Tuesday, July 25, 2017
IMPACT PROCESSES IN NATURE: THE SHOCKING TRUTH WILL ALTER YOU FOREVER
8:30 a.m. Sweeney A

This session examines the geological characteristics of impact structures and the mechanisms of impact crater formation.

Chairs: **Erin Walton**
David Kring

8:30 a.m. Crosta A. P. * Reimold W. U.
A Review of the Impact Record of South America **[#6017]**
A visual comparison of the Earth's map of impact structures shows that South America is the continent with the least number of impact structures. The objective is to review and update the current knowledge about impact structures in South America.

8:45 a.m. El Kerni H. * Chennaoui Aoudjehane H. Baratoux D. Charrière A. Ibouh H. Aoudjehane M.
Geological Characterization of the Agoudal Impact Structure (Imilchil District, Central High Atlas, Morocco) **[#6055]**
Here, we present the first geological map of the Agoudal impact structure (Imilchil district, Central High Atlas, Morocco) and discuss of the structural features generated by the impact event.

9:00 a.m. Kring D. A. * Schmieder M. Riller U. Simpson S. L. Osinski G. R. Cockell C. Coolen J. L. Expedition 364 Science Party
Testing a Model of Impact-Generated Hydrothermal Systems with IODP-ICDP Expedition 364 to the Chicxulub Crater **[#6064]**
A borehole drilled 1.3 kilometers deep into the peak ring of the Chicxulub impact crater indicates the impact generated a vigorous hydrothermal system that, as it cooled, could have hosted a community of hyperthermophilic and thermophilic organisms.

9:15 a.m. Hill P. J. A. * Osinski G. R.
Comparative Petrographic and Microanalytical Investigation of Apollo and Terrestrial Impact Breccias to Understand "Suevite" Formation **[#6112]**
This study presents the similarities between fragmental breccia samples from Apollo 14 and 16 to impact breccias from the Mistastin Lake impact structure to better understand the formation of polymict impact breccias with "particulate" matrices.

9:30 a.m. Walton E. L. * Long K.
A Study of Hydrothermal Activity associated with the Steen River Impact Structure, NW Alberta, Canada **[#6267]**
The post-impact hydrothermal system associated with the Steen River Impact Structure has been studied. We document both pervasive and localized alteration zones in breccias and rocks from the central uplift.

9:45 a.m. Belhai D. * Kassab F.
Highlight of Two Superposed Deformations in the Tin Bider Impact Crater (Tinhert Plateau, Central Sahara) **[#6289]**
A meteorite impact structure of Tin Bider shows, In addition the classical markers of impacts, superposed structures. Those are manifested by folds with perpendicular axes which are linked to two different phases during the impact event.

10:00 a.m. Cavosie A. J. * Reddy S. M. Timms N. E. Kirkland C. L. Talavera C.
A New Occurrence of Shocked Xenotime: MicroStructure and U-Pb Geochronology of Detrital Grains from the Vredefort Dome, South Africa **[#6105]**
We describe a new occurrence of shock deformation in xenotime from the Vredefort impact structure in South Africa, and report EBSD analysis and SHRIMP U-Pb geochronology for a detrital grain.

10:15 a.m. Schmieder M. * Kring D. A. Lapen T. J. Gulick S. P. S. Stockli D. F. Rasmussen C. Rae A. S. P. Ferrière L. Poelchau M. Xiao L. Wittmann A. Expedition 364 Science Party
Sphene and TiO_2 Assemblages in the Chicxulub Peak Ring: U–Pb Systematics and Implications for Shock Pressures, Temperatures, and Crater Cooling **[#6134]**
The discovery of TiO_2-II, a high-pressure polymorph of TiO_2 associated with altered sphene in shocked granite from the Chicxulub peak ring, places new constraints on shock pressure, post-shock temperatures, and crater cooling.

10:30 a.m. Cox M. A. * Cavosie A. J. Bland P. A. Erickson T. M. Timms N. E.
First Evidence of Shock Deformation at Yallalie, a Proposed Impact Structure in Western Australia **[#6163]**
The presence of both planar fractures and ballen texture in quartz represent the first documented shocked mineral evidence supporting the hypothesis that Yallalie is an impact structure.

10:45 a.m. Montalvo P. E. * Cavosie A. J. Erickson T. M. Kirkland C. L. Evans N. J. McDonald B. J. Talavera C. Lugo-Centeno C.
Detrital Shocked Zircon Provides New Constraints on the Age and Size of the Santa Fe Impact Structure, NM (USA) **[#6171]**
The study of ~6600 zircon grains revealed the first documented shocked zircon at the Santa Fe impact structure. The occurrence of shocked zircon at the Santa Fe impact structure provides new constraints on the maximum impact age and crater diameter.

11:00 a.m. Murri M. * Jones A. P. McMillan P. F. Salzmann C. G. Alvaro M. Domeneghetti M. C. Nestola F. Prencipe M. Dobson D. Hazael R. Moore M. Vishnevsky S. Logvinova A. M. Sobolev N. V.
Structure Characterization of Impact Natural Diamond from Popigai Crater **[#6191]**
To better understand the origin of Popigai diamond and if the stacking disorder could provide a record of the impact shock event, we have investigated by X-ray diffraction and DIFFaX software package some natural impact diamonds from Popigai Crater.

11:15 a.m. Wright S. P. *
Not Just Fresh and Altered Basalt: Shocked Soil and Shocked Baked Zones Show the Collective Effects of Alteration and Shock **[#6387]**
Besides shocked versions of both fresh and several types of altered basalt, shocked soils and baked zones found in Lonar Crater ejecta are examined to unravel the combined effects of alteration, shock, and then post-shock alteration of impact glass.