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UVIS at Saturn

D. Shemansky
Space Environment Technologies, California, USA (dshemansky@spacenvironment.net)

Results from the UVIS stellar occultations at Saturn are the primary source of atmospheric structural information to be described here. Higher instrumental spectral resolution and much greater quantitative accuracy in knowledge of H_2 parameters allows the exploration of the state of the gas at the rotational level. At this time we do not have a solar occultation that would have provided direct measurement of the atomic hydrogen vertical distribution. Hydrocarbons are measured in more detail than from previous EUV experiments. The vertical abundance of aerosols is also expected to be derived in an analysis similar to that of recent work at Titan with the same instrument. The properties of the derived vertical structure show strong differences with previous results. The Cassini results indicate thermospheric temperatures lower than any previous analyzed occultations, and location of the hydrocarbon homopause substantially lower than previous reports. A mesopause is inferred at 600 km from the REV6 occultation at –40 deg latitude. A peak in the derived temperature at 1200 km is indicative of heat deposition that cannot be explained by direct solar input. Multiple occultations in 2006 are expected to provide direct results on latitudinal distribution of vertical structure, expected to be included in this report.