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Assessment of spectroscopic database archives for planetary atmosphere studies

N. Jacquinet-Husson, N.A. Scott, A. Chédin, R. Armante

Laboratoire de Météorologie Dynamique, Ecole Polytechnique, Palaiseau, France

Jacquinet@lmd.polytechnique.fr/ Phone +33 1 69334802

It is now well recognized that accurate modeling of radiative transfer phenomena in a planetary atmosphere requires very good knowledge of the parameters describing the radiation absorption or emission properties of the optically active gases involved in the medium considered. The increasing impact of physical techniques for the remote sensing of the thermal structure and composition of planetary atmospheres requires research to achieve a better understanding of molecular spectra of radiatively active gases and necessitates the compilation of accurate relevant spectroscopic data.

The purpose of the presentation is to give an assessment of the database and current laboratory spectroscopy, in the infrared to the microwave, for planetary atmospheric remote sensing, including:

- a review of the basic parameters involved in the data compilations;
- a summary of information on some public line parameter compilations, i.e.: the HITRAN (HIgh-resolution TRANsmission) molecular absorption database; the GEISA (Gestion et Etude des Informations Spectroscopiques Atmosphériques; word translation: Management and Study of Atmospheric Spectroscopic Information) database for terrestrial and giant planetary atmospheres; the JPL catalog for astrophysical studies. These databases overlap in that they include many of the same molecular transitions relevant to remote sensing;
- a summary of current laboratory spectroscopy works related with planetary atmospheres.

Finally, recommendations for further work in laboratory spectroscopy, to support planetary atmosphere measurements, will be presented.