Tuesday, March 14, 2006
IMPACT CRATERING: MODELING AND EXPERIMENTS
1:30 p.m. Amphitheater

Chairs: O. S. Barnouin-Jha
D. G. Korycansky

1:30 p.m. Bray V. J. * Collins G. S. Morgan J. V.
Numerical Modelling of Impact Cratering on the Moon and Icy Satellites **[#1175]**
This work describes numerical simulations of cratering on the Moon and icy satellites using the SALE hydrocode, with the ultimate aim of inferring the thickness of Europa's ice crust.

1:45 p.m. Baldwin E. C. * Vocadlo L. Crawford I. A.
Reviewing the Impact Parameters for Meteor Crater Using AUTODYN **[#1835]**
There are a wide range of parameters suggested for the projectile that created Meteor Crater. We consider projectiles of varying size and velocity to determine AUTODYN's suitability for replicating large scale planetary impact events.

2:00 p.m. Morgan J. * Lana C. Artemieva N.
Shocked Minerals in the K-T Boundary: Implications for Obliquity of Impact **[#1281]**
This study combines observational data on the distribution of the coarse ejecta within the global K-T boundary layer with numerical modeling of vertical and oblique impacts, in an attempt to constrain the direction and angle of impact at Chicxulub.

2:15 p.m. Ohno S. * Sugita S.
Rapid Fall of the K/T Sulfuric Acid Aerosols and Oceanic pH Reduction **[#1699]**
We estimate the fall time of the K/T sulfuric acid aerosols considering the interaction with silicate condensates. We found that more than 70% of sulfuric acid aerosols would have fallen within two days and that oceanic pH decreases dramatically.

2:30 p.m. Gisler G. R. * Weaver R. P. Gittings M. L.
Energy Partitions in Three-Dimensional Simulations of the Chicxulub Meteor Impact **[#2095]**
We did three-dimensional simulations of the meteor impact at Chicxulub with the compressible multiphase multifluid hydrocode SAGE at four different angles. Steeper angles more likely account for the observations of widely dispersed material.

2:45 p.m. Abramov O. * Kring D. A.
Numerical Modeling of Impact-induced Hydrothermal Activity at the Chicxulub Crater **[#2102]**
Impact-induced hydrothermal activity at the Chicxulub crater was modeled using a finite-difference computer code constrained with geologic data. Duration of activity, system temperatures and dynamics, and biological implications are discussed.

3:00 p.m. Korycansky D. G. * Lynett P. J. Ward S. N.
Runup from Impact Tsunami **[#1255]**
We present results of the calculation of the on-shore runup of waves generated by the deep-ocean impact of a 300-m-diameter asteroid.

3:15 p.m. Wright S. P. * Vesconi M. A. Gustin A. Williams K. K. Ocampo A. C. Cassidy W. A.
Revisiting the Campo Del Cielo, Argentina Crater Field: A New Data Point from a Natural Laboratory of Multiple Low Velocity, Oblique Impacts **[#1102]**
In 2005, a ~15 metric ton meteorite was recovered from the Campo del Cielo crater field, Argentina for comparisons to previous excavations and calculations of energies of crater formation.

3:30 p.m. Cooke W. J. * Suggs R. M. Swift W. R.
A Probable Taurid Impact on the Moon **[#1731]**
On November 7, 2005, at 23:41:52 UT, observers located at the Marshall Space Flight Center captured the flash produced by a kilogram-sized meteoroid striking the lunar surface. Photometric analysis of the event video yields a mass of approximately 3.8 kg.

3:45 p.m. Kenkmann T. Thoma K. Deutsch A. * MEMIN-Team
Hypervelocity Impact into Dry and Wet Sandstone **[#1587]**
Experiments with 1-cm-sized steel spheres impacting dry and wet sandstone blocks at 5.3 km/s are presented. Differences in shape and size of the craters and in the ejection flow indicate the influence of pore fluids on the cratering process.

4:00 p.m. Yamamoto S. * Kadono T. Sugita S. Matsui T.
Cumulative Mass-Velocity Distribution of Impact Ejecta in Oblique Impacts **[#1164]**
We measured the cumulative mass-velocity distribution of ejecta with velocities of a few m/s (low-velocity ejecta) for impacts at various impact angles into soda-lime glass spheres.

4:15 p.m. Hamano K. * Abe Y.
Pressure Dependence of Atmospheric Loss by Impact-induced Vapor Expansion **[#1562]**
Atmospheric pressure differs by planets and could change through its evolution. We calculated atmospheric motion with vapor expansion with a 2-D cylindrical hydrocode and investigated the pressure dependence of the mass of the atmospheric loss.

4:30 p.m. Ishibashi K. * Ohno S. Sugita S. Kadono T. Matsui T.
Oxidation of Carbon Compounds by SiO_2-derived Oxygen Within Laser-induced Vapor Clouds **[#1721]**
We conducted laser heating experiments that simulate impact-induced vaporization to investigate the effects of SiO_2-derived oxygen on carbon chemistry within vapor clouds. The results indicate that SiO_2-derived oxygen oxidizes carbon significantly.