Estelle
Obligis
CLS
Bruno Picard, CLS
Marie-Laure Frery, CLS
Nicolas Picot, CNES
Oral
The altimeter measurement of the sea surface height is impacted by the delay due to humidity in the atmosphere. Therefore a microwave radiometer is added on board altimetry missions to determine accurately this wet tropospheric correction (dh). The inversion of a set of brightness temperatures (TBs) measured by a microwave radiometer at the location of the altimeter footprint allows the retrieval of this correction with a global accuracy around 1 cm rms (Ruf et al, 1994).
For NASA/CNES mission, the radiometer performs measurements around the water absorption line (21 or 23.8 GHz), around 35 GHz to take into account cloud liquid water content (37 or 34 GHz) and finally a low frequency channel (18 or 18.7 GHz) to take into account the surface contribution.
In the case of ESA missions (ERS-1, ERS-2, Envisat, and Sentinel-3), a bifrequency radiometer is used and the lack of the low frequency channel is partly compensated by the use of the altimeter wind speed (for ERS-1 and ERS-2 missions) or backscattering coefficient in Ku band (Envisat, Sentinel-3).
The SARAL AltiKa mission has been successfully launched 25th of February of this year. The AltiKa altimeter performs measurements in Ka band and the microwave radiometer at 23.8 GHz and 37 GHz.
The first objective of this paper is to present the performances of a standard neural algorithms based on the use of both TBs and altimeter backscattering in Ka band and the different issues that have been raised with in-flight measurements. The second one is to propose other retrieval algorithms using additional inputs (model or altimeter wind speed, SST...), and to assess their performances.

OSTS session
Instrument Processing
Meeting name
Ocean Surface Topography Science Team (OSTST) Meeting
Download to PDF