

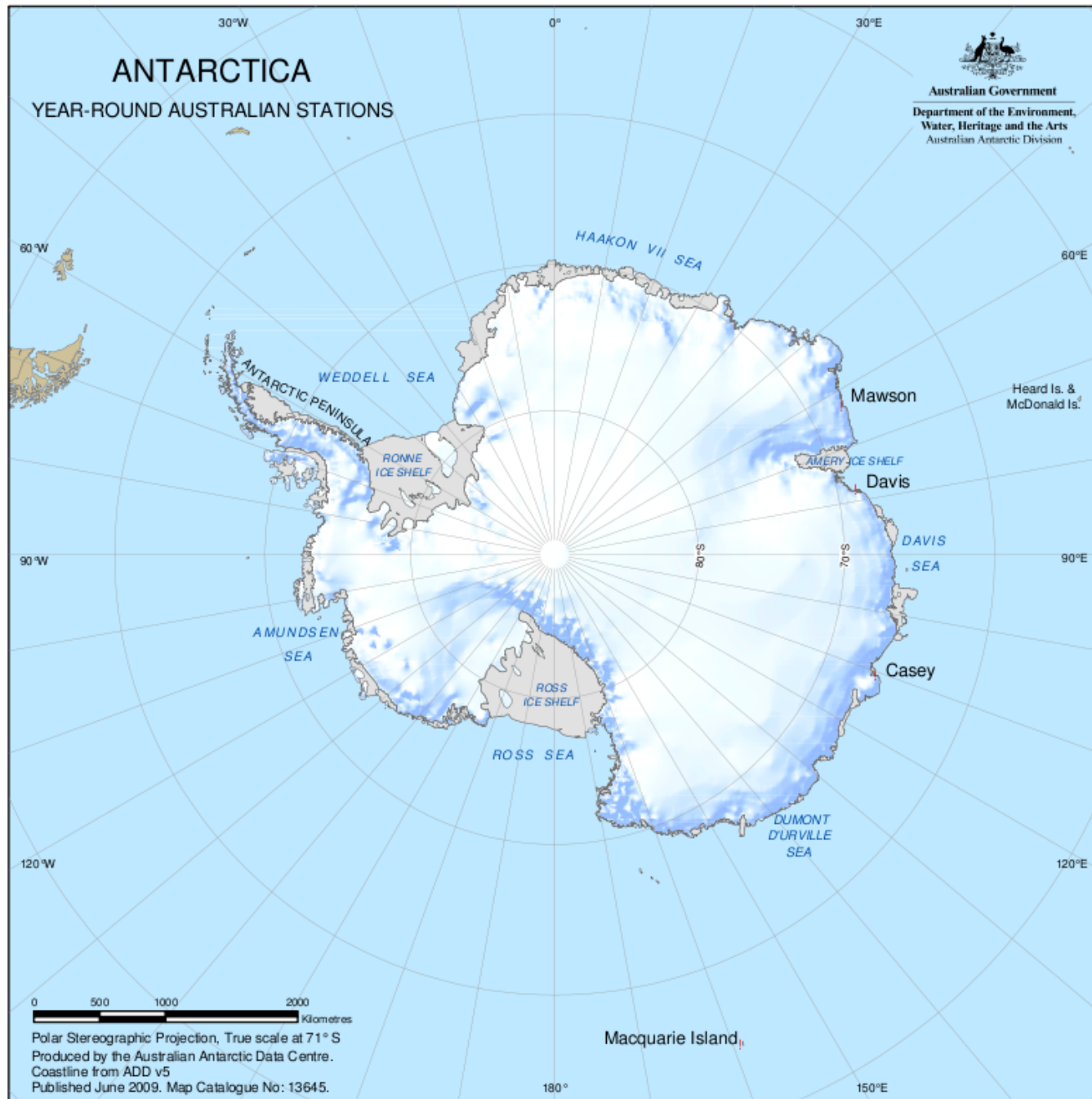
AMOMFW 2013  
Madison, Wisconsin

# Operational forecasting with AMPS at Davis Station, East Antarctica

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<sup>1</sup>Commonwealth Bureau of Meteorology, Australia  
Senior Forecaster Davis Station  
Summers 2010-11, 2011-12





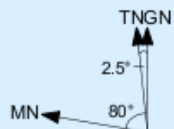
Davis  
68.57 S  
77.97 E  
27.5m ASL

Woop Woop  
Skiway  
68.48 S  
78.82 E  
545.0m ASL

# DAVIS SKI LANDING AREAS

0 5 10 km

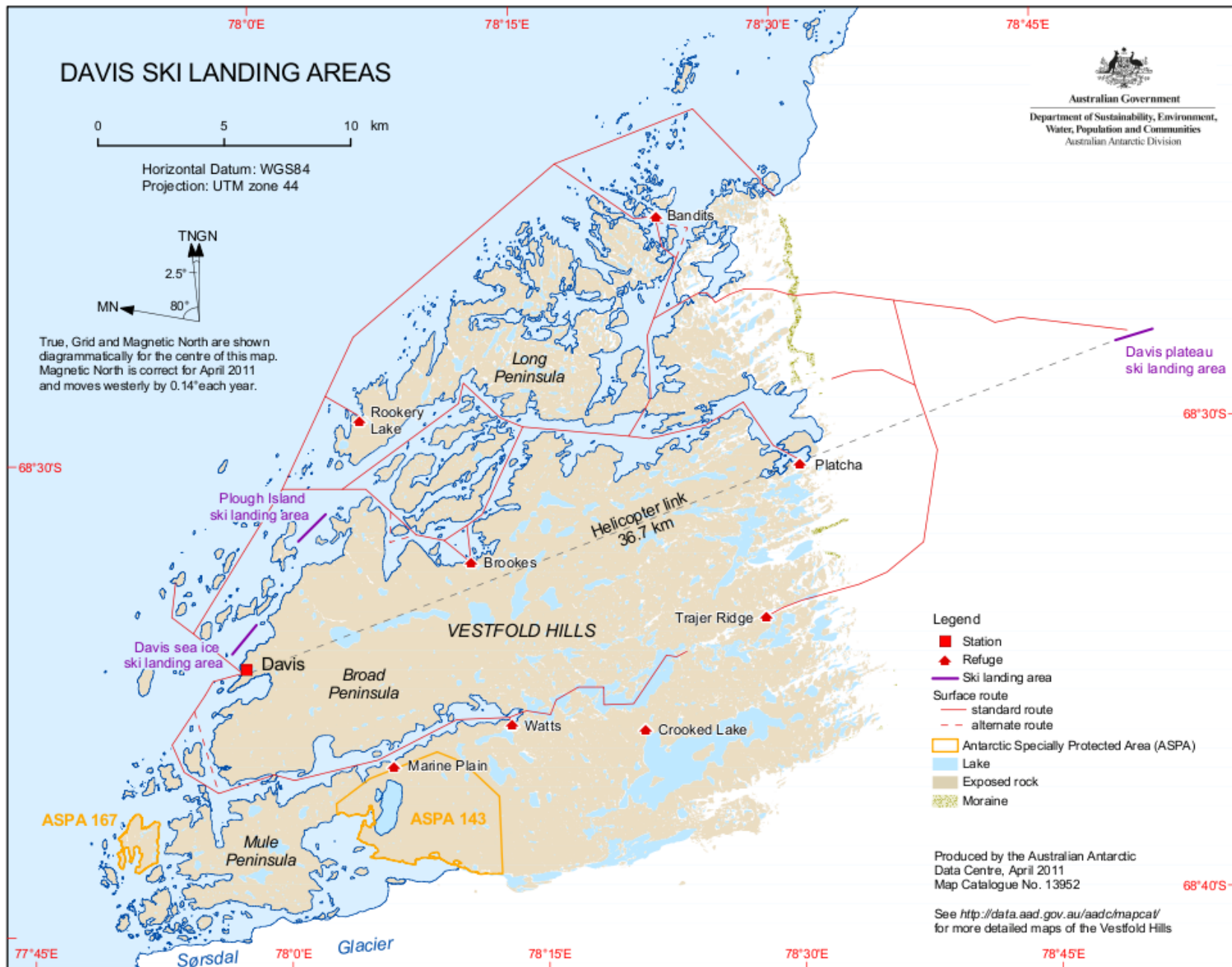
Horizontal Datum: WGS84  
Projection: UTM zone 44



True, Grid and Magnetic North are shown diagrammatically for the centre of this map. Magnetic North is correct for April 2011 and moves westerly by 0.14° each year.



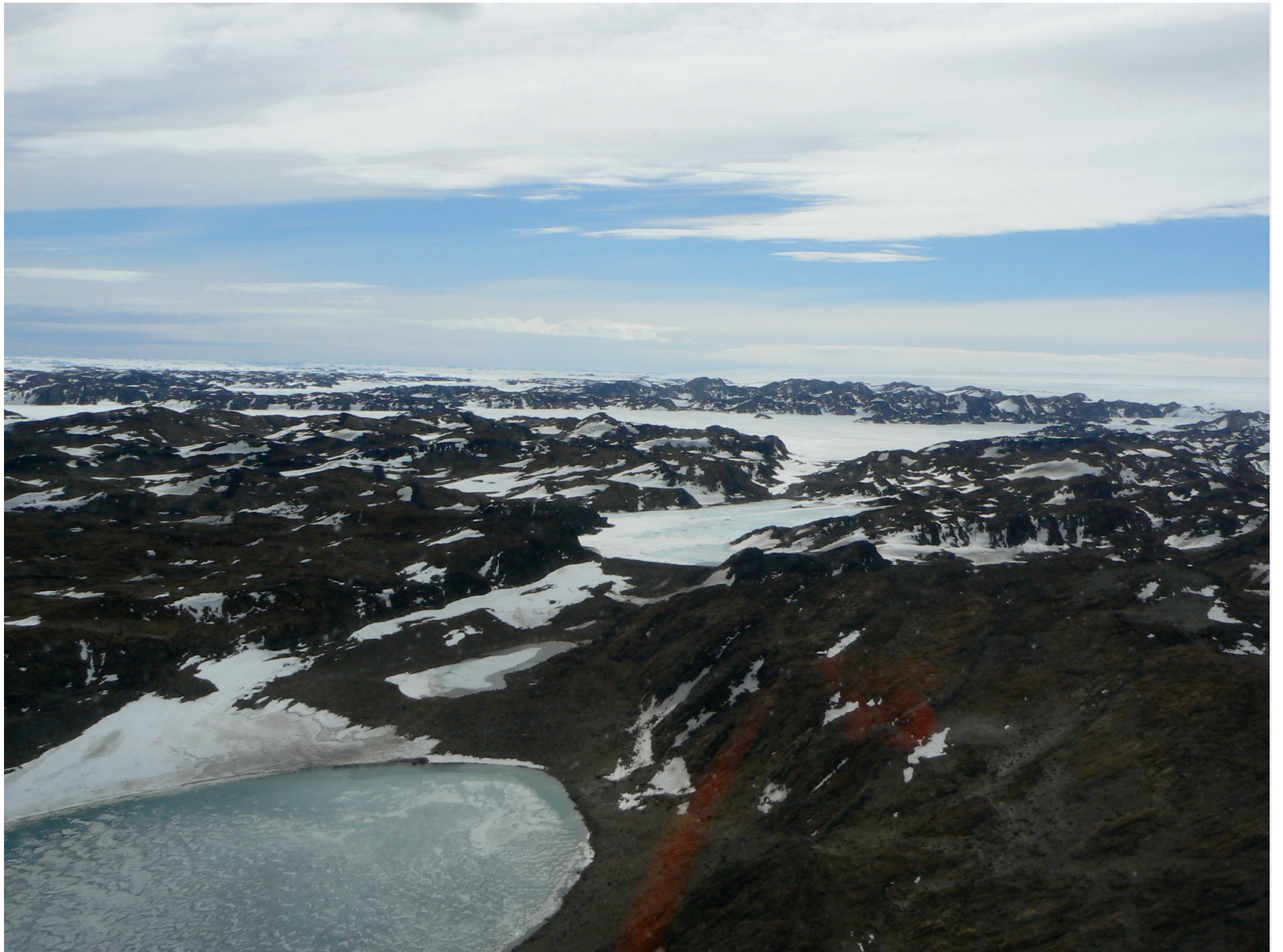
Australian Government  
Department of Sustainability, Environment,  
Water, Population and Communities  
Australian Antarctic Division













# Aircraft



Twin Otter



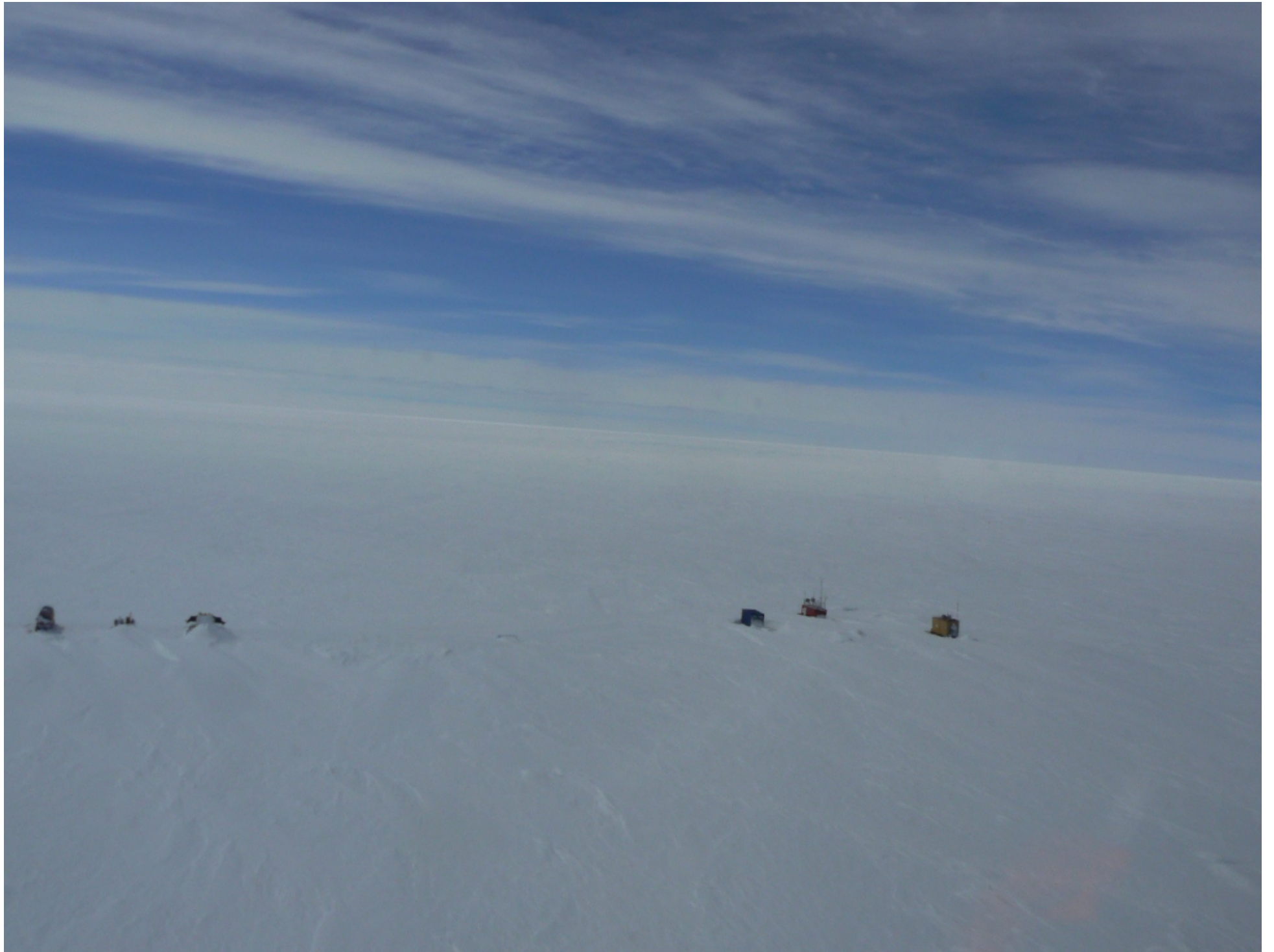
Basler



Squirrel helicopters

# Significant weather affecting operations

- Winds
  - Blowing or drifting snow leading to
    - Reduced horizontal visibility
    - Reduced surface contrast
  - Katabatic jumps
  - Turbulence – especially over Vestfold Hills
- Precipitation
- Cloud type and cover affecting
  - Icing potential
  - Surface contrast
  - Horizon definition





# Forecasting tools



- Surface observations
- Upper air observations
- Satellite images
- Numerical models





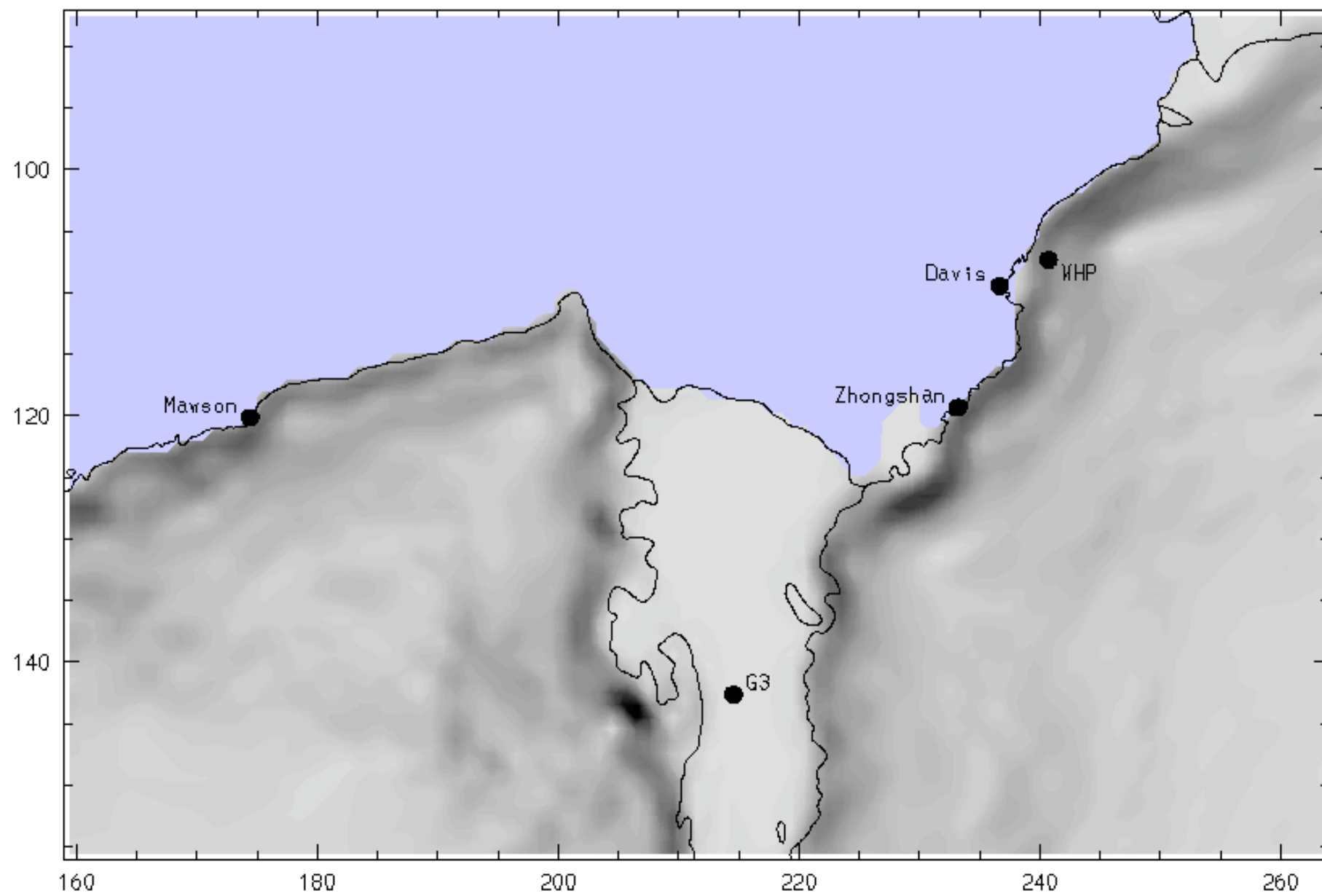
# AMPS – a forecaster's perspective

## Strengths

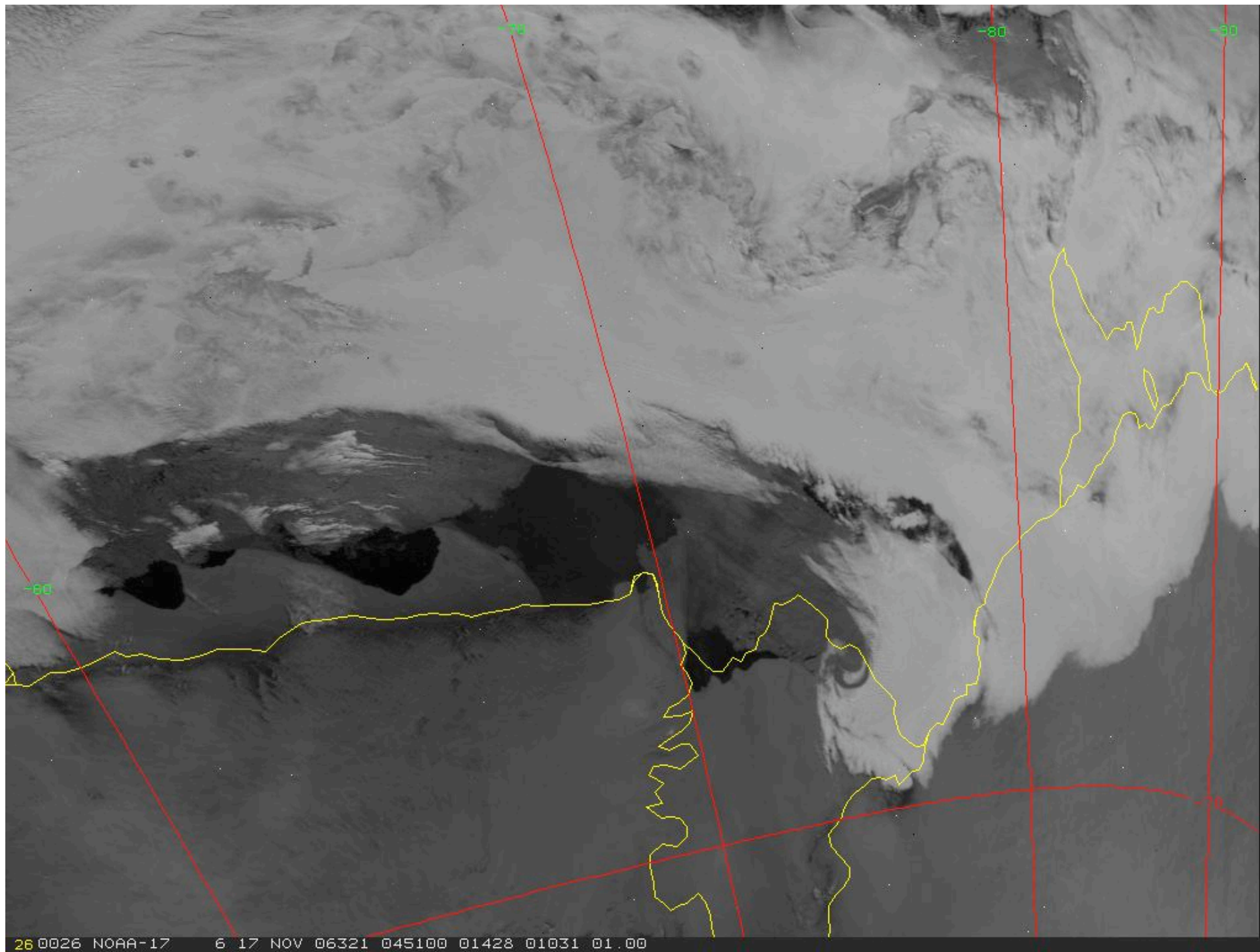
- Highest resolution
- Most accurate wind speeds
- Mesoscale features eg Prydz Bay Low, katabatic jump

## Weaknesses

- Unreliable beyond about FH +72
- Cloud vs 1km RH
- Pre-defined areas and locations







AMPS 10-km WRF -- Davis-Mawson Window

Fcst. 30 h

Horizontal wind speed

Horizontal wind vectors

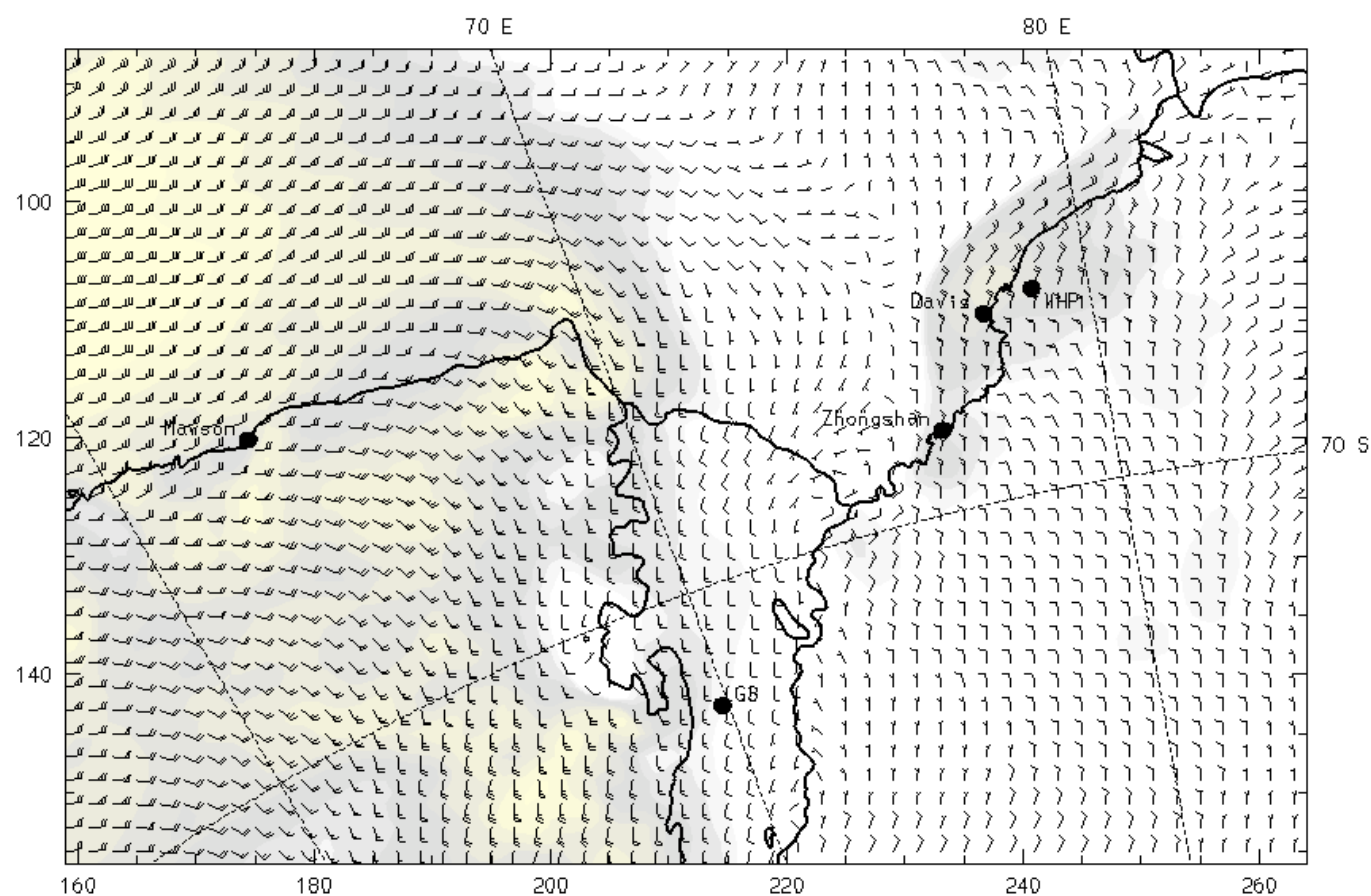
at k-index = 60

at k-index = 60

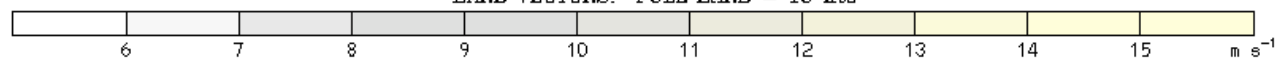
Init. 00 UTC Mon 21 Jan 13

Valid. 06 UTC Tue 22 Jan 13

sm= 1



BARB VECTORS: FULL BARB = 10 kts



Model Info: V3.3.1 M KF

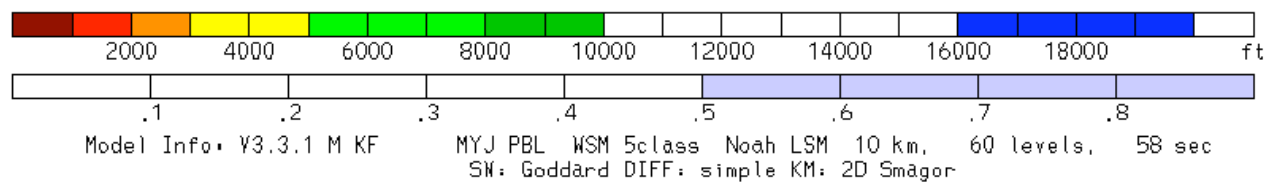
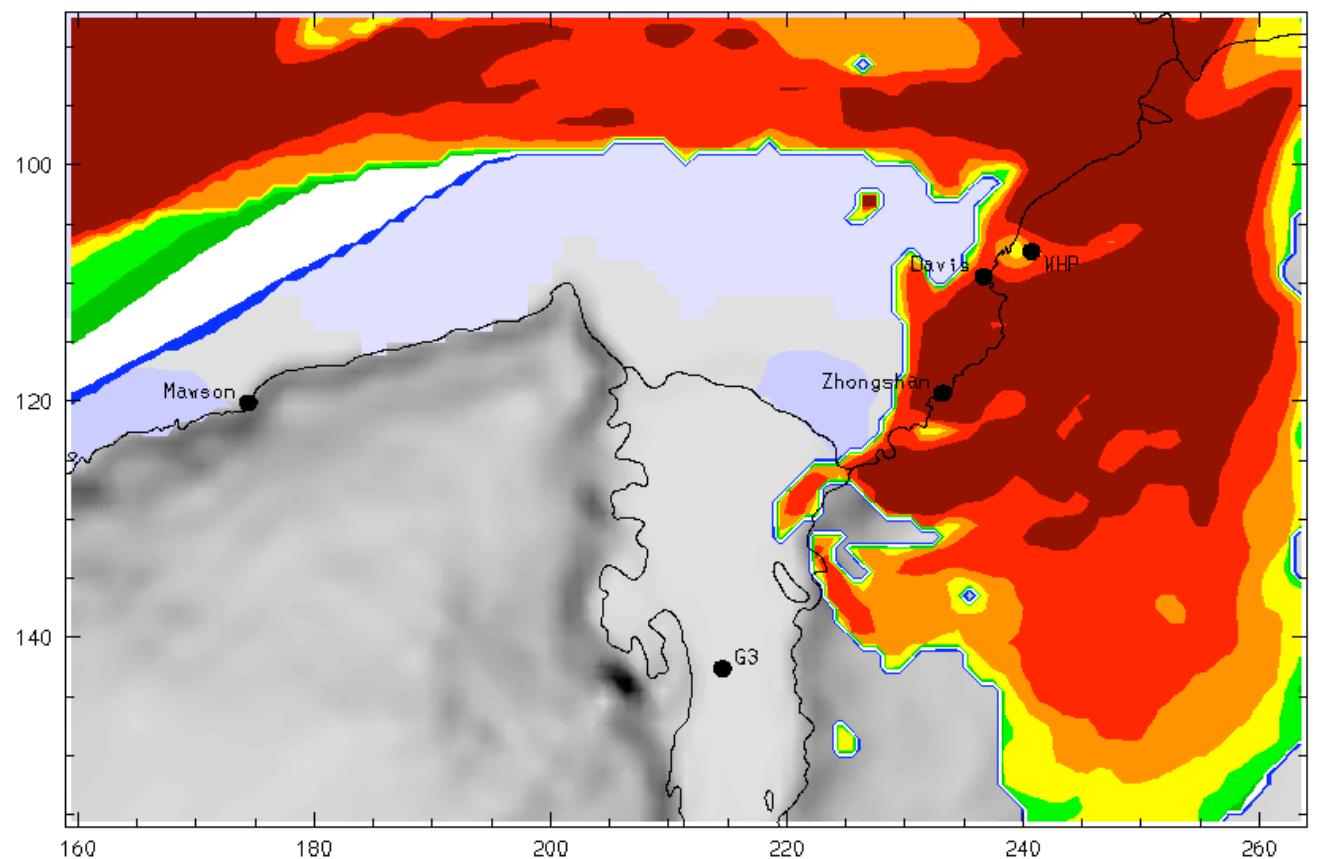
MYJ PBL WSM 5class Noah LSM 10 km, 60 levels, 58 sec

SW: Goddard DIFF: simple KM: 2D Smagor



AMPS 10-km WRF -- Davis-Mawson Window  
Fest. 30 h  
SEA ICE FLAG  
Cloud ceiling

Init: 00 UTC Mon 21 Jan 13  
Valid: 06 UTC Tue 22 Jan 13



AMPS 10-km WRF -- Davis-Mawson Window  
Fcst. 30 h

Relative humidity (w.r.t. ice)

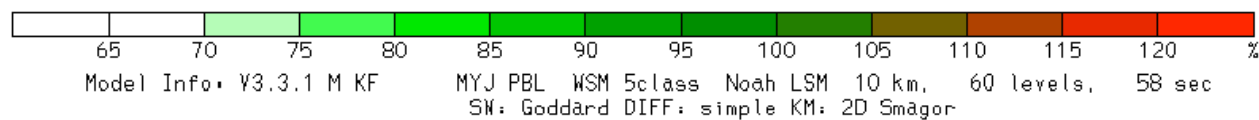
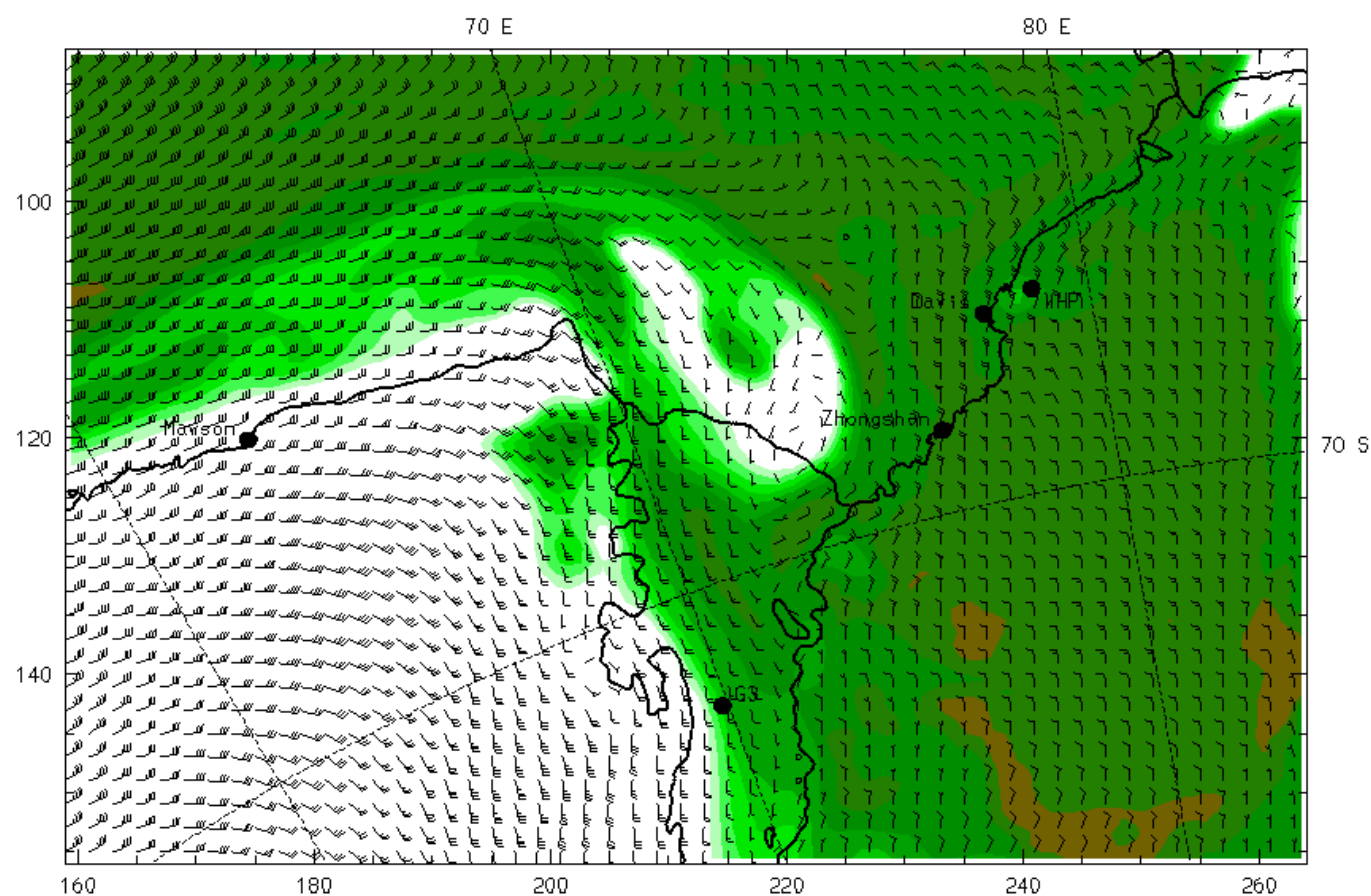
Horizontal wind vectors

at k-index = 55

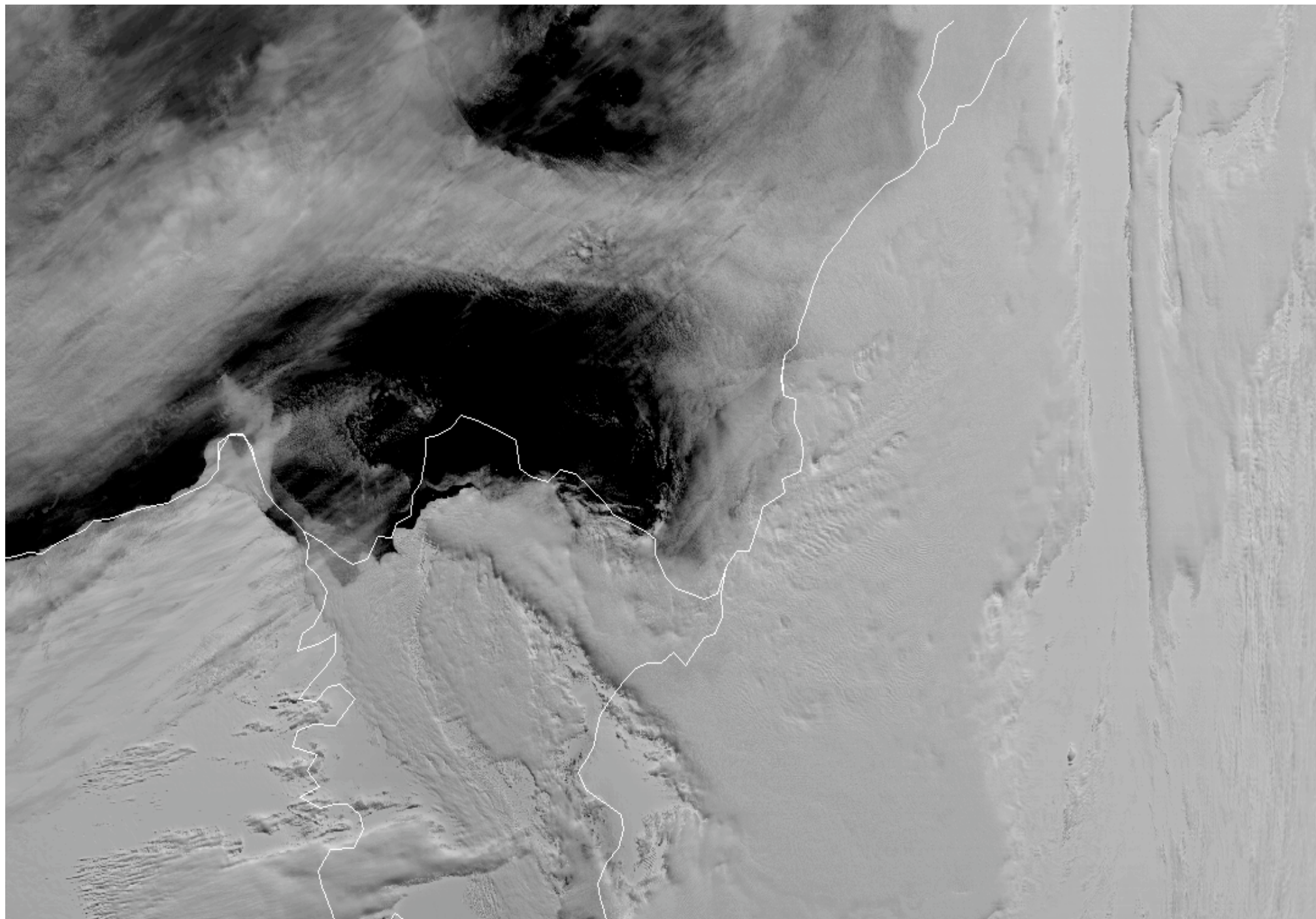
at k-index = 55

Init. 00 UTC Mon 21 Jan 13

Valid. 06 UTC Tue 22 Jan 13







290029 TERRA-L1B 1 22 JAN 13022 041500 04493 01755 03.00



Questions?

