ISS: Integrated Sounding System
DEEPWAVE

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 measurement
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 flights 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

**Setup:**

**Operations:**

**Teardown:**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Staff</th>
<th>Approx. Dates</th>
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<tbody>
<tr>
<td>Set-up</td>
<td>5 Staff</td>
<td>15 – 28 May</td>
</tr>
<tr>
<td>Ops (pre-GV)</td>
<td>2 staff</td>
<td>29 May – 4 June</td>
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<tr>
<td>Ops (pre-intensive)</td>
<td>1 staff + 2 students</td>
<td>5 – 20 June</td>
</tr>
<tr>
<td>Ops (intensive)</td>
<td>2 staff + 2 students</td>
<td>21 June – 4 July</td>
</tr>
<tr>
<td>Ops (post-intensive)</td>
<td>1 staff + 2 students</td>
<td>5 July – 28 July</td>
</tr>
<tr>
<td>Tear-Down</td>
<td>4 Staff &amp; students</td>
<td>29 July – 4 Aug</td>
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