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COMET P/2009 Q1 (HILL)

R. E. Hill reports his discovery of a diffuse comet with no clear condensation and a 12″–15″ coma with a broad, diffuse tail ~ 20″ long in p.a. 250° on co-added 30-s exposures taken in 2″–3″ seeing on Aug. 27 with the Catalina Sky Survey 0.68-m Schmidt telescope (discovery observation tabulated below). Hill adds that Catalina images taken on Aug. 28.3 UT show a diffuse nuclear condensation with a 16″–20″ coma, the broad, diffuse tail being ~ 1′–2′ long, with similar appearance also on Aug. 29.3 images. After posting on the Minor Planet Center's 'NEOCP' webpage, other CCD astrometrists have also noted the object's cometary appearance. L. Buzzi (Varese, Italy, 0.60-m reflector; Aug. 28.1) notes a quite strong condensation and a diffuse tail ~ 30″ long in p.a. ~ 260°. G. Hug (Scranton, KS, U.S.A., 0.56-m reflector; Aug. 28.3) measured a tail in p.a. ~ 250°. E. Guido and G. Sostero (remotely using a 0.25-m reflector near Mayhill; Aug. 28.3, fifteen 120-s unfiltered exposures) report a diffuse coma almost 15″ in diameter. H. Sato (Tokyo, Japan, remotely using a 0.25-m reflector near Mayhill; Aug. 28.3) finds a diffuse 30″ coma with a wide tail of length ~ 1′.6. K. Kadota (Ageo, Saitama-ken, Japan, 0.25-m reflector; Aug. 28.7) notes a diffuse coma of diameter 0′.4 with a hint of tail toward the west. J. Lacruz (Madrid, Spain, 0.40-m reflector; Aug. 29.0, twenty co-added 2-min images) finds the object to be very diffuse with a round coma of size 12″ and a tail 20″ long in p.a. 249°. F. Fratev (Sofia, Bulgaria, 0.35-m reflector; Aug. 29.1, five 60-s unfiltered exposures) notes a diffuse coma nearly 10″ in diameter. D. Chestnov (remotely using a 0.41-m reflector at the Tzec Maun Observatory near Mayhill; Aug. 29.27) reports a diffuse 15″ coma with a short tail in p.a. 255°.

2009 UT	α_{2000}	δ_{2000}	Mag.	*Observer*
Aug. 27.40082	$23^h28^m45^s.19$	$-0°00'44''.8$	17.9	Hill

The available astrometry (including pre-discovery Spacewatch observations on Aug. 16), the following preliminary elliptical orbital elements, and an ephemeris appear on *MPEC* 2009-Q67.

$$\begin{array}{lll} T = 2009\ \text{July}\ 19.299\ \text{TT} & \omega = 162^\circ.358 & \\ e = 0.48459 & \Omega = 173.964 & \Big\}\ 2000.0 \\ q = 2.84860\ \text{AU} & i = 14.964 & \end{array}$$

$$a = 5.52688\ \text{AU} \qquad n^\circ = 0.075855 \qquad P = 12.99\ \text{years}$$

2009 August 29 *Daniel W. E. Green*