Circular No. 8704

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://cfa-www.harvard.edu/iau/cbat.html` ISSN 0081-0304
Phone 617-495-7440/7244/7444 (for emergency use only)

COMET 73P/SCHWASSMANN-WACHMANN

G. A. Blake and C. Salyk, California Institute of Technology; B. P. Bonev, G. L. Villanueva, M. A. DiSanti, and M. J. Mumma, Goddard Space Flight Center; K. Magee-Sauer, Rowan University; and E. L. Gibb, University Missouri at St. Louis, report that component 'C' was observed on Apr. 7 and 16 UT using NIRSPEC at the W. M. Keck Observatory. On Apr. 7, H_2O (twelve lines, 2.9-μm hot-bands), C_2H_6 ($^RQ_0$ and $^PQ_1$ near 3.35 μm, ν_7 band), and HCN (six lines near 3.0 μm, ν_3 band) were detected. Sensitive upper limits for CH_4 (R0 and R1 near 3.3 μm, ν_3 band), CH_3OH (3.52 μm Q-branch, ν_2 band), and H_2CO (3.59 μm Q-branch, ν_1 band) were also obtained. H_2O (eight lines) yielded a rotational temperature of 55 $\pm$ 6 K; for HCN (six lines) the value was 52 K, and a rotational temperature of 55 K was assumed for other species. Production rates (10^{25} molecules/s) or upper limits (3σ) for Apr. 7 are as follows: H_2O (590 $\pm$ 60), C_2H_6 (0.9 $\pm$ 0.2), HCN (1 $\pm$ 0.1), CH_4 (< 1.5), CH_3OH (< 3), H_2CO (< 3). The preliminary abundance ratios are then $H_2O : C_2H_6 : HCN : CH_4 : CH_3OH : H_2CO = 100 : 0.15 : 0.2 : < 0.25 : < 0.5 : < 0.5$. On Apr. 16, the abundance ratios were: $H_2O : HCN : CH_4 : H_2CO = 100 : 0.2 : < 0.25 : 0.5 \pm 0.13$, respectively. The abundance ratios (relative to H_2O) of C_2H_6, HCN, CH_4, and CH_3OH in component 'C' of 73P are similar to those seen in C/1999 S4 (LINEAR), and are much lower than those of most other comets.

Further to *IAUC* 8703, three additional components to 73P have been observed on three or more nights and thus given designations ('AN', 'AO', and 'AP') and first announced on *MPEC* 2006-H26.

COMET P/1999 RE_{70} = (118401)

H. H. Hsieh and D. Jewitt, University of Hawaii (UH), report that two 120-s R-band images of this object (with $a = 3.20$ AU, $e = 0.19$), obtained on 2005 Nov. 26, show a tail $< 7''$ long in p.a. 90°; the images were made at the Gemini North Telescope during their survey of Themis-family objects under the suspicion that (118401) might show cometary activity along with other objects having similar main-asteroid-belt orbital elements [133P/Elst-Pizarro = (7968) and P/2005 U1]. Confirming observations from 2005 Dec. 22, 24, 25, 26, and 27 with the UH 2.2-m telescope also show the cometary appearance of (118401) — the Dec. 22 observation being made by J. Pittichová, and the rest by Hsieh; a co-added 9900-s image from Dec. 27 shows a faint coma with a fan-shaped tail $\sim 9''$ long in p.a. 90°.

2006 April 24 *Daniel W. E. Green*