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T. Cavalié[1], F. Billebaud[1], E. Lellouch[2], N. Biver[2], M. Dobrijévic[1], J. Brillet[1], A. Lecacheux[2], A. Hjalmarson[3], A. Sandqvist[4], U. Frisk[5], M. Olberg[3] and The Odin Team.

[1]Université Bordeaux 1, CNRS, OASU, LAB, France ; [2]LESIA, Observatoire de Paris, France ; [3]Onsala Space Observatory, Sweden ; [4]Stockholm Observatory, Sweden ; [5]Swedish Space Corporation, Sweden.

The Infrared Space Observatory (ISO) has detected water vapor in the stratospheres of the giant planets and Titan and CO_2 on Jupiter, Saturn and Neptune (Feuchtgruber et al. 1997, 1999, Lellouch et al. 1997). The presence of the atmospheric cold trap implies an external origin for H_2O (interplanetary dust (IDP), sputtering from the satellites and /or rings, large meteoritic impacts). The sources of water on Jupiter could either be IDP or the Shoemaker-Levy 9 (SL9) comet's impacts (Moses et al. 2000, Lellouch et al. 2002).

The H_2O submillimeric line at 557 GHz was detected by the Submillimeter-Wave Astronomy Satellite (SWAS) in 1999 and 2001 (Bergin et al. 2000, Lellouch et al. 2002), but the vertical profile and the column density derived from the observations are different from the one obtained from ISO measurements (Lellouch et al. 2002). SWAS measurements favored an IDP source, whereas ISO observations favored a SL9 source.

The Swedish sub-millimeter satellite Odin carries out a long lasting monitoring of Jupiter's H_20 (110-101) 557 GHz line, since its launch in 2001. As an example, the high resolution H_2O spectrum obtained on November 8th, 2002, will be presented and discussed here. Both origins have been modeled with our photochemical model (Ollivier et al. 2000, adapted for Jupiter). Spectral analysis shows that a SL9 model gives better fits to the Odin and SWAS data than the IDP model. The column density derived is (2.7±0.5) 10^{15} $cm.s^{-2}$. The initial deposition level of the water by SL9 is found to be at (0.5±0.1) mbar, *i.e.* below the level inferred by Lellouch et al. (2002).

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