CATASTROPHIC EVENTS & MASS EXTINCTIONS: IMPACTS AND BEYOND
VIENNA - JULY 9-12, 2000

Geozentrum
University of Vienna, Austria
Technical Program

Geozentrum
University of Vienna, Austria
SPONSORS

University of Vienna, Austria
Lunar and Planetary Institute
European Science Foundation IMPACT Program
Barringer Crater Company
Federal Ministry of Education, Science, and Culture, Austria
Geological Survey of Austria
Vienna Convention Bureau
City of Vienna
Austrian Airlines
International Association of Geochemistry and Cosmochemistry
Finnegan
Micromass
 Cameca Instruments, Inc.

INTERNATIONAL ORGANIZING AND PROGRAM COMMITTEE

Walter Alvarez (University of California, Berkeley)
Eric Buffetaut (CNRS Paris)
Douglas H. Erwin (Smithsonian Institution)
Iain Gilmour (The Open University)
Christian Koeberl (University of Vienna)
W. Uwe Reimold (University of the Witwatersrand)
Graham Ryder (Lunar and Planetary Institute)
Charles A. Sandberg (U.S. Geological Survey, Denver)
Jan Smit (Free University, Amsterdam)
Peter D. Ward (University of Washington, Seattle)

LOCAL ORGANIZING COMMITTEE

Christian Koeberl (Chair, University of Vienna)
Franz Brandstätter (Natural History Museum, Vienna)
Heinz Huber (University of Vienna)
Wolfgang Kiesl (University of Vienna)
Gero Kurat (Natural History Museum, Vienna)
Anton Preisinger (Technical University, Vienna)
Hans Peter Schönlaub (Geological Survey, Vienna)
GUIDE TO TECHNICAL SESSIONS AND ACTIVITIES

Sunday, July 9, 2000

13.30–18.00 Geological Survey of Austria (Palais Rasumofsky) Registration
14.00 Geological Survey of Austria (Palais Rasumofsky) Public Lecture by Ulrich Köhler ("Meteors and Comets in Ancient Mexico")
15.30–19.00 Geological Survey of Austria (Palais Rasumofsky) Welcoming Reception

Monday, July 10, 2000

09.00–09.15 Geosciences Bldg., U. Vienna Formal Opening
09.15–10.45 Geosciences Bldg., U. Vienna K/T Boundary: The Marine Record
10.45–11.00 Geosciences Bldg., U. Vienna Tea/Coffee Break
11.00–12.30 Geosciences Bldg., U. Vienna K/T Boundary: The Terrestrial Record
12.30–13.45 Geosciences Bldg., U. Vienna Lunch
13.45–15.00 Geosciences Bldg., U. Vienna K/T Boundary Melange
15.00–19.00 Geosciences Bldg., U. Vienna Poster Session

Tuesday, July 11, 2000

08.30–10.30 Geosciences Bldg., U. Vienna The Chicxulub Impact Structure
10.30–11.00 Geosciences Bldg., U. Vienna Tea/Coffee Break
11.00–12.30 Geosciences Bldg., U. Vienna Snowball Earth/Late Eocene Record
12.30–13.45 Geosciences Bldg., U. Vienna Lunch
13.45–15.45 Geosciences Bldg., U. Vienna Permian/Triassic Boundary
15.45–16.15 Geosciences Bldg., U. Vienna Tea/Coffee Break
16.15–18.30 Geosciences Bldg., U. Vienna Carbon Cycle/Early Paleozoic Record
19.00 Departure to Heuriger (Viennese wine tavern) for dinner
19.30–22.30 Dinner
23.00 Return to Hotels

Wednesday, July 12, 2000

08.30–10.30 Geosciences Bldg., U. Vienna Catastrophic Event Markers
10.30–11.00 Geosciences Bldg., U. Vienna Tea/Coffee Break
11.00–12.30 Geosciences Bldg., U. Vienna Causes of Extinctions
12.30–13.45 Geosciences Bldg., U. Vienna Lunch
15.45–16.00 Geosciences Bldg., U. Vienna Tea/Coffee Break
16.00–18.00 Geosciences Bldg., U. Vienna Impacts and Beyond
18.00–19.30 Geosciences Bldg., U. Vienna Farewell Party
18.30 Departure to rail station for Italy field trip
Moderator: Peter D. Ward

Keller G.* [20-minute invited talk]
* Mass Extinctions, Catastrophes and Environmental Changes

Smit J.* [20-minute invited talk]
* The Fate of Planktic Foraminifers Crossing the KT Boundary (Or Not):
  A Review

Brinkhuis H.* Van Hoof T. B. Galeotti S. Smit J. [5-minute talk]
* Testing the Impact Model: High Resolution Organic Walled Dinoflagellate Cyst Analysis Across the Cretaceous/Tertiary Boundary

Huber B. T.* MacLeod K. G. [5-minute talk]
* Abrupt Extinction and Subsequent Reworking of Cretaceous Planktonic Foraminifera Across the K/T Boundary: Evidence from the Subtropical Atlantic

Gallagher W. B.* [5-minute talk]
* Oligotrophic Oceans and Minimalist Organisms: Restructuring the Marine Community After the K/T Mass Extinction

* Designates speaker
Moderator: Charles L. Pillmore

Gilmour I.* Sephton M. A. [20-minute invited talk]
The Organic Geochemical Record of Environmental Change at the K/T Boundary

Buffetaut E.* [20-minute invited talk]
Biological Events at the K/T Boundary: Some Unresolved Problems

Johnson K.* Nichols D. Labandeira C. Pearson D. [5-minute talk]
Devastation of Terrestrial Ecosystems at the K-T Boundary in North America: The First Calibrated Record of Plant and Animal Response to the Chixulub Impact

Nichols D. J.* Pillmore C. L. [5-minute talk]
Palynology of the K-T Boundary in the Raton Basin, Colorado and New Mexico — New Data and Interpretations from the Birthplace of K-T Plant Microfossil Studies in Nonmarine Rocks

Fassett J. E.* Lucas S. G. Zielinski R. A. Budahn J. R. [5-minute talk]
Compelling New Evidence for Paleocene Dinosaurs in the Ojo Alamo Sandstone San Juan Basin, New Mexico and Colorado, USA
Monday, July 10, 2000
K/T BOUNDARY MÉLANGE
13.45

Moderator: Jan Smit

Ravizza G.* Peucker-Ehrenbrink B. Blusztajn J. Norris R.
[20-minute invited talk]
Seawater $^{187}$Os/$^{188}$Os Variations Across the Cretaceous-Tertiary Boundary

Norris R. D.* Firth J. Blusztajn J. Ravizza G. [20-minute invited talk]
Mass Failure of the North Atlantic Margin Triggered by the Cretaceous/
Paleogene Bolide Impact

Kiessling W.* Claeys P. [5-minute talk]
Spatial Patterns of the KT Event

Fischer A. B. Montanari A. Ocampo A. C. [5-minute talk]
Orbital Cyclicities Above and Below the Cretaceous-Tertiary Boundary,
Umbria-Marche Region, Italy
K/T Boundary

Martinez-Ruiz F. Ortega-Huertas M. Palomo I. Smit J.
*The Cretaceous-Tertiary Boundary Impact Ejecta at Blake Nose (ODP Leg 171B) as Record of the Chicxulub Impact*

Olsson R. K. Wright J. D. Miller K. G. Browning J. V. Cramer B. S.
*Cretaceous-Tertiary Boundary Events on the New Jersey Continental Margin*

Tada R. Takayama H. Matsui T. Iturralde Vinent M. Tajika E. Oji T.
Kiyokawa S. Garcia D. Okada H. Toyoda K. Hasagawa T.
*A Giant Tsunami Deposit at Cretaceous-Tertiary Boundary in Cuba*

Matsui T. Imamura F. Tajika E. Nakano Y. Fujisawa Y.
*Catastrophic Global Tsunami Induced by K/T Impact*

Díaz Otero C. Iturralde-Vinent M. García Delgado D.
*The Cretaceous-Tertiary Boundary "Cocktail" in Western Cuba, Greater Antilles*

Rojas-Consuegra R.
*Taphonomic and Palaeoecological Observations on the Peñalver Formation, Western Cuba*

Takayama H. Toyoda K. Rojas R. Garcia D. Iturralde-Vinent M. A. Matsui T.
*More than 500m Thick K/T Boundary Sequence; Cacarajicara Formation, Western Cuba. Impact Related Giant Flow Deposit*

Nakano Y. Tada R. Kamata T. Tajika E. Oji T. Kiyokawa S. Takayama H.
Goto K. Yamamoto S. Toyoda K. Garcia D. Rojas R. Iturralde-Vinent M.
Matsui T.
*Origin of Cretaceous Tertiary Boundary in Moncada, Western Cuba and Its Relation to K/T Event*

Iturralde-Vinent M. García Delgado D. Díaz Otero C. Rojas Consuegra R.
Tada R. Takayama H. Kiyokawa S.
*The K/T Boundary Impact Layer in Cuba: Update of an International Project*

Adatte T. Keller G. Stoykova K. H. Ivanov M. I. Minkovska V. Vangelov D.
Kramar U. Stüben D.
*The Cretaceous-Tertiary Boundary at Bjala, Eastern Bulgaria: Evidence for a Multi-Event Scenario*
Preisinger A. Aslanian S. Brandstätter F. Grass F. Stradner H. Summesberger H.  
*Cretaceous/Tertiary (K/T) Profile, Rhythmic Deposition and Geomagnetic Polarity Reversals of Marine Sediments near Bjala, Bulgaria*

Brinkhuis H. Van Hoof T. B. Galeotti S. Smit J.  
*Testing the Impact Model: High Resolution Organic Walled Dinoflagellate Cyst Analysis Across the Cretaceous/Tertiary Boundary*

Huber B. T. MacLeod K. G.  
*Abrupt Extinction and Subsequent Reworking of Cretaceous Planktonic Foraminifera Across the K/T Boundary: Evidence from the Subtropical Atlantic*

Gallagher W. B.  
*Oligotrophic Oceans and Minimalist Organisms: Restructuring the Marine Community After the K/T Mass Extinction*

Sengüler I. K. Dakrory A. Koeberl C. Satir M.  
*Biostratigraphic and Geochemical Analyses Across the K/T Boundary in the Sinai, Egypt: Relation to a Bolide?*

Le Loeuff J. Laurent Y.  
*Biodiversity of Late Maastrichtian Dinosaurs*

Sankey J. T.  
*Late Cretaceous Theropod Dinosaur Diversity: Latitudinal Differences in North America and Implications for the K/T Extinctions*

Buffetaut E.  
*Paleontological Constraints on the Duration of K/T Boundary Extinction Events*

Johnson K. Nichols D. Labandeira C. Pearson D.  
*Devastation of Terrestrial Ecosystems at the K-T Boundary in North America: The First Calibrated Record of Plant and Animal Response to the Chicxulub Impact*

Nichols D. J. Pillmore C. L.  
*Palynology of the K-T Boundary in the Raton Basin, Colorado and New Mexico — New Data and Interpretations from the Birthplace of K-T Plant Microfossil Studies in Nonmarine Rocks*

Fassett J. E. Lucas S. G. Zielinski R. A. Budahn J. R.  
*Compelling New Evidence for Paleocene Dinosaurs in the Ojo Alamo Sandstone San Juan Basin, New Mexico and Colorado, USA*
High Resolution Carbon and Oxygen Isotope Profiles of Foraminifera and the Ca-normalized Sr Curve from Late Maastrichtian Across the KTB at Elles, Tunisia

Planktic Foraminiferal Mass Extinction Across the K/T Boundary at La Ceiba and Bochil (México): A Comparison with El Kef Stratotype (Tunisia)

Speijer R. P.
Paleoenvironments of the Late Cretaceous-Early Paleogene Tethys; Building a Baseline for Assessing Past Global Change

Maruoka T., Koeberl C., Newton J., Gilmour I., Bohor B. F.
Sulfur Isotopic Compositions Across Terrestrial K-T Boundary Successions

Brooks R. R., Cook A. W., Stewart R. B.
Palladium and Gold as Indicators of K/T Boundary Sections

MacLeod K. G., Huber B. T., Fullagar P. D.
Evidence for a Small (~0.000030) But Resolvable Increase in Seawater $^{87}$Sr/$^{86}$Sr Ratios Across the K/T Boundary

Pillmore C. L., Miggins D. P.
A New $^{40}$Ar/$^{39}$Ar Age Determination on the K/T Boundary Interval: Possible Constraints on the Timing of the K/T Event and Sedimentation Rates of the K/T Sequence

Parthasarathy G. N., Vairamani M., Kunwar A. C., Narasaiah B.
Natural Fullerene from the K/T Boundary Layer at Anjar, Kutch, India

Soliman M. F., Palme H., El Goresy A., Spettel B.
Mineralogy and Trace Elements Geochemistry of the Cretaceous/Tertiary Boundary (K/T) at Gabal Greiya Section, Nile Valley, Egypt: Evidence for a Pre-K/T Impact

Kiessling W., Claey L.
Spatial Patterns of the K/T Event

Orbital Cyclicities Above and Below the Cretaceous-Tertiary Boundary, Umbria-Marche Region, Italy
Lounejeva E. Ostroumov M. Sánchez-Rubio G.

Contributions to the Mineralogy of Chicxulub: In Situ Raman Spectroscopy
Evidence of Coesite in Suevite

Bhandari N. Verama H. C. Tripathi A. Upadhyay C. Tripathi R. P.

Mössbauer Spectroscopy of K/T Boundary Clays: Characteristics of Iron Bearing Minerals

Claeys P.

What Is Exactly the Role of Evaporites in the Chicxulub Event?

Kettrup B. Deutsch A.

Composition and Variability of the Crystalline Basement at the Chicxulub Target Site Deduced from Geochemical-Petrographical Data of Clasts in Impactites

Rebolledo-Vieyra M. Vera-Sánchez P. Urrutia-Fucugauchi J. Marin L. E.

Physical Characteristics of Deposition of Impact Breccias and Pan-African Basement Affinities of Chicxulub Crater

Ivanov B. A.

Crust and Mantle Deformation Under Chicxulub: Test for Models

Hildebrand A. R. Pilkington M.

Structure of the Chicxulub Crater

Claeys P. Kiessling W. Alvarez W.

Global Distribution of Chicxulub Ejecta


The Age of the Chicxulub Impact and Other Events in the KT Transition: New Data from NE Mexico

Snowball Earth

Tajika E.

Physical and Geochemical Processes in the Global Glaciation: Implication for Snowball Earth

Late Paleocene

Speijer R. P. Wagner T.

Bursts of Methane from the Deep Sea and the Spread of Anoxia into Epicontinental Basins at the End of the Paleocene — A Causal Relationship Involving Sea-Level Change?
Late Eocene

Coccioni R.  Basso D.  Brinkhuis H.  Galeotti S.  Gardin S.  Monechi S.  Spezzaferri S.

Long-Term Environmental Perturbations Following a Late Eocene Impact? Evidence from the Massignano GSSP, Italy

Haines P. W.

Tsunami(?) Deposit of Terminal Eocene Age, South Australia: The Inferred Effects of a Low-Angle Multiple Impact Event

Speijer R. P.  Monechi S.  Morsi A. M.  Schmitz B.

Multiparameter Stratigraphy of the Late Paleocene Thermal Maximum Along a Southern Tethyan Paleoslope Transect

Marjanac T.

Giant Beds — Impact Induced Deep-Marine Deposits

Permian-Triassic Boundary and Triassic-Jurassic Boundary

Rampino M. R.  Prokoph A.  Adler A. C.

Abrupt Changes at the Permain/Triassic Boundary: Tempo of Events from High-resolution Cyclostratigraphy

Wignall P. B.

Extent and Duration of the Permo-Triassic Superanoxic Event

Shukla A. D.  Bhandari N.  Shukla P. N.

Permian-Triassic Transitional Environment in Spiti Valley, Himalayas, India

Pálfy J.  Smith P. L.  Mortensen J. K.

Timing the End-Triassic and Early Jurassic Mass Extinctions


Pattern of Marine Mass Extinction near the Permain-Triassic Boundary in South China

Brandt D.  Hancox P. J.  Reimold W. U.  Koeberl C.

Search for Impact Evidence at the Permo-Triassic Boundary in the Northeastern Free State Province, South Africa

Ward P. D.  Montgomery D. R.  Smith R.

Changing Fluvial Environments in the Karoo Basin, South Africa, as a Result of the Permain/Triassic Extinction

Hancox P. J.

The Permo-Triassic Boundary in the Northwest Karoo Basin
Progress in the Search for an Impact Layer at the Triassic-Jurassic Boundary in Eastern North America

The Foraminiferal Response to the Early Toarcian Extinction Event

Early Paleozoic

The Late Devonian Mass Extinction — Impact or Earth-bound Event

Possible Impact Origin of the Enigmatic Early Late Devonian Amönau Breccia, Rheinisches Schiefergebirge, Germany

Primary Ejecta, Tsunami Reworking, Tectonic Dismemberment: Reconstructing the Late Devonian Alamo Impact Breccia and Crater, Nevada

Geochemical Aspects of the Frasnian-Famennian Mass Extinction: The Polish Example

Known and Unknown Meteorite Impact Events, as Recorded in the Epicontinental Lower Palaeozoic Sedimentary Sequence of the Baltic Region

Extraordinary Variation of Lanthanide Tetrad Phenomenon Recorded in Conodonts: Mass Extinction at Late Devonian

Impact Events in Estonia and Their Possible Environmental Consequences

The Impact-related Sediments of the Kårdla Crater (Hiiumaa Island, Estonia)

The Early Ordovician Catastrophic Event on Osmussaar Island (Estonia) — A Result of an Impact or Earthquake?

Impact Events in Spain: Evidence and Potential Impactoclastic Units in the Sedimentary Record
Díaz-Martínez E.
Paleozoic Diamictites in the Central Andes: Tillites, Gravity Flows, or Impact Ejecta?

Berry W. B. N.
Late Ordovician Mass Extinctions: Causes and Consequences — A View from Laurentia

Late Cenomanian

Hart M. B. Price G. D.
New Data on the Late Cenomanian Mass Extinction Event

Monteiro J. F. Rampino M. R. Ribeiro A. Munha J.
Evidence from Iberia and the Central Atlantic Ocean for an Oceanic Impact near the Cenomanian-Turonian Boundary

Impact I

Robin E. Lefevre I. Rocchia R.
Extraterrestrial Spinel in Marine Sediments: An Overview

Shukolyukov A. Lugmair G. W.
Extraterrestrial Matter on Earth: Evidence from the Cr Isotopes

Jones A. P.
Impact Induced Volcanism on Earth; Searching for the Evidence. Crustal Magma Chambers

DeCarli P. S. Jones A. P. Price G. D.
Laboratory Impact Experiments and Calculations vs. Natural Impact Events

Kring D. A.
Impact-induced Hydrothermal Activity and Potential Habitats for Thermophilic and Hyperthermophilic Life

Gerasimov M. V.
Production of Toxins During an Impact and Their Possible Role in a Biotic Mass Extinction

Artemieva N. A. Shuvalov V. V.
Shock Metamorphic Effects Caused by Impacts into Water Basin

Skála R. Hörz F.
Mineralogical Studies of Experimentally Shocked Dolomite: Implications for the Outgassing of Carbonates
Lorenz R. D.
Production, Acceleration and Distribution of Microtektites on Earth, Mars, Venus and Titan

Kettrup D. Deutsch A.
Transport and Abrasion Experiments with Micrometeorites — Relevance for the Preservation of Ejecta Material and Cosmic Debris in the Geological Record

Lupishko D. F. Lupishko T. A.
Asteroid Hazard: Core of the Problem

Lenzner S.
Estimations of Physical Effects of an Terrestrial 1 km Size Asteroid Impact

Svetsov V. V.
Grazing Impacts as a Cause of the Global Catastrophes

Koshiishi H. Kurosaki H. Iwata Y. Komori C. Terazono J. Naka M. Yamamoto H.
Multiple Impacts and Mass Extinction

Bell M. S. Lin I.-C. McKay D. S.
Analysis of Siderite Thermal Decomposition by Differential Scanning Calorimetry

Puurua V. Kärki A. Kirs J. Kirsimäe K. Kleesment A. Konsa M. Suuroja K.
Alteration of Crater Silicate Rocks: Examples of Dissimilar Environments from Kärdla and Manson Structures

Ivanov B. A. Langenhorst F. Deutsch A. Hornemann U.
How Strong Was Impact-induced CO₂ Degassing in the K/T Event?

Takata T.
Numerical Simulations of Chicxulub Impact Cratering

Pierazzo E.
Chicxulub and Climate: Assessing the Climate Forcing of the Sulfate Aerosols

Siret D. Robin E. Le Guern F. Cheynet B.
Condensation in an Impact Vapor Plume: Estimates of Gas and Aerosol Emissions Generated by the Chicxulub Impact

Luder T. Benz W. Stocker T. F.
Towards Modeling Long Term Climatic Effects of Impacts

de Niem D.
Multi-Scale Condensation in Impact-produced Vapor Clouds
Klumov B. A.  
*Meteoroid Fall into the Ocean: Impact on Stratospheric Ozone*

Shuvalov V. V.  Artemieva N. A.  
*Atmospheric Erosion and Radiation Impulse Induced by Impacts*

Teterev A. V.  Rudak L. V.  
*Global Atmospheric Perturbations Caused by Natural Hazards*

Wasson J. T.  Boslough M. B. E.  
*Large Aerial Bursts; An Important Class of Terrestrial Accretionary Events*

**Impact II**

Ryder G.  
*The Ancient Lunar Impact Record, the Ancient Terrestrial Impact Record, and Possible Environments for the Origin of Life*

Turtle E. P.  Pierazzo E.  
*Impact Heating During Formation of the Vredefort Structure*

Master S.  Reimold W. U.  
*The Impact Cratering Record of Africa: An Updated Inventory of Proven, Probable, Possible, and Discredited Impact Structures on the African Continent*

(Lake Bosumtwi Working Group)  
*Geophysical Investigation of the Lake Bosumtwi Impact Crater*

Dai X.  Koeberl C.  Reimold W. U.  McDonald I.  
*Comparison of the Chemical Composition Between Bosumtwi Rocks and Ivory Coast Tektites: Search for a Meteoritic Component in Impact Breccias*

Koeberl C.  Peucker-Ehrenbrink B.  Reimold W. U.  Shukolyukov A.  Lugmair G. W.  
*Comparison of Os and Cr Isotopic Methods for the Detection of Meteoritic Components in Impact Melt Rocks from the Morokweng and Vredefort Impact Structures, South Africa*

McDonald I.  Andreoli M. A. G.  Hart R. J.  Tredoux M.  
*Platinum-Group Elements in the Morokweng Impact Melt Sheet: Evidence for an L-Chondrite Giant Impactor at the J/K Boundary*

*Evidence Confirming Meteoritic Impact at Wetumpka Crater, Alabama, USA*
Gurov E. P.  Bobina N. V.
Formation of the Boltyshev Impact Structure: Catastrophe of Regional Scale

Glikson A. Y.
Asteroid/Comet Mega-Impact Connections of Archaean Crustal Evolution: Evidence from Impact Fallout Deposits

Woodleigh — A New 120 km-Diameter Buried Multi-Ring Impact Basin, Carnarvon Basin, Western Australia, of Pre-Jurassic Post-Early Permian Age: Evidence of a Meteoritic Component Injected into Sub-Crater Basement

Gorter J. D.  Glikson A. Y.
Origin of the Timor Sea Late Eocene–Pre-Miocene Strewn Crater Field

Matsuda J.  Matsumoto T.  Seta A.  Tsuchiyama A.  Nakashima Y.  Yoneda S.
Noble Gases in a Large Bubble in Moldavite: A Comparison with Philippinite

Cipriani C.  Giuliani G.  Pratesi G.
Structure of Impact Related Glasses by XANES, EXAFS, and IBIL

Asteroids and Comets

Cosmovici C. B.  Pogrebenko S.  Montebugnoli S.  Maccaferri G.
Radio Searching for Extrasolar Cometary Impacts at 22 GHz (Water MASER Emission)

Olano C. A.
The Solar System Linked to a Gigantic Interstellar Cloud, During 500 Myr: Implications for a Galactic Theory of Terrestrial Catastrophism

Pittich E. M.  Solovaya N. A.
Can SOHO Comets be Earthcrossers?

Ibadinov Kh. I.
The Properties of the Nucleus of Short-Period Comets Dangerous for the Earth

Speidel D. H.
The Theory of Breakage and Asteroid Size Distribution

Solovaya N. A.  Pittich E. M.
Earth Collision with High Inclination Asteroids

Lupishko D. F.
Physical Properties of Near-Earth Asteroids as Principal Impactors onto the Earth
Tuesday, July 11, 2000
THE CHICXULUB IMPACT STRUCTURE
08.30

Moderator: David A. Kring

Morgan J. M. Warner M. [20-minute invited talk]
Geophysical Constraints on the Size and Structure of the Chicxulub Impact Crater

Sharpton V. L. [20-minute invited talk]
Exploring the Chicxulub Impact Basin Through Scientific Drill-Coring: Historical Perspective and Current Plans

Ivanov B. A. [5-minute talk]
Crust and Mantle Deformation Under Chicxulub: Test for Models

Hildebrand A. R. M. Pilkington M. [5-minute talk]
Structure of the Chicxulub Crater

Claeys P. Kiessling W. Alvarez W. [5-minute talk]
Global Distribution of Chicxulub Ejecta

The Age of the Chicxulub Impact and Other Events in the KT Transition:
New Data from NE Mexico

Spray J. G. Kelley S. P. [20-minute invited talk]
Terrestrial Multiple Impact Events
Moderator: Alessandro Montanari

Schrag D. P.* Hoffman P. F. [20-minute invited talk]
A Neoproterozoic Snowball Earth

Gaidos E. J.* [20-minute invited talk]
Ecology and Evolution During Precambrian Glaciations

Coccioni R.* Basso D. Brinkhuis H. Galeotti S. Gardin S. Monechi S. Spezzaferri S. [5-minute talk]
Long-Term Environmental Perturbations Following a Late Eocene Impact?
Evidence from the Massignano GSSP, Italy

Haines P. W.* [5-minute talk]
Tsunami(?) Deposit of Terminal Eocene Age, South Australia: The Inferred Effects of a Low-Angle Multiple Impact Event
Tuesday, July 11, 2000
PERMIAN/TRIASSIC BOUNDARY
13.45

Moderator: Henk Brinkhuis

Ward P. D.* [20-minute invited talk]
The P/T Boundary on Land: A Summary

Rampino M. R.* Prokoph A. Adler A. C. [5-minute talk]
Abrupt Changes at the Permian/Triassic Boundary: Tempo of Events from
High-resolution Cyclostratigraphy

Erwin D. H.* [20-minute invited talk]
The End-Permian Mass Extinction and Early Triassic Biotic Recovery

Wignall P. B.* [5-minute talk]
Extent and Duration of the Permo-Triassic Superanoxic Event

Alvarez W.* O’Connor D. [20-minute invited talk]
The Permian-Triassic Event: Progress and Doubts

Shukla A. D.* Bhandari N. Shukla P. N. [5-minute talk]
Permian-Triassic Transitional Environment in Spiti Valley, Himalayas, India

Pálfy J.* Smith P. L. Mortensen J. K. [5-minute talk]
Timing the End-Triassic and Early Jurassic Mass Extinctions
Tuesday, July 11, 2000  
CARBON CYCLE/EARLY PALEOZOIC RECORD  
16.15

Moderator: Philippe Claeys

D'Hondt S.* Zachos J. C. [20-minute invited talk]  
*Carbon Isotopic Studies of Mass Extinctions and Recoveries

Sandberg C. A.* Ziegler W. Morrow J. R. [20-minute invited talk]  
*Late Devonian Events and Mass Extinctions

Joachimski M. M.* Buggisch W. [5-minute talk]  
*The Late Devonian Mass Extinction — Impact or Earth-bound Event

Sandberg C. A. Morrow J. R.* Ziegler W. [5-minute talk]  
Possible Impact Origin of the Enigmatic Early Late Devonian Amönau Breccia,  
Rheinisches Schiefergebirge, Germany

Warme J. E.* Chamberlain A. K. [5-minute talk]  
Primary Ejecta, Tsunami Reworking, Tectonic Dismemberment: Reconstructing the  
Late Devonian Alamo Impact Breccia and Crater, Nevada

Wood R. A.* [20-minute invited talk]  
Palaeoecology of a Post-Extinction Reef: The Famennian of the Canning Basin,  
Western Australia

Berry W. B. N.* [5-minute talk]  
Late Ordovician Mass Extinctions: Causes and Consequences — A View  
from Laurentia
Moderator: Walter Alvarez

MacLeod N.* [20-minute invited talk]
Rau̇p’s Dictum and the Role of Paleontological Data in Identifying Controls on Phanerzoic Background and “Mass” Extinction Pattern

Bowring S. A.* Martin M. W. Schmitz M. D. [20-minute invited talk]
High-precision Geochronologic and Mass Extinctions: Chronometric Tests of Extinction Mechanisms

Kyte F. T.* [20-minute invited talk]
The Extraterrestrial Component in Sediments and Inferences on Earth’s Accretion History

Robin E.* Lefevre I. Rocchia R. [5-minute talk]
Extraterrestrial Spinel in Marine Sediments: An Overview

Shukolyukov A.* Lugmair G. W. [5-minute talk]
Extraterrestrial Matter on Earth: Evidence from the Cr Isotopes

Brooks R. R.* Cook A. W. Stewart R. B. [5-minute talk]
Palladium and Gold as Indicators of K/T Boundary Sections

MacLeod K. G.* Huber B. T. Fullagar P. D. [5-minute talk]
Evidence for a Small (~0.000030) But Resolvable Increase in Seawater $^{87\text{Sr}}/^{86\text{Sr}}$ Ratios Across the K/T Boundary
Wednesday, July 12, 2000
CAUSES OF EXTINCTIONS
11.00

Moderator: Douglas H. Erwin

Hallam A.* [20-minute invited talk]
Mass Extinctions and Sea-Level Changes

Rampino M. R.* Stothers R. B. [20-minute invited talk]
Periodic Comet Showers, Mass Extinctions, and the Galaxy

Glikson A. Y.* [5-minute talk]
Asteroid/Comet Mega-Impact Connections of Archaean Crustal Evolution:
Evidence from Impact Fallout Deposits

Hart M. B.* Price G. D. [5-minute talk]
New Data on the Late Cenomanian Mass Extinction Event

Evidence from Iberia and the Central Atlantic Ocean for an Oceanic Impact near
the Cenomanian-Turonian Boundary
Wednesday, July 12, 2000
IMPACT VOLCANISM/ENVIRONMENTAL EFFECTS
13.45

Moderator: Alex Deutsch

Melosh H. J.* [20-minute invited talk]  
*Can Impacts Induce Volcanic Eruptions?*

Jones A. P.* [5-minute talk]  
*Impact Induced Volcanism on Earth; Searching for the Evidence. Crustal Magma Chambers*

O’Keefe J. D.* Lyons J. R. Ahrens T. J. [20-minute invited talk]  
*Impact Mechanics and Implications for Extinction*

DeCarli P. S.* Jones A. P. Price G. D. [5-minute talk]  
*Laboratory Impact Experiments and Calculations vs. Natural Impact Events*

Prinn R. G.* [20-minute invited talk]  
*Biospheric Traumas Caused by Great Impacts*

Speijer R. P.* Wagner T. [5-minute talk]  
*Bursts of Methane from the Deep Sea and the Spread of Anoxia into Epicontinental Basins at the End of the Paleocene — A Causal Relationship Involving Sea-Level Change?*

Kring D. A.* [5-minute talk]  
*Impact-induced Hydrothermal Activity and Potential Habitats for Thermophilic and Hyperthermophilic Life*
Moderator:  H. Jay Melosh

Muller R. A.* [20-minute invited talk]
A 3.5 Billion Year Record of Solar System Impacts, and the Recent (0.4 Gyr) Increase

Ryder G.* [5-minute talk]
The Ancient Lunar Impact Record, the Ancient Terrestrial Record, and Possible Environments for the Origin of Life

Gersonde R.* [20-minute invited talk]
Oceanic Impacts and Related Environmental Perturbations

Pierazzo E.* [5-minute talk]
Chicxulub and Climate: Assessing the Climate Forcing of the Sulfate Aerosols

Siret D.* Robin E. Le Guern F. Cheynet B. [5-minute talk]
Condensation in an Impact Vapor Plume: Estimates of Gas and Aerosol Emissions Generated by the Chicxulub Impact

Luder T.* Benz W. Stocker T. F. [5-minute talk]
Towards Modeling Long Term Climatic Effects of Impacts

Chapman C. R.* [20-minute invited talk]
Impact Lethality and Risks