

Title: CLAMPS1 Microwave Radiometer Data

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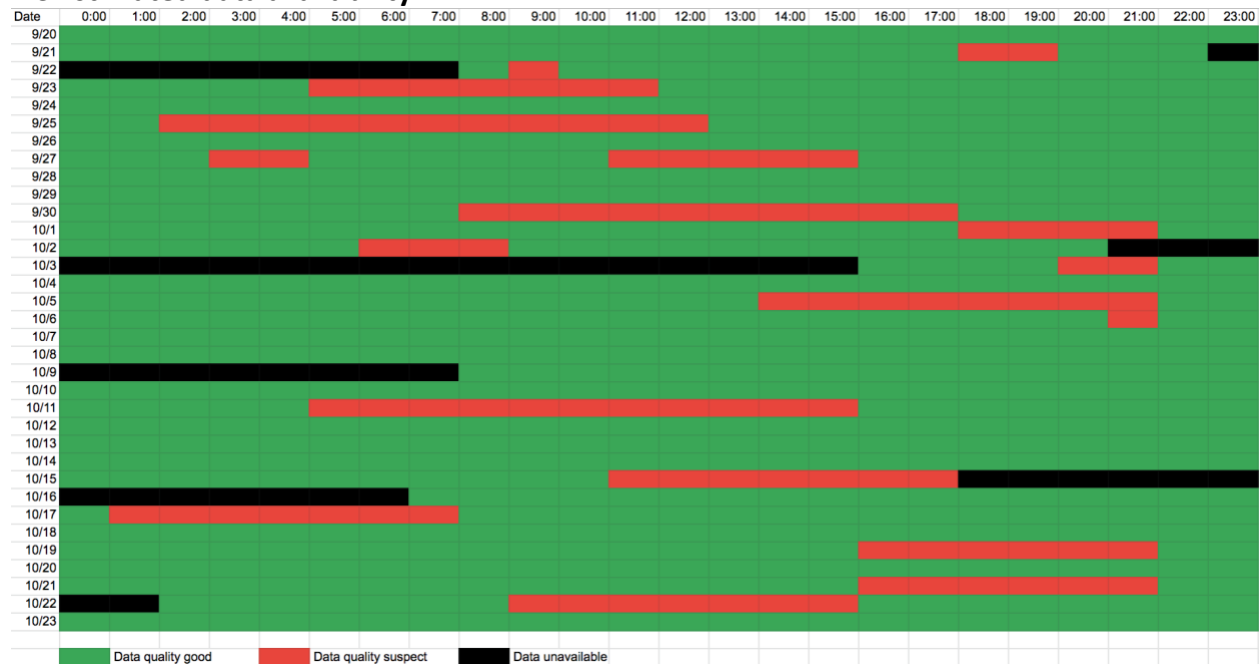
1.0 Dataset Overview

These files contain 24 hour periods of brightness temperatures and retrieved liquid water path and precipitable water derived from observations collected by the CLAMPS1 microwave radiometer (MWR). The retrieved values are computed by a statistical retrieval based on Turner et al. 2007. These data were collected during the CHEESEHEAD project.

1.1 Date range: 19 September – 23 October 2019

1.2 Location: Lakeland Airport Site; 45.92 N, 89.73 W, 495 m elevation

1.3 Estimated data availability



2.0 Instrument Description

The CLAMPS1 platform includes a RPG HATPRO MWR. The MWR measures downwelling microwave radiance in 14 channels from 22.2 to 60.0 GHz at 1 s temporal resolution. This MWR has a Vaisala all-weather met station included. This station is positioned about two feet above the back of the CLAMPS trailer.

3.0 Data collection and processing:

A simple statistical retrieval is performed to retrieve precipitable water vapor (PWV) and liquid water path (LWP) from the observations at 23.8 and 31.4 GHz (Turner et al. 2007).

4.0 Data format:

Data are provided in netcdf format. The typical naming convention is clampsmwrc1.a1.YYYYMMDD.hhmmss.cdf, following closely to ARM file naming convention.

Variables provided (only selected variables noted here):

Name	Dimension	Unit
base_time	Single value	Seconds (since 00 UTC 1 Jan 1970)
time_offset	Time	Second (since base_time)
hour	Time	Hours since 00UTC this day
*_sfc	Time	Var. dependent, sfc measurements of T, rh, P
tbsky	Time, Freq.	K, sky brightness temperature
pwv	Time	cm, precipitable water vapor
lwp	Time	g/m ² , liquid water path

5.0 Data Remarks

This instrument was calibrated for this deployment. It is possible that the trailer is affecting these met station observations in some conditions. Note that the wind directions in this file may be in error as the orientation of the trailer is often not accounted for in the automatic processing of the netCDF files. Note that the data files may say that the orientation was accounted for when it was not.

6.0 References

Turner, D.D. and coauthors, 2007: Retrieving Liquid Water Path and Precipitable Water Vapor From the Atmospheric Radiation Measurement (ARM) Microwave Radiometers. IEEE TGRS, 45, 11.