Supporting Online Material for

“Ultraviolet Imaging Spectroscopy shows an active Saturn system”

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Fig. S1

Fig. S1. UVIS image of the Saturn magnetosphere in OI emission 2003 DOY 356–2004 DOY 11: The image of atomic oxygen emission from the Saturn system obtained in Cassini UVIS experiment observations from a range of 90–83 Mkm. Brightness values are given for the OI emission at 130.4 nm in units of Rayleighs. The image pixels are 1.4 X 1.4 in units of Saturn radii. North–south and east–west distances are indicated in units of Saturn radii, with origin at planet center. The orbits of Tethys, and Enceladus, are shown as solid white lines superposed on the image as projected from the viewing angle of the spacecraft. The dotted white lines show the limits of the main rings. The outline of
the position of Saturn is also shown with a line indicating the location of the equator. The sun is on the west (right) side of this figure, and the brightest oxygen emission faces the dark side of the planet. Brightness values are indicated on the figure. Atomic oxygen has never been observed before in the Saturn system, and this is the discovery image.

Fig. S2

Fig. S2: UVIS image of the Saturn magnetosphere in OI emission 2004 DOY 37–50: The image of atomic oxygen emission from the Saturn system obtained in Cassini UVIS experiment observations from a range of 71–65 Mkm. The image pixels are 0.9 X 0.9 in units of Saturn radii. North–south and east–west distances are indicated in units of Saturn radii, with origin at planet center. The viewing geometry from the spacecraft is unchanged from the previous figure. The emission distribution is expanded in the orbital plane and brighter than the previous month. The emission peak has moved outward from ~2.5 to 4. radii, and the distribution tends to be more uniform as a torus.
Fig. S3. UVIS image of the Saturn magnetosphere in OI emission 2004 DOY 51–92:
The image of atomic oxygen emission from the Saturn system obtained in Cassini UVIS experiment observations from a range of 64–45 Mkm. The image pixels are 0.75 X 0.75 in units of Saturn radii. North–south and east–west distances are indicated in units of Saturn radii, with origin at planet center. The overall size of the emission object has contracted from the previous month, but the peak emissions are increased and extend to 5 radii. The torus distribution remains moderately asymmetric with maximum brightness on the east side.
Fig. S4

Fig. S4. UVIS image of the Saturn magnetosphere in OI emission 2004 DOY 93–133: The image of atomic oxygen emission from the Saturn system obtained in Cassini UVIS experiment observations from a range of 45–28 Mkm. The image pixels are 0.42 X 0.42 in units of Saturn radii. North–south and east–west distances are indicated in units of Saturn radii, with origin at planet center. The overall size of the object continues to contract relative to the images from the previous two months, while peak brightness remains approximately the same as for the previous month.