
[IS5] **Three Microns Spectroscopy of Hydrocarbons, HCN, and Haze in Titan's Atmosphere.**

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Using the United Kingdom Infrared Telescope and the Keck telescope we have obtained moderate and high resolution spectra in the 2.9-3.5 μ m interval. The spectra display a range of emission and absorption features from molecules, which our analysis shows are located at a wide range of altitudes in Titan's atmosphere. HCN, whose strong line emission lines arise in the upper stratosphere and mesosphere, has a mixing ratio in agreement with published model atmospheres, whereas C₂H₂, whose lines are in absorption is considerably less abundant at these altitudes than previously thought. Cloud decks at altitudes of \sim 10 mbar and \sim 100 mbar, and stratospheric haze are required to explain the wavelength dependent continuum emission in this wavelength interval, as well as the depths of the detected absorption bands of CH₄ and CH₃D.

[IS6] **Multiple Type II Events and their Flares and CMEs**

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We have examined the physical characteristics of 38 multiple type II solar radio bursts observed by Culgoora radio spectrograph during 1997-2003. These events were selected on the basis of certain criteria: (i) more than one report of type IIs within 30 minutes interval, (ii) both fundamental and harmonic should have been identified and reported for each of them. The X-ray flares and CMEs corresponding to these events are also identified using GOES and SOHO data. From the analysis of these events, the following physical characteristics are observed: (i) in many cases, two type IIs with fundamental and harmonic are observed, and the time interval between the two type IIs is within 15 min, (ii) more than 90% of these events are associated with both X-ray flares and CMEs, (iii) nearly 75% of the flares are greater than M1 class and nearly equal number of CMEs have width more than 200 degree or they are halo CMEs.