



Water Ice on Comet 103P/Hartley 2

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Abstract

The Deep Impact eXtended Investigation (DIXI) flew past comet 103P/Hartley 2 on November 4, 2010 [1]. Near-infrared (1-5 μm) spectra from the HRI-IR instrument [2] were obtained of the nucleus at resolutions up to ~ 25 m/pixel. Multispectral images were also acquired. Strong absorption bands due to water ice are seen both in the coma [1, 3] and in isolated areas on the nucleus. Notably an asymmetry is seen along the terminator, where in inbound images ice is seen on the surface and in outbound images jets are present and ice grains are detected in the coma. Efforts are underway to determine the abundance of water ice on the surface of Hartley 2 to help constrain the history of these deposits in relation to the comet's diurnal and seasonal cycles. In addition, these observations of Hartley 2 will be compared to those of 9P/Tempel 1 obtained with the same instrument during the Deep Impact prime mission [4].

[3] Sunshine, J. M., Feaga, L. M., Groussin, O. et al., Icy Grains in Comet 103P/Hartley 2, 42nd Lunar and Planetary Science Conference, 2011.

[4] Sunshine, J. M., A'Hearn, M. F., Groussin, O. et al., Exposed Water Ice Deposits on the Surface of Comet 9P/Tempel 1, Science 11, 2006.

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References

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[2] Hampton, D. L., Baer, J. W., Huisjen, M. A. et al., An Overview of the Instrument Suite for the Deep Impact Mission, Space Science Reviews, 117, 43-93, 2005.