Radiometer(s) update:

- 183/90 GHz radiometer
- HIAPER Airborne Radiation Package

183/90 GHz radiometer (newer version since VOCALS)

- 183 GHz (4channels) present on RF01-RF13
- missing data for RF07 & RF10

- 90 GHz (single channel) on RF14-RF16
- recall: upward-looking only
- applications:

LWP on sub-cloud legs

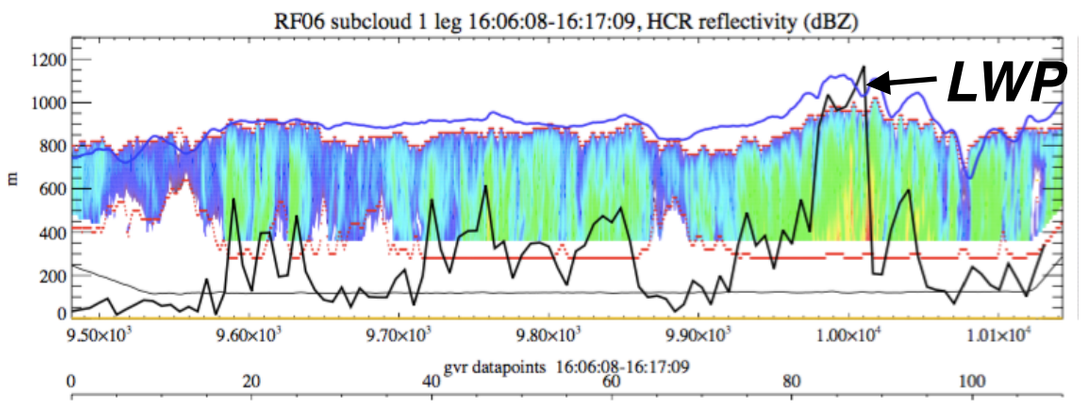
(cloud characterization, microphysical retrieval),

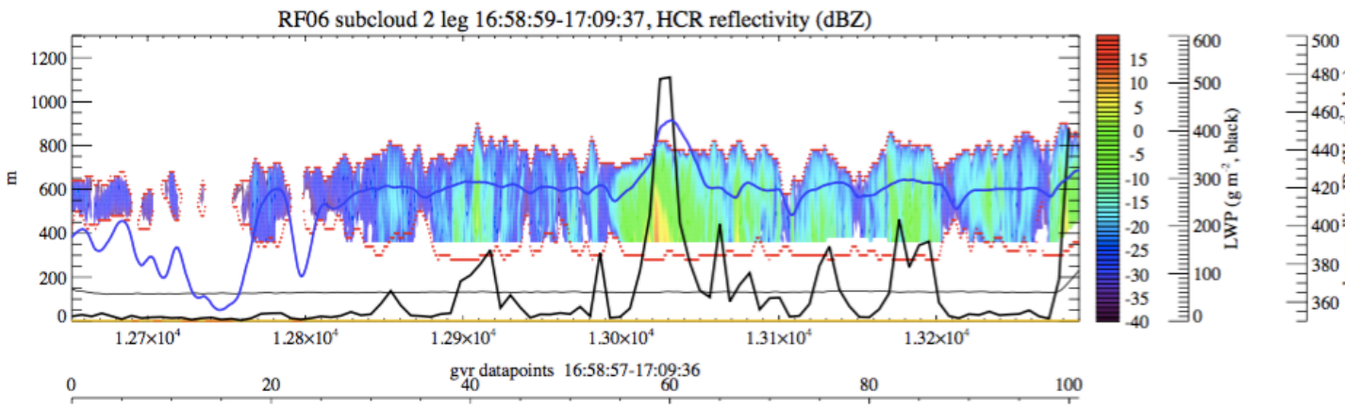
free-tropospheric WVP on above-cloud legs

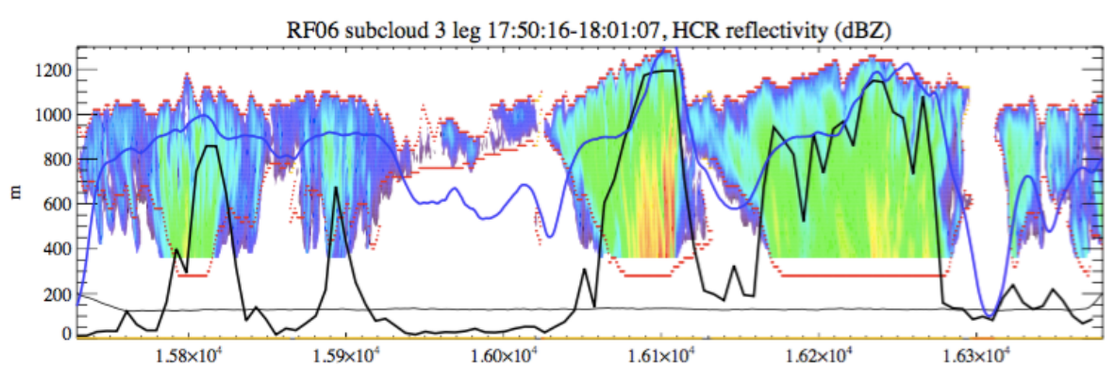
(characterization, connect to downwelling infrared, compare to ERA-I)

current retrieval from Andrew Pazmany relies on neural net based on Amherst, MA soundings

values, based on RF06, are reasonable







currently at ~ 6 second resolution, will redo @ 1Hz
will aim to get submitted to data archive in July

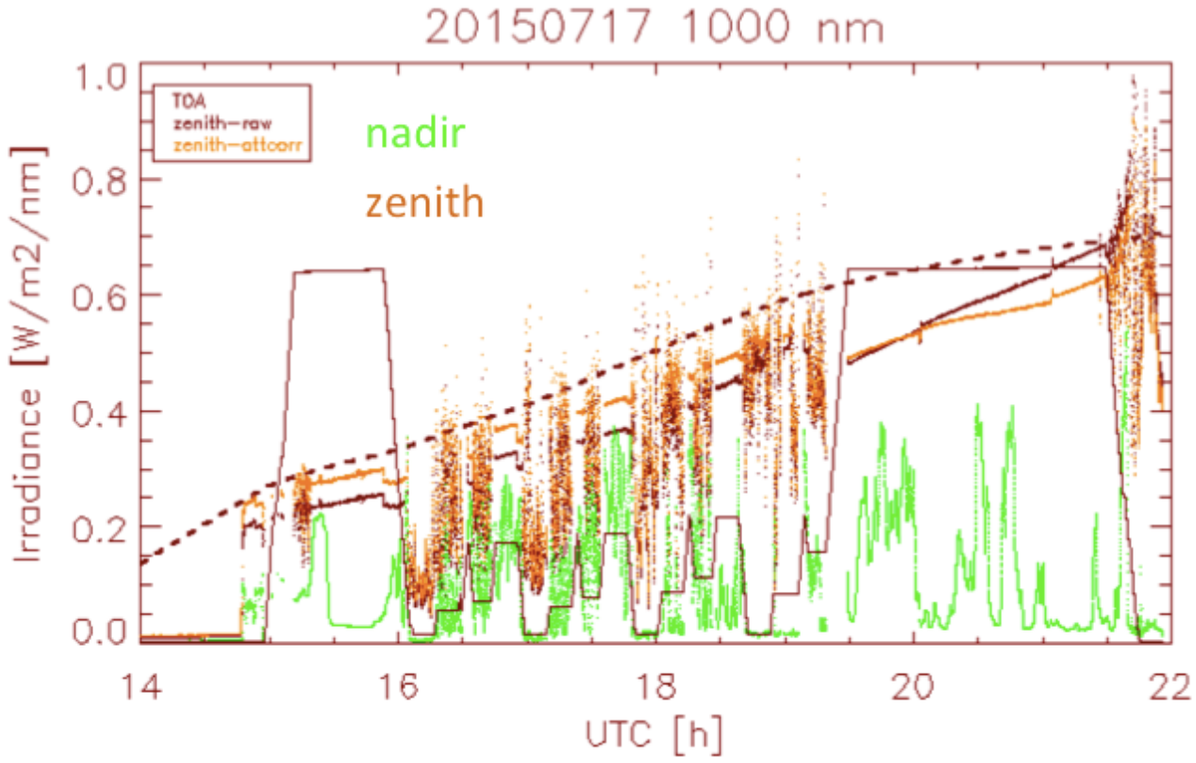
Status shortwave spectral irradiance data from CSET HIAPER Airborne Radiation Package (HARP)

Sam Hall, Kirk Ullmann, Paquita Zuidema, Sebastian Schmidt, Bruce Kindel

- System ran without leveling platform
- Most recent radiometric calibrations applied and data uploaded to archive
- Aircraft attitude corrections have been done, but not uploaded to archive
- Recent updates to angular light collector response have been made recently, they still have to be processed

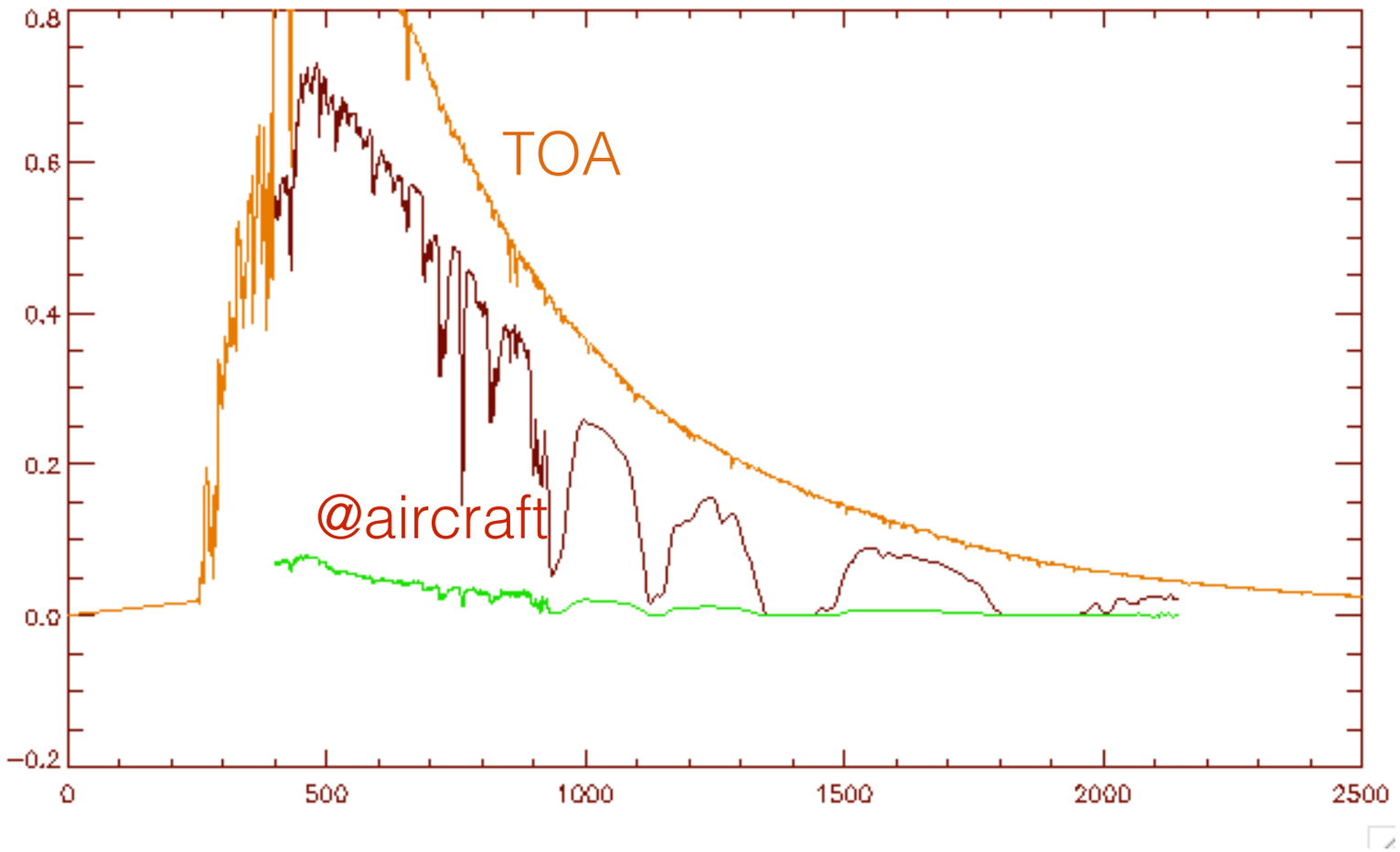
Example from 7/17 (time series only)

It shows that the downwelling irradiance ("zenith") may not be quite reliable, also after applying the attitude correction ("attcorr")



HARP: spectral irradiance ~260-2200 nm, resolved to 1 nm
applications: cloud property retrievals, cloud albedo

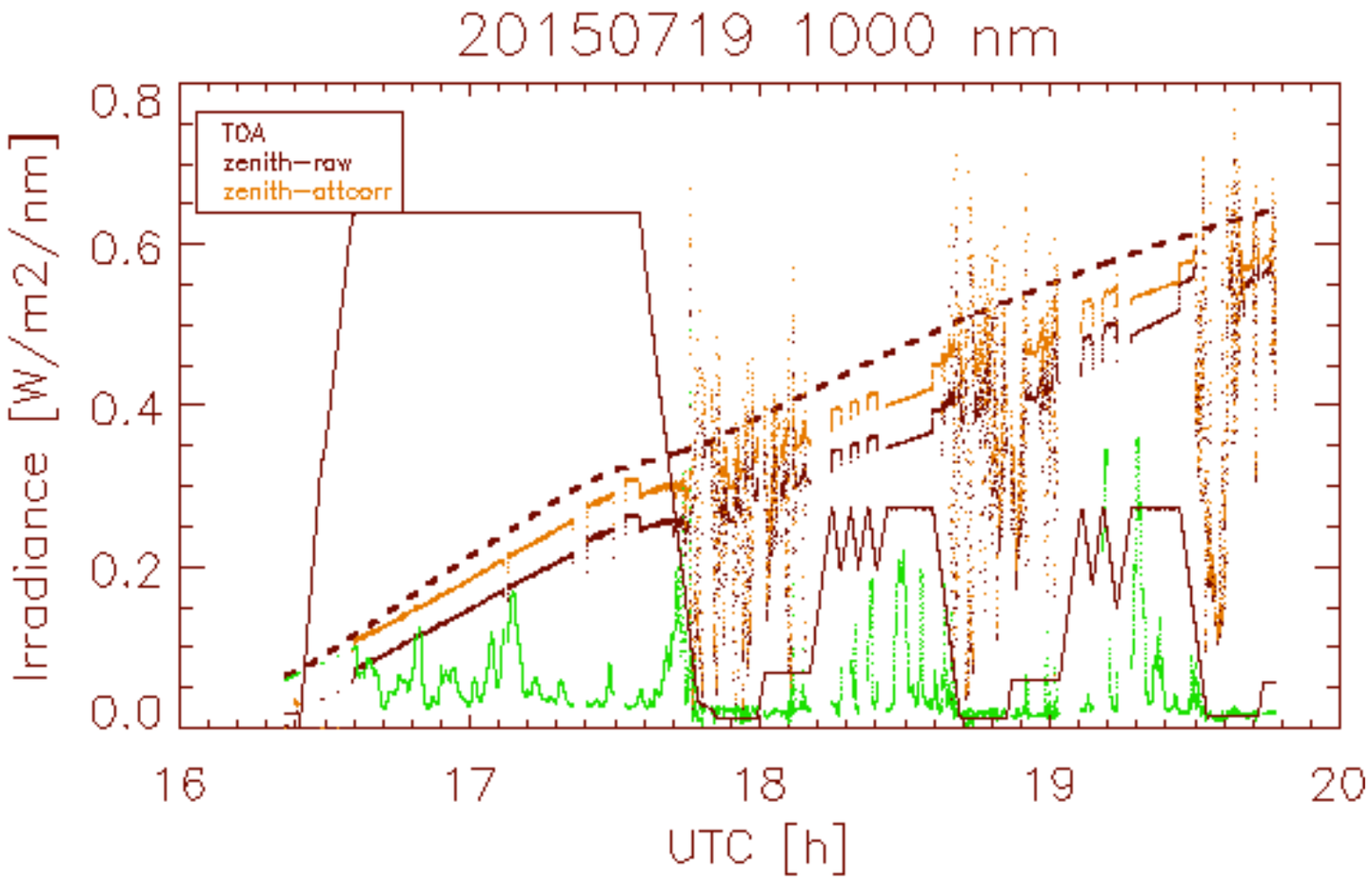
W m-2



status:

- original measurements are ‘counts’ from an unstabilized platform
- converting to something useful through collaboration with Sebastian Schmidt

need to know: angular response (to convert radiance to irradiance)
work continues



Status shortwave spectral irradiance data from CSET HIAPER Airborne Radiation Package (HARP)

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- Cloud retrievals:

1) Above clouds (reflectance mode)
   Use upwelling irradiance (not albedo!) because the downwelling zenith measurements that go into the albedo may be affected by aircraft attitude upwelling irradiance, on the other hand, is not affected to the same degree
2) Below clouds (transmittance mode)
   Use downwelling irradiance (this is possible because it is entirely diffuse ar therefore less affected by the attitude correction).

- Code currently being adapted from earlier experiment TORERO
- HSRL will be good resource for vertical cloud location, helps with cloud mask