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INTERNATIONAL ASTRONOMICAL UNION

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COMET P/2007 R1 (LARSON)

S. Larson, Lunar and Planetary Laboratory, reports his discovery of a comet on images taken in the course of the Mt. Lemmon Survey (discovery observation tabulated below), noting the object to have a 40'' coma and a very diffuse tail in p.a. $\sim 230^\circ$. Four co-added 60-s follow-up images by R. A. Kowalski with the Mt. Lemmon 1.5-m reflector on Sept. 8.4 UT in good seeing show a condensed comet 20'' in diameter, slightly elongated toward p.a. $\sim 230^\circ$. Following posting on the Minor Planet Center's 'NEOCP' webpage, numerous other astrometric observers have also commented on the object's cometary nature. G. Hug (Eskridge, KS, U.S.A., 0.7-m reflector) writes that his CCD frames taken on Sept. 8.3 show the object to be diffuse with a faint tail in p.a. $\sim 250^\circ$. L. Buzzi and F. Luppi (Varese, Italy, 0.60-m $f/4.64$ reflector) report that their images from Sept. 8.89–9.07 show a strong central condensation surrounded by a coma at least 15'' wide, with an extension towards the west. Fifteen stacked 60-s unfiltered exposures obtained during Sept. 9.03–9.08 by G. Sostero, E. Guido, and V. Gonano (Remanzacco, Italy, 0.45-m $f/4.4$ reflector) reveal the presence of a coma almost 12'' in diameter. C. Jacques and E. Pimentel (Belo Horizonte, Minas Gerais, Brazil, 0.30-m $f/3$ Schmidt-Cassegrain reflector) find a coma diameter of 20'' on their CCD frames from Sept. 9.1. E. Reina L. (Masquefa, Spain, 0.25-m $f/3.3$ Schmidt-Cassegrain reflector) finds the comet to be diffuse with a 23'' coma on images taken on Sept. 9.07–9.15. J. Young (Table Mountain 0.61-m $f/16$ Cassegrain reflector) reports that his images from Sept. 9.24–9.27 show a 8'' round coma with little central condensation and only a hint of some extension 12'' long at p.a. 260° .

2007 UT	α_{2000}	δ_{2000}	Mag.
Sept.4.37126	0 ^h 10 ^m 49 ^s .76	+1 [°] 49'44''.7	18.2

The available astrometry, the following preliminary elliptical orbital elements, and an ephemeris appear on *MPEC* 2007-R36.

$$\left. \begin{array}{ll}
 T = 2009 \text{ Feb. } 22.484 \text{ TT} & \omega = 249.888 \\
 e = 0.40046 & \Omega = 181.461 \\
 q = 3.77499 \text{ AU} & i = 9.725
 \end{array} \right\} 2000.0$$

$$a = 6.29652 \text{ AU} \quad n^\circ = 0.062381 \quad P = 15.8 \text{ years}$$