

Deep-impact event observations from India

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Imaging observations of the Deep-impact event were carried out from India in response to the International campaign for ground based observations. The Observations of comet Tempel 1 were attempted at the 102 cm aperture telescope at the Vainu Bappu Observatory at Kavalur and the 202 cm telescope at the Indian Astronomical Observatory at Hanle during June 29 to July 08, 2005 to get a good coverage of the pre- and post-impact scenario. The impact plume was recorded in the R band image on July 04, 8.9 hours after the impact. The average direction of the ejection cone is along $PA = 224 \pm 5$ Deg. Azimuthal cuts of the processed image in which the $1/r$ variation is removed, show interesting structures. Intensity enhancements in the plume, marking broad boundaries are noticed in the directions $PA = 180 \pm 15$ Deg and $PA = 280 \pm 10$ Deg. We use a photometric - dynamic model to compute the trajectories of the dust grains to simulate the morphology of the plume. It is assumed that all the matter was ejected in one burst. Mie scattering is used to estimate the scattered light by the grains. The model takes into account a range of grain sizes, grain velocities, solar radiation pressure forces on them and the geometry of ejection to simulate the morphology of the plume. We attempt to constrain the velocity of the grains and the location of the impact region on the nucleus of comet Tempel 1 using recently available values of the direction of rotation pole of its nucleus.