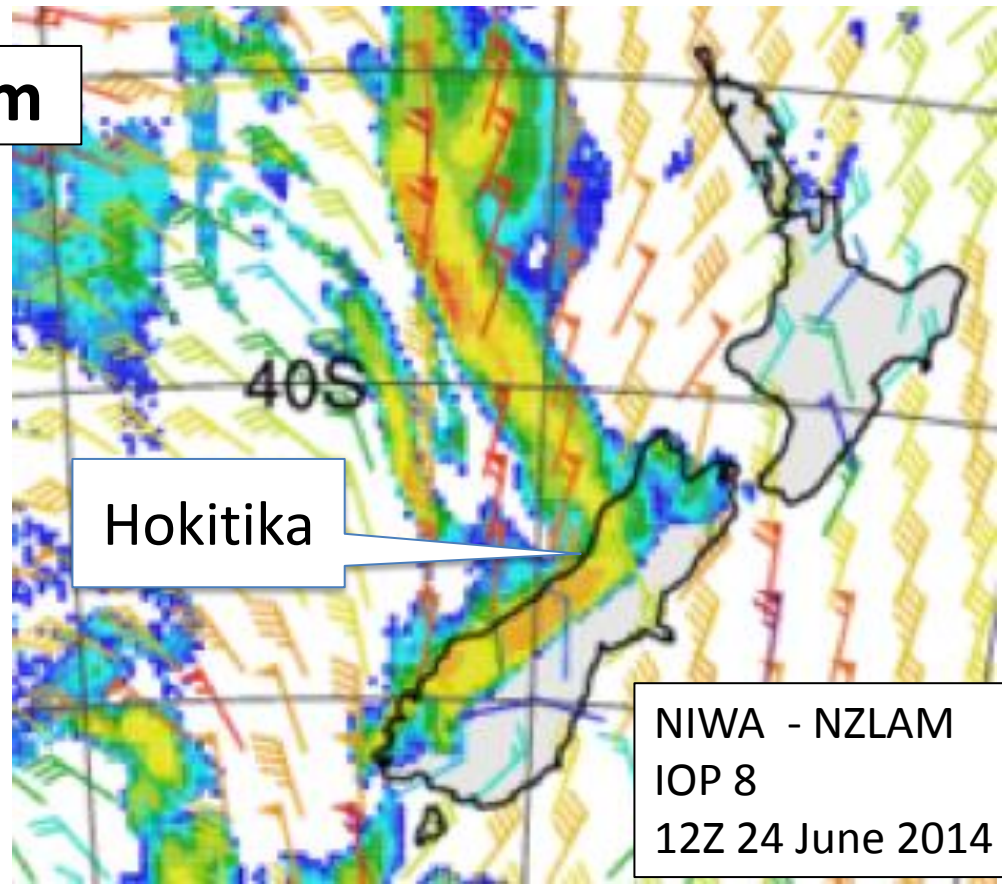


Integrated Sounding System

- Soundings, wind profiler, surface met
- Monitored upwind flow on west coast
- 2 months of operation 28 May – 28 July

Bill Brown
NCAR / EOL

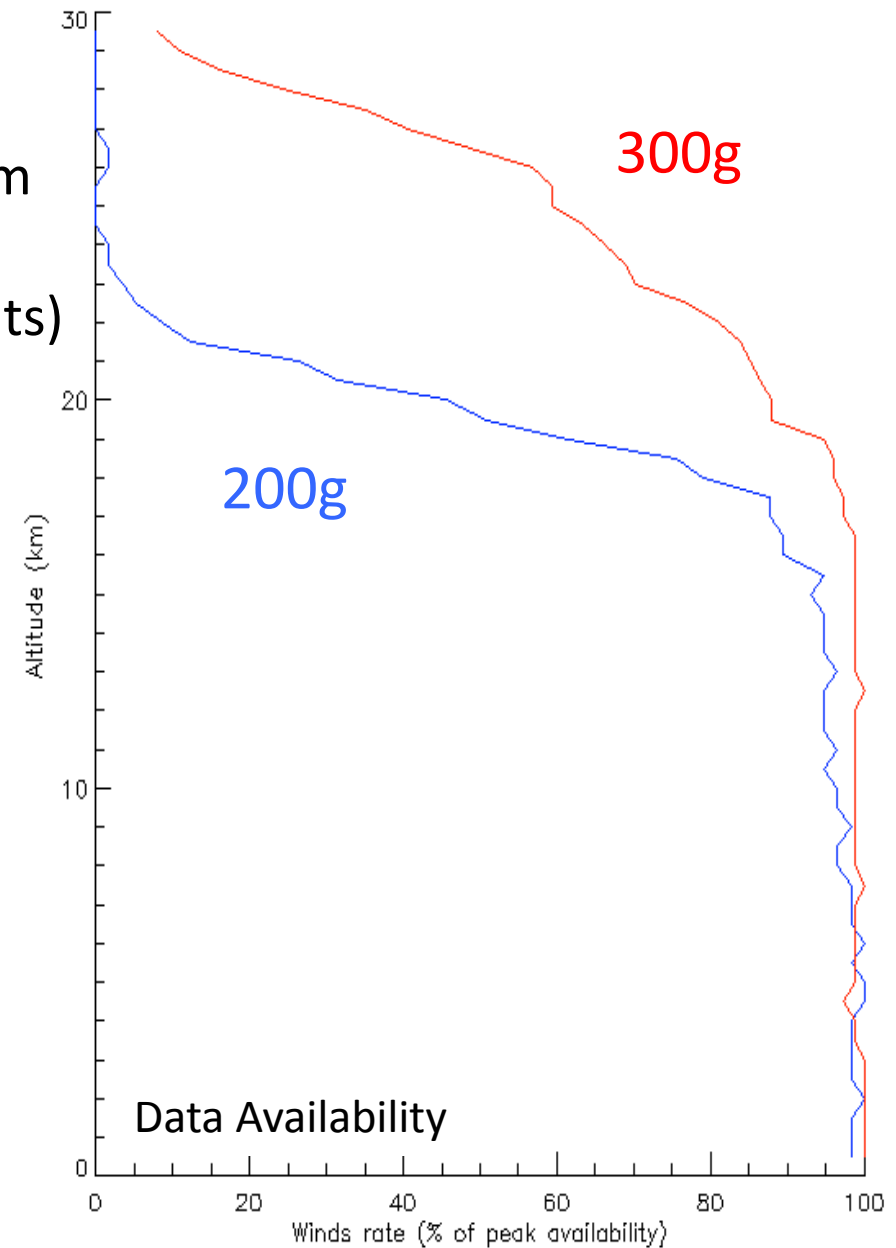


NIWA - NZLAM
IOP 8
12Z 24 June 2014



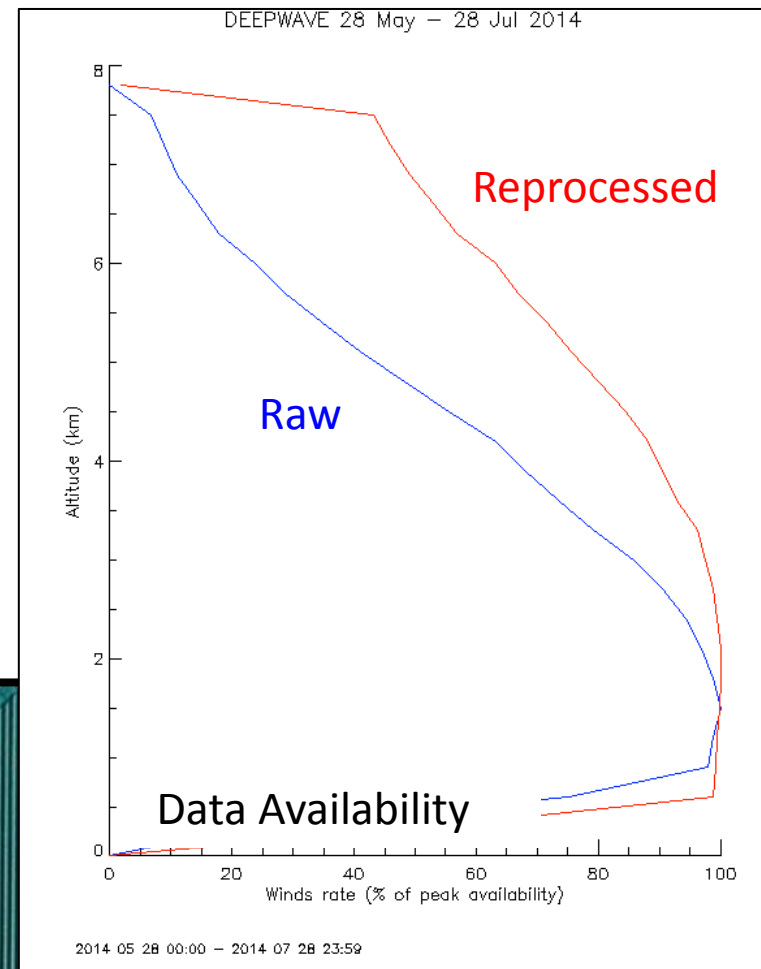
Soundings

- 145 Soundings
- Daily soundings: 65 200g, typ 19km
- IOP soundings: 80 300g, typ 24km
- 20 helpers (mix of US & NZ students)
- Few problems

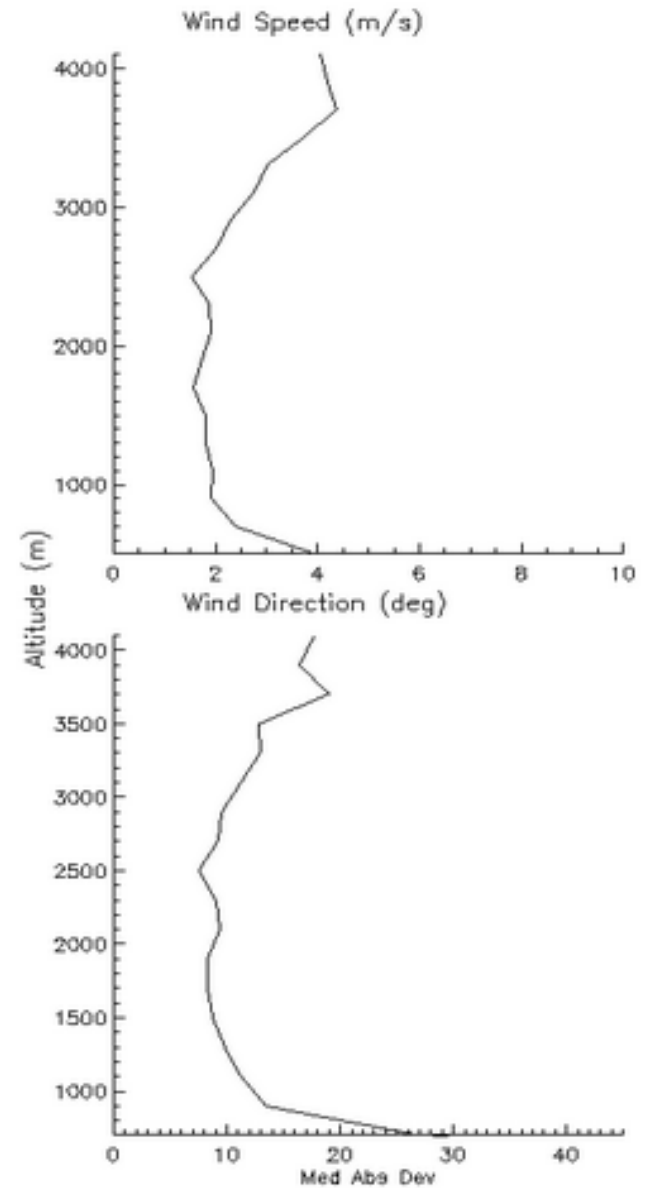
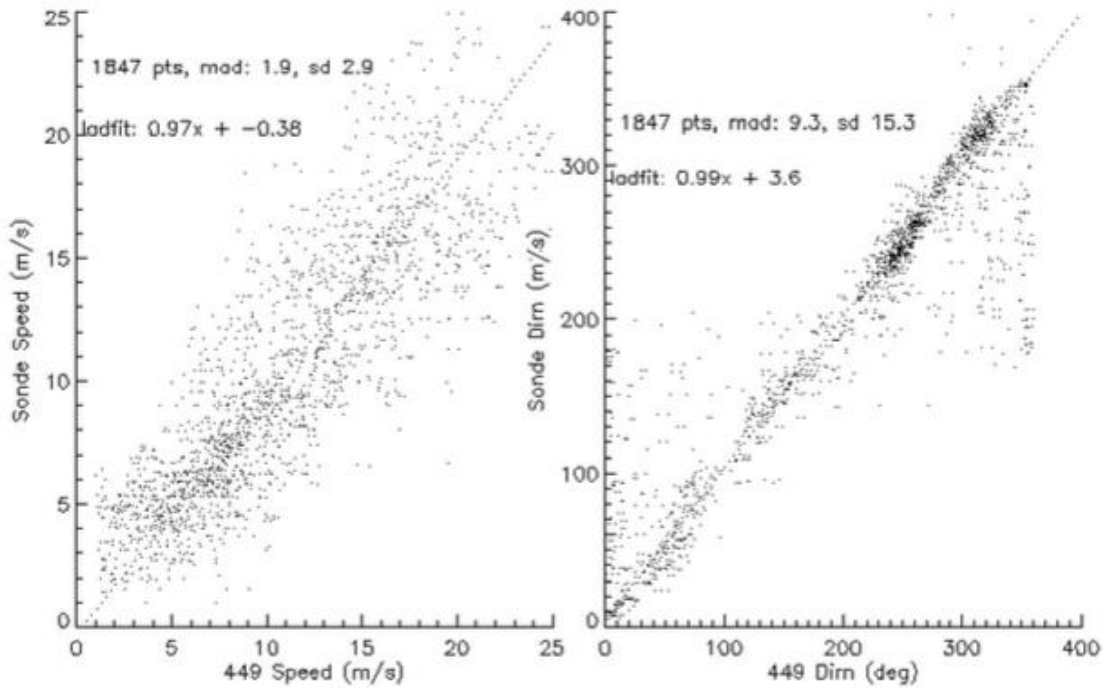


Radar Wind Profiler

- 449 MHz Modular Wind Profiler
- Added modules to increase power and sensitivity to get to higher altitudes
- 95% coverage to mountain top level
- Good agreement with radiosondes

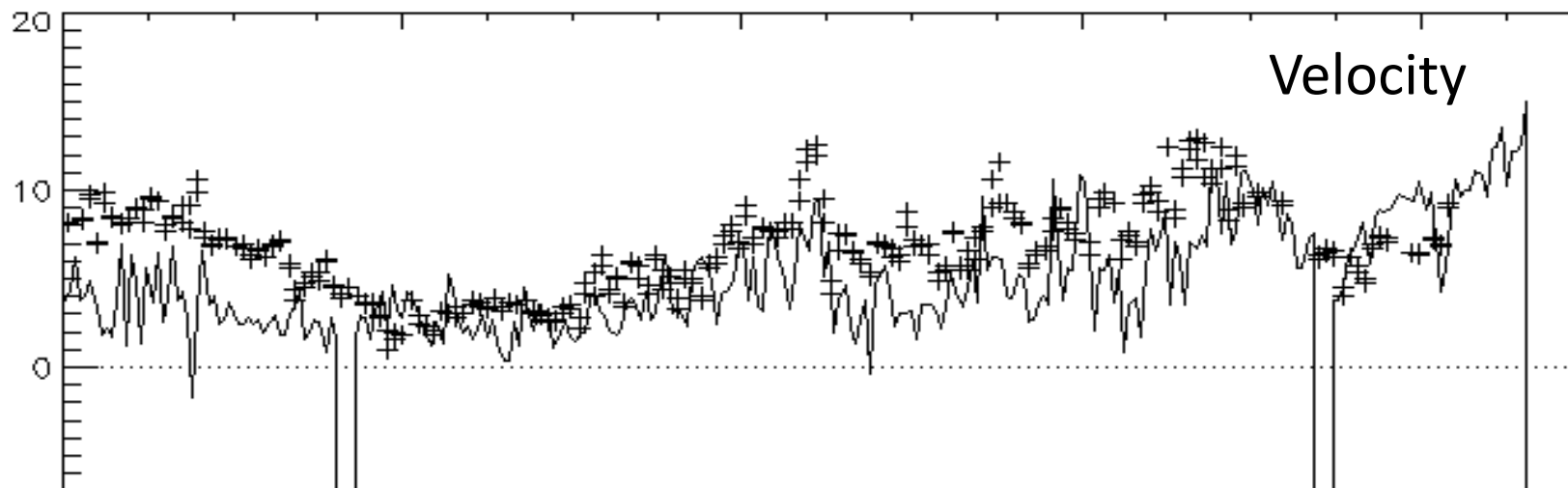
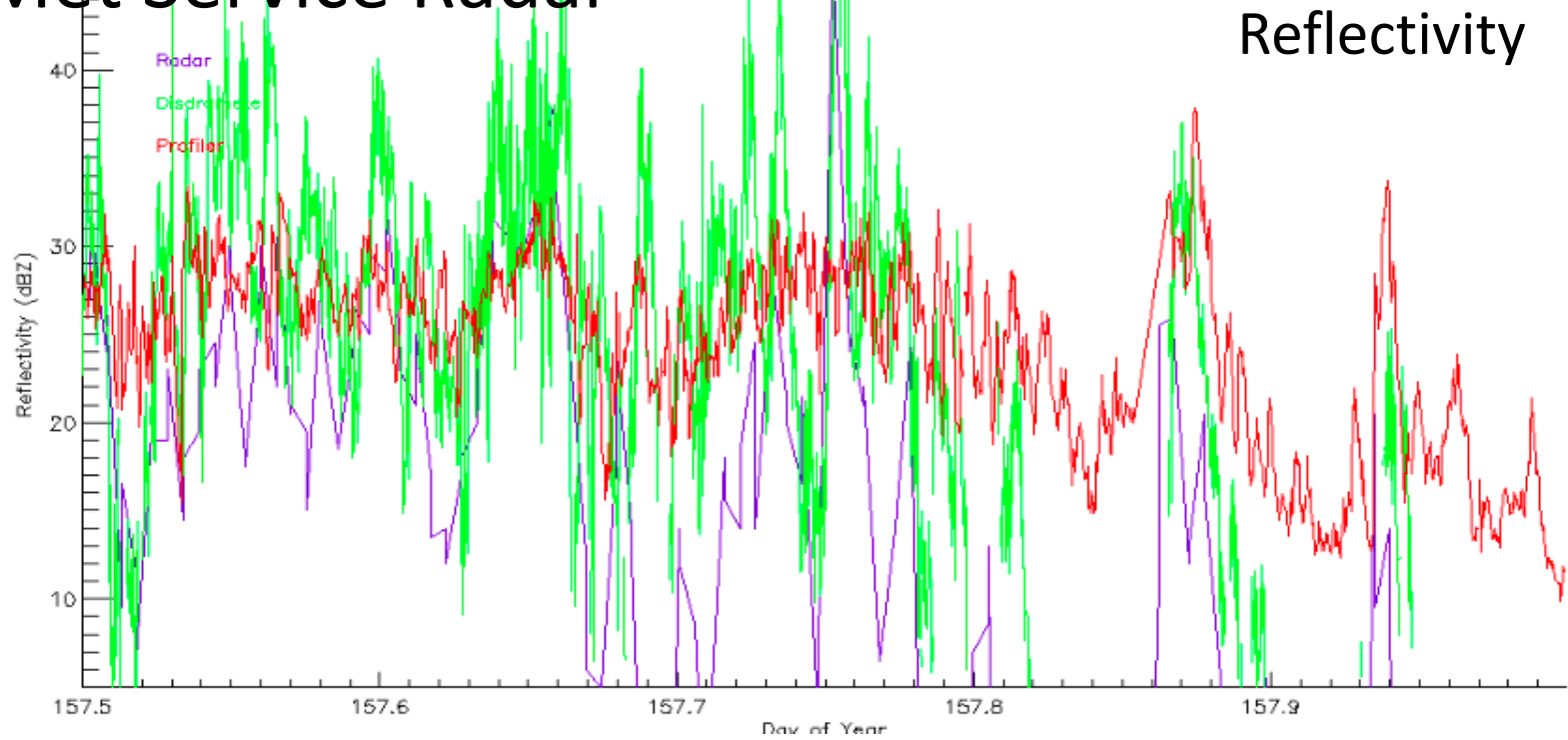


Comparing with Soundings



Median Dev wrt to sondes $\sim 2\text{m/s}$
Clear-Air only $\sim 1.5 \text{ m/s}$
Agreement fairly steady with hgt

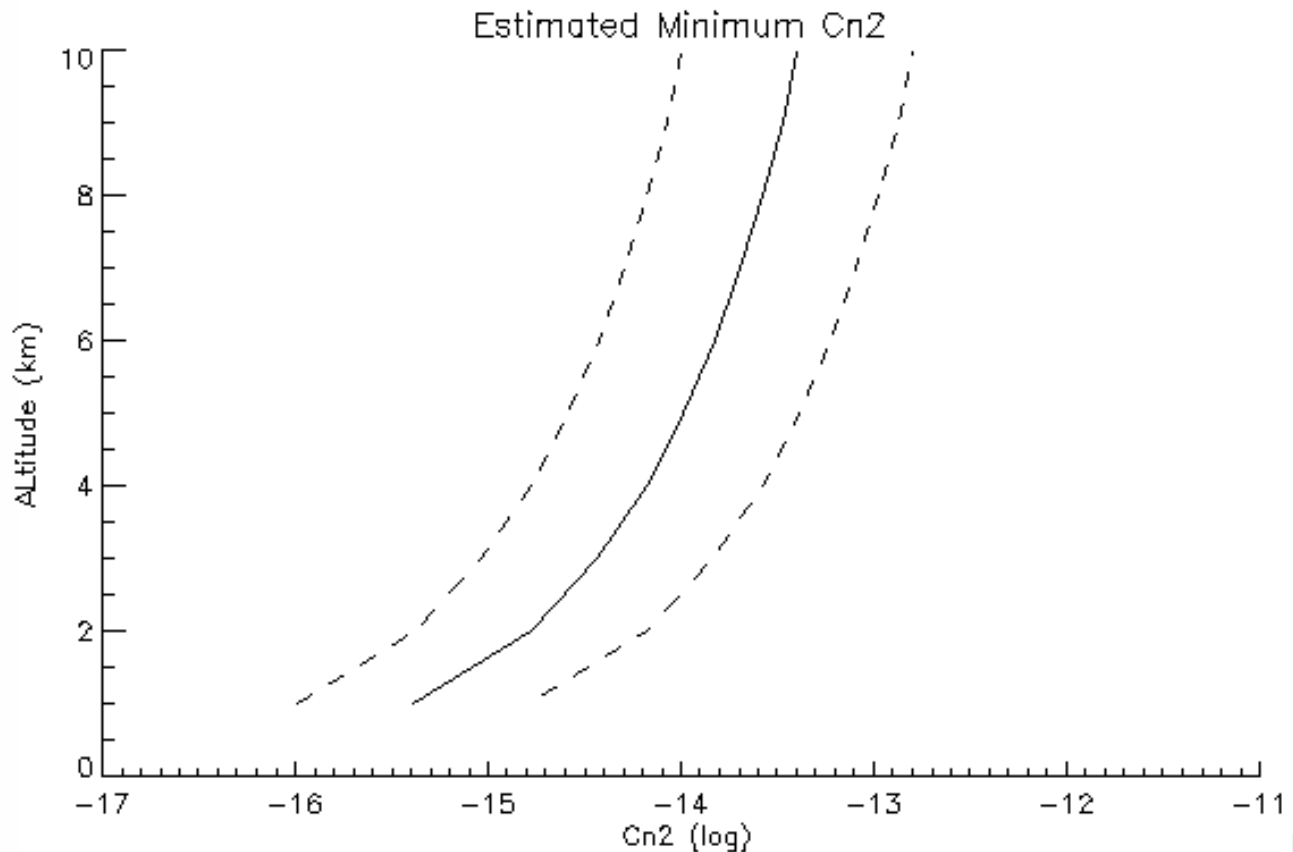
Comparing with Met Service Radar



Cn²

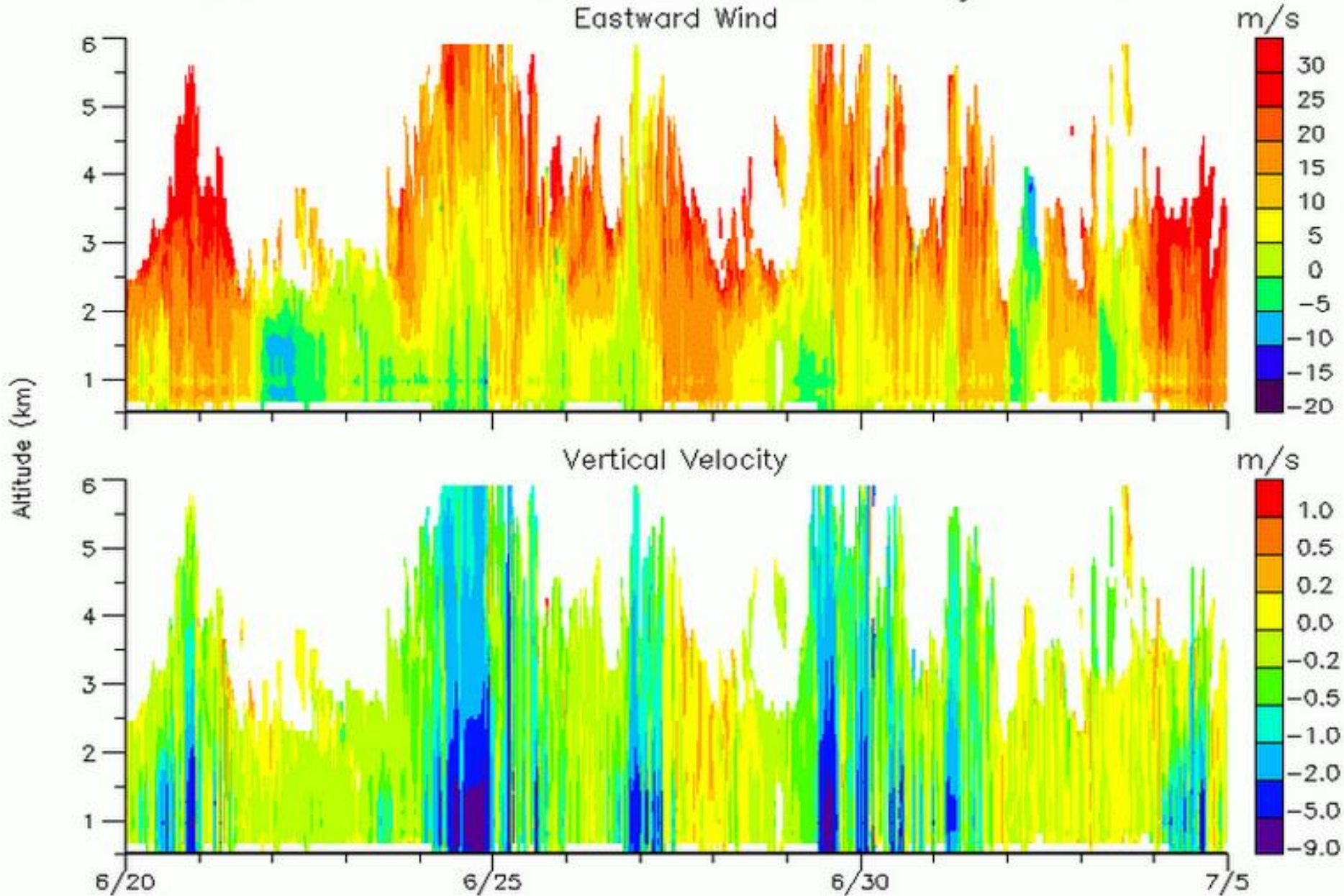
Attempting to calibrate reflectivity

Relate to Cn² turbulent structure parameter
as an indicator of profiler sensitivity



Two Week Intensive Period

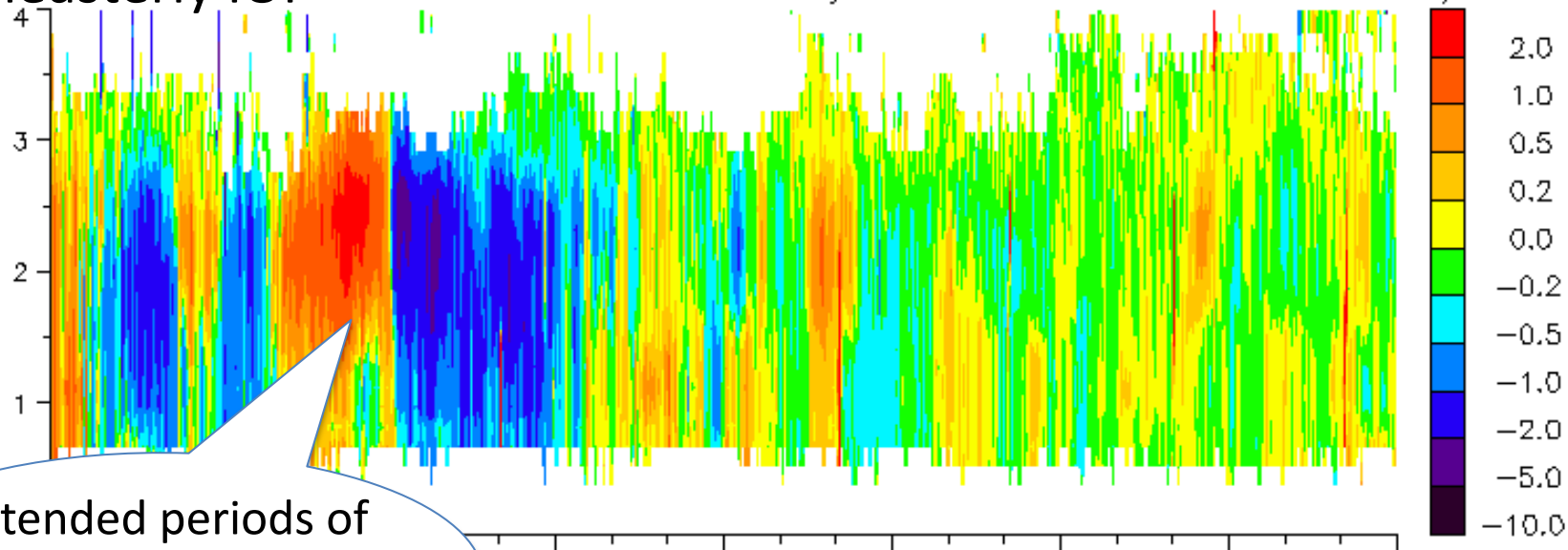
NCAR 449MHz Wind Profiler 20 Jun – 5 Jul 2014 Days 171 – 186
Eastward Wind



Southeasterly IOP

Vertical Velocity

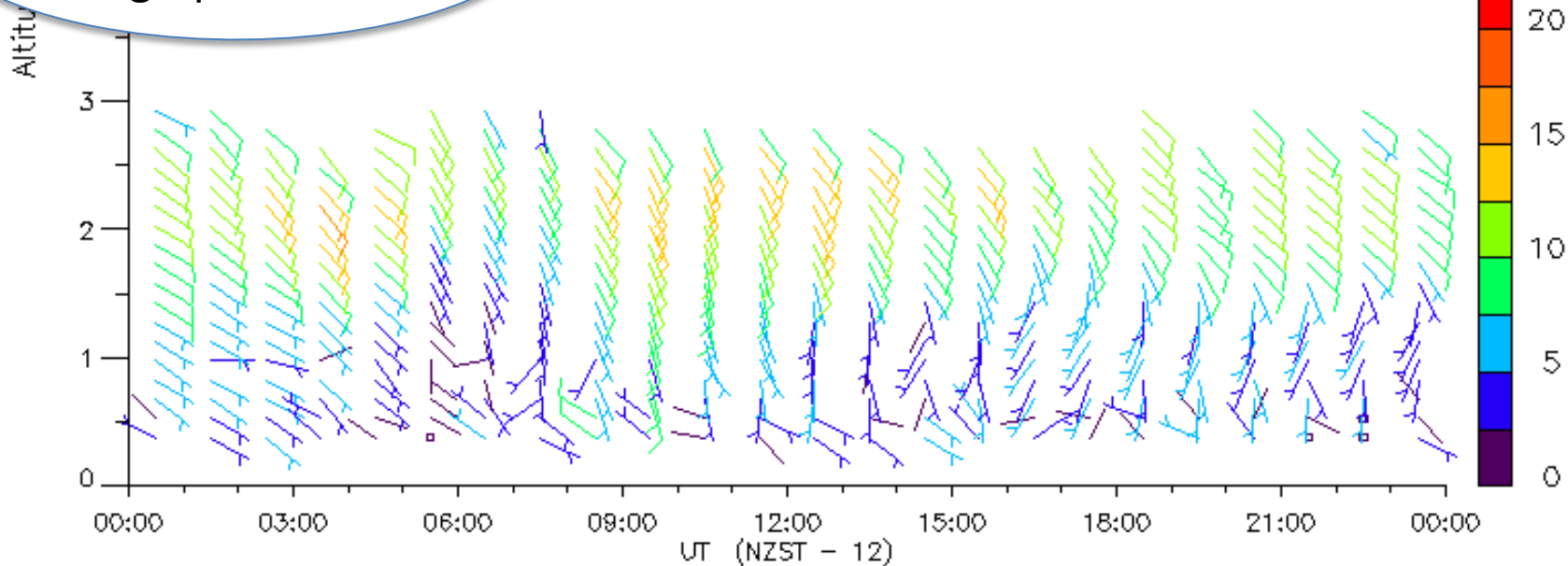
m/s



Extended periods of
Vertical Vel – likely
orographic waves

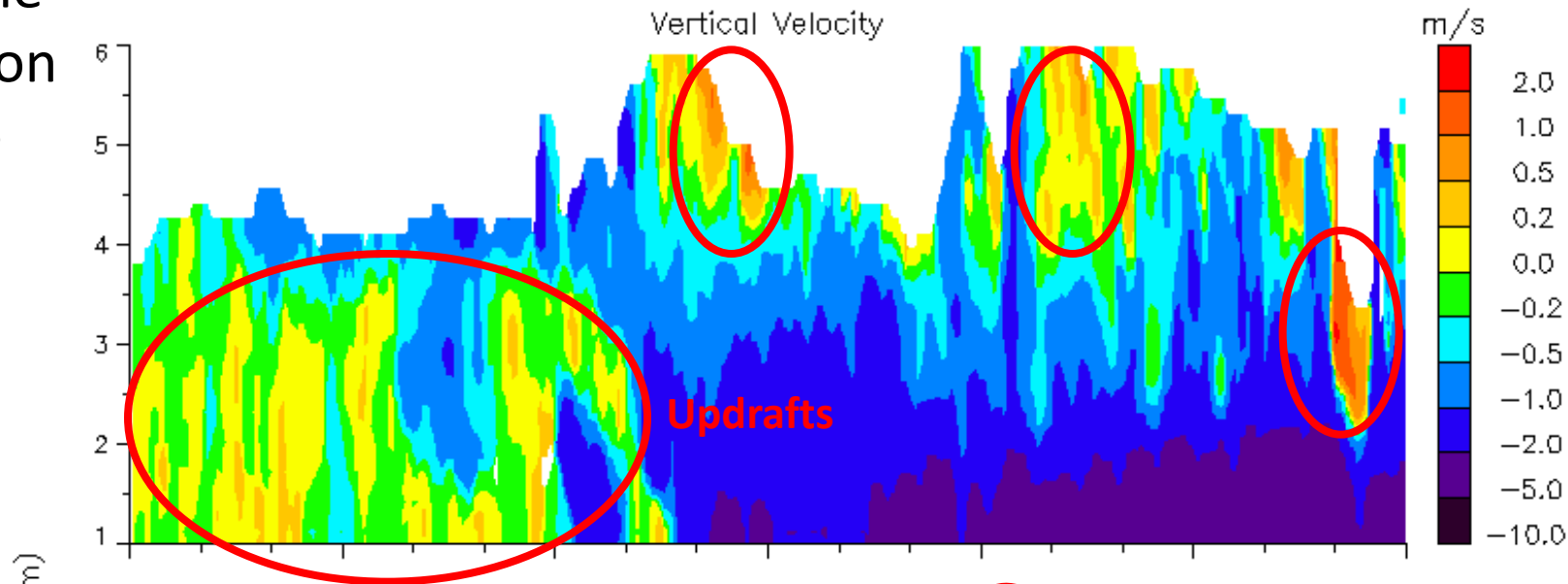
Hourly Consensus Wind Barbs

m/s

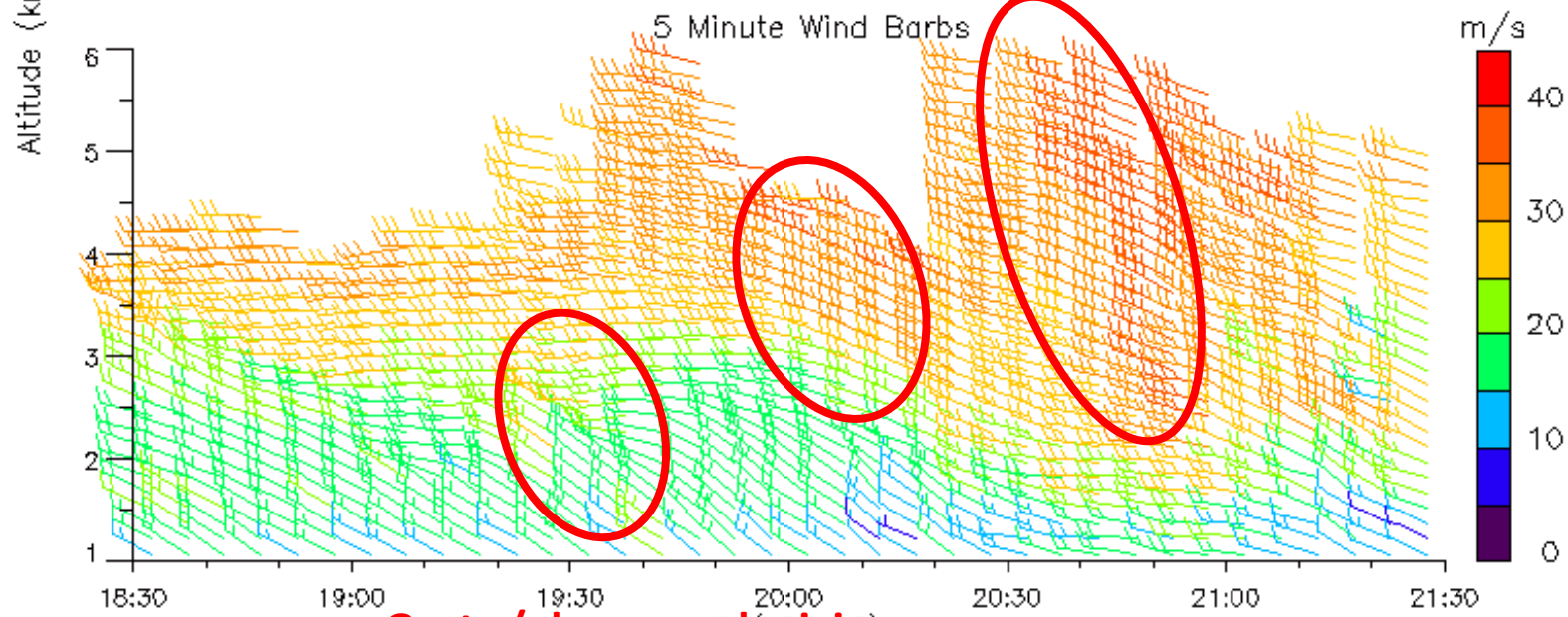


High Time Resolution Example

449 MHz Modular Profiler 20 June 2014



5 minute winds



ISS Summary

- 2 months of operation
- Soundings
 - 145 radiosondes
- Profiler
 - Reprocessing and QC
 - Comparing with sondes and radar
 - 95% coverage to mountain top level
 - Occasional persistent updrafts
 - Suggests local orographic waves

