



## **Geodetic Mobile Solar Spectrometer (GEMOSS): Comparison with the Microwave Radiometer of the Altimeter Satellite Jason (JMR)**

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Satellite Radar Altimeter missions are of vital importance for the determination of the ocean's sea level and its variability in space and time. In order to extract data of highest quality it is essential to validate and calibrate the spaceborne Altimeter Microwave Radiometers (AMR), which are used to correct for significant errors caused by the tropospheric water vapor. A new instrument for high-precision determination of tropospheric water vapor has been realized in the construction of the GEodetic MOBILE Solar Spectrometer (GEMOSS) at the Geodesy and Geodynamics Laboratory (GGL, ETH Zurich, Switzerland) in collaboration with the Institute for Analytical Sciences (ISAS, Berlin, Germany). The optical approach as applied to the spectrometer allows to simultaneously measure numerous single vibrational-rotational absorption lines in the wide wavelength range between 728 nm and 915 nm. Dedicated field experiments have been carried out in the frame of the EU project GAVDOS for calibrating the Jason on-board microwave radiometer (JMR). A comparison of the spectrometer results with a conventional ground-based water vapor radiometer and radiosondes revealed a fit on the order of 10 mm for the wet path delay, which corresponds to 1.6 kg/m<sup>2</sup> precipitable water vapor. The comparison with the measurements from the radiometer of Jason reveals an even better agreement at the 1-2 millimeters level for the wet path delay. The mobile solar spectrometer can be considered as a novel portable tool for determining tropospheric water vapor and as an excellent ground-based calibration

and validation system for space-borne radiometers. The presentation will introduce the new GEMOSS measurement system as well as the results of the three campaigns carried out in Greece on Jason subtracks.