

UTH CDR Quick Start Guide

UTH = Upper Tropospheric Humidity (A measure of the relative humidity in the upper troposphere that is derived from 183.31+/-1 GHz brightness temperatures)
CDR = Climate Data Record

Main contents:

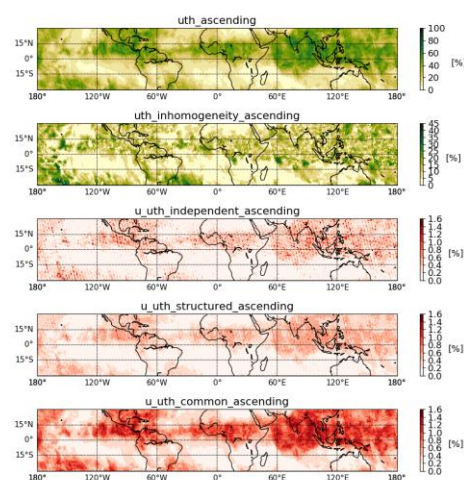
- Monthly averages of 183.31+/-1 GHz brightness temperatures (BT) and UTH on a regular latitude/ longitude grid covering the tropical region
- Estimates of uncertainty associated with the measurement



All variables are split into contributions from ascending and descending satellite overpasses.

Principal variables to explore (see Figure on the right):

- UTH – the monthly mean UTH from ascending and descending satellite overpasses
- UTH_inhomogeneity – standard deviation of all daily UTH values entering the monthly average
- u_uth_type – one of three components of measurement uncertainty (independent, structured, common) for UTH
- The same variables (mean, standard deviation, uncertainties) for cloud filtered BT and unfiltered BT



Example content: Monthly mean and standard deviation of UTH from ascending satellite branches (first and second panel) as well as three classes of measurement uncertainty

What is novel about this CDR?

- It is based on the FIDUCEO **Microwave easyFCDR**: The calibration has been improved with a measurement function approach, providing consistent calibration for the MHS, AMSU-B and SSMT-2 instrument. This new approach significantly reduces inter-satellite biases.
- A **new definition of UTH** is used: It works equally for microwave and infrared observations and will hence allow to combine the microwave UTH CDR with a future CDR that is based on HIRS observations.
- **Uncertainty information** is provided:
 - Metrologically traceable estimates of uncertainty associated with the measurement process are included in the CDR
 - Additional uncertainties that arise during the processing (e.g. due to cloud filtering and the method that is used to derive UTH) as well as due to the sampling pattern of the satellite and drifts in the orbit are summarised and explained in the Product User Guide