THE HIGH-RESOLUTION SPECTRUM OF WATER VAPOR BETWEEN 11300 AND 13200 CM^{-1}

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The absorption spectrum of water vapor has been recorded between 11255 and 13160 cm^{-1}, with the Fourier-transform spectrometer (Kitt-Peak,Az) at the resolution 0.012 cm^{-1} and the path length of 434 m. The line assignment has led to the determination of 448 accurate energy levels of (131), (211), (013), (230), (112), (032), (310) and (051) vibrational states belonging to the so called 3nu+delta resonance polyad. Three spectra were used in analysis: 1.5 Torr, 17 Torr and data from Ref.1. Resonance interections with (160) and (080) belonged to higher polyad were taken into account during line assignment procedure.
The complete analysis of rotational energy levels of the second decade of the interacting vibrational states has been performed. A set of 100 rotational, resonance and centrifugal distortion constants for (131), (211), (013), (230), (112), (032) and (310) vibrational states has been determined by least square fitting with r.m.s. 0.03 cm^{-1} for 415 energy levels. Line intensities were determined from peak absorption for 762 lines.

1. R.Toth, J.Mol.Spectrosc. v.166, pp.176-183 (1994).