

Status of TODWL, TWOLF, P3DWL and DAWN: 2015 applications and plans for the near future

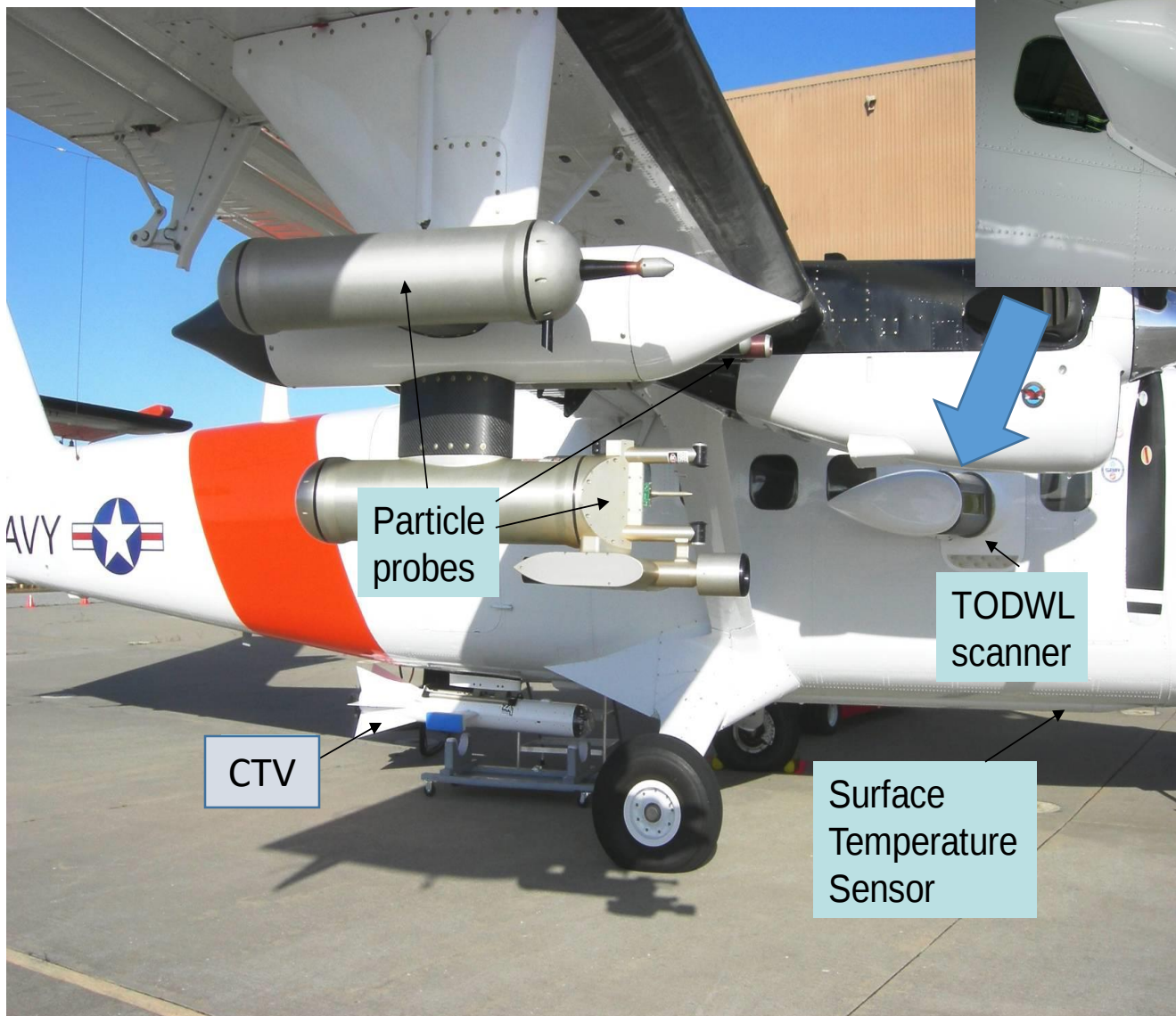
G. D. Emmitt

Working Group on Space-based Lidar Winds

3-4 November, 2015

TODWL (Twin Otter Doppler Wind Lidar)

- 2015
no flights
- 2016
April for 2 weeks to continue investigation of TKE towers
associated with BL rolls and gravity waves in complex
terrain
Funded by ONR



TODWL

Twin Otter Doppler Wind Lidar

CTV

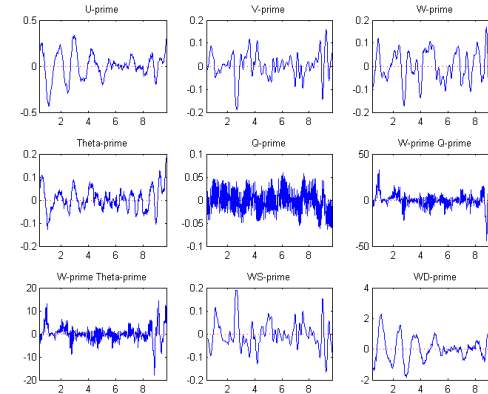
Controlled Towed Vehicle



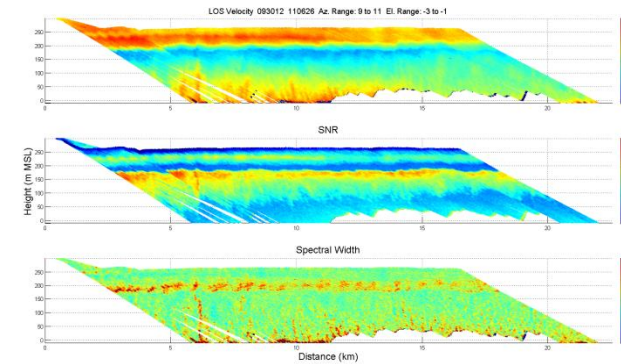
CIRPAS Twin Otter with CTV below



Cabin Primes 102845 TKE: 0.038198 WQ: 0.21743 W-Theta: 0.087407 Skew: -0.1774

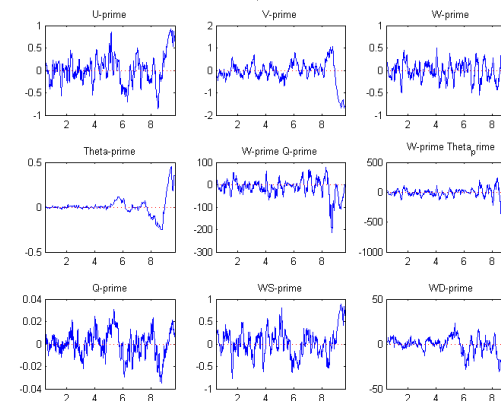


Twin Otter
Probe Data



TODWL
Time/height
Cross sections

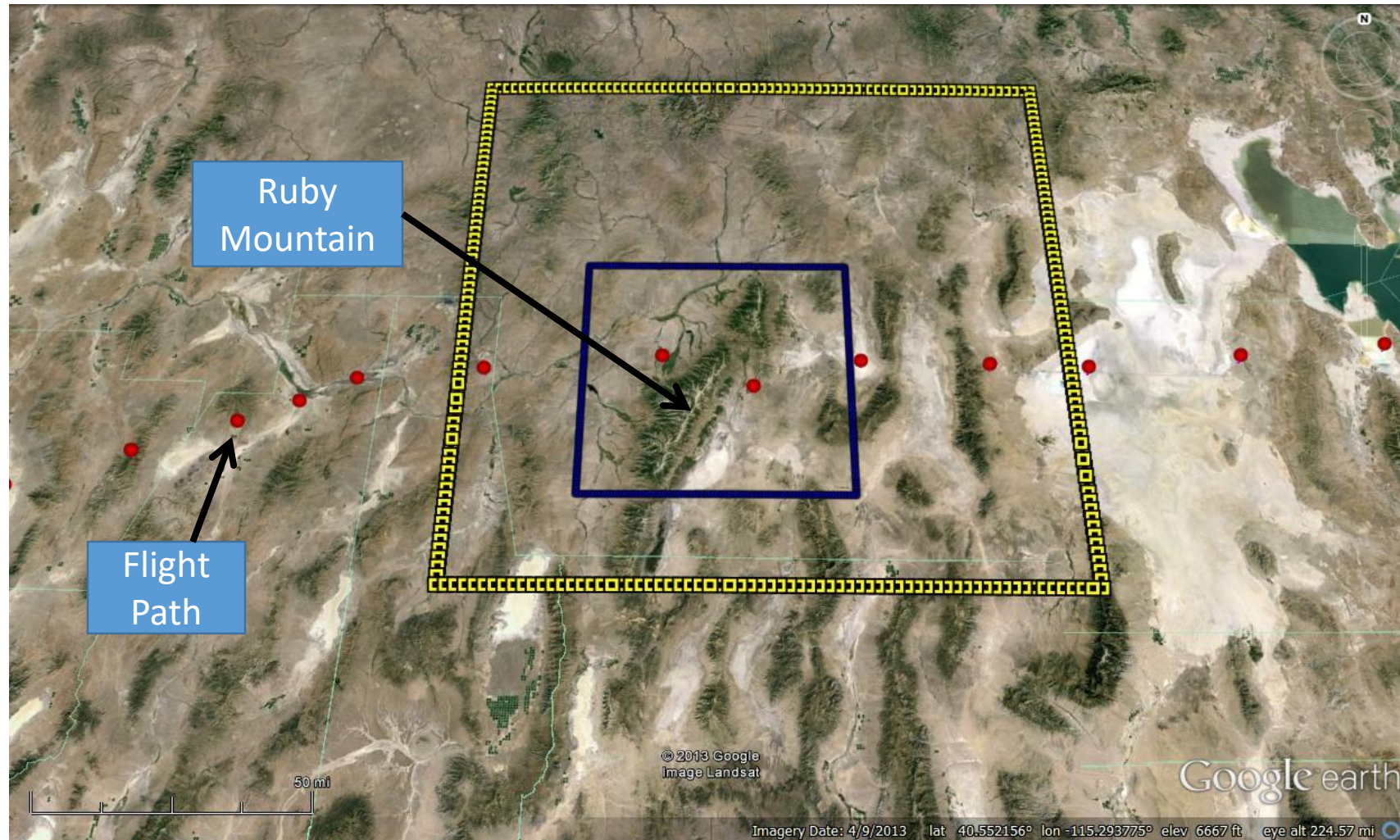
CTV Primes 102845 TKE: 0.80198 WQ: -12.655 W-Theta: -18.7389 Skew: 0.048147



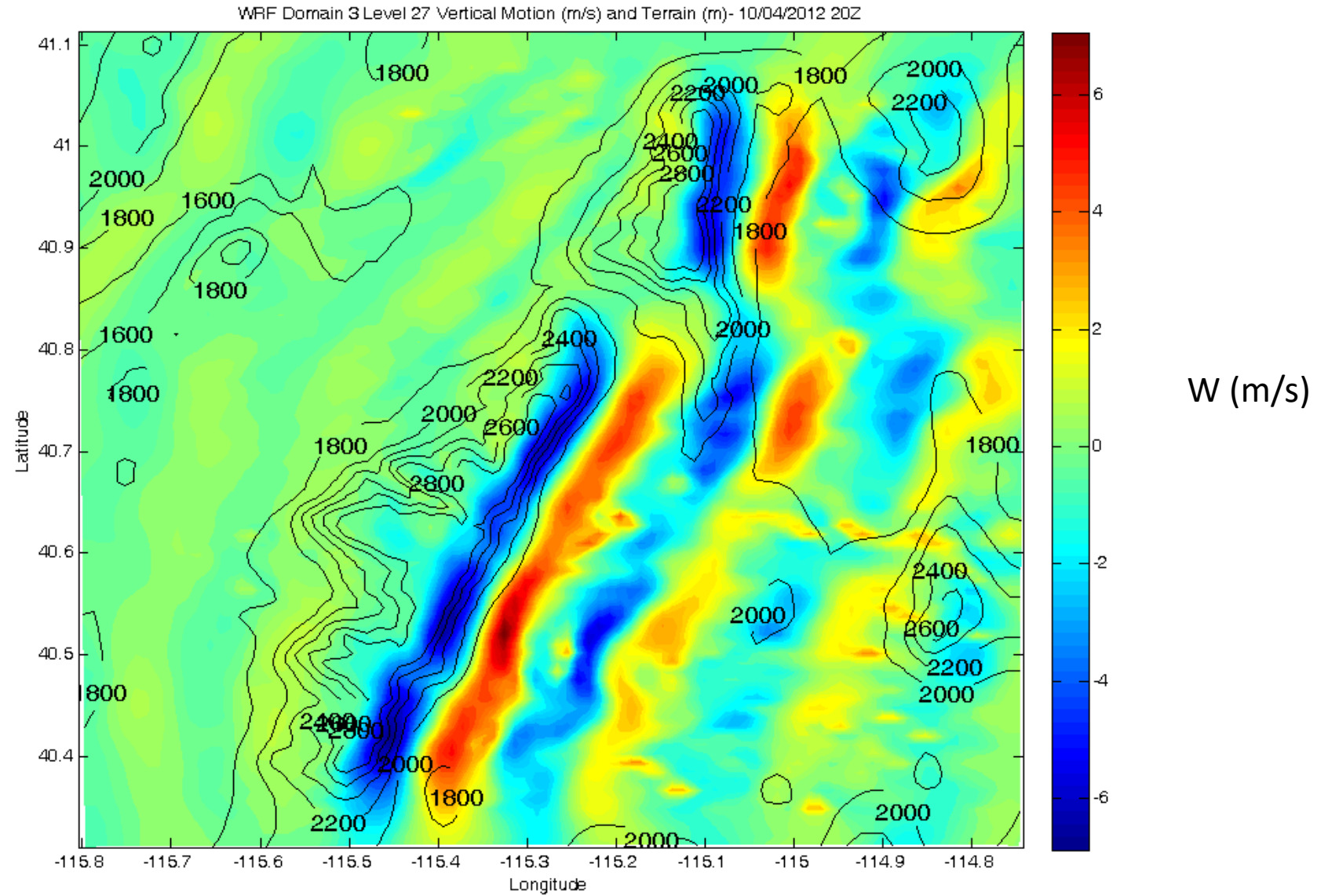
Towed Vehicle
Flux Data



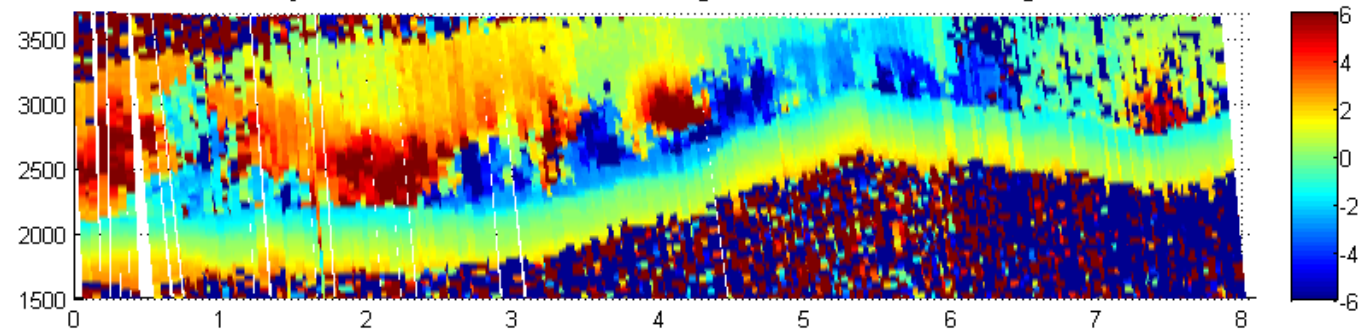
WRF Domains 2 (3 km res.) and 3 (1 km res) for 10/04/2012 20Z



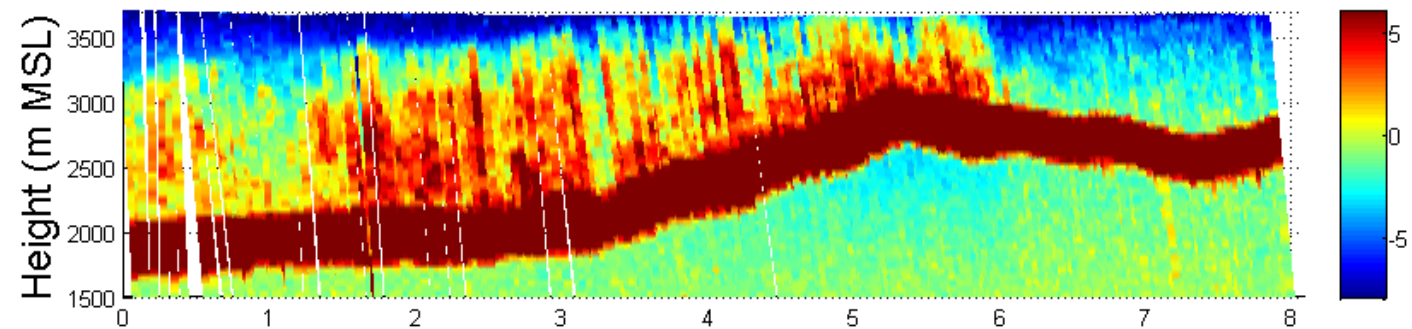
WRF Domain 3 Level 27 Vertical Motion and Terrain



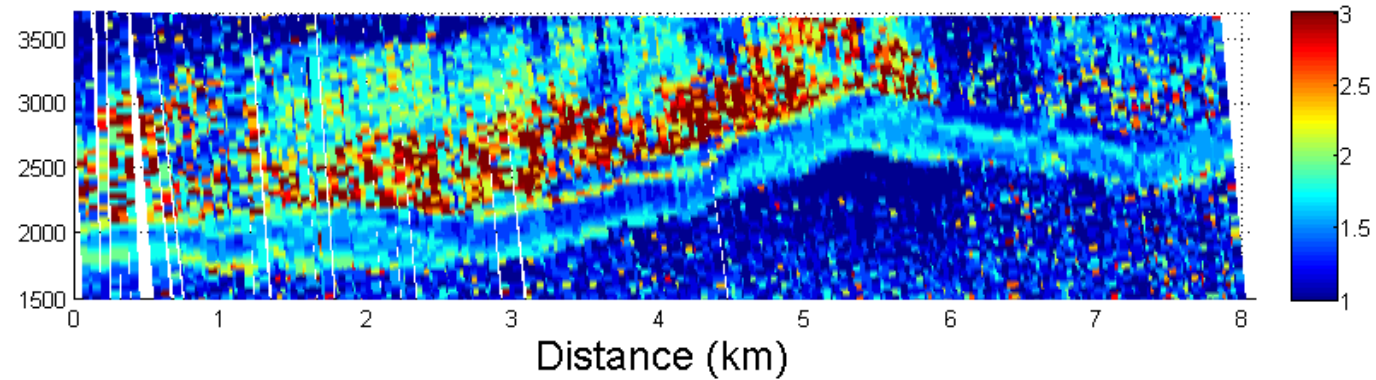
LOS Velocity 100412 120447 Az. Range: -10 to 350 El. Range: -89 to -82



SNR



Spectral Width



TWOLF (Truck mounted Wind Observing Facility)

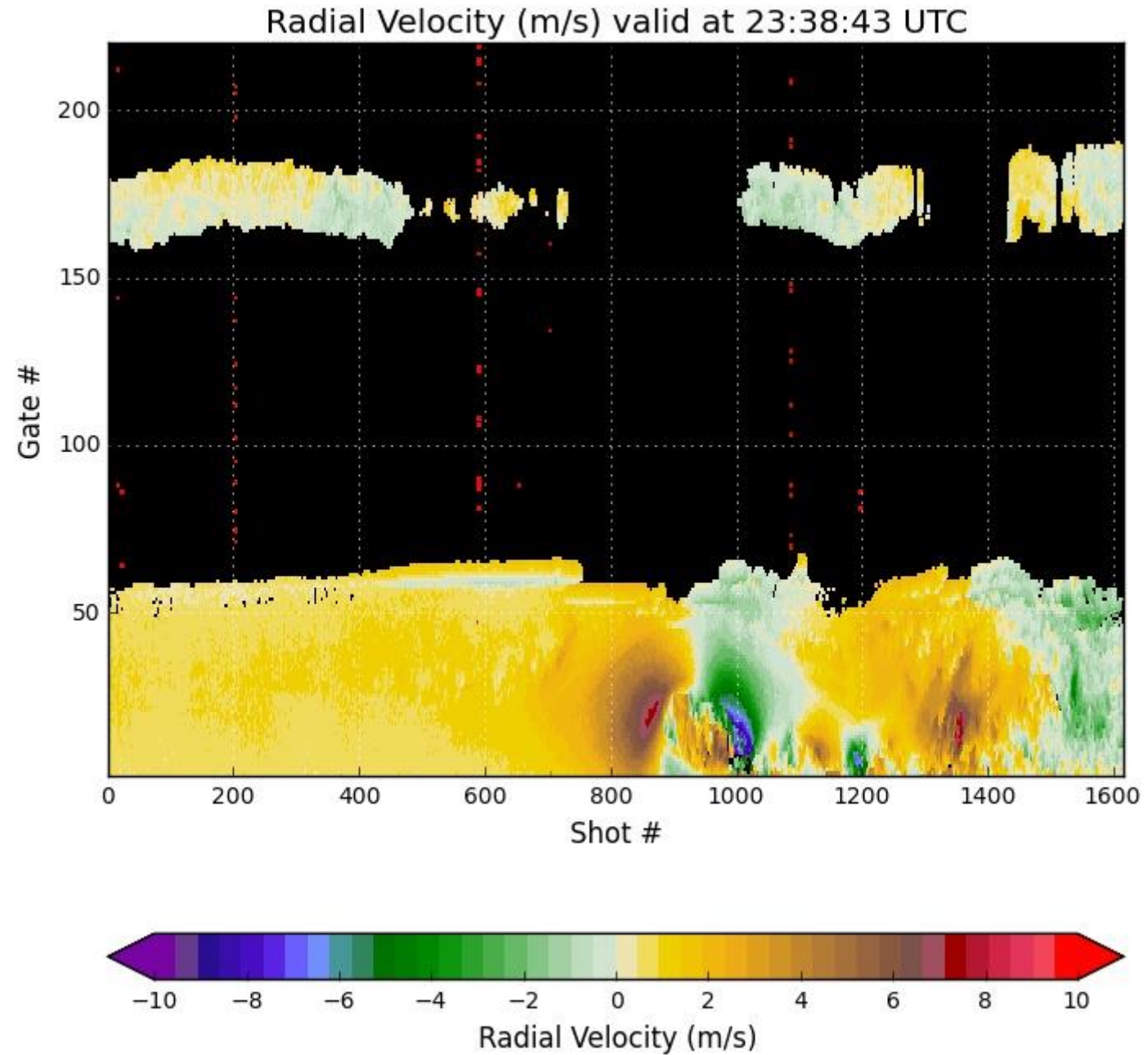
- 2015
Tornado “chasing” and PECAN
- 2016
Tornado research in May/June
Funded by NSF

TWOLF

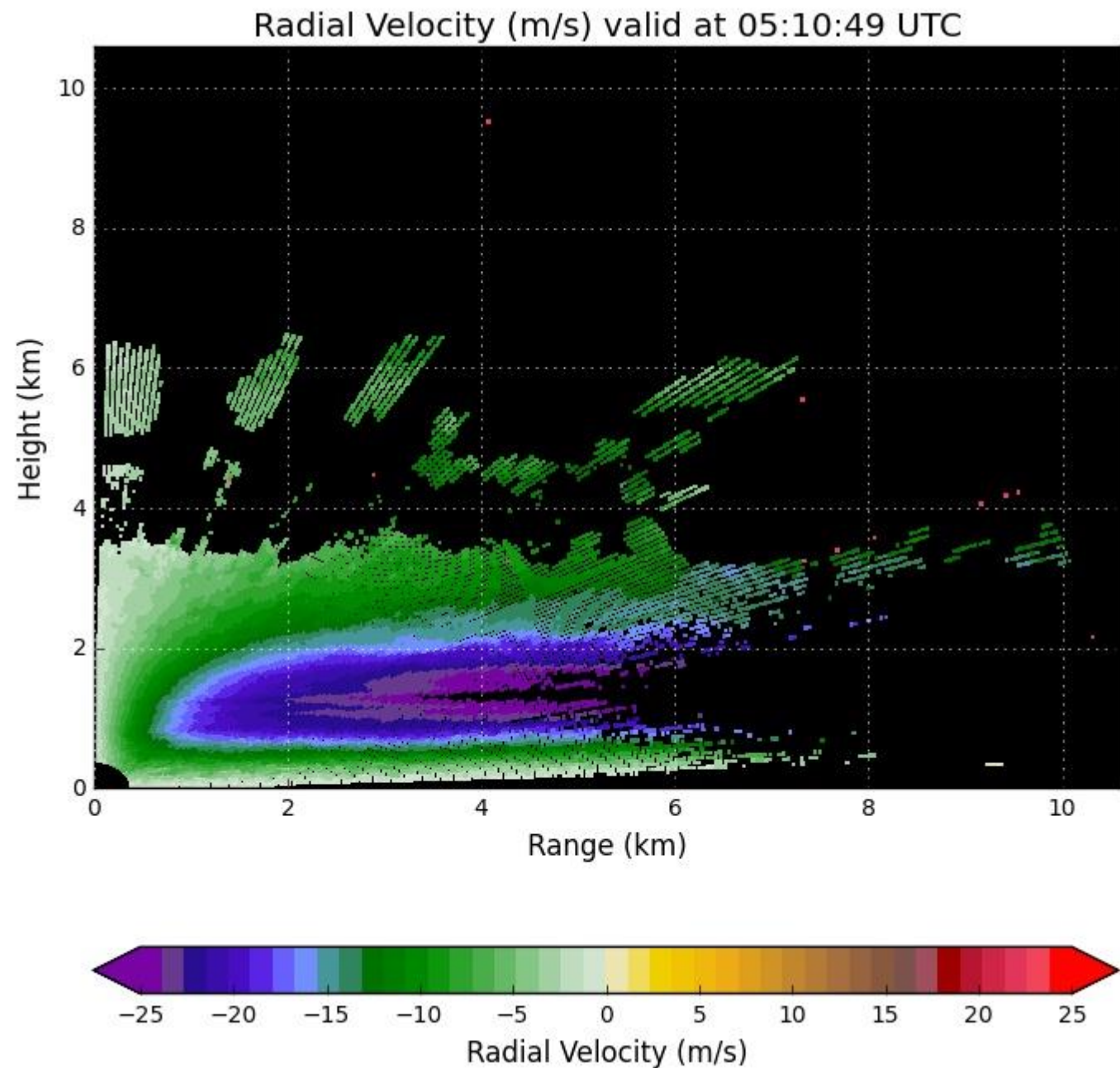
Truck mounted Wind Observing Lidar Facility



TWOLF vertical stare
during PECAN 2015
(bore case)



TWOLF RHI through
jet on 07062015
during PECAN



P3DWL

- 2015
Hurricane reconnaissance
- 2016
Repairs and HFIP research
Funded by NOAA

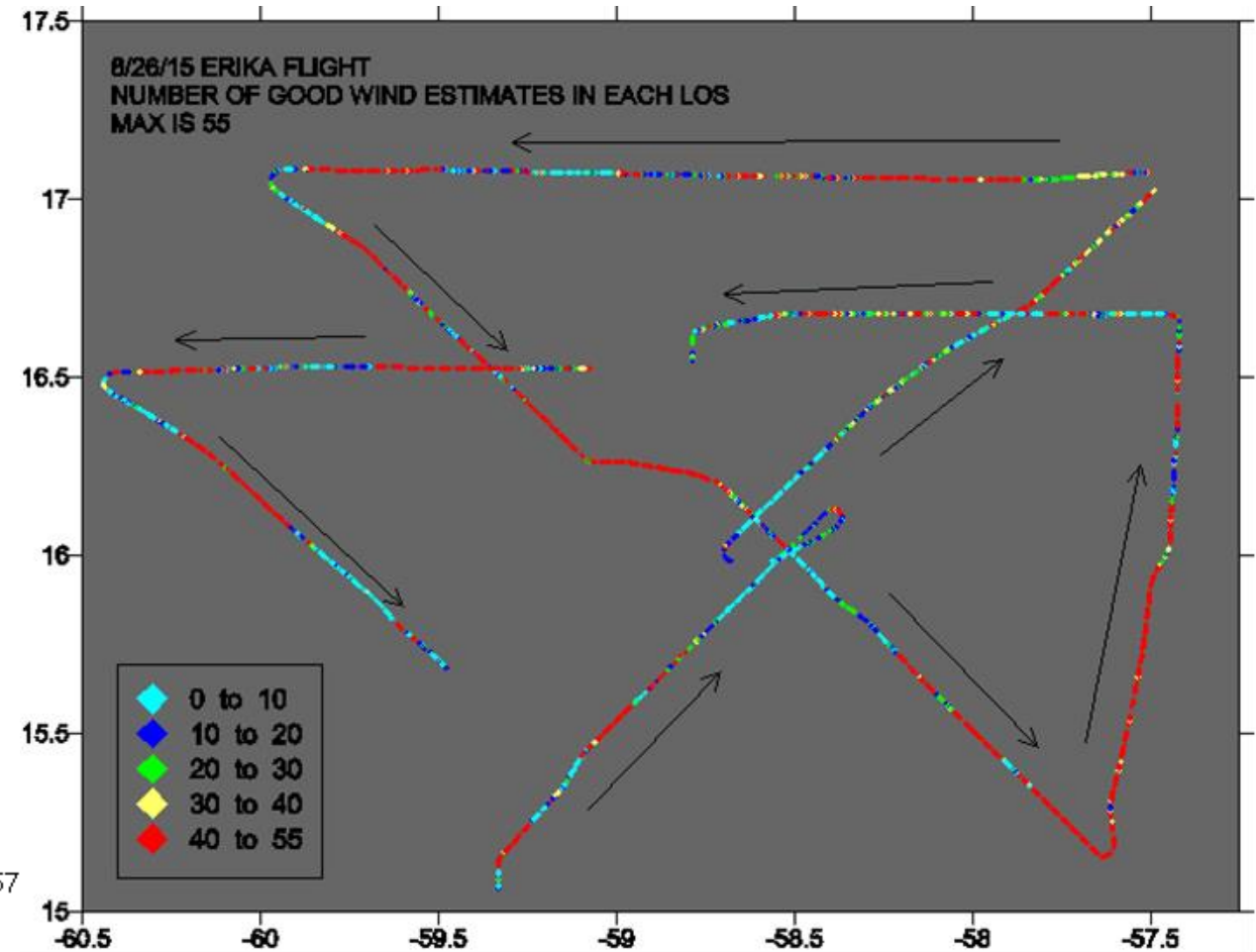
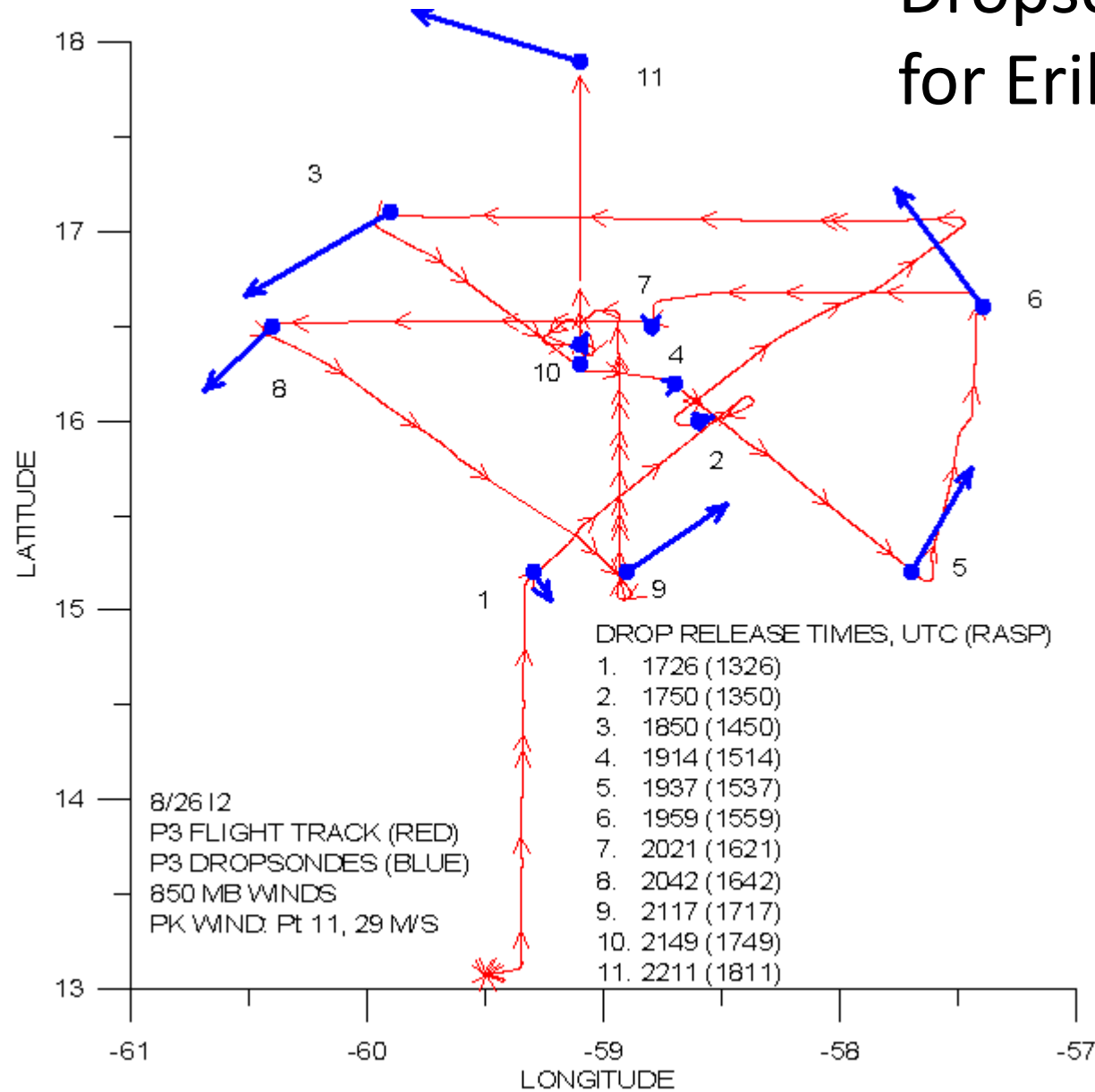
P3DWL for ONR TPARC and NOAA HFIP



1.6 μm coherent WTX (ARL/LMCT)
10 cm bi-axis scanner (NASA)
P3 and other parts (NRL)
Analyses software (SWA/CIRPAS)



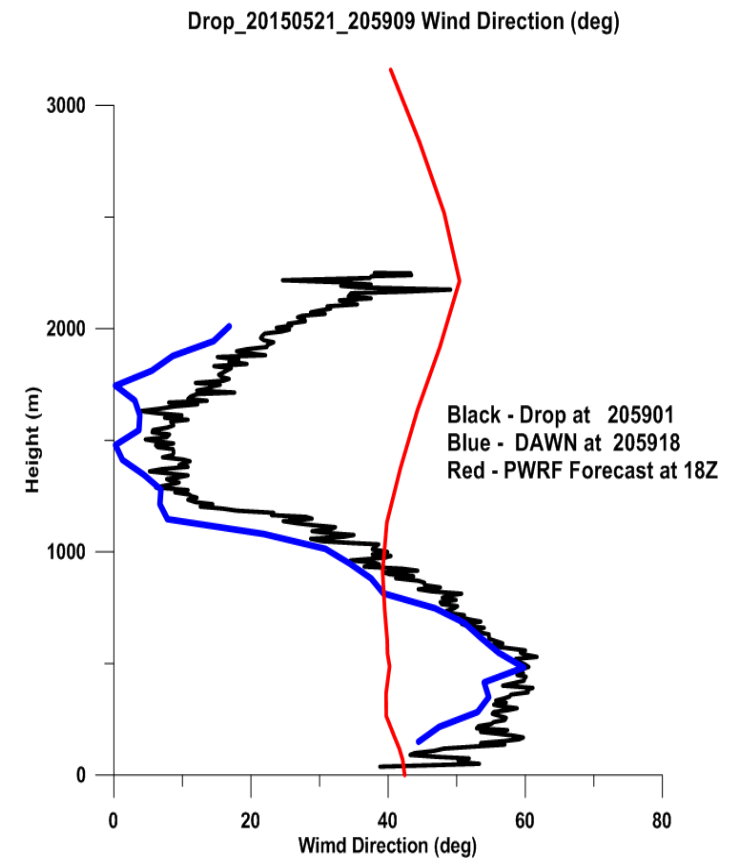
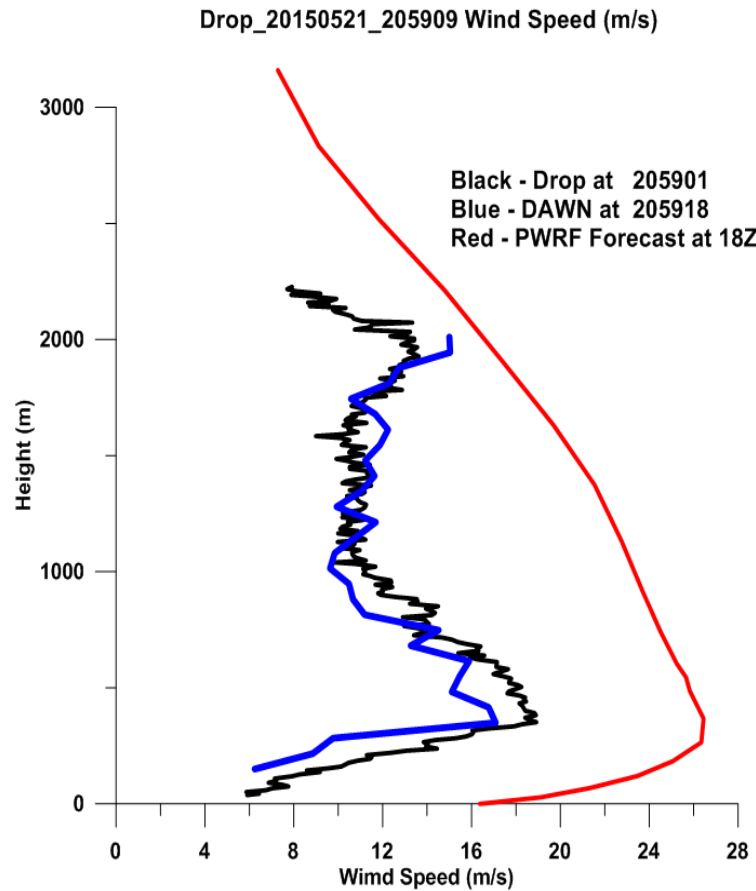
Dropsonde locations and P3DWL coverage for Erika reconnaissance flight 8/26/15



DAWN

- 2015
PolarWinds and ADM Cal/Val Campaign II
- 2016
Performance optimization
LaRC based test and evaluation
Funded by NASA

DAWN, dropsondes and PolarWRF comparisons



DAWN as installed in NASA DC-8

