# COSMIC-2 Data processing

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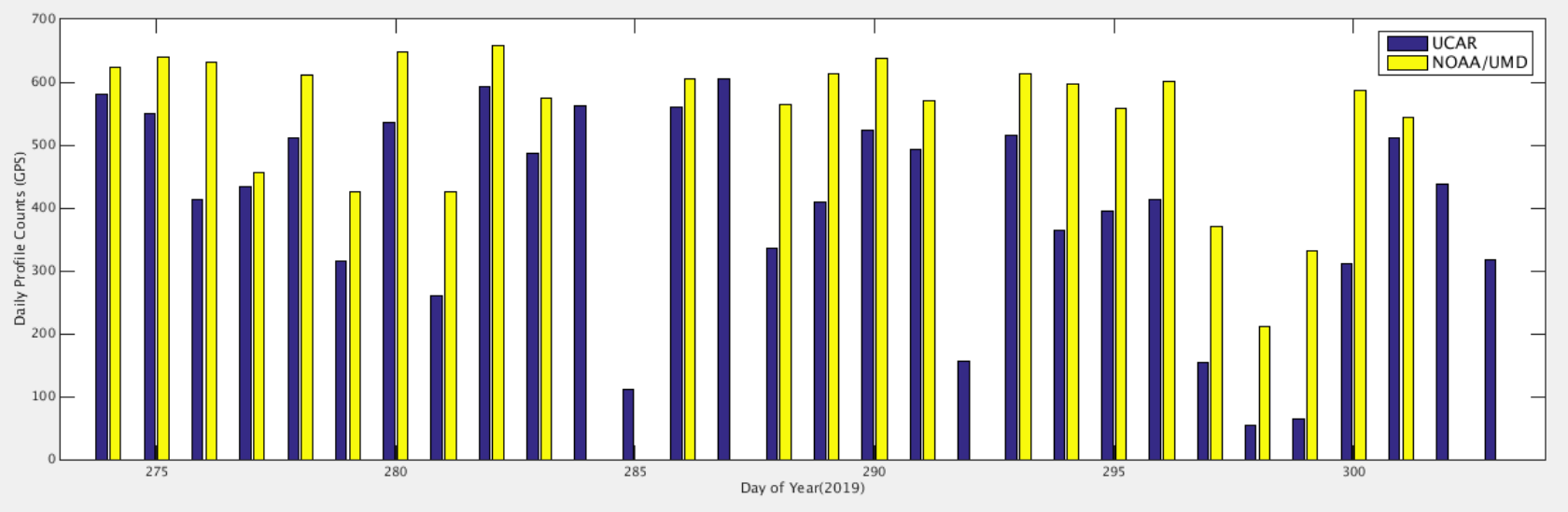
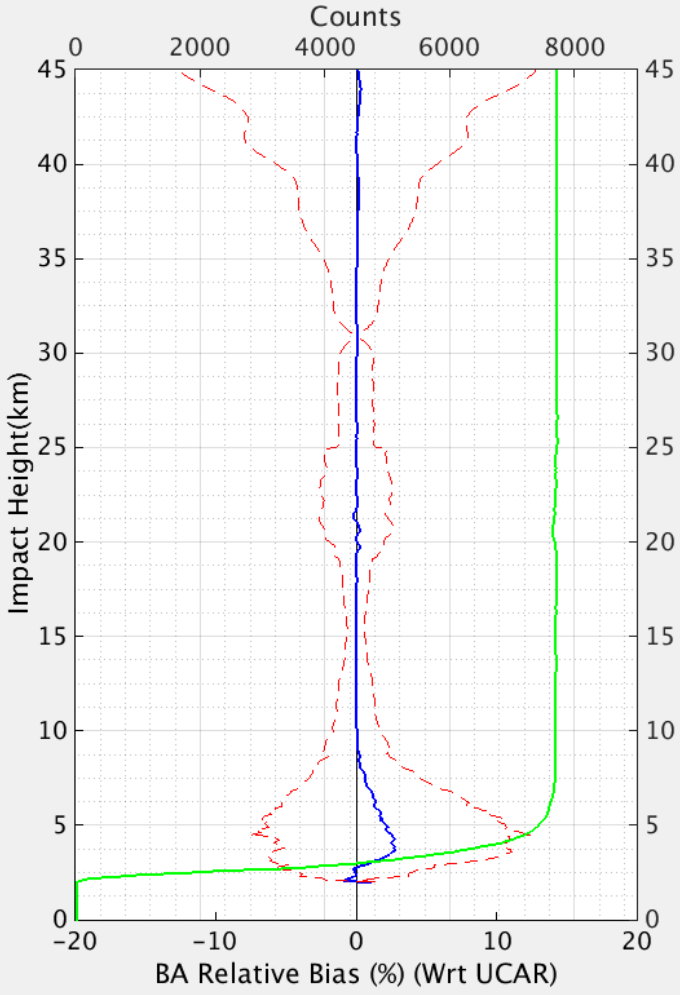
# RO Profile Counts




Generally, we have more Bending Angle profiles than UCAR.
But need quality check however.
Total NOAA/UMD profiles: 13101 (before quality check)
Total UCAR Profiles: 9788 (all profiles)

# Optimized BA Comparison




Bending Angle Comparison (Ionospheric Corrected (L1+L2)).

Total profiles in comparison: 8911 (common for both UCAR and UMD), data points ~7900.

Profiles data points counts

Mean Bending Angle Bias (wrt UCAR)

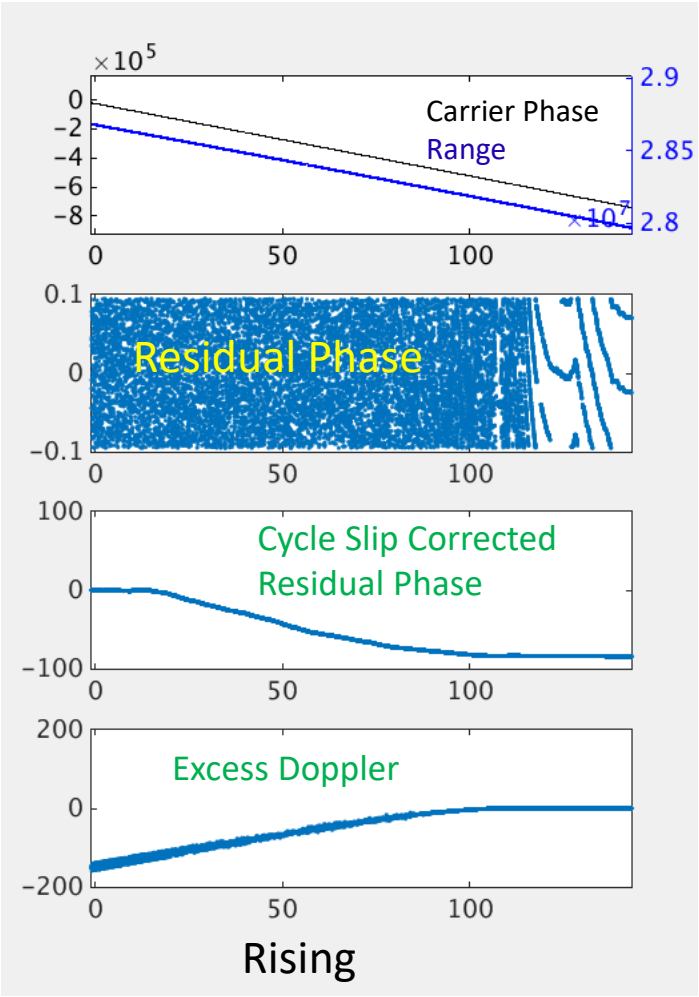
BA bias standard deviation

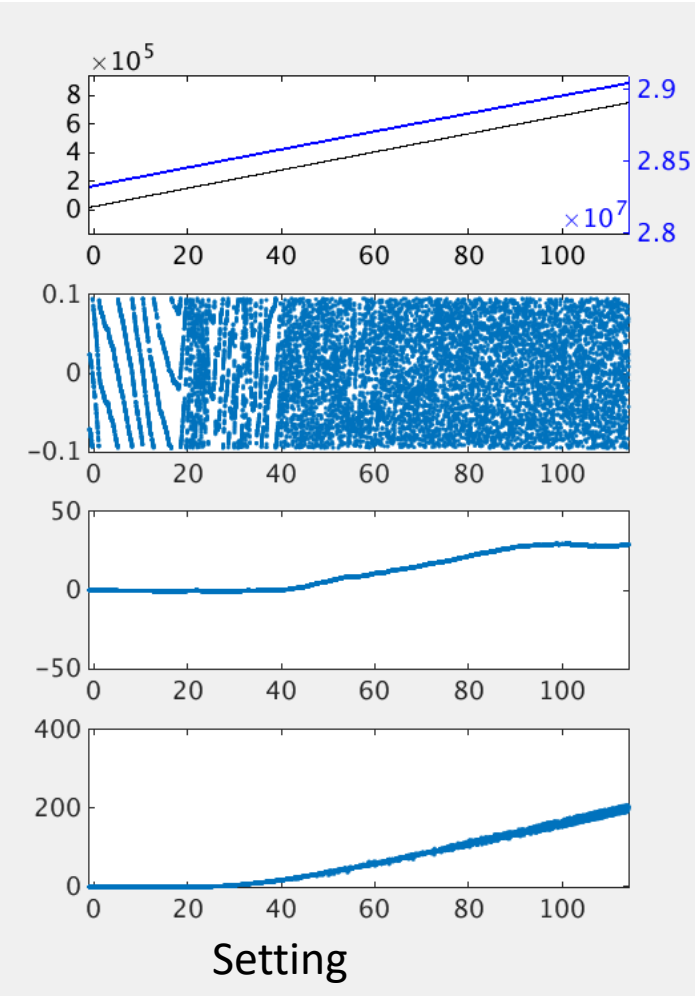
Will update with new excess phase, but do not expect significant changes

# Updated Antenna offset and clock bias low pass filter

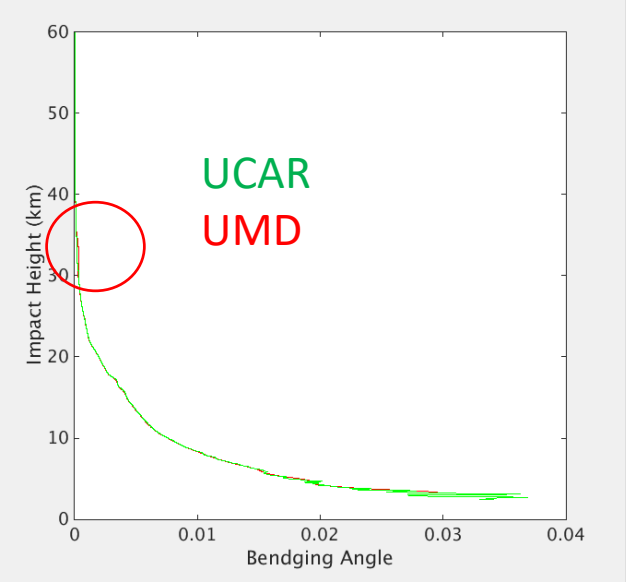
- Expected a more smooth/less variation bending angle profiles (have not done the one month statistics) in the upper layer by apply a low pass filter to the RINEX carrier phase.
- Antenna offset correction should be small.
- Will update the bending angle files in a few days.

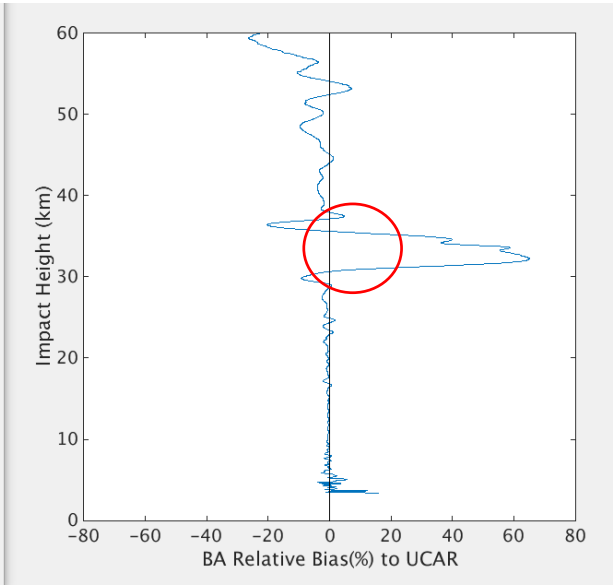
# Carrier Phase to Excess Phase

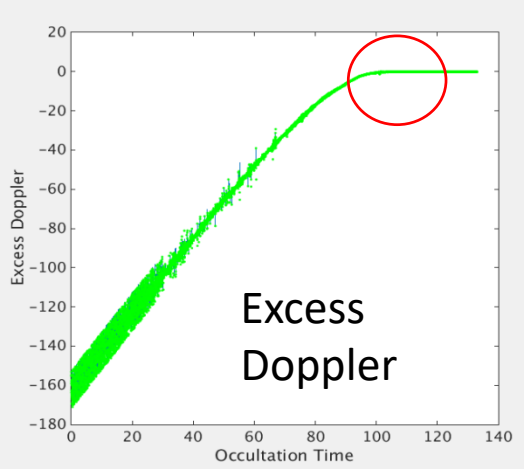


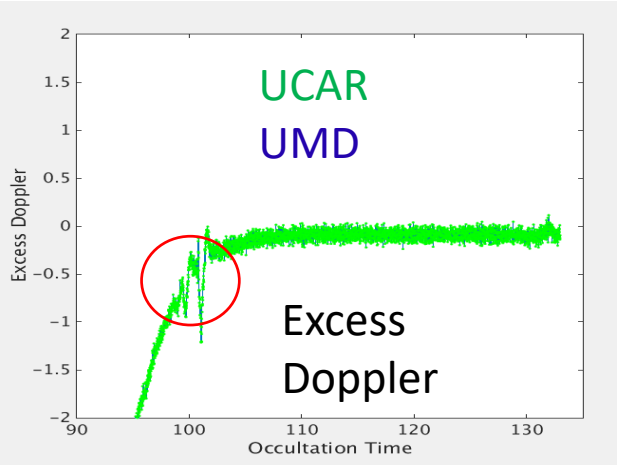



# Excess Phase to Bending Angle




Excess phase can be well consistent with UCAR results, but bending angle may not since using ROPP. This can not be captured by cycle slips detection method.

C2E1_2019.275.00.54.G25

# Work done and ongoing

- Preliminary one month excess phase and bending angle results (ROPP) for GPS/C2E1
- Further small corrections, such as phase wind up will be added , as well as GPS bit time series correction (small since we have internal bit correction).
- Working on adding GLONASS datasets
- Working on further reduction of noise levels in single differencing from RINEX files.
- Working on the POD.
- Will implement automate daily data processing for C-2.