ISS: Integrated Sounding System DEEPWAVE

NCAR

National Center for Atmospheric Research
Earth Observing Laboratory
In-situ Sensing Facility

Project Sponsors:
NSF: National Science Foundation

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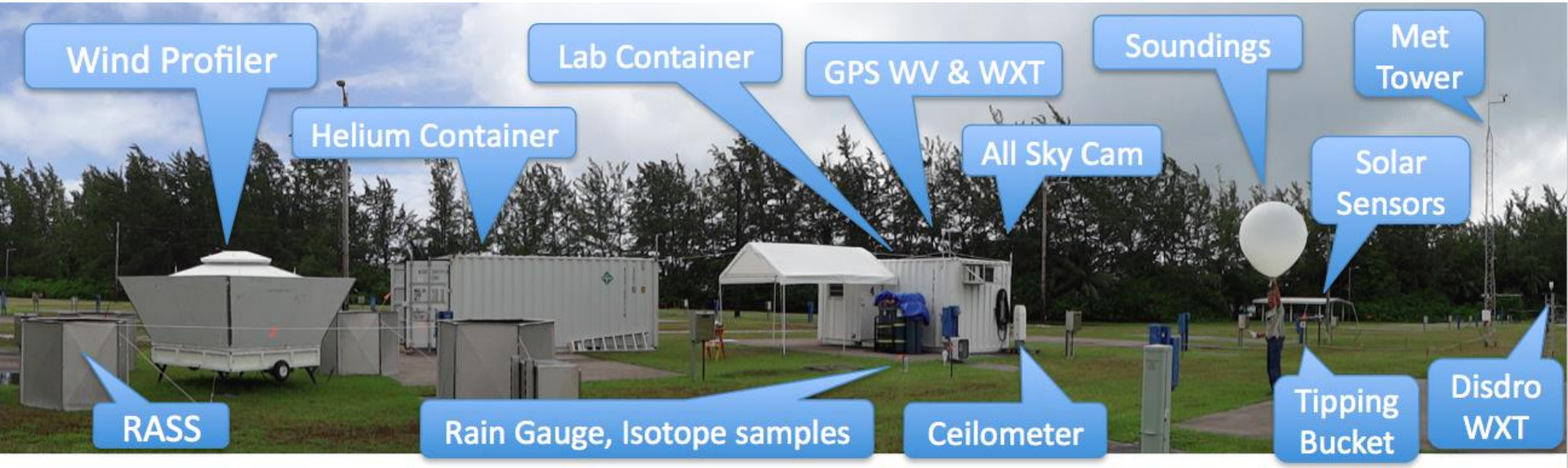
ISS *Integrated Sounding System*

Suite of instruments to make detailed profile of the atmosphere

ISS Components:

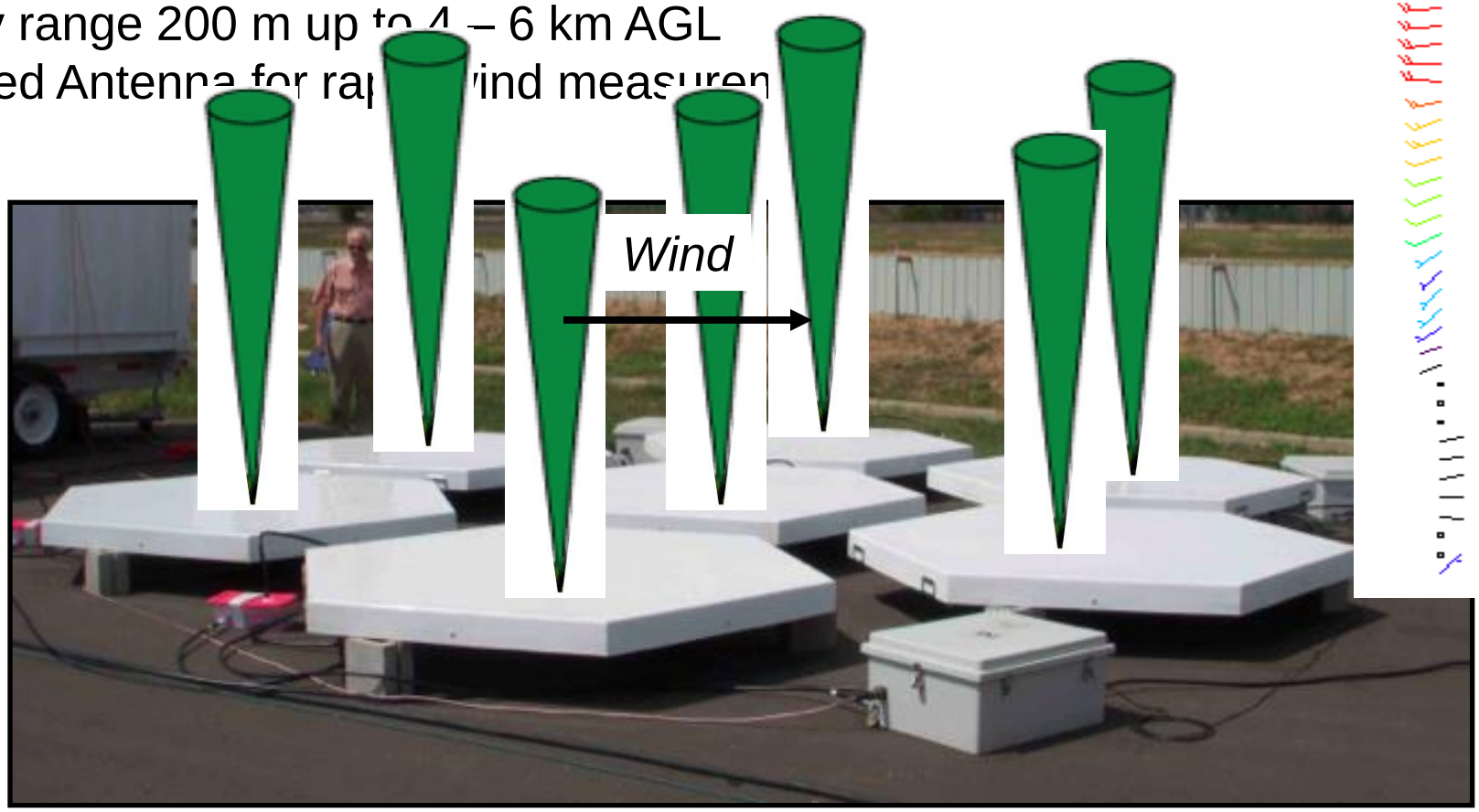
- Wind profiler radar
- Radiosondes soundings
- Surface meteorology
- Lab space: integrate measurements, communications

West coast site will continuously monitor on-shore flow



Radar Wind Profiler

- Vertically looking radar to measure wind profile
- Can also observe precip and clear-air turb
- 449 MHz (66 cm), 4 kW
- NZ radio frequency allocation approved
- Likely range 200 m up to 4 – 6 km AGL
- Spaced Antenna for rapid wind measurem



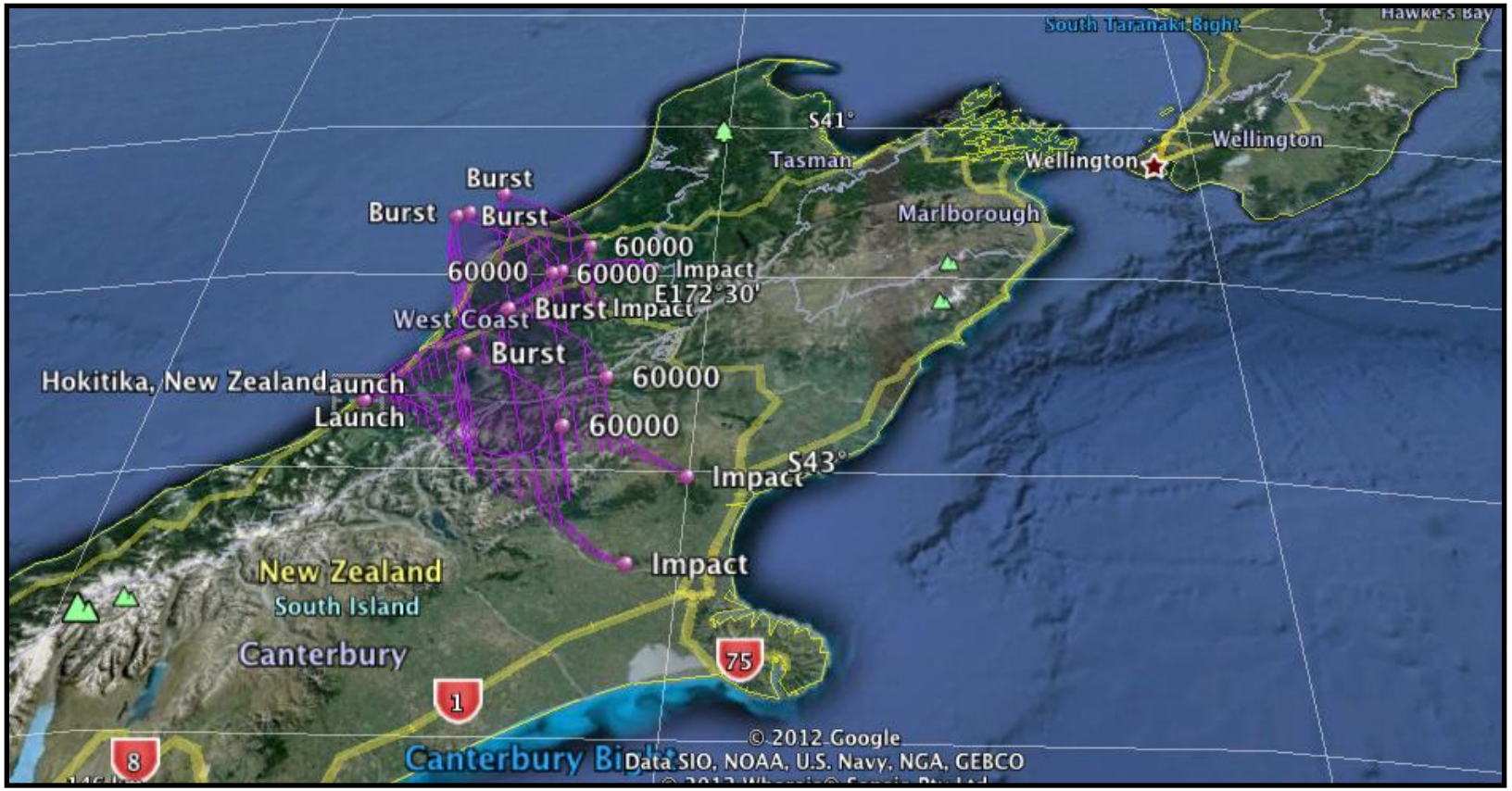
Radiosonde Soundings

- Vaisala RS-92 instrument package measures:
  Temp., Humidity, Pressure,
  Wind (with GPS)
  High resolution (1 sec)

- 150 soundings
- Daily launches
- IOP launches
  - 12-hourly prior to GV flights
  - 3 – 6 hourly during GV flights
  - Episodic launches

- Critical level data to WMO-GTS
- Real-time plots on web
- Mix of staff and students operators
- QC sounding within 6 months

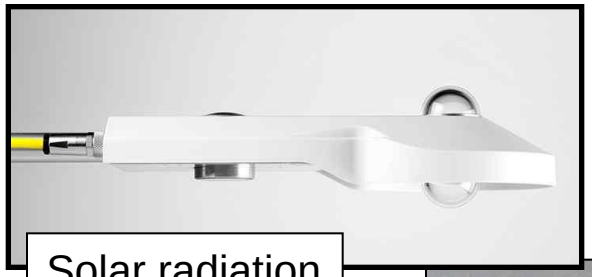
Potential Tracks

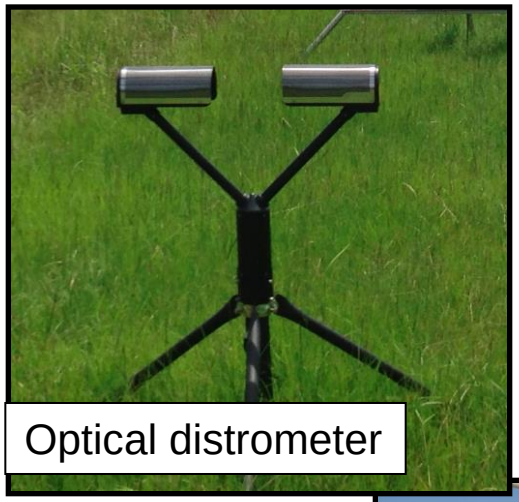


Expecting some radiosondes to go out of range in IOPS
Second receiving station at University of Canterbury

Other Sensors


ceilometer


Solar radiation


Optical distrometer


rain gauge


GPS water vapor

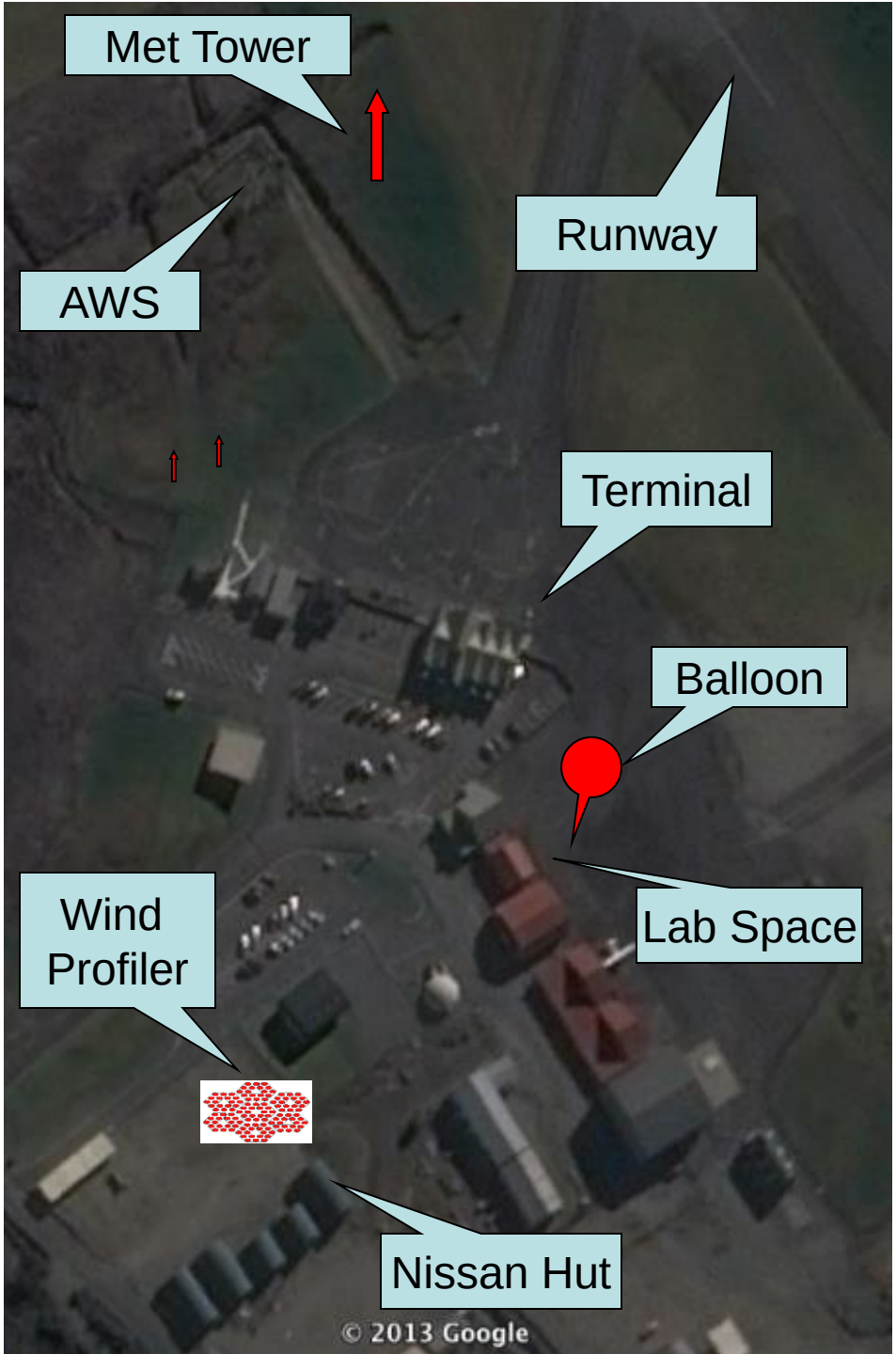

webcam


10m met tower

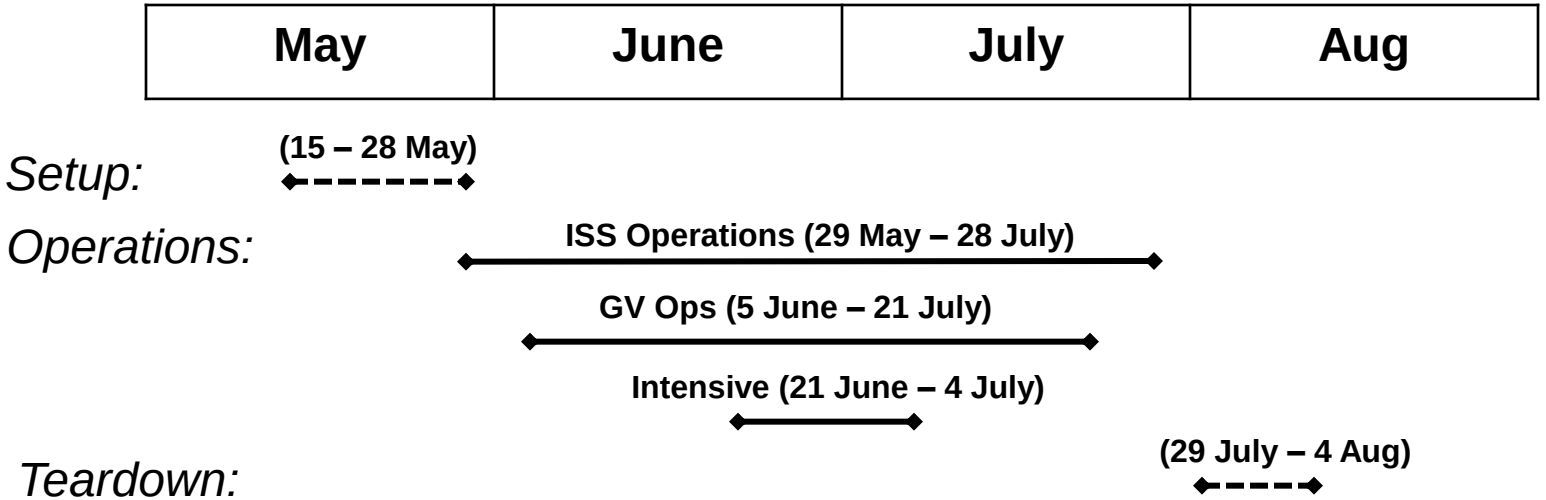
ISS Deployment

Hokitika Airport

- Approx 5 scheduled flghts daily
- AWS and manual climate obs
- Former sounding site
- Lab space in Aeroclub
- Soundings on apron
- Inflate balloons in seatainer
- Web cam and sonde antenna on hanger roof
- Wind Profiler in secure area, electronics in Nissan Hut
- Install met tower near AWS



ISS schedule



Activity	Staff	Approx. Dates
Set-up	5 Staff	15 – 28 May
Ops (pre-GV)	2 staff	29 May – 4 June
Ops (pre-intensive)	1 staff + 2 students	5 – 20 June
Ops (intensive)	2 staff + 2 students	21 June – 4 July
Ops (post-intensive)	1 staff + 2 students	5 July – 28 July
Tear-Down	4 Staff & students	29 July – 4 Aug