Geophysical Research Abstracts, Vol. 7, 07339, 2005
SRef-ID: 1607-7962/gra/EGU05-A-07339

Fourier transform absorption spectroscopy of HDO in the visible and near-IR spectral regions

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This work presents new measurements of HDO line parameters in the visible and near-infrared regions (23 000 - 11 500 cm-1). The measurements were performed with a Fourier transform spectrometer coupled to a long-path multiple reflection cell. Spectra of a H2O/HDO/D2O vapor mixture were recorded with and without nitrogen as the buffer gas. The analysis and fitting of the HDO lines was preceded by a careful removal of the interfering H2O lines and a thorough D2O line identification. More than 3000 HDO lines have been identified, and a dataset of spectroscopic parameters with their associated uncertainties was derived. The line list provides calibrated line positions, intensities and, for many of the lines, N2-broadening coefficients and N2-pressure-induced frequency shifts. A comparison with available literature data is given.