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COMET P/2009 QG$_{31}$

An apparently asteroidal object discovered on CCD images taken remotely in the course of the "La Sagra Sky Survey" (LSSS), with a 0.45-m *f*/2.8 reflector located at Sagra mountain in southeastern Spain, has been found to show cometary appearance by CCD astrometrists elsewhere. The observation tabulated below was assigned "discovery" status after the Minor Planet Center linked "one-night" LSSS observations made on Aug. 19 with others made on Aug. 25 (though earlier LSSS observations were made on Aug. 16), and later LSSS and Catalina observations linked by the MPC allowed the issuance a comet-like orbit on Sept. 8 (*MPEC* 2009-R26).

2009 UT	α_{2000}	δ_{2000}	Mag.
Aug. 19.04841	$22^h45^m37^s.88$	$-10°10'38''.0$	18.4

Images obtained with a 0.40-m reflector on Sept. 10.0 UT by the LSSS team, to look for cometary appearance, showed no obvious coma, but images taken by A. F. Tubbiolo and R. S. McMillan with the Spacewatch 1.8-m reflector on Sept. 12.3 show the object to be diffuse with a coma $\approx$ $12''$–$15''$ in diameter. E. Bryssinck (near Cloudcroft, NM, U.S.A.; Tzec Maun 0.4-m reflector; Sept. 16.3) finds a coma diameter of $\sim 10''$. F. Hormuth, Almería, Spain, writes that three stacked 180-s images obtained with the Calar Alto 3.5-m telescope (+ prime-focus camera 'LAICA' + r' filter) on Sept. 17.9 show a nearly round coma of diameter $12''$. R. Miles, Stourton Caundle, Dorset, England, reports that images taken on Sept. 18.4 by G. Muler with the 2-m 'Faulkes Telescope North' at Haleakala show a faint coma of diameter $\sim 10''$. G. Sostero, E. Guido, P. Camilleri, M. Jaeger, W. Vollmann, and E. Prosperi report that 24 stacked, unfiltered, 60-s exposures obtained remotely with a 0.35-m reflector at the Skylive-Grove Creek Observatory (near Trunkey, Australia) on Sept. 18.5 show a round coma nearly $7''$ in diameter. R. Ligustri (Udine, Italy, 0.35-m reflector; Sept. 19.9) measured a coma diameter of $10''$–$15''$ from fifteen stacked 240-s images. Elliptical orbital elements from *MPEC* 2009-S67 from 53 observations, Aug. 16–Sept. 19 (the available astrometry appears on *MPS* 292728, 294488, 295077, and 295950):

$$\begin{array}{llll} T = 2009\ \text{Oct.}\ 10.4284\ \text{TT} & \omega = 5^\circ.9231 & & \\ e = 0.399346 & \Omega = 346.2506 & \left.\right\} 2000.0 & \\ q = 2.149305\ \text{AU} & i = 5.0628 & & \end{array}$$

$$a = 3.578274\ \text{AU} \qquad n^\circ = 0.1456108 \qquad P = 6.77\ \text{years}$$

2009 September 29 *Daniel W. E. Green*