

Tuesday, March 11, 2008

IMPACT EVENTS: MODELING, EXPERIMENTS AND OBSERVATIONS II

1:30 p.m. Amphitheater

Chairs: F. T. Kyte
P. H. Schultz

- 1:30 p.m. Newsom H. E. * Boslough M. B. E.
Impact Melt Formation by Low-Altitude Airburst Processes, Evidence from Small Terrestrial Craters and Numerical Modeling [#1460]
Super-computer modeling suggests that airbursts in the lower atmosphere from hypervelocity impacts can explain impact melt occurrences in small terrestrial craters, including layered and melt coated samples from Wabar, Henbury, Aouelloul and Lonar.
- 1:45 p.m. Kenkmann T. * Artemieva N. A. Poelchau M. H.
The Carancas Event on September 15, 2007: Meteorite Fall, Impact Conditions, and Crater Characteristics [#1094]
The Carancas meteorite formed a crater pit 13-14 m in diameter. Modelling suggests a final impact velocity of 160–200 m/s. A shallow entry angle (15°), a low pre-entry velocity (14 km/s), and a high strength enables single crater formation.
- 2:00 p.m. Schultz P. H. * Harris R. S. Tancredi G. Ishitsuka J.
Implications of the Carancas Meteorite Impact [#2409]
The Carancas impact occurred in Peru on September 15, 2007. Its survival through the atmosphere to form a hypervelocity impact presents new challenges for entry physics and new implications for other small craters on Earth and Mars.
- 2:15 p.m. Kyte F. T. * Tanner L. H. Walker A. E.
Anomalous Iridium at the Palynological Triassic-Jurassic Boundary in the Fundy Basin, Partridge Island, Nova Scotia [#2463]
We find multiple Ir anomalies (total 3.7 ng/cm⁻²) at the palynological T/J boundary in the Fundy Basin. An extraterrestrial source is possible but the anomaly is regional, proximal to CAMP volcanics, and volcanic aerosols are a plausible source.
- 2:30 p.m. Thackrey S. * Walkden G. Kelley S. Parrish R. Horstwood M. Indares A. Still J. Spray J. G.
Determining Source of Ejecta Using Heavy Mineral Provenance Techniques; A Manicouagan Distal Ejecta Case Study [#1254]
Establishing the provenance of ejecta can be problematic if the ejecta material has been diagenetically altered. Heavy mineral provenance techniques provides an alternative, geochemically robust, correlation tool for establishing ejecta provenance.
- 2:45 p.m. Hermalyn B. * Schultz P. H. Anderson J. L. B. Heineck J. T.
Time-resolved Assessment of Ejecta-Mass Distribution Using 3D-PIV [#2292]
Ejecta mass from impacts affects the distribution and provenance of materials on planetary surfaces. A novel technique for obtaining a time-resolved ejecta-mass distribution using 3D-PIV is described and compared to prior studies.
- 3:00 p.m. Goldin T. J. * Melosh H. J.
Chicxulub Ejecta Distribution: Patchy or Continuous? [#2469]
We discuss whether interactions between falling Chicxulub ejecta and the atmosphere led to lateral redistribution and more uniform deposits on the ground.

- 3:15 p.m. Artemieva N. A. * Morgan J.
Possible Mechanisms of the Chicxulub Distal Ejecta Emplacement [#1581]
According to our numerical model, the Chicxulub basement material is ejected with velocities below 3 km/s for any impact scenarios. We explore possible non-ballistic mechanisms of the basement ejecta emplacement.
- 3:30 p.m. Ebel D. S. * Mac Low M-M. Landman N. H.
Paleontological and Mineralogical Evidence for a Single K/T Extinction Impact at Chicxulub [#1454]
We integrate the Chicxulub impact, global Ir radiation, condensate mineralogy, and the N.J. coastal plain (USA) record of post-K/T life at ~25 m water depth: ~50 yr delayed Cretaceous filter-feeder death; no life; and life's return in the Paleogene.
- 3:45 p.m. Moynier F. * Jourdan F. Yin Q.-Z. Beck P. Koeberl C. Reimold W. U.
Isotopic Fractionation of Zn During Impact on Earth [#1426]
Tektites are strongly depleted in the light isotopes of Zn. These isotopic fractionations may reflect the loss of Zn by vaporization during the heating of the tektites.
- 4:00 p.m. Folco L. * Rochette P. Perchiazzi N. D'Orazio M. Laurenzi M. A. Tiepolo M.
Microtektites from the Northern Victoria Land Transantarctic Mountains: An Update [#1180]
We present an update on the ongoing study of microtektites from the northern Victoria Land Transantarctic Mountains.
- 4:15 p.m. Ohno S. * Kadono T. Ishibashi K. Kawaragi K. Sugita S. Nakamura E. Matsui T.
Impact Devolatilization of Calcite: Direct Measurements Using a Laser Gun [#2046]
We show a new experimental method to directly measure impact devolatilization of volatile-bearing minerals using a laser gun. The results show that the shock pressure required for incipient devolatilization of calcite is lower than 24.9 ± 2.6 GPa.
- 4:30 p.m. Gerasimov M. V. * Dikov Yu. P. Yakovlev O. I.
Enstatitic Determinism of Impact-induced Vaporization of Magnesiosilicates [#1610]
Experiments on impact-induced vaporization of magnesiosilicates shows that formation of chemical composition and structure of condensates is driven by volatilization of "enstatite" clusters.