°F	-3.1°F
PSE T. (DL-07)	HIGH	124.5°F

APOLLO 16 ALSEP

	Noon	Night
Lunation	62	62
Sun Angle	90.1°	285.0°
Sig Strth (9m)	-138.0 dbm	-134.0 dbm
Input Power	62.1w	62.4w
Reserve Power	31.6w	14.0w
Av Ther Pl T.	104.2°F	26.6°F
PSE T. (DL-07)	HIGH	125.8°F
LSM T. (DM-05)	47.0°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	54	54
Sun Angle	92.9°	264.4°
Sig Strth (9m)	-144.0 dbm	-131.0 dbm
Input Power	61.7w	63.2w
Reserve Power	24.2w	15.9w
Av Ther Pl T.	93.3°F	8.5°F
LACE T. (AM-41)	160.5°F	-16.1°F
LEAM T. (AJ-11)	186.5°F	-58.0°F
HFE T. (DH-13)	328.6°K	285.1°K
LSG T. (DG-04)	LOW	LOW
LSP T. (AP-01)	96.7°F	12.7°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 4/27/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
21 April	GWM/ACN	Higher Priority	LOS 21/0858 AOS 21/0926	ALL	28^m
22 April	HAW/GWM	Higher Priority	LOS 22/0308 AOS 22/0348	ALL	40^m
22 April	ORR/MAD	Higher Priority	LOS 22/0934 AOS 22/1121	ALL	1^h47^m
23 April	ORR/ACN	Higher Priority	LOS 23/1021 AOS 23/1058	ALL	37^m
23 April	ACN/MAD	Higher Priority	LOS 23/1229 AOS 23/1310	ALL	41^m
24 April	ORR/MAD	Higher Priority	LOS 24/1111 AOS 24/1140	ALL	29^m
25 April	ACN	Station Problem	LOS 25/1348 AOS 25/1351	A17	03^m
26 April	ACN	Station Problem	LOS 26/1501 AOS 26/1515	ALL	14^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

TIMES - CDT

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

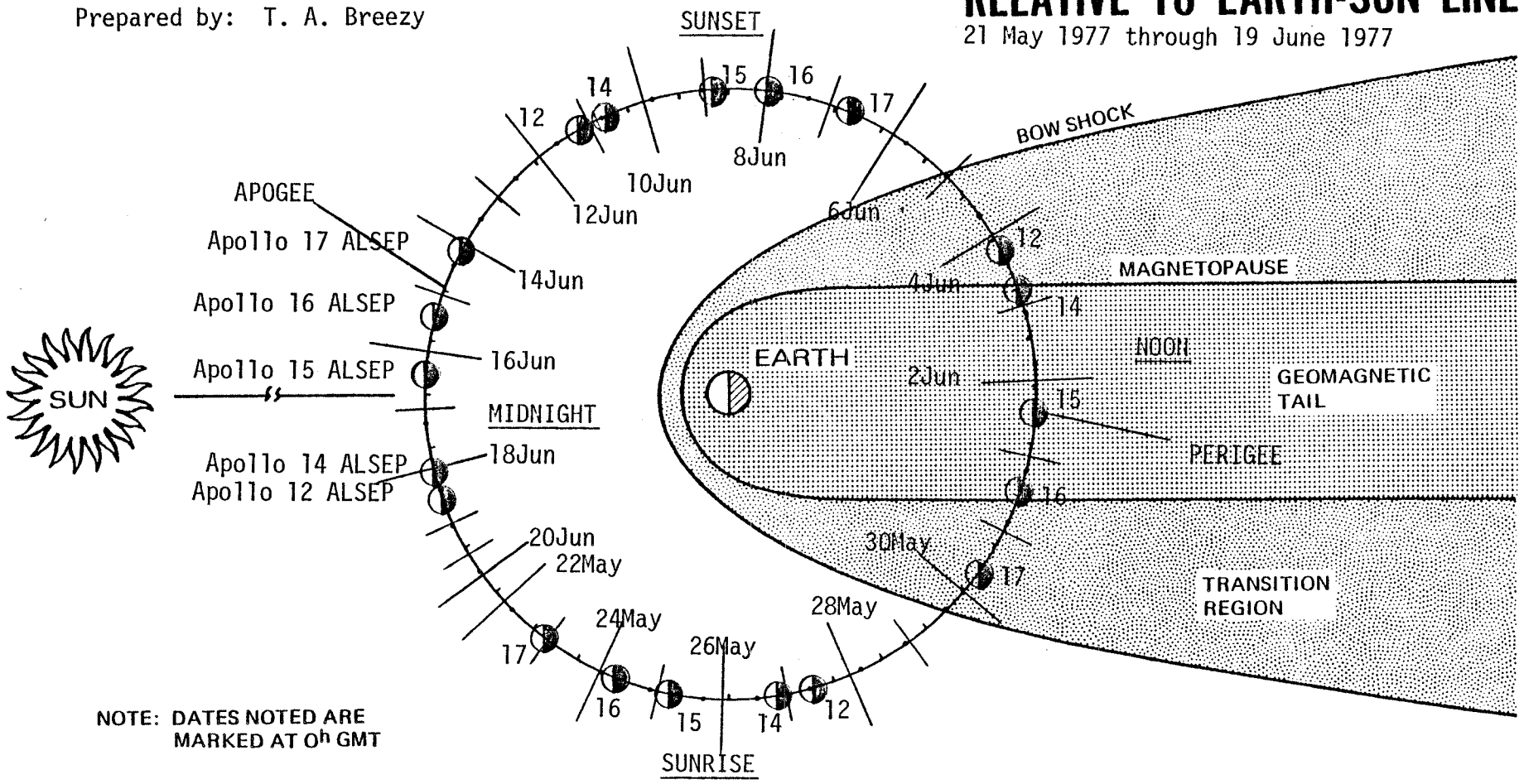
MAY 08/128	09/129	10/130	11/131	12/132	13/133	14/134
0900-1100 ALSEP 17	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL	0900-1100 ALSEP 15 ALSEP 14 PDRs ON CPLEE ON	0900-1100 ALSEP 17 HFE RBS	1400-1800 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON	0900-1100	0900-1100
MAY 15/135	**16/136**	**17/137**	**18/138**	**19/139**	**20/140**	**21/141**
NO SUPPORT	0900-1100	NO SUPPORT	0900-1100 ALSEP 17 HFE RBS	NO SUPPORT	1300-1500	NO SUPPORT
MAY 22/142	**23/143**	**24/144**	**25/145**	**26/146**	**27/147**	**28/148**
NO SUPPORT ALSEP 17	0900-1100 ALSEP 16	0800-1000 ALSEP 15 TIMER RST ALSEP 16 C/S HTR OFF TIMER RST	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 14 ALSEP 17 LEAM OFF	1400-1600 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF ALSEP 16 LSM FLIP CAL	0900-1100

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

21 May 1977 through 19 June 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO		DAY/HOUR (GMT)			
(ALSEP)	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	15May/1508	22May/2336	(56)30May/0830	06Jun/1743	14Jun/0223
16	16May/2100	24May/0530	(64)31May/1430	07Jun/2340	15Jun/0813
15	17May/2016	25May/0447	(73)01Jun/1352	08Jun/2258	16Jun/0728
14	19May/1342	26May/2220	(79)03Jun/0730	10Jun/1628	18Jun/0052
12	20May/0122	27May/1006	(94)03Jun/1913	11Jun/0319	18Jun/1230

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

4 May 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position. On 2 May the beam was tilted to maintain the instrument within the operating limits of the seismic high gain mode. After tilting the beam the experiment was commanded to PA gain Step #1 because the off set was great enough to saturate the amplifier in gain Step #2. On 3 May the off set had decreased sufficiently so that the instrument was commanded back to gain Step #2.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 4 May the lunar surface temperature as measured by the HFE thermocouples was 339 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. Since 25 April the data has appeared intermittently good and bad. The LEAM is being operated to obtain science data throughout the lunar day. *The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period. The data appeared normal on 4 May.*

Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) has been offscale HIGH since 2 May at a sun angle of 95.4° and is expected to return onscale 9 May.*

The Lunar Surface Magnetometer Experiment is ON and recording data. *On 28 April at the start of real time support (sun angle 48.6°) the experiment Y-axis had resumed normal operation. The Y-axis data had been invalid since 8 April.* Science data from the Z-axis remained static this support period. Flip calibration sequences are being conducted during the lunar day and a total of 1302 have been executed and verified by the engineering data since deployment.

ALSEP PERFORMANCE SUMMARY REPORT

4 May 1977
G.m.t.: 1600

Apollo 15 ALSEP

At 1516 G.m.t., 30 April, the Guam Tracking Station lost downlink modulation and observed a 6 db gain in signal strength. It was determined by mission control that a spurious command (octal 003) High Data Rate ON, had functioned. At 1614 G.m.t., 30 April, Guam uplinked (octal 005) High Data Rate OFF and the downlink signal returned to normal.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. *The instrument assembly temperature (DL-07) has been offscale HIGH since 2 May at a sun angle of 83.7° and is expected to return onscale 6 May.*

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation. *On 28 April the Y data processor was checked for normal configuration.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Active Seismic Experiment is in STANDBY. *The ASE was commanded ON for 1 hour and 12 minutes from 0628 to 0740 G.m.t., 28 April. The experiment was operated in HBR for 8 minutes from 0725 to 0733 G.m.t., and it appeared that only geophone #1 is operational. Geophone #3 was offscale High and geophone #2 processed data in the positive direction only, the negative direction was truncated. This is the first attempt to operate the experiment since 22 January 1975 and the results were the same.*

The Charged Particle Lunar Environment Experiment is currently in STANDBY.

Apollo 12 ALSEP

On 28 April the Y data processor was checked for normal configuration.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 4 May 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*93/2723*	*78/2147*	*72/2104*	*63/1888*	*55/1604*
Phase, Sun Angle	*Sunrise, 82.0°*	*Sunrise, 87.9°*	*Noon, 109.1°*	*Noon, 120.9°*	*Noon, 138.2°*
Cmds - Total/Week	*52209/64*	*18018/83*	*40043/53*	*26150/88*	*38070/181*
Spurious Changes	119	104	*130*	11	0
RTG Initial/Present Reserve Power	73.6w/*46.7w* *21.1w*	72.5w/*59.3w* *13.7w*	74.7w/ *45.3w* *16.6w*	70.9w/ *51.2w* *31.0w*	75.4w/*61.3w* *25.3w*
CENTRAL STATION Avg. Therm. Plate	*87.8°F*	*106.5°F*	*107.0°F*	*88.3°F*	*68.1°F*
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X,R,S,W,DCSB B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited: *5/3/77*
CENTRAL STATION Heaters	DSS-1 (10w) - *OFF 4/28/77*	DSS-1 (10w) - *OFF 4/28/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 4/25/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/25/77
EXPERIMENTS PSE Heaters	Auto On Z Motor *OFF 4/28/77*	*Forced OFF 5/1/77*	Auto On	*Forced OFF 4/28/77*	
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
EXPERIMENTS PSE DL-07 Temp.	*139.4°F*	*129.3°F*	*Offscale HIGH*	*Offscale HIGH*	
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	OT	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - *STBY 4/29/77* Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y *Bad 4/28/77*	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM -ON 4/25/77 Static @ night 7/76 Data Intermit 4/25
EXPERIMENTS INACTIVE/INOPERABLE	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 5/4/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
30 April	GDS/GWM	Higher Priority	LOS 30/0940 AOS 30/1025	ALL	45^{m}
30 April	GWM	Unknown	LOS 30/1204 AOS 30/1206	A14	02^{m}
30 April	GWM	Spurious Command	LOS 30/1516 AOS 30/1614	A15	58^{m}
30 April	GWM	Station Problem	LOS 30/1633 AOS 30/1640	ALL	07^{m}
30 April	ACN/MAD	Higher Priority	LOS 30/1941 AOS 30/2001	ALL	20^{m}
01 May	MAD/ACN	Higher Priority	LOS 01/1941 AOS 01/2031	ALL	50^{m}
02 May	ACN/MAD	Higher Priority	LOS 02/1925 AOS 02/1939	ALL	14^{m}
03 May	ORR/MAD	Higher Priority	LOS 03/1951 AOS 03/2033	ALL	42^{m}
04 May	MAD/GDS	Higher Priority	LOS 04/0440 AOS 04/0520	ALL	40^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

11 May 1977
G.m.t.: 1700

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *The station was operated for six minutes in Low Bit Rate (530 bits per second) on 10 May. Also, the analog and digital data processors were switched from X to Y and back to X during Normal Bit Rate. These operations were done to further troubleshoot the LEAM static data problem. Analysis, thusfar, indicates that only one of the five 20 bit buffers is operating. Switching the data processors places the output of data in a different position in the operating buffer. On 11 May three sets from ON to STANDBY to ON commands to the LEAM were executed and the data from the experiment after the first set of commands remained unchanged. Further analysis is in progress.*

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier (PA) at step #1, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the decoder ON. On 9 May the experiment was commanded to PA gain Step #1, because of saturation of the amplifier in gain Step #2. On 11 May it was noted that the LSG has developed an analog to digital converter problem in that the eighth bit is setting intermittently at low temperatures. A similar problem was encountered previously at high temperatures only.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 11 May the lunar surface temperature as measured by the HFE thermocouples was 107 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. *From 25 April to 5 May the data had appeared intermittently good and bad.* The LEAM was operated to obtain science data throughout the lunar day. *Since 6 May the data has been static.*

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 9 May.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 9 May. The instrument assembly temperature (DL-07) was offscale HIGH from 2 to 9 May between the sun angles of 95.4° and 175.1°.

11 May 1977
G.m.t.: 1700

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON. During real-time support on 7 May the science data from the Y-axis sensor was again static. This failure is identical to the Z-axis sensor failure of 3 March 1975. Flip calibration sequences have been discontinued for the lunar night. 1,304 calibration sequences have been executed by the sensor heads as of 6 May.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The sensor temperature returned onscale (DL-07 = 138.3°F, sun angle = 132.4°) on 6 May. It had been offscale HIGH since 2 May. The experiment received a spurious functional command (PSE, Long Period XY gain change to -10db, octal 063) at 0201 G.m.t., 10 May with a command verification word (CVW) being observed in the downlink signal by the Madrid Tracking Station. On 10 April the experiment was reset to 0 db gain (3 octal 063s) at 0312 G.m.t. by Madrid at the direction of mission control.*

Apollo 14 ALSEP

The external 14 and 7-watt power dump resistors were commanded OFF, 10 May, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The heater was commanded to AUTO ON for lunar night operation on 9 May.*

The Charged Particle Lunar Environment Experiment was commanded ON, 10 May, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night. The CPLEE recieved and executed a spurious functional command (Operational Power ON, octal 052) at 2323 G.m.t., 6 May, as reported by the Madrid Tracking Station. The experiment was commanded to STANDBY (octal 053) by Madrid at the direction of mission control at 0123 G.m.t., 7 May.

Apollo 12 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The sensor temperature returned onscale (DL-07=139.2°F, sun angle 166.9°), 11 May, and had been offscale HIGH since 5 May.*

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1700* Z (G.m.t.) *11 May 1977*

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		93/*2730*	78/*2154*	72/*2111*	63/*1846*	55/*1611*
Phase, Sun Angle		*Noon, 166.2°*	*Noon, 172.8°*	*Sunset, 193.3°*	*Sunset, 205.2°*	*Sunset, 221.1°*
Cmds - Total/Week		*32243/34*	*17857/46*	*40134/91*	*25279/99*	*38244/174*
Spurious Changes		119	*106*	*132*	11	0
CENTRAL STATION	Initial/Present Reserve Power	73.6w/*46.1w* *25.0w*	72.5w/*59.1w* *31.2w*	74.7w/ *44.4w* *16.3w*	70.9w/ *62.4w* *18.7w*	75.4w/*62.1w* *18.5w*
	Avg. Therm. Plate	*58.4°F*	*53.1°F*	*-1.2°F*	*28.8°F*	*2.8°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited:*5/10/77*
	Heaters	DSS-1 (10w) - OFF 4/28/77	DSS-1 (10w)-OFF 4/28 *21w PDR OFF 5/10/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - ON *5/9/77*	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/25/77
	Heaters	Auto On Z Motor OFF 4/28/77	*Auto ON 5/3/77*	Auto On	*Auto ON 5/3/77*	
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
	DL-07 Temp.	*139.2°F*		*124.8°F*	*125.9°F*	
	Uncage Ckt.	Uncaged	Uncaged	*OT*	OT	RBS weekly
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y *Static 5/7/77*	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
			CPLEE - *ON 5/10/77* Operate Night Only Anal B Failed 4/71			
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intermit days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 5/11/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
	NO DATA OUTAGE		LOS 04/0440		
04 May	MAB/GDS	Higher Priority	AOS 04/0520	ALL	40^{m}
			LOS 07/2200		
07 May	GWM/ORR	Higher Priority	AOS 07/2304	ALL	$1^{h}04^{m}$
			LOS 08/0001		
08 May	ORR/GDS	Antenna Masking	AOS 08/0009	A12	08^{m}
			LOS 09/2253		
09 May	GWM/GWM	Higher Priority	AOS 09/2348	ALL	55^{m}
			LOS 10/2316		
10 May	ORR/GWM	Higher Priority	AOS 10/2335	ALL	19^{m}
			LOS 11/0049		
11 May	GWM/ACN	Higher Priority	AOS 11/0150	ALL	$1^{h}01^{m}$
			LOS		
			AOS		
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NASA-JSC

APOLLO ALSEP PERFORMANCE SUMMARY REPORT

AP3/C. Redmond
AP5/F. Carlton
CH5/J. Saultz
ED/D. Gerke
ED5/J. Lowery
EP5/J. Briley
FS4/P. Barnes
TA/P. Armitage
TC3/W. Eichelman
TC3/J. Bates
TN6/J. Minear
WA2/J. Lobb

NASA HQS.

SL/E. Glahn

APOLLO DATA ARCHIVING GROUP

GSFC 601/R. Vostreys (NSSDC)

LUNAR SCIENCE INSTITUTE

Dr. L. Srnka

BENDIX CORPORATION

B. J. Rusky

PRINCIPAL INVESTIGATORS

Mr. O. Berg
Dr. D. Clay
Dr. P. Dyal
Dr. J. Freeman
Dr. J. Hoffman
Dr. R. Kovach
Mr. J. Kunselman
Dr. M. Langseth
Dr. G. Latham
Dr. D. Reasoner

AEC/W. C. Remini

ALSEP PERFORMANCE SUMMARY REPORT

18 May 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON. *The experiment is presently configured as follows: seismic high gain, integrator shorted mode, bias out, post amplifier gain at increment 1, the coarse and fine screws driven to the extreme lower position and the sensor beam near center. To increase the experiment internal temperature the North/South tilt servo motors are ON, pressure transducer ON, and the instrument housing heater is OFF.*

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 18 May the lunar surface temperature, as measured by the HFE thermocouples, was 106 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The experiment received a spurious functional command (PSE, Long Period XY gain change to -10 db, octal 063) at 0652 G.m.t., 18 May with a command verification (CVW) being observed in the downlink signal by the Guam Tracking Station. On 18 May the experiment was reset to 0 db gain (3 octal 063s) at 0811 G.m.t. by Madrid at the direction of mission control.*

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

18 May 1977
G.m.t.: 1600

Apollo 14 ALSEP (continued)

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode. *Between real time support periods of 10 and 11 May a spurious change (CPLEE Operational Heater OFF, octal 112) occurred, without a command verification word being observed in the downlink signal. On 13 May, during real time support, mission control uplinked the Operational Heater ON command (octal 111) for normal experiment configuration.*

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at - 20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). *The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature was offscale LOW on 16 May and it is expected to return onscale 27 May.*

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 18 May 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	93/*2737*	78/*2161*	72/*2118*	63/*1853*	55/*1618*
Phase, Sun Angle	*Sunset, 253.0°*	*Sunset, 258.9°*	*Midnight, 280.1°*	*Midnight, 291.9°*	*Midnight, 307.2°*
Cmds - Total/Week	*32312/69*	*17882/25*	*40161/27*	*25321/42*	*38377/133*
Spurious Changes	119	*107*	*134*	11	0
RTG — Initial/Present Reserve Power	73.6w/ *44.2w* *10.3w*	72.5w/ *57.9w* *13.1w*	74.7w/ *42.5w* *14.6w*	70.9w/ *61.9w* *13.2w*	75.4w/ *61.7w* *17.3w*
CENTRAL STATION — Avg. Therm. Plate	*3.5°F*	*21.3°F*	*-6.6°F*	*26.6°F*	*-2.5°F*
CENTRAL STATION — Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION — Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION — PCU	1	1	1	1	2
CENTRAL STATION — Timer	Inoperative	Inoperative	Operative Reset: 4/24/77	Inhibited 5/72 Reset: 4/24/77	Operative Inhibited: *5/18/77*
CENTRAL STATION — Heaters	DSS-1 (10w)-*ON 5/12/77*	DSS-1 (10w)-*ON 5/12* 21w PDR OFF 5/10/77	DSS-1 (10w) - OFF	DSS-1 (10w)- ON 5/9/77	APM STATUS: ON
EXPERIMENTS — PSE — LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS — PSE — Heaters	Auto On Z Motor *ON 5/12/77*	Auto On 5/9/77	Auto On	Auto On 5/9/77	
EXPERIMENTS — PSE — Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS — PSE — DL-07 Temp.	*Offscale LOW*	*124.1°F*	*124.5°F*	*125.8°F*	
EXPERIMENTS — PSE — Uncage Ckt.	Uncaged	Uncaged	*OT*	OT	RBS weekly
EXPERIMENTS — ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Static 5/7/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - ON 5/10/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS — INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intermit days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
			LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 5/18/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
11 May	ULA/HAW	Higher Priority	LOS 11/1849 AOS 11/1921	ALL	32^{m}
13 May	HAW/GWM	Higher Priority	LOS 13/0049 AOS 13/0149	ALL	$1^{h}00^{m}$
13 May	MAD/MIL	Higher Priority	LOS 13/0645 AOS 13/0758	ALL	$1^{h}13^{m}$
14 May	MAD/ACN	Higher Priority	LOS 14/0723 AOS 14/0823	ALL	$1^{h}00^{m}$
15 May	MIL/AGO	Higher Priority	LOS 15/1058 AOS 15/1100	ALL	02^{m}
15 May	AGO	Station Problem	LOS 15/1100 AOS 15/1129	A17	29^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

25 May 1977
G.m.t.: 1600

Apollo 17 ALSEP

Sunrise of the 56th lunation occurred on 22 May at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *A real-time check of the timer was obtained on 20 May. The pulse was predicted to occur at 184100 G.m.t. but actually timed out at 180834 G.m.t. The timer has shifted another 32 minutes 36 seconds early. The shift is now 1 hour 4 minutes 53 seconds from initialization in December 1972. It is believed the timer still runs 61 hours 49 minutes 35 seconds before the next timing pulse and the time out is still predictable. Further checks will be made to establish that this is a shift in timer pulses and not a cumulative error.*

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater ON, seismic high gain, power amplifier at step #2 (24 May), integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 25 May the lunar surface temperature, as measured by the HFE thermocouples, was 204 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. After numerous cycles from ON to STANDBY to ON and calibration commands on 25 May, the science data appeared completely invalid on the EAST and UP dual sensors. The WEST single sensor data was static at all zeros.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 24 May for the 64th lunation. The Central Station 18-hour timer output pulses continue to be inhibited per the agreed operation plan initiated 6 May 1972. *The DSS-1 (10w) heater was commanded OFF, 24 May.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control Auto ON, component gains 0 db, and feedback loop filter OUT.) *The uncage-arm fire circuitry was commanded to UNCAGED*

25 May 1977
G.m.t.: 1600

Apollo 16 ALSEP (continued)

on 24 May, in an attempt to minimize heating in the experiment during lunar day. Operation in this configuration with the heater in Forced OFF has shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1306 have been executed and verified by the experiment engineering data since deployment. The Y and Z-axes science data remained static this report period.*

The Active Seismic Experiment was commanded to STANDBY on 23 May. This mode is necessary to read the Mortar Box (AS02) and Grenade Launch Assembly (AS03) temperatures. These readings will be used to establish a temperature profile to determine the position of the mortar box for a planned firing of the remaining mortar in the near future.

Apollo 15 ALSEP

Sunrise of the 73rd lunation at the Hadley Rille Site occurred on 25 May.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 79th lunation at the Apollo 14 site will occur on 26 May. *The central station DSS-1 (10 watt) heater will be commanded OFF and the external 14 and 7-watt power dump resistors will be commanded ON for day operation on 27 and 29 May, respectively.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

25 May 1977
G.m.t.: 1600

Apollo 14 ALSEP (continued)

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

Sunrise of the 94th lunation will occur on 27 May. *The central station DSS-1 (10w) heater will be commanded OFF on 27 May.*

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis component gain is -20 db. The instrument assembly temperature (DL-07) has been offscale LOW since 16 May. *The Z-motor will be commanded OFF on 27 May.*

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 25 May 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	93/2744	78/2168	73/2125	64/1860	56/1625
Phase, Sun Angle	Midnight, 338.6°	Midnight, 344.6°	Sunrise, 5.8°	Sunrise, 17.6°	Sunrise, 33.3°
Cmds - Total/Week	32320/8	17904/22	40178/17	25379/58	38467/90
Spurious Changes	119	107	134	11	0
RTG — Initial/Present Reserve Power	73.6w/ 43.8w 9.8w	72.5w/ 57.2w 12.5w	74.7w/ 42.5w 13.8w	70.9w/ 61.6w 29.6w	75.4w/ 60.9w 25.6w
CENTRAL STATION — Avg. Therm. Plate	1.3°F	20.2°F	-7.9°F	54.8°F	61.3°F
CENTRAL STATION — Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION — Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION — PCU	1	1	1	1	2
CENTRAL STATION — Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 5/23/77
CENTRAL STATION — Heaters	DSS-1 (10w) - ON 5/12/77	DSS-1 (10w) - ON 5/12 2Tw PDRs OFF 5/10/77	DSS-1 (10w) - OFF	DSS-1 (10w) OFF 5/24/77	APM STATUS: ON
EXPERIMENTS — PSE — LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS — PSE — Heaters	Auto On Z Motor ON 5/12/77	Auto ON 5/9/77	Auto On	Auto On 5/9/77	
EXPERIMENTS — PSE — Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS — PSE — DL-07 Temp.	Offscale LOW	124.1°F	124.5°F	125.3°F	
EXPERIMENTS — PSE — Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged 5/24/77	RBS weekly
EXPERIMENTS — ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - ON 5/10/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Static 5/7/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS — INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
EXPERIMENTS — INACTIVE/INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
EXPERIMENTS — INACTIVE/INOPERABLE	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - STBY 5/23/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	93	93
Sun Angle	93.1°	278.4°
Sig Strth (9m)	-139.1 dbm	-139.0 dbm
Input Power	46.7w	44.2w
Reserve Power	20.8w	10.3w
Av Ther Pl T.	88.3°F	2.3°F
PSE T. (DL-07)	HIGH	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	78	78
Sun Angle	86.9°	258.0°
Sig Strth (9m)	-144.0 dbm	-137.0 dbm
Input Power	59.3w	57.9w
Reserve Power	13.7w	13.1w
Av Ther Pl T.	106.5°F	21.3°F
PSE T. (DL-07)	129.3°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	72	72
Sun Angle	95.2°	279.1°
Sig Strth (9m)	-139.0 dbm	-144.0 dbm
Input Power	45.3w	42.5w
Reserve Power	16.6w	14.6w
Av Ther Pl T.	107.2°F	-6.6°F
PSE T. (DL-07)	HIGH	124.5°F

APOLLO 16 ALSEP

	Noon	Night
Lunation	63	63
Sun Angle	95.4°	266.2°
Sig Strth (9m)	-138.0 dbm	-136.0 dbm
Input Power	63.1w	61.9w
Reserve Power	31.5w	13.2w
Av Ther Pl T.	103.0°F	26.8°F
PSE T. (DL-07)	HIGH	125.8°F
LSM T. (DM-05)	45.8°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	55	55
Sun Angle	86.7°	281.7°
Sig Strth (9m)	-141.0 dbm	-142.0 dbm
Input Power	61.3w	62.1w
Reserve Power	23.9w	23.3w
Av Ther Pl T.	81.8°F	-2.1°F
LACE T. (AM-41)	157.7°F	-16.1°F
LEAM T. (AJ-11)	202.0°F	-17.4°F
HFE T. (DH-13)	327.4°K	286.1°K
LSG T. (DG-04)	HIGH	LOW
LSP T. (AP-01)	81.6°F	0.3°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 5/25/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
18 May	ACN	Unknown	LOS 18/0844 AOS 18/0847	A15	03^m
18 May	ACN	Solar RFI	LOS 18/0922 AOS 18/0937	ALL	15^m
18 May	MIL/GWM	Schedule	LOS 18/2331 AOS 18/2336	ALL	05^m
19 May	ACN	Higher Priority	LOS 19/0933 AOS 19/1037	ALL	1^h04^m
20 May	GWM	Higher Priority	LOS 20/0540 AOS 20/0635	ALL	55^m
20 May	GWM/BDA	Higher Priority	LOS 20/0915 AOS 20/1130	ALL	2^h15^m
20 May	MIL	Station Problem	LOS 20/2111 AOS 20/2241	ALL	1^h30^m
24 May	GWM/HAW	Higher Priority	LOS 24/0540 AOS 24/0610	ALL	30^m
24 May	ACN	Station Problem	LOS 24/1407 AOS 24/1412	A14	05^m
25 May	GDS	Antenna Masking	LOS 25/0532 AOS 25/0537	ALL	05^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

TIMES - CDT

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DAILY

MAY 29/149	30/150	31/151	JUN 01/152	02/153	03/154	04/155
0900-1100 ALSEP 14 CPLEE STBY PDRs ON ALSEP 16 PSE HTR OFF	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF	0900-1100	0900-1100 ALSEP 17 HFE - RBS ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100
JUN 05/156	**06/157**	**07/158**	**08/159**	**09/160**	**10/161**	**11/162**
0900-1100 2200-2300	0900-1100 ALSEP 17 ALSEP 16 LSM FLIP CAL 2200/2300 ALSEP 16 PSE HTR ON	0900-1100 ALSEP 16 C/S HTR ON ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON PDRs OFF	0900-1100	0900-1100 ALSEP 14 ALSEP 12	0200-0600 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON 1400-1500
JUN 12/163	**13/164**	**14/165**	**15/166**	**16/167**	**17/168**	**18/169**
0900-1100	0900-1100	NO SUPPORT	0900-1100 ALSEP 17 HFE - RBS	NO SUPPORT	0900-1100	NO SUPPORT

[redacted]

TIMES - CDT

ALSEP SUPPORT SCHEDULE/EVENTS

PSE CALS DA

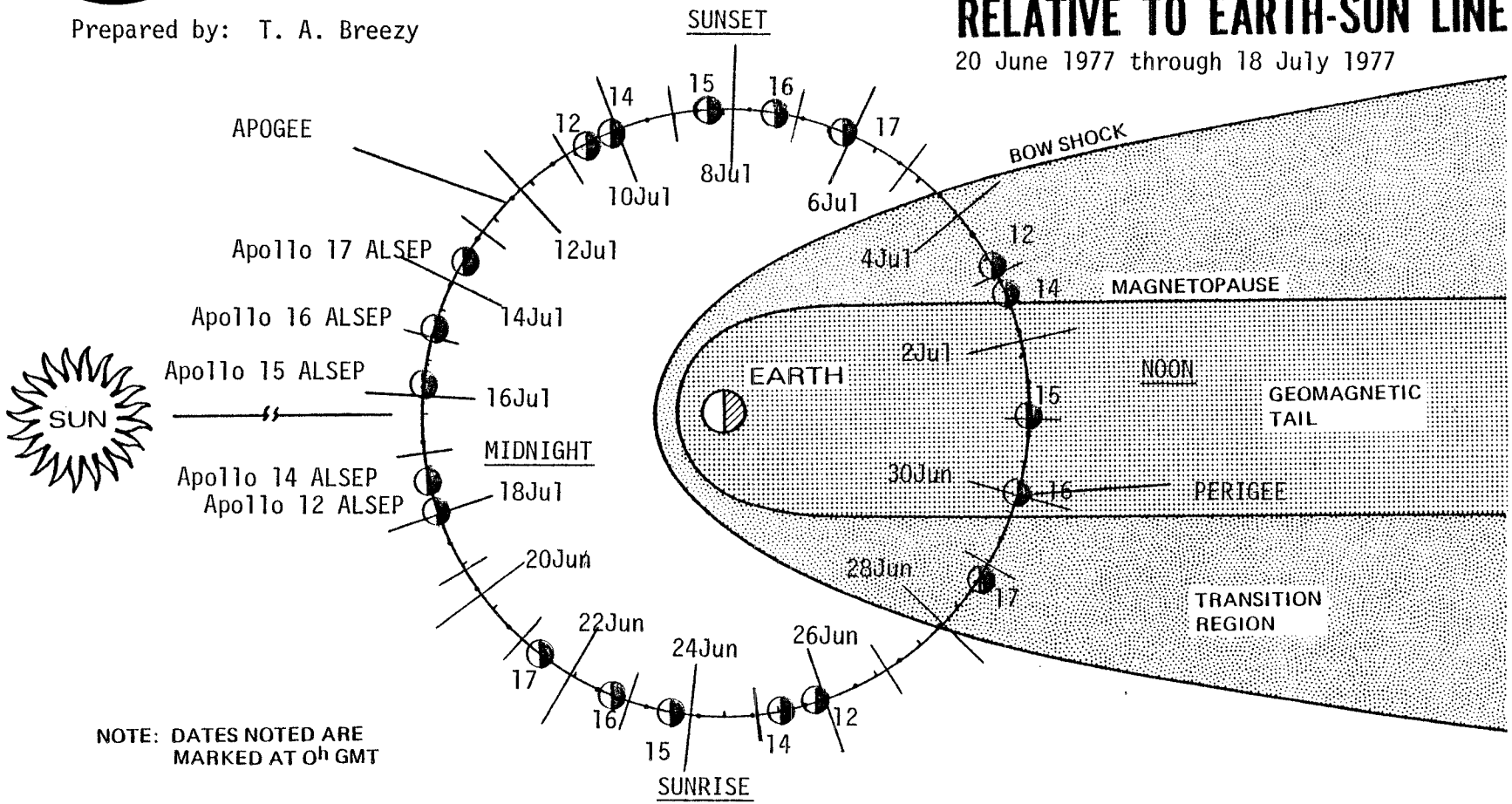
JUN 19/170	20/171	21/172	22/173	23/174	24/175	25/176
NO SUPPORT	0900-1100	NO SUPPORT ALSEP 17	1800-2000 ALSEP 16 C/S HTR OFF TIMER RST ALSEP 15 TIMER RST ALSEP 17 HFE-RBS	0900-1100 ALSEP 15	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 14 ALSEP 12
JUN 26/177	27/178	28/179	29/180	30/181	JUL 01/182	02/183
0000-0200 ALSEP 14 C/S HTR OFF ALSEP 12 C/S HTR OFF PSE Z MTR OFF 1100-1200	0900-1100 ALSEP 16 LSM FLIP CAL PSE HTR OFF ALSEP 14 CPLEE STBY PDRs ON	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF	0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100
JUL 03/184	04/185	05/186	06/187	07/188	08/189	09/190
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 2200-2300 ALSEP 17	0900-1100 2200-2300	0900-1100 ALSEP 16	0900-1100 ALSEP 15	0900-1100 ALSEP 14

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

20 June 1977 through 18 July 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR (GMT)				
	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	14Jun/0223	21Jun/1043	(57)28Jun/1932	06Jul/0441	13Jul/1319
16	15Jun/0813	22Jun/1636	(65)30Jun/0131	07Jul/1038	14Jul/1908
15	16Jun/0728	23Jun/1553	(74)01Jul/0053	08Jul/0955	15Jul/1823
14	18Jun/0052	25Jun/0924	(80)02Jul/1830	10Jul/0325	17Jul/1147
12	18Jun/1230	25Jun/2108	(95)03Jul/0612	10Jul/1418	17Jul/2326

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

1 June 1977
G.m.t.: 1600

The Apollo 15 and 16 ALSEP Central Station 18 hour timers are being allowed to time out 96 ± 4 days from their last reset on 24 May 1977. This one time function will turn the transmitters off sometime during the last week of August. Afterward, the transmitters will be commanded back on. This action will preclude the resetting of these timers every lunar sunrise after the termination of ALSEP support operations on 1 October 1977. The expiration of these one-time automatic timer functions to turn the Apollo 15 and 16 ALSEP transmitters off means that any future transmitter turn-offs must be by ground command.

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *A real-time check of the timer was obtained on 28 May. This check verified that the timer had permanently shifted another 32 minutes early, so that the timer is now 1 hour 4 minutes 53 seconds from initialization in December 1972. The timer interval is still 61 hours 49 minutes 35 seconds between pulses, and the time out is still predictable except for the 32 minute permanent shifts. Another check is planned during real-time support period on 2 June.*

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater ON, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 1 June the lunar surface temperature, as measured by the HFE thermocouples, was 360 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is currently ON. Science data has been static since 6 May. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period.

Apollo 16 ALSEP

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) was offscale HIGH today at a sun angle of 101.8° and is expected to return onscale 7 June.*

ALSEP PERFORMANCE SUMMARY REPORT (continued)

1 June 1977
G.m.t.: 1600

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON and recording data. *On 27 May at the start of real time support (sun angle 43.6°) the experiment Y-axis had resumed normal operation. The Y-axis data had been invalid since 7 May.* Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1312 have been executed and verified by the engineering data since deployment.

The Active Seismic Experiment is currently in STANDBY. This mode is necessary to read the Mortar Box (AS02) and Grenade Launch Assembly (AS03) temperatures. These readings will be used to establish a temperature profile to determine the position of the mortar box for a planned firing of the remaining mortar in the near future.

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. *The instrument assembly temperature (DL-07) was offscale HIGH today at a sun angle of 90.8° and is expected to return onscale 5 June.*

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 28 May for this lunar day time.

Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. *The sensor temperature (DL-07) returned onscale 27 May at a sun angle of 4.4°.*

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch TC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) ne 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*94/2751*	*79/2175*	*73/2132*	*64/1867*	*56/1632*
Phase, Sun Angle	*Sunrise, 64.0°*	*Sunrise, 69.4°*	*Noon, 91.1°*	*Noon, 102.9°*	*Noon, 118.2°*
Cmds - Total/Week	*32412/92*	*17955/51*	*40259/81*	*25475/96*	*38584/117*
Spurious Changes	119	107	134	11	0
RTG: Initial/Present Reserve Power	73.6w/ *45.8w* *20.3w*	72.5w/ *59.0w* *13.5w*	74.7w/ *43.7w* *15.2w*	70.9w/ *61.9w* *30.5w*	75.4w/ *60.9w* *24.8w*
CENTRAL STATION: Avg. Therm. Plate	*86.2°F*	*101.3°F*	*103.7°F*	*101.5°F*	*76.8°F*
CENTRAL STATION: Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION: Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION: PCU	1	1	1	1	2
CENTRAL STATION: Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: *5/31/77*
CENTRAL STATION: Heaters	DSS-1 (10w) - *OFF 5/27/77*	DSS-1 (10w) - *OFF 5/27/77*	DSS-1 (10w) - OFF	DSS-1 (10w) OFF 5/24/77	APM STATUS: ON
EXPERIMENTS: PSE: LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/25/77
EXPERIMENTS: PSE: Heaters	Auto On Z Motor *OFF 5/27/77*	*Forced OFF 5/31/77* *21w PDRs ON 5/28/77*	Auto On	Auto On *Forced OFF 5/28/77*	
EXPERIMENTS: PSE: Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON.
EXPERIMENTS: PSE: DL-07 Temp.	*130.9°F*	*127.2°F*	*Offscale HIGH*	*Offscale HIGH*	
EXPERIMENTS: PSE: Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	Uncaged - 5/24/77	RBS weekly
EXPERIMENTS: ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y *Good 5/27/77*	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - *STBY 4/28/77* Operate Night Only Anal B Failed 4/71			
EXPERIMENTS: INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE -STBY 5/23/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
			LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 6/01/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
26 May	MAD/QUI	Higher Priority	LOS 26/1806 AOS 26/1811	ALL	05^{m}
27 May	GWM/MAD	Antenna Masking	LOS 27/1429 AOS 27/1433	ALL	04^{m}
28 May	ACN	Station Problem	LOS 28/0124 AOS 28/0130	A12	06^{m}
28 May	GDS/ULA	Schedule	LOS 28/0812 AOS 28/0820	ALL	08^{m}
28 May	GWM	Higher Priority	LOS 28/1249 AOS 28/1357	ALL	$1^{h}08^{m}$
28 May	GWM/MAD	Higher Priority	LOS 28/1425 AOS 28/1520	ALL	55^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

8 June 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON. On 3 June, the beam was repositioned with the EAST/WEST tilt servo motors to avoid saturation of the power amplifier at step #2 during lunar night.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 8 June the lunar surface temperature as measured by the HFE thermocouples was 117 $\pm$ 8°k. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. *The LEAM data has been almost totally invalid during this lunar day (22 May - 6 June).*

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater was commanded ON for lunar night on 7 June.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT). The heater was commanded from Forced OFF to AUTO ON for lunar night operation on 7 June. The instrument assembly temperature (DL-07) was offscale HIGH from 1 to 7 June between the sun angles of 101.8° and 169.4°. The PSE recorded a significant seismic event during real time support on 2 June. The event started at 1426 G.m.t. and was still discernible on the Y-axis at 1512 G.m.t. when support ended. The other ALSEP stations were monitored during this time period with no apparent indications of the event.

The Lunar Surface Magnetometer Experiment is ON. *During real-time support on 6 June the science data from the Y-axis sensor became static at a sun angle of 157.2°. It is expected to return to normal operation on 26 Jun at a sun angle near 43° after lunar sunrise. Flip calibration sequences have been discontinued for the lunar night.* 1,318 calibration sequences have been executed by the sensor heads as of 8 June.

8 June 1977
G.m.t.: 1600

Apollo 16 ALSEP (continued)

The Active Seismic Experiment was commanded OFF on 7 June. It had been in STANDBY since 23 May so that the Mortar Box (AS02) and Grenade Launch Assembly (AS03) temperatures could be read to determine the position of the mortar box. The data has been gathered and analysed and the STANDBY operation has been terminated.

Apollo 15 ALSEP

Between 0039 and 1340 G.m.t., a spurious command (Timer Output Inhibit, octal 033) was received and executed by the 18-hour timer. A command verification word was not observed in the downlink signal. During real-time support at 1528 G.m.t., 8 June, a Timer Output Accept (octal 032) command was transmitted by mission control to allow the timer to resume normal operation. This in no way affects the planned timing out of the timer begun on 24 May.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The sensor temperature returned onscale (DL-07 = 142.5°F, sun angle = 114.9°) on 3 June. It had been offscale HIGH since 1 June.*

Apollo 14 ALSEP

The external 14 and 7-watt power dump resistors were commanded OFF, 8 June, for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The heater was commanded to AUTO ON for lunar night operation on 7 June.*

The Charged Particle Lunar Environment Experiment was commanded ON, 8 June, and is operating in the normal mode at the -35 vdc range and automatic thermal control mode for the lunar night.

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). *At 1744 G.m.t., 6 June, the Hawaii Tracking Station observed parameter AB-04 out of limits (ASE OFF) without a command verification word (CVW) in the downlink. At 2006 G.m.t., 6 June, the Guam Tracking Station uplinked the command ASE Standby (octal 043) at the request of mission control.*

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 5 Dec 75 ALSEP Performance Summary Report). *The sensor temperature was offscale HIGH on 5 June at a sun angle of 111.7°.*

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) June 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	94/2758	79/2182	73/2139	64/1874	56/1639
Phase, Sun Angle	Noon, 149.4°	Noon, 155.3°	Sunset, 176.4°	Sunset, 187.3°	Sunset, 203.5°
Cmds - Total/Week	32454/42	18004/49	40329/70	25580/105	38731/147
Spurious Changes	119	108	135	11	0
RTG Initial/Present Reserve Power	73.6w/45.8w 20.3w	72.5w/ 58.7w 13.7w	74.7w/ 42.8w 16.0w	70.9w/ 62.4w 13.7w	75.4w/ 61.7w 17.3w
CENTRAL STATION Avg. Therm. Plate	75.6°F	73.4°F	40.2°F	33.2°F	-0.6°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 6/8/77
CENTRAL STATION Heaters	DSS-1 (10w) - OFF 5/27/77	DSS-1 (10w) - OFF 5/27/77	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 6/7/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS PSE Heaters	Auto On Z Motor OFF 5/27/77	Auto ON 6/7/77 21w PDRs OFF 6/8/77	Auto On	Auto ON 6/7/77	
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS PSE DL-07 Temp.	Offscale HIGH	128.1°F	125.2°F	126.1°F	
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	OT	OT	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Static 6/6/77	LSG- Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - ON 6/8/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE - OFF 6/7/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
			LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 6/8/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
NONE			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
			AOS		
			LOS		
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			AOS		

ALSEP PERFORMANCE SUMMARY REPORT

15 June 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 15 June the lunar surface temperature, as measured by the HFE thermocouples, was 107 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. *The LEAM data has been totally invalid this reporting period and the analog data has stopped sequencing.*

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The experiment received a spurious functional command (PSE, Long Period calibration ON, octal 066) between real time support periods of 11 and 12 June without a command verification word (CVW) being observed in the downlink signal. On 12 June the experiment was reset to calibration OFF (octal 066) during the support period.*

ALSEP PERFORMANCE SUMMARY REPORT (continued)

15 June 1977
G.m.t.: 1600

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at - 20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). *The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 141.6°F, sun angle 160.7°) on 9 June. It had been Offscale HIGH since 5 June. The sensor temperature was Offscale LOW on 15 June and is expected to return onscale 25 June.*

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 1 June 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*94/2756*	*79/2189*	*73/2146*	*64/1881*	*56/1645*
Phase, Sun Angle	*Sunset, 235.0°*	*Sunset, 241.0°*	*Sunset, 262.1°*	*Midnight, 274.0°*	*Midnight, 289.2°*
Cmds - Total/Week	*32543/89*	*18033/29*	*40384/55*	*25628/48*	*38778/47*
Spurious Changes	119	108	*136*	11	0
CENTRAL STATION / RTG Initial/Present Reserve Power	73.6w/ *44.5w* *9.8w*	72.5w/ *57.1w* *12.8w*	74.7w/ *41.5w* *13.5w*	70.9w/ *62.7w* *13.4w*	75.4w/*61.3w* *16.7w*
CENTRAL STATION / Avg. Therm. Plate	*1.3°F*	*21.3°F*	*- 10.0°F*	*26.4°F*	*-3.9°F*
CENTRAL STATION / Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION / Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION / PCU	1	1	1	1	2
CENTRAL STATION / Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited:*6/15/77*
CENTRAL STATION / Heaters	DSS-1 (10w) - *ON 6/11/77*	DSS-1 (10w) - *ON 6/11/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 6/7/77	APM STATUS: ON
EXPERIMENTS / PSE / LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/25/77
EXPERIMENTS / PSE / Heaters	Auto On Z Motor *ON 6/11/77*	Auto ON 6/7/77 21w PDRs OFF 6/8/77	Auto On	Auto On 6/7/77	
EXPERIMENTS / PSE / Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON,
EXPERIMENTS / PSE / DL-07 Temp.	*Offscale LOW*	*124.1°F*	*124.7°F*	*124.8°F*	
EXPERIMENTS / PSE / Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	OT	RBS weekly
EXPERIMENTS / ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Static 6/6/77	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - ON 6/8/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS / INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE - OFF 6/7/77 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
			LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 6/15/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
09/10 June	HAW/GWM	Higher Priority	LOS 09/2335 AOS 10/0116	ALL	1^h41^m
11 June	ACN	Schedule	LOS 11/0254 AOS 11/0257	A16 & A17	03^m
11 June	ACN	Schedule	LOS 11/0254 AOS 11/0259	A12 & A14	05^m
11 June	ACN	Schedule	LOS 11/0254 AOS 11/0301	A15	07^m
11 June	MIL	Station Problem	LOS 11/0836 AOS 11/0900	ALL	24^m
11 June	GDS/GWM	Schedule	LOS 11/1921 AOS 11/1925	ALL	04^m
13 June	ORR	Station Problem	LOS 13/0105 AOS 13/0110	ALL	05^m
June	ORR	Station Problem	LOS 13/0131 AOS 13/0135	ALL	04^m
14 June	GDS/ORR	Schedule	LOS 14/0000 AOS 14/0005	ALL	05^m
15 June	ACN/MIL	Schedule	LOS 15/0923 AOS 15/0952	ALL	29^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

22 June 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier (PA) at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, the decoder ON, and the pressure transducer ON. Additional heat is added to the instrument at lunar night by operation with the heater OFF, decoder ON, and pressure transducer ON.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are being achieved on a periodic basis. On 20 June the lunar surface temperature, as measured by the HFE thermocouples, was 105 $\pm$ 8°K. At a depth of 230 cm the subsurface temperatures were 256.9°K at probe #1 and 257.0°K at probe #2.

The Lunar Ejecta and Meteorites Experiment is ON. The LEAM data has been totally invalid this reporting period and the analog data has stopped sequencing.

Apollo 16 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night.

The Passive Seismic Experiment is configured for network congruity (thermal control, AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

Apollo 15 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

Apollo 14 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation. The external 14 and 7-watt power dump resistors are OFF.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

22 June 1977
G.m.t.: 1600

Apollo 14 ALSEP

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at the -35 vdc range and automatic thermal control mode. *Between real time support periods of 15 and 17 June a spurious functional change occurred, CPLEE to Step Voltage Level +3500 volt range (octal 115), without a command verification word (CVW) being observed in the downlink signal. During support on 17 June the CPLEE was reset to the -35 volt range.*

Apollo 12 ALSEP

The Central Station DSS-1 (10w) Heater is ON for lunar night operation.

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature has been Offscale LOW since 15 June and is expected to return onscale 25 June.

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) June 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	94/2770	79/2194	73/2151	64/1886	56/1651
Phase, Sun Angle	Midnight, 296.2°	Midnight, 302.2°	Midnight, 324.3°	Midnight, 335.2°	Midnight, 350.6°
Cmds - Total/Week	32547/4	18047/14	40392/8	25636/8	38790/12
Spurious Changes	119	109	137	11	0
RTG Initial/Present Reserve Power	73.6w/ 43.0w 9.3w	72.5w/ 57.2w 12.2w	74.7w/ 40.9w 13.2w	70.9w/ 61.7w 13.0w	75.4w/ 60.9w 16.7w
CENTRAL STATION Avg. Therm. Plate	-.1°F	20.0°F	-12.6°F	25.7°F	-5.0°F
CENTRAL STATION Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION PCU	1	1	1	1	2
CENTRAL STATION Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: 6/20/77
CENTRAL STATION Heaters	DSS-1 (10w) - ON 6/11/77	DSS-1 (10w)-ON 6/11 21w PDRs OFF 6/8/77	DSS-1 (10w) - OFF	DSS-1 (10w) - ON 6/7/77	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS PSE Heaters	Auto On Z Motor ON 6/11/77	Auto On 6/7/77	Auto On	Auto On 6/7/77	
EXPERIMENTS PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON,
EXPERIMENTS PSE DL-07 Temp.	Offscale LOW	124.1°F	124.4°F	125.8°F	
EXPERIMENTS PSE Uncage Ckt.	Uncaged	Uncaged	Uncaged	OT	RBS weekly
EXPERIMENTS ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - ON 6/8/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
EXPERIMENTS INACTIVE/INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM -ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
EXPERIMENTS INACTIVE/INOPERABLE	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 6/22/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
16 June	ORR	Station Problem	LOS 16/0154 AOS 16/0156	ALL	02^{m}
16 June	MAD	Higher Priority	LOS 16/0825 AOS 16/1055	ALL	$2^{h}30^{m}$
17 June	GWM	Higher Priority	LOS 17/0300 AOS 17/0409	ALL	$1^{h}09^{m}$
17 June	GWM/ACN	Higher Priority	LOS 17/0804 AOS 17/0958	ALL	$1^{h}54^{m}$
18 June	GWM/ACN	Schedule	LOS 18/0940 AOS 18/0950	ALL	10^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

29 June 1977
G.m.t.: 1600

Apollo 17 ALSEP

Sunrise of the 57th lunation occurred on 21 June at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, and the pressure transducer and decoder OFF.

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 29 June the lunar surface temperature, as measured by the HFE thermocouples, was 371 ± 8°K. At a depth of 230 cm the subsurface temperatures were 256.8°K at probe #1 and 257.0°K at probe #2.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. The engineering data synched and was valid on 26 and 29 June. A LEAM calibration was obtained on 28 June, but the science data remained invalid.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 22 June for the 65th lunation. *The DSS-1 (10w) heater was commanded OFF 22 June.*

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. *The heater is being operated in Forced OFF and Uncaged for lunar day operation to minimize heating in the experiment. Operation in this configuration with the heater in Forced OFF has shown a decrease in the sensor temperature and a reduction in the frequency of levelling required.*

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1324 have been executed and verified by the experiment engineering data since deployment. The Y axis science data had returned to normal operations on 26 June at a sun angle of 43°.*

The Active Seismic Experiment is in STANDBY.

29 June
G.m.t.: 1600

Apollo 15 ALSEP

Sunrise of the 74th lunation at the Hadley Rille Site occurred on 23 June. *The 18 hour timer pulse was 25 minutes late on 26 June and is attributed to low temperature (-12°F) in the Central Station at night.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), *except the heater is AUTO ON.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 80th lunation at the Apollo 14 site occurred on 25 June. *The central station DSS-1 (10 watt) heater was commanded OFF and the external 14 and 7-watt power dump resistors were commanded ON for day operation on 26 and 27 June, respectively. The DTREM responded to a spurious OFF command (octal 031) between support periods of 20 and 22 June. It was commanded ON (octal 027) during real time support 26 June and operation in Data Processor Y was verified.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The sensor heaters were commanded off on 29 June. The Long Period Z-axis data was noisy on 17 June and was static on 20 June. The axis has not responded to calibration commands since 26 June.*

The Active Seismic Experiment is in STANDBY (Apollo 14 ALSEP, SMEAR 86). *The experiment was commanded ON and operated in High Bit Rate for 20 minutes on 28 June. The grenades were armed to determine whether the Mortar Box Ground Monitor Voltage (DS-05) would show a change by charging the capacitors to fire the mortars. No change in voltage occurred. Further analysis is being conducted. The grenades were dearmed when the ASE was commanded to STANDBY.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 27 June for lunar day time.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

29 June 1977
G.m.t.: 1600

Apollo 12 ALSEP

Sunrise of the 95th lunation occurred on 25 June. *The central station DSS-1 (10w) heater was commanded OFF on 26 June and operation in Data Processor Y was verified.*

The Passive Seismic Experiment is configured thermal control Auto ON, component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. *The sensor temperature (DL- 07) returned onscale at a sun angle of 4.1° and the Z motor was commanded OFF on 26 June. The PSE operated normally throughout this past lunar night even though the Central Station average thermal plate temperature dropped below +1°F to -1.5°F.*

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS as of week ending *1600 Z (G.m.t.) 29 June 1977*

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		*95/2779*	*80/2203*	*74/2160*	*65/1895*	*57/1660*
Phase, Sun Angle		*Sunrise, 46.2°*	*Sunrise, 52.2°*	*Sunrise, 73.3°*	*Sunrise, 85.1°*	*Noon, 100.4°*
Cmds - Total/Week		*32624/77*	*18110/63*	*40462/70*	*25771/135*	*38923/133*
Spurious Changes		119	*110*	134	11	0
RTG	Initial/Present Reserve Power	73.6w/*44.6w* *19.4w*	72.5w/ *58.2w* *12.6w*	74.7w/ *42.1w* *13.3w*	70.9w/*61.7w* *30.8w*	75.4w/ *60.1w* *24.8w*
CENTRAL STATION	Avg. Therm. Plate	*80.3°F*	*90.3°F*	*97.3°F*	*101.6°F*	*79.4°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited:*6/28/77*
	Heaters	DSS-1 (10w) - *ON 6/26/77*	DSS-1 (10w) - *ON 6/26 21w PDRs OFF 6/27/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - *OFF 6/22/77*	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE - STBY 4/25/77
	Heaters	Auto On Z Motor *OFF 6/26/77*	*Forced OFF 6/27/77*	Auto On	*Forced OFF 6/27/77*	
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
	DL-07 Temp.	*127.3°F*	*127.3°F*	*138.9°F*	*139.8°F*	
	Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	*Uncaged 6/22/77*	RBS weekly
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - *STBY 6/27/77* Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	94	94
Sun Angle	87.1°	258.5°
Sig Strth (9m)	-139.0 dbm	-137.0 dbm
Input Power	46.1w	43.3w
Reserve Power	20.6w	9.5w
Av Ther Pl T.	86.6°F	1.0°F
PSE T. (DL-07)	HIGH	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	79	79
Sun Angle	93.3°	264.5°
Sig Strth (9m)	-141.0 dbm	-141.0 dbm
Input Power	59.0w	57.2w
Reserve Power	13.5w	12.2w
Av Ther Pl T.	104.0°F	20.2°F
PSE T. (DL-07)	129.3°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	73	73
Sun Angle	90.8°	285.5°
Sig Strth (9m)	-137.0 dbm	-144.0 dbm
Input Power	43.7w	41.2w
Reserve Power	15.2w	14.0w
Av Ther Pl T.	103.7°F	-11.8°F
PSE T. (DL-07)	HIGH	124.5°F

APOLLO 16 ALSEP

	Noon	Night
Lunation	64	64
Sun Angle	89.9°	272.9°
Sig Strth (9m)	-137.0 dbm	-134.0 dbm
Input Power	62.1w	62.7w
Reserve Power	30.8w	13.4w
Av Ther Pl T.	102.6°F	26.4°F
PSE T. (DL-07)	HIGH	125.8°F
LSM T. (DM-05)	45.8°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	56	56
Sun Angle	93.1°	263.9°
Sig Strth (9m)	-138.0 dbm	-139.0 dbm
Input Power	60.9w	61.3w
Reserve Power	23.6w	17.0w
Av Ther Pl T.	80.7°F	-3.1°F
LACE T. (AM-41)	157.7°F	-16.1°F
LEAM T. (AJ-11)	205.6°F	-17.4°F
HFE T. (DH-13)	327.4°K	285.9°K
LSG T. (DG-04)	HIGH	LOW
LSP T. (AP-01)	80.9°F	-2.3°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 6/29/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
21 June	ACN/MAD	Higher Priority	LOS 21/1245 AOS 21/1313	ALL	28m
22 June	GWM/ORR	Higher Priority	LOS 22/0951 AOS 22/1017	ALL	26m
23 June	GWM	Higher Priority	LOS 23/1030 AOS 23/1128	ALL	58m
24 June	GWM/ORR	Higher Priority	LOS 24/0930 AOS 24/1004	ALL	34m
25 June	ORR/ACN	Higher Priority	LOS 25/1336 AOS 25/1346	ALL	10m
26 June	MAD/AGO	Higher Priority	LOS 26/1834 AOS 26/1857	ALL	23m
June	GDS/GWM	Higher Priority	LOS 27/0911 AOS 27/0917	ALL	06m
28 June	MAD	Higher Priority	LOS 28/1815 AOS 28/1857	ALL	42m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

TIMES - ALSEP SUPPORT SCH[illegible]E/EVENTS PSE CA[illegible]AILY

JUL 10/191	11/192	12/193	13/194	14/195	15/196	16/197
1200-1600 ALSEP 12 C/S HTR ON PSE Z MTR ON ALSEP 14 C/S HTR ON	0900-1100	0900-1100	0900-1100 ALSEP 17 HFE - RBS	NO SUPPORT	0900-1100	NO SUPPORT
JUL 17/198	**18/199**	**19/200**	**20/201**	**21/202**	**22/203**	**23/204**
NO SUPPORT	0900-1100	NO SUPPORT	0900-1100 ALSEP 17 HFE RBS	NO SUPPORT ALSEP 16	0800-1000 ALSEP 15 ALSEP 16 C/S HTR OFF LSM FLIP CAL	0900-1100
JUL 24/205	**25/206**	**26/207**	**27/208**	**28/209**	**29/210**	**30/211**
0900-1100 ALSEP 14 ALSEP 16 PSE HTR OFF	0300-0600 ALSEP 12 C/S HTR OFF Z MTR OFF Y PROC CHK ALSEP 14 C/S HTR OFF Y PROC CHK ALSEP 16 LSM FLIP CAL 1800-1900	0900-1100 ALSEP 14 CPLEE STBY PDRs ON	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 17 HFE RBS	0900-1100 ALSEP 14 PSE HTR OFF	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100

TIMES - ALSEP SUPPORT SC. E/EVENTS PSE C. DAILY

JUN 19/170	20/171	21/172	22/173	23/174	24/175	25/176
NO SUPPORT	0900-1100	NO SUPPORT ALSEP 17	1800-2000 ALSEP 16 C/S HTR OFF TIMER RST ALSEP 15 TIMER RST ALSEP 17 HFE-RBS	0900-1100 ALSEP 15	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 14 ALSEP 12
JUN 26/177	27/178	28/179	29/180	30/181	JUL 01/182	02/183
0000-0200 ALSEP 14 C/S HTR OFF ALSEP 12 C/S HTR OFF PSE Z MTR OFF 1100-1200	0900-1100 ALSEP 16 LSM FLIP CAL PSE HTR OFF ALSEP 14 CPLEE STBY PDRs ON	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL ALSEP 14 PSE HTR OFF	0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100
JUL 03/184	04/185	05/186	06/187	07/188	08/189	09/190
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 2200-2300 ALSEP 17	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL 2200-2300	0900-1100 ALSEP 16 C/S HTR ON ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 CPLEE ON PDRs OFF	0900-1100 ALSEP 14

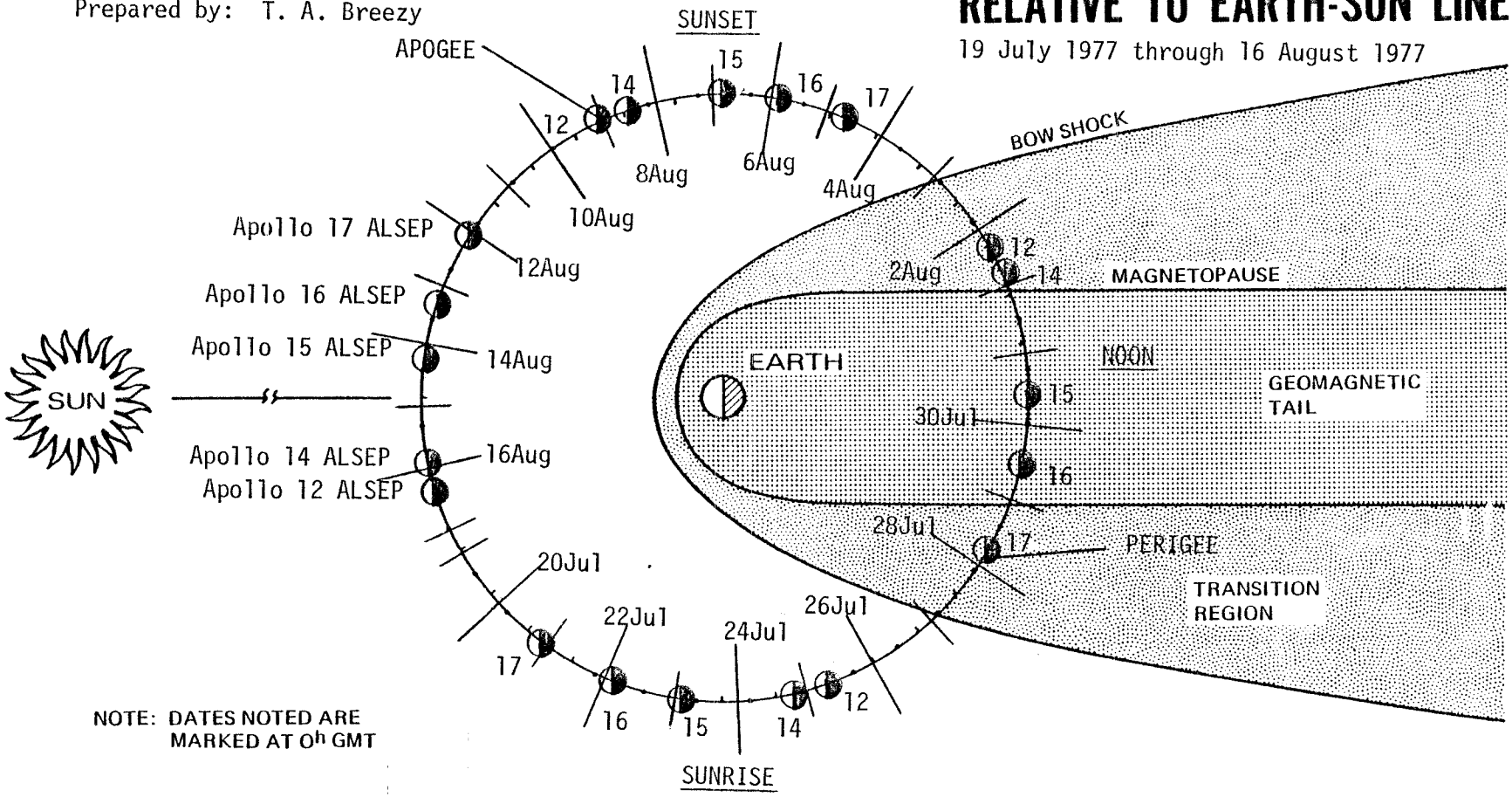
NASA-JSC

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

19 July 1977 through 16 August 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	Midnight	DAY/HOUR (GMT) Sunrise	Lunation/Noon	Sunset	Midnight
17	13Jul/1319	20Jul/2138	(58)28Jul/0630	04Aug/1542	12Aug/0023
16	14Jul/1908	22Jul/0332	(66)29Jul/1230	05Aug/2137	13Aug/0614
15	15Jul/1823	23Jul/0248	(75)30Jul/1152	06Aug/2055	14Aug/0529
14	17Jul/1147	24Jul/2020	(81)01Aug/0530	08Aug/1426	15Aug/2254
12	17Jul/2326	25Jul/0803	(96)01Aug/1711	09Aug/0117	16Aug/1034

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

6 July 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *A real-time check of the timer was obtained on 6 July at 030013 G.m.t., within 51 seconds of the predicted time of 030104 G.m.t. This check verified that the timer remains 1 hour 4 minutes 53 seconds early from initialization in December 1972. The timer interval remains 61 hours 49 minutes 35 seconds between pulses, and the time-outs are predictable. Future checks are planned during real-time support periods when time-outs will occur.*

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. HFE science data is obtained during normal bit rate periods, with a ring bridge survey weekly. On 6 July the lunar surface temperature as measured by the HFE thermocouples was 126 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. *Between the real-time support periods of 29 and 30 June an anomaly re-occurred in probe #2 at the 230 cm level. DTH 22 bridge reference currents and voltages are reading full scale. T22 bridge reference voltages are also reading full scale while bridge reference currents are normal. DTL 22 bridge reference voltages and currents appear normal. As a result the subsurface temperatures at a depth of 230 cm cannot be determined. Further analysis of this anomaly is being conducted. This anomaly occurred previously in February 1977.*

The Lunar Ejecta and Meteorites Experiment is currently ON. Valid science data has been received intermittently this report period. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 213.6°F during this period.

Apollo 16 ALSEP

A verification of the interval between pulses of the 18-hour timer was obtained at 0316 G.m.t., 6 July. The interval was at 18 hours 15 minutes and 9 seconds, which approximates the last interval check obtained in May 1972.

The DSS-1 (10w) heater is OFF for lunar day.

6 July 1977
G.m.t.: 1600

Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and the Arm/Fire circuit in Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) was offscale HIGH on 30 June at a sun angle of 96.1° and returned onscale on 6 July (DL-07 = 141.2°F, sun angle 169.3°).*

The Lunar Surface Magnetometer Experiment is ON. *During real-time support on 5 July the science data from the Y-axis sensor became static at a sun angle of 157.7°. It is expected to return to normal operation on 25 July at a sun angle near 43° after lunar sunrise.* Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1328 have been executed and verified by the engineering data since deployment.

The Active Seismic Experiment is OFF. *The experiment was commanded ON and operated in High Bit Rate for 3 minutes on 1 July. The grenades were armed to determine whether the Mortar Box Ground Monitor Voltage (DS-05) would show a change by charging the capacitors to fire the mortars. No change in voltage occurred. Further analysis is being conducted. The grenades were dearmed when the ASE was commanded to OFF.*

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. *The instrument assembly temperature (DL-07) was offscale HIGH on 2 July sun angle of 108.4° and returned onscale on 3 July (DL-07 = 140.4°F, sun angle 120.6°).*

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF and the external 14 and 7-watt power dump resistors are ON for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *Data from the long-period Z-axis remains static and the axis does not respond to calibration commands.*

The Charged Particle Lunar Environment Experiment is in STANDBY.

At 2258 G.m.t., 5 July, the Guam Tracking Station reported a spurious command (DTREM OFF, octal 031) with a command verification word observed in the downlink signal. The DTREM was commanded ON (octal 027) at 0323 G.m.t., 6 July, during real-time support.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

6 July 1977
G.m.t.: 1600

Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. *The sensor temperature (DL- 07) was offscale HIGH on 3 July (sun angle 94.0°). It is expected to return onscale on 9 July.*

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payloads Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS as of week ending 1600 Z (G.m.t.) July 1977

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		95/*2786*	80/*2210*	74/*2167*	65/*1902*	57/*1667*
Phase, Sun Angle		*Noon, 131.6°*	*Noon, 137.5°*	*Noon, 158.7°*	*Noon, 170.5°*	*Sunset. 195/9°*
Cmds - Total/Week		*32646/22*	*18137/27*	*40502/40*	*25881/110*	*39029/106*
Spurious Changes		119	*111*	136	11	0
RTG	Initial/Present Reserve Power	73.6w/ *46.0w* *19.5w*	72.5w/ *58.3w* *13.7w*	74.7w/ *41.4w* *12.7w*	70.9w/ *62.4w* *25.8w*	75.4w/ *61.3w* *16.4w*
CENTRAL STATION	Avg. Therm. Plate	*84.9°F*	*86.1°F*	*71.7°F*	*57.9°F*	*12.0°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: *7/6/77*
	Heaters	DSS-1 (10w) - OFF 6/26/77	DSS-1 (10w) - OFF 6/26/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 6/22/77	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/25/77
	Heaters	Auto On Z Motor OFF 6/26/77	Forced OFF 6/29/77	Auto On	Forced OFF 6/27/77	
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
	DL-07 Temp.	*Offscale HIGH*	*129.4°F*	*125.9°F*	*141.2°F*	
	Uncage Ckt.	Uncaged	Uncaged	*OT*	Uncaged 6/22/77	RBS weekly
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77 *NIGHTS*	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
			CPLEE -STBY 6/27/77 Operate Night Only Anal B Failed 4/71			
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73
				LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 7/06/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
29 June	ORR/MAD	Antenna Masking	LOS 29/1828 AOS 29/1832	ALL	04^m
02 July	ACN	Unknown	LOS 02/2132 AOS 02/2135	A14	03^m
03 July	AGO	Station Problem	LOS 03/0600 AOS 03/0630	ALL	30^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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ALSEP PERFORMANCE SUMMARY REPORT

13 July 1977
G.m.t.: 1600

At approximately 0200 G.m.t., 12 July, the Apollo ALSEP 15 and 16 timer counters executed a 48.5 day time interval output. This change caused parameters AZ-02 and AZ-03 in ALSEP 16 and AZ-02 only in ALSEP 15 to show an output from a low reading (octal 15 to 19) to a high reading (greater than octal 200). Because there was no change of ALSEP 15 parameter AZ-03 it is believed that the timer will not turn the transmitter OFF when it times out. This verified the half way point to the 97 day timer's time out in late August. The timers were last reset on 24 May 1977.

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 13 July the lunar surface temperature as measured by the HFE thermocouples was 107 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The HFE readings DTH22, DTL22, and T22 remain offscale high. Further analysis of this anomaly is being conducted.

The Lunar Ejecta and Meteorites Experiment is currently ON. Static science data has been received during this report period. The analog engineering data is useable.

Apollo 16 ALSEP

The DSS-1 (10 watt) heater was commanded ON for lunar night on 7 July.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head.* The Y and Z-axes science data remained static this reporting period.

13 July 1977
G.m.t.: 1600

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *A real time verification of the 18 hour timer was obtained on 10 July (lunar night), and it was reading 28 minutes late from timer reset (24 May) and 3 minutes late from the verification observed on 1 July (lunar day). This appears to be a low temperature problem where the timer increment is approximately 1 minute longer at night.*

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is ON and the external 14 and 7-watt power dump resistors are OFF for night operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and does not respond to calibration commands. *At 0832 G.m.t., 11 July the Madrid Tracking Station observed a spurious command verification word (CVW) in the downlink signal (PSE Uncage - arm fire circuit to OUT of Tolerance, octal 073). An attempt was made to command the PSE back to the Uncaged status (octal 073) during real time support on 12 and 13 July, however, no function was indicated.*

The Charged Particle Lunar Environment Experiment was commanded ON, 7 July, and is operating in the normal mode at -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) Heater is ON for lunar night operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). *The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 137.3°F, sun angle 167.3°) on 9 July. It had been Offscale HIGH since 3 July. On 12 July, DL- 07 was offscale LOW at a sun angle of 203.6° and is expected to return Onscale 25 July. The experiment received a spurious functional command (PSE, Short Period calibration ON, octal 065) between the 2 real time support periods on 7 July without a command verification word (CVW) being observed in the downlink signal. At 1426 G.m.t., 7 July the experiment was reset to SP calibration OFF (octal 065) during the support period.*

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 1 July 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*95/2793*	*80/2217*	*74/2174*	*65/1909*	*57/1674*
Phase, Sun Angle	*Sunset, 217.2°*	*Sunset, 223.2°*	*Sunset, 244.3°*	*Sunset, 256.2°*	*Midnight, 271.4°*
Cmds - Total/Week	*32735/89*	*18198/61*	*40563/61*	*25976/95*	*39077/48*
Spurious Changes	*120*	*112*	136	11	0
RTG Initial/Present Reserve Power	73.6w/ *42.7w* *9.3w*	72.5w/ *57.2w* *12.8w*	74.7w/ *39.6w* *11.8w*	70.9w/ *61.5w* *13.0w*	75.4w/ *60.5w* *16.2w*
CENTRAL STATION Avg. Therm. Plate	*1.0°F*	*21.3°F*	*-13.6°F*	*26.4°F*	*-6.6°F*
Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
PCU	1	1	1	1	2
Timer	Inoperative	Inoperative	Operative Reset:5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: *7/11/77*
Heaters	DSS-1 (10w) - *ON 7/10/77*	DSS-1 (10w) - *ON 7/10* *21w PDRs OFF 7/7/77*	DSS-1 (10w) - OFF	DSS-1 (10w) - *ON 7/7/77*	APM STATUS: ON
EXPERIMENTS PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE - STDBY 4/25/77
PSE Heaters	Auto On Z Motor *ON 7/10/77*	*Auto ON 7/7/77*	Auto On	Auto On *7/7/77*	
PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
PSE DL-07 Temp.	*Offscale LOW*	*124.1°F*	*124.6°F*	*125.9°F*	
PSE Uncage Ckt.	Uncaged	*OT*	*Uncaged*	OT	RBS weekly
ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - *ON 7/7/77* Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG - ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON, 4/25/77 Static @ night 7/76 Intrmt days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 7/13/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
06 July	GDS	Higher Priority	LOS 06/0942 AOS 06/1029	ALL	47^{m}
07 July	AGO/GDS	Higher Priority	LOS 07/1047 AOS 07/1120	ALL	33^{m}
08 July	GWM/MAD	Higher Priority	LOS 08/0201 AOS 08/0240	ALL	39^{m}
12 July	GWM	Station Problem	LOS 12/2156 AOS 12/2204	A-14	08^{m}
12 July	GWM	Station Problem	LOS 12/2201 AOS 12/2204	A-15	03^{m}
13 July	ULA	Antenna Masking	LOS 13/0256 AOS 13/0314	A-15	18^{m}
13 July	ULA	Antenna Masking	LOS 13/0307 AOS 13/0314	A-14	07^{m}
1 July	ULA	Antenna Masking	LOS 13/0308 AOS 13/0314	A-17	06^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

24 August 1977
G.m.t.: 1600

Apollo 17 ALSEP

Sunrise of the 59th lunation occurred on 19 August at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, *and the pressure transducer and decoder are OFF.*

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 24 August the lunar surface temperature, as measured by the HFE thermocouples, was 339 $\pm$ 8°K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The DTH22, DTL22, and T22 readings remain abnormal.

The Lunar Atmospheric Composition Experiment was commanded to STANDBY 19 August. During the experiment power ON period this lunar night no change was observed in the high voltage and sweep lock anomalies.

The Lunar Ejecta and Meteorites Experiment is ON. *The engineering data synched and was valid on 20 and 21 August. The science data was intermittent during this report period.*

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 20 August for the 67th lunation. *The DSS-1 (10 watt) heater was commanded OFF 20 August.*

The Passive Seismic Experiment is ON and configured thermal control Auto ON; component gain 0 db; and feedback loop filter OUT.

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1342 have been executed and verified by the experiment engineering data since deployment. The Y axis science data returned to normal operation on 24 August at a sun angle of 43.3°.*

The Active Seismic Experiment is in STANDBY.

24 August 1977
G.m.t.: 1600

Apollo 15 ALSEP

Sunrise of the 76th lunation at the Hadley Rille Site occurred on 21 August. *The 18 hour timer pulse was verified on 20 August during real time support and it was 29 minutes late from the previous verification on 2 August. The pulse is 1 hour 22 minutes later than the predicted time and is attributed to low temperature (-22.7°F) in the Central Station at night. The loss is apparently predictable and causes no problem. On 23 August during the real time support period it was verified that the Heat Flow, Lunar Surface Magnetometer, Solar Wind, and the Suprathermal Ion Detector/Cold Cathode Gauge Experiments were OFF.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 82nd lunation at the Apollo 14 site occurred on 23 August. *The central station DSS-1 (10 watt) heater was commanded OFF for day operation 24 August. Operation in Data Processor Y was verified 24 August.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The Long Period Z-axis remains static and does not respond to calibration commands.

The Active Seismic Experiment is in STANDBY.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

Sunrise of the 97th lunation occurred on 23 August. *Operation in Data Processor Y was verified on 24 August. The average thermal plate temperature dropped to -22.7°F during the past lunar night with the Central Station heaters OFF.*

24 August 1977
G.m.t.: 1600

Apollo 12 ALSEP (continued)

The Passive Seismic Experiment is configured thermal control Auto ON, component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db. *The sensor temperature (DL- 07) returned onscale at a sun angle of 4.2° (DL-07 = 126.4°F) and the Z motor was commanded OFF on 24 August. On 23 August a power check was made of the PSE heater and it was found to be drawing 1.67 watts. The PSE power consumption for heating is 4.67 watts (Z-motor ON = 3 watts, heater Auto ON = 1.67 watts) which is sufficient to maintain the required temperature of the experiment for lunar night operation.*

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSE STATUS	as of week ending 1600 Z (G.m.t. August 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	*97/2835*	*82/2254*	*76/2216*	*67/1951*	*59/1716*
Phase, Sun Angle	*Sunrise, 10.5°*	*Sunrise, 16.5°*	*Sunrise, 37.6°*	*Sunrise, 49.5°*	*Sunrise, 64.7°*
Cmds - Total/Week	*33059/55*	*18451/44*	*40861/81*	*26412/81*	*39725/141*
Spurious Changes	120	113	137	11	0
RTG: Initial/Present Reserve Power	73.6w/ *42.3w* *19.7w*	72.5w/*58.0w* *29.6w*	74.7w/ *37.7w* *10.2w*	70.9w/*61.3w* *30.3w*	75.4w/*58.9w* *23.6w*
CENTRAL STATION: Avg. Therm. Plate	*40.2°F*	*59.7°F*	*70.1°F*	*90.3°F*	*74.7°F*
CENTRAL STATION: Transmitter	B, 7/8/74	B, 11/12/76	*A, 8/24/77*	B, 3/26/73	A, 12/9/74
CENTRAL STATION: Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION: PCU	1	1	1	1	2
CENTRAL STATION: Timer	Inoperative	Inoperative	Operative Reset: 5/24/77	Inhibited 5/72 Reset: 5/24/77	Operative Inhibited: *8/24/77*
CENTRAL STATION: Heaters	DSS-1 (10w) OFF 8/11	DSS-1 (10w) *OFF 8/24* 21w PDRs OFF 8/6/77	DSS-1 (10w) - OFF	DSS-1 (10w) *OFF 8/20*	APM STATUS: ON
EXPERIMENTS: PSE: LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE -STBY 4/25/77
EXPERIMENTS: PSE: Heaters	Auto On Z Motor *OFF 8/24/77*	Auto On 8/4/77	Auto On	Auto On 8/5/77	
EXPERIMENTS: PSE: Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS: PSE: DL-07 Temp.	*125.8°F*	*124.7°F*	*126.5°F*	*127.4°F*	
EXPERIMENTS: PSE: Uncage Ckt.	Uncaged	Uncaged	*OT*	OT	RBS weekly
EXPERIMENTS: ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - ON 8/6/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS: INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/27/77 Static @ night 7/76 Intrmt Days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - *STBY 8/19/77* HV Failed 10/73
			LSM - OFF 6/74 Failed		

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	96	96
Sun Angle	88.6°	283.9°
Sig Strth (9m)	-142.0 dbm	-139.0 dbm
Input Power	44.2w	41.5w
Reserve Power	22.6w	17.2w
Av Ther Pl T.	87.6°F	-19.2°F
PSE T. (DL-07)	141.3°F	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	81	81
Sun Angle	70.1°	265.5°
Sig Strth (9m)	-142.0 dbm	-137.0 dbm
Input Power	58.2w	57.9w
Reserve Power	12.6w	12.8w
Av Ther Pl T.	99.8°F	21.3°F
PSE T. (DL-07)	130.5°F	124.1°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	75	75
Sun Angle	91.0°	286.7°
Sig Strth (9m)	-136.0 dbm	-138.0 dbm
Input Power	40.4w	36.8w
Reserve Power	11.9w	9.9w
Av Ther Pl T.	100.0°F	-21.2°F
PSE T. (DL-07)	142.2°F	124.6°F

APOLLO 16 ALSEP

	Noon	Night
Lunation	66	66
Sun Angle	90.6°	261.6°
Sig Strth (9m)	-135.0 dbm	-137.0 dbm
Input Power	61.9w	61.5w
Reserve Power	30.8w	13.0w
Av Ther Pl T.	102.2°F	25.7°F
PSE T. (DL-07)	142.8°F	125.8°F
LSM T. (DM-05)	45.8°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	58	58
Sun Angle	94.1°	277.2°
Sig Strth (9m)	-134.0 dbm	-140.0 dbm
Input Power	59.3w	59.7w
Reserve Power	23.9w	15.6w
Av Ther Pl T.	80.3°F	-7.7°F
LACE T. (AM-41)	157.7°F	-16.1°F
LEAM T. (AJ-11)	207.2°F	- 14.0°F
HFE T. (DH-13)	326.4°K	281.9°K
LSG T. (DG-04)	LOW	LOW
LSP T. (AP-01)	80.2°F	-7.7°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 8/24/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
17 August	ORR/GWM	Higher Priority	LOS 17/0911 AOS 17/0927	ALL	16^{m}
17 August	GWM/ACN	Higher Priority	LOS 17/1001 AOS 17/1129	ALL	$1^{h}28^{m}$
18 August	ORR/ACN	Higher Priority	LOS 18/0930 AOS 18/1418	ALL	$4^{h}48^{m}$
18 August	ACN/AGO	Higher Priority	LOS 18/1645 AOS 18/1826	ALL	$1^{h}41^{m}$
19 August	ULA/GWM	Higher Priority	LOS 19/0356 AOS 19/0411	ALL	15^{m}
19 August	ORR/ACN	Higher Priority	LOS 19/1030 AOS 19/1136	ALL	$1^{h}06^{m}$
19 August	ACN	Higher Priority	LOS 19/1206 AOS 19/1304	ALL	58^{m}
ugust	ORR	Higher Priority	LOS 20/0625 AOS 20/0802	ALL	$1^{h}37^{m}$
20 August	ORR/ACN	Higher Priority	LOS 20/1000 AOS 20/1515	ALL	$5^{h}15^{m}$
21 August	ORR/ACN	Higher Priority	LOS 21/1020 AOS 21/1245	ALL	$2^{h}25^{m}$
21 August	ACN	Higher Priority	LOS 21/1600 AOS 21/1709	ALL	$1^{h}09^{m}$
22 August	ACN	Higher Priority	LOS 22/1508 AOS 22/1612	ALL	$1^{h}04^{m}$
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

JUL 31/21	AUG 01/213	02/214	03/2[illegible]	04/216	05/217	[illegible]
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 17 2200-2300	0900-1100 ALSEP 16 C/S HTR ON LSM FLIP CAL PSE HTR ON ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 PDRs OFF CPLEE ON
AUG 07/219	08/220	09/221	10/222	11/223	12/224	13/225
0900-1100	0900-1100 ALSEP 14 ALSEP 12	0000-0400 ALSEP 14 C/S HTR ON ALSEP 12 C/S HTR ON PSE Z MTR ON 1600-1700	0900-1100 ALSEP 17 HFE RBS	0900-1100 ALSEP 12 C/S HTR OFF	0900-1100	NO SUPPORT
AUG 14/226	15/227	16/228	17/229	18/230	19/231	20/232
NO SUPPORT	0900-1100 ALSEP 17 LSM ON	NO SUPPORT	0900-1100 ALSEP 17 HFE RBS	NO SUPPORT	0900-1100 ALSEP 17	1600-1800 ALSEP 16 C/S HTR OFF

AUG 21/2	22/234	23/235	24/2	25/237	26/238	27
0900-1100 ALSEP 15 2200-2400	0000-0300 ALSEP 16 LSM FLIP CAL PSE HTR OFF 1200-1300	0900-1100 ALSEP 14 ALSEP 12 2200-2400 ALSEP 12 C/S HTR OFF PSE Z MTR OFF ALSEP 14 C/S HTR OFF	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 14 CPLEE STBY PRDs ON	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100 ALSEP 14 PSE HTR OFF

AUG 28/240	29/241	30/242	31/243	SEP 01/244	02/245	03/246
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 2200-2300	0900-1100 2200-2300

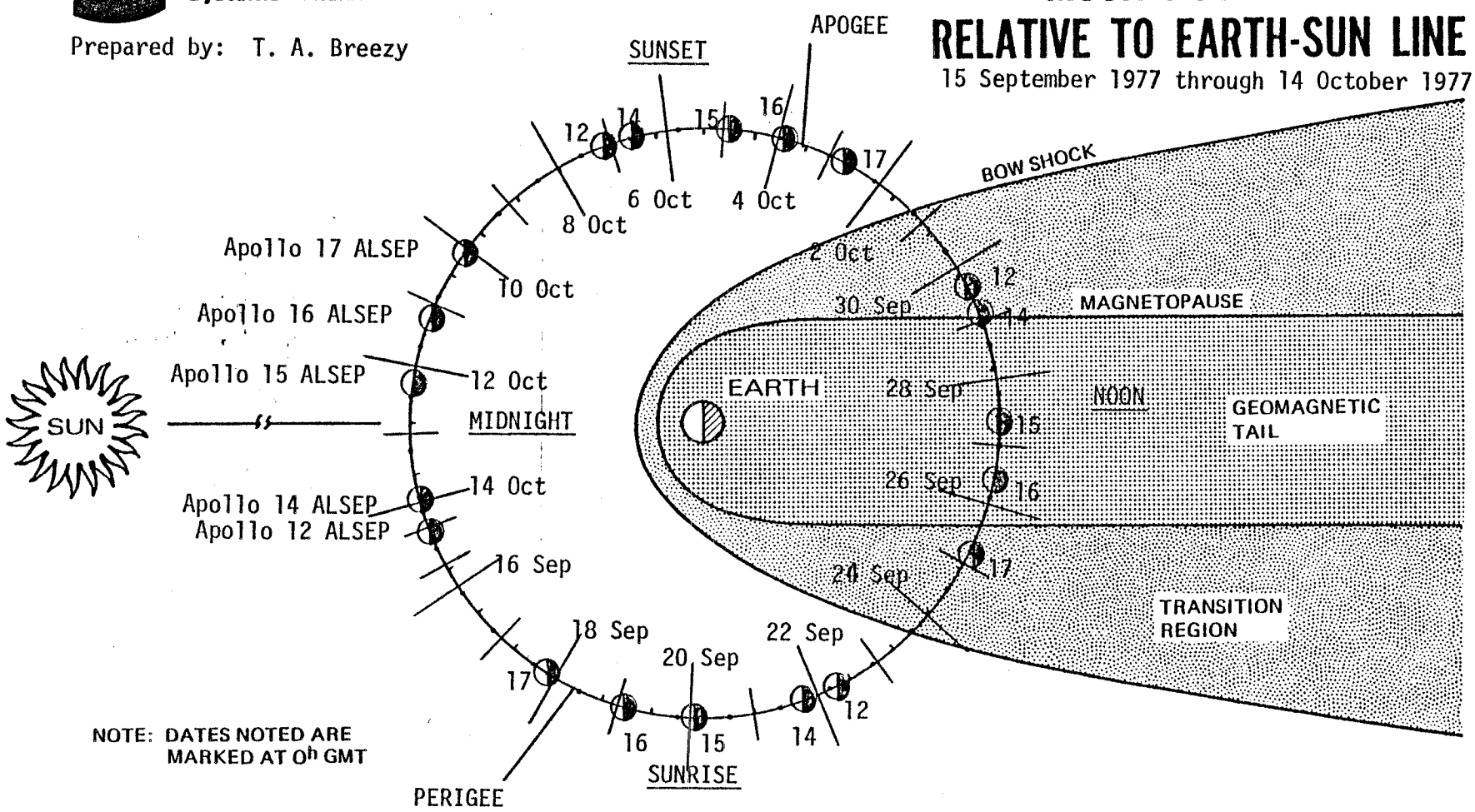
SEP 04/247	05/248	06/249	07/250	08/251	09/252	10/253
0900-1100 ALSEP 16 C/S HTR ON PSE HTR ON ALSEP 14 PSE HTR ON	0900-1100 ALSEP 15 ALSEP 14 PDRs OFF CPLEE ON	0900-1100 ALSEP 14	1100-1500 ALSEP 12 C/S HTR ON PSE Z MTR ON ALSEP 14 C/S HTR ON ALSEP 17 HFE RBS	0900-1100	0900-1100	NO SUPPORT

Bendix Aerospace Systems Division

Prepared by: T. A. Breezy

MOON POSITIONS RELATIVE TO EARTH-SUN LINE

15 September 1977 through 14 October 1977



NOTE: DATES NOTED ARE MARKED AT 0^h GMT

APOLLO (ALSEP)	DAY/HOUR (GMT)				
	Midnight	Sunrise	Lunation/Noon	Sunset	Midnight
17	10Sep/1158	17Sep/2036	(60)25Sep/0547	020ct/1543	100ct/0023
16	11Sep/1750	19Sep/0230	(68)26Sep/1149	030ct/2117	110ct/0618
15	12Sep/1707	20Sep/0151	(77)27Sep/1113	040ct/2039	120ct/0536
14	14Sep/1036	21Sep/1927	(83)29Sep/0455	060ct/1415	130ct/2307
12	14Sep/2214	22Sep/0716	(98)29Sep/1637	070ct/0058	140ct/1047

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

31 August 1977
G.m.t.: 1600

At 20:42:17 G.m.t., 29 August, the Apollo 16 ALSEP transmitter was turned OFF by the 97 day timer output. The transmitter was turned ON by the Ascension tracking station at 2053 G.m.t., 29 August. Allowing the timer to turn the transmitter OFF after 97 days eliminates the necessity to reset the timer in the future as this is a one-time occurrence. Due to a malfunction in the AZ-03 counter of the Apollo 15 ALSEP the transmitter did not turn OFF. However, the timer does not need to be reset because of the AZ-03 anomaly. Future transmitter turn OFFs for both ALSEPs must be executed by ground command.

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain.

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder OFF, pressure transducer OFF, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 30 August the lunar surface temperature, as measured by the HFE thermocouples, was 336 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. The anomaly with Probe #2 at the 230 cm level continued through this period. The DTH22, DTL22, and T22 readings remain abnormal.

The Lunar Ejecta and Meteorites Experiment is ON. Valid science data has been received intermittently this report period. The analog engineering data is useable. The instrument survival temperature (AJ-11) reached a maximum of 215.2°F during this period.

Apollo 16 ALSEP

The DSS-1 (10w) heater is OFF for lunar day.

The Passive Seismic Experiment is configured thermal control Forced OFF; component gain 0 db; and feedback loop filter OUT. The heater is being operated in Forced OFF and the Arm/Fire circuit in Uncaged for lunar day operation to minimize heating in the experiment. *The instrument assembly temperature (DL-07) was offscale HIGH on 28 August at a sun angle of 97.0° and is expected to return onscale on 4 September.*

31 August 1977
G.m.t.: 1600

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer is ON. *The science data from the Y-axis sensor was valid on 24 August (sun angle 43.3°).* Science data from the Z-axis remained static this report period. Flip calibration sequences are being conducted during the lunar day and a total of 1346 have been executed and verified by the engineering data since deployment.

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the thermal control is Auto ON. *The instrument assembly temperature (DL-07) was offscale HIGH on 28 August (sun angle 85.3°) and is expected to return onscale on 1 September.*

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater is OFF for day operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and the axis does not respond to calibration commands.

Between the real-time support periods of 27 and 28 August the instrument executed a functional change to Short Period calibration ON (octal 065). A command verification word was not seen in the downlink telemetry by the tracking stations. The instrument was reconfigured to SP calibration OFF (octal 065) at 1402 G.m.t., 28 August.

The Charged Particle Lunar Environment Experiment was commanded to STANDBY on 25 August.

Apollo 12 ALSEP

The central station DSS-1 (10 watt) heater is OFF for lunar day time.

The Passive Seismic Experiment is configured thermal control Auto ON; component gain 0 db and feedback loop filter OUT, and the short period Z-axis gain is set at -20 db.

It is requested that any organization having comments, questions, or suggestions concerning this report contact F. Heinz, Payloads Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) 30 August 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	97/2841	82/2260	76/2222	67/1957	59/1722
Phase, Sun Angle	Noon, 83.6°	Noon, 89.7°	Noon, 110.8°	Noon, 122.6°	Noon, 137.8°
Cmds - Total/Week	33121/62	18489/38	40890/29	26511/101	39817/92
Spurious Changes	120	114	137	11	0
CENTRAL STATION — RTG Initial/Present Reserve Power	73.6w/43.6w 21.8w	72.5w/ 58.7w 34.2w	74.7w/ 37.3w 10.7w	70.9w/61.5w 30.0w	75.4w/58.9w 23.6w
CENTRAL STATION — Avg. Therm. Plate	87.4°F	111.2°F	97.4°F	98.6°F	68.6°F
CENTRAL STATION — Transmitter	B, 7/8/74	B, 11/12/76	A, 8/24/77	B, 3/26/73	A, 12/9/74
CENTRAL STATION — Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
CENTRAL STATION — PCU	1	1	1	1	2
CENTRAL STATION — Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhibited: 8/29/77
CENTRAL STATION — Heaters	DSS-1 (10w) - OFF 8/11/77	DSS-1 (10w) OFF 8/24 21w PDRs OFF 8/6/77	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 8/20/77	APM STATUS: ON
EXPERIMENTS — PSE — LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/25/77
EXPERIMENTS — PSE — Heaters	Auto On Z Motor		Auto On	Auto On	
EXPERIMENTS — PSE — Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS — PSE — DL-07 Temp.	139.7°F	129.9°F	Offscale HIGH	Offscale HIGH	
EXPERIMENTS — PSE — Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged	RBS weekly
EXPERIMENTS — ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - STBY 8/25/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Intrmt 4/8/77	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
EXPERIMENTS — INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
EXPERIMENTS — INACTIVE/INOPERABLE	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM -ON 4/27/77 Static @ night 7/76 Intrmt Days 4/25/77
EXPERIMENTS — INACTIVE/INOPERABLE	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 8/19/77 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 8/31/53

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
24 August	ACN/AGO	Higher Priority	LOS 24/2145 AOS 24/2212	ALL	27^{m}
25 August	HAW/ORR	Higher Priority	LOS 25/1158 AOS 25/1310	ALL	$1^{h}12^{m}$
25 August	ORR/AGO	Higher Priority	LOS 25/1640 AOS 25/2010	ALL	$3^{h}30^{m}$
25/26 August	AGO	Higher Priority	LOS 25/2130 AOS 26/0242	ALL	$5^{h}12^{m}$
26 August	QUI/GDS	Higher Priority	LOS 26/0408 AOS 26/0544	ALL	$1^{h}36^{m}$
26 August	HAW/ORR	Higher Priority	LOS 26/1214 AOS 26/1325	ALL	$1^{h}11^{m}$
26 August	ACN	Higher Priority	LOS 26/1839 AOS 26/1938	ALL	59^{m}
27 August	HAW/ORR	Higher Priority	LOS 27/1144 AOS 27/1159	ALL	15^{m}
27 August	ACN	Higher Priority	LOS 27/2150 AOS 27/2353	ALL	$2^{h}03^{m}$
28 August	ACN	Higher Priority	LOS 28/2119 AOS 28/2253	ALL	$1^{h}34^{m}$
29 August	ACN	18 hr Time Out	LOS 29/2042 AOS 29/2053	A16	11^{m}
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

7 September 1977
G.m.t.: 2000

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *A test will be performed during this lunar night to decrease the central station internal temperature to -20°F by turning the 7 watt power dump resistor ON today to check low temperature operation.*

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at Step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, *decoder ON, pressure transducer ON,* and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 7 September the lunar surface temperature as measured by the HFE thermocouples was 110 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.8°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period. The HFE readings DTH22, DTL22, and T22 remain invalid.

The Lunar Ejecta and Meteorites Experiment is currently ON. Static science data has been received during this report period. The analog engineering data is useable.

Apollo 16 ALSEP

The DSS-1 (10 watt) heater will remain OFF for lunar night and the 14 watt Power Dump Resistor was turned ON today in accordance with the close-out testing for low temperature operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain 0 db; and feedback loop filter OUT). *The sensor temperature returned onscale (DL-07 = 140.35°F, sun angle 170.2°) on 3 September. It had been offscale HIGH since 28 August.*

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y axis science data went to a static offscale HIGH condition on 2 September, at a sun angle of 158.1°.* The Z axis remained static during this report period.

Apollo 15 ALSEP

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *The sensor temperature returned onscale*

7 September 1977
G.m.t.: 2000

Apollo 15 ALSEP (continued)

(DL-07 = 136.65°F, sun angle 134.0°) on 1 September. It had been offscale HIGH since 28 August.

Apollo 14 ALSEP

The central station DSS-1 (10 watt) heater will remain OFF during this lunar night in accordance with the close-out testing at low temperatures.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). Data from the long-period Z-axis remains static and does not respond to calibration commands.

The Charged Particle Lunar Environment Experiment was commanded ON, 5 September, and is operating in the normal mode at -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) heater will remain OFF for lunar night operation due to the low reserve power.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). *The Z-motor is ON to maximize heating in the instrument for lunar night operation. The sensor temperature returned onscale (DL-07 = 138.37°F, sun angle 168.0°) on 6 September. It had been offscale HIGH since 1 September.*

It is requested that any organization having comments, questions or suggestions concerning this report contact F. Heinz, Payload Requirements and Operations Branch SC3, telephone 713-333-3481.

ALSEP STATUS		as of week ending 2000 Z (G.m.t.) 7 September 1977				
		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		97/*2849*	82/*2268*	76/*2230*	67/*1665*	59/*1730*
Phase, Sun Angle		*Sunset, 183.3°*	*Sunset 189.2°*	*Sunset, 210.3°*	*Sunset, 222.2°*	*Sunset, 237.4°*
Cmds - Total/Week		*33170/49*	*18535/46*	*40986/96*	*26646/135*	*39896/79*
Spurious Changes		120	114	137	11	0
RTG	Initial/Present Reserve Power	73.6w/ *41.8w* *20.3w*	72.5w/*57.5w* *23.6w*	74.7w/ *35.8w* *8.5w*	70.9w/*61.6w* *24.1w*	75.4w/*59.3w* *8.0w*
CENTRAL STATION	Avg. Therm. Plate	*11.9°F*	*10.0°F*	*-21.2°F*	*8.6°F*	*21.2°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, *9/6/77*	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhibited: *9/6/77*
	Heaters	DSS-1 (10w) - OFF	DSS-1 (10w)OFF 8/24 21w PDRs OFF 8/6/77	DSS-1 (10w) - OFF	DSS-1 (10w)OFF 8/20 *14w PDR ON 9/7/77*	APM STATUS: ON *7w PDR ON 9/7/77*
EXPERIMENTS	PSE LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0.0.0db	LSPE - STBY 4/25/77
	PSE Heaters	Auto On Z Motor *ON 9/7/77*	*Auto ON 9/4/77*	Auto On	Auto On *9/4/77*	
	PSE Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
	PSE DL-07 Temp.	*126.2°F*	*124.2°F*	*124.7°F*	*125.9°*	RBS Weekly
	PSE Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	Uncaged	*Probe 2 failed 6/30/77*
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - *ON 9/5/77* Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4/27/77 Static @ night 7/76 Intrmt Days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 8/19/77 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 9/7/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
30/31 August	ACN	Higher Priority	LOS 30/2309 AOS 31/0011	ALL	1^h02^m
31 August	ACN/AGO	Higher Priority	LOS 31/0106 AOS 31/0131	ALL	25^m
31 August	AGO/QUI	Higher Priority	LOS 31/0225 AOS 31/0338	ALL	1^h03^m
31 August	ORR/ACN	Higher Priority	LOS 31/2226 AOS 31/2333	ALL	1^h07^m
01 September	ACN	Higher Priority	LOS 01/0012 AOS 01/0207	ALL	1^h55^m
01 September	HAW	Station Problem	LOS 01/1400 AOS 01/1433	A17	33^m
01/02 September	ACN	Station Problem	LOS 01/2227 AOS 02/0237	ALL	4^h10^m
02 September	GWM	Higher Priority	LOS 02/2056 AOS 02/2225	ALL	1^h29^m
03 September	ACN	Higher Priority	LOS 03/0002 AOS 03/0102	ALL	1^h00^m
03 September	ACN/MIL	Higher Priority	LOS 03/0242 AOS 03/0256	ALL	14^m
03 September	ORR	Higher Priority	LOS 03/2054 AOS 03/2156	ALL	1^h02^m
03 September	ORR/GWM	Higher Priority	LOS 03/2323 AOS 03/2334	ALL	11^m
04 September	MIL/GWM	Higher Priority	LOS 04/1239 AOS 04/1342	ALL	1^h03^m
04 September	GWM/HAW	Schedule	LOS 04/1715 AOS 04/1725	ALL	10^m
04 September	HAW	Higher Priority	LOS 04/2119 AOS 04/2400	ALL	2^h41^m
05 September	ACN/GDS	Higher Priority	LOS 05/0350 AOS 05/0850	ALL	5^h00^m
05 September	GDS/HAW	Higher Priority	LOS 05/1212 AOS 05/1500	ALL	2^h48^m
06 September	ACN	Higher Priority	LOS 06/0445 AOS 06/0554	ALL	1^h09^m

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 9/7/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
07 September	GWM/ORR	Higher Priority	LOS 07/2228 AOS 07/2324	ALL	56^{m}
07 September	GWM/ORR	Higher Priority	LOS 07/0135 AOS 07/0212	ALL	37^{m}
07 September	ORR/ACN	Higher Priority	LOS 07/0622 AOS 07/0637	ALL	15^{m}
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Internal
Memorandum

Bendix Aerospace Systems Division

Ann Arbor, Michigan

Date September 7, 1977 Letter No. 9753-242

To F. A. Heinz, Jr.

From T. Breezy

Subject Penumbral Eclipse of the Moon, 27 September 1977

A penumbral eclipse of the moon will occur on September 27, 1977. The beginning of the penumbral phase will be visible in the extreme western part of Africa, North America, South America, the Atlantic Ocean, part of the arctic regions, most of the Pacific Ocean, and part of Antarctica.

The end of the eclipse will be visible in the extreme northwestern part of South America, North America except the northeastern part, the Pacific Ocean, part of the arctic regions, Australia, part of Antarctica, and the eastern part of Asia.

The penumbral phase will be 4 hours and 22 minutes in duration. The moon will not enter the umbra at any time during the eclipse. All ALSEPs will experience the penumbral phase.

A summary of exit and entry for the moon only is presented below.

Event	GMT	CST
Entry	27/0619	27/0119
Middle	27/0830	27/0330
Exit	27/1041	27/0541

Attached is a list of all eclipses that either one or more of the ALSEPs have experienced since deployment on the lunar surface.

Ted A. Breezy

cc: TDX Standard
B. J. Rusky

7 September 1977

ECLIPSES OF THE MOON

	DATE	TYPE	ALSEPS
1.	21 February 1970	Partial	A12
2.	16 August 1970	Partial	A12
3.	10 February 1971	Total	A12, A14
4.	6 August 1971	Total	A12, A14, A15
5.	30 January 1972	Total	A12, A14, A15
6.	26 July 1972	Partial	A12, A14, A16
7.	18 January 1973	Penumbral	A17
8.	15 June 1973	Penumbral	ALL
9.	9 December 1973	Penumbral	ALL
10.	4 June 1974	Partial	ALL
11.	29 November 1974	Total	ALL
12.	25 May 1975	Total	ALL
13.	18-19 November 1975	Total	ALL
14.	13 May 1976	Partial	ALL
15.	6-7 November 1976	Penumbral	ALL
16.	4 April 1977	Penumbral	ALL
17.	27 September 1977	Penumbral	ALL

ALSEP PERFORMANCE SUMMARY REPORT

14 September 1977
G.m.t.: 1600

Apollo 17 ALSEP

The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *The central station has operated with the 7 watt Power Dump Resistor ON since 7 September to decrease the internal temperature. All operations have appeared normal at an average thermal plate temperature of -41.2°F from 9 to 14 September. On 9 and 14 September the redundant components (transmitter B, analog and digital processors Y, power routing X, and PCU #1) were checked and functioned normally with the exception of transmitter B. Decom lock of the downlink signal could not be maintained by the tracking station. The station was switched from transmitter B to transmitter A on 9 December 1974 because of low signal strength. The possibility exists that transmitter B will not be useable if needed in the future. High Bit Rate (3,533.3 bits per second) and Low Bit Rate (530 bits per second) were also checked and operated normally. With the Lunar Seismic Profiling Experiment in STANDBY either all ones or all zeros were received during operation. The 7 watt PDR was commanded OFF, 14 September, at the conclusion of the low temperature test.*

The Lunar Surface Gravimeter Experiment is currently ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, decoder ON, pressure transducer ON, and the tilt servo motors in an intermediate position.

The Heat Flow Experiment is operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 14 September the lunar surface temperature as measured by the HFE thermocouples was 106 ± 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period.

The Lunar Ejecta and Meteorites Experiment is ON. Static science data has been received during this report period. The analog engineering data is useable.

Apollo 16 ALSEP

The central station is operating this lunar night with the DSS-1 10 watt heater OFF and 14 watt Power Dump Resistor ON for a low temperature operational check. On 12 September at an average thermal plate temperature of -10.0°F the redundant components (processor Y, transmitter A, and PCU #1) were checked. Transmitter A did not function normally and decom lock of

Apollo 16 ALSEP (continued)

the downlink signal (-150 dbm) could not be maintained by the tracking station. The central station was switched to transmitter B on 26 March 1973 because of the poor quality of the data being received. Transmitter A may not be useable if needed in the future. High and Low Bit Rates were also checked and operation was normal at low temperatures. With the Active Seismic Experiment in STANDBY alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (thermal control AUTO ON; component gain 0 db; and feedback loop filter OUT).

The Lunar Surface Magnetometer Experiment is ON and recording data. Flip calibration sequences have been discontinued for this lunar night due to the low temperature of the Z-axis sensor head. The Y and Z-axes science data remained static this reporting period.

Apollo 15 ALSEP

The central station redundant components (transmitter A and processor X) were checked on 12 September and both functioned normally. Low and High Bit Rates were also checked and normal operation was observed in both cases. Alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

Apollo 14 ALSEP

The DSS-1 (10 watt) heater is OFF this lunar night for close-out testing at low temperature operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP).

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

The Central Station DSS-1 (10 watt) Heater is OFF to increase the reserve power during lunar night.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP), except the short period Z-axis gain is set at -20 db (Ref. 4 Dec 75 ALSEP Performance Summary Report). The Z-motor is ON to maximize heating in the instrument for lunar night. *The sensor temper has been offscale LOW since 12 September and is expected to return onscale 22 September.*

14 September 1977
G.m.t.: 1600

It is requested that any organization having comments, questions or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

ALSEP STATUS as of week ending 1600 Z (G.m.t.) September 1977

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		97/*2856*	82/*2275*	76/*2237*	67/*1972*	59/*1737*
Phase, Sun Angle		*Midnight, 266.8°*	*Midnight, 272.8°*	*Midnight, 293.9°*	*Midnight, 305.7°*	*Midnight, 321.0°*
Cmds - Total/Week		*33213/63*	*18582/47*	*41016/30*	*26687/41*	*39968/72*
Spurious Changes		120	114	137	11	0
CENTRAL STATION	RTG Initial/Present Reserve Power	73.6w/*40.5w* *16.6w*	72.5w/ *57.8w* *22.7w*	74.7w/*35.2w* *8.2w*	70.9w/ *61.1w* *10.6w*	75.4w/*58.8w* *8.0w*
	Avg. Therm. Plate	*-20.5°F*	*5.4°F*	*-26.9°F*	*-10.0°F*	*-41.2°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 9/6/77	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhibited: *9/14/77*
	Heaters	DSS-1 (10w)- OFF	DSS-1 (10w)- OFF	DSS-1 (10w) - OFF	DSS-1 (10w) - OFF 14w PDR ON 9/7/77	APM STATUS: *7w PDR OFF 9/14/77*
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE -STBY 4/27/77
	Heaters	Auto On Z Motor 9/7/77	Auto On 9/4/77	Auto On	Auto On 9/4/77	
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON, NBR
	DL-07 Temp.	*Offscale LOW*	*124.8°F*	*124.6°F*	*125.8°F*	RBS Weekly
	Uncage Ckt.	Uncaged	Uncaged	*OT*	Uncaged	Probe 2 failed 6/30/77
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - ON 9/5/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77 Nights	LSG- Auto Htr Failed No Free Modes or closed Loop Ops
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 For Reserve Power		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4-27/77 Static @ night 7/76 Intrmt Days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 9/14/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
07 September	AGO/BDA	Higher Priority	LOS 07/1109 AOS 07/1155	ALL	46^{m}
07 September	BDA/GDS	Schedule	LOS 07/1805 AOS 07/1905	ALL	$1^{h}00^{m}$
08 September	ORR/ACN	Higher Priority	LOS 08/0225 AOS 08/0300	ALL	35^{m}
08 September	ORR/ULA	Higher Priority	LOS 08/2200 AOS 08/2230	ALL	30^{m}
08 September	ULA	Station Problem	LOS 08/2230 AOS 08/2239	A14, 17	09^{m}
09 September	ULA/ACN	Schedule	LOS 09/0146 AOS 09/0352	ALL	$2^{h}04^{m}$
09 September	MIL/ORR	Higher Priority	LOS 09/2046 AOS 09/2120	ALL	34^{m}
September	ACN	Schedule	LOS 10/0807 AOS 10/0920	ALL	$1^{h}13^{m}$
11 September	ORR/HAW	Higher Priority	LOS 11/0040 AOS 11/0152	ALL	$1^{h}12^{m}$
11 September	MIL/ORR	Higher Priority	LOS 11/2031 AOS 11/2050	ALL	19^{m}
11 September	ORR/HAW	Higher Priority	LOS 11/2200 AOS 11/2325	ALL	$1^{h}25^{m}$
12 September	ACN	Schedule	LOS 12/0815 AOS 12/1050	ALL	$2^{h}35^{m}$
12 September	AGO/HAW	Schedule	LOS 12/2115 AOS 12/2124	ALL	09^{m}
13 September	HAW/GWM	Higher Priority	LOS 13/0250 AOS 13/0310	ALL	20^{m}
13 September	ACN	Higher Priority	LOS 13/1019 AOS 13/1132	ALL	$1^{h}13^{m}$
September	GDS	Station Problem	LOS 13/2207 AOS 13/2238	ALL	31^{m}
			LOS AOS		
			LOS AOS		

NASA-JSC

ALSEP PERFORMANCE SUMMARY REPORT

22 September 1977
G.m.t.: 1800

Apollo 17 ALSEP

Sunrise of the 60th lunation occurred on 17 September at the Taurus Littrow Site. The station is operating in the Data Processor Format ON (Normal Bit Rate, 1060 bits per second). The 61 hour timer pulses are inhibited as required to preclude automatic switchover to the redundant command signal processing chain. *On 14 September during lunar night close-out testing of the Central Station redundant components, the switch of Power Conditioning Units from #1 to #2 reset the 61-hour timer. This did not change the 61-hour timer interval. During this component check the Command Decoders were switched from B to A. It was found that Decoder A is not a reliable source for uplinking commands as numerous uplinks were required to reselect Decoder B. This condition had previously been encountered with the system in August 1974 when a change to Decoder B corrected the situation.*

The Lunar Surface Gravimeter Experiment is ON and configured with the slave heater OFF, seismic high gain, power amplifier at step #2, integrator shorted, bias out, the coarse and fine screws driven to the extreme lower position, the tilt servo motors in an intermediate position, *and the pressure transducer and decoder are OFF.*

The Lunar Seismic Profiling Experiment is in STANDBY.

The Heat Flow Experiment is presently operating in the gradient mode and all sensors are being sampled in full sequence. Ring bridge surveys are achieved on a periodic basis. On 22 September the lunar surface temperature, as measured by the HFE thermocouples, was 332 $\pm$ 8°K. At a depth of 230 cm the subsurface temperature was 256.9°K at probe #1. The anomaly with probe #2 at the 230 cm level continued through this period.

The Lunar Atmospheric Composition Experiment is in STANDBY.

The Lunar Ejecta and Meteorites Experiment is ON. Static science data has been received during this report period. The analog engineering data is useable.

Apollo 16 ALSEP

Sunrise at the Descartes Site occurred on 19 September for the 68th lunation. *The average thermal plate temperature dropped to -10.0°F during the past lunar night with the central station heaters OFF and the 14 watt power dump resistor ON. On 12 September during close-out testing when the redundant component checks were made switching Power Conditioning Units #1 to #2, the Timer Accept (octal 032) was activated. On 20 September, Timer Inhibit (octal 033) was sent to return the system to the Inhibit mode. The 14 watt power dump resistor was commanded OFF on 20 September, concluding the lunar night cold soak testing.*

22 September 1977
G.m.t.: 1800

Apollo 16 ALSEP (continued)

The Passive Seismic Experiment is ON and configured thermal control AUTO ON; component gain 0 db; and feedback loop filter OUT. *On 16 September the PSE thermal control configurations were checked and proper operation was achieved in all four modes (heater Auto OFF, Forced ON, Forced OFF, and Auto ON). These checks showed that 4.0 watts of power was required to maintain the PSE temperature during lunar night. The PSE Uncage and Arm/Fire circuit (octal 073) was commanded to the Uncaged mode for lunar day time on 20 September.*

The Lunar Surface Magnetometer Experiment is ON and recording data. *Flip calibration sequences have been resumed for this lunar day and a total of 1348 have been executed and verified by the experiment engineering data. The Y axis science data returned to normal operation on 22 September at a sun angle of 43.5°. Data has been static since 2 September 1977.*

The Active Seismic Experiment is in STANDBY.

Apollo 15 ALSEP

Sunrise of the 77th lunation at the Hadley Rille Site occurred on 18 September. *The average thermal plate temperature dropped to a low of -29.6°F during the past lunar night.*

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). *On 19 September the PSE thermal control configurations were checked and proper operation was achieved in all four modes (heater Auto OFF, Forced ON, Forced OFF, and Auto ON). These checks showed that 5.81 watts of power was required to maintain the PSE temperature during lunar night. Between the real time support periods of 16 and 19 September, a spurious functional change (Uncage to Arm/Fire, octal 073) occurred without a command verification word (CVW) being observed in the downlink. Since this change is a function of the 18-hour timer no corrective action is required.*

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF 12 March 1977.

The Solar Wind Spectrometer Experiment was commanded OFF 14 June 1974.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

The Heat Flow Experiment was commanded OFF 13 January 1977.

Apollo 14 ALSEP

Sunrise of the 83rd lunation at the Apollo 14 site occurred on 21 September. *During this past lunar night with the Central Station heaters off the average thermal plate temperature dropped to a low of 2.6°F. The Central Station*

Apollo 14 ALSEP (continued)

redundant components (transmitter A and processor X) were checked on 19 September and both functioned normally. Low and High Bit Rates were also checked and normal operation was observed in both cases. Alternating ones and zeros were received during HBR operation.

The Passive Seismic Experiment is ON and configured for seismic network congruity (Ref. Apollo 16 ALSEP). The Long Period Z-axis remains static and does not respond to calibration commands. *On 20 September the PSE thermal control configurations were checked and proper operation was achieved in only the heater Forced ON and Auto ON modes. These checks showed that 4.81 watts of power was required to maintain the PSE temperature during lunar night.*

The Active Seismic Experiment is in STANDBY.

The Suprathermal Ion Detector/Cold Cathode Gauge Experiments were commanded OFF on 21 May 1976.

The Charged Particle Lunar Environment Experiment is ON and operating in the normal mode at -35 vdc range and automatic thermal control mode.

Apollo 12 ALSEP

Sunrise of the 98th lunation occurred on 22 September. *The average thermal plate temperature dropped to -22.0°F during the past lunar night with the Central Station heaters OFF. On 20 September, Low and High Bit Rates were checked and normal operation was observed in both modes. Alternating ones and zeros were received during HBR operation.*

The Passive Seismic Experiment is configured for seismic network congruity (Ref. Apollo 16 ALSEP) except the short period Z-axis gain is set at -20 db. *The sensor temperature (DL-07) returned onscale 22 September (DL-07 = 126.4°F, sun angle 4.5°).*

The Solar Wind Spectrometer Experiment was commanded OFF 15 January 1977.

The Suprathermal Ion Detector Experiment was commanded OFF 3 May 1976.

The Lunar Surface Magnetometer Experiment was commanded OFF 14 June 1974.

It is requested that any organization having comments, questions, or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

ALSEP STATUS as of week ending *1800* Z (G.m.t.) *September 1977*

		Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed		1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location		23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops		*98/2864*	*83/2283*	*77/2245*	*68/1980*	*60/1745*
Phase, Sun Angle		*Sunrise, 5.5°*	*Sunrise, 11.5°*	*Sunrise, 32.6°*	*Sunrise, 44.5°*	*Sunrise, 59.7°*
Cmds - Total/Week		*33240/37*	*18595/13*	*41065/59*	*26773/86*	*40082/194*
Spurious Changes		120	114	*138*	11	0
RTG	Initial/Present Reserve Power	73.6w/ *42.6w* *17.5w*	72.5w/ *57.6w* *29.1w*	74.7w/ *35.4w* *7.7w*	70.9w/ *61.1w* *29.5w*	75.4w/ *58.1w* *23.1w*
CENTRAL STATION	Avg. Therm. Plate	*16.4°F*	*43.5°F*	*61.3°F*	*88.2°F*	*74.1°F*
	Transmitter	B, 7/8/74	B, 11/12/76	B, 9/6/77	B, 3/26/73	A, 12/9/74
	Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X.R.S.W.DCDR B 8/74
	PCU	1	1	1	1	2
	Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhibited: *9/20/77*
	Heaters	DSS-1 (10w)- OFF	DSS-1 (10w)- OFF	DSS-1 (10w) - OFF	DSS-1 (10w)- OFF *14w PDR OFF 9/20/77*	APM STATUS: ON
EXPERIMENTS PSE	LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STBY 4/27/77
	Heaters	Auto On Z Motor *OFF 9/22/77*	Auto On 9/4/77	Auto On	Auto On 9/4/77	
	Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
	DL-07 Temp.	*126.4°F*	*124.2°F*	*126.0°F*	*127.3°F*	RBS Weekly
	Uncage Ckt.	Uncaged	Uncaged	OT	Uncaged	Probe 2 failed 6/77
	ACTIVE/ OPERABLE	Dust Detector - ON	DTREM - ON CPLEE - ON 9/5/77 Operate Night Only Anal B Failed 4/71	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77 Nights	LSG- ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
	INACTIVE/ INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
		SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - ON 4-27-77 Static @ night 7/76 Intrmt Days 4/25/77
		LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

NOON and NIGHT DATA
(Latest Lunation)

APOLLO 12 ALSEP

	Noon	Night
Lunation	97	97
Sun Angle	82.5°	266.5°
Sig Strth (9m)	-142.0 dbm	-139.0 dbm
Input Power	43.6w	40.5w
Reserve Power	21.8w	16.6w
Av Ther Pl T.	87.4°F	-20.5°F
PSE T. (DL-07)	139.7°F	LOW

APOLLO 14 ALSEP

	Noon	Night
Lunation	82	82
Sun Angle	88.6°	272.6°
Sig Strth (9m)	-142.0 dbm	-137.0 dbm
Input Power	58.7w	57.9w
Reserve Power	34.2w	22.7w
Av Ther Pl T.	111.2°F	5.4°F
PSE T. (DL-07)	129.9°F	124.6°F
CPLEE T. (AC-06)	STBY	-22.7°C

APOLLO 15 ALSEP

	Noon	Night
Lunation	76	76
Sun Angle	85.3°	268.3°
Sig Strth (9m)	-136.0 dbm	-138.0 dbm
Input Power	38.0w	35.2w
Reserve Power	9.9w	7.7w
Av Ther Pl T.	96.1°F	-25.0°F
PSE T. (DL-07)	HIGH	124.5°F

APOLLO 16 ALSEP

	Noon	Night
Lunation	67	67
Sun Angle	85.2°	280.2°
Sig Strth (9m)	-135.0 dbm	-137.0 dbm
Input Power	61.5w	61.1w
Reserve Power	30.5w	10.9w
Av Ther Pl T.	102.4°F	-10.0°F
PSE T. (DL-07)	141.7°F	125.8°F
LSM T. (DM-05)	45.8°C	-10.2°C

APOLLO 17 ALSEP

	Noon	Night
Lunation	59	59
Sun Angle	88.5°	296.5°
Sig Strth (9m)	-134.0 dbm	-140.0 dbm
Input Power	58.9w	59.2w
Reserve Power	23.6w	7.7w
Av Ther Pl T.	81.3°F	-41.2°F
LACE T. (AM-41)	158.6°F	-16.1°F
LEAM T. (AJ-11)	204.0°F	-17.4°F
HFE T. (DH-13)	326.9°K	289.4°K
LSG T. (DG-04)	LOW	LOW
LSP T. (AP-01)	81.6°F	-40.0°F

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 9/22/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
14 September	GDS/GWM	Higher Priority	LOS 14/0045 AOS 14/0235	ALL	1^h50^m
14 September	GWM/ACN	Higher Priority	LOS 14/0840 AOS 14/1129	ALL	2^h49^m
14 September	ACN/BDA	Higher Priority	LOS 14/1218 AOS 14/1251	ALL	43^m
15 September	GWM/AGO	Higher Priority	LOS 15/0930 AOS 15/1259	ALL	3^h29^m
16 September	GWM/ACN	Higher Priority	LOS 16/1015 AOS 16/1100	ALL	45^m
16 September	ACN/BDA	Higher Priority	LOS 16/1230 AOS 16/1325	ALL	55^m
17 September	GWM/ACN	Higher Priority	LOS 17/1034 AOS 17/1125	ALL	51^m
18 September	GWM/ACN	Higher Priority	LOS 18/1204 AOS 18/1254	ALL	50^m
18 September	ACN/AGO	Higher Priority	LOS 18/1453 AOS 18/1511	ALL	18^m
20 September	ORR/MAD	Higher Priority	LOS 20/1103 AOS 20/1358	ALL	2^h55^m
21 September	ORR/GWM	Higher Priority	LOS 21/0948 AOS 21/1007	ALL	19^m
21 September	GWM/ORR	Higher Priority	LOS 21/1217 AOS 21/1250	ALL	33^m
21 September	ORR/GWM	Higher Priority	LOS 21/1334 AOS 21/1426	ALL	52^m
21 September	GWM/MAD	Schedule	LOS 21/1449 AOS 21/1452	ALL	03^m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		

TIMES - ALSEP SUPPORT SCI - EVENTS PSE C ILY

SEP 11/254	12/255	13/256	14/257	15/258	16/259	17/260
NO SUPPORT	0800-1100	NO SUPPORT	0900-1100 ALSEP 17 HFE RBS	NO SUPPORT	0900-1100	NO SUPPORT ALSEP 17
SEP 18/261	19/262	20/263	21/264	22/265	23/266	24/267
NO SUPPORT ALSEP 16	0800-1000 ALSEP 15 ALSEP 16	0900-1100	1000-1200 ALSEP 14 ALSEP 17 HFE RBS	1100-13 ALSEP 12 PSE Z MTR OFF 2000- 2100	0900-1100 ALSEP 16 LSM FLIP CAL ALSEP 14 CPLEE STBY	0900-1100
SEP 25/268	26/269	27/270	28/271	29/272	30/273	
0900-1100	0900-1100 ALSEP 16 LSM FLIP CAL	0900-1100	0900-1100 ALSEP 17 HFE RBS ALSEP 16 LSM FLIP CAL	0900-1100	1200-1400 TERMINATION SUPPORT	

APOLLO ALSEP PERFORMANCE SUMMARY REPORT

AP3/C. Redmond
AP5/F. Carlton
CH5/J. Saultz
ED/D. Gerke
ED5/J. Lowery
EF5/J. Briley
FS4/P. Barnes
SC3/W. Eichelman
SC3/J. Bates
TA/P. Armitage
TN6/J. Minear
WA2/J. Lobb

NASA HQS.

SL/E. Glahn

APOLLO DATA ARCHIVING GROUP

GSFC 601/R. Vostreys (NSSDC)

LUNAR SCIENCE INSTITUTE

Dr. L. Srnka

BENDIX AEROSPACE

B. J. Rusky

PRINCIPAL INVESTIGATOR

Mr. O. Berg
Dr. D. Clay
Dr. P. Dyal
Dr. J. Freeman
Dr. J. Hoffman
Dr. R. Kovach
Mr. J. Kunselman
Dr. M. Langseth
Dr. G. Latham
Dr. D. Reasoner

AEC/W. C. Remini

ALSEP PERFORMANCE SUMMARY REPORT
(FINAL)

30 September 1977
G.m.t.: 1900

The Apollo Lunar Science Experiments Package (ALSEP) real-time support comes to an end as of midnight G.m.t., tonight. This culminates a 7 year 10 month 11 day effort by thousands of individuals in flying, deploying, and controlling the equipment on the moon and recording and analyzing the data it returned. Many deserving thanks and kudos are extended to all who participated in this scientific achievement which will be recorded in space history forever. To all who participated, congratulations to you and a WELL DONE.

From 12 February 1973 through 30 September 1977 there were only 117 days of lost ALSEP data. This loss was attributed to other higher priority projects or station equipment problems and constitutes only 1.048 percent of the total days of operation of all ALSEPs.

As another point of interest, if all the recording tape used with the initiation of Apollo 12 were laid end to end, it would stretch out 14,686.4 statue miles.

Apollo 17 ALSEP

The Apollo 17 ALSEP has operated 1,753 days, since deployment on 12 December 1972, and processed 40,200 commands.

The Central Station is configured as follows: transmitter A, power conditioning unit #2, processor X, decoder B, automatic power management ON, power dump resistors OFF, and receiver B.

The Lunar Surface Gravimeter Experiment is in STANDBY and could be commanded ON.

The Lunar Atmospheric Composition Experiment is OFF.

The Lunar Ejecta and Meteorite Experiment is OFF.

The Heat Flow Experiment is in STANDBY and could be commanded ON.

The Lunar Seismic Profiling Experiment is in STANDBY and could be commanded ON.

Apollo 16 ALSEP

The Apollo 16 ALSEP has operated 1,988 days, since deployment on 21 April 1972, and processed 26,890 commands.

The Central Station is configured as follows: transmitter B, processor X, heaters OFF, power dump resistors OFF, and power conditioning unit #1.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

30 September 1977
G.m.t.: 1900

Apollo 16 ALSEP (continued)

The Lunar Surface Magnetometer Experiment is ON.

The Heat Flow Experiment is OFF and cannot be commanded ON.

The Active Seismic Experiment is OFF and could be commanded ON.

Apollo 15 ALSEP

The Apollo 15 ALSEP has operated 2,253 days, since deployment on 31 July, 1971, and processed 41,120 commands.

The Central Station is configured as follows: transmitter B, processor Y, heaters OFF, power dump resistors OFF, and power conditioning unit #1.

The Passive Seismic Experiment is OFF and should not be commanded ON. The increase in Central Station reserve power will extend the life of the Apollo 15 ALSEP for approximately 6 to 10 weeks.

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments were commanded OFF on 12 March 1977 to increase reserve power.

The Lunar Surface Magnetometer Experiment was commanded OFF on 14 June 1974 because of failure.

The Heat Flow Experiment was commanded OFF on 13 January 1977 to increase reserve power.

The Dust, Thermal, and Radiation Engineering Measurements Experiment is ON.

Apollo 14 ALSEP

The Apollo 14 ALSEP was deployed on 5 February 1971 for a total 2,429 days. Data has been received for 2,291 days as 138 days were lost due to loss of signal on six separate occasions. 18,270 commands were processed by the central station.

The Central Station is configured as follows: transmitter B, processor Y, power conditioning unit #1, heaters OFF, and power dump resistors OFF.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

The Charged Particles Lunar Environment Experiment is in STANDBY and could be commanded ON for lunar night operation only.

ALSEP PERFORMANCE SUMMARY REPORT (continued)

30 September 1977
G.m.t.: 1900

Apollo 14 ALSEP (continued)

The Suprathermal Ion Detector and Cold Cathode Gauge Experiments were commanded OFF on 5 January 1975 because of failure.

The Active Seismic Experiment is OFF and could be commanded ON.

The Dust, Thermal, and Radiation Engineering Measurements Experiment is ON.

Apollo 12 ALSEP

The Apollo 12 ALSEP has operated 2,872 days, since deployment on 19 November 1969, and processed 33,350 commands.

The Central Station is configured as follows: transmitter B, processor Y, power conditioning unit #1, heaters OFF, and power dump resistors OFF.

The Passive Seismic Experiment is in STANDBY and could be commanded ON.

The Solar Wind Spectrometer Experiment was commanded OFF on 15 January 1977 to increase reserve power and central station heating.

The Suprathermal Ion Detector and Cold Cathode Ion Gauge Experiments were commanded OFF on 3 May 1976 to increase reserve power and central station heating.

The Lunar Surface Magnetometer Experiment was commanded OFF in June 1974 because of failure.

The Dust Detector Experiment is ON.

It is requested that any organization having comments, questions, or suggestions concerning this report contact J. Bates, Payload Requirements and Operations Branch SC3, telephone 713-483-4458.

ALSEP STATUS	as of week ending 1600 Z (G.m.t.) September 1977				
	Apollo 12 ALSEP 1	Apollo 14 ALSEP 4	Apollo 15 ALSEP 2	Apollo 16 ALSEP 3	Apollo 17 ALSEP 5
Deployed	1412Z, 11/19/69	1728Z, 2/5/71	1805Z, 7/31/71	1938Z, 4/21/72	0253Z, 12/12/72
Lunar Location	23.5°W, 3.0°S	17.5°W, 3.7°S	3.7°E, 26.1°N	15.5°E, 9.0°S	30.8°E, 20.2°N
Lunation/Days Ops	98/ *2871*	83/*2290*	77/*2252*	68/*1987*	60/*1752*
Phase, Sun Angle	*Noon, 89.7°*	*Noon, 95.6°*	*Noon, 116.7°*	*Noon, 128.5°*	*Noon, 143.8°*
Cmds - Total/Week	*33,333/93*	*18,754/59*	*41,104/39*	*26,886/113*	*40,187/105*
Spurious Changes	120	114	138	11	0
CENTRAL STATION / RTG — Initial/Present Reserve Power	73.6w/ *42.7w* *21.3w*	*72.5w/ 58.4w* *33.9w*	74.7w/*36.0w* *7.4w*	70.9w/ *61.1w* *29.7w*	75.4w/ *58.5w* *23.0w*
CENTRAL STATION — Avg. Therm. Plate	*89.1°F*	*113.5°F*	*96.7°F*	*96.9°F*	*65.0°F*
CENTRAL STATION — Transmitter	B, 7/8/74	B, 11/12/76	B, 8/20/76	B, 3/26/73	A, 12/9/74
CENTRAL STATION — Processor	Y, 8/25/76	Y, 8/24/76	Y, 10/19/76	X, 1/12/77	X,R,S,W,DCDR B 8/74
CENTRAL STATION — PCU	1	1	1	1	2
CENTRAL STATION — Timer	Inoperative	Inoperative	Operative	Inhibited 5/72	Operative Inhibited: *9/28/77*
CENTRAL STATION — Heaters	DSS-1 (10w) - OFF PDRs - OFF	DSS-1 (10w) - OFF PDRs - OFF	DSS-1 (10w) - OFF PDRs - OFF	DSS-1 (10w) - OFF PDRs - OFF	APM STATUS: ON PDRs - OFF
EXPERIMENTS / PSE — LPX/Y,Z,SPZ	0,0,-20db 11/75	0,0,0db	0,0,0db	0,0,0db	LSPE - STANDBY 4/27/77
EXPERIMENTS / PSE — Heaters	Auto On Z Motor - OFF	*Forced OFF 9/26/77*	Auto On	*Forced OFF 9/23/77*	
EXPERIMENTS / PSE — Filter	OUT - 3/27/77	OUT - 11/17/76	OUT - 3/27/77	OUT - 3/27/77	HFE - ON
EXPERIMENTS / PSE — DL-07 Temp.	*Offscale HIGH*	*133.7°F*	*Offscale HIGH*	*Offscale HIGH*	*Probe 2 Failed 6/77*
EXPERIMENTS / PSE — Uncage Ckt.	Uncaged	Uncaged	*Uncaged*	OT	RBS weekly
EXPERIMENTS — ACTIVE/OPERABLE	Dust Detector - ON	DTREM - ON	DTREM - ON	LSM - ON Z Failed 3/3/75 Y Failed 4/8/77 Nights	LSG-ON 3/28/77 Auto Htr Failed No Free Modes or closed Loop Ops
		CPLEE - STBY 9/24/77 Operate Night Only Anal B Failed 4/71			
EXPERIMENTS — INACTIVE/INOPERABLE	SWS - OFF 1/15/77 Increase Reserve Power for C/S heat		SIDE - OFF 3-12-77 FOR RESERVE POWER		
	SIDE - OFF 5/3/76 Increase Reserve Power for C/S Heat	SIDE - OFF 1/5/75 Failed	HFE - OFF 1/13/77 For Reserve Power	HFE - Off Since deployment, cable severed.	LEAM - STBY 8/15/76 Static @ night 7/76 Intrmt Days 4/25/77
	LSM - OFF 6/74 Failed	ASE - STBY 12/23/74 Mortars unfired Geophones 2 & 3 bad	SWS - OFF 6/74 Failed LSM - OFF 6/74 Failed	ASE - OFF 12/23/74 Mortar #1 unfired. Sensors failed.	LACE - STBY 7/22/76 HV Failed 10/73

PSEP - Apollo 11 Deployed 7/21/69, 23.4°E, 0.7°N - Lost Uplink 8/25/69, Lost Downlink 12/14/69

REMOTE SITE NON-RECOVERABLE ALSEP
DATA LOSSES FOR WEEK ENDING 9/30/77

DATE	SITE	REMARKS	GMT	VEHICLE	TIME LOST
22 September	ORR/MAD	Higher Priority	LOS 22/1500 AOS 22/1537	ALL	37m
24 September	ORR/GWM	Higher Priority	LOS 24/1130 AOS 24/1200	ALL	30m
26 September	MAD/QUI	Schedule	LOS 26/0330 AOS 26/0345	ALL	15m
27 September	GDS/ORR	Antenna Masking	LOS 27/1205 AOS 27/1225	ALL	20m
28 September	ORR/MAD	Schedule	LOS 28/1959 AOS 28/2004	ALL	5m
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
			LOS AOS		
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