SNOWWEB 3.0

Ben Jolly and Adrian McDonald

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Introduction

The purpose:

To create a network of wirelessly connected, cost-effective, and reusable short term weather stations for high resolution data collection in Antarctica

This presentation:

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Design Criteria

- Low unit cost
- Light weight
- Easy to deploy and recover
- Real-time wireless reporting and control

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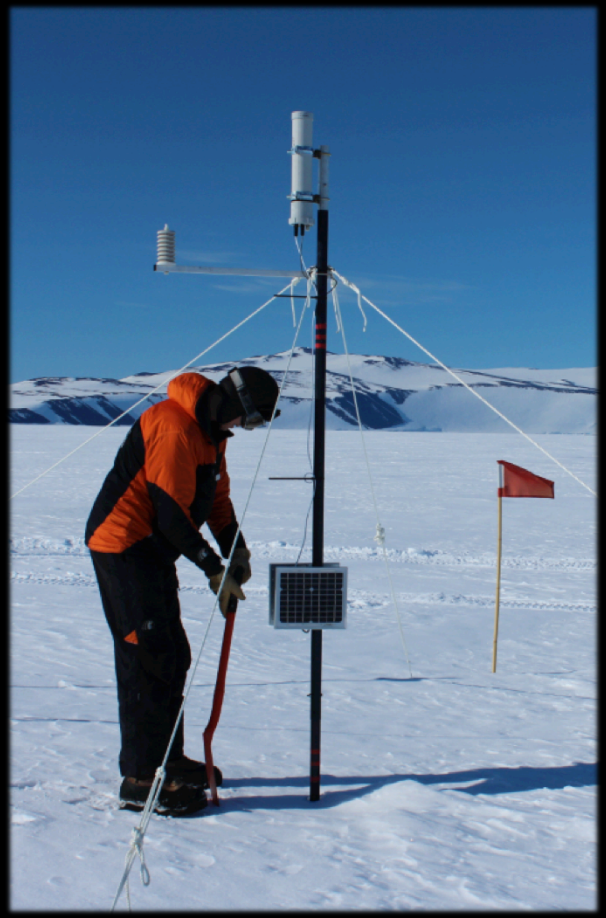
Basic Design

- Guyed mast and tripod



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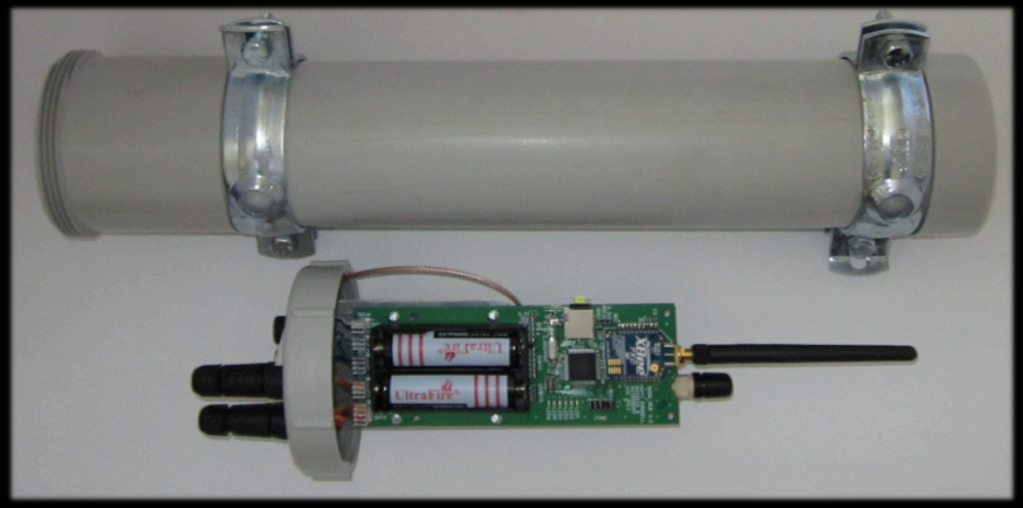
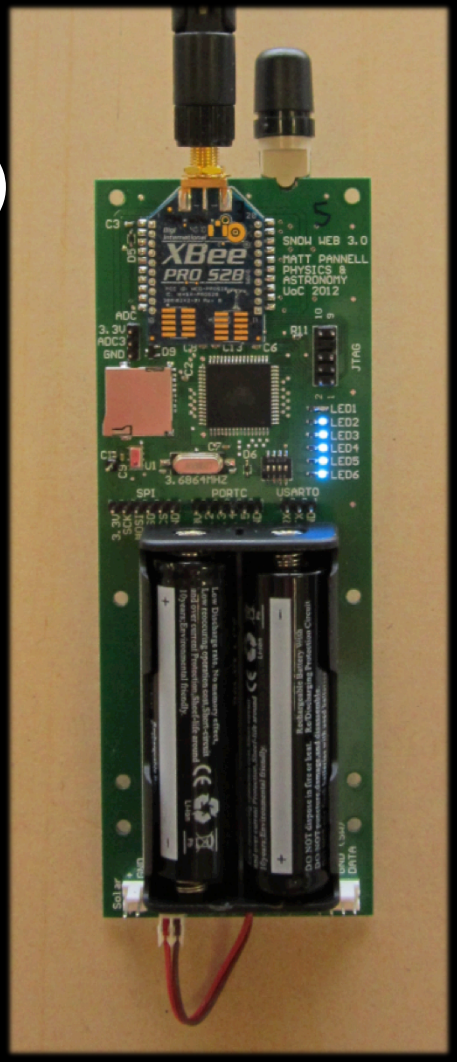
Electronic Design

- PVC pod for electronics
  - Lithium batteries (solar charged)
  - Designed in-house
  - XBee Pro S2B transceiver, GPS, microSD, ATmega µC





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Physical Design

- Plug and play in the field, modular
- 30 min. setup/teardown per node
- 4 per skidoo (1 box + masts) ~60 kg

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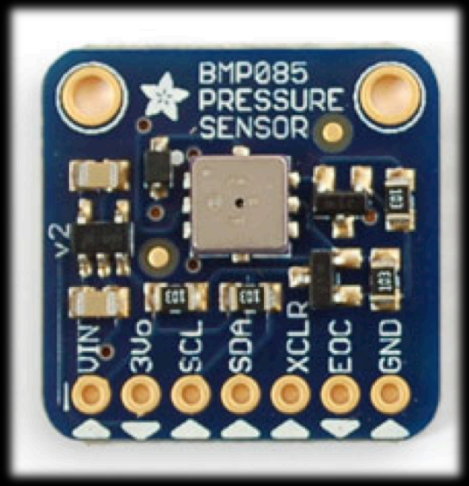
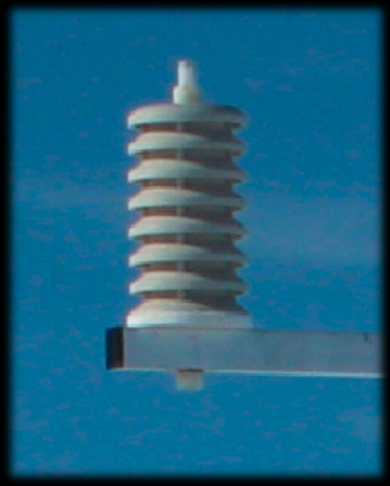
Sensors

- NRG cup anemometer
- NRG wind vane
- SHT75 temperature/RH
- BMP085 pressure





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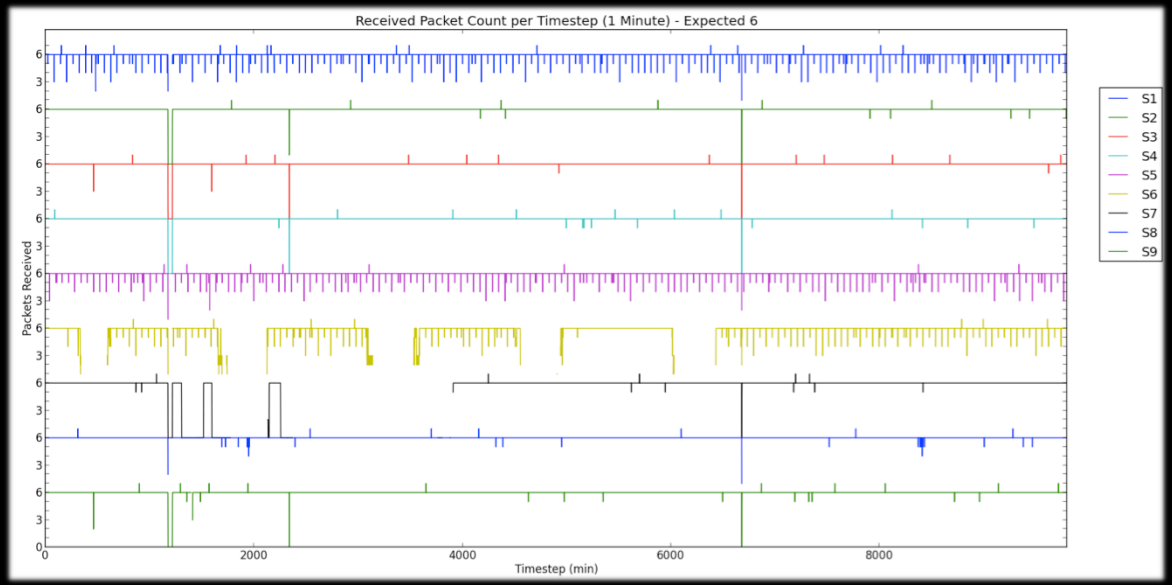
Wireless

- 2.4 GHz - up to 10 km range L.O.S
- Omnidirectional antenna (6 to 15 dBi)
- ZigBee (802.15.4)
- Reliable (>99% excl. equipment failure)



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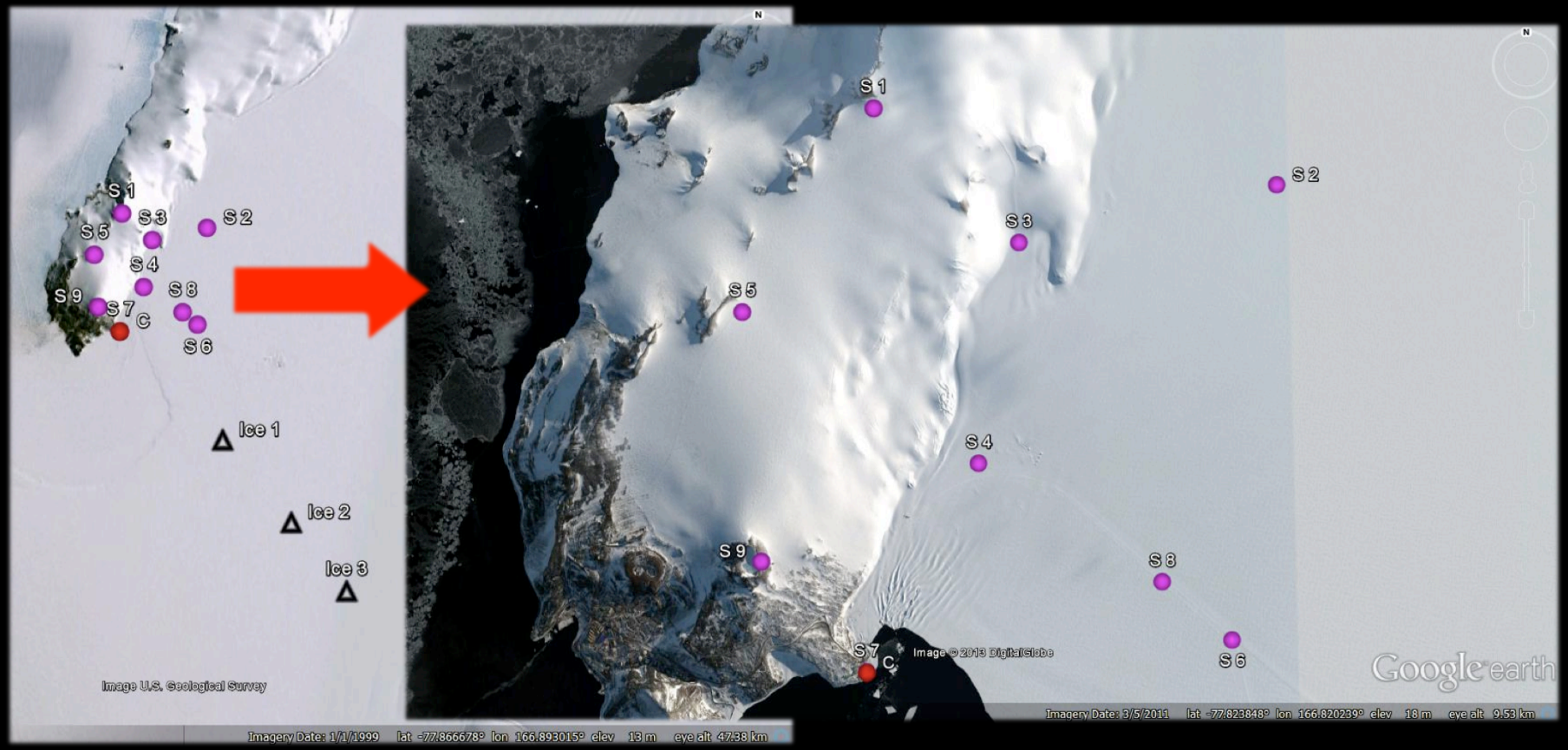
2012-13

- 12 stations near Scott Base



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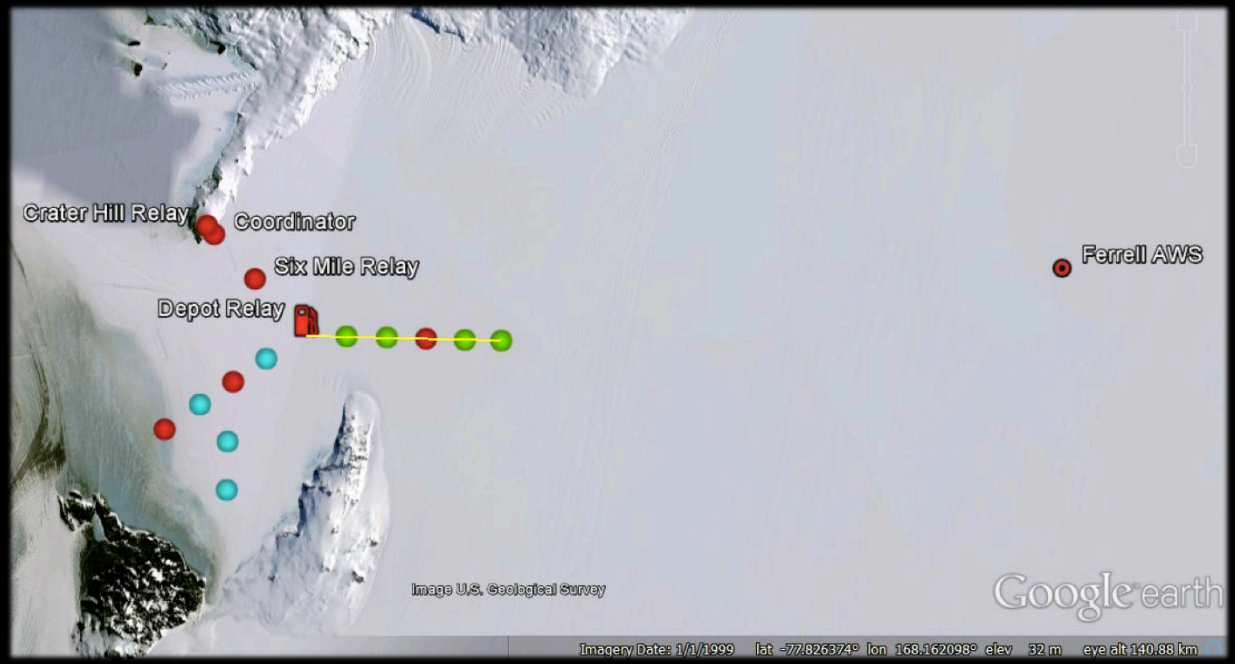
2013-14

- 15 stations around tip of White Island
- 4 to Alexander Tall Tower
- November to January



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2013-14 Ideal

- 15 stations toward Ferrell AWS (100 km)
- 6 White Island, 4 to Alexander Tall Tower
- November to January

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Questions? Comments?