INVESTIGATION OF THE WATER VAPOR LINESHIFTS IN THE (010)-(000) AND (011)-(000) BANDS

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Water vapor lineshifts induced by nitrogen pressure have been measured at NIST (USA) and LPMA (France) using Fourier-spectrometers with a multi-pass absorption cells of 32 and 84 meters at 0.0025 and 0.01 cm^{-1}resolution in 1850 – 2230 $cm^{-1}$and 4900 – 5600 cm^{-1}spectral region. The special procedure have been used to minimize errors connected with the assymetry of the contours due to apparatus effects in high pressure FTS–spectra.

The fitting of Voigt contour parameters was used to obtain lineshift parameters. Accuracy of lineshift coefficient determination was better than 1 mk/atm. The lineshift coefficients have been determined for well resolved isolated lines belonging to 010–000 and 011–000 bands with high quantum numbers J up to 18.

The lineshift coefficients have been calculated using the Anderson method and cut-of-free procedure. The dipole-quadrupole, quadrupole-quadrupole, dipole-hexadecapole and polarizational interactions were included in the calculations.

The contributions of different type of intermolecular potentials and their dependences on J value will be discussed.

Time required: 10 min

Session in which paper is recomended for presentation: 4