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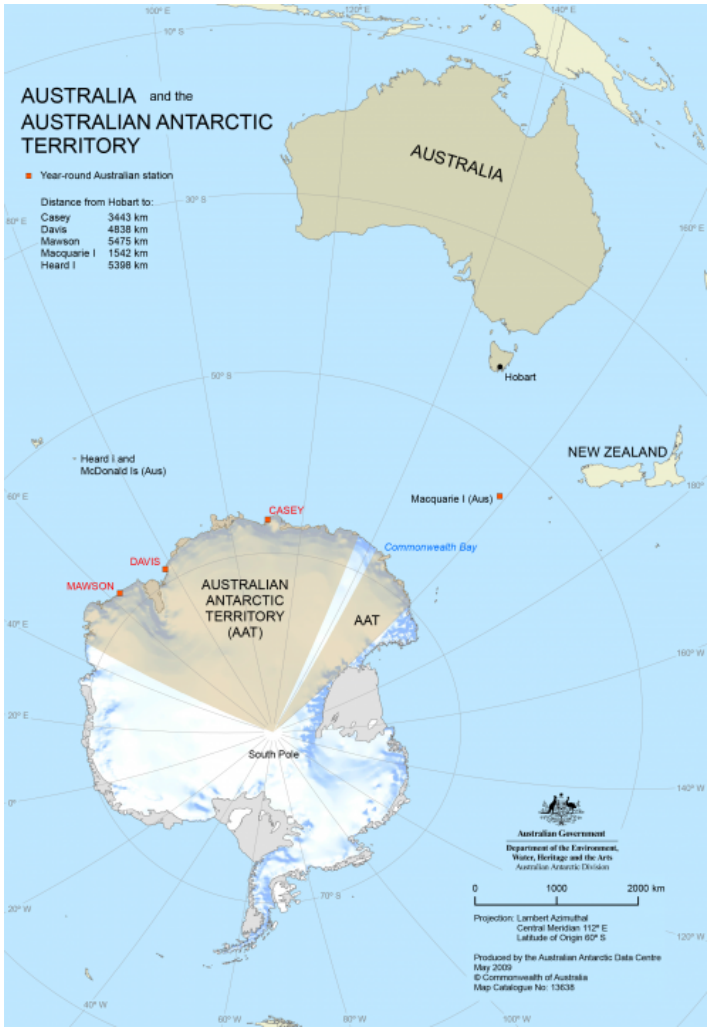
Australian Considerations for the Year of Polar Prediction 2017-2018



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Talk outline

1. Overview of current Australian observation program;
2. Some ideas on what we can contribute
3. Feedback.

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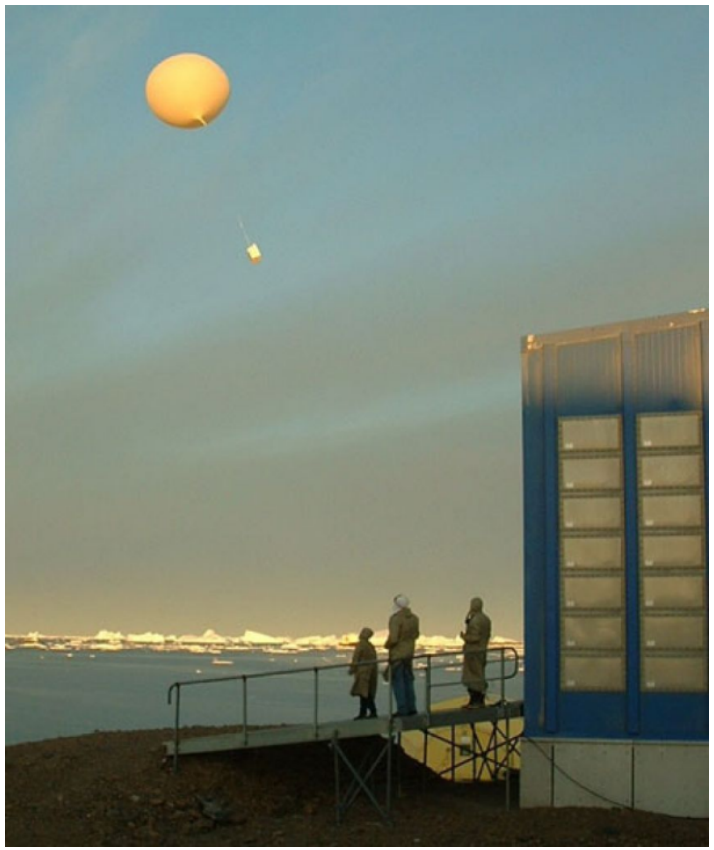
Observations upper air (GUAN)



Ozonesonde released at Davis
(Photo: M. Crowe)

370 stations

N of 40N

26 stations

S of 40S

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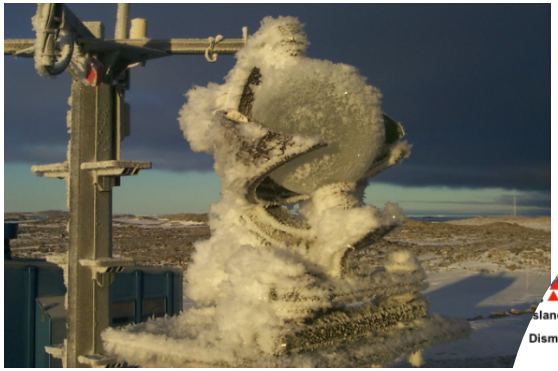
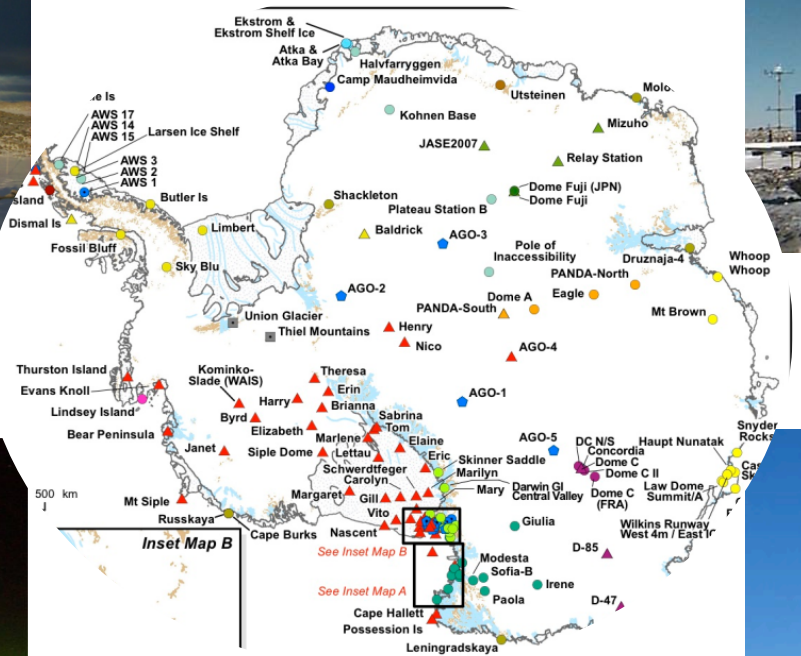
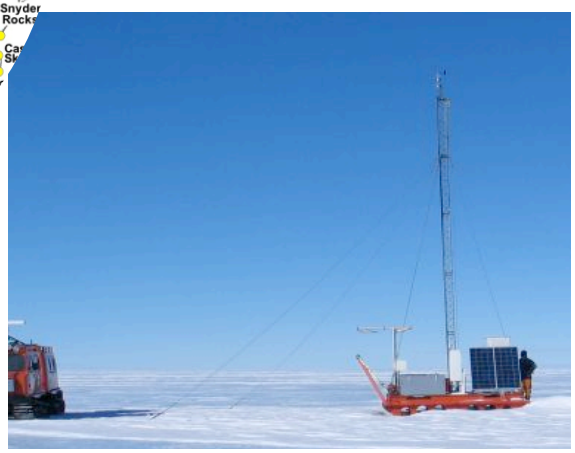
Observations
Surface







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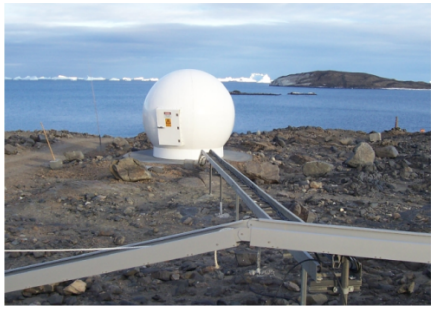
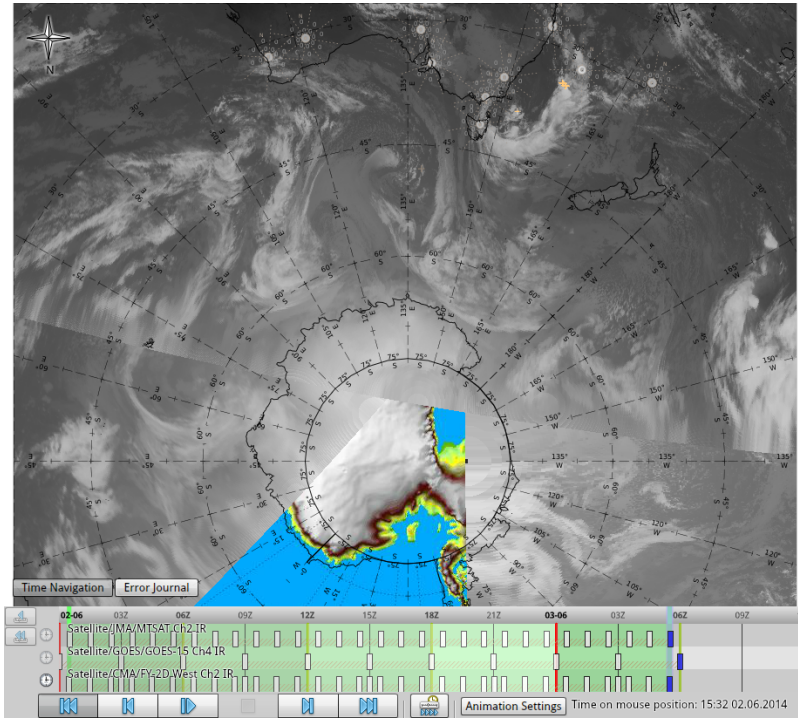
Observations
Satellite



Davis L-Band

Casey L/X-Band



Online weather geostationary images
(FY2D, MTSAT and GOES-15)

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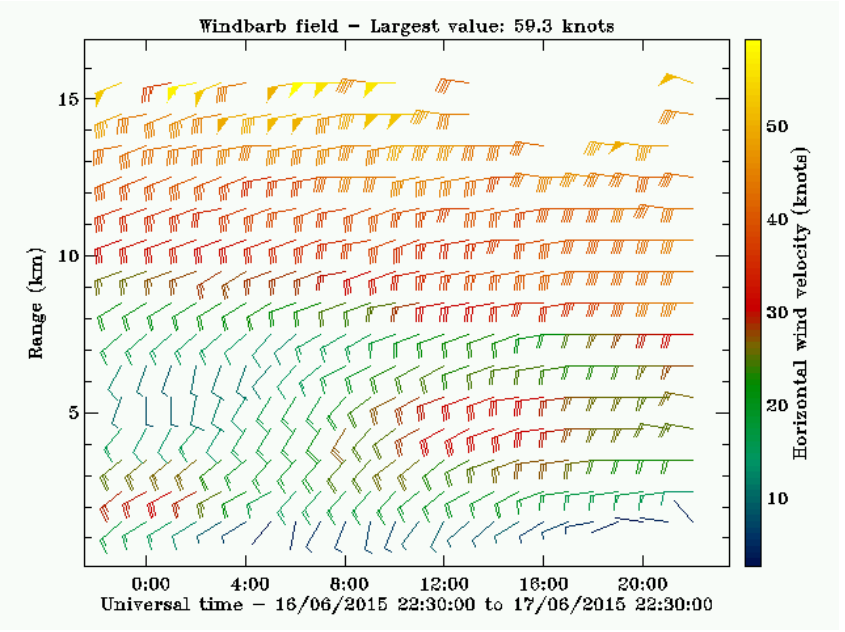
AAD VHF wind profiler now in GTS



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Towards meeting the needs of the Research, climate and operational communities

Mawson (1954)

Davis (1957)

Macquarie Is. (1948)

Casey (1969)

Photos by Christopher Wilkins (AAD)

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Drivers of change

- Technological improvements;
- Science and operational needs;
- Resource and Financial considerations;
- Global connectivity is a powerful driver of innovation.

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Ceilometers. The most useful data for us would be if the raw, vertically resolved backscatter ratio profiles could be saved. We would then perform our own cloud-detection analysis and also could look at aerosols and the structure of the clouds, based on the backscatter profiles.

Radiometers: it could be appropriate for Macquarie and or e.g. Davis to become a GRUAN site one day? Having the range of ozonesonde launches, radiometers, ceilometer as well as the standard radiosondes would all be beneficial.

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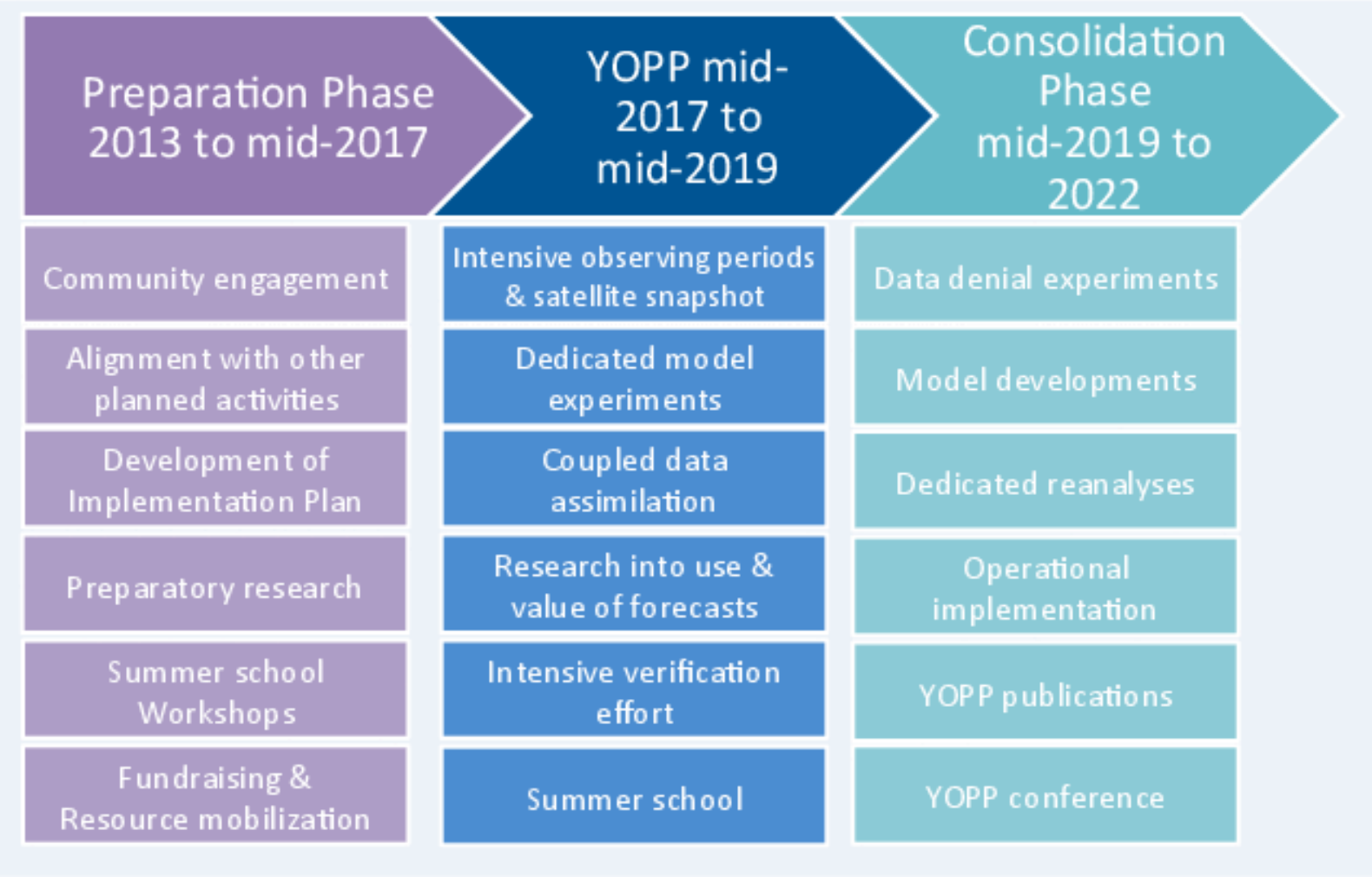
YOPP – a great opportunity to leverage off each others efforts



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"If you want to go fast, go alone.

If you want to go far, go together."

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By YOPP –An aspiration for ongoing Observations?

1. Global Cryosphere Watch (GCW),
2. Baseline Surface Radiation Network (BSRN),
3. Global Sea Level Observing System (GLOSS).
4. Global Upper Air Network (GUAN) and reference (GRUAN),
5. Global Climate Observing Network (GCOS); and
6. Polar Prediction Project (PPP): ACCESS-P
7. Satellite soundings into GTS (IASI, CRIS and ATOVS)
8. Sea Ice charting capabilities?

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Planned Observations – on site projects

Antarctic Clouds and Radiation Experiment (ACRE) :

- one year of continuous cloud, aerosol, and precipitation measurements at Macquarie Island (March 2016-March 2017) and at Davis station (2018). (BoM 95GHzCloud radar, AAD cloud and aerosol backscatter lidar and Uni of Canterbury ceilometer)

Macquarie Island Clouds and Radiation Experiment (MICRE)

- deploy a suite of cloud, aerosol, precipitation, and radiation in-situ measurements for two years at Macquarie Island (March 2016-March 2018). (US DOE ARM, BoM and AAD)

- More details on request… PI Simon Alexander and Roj Marchand

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Modelling

- Seasonal prediction (POAMA –about to be rebranded)
- SIPN south
- NWP modelling ACCESS-Polar

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Research into use and value of forecasts

- How do we do value the forecast?
- How good are we? Forecast validation?
- Valuing the present international investment/return on investment could help develop a more sustainable model for Antarctic weather service delivery (less multiplication of effort through more cooperation.

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Thank you for your feedback

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