

# Antarctic Peninsula & Halley region AWS update 2014-15

Rosey Grant, Steve Colwell, Petra Mildeova, Mairi Simms



**British  
Antarctic Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

**POLAR SCIENCE  
FOR PLANET EARTH**

# Summer Season 2014-15

## Rothera



Mairi Simms

Rosey Grant

Petra Mildeova

## Halley



Celine Lett

Rich Warren

And thanks to everyone at both Halley and Rothera for their support.

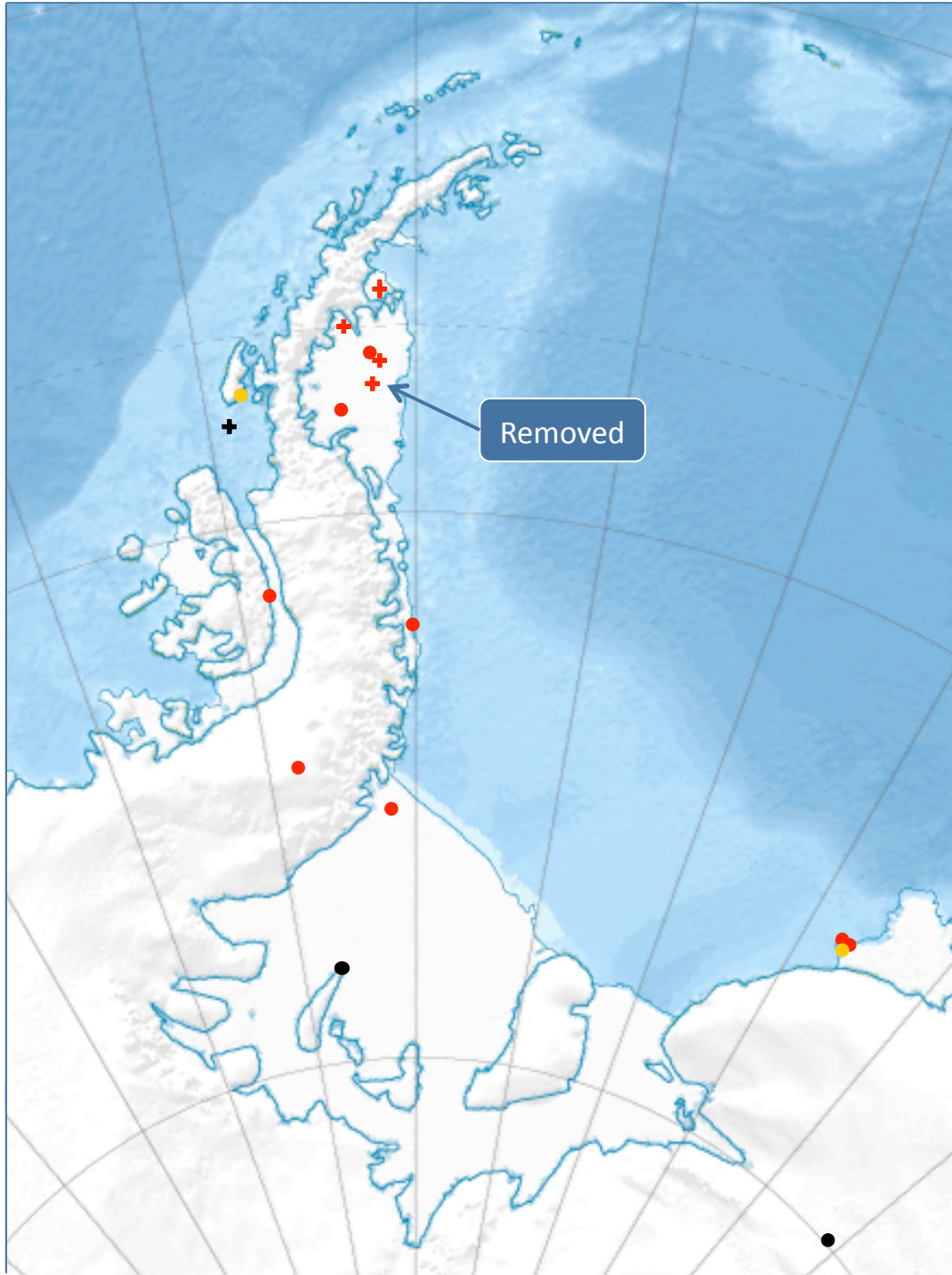


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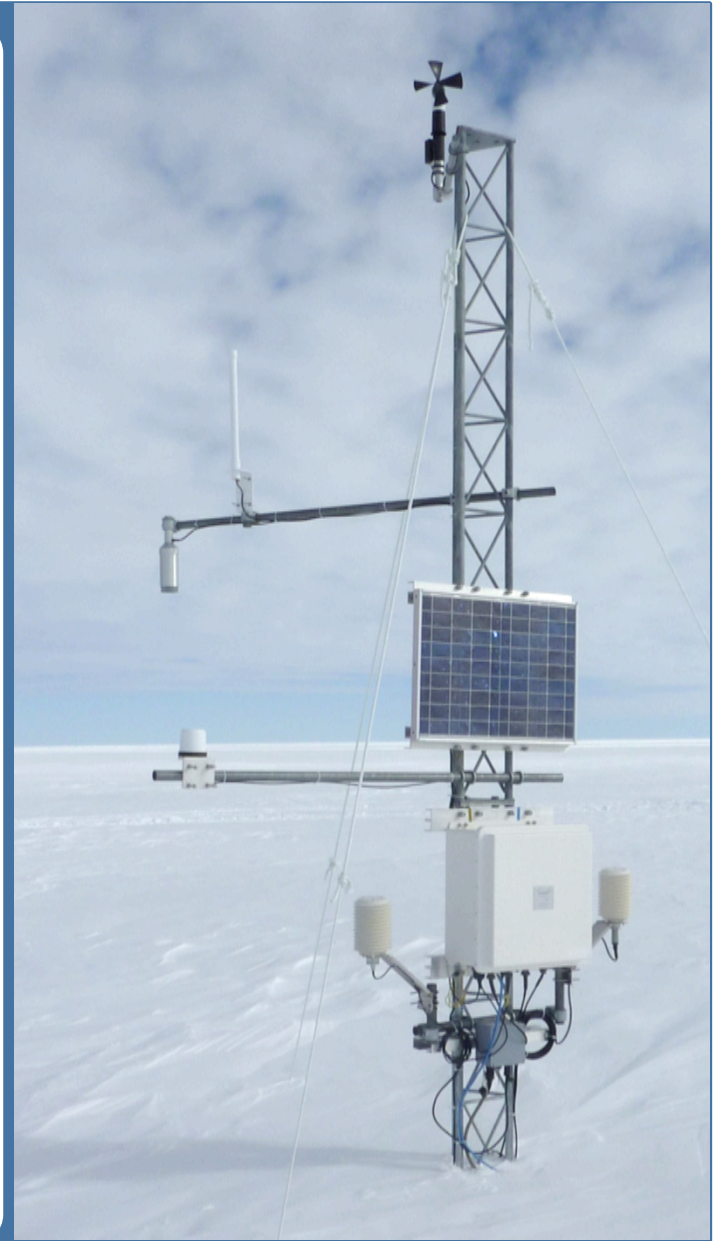
## Site visits 2014-15

- BAS manned weather station
- BAS AWS (visited)
- BAS AWS (not visited)
- + Non-BAS AWS (visited)
- + Non-BAS AWS (not visited)



## 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.



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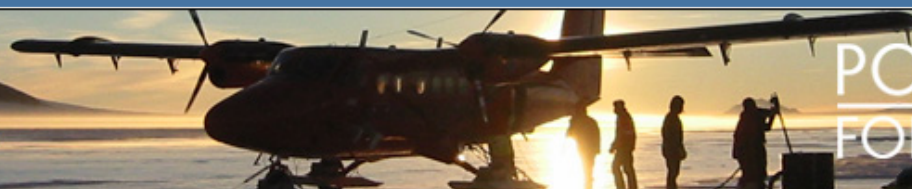
## Current BAS AWS status

AWS	Sensors					Power	Iridium	SBD
	Winds	Humidity	Temperature	Pressure	Snow			
Fossil Bluff					16.03.15			
Larsen								08.06.15
Sky Blue					23.03.15		14.02.1	08.05.15
Butler								
Limbert					05.01.15			
Baldrick							ARGOS	
Korf								
Windy					27.05.15		ARGOS	



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## 2014-15 Issues

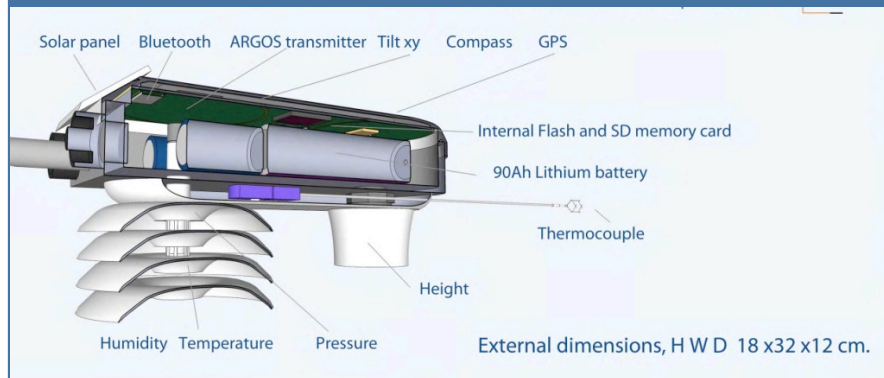
### Card readers (CFM100)

- Several of the data cards retrieved from the BAS AWS have been unreadable.
- Card reader replaced at all sites during the 14-15 season.
- Data retrieval during 15-16 season will reveal whether this has worked.

### SBD modems during winter

### Sonic ranging snow accumulation sensors





University of Utrecht  
AWS

- Originally installed three AWS on Larsen C ice shelf.
- IMAU have designed a next generation iWS (intelligent Weather Station).
- Installed three iWS, two running side-by-side the original AWS.
- Very easy to install.
- Original AWS to be removed 15-16 season.



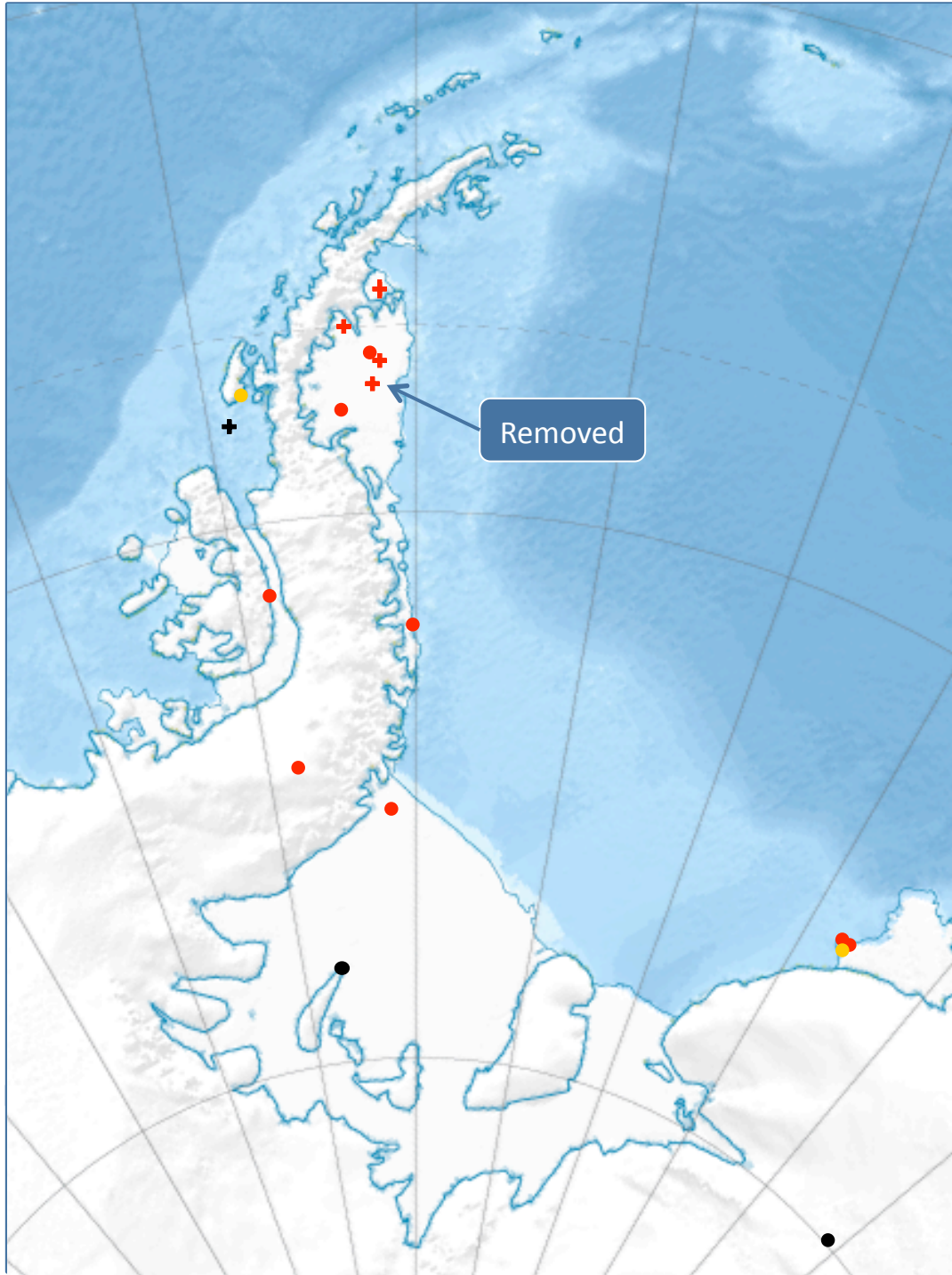
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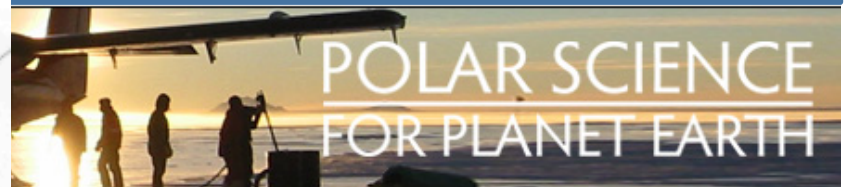


## Intentions for 2015-16

- Routine visits to all AWS, including Korff ice rise.

In addition-

- University of Utrecht
  - Removing old AWS
- University of Wisconsin
  - Install new AWS Dismal Island (installed in 2003-04, last visited in 2009)



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# Summer Season 2015-16

## Rothera



Mairi Simms

Rosey Grant

John Law

## Halley



Celine Lett



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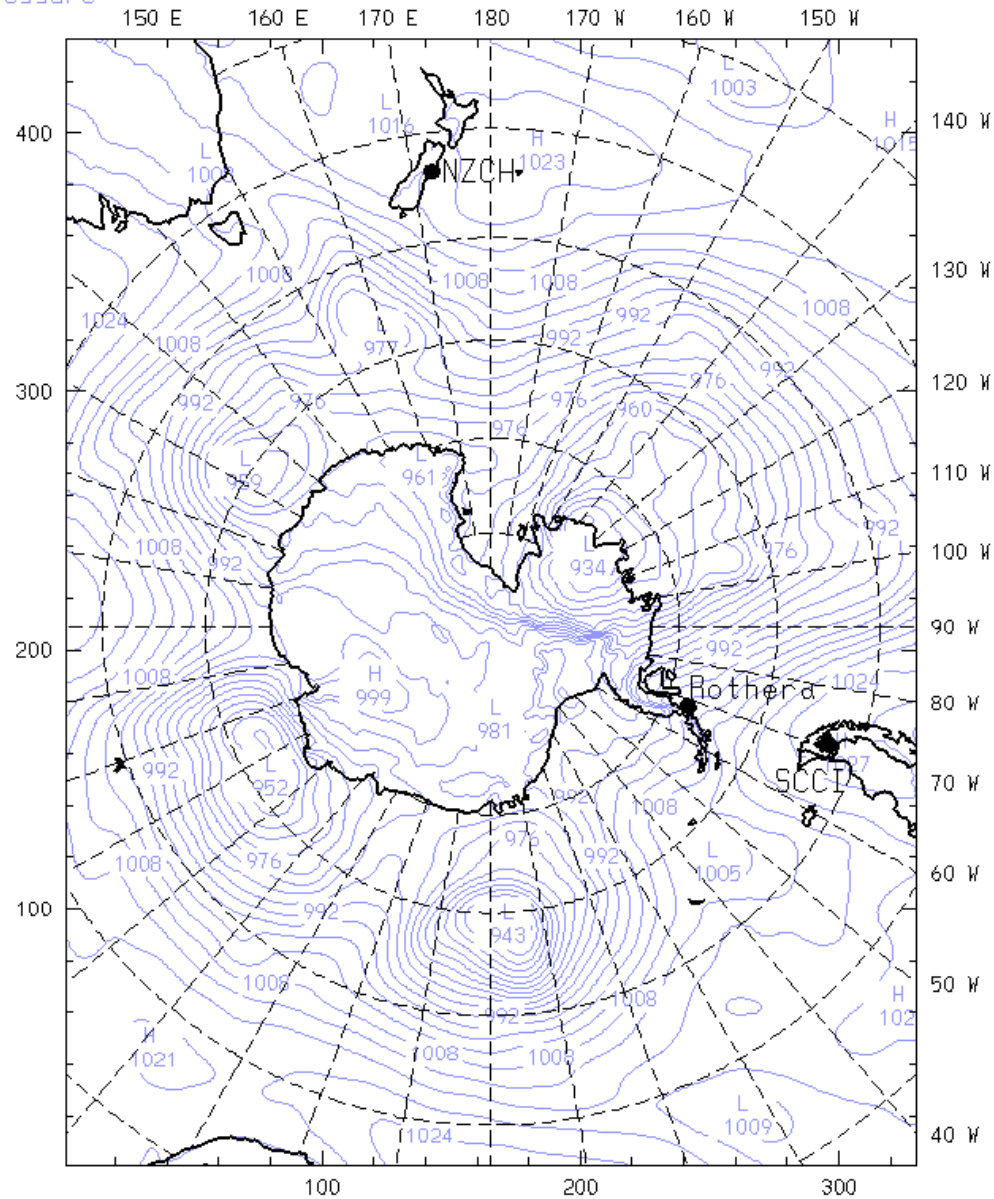


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AMPS 30-km WRF  
Fcst: 0 h  
Total precip. in past 3 h  
Sea-level pressure

Init: 12 UTC Mon 23 Mar 15  
Valid: 12 UTC Mon 23 Mar 15

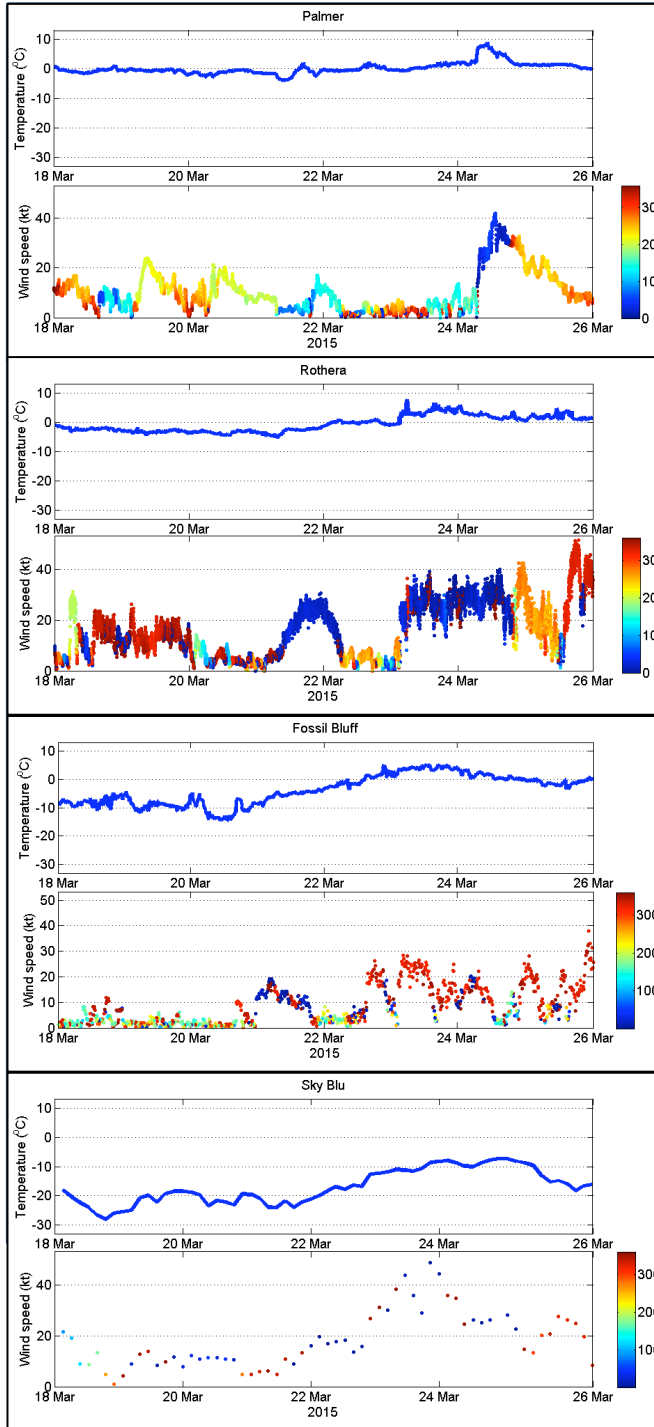


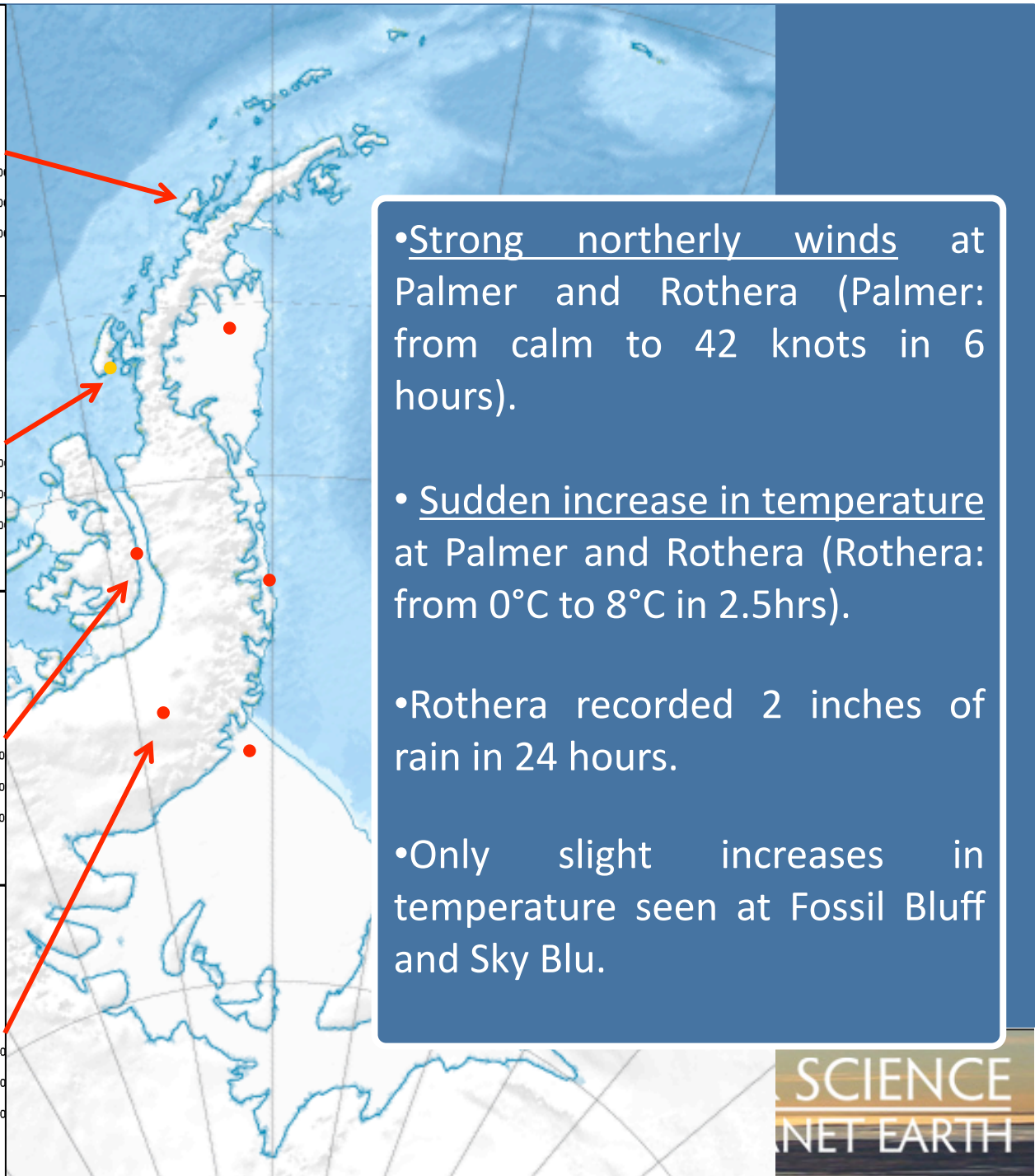
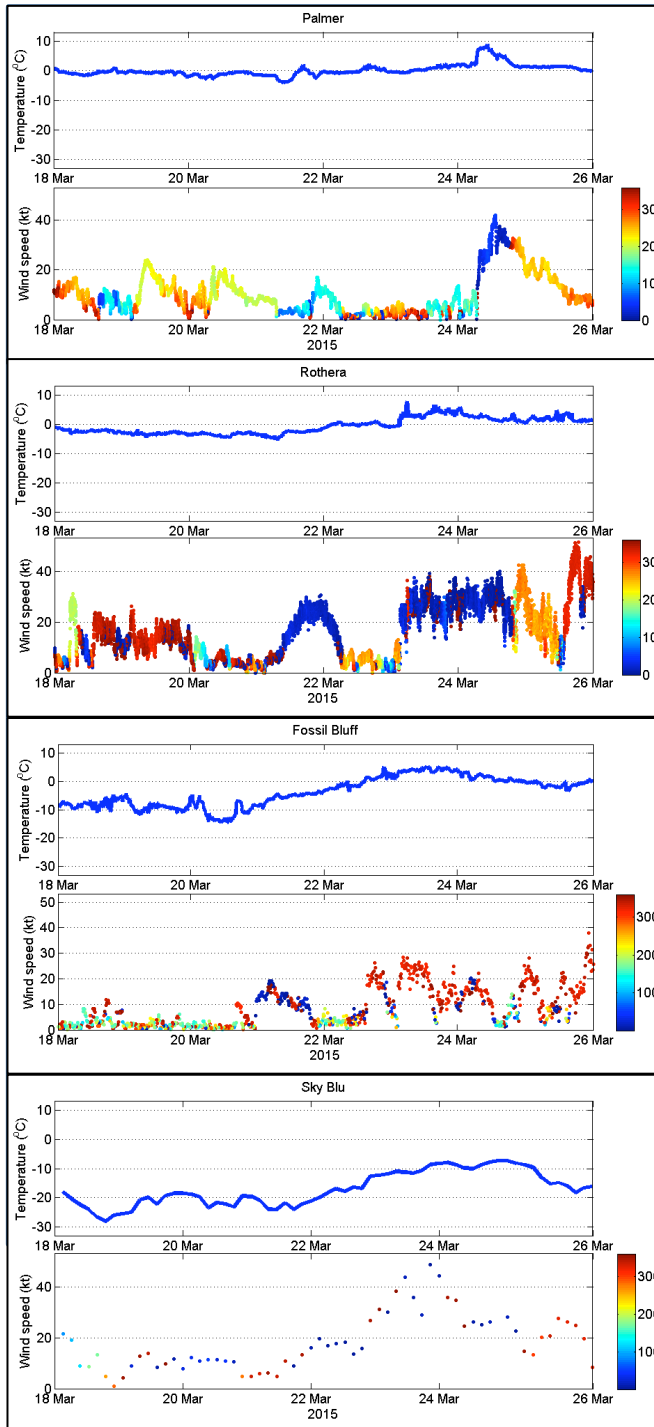
## Case Study 24<sup>th</sup> March 2015

Very deep low pressure system forming over WAIS bringing warm air in from the north.

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LW: RRTM SN: Goddard DIFF: simple KM: 2D Smagor

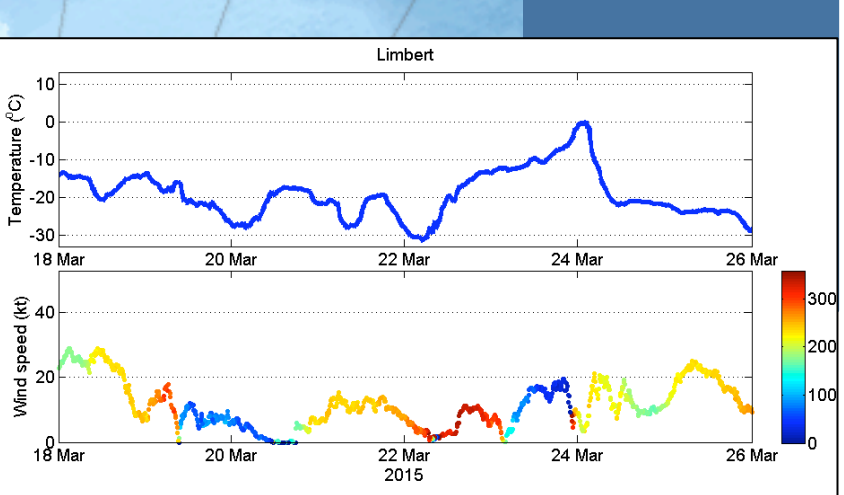
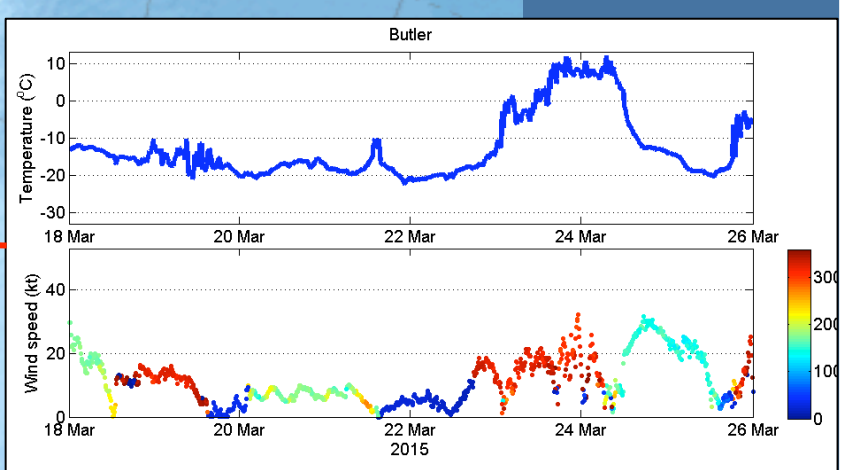
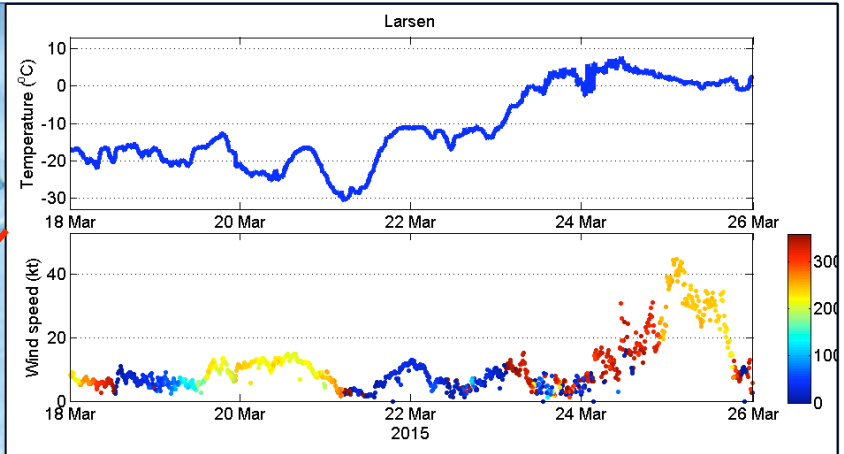
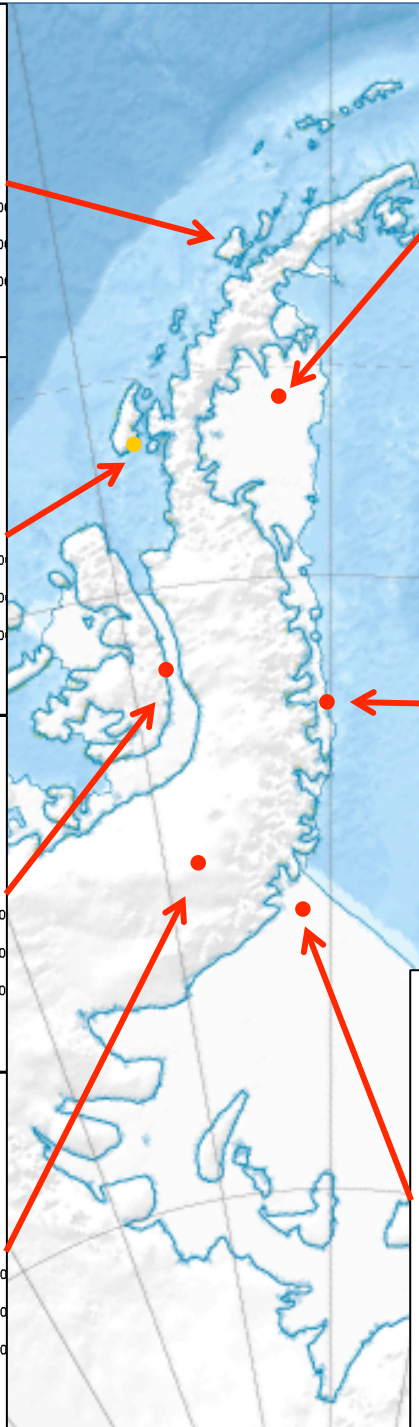
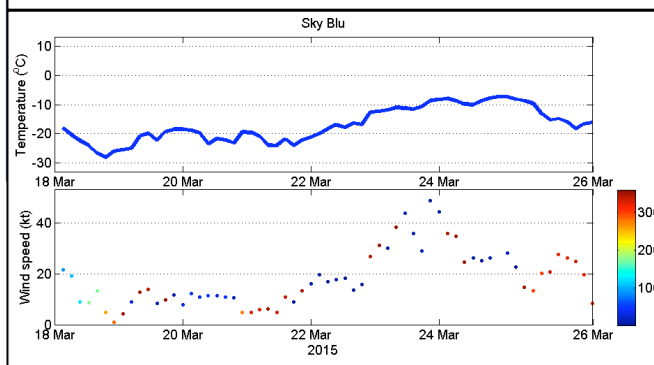
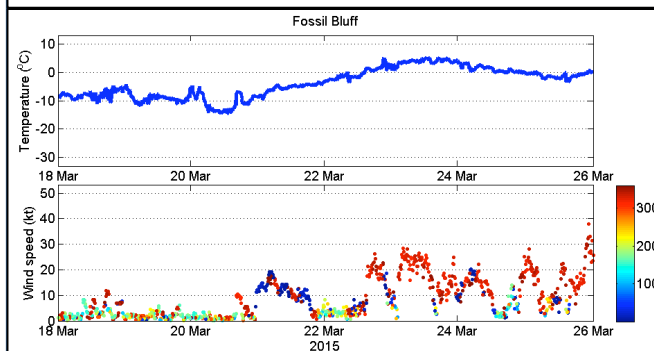
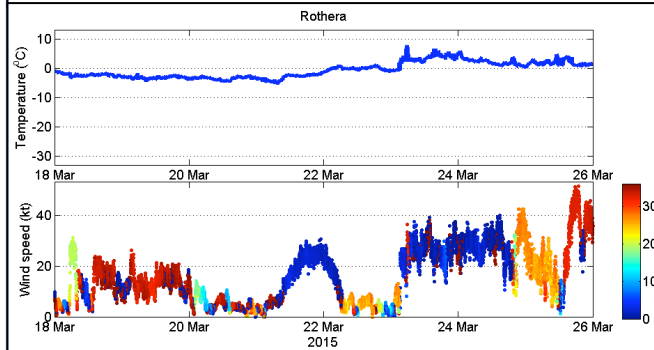
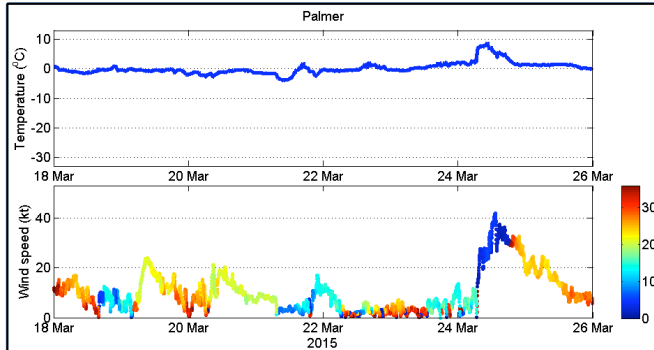


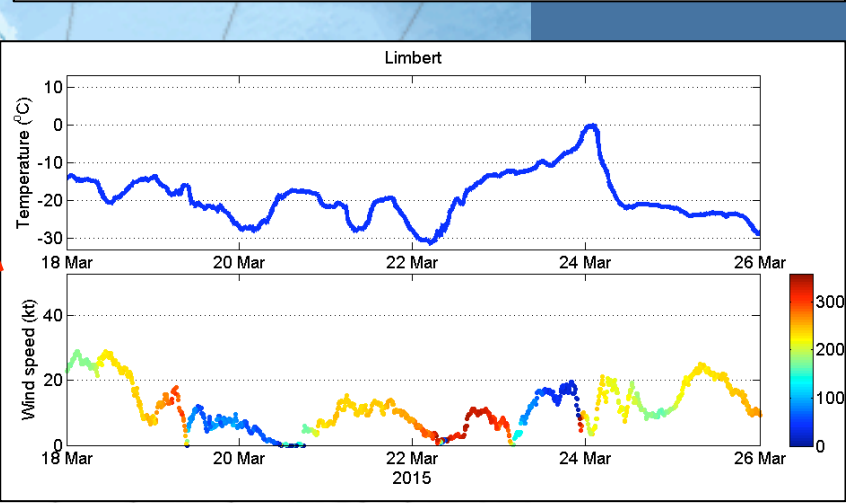
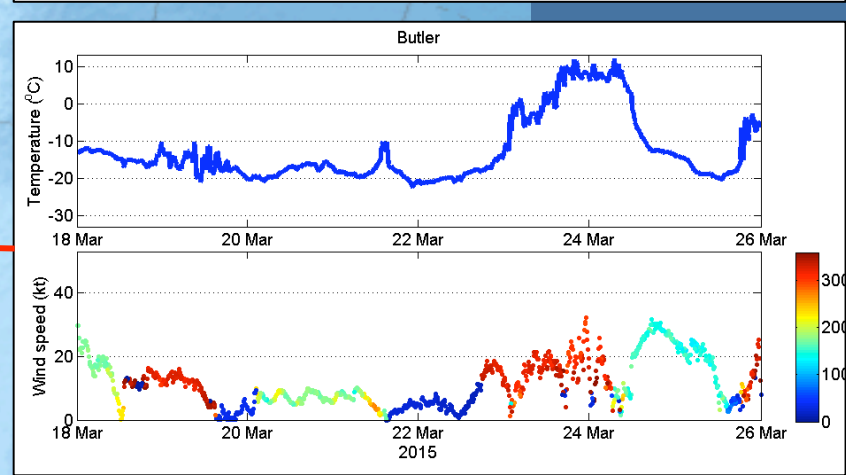
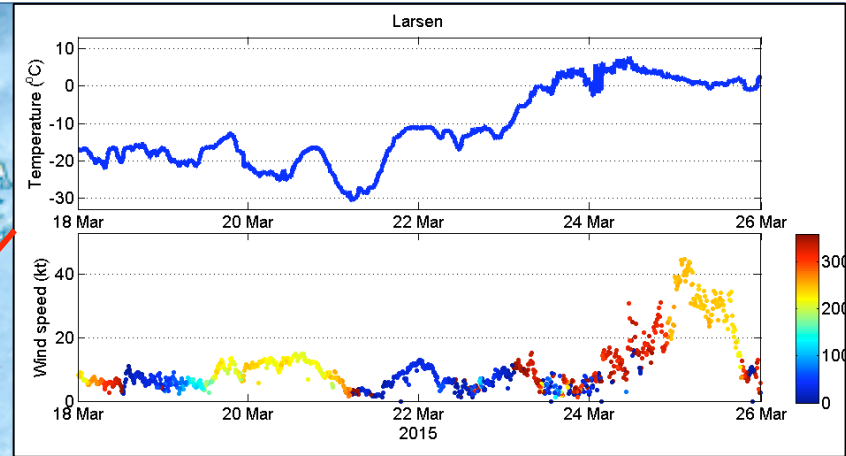
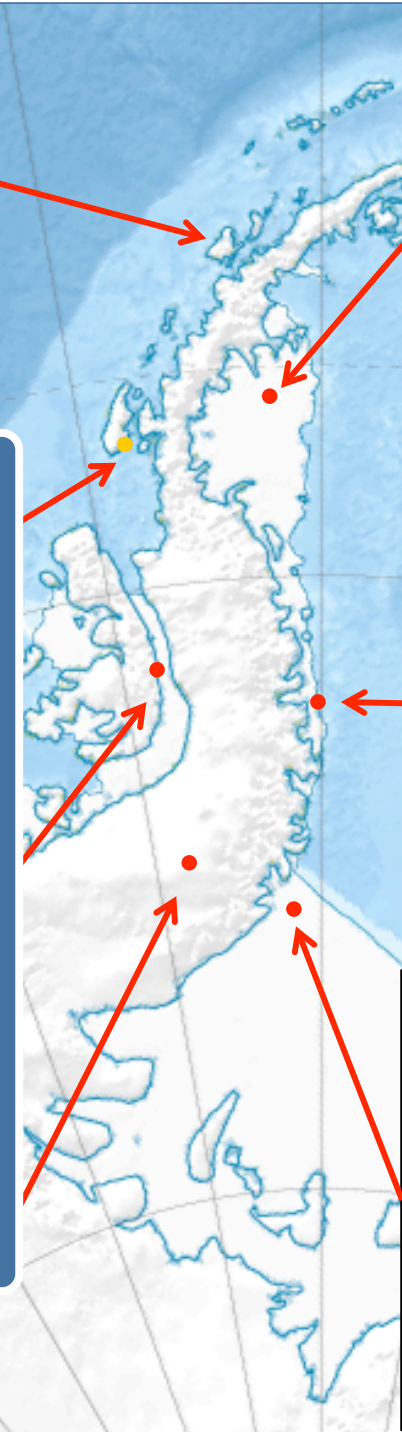
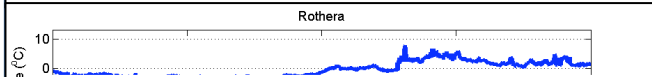
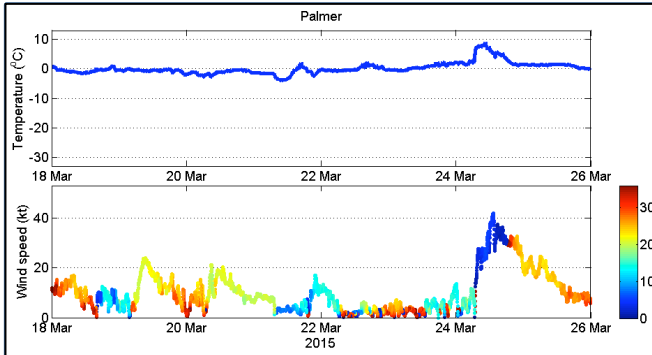




- Strong northerly winds at Palmer and Rothera (Palmer: from calm to 42 knots in 6 hours).
- Sudden increase in temperature at Palmer and Rothera (Rothera: from 0°C to 8°C in 2.5hrs).
- Rothera recorded 2 inches of rain in 24 hours.
- Only slight increases in temperature seen at Fossil Bluff and Sky Blu.





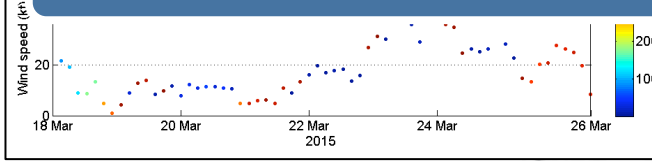


• Warmest temperatures on the lee slope.

• 30°C increase over two days seen at Butler Island and Limbert.

• Maximum temperature recorded at Butler Island of 12.1°C.

• Marambio reported 17.5°C.



AMPS 3.3-km Peninsula WRF

Fcst. 0 h

Surface air temperature

Horizontal wind vectors

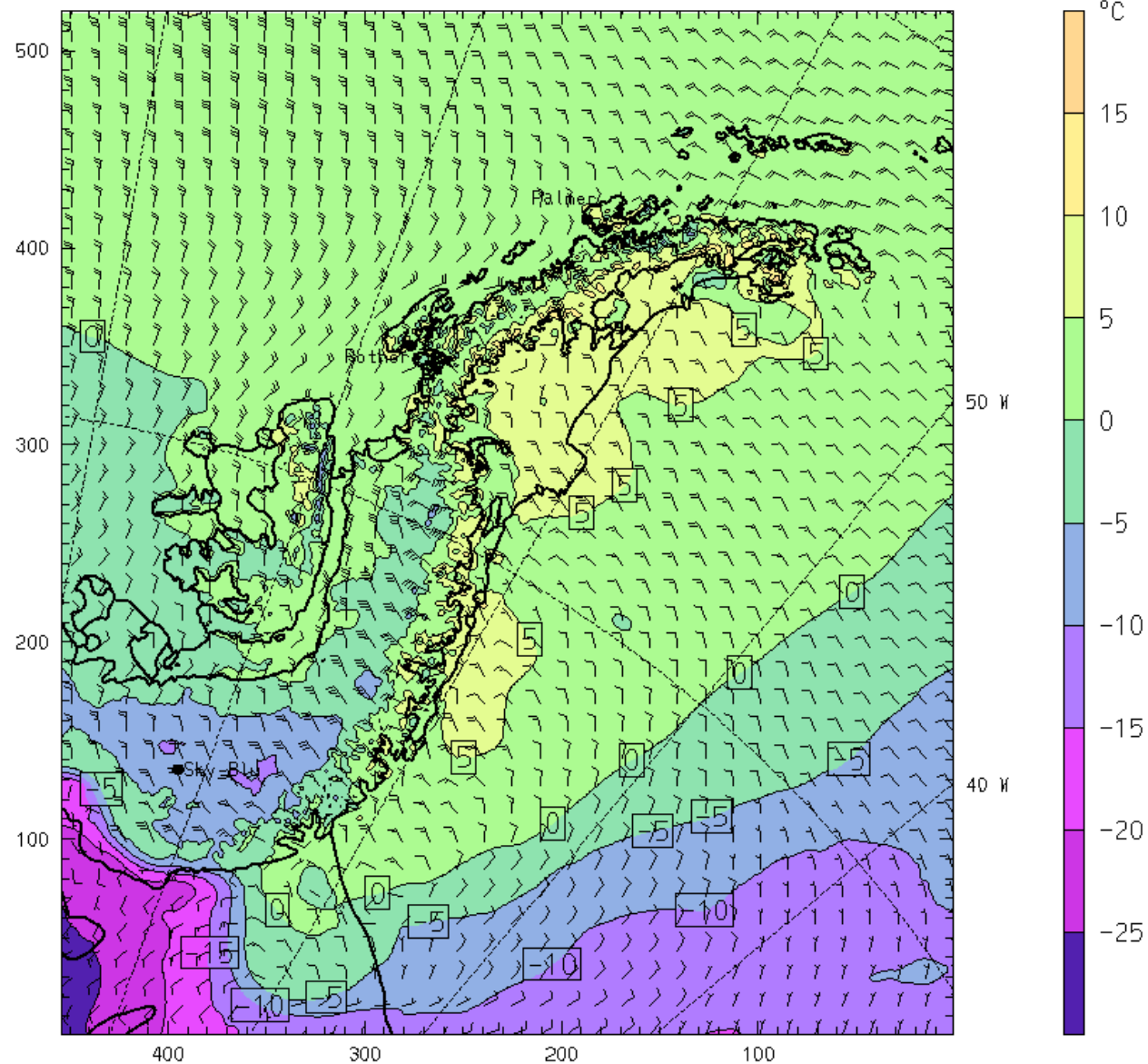
at k-index = 60

Init. 00 UTC Tue 24 Mar 15

Valid. 00 UTC Tue 24 Mar 15

sm= 1

sm= 1



BARB VECTORS: FULL BARB = 10 kts  
CONTOURS: UNITS= $^{\circ}\text{C}$  LOW= -25.000 HIGH= 15.000 INTERVAL= 5.0000  
Model Info: Y3.3.1 No Cu MYJ PBL WSM 5class Noah LSM 3.3 km, 60 levels,  
LW: RRTM SW: Goddard DIFF: simple KM: 2D Smagor



Thank you

