

Monday, August 18, 2008

WELCOME

8:20 a.m. Hippo Room

8:20 a.m. Gibson R. L.
Welcome and Introductory Remarks

SYMPOSIUM — LARGE IMPACT STRUCTURES

Chairs: Ulrich Riller
Stephen Prevec

- 8:30 a.m. Warner M. R. * Morgan J. V. Grieve R. A. F. Barton P. J. Christeson G. L.
Gulick S. P. S. Surendra A. T. **[KEYNOTE]**
[*Does Chicxulub Possess a Differentiated Melt Sheet?*](#) [#3026]
Seismic reflection, velocity and drill core data at Chicxulub, are compared to velocity and observational data at Sudbury, in order to examine the possibility that Chicxulub possesses a differentiated melt sheet.
- 9:00 a.m. Newsom H. E. * Nelson M. J. Spilde M. N.
[*Yaxcopoil-1 Impact Melt Bearing Breccias: The Controversy Over Multiple Composition Melts and the Role of Hydrothermal Alteration*](#) [#3079]
The chemistry and mineralogy of the Yaxcopoil-1 breccias are not consistent with formation from a single melt composition altered by hydrothermal processes, but require both silicate and dolomitic melts coupled with the infiltration of seawater.
- 9:15 a.m. Milkereit B. * Artemieva N. Ugalde H.
[*Geophysical Signature of the Footwall of Large Meteorite Impact Craters*](#) [#3024]
Through the integration of remote sensing, geophysics, exploration drilling and numerical modeling, we investigate strain distribution in the footwall, the cooling history of the footwall and heterogeneities as seen by seismic and remote sensing data.
- 9:30 a.m. Prevec S. A. * Kuhn B. K. Büttner S. H.
[*Tectosilicate Oikocrysts in Impact Melt-hosted Mafic Xenoliths, Contact Sublayer of the Sudbury Igneous Complex, Canada*](#) [#3009]
A mafic xenolith hosted by basal contact sublayer of the Sudbury impact melt has been found to contain a range of unusual tectosilicate mineral textures, including anhedral oikocrysts of sanidine, suggesting incipient remelting.
- 9:45 a.m. Hecht L. * Wittek A. Riller U. Mohr T. Schmitt R. T. Grieve R. A. F.
[*Differentiation and Emplacement of the Worthington Offset Dike of the Sudbury Impact Structure, Ontario*](#) [#3058]
Based on petrological data and thermal models of the cooling history of the Sudbury Igneous Complex, the two-stage emplacement of the Worthington Offset Dike occurred likely thousands to about ten thousand years after impact.
- 10:00 a.m. Andreoli M. A. G. * Maier W. D. McDonald I. Barnes S.-J. Roelofse F. Cloete M. C.
Okujeni C. Hart R. J.
[*Siderophile Minerals in the Melt Sheet of the Morokweng Impact Crater, South Africa: Similarities and Differences with the Sudbury Deposits*](#) [#3049]
The melt sheet of the Morokweng impact crater hosts a variety of Ni, PGE-rich sulphides as impactor-derived condensates. Dykes in the basement carry impactor-derived magmatic segregations of pyrite-pentlandite-pyrrhotite and chalcopyrite.

- 10:15 a.m. Galdeano A. Andreoli M. A. G. Hart R. J. *
[*Magnetic Imaging of the Vredefort Dome: Implications for the Size and Geometry of the Vredefort Crater*](#) [#3051]
Models predicting the size of the Vredefort Crater vary considerably due to the fact that so little of the original crater is exposed. In this study we combine geological observation with magnetic and gravity imaging to visualize the original crater.
- 10:30 a.m. BREAK
- 11:00 a.m. Kletetschka G. * Adachi T.
[*Magnetic Detection of Large Magnetic Fields that Occurred During the Vredefort Impact. Implications for Mars Magnetic Anomalies*](#) [#3094]
Novel method allows finding microscopic volumes that were magnetized with contrasting magnetic efficiency. Data suggest a presence of large cm-scale magnetic fields during the impact.
- 11:15 a.m. Crasselt C. * Reimold W. U.
[*Impact Related Pseudotachylitic Breccias in the Schurwedraai and Baviaan-Krantz Alkali Granite Complex in the Collar of the Vredefort Dome*](#) [#3018]
Pseudotachylitic breccias in alkali granite of the NW Vredefort Dome were analysed structurally and petrographically. Contrary to Archean Gneiss of the central Dome, the alkali granite lacks structural and compositional heterogeneities.
- 11:30 a.m. Mohr-Westheide T. * Reimold W. U. Riller U. Gibson R. L.
[*Pseudotachylitic Breccia and Microfracture Networks in Archean Gneiss of the Central Uplift of the Vredefort Dome, South Africa*](#) [#3021]
Detailed microstructural investigations of pseudotachylitic breccias and two systems of microfractures, supplemented by field data, has resulted in improved understanding of emplacement of melt into Archean gneiss of the Vredefort Dome.
- 11:45 a.m. Lieger D. * Riller U. Reimold W. U. Gibson R. L.
[*Formation of Fragment Rich Pseudotachylite Zones During Central Uplift Formation in the Vredefort Impact Structure, South Africa*](#) [#3020]
Field-based structural analysis of the Vredefort Dome focused on mapping of pre-impact planar mineral fabrics and structural properties of fragment-rich pseudotachylite zones, such as geometry, orientation, brecciation intensity of the zones.
- 12:00 p.m. Riller U. * Lieger D.
[*Geological Evidence for Acoustic Fluidization in Large Impact Structures*](#) [#3025]
Structural observations from Sudbury and Vredefort suggest that fragment-rich pseudotachylite zones may well be important agents of acoustic fluidization.
- 12:15 p.m. Jahn A. * Riller U. Reimold W. U.
[*Three-Dimensional Modeling of Ground-Truth Data — A New Approach for Understanding the Significance of Prominent Discontinuities During Formation of the Vredefort Central Uplift, South Africa*](#) [#3040]
The sedimentary rocks and faults of the Vredefort Central Uplift have been constructed in a 3D model. This model is based on ground-truth data and geophysical data. It provides new insights into the deep structure of the Vredefort Dome and its formation.

- 12:30 p.m. Gibson R. L. * Ogilvie P.
[*The Hottest Rocks in the Vredefort Dome, South Africa — Extending the Links Between Impact-induced and "Normal" Metamorphism*](#) [#3108]
Impact structures are sites of extreme pressure and temperature fluctuations related to the interaction and decay of the shock wave with the target rocks through which it passes.
- 12:45 p.m. Elston W. E. *
[*Proposed Bushveld Scenario: Impact, Mantle Upwelling, Meltdown, Collapse*](#) [#3015]
The 2.06 Ga Bushveld impact triggered mantle upwelling and lithosphere melts, creating world's largest igneous complex. Its history is recorded in repeated overflows from a superheated melt pool, accumulated in an outer ring (pseudovolcanic Rooiberg Group).
- 1:00 p.m. LUNCH