

Thursday, March 17, 2005

POSTER SESSION II: IMPACTS AND THEIR EFFECTS ON EARTH AND ABOVE
7:00 p.m. Fitness Center

Carmona J. A. Cook M. Cooper M. Schmoke J. Reay J. Matthews L. Hyde T. W.
Construction of a PZT Sensor Network for Low and Hypervelocity Impact Detection [#1127]

This paper will discuss a multiple PZT sensor network capable of determining both impactor momentum and location currently in development within CASPER.

Welten K. C. Hillegonds D. J. Jull A. J. T. Kring D. A.

Atmospheric Fragmentation of the Gold Basin Meteoroid as Constrained from Cosmogenic Nuclides [#2352]

We studied the atmospheric fragmentation of the large Gold Basin meteoroid (R = 3–5 m) by evaluating a possible relationship between shielding depth (derived from cosmogenic nuclides in 40 Gold Basin samples) and the location of find in the strewnfield.

Chapman M. G.

Newly Discovered Meteor Crater Metallic Impact Spherules: Report and Implications [#1907]

This report documents the discovery and implications of large (3 mm to 1.5 cm), nonvesicular metallic spherules 82 km from Meteor (Barringer) impact crater.

Herzog G. F. Alexander C. M. O'D. Glass B. P. Berger E. L. Delaney J. S.

Potassium Isotope Fractionation in Australasian Microtektites: Evidence for Evaporation and Re-Condensation in a Vapor Plume [#1167]

Values of $\delta^{41}\text{K}$ (‰) for 13 Australasian microtektites range from -10.2 ± 0.5 to $+14.1 \pm 0.5$; no such large effects are seen in tektites. We propose that the isotopic fractionation took place in a plume, initially hot but rapidly cooling, associated with microtektite formation.

Serefiddin F. Herzog G. F. Koeberl C.

Beryllium-10 in Ivory Coast Tektites [#1466]

^{10}Be concentrations in Ivory Coast tektites are consistent with formation from near surface terrestrial soils. Concentrations 77% lower than in Australasian tektites reflect differences in source materials, longer decay and environmental factors.

Lee S. R. Horton J. W. Jr. Walker R. J.

Osmium-Isotope and Platinum-Group-Element Systematics of Impact-Melt Rocks, Chesapeake Bay Impact Structure, Virginia, USA [#1700]

Low $^{187}\text{Os}/^{188}\text{Os}$ ratios and enriched PGE concentrations in impact-melt rocks from the late Eocene Chesapeake Bay impact structure clearly confirm the presence of as much as 0.1 to 0.2% of an extraterrestrial component in the structure.

Sklute E. C. Dyar M. D. Minitti M. E. Leshin L. A. Guan Y. Luo S. Ahrens T. J.

Mössbauer Spectroscopy of Shocked Amphiboles [#2040]

Room temperature Mössbauer data from unshocked and shocked amphiboles are used to understand the oxidation/reduction effects of simulated impact on hydrous minerals.

McHone J. F. Fries M. Steele A.

Raman Imaging of Natural Coesite in Archived Petrographic Thin Sections: Vredefort Impact Structure [#2315]

Using a confocal Raman imager, natural coesite from the Vredefort Dome, South Africa has been nondestructively detected and mapped in petrographic thin sections.

Langenhorst F. Kyte F. T. Retallack G. J.

Reexamination of Quartz Grains from the Permian-Triassic Boundary Section at Graphite Peak, Antarctica [#2358]

A reexamination of quartz grains from the P/T boundary at Graphite Peak, Antarctica shows no evidence of planar deformation features characteristic of shock metamorphism.

Huson S. A. Pope M. C. Watkinson A. J. Foit F. F.
Possible Planar Elements in Zircon as Indicator of Peak Impact Pressures from the Sierra Madera Impact Crater, West Texas [#2048]
Shock features in zircon grains to tentatively place an upper limit on pressure during the Sierra Madera impact event.

Öhman T. Raitala J.
Geochemistry of the Dark Veinlets in the Granitoids from the Söderfjärden Impact Structure, Finland: Preliminary Results [#1738]
Peculiar dark veinlets in the granitoids on the rim of Söderfjärden impact crater haven't yet revealed any petrographic or geochemical evidence of friction melting or shock metamorphism. Thus their genetic connection to the impact remains unresolved.

Harris R. S. Schultz P. H. Bunch T. E.
Evidence for Shocked Feldspars and Ballen Quartz in 450,000 Year Old Argentine Impact Melt Breccias [#1966]
Shocked feldspars (containing PDFs and diaplectic glass) and ballen quartz identified in Centinela del Mar (450 ka) melt breccias support the impact origin of these glasses and provide insights into the shock deformation of porous sediments.

Sakamoto M. Gucsik A. Ninagawa K. Nishido H. Shichi R. Toyoda S. Bidló A. Brezsnýánszky K.
Mt. Oikeyama Structure: First Impact Structure in Japan? [#1242]
The pillaring texture of the microdeformations and PDFs of the quartz from Oikeyama, Japan, suggest that this structure was formed by an impact event.

Di Achille G.
A New Candidate Impact Site in Northeastern Sudan Detected from Remote Sensing [#1606]
A new possible impact structure has been observed in the northeastern Sudan. Using remote sensing analysis, geomorphologic and topographic evidence had been inferred to propose the impact site candidature for the study structure.

Belhai D. Merle O. Vincent P. Afalfiz A. Devouard B.
Are the Complex Algerian Meteoritic Craters Potential Hydrocarbon Traps? [#1023]
The geological analysis of the meteoritic craters of Tin Bider and Ouarkiz (Sahara, Algeria) reveals identical characters to those of Ava and Viewfield. Their detailed study will make it possible to slice as for the presence or not of hydrocarbons.

Heggy E. Paillou P. Mills D. Clifford S. M.
Mapping Buried Impacts Craters Using Ground-penetrating Radar: Mapping Some Structural Elements of the Largest Impact Field in the Western Egyptian Desert [#2375]
We present ground penetrating profiles of a number of relatively small buried craters of 30 to 100 m diameters and 3 to 10 m deep located in the largest impact crater field recently discovered in Southwest of the Egyptian by Paillou et al. in early 2004.

Earl J. Chicarro A. F. Koeberl C. Marchetti P. G. Milnes M.
Automatic Recognition of Crater-like Structures in Terrestrial and Planetary Images [#1319]
We describe new efforts regarding recognition and detection of impact craters on Earth and Mars by using remote sensing images. In particular, approaches based on the Hough Transform and on the Radial Consistency measure are considered and compared.

Milam K. A. Deane B.
Petrogenesis of Central Uplifts in Complex Terrestrial Impact Craters [#2161]
An examination of the petrogenesis of central uplifts in complex terrestrial craters and the common paragenetic sequence that deformation features display.

Horton J. W. Jr. Gohn G. S. Jackson J. C. Aleinikoff J. N. Sanford W. E. Edwards L. E. Powars D. S.
Results from a Scientific Test Hole in the Central Uplift, Chesapeake Bay Impact Structure, Virginia, USA [#2003]
 A test hole in the Chesapeake Bay impact structure provides the first cores from the central uplift; reveals previously unknown suevites, melt rocks, shock-metamorphic features, and hydrothermal alteration; and serves as a pilot for future drilling.

King D. T. Jr. Petruny L. W.
Sedimentology of Impactoclastic Breccias, Cretaceous-Tertiary Boundary, Belize [#1045]
 Impactoclastic breccias related to Chicxulub impact structure were analyzed using standard sedimentologic techniques in an attempt to better understand their origin and mode(s) of emplacement.

Zurcher L. Lounejeva-Baturina E. Kring D. A.
Preliminary Analysis of Relative Abundances of Hydrothermal Alteration Products in the C1-N10, Y6-N19, and Yax-1_863.51 Impact Melt Samples, Chicxulub Structure, Mexico [#1983]
 Impact melt rocks from the C-1, Y-6, and Yax-1 boreholes in the Chicxulub structure sampled what may be a continuous crater-sized hydrothermal system. The purpose of this study is to estimate mineral modes to review possible alteration zonation patterns at the scale of the impact structure.

Kallesson E. Dypvik H. Naterstad J.
Sedimentary Infill of the Gardnos Impact Crater — A Field Report [#1182]
 Recent field and core studies of the late Precambrian Gardnos impact structure have resulted in an updated and redrawn geological map, and a proposed sediment infill history, describing the sedimentary processes acting in the fresh crater.

Lindgren P. Parnell J.
Liquid Immiscibility in Suevite Melt, Gardnos Impact Crater [#1629]
 Suevite melt from Gardnos impact crater show textures of liquid immiscibility between two silicate phases. These textures include intermingling tunnels, budding structures, flow of one phase within the other and curved menisci between the two phases.

Ormö J. Lindström M. M.
New Drill-Core Data from the Lockne Crater, Sweden: The Marine Excavation and Ejection Processes, and Post-Impact Environment [#1124]
 Three short core drillings were performed in August 2004. They give information on the post-impact, geochemical environment, and the excavation process when strongly influenced by a thick layer of water in the upper part of the target.

Tsikalas F. Faleide J. I.
Post-Impact Deformation of Impact Craters: Towards a Better Understanding Through the Study of Mjølnir Crater [#1022]
 The study of Mjølnir Crater has clearly shown the great importance of long-term deformation processes operating after impact. It appears that the establishment of a “post-impact modification correction factor” is prerequisite for several structures.

Glimsdal S. Pedersen G. Shuvalov V. Dypvik H. Langtangen H. P. Kristiansen O.
Tsunami Generated by the Mjølnir Impact [#1287]
 The tsunami generated by the Mjølnir impact is described. Due to shallow water, we have found that the tsunami formed undular bores resulting in trains of solitary waves with amplitudes up to 300 m.

Dypvik H. Wolbach W. S. Shuvalov V. Weaver S. L. W.
Did the Mjølnir Asteroid Impact Ignite the Barents Sea Hydrocarbon Source Rocks? [#1020]
 The soot particles most likely came from pyrolysis and combustion heating of the organic rich, partly volatile, dark clays of the sea bed (Hekkingen Formation). This heating occurred during shock wave propagation through the target sediments with fire lasting the 20 minutes dry sea bed period.

Graham R. A. Wilson W. F.

Reinvestigation of the Bee Bluff Structure South of Uvalde, Texas, 'The Uvalde Crater.' [#1086]

Investigation of the Bee Bluff Structure provides new evidence for an impact crater origin. A 300 kg rock preserving numerous impactite features called the 'Uvalde Crater Rosetta Stone,' promises to provide detail on the first billion nanoseconds of the impact events.

Sandberg C. A. Poole F. G. Morrow J. R.

Milk Spring Channels Provide Further Evidence of Oceanic, >1.7-km-Deep Late Devonian Alamo Crater, Southern Nevada [#1538]

New conodont microfossil and stratigraphic data on a deep-water, offshore breccia channel deposit of the marine, early Late Devonian Alamo Impact, Nevada, provide further evidence of its crater depth and off-platform impact site.

Dulin S. A. Elmore R. D. Gardner K. G.

Impacts in Carbonate Target Rocks: A Paleomagnetic Study of the Weaubleau-Osceola and Alamo Breccia Impact Structures [#1371]

The objective of this paleomagnetic study is to investigate two impact features in carbonate rocks to develop a model that can be used to constrain the age of impacts and provide insights on the sedimentary processes involved during deposition of bolide related units.

Glass B. J. Domville S. Lee P.

Further Geophysical Studies of the Haughton Impact Structure [#2398]

The investigation discussed here examines and surveys the Haughton Impact Structure, characterizing it and the surrounding regional area with newly-added gravity survey data.