

## Hubble Space Telescope Wide Field Planetary Camera 2 Observations of Neptune

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The Hubble Space Telescope Wide Field Planetary Camera 2 was used to observe Neptune on 28-29 June 1994. Planetary Camera images (0.046 arcsec/pixel) of one hemisphere of the 2.3 arcsec disk were acquired in 7 spectral passbands (255, 300, 467, 588, 620, 673, and 890-nm). The opposite hemisphere was observed in a subset of these passbands (300nm -673 nm). The near-UV images show an almost featureless limb-darkened disk. There is also very little contrast at most visible wavelengths outside of the strong methane bands, but the 673-nm images reveal several features seen by Voyager 2<sup>1</sup>, including the dark band near 60S latitude. We do not see the Great Dark Spot, but it would not be obvious if it were near the limb. Images in the strong methane bands at 619 and 890 nm show weak limb brightening, and several bright cloud features. The northern hemisphere is occupied by a single, bright, planet-encircling cloud band centered near 30N latitude. This may be the same bright feature discovered last fall in ground-based images of Neptune<sup>2</sup>. The tropics also appear about 20% darker than the disk average at these wavelengths. The southern hemisphere includes two discrete bright features. The largest and brightest is centered at 30S latitude, and extends for least 40 degrees of longitude, like the Bright Companion to the Great Dark Spot. There is also a thin cloud band at 45S latitude, which almost encircles the planet. An atmospheric radiative transfer model based on a multi-level, multi-stream discrete ordinate method is being used to analyze the center-to-limb profiles in these images to provide new constraints on the composition and vertical structure of the radiatively-active gases and aerosols in Neptune's atmosphere.

References: 1) Smith et al. Science 246, 1422, (1989). 2) Hammel et al. Bull. Amer. Astron. Soc., 25, 1077, (1993).