

A new water vapour heterodyne spectrometer for sounding the stratosphere and mesosphere

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We will give an overview about the development status of a new 22 GHz water vapour heterodyne spectrometer. This instrument is supposed to provide vertical profiles of water vapour between 25 and 85 km. The receiver frontend including the horn antenna and an high sensitive indium phosphite HEMT amplifier is cooled to about 20 K and provides an excellent performance in terms of sensitivity and stability. The backend consists of a high resolution and a broadband chirp transform spectrometer. The first one covers 40 MHz bandwidth with a spectral resolution of 10 kHz and the latter one 400 MHz bandwidth with 100 KHz spectral resolution. We will describe the instrument in detail and provide first water vapour spectra (and possibly the retrieved vertical profiles).