

Tuesday, March 16, 2004
EFFECTS OF IMPACTS: SHOCK AND AWE
1:30 p.m. Salon C

Chairs: F. T. Kyte
C. Koeberl

- 1:30 p.m. Wittmann A. * Stöffler D. Schmitt R. T. Tagle R. Kenkmann T. Hecht L.
Zircon as a Shock Indicator in Impactites of Drill Core Yaxcopoil-1, Chicxulub Impact Structure, Mexico [#1742]
 Zircons in impactites of drillcore Yax-1 (Chicxulub) show decorated and undecorated PDF, shock mosaicism, recrystallized grains, dissociation to baddeleyite, but no reidite, inferring shock pressures of <5–100 GPa and thermal annealing of >1500°C.
- 1:45 p.m. Ogilvie P. Gibson R. L. Reimold W. U. * Deutsch A.
Experimental Investigation of Shock Effects in a Metapelitic Granulite [#1242]
 A metapelite with felsic and mafic minerals was experimentally shock loaded to pressures between 12.5 and 60 GPa. The results are compared to natural shock deformation in the central part of the Vredefort Dome.
- 2:00 p.m. Langenhorst F. * Poirier J.-P. Deutsch A. Hornemann U.
Experimental Reproduction of Shock Veins in Single-Crystal Minerals [#1478]
 We report on shock experiments that are capable to produce shock veins in single-crystal minerals. Experiments are designed to shear samples, resulting in localized melting along veins and formation of new crystals by fractional crystallization.
- 2:15 p.m. Trepmann C. A. * Spray J. G.
Post-Shock Crystal-Plastic Processes in Quartz from Crystalline Target Rocks of the Charlevoix Impact Structure [#1730]
 Conspicuous quartz microstructures in uplifted Charlevoix target rocks have been investigated by optical microscopy and various electron microscopic techniques (SEM, EBSD, TEM, CL) and indicate impact-related, post-shock crystal-plastic processes.
- 2:30 p.m. Elwood Madden M. E. * Hörz F. Bodnar R. J.
Shock Reequilibration of Fluid Inclusions [#1346]
 Fluid inclusions may be altered or destroyed by high P-T conditions and strain rates associated with shock events. Such shock reequilibration may explain the rarity of fluid inclusions in meteorites and better constrain P-T conditions during impact.
- 2:45 p.m. Melosh H. J. * Artemieva N.
How Does Tektite Glass Lose Its Water? [#1723]
 We examine the physical and thermodynamic conditions under which tektites are created by impact melting. We show that water and volatiles in the melt are readily lost and result in the very low water abundances observed in tektite glass.
- 3:00 p.m. BREAK
- 3:15 p.m. Skála R. * Langenhorst F. Hörz F.
Assessing the Role of Anhydrite in the KT Mass Extinction: Hints from Shock-loading Experiments [#1284]
 Massive polycrystalline anhydrite was shocked to pressures in the range from 4 to 64 GPa. It displays twinning, dislocations, and shear zones, but no changes in the phase composition, high-pressure polymorphs or decomposition have been observed.

- 3:30 p.m. Coney L. * Reimold W. U. Hancox P. J. Koeberl C.
A Mineralogical and Geochemical Study of the Nonmarine Permian/Triassic Boundary in the Southern Karoo Basin, South Africa [#1488]
Mineralogical and geochemical investigations across two nonmarine Permian-Triassic (P/Tr) boundary sections in the southern part of the main Karoo Basin have been undertaken in order to aid in our understanding of this complex extinction event.
- 3:45 p.m. Shukolyukov A. * Lugmair G. W. Becker L. Macisaac C. Poreda R.
Extraterrestrial Chromium in the Permian-Triassic Boundary at Graphite Peak, Antarctica [#1875]
Based on the Cr isotope measurements we established the presence of an extraterrestrial carbonaceous chondrite type component in the Permian-Triassic boundary at Graphite Peak, Antarctica.
- 4:00 p.m. Petaev M. I. * Jacobsen S. B. Basu A. R. Becker L.
Magnetic Fe,Si,Al-rich Impact Spherules from the P-T Boundary Layer at Graphite Peak, Antarctica [#1216]
We report on the first discovery of impact spherules in the PTB samples from Graphite Peak, Antarctica.
- 4:15 p.m. Simonson B. M. * Sumner D. Y.
A Newly Recognized Late Archean Impact Spherule Layer in the Reivilo Formation, Griqualand West Basin, South Africa [#1689]
The Reivilo Formation hosts the second late Archean spherule layer found in South Africa. It could be from the same impact as the ~2.54 Ga Wittenoom layer of Western Australia or it may be evidence of a different late Archean impact.
- 4:30 p.m. Kyte F. T. * Shukolyukov A. Hildebrand A. R. Lugmair G. W. Hanova J.
Initial Cr-Isotopic and Iridium Measurements of Concentrates from Late Eocene Cpx-Spherule Deposits [#1824]
Cr-isotopic compositions of separates from Late Eocene cpx-spherule deposits show that most of the Cr is meteoritic. C- and E- chondrites are ruled out as a source and ordinary chondrites are favored. Implications for solar system history follow.
- 4:45 p.m. Koeberl C. * Shukolyukov A. Lugmair G. W.
An Ordinary Chondrite Impactor Composition for the Bosumtwi Impact Structure, Ghana, West Africa: Discussion of Siderophile Element Contents and Os and Cr Isotope Data [#1256]
Chromium isotope data indicate that the impactor that created the Bosumtwi crater, Ghana, was an ordinary chondrite.