



## Observation of tropospheric $\delta D$ by IASI and comparison with LMDZiso over the Western Siberia

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Western Siberia has undergone a sharp increase in temperature during the last decades, modifying the biogeochemical and the hydrological cycles. Water vapor plays an important role in the atmosphere including in the radiative transfer, cloud formation and precipitation. Information about evaporation/condensation processes of water vapor can be provided by water stable isotopologues such as H<sub>2</sub>16O and HDO.

This study presents the joint H<sub>2</sub>16O and HDO retrievals from Infrared Atmospheric Sounding Interferometer (IASI) spectra over Siberia. IASI is an instrument on board the MetOp-A European satellite launched in October 2006.

The global coverage of this instrument and the good signal-to-noise ratio allow us to provide information on  $\delta D$  over this region. IASI measurements may be used to estimate integrated  $\delta D$  between the surface and 3 km altitude or from 1 to 5 km depending on the thermal contrast between the surface and the low troposphere. The retrieved data are compared to simulations from an isotopic GCM, LMDZiso, for 2011. The data show variations that are well correlated with the model at seasonal ( $r$  up to 0.8) and day-to-day ( $r \approx 0.6$ ) time scales. The IASI-based retrievals and the model capture also well the seasonal variation of the specific humidity in the [0-3km] and the [1-5km] altitude ranges.