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COMET P/2009 R2 (PIGOTT-LINEAR-KOWALSKI)

R. A. Kowalski reports his discovery of a very diffuse comet of diameter 15″–20″ with a faint central condensation and a 29″ elongation in p.a. 280° on co-added 60-s CCD exposures taken with the Catalina 0.68-m Schmidt telescope (discovery observation tabulated below). Following posting on the Minor Planet Center's 'NEOCP' webpage, other CCD astrometrists have commented on the object's cometary appearance. P. Birtwhistle (Great Shefford, Berkshire, England, 0.40-m *f*/6 Schmidt-Cassegrain reflector, Sept. 11.2 UT) notes the object to be diffuse without obvious central condensation, with diameter 10″ and a 15″ tail in p.a. 265°. E. Guido and G. Sostero write that ten co-added 120-s unfiltered exposures (obtained remotely on Sept. 11.4 with a 0.25-m *f*/3.4 reflector located near Mayhill, NM, U.S.A.) show that this object is diffuse without a clear central condensation (coma diameter at least 10″, but affected by glare from a nearby field star). G. Hug (Scranton, KS, U.S.A., 0.56-m reflector, Sept. 11.43–11.46) finds the object to be very diffuse with slight condensation.

2009 UT	α_{2000}	δ_{2000}	Mag.	*Observer*
Sept.10.45934	$7^h41^m23^s.53$	$+43°19'46''.2$	18.3	Kowalski

D. Chestnov, Moscow, Russia, has both suggested and demonstrated that comet P/2009 R2 = P/2003 A1 (cf. *IAUCs* 8044, 8053, 8430). The offset of the 2009 discovery observation from the prediction on *MPC* 56803 and in the *2008/2009 Comet Handbook* is $\Delta\alpha \cos\delta = +15°.4$, $\Delta\delta = +8°.1$; it is meaningless to indicate a ΔT value because the prediction is strongly influenced by a very close approach to Jupiter (nominally 0.0605 AU on 2006 Sept. 10.4 TT). The following orbital elements by B. G. Marsden (from *MPEC* 2009-R40) linking the 2003 and 2009 observations (with the Jupiter approach as 0.0564 AU on 2006 Sept. 10.3), while only slightly different from the earlier 2003 result, has a 2009 orbital period that is as much as 0.20 year smaller than that of the prediction.

Epoch = 2009 May 9.0 TT

$$\begin{array}{lll} T = 2009\ \text{May}\ 11.2231\ \text{TT} & \omega = 340°.9475 & \\ e = 0.529893 & \Omega = 54.0711 & \Big\}\ 2000.0 \\ q = 1.769125\ \text{AU} & i = 44.0235 & \end{array}$$

a = 3.763240 AU $n°$ = 0.1350085 P = 7.30 years

2009 September 11 *Daniel W. E. Green*