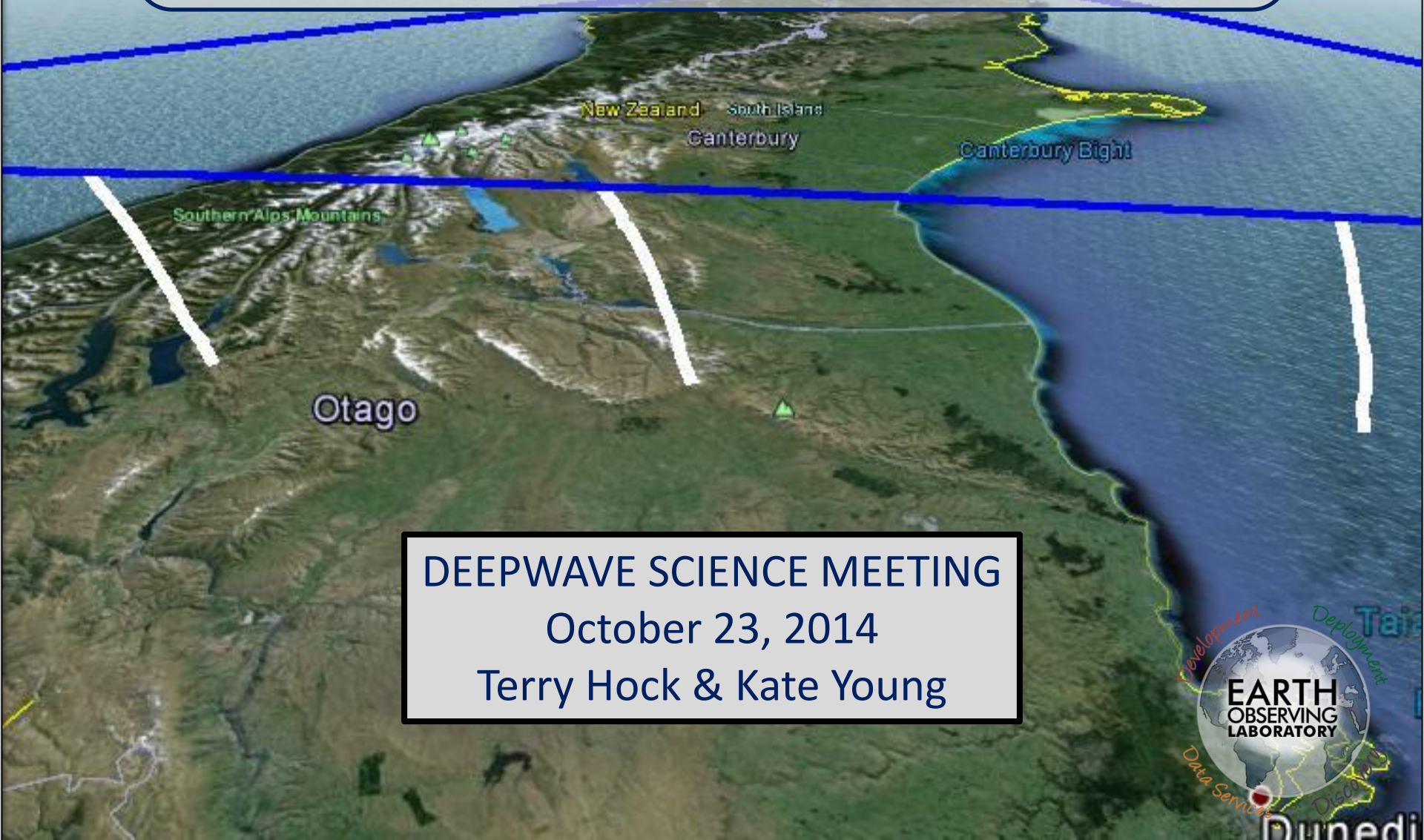


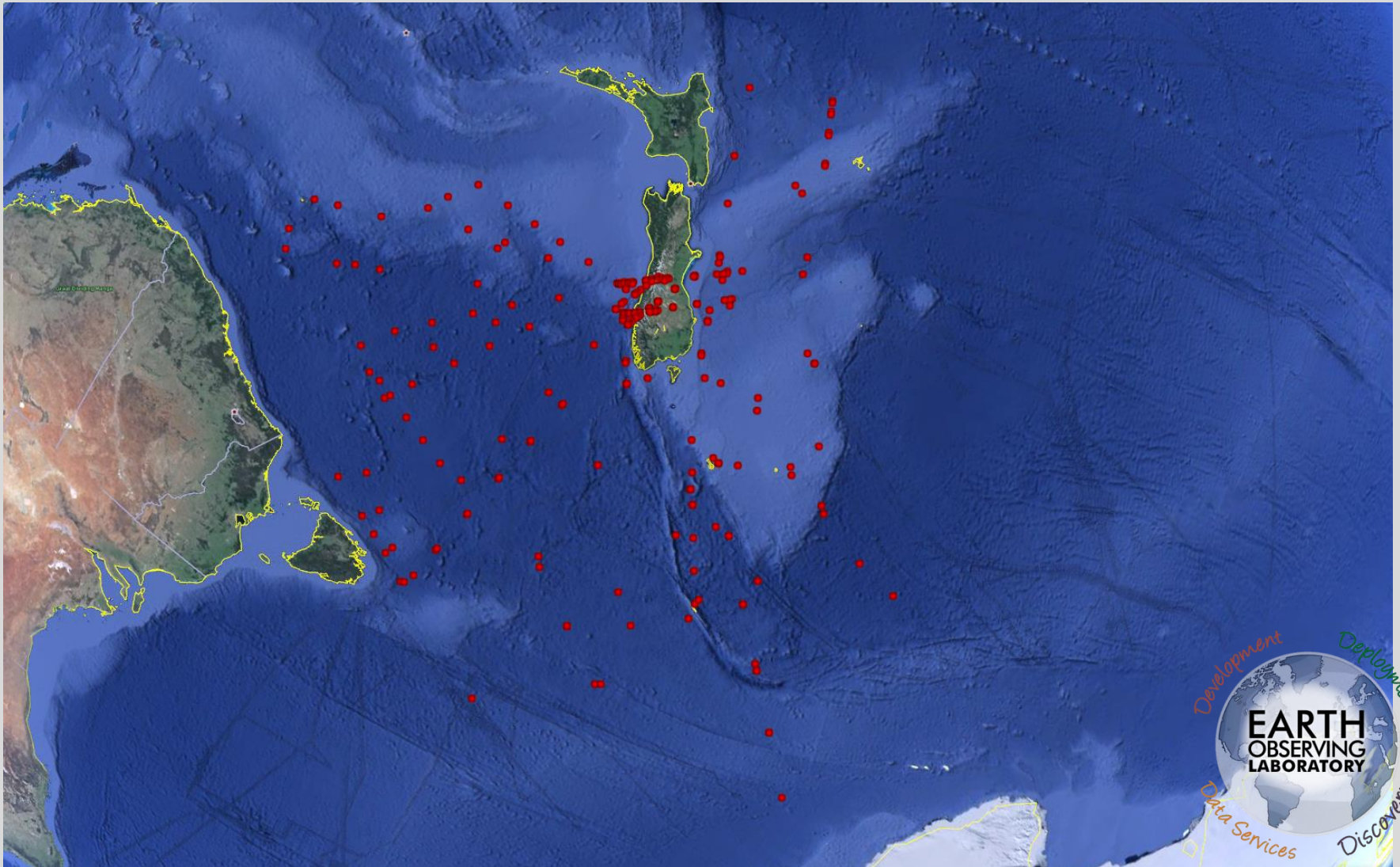
QC Data Status of DEEPWAVE Dropsonde Data



DEEPWAVE SCIENCE MEETING
October 23, 2014
Terry Hock & Kate Young



Location of 279 Dropsondes released during DEEPWAVE



Quality Control of Dropsonde data

In-Field Data Inspection

- Student operators in operations center to evaluate data quality, & submit messages to GTS and Skew-T plots to field catalog
- Dropsonde operators review quick look plots

Raw Profile Examination & Correction

Categorize all drops

- Overland drops
- Launch detect issues
- Fast falls
- Missing data
- Sensor failure

Calculate Geopotential height of G-V from aircraft GPS altitude at drop locations (~25 m)

Sonde Pressure Correction (~0.7 mb)

$$P = P^{RS} * P_0^{REF} / P_0^{RS}$$

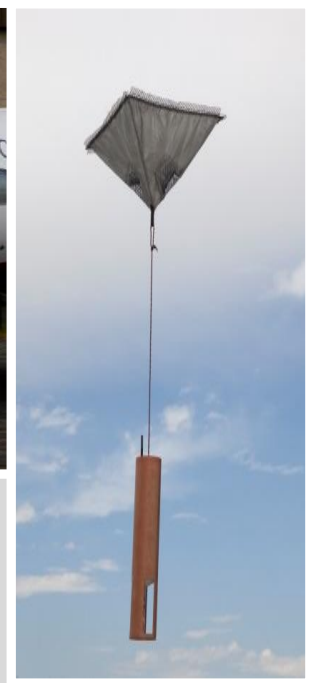
ASPEN: Quality Control, sensor time constant corrections, smooth data, add geo-potential height

Waterfall Plots of PTU and Wind

Histograms of PTU and Wind

Visually Examine QC Sounding

Final QC D-Files placed on CODIAC



Dropsonde Summary Statistics

- 279 dropsondes deployed + 4 engineering drops
- Engineering drops deployed RF01 (3 fast falls of 4)
- Sondes dropped on flights RF02 to RF26, except RF15 (Comparison flight with DLR Falcon)
- 11 Sondes as median dropped per flight
- 67 drops over land
- 1 sounding with no PTH data, winds only
- 3 drops (~1.5%) were fast falls
- Preliminary success rate: 98.5% (275 of 279)



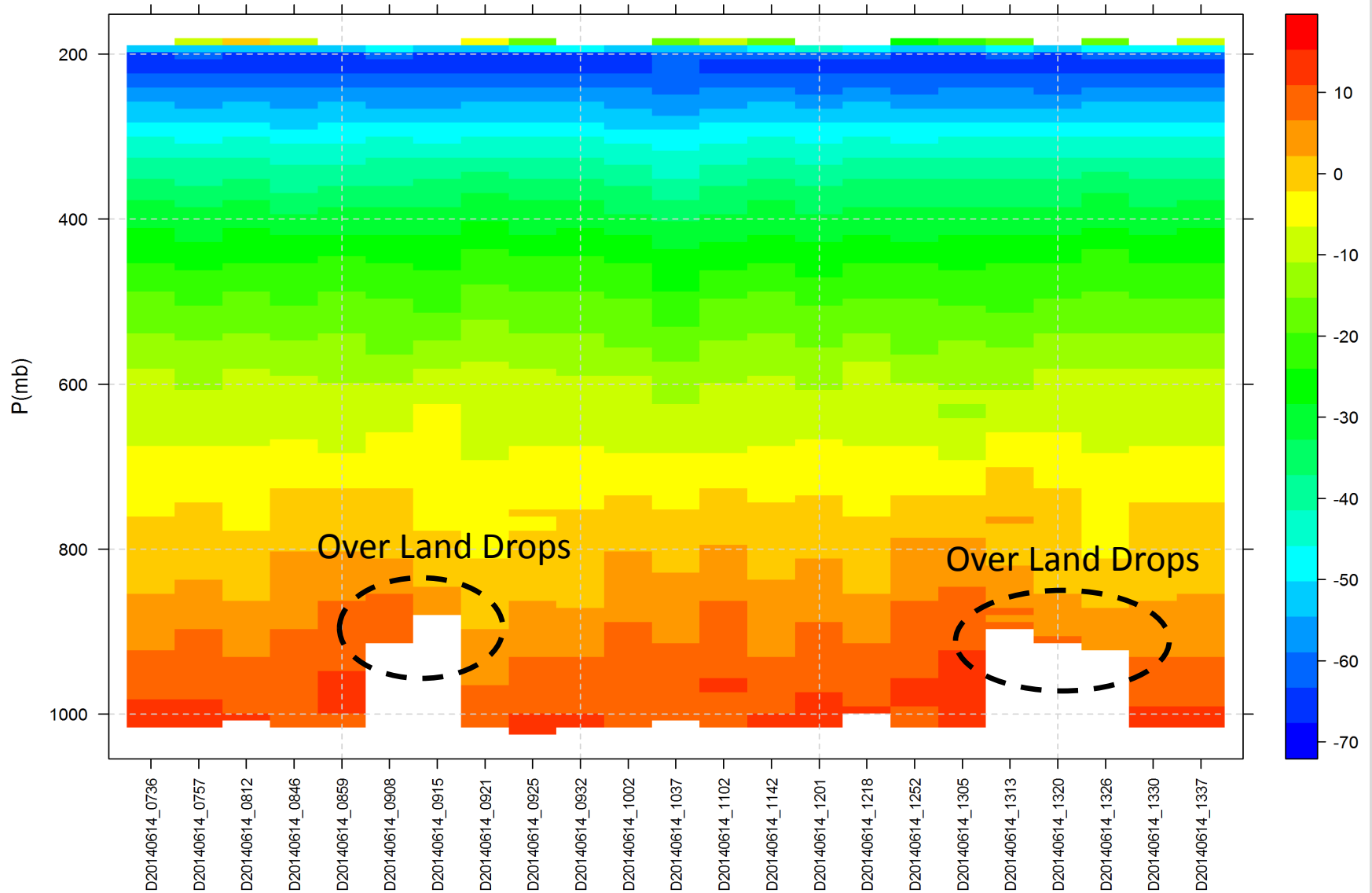
DEEPWAVE Dropsonde data QC Issues

- No unique cases
- Sondes dropped over land, will integrate from aircraft down for Geopotential height
- Sonde Geopotential height calculated from surface up for drops over water
- Upward vertical velocity will be retained in final QC data set
- Fast falls drops, the GPS winds were set to missing



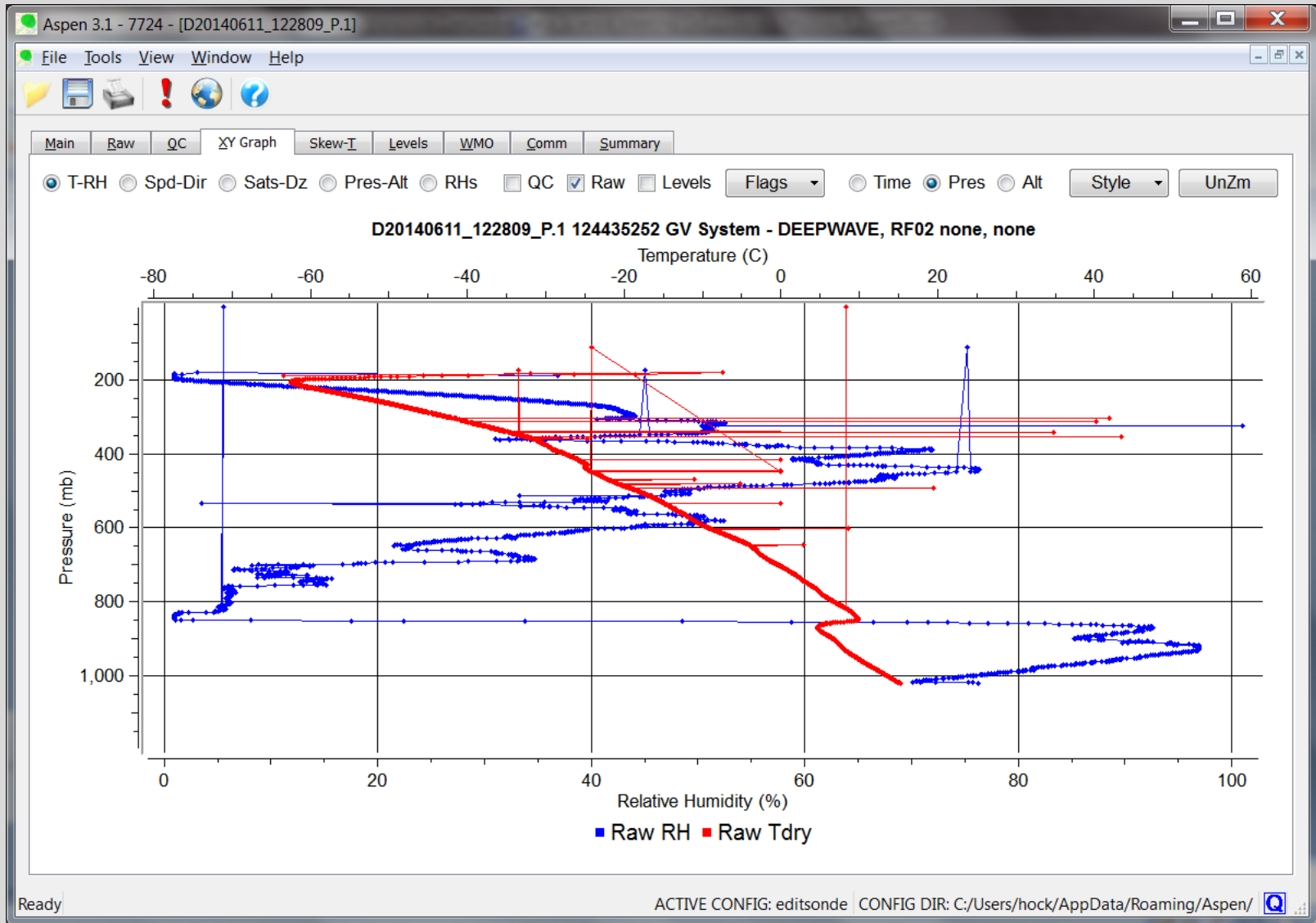
Temperature Waterfall Plot RF02

T(degC), 23 soundings



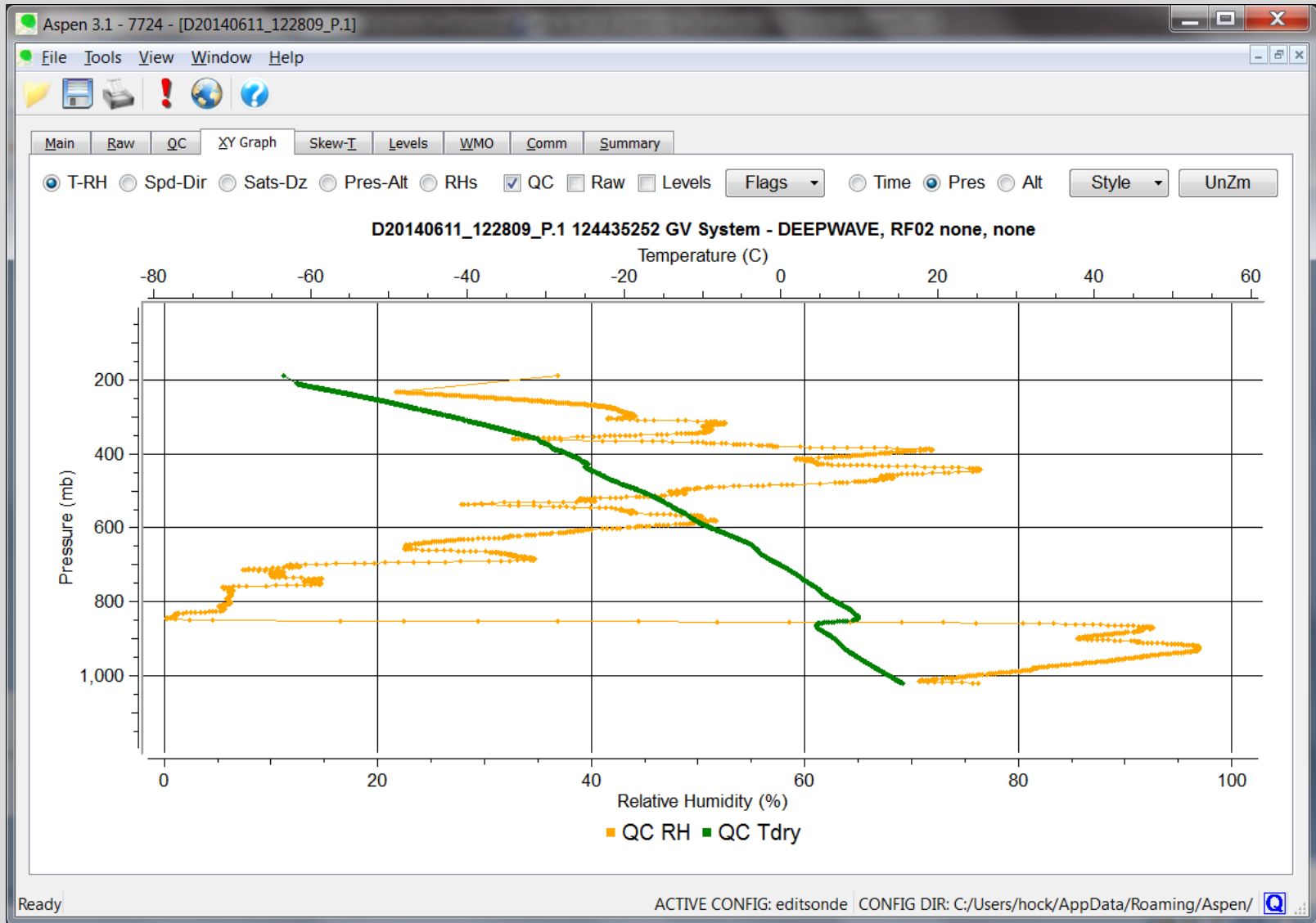
ASPEN Processing

RF02 Drop #1 - Temperature and RH vs Press



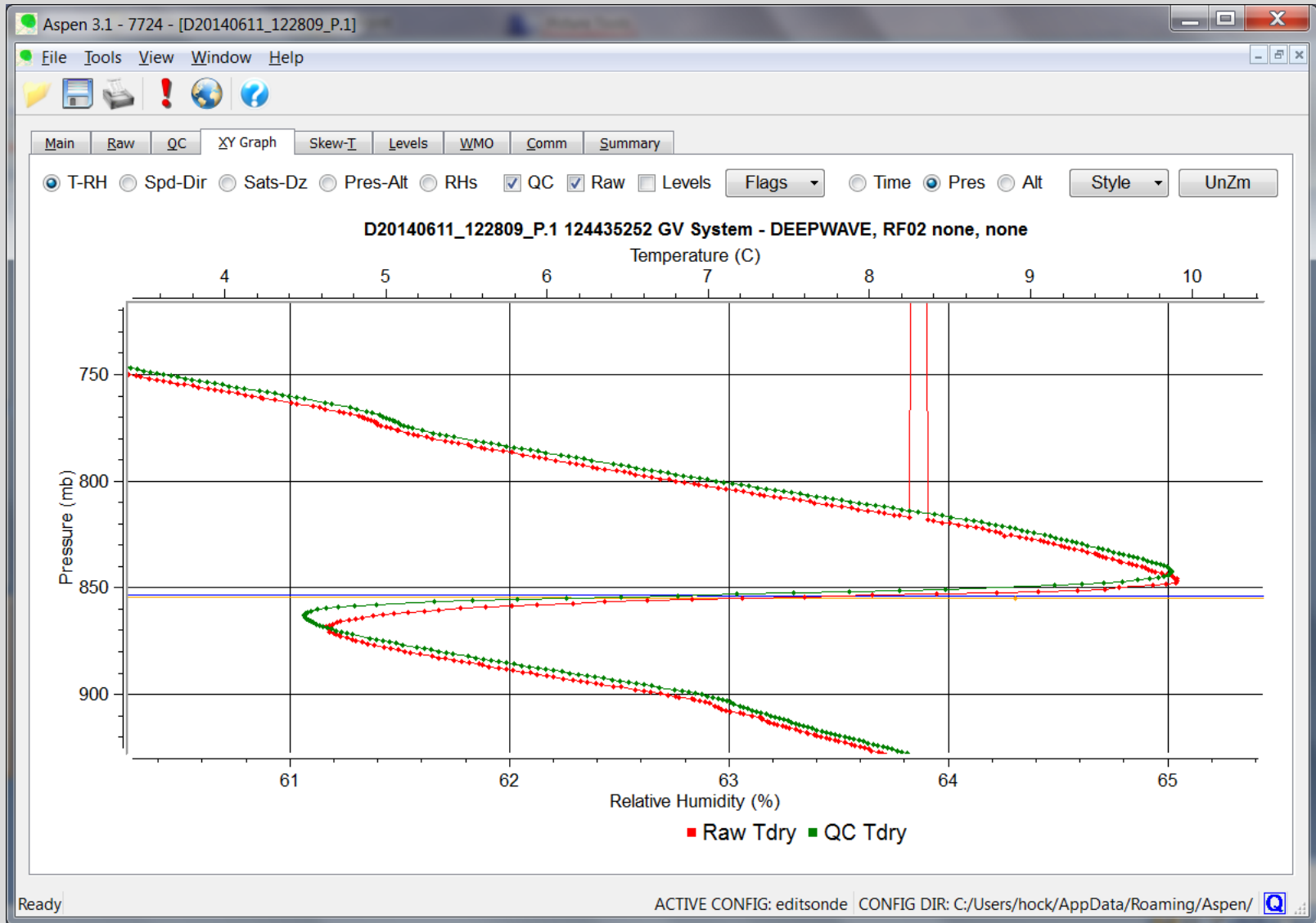
ASPEN Processing

RF02 Drop #1 - Temperature and RH vs Press



ASPEN Processing

RF02 Drop #1 - Temperature and RH vs Press



Dropsonde Data Post QC Status Update

- Dropsonde Data QC Post Processing by EOL/ISF Associate Scientist Kate Young
- As of 10/23/2014 dropsonde raw data has undergone initial evaluation, fast fall winds removed, flight level altitude correction.
- Remaining QC includes pressure correction, Batch ASPEN and evaluation of QC data plots (waterfalls and histograms)
- Early November anticipated release date of Dropsonde data

