



EPOXI at Hartley 2

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Abstract

The Deep Impact spacecraft, in its Deep Impact extended Investigation, flew past comet 103P/Hartley 2 on 4 Nov 2010. Many new phenomena were observed during the encounter.

1. Introduction

This talk will provide an overview of the encounter with comet Hartley 2, with details presented in other talks. The combination of imaging and mapping spectrophotometry shows that comets with small, hyperactive, nuclei (active fractions much greater than 10%) are driven not by outgassing of water but by outgassing of more volatile species, CO₂ in the case of Hartley 2, which drags out large, fluffy aggregates of water ice. These subsequently sublime to provide a significant fraction of the water vapor observed in the coma.

The outgassing from the nucleus exhibits significant chemical heterogeneity and we identify one example that is clearly evolutionary and another that is likely to be primordial.

The combination of data from EPOXI with remote sensing data shows clearly that the nucleus is rotating in an excited state that exhibits secular changes. Combination with other remote sensing data shows that the chemical abundance ratio CO/CO₂ < 0.02, which can not be explained by any models of the protoplanetary disk.

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References

[1] A'Hearn, M. F., et al.: EPOXI at Comet Hartley 2, *Science*, in press, 2011.

