

**Monday, March 17, 2003**  
**POKING HOLES: TERRESTRIAL IMPACTS**  
**8:30 a.m. Salon C**

**Chairs: T. Kenkmann**  
**B. M. French**

Korycansky D. G. \* Asphaug E. Ward S. N.

*Impact Tsunami Calculations: Hydrodynamical Simulations vs. Linear Theory* [#1195]

We compare hydrodynamical simulations of large-amplitude water waves like those generated by an impact into a deep ocean, to the predictions of linear theory. In general, linear theory turns out to be a reasonably accurate guide to the waves' propagation.

Melosh H. J. \*

*Impact-generated Tsunamis: An Over-rated Hazard* [#2013]

A recently released report on explosion-generated tsunami has cast doubt on some current estimates that suggest that asteroids as small as 100 m in diameter pose a serious threat to humanity.

Ivanov B. A. \* Melosh H. J.

*Impacts Do Not Initiate Volcanic Eruptions* [#1338]

We perform numerical simulations of the impact of an asteroid with a diameter of 20 km striking at 15 km/s. Even an impact this large is insufficient to raise mantle material above the peridotite solidus due to decompression only.

Lana C. \* Gibson R. L. Reimold W. U.

*Central Uplift Formation in Very Large Impact Structures: Evidence from the Vredefort Dome* [#1009]

Comprehensive field-based structural mapping of the core of the Vredefort Dome, South Africa, has been undertaken with the aim of elucidating the structural effects related to the formation of the central uplift of the Vredefort Impact Structure.

Kenkmann T. \* Wittmann A. Scherler D. Schmitt R. T.

*Deformation Features of the Cretaceous Units of the ICDP-Chicxulub Drill Core Yax-1* [#1368]

The Chicxulub Yax-1 drill core penetrated through 600 m of sediments below the impactites. These rocks are predominantly carbonates and sulfates. Layers enriched in organic matter are frequent. The degree of deformation depends on the lithology.

Allen P. J. \* Stewart S. A.

*Silverpit: The Morphology of a Terrestrial Multi-Ringed Impact Structure* [#1351]

The Silverpit impact structure, discovered under the North Sea, is imaged on high resolution 3D seismic data. It is surrounded by an unusual multi-ringed deformation pattern, which is reminiscent of several impacts seen on Europa and Callisto.

Collins G. S. \* Turtle E. P. Melosh H. J.

*Numerical Simulations of Silverpit Crater Collapse* [#2115]

We simulate the collapse of the recently discovered Silverpit crater using SALES 2 and Tekton. We have tested a proposed model for the formation of Silverpit's peculiar external ring structures.

Shen A. H. Ahrens T. J. \* Ni S.

*Erosion of Planetary Atmosphere Due to Surface Waves Induced by Giant Impact* [#2031]

Results from hydrodynamic simulation of atmosphere erosion due to surface waves induced by giant impact were presented. The propagating surface waves can perturb planetary atmosphere sufficiently and contribute to the erosion of the atmosphere.

Gucsik A. Koeberl C. \* Brandstaetter F. Libowitzky E. Reimold W. U.

*Scanning Electron Microscopy, Cathodoluminescence, and Raman Spectroscopy of Experimentally Shock Metamorphosed Quartzite* [#1082]

Cathodoluminescence spectrometry and Raman microspectrometry of a series of shocked quartzite samples is discussed. The results show shifts of the CL and Raman properties with shock pressure.

El Goresy A. \* Dubrovinsky L. S. Gillet P. Mostefaoui S. Graup G. Drakopoulos M.

Simionovici A. S. Swamy V. S.

*A Novel Cubic, Transparent and Super-hard Polymorph of Carbon from the Ries and Popigai Craters: Implications to Understanding Dynamic-induced Natural High-pressure Phase Transitions in the Carbon System* [#1016]

We report the discovery of a new cubic, transparent and super-hard polymorph of carbon from the Ries and Popigai craters: This phase will have important implications in understanding high-pressure phase transitions in the carbon system.

Osinski G. R. \* Spray J. G.

*Impact Melt Rocks from the Ries Impact Structure, Germany: Preliminary Results of an Analytical SEM Study* [#1719]

Isolated exposures of reddish, vesicular impact melt rock occur in a zone near the eastern rim of the Ries impact structure. Here, we present the preliminary results of the first detailed analytical study of these lithologies.

Quitté G. Robin E. \* Capmas F. Levasseur S. Rocchia R. Birck J. L. Allègre C. J.

*Carbonaceous or Ordinary Chondrite as the Impactor at the K/T Boundary? Clues from Os, W and Cr Isotopes* [#1615]

Each kind of meteorite is characterized by a typical pattern of isotopic signatures. Therefore we combine Os, W and Cr isotopes data to try and define the nature of the impactor that hit the Earth 65 Myrs ago, at the time of the K/T boundary.

Poreda R. J. \* Basu A. Becker L. Nicholson C. Ocampo A.

*Global Evidence for a Permian-Triassic Impact Event* [#1490]

We will present the global evidence for a Permian-Triassic impact event and re-examine some of the structural data previously presented by Gorter (1996) as well as additional seismic lines and gravity.