

Dimethyl Sulfide (DMS)
Sulfur Dioxide (SO₂)

Atmospheric Pressure Ionization Mass Spectrometry (APIMS)

Isotopically labeled internal standard added continuously to ambient air

- Makes mixing ratio measurement
- Standard acts as carrier for low levels
- Increases precision
- Continuous monitor of instrument sensitivity

Ion counting for 20 ms alternately for ambient and internal standard produces 25 samples/second (effective 12.5 Hz data)

Detection limits about 1-3 part-per-trillion by volume (pptv) for 1 second integration

Status for DMS and SO₂

DMS

- RF01 – RF10, RF19 in progress; completion expected 31 July 05
- RF11 – RF18 25 sample/sec and 1 sec integration completed

SO₂

- RF01 – RF09 in progress; completion expected 31 July 05
- RF10 – RF19 25 sample/sec and 1 sec integration completed (5 pt moving average also available)

Formats

Current: ASCII with 2 columns:

- UTC time in seconds past midnight
- mixing ratio in parts-per-trillion by volume

Near future: Data will be converted to netcdf format

Readme text files with significant points

List of times for SO₂ “spikes” from ships and C-130 exhaust

Time lags to be determined in near future

Question: Missing data indicator

- RICO/JOSS website has -9 or -99
- RAF has -32767

Suggestion:

- -32767 for both high and low rate data

Data limits

Data not continuous

- intervals for blank determination and gaps between data files
- time filled with missing data values for the mixing ratio - no time gaps for merging to C-130 data

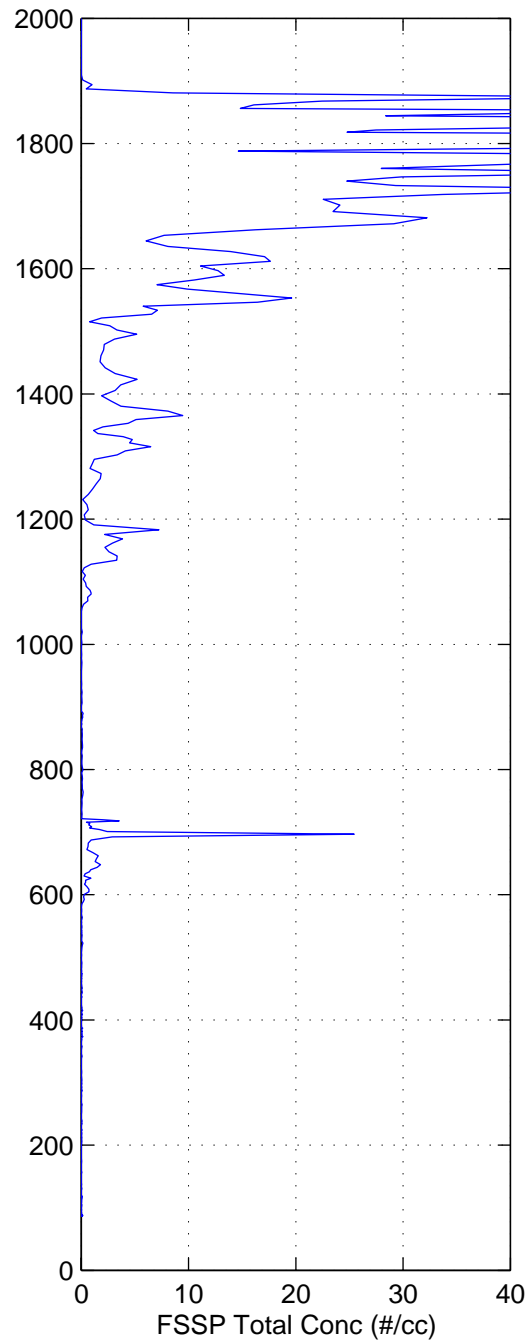
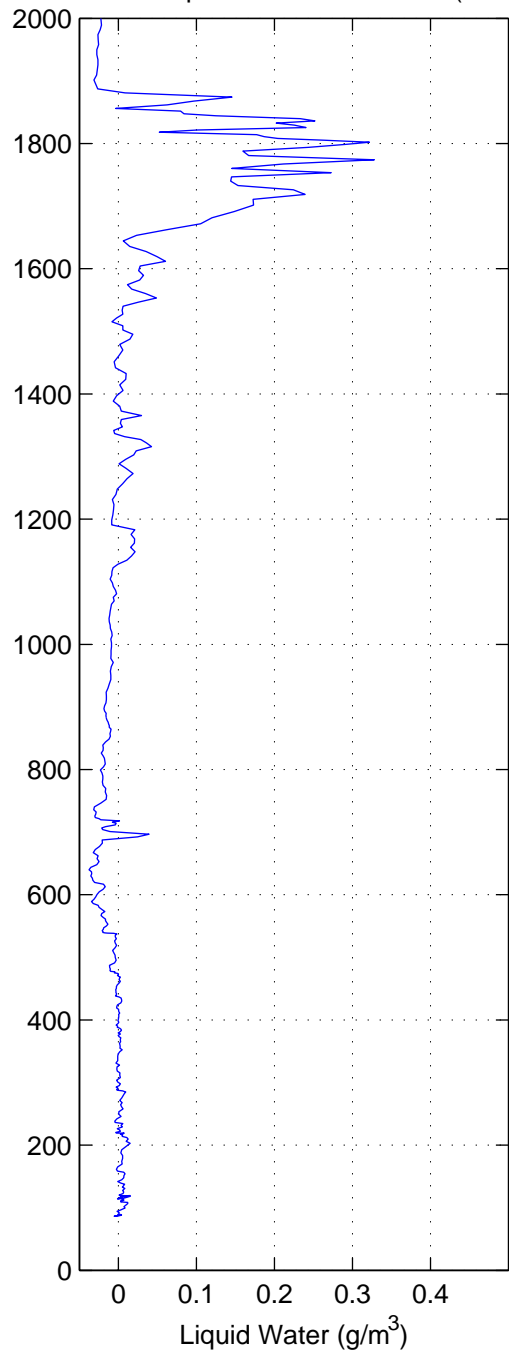
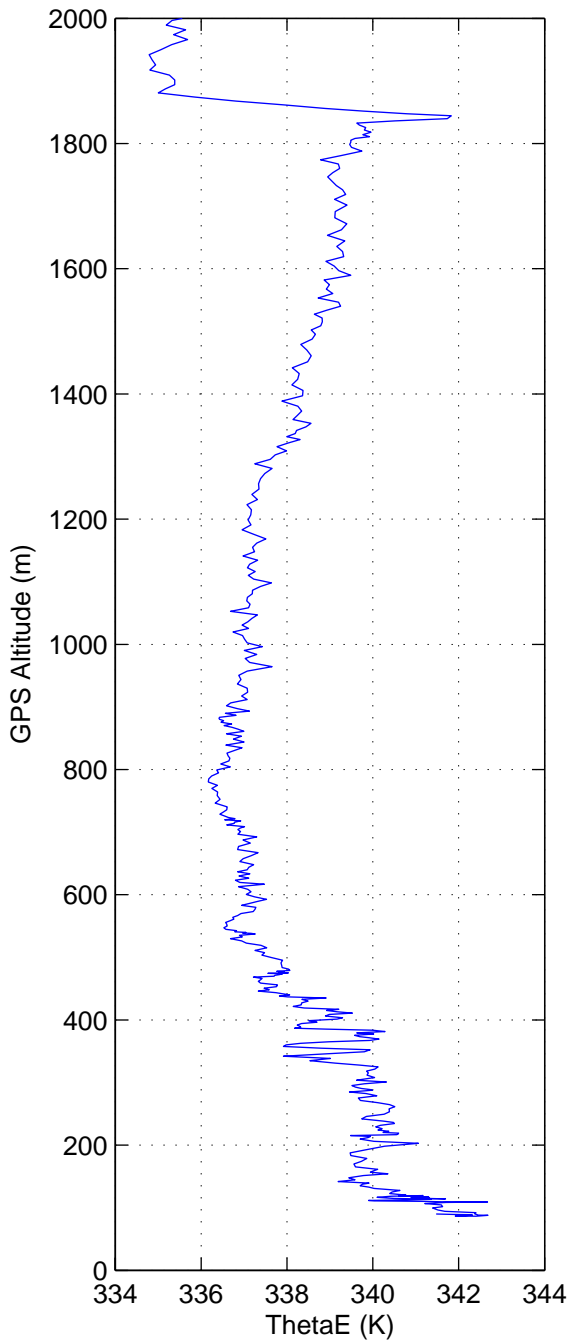
DMS for RF13 incomplete due to instrument shut down

High rate data may have negative values because blank adjustment was performed with constant value (no variance)

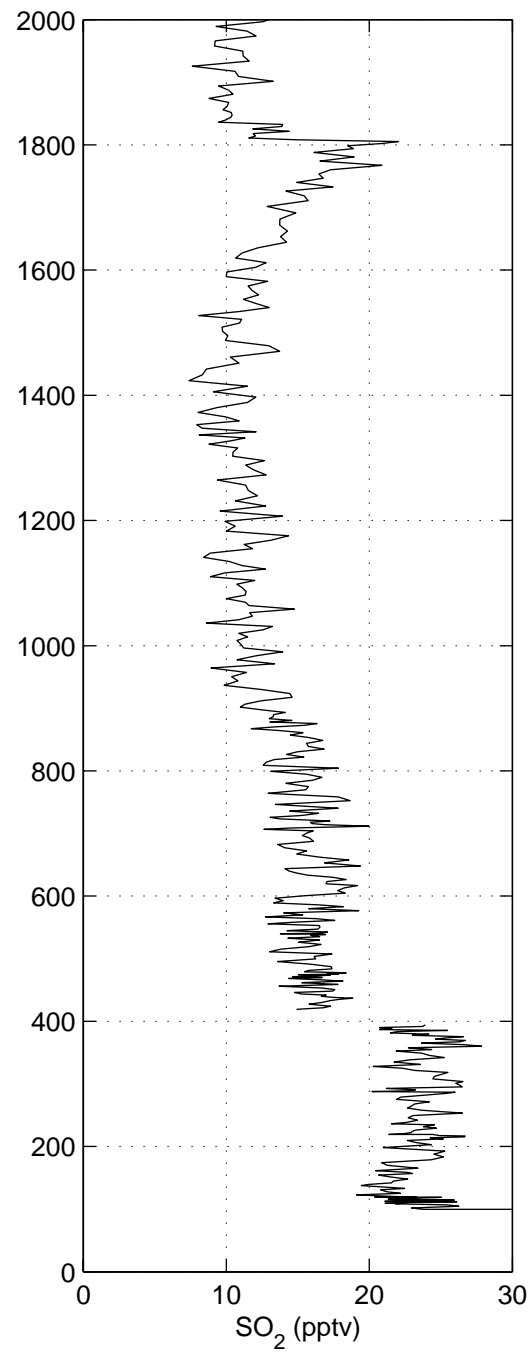
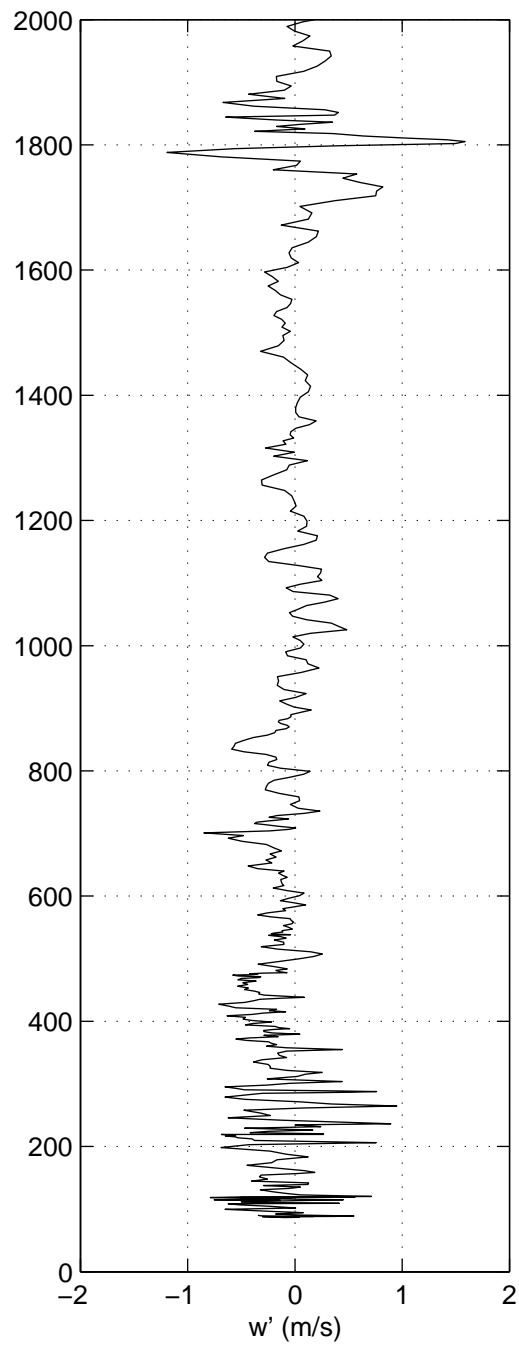
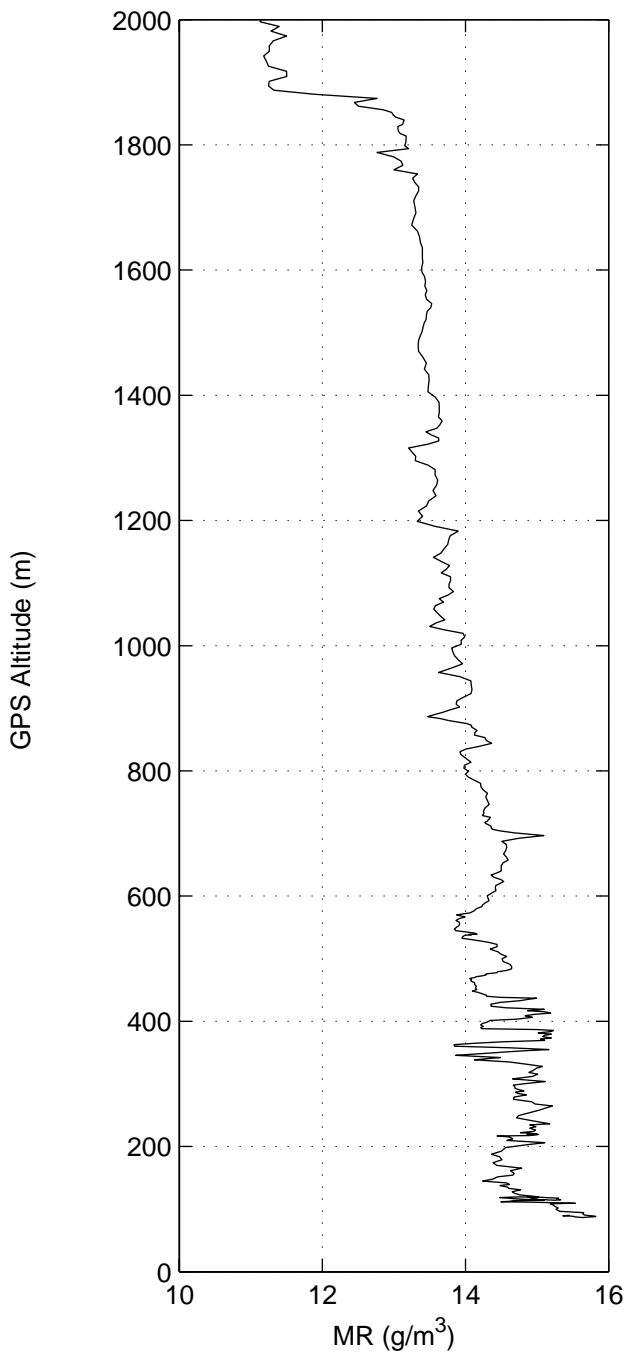
- no worries for flux determinations because variance is used and mixing ratios for low level circles were well above zero

Sensitivity better after RF8 with improved water removal

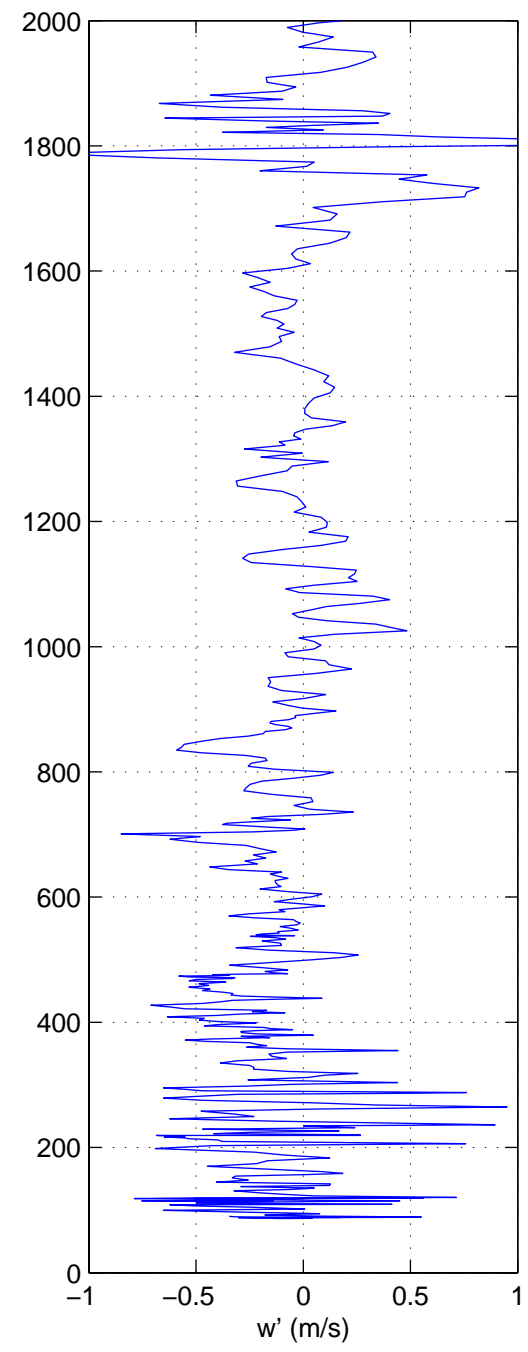
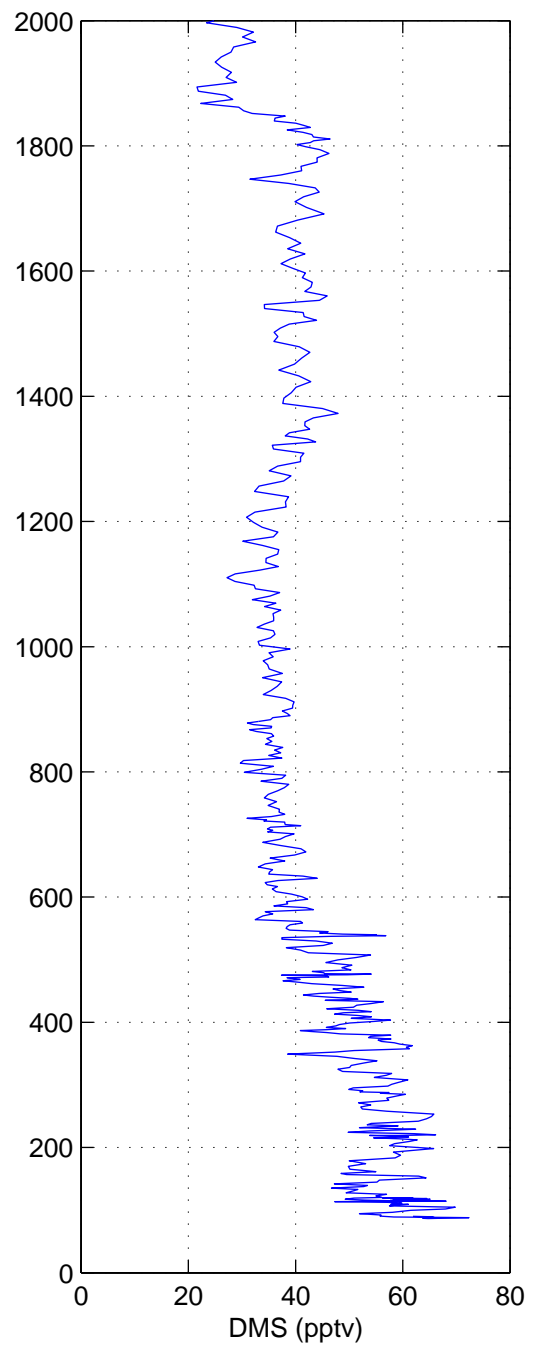
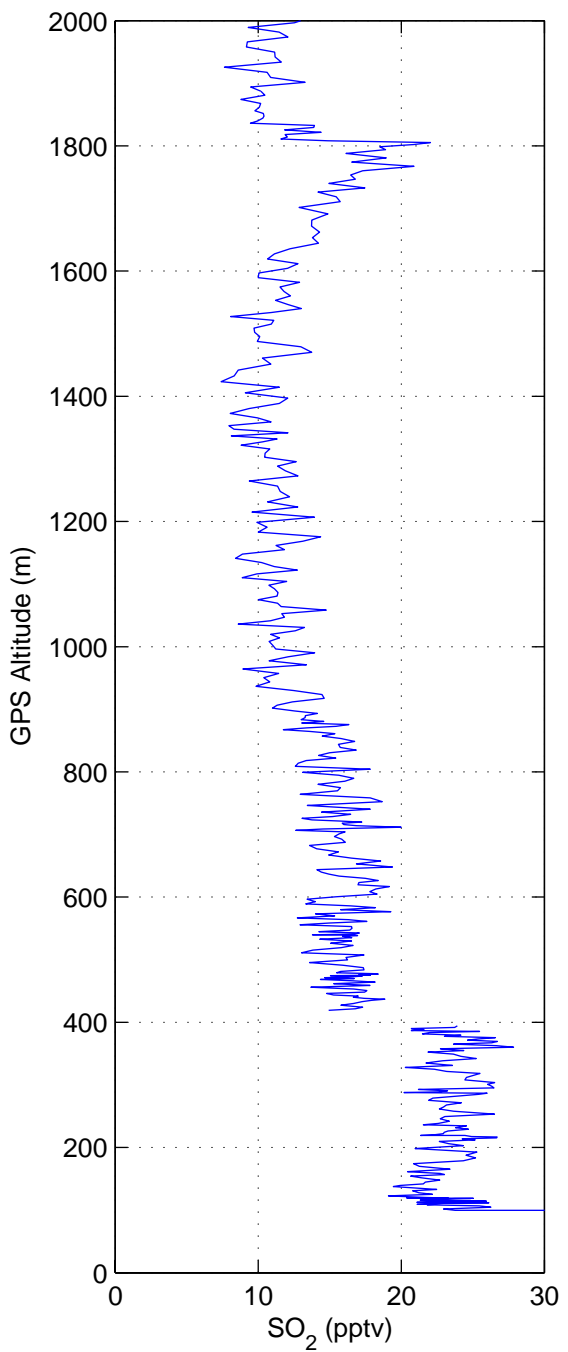
RICO RF17p descent @ 1249 UT (46145)



RICO RF17p descent @ 1249 UT (46145)



RICO RF17p descent @ 1249 UT (46145)



RICO RF17 cloud line

