

Deep Impact – Exploring The Interior Of A Comet

M. F. A'Hearn; University of Maryland
K. J. Meech; University of Hawaii, Inst. for Astronomy
M. J. S. Belton; Kitt Peak National Observatory
A. Delamere; Ball Aerospace
J. Kissel; Max-Planck-Institut für Extraterrestrische Physik
K. Klaasen, D. Yeomans, JPL
L. McFadde, Univ. Maryland
J. Melosh, Univ. Arizona
P. Schultz, Brown Univ.
J. Sunshine, SAIC
J. Veerka, Cornell Univ.

The Deep Impact Mission, one of the two recently selected NASA Discovery Missions, will send a 500-kg impactor to blast a crater into the nucleus of comet P/Tempel 1 to reveal the unseen materials and structure under its surface. Deep Impact initiates a new dimension in the study of cometary nuclei by conducting the first experiment to study deep beneath the surface, while at the same time linking together the science from recent and future comet missions. Our primary scientific goal is to understand the difference between the interior of a comet and its surface. Current and planned missions will investigate the heterogeneity on surface structure and composition, and will explore comet diversity. However, these observations and theoretical models cannot tell us how deep inside a comet the pristine material lies. The DI mission will provide information about the interior of a comet by excavating a crater to:

- observe how the crater forms
- document the final state of the crater
- measure the composition of the hot ejecta from the crater
- determine the changes in the natural outgassing produced by the impact

Deep Impact will be launched in January 2004 with an encounter on July 4, 2005. Prior to the encounter, the science team will conduct a vigorous program of ground- and space-based observing to characterize the nucleus of P/Tempel 1. This poster will present the mission science, the planned observing campaigns and discuss the educational outreach program