

**Central Bureau for Astronomical Telegrams**  
**INTERNATIONAL ASTRONOMICAL UNION**

Mailstop 18, Smithsonian Astrophysical Observatory, Cambridge, MA 02138, U.S.A.  
 IAUSUBS@CFA.HARVARD.EDU or FAX 617-495-7231 (subscriptions)  
 CBAT@CFA.HARVARD.EDU (science)  
 URL <http://www.cfa.harvard.edu/iau/cbat.html> ISSN 0081-0304  
 Phone 617-495-7440/7244/7444 (for emergency use only)

*COMET C/2010 A4 (SIDING SPRING)*

On Jan. 12, G. J. Garradd reported his discovery of an apparently asteroidal object on CCD images taken with the 0.5-m Uppsala Schmidt telescope (discovery observation tabulated below); after posting on the Minor Planet Center's 'NEOCP' webpage, Garradd later reported the object being elongated  $\sim 10''$  in p.a.  $150^\circ$  but with no clear tail in four 60-s stacked exposures. Other CCD astrometrists have also commented on the object's cometary appearance, including W. H. Ryan (Magdalena Ridge Observatory, 2.4-m  $f/8.9$  reflector, Jan. 13.35–13.38 UT), who noted a tail in p.a.  $\sim 325^\circ$  in  $R$ -band images. E. Guido, Castellammare di Stabia, Italy, reports that twenty co-added 120-s unfiltered exposures taken by G. Sostero and himself remotely with a 0.25-m  $f/3.4$  reflector located near Mayhill, NM, U.S.A., on Jan. 13.4 show a diffuse coma nearly  $8''$  in diameter with a very weak central condensation. S. Foglia writes that thirty stacked 60-s images taken by R. Holmes (Ashmore, IL, U.S.A., 0.61-m reflector, Jan. 13.5) show the object to be diffuse.

2010	UT	$\alpha_{2000}$	$\delta_{2000}$	Mag.	<i>Observer</i>
Jan.	12.72144	$11^{\text{h}}02^{\text{m}}04^{\text{s}}.71$	$-27^\circ 10' 15''.5$	18.7	Garradd

Further astrometry, the following preliminary parabolic orbital elements, and an ephemeris are given on *MPEC* 2010-A76.

$$\left. \begin{array}{l}
 T = 2010 \text{ Oct. } 8.813 \text{ TT} \\
 q = 2.70743 \text{ AU}
 \end{array} \right\} \begin{array}{l}
 \omega = 272.446 \\
 \Omega = 346.731 \\
 i = 96.846
 \end{array} \Bigg\} 2000.0$$

*COMET P/2010 A1 (HILL)*

Additional astrometry has show this comet (cf. *IAUC* 9104) to be of short period; elements from *MPEC* 2010-A50:

$$\left. \begin{array}{l}
 T = 2009 \text{ Aug. } 9.353 \text{ TT} \\
 e = 0.55136 \\
 q = 1.94218 \text{ AU}
 \end{array} \right\} \begin{array}{l}
 \omega = 13.869 \\
 \Omega = 47.080 \\
 i = 10.265
 \end{array} \Bigg\} 2000.0$$

$a = 4.32903 \text{ AU} \quad n^\circ = 0.109426 \quad P = 9.01 \text{ years}$