

Tuesday, March 16, 2004
POSTER SESSION I: IMPACT-RELATED DEPOSITS
7:00 p.m. Fitness Center

Macdonald F. A. Mitchell K. Cina S. E.

Evidence for a Lightning-Strike Origin of the Edeowie Glass [#1406]

An investigation of the morphology, distribution and composition of the Edeowie glass found west of the Flinders Ranges suggests a recent lightning-strike origin.

Sheffer A. A. Dyar M. D.

⁵⁷Fe Mössbauer Spectroscopy of Fulgurites: Implications for Chemical Reduction [#1372]

We present ⁵⁷Fe Mössbauer spectra of high-temperature processed fulgurites and Trinitite. All of these samples are reduced. Knowledge of the Fe oxidation states before and after heating allows for thermodynamic modeling of the reduction process.

Trepmann C. A. Götte T. Spray J. G.

Ca-Metasomatism in Crystalline Target Rocks from the Charlevoix Structure, Quebec, Canada: Evidence for Impact-related Hydrothermal Activity [#1743]

Field observations, optical microscopy and cathodoluminescence microscopy of Ca-rich zones in Charlevoix target rocks suggest a short lived but widespread post-shock hydrothermal activity.

Rajmon D. Hall S. A. Reid A. M. Miller R. McG. Robertson D. J.

Magnetic Investigations of Breccia Veins and Basement Rocks from Roter Kamm Crater and Surrounding Region, Namibia [#1867]

The target rocks from Roter Kamm crater retained NRM components related to the Kalahari APWP for ~1.1–0.9, ~0.7–0.6 and ~0.5 Ga. There is no evidence for re-magnetization of the Roter Kamm samples at ~300 Ma or during the impact at 3.7 Ma.

Winslow F. D. III Rasbury E. T. Hemming S. R.

Petrologic Complexities of the Manicouagan Melt Sheet: Implications for ⁴⁰Ar-³⁹Ar Geochronology [#2034]

Here we present the results of a petrographic analysis of the Manicouagan melt sheet to illustrate the complex relationship between the K-bearing phases and evaluate the implications of this relationship for sampling for Ar-Ar geochronology.

Reimold W. U. Kelley S. P. Sherlock S. Henkel H. Koeberl C.

Laser Argon Dating of Melt Breccias from the Siljan Impact Structure, Sweden — Implications for Possible Relationship to Late Devonian Extinction Events [#1480]

An age of 376.8 ± 1.7 Ma is presented for impact melt breccias from Siljan. This impact event has been related to a mass extinction event at the F/F boundary (End-Devonian). The new results clearly separate the Siljan event from the 364 Ma F/F boundary.

Koeberl C. Bhandari N. Dhingra D. Suresh P. O. Narasimham V. L. Misra S.

Lunar Impact Crater, India: Occurrence of a Basaltic Suevite? [#1751]

In situ occurrence of impact glass in polymict breccia was found at the Lonar crater, India, allowing the breccia to be classified as suevite.

Storzer D. Koeberl C.

Age of the Lonar Impact Crater, India: First Results from Fission Track Dating [#1309]

Fission track ages of impact glass from the Lonar crater, India, give a first result of around 15,000 years, but with low precision.

Schönian F. Stöffler D. Kenkmann T. Wittmann A.

The Fluidized Chicxulub Ejecta Blanket, Mexico: Implications for Mars [#1848]

The presence of water and the incorporation of local clays and not atmospheric processes account for the deposition of the Albion Fm. and for its large runout. This emphasizes the role of volatiles in the formation of Martian ejecta blankets.

Bart G. D. Melosh H. J.

Low Velocity Ejection of Boulders from Small Lunar Craters: Ground Truth for Asteroid Surfaces [#1906]

We are characterizing the size and ejection velocity of boulders around small lunar craters. Our study will hone analysis algorithms and emplace a scientific foundation for the interpretation of images of Mars and asteroids at similar resolution.

Hirata N. Nakamura A. M. Saiki K.

Ejecta and Secondary Crater Distributions of Tycho Crater: Effects of an Oblique Impact [#1587]

We have undertaken a new analysis on a lunar crater Tycho using remote sensing data, in an attempt to verify the recent results of theoretical and experimental studies on oblique impacts.

Symes S. J. Alexander C. M. O'D.

Potassium Isotope Systematics of Crystalline Lunar Spherules from Apollo 16 [#1917]

Crystalline lunar spherules are impact generated melt spherules with igneous textures. Despite a large range in K/Al, there are no systematic variations in potassium isotopic compositions.

Whitehead J. Jutson D. Grieve R. A. F. Spray J. G.

Late Paleocene Spherules from the North Sea: Probable Sea Floor Precipitates — A Silverpit Provenance Unproven [#1849]

Late Paleocene North Sea spherules located ~250 km to the NE of the Silverpit structure are unlike ejecta observed from other impact structures. Thus, the spherules cannot be used to help substantiate an impact origin to the Silverpit structure.

Patzer A. Kring D. A. Goodwin D. H. Ward P. D. Haggart J. W.

A Lithological Investigation of Marine Strata from the Triassic-Jurassic Boundary Interval, Queen Charlotte Islands, British Columbia, Including a Search for Shocked Quartz [#1578]

We searched end-Triassic marine strata from British Columbia for mineralogical indicators of impact and performed a provenance study on these variegated sediments.

Chapman M. G. Evans M. A. McHone J. F.

Triassic Cratered Cobbles: Shock Effects or Tectonic Pressure? [#1424]

Possible shock deformation fabric elements have been suggested to occur in conglomeratic deposits of three Upper Triassic deposits. This abstract addresses these claims and concludes that halo marks on cobbles are too problematic to relate them to impact-induced causes.

Huber H. Wasson J. T.

Regional Variations of Trace Element Composition Within the Australasian Tektite Strewn Field [#2110]

The major and trace elemental composition of Australasian tektites was determined using INAA. The data are used to distinguish between the different mechanisms of formation.

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

Cretaceous-Tertiary Boundary Microtektite-bearing Sands and Tsunami Beds, Alabama Gulf Coastal Plain [#1804]

At the Shell Creek, an impact-related basal sand couplet (consisting of microtektite-rich sand and an overlying cross-laminated sand unit, ~35 to 75 cm thick) rests directly on Danian chalky marl.

Abbott D. Pekar S. Kumar M.

Sand Lobes on Stewart Island as Probable Impact-Tsunami Deposits [#1930]

Aerial photos and field results from sand lobes on Stewart Island. Stewart Island is ~200 km from the 20 km wide, <1000 yr old Mahuika impact crater. Sand lobes resemble meandering braided streams and may represent impact tsunami deposits.

Glidden M. King D. T. Jr. Pope K. O.

Distal Impact Ejecta, Uppermost Eocene, Texas Coastal Plain [#2012]

This paper reports the occurrence of unusual, highly polished, cherty distal impact ejecta with shocked quartz, ~33.8 Ma (near terminal Eocene), in fluvial facies of Whitsett Formation, Texas, coastal plain.

Petreshock K. Abbott D. H. Glatz C. A.

Continental Impact Debris in the Eltanin Impact Layer [#1364]

We have found K feldspar microcrystites in the Eltanin impact layer in core ELT13-4. This implies that there was a simultaneous or previous continental impact to the oceanic Eltanin impact layer. These K feldspar spherules may be useful to provide a maximum age for the Eltanin impact event.