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Ultra Violet Imaging Camera on Venus Climate Orbiter

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Venus Climate Orbiter (VCO) is the first planetary meteorological spacecraft and installs 5 cameras taking clouds from infrared to ultraviolet wavelengths. One of the 5 cameras, Ultra Violet Imaging Camera (UVI), is designed to measure the ultraviolet scattering lights at 280nm and 365nm wavelengths from cloud tops of ~70km altitude. The field of view is 0.015° with 1024x1024 SiCCD. The spatial resolution is ~15km at apoapsis of 10Rv. The Venus atmosphere has broad absorption of solar radiation between 200nm and 500nm. SO2 at the cloud top absorbs the radiation in the region between 200nm and 320nm but the absorption above 320nm is due to another absorber that has not been identified yet. Identification of the absorber is important for the energy balance and dynamics of the Venus atmosphere. Tracking the cloud motion is used to investigate the dynamics of cloud, winds and wave phenomena. The typical size of the features is ~100km. The superrotation of the Venus cloud at ~70km altitude has the zonal velocity of ~100m/s. Therefore, the imaging of clouds by UVI will make clear the spatial and vertical distribution of the ultraviolet absorbers at the cloud tops, identification of unknown absorber, dynamics of cloud, and vertical distribution of haze above the cloud.