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COMET C/2009 U3 (HILL)

R. E. Hill reports his discovery of a comet (discovery observation tabulated below) on CCD images taken in 3″–4″ seeing with the Catalina 0.68-m Schmidt telescope, noting the object in co-added exposures to have an nuclear condensation of diameter ~ 5″–7″ elongated southwest-northeast, with a coma of diameter ~ 12″–15″, and a diffuse tail ~ 15″–20″ long in p.a. 220°–230°. A similar appearance was noted by Hill on four co-added 60-s exposures from Oct. 22.4 UT in slightly better seeing, noting a nuclear condensation of diameter ~ 10″–15″ and "no noticeable coma", with the broad, diffuse tail being ~ 20″ long in p.a. 220°. After posting on the 'NEOCP' webpage, other CCD astrometrists have also commented on the object's cometary appearance. G. Sostero, E. Guido, and P. Camilleri (fifteen co-added unfiltered 60-s exposures obtained remotely with a 0.35-m reflector at the Skylive-Grove Creek Observatory near Trunkey, Australia; Oct. 21.7) report a diffuse coma ~ 10″ in diameter with a central condensation and a tail ~ 12″ long toward the west; their further co-added frames on Oct. 22.6 also show a diffuse coma of size ~ 12″. Exposures taken by A. Asami and N. Hashimoto (Bisei Spaceguard Center 1.0-m reflector; Oct. 21.74–21.76) show a 15″ coma with a tail 25″ long in p.a. 235°. P. R. Holvorcem notes that three co-added 120-s exposures taken by M. Schwartz and himself on Oct. 22.4 with the Tenagra II 0.81-m telescope near Nogales, AZ, USA, show a coma diameter of 9″ with a 5″ tail toward p.a. 195°. A. D. Grauer (Mt. Lemmon 1.5-m reflector, Oct. 22.4) reported that his co-added 60-s exposures show a 9″ coma and a flared tail 15″ long in p.a. 230°. H. Sato (Tokyo, Japan, remotely using a 0.25-m reflector at the RAS Observatory near Mayhill, NM, U.S.A., on Oct. 22.5) finds a diffuse coma of diameter 15″. R. Miles writes that four stacked 15-s frames taken by G. Privett with the 2.0-m 'Faulkes Telescope North' at Haleakala on Oct. 22.6 show the comet to be elongated 5″.0 × 1″.5, aligned in p.a. 75°-255°.

2009 UT	α_{2000}	δ_{2000}	Mag.	*Observer*
Oct. 21.32407	$3^h50^m08^s.41$	$+14°50'23''.7$	17.6	Hill

Additional astrometry, the following parabolic orbital elements, and an ephemeris appear on *MPEC* 2009-U67:

$$T = 2010\ \text{Mar.}\ 11.739\ \text{TT} \qquad \left.\begin{array}{l} \omega = 83^\circ.676 \\ \Omega = 48.951 \\ i = 49.134 \end{array}\right\} 2000.0$$
$$q = 1.22986\ \text{AU}$$

2009 October 22 *Daniel W. E. Green*