

# **The Meteorological Service at Dronning Maud Land Season 2010/2011**

**Hans-Joachim Möller**  
**DWD**  
**(German Meteorological Service)**

**June 2011**

### DRONNING MAUD LAND AIR NETWORK (DROMLAN)



The forecaster must have a **high graded scientific education** with specialized training in meteorology or physics of the atmosphere, an excellent knowledge about model quality and model error.

The forecaster must have a **long experience** in synoptic meteorology, in general weather forecasting, in flight weather forecasting, in marine weather forecasting and in polar weather forecasting.

At German Meteorological Service men or women must gain such experience at **several journeys** to Arctic or Antarctic Ocean with “Polarstern” before they are able to do the forecaster job in Antarctica itself.

At German Meteorological Service maybe 7 or 8 meteorologists are trained for this job, but only **4** of them go eager to Antarctica.

**one forecaster all time**  
**available 24 h**  
**office time 06 – 21UTC**

**forecasts only per email**  
**in standard form**

**advices per voice only in**  
**extreme case**

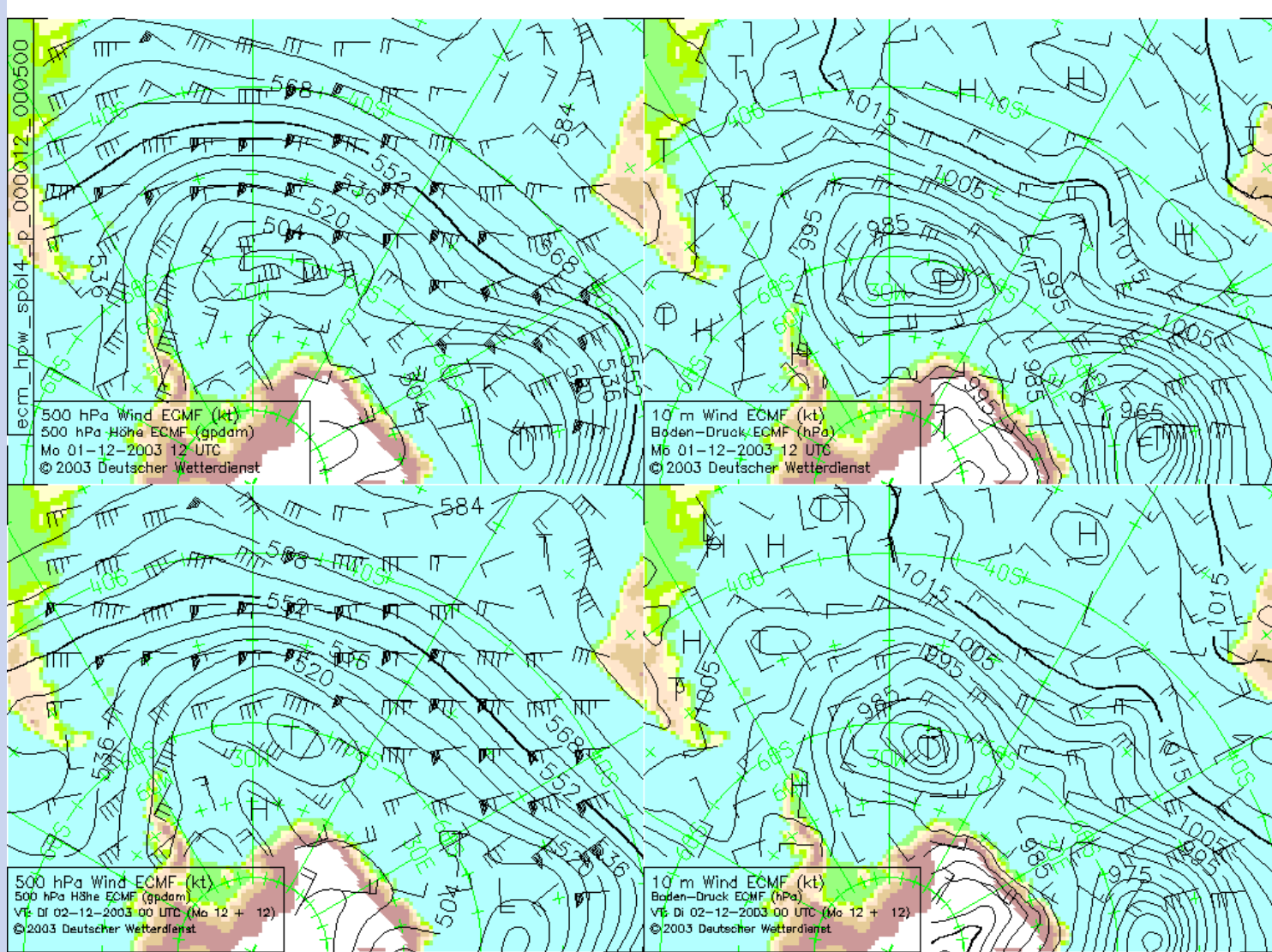
**3 global models are available:**

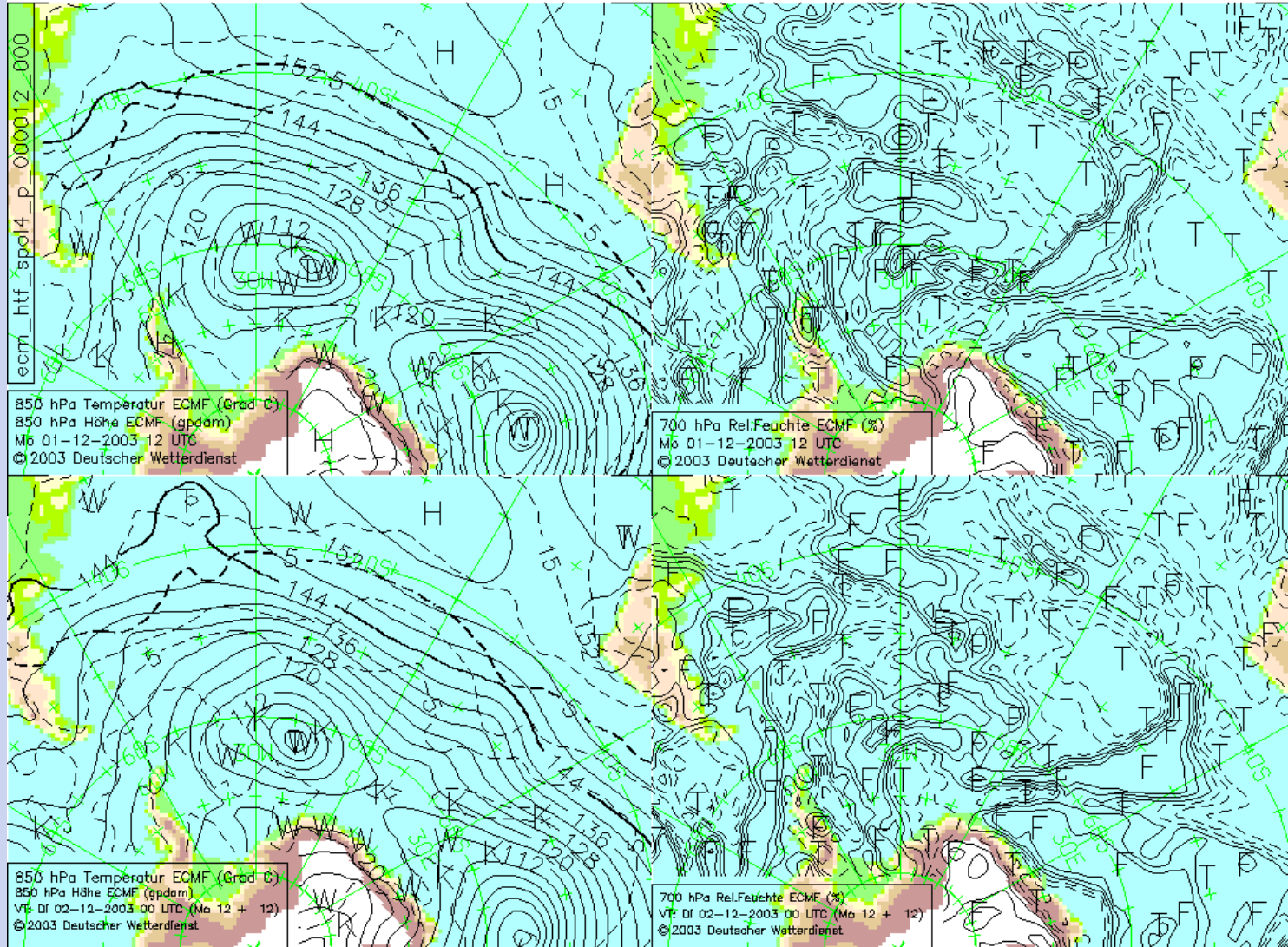
**GME (German Model)**

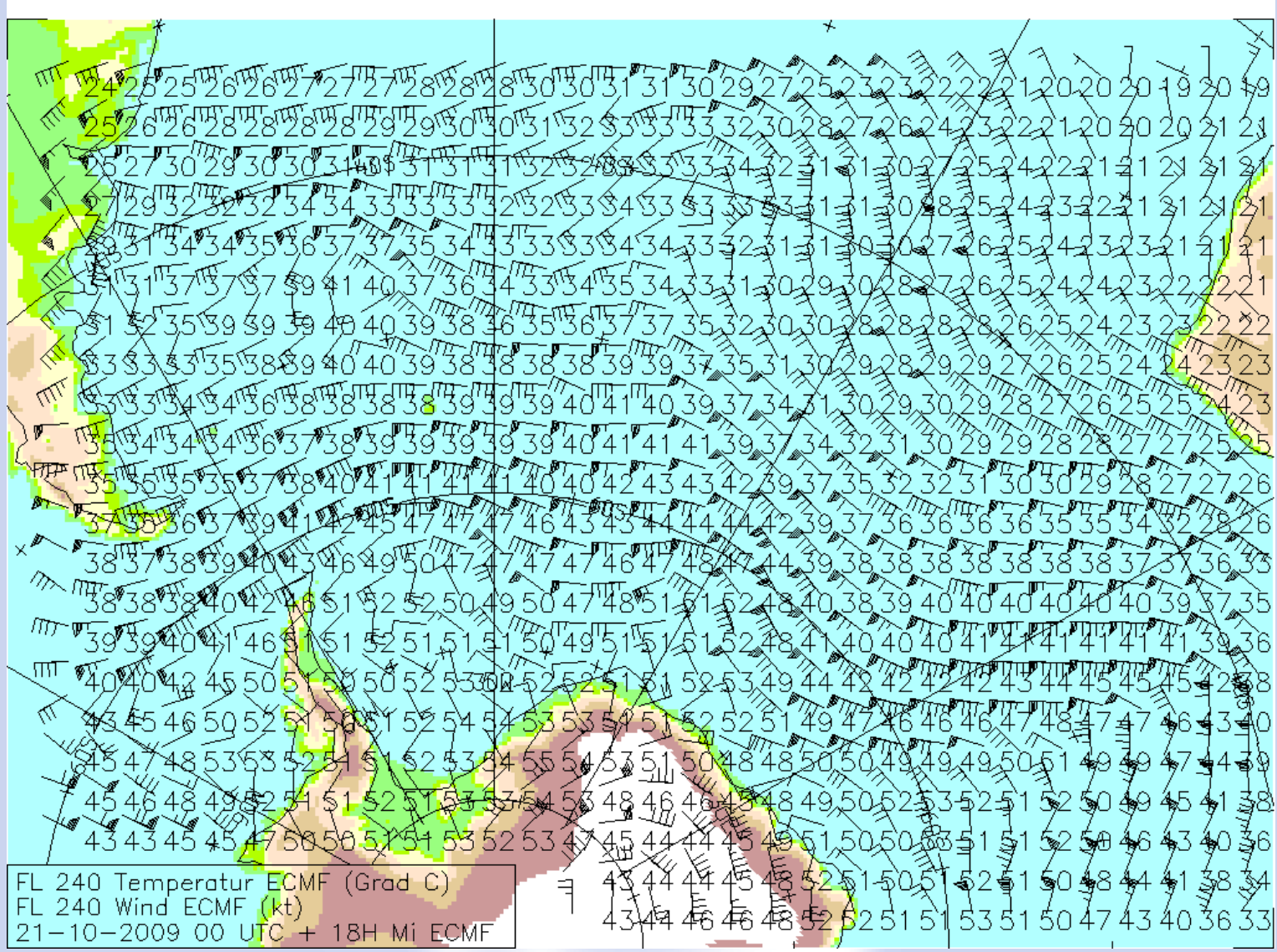
**GFS (US-Model)**

**ECMWF (European Medium Forecast Model)**

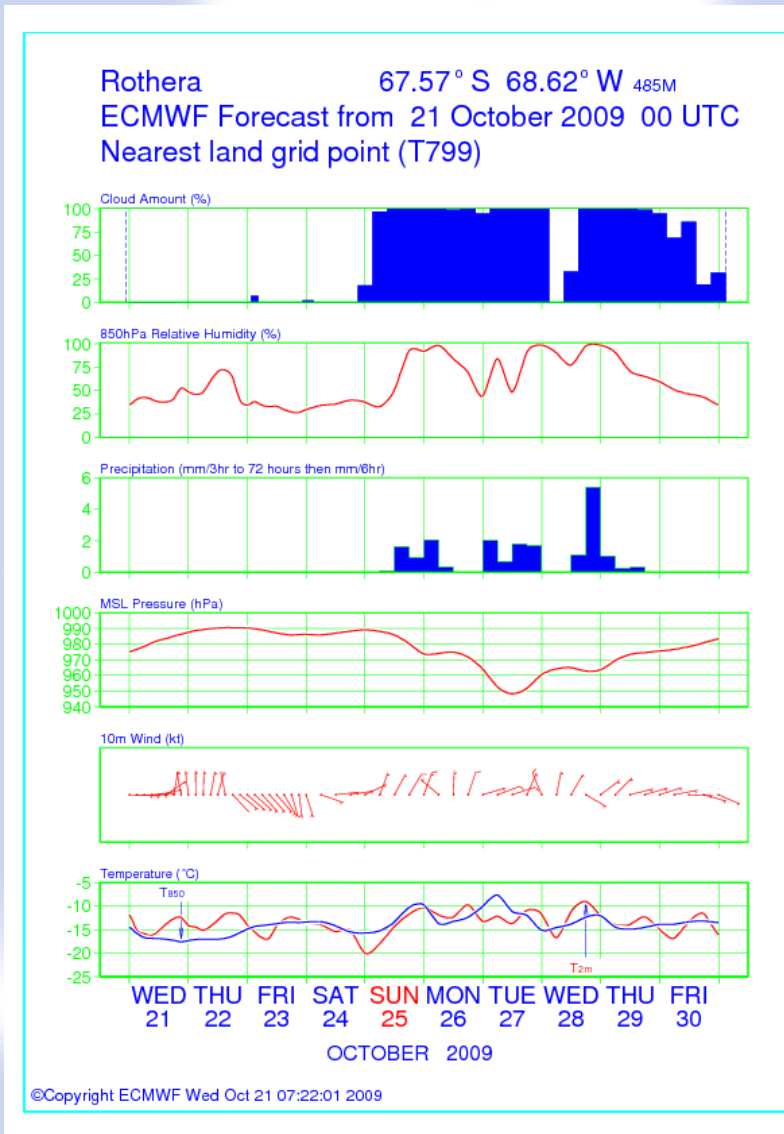
**All results in same output form**











**1 regional model is available:**

**AMPS (Antarctic Mesoscale Prediction System)**

**Results in more detailed output form**

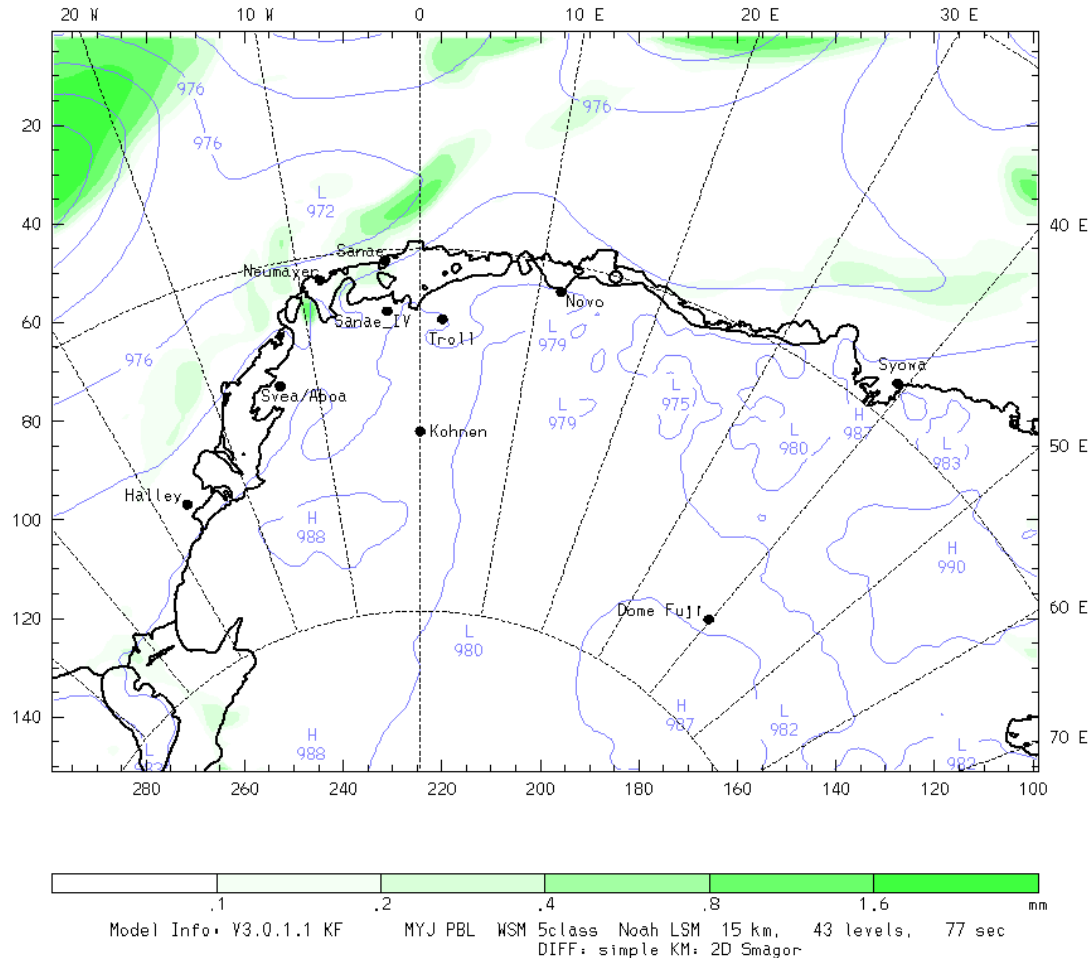
# The Meteorological Service at Dronning Maud Land

## Saison 2011/2012

Hans-Joachim Möller

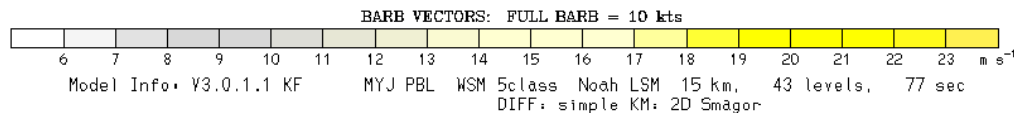
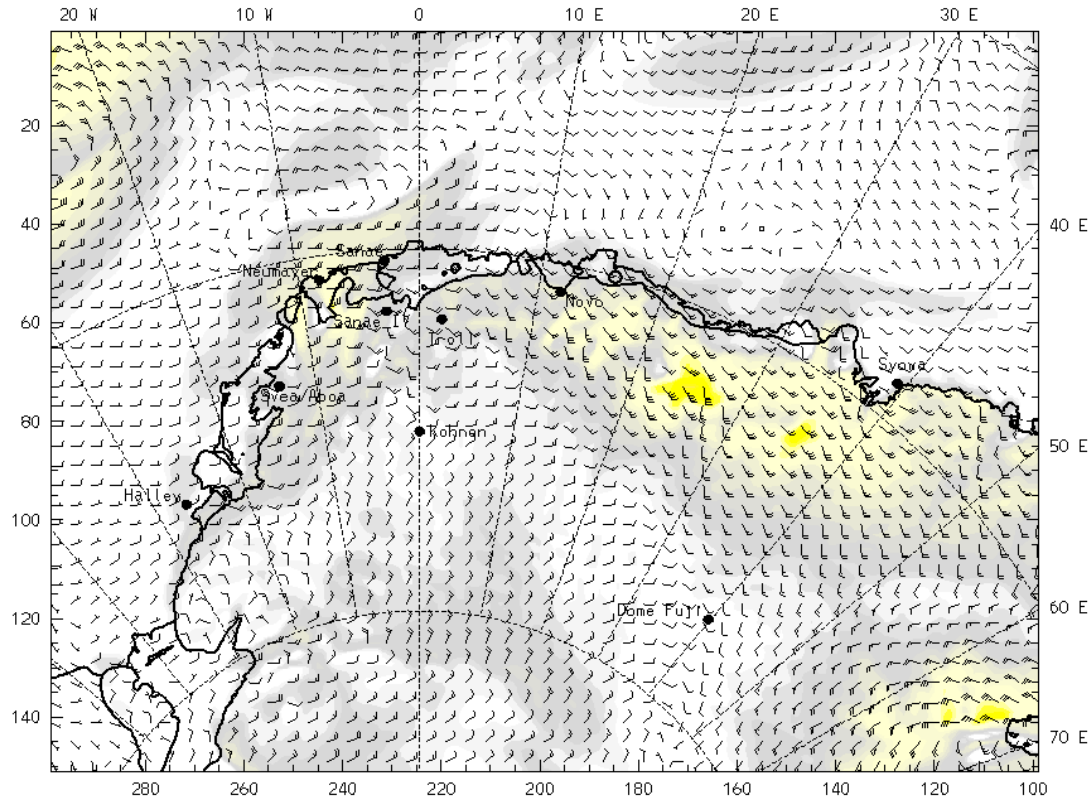
AMPS 15-km WRF -- Qn Maud Land Coast window  
 Fcst: 24 h  
 Total precip. in past 3 h  
 Sea-level pressure

Init: 00 UTC Wed 21 Oct 09  
 Valid: 00 UTC Thu 22 Oct 09



AMPS 15-km WRF -- Qn Maud Land Coast window  
 Fcst: 24 h  
 Horizontal wind speed at k-index = 43  
 Horizontal wind vectors at k-index = 43 sm= 1

Init: 00 UTC Wed 21 Oct 09  
 Valid: 00 UTC Thu 22 Oct 09



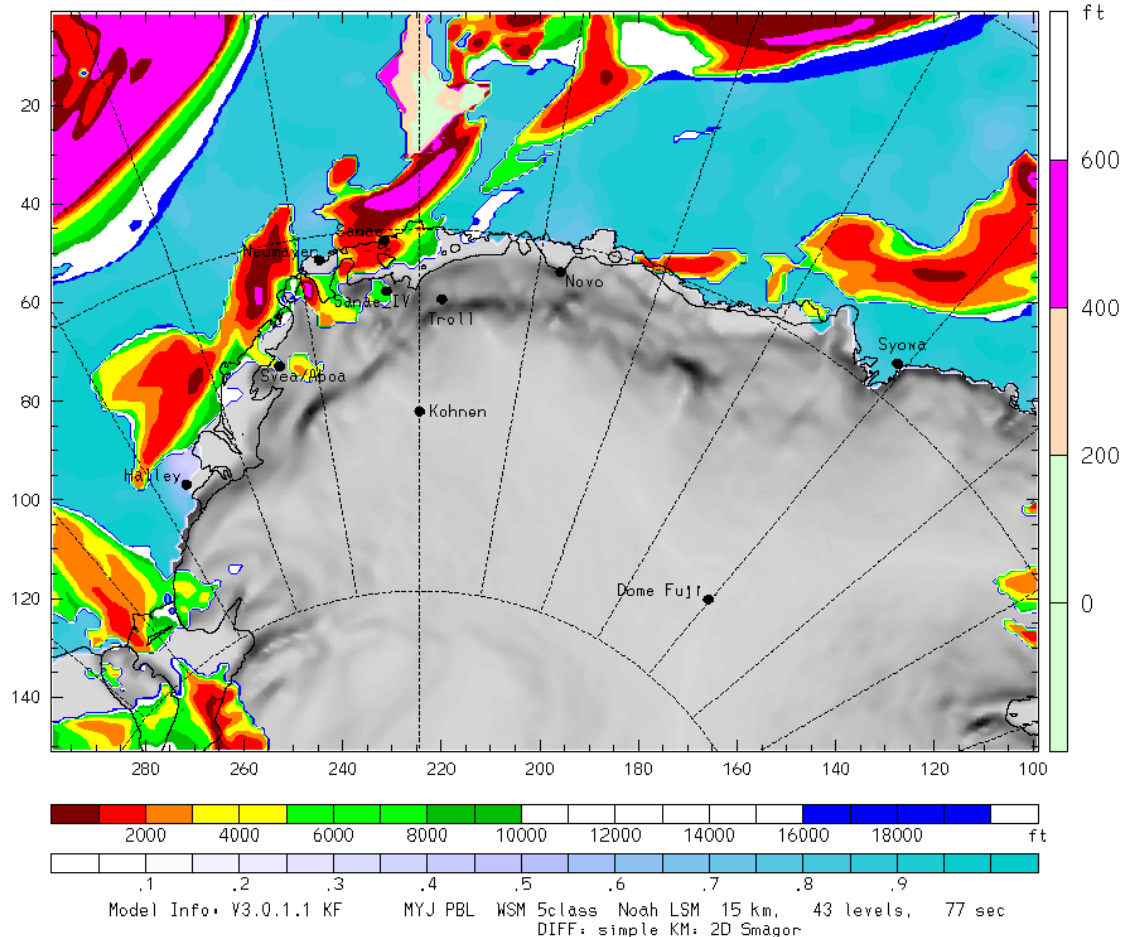
# The Meteorological Service at Dronning Maud Land

## Saison 2011/2012

Hans-Joachim Möller

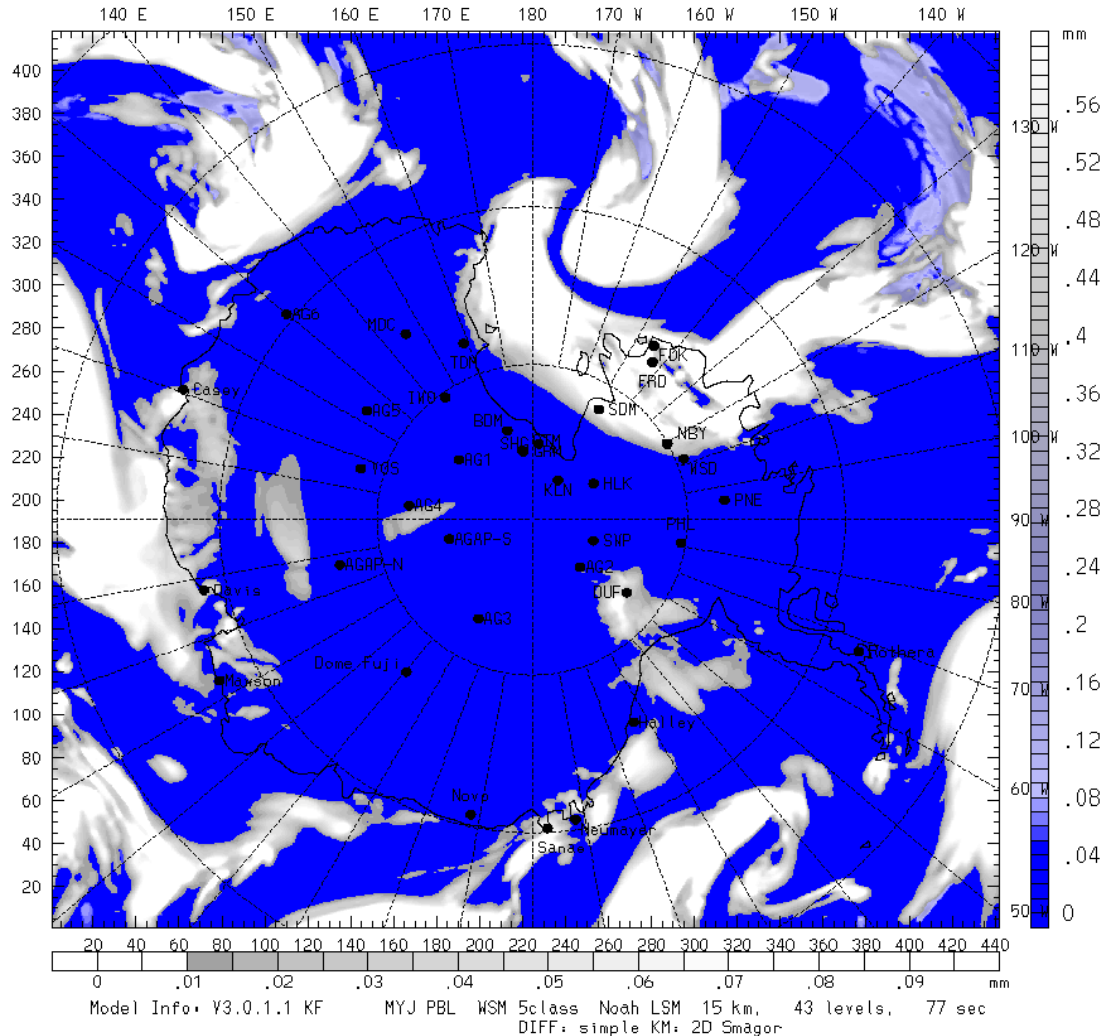
AMPS 15-km WRF -- Qn Maud Land Coast window  
 Fcst: 24 h  
 SEA ICE FLAG  
 Cloud ceiling  
 Cloud ceiling

Init: 00 UTC Wed 21 Oct 09  
 Valid: 00 UTC Thu 22 Oct 09



AMPS 15-km WRF  
 Fcst. 24 h  
 Column-integ. cloud liq. water

Init. 00 UTC Wed 21 Oct 09  
 Valid. 00 UTC Thu 22 Oct 09



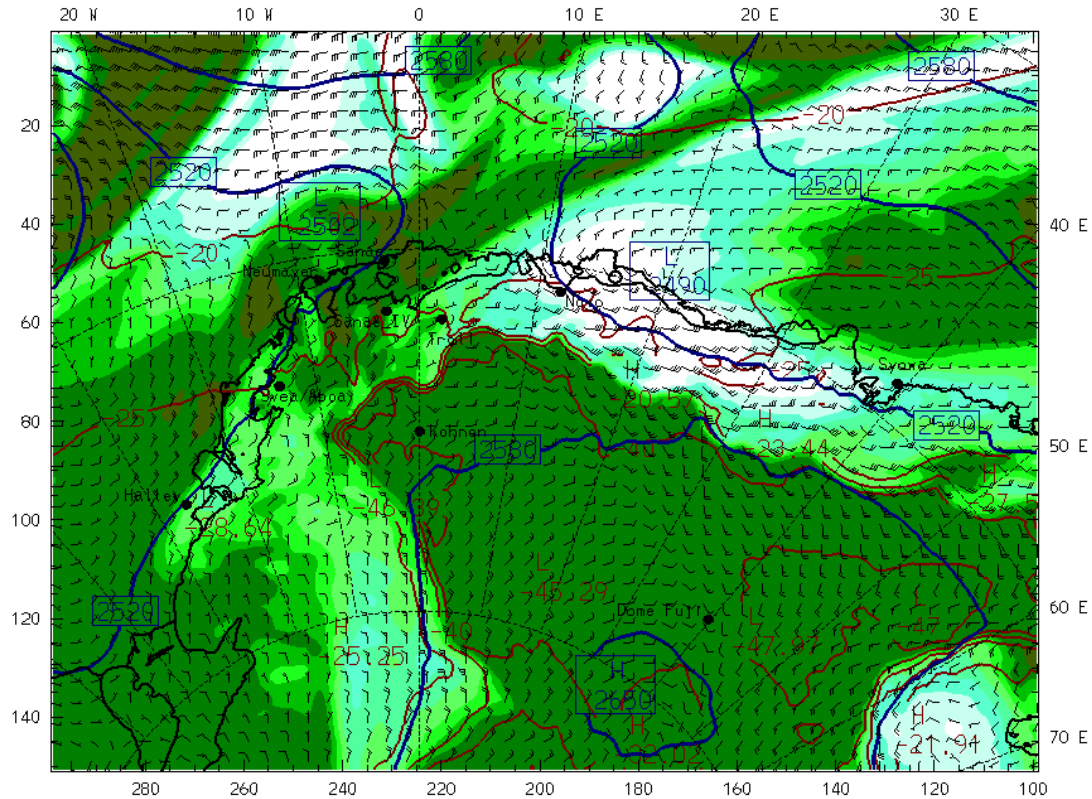
# The Meteorological Service at Dronning Maud Land

## Saison 2011/2012

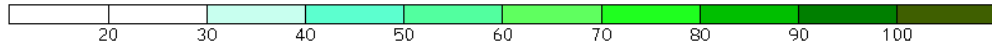
### Hans-Joachim Möller

AMPS 15-km WRF -- Qn Maud Land Coast window  
 Fcst: 24 h  
 Relative humidity (w.r.t. ice) at pressure = 700 hPa  
 Temperature at pressure = 700 hPa  
 Geopotential height at pressure = 700 hPa sm= 2  
 Horizontal wind vectors at pressure = 700 hPa

Init: 00 UTC Wed 21 Oct 09  
 Valid: 00 UTC Thu 22 Oct 09



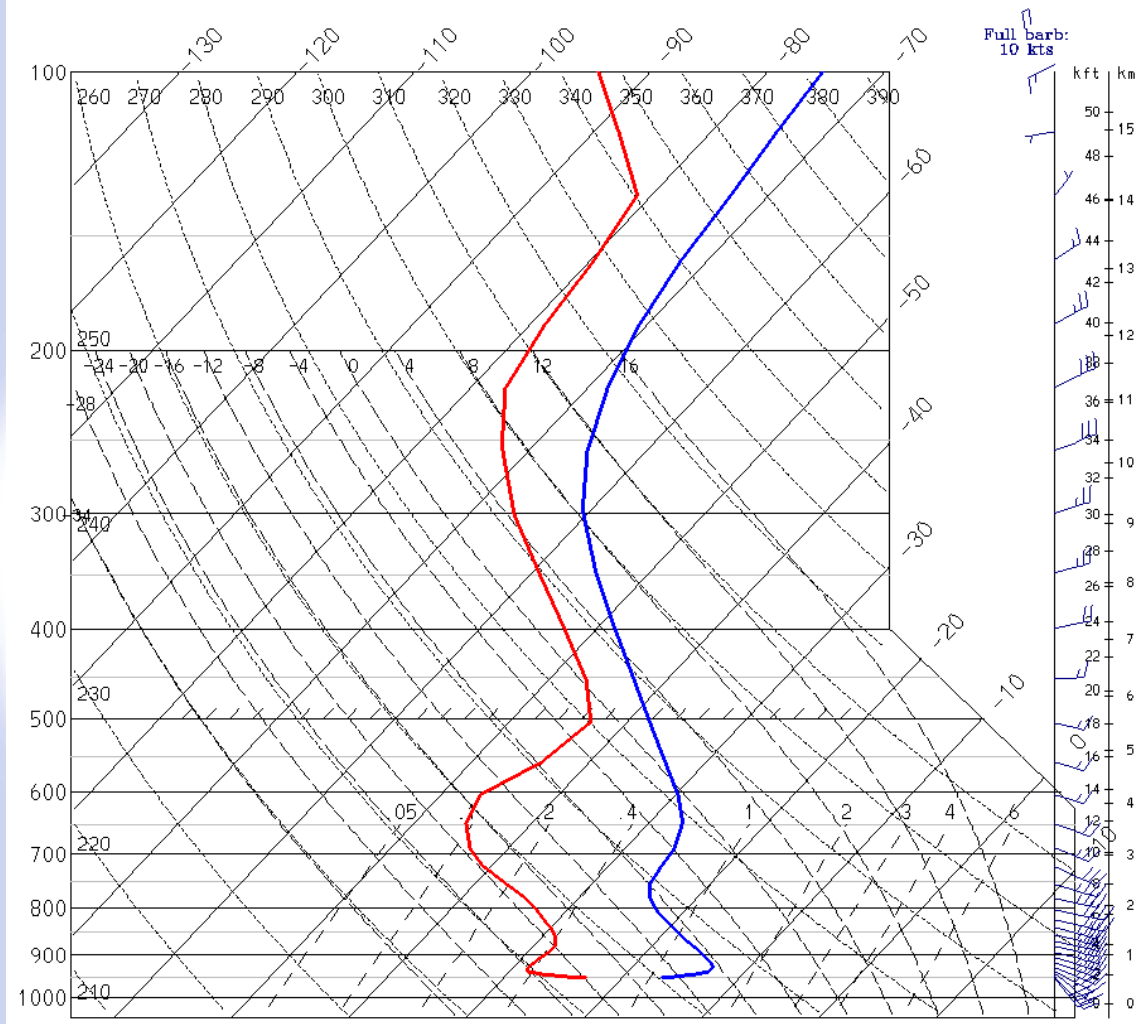
CONTOURS: UNITS=m LOW= 2460.0 HIGH= 2640.0 INTERVAL= 60.000  
 CONTOURS: UNITS=°C LOW= -45.000 HIGH= -20.000 INTERVAL= 5.0000



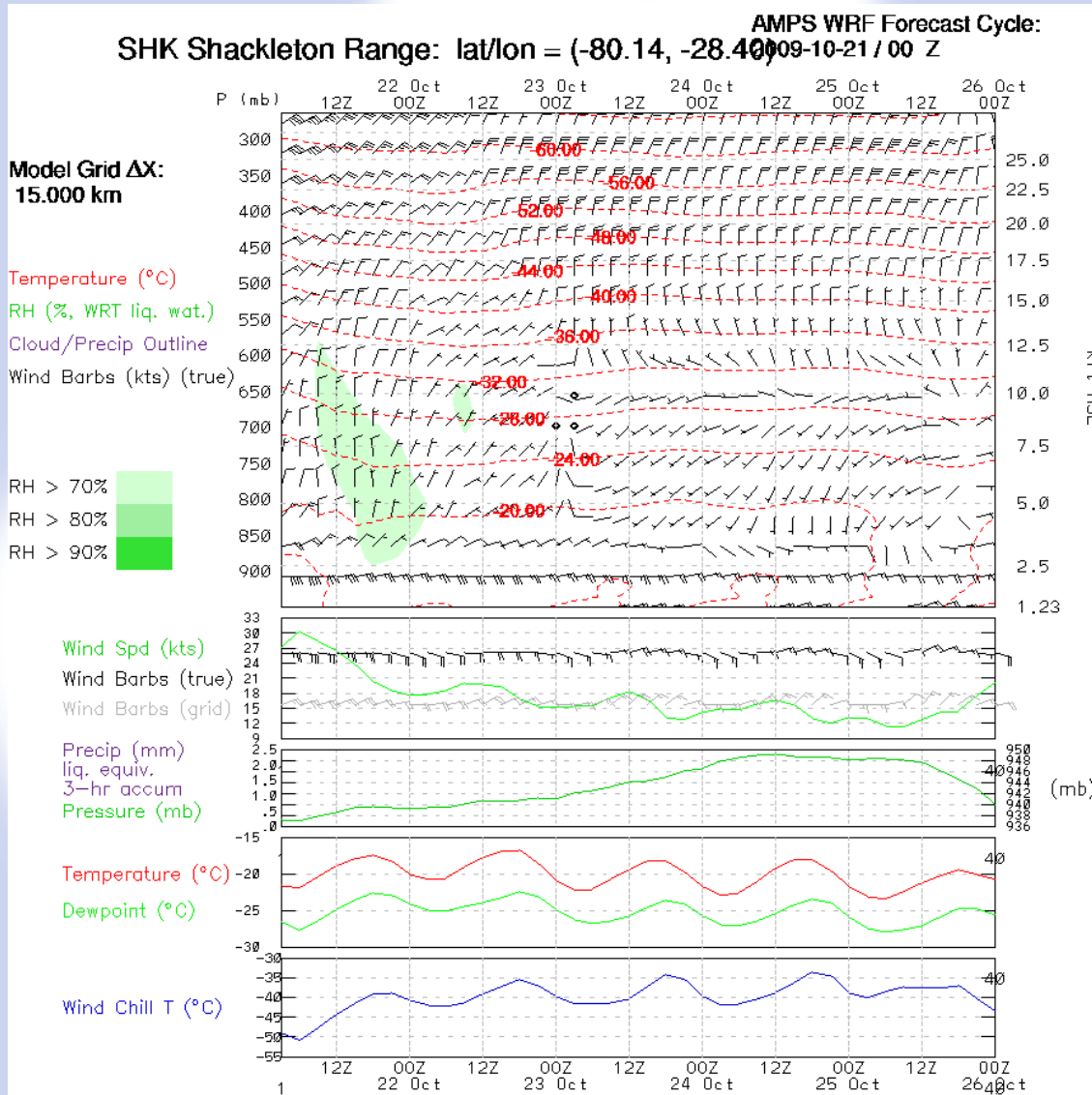
Model Info: V3.0.1.1 KF MYJ PBL WSM 5class Noah LSM 15 km, 43 levels, 77 sec  
 DIFF: simple KM; 2D Smagor

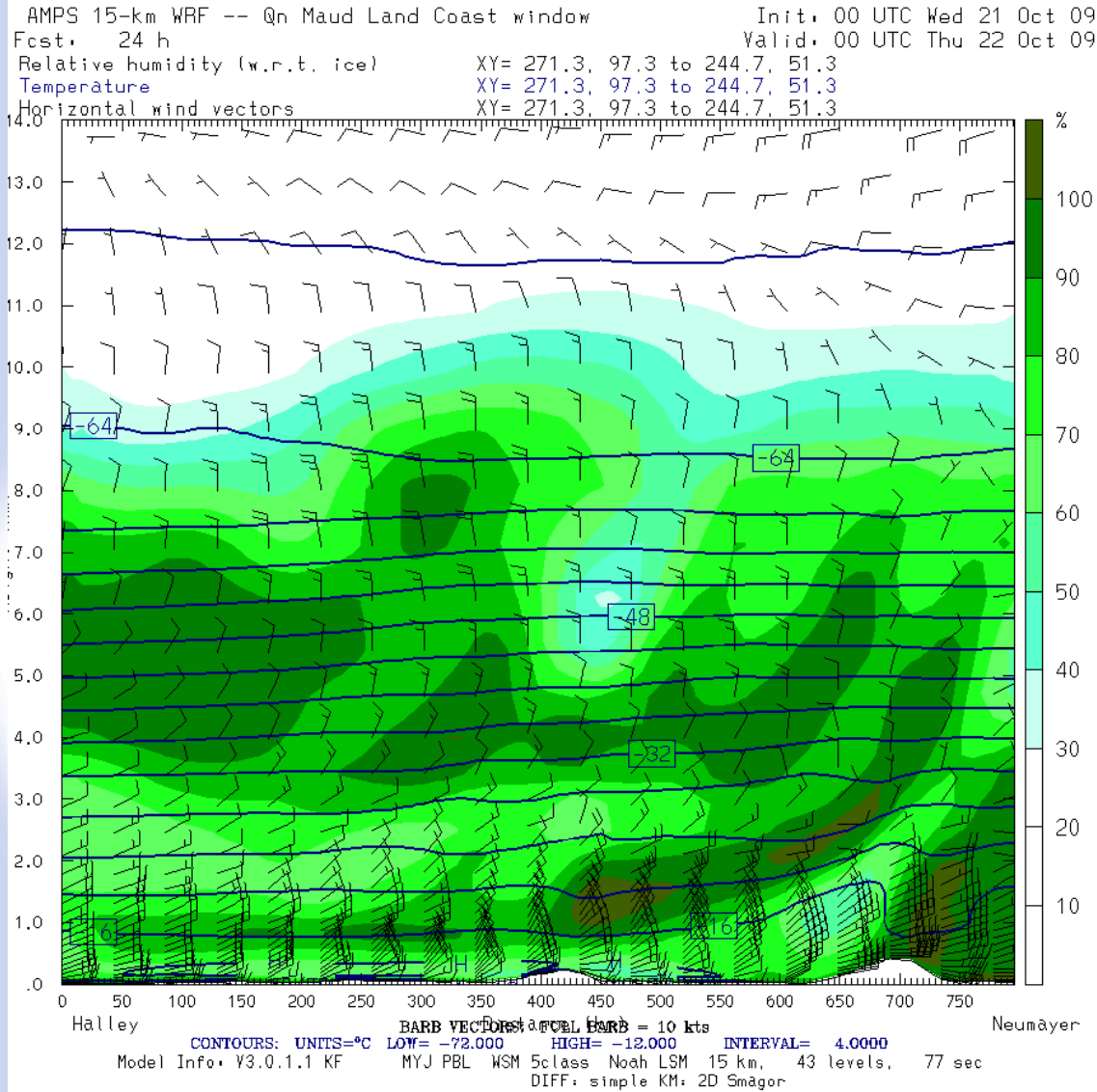
AMPS 15-km WRF  
 Fcst. 24 h  
 Temperature x,y=195.79, 53.67 lat,lon=-70.76, 11.83  
 Dewpoint temperature x,y=195.79, 53.67 lat,lon=-70.76, 11.83

Init. 00 UTC Wed 21 Oct 09  
 Valid. 00 UTC Thu 22 Oct 09











**All  
forecasts  
are wrong!**

or better

**No forecast is  
exactly  
correct!**

**caotic system**

to discribe with

**deterministic physics**

and

**postprocessing methods**

**Each numerical model has its  
own atmospheric physics,  
mathematics,  
topography,  
interaction with sea/surface etc  
with its own systematic,  
numerical or  
physical errors.**

**Results are not correct:**

**in time,**

**in location,**

**in intensity etc,**

**diverge in substance,**

**are inconsistent about run  
before etc.**



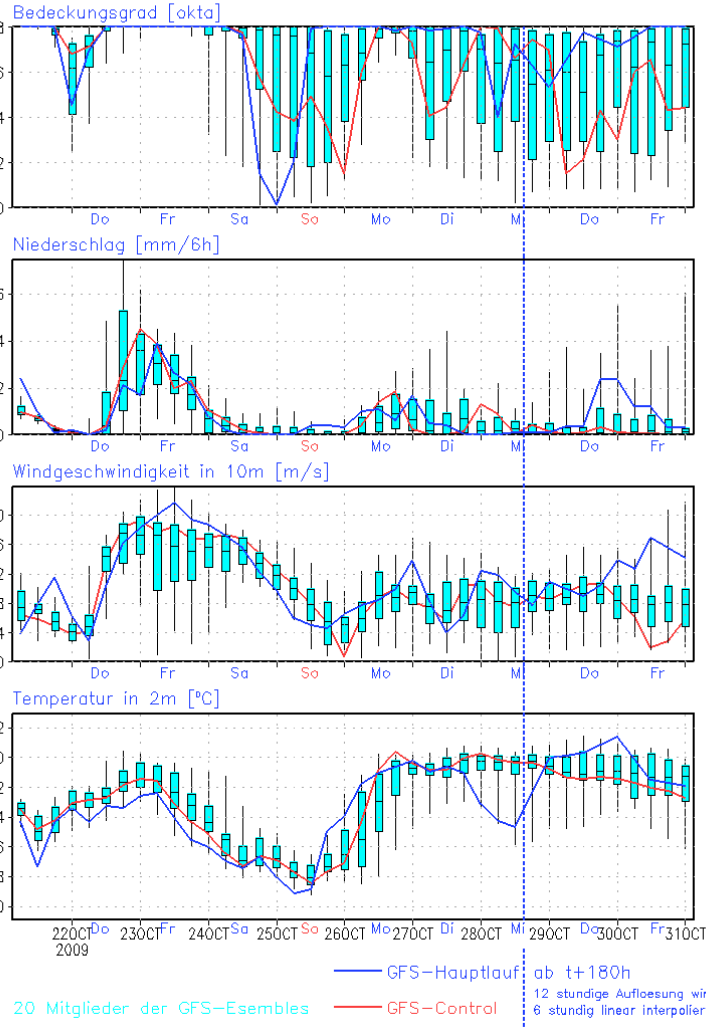
What's right?

Nobody knows!

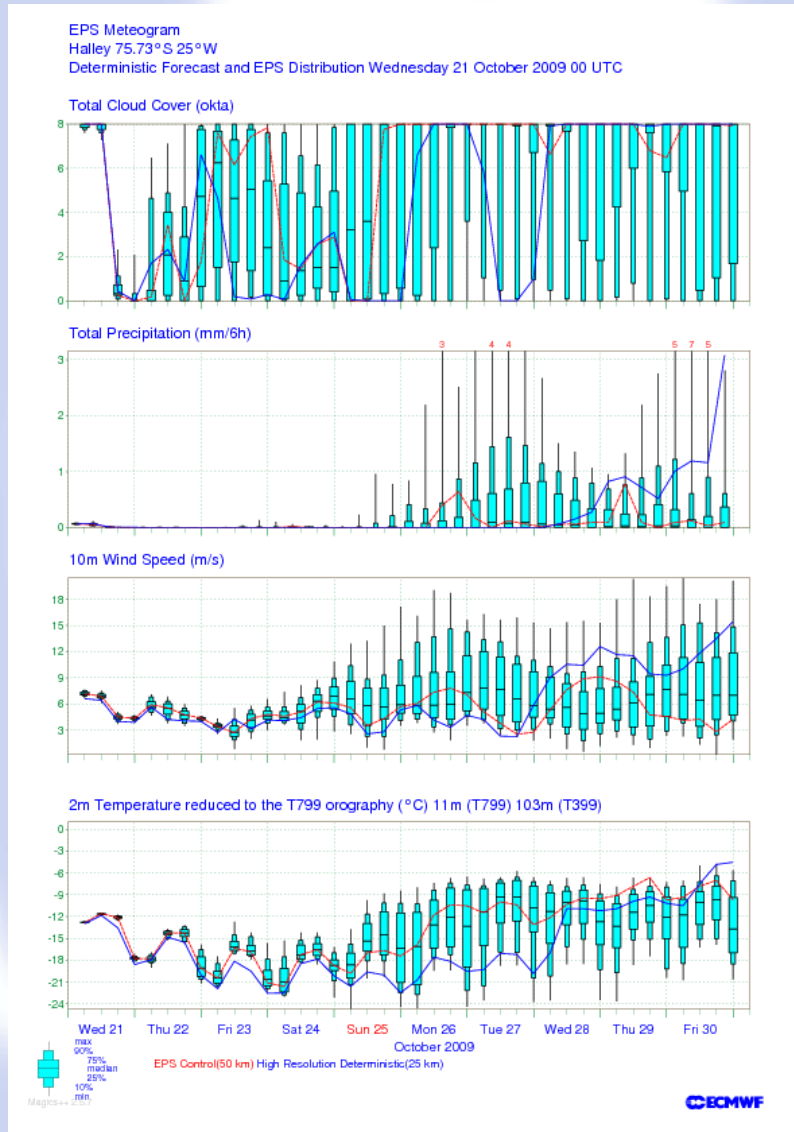
What can help?

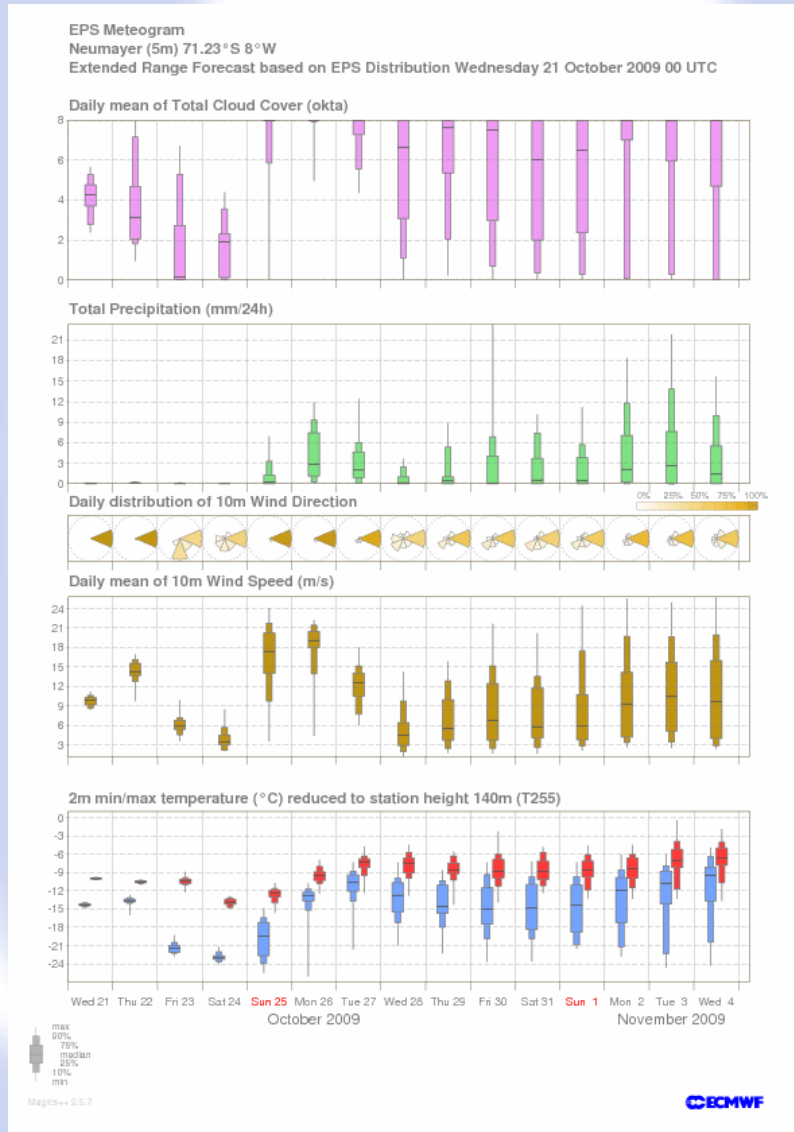
Ensemble forecasts!

GFS-Ensemble-Meteogramm  
 vom Mittwoch, den 21.10.2009 [00 UTC]  
 für Gitterpunkt -62 °N -59 °D: "Bellinghausen 0m"

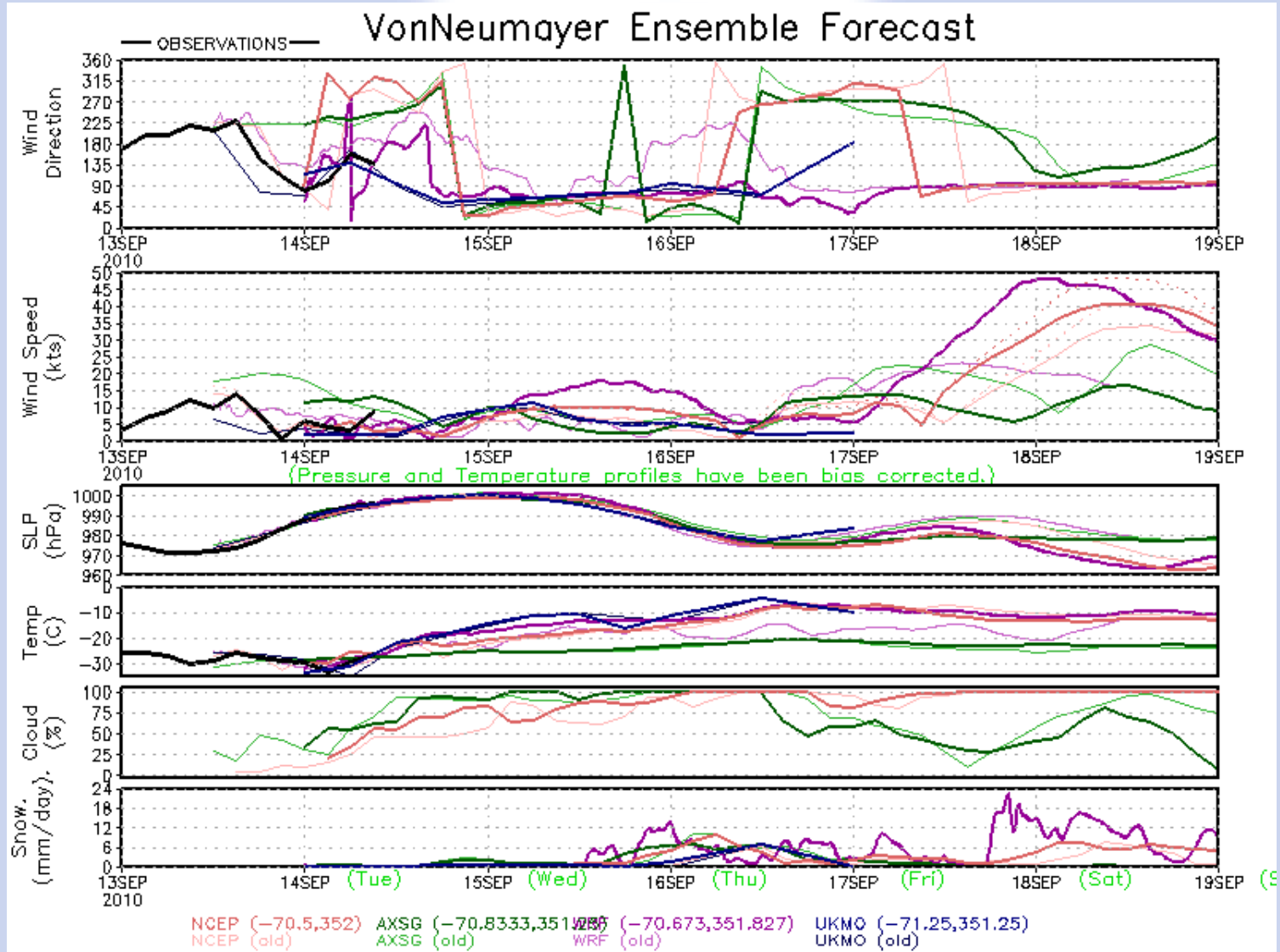






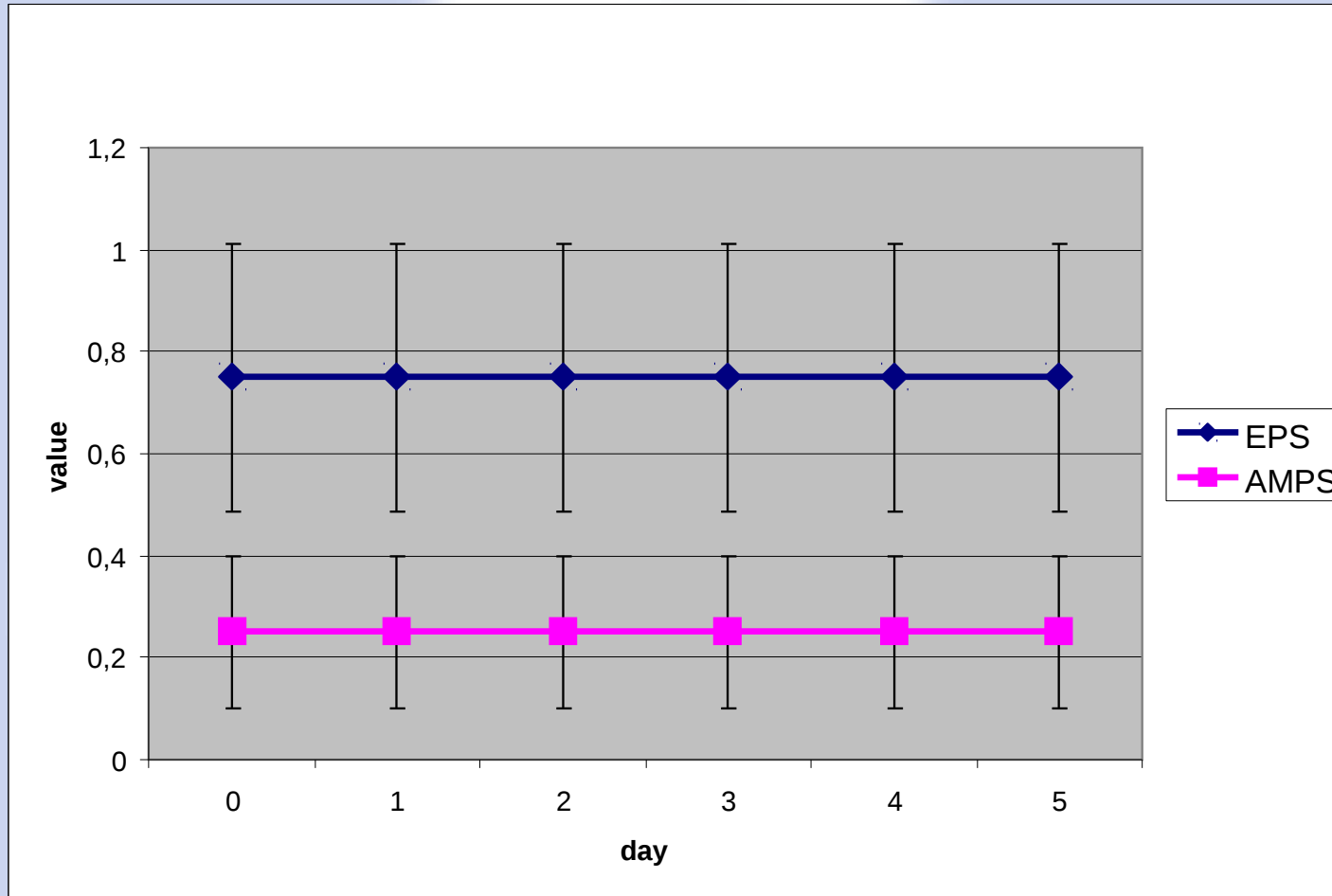


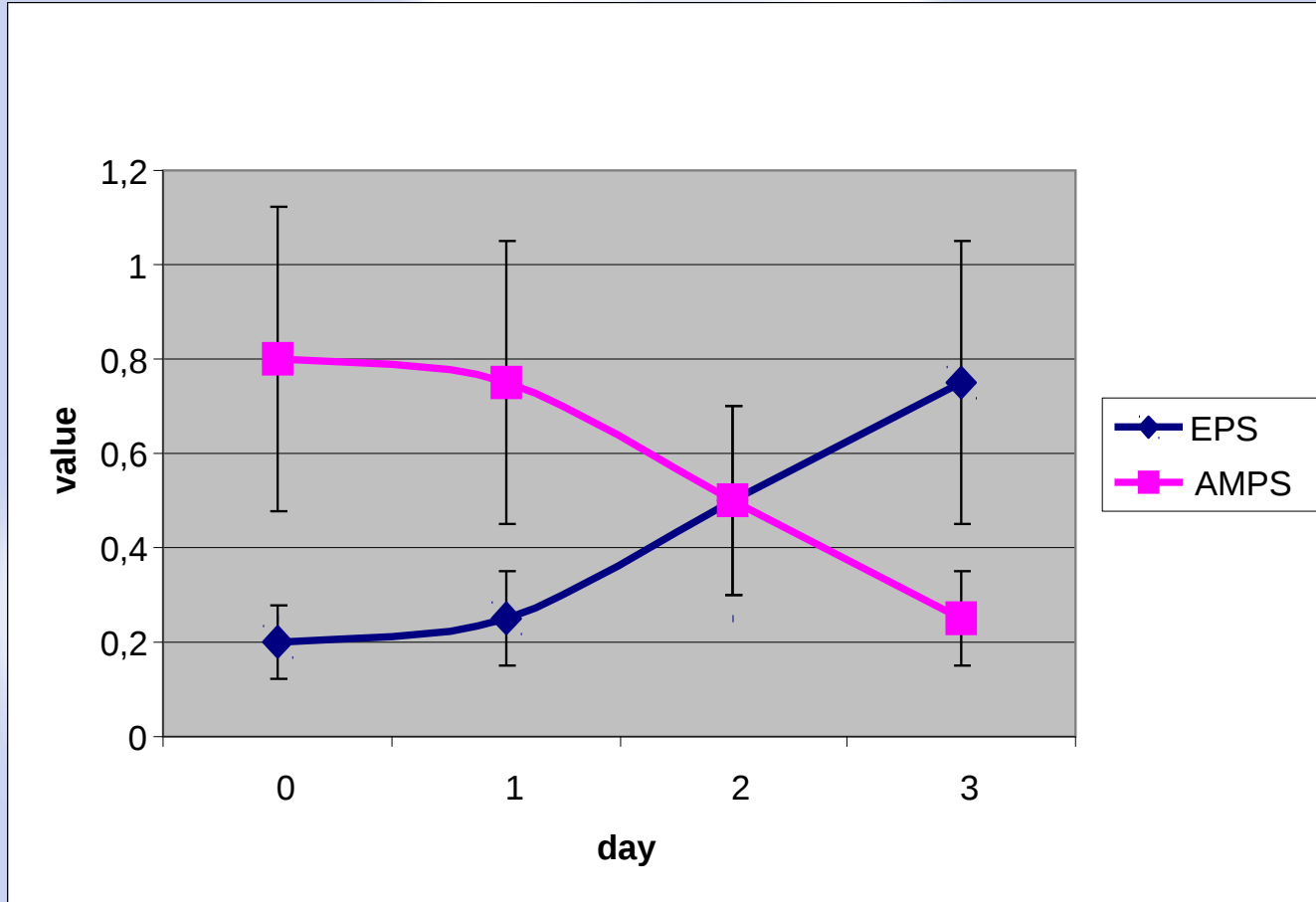
# German Meteorological Service

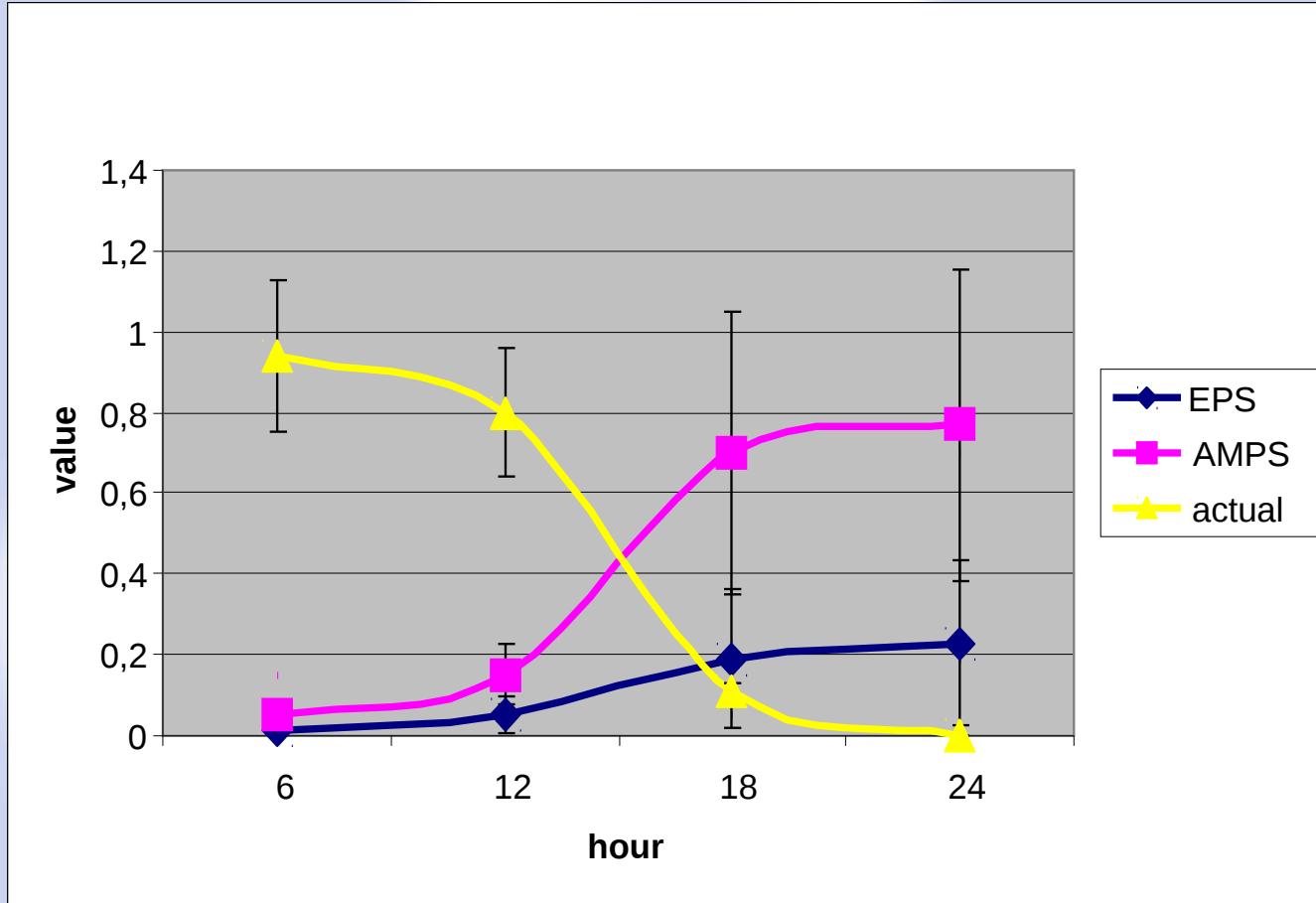


**and**

**model mixing!**







general forecast (genfcst)  
aviation forecast (avifcst)

<b>report</b>	<b>broadcasting time</b>	<b>valid time</b>
<b>avifcst update</b>	<b>07:00</b>	<b>07 – 13</b>
<b>avifcst</b>	<b>10:00</b>	<b>10 – 01</b>
<b>genfcst</b>	<b>11:30</b>	<b>5 days</b>
<b>avifcst update</b>	<b>16:00</b>	<b>16 – 01</b>
<b>avifcst</b>	<b>20:00</b>	<b>22 – 13</b>





## general forecast

01/02/2011 issued 09:00 UTC  
Hello from Neumayer - Station!

Weather situation and outlook for DROMLAN-destinations:

High 1000hpa Antarctic Plateau, no significant change.

Low 988hpa at 66S 30E, weakening, filling up today. Ridge of subtropical high along 08W, turning east and weakening slowly, crossing north- western parts of DROMLAN area until Wednesday. The other, more eastern parts of DROMLAN area will stay under influence of a ridge of Antarctic Plateau-high until Friday. New low 980hpa at 63S 35W, moving southeast and intensifying a little, then getting stationary northwest of Neumayer, filling up until Thursday. On Wednesday, new low developing at 55S 2E, moving rapidly southeast, intensifying, on Friday 970hpa at 63S 20E, then weakening and moving eastward, on Saturday at 65S 45E.

Forecasts:

Syowa:

TODAY until THURSDAY often sunny with some broken cloud patches, wind decreasing to light and variable. FRIDAY and SATURDAY, partly sunny and some broken clouds, winds light mostly from south-west.

PE:

TODAY until SATURDAY plenty of sunshine with harmless clouds, wind light and variable.

Novo Station/Novo Runway/Maitri:

TODAY and WEDNESDAY often sunny with some harmless clouds, wind mostly light and variable. THURSDAY upcoming clouds, risk for light snow, wind increasing up to 20kt from east/driftng snow. FRIDAY and SATURDAY often sunny with harmless cloud patches, wind 15-20kt from southeast, at times drifting snow.

Troll:

TODAY mostly sunny, upcoming some high clouds, wind light and variable.

WEDNESDAY upcoming clouds, risk for light snow, wind increasing 15-20kt from east/driftng snow. THURSDAY mostly broken cloud patches, small risk for light snow, wind light and variable. FRIDAY and SATURDAY mostly sunny with harmless high cloud patches, light winds from southerly directions.

Sanae:

TODAY and WEDNESDAY upcoming clouds with broken/overcast, at times light snow, wind first increasing 15-20kt from east/driftng snow, tomorrow 25-30kt/blowing snow.

THURSDAY mostly broken clouds, risk for light snow, decreasing winds 15-20kt from east. FRIDAY and SATURDAY scattered clouds or sunny, light and variable winds.

Neumayer:

TODAY and WEDNESDAY mostly overcast and sometimes light snow, wind first light and variable, later becoming 15-20kt from northeast to east/driftng snow. THURSDAY mostly overcast, risk for light snow, wind increasing 20-25kt from east/blowing snow. FRIDAY mostly broken clouds, tendency for breaking clouds, only small risk for light snow, wind decreasing 15-20kt from east/driftng snow. SATURDAY mostly only scattered clouds, light and variable winds.

Aboa/Wasa:

TODAY until THURSDAY mostly overcast and sometimes light snow, wind first 20-25kt from northeast/driftng snow, later light and variable. FRIDAY breaking clouds and often sunny periods, wind light and variable. SATURDAY, mostly sunny, winds light and variable.

Halley:

TODAY until THURSDAY mostly overcast and small risk for light snow, wind 15-20kt from east, later becoming light and variable. FRIDAY upcoming clouds, risk for light snow, wind 10-15kt from northeast. SATURDAY, broken or overcast winds light and variable.

For flight operations during next 15 hours -- wind at FL100:

Halley-area: N 10-15kt  
Aboa-Neumayer: NE 10-15kt  
Neumayer-Novo: SW 10-15kt  
Novo-Syowa: S-SE 10-15kt

Remarks: nil

Best regards,

Harald, meteorologist, forecaster at Neumayer Station



## aviation forecast

### AVIATION FORECAST – DRONNING MAUD LAND

(daily reports at 09, 15, 21UTC, otherwise no amended reports)

Issued: 2011-02-01, 09:00 UTC

Valid: 2011-02-01, 09 UTC until 2011-02-01, 24UTC

Hello from Neumayer - Station!

#### general overview:

High 1000hpa Antarctic Plateau, no significant change.

Low 988hpa at 66S 30E, weakening, filling up today. Ridge of subtropical high along 08W, turning east and weakening slowly, crossing north-western parts of DROMLAN area until Wednesday. The other, more eastern parts of DROMLAN area will stay under influence of a ridge of Antarctic Plateau-high until Friday. New low 980hpa at 63S 35W, moving southeast and intensifying a little, then getting stationary northwest of Neumayer, filling up until Thursday. On Wednesday, new low developing at 55S 2E, moving rapidly southeast, intensifying, on Friday 970hpa at 63S 20E, then weakening and moving eastward, on Saturday at 65S 45E.

#### actual weather:

Syowa (Sy) 21005kt 10km WX NIL 3Sc AcCi -1.9°C 988hPa (06 UTC)

PE (PE) 24004kt 60+km CAVOK SKC 994hpa (HG/CG) (07 UTC)

Novo (No) 18018kt 50km CAVOK -10°C 989hPa HG/CG(06 UTC)

Troll (Tr) 19002kt CAVOK FEW CI -8°C 984hPa HG/CG(06 UTC)

Sanae (Sa) 10003kt 1km FEW008 OVC080 -5°C 989hPa HP/CP (06 UTC)

Neumayer (Nm) 30006kt 2km -SN OVC001 -1°C 996hPa HN/CN (09 UTC)

Aboa/Wasa(AW) 34020kt WX NIL CLOUDS NIL -4.3/-5.7°C (06 UTC)

Halley (Ha) 10006kt NSW BKN060 -9.0/-11.0°C 991.2hPa HM/CG (06 UTC)

TAF's for DROMLAN-destinations: [\(see attachment\)](#)

#### upper air wind:

FI050 ASL:

Halley-area: E 25-30kt

Aboa-Neumayer: VRB 10kt

Neumayer-Novoo: SW 10-15kt

Novo-Syowa: VRB 10kt

FL100 ASL:

Halley-area: N 10-15kt

Aboa-Neumayer: NE 10-15kt

Neumayer-Novoo: SW 10-15kt

Novo-Syowa: S-SE 10-15kt

FL150 ASL:

Halley-area: N 10-15kt

Aboa-Neumayer: SW 25-30kt

Neumayer-Novoo: SW 25-30kt

Novo-Syowa: S-SE 10-15kt

#### hazards:

W of 2W: at times +SN, clouds <200 ft AGL and HN/CN-conditions, risk of light icing at temperatures around 0°C

remarks: nil

#### definitions:

##### weather-metar-code wx

NSW = no significant weather

DRSN = drifting snow

FG = fog

FZRA = freezing rain

WO = white out

SN = snowfall

BLSN = blowing snow

FZFG = freezing fog

FZDZ = freezing drizzle

intensity: - light

+ heavy

horizon/contrast HG/CG = good

HM/CM = moderate

HP/CP = poor

HN/CN = nil

DROMLAN-TAF's issued 2011-02-01, 09UTC

destination TAF	valid time	wind +/-30deg +/-10kt	vis +/- 500m	weather code	cloud level 1 +/-500ft	cloud level 2 +/-500ft	cloud level 3 +/-500ft	hor/oon
Syowa/S17	0109/0200 TEMPO 0111/0200	VRB10kt	9999		FEW030 CAVOK	BKN060		HM/CM HG/CG
PE	0109/0200 PROB20 0112/0200	VRB10kt	9999		CAVOK SCT040			HG/CG
Novo Runway	0109/0200 TEMPO 0109/0113	17020kt	9999	-DRSN	CAVOK SCT040			HG/CG
Troll	0109/0200	VRB10kt			CAVOK			HG/CG
Sanae	0109/0200 BECMG 0109/0113 BECMG 0120/0123	VRB10kt 13015kt	2000 8000 3000	-SN	FEW010 SCT020 OVC010	BKN060 BKN070		HP/CP HM/CM HN/CN
Neumayer	0109/0200 TEMPO 0109/0112 TEMPO 0112/0200	VRB10kt	3000 6000 0500	-SN +SN	OVC002 OVC012 OVC001			HN/CP HP/CP HN/CN
Aboa/Wasa	0109/0200 BECMG 0111/0115 TEMPO 0113/0200	34020kt 03020kt	9999 8000 1000	-SN SN	SCT015 OVC010 OVC002	BKN040		HM/CM HP/CP HN/CN
Halley	0109/0200 TEMPO 0113/0200	09015kt	9999 6000	-SN	BKN070 OVC030			HM/CP HP/CP

attachment

**Transmission to stations,  
aircrafts, pilots, ALCI etc and Internet**

[http://www.awi.de/en/infrastructure/stations/neumayer\\_station/observatories/meteorological\\_observatory/data\\_access/summer\\_weather\\_forecast/](http://www.awi.de/en/infrastructure/stations/neumayer_station/observatories/meteorological_observatory/data_access/summer_weather_forecast/)

**additional informations :**

**HRV satellite image**

**IR satellite image**

**actual station weather**

**ice information**

**upper air wind charts**

