

14 December 1973
9753-132 (I)

Apollo 17 ALSEP

Table 2

LEAM Maximum Temperatures

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>AJ-11 (°F)</u>	<u>Sun Angle (°)</u>	<u>Condition</u>
1972			
18 Dec/1330	176.0	96	Dust Covers On
23 Dec/0737	150.1	154	Turn off/Mirror Cover Off/Sensor Covers On
1973			
10 Jan/1138	169.5	15	Turned to Standby All Covers Off
13 Jan/0630	194.3	49	Experiment Off
18 Jan/0600	186.5	109	Experiment Off
10 Feb/0320	164.1	28	Experiment Off
16 Feb/1913	186.5	109	Experiment Off
19 Mar/1445	185.0	124	Experiment Off
17 Apr	185.0	115	Experiment Off
17 May	185.0	116	Experiment Off
15 Jun	183.0	115	Experiment Off
14 Jul	182.0	111	Experiment Off
7 Aug	185.0	47.5	Experiment ON
13 Aug	183.5	118	Experiment Off
6 Sep	191.0	52.5	Experiment ON
8 Sep	191.0	77.9	Experiment ON
11 Sep	186.5	112.5	Experiment Off
6 Oct	196.0	52.6	Experiment ON
11 Oct	189.5	119.0	Experiment Off

Apollo 17 ALSEP

Table 2 (continued)

LEAM Maximum Temperatures

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>AJ-11(°F)</u>	<u>Sun Angle(°)</u>	<u>Condition</u>
1973			
04 Nov	198.0	51.9	Experiment ON
09 Nov	192.5	112-122.5	Experiment OFF
02 Dec	179.0	32.6	Experiment ON
09 Dec	196.0	116.9	Experiment OFF

Internal
Memorandum



Date 15 March 1974

Letter No. 9753-132
Rev. L

Ann Arbor, Michigan

To Distribution

From T. Breezy

Subject Apollo 17 ALSEP Anomalies

Since deployment of the Apollo 17 ALSEP, the Lunar Ejecta and Meteorite Experiment (LEAM) has experienced a recurring anomalous event associated with elevated temperatures. The Lunar Atmospheric Composition Experiment (LACE) has experienced an anomalous mode change event. This event has not occurred consistently enough to be classified as periodic.

These events are presented in the following tables titled according to the particular anomaly and listed in order of occurrence. The tables are updated as the events occur and are published monthly.

<u>Table No.</u>	<u>Table Contents</u>
1	LACE Mode Changes
2	LEAM Temperatures
3	LACE Sweep Electronic Background Noise

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J. McNaughton
W. Tosh

Internal
Memorandum



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Ann Arbor, Michigan

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1	LACE Mode Changes
2	LEAM Temperatures
3	LACE Sweep Electronic Background Noise
4	LSPE Status (Telemetry Parameter AB-11)
5	LSG Heater Box Heater Circuit

Prepared by:


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15 April 1974
9753-132 (M)

Apollo 17 ALSEP

Table 1

LACE Mode Changes

<u>Date/Time</u> (G.m.t.)	<u>AM-41 (°F)</u>	<u>Sun Angle (°)</u>	<u>Event</u>
1973			
8 Jan/1819	13.4	355	Auto to Sweep Lock
9 Jan/1537	16.6	6	Auto to Sweep Lock
9 Mar/1945	15.0	4.5	Auto to Sweep Lock
9 Mar/2019	16.6	4.8	Auto Sweep to High Voltage OFF and Filaments OFF. Engineering data disordered.
9 Mar/2220	24.2	5.8	Auto to Sweep Lock
18 Sep/1414	1.4	198.1	Intermediate mass range data to zeros
23 Sep/2152	13.4	262.6	Filament #1 failed
12 Oct/1524	63.1	131.4	Engineering Data Bad
17 Oct/1732	-6.1	193.4	Multiplier High Voltage Power Supply Failed

15 April 1974
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Apollo 17 ALSEP

Table 2

LEAM Maximum Temperatures

Table 2 reflects those periodic events which have occurred in 1974 to date. Previous events are available upon request.

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>AJ-11 (°F)</u>	<u>Sun Angle (°)</u>	<u>Condition</u>
1974			
01 Jan/1356	186.5	36.4	Experiment ON
07 Jan/1417	196.0	109.4	Experiment OFF
08 Jan/1430	196.0	121.7	Experiment OFF
31 Jan/1617	194.0	42.4	Experiment ON
06 Feb/1424	196.0	114.3	Experiment OFF
09 Feb/1435	189.5	150.7	Experiment ON
01 Mar/1456	183.5	34.6	Experiment ON
08 Mar/1425	194.0	119.3	Experiment OFF
31 Mar/2138	192.5	43.4	Experiment ON
06 Apr/2115	192.5	116.0	Experiment OFF
09 Apr/0225	196.0	143.0	Experiment ON

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Table 3

LACE Sweep Electronic Background Noise

Electronic background noise has been present in data Channels B (Intermediate mass range) and C (Low mass range) since initialization of the LACE instrument. Table 3 reflects the appearance of electronic background noise in data Channel A (High mass range).

<u>Date/Time</u> <u>(G.m.t.)</u>	<u>AM-41 (°F)</u>	<u>Sun Angle (°)</u>	<u>Event</u>
1972 22 Feb/1102	69.8	177.4	Present

Apollo 17 ALSEP

Table 4

LSPE Status (Telemetry Parameter AB-11)

Telemetry parameter AB-11, which reports the operational status of the Lunar Surface Profiling Experiment, has failed (LOW, all zeros) in the OFF/STANDBY condition. The telemetry point, however, still indicates the correct operational status (ON) when the experiment is commanded ON. The failure gives an invalid indication only in the OFF/STANDBY state. Table 4 is a chronological depiction of the changes since the initial occurrence:

<u>Date/Time(G.m.t.)</u>	<u>AB-11 LSPE Status</u>		<u>Lunar Cycle</u> <u>Day/Night</u>
	<u>Indicated</u>	<u>Actual</u>	
26 Sep 73/1338	STANDBY	STANDBY	Night
28 Sep 73/1243	OT (Invalid)	STANDBY	Night
28 Sep 73/1246	STANDBY	STANDBY	Night
02 Oct 73/0344	OT (Invalid)	STANDBY	Night
03 Oct 73/1603	STANDBY	STANDBY	Day
16 Oct 73/2303	OT (Invalid)	STANDBY	Night
06 Nov 73/2216	STANDBY	STANDBY	Day
11 Nov 73/1416	OT (Invalid)	STANDBY	Day
16 Mar 74/1351	OT (Invalid)	STANDBY	Night
17 Mar 74/2353 to	OFF (Invalid)	STANDBY	Night
15 Apr 74/1600			

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Table 5

LSG Heater Box Heater Circuit

The Lunar Surface Gravimeter Experiment experienced a failure in the Heater Box heater circuit (Full ON) during the 16th lunar night. Table 5 depicts the status of the instrument at the time of failure.

<u><i>Date/Time (G.m.t.)</i></u>	<u><i>AG-04(°C)</i></u>	<u><i>DG-04(°C)</i></u>	<u><i>DG-01(Vdc)</i></u>	<u><i>Remarks</i></u>
<i>15 Mar/0116</i>	<i>49.204</i>	<i>49.207</i>	<i>--</i>	<i>Heater ON, Seismic Gain HI</i>
<i>15 Mar/1633</i>	<i>Offscale HIGH</i>	<i>Offscale HIGH</i>	<i>--</i>	<i>Heater OFF, Seismic Gain HI</i>
<i>15 Mar/2105</i>	<i>Offscale LOW</i>	<i>Offscale LOW</i>	<i>1.66</i>	<i>Heater ON, Seismic Gain LO</i>

Since 15 March 1974 to date, various reconfigurations of the LSG have been unsuccessfully attempted to regain control of the Heater Box Heater Circuit.

ALSEP SUNRISE/SUNSET PREDICTIONS FOR 1974



**Aerospace
Systems Division**

Apollo 12 ALSEP based on empirical data; all other values are "normalized"
Time is shown as GMT (EST): * indicates preceding date

Prepared by: Warren Tosh - January 1974

ALSEP Longitude	Apollo 17 30.75°E	Apollo 16 15.51°E	Apollo 15 3.65°E	Apollo 14 17.47°E	Apollo 12 ⁽¹⁾ 23.39°E
Lunation	13	21	30	36	51
Sunrise	Nov 29/2329 (1829)	Dec 1/0532 (0032)	Dec 2/0455 (2355*)	Dec 3/2236 (1736)	Dec 4/1029 (0529)
Noon	Dec 7/0910 (0410)	Dec 8/1519 (1019)	Dec 9/1448 (0948)	Dec 11/0835 (0335)	Dec 11/2018 (1518)
Sunset	Dec 14/1913 (1413)	Dec 16/0121 (2021*)	Dec 17/0045 (1945*)	Dec 18/1825 (1325)	Dec 19/0512 (0012)
Midnight	Dec 22/0445 (2345*)	Dec 23/1046 (0546)	Dec 24/1007 (0507)	Dec 26/0342 (2242*)	Dec 26/1522 (1022)
Lunation	14	22	31	37	52
Sunrise	Dec 29/1401 (0901)	Dec 30/2004 (1504)	Dec 31/1928 (1428)	Jan 2/1310 (0810)	Jan 3/0109 (2009*)
Noon	Jan 5/2346 (1846)	Jan 7/0556 (0056)	Jan 8/0524 (0024)	Jan 9/2314 (1814)	Jan 10/1056 (0556)
Sunset	Jan 13/0952 (0452)	Jan 14/1559 (1059)	Jan 15/1524 (1024)	Jan 17/0904 (0404)	Jan 17/1945 (1445)
Midnight	Jan 20/1924 (1424)	Jan 22/0125 (2025*)	Jan 23/0046 (1946*)	Jan 24/1821 (1321)	Jan 25/0600 (0100)
Lunation	15	23	32	38	53
Sunrise	Jan 28/0438 (2338*)	Jan 29/1041 (0541)	Jan 30/1005 (0505)	Feb 1/0346 (2246*)	Feb 1/1552 (1052)
Noon	Feb 4/1421 (0921)	Feb 5/2030 (1530)	Feb 6/1958 (1458)	Feb 8/1345 (0845)	Feb 9/0128 (2028*)
Sunset	Feb 12/0020 (1920*)	Feb 13/0626 (0126)	Feb 14/0550 (0050)	Feb 15/2329 (1829)	Feb 16/1005 (0505)
Midnight	Feb 19/0958 (0458)	Feb 20/1545 (1045)	Feb 21/1505 (1005)	Feb 23/0838 (0338)	Feb 23/2017 (1517)
Lunation	16	24	33	39	54
Sunrise	Feb 26/1852 (1352)	Feb 28/0052 (1952*)	Mar 1/0014 (1914*)	Mar 2/1754 (1254)	Mar 3/0605 (0105)
Noon	Mar 6/0424 (2324*)	Mar 7/1031 (0531)	Mar 8/0958 (0458)	Mar 10/0342 (2242)	Mar 10/1524 (1024)
Sunset	Mar 13/1412 (0912)	Mar 14/2015 (1515)	Mar 15/1937 (1437)	Mar 17/1314 (0814)	Mar 18/2348 (1848)
Midnight	Mar 20/2325 (1825)	Mar 22/0522 (0022)	Mar 23/0440 (2340*)	Mar 24/2210 (1710)	Mar 25/0948 (0448)
Lunation	17	25	34	40	55
Sunrise	Mar 28/0817 (0317)	Mar 29/1416 (0916)	Mar 30/1336 (0836)	Apr 1/0712 (0212)	Apr 1/1923 (1423)
Noon	Apr 4/1736 (1236)	Apr 5/2341 (1841)	Apr 6/2305 (1805)	Apr 8/1648 (1148)	Apr 9/0426 (2326*)
Sunset	Apr 12/0309 (2209*)	Apr 13/0909 (0409)	Apr 14/0829 (0329)	Apr 16/0205 (2105*)	Apr 16/1238 (0738)
Midnight	Apr 19/1207 (0707)	Apr 20/1802 (1302)	Apr 21/1718 (1218)	Apr 23/1045 (0545)	Apr 23/2222 (1722)
Lunation	18	26	35	41	56
Sunrise	Apr 26/2045 (1545)	Apr 28/0242 (2142*)	Apr 29/0200 (2100*)	Apr 30/1933 (1433)	May 1/0737 (0237)
Noon	May 4/0551 (0051)	May 5/1153 (0653)	May 6/1115 (0615)	May 8/0452 (2352*)	May 8/1632 (1132)
Sunset	May 11/1508 (1008)	May 12/2108 (1608)	May 13/2026 (1526)	May 15/1355 (0855)	May 16/0034 (1932*)
Midnight	May 18/2355 (1855)	May 20/0548 (0048)	May 21/0502 (0002)	May 22/2226 (1726)	May 23/1002 (0502)
Lunation	19	27	36	42	57
Sunrise	May 26/0822 (0322)	May 27/1416 (0916)	May 28/1334 (0834)	May 30/0704 (0204)	May 30/1859 (1359)
Noon	June 2/1716 (1216)	June 3/2316 (1816)	June 4/2237 (1737)	June 6/1612 (1112)	June 7/0351 (2251*)
Sunset	June 10/0224 (2124*)	June 11/0821 (0321)	June 12/0740 (0240)	June 14/0107 (2007*)	June 14/1151 (0651)
Midnight	June 17/1103 (0603)	June 18/1654 (1154)	June 19/1609 (1109)	June 21/0930 (0430)	June 21/2106 (1606)
Lunation	20	28	37	43	58
Sunrise	June 24/0137 (2037*)	June 26/0117 (2017*)	June 27/0001 (1901*)	June 28/1803 (1303)	June 29/0553 (0053)
Noon	July 2/0413 (2313*)	July 3/1013 (0513)	July 4/0933 (0433)	July 6/0306 (2206*)	July 6/1445 (0945)
Sunset	July 9/1317 (0817)	July 10/1915 (1415)	July 11/1832 (1332)	July 13/1201 (0701)	July 13/2250 (1750)
Midnight	July 16/2155 (1655)	July 18/0347 (2247*)	July 19/0301 (2201*)	July 20/2023 (1523)	July 21/0758 (0258)
Lunation	21	29	38	44	59
Sunrise	July 24/0616 (0116)	July 25/1211 (0711)	July 26/1128 (0628)	July 28/0457 (2357*)	July 28/1635 (1135)
Noon	July 31/1508 (1008)	Aug 1/2108 (1608)	Aug 2/2029 (1529)	Aug 4/1403 (0903)	Aug 5/0143 (2043*)
Sunset	Aug 8/0017 (1917*)	Aug 9/0615 (0115)	Aug 10/0533 (0033)	Aug 11/2302 (1802)	Aug 12/0956 (0456)
Midnight	Aug 15/0900 (0400)	Aug 16/1453 (0953)	Aug 17/1407 (0907)	Aug 19/0731 (0231)	Aug 19/1907 (1407)
Lunation	22	30	39	45	60
Sunrise	Aug 22/1728 (1228)	Aug 23/2323 (1823)	Aug 24/2241 (1741)	Aug 26/1613 (1113)	Aug 27/0356 (2256*)
Noon	Aug 30/0300 (2200*)	Aug 31/0828 (0328)	Sept 1/0751 (0251)	Sept 3/0127 (2027*)	Sept 3/1307 (0807)
Sunset	Sept 6/1146 (0646)	Sept 7/1746 (1246)	Sept 8/1706 (1206)	Sept 10/1038 (0538)	Sept 10/2133 (1633)
Midnight	Sept 13/2041 (1541)	Sept 15/0234 (2134*)	Sept 16/0151 (2051*)	Sept 17/1917 (1417)	Sept 18/0654 (0154)
Lunation	23	31	40	46	61
Sunrise	Sept 21/0520 (0020)	Sept 22/1117 (0617)	Sept 23/1037 (0537)	Sept 25/0412 (2312*)	Sept 25/1557 (1057)
Noon	Sept 28/1504 (1004)	Sept 29/2035 (1535)	Sept 30/1959 (1459)	Oct 2/1339 (0839)	Oct 3/0120 (2020*)
Sunset	Oct 6/0004 (1904*)	Oct 7/0606 (0106)	Oct 8/0528 (0028)	Oct 9/2303 (1803)	Oct 10/0957 (0457)
Midnight	Oct 13/0912 (0412)	Oct 14/1508 (1008)	Oct 15/1426 (0926)	Oct 17/0756 (0256)	Oct 17/1934 (1434)
Lunation	24	32	41	47	62
Sunrise	Oct 20/1805 (1305)	Oct 22/0005 (1905*)	Oct 22/2326 (1826)	Oct 24/1703 (1203)	Oct 25/0453 (2353*)
Noon	Oct 28/0403 (2303*)	Oct 29/0936 (0436)	Oct 30/0903 (0403)	Nov 1/0246 (2146*)	Nov 1/1428 (0928)
Sunset	Nov 4/1318 (0818)	Nov 5/1923 (1423)	Nov 6/1846 (1346)	Nov 8/1224 (0724)	Nov 9/2315 (1815)
Midnight	Nov 11/2238 (1738)	Nov 13/0437 (2337*)	Nov 14/0357 (2257*)	Nov 15/2130 (1630)	Nov 16/0909 (0409)
Lunation	25	33	42	48	63
Sunrise	Nov 19/0745 (0245)	Nov 20/1346 (0846)	Nov 21/1309 (0809)	Nov 23/0650 (0150)	Nov 23/1844 (1344)
Noon	Nov 26/1755 (1255)	Nov 27/2330 (1830)	Nov 28/2258 (1758)	Nov 30/1642 (1142)	Dec 1/0427 (2327*)
Sunset	Dec 4/0321 (2221*)	Dec 5/0928 (0428)	Dec 6/0654 (0154)	Dec 8/0233 (2133*)	Dec 8/1318 (0818)
Midnight	Dec 11/1252 (0752)	Dec 12/1853 (1353)	Dec 13/1813 (1313)	Dec 15/1148 (0648)	Dec 15/2328 (1828)
Lunation	26	34	43	49	64
Sunrise	Dec 18/2206 (1706)	Dec 20/0410 (2310*)	Dec 21/0333 (2233*)	Dec 22/2155 (1615)	Dec 23/0916 (0416)
Noon	Dec 26/0822 (0322)	Dec 27/1400 (0900)	Dec 28/1328 (0828)	Dec 30/0717 (0217)	Dec 30/1900 (1400)
Sunset	1975	1975	1975	1975	1975
Midnight	1975	1975	1975	1975	1975