Antarctic Peninsula & Halley region AWS update
2015-16

Rosey Grant, Steve Colwell, John Law, Mairi Simms
Thanks to everyone at both Halley and Rothera for their support.
BAS AWS

- Propvane, sonic ranging snow accumulation sensor, HMP temperature and humidity sensor, PRT air temperature sensor, pressure sensor.

- Powered by 2 or 4 100Ah 12V batteries, charged by solar panel.

- Campbell Scientific CR1000 data loggers.

- 10 minute averaged data saved to card.

- 10 minute averaged data are transmitted via SBD Iridium every three hours.

- Complete data set is sent via Iridium once a week.
2015-16 Issues

Unreadable data cards

• Card readers replaced at all sites during the 14-15 season. Did not help.
• Campbell Scientific recommended OS upgrade.
• Worked at Fossil Bluff, disaster at Larsen. Did not attempt at any other sites.
• Old OS incompatible with new, 2GB data cards? Will try 256MB only.
<table>
<thead>
<tr>
<th>AWS</th>
<th>Sensors</th>
<th>Power</th>
<th>Iridium</th>
<th>SBD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Winds</td>
<td>Humidity</td>
<td>Temperature</td>
<td>Pressure</td>
</tr>
<tr>
<td>Fossil Bluff</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Larsen iWS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sky Blu</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Butler</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Limbert</td>
<td>Power down on 16.04.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Baldrick (M83)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korf</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td>Windy</td>
<td></td>
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Intentions for 2015-16

**BAS AWS**
- Fix power system at Limbert.
- Raise Korff and South Larsen site.
- Remove Larsen site.

**University of Utrecht**
- Remove Scar Inlet site.
- Install next generation of iWS at remaining sites.

**University of Wisconsin**
BAS AWS Upgrades

• BAS now has 100 remote instrument sites.
  → Large drive within BAS to increase efficiency in the field.
BAS AWS Upgrades

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  - Large drive within BAS to increase efficiency in the field.

Average BAS AWS service:
- People required: 4
- Weight of servicing kit: 187kg
- Time on the ground: 6 hours

Average Utrecht iWS service:
- People required: 2
- Weight of servicing kit: 15kg
- Time on the ground: 1 hour
BAS AWS Upgrades

• BAS now has 100 remote instrument sites.
  → Large drive within BAS to increase efficiency in the field.

How to proceed?
Should we continue to buy “off the shelf” and improve the system we have or develop a new system in house?

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BAS AWS Upgrades

Requirements

1. Meet the WMO standards.
2. Uniformity across the BAS network (and beyond?).
3. Simple “plug and play” systems, no fault finding the in field, no expertise required (reduces the strain on logistics).
4. Lighter power systems.
5. Simpler metal work, no climbing.

Any thoughts or suggestions? Comms systems- SBD or dial-up? Iridium, ARGOS or other? Power systems- mounted or buried? Lithium, lead acid, alkaline... ?

Any thoughts or suggestions, please let me know.

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Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?

RM Young Heavy Duty Wind Monitor-HD

RM Young Heavy Duty Wind Monitor-HD-Alpine
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?

RM Young Heavy Duty Wind Monitor-HD

with “a specially formulated, ice resistant coating to improve performance in harsh Alpine conditions. The all-black color scheme further enhances the ice shedding performance of the sensor.”

RM Young Heavy Duty Wind Monitor-HD-Alpine
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?

Both sensors mounted on the observation deck at Halley on 31st January 2016.
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- Both prop vanes impacted by rime, initially stalling by 4 knots. Then,
  - Prop 1 stalled by 2 knots.
  - Prop 2 stalled by 5 knots.
  - Both props recovered by 12 knots.
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?
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- Both prop vanes impacted by rime at 5 knots.
- Prop 2 stalled completely for 6 hours while prop 1 continues.
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?
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• Riming impacts Prop 2 even at high speeds.
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- Both prop vanes stalled by rime for 5 days.
- Prop 2 quicker to stall and slower to recover by 12 hours.
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?

During the riming case studies:

- mean (Sonic - Prop 1) = 3.74 knots
- mean (Sonic - Prop 2) = 4.32 knots

So both suffer during riming events, but Prop 1 fares a little better.
Is the RM Young Heavy Duty Wind Monitor-HD-Alpine worth the extra $388?

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mean (Sonic - Prop 2) = 4.32 knots

So both suffer during riming events, but Prop 1 fares a little better.
Thank you