

103P/Hartley 2: ground-based monitoring of the EPOXI flyby comet

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Comet 103P/Hartley 2 was the fly-by target of the NASA EPOXI mission. Observations of this comet during its previous perihelion passage [1] and in 2008 when it was in its aphelion arc [2, 3] revealed a small and very active nucleus. We observed 103P from March 2010 to January 2011 using the 4m SOAR telescope located at Cerro Pachon, Chile. We took images in UBVRI filters using the SOAR Optical Imager (SOI). In addition, we made use of the large collection of (mostly BVR) images taken of the comet by school pupils using the two robotic 2m Faulkes Telescopes, which cover the same period. At the time of the observations, the comet was moving from 2.8 AU pre-perihelion to 1.6 AU post-perihelion heliocentric distance, when the comet was expected to display the most activity. The main purpose of our observations was the characterization of the activity of comet 103P and its evolution along the perihelion arc. We searched for the presence of dust coma structures and their evolution with changing heliocentric distance and determined gas and dust production rates, the dust color and the variation in these quantities as the comet passed perihelion. While no coma structures were detected between March and July 2010, a clear anisotropy in the coma in the anti-tail direction was detected in images obtained in November 2011 (Fig. 1). At the same place, the Laplace filter detects what might be a jet.

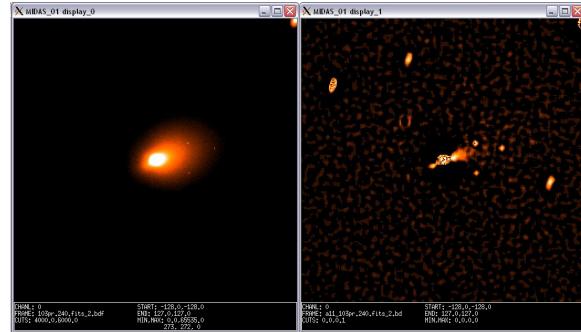


Figure 1: Left: Image of 103P/Hartley 2 taken on November 4, 2010. Right: Image after applying the Laplace filter.

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References

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