

## Jupiter's Polar Haze

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Images in the strong methane bands going back to the 1960's revealed Jupiter's polar haze but its significance as a source of information on polar stratospheric phenomena is becoming apparent only after several years of observations with ultraviolet filters on the Hubble Space Telescope WFPC-2 camera. A variety of observations from Voyager eclipse images (West, 1988 *Icarus* **75**, 381-398) to limb darkening at UV wavelengths show that the haze is a stratospheric phenomenon concentrated in the vicinity of the 1-10 mbar pressure level. Morphological features are unlike those seen in the troposphere and there is evidence for a direct link to auroral processes (Vincent et al., 2000 *Icarus* **143**, 205-222). An oval with about the same size and shape as Jupiter's Great Red Spot was seen in only one of the HST image sets and only in UV images (West, 1999 *Bull. Amer. Astron. Soc.* **31**, 1175). Polarization images show that the polar haze is highly polarizing at phase angles near 90 degrees, unlike tropospheric aerosols seen at lower latitudes (Tomasko and Smith, 1982 *Icarus* **51**, 558-592). This coupled with strong forward scattering suggest that the particles are aggregates of small (sub-micron) monomers (West and Smith 1991 *Icarus* **90**, 330-332). The particles are probably composed of hydrocarbons whose origins are tied to ion chemistry within auroral energy deposition zones.

This work was performed at the Jet Propulsion Laboratory, California Institute of Technology