Wednesday, August 20, 2008
SYMPOSIUM:
MODELING IMPACT CRATERING — CODE IMPROVEMENTS AND OUTCOMES
10:45 a.m. Hippo Room

Chairs: **Elisabetta Pierazzo**
Joanna Morgan

10:45 a.m. Melosh H. J. * **[KEYNOTE]**
Equation of State and Material Strength for Impact Cratering Simulations **[#3113]**
Numerical simulations of impact events rest on three major pillars: Newtonian mechanics, thermodynamics, and the contimuum mechanics of material strength.

11:15 a.m. Pierazzo E. * Artemieva N. Asphaug E. Baldwin E. C. Cazamias J. Coker R. Collins G. S. Crawford D. A. Davison T. Elbeshausen D. Holsapple K. A. Housen K. R. Korycansky D. G. Wünnemann K.
The Impact Hydrocode Benchmark and Validation Project **[#3022]**
When properly benchmarked and validated against observations computer models offer a powerful tool for understanding the mechanics of impact crater formation. We present results from a project to benchmark and validate shock physics codes.

11:30 a.m. Wünnemann K. * Collins G. S. Elbeshausen D.
Limitations of Point-Source Analogy for Meteorite Impact and Implications to Crater-scaling **[#3076]**
We use hydrocode modeling to study scaling laws and the applicability of the point-source analogy. We conducted numerous of numerical experiments for oblique and vertical impacts of crater formation over a large parameter range and present the available database.

11:45 a.m. Collins G. S. * Kenkmann T. Wünnemann K. Wittmann A. Reimold W. U. Melosh H. J.
A Model for the Formation of the Chesapeake Bay Impact Crater as Revealed by Drilling and Numerical Simulation **[#3059]**
The combination of numerical simulation results and petrographic analysis of drill core from the recent ICDP-USGS drilling project provides new insight into the formation of the Chesapeake Bay impact crater.

12:00 p.m. Senft L. E. Stewart S. T. *
Frictional Melt Formation Around Large Craters **[#3077]**
Frictional melts (pseudotachylites) are observed around many large impact craters and may play a role in aiding crater collapse. Here we use numerical modeling to predict where frictional melts should form and compare results to field observations.

12:15 p.m. Artemieva N. *
Impact Ejecta Modeling: Main Principles and a few Examples **[#3082]**
We shortly discuss numerical methods to solve two-phase hydrodynamics (gas loaded by solid/molten particles) and present the results for directed volcanic blast, the Ries and the Chicxulub impact craters.

12:30 p.m. Pierazzo E. * Sassi F.
Short-Term Effects of Impact-related Heating of the Upper Atmosphere **[#3081]**
We use WACCM to look at the effects of a strong heating of the upper atmosphere from a KT-size impact event. The heating produces an immediate LW radiation to the surface, while effects on atmospheric chemistry extend well beyond the heating.

1:00 p.m. LUNCH