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COMET P/2006 F4 (SPACEWATCH)

R. S. McMillan, Lunar and Planetary Laboratory, reports the Spacewatch discovery of a comet on CCD images taken by M. T. Read and himself with the 0.9-m reflector, the object being diffuse with a 6″ tail in p.a. 280° (discovery observation tabulated below). A. C. Gilmore reports that images taken on Mar. 30.6 UT with the Mt. John 1.0-m *f*/7.7 reflector show a moderately condensed coma $\sim$ 10″ in diameter with a hint of a diffuse tail on the west side. Astrometry and preliminary orbital elements [T = 2006 Apr. 15.1 TT, $\omega = 25^{\circ}.3$, $\Omega = 184^{\circ}.4$, $i = 12^{\circ}.5$ (equinox 2000.0), q = 2.362 AU, e = 0.349, P = 6.9 yr] appear on *MPEC* 2006-F53.

2006 UT	α_{2000}	δ_{2000}	Mag.
Mar. 26.35589	$14^{h}19^{m}57^{s}.50$	$-6^{\circ}55'40''.7$	19.9

RS OPHIUCHI

R. Gonzalez-Riestra, XMM-Newton Science Operation Centre, European Space Agency; M. Orio, National Institute of Astrophysics of Italy and University of Wisconsin; and E. Leibowitz, Tel Aviv University, write that RS Oph was observed with XMM-Newton on Feb. 26 for 400 minutes and on Mar. 10 for 197 minutes. At both times, prominent emission lines were observed with the RGS gratings, due to H-like and He-like transitions of N, O, Mg, Ne, Si, and Fe. The total flux was $\sim 1.4 \times 10^{-10}$ erg/s in the first observation and $\sim 1.1 \times 10^{-10}$ erg/s in the second. Some emission lines in the range 0.6–1.6 nm decreased in strength by the second observation, while other lines in the region 1.7–3.3 nm became much more prominent, especially O VII (1.897 nm) and N VIII (2.478 nm), due to a decrease of the column density of neutral hydrogen to a value not exceeding 3×10^{21} cm^{-2} on Mar. 10. The lines were blueshifted by 1100–1400 km/s in the first observation and only by a few hundred km/s in the second, and at both times, their full-width-at-half-maximum corresponded to at least 2000 km/s. Both EPIC-pn spectra showed also the Fe-K-α complex in emission, but it was significantly stronger in the February spectrum. During the second observation, after the first 2800 s, the EPIC-pn count-rate in the range 0.15–0.50 keV quadrupled in $\approx$ 1700 s, then decreased by 40 percent in the following 1500 s and remained approximately constant until the end. During the rise and fall, the power spectrum shows a significant signal with a period of 35.685 s. The EPIC-pn count-rate in the range 1–10 keV had non-correlated variations by 10 percent and no coherent oscillations.

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