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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. ~ 230°. 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. ~ 230°. 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. ~ 250°. 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	$0^h10^m49^s.76$	$+1°49'44''.7$	18.2

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

$$\left.\begin{array}{lll} T = 2009\ \text{Feb. } 22.484\ \text{TT} & & \omega = 249^\circ.888 \\ e = 0.40046 & & \Omega = 181.461 \\ q = 3.77499\ \text{AU} & & i = 9.725 \end{array}\right\}2000.0$$

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

2007 September 9 *Daniel W. E. Green*