INFRARED OBSERVATIONS OF JUPITER FROM THE GROUND AT TIME OF CASSINI AND GALILEO ENCOUNTER

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Observations of Jupiter were made in infrared spectroscopy from ground based observatories to cover the Cassini/Jupiter encounter. Infrared observations on board Galileo and Cassini were taken from NIMS/Galileo (Carlson et al., Science, 1996), VIMS/Cassini (Brown et al., Space Sci. Rev., submitted) and CIRS (Kunde et al., SPIE, 1996), to cover several aspect of atmospheric and cloud structure, auroral variability and meteorology. Here, ground based infrared observations taken on the ESO/Antu 8 meter telescope on 2001, December 13 and 14, will be reviewed in the context of this encounter.

Observations were obtained with ISAAC instrument, in imaging spectroscopic mode, between 3.3 and 3.6 μm, at a spectral resolution of 1200, and a spatial resolution of 1 arcsec. Maps of Jupiter in the emission lines of H₃⁺ and CH₄ are obtained, together with cloud reflection maps at 3.52 μm. Variations of CH₄ fluorescent emission in the ν₃ + ν₄ − ν₄ band were measured for the first time from the ground, and are found to be lower than 20% on the disk, implying a variation in eddy diffusion coefficient at the homopause of Jupiter lower than 30%. The homogeneity of the turbulence of Jupiter in the upper stratosphere sounded in fluorescent emission of CH₄ contrasts with the variability observed in the lower stratosphere/upper troposphere (Edgington et al., Icarus, 1999).

For the observations of the auroral regions, a review of the future works available from the recorded observations will be given.

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