

Liquid water paths from C-130 and Ron Brown

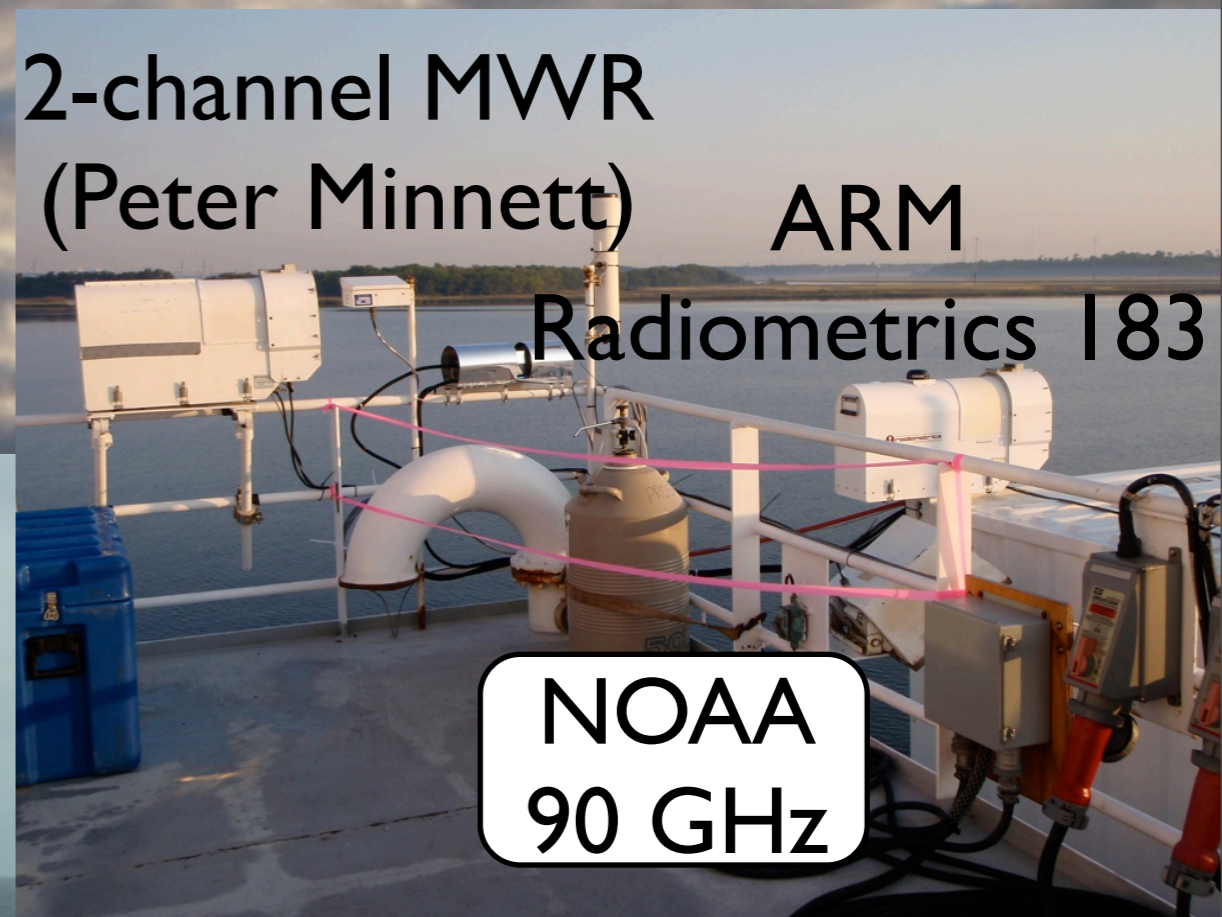
Prosensing 183 GHz
GVR



2-channel MWR
(Peter Minnett)

ARM

Radiometrics 183



NOAA
90 GHz

Paquita Zuidema U of Miami

contributions from Maria Cadeddu Argonne NL; Chris Fairall NOAA;
David Leon UWyoming; David Painemal UMiami; Andrew Pazmany
Prosensing



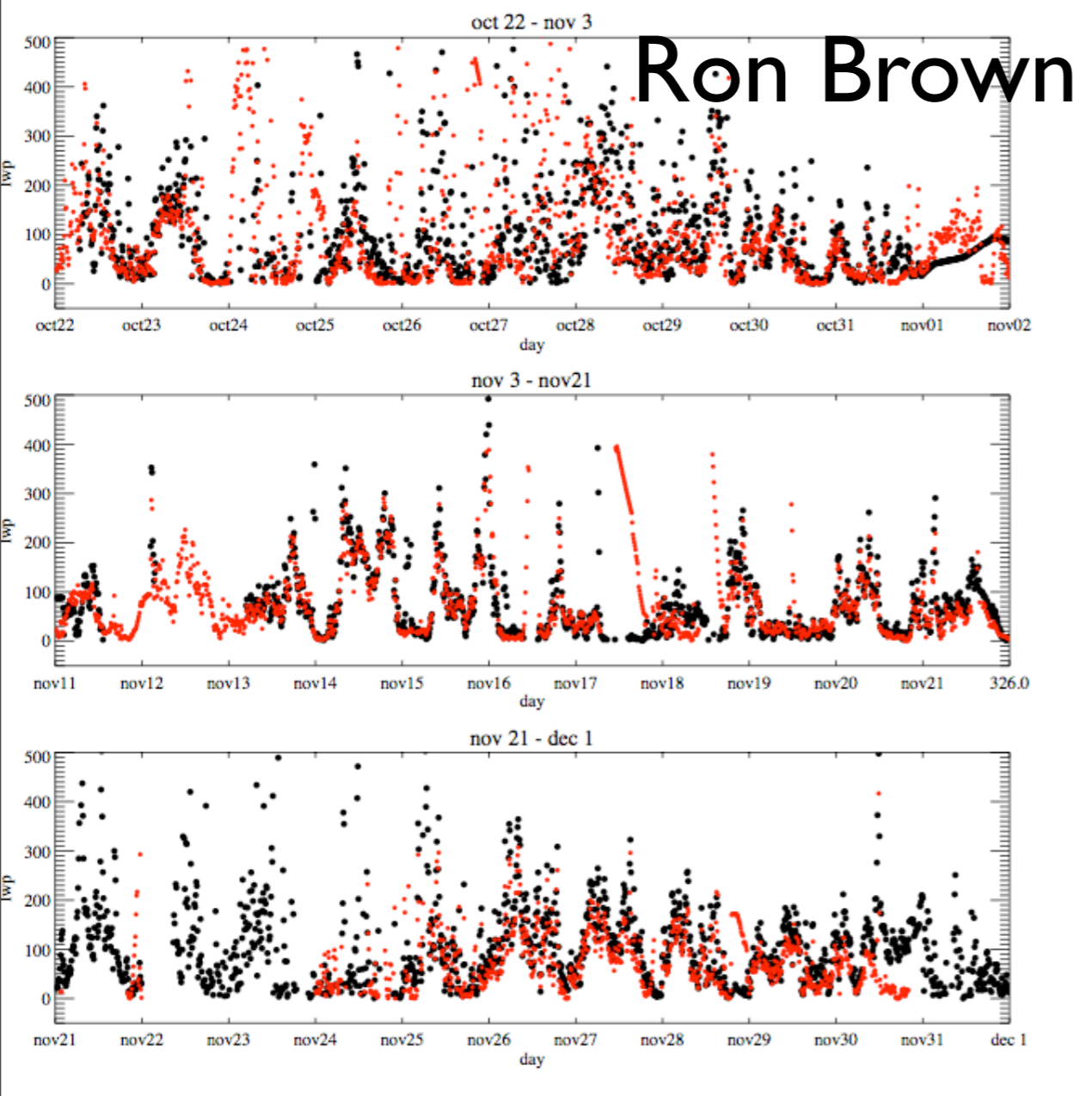
the short story

good final LWP datasets expected from both platforms

Ron Brown “version 1” on EOL archive in 1-2 weeks

C-130 “version 1” in progress

Ron Brown



“version 1” :
23-31 GHz channels only

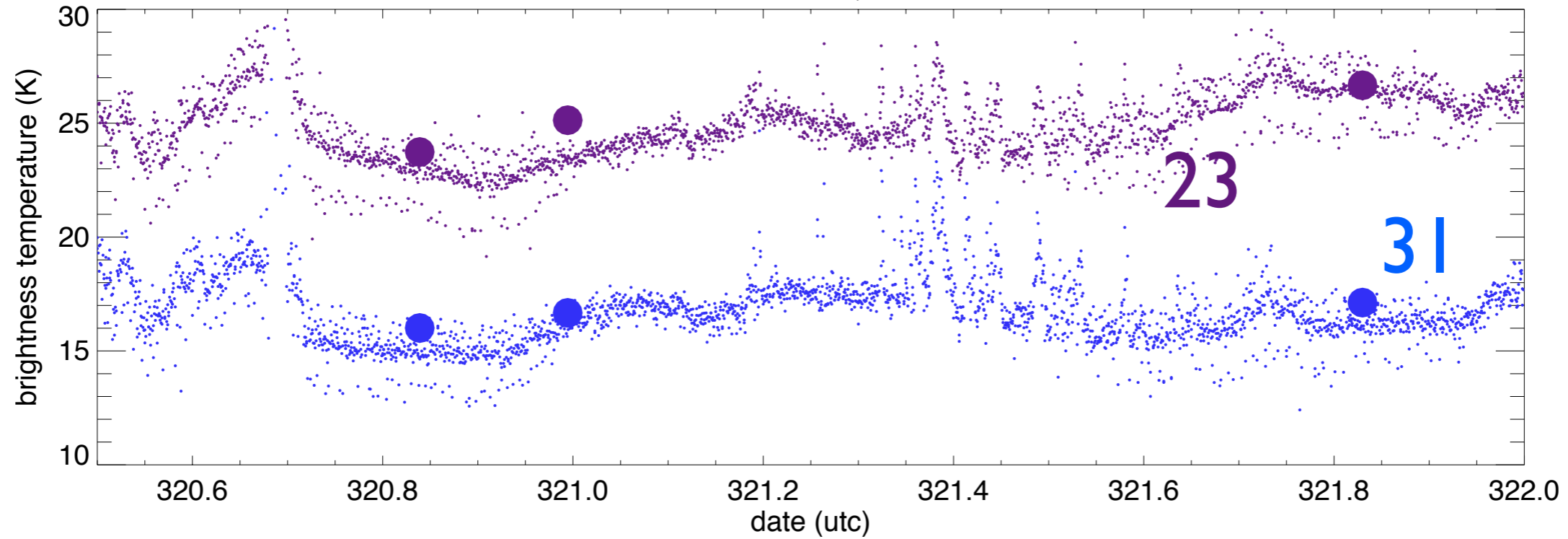
4-6/daily RS92sondes

physical retrieval ala
Zuidema et al. 2005

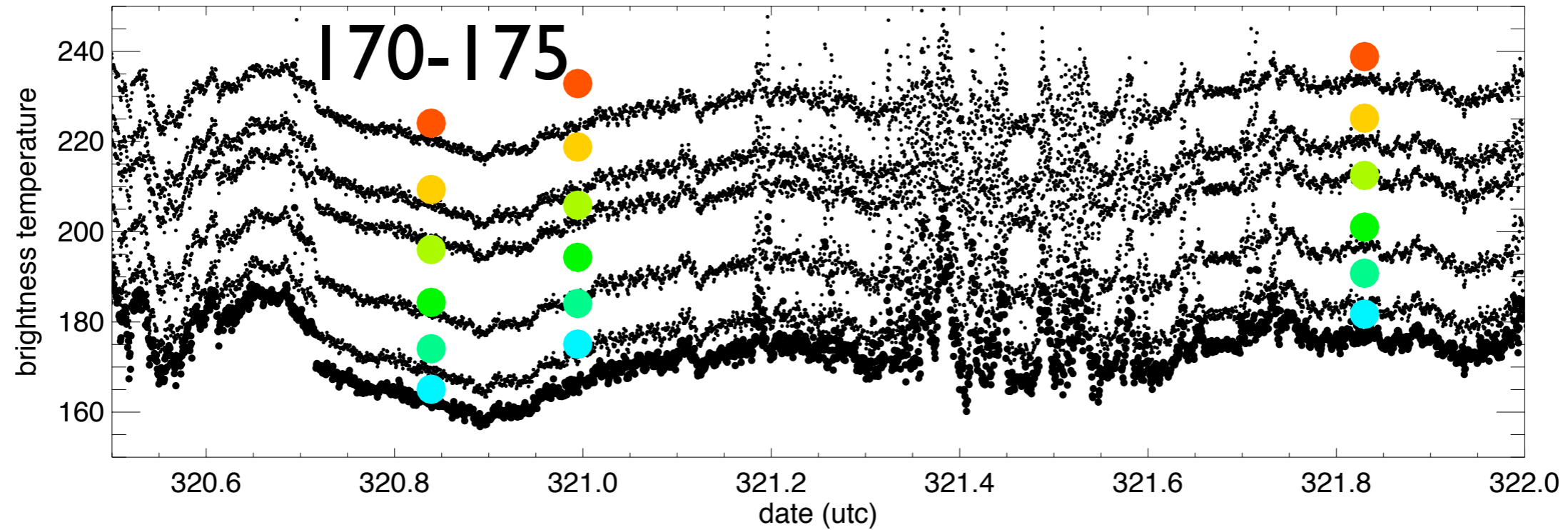


good MWR/sonde clear-sky brightness temperature comparison

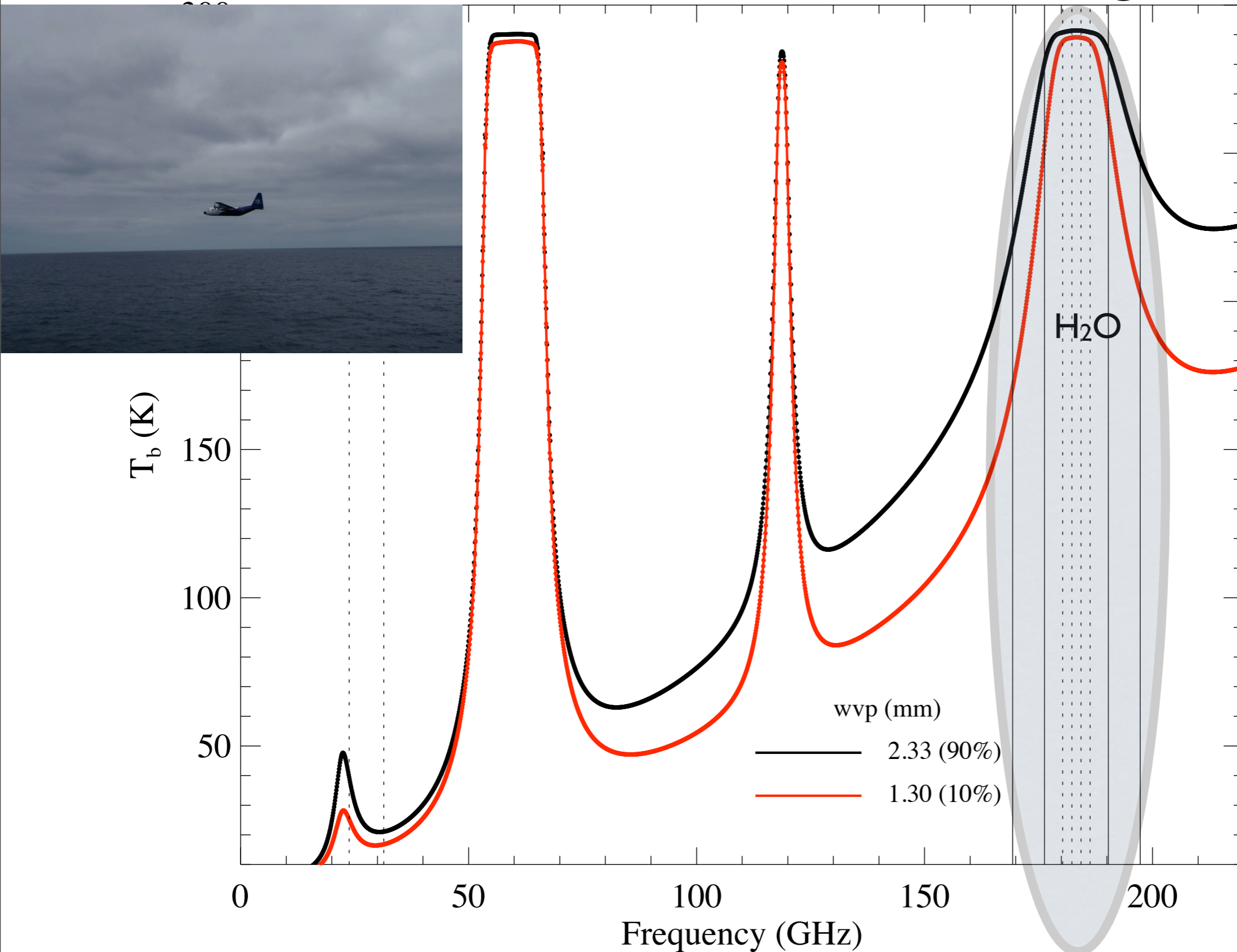
nov 15-16: 20,30 GHz

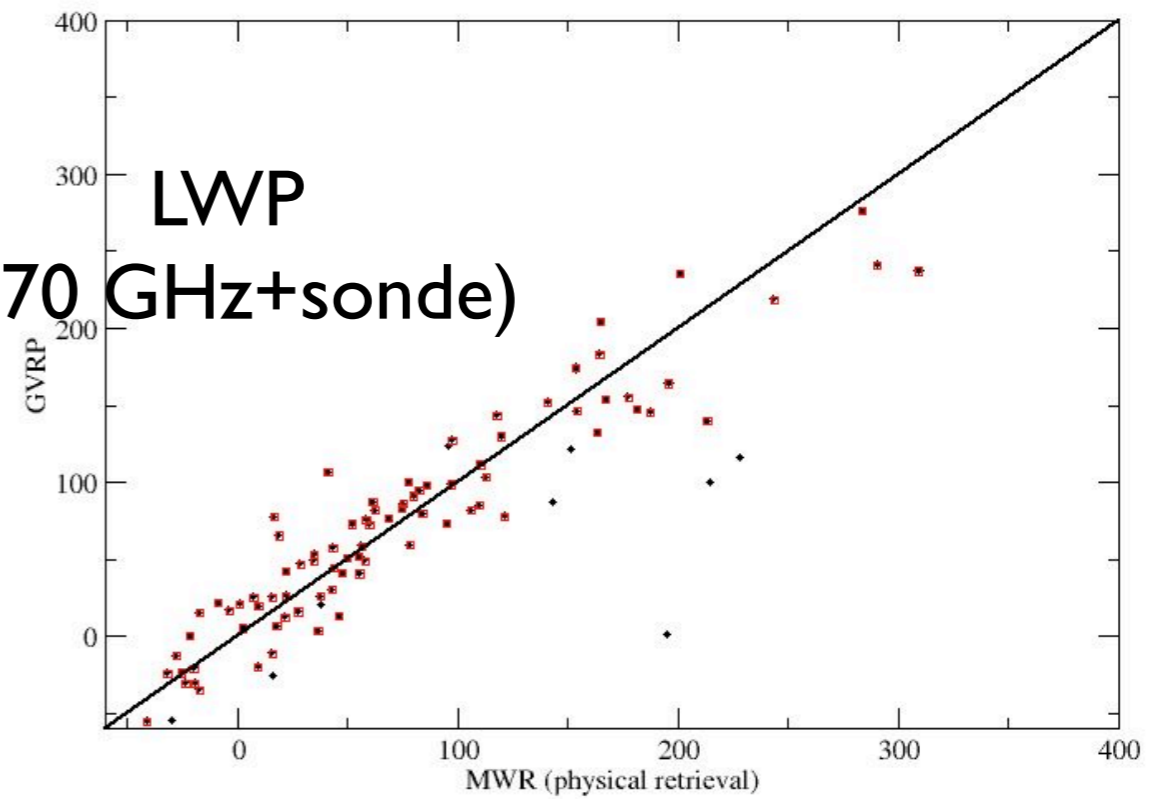
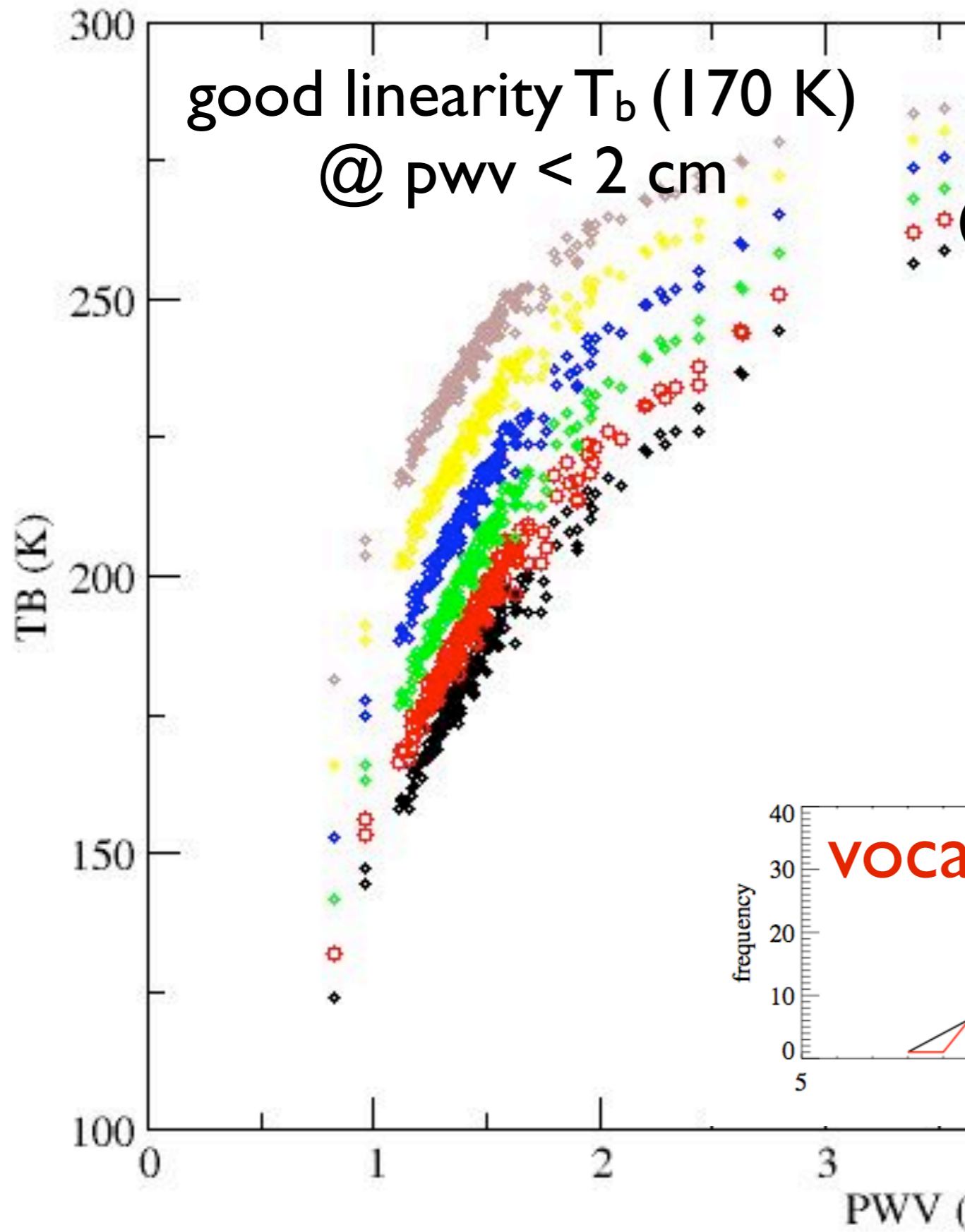


nov 15-16: 170-175 GHz

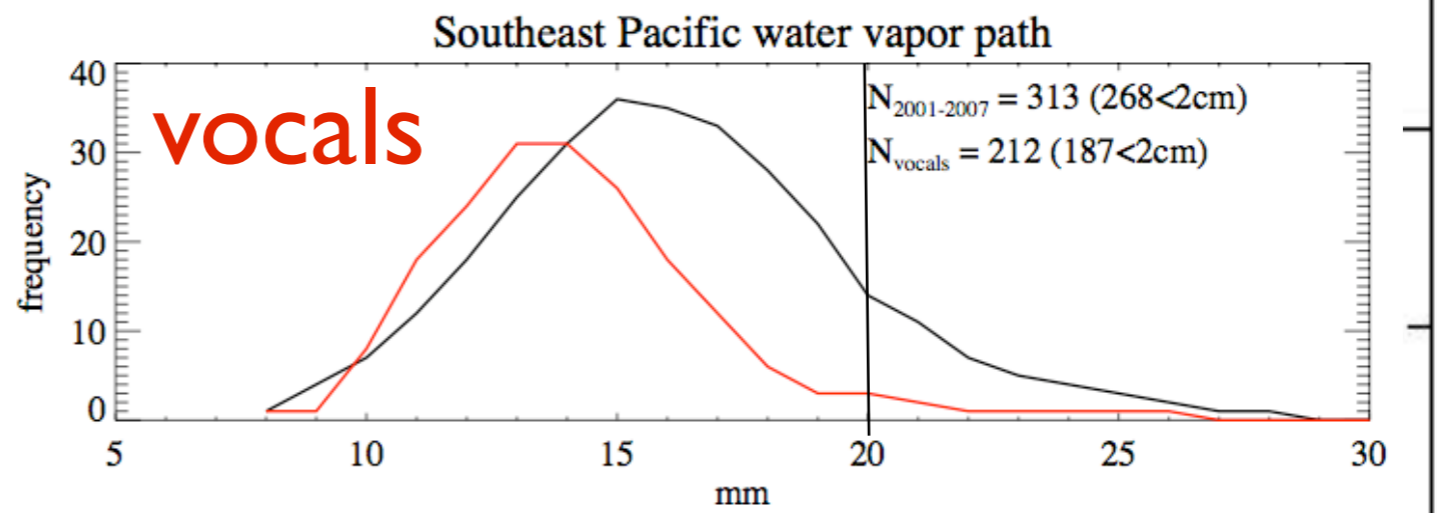


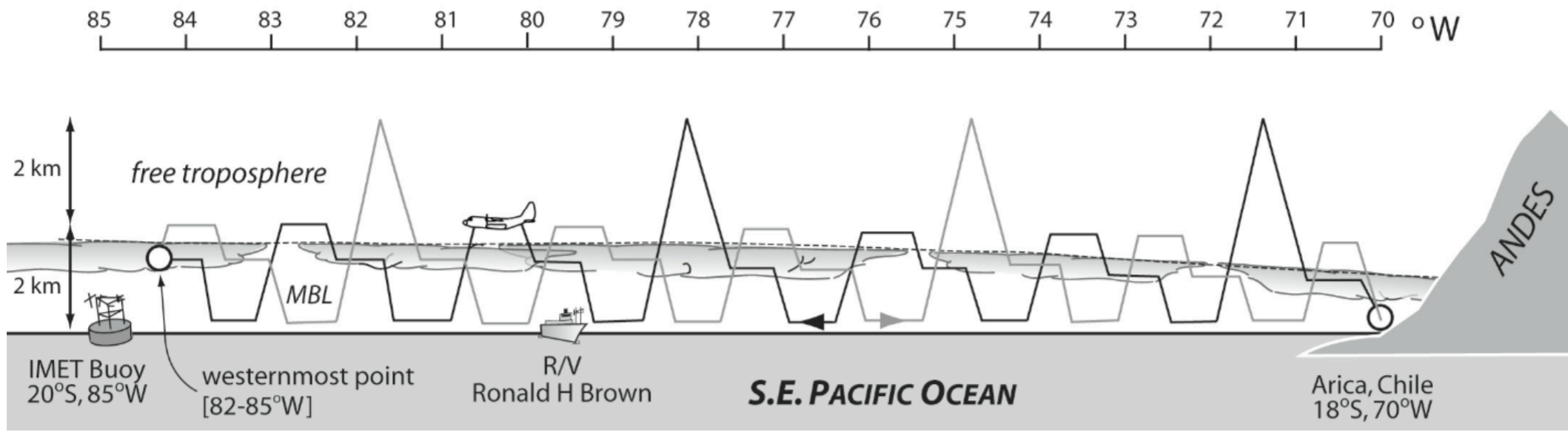
clear-sky spectra of 10th and 90th percentile VOCALS-REx domain soundings



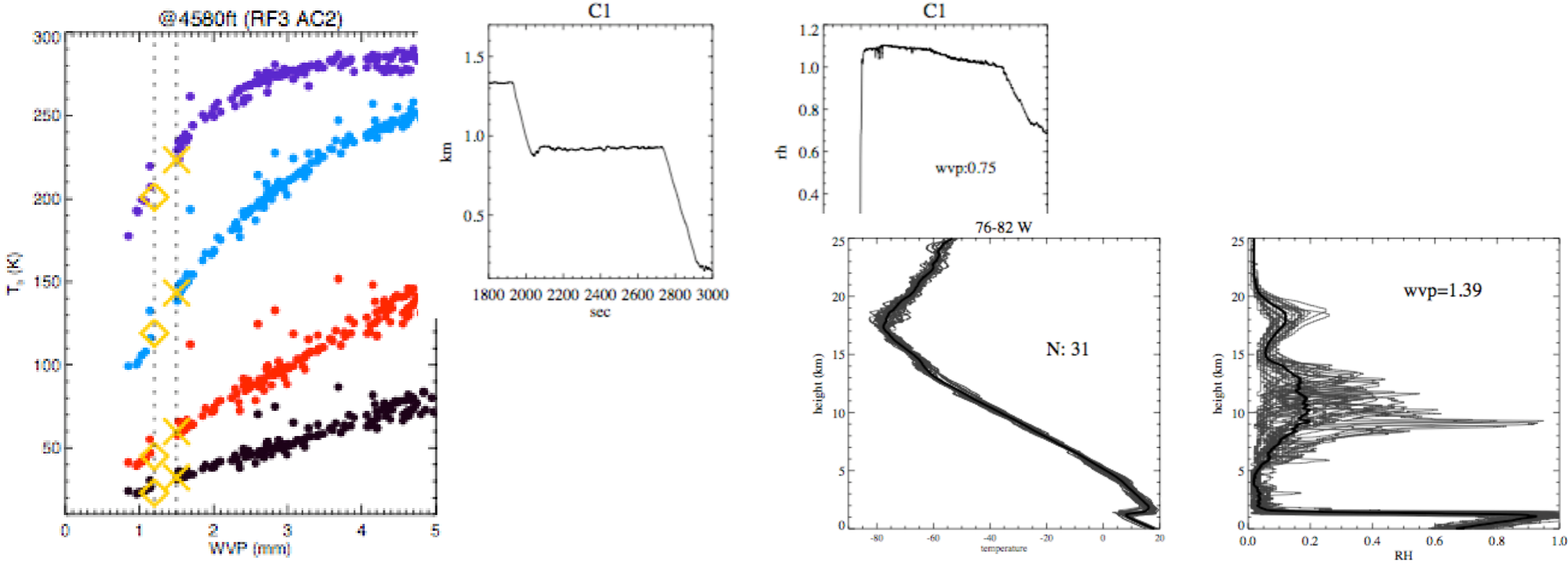


LWP (23,31 GHz+sonde)

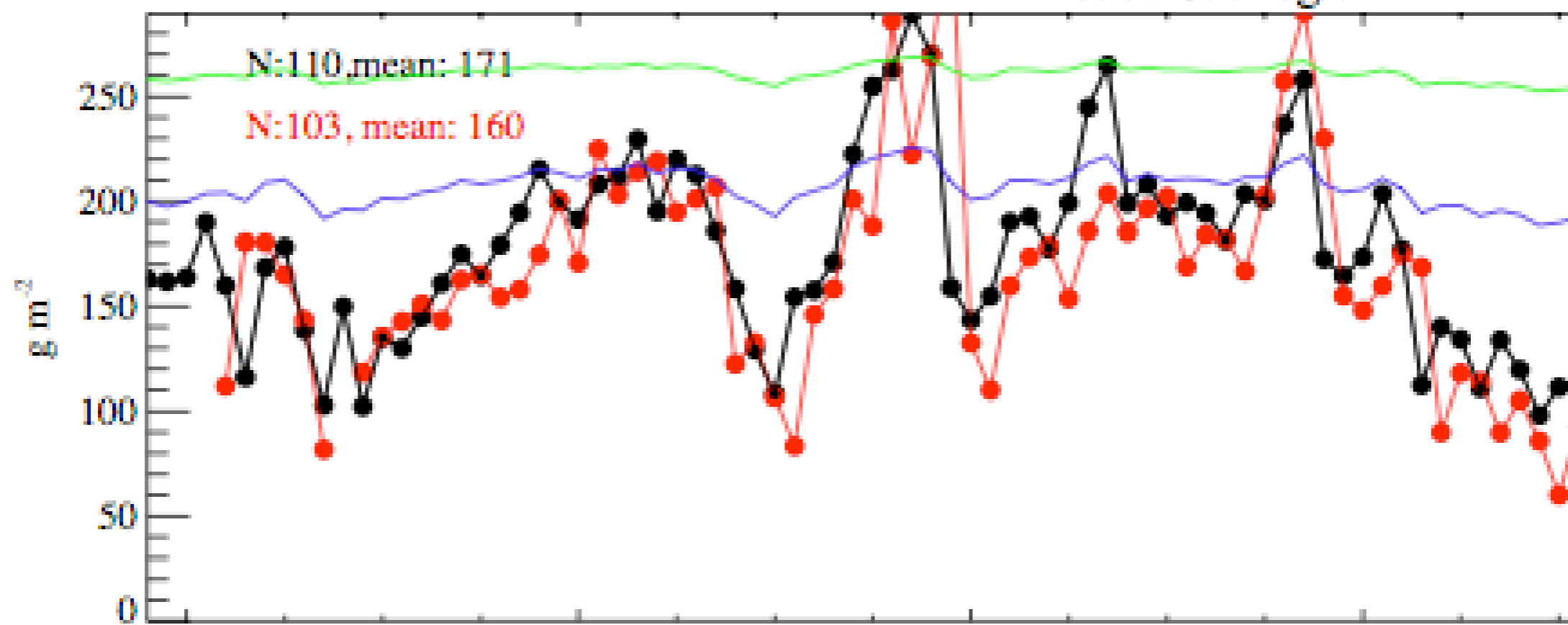
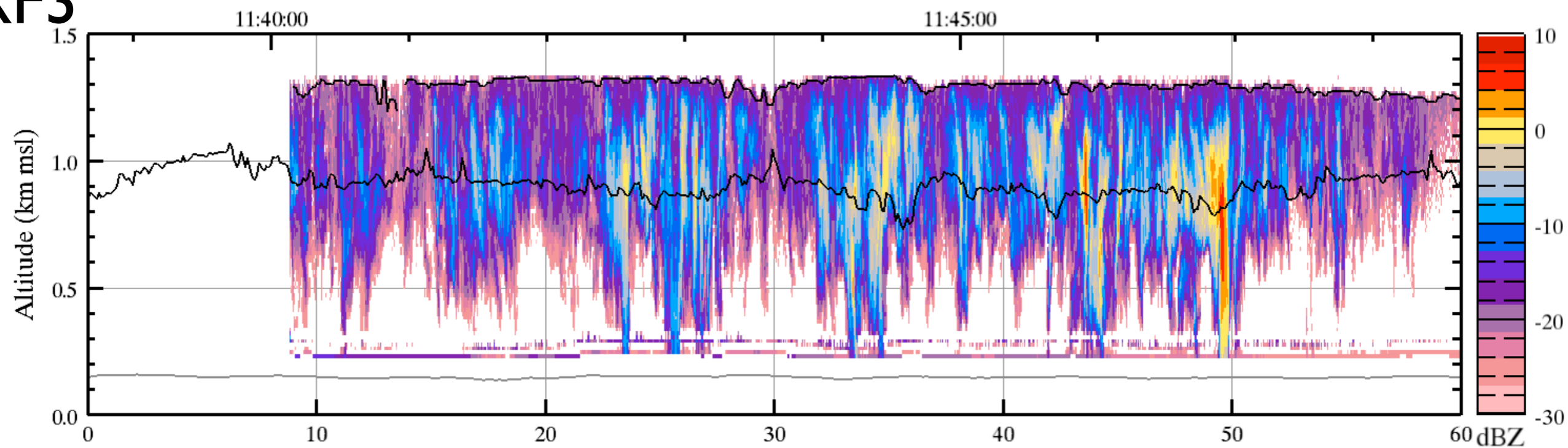




T_b sensitive to LWP, cloud T, WVP, T&rh structure
 use radiosondes, above-cloud CI 30 legs, cloud boundaries
 as constraints

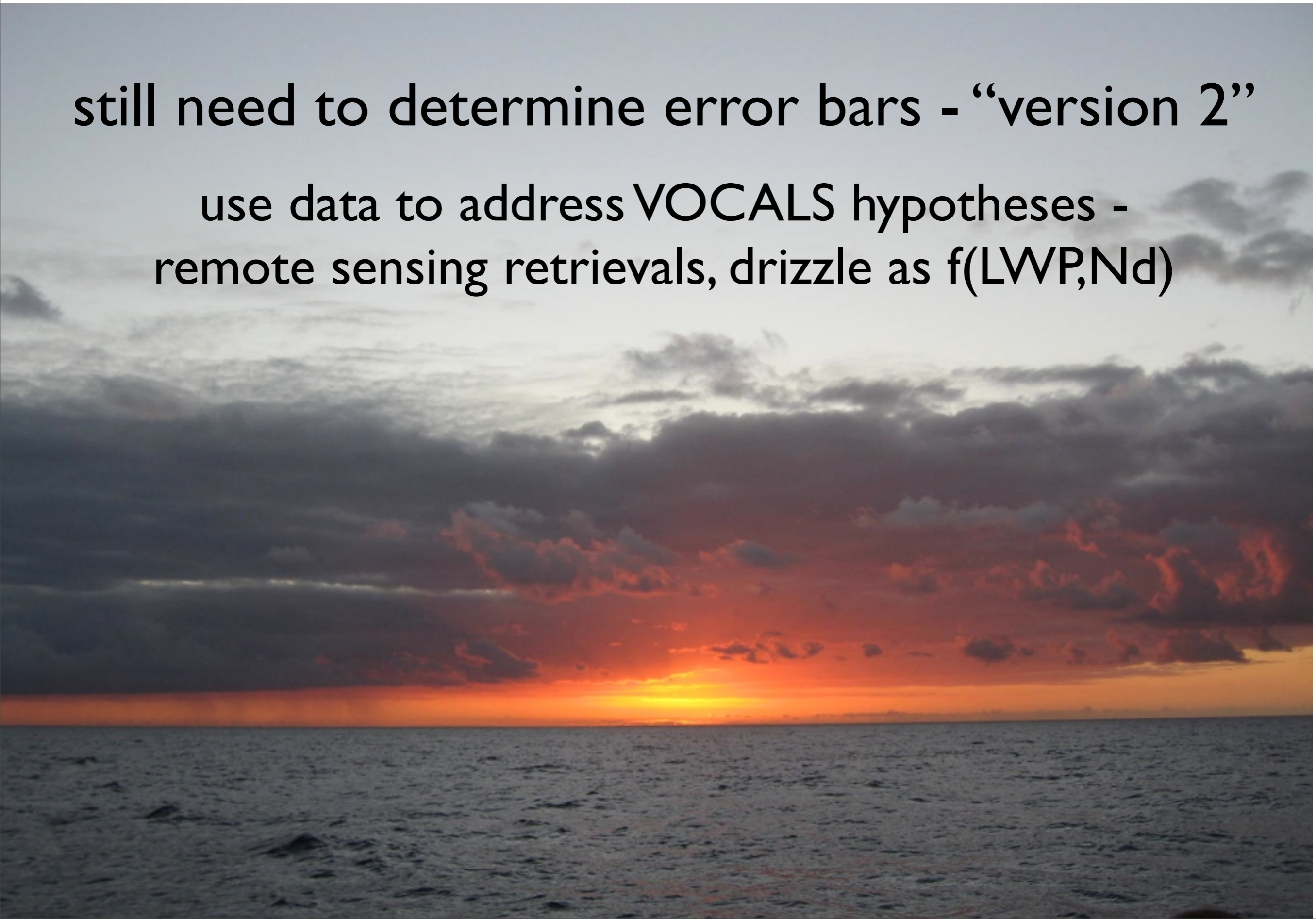


RF3



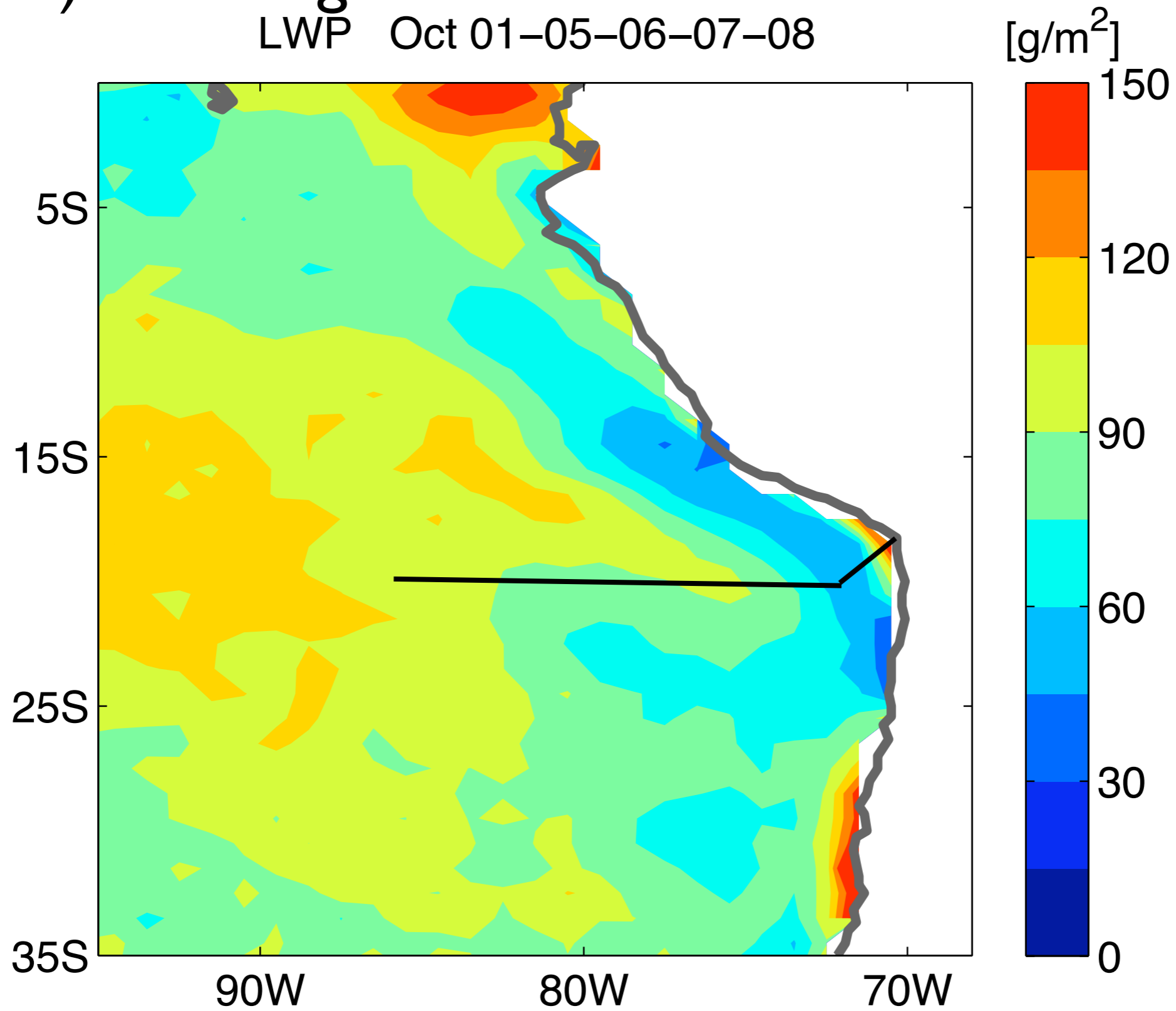
still need to determine error bars - “version 2”

use data to address VOCALS hypotheses -
remote sensing retrievals, drizzle as $f(\text{LWP}, N_d)$

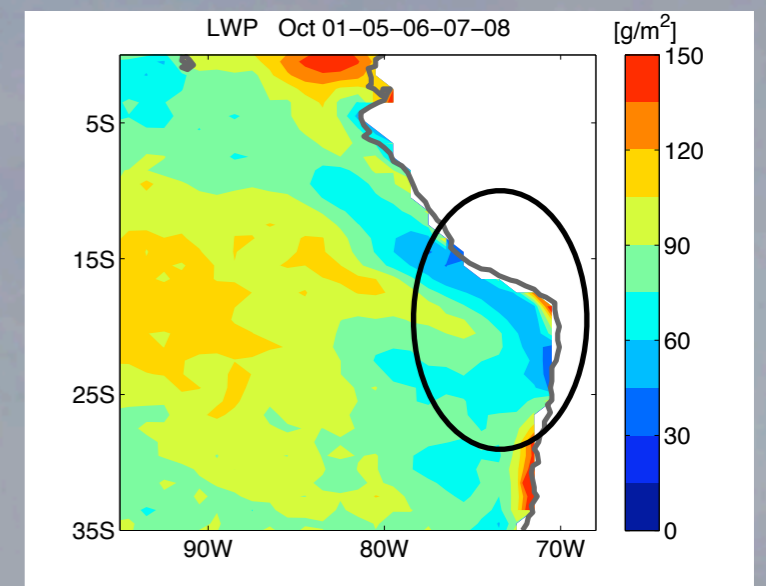
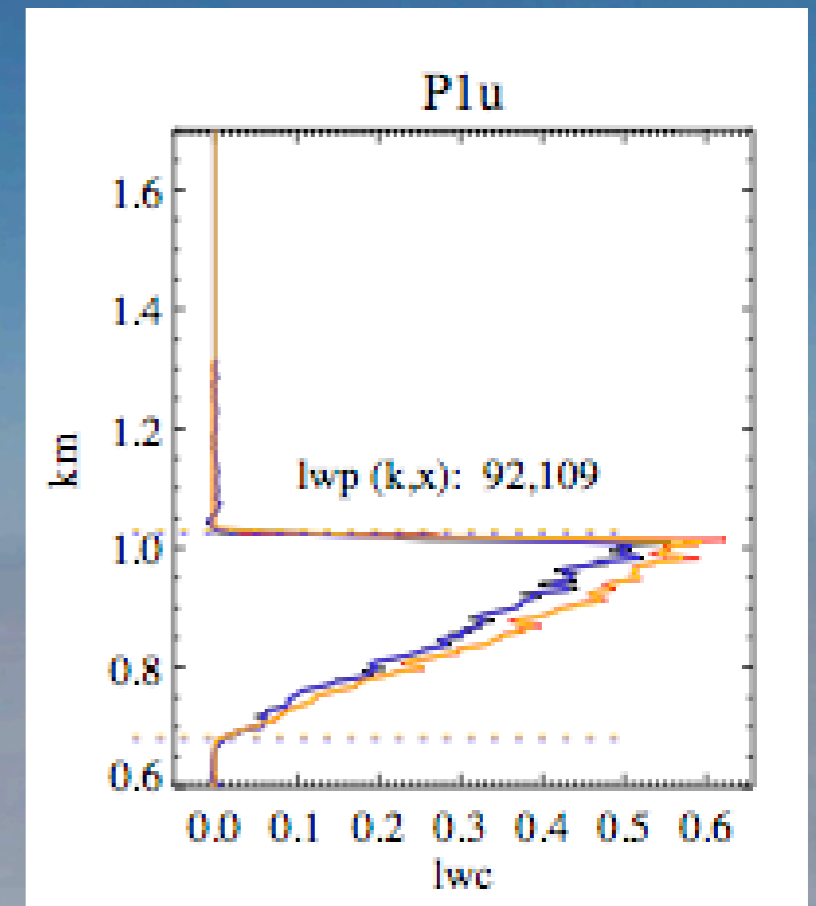


2 (or 3) LWP regimes

LWP Oct 01-05-06-07-08



near-coastal region
perfect for evaluating
standard remote
sensing retrievals



double-peaked LWP diurnal cycle 75W

Diurnal Cycle at 75W, 20S: Nov. 12-15

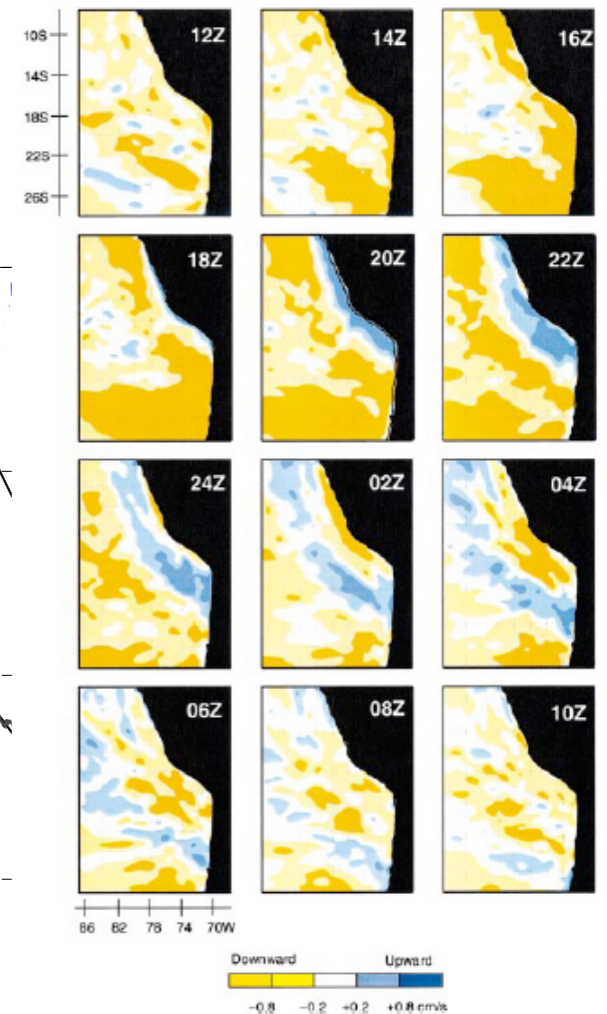
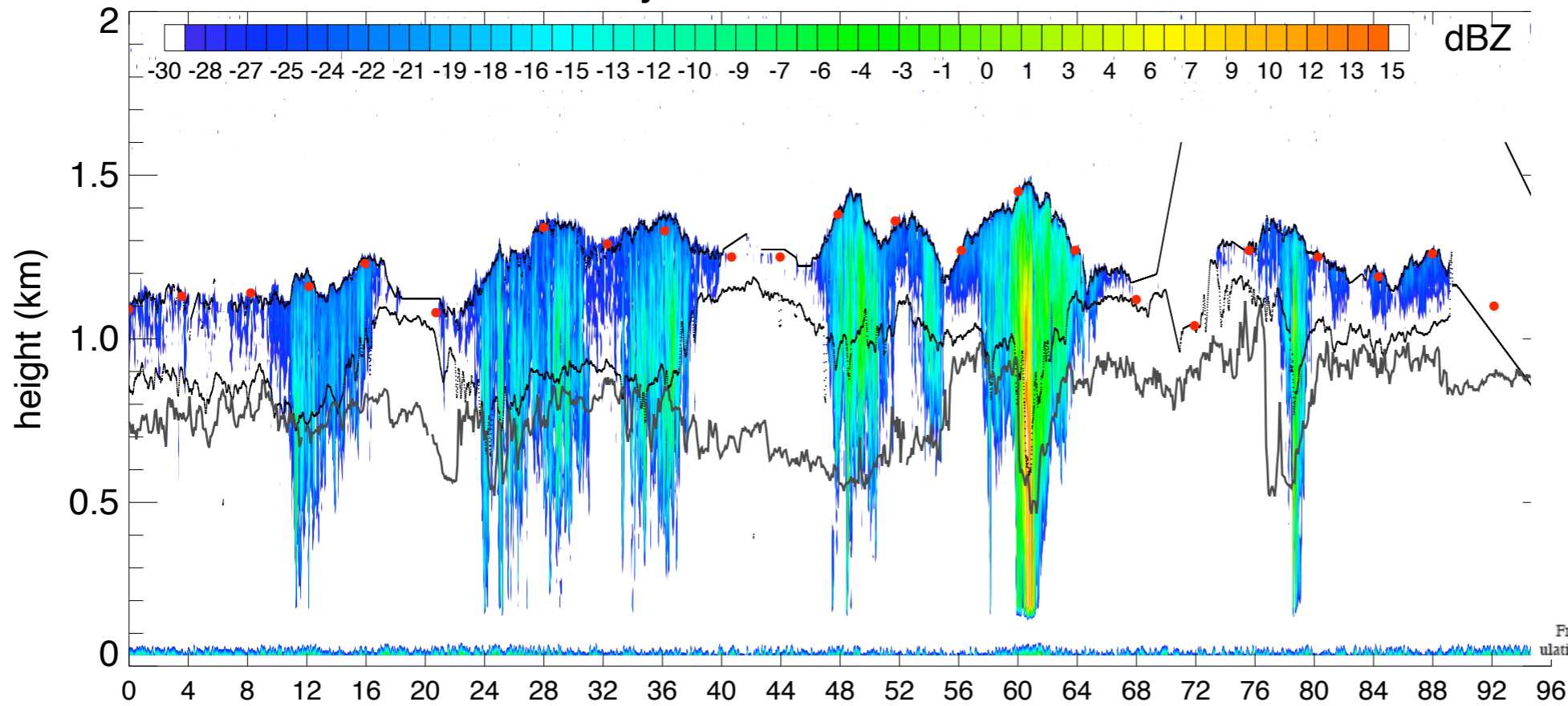
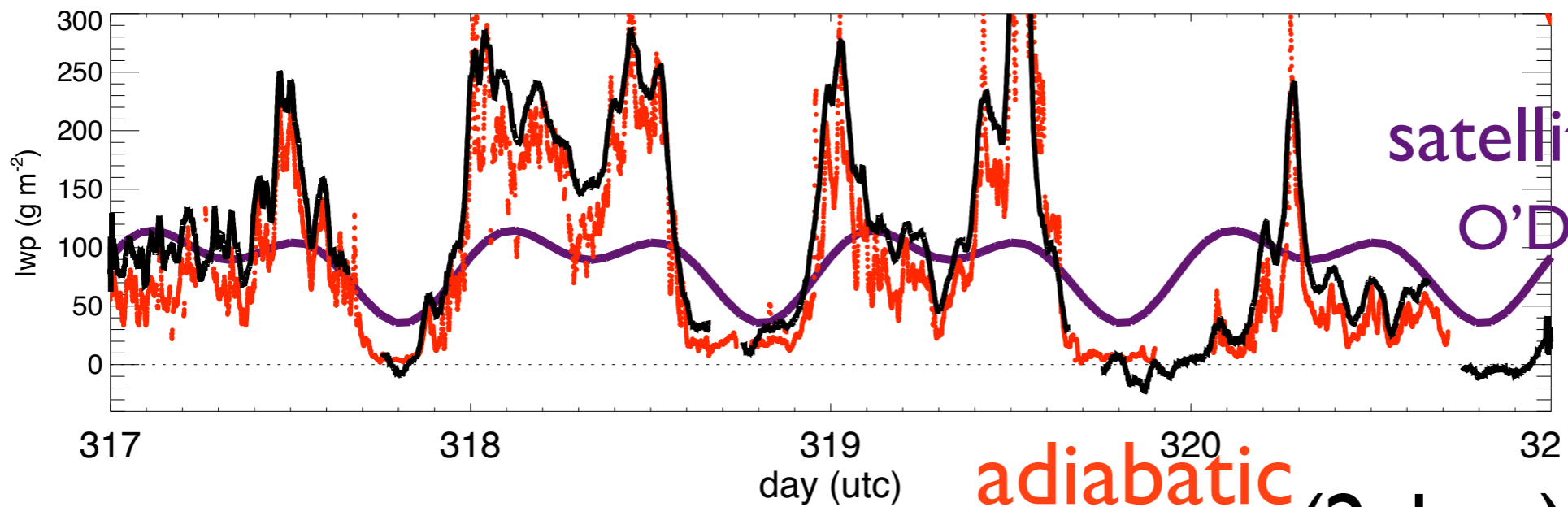
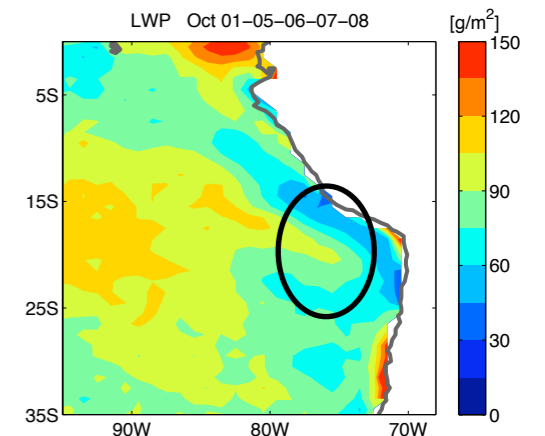


Fig. 5. Mean vertical velocity at 800 hPa for the Nov 2001 simulation, shown every 2 h using a common shading scale (at bottom).



satellite microwave
O'Dell et al. 2008

adiabatic
stat. ret. (2chan)



precipitation as $f(\text{LWP}, N_d)$

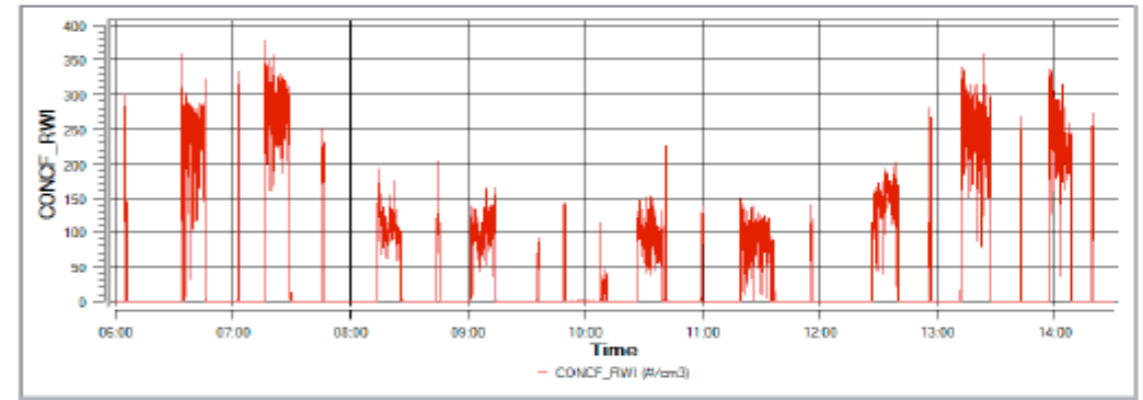
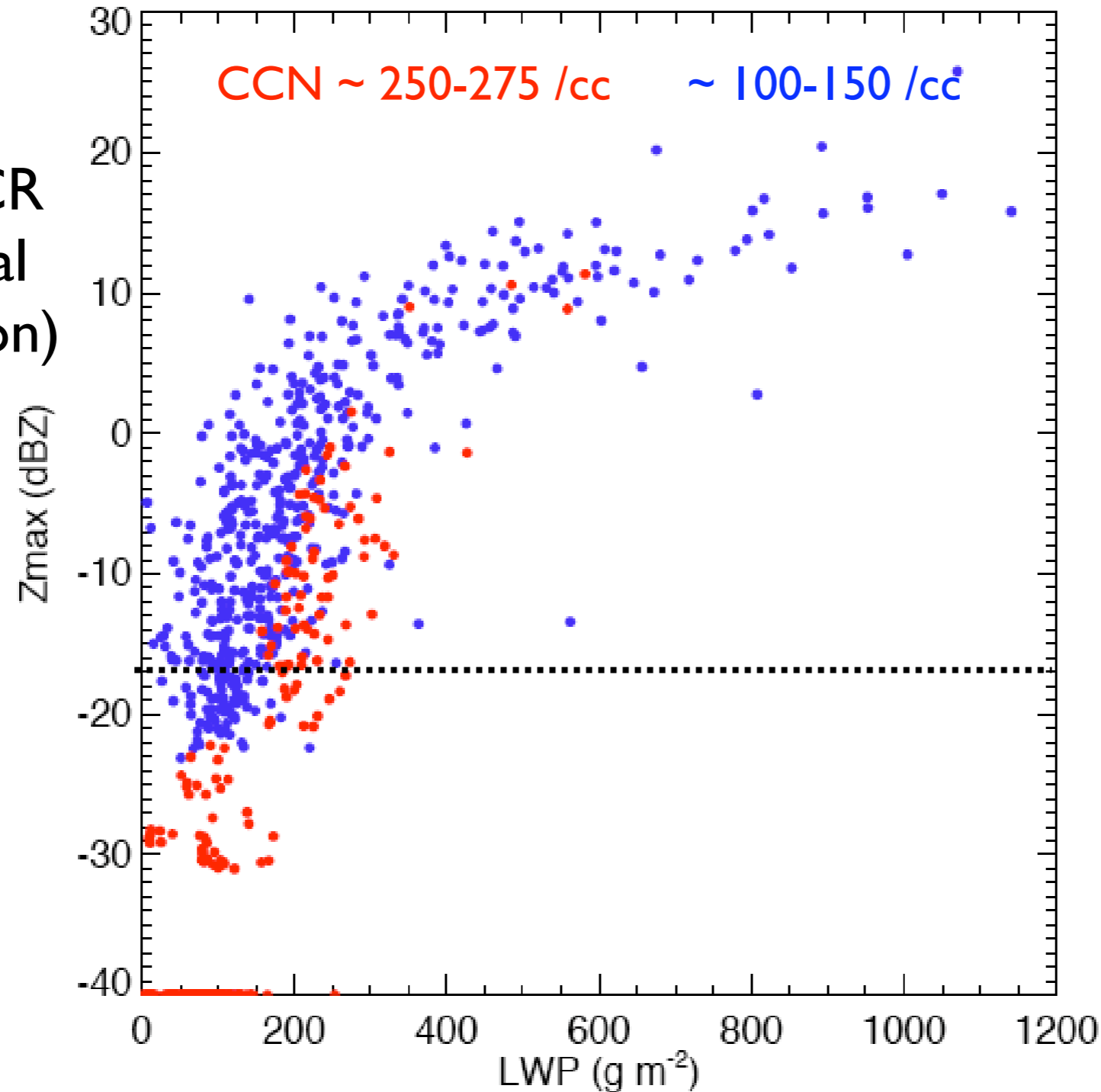


Figure 6: Cloud droplet concentrations from the FSSP-100 during RF03.

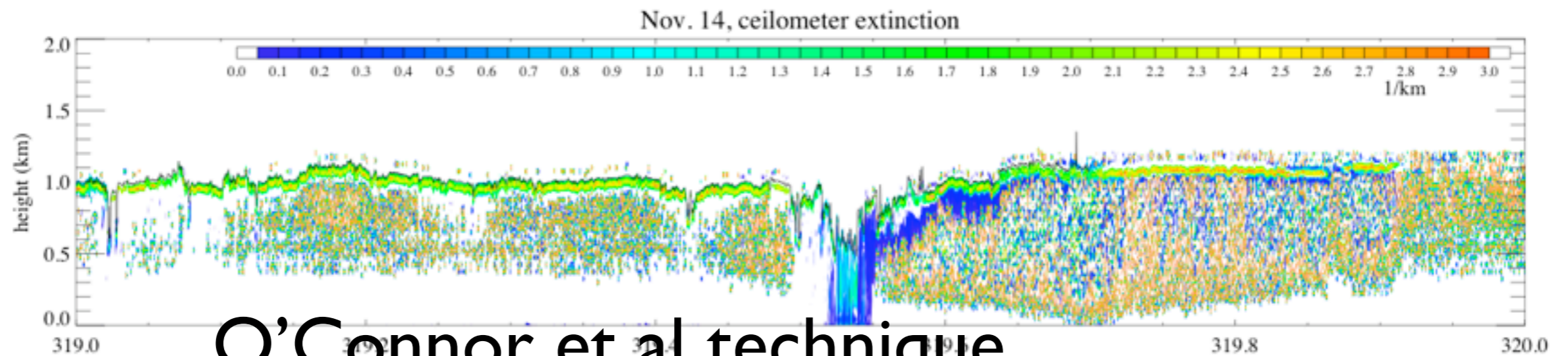
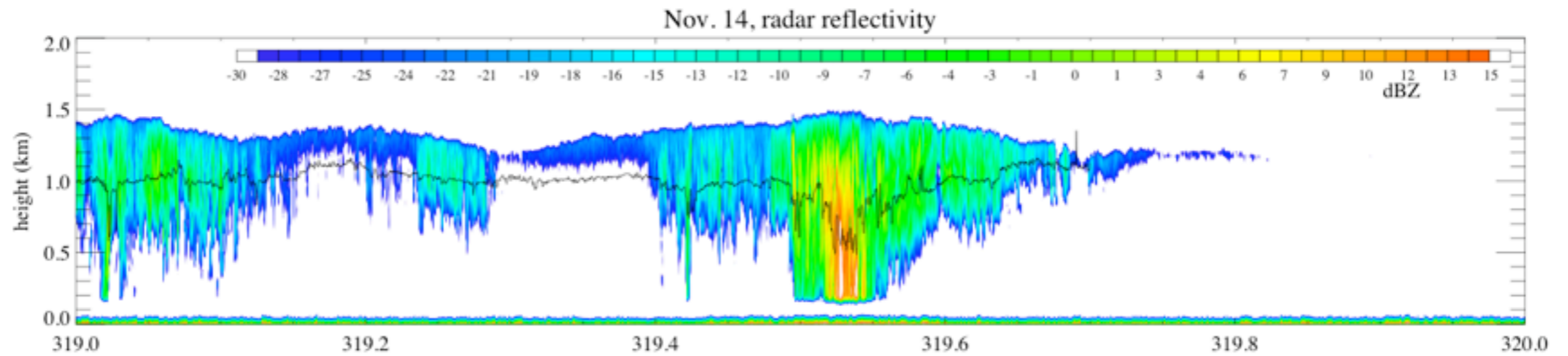
RF3

maximum WCR
dBZ in vertical
column (D. Leon)



precipitation threshold

Ron Brown



O'Connor et al technique

drizzle = $f(\text{radar dBZ}, \text{ceilometer extinction})$

