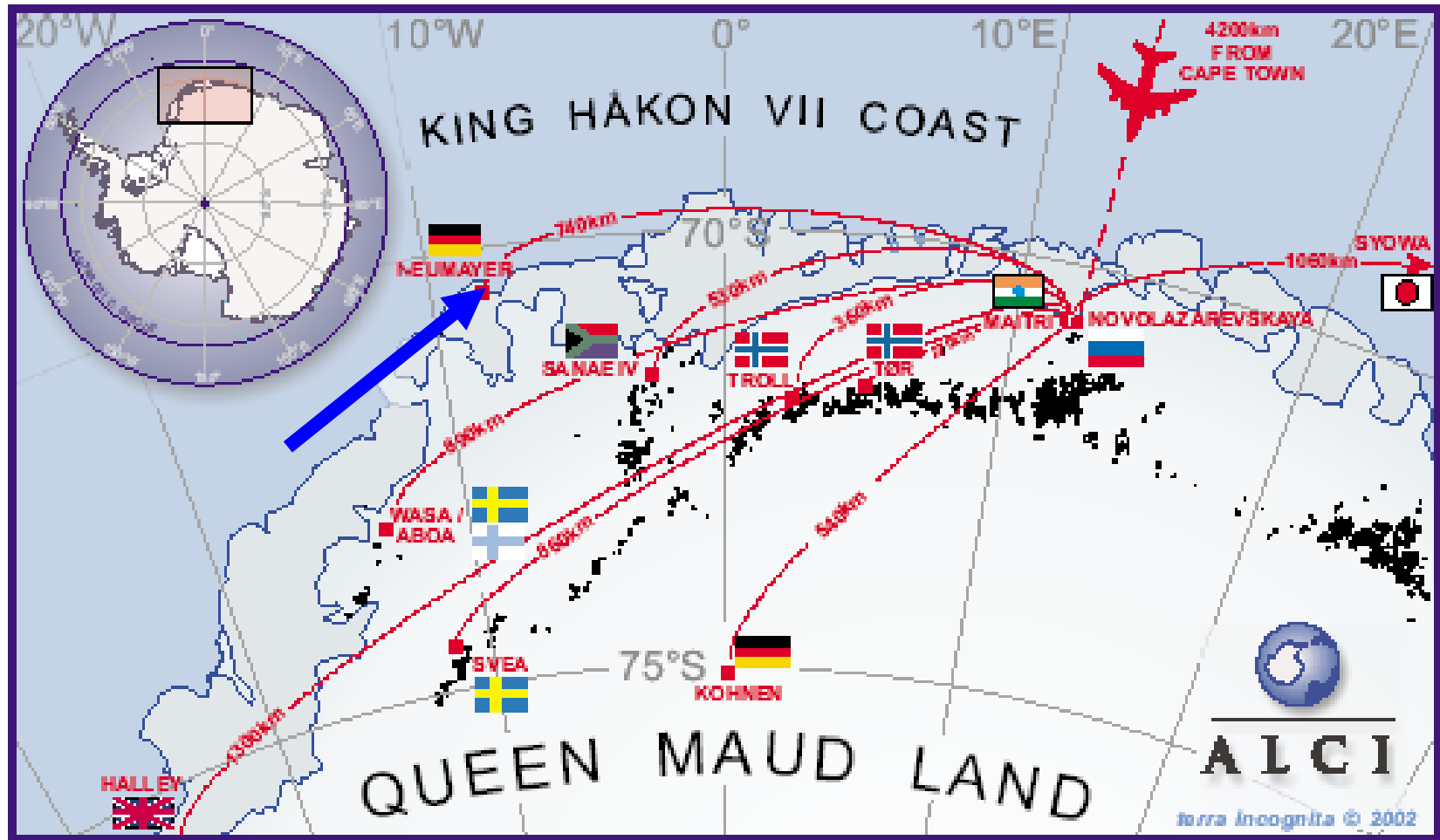


The Meteorological Observatory from Neumayer

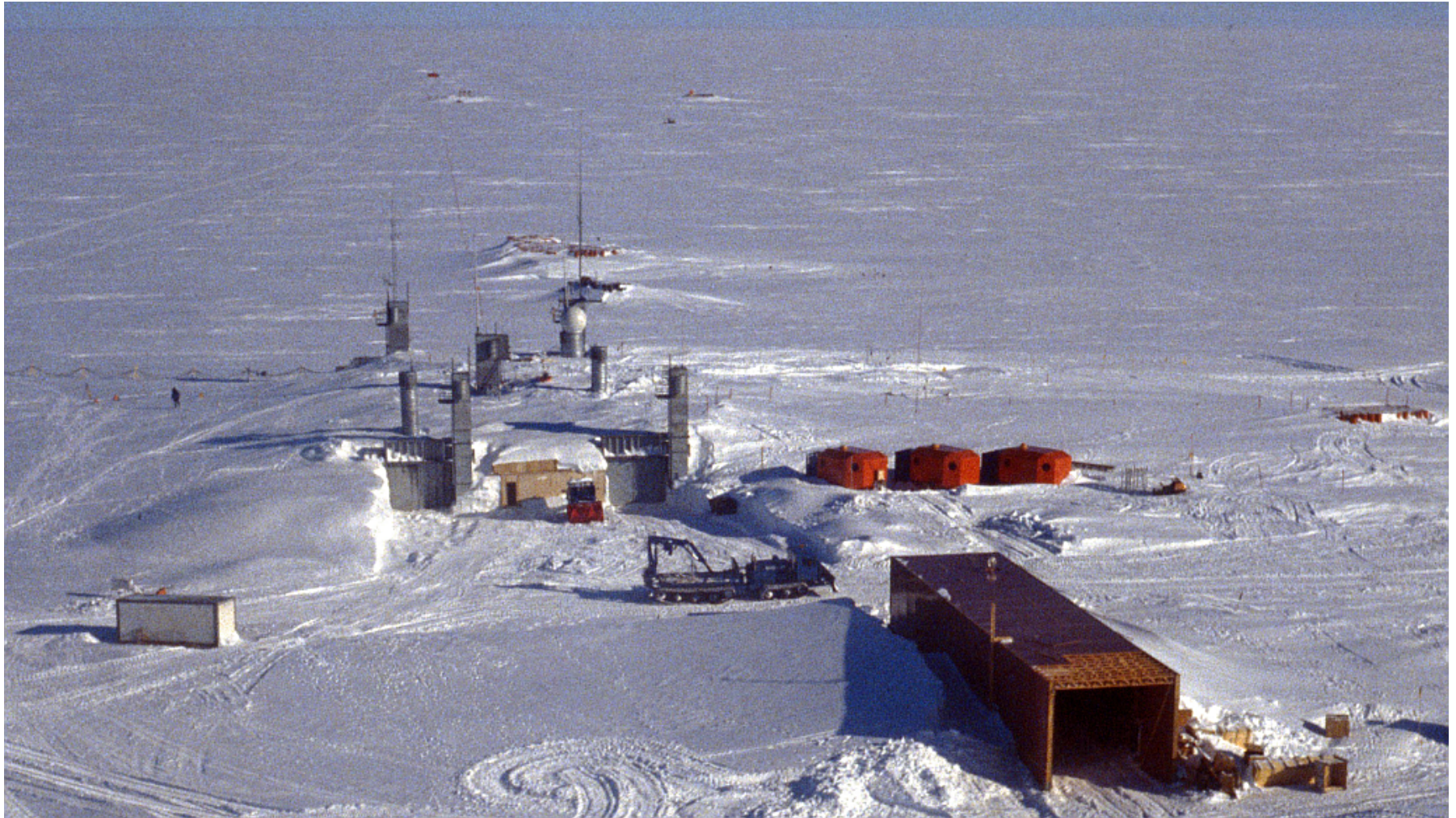
Gert König-Langlo,
Bernd Loose



Location

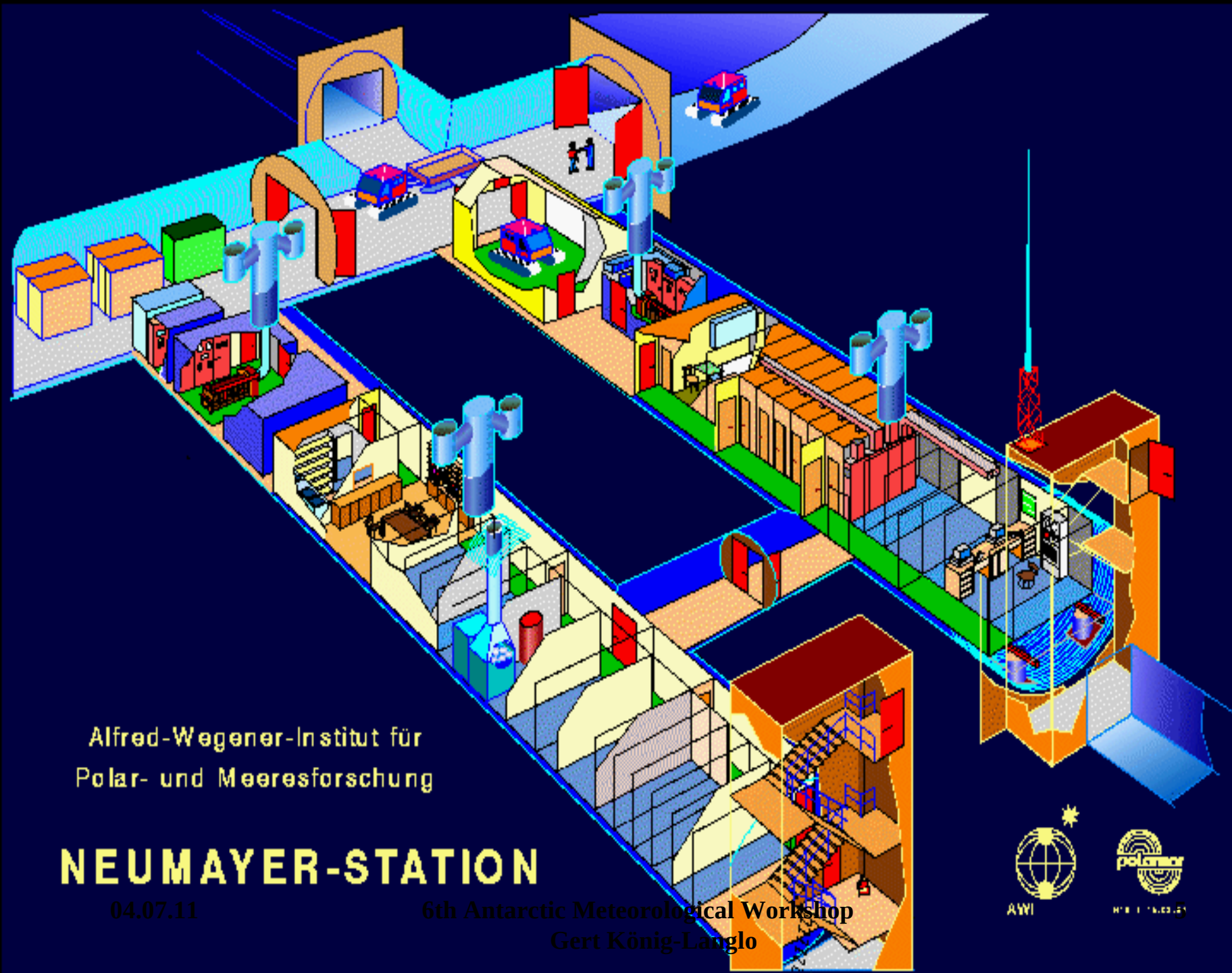


History: Georg-von-Neumayer (March 1981)



History: Neumayer (March 1992)





Alfred-Wegener-Institut für
Polar- und Meeresforschung

NEUMAYER-STATION

04.07.11

6th Antarctic Meteorological Workshop
Gert König-Langlo



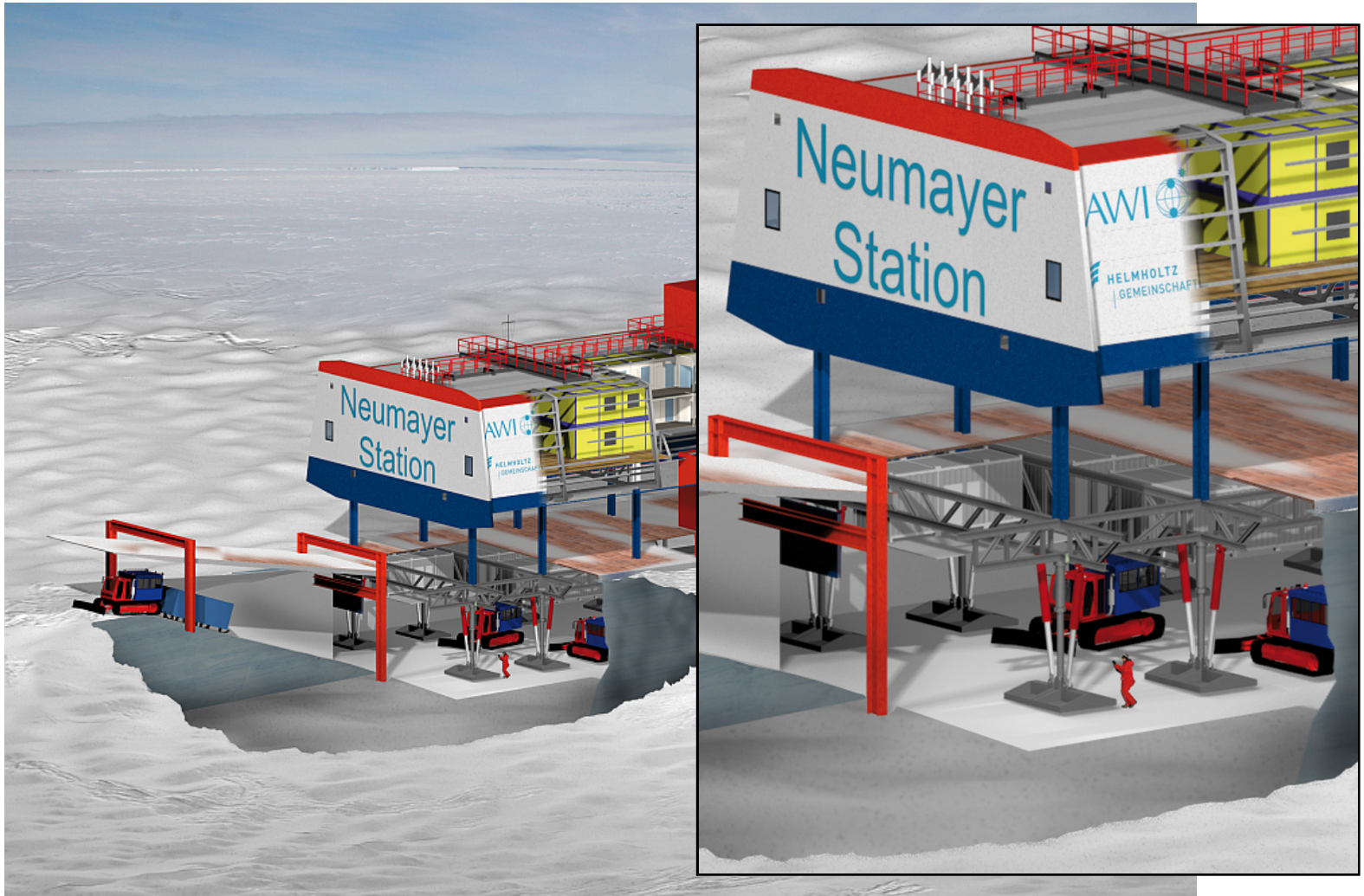
AWI



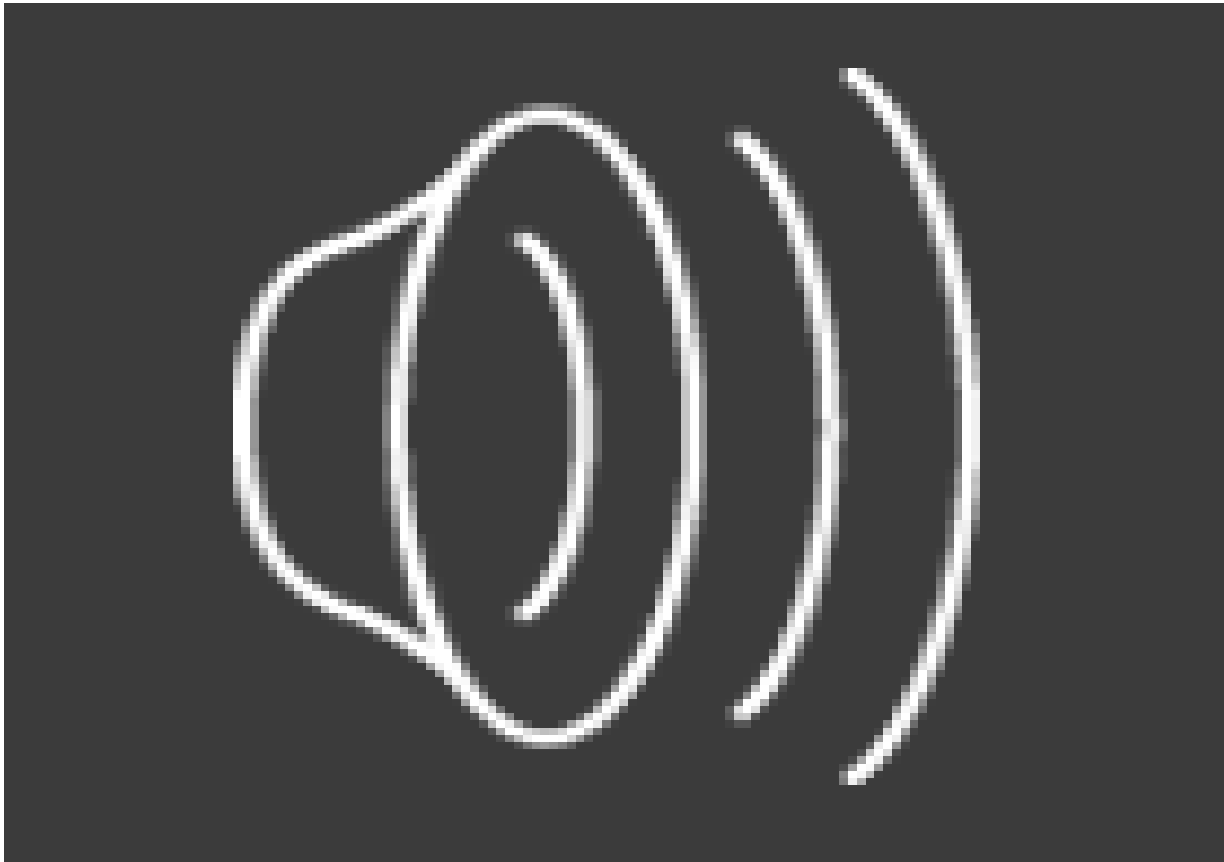
MPG 1 14.03.01



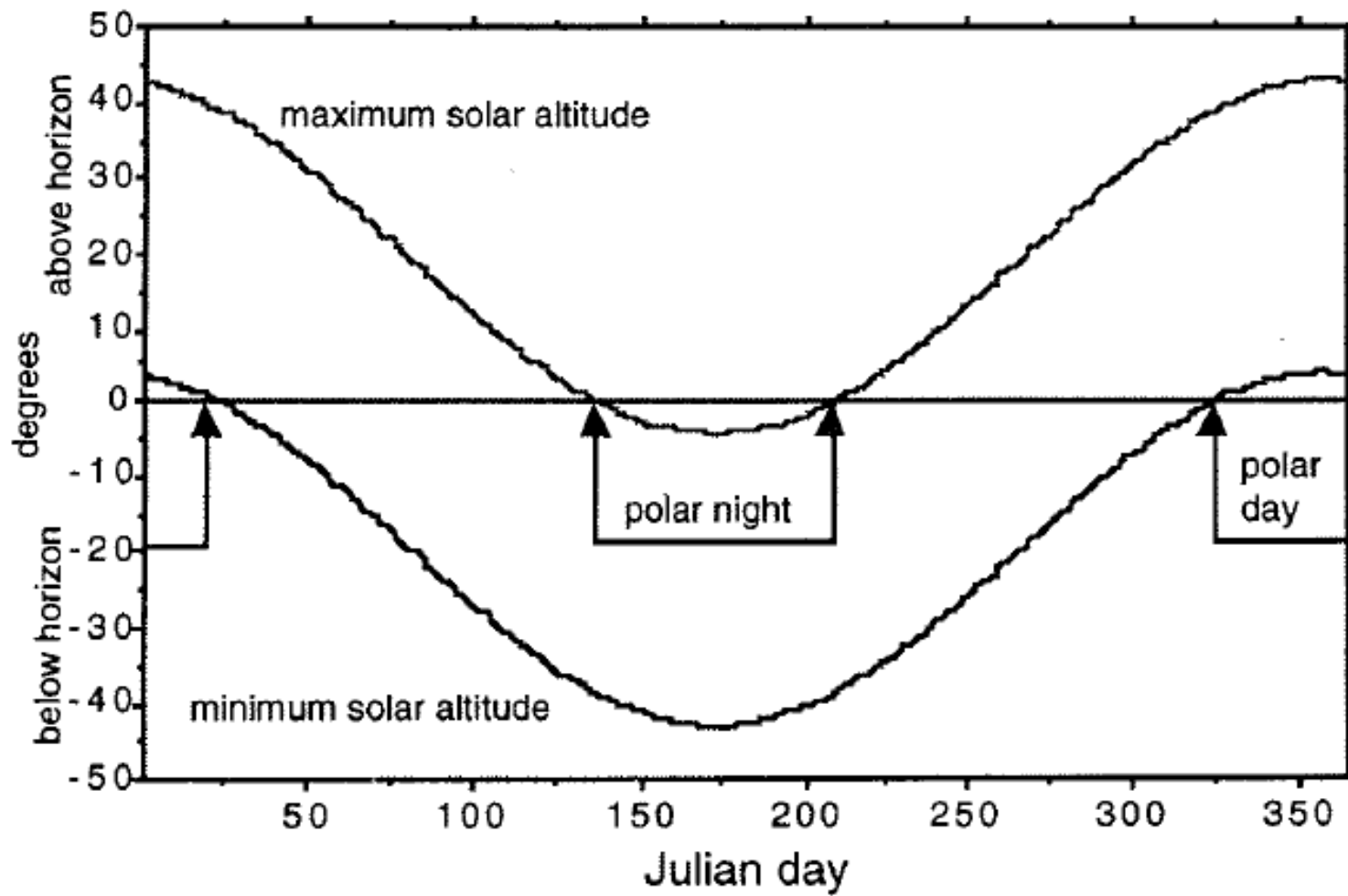
History: Neumayer_III (February 2009)



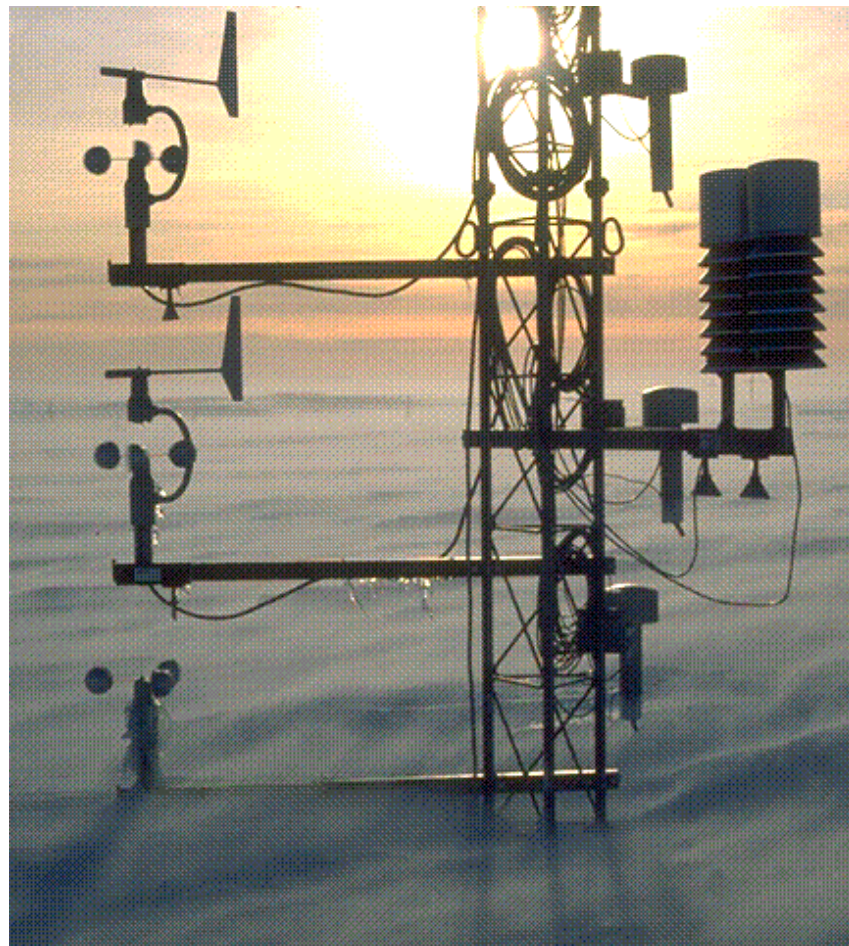




Polar-Day/ Polar-Night



1. **Global Telecommunication System (GTS)**
2. **Baseline Surface Radiation Network (BSRN)**
3. **Network for the Detection of Atmospheric Composition Change (NDACC)**
4. **Global Atmospheric Watch (GAW)**
5. **World Ozone and Ultraviolet Radiation Data Centre (WOUDC)**



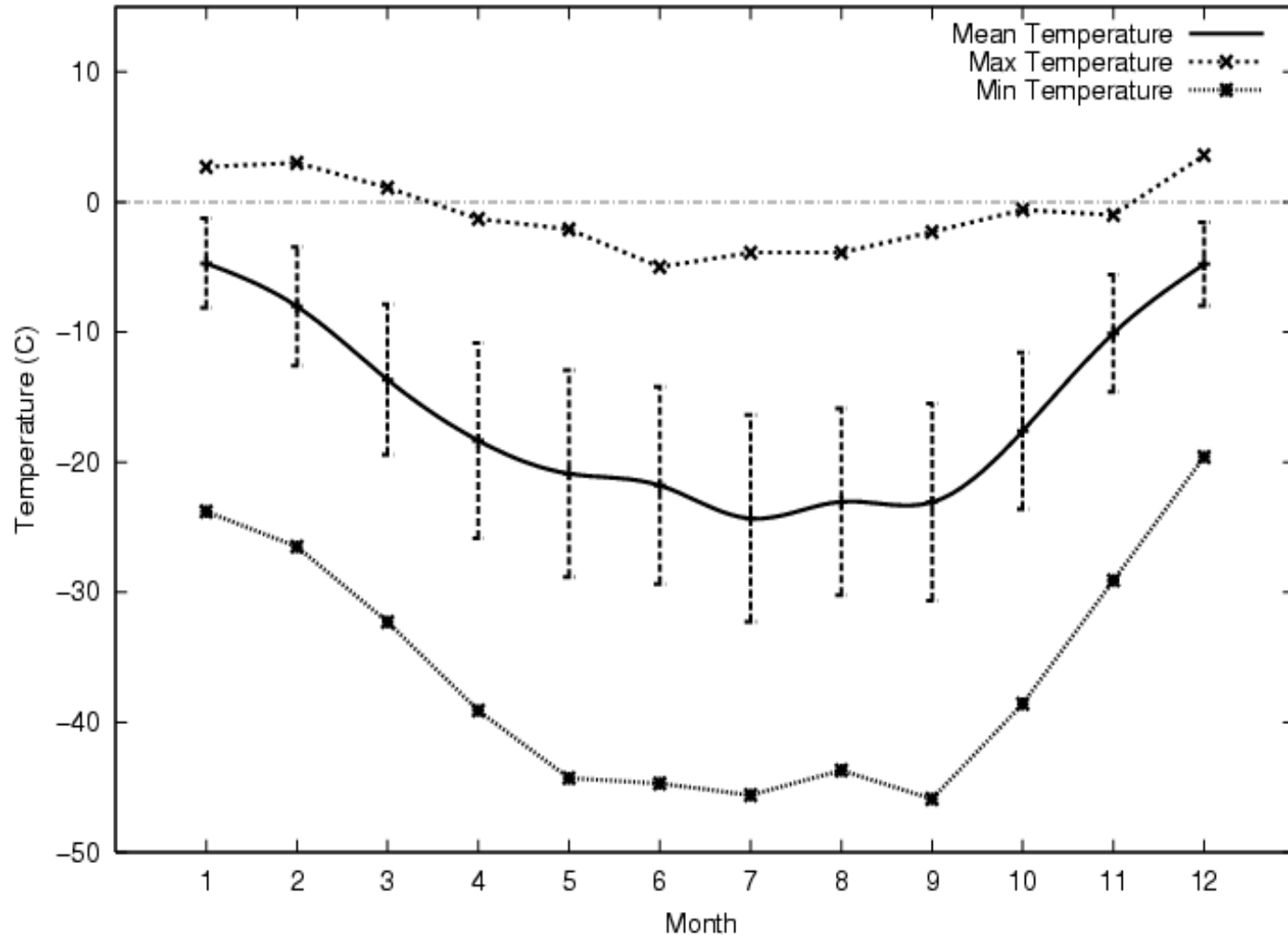
Met-Tower

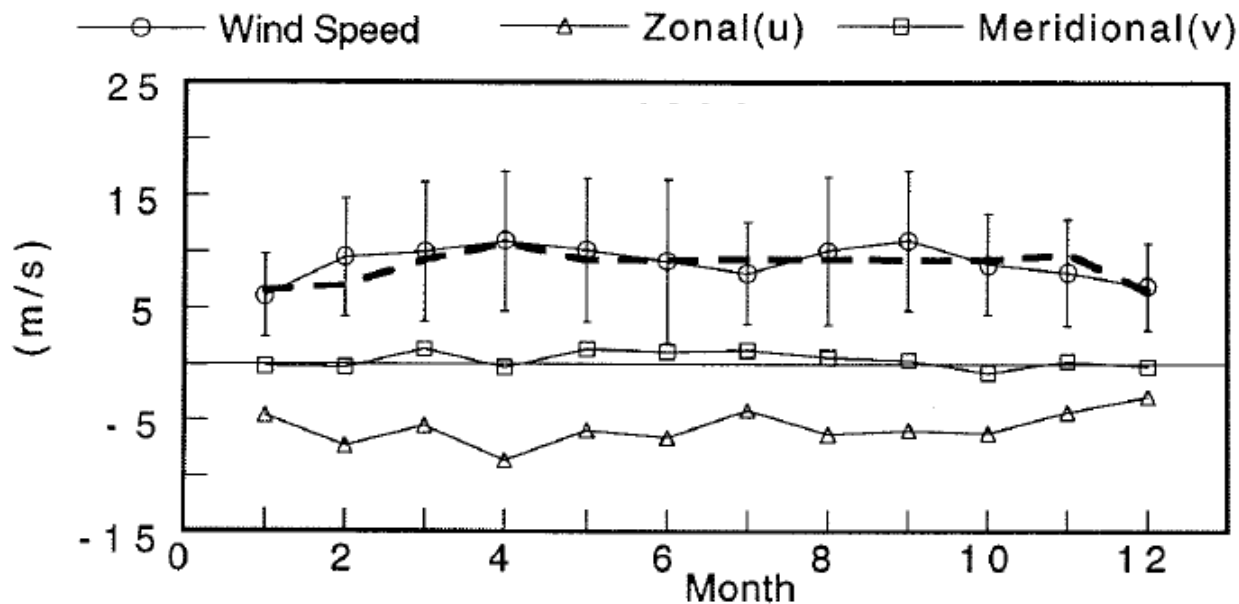
Air Temperature,
Wind Direction,
Wind Velocity,
Humidity in 2
and 10 m Height.



Meteorology Observatory Neumayer

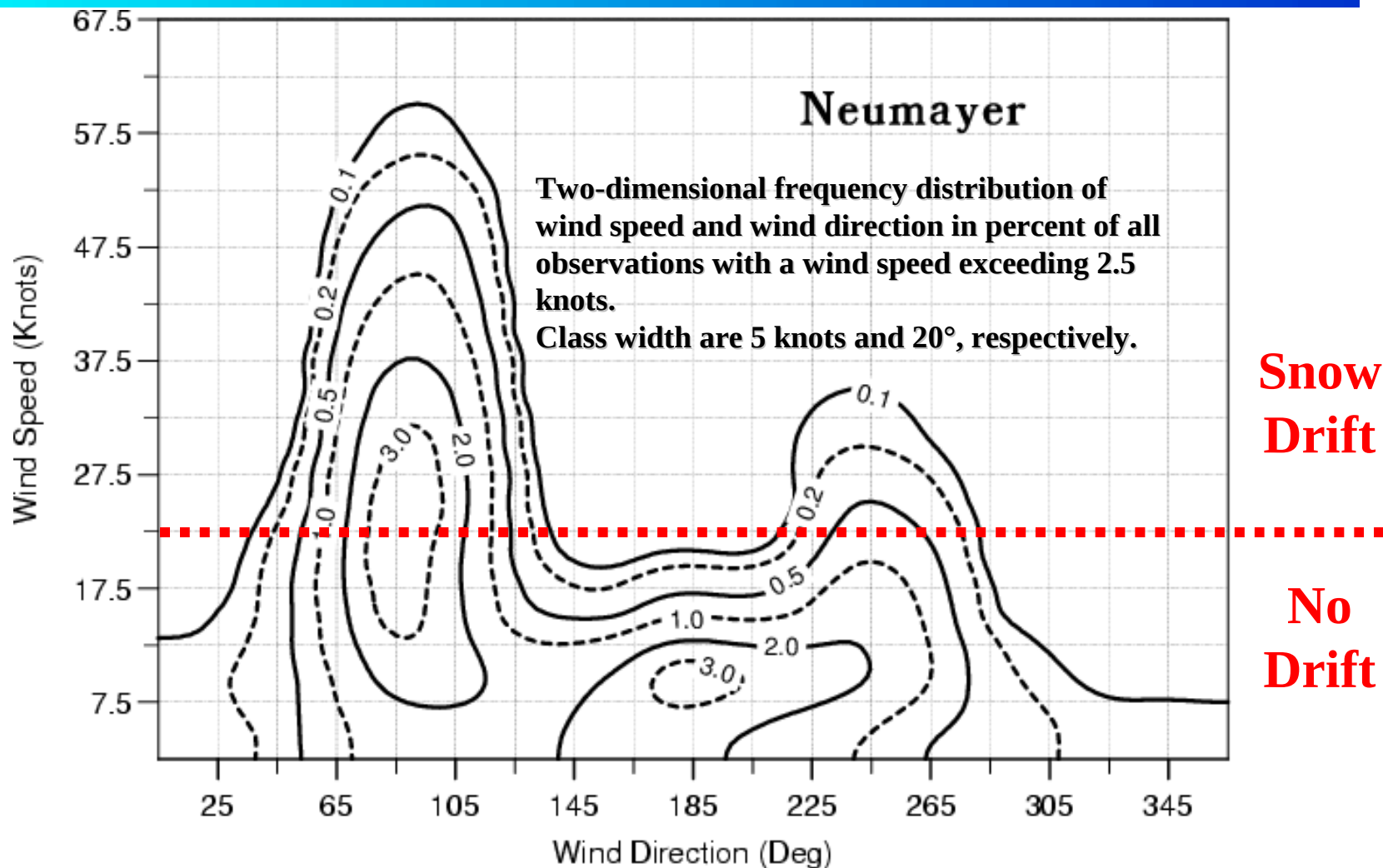
1.) 3-Hourly Synoptic Observations.



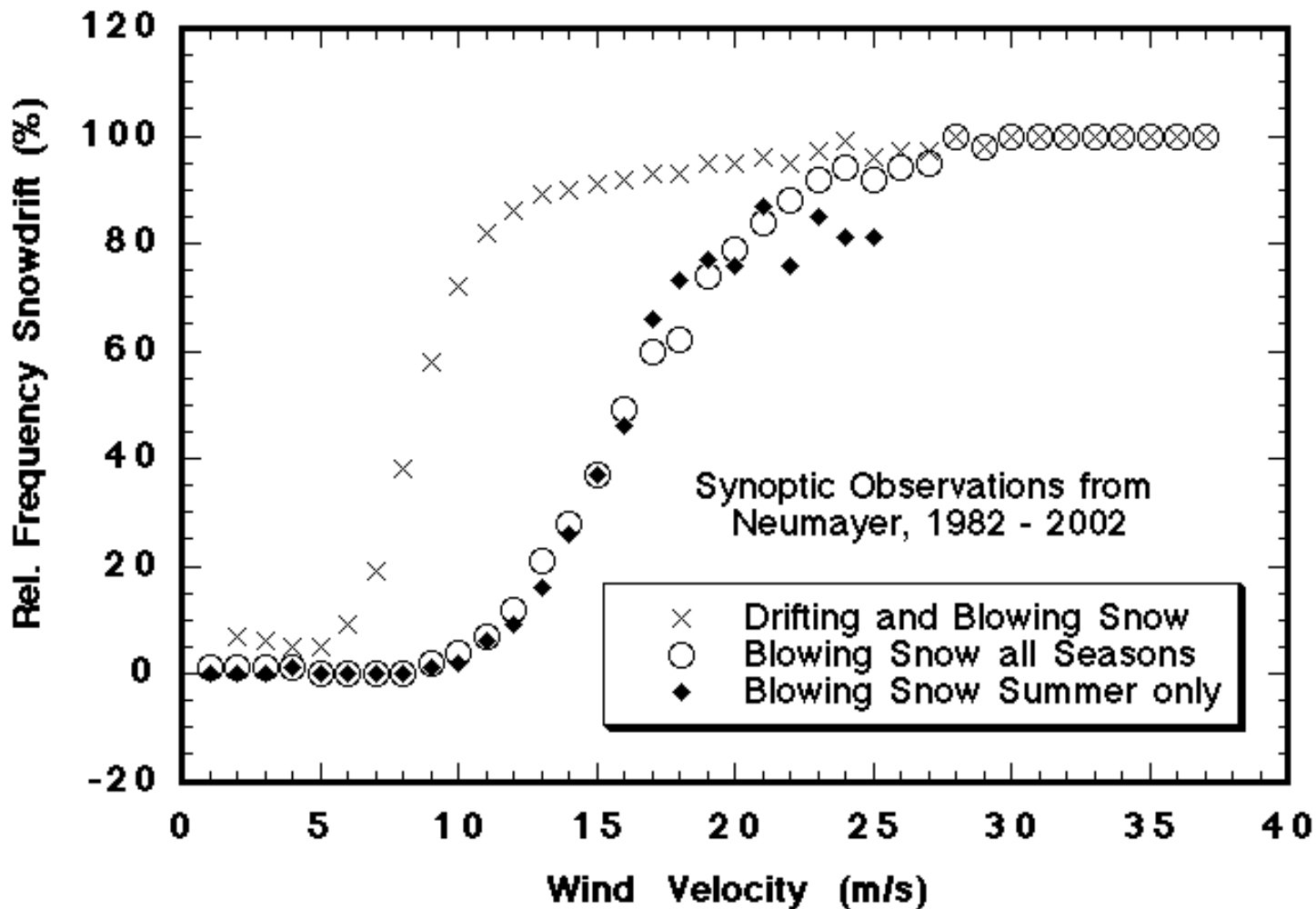


Monthly mean values of wind speed and wind components. Mean wind speeds are plotted with standard deviation with respect to the routine 3-hourly synoptic observations. The bold dashed line represents the 10 year averages from 1982 to 1992.

Wind Statistic from Neumayer



Snow Drift versus Wind Velocity.



Wind Velocity above 10 m/s

Frequency of observations(1981-2002) with
wind velocities FF > 10 m/s.

Month	Total	Greater10	Greater10Frequency(%)
1	5177	1048	20
2	4791	1380	28
3	5394	2012	37
4	5249	2121	40
5	5416	2114	39
6	5253	2092	39
7	5453	2052	37
8	5453	2122	38
9	5280	1956	37
10	5454	2041	37
11	5273	2306	43
12	5204	1282	24

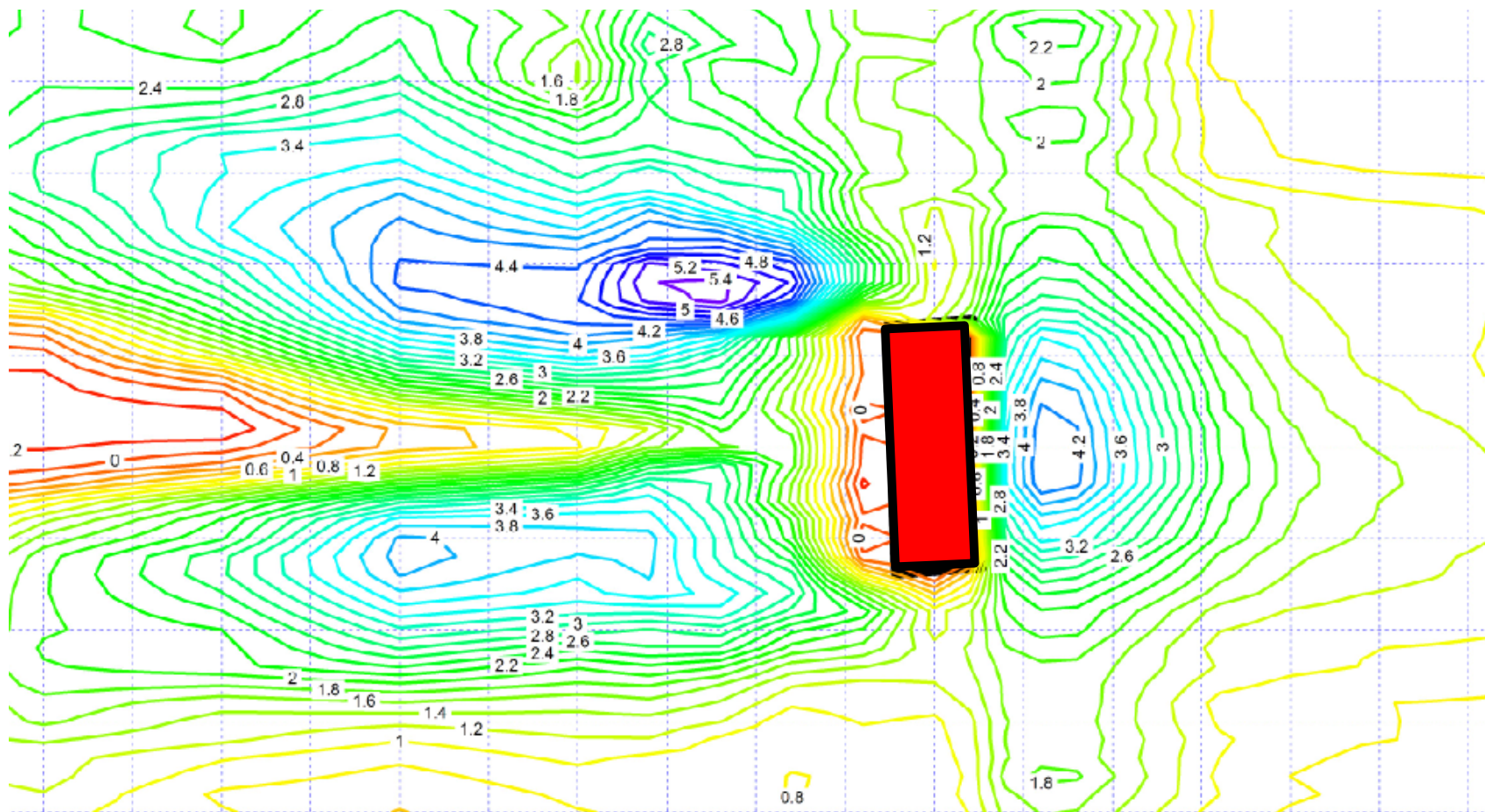
Pedestrian Comfort



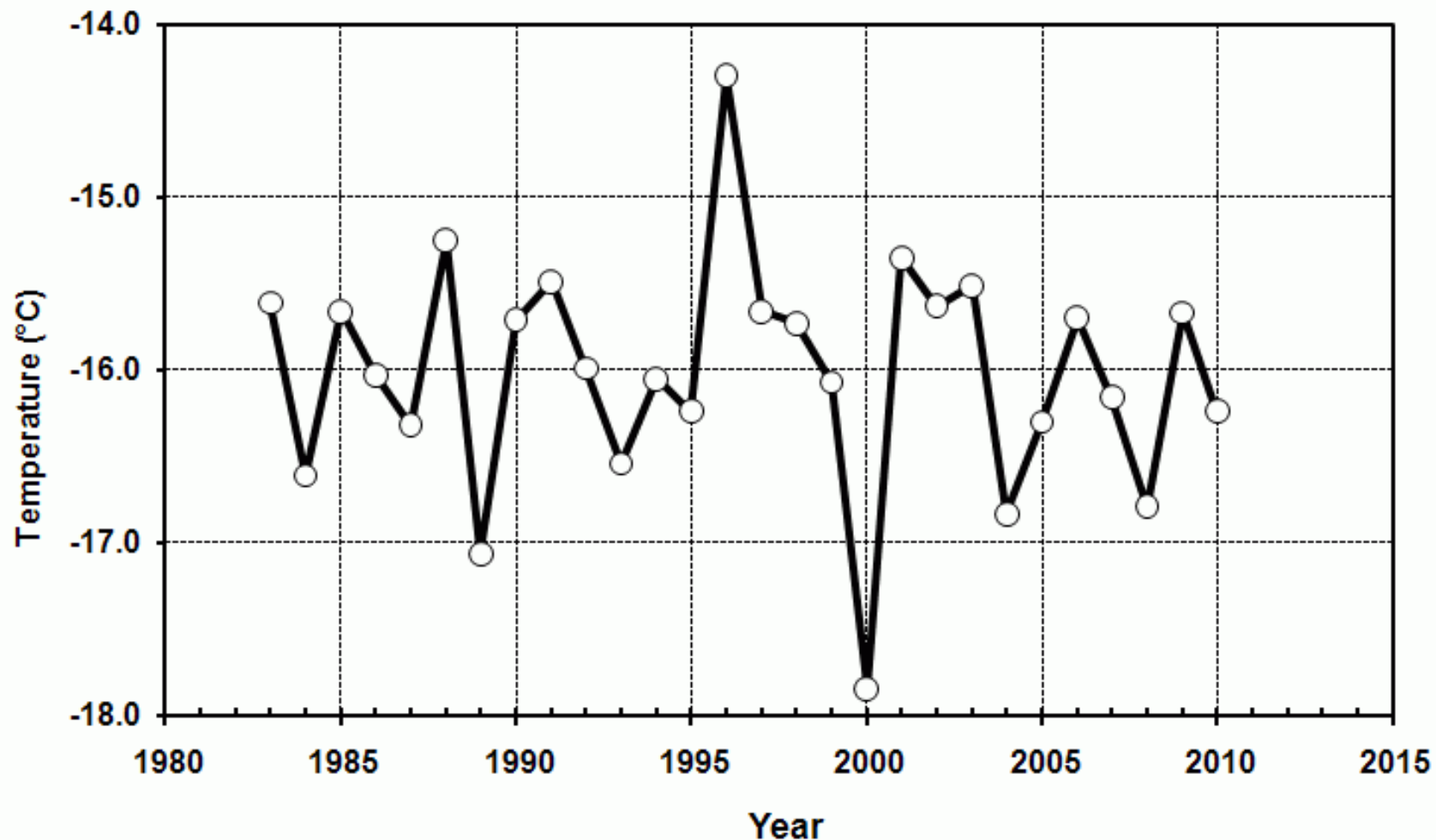
Sastrugi Around Neumayer



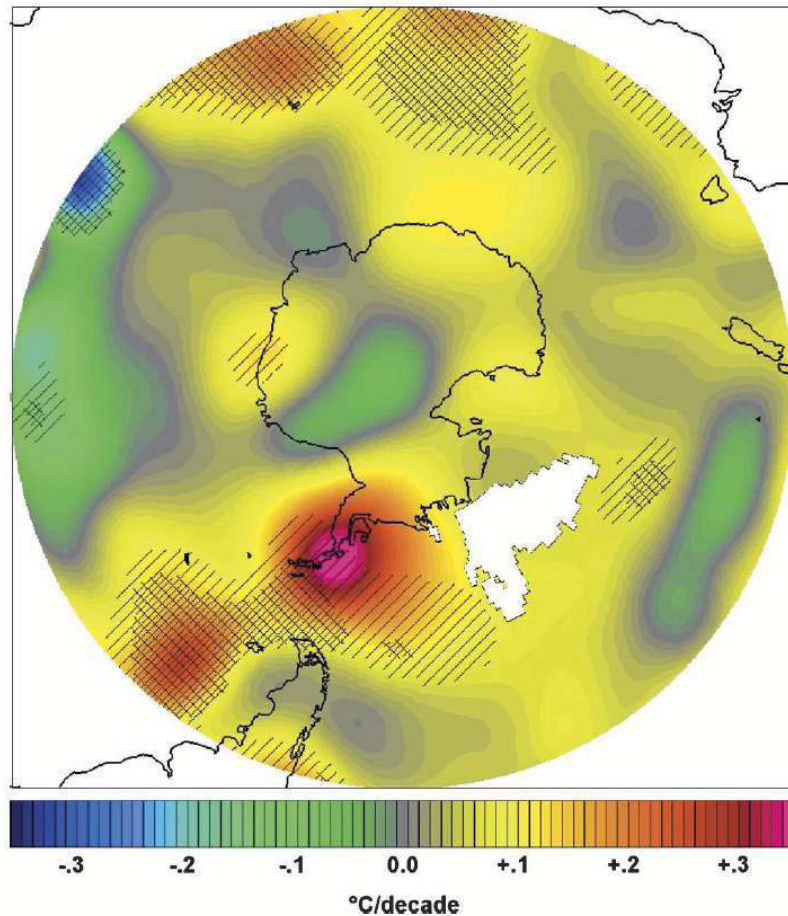
Sastrugi Around Neumayer



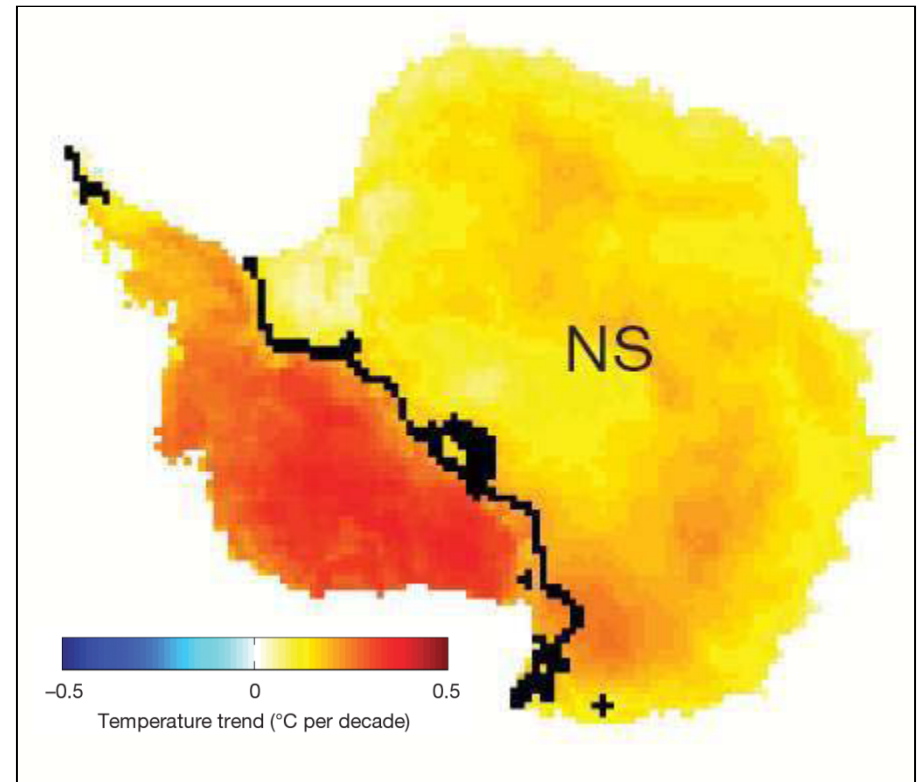
Sastrugi height in meter with respect to the roof of the garage



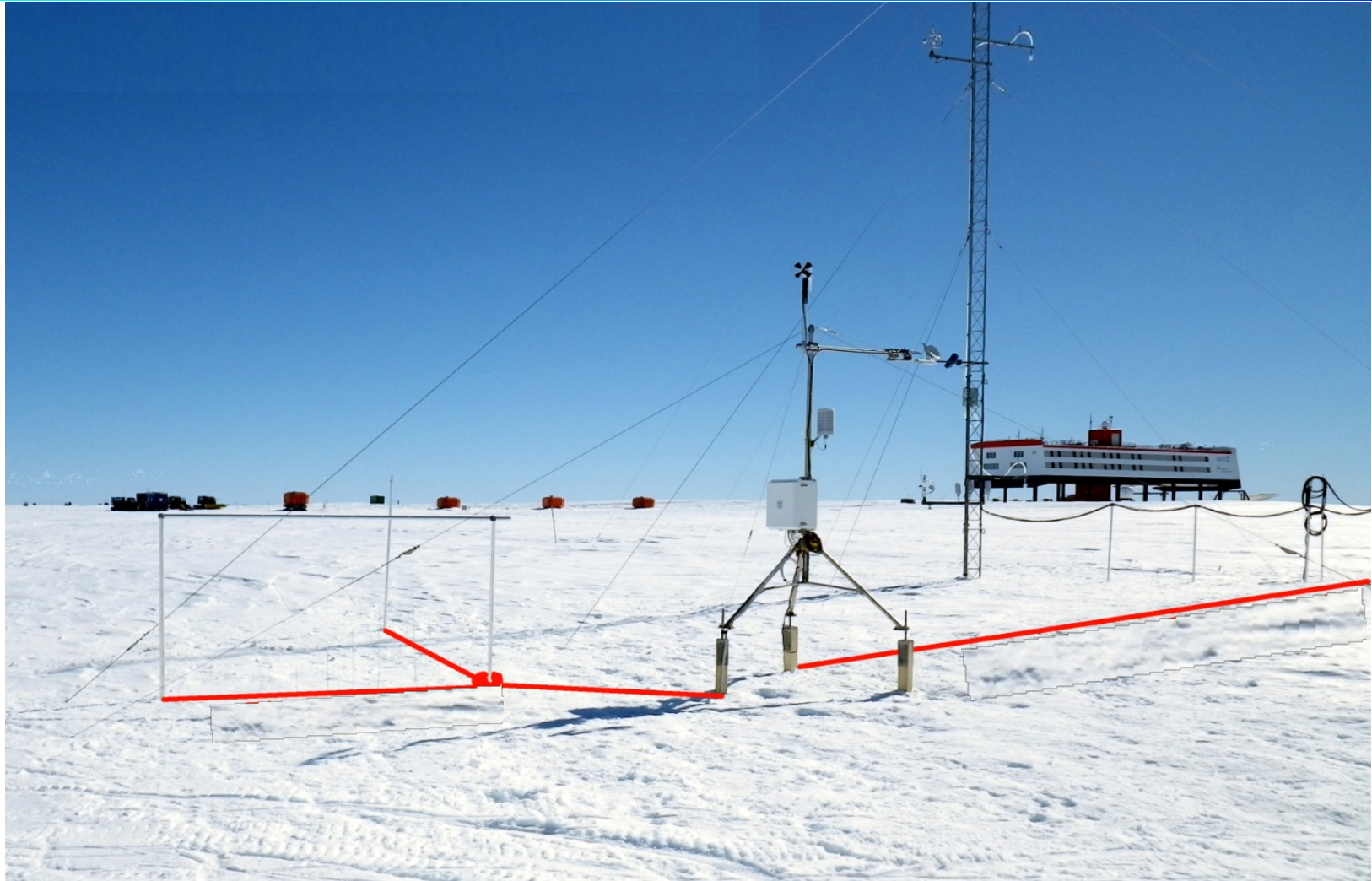
„Warming“ of Antarctica?



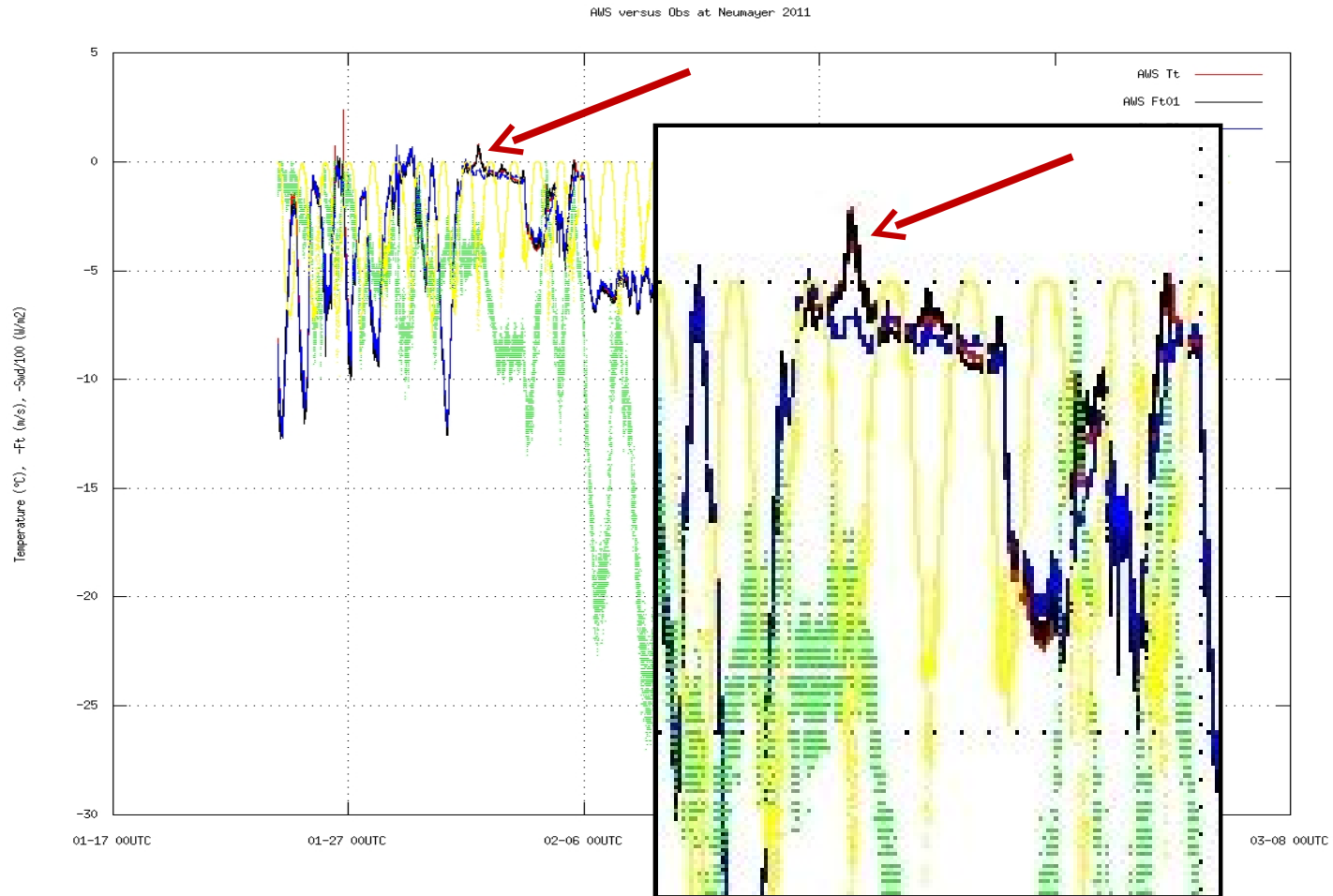
Chapman and Walsh (2007)

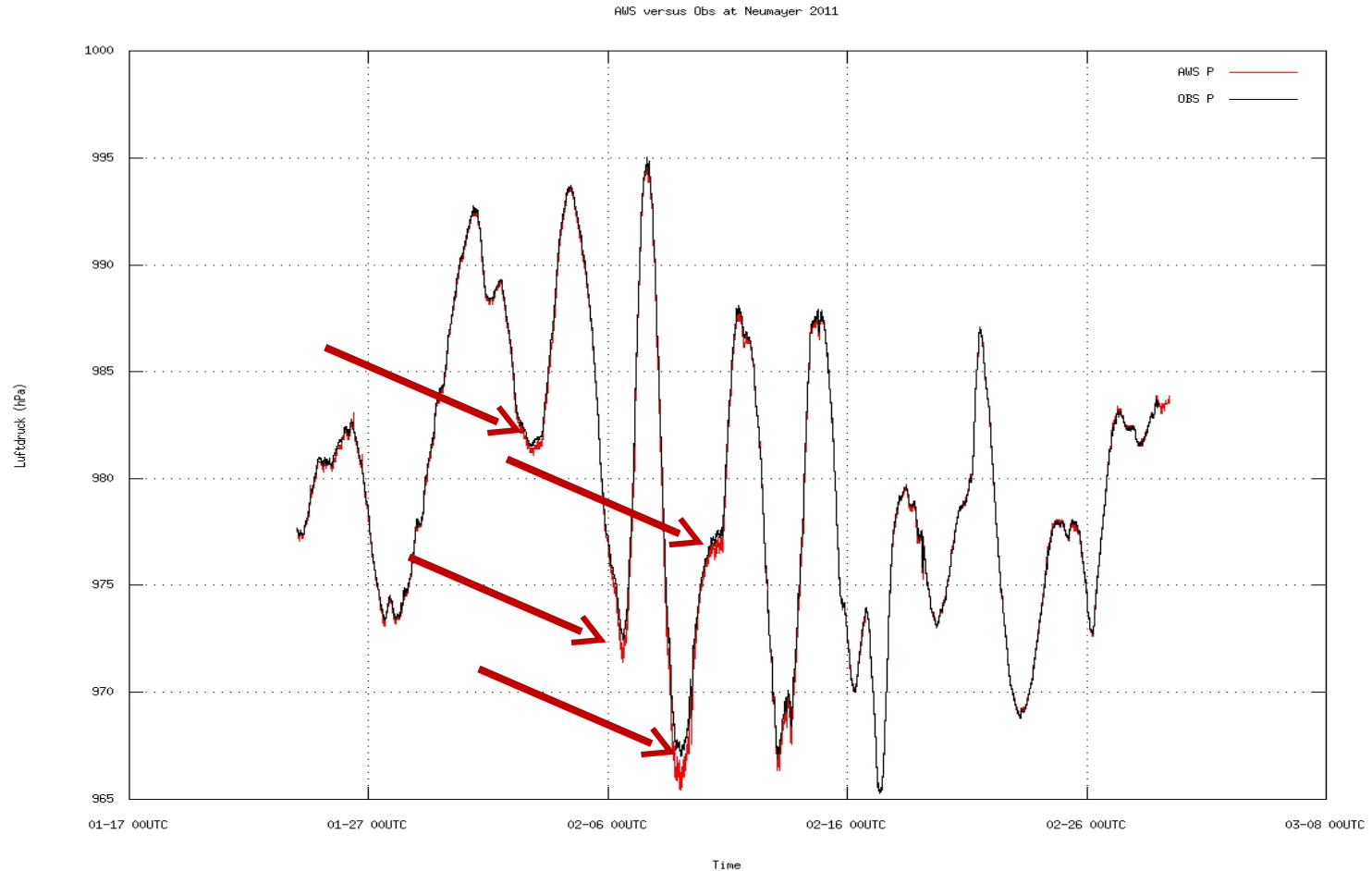


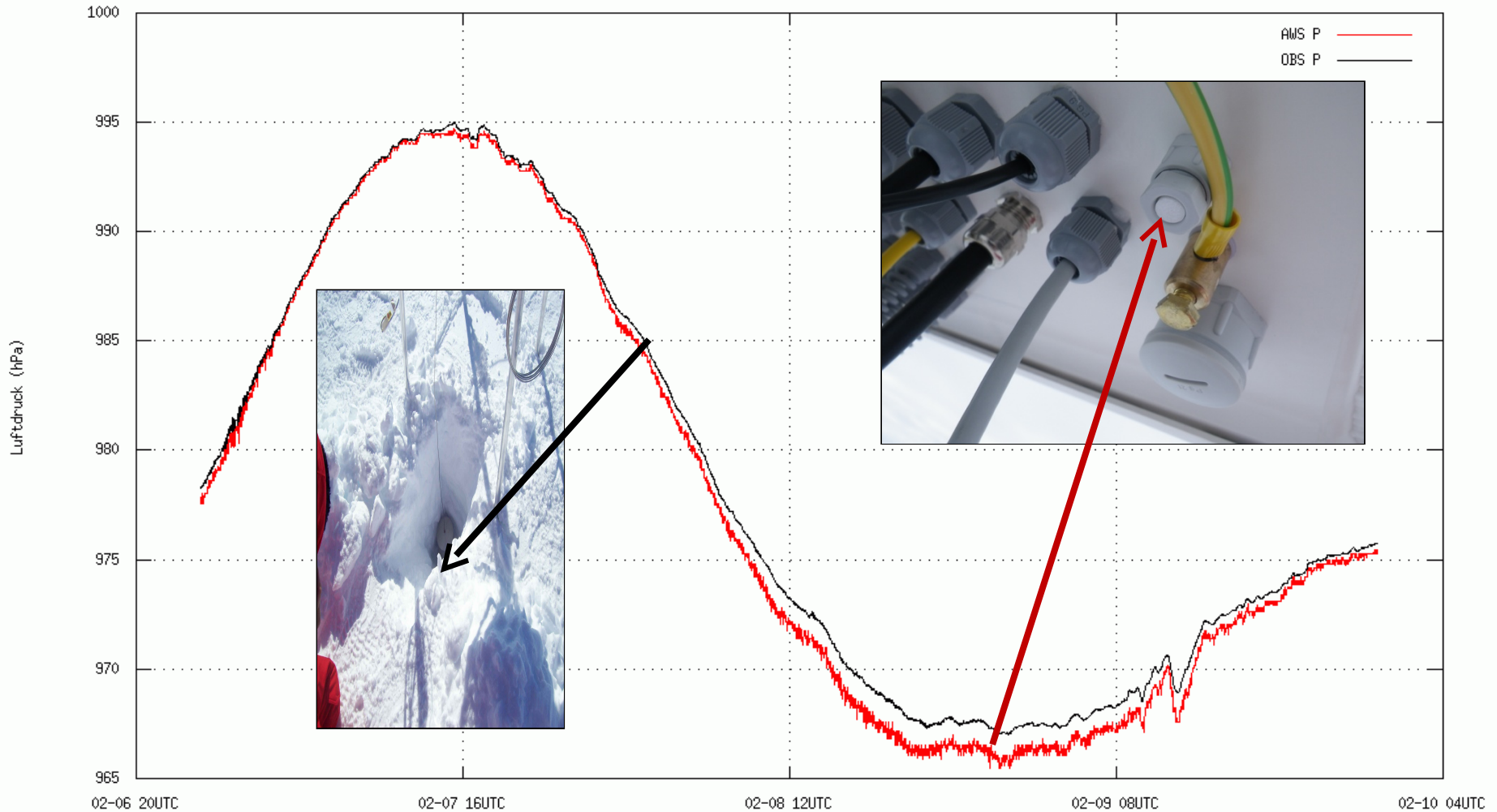
Steig et al. (2009)









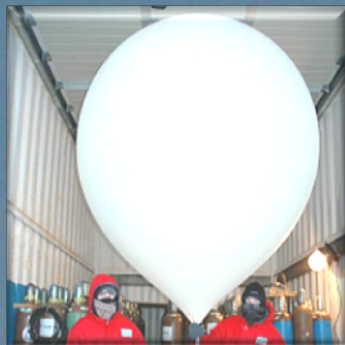


Met-Tower

Air Temperature,
Wind Direction,
Wind Velocity,
Humidity in 2
and 10 m Height.

Upper Air Sounding

Air Temperature,
Wind Direction,
Wind Velocity,
Humidity,
Ozone till 35 km.



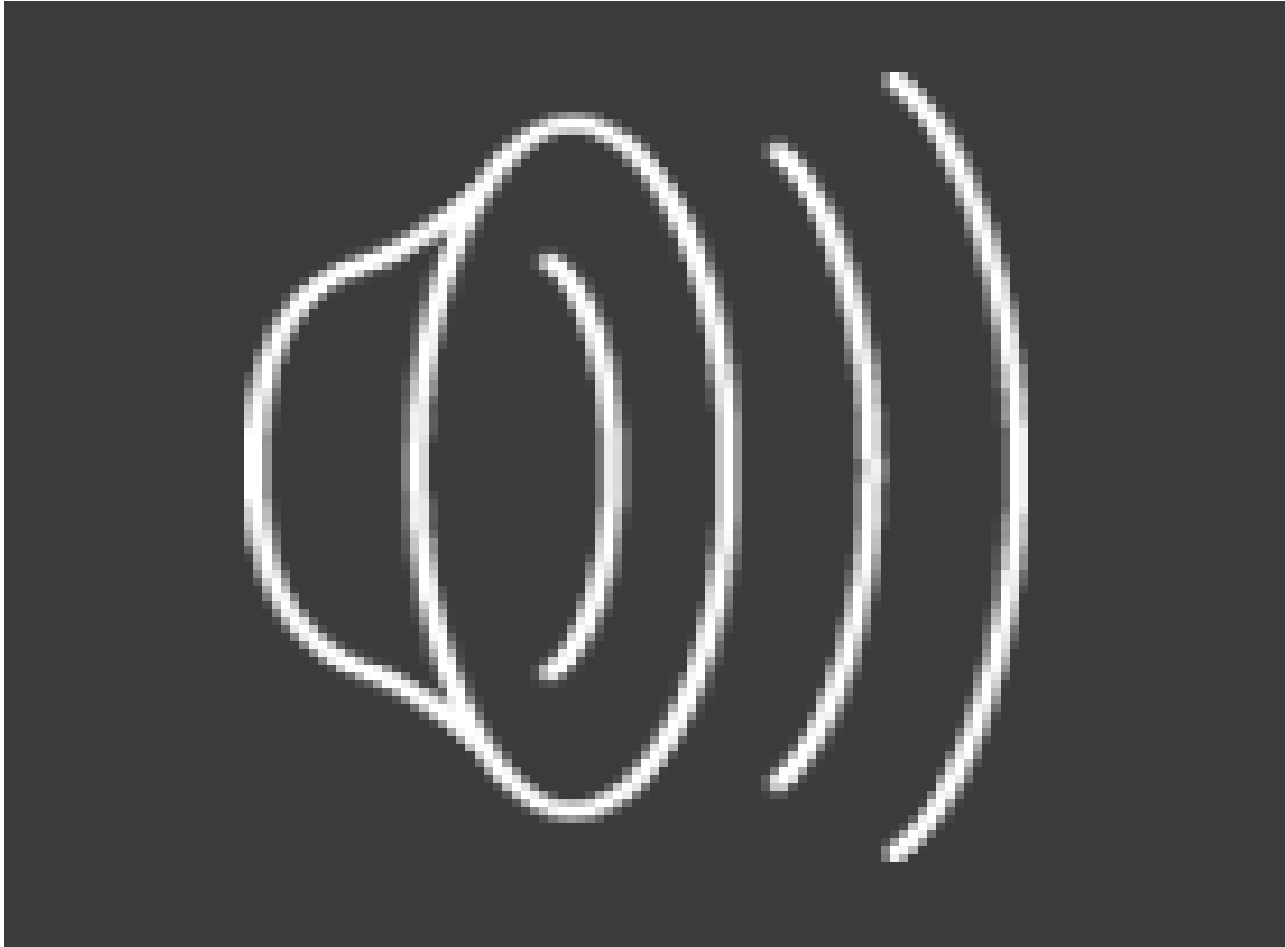
Meteorology Observatory Neumayer

- 1.) 3-Hourly Synoptic Observations.
- 2.) Daily Upper Air Soundings (incl. Ozone).

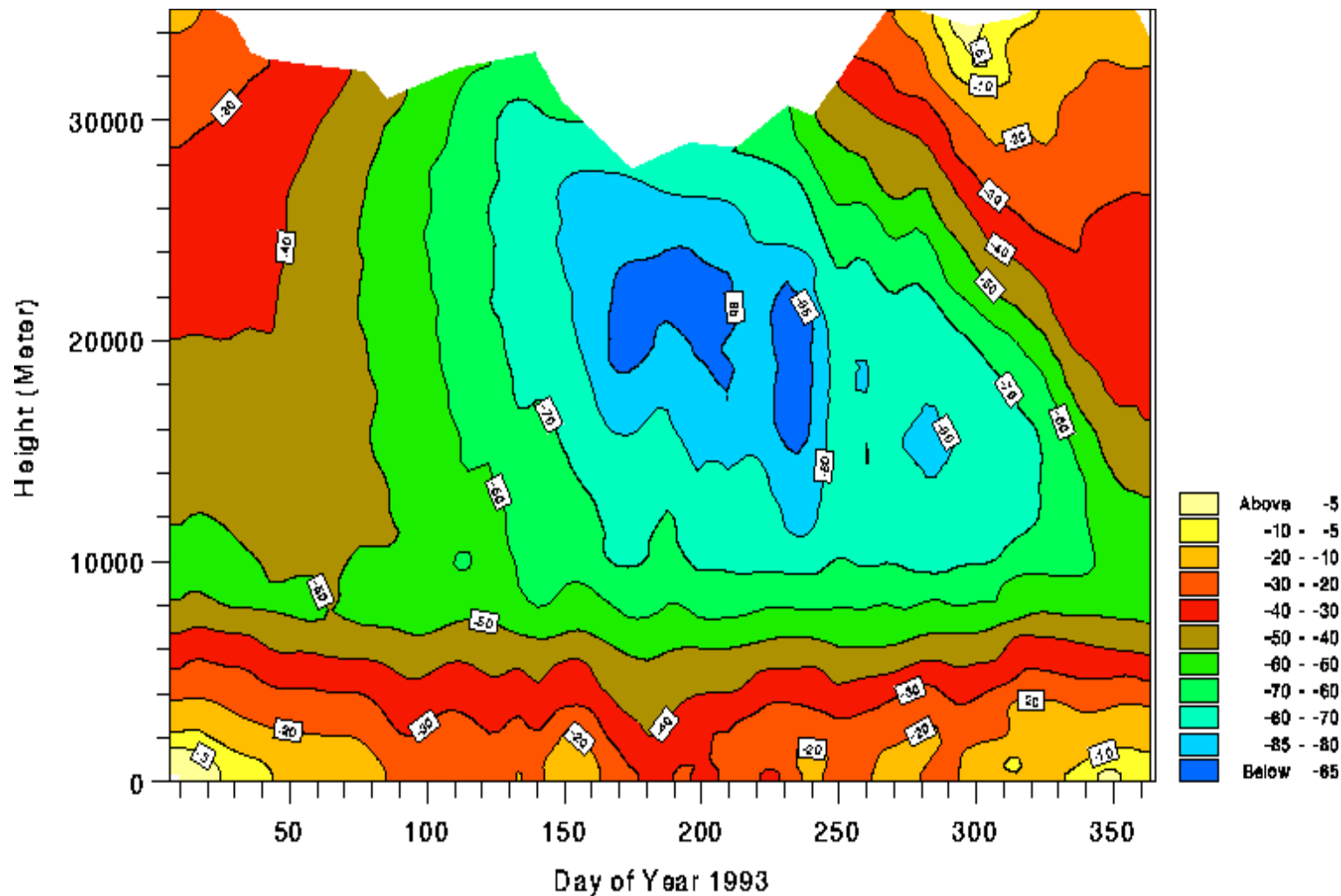
Start from Roof of Neumayer_III



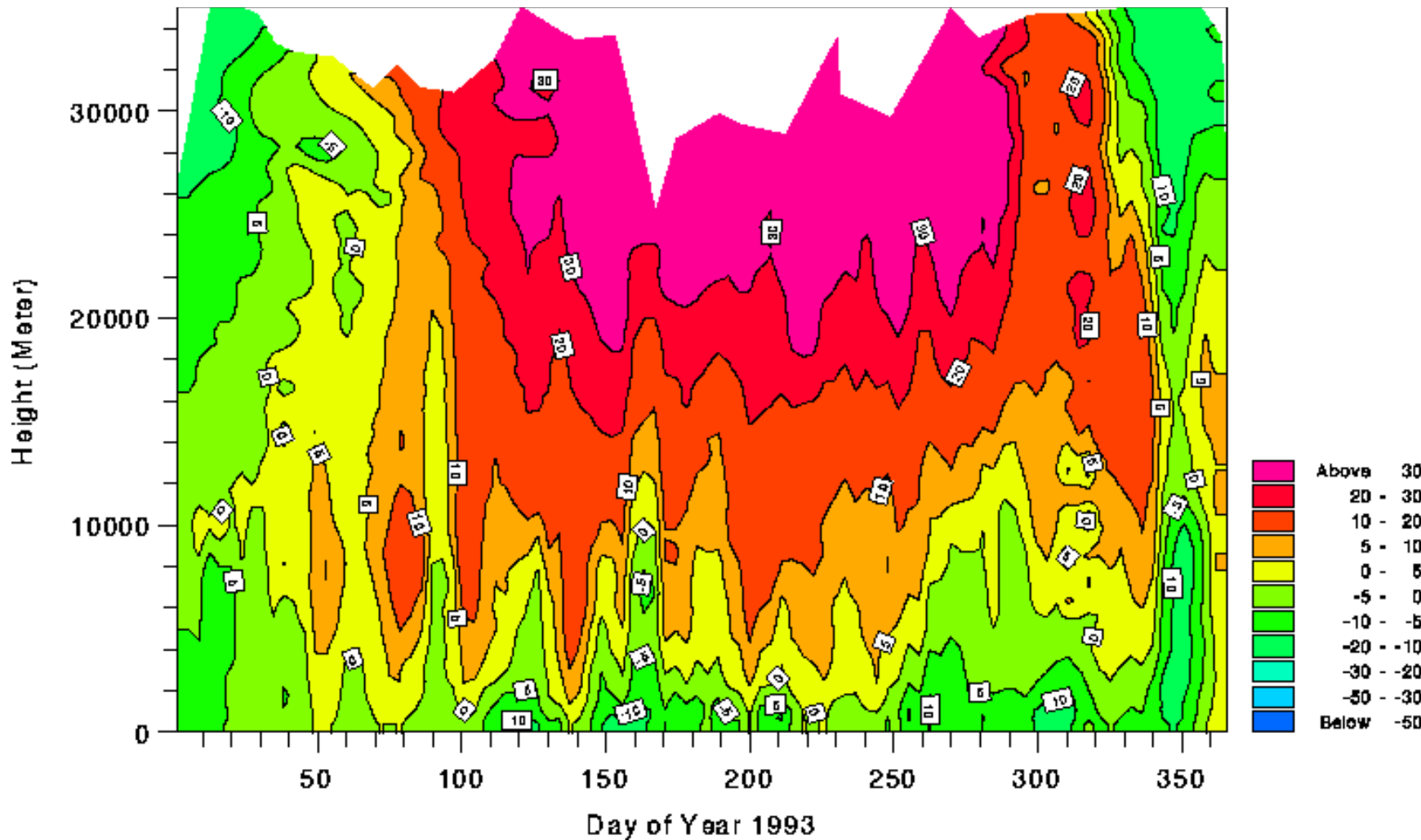
Windy...



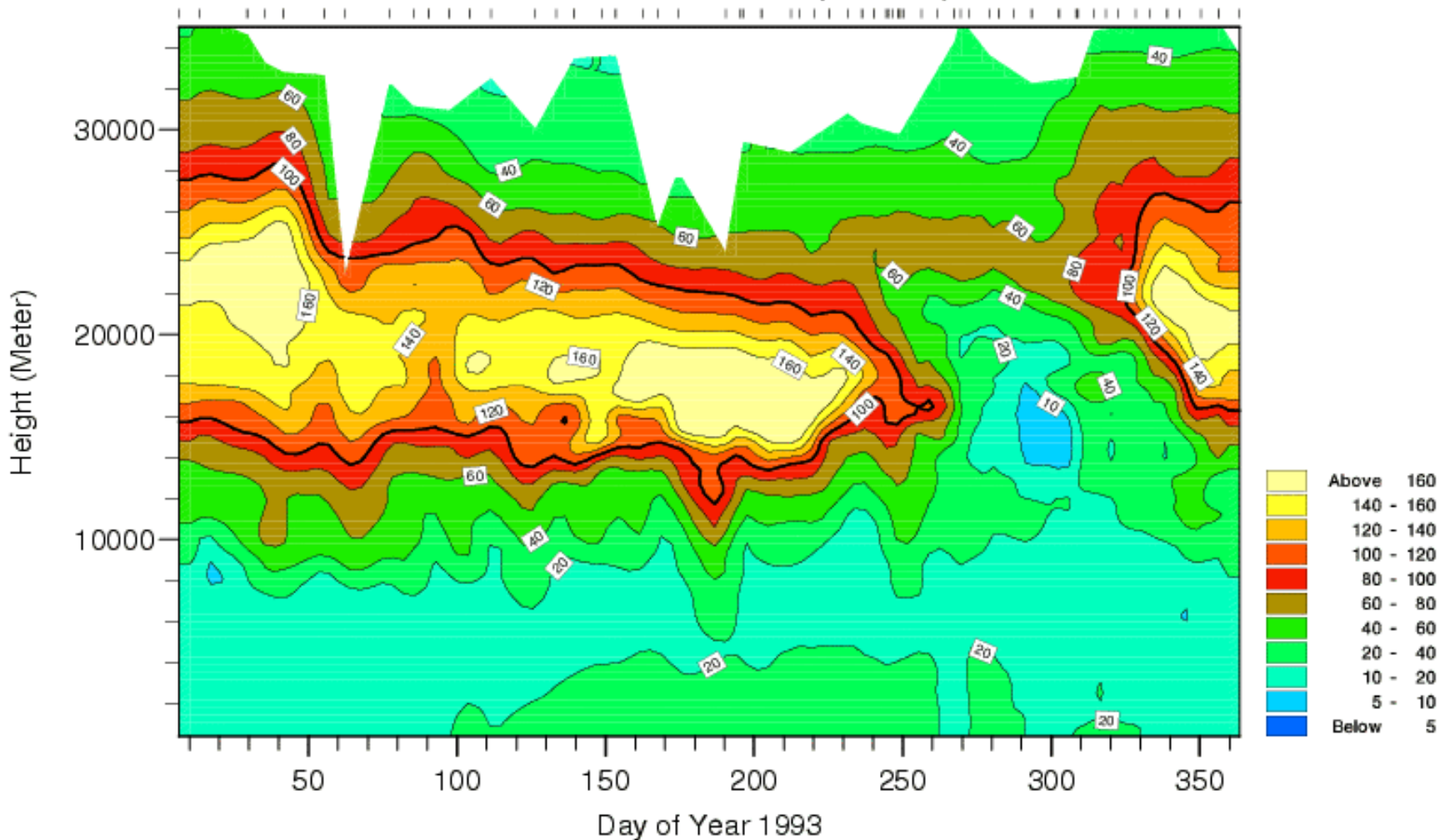
Upper Air Temperatures 1993



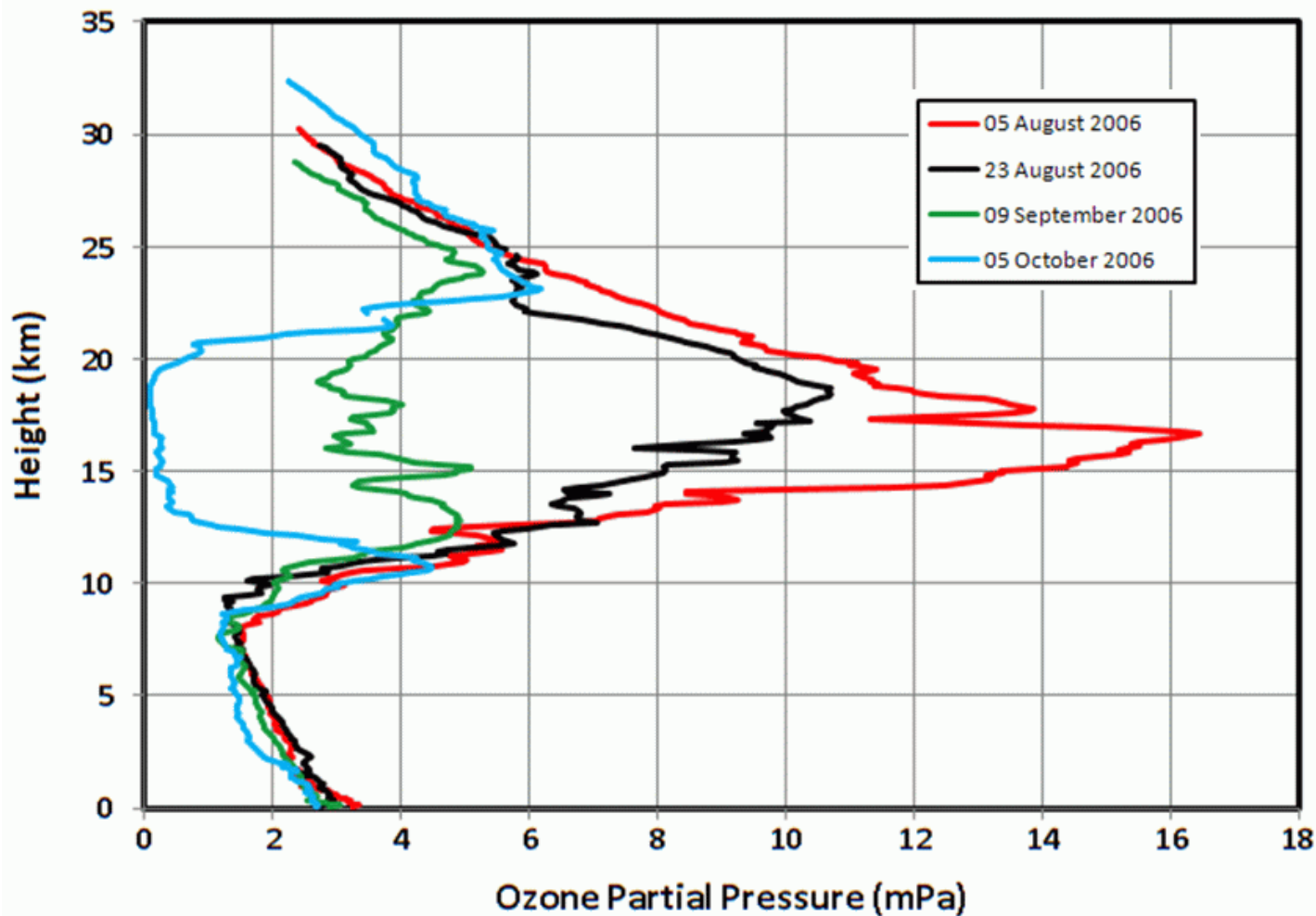
Zonal Wind 1993



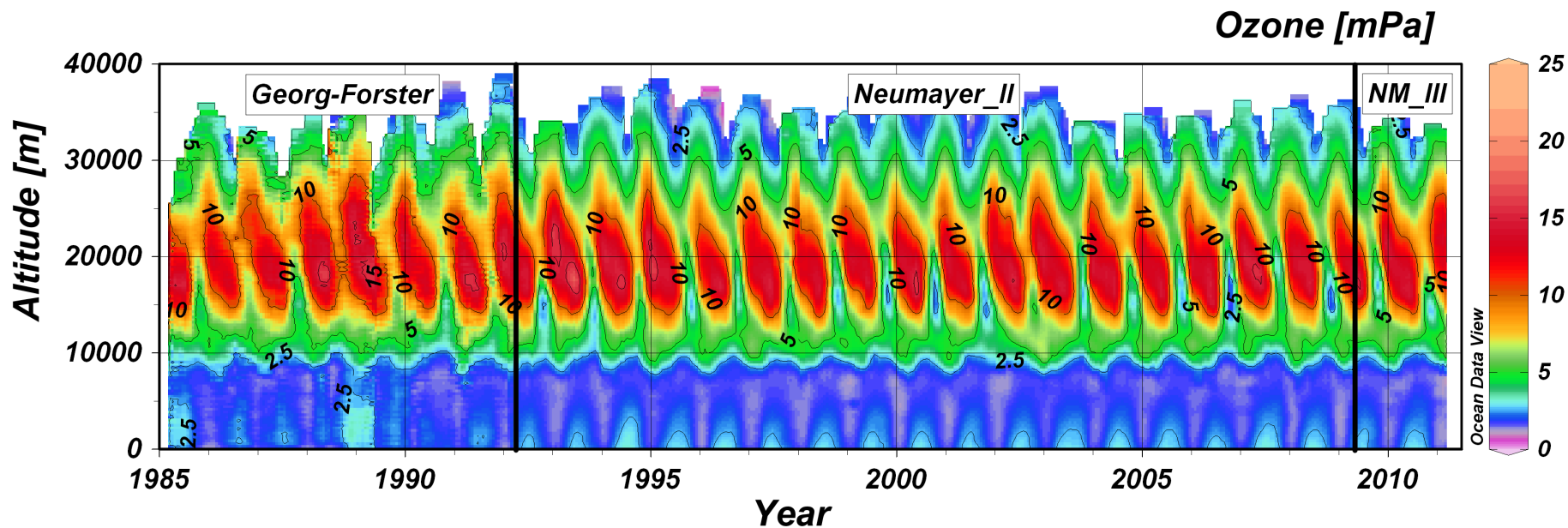
Ozone 1993



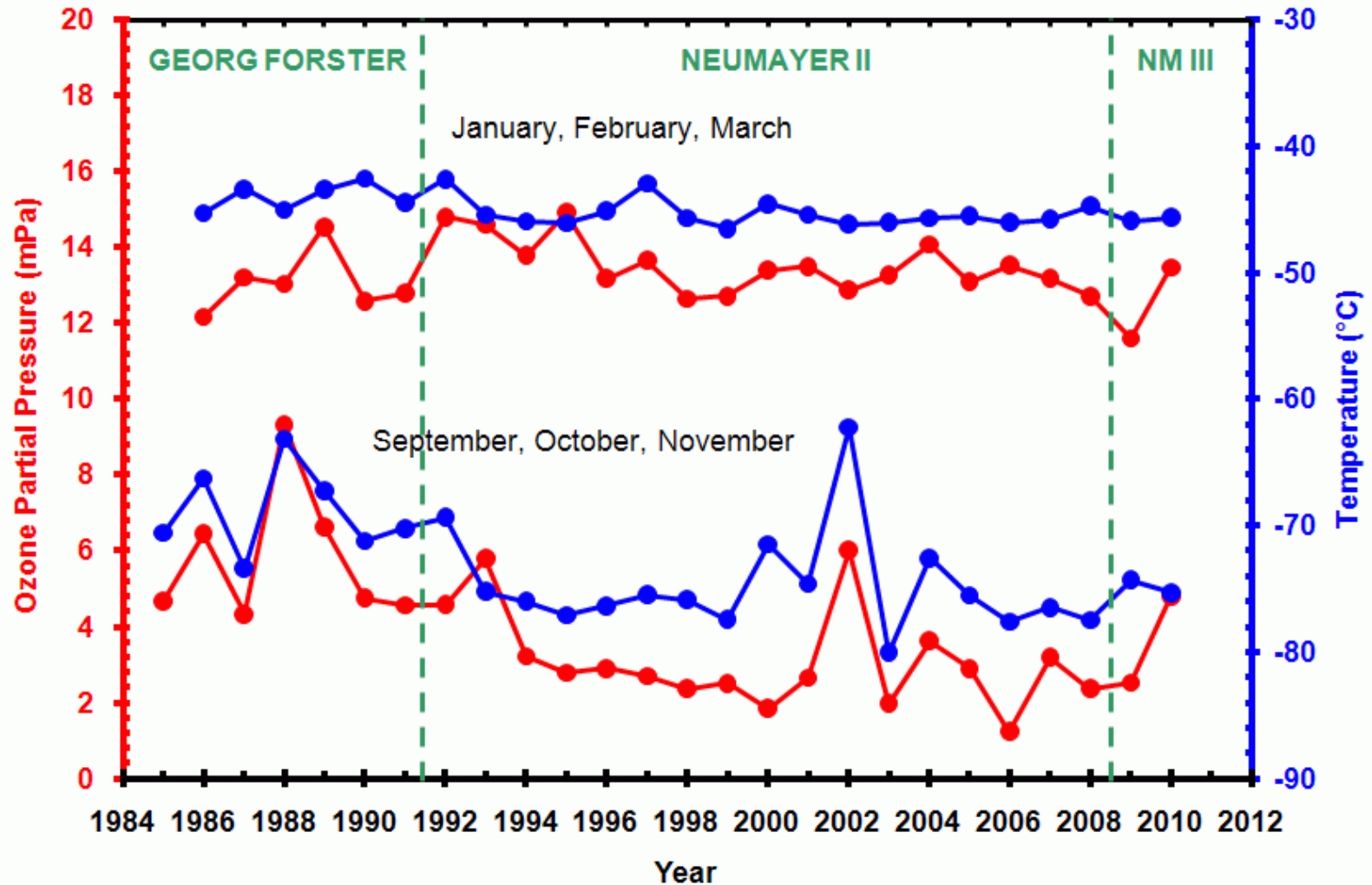
Ozone Profiles



26 Years of Ozone Soundings



Seasonal Averaged Parameters at 70hPa

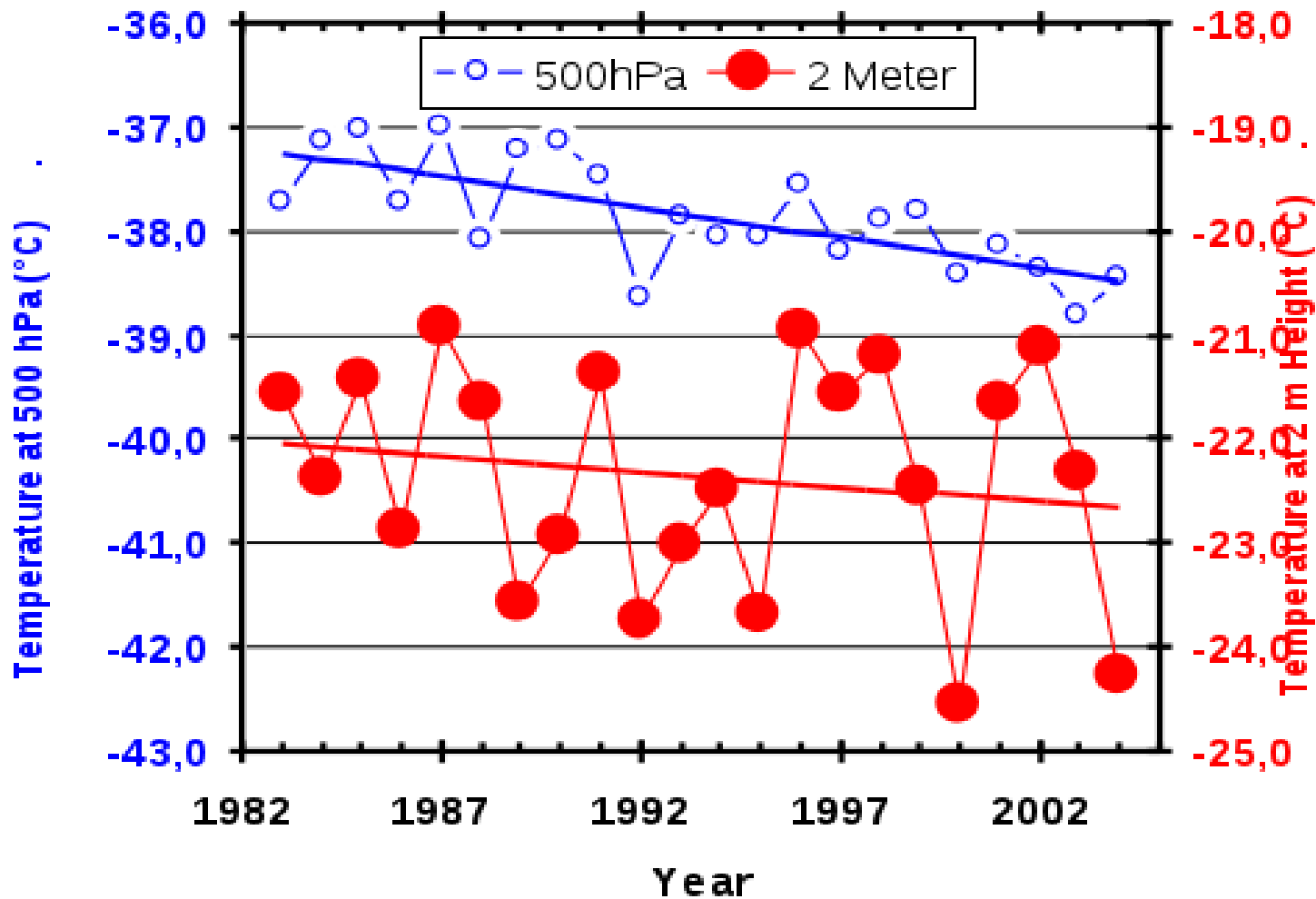


Significant Warming of the Antarctic Winter Troposphere

J. Turner,* T. A. Lachlan-Cope, S. Colwell, G. J. Marshall, W. M. Connolley

We report an undocumented major warming of the Antarctic winter troposphere that is larger than any previously identified regional tropospheric warming on Earth. This result has come to light through an analysis of recently digitized and rigorously quality controlled Antarctic radiosonde observations. The data show that regional midtropospheric temperatures have increased at a statistically significant rate of 0.5° to 0.7°Celsius per decade over the past 30 years. Analysis of the time series of radiosonde temperatures indicates that the data are temporally homogeneous. The available data do not allow us to unambiguously assign a cause to the tropospheric warming at this stage.

Winter-Temperatures



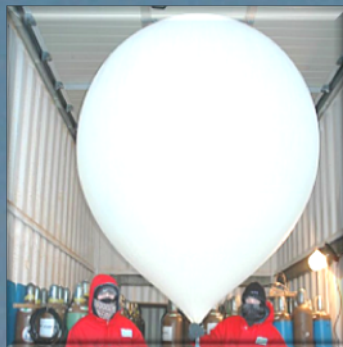
Met-Tower

Air Temperature,
Wind Direction,
Wind Velocity,
Humidity in 2
and 10 m Height.



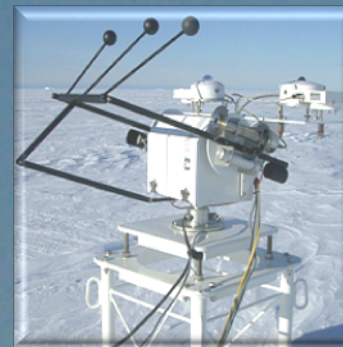
Upper Air Sounding

Air Temperature,
Wind Direction,
Wind Velocity,
Humidity,
Ozone till 35 km.



BSRN (Radiation)

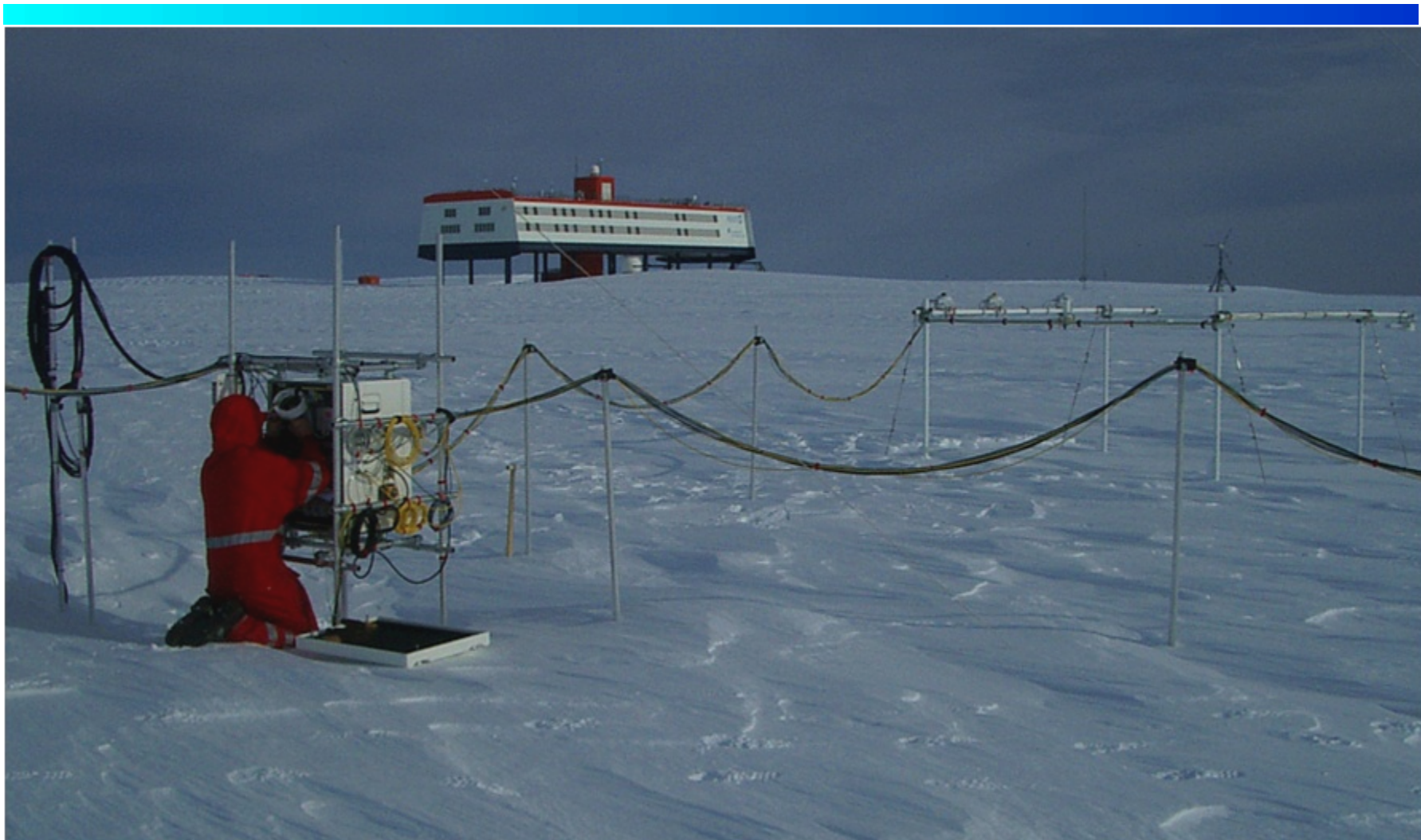
Global, Reflex,
Diffuse, Direct, UV,
OG1, RG8, Sunshine,
Downward Long-Wave,
Upward Long-Wave.



Meteorology Observatory Neumayer

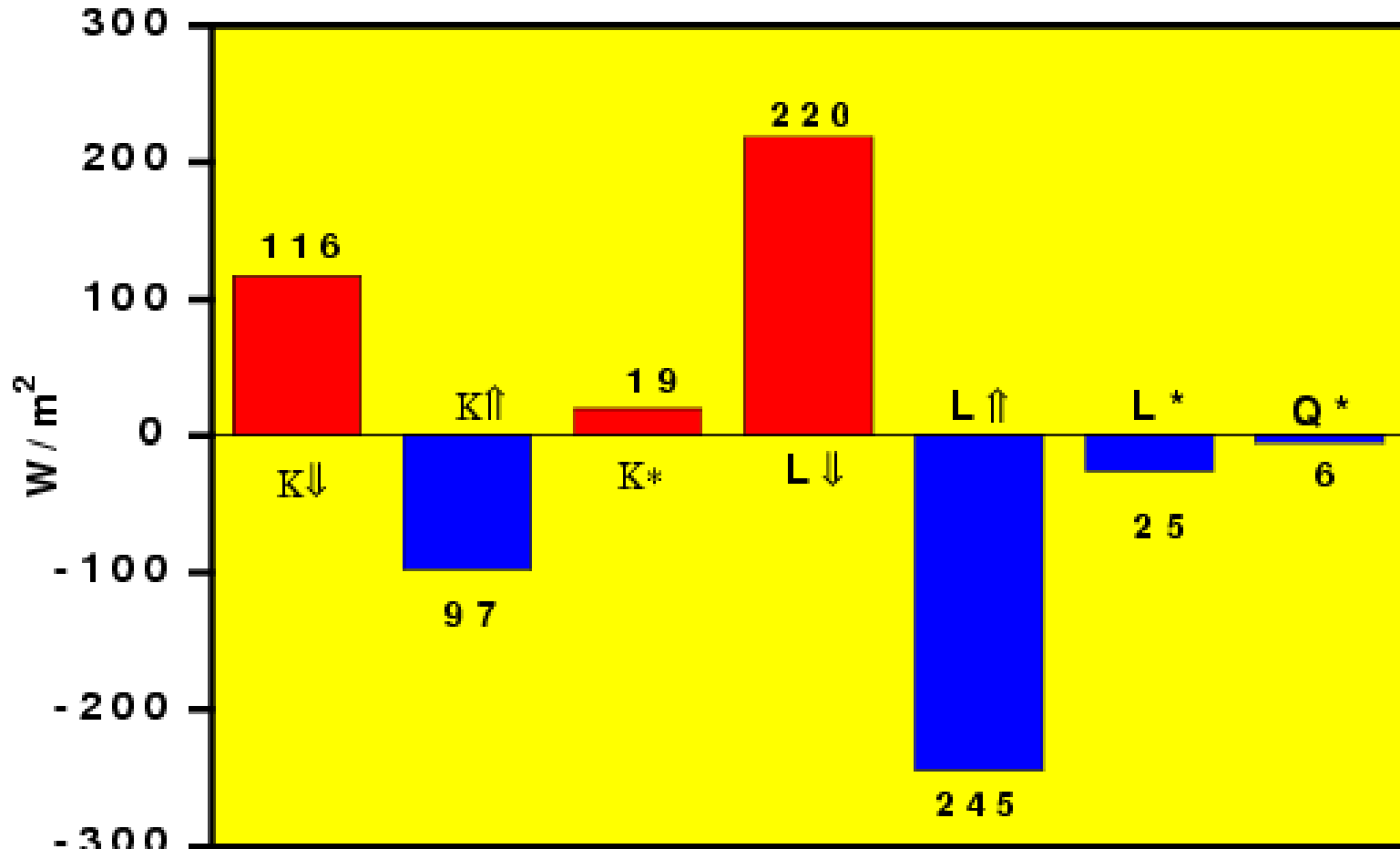
- 1.) 3-Hourly Synoptic Observations.
- 2.) Daily Upper Air Soundings (incl. Ozone).

- 3.) „Baseline Surface Radiation Network“ (BSRN).

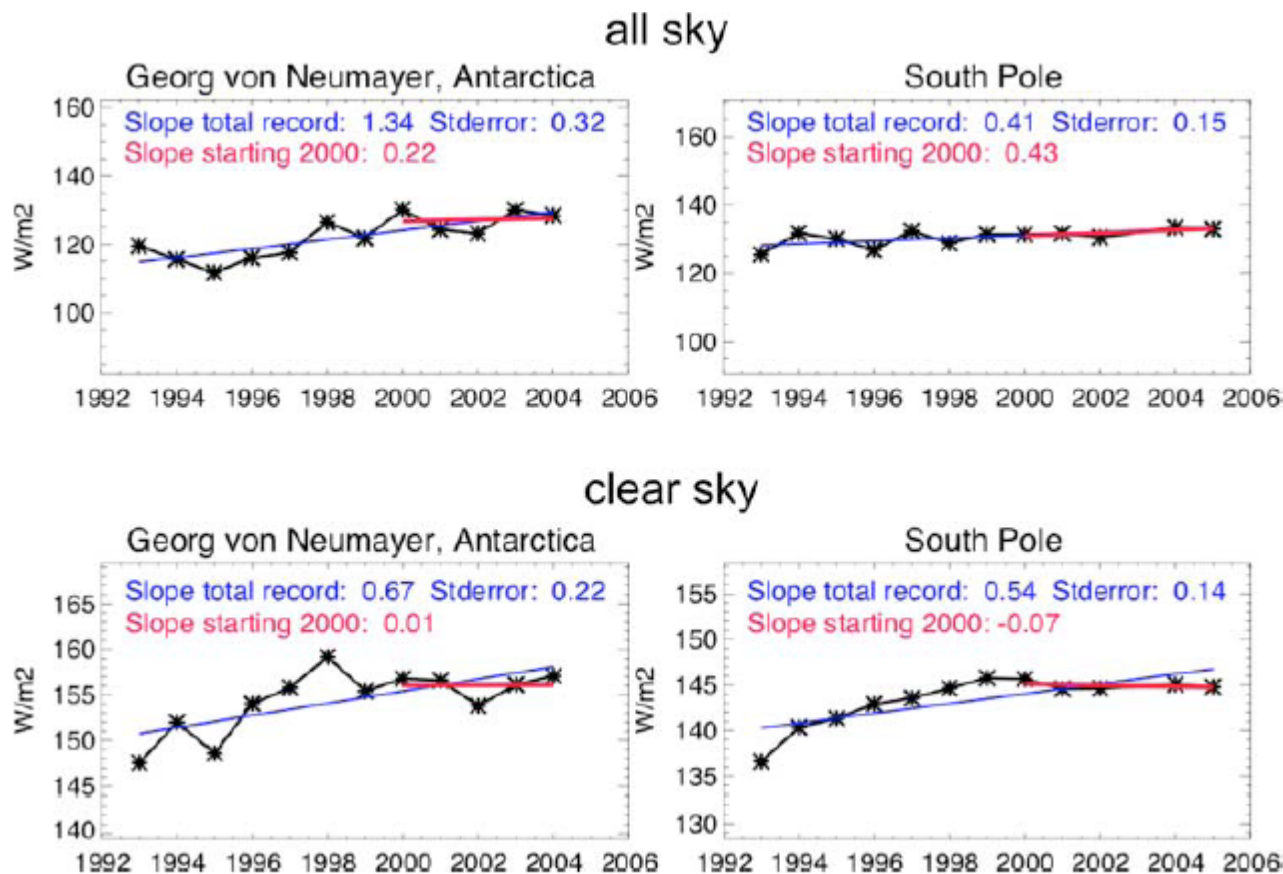




















Annually Averaged Radiation Fluxes



Averaging Period 1982 - 1999



Wild, M., B. Trüssel, A. Ohmura, C. N. Long, G. König-Langlo, E. G. Dutton, and A. Tsvetkov (2009):
 Global dimming and brightening: An update beyond 2000,
J. Geophys. Res., 114, D00D13

Region	1990s	2000-2005
USA		
Central America		
Europe		
China/Mongolia		
Japan		
Korea		
India		
Antarctica		

Wild, M., B. Trüssel, A. Ohmura, C. N. Long, G. König-Langlo, E. G. Dutton, and A. Tsvetkov (2009):

Global dimming and brightening: An update beyond 2000

J. Geophys. Res., 114, D00D13



WRMC-BSRN
World Radiation Monitoring Center- Baseline Surface Radiation Network

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Running and planned BSRN stations, November 2010

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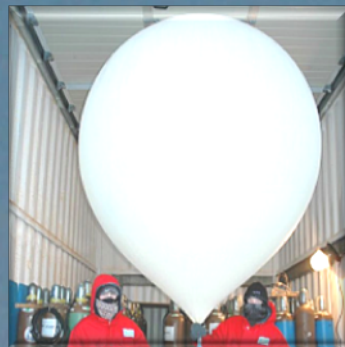
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BSRN (Radiation)

Global, Reflex,
Diffuse, Direct, UV,
OG1, RG8, Sunshine,
Downward Long-Wave,
Upward Long-Wave.



Forecast

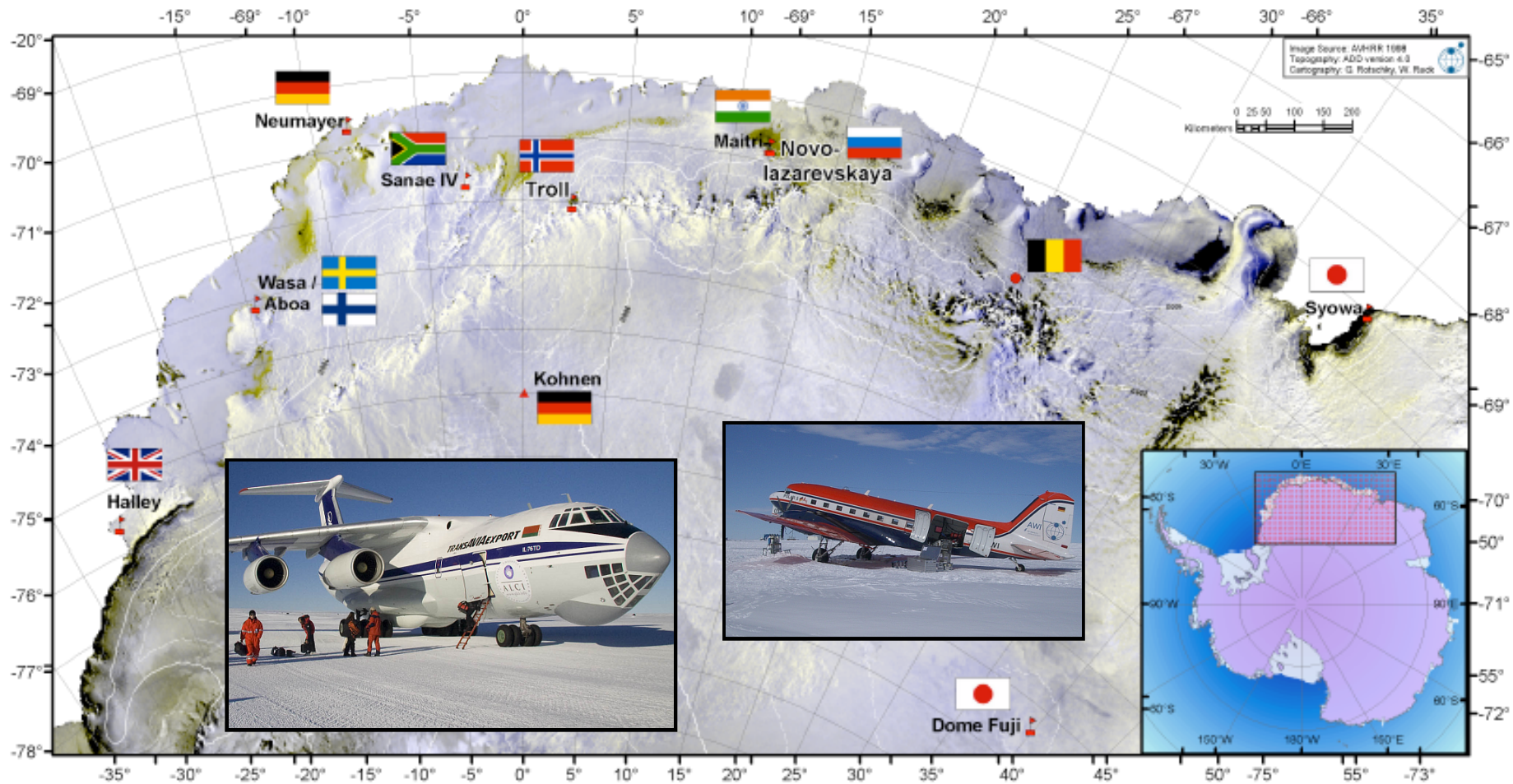
Sat-Pics Reception,
Cloud Ceiling,
Visibility,
Online-Data,
Model-Outputs.



Meteorology Observatory Neumayer

- 1.) 3-Hourly Synoptic Observations.
- 2.) Daily Upper Air Soundings (incl. Ozone).
- 3.) „Baseline Surface Radiation Network“ (BSRN).
- 4.) Forecast-Center Dronning Maud Land.

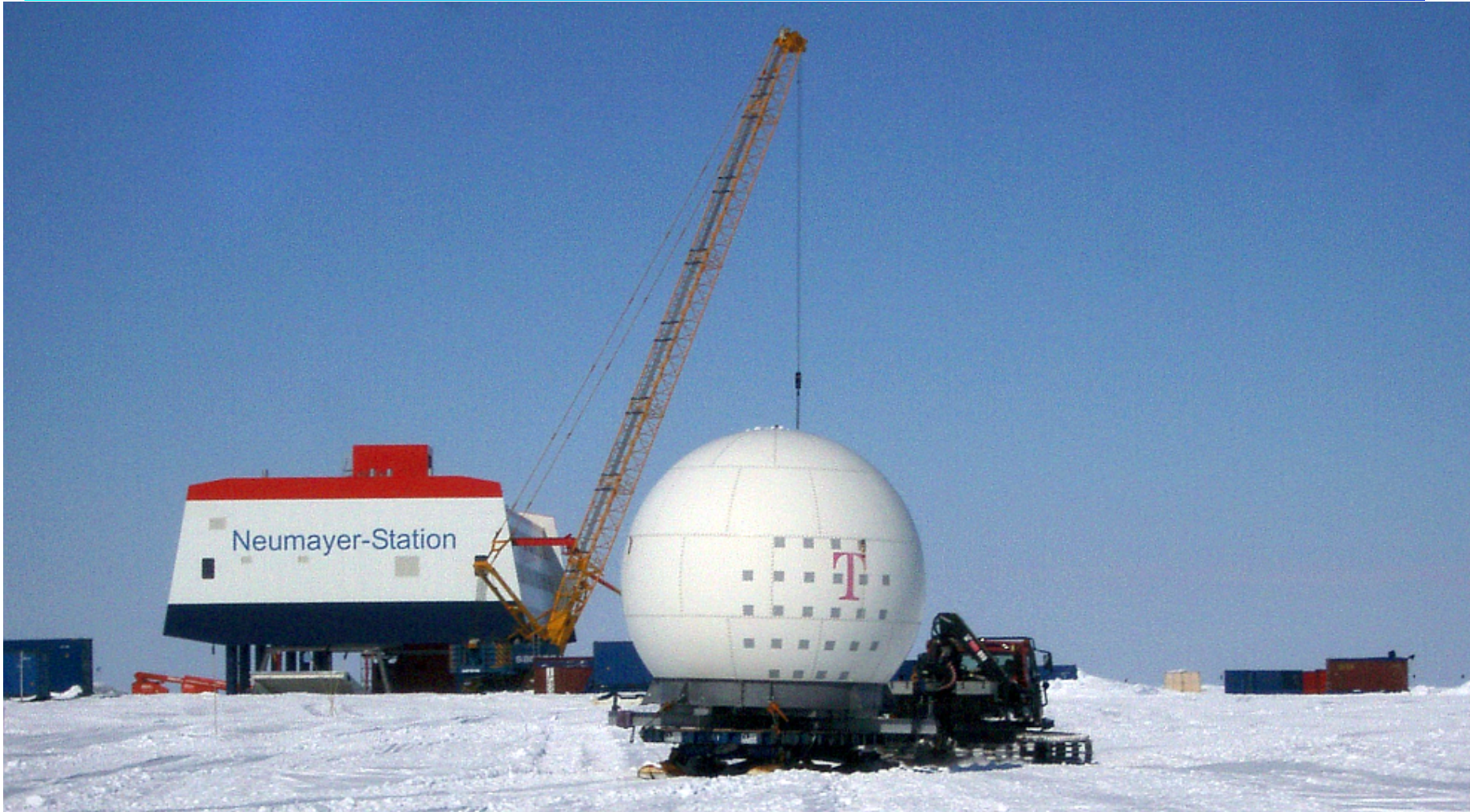
Dronning Maud Land Air Network

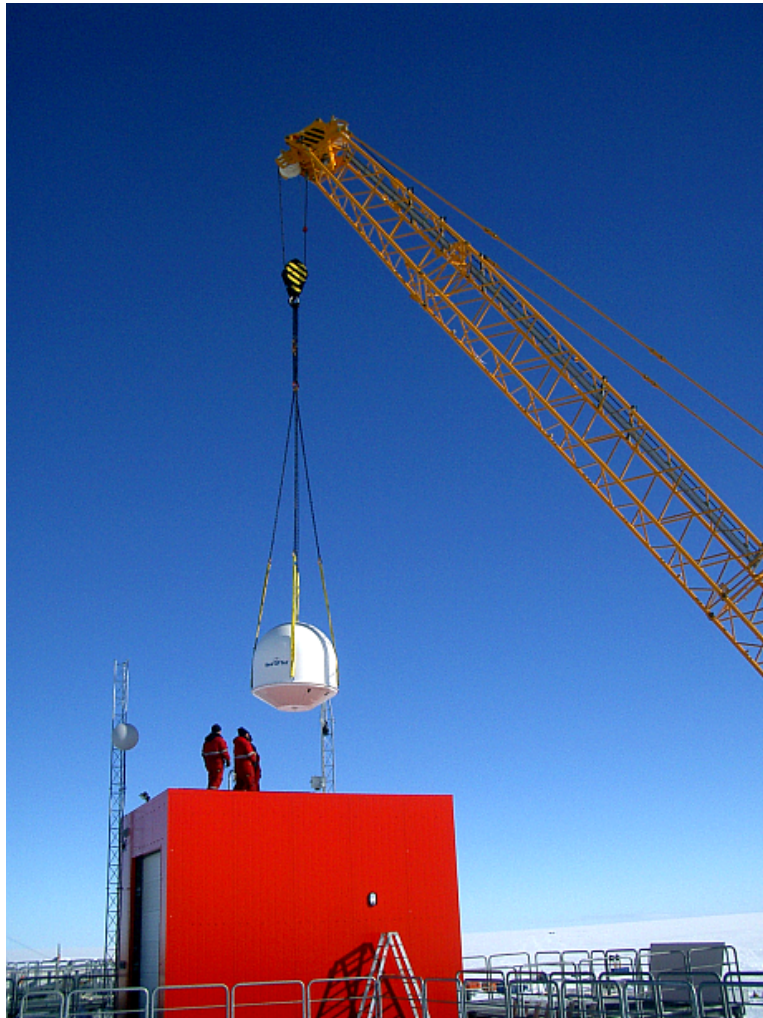


Forecaster „Hajo“ Convincing Pilots

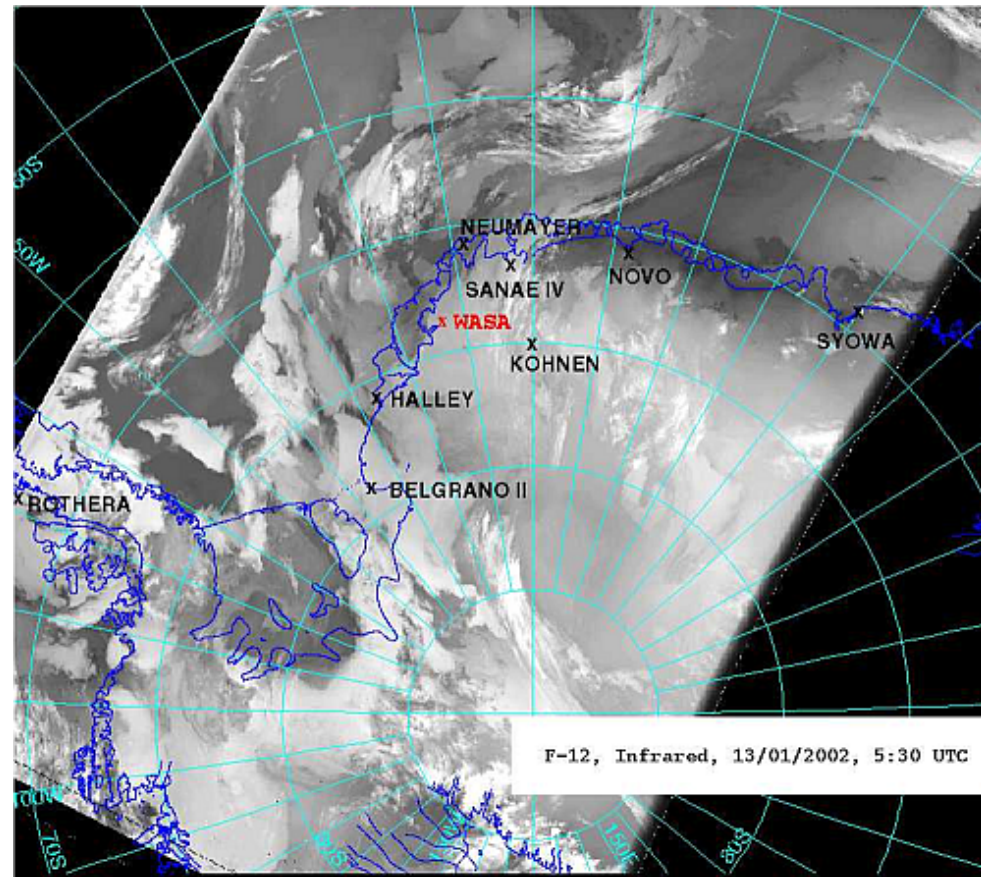


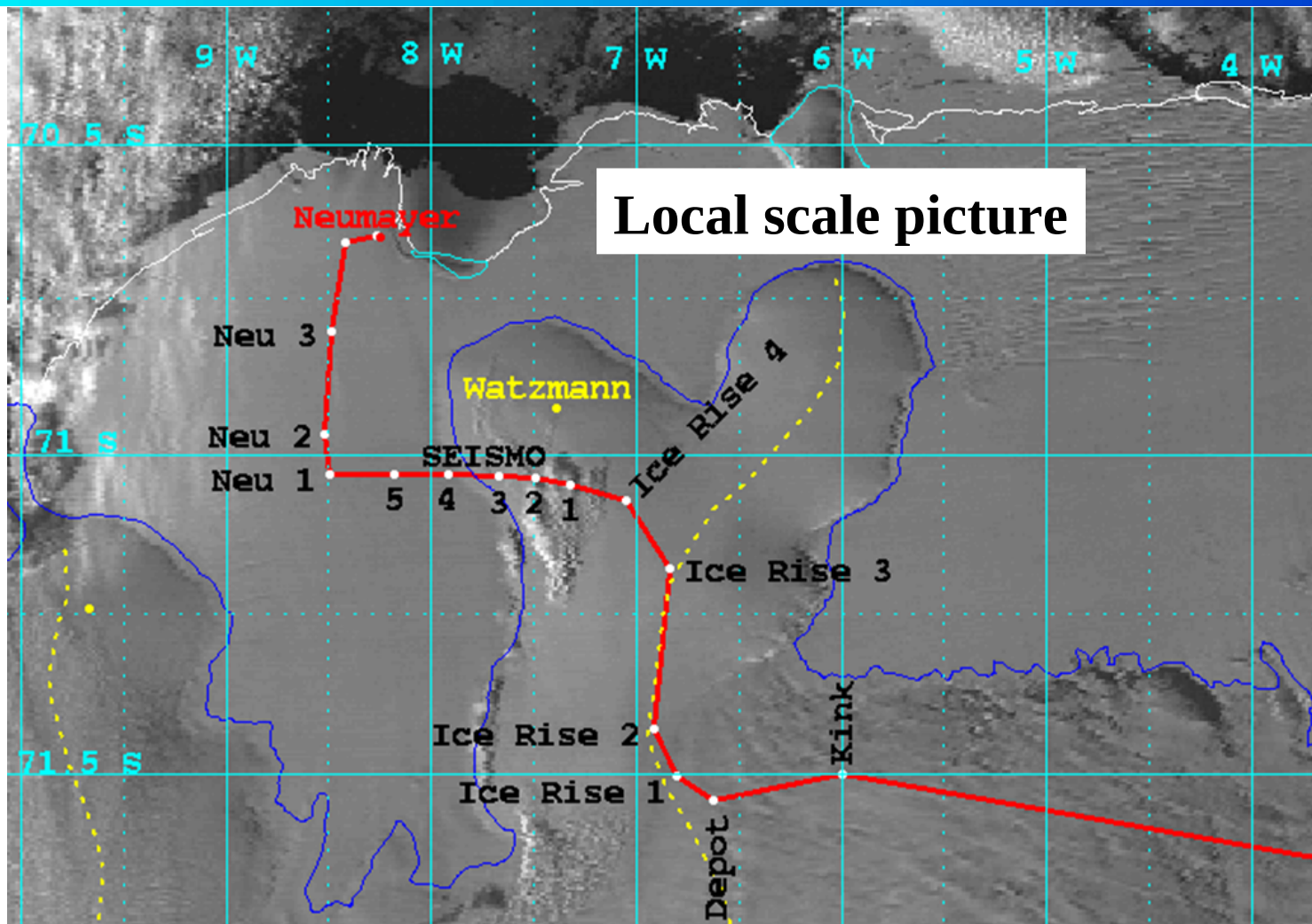




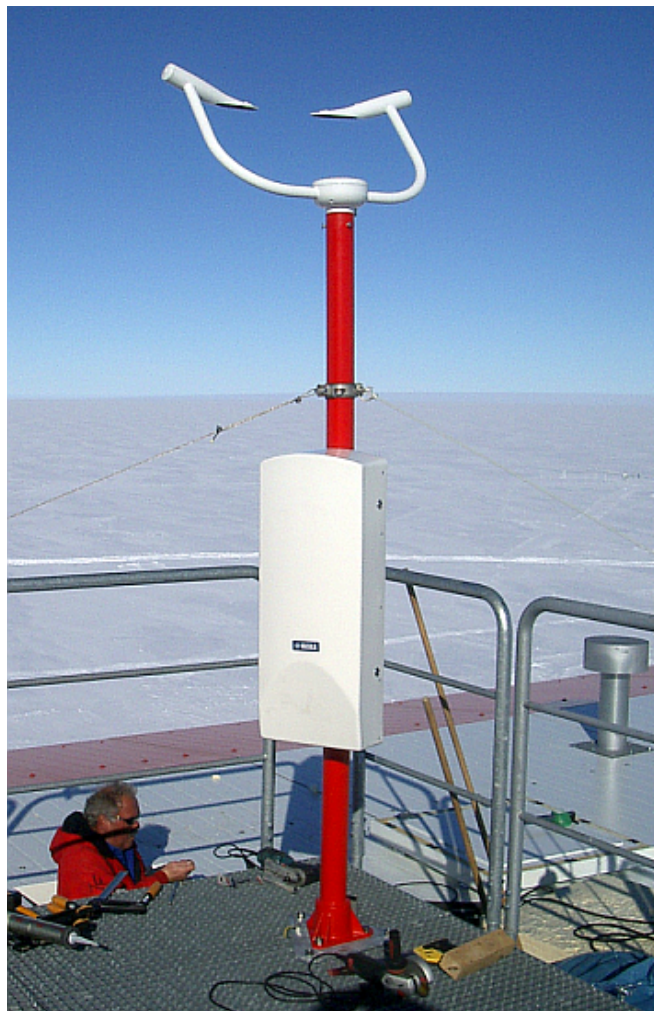


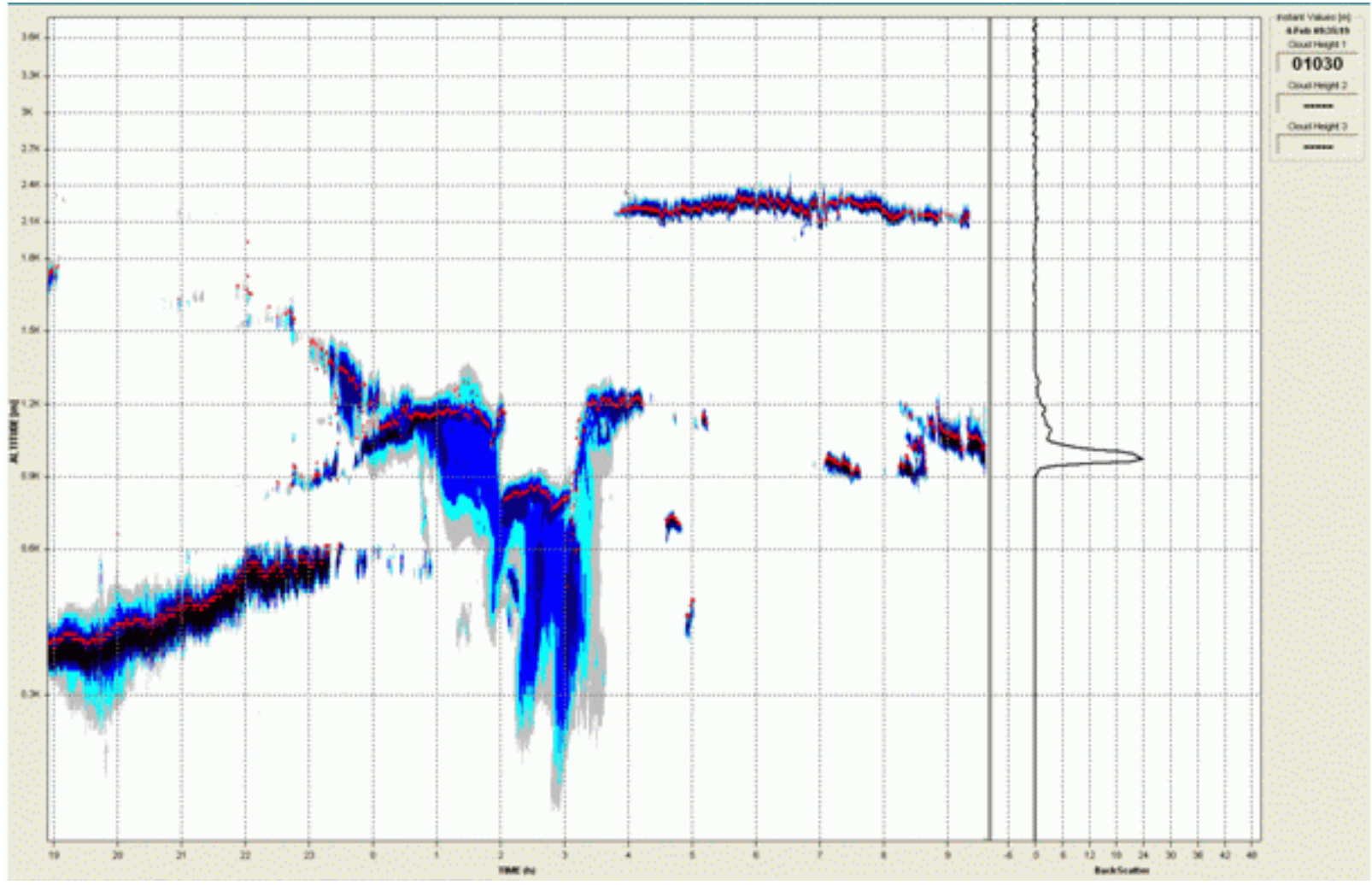
Full scale picture

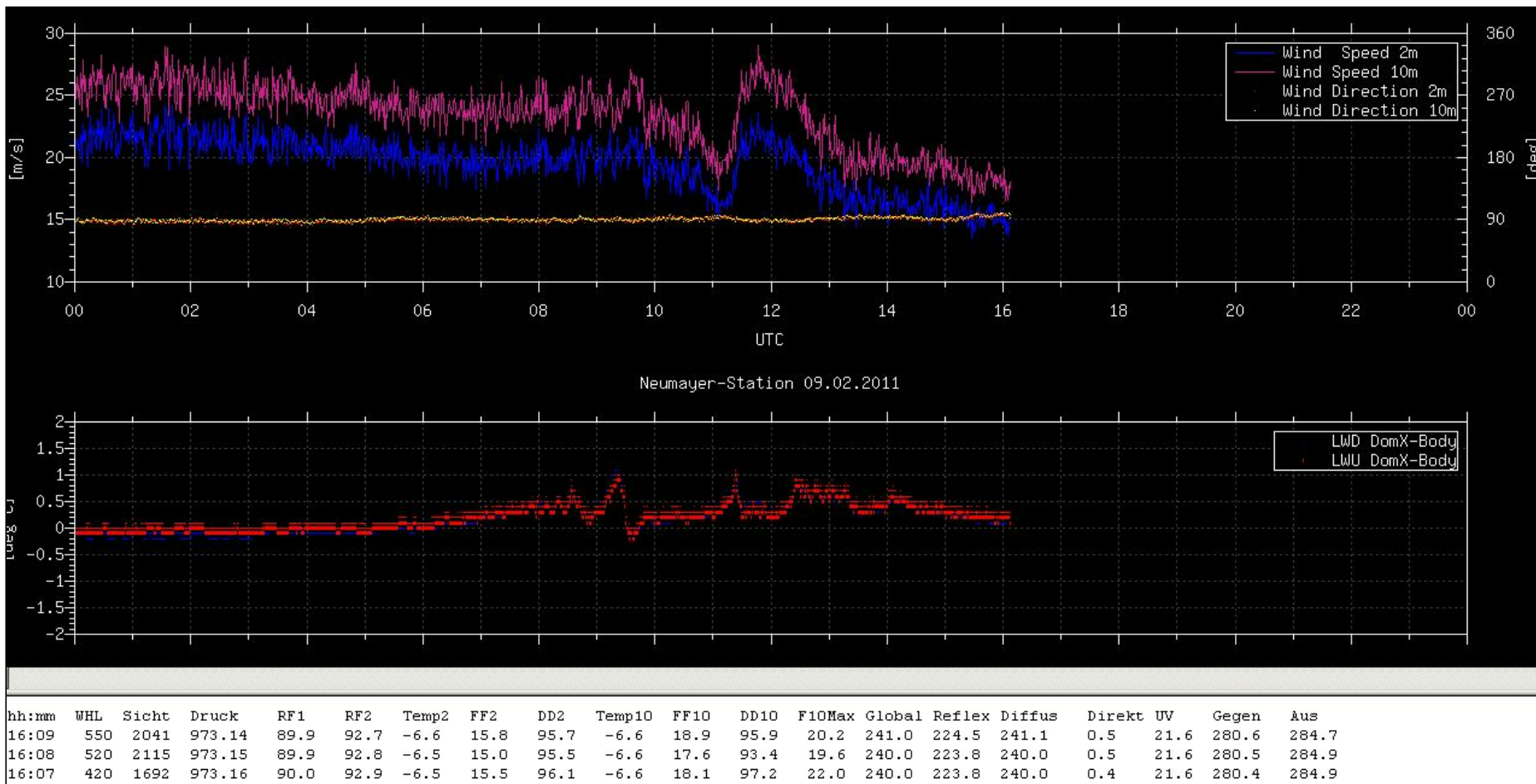




Visibility Sensor FS11, Ceilometer CL51







The End...

