

Thursday, March 26, 2009
POSTER SESSION II: IMPACTS II: CRATERS AND EJECTA
6:30 p.m. Town Center Exhibit Area

Koeberl C. Bartosova K. Brandstätter F.

[*Melt Particles in the Chesapeake Bay Impact Structure Eyreville Drill Core — A Progress Report*](#) [#1715]

Geochemical studies of melt fragments in a Chesapeake Bay crater drillcore indicate that no widespread homogenization of the melt took place.

Watson J. S. Gilmour I. Kelley S. P. Jolley D. W.

[*Scientific Drilling of the Boltysk Impact Crater, Ukraine*](#) [#1719]

We have re-drilled the Boltysk impact crater and have recovered a near continuous record of ~400 m of organic-rich sediments together with 15 m of suevite.

Albin E. F. Harris R. S. King D. T. Jr. Jaret S. J. Jarrett R. E.

[*Alternate Twin Deformation in Plagioclase: Possible Evidence of Shock Deformation in Charnockitic Rocks Associated with the Woodbury Structure*](#) [#2544]

Charnockitic rocks associated with the Woodbury structure contain evidence of possible shock metamorphism in plagioclase grains.

Milam K. A.

[*Deformation Fabrics and Their Cross-Cutting Relationships in the Central Uplifts of Large Impact Structures*](#) [#2455]

Deformation fabrics and the petrogenetic sequence observed in smaller complex craters (<20 km in diameter) are now being observed in the larger complex impact structures.

Ferrière L. Koeberl C. Reimold W. U. Hecht L. Bartosova K.

[*The Origin of "Toasted" Quartz in Impactites Revisited*](#) [#1751]

The toasted appearance of quartz is caused by an increase in light scattering due to the presence of numerous vesicles. Toasted quartz is formed by vesiculation after pressure release, at high post-shock temperatures.

Morrow J. R. Weber J. C.

[*Comparison of Low-Pressure Shock-Metamorphic Effects in Quartz from Barringer Crater, Arizona, and Kentland Dome, Indiana*](#) [#1913]

Low-pressure (=10 GPa) shock effects in quartz from Coconino Ss., Barringer Crater, and St. Peter Ss., Kentland Dome, are compared. Although showing overall similar post-shock microfabrics, very different PFs and incipient PDFs are developed.

Schmieder M. Buchner E. Kröcher J.

[*'Ballen Silica' in Impactites and Magmatic Rocks*](#) [#1020]

Recent studies pointed out that 'ballen silica' is an impact-diagnostic feature. However, ballen-textured α -cristobalite was also reported in rocks not related to impact.

Poelchau M. H. Kurta A. T. Kenkmann T.

[*Signatures of an Oblique Impact in the Central Uplift of Martin Crater, Mars*](#) [#1796]

The internal, layered structure of Martin Crater's central peak reveals a preferential orientation of strike that is perpendicular to the impact direction. Preliminary results are presented and implications for the cratering process are discussed.

Crasselt C. Reimold W. U.

[Impact Related Pseudotachylitic Breccias in the Schurwedraai and Baviaan-Krantz Alkali Granite Complexes in the Collar of the Vredefort Dome, South Africa](#) [#2085]

Structural and petrographic observations and chemical data of pseudotachylitic breccia occurrences in alkali granite of the collar of the Vredefort Dome are discussed with regard to the possible formation of these enigmatic melt breccias.

Wartho J-A. Schmieder M. van Soest M. C. Buchner E. Hodges K. V. Bezys R. K. Reimold W. U.
[New \(U-Th\)/He Zircon and Apatite Ages for the Lake Saint Martin Impact Structure \(Manitoba, Canada\) and Implications for the Late Triassic Multiple Impact Theory](#) [#2004]

New (U-Th)/He single crystal zircon and apatite ages for the 40 km Lake Saint Martin impact structure suggests that this crater is too now old to be included in the postulated ca. 214 Ma Late Triassic multiple impact event.

Buchner E. Moilanen J. Öhman T. Schmieder M.

[Shock-Molten Sandstone Clasts in Impact Melt Rocks: Age Constraints for the Paasselkä Impact Structure \(SE Finland\)](#) [#2169]

Partially molten sandstone clasts in impact melt rocks suggest a new <1.4 Ga age for the Paasselkä impact structure, SE Finland.

Ormö J. Hill A. Self-Trail J. M. Frisk Å. M.

[A Method to Determine the End of Impact-related Sedimentation at Marine-Target Craters: Geochemistry and Micropaleontology of the Transition from Resurge to Secular Deposits at the Lockne, Tvären, and Chesapeake Bay Impact Structures](#) [#1318]

Stable isotope and major element analysis is proving to be a necessary complement to inadequate visual inspection for distinguishing the end of impact-related sedimentation at marine-target craters.

Bliss K. M. Morrow J. R. Weber J. C. Vice M.

[Evaluation of XRD and Raman Peak Broadening in Shock-Metamorphosed Carbonates from Carbonate-Target Bolide Impact Structures](#) [#2211]

Carbonate samples were analyzed from eight confirmed carbonate-target impact structures and other high temperature-pressure settings to determine whether XRD and micro-Raman peak broadening in the resulting spectra is unique to impact settings.

Cernok A. Kring D. A.

[Were Carbonate Impact Melts Produced from the Carbonate-rich Target Lithologies at Meteor Crater, Arizona?](#) [#1825]

During the Meteor Crater impact event mafic silicate melts intensively degassed of CO₂ were produced. Recently, existence of carbonate melt has been reported. To test this concept, we analyzed interior fall-back breccia and ejected melt particles.

Orr Key W. R. Schultz R. A.

[Fault Formation at Impact Craters in Porous Sedimentary Rock Targets](#) [#1073]

We present results of a study in which the mechanics of faulting at high strain rates in porous sedimentary rocks were evaluated at the Upheaval Dome impact crater in southeast Utah.

Byrne C. J. Lordi N. G.

[Radial Profiles of Lunar Basins and Large Craters](#) [#1351]

The centers and diameter of large lunar impact features are derived from radial elevation profiles. Some published basins are not confirmed, some parameters are significantly different, and new basins are identified.

Bray V. J. Schenk P. M. Melosh H. J. Collins G. S. Morgan J. V.

[Dimensions of Central Pits in Ganymede Craters](#) [#1350]

Central pit craters are an unusual class of impact crater seen most commonly on the icy Galilean satellites and Mars. We will present topographic profiles of central pit craters on Ganymede, using these data to construct scaling trends.

Goeritz M. Kenkmann T. Wünnemann K. van Gasselt S.

[*Asymmetric Structure of Lunar Impact Craters Due to Oblique Impacts?*](#) [#2096]

Based upon observations of asymmetric lunar mare craters we investigated deviations of the central peak positions from the geometric center of the craters. We found slight correlations between the peak offset and the impact direction.

Vijayan S. Vani K. Sanjeevi S.

[*Crater Mapping and Analysis Using Cartosat 1 DEM*](#) [#2427]

Impact craters study using DEM: Analog to lunar mare crater.

Plescia J. B.

[*Wetumpka Impact Structure, Alabama: Gravity Survey*](#) [#1218]

A gravity survey of the Wetumpka impact shows a simple anomaly — a central low (−5.75 mGal) surrounded by a high (+2.5 mGal). There is no suggestion of a buried central uplift.

King D. T. Jr. Petruny L. W.

[*Upper Cretaceous Chalk at Wetumpka Impact Structure, Alabama: Post-Impact Sediment?*](#) [#2381]

Wetumpka impact structure, a 7.6 km diameter, Late Cretaceous marine impact feature, contains coeval chalk deposits that represent both displaced target megablocks and post-impact sediments with the interior and exterior terrains.

Glidewell J.

[*Seismic Data Through the Hico Structure: A Possible Impact Feature in North-Central Texas*](#) [#2563]

The Hico Structure in north-central Texas has been proposed to be an impact feature. Recent seismic data through the feature support this theory.

Kirkland L. E. Herr K. C. Adams P. M.

[*Remote Sensing of Geologic Materials at Man-Made Craters*](#) [#2153]

We use ground and airborne infrared remote sensing to explore geologic materials exposed by large manmade craters at the Nevada Test Site. The site and methods are analogs to rover and satellite exploration of the Moon and Mars.

Mihályi K. Gucsik A. Szabó J. Bérczi Sz.

[*Facts, Theories and Further Questions Around the Ries-Steinheim Simultaneous Impact Event: A Review*](#) [#1542]

This proposed paleogeographic reconstruction study can aid to understand more about the environmental effects of a terrestrial impact event such a double-type one: Ries-Steinheimer impact events and their influences on the paleoecological environment.

Danilin A. N.

[*A New Astrobleme in the Polar Urals \(Russia\)*](#) [#1001]

A reasonable assumption is made that one of the largest ancient astroblemes in the Earth is in the Polar Urals (Russia).

Rajmon D.

[*Circular Geomorphologic Feature Near Urengoy, West Siberia*](#) [#1881]

Circular polygonal feature 4.5 km in diameter near Urengoy in West Siberia is unique in the wider area. Geologic review indicates that a meteorite impact or transpression tectonics are the most likely formation mechanisms.

Bron K. T.

[*The Tookoonooka Tsunami Sequence: Evidence for Marine Impact in Australia's Lower Cretaceous*](#) [#2560]

The Tookoonooka subsurface impact structure (Australia) is located in the lower Cretaceous Eromanga Basin sedimentary succession. An ejecta-bearing tsunami sequence with basin-wide extent was discovered, and provides clear evidence that Tookoonooka was a shallow marine impact.

Aden D. J. Milam K. A. Kah L. C. Gilleaudeau G. J.

[*An Anomalous Breccia in the Mesoproterozoic \(~1.1 Ga\) Atar Group, Mauritania: Potential Evidence for an Impact-generated Tsunami* \[#2003\]](#)

Initial observations reveal that an anomalous high-energy breccia in the Mesoproterozoic Atar Group, Mauritania, is a possible candidate for an ancient tsunamite, which may have been triggered by a marine impact event.

Deutsch A. Berndt J. Mezger K. Schulte P.

[*The Pristine Chicxulub Ejecta Sequence at ODP Leg 207: A Micro-Chemical Study* \[#1245\]](#)

A La-ICP-MS study across the uppermost 6 mm of the exceptionally well preserved K/T boundary in Site 1259C (ODP Leg 207) allows assessing which components have contributed to the Chicxulub ejecta layer.

Jaret S. J. Kah L. C. French B. M.

[*Petrographic Investigation of Ejecta from the Tenoumer Impact Crater, Mauritania* \[#1281\]](#)

To improve our understanding of the excavation, shock metamorphism, and impact melting in simple craters, we undertook a mineralogical and petrological study of ejecta and impact melt from the Tenoumer impact crater, Mauritania.

Böhlitz M. C. Langenhorst F.

[*Liquid Immiscibility and Gas Content in Dark Schlieren of Libyan Desert Glass* \[#2018\]](#)

We report microprobe and gas analyses of dark schlieren in Libyan Desert Glass (LDG). Schlieren contain two immiscible metastable silicate liquids that have formed by rapid cooling. High volatile contents in schlieren point to hydrous phases as precursor materials.

Harris R. S. Duncan M. S. Roden M. F. Schroeder P. A.

[*Discovery of In Situ Impact Glass in Upper Eocene Coastal Plain Strata, Jefferson County, Georgia* \[#2502\]](#)

We report the discovery of *in situ* impact glass fragments in an upper Eocene ejecta. Their compositions are consistent with microtektites in the North American strewn field.

Adolph L. Deutsch A.

[*Glass Spherules Related to the El'gytgyn Impact Crater \(Siberia\)* \[#1116\]](#)

We report the results of a geochemical investigation on glass spherules from a terrace deposit outside the rim of the El'gytgyn impact crater (NE Siberia, Russia). These spherules are very homogeneous yet differ in their composition from dacitic to basaltic-andesitic.

Das P. K. Misra S. Basavaiah N. Newsom H. Dube A.

[*Rock Magnetic Evidence of Asteroid Impact Origin of Ramgarh Structure, India* \[#1466\]](#)

The magnetic properties of spherules and other materials from the Ramgarh structure in India have high NRM, possibly associated with formation of the impact structure.

Miura Y.

[*Impact-related Indicators of Grains with Akaganeite Composition Found at Takamatsu, Nio, Kuga \(Japan\) and Carancas \(Peru\)* \[#2565\]](#)

Chlorine (Cl)-bearing Fe and Ni phases (as akaganeite composition) originated from impacts of meteoroids are found at Takamatsu, Nio, Kuga and Carancas compared with awaruite and artificial grains.

Hargitai H.

[*Water Ejecta of Marine Impacts and Ice Meteorites* \[#2439\]](#)

There is a debate on ice meteorites of extraterrestrial origin — but what if ice meteorites are made locally? A possibility of ice meteorites may be marine impacts.

Cagen K. T. Abbott D. Nitsche F. West A. Bunch T. Breger D. Slagle A. Carbotte S.

[*Impact Ejecta in a Possible Tsunami Layer in the Hudson River: Regional or Local Event?* \[#2276\]](#)

Recent discoveries point to a tsunami event in the New York metropolitan area approximately 2300 BP. Our discovery of impact ejecta deposited by the tsunami in the Hudson River suggests that the tsunami was caused by an impact in the Atlantic Ocean.

Buchner E. Schmieder M. Strasser M. Strasser A. Kröcher J.

[Impacts on Spherules](#) [#1017]

Characteristic marks of low- and high-speed particle contacts (microcratering), respectively, may reveal a possible tool to discriminate between iron spherules of anthropogenic/industrial (low-speed) and cosmic/impact (high-speed) origin.

Abbott D. H. Gerard-Little P. Costa S. Breger D.

[Odd \$\text{CaCO}_3\$ from the Southwest Indian Ocean Near Burckle Crater Candidate: Impact Ejecta or Hydrothermal Precipitate?](#) [#2243]

Unusual carbonate crystals from the vicinity of Burckle Crater candidate may be impact ejecta or hydrothermal precipitates from ridge crest vents. However, they occur with translucent C impact spherules, native metals, and well preserved mineral fragments and glass.

Huang J. Xiao L. Wang K.

[Xifeng Circular Basin: Another Failed Potential Crater in China](#) [#1035]

There has been no substantiated impact crater in China. In 2006, a possible one was discovered in Xifeng County, Guizhou Province. By analysis of morphology, stratigraphy and impact metamorphism, we propose that it is not an impact crater but a reformed syncline.

Watters W. A. Zuber M. T.

[Relating Target Properties to the Planimetric Shape of Simple Impact Craters](#) [#2556]

We investigate the dependence of planimetric crater shape on the properties of geological targets, by comparing the distribution of morphometric quantities derived from the rim trace of fresh impact craters captured in HiRISE and MOC images.