



Validation of radiative transfer models in the highly absorbing water vapour band for hyperspectral infrared sounders

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To obtain high quality retrievals of water vapour in the upper troposphere and lower stratosphere using hyperspectral infrared sounders like IASI or the future MTG-IRS mission it is essential to calibrate the performance of the radiative transfer models in the high absorption region of the water vapour band.

To this end, reconstructed radiances using as atmospheric profiles the ones obtained from ground based co-located measurements cryogenic frost point hygrometers flying on radiosondes and RS-92 radiosondes together with a radiative transfer model (OSS) have been compared to IASI measurements. With the appropriate bias corrections in the humidity sondes it is possible to reproduce IASI radiances to within three sigma IASI instrument noise.

How this affects the accuracy of IASI retrieved humidity is also discussed.