U of Miami Radiometer and Weather Station Report, March 4, 2012

Location: NCAR S-PolKa Radar site, Addu Atoll, Maldives, northeast corner
Dates: 6-October-2011 through 15-Jan-2012
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The datasets submitted here are preliminary and not intended for publication. Please contact if you desire to use.

A Radiometrics PR203090 radiometer and associated Vaisala WXT weather station were set up at the S-PolKa site on the northeast corner of the site. This is a multi-channel (21 between 22 to 30 GHz and an additional channel at 89 GHz) scanning radiometer. The radiometer itself is identical to the DOE radiometer (built by the same company at approximately the same time) but the two radiometers used different scanning strategies intended for different goals.

Scanning Strategy and Scientific Goals

The scanning pattern consisted of, for every 15 minutes:
1. First 5 minutes on low-elevation scans.

These will be used to help constrain the SPol-Ka humidity and liquid water content retrievals. A new constant-15degree elevation scan was implemented on Oct. 15 to help assess the contribution of surface emission/reflection.

2. 30-second vertical scans every minute for 10 minutes, at 22.234, 23,034, 23.834, 26.234 and 30.0 GHz.

Vertically-integrated water vapor paths and liquid water paths are statistically retrieved from the 23.834 and 30 GHz brightness temperatures. For the initial submission to the DYNAMO EOL data archive, retrieval coefficients developed from a historical Gan radiosonde database by DOE microwave mentor Maria Cadeddu were used. The other brightness temperatures are available for future research into their information content on vertical humidity structure.

3. Tipping calibration scans at 30 and 45 degrees elevations at two opposite azimuths.

The submitted data to the EOL dynamo archive also contains measurements from the Vaisala weather station (pressure, relative humidity, temperature, zonal and meridional winds). These will be affected by the site location, and should be checked against the values gathered by the NCAR GPS weather on the southeast corner of the site to distinguish large-scale features from local effects.

Two netcdf datafiles have been created: one contains the initial WVP and LWP retrievals, the other contains the surface meteorology information. Daily images of the radiometer and met station data are available as pngs.