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COMET 9P/TEMPEL

C. W. Hergenrother, J. R. Weirich, and J. Keller, Lunar and Planetary Laboratory, University of Arizona, report the results of aperture photometry on the inner coma of comet 9P/Tempel with the Kuiper 1.54-m reflector via a series of 30- and 60-s *R*-band integrations. The inner coma experienced a rapid brightening immediately after the impact by the 'Deep Impact' spacecraft onto the comet's surface (around July 4.244 UT). The brightening began to level off $\approx$ 15 min after impact. By the time the comet was no longer observable, 70 min after impact, the brightening appeared to have plateaued. The following brightness increases were observed in apertures of varying diameters: $2''.6$, 2.15 mag; $3''.5$, 2.04 mag; $4''.4$, 1.92 mag; $5''.2$, 1.82 mag; $6''.1$, 1.74 mag; $7''.0$, 1.67 mag. The brightening was confined to the seeing disk of the pseudo-nucleus.

J. McGaha, Tucson, AZ, reports that comet 9P was observed with a low-light PC-164 video camera (exposing at 30 frames/s; spectral sensitivity peaking around 500–600 nm) attached to his 0.20-m *f*/4 reflector during July 4.240-4.257 UT; no flash was observed around the time of impact by the 'Deep Impact' spacecraft. Also, 90-s CCD images taken with a 0.62-m reflector during July 4.240–4.302 show no changes, the coma and tail showing very well in these images.

Total visual magnitude estimates by M. Linnolt (Woodside, CA, 0.20-m reflector), while the coma diameter remained steady at $2'.2$: July 4.2368 UT, 11.2; 4.2451, 11.2; 4.2500, 11.1; 4.2583, 10.9; 4.2674, 10.7.

M. Kidger, Instituto de Astrofísica de Canarias, reports that his "Observadores cometas" group has obtained almost 2000 CCD photometric points of the light curve of 9P/Tempel since October 2004. There is a strong suggestion of a periodic rapid rise and slow decline, with the best-fit period being $\approx 4.40 \pm 0.05$ days, in both the light curve and in dust production measured as $Af\rho$, that is presumably precessional.

COMET P/2005 M1 (CHRISTENSEN)

Additional astrometry and the following improved elliptical orbital elements appear on *MPEC* 2005-N20.

$$
\begin{array}{lll}
T = \text{2006 Jan. 31.809 TT} & \omega = 226^\circ.708 & \\
e = 0.30668 & \Omega = 143.046 & \text{2000.0} \\
q = 2.91826 \text{ AU} & i = 10.149 & \\
\end{array}
$$

$$a = 4.20910 \text{ AU} \quad n^\circ = 0.114135 \quad P = 8.64 \text{ years}$$

2005 July 4 *Daniel W. E. Green*