



## **Humidity 3D field comparisons between GNSS tomography, IASI satellite observations and ALARO model**

H. Brenot (1), C. Champollion (2), A. Deckmyn (3), R. van Malderen (3), N. Kumps (1), R. Warnant (4), and M. De Mazière (1)

(1) Belgian Institute for Space Aeronomy, UV-vis, Brussels, Belgium (hugues.brenot@oma.be, +32 2 373 0 369), (2) Geoscience Montpellier, France, (3) Royal Meteorological Institute of Belgium, Brussels, Belgium, (4) University of Liège, Liège, Belgium

The number of GNSS (GPS, GLONASS, Galileo) satellites and ground receivers will significantly increase in the next several years. From these observations a better monitoring of the troposphere is expected using tomographic imaging. For the moment the limitation of GNSS tomography is still due to a weak geometric representation. For this reason we present the importance exploiting horizontal gradients of delays to improve horizontal and vertical resolution of water vapour density retrieved by tomographic method. Our study will focus on GPS data from Belgian dense network (baselines from 5 to 30 km) and adjustments of tropospheric parameters (zenith delays, horizontal gradients, and slant integrated water vapour in direction of visible satellites) using GAMIT geodetic software. We will present humidity 3D field comparisons between GNSS tomography, IASI satellite observations and ALARO model for different weather situations.