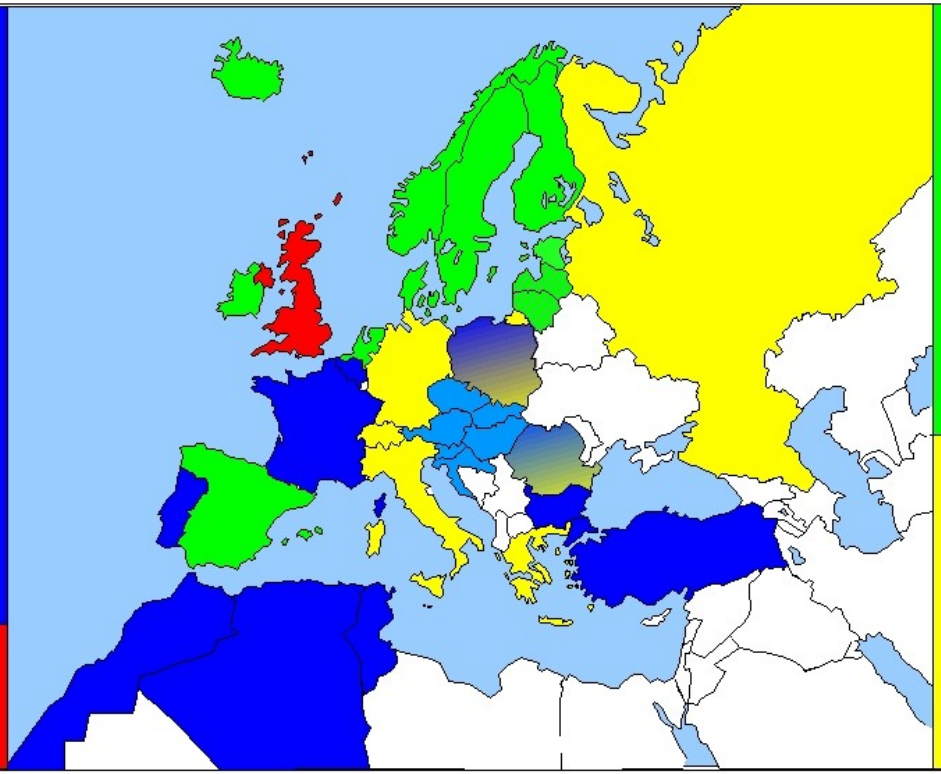
INSTITIUTE OF METEOROLGY AND WATER MANAGEMENT – NATIONAL RESEARCH INSTITUTE

Use of ALADIN numerical products in Polish **Meteorological** Service

Rafał Kielar Central Meteorological Forecasting Office IMWM-NRI

21.10.2015

SRNWP Consortia in Europe



ALADIN
Algeria
Belgium
Bulgaria
France
Morocco
Poland
Portugal
Tunisia
Turkey

Austria
Croatia
Czech Rep.
Hungary
Romania
Slovakia
Slovenia
LACE

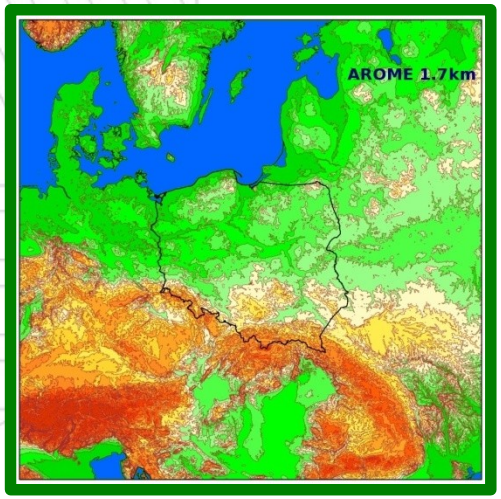
UKMO
United Kingdom

HIRLAM
Denmark
Estonia
Finland
Iceland
Ireland
Netherlands
Norway
Spain
Sweden
(Latvia)
(Lithuania)

COSMO
Germany
Greece
Italy
Poland
Romania
Russia
Switzerland

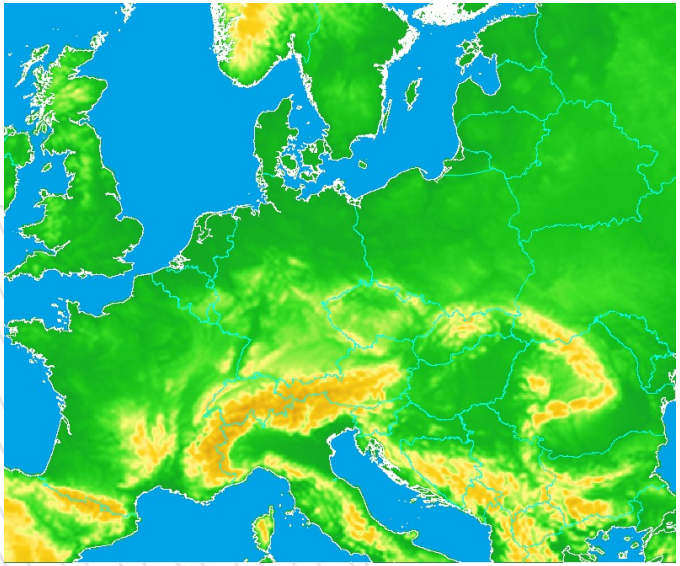
***ALARO-1 (CY40T1) Operational Domains*:**

E040 domain: 4.0 km horizontal resolution, 789x789 grid points,
60 vertical model levels,
Runs 4 times per day with 66 hours forecast range; LBC from ARPEGE,
3h output, grb, asci, img



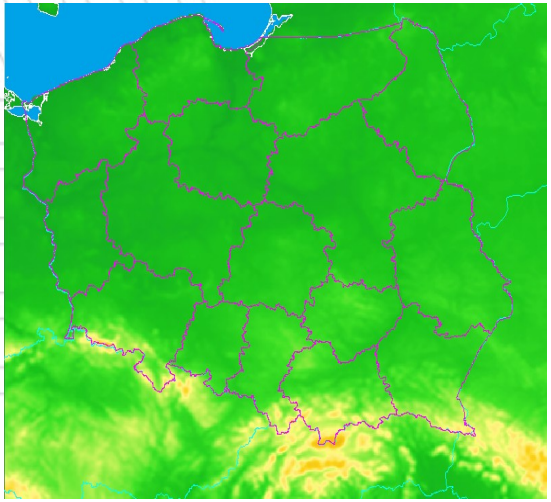
AROME Operational Domain:

P025 domain: 2.5km horizontal resolution, 637x637 grid points,
60 vertical model levels with 1 hour output
2 runs per day (00 and 12UTC) with 30 hours forecast range; LBC from ALARO-1;
1h output , grb, asci, img



COSMO:

COSMO 4.08 - 7 **km 385 x 321 grid points,**
Runs 4 times per day with 78 **hours forecast range;**
LBC from ICON,
This year will change to COSMO 5.01, 7km 415 x 445 grid points



COSMO:

COSMO 4.08 - 2.8 **km 285x255 grid points,**
Runs 2 times per day with 36 hours forecast range;
LBC from COSMO 7km,
This year will change to COSMO 5.01, 2.8km 380 x 405 grid points and EPS (20 members)

Two models x two resolution = 4 x more problems and to small to create „EPS"

-On duty forecaster have to chose between NWP models (scenario) – it can take lot of time.
- Easy to miss important results from NWP – is's easer to „switch" to other NWP then try to explain/explore strange/diffrent pattern/efects.
- Visualisation: every SRNWP consortium have diffrent tools/method – somtimes is hard to compare same products from diffrent sources:

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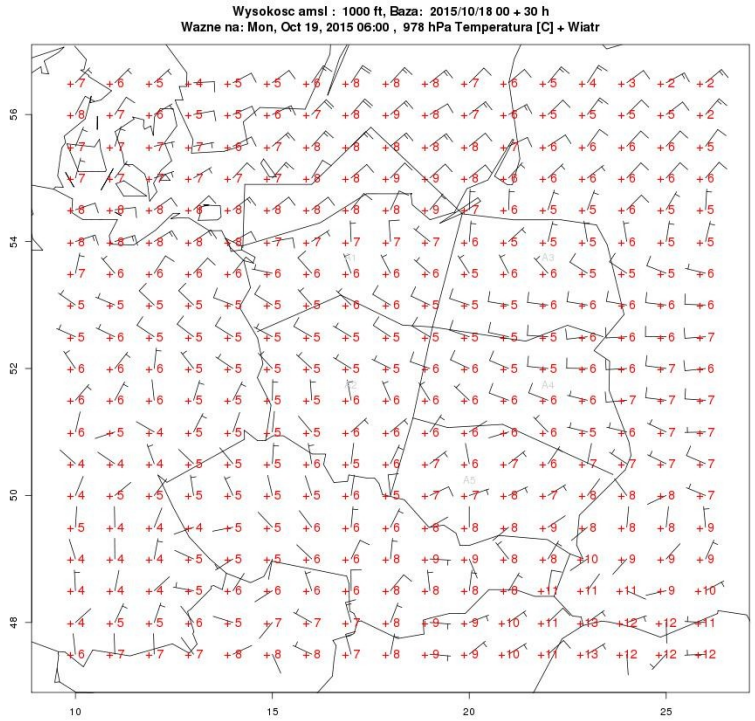

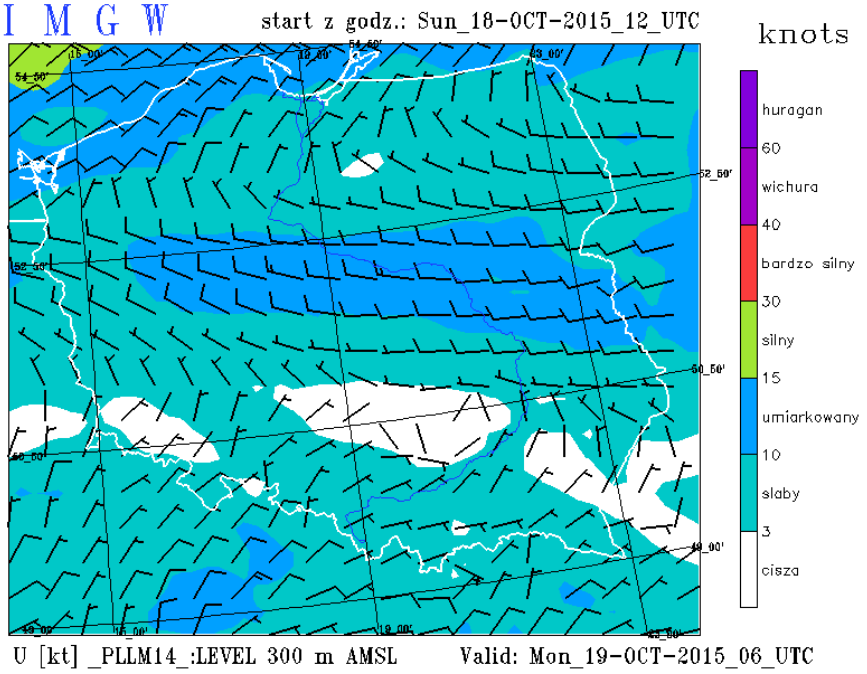

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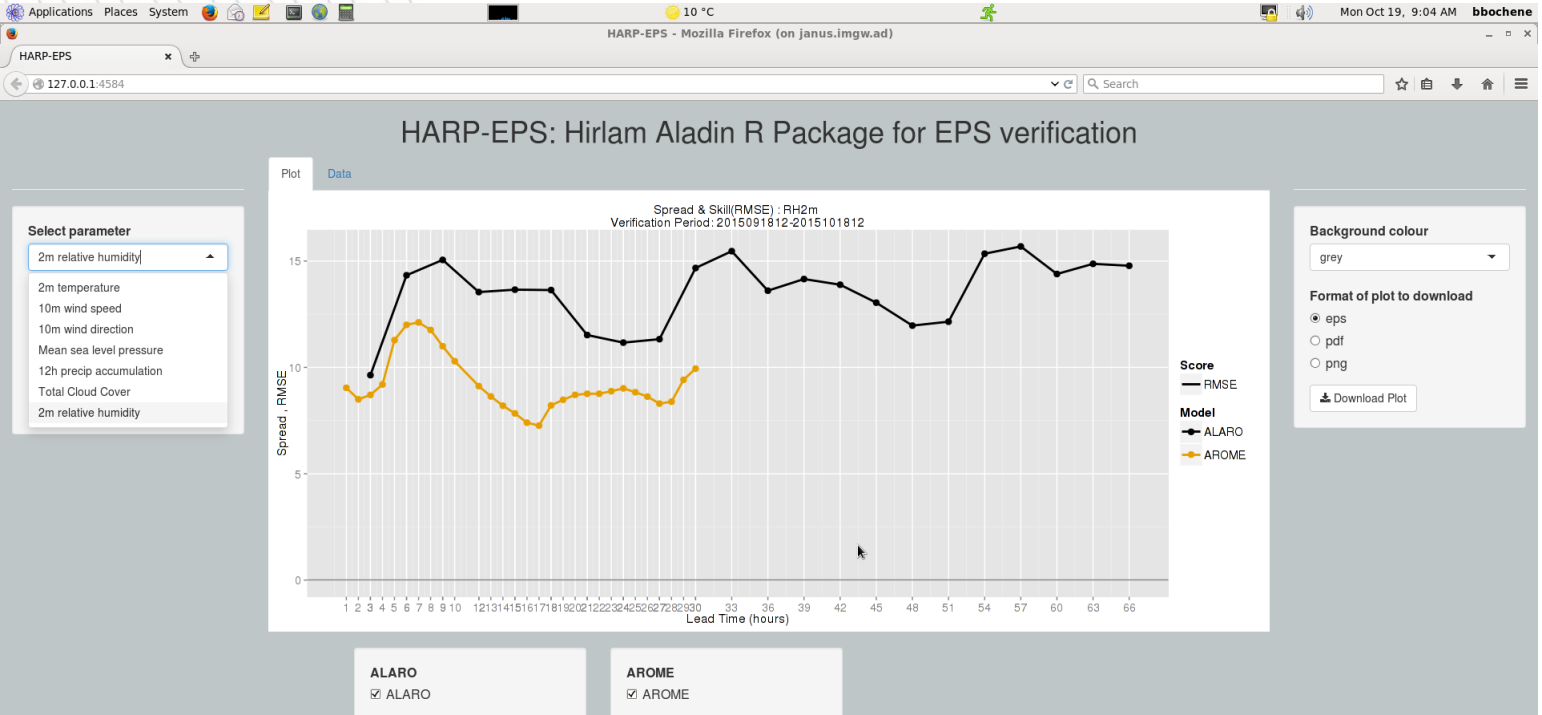
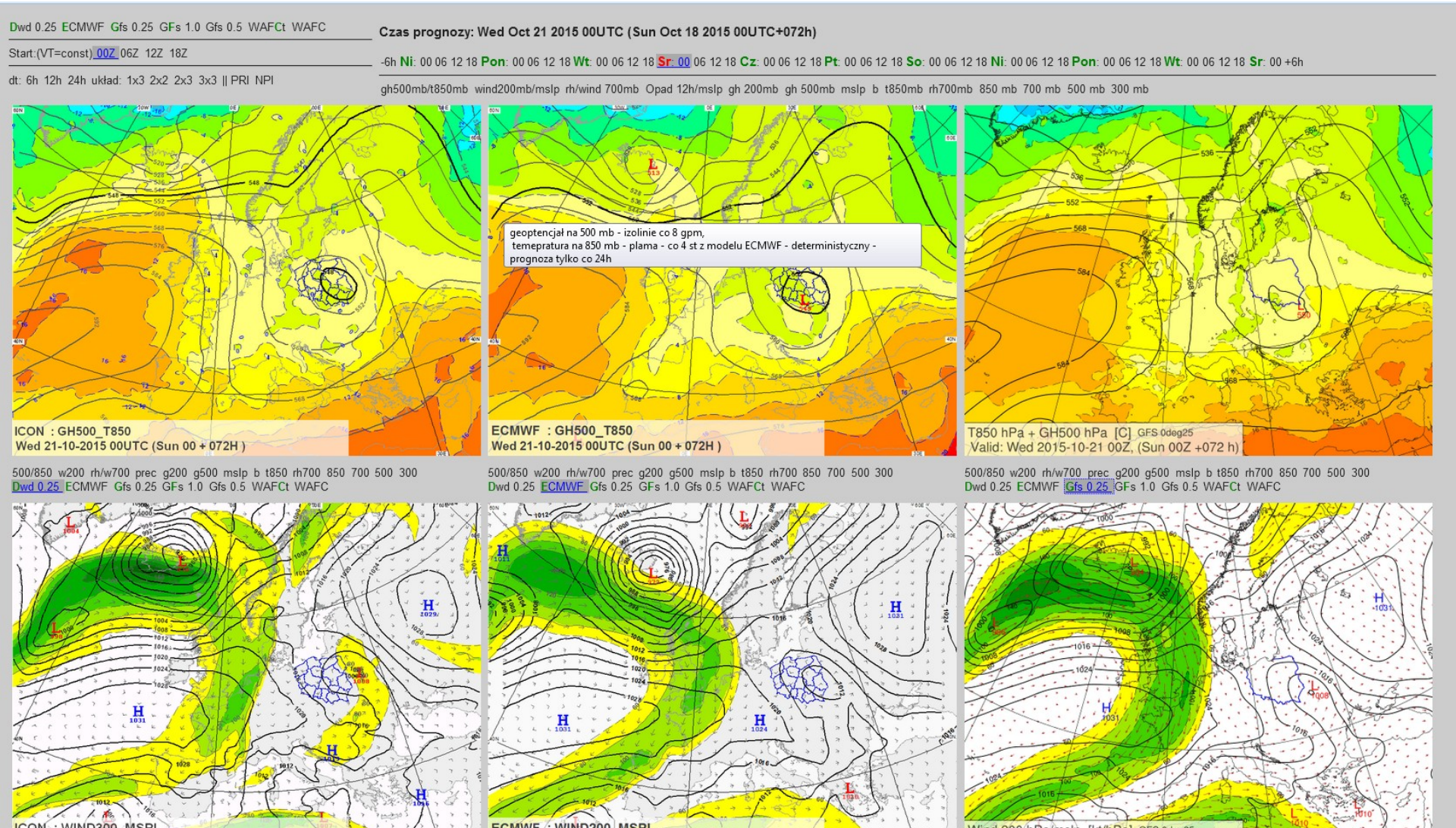
- Visualisation: every SRNWP consortium have diffrent tools/method – somtimes is hard to compare same products from diffrent sources
-Same for verification – we still miss a same verification tools use for all models used in IMWM



Web based platform to easy compare NWP forecast: developed and maintained in our MetOffice:



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Web based platform to easy compare NWP forecast: developed and maintained in our MetOffice:
only images, just visualisation

Gfs 0.25 Gfs 1.0 WAFC
Cosmo 7km Cosmo 14km Cosmo 2.8km
Aladin 7km Arome 2.5km Test
Test2
today 00Z 06Z 12Z 18Z

menu_parametry menu_poziomy

dt: 3h 6h 12h 24h
układ: 1x3 2x2 2x3 3x3

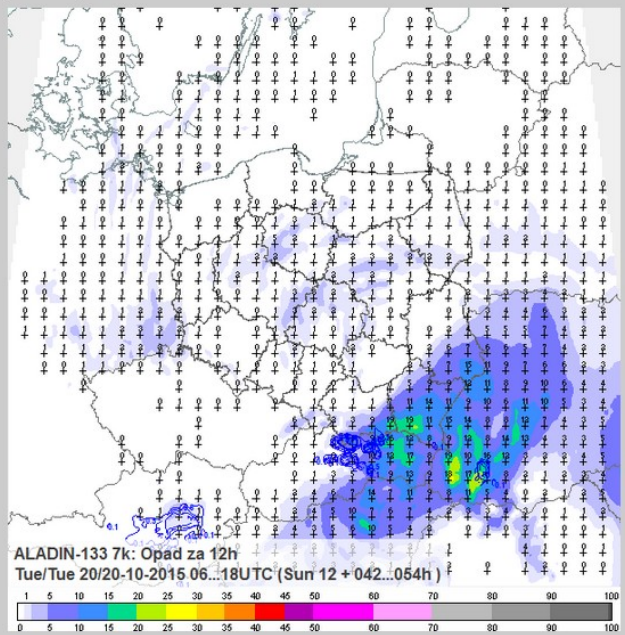
granice woj rzeki FIR

12H_PRECIP_TYPE at Tue Oct 20 2015 18UTC (Sun Oct 18 2015 12UTC+054h)

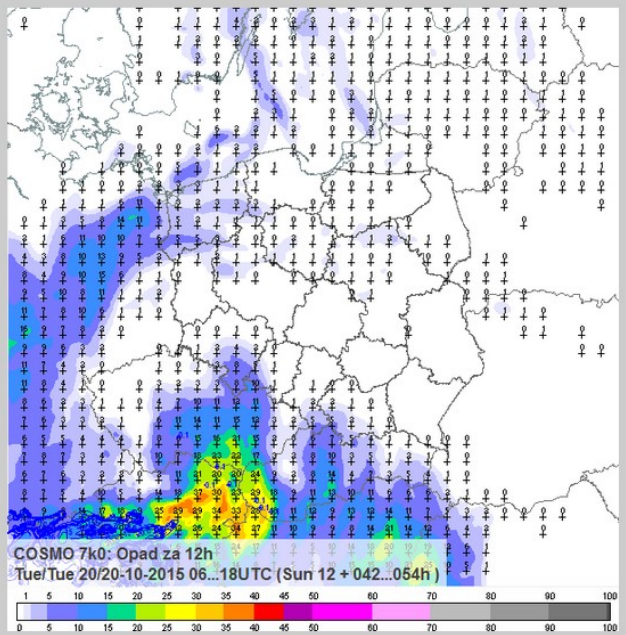
-3h 12 15 18 21 **Pon**: 00 03 06 09 12 15 18 21 **Wt**: 00 03 06 09 12 15 18 21 **Sr**: 00 03 06 09 12 15 18 21 **Cz**: 00 03 06 09 12 15 +3h

Cape Cape/tpw Cape 3km MuCape DCape Cin MICape MICape 3km MICin MIEhi 1km L index K index TT Index Mod LI Ehi SWEAT Hail Size SHiP STP CapeShear CapeShear2
Opad 3h SH 3h SN 3h RA 3h RA/SN 3h Opad 6h SH 6h SN 6h RA 6h RA/SN 6h Opad 12h SH 12h SN 12h RA 12h RA/SN 12h TPw Rh 2m Rh 1000hPa Rh 850hPa Rh 700hPa Fog-SI Fog Threat Fog Point Td 2m Tdd 2m
Mslp Wind 10m SHear 6km Shear 3km Shear 1km Srh 1km Srh 2km Srh 3km POrywy model Conv gusts Wind 850hPa Wind 700hPa Wind 500hPa Wind 300hPa Brn Brn shear Storm MW Shr 6km Shr 3km Shr 1km Div 10m
MILcl MILfc Conv Cld Low Cld Mid Cld High Cld Total Cld Lcl Ccl Lfc MILfc-MILcl Lfc-Lcl Eq M Inwersja Tropopauza Isok FZ Isok FG Isok FG1 3h zlewnie 6h zlewnie 12h zlewnie 24h zlewnie
T 850hPa T 2m T min T max Izoterma 0 Izoterma -10 0 Wet bulp 1000-850 wys. wzg. wysokosc pomiedzy 0 a -10 Lapse rate 850-500 Lapse rate 800-600 WindChill-winter WindChill-lato 100 95 90 85 80 70 70 60 50

Białystok Bielsko EPBY EPGD EPKK EPKT EPLL EPPO EPRZ EPSC EPWA EPWR EPZG EPMO EPML Kołobrzeg Łeba Lublin Olsztyn Opole Płock Suwałki Terespol Zakopane Kielce Zamość Lesko Wilno EDDB UKLL LKPR EKCH EPST EPJG EPBK



Gfs 0.25 Gfs 1.0 WAFC Cosmo 7km Cosmo 14km Cosmo 2.8km Aladin 7km Arome 2.5km Test Test2



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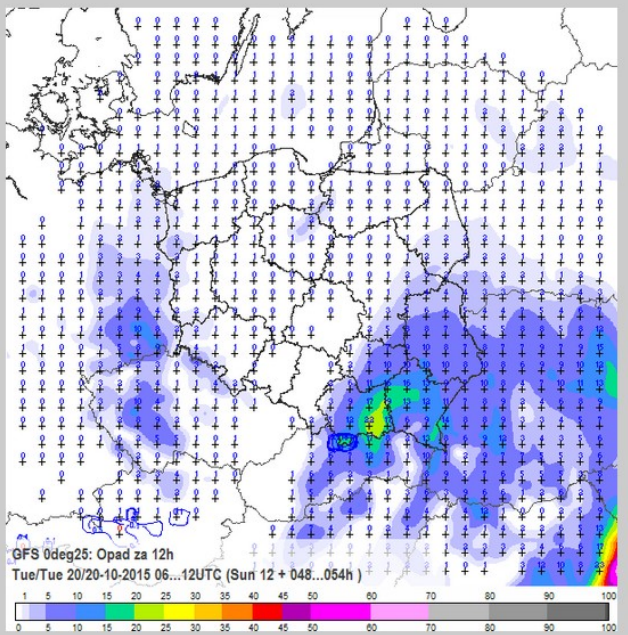


Gfs 0.25 Gfs 1.0 WAFC Cosmo 7km Cosmo 14km Cosmo 2.8km Aladin 7km Arome 2.5km Test Test2

Jak sama nazwa wskazuje suma opadu za poprzedzające 12h.
Kolorowo - opad calkowity
izolinie (0.1 - 0.5 - 1 - 2 - 5 - 10 - 15 -20) - opad sniegu
punkty - opad deszczu
Jednostka - mm

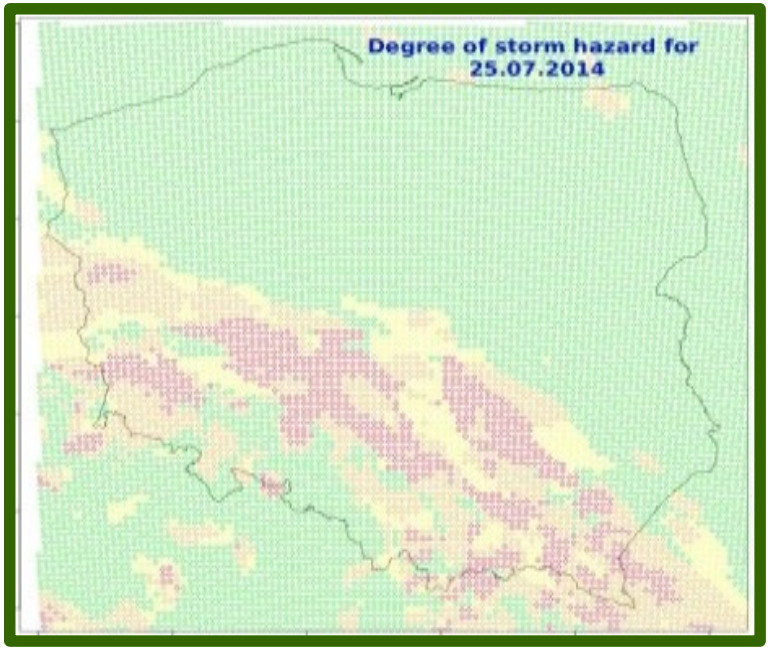
Dla danych z GFS w kolorze opady deszczu marznącego w kolorze czerwonym.

ISOK Project (Polish acronym of IT System for Country Protection against extreme hazards)

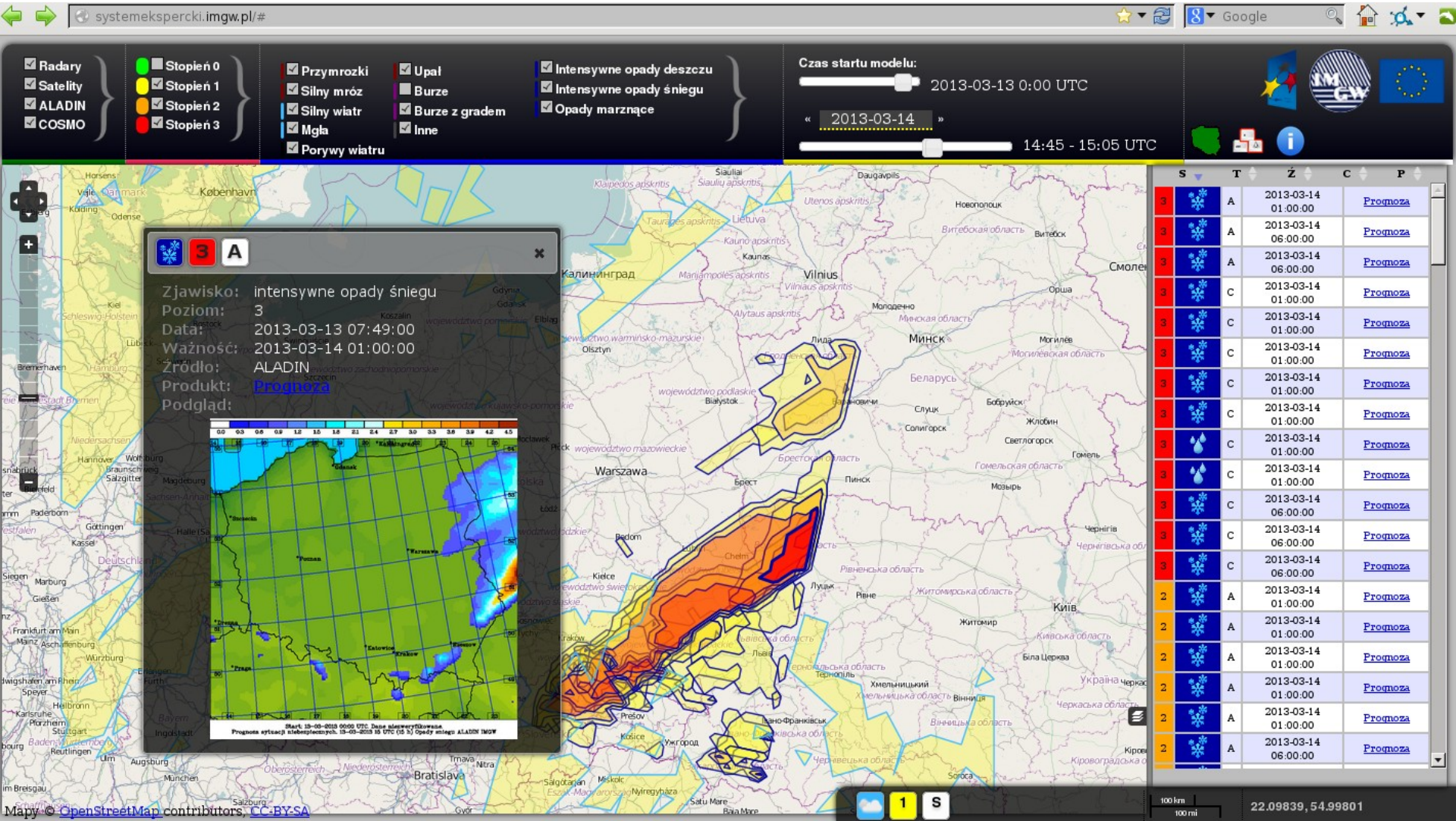
System create automatic warnings against: temperature extremes, intensive rainfalls, snow cover, strong winds, thunderstorms with hail, fog, rime ice, and glaze ice.

Some simple algorytms were developed (based on historical data)

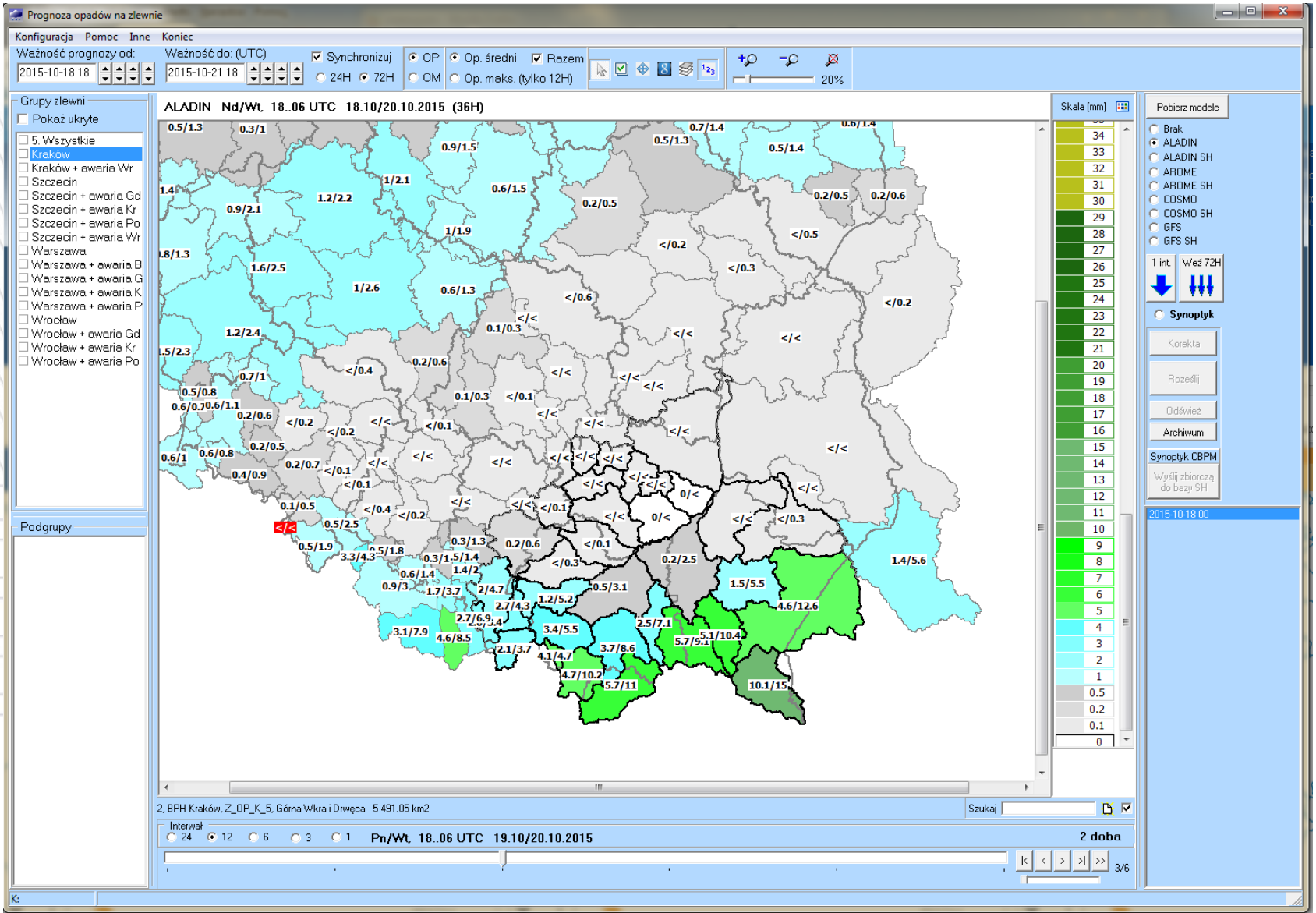
We produse forecasting charts, updated twice a day and constructed on the basis of a ALARO-1 model to provide information on the current meteorological hazards (for the next 12, 24 and 48 hours)



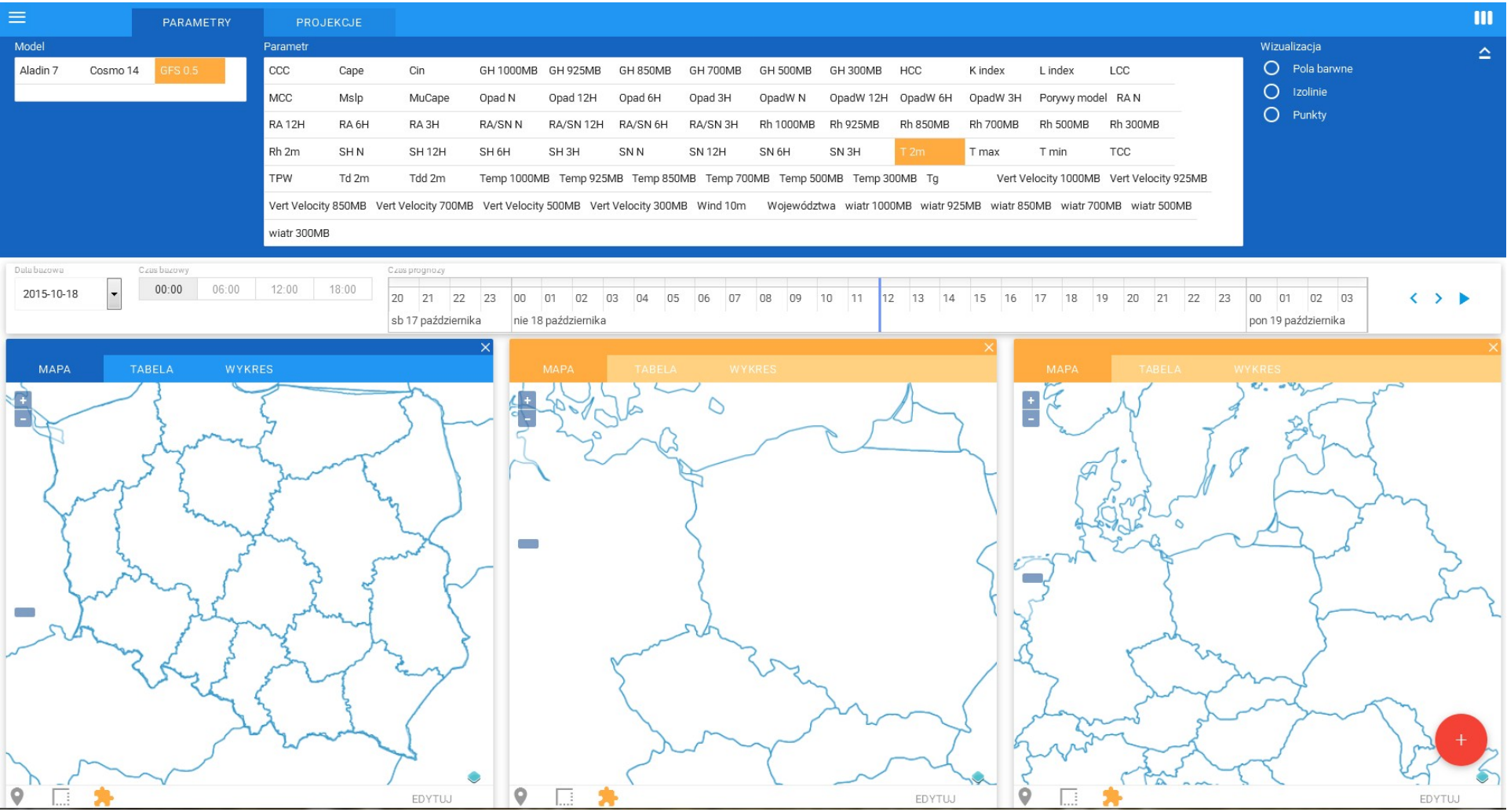
KLIMAT – automatic system to suport decision making for forecaster



App to visualise and manipalate data to make a hydrological forecast (based on NWP).

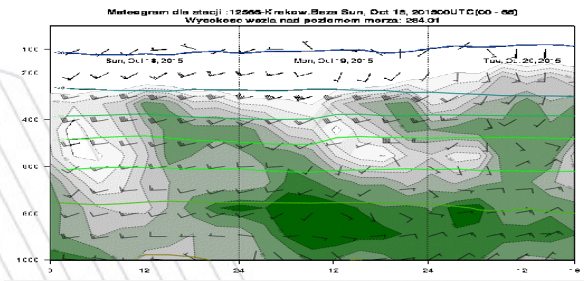


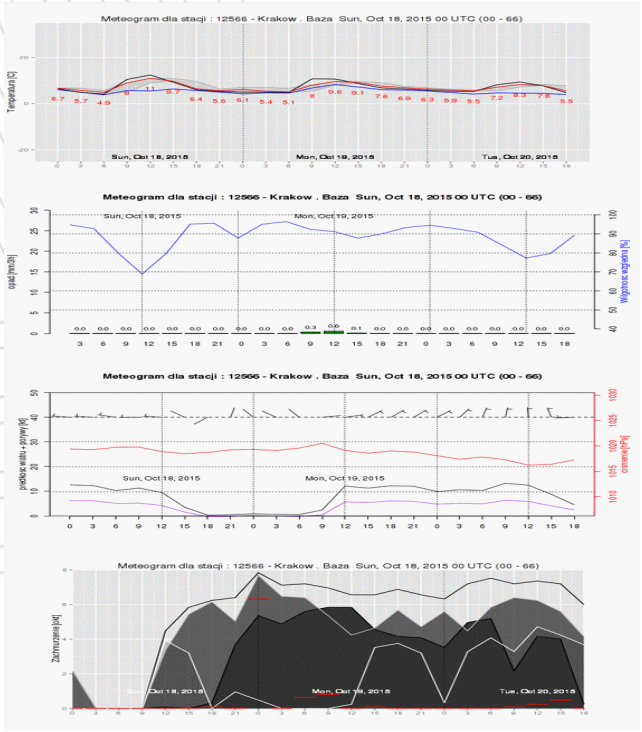
New web based platform dedicated to visualise and manipulate NWP data:

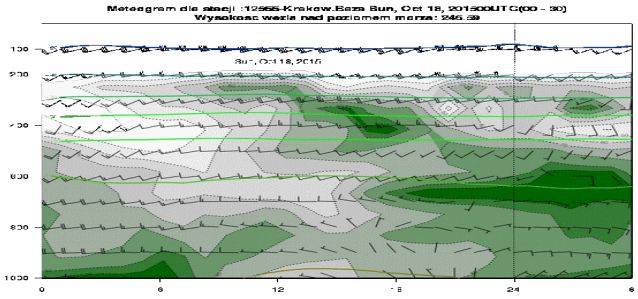


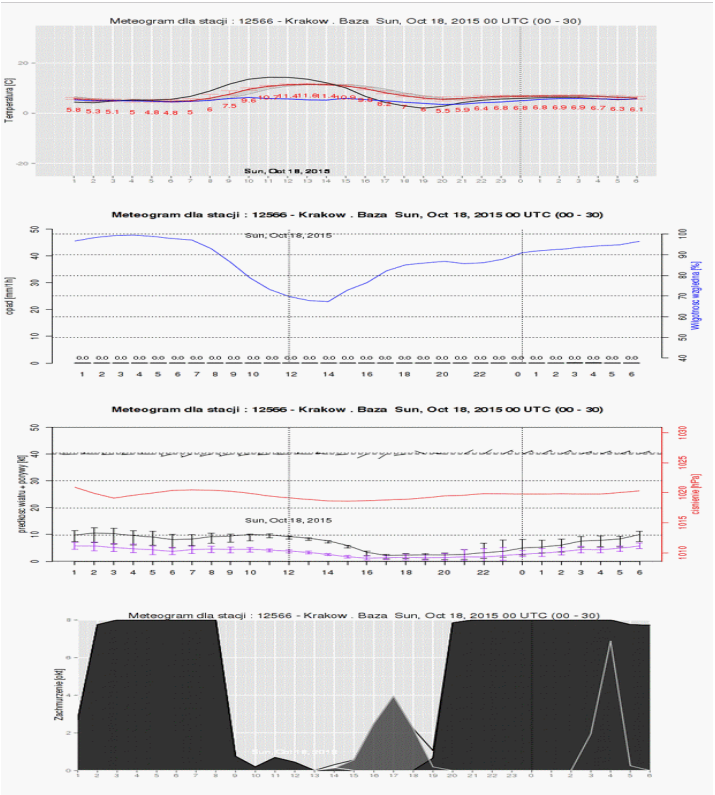
sample visualisation:

ALARO-1 Meteograms and AROME meteograms

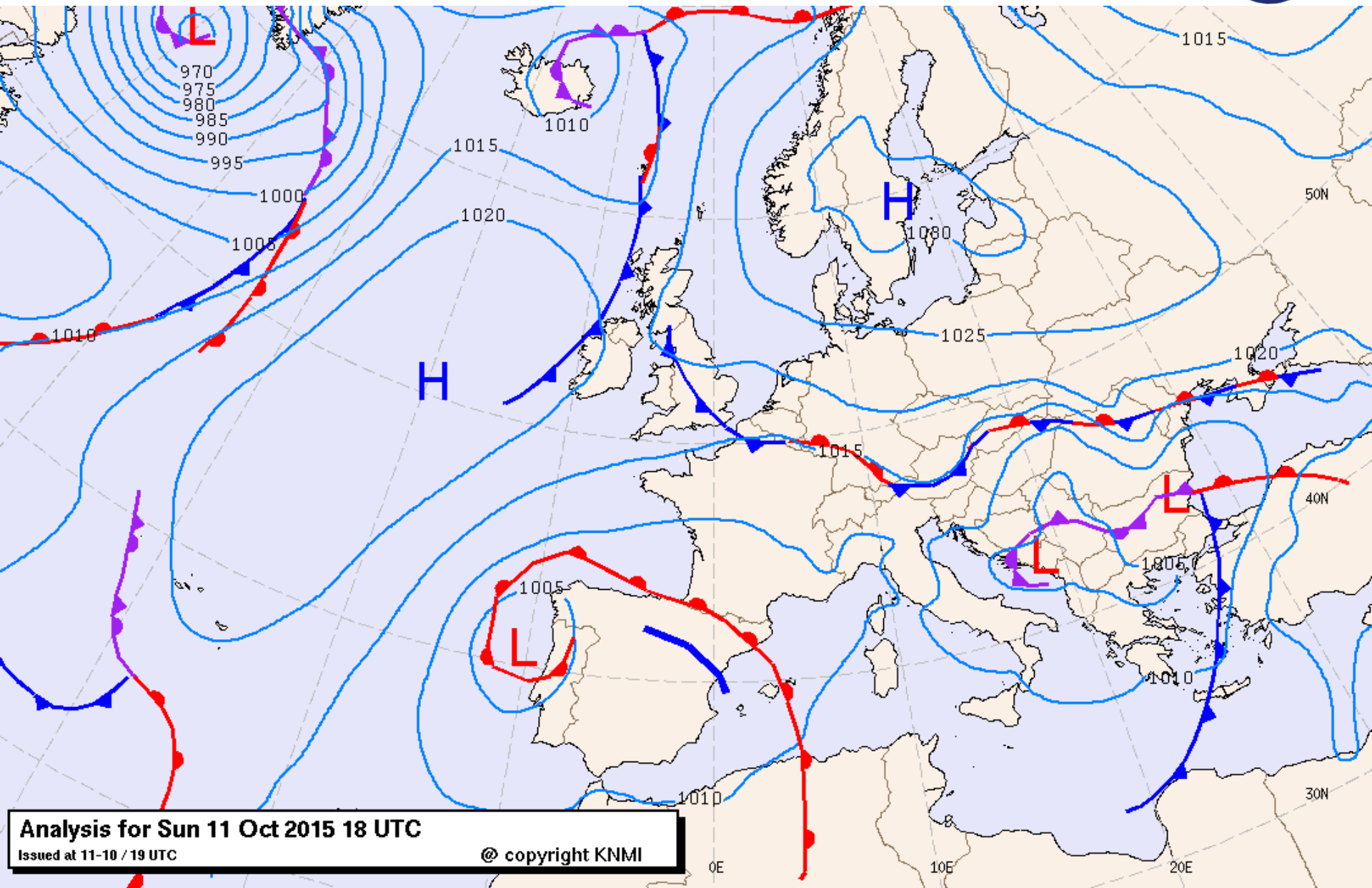








One day winter 2015-10-12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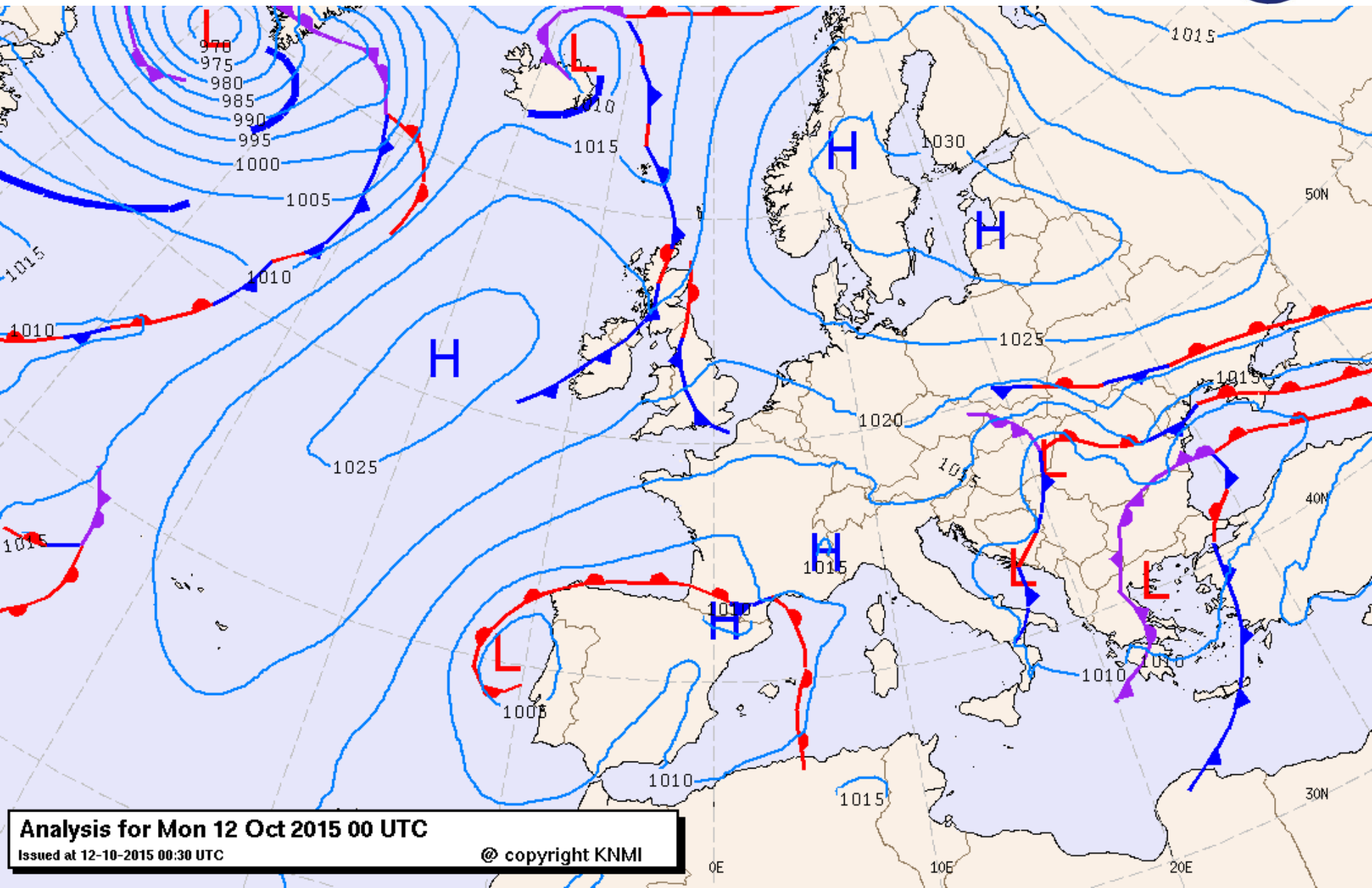
Analysis for Sun 11 Oct 2015 18 UTC
Issued at 11-10 / 19 UTC
@ copyright KNMI


Analysis for Mon 12 Oct 2015 00 UTC
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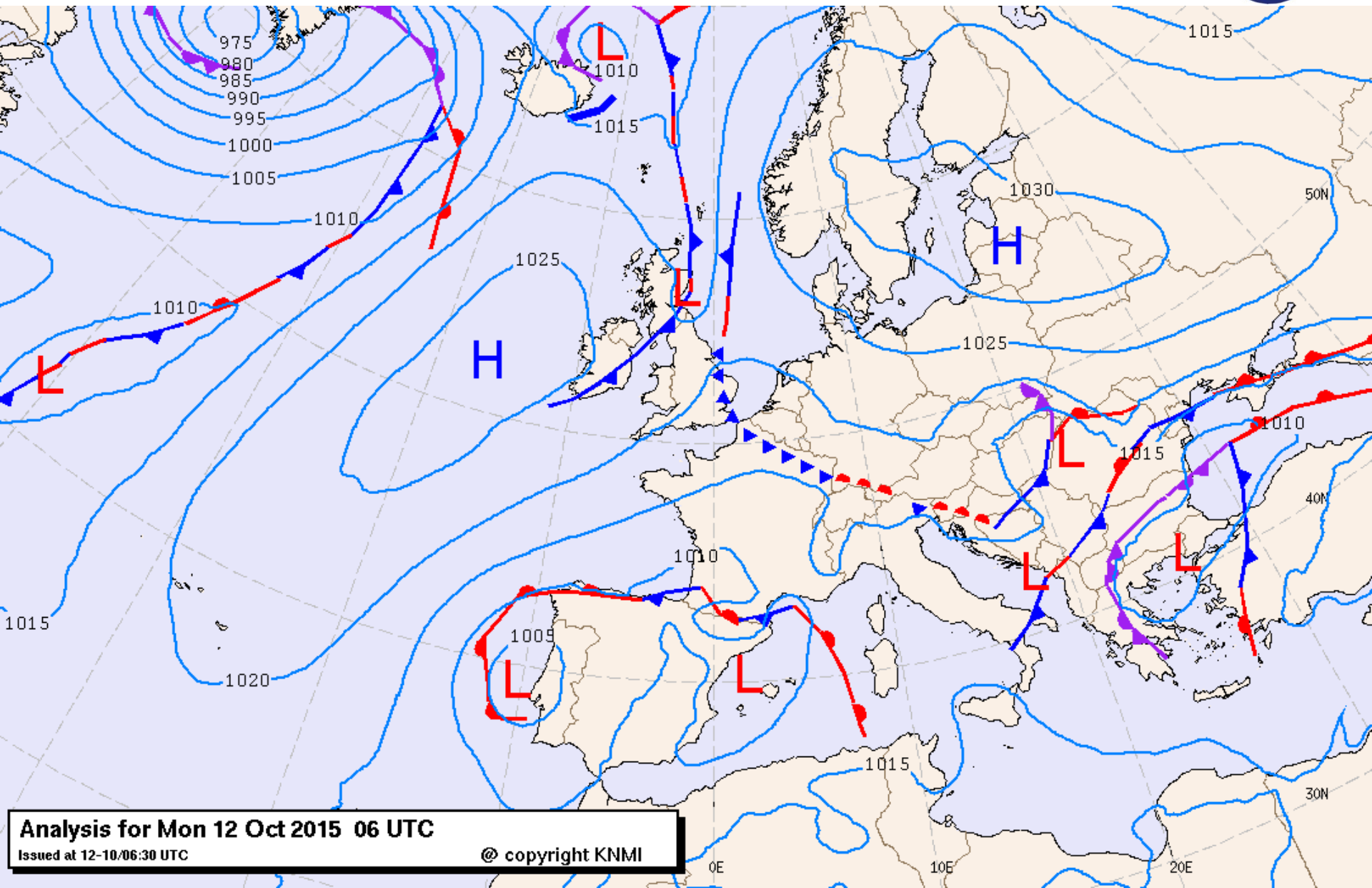
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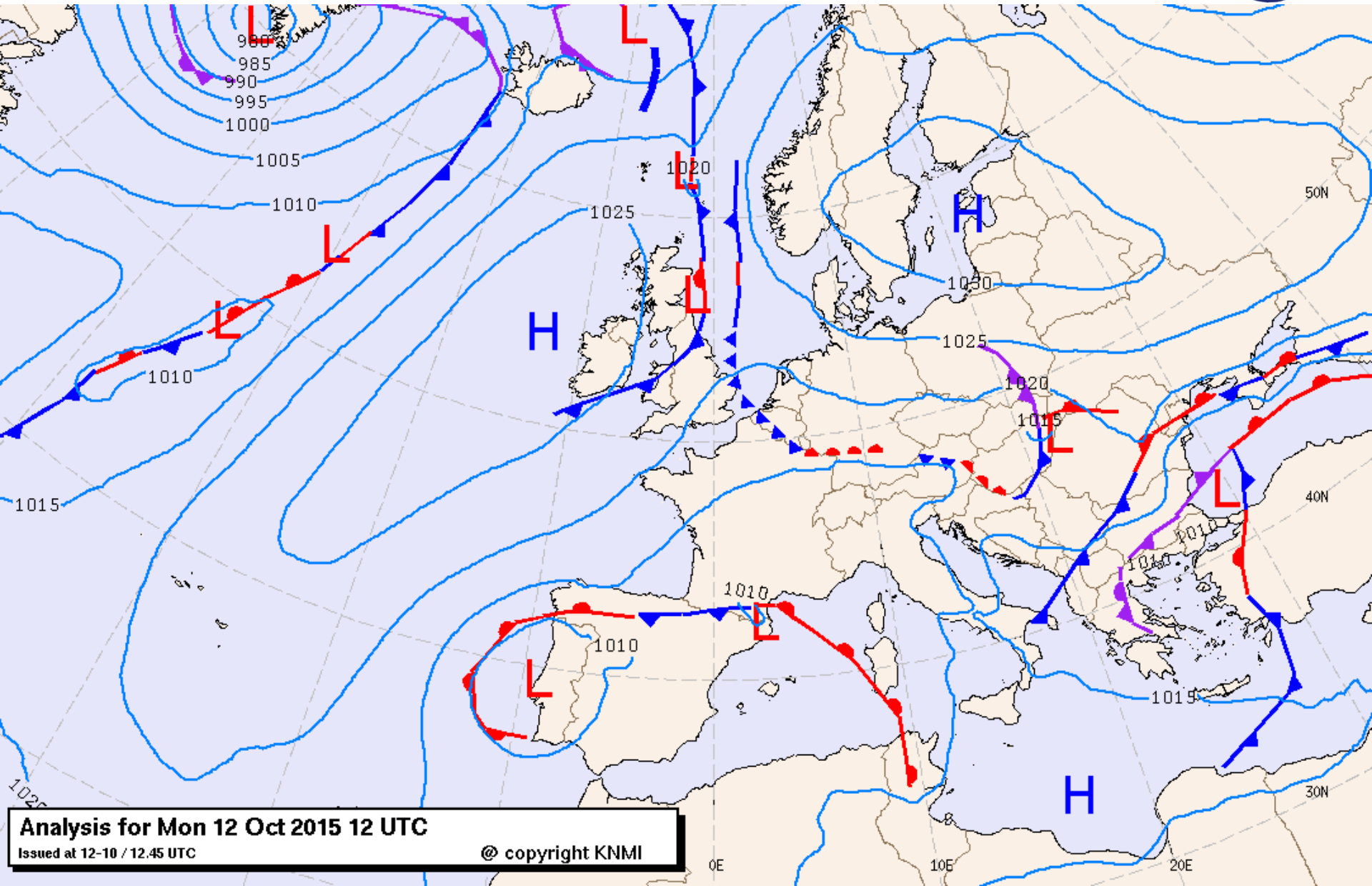
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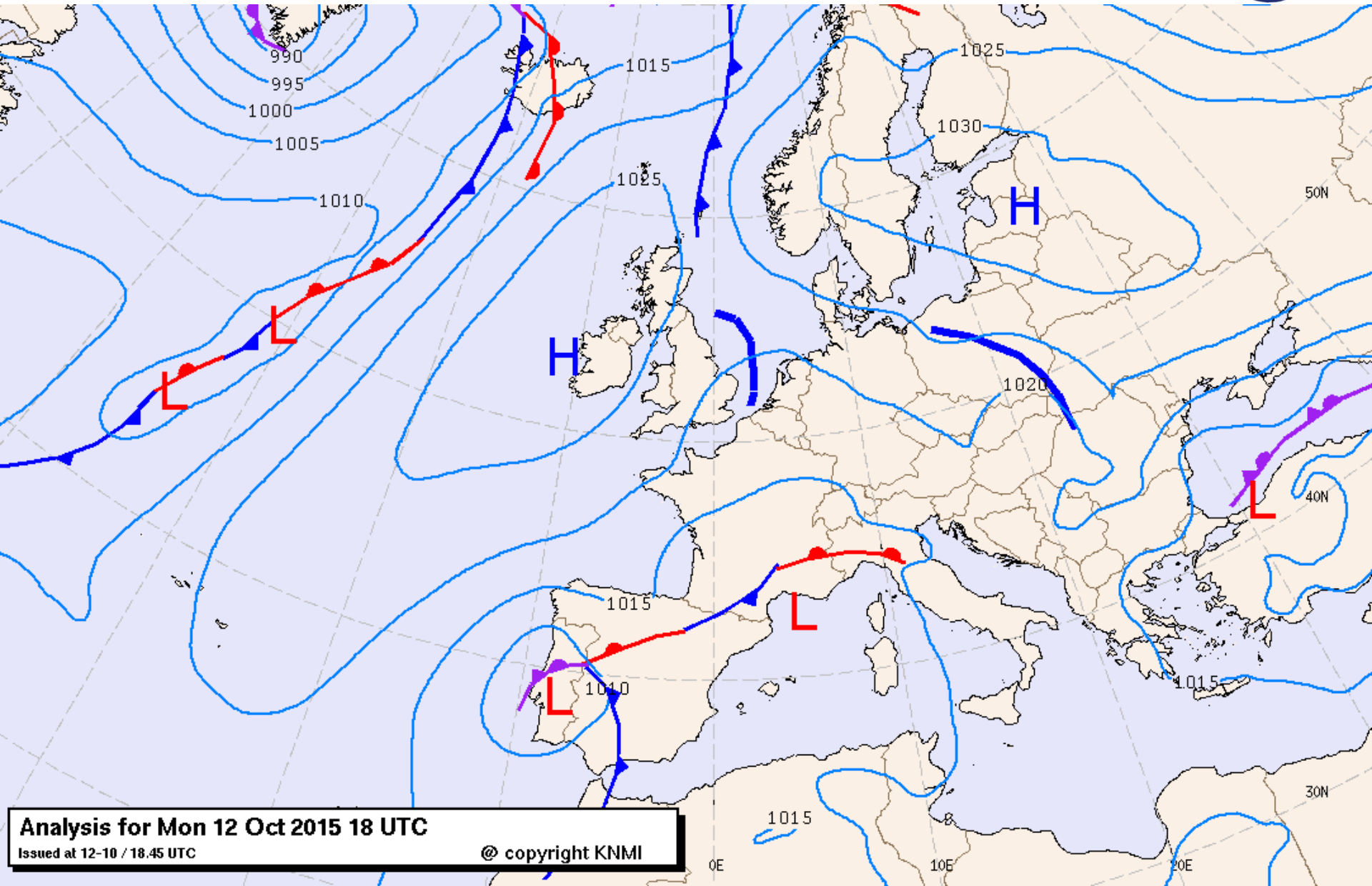
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Analysis for Mon 12 Oct 2015 18 UTC
Issued at 12-10 / 18.45 UTC
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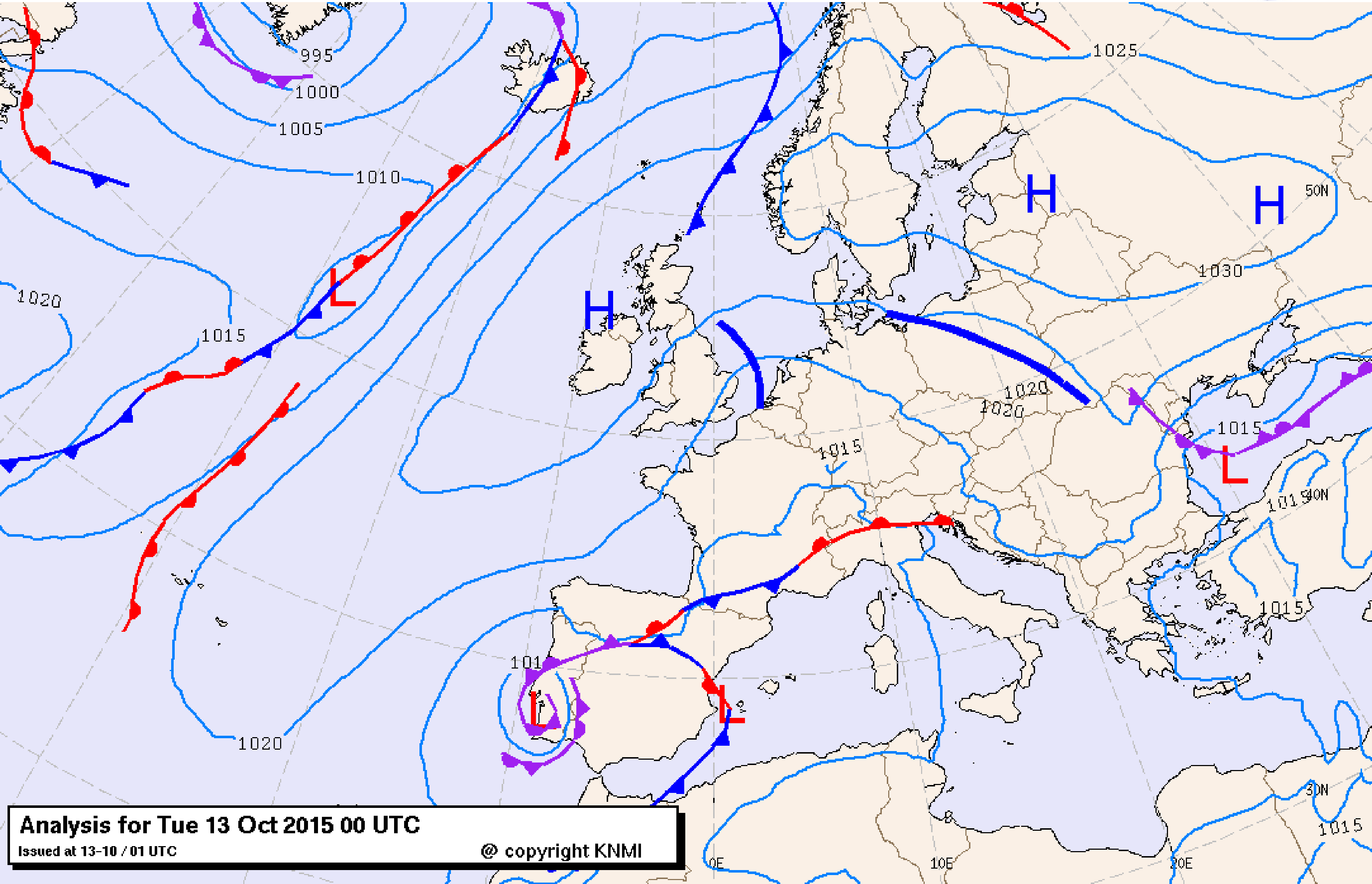
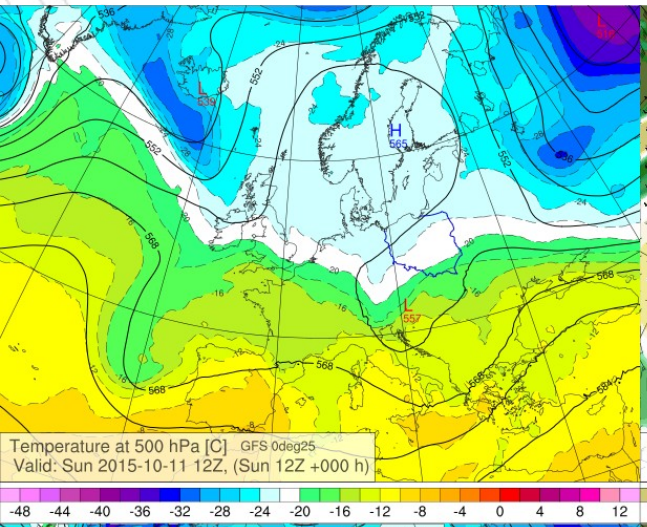
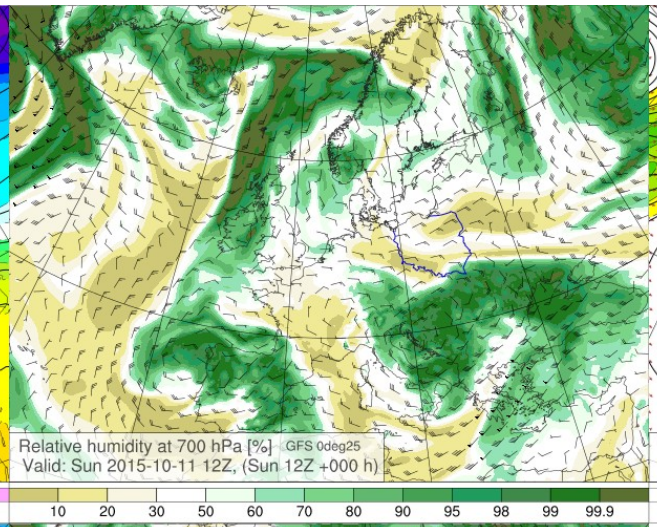
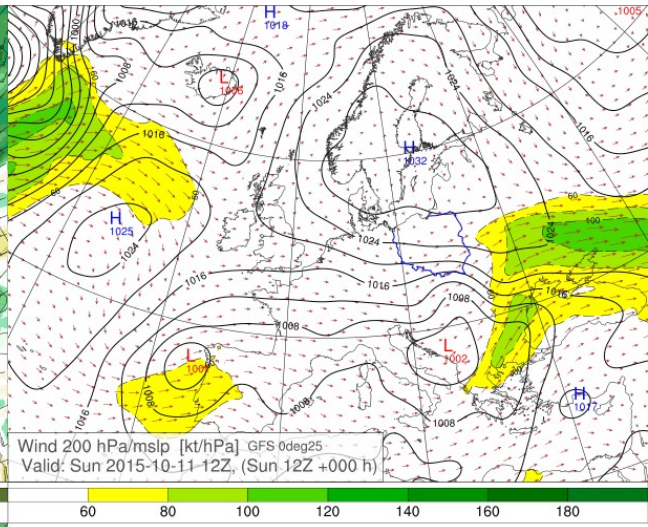
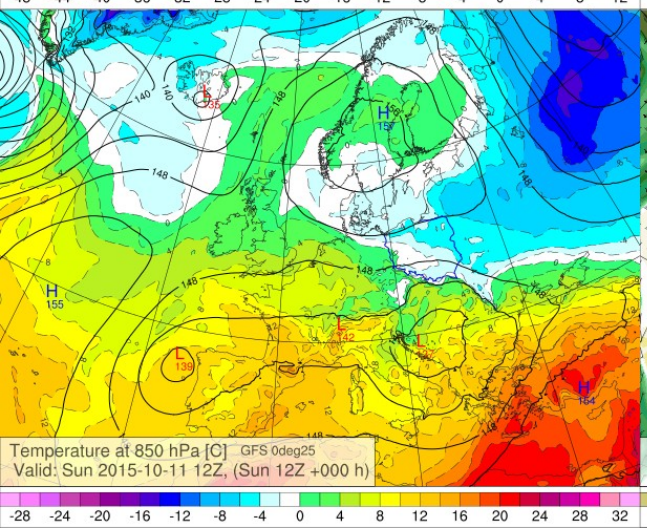


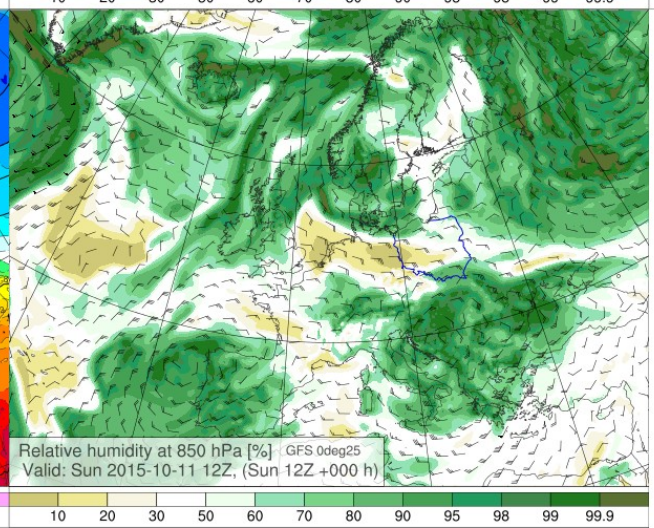
One day winter 2015-10-12











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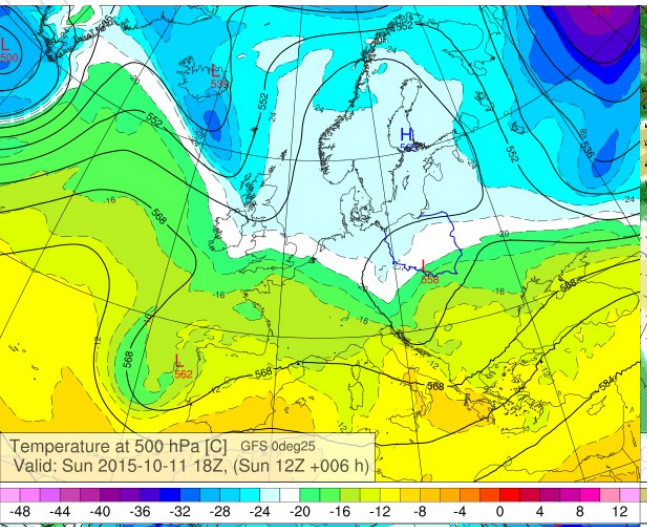

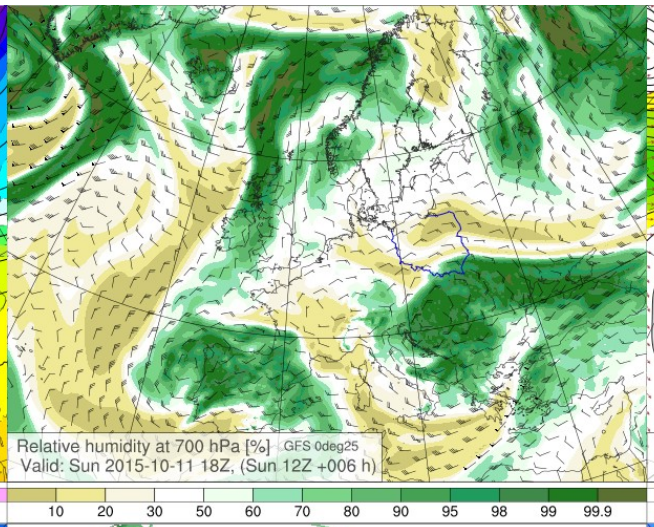

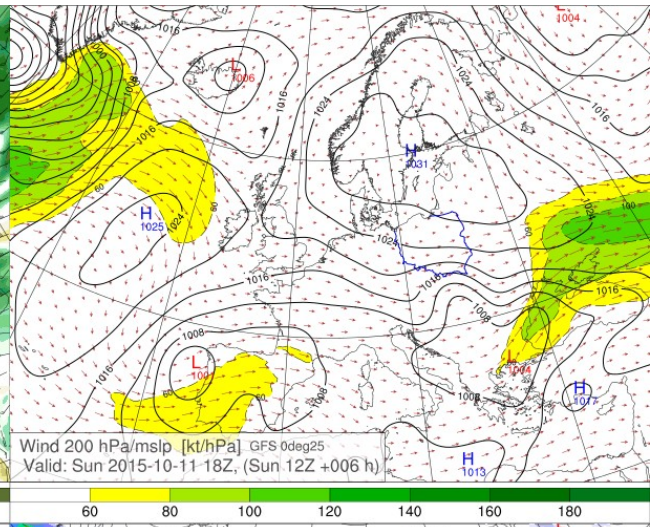

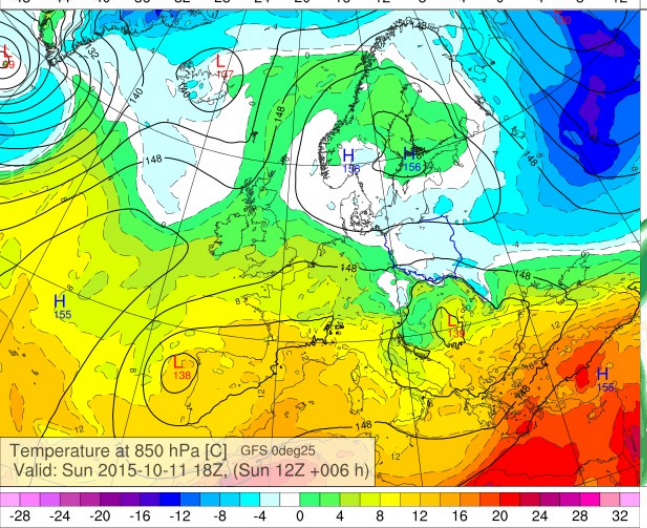

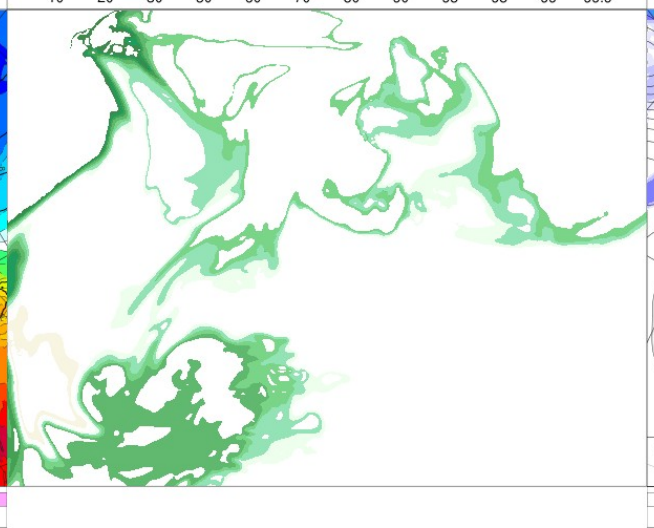

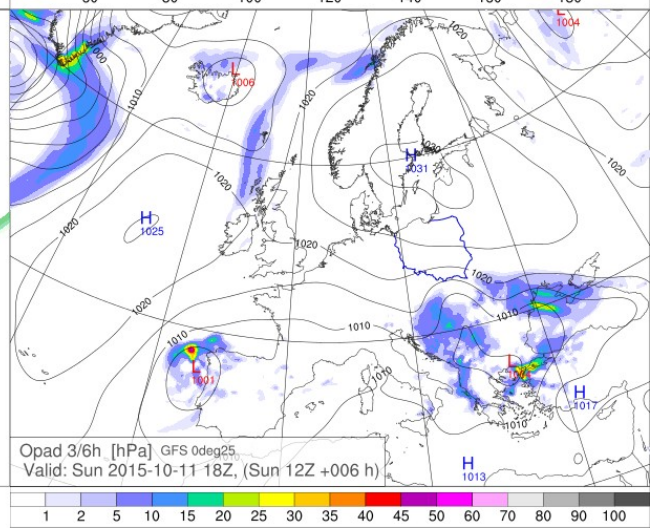

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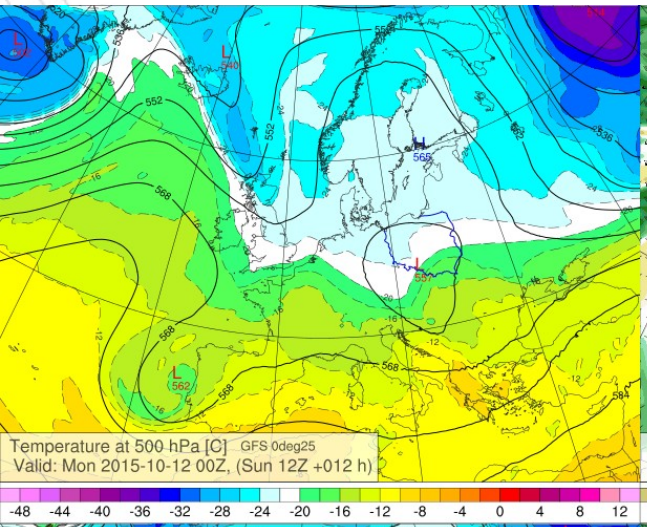
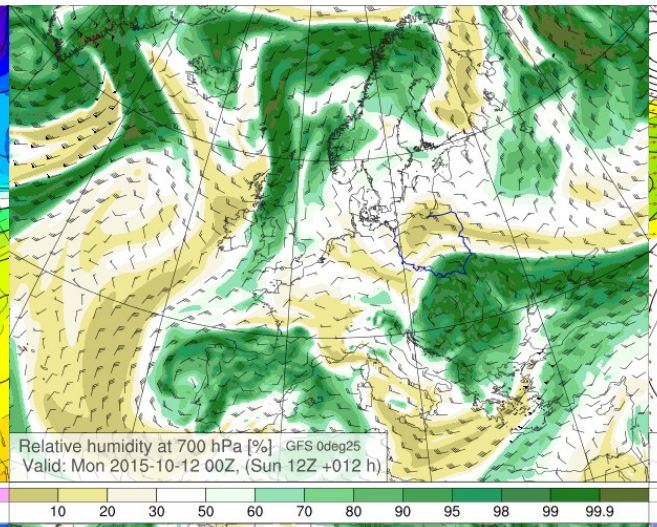
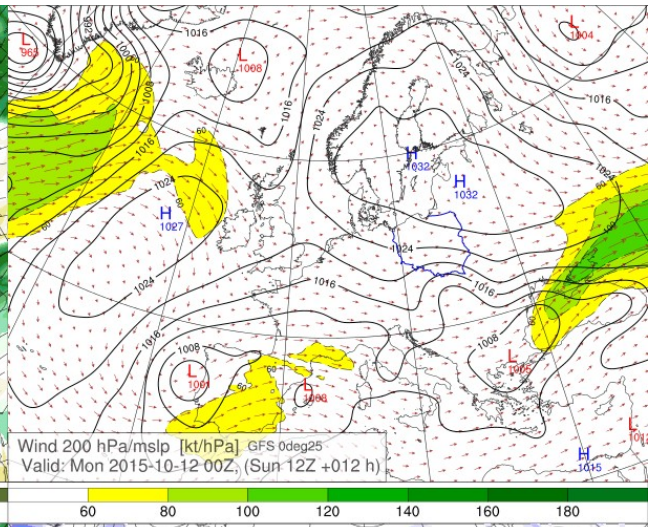
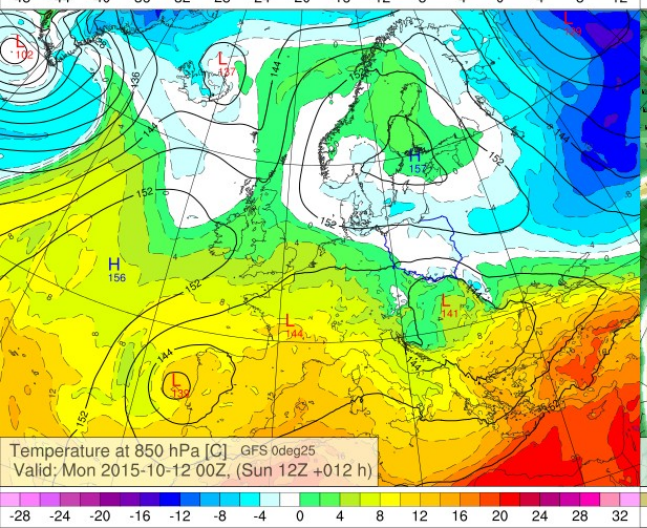
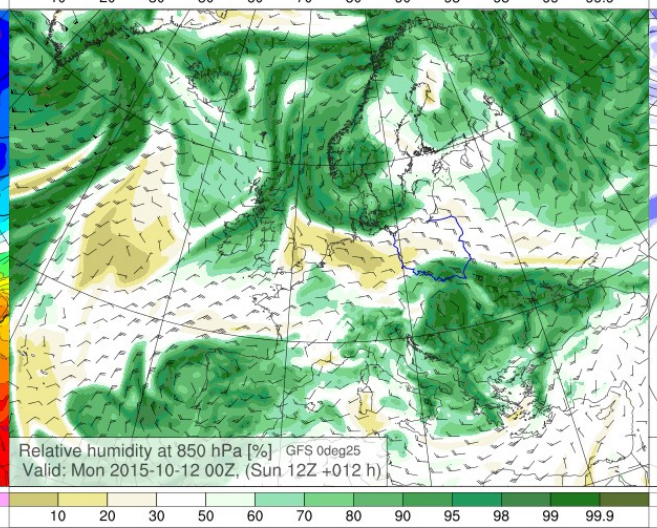
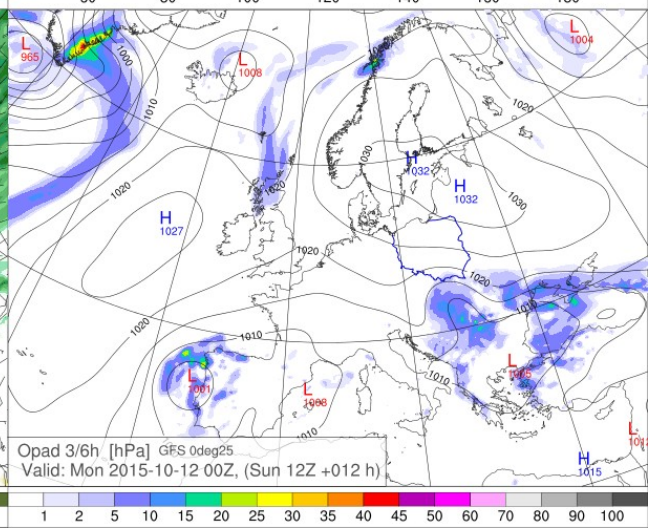




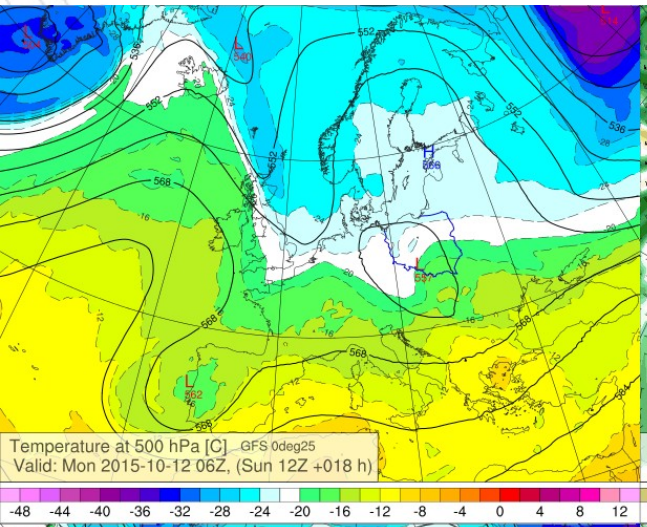


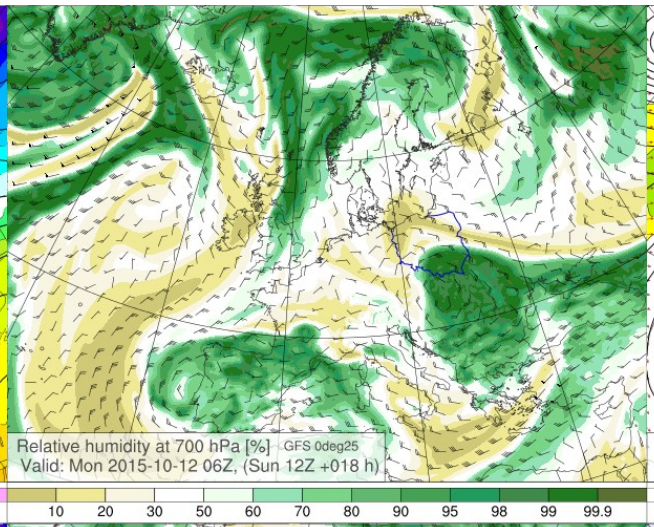


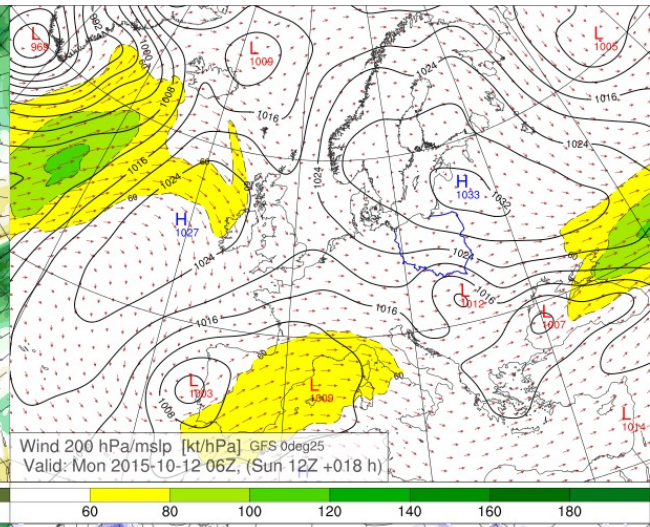


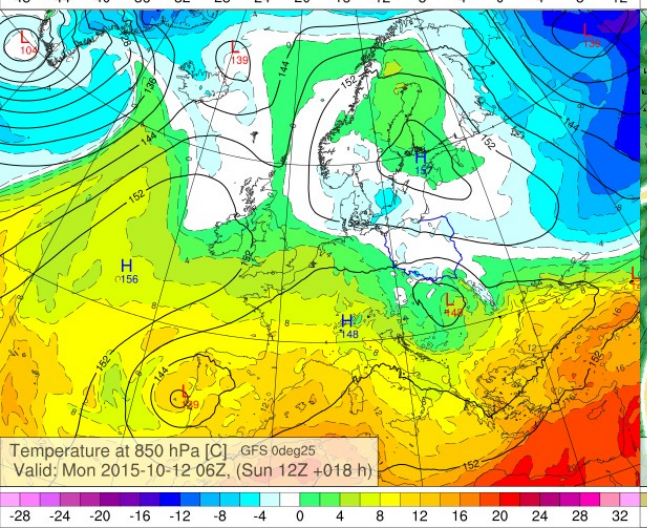


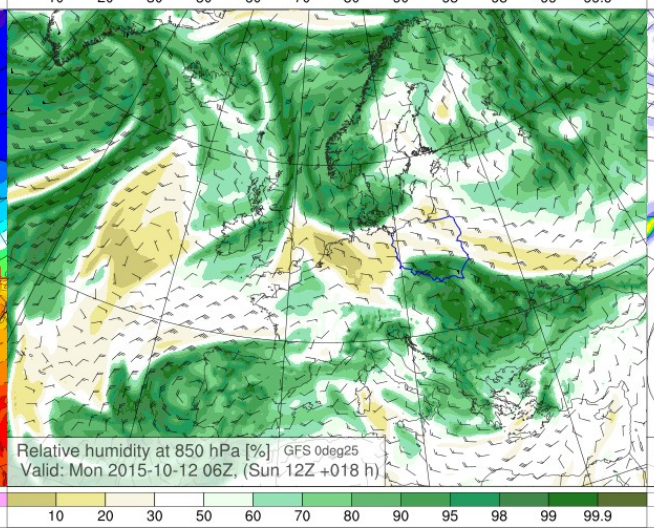
Use of ALADIN numerical products in Polish **Meteorological** Service

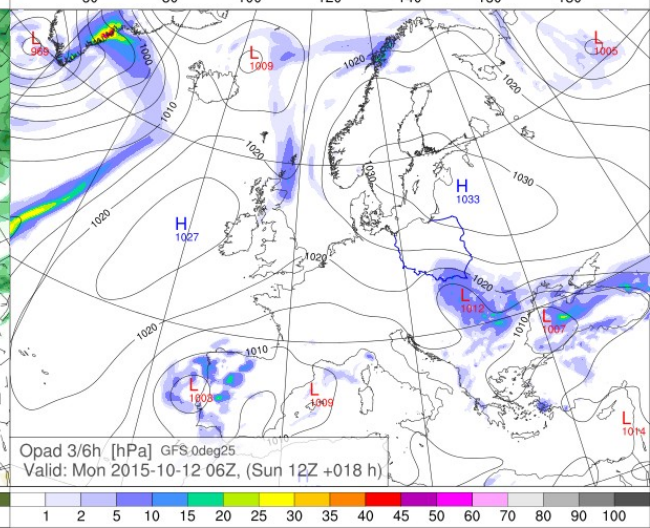




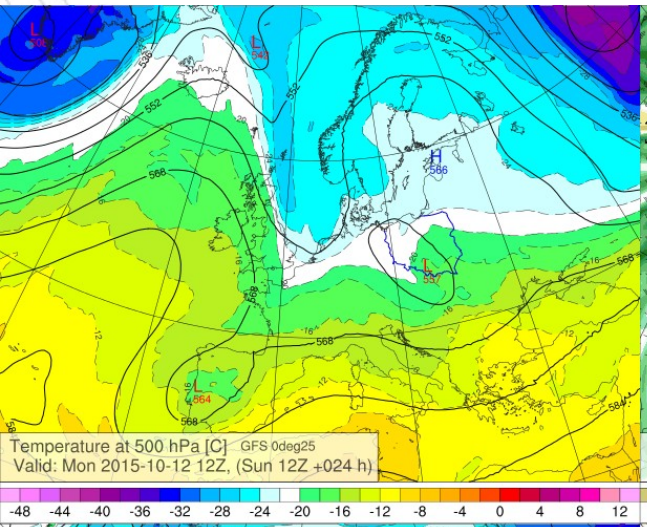


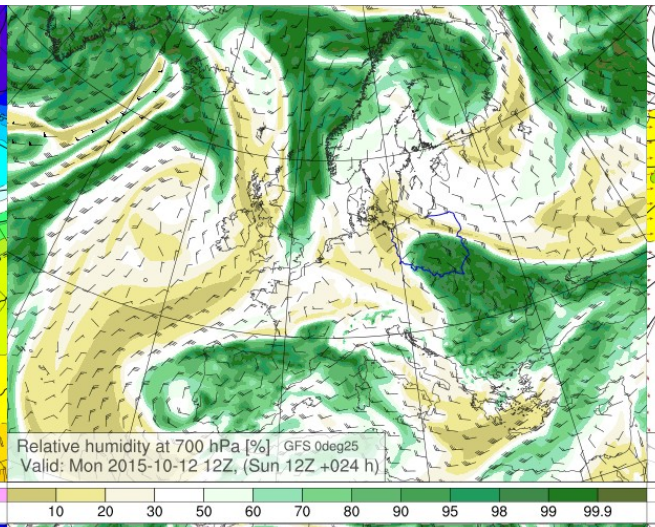


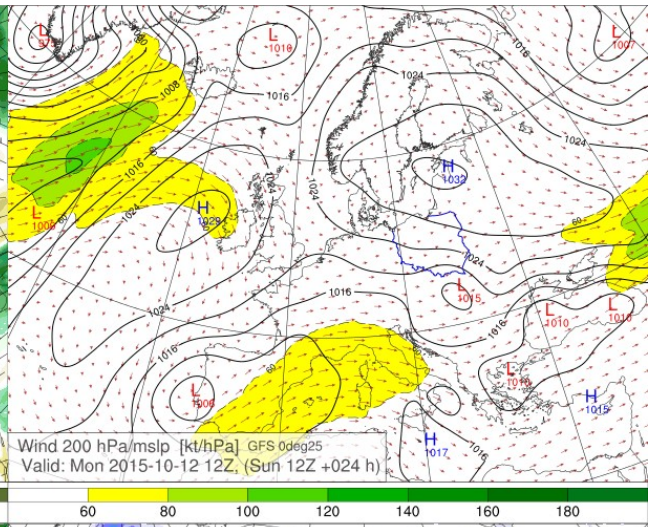


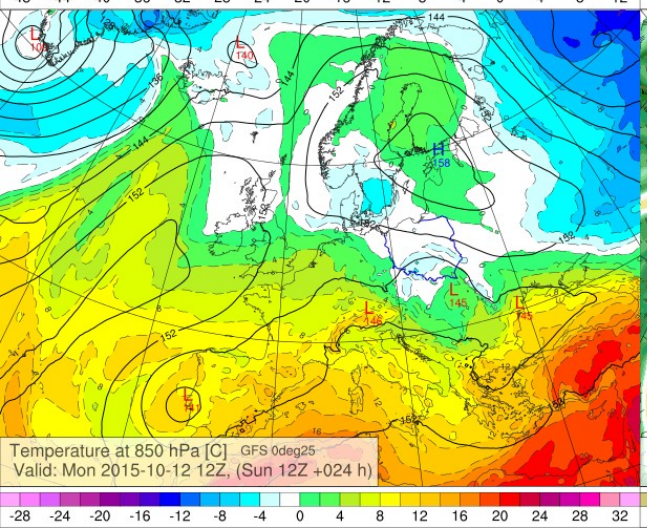


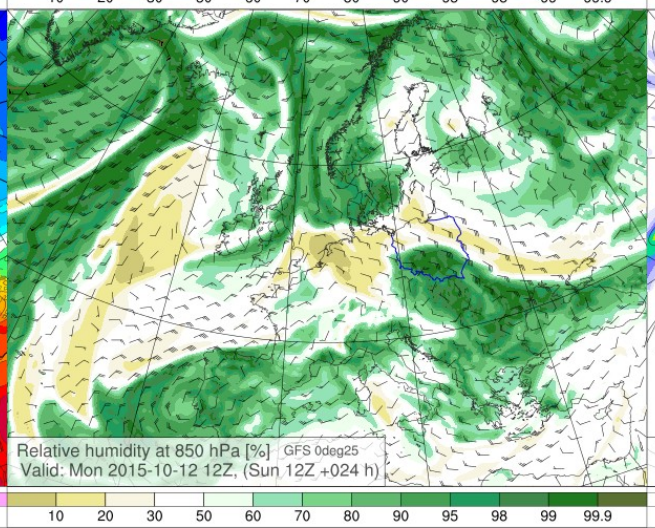
Use of ALADIN numerical products in Polish **Meteorological** Service

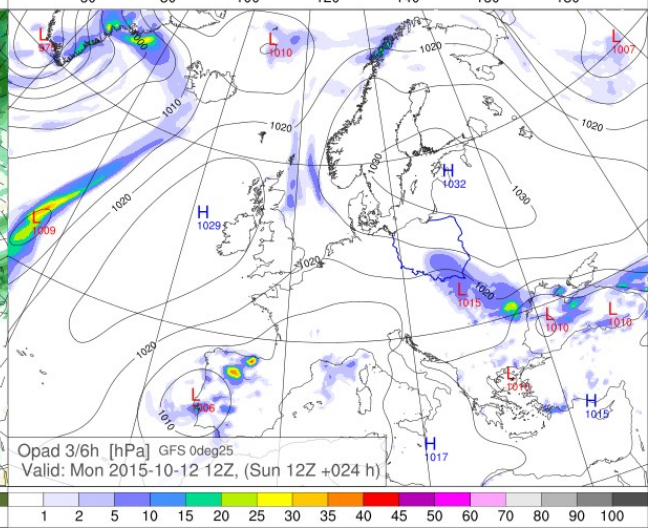




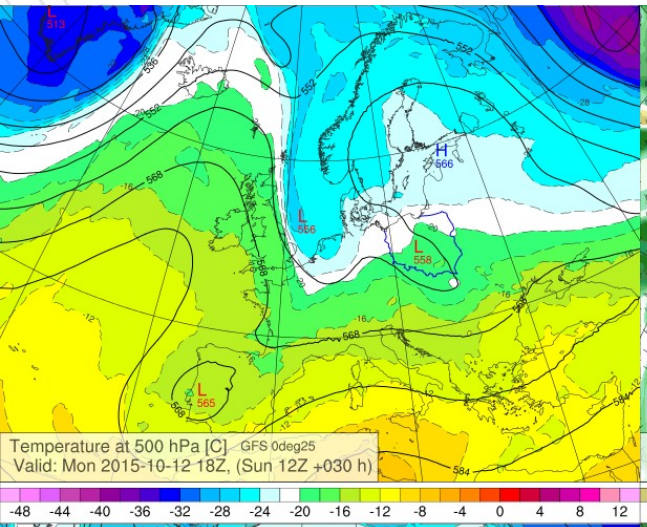


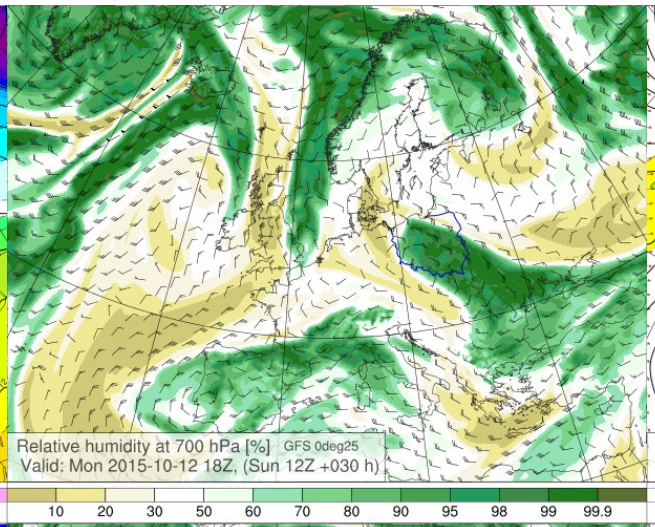


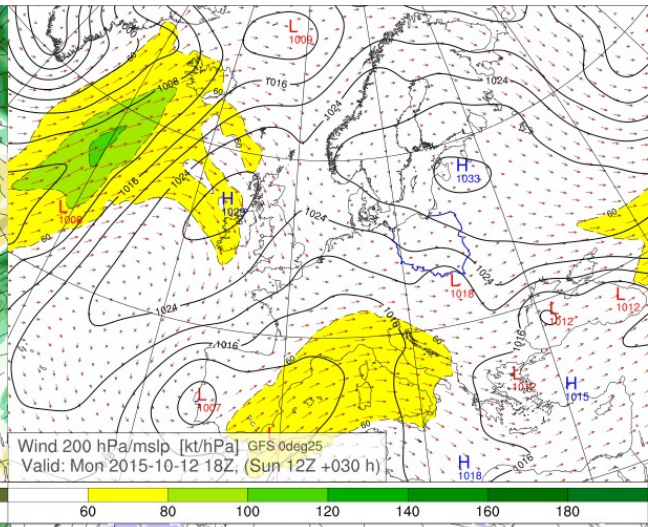


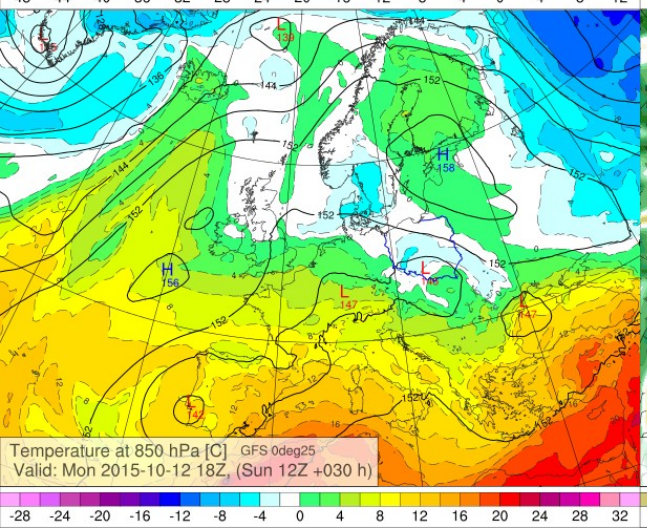


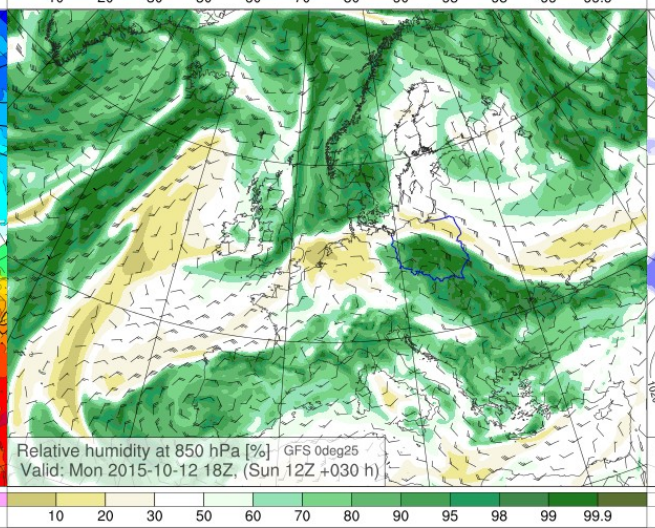
Use of ALADIN numerical products in Polish **Meteorological** Service

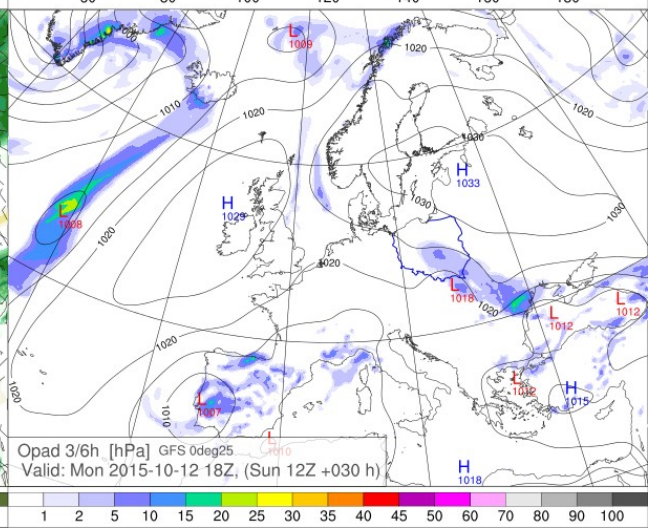




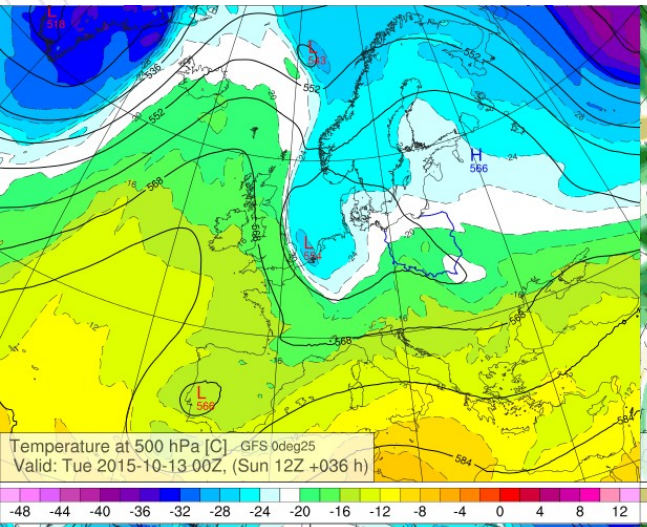


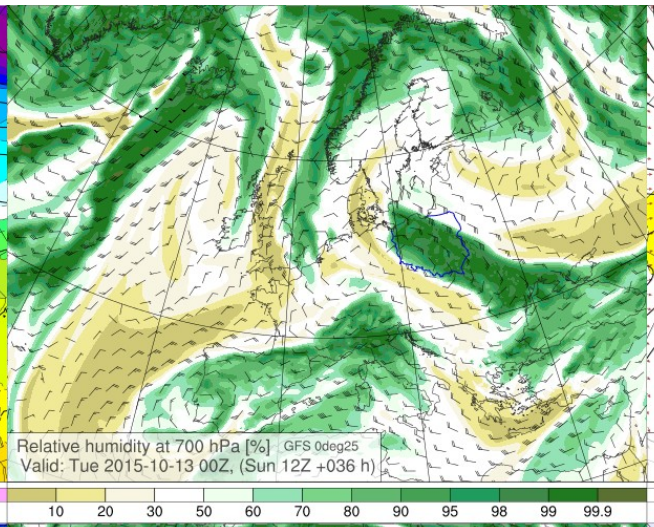


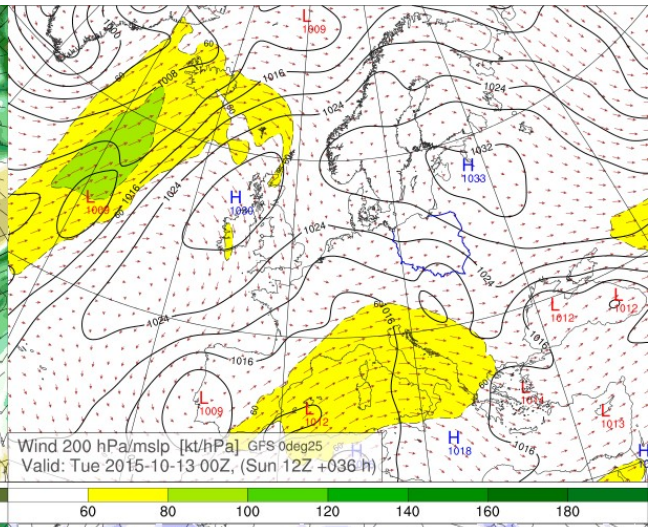


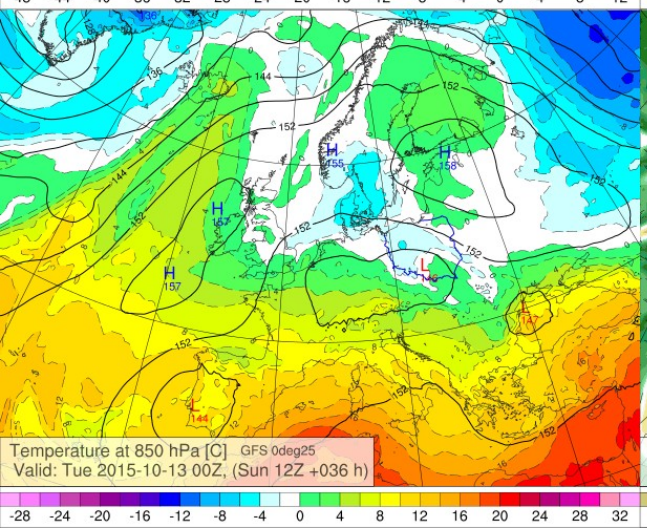


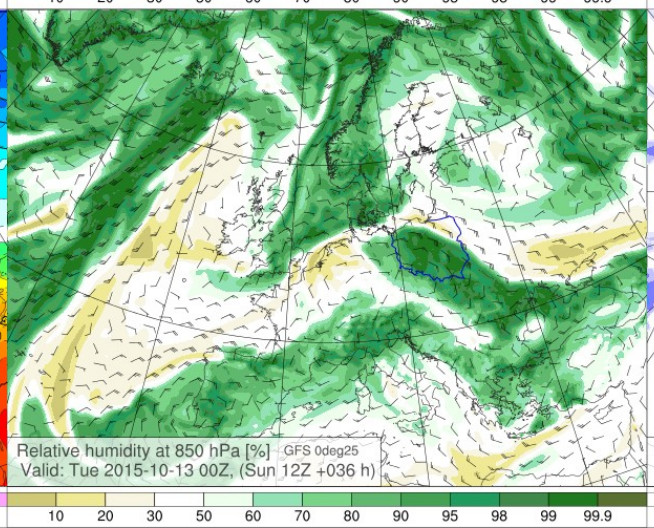
Use of ALADIN numerical products in Polish **Meteorological** Service

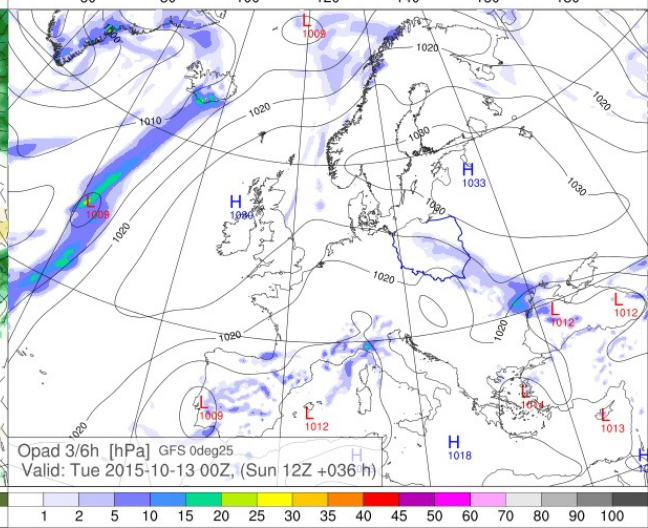




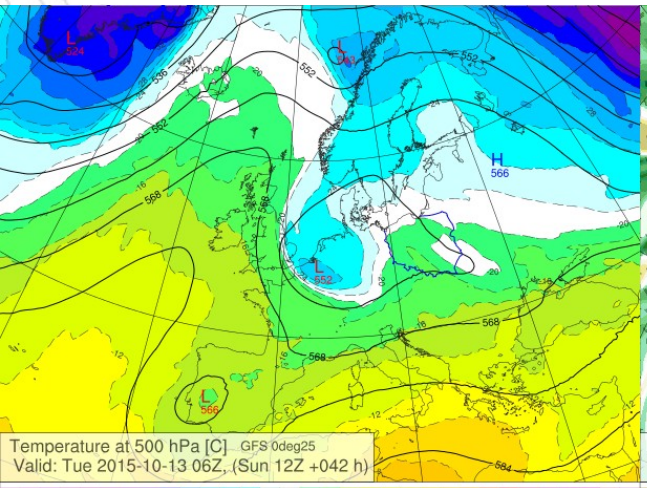


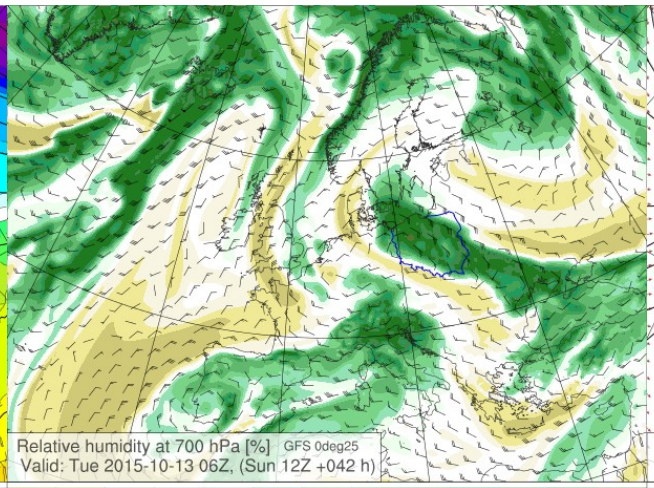


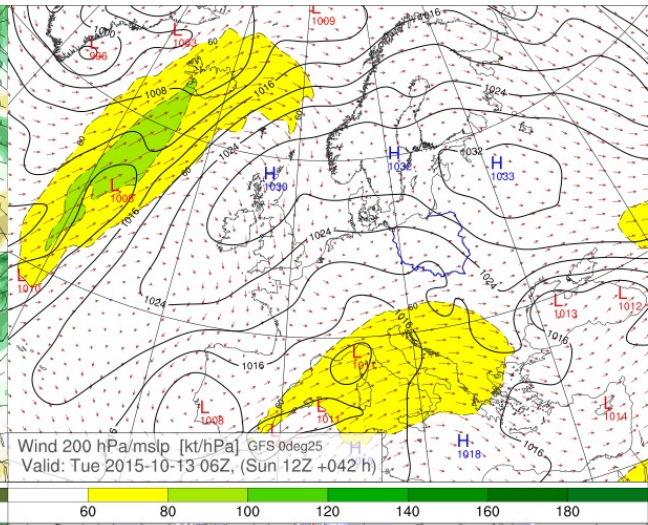


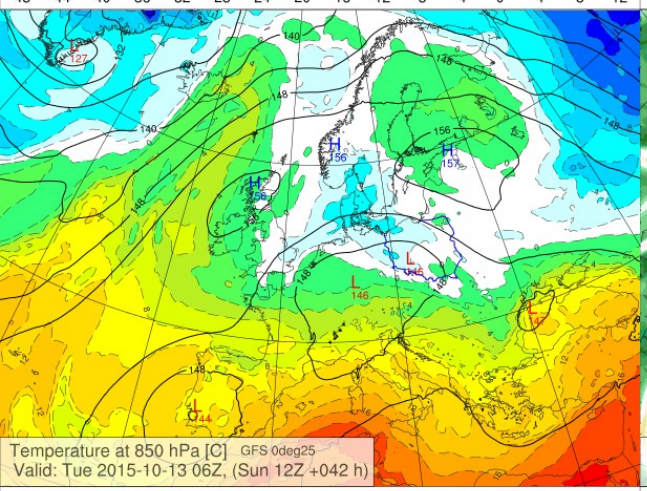


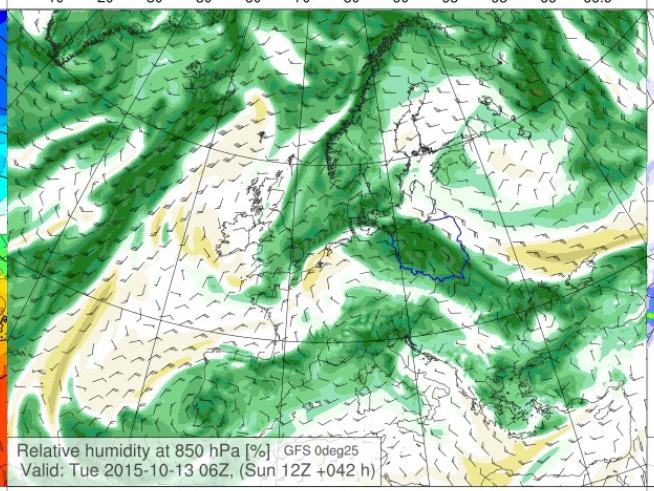
Use of ALADIN numerical products in Polish **Meteorological** Service

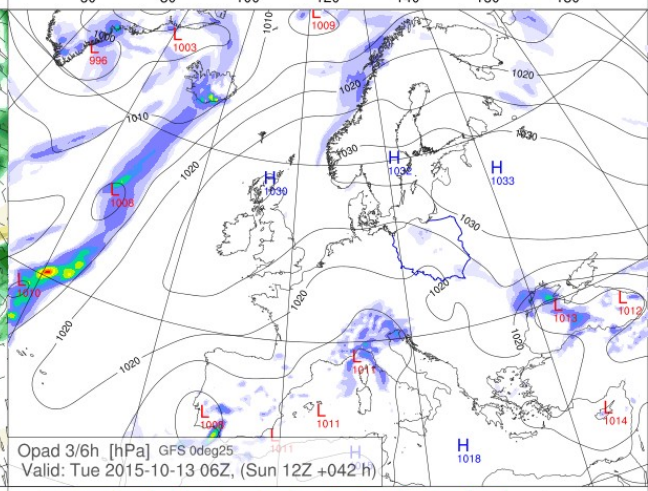




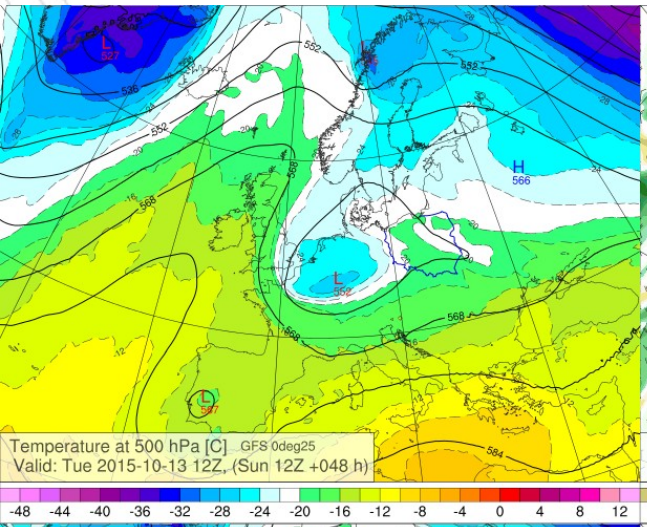


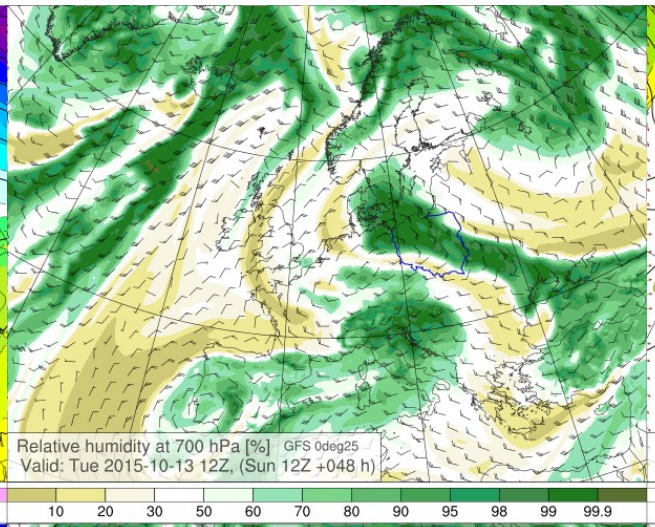


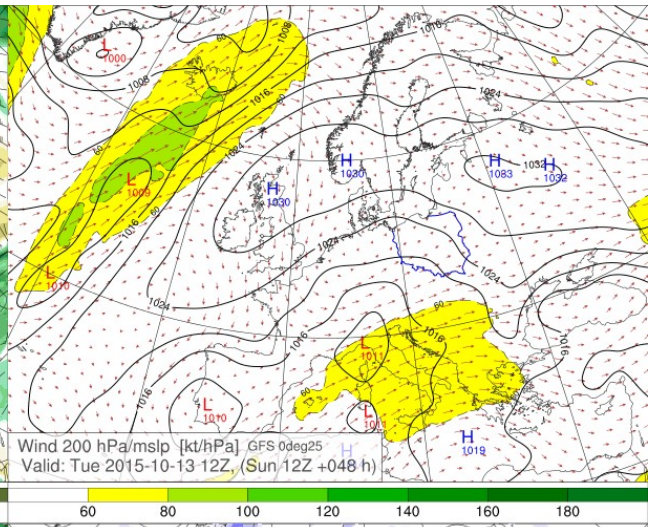


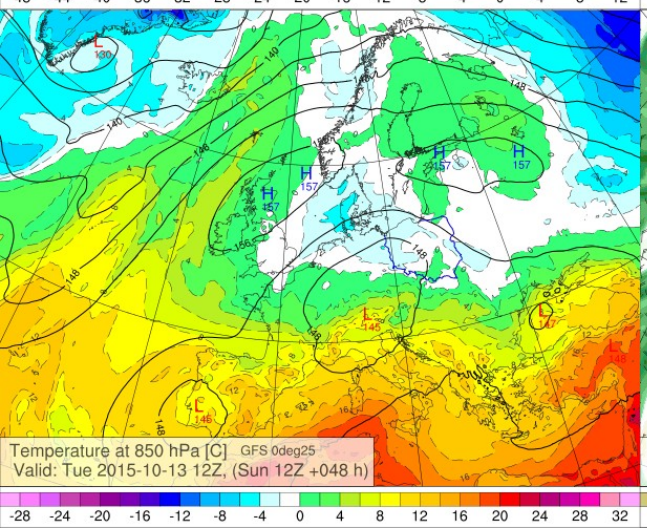


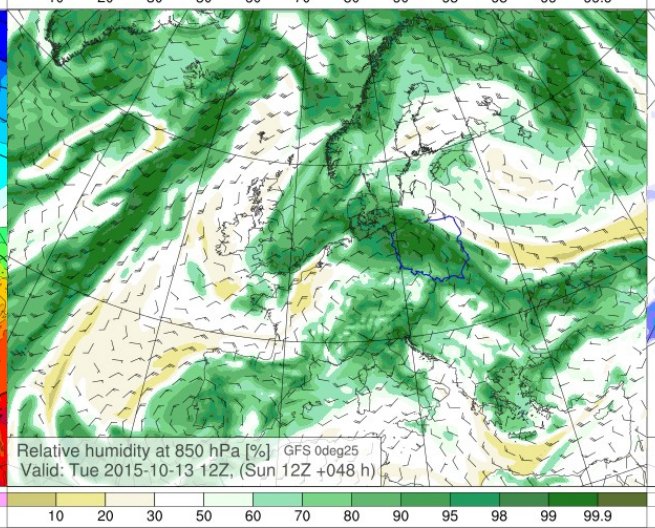
Use of ALADIN numerical products in Polish **Meteorological** Service

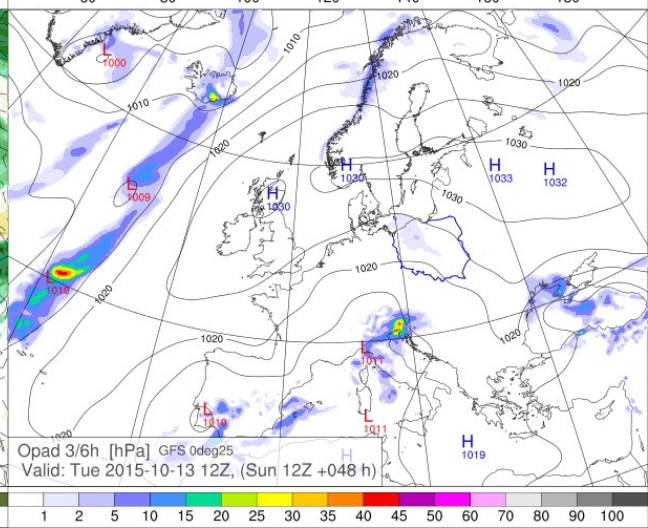




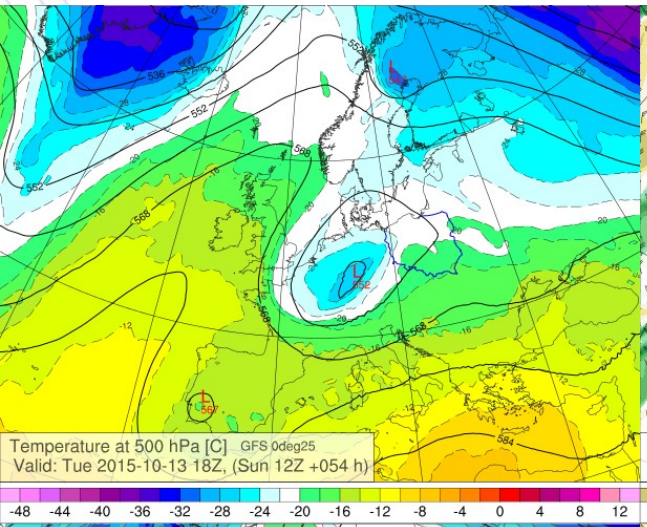


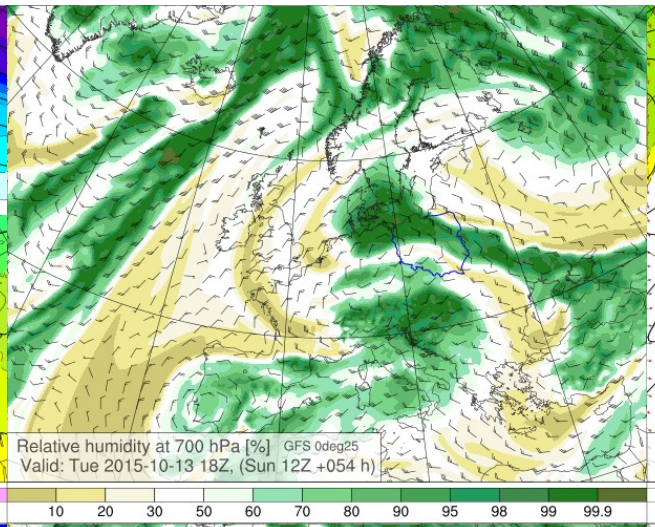


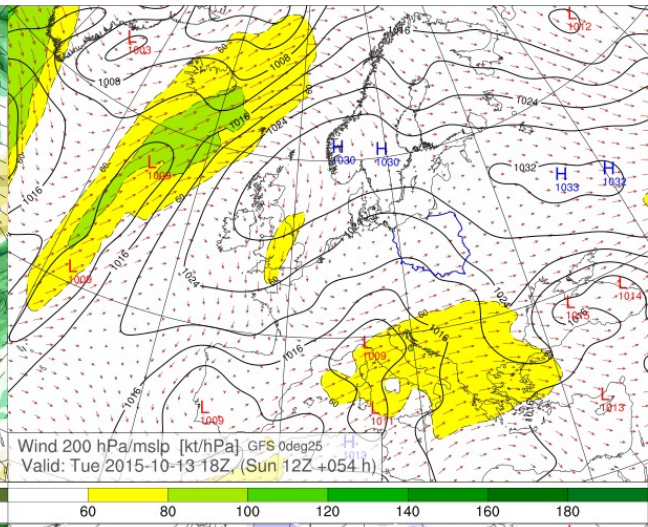


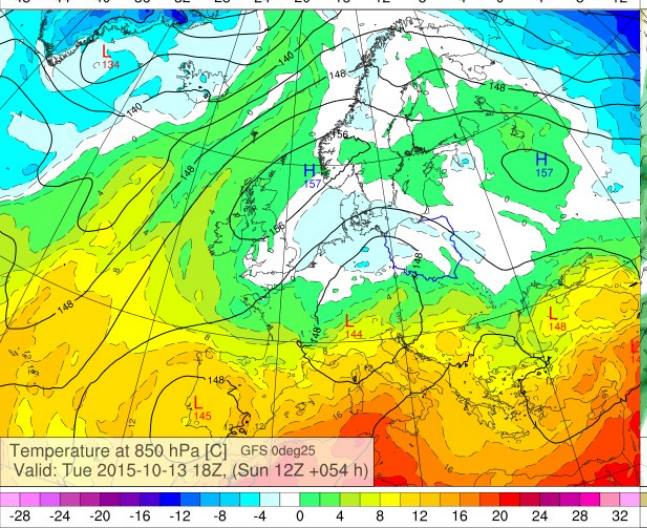


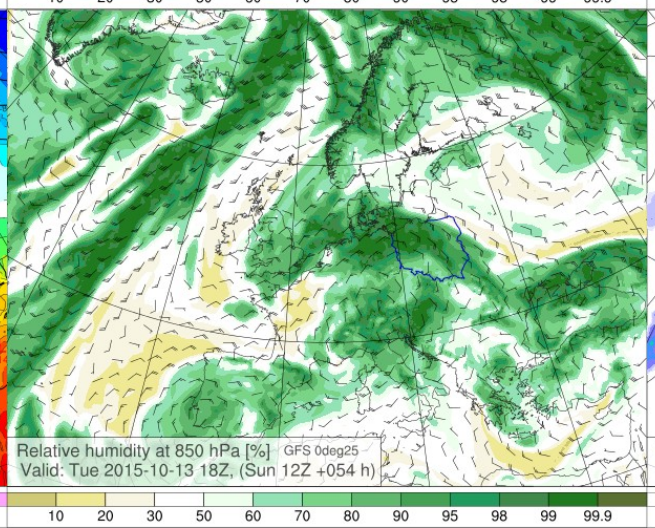
Use of ALADIN numerical products in Polish **Meteorological** Service

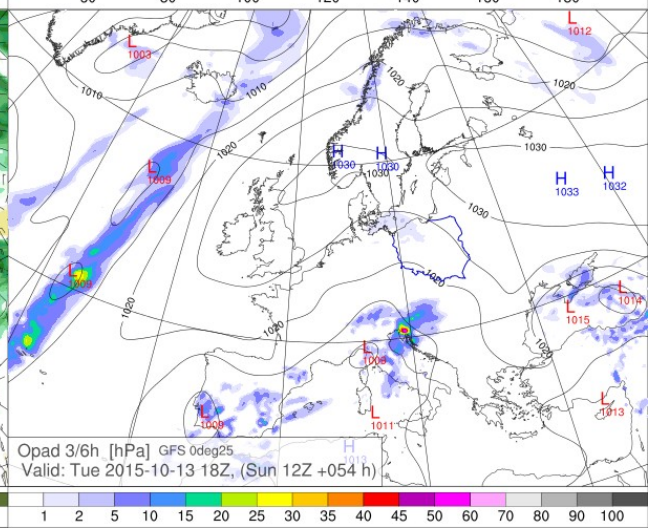






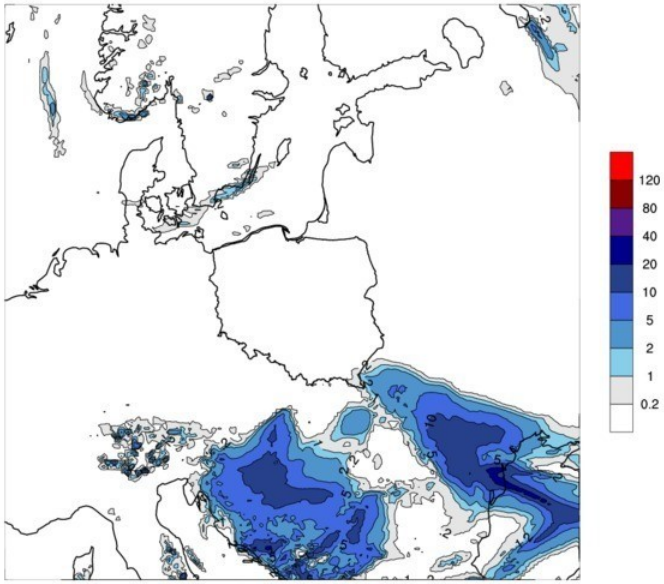






prognoza wazna na / forecast valid for
Sunday 11 October 2015 18:00 UTC

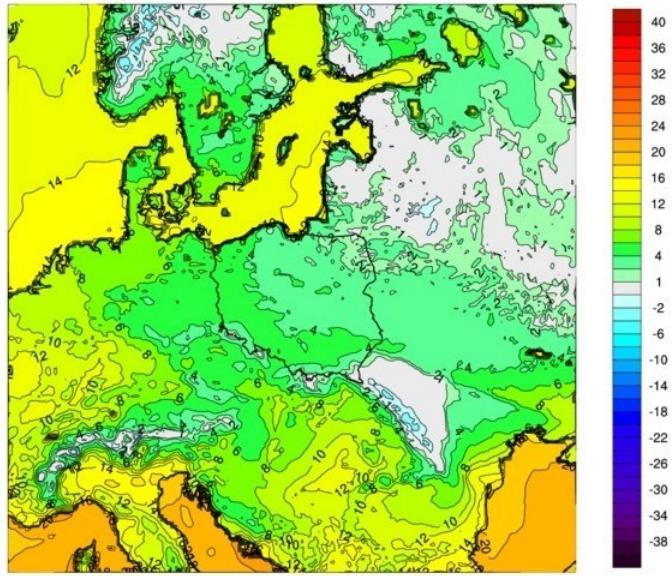
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Sunday 11 October 2015 18:00 UTC

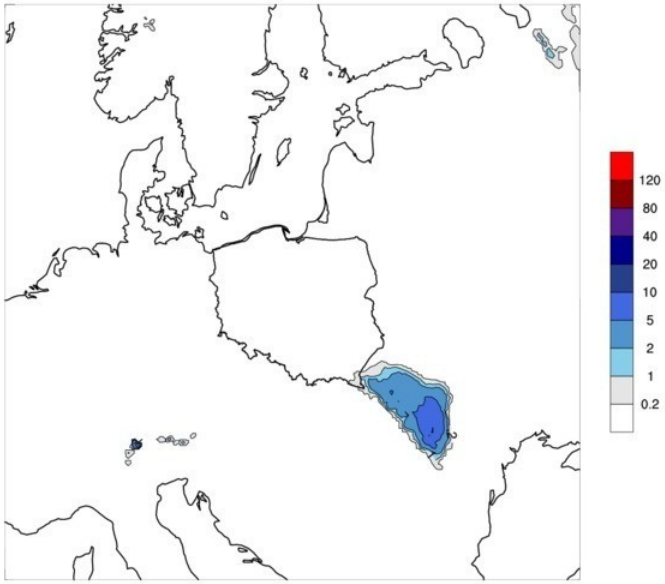
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Sunday 11 October 2015 18:00 UTC

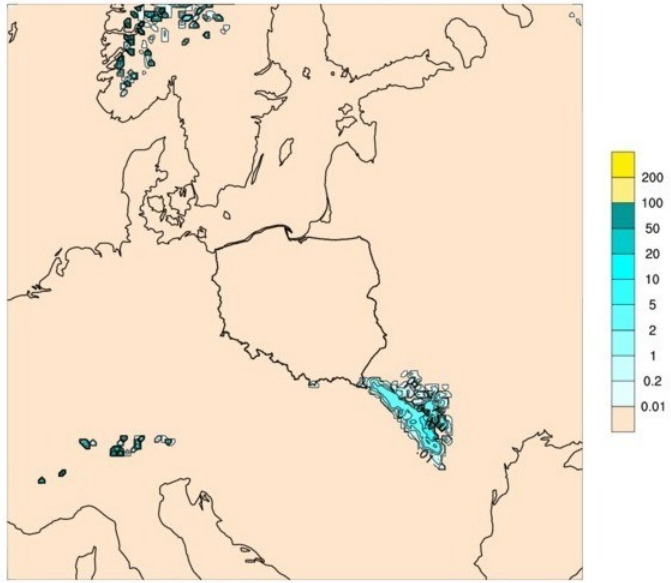
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Sunday 11 October 2015 18:00 UTC

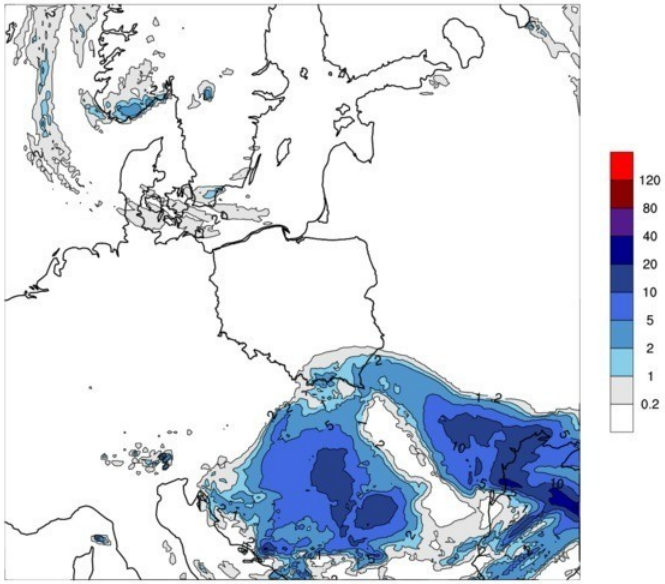
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 00:00 UTC

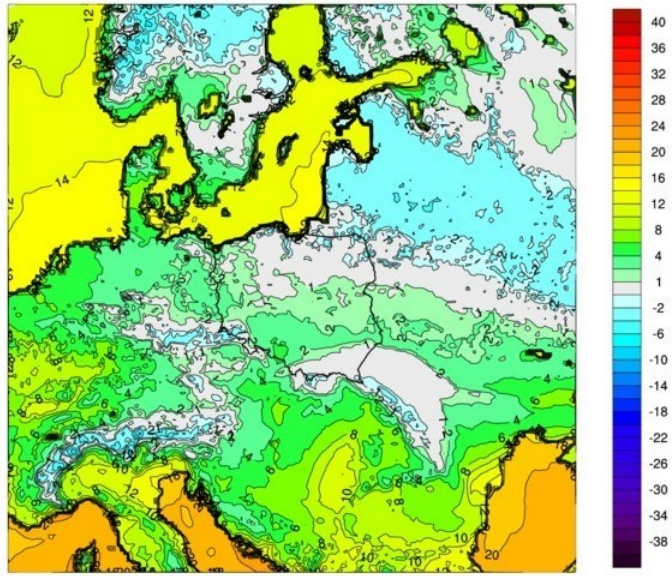
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 00:00 UTC

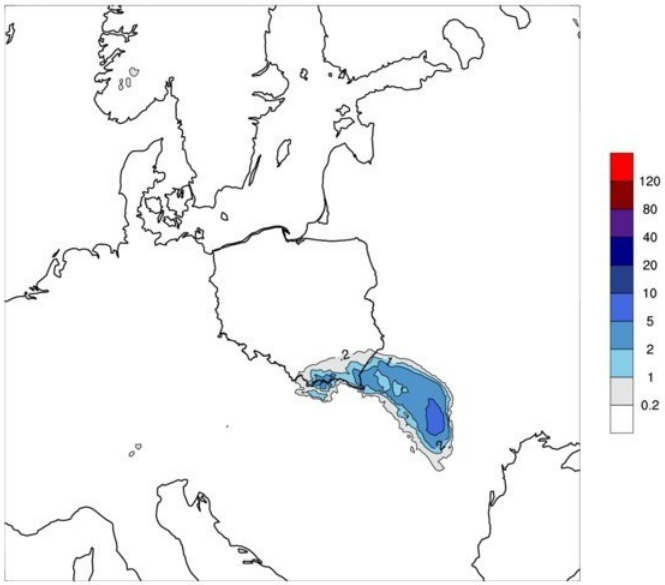
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 00:00 UTC

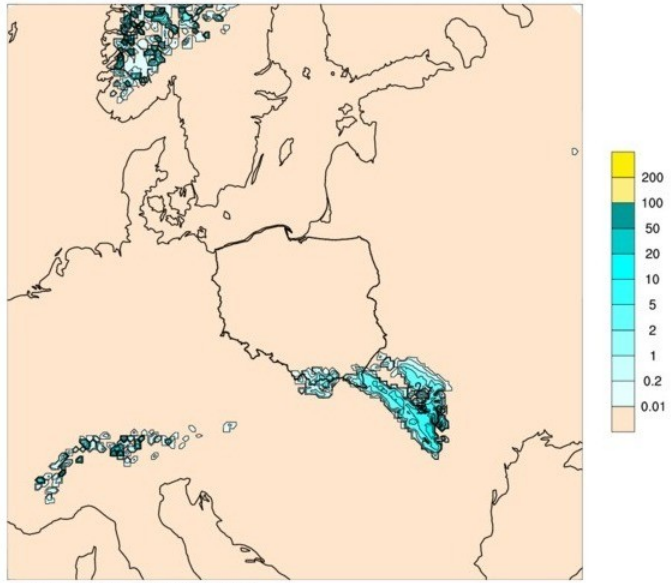
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 00:00 UTC

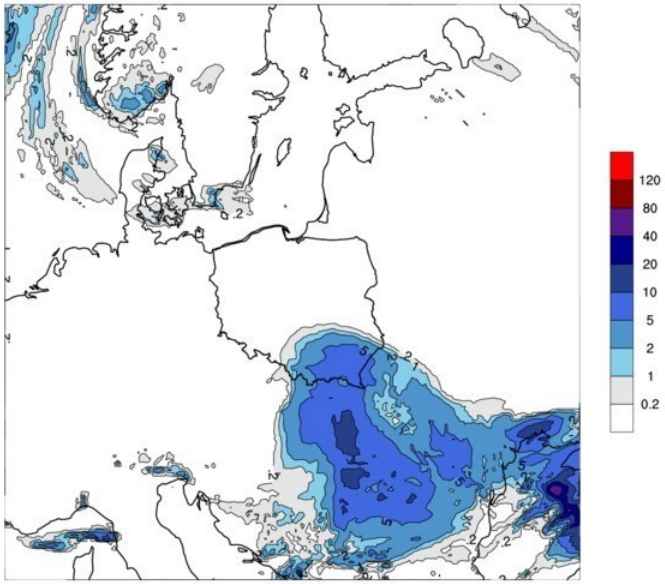
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 06:00 UTC

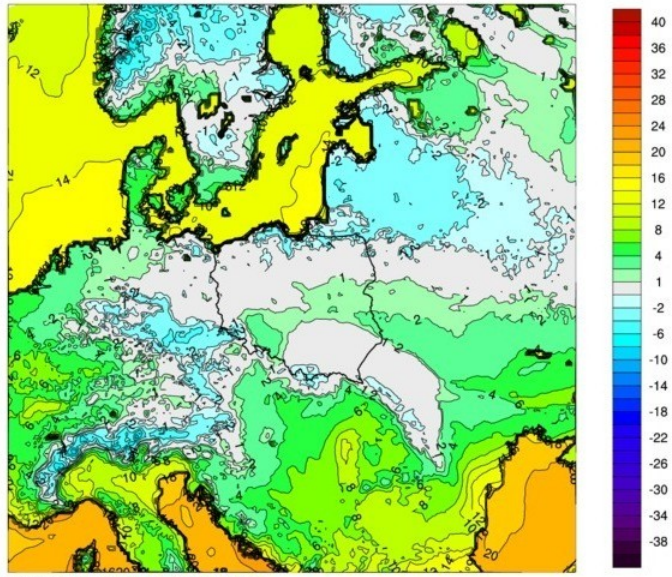
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 06:00 UTC

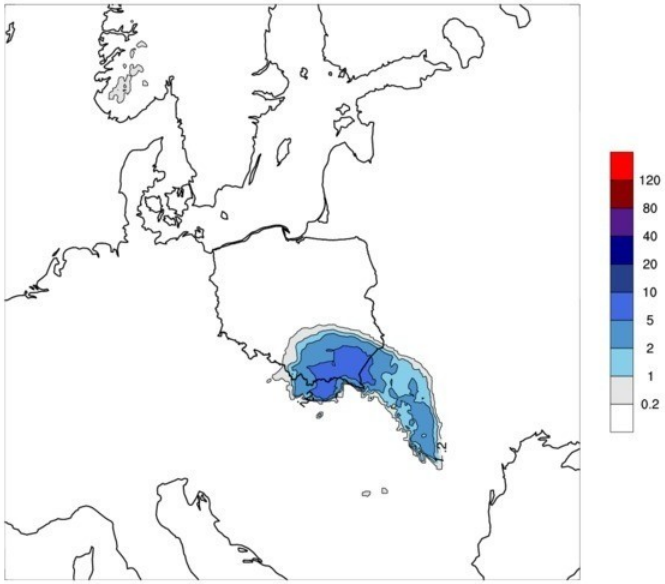
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 06:00 UTC

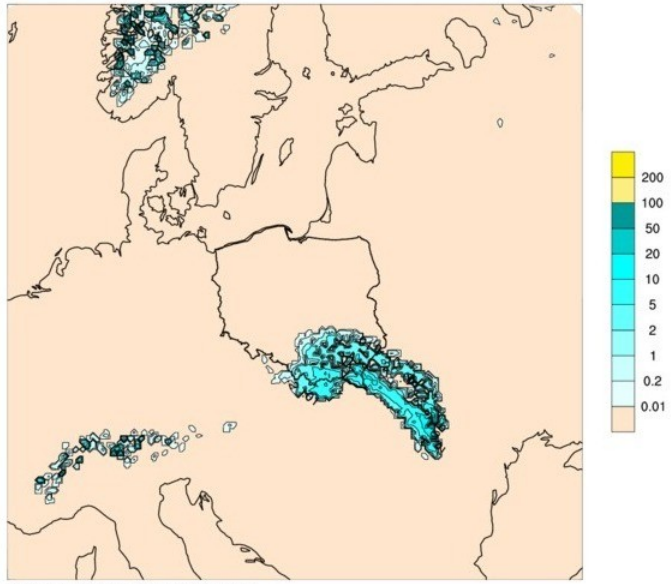
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 06:00 UTC

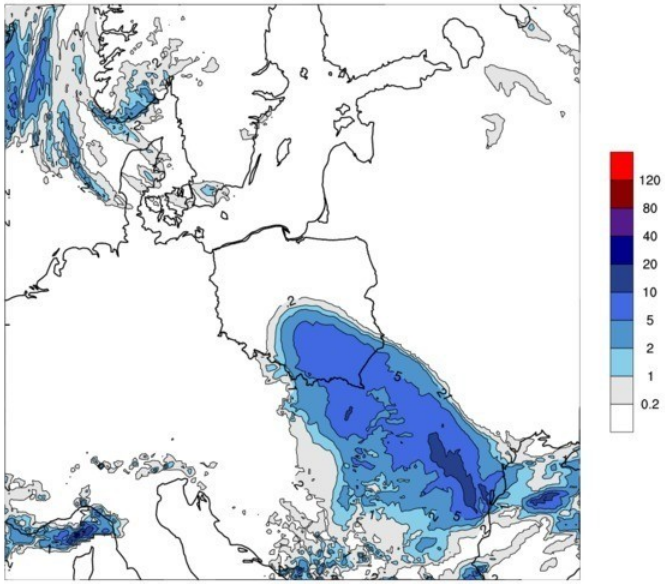
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 12:00 UTC

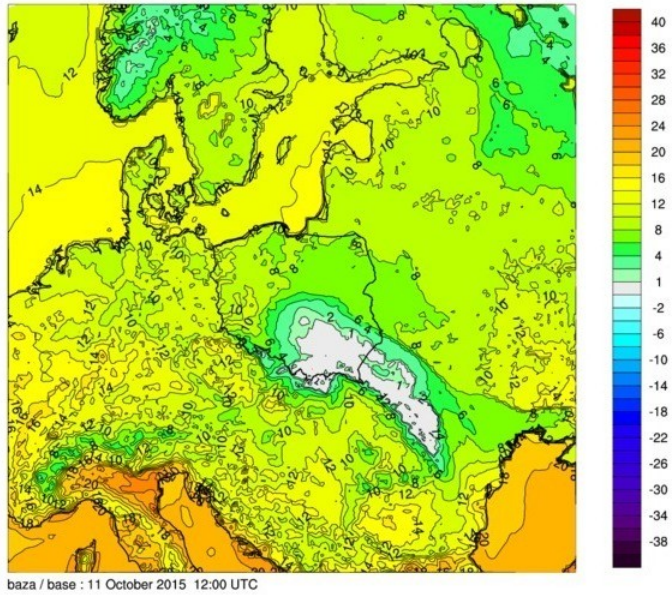
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 12:00 UTC

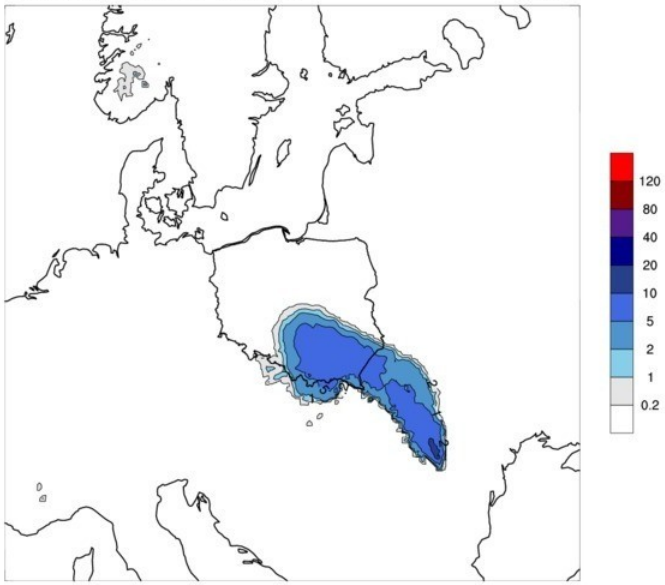
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 12:00 UTC

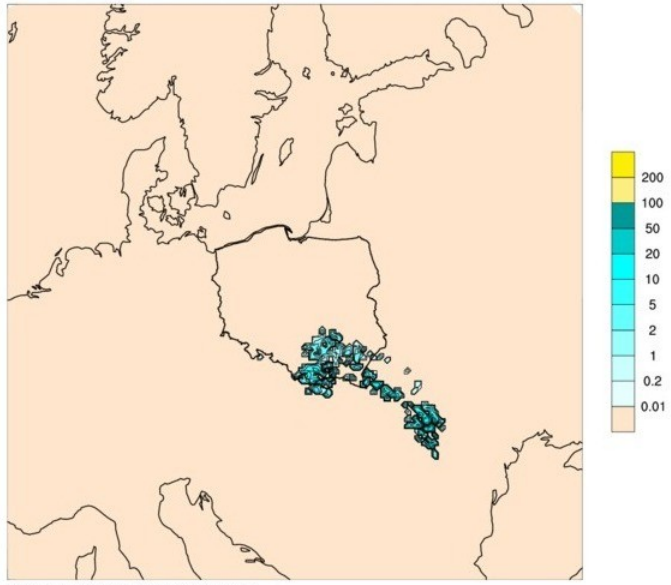
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 12:00 UTC

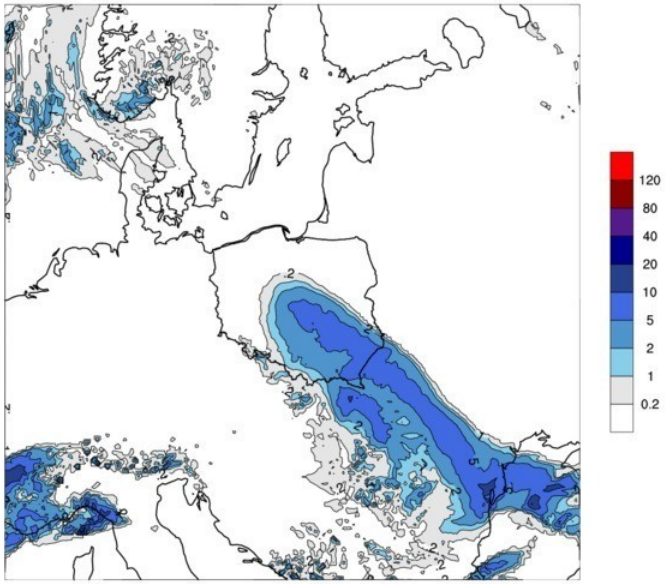
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 18:00 UTC

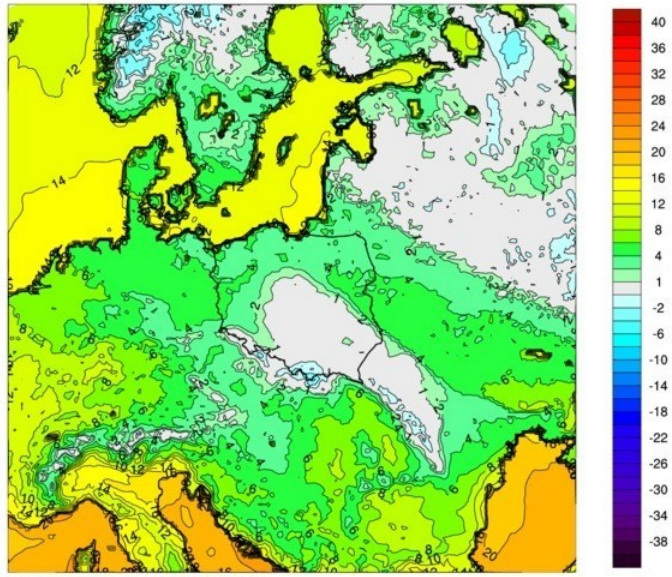
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 18:00 UTC

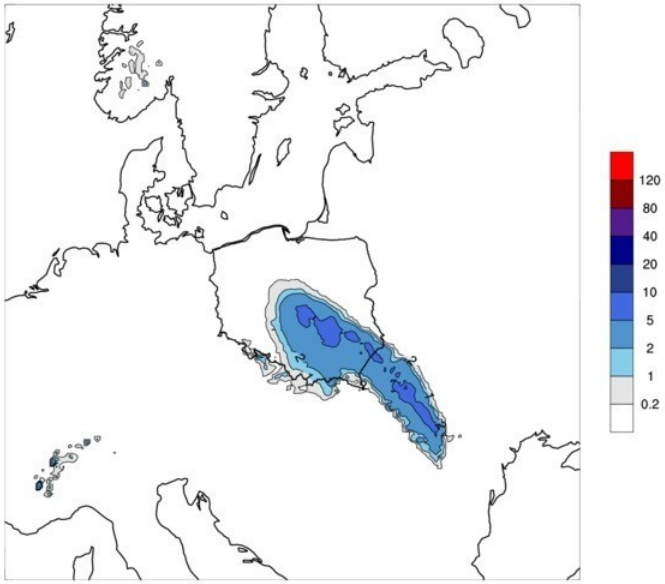
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 18:00 UTC

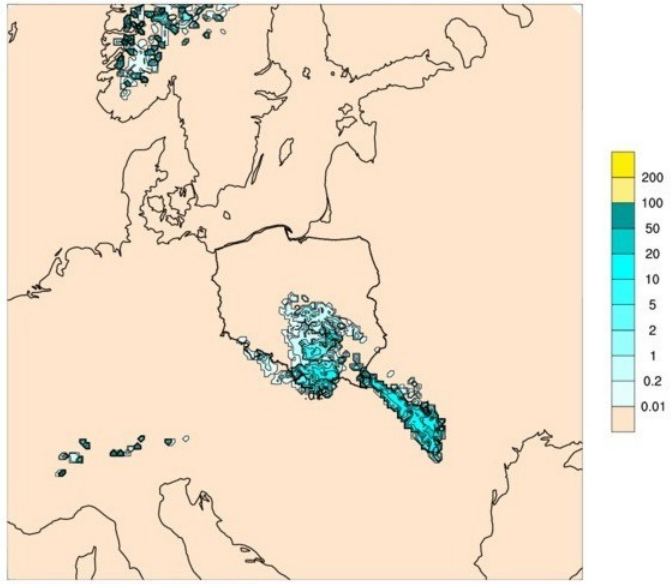
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Monday 12 October 2015 18:00 UTC

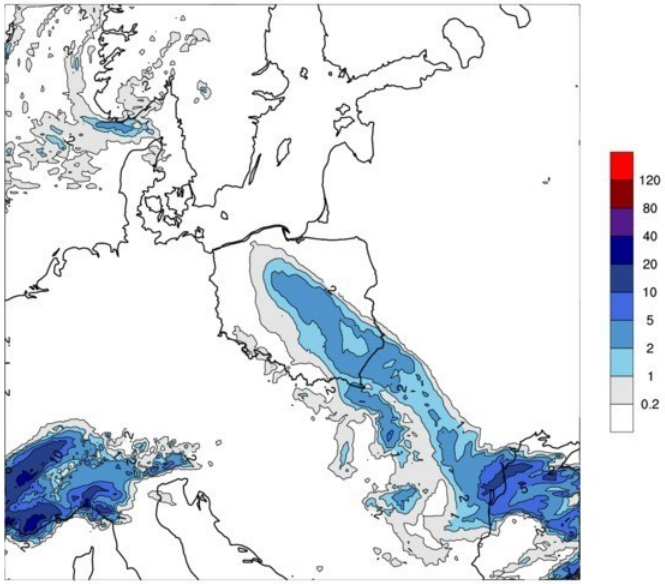
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 00:00 UTC

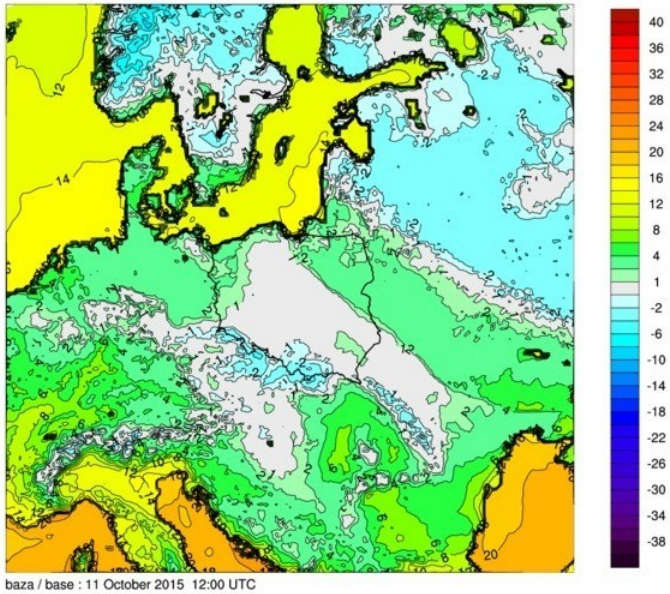
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 00:00 UTC

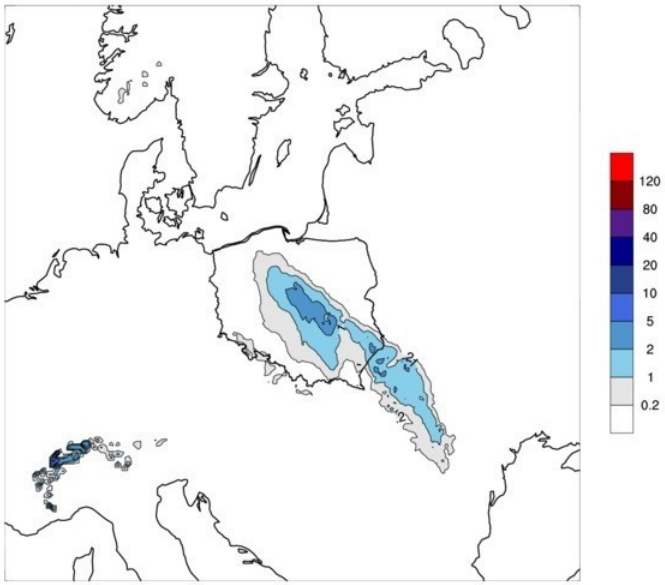
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 00:00 UTC

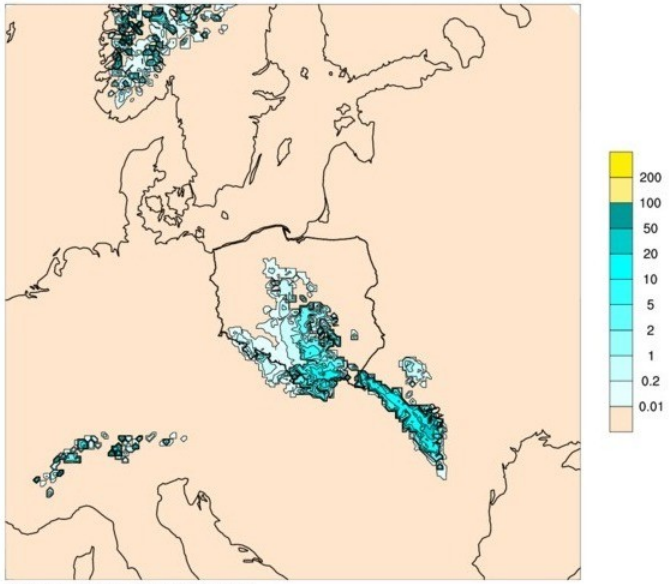
snieg / snow
[kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 00:00 UTC

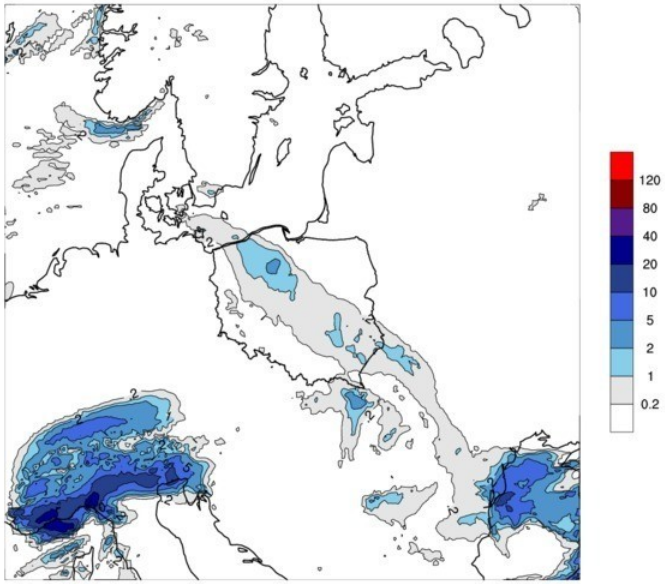
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 06:00 UTC

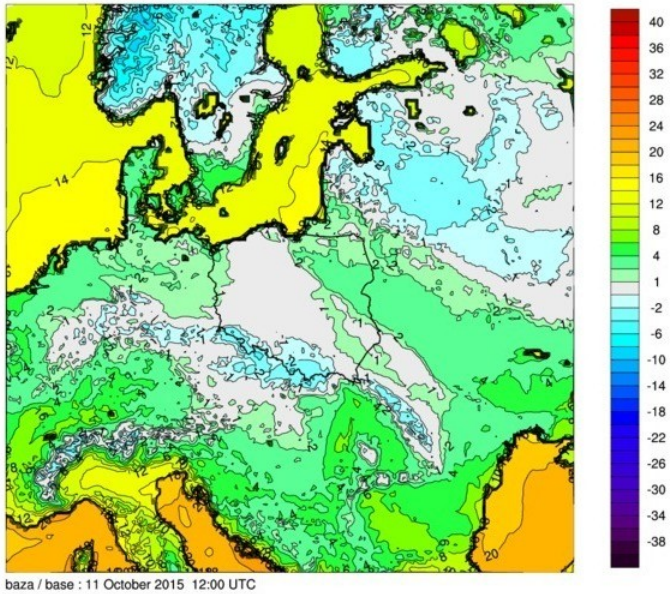
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 06:00 UTC

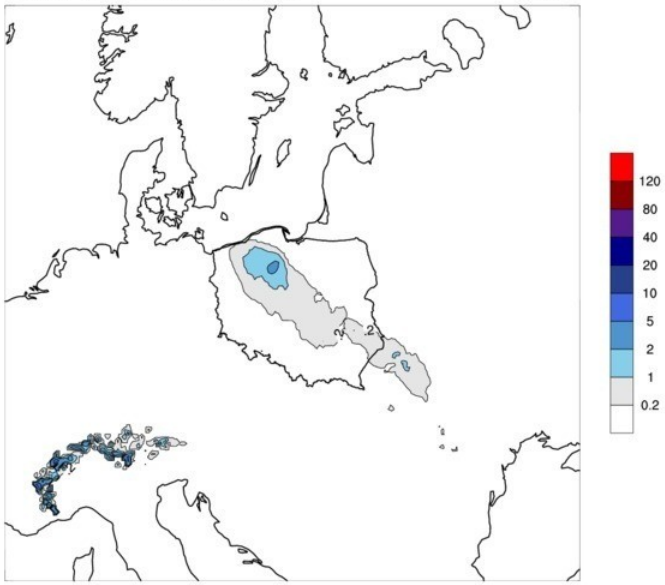
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 06:00 UTC

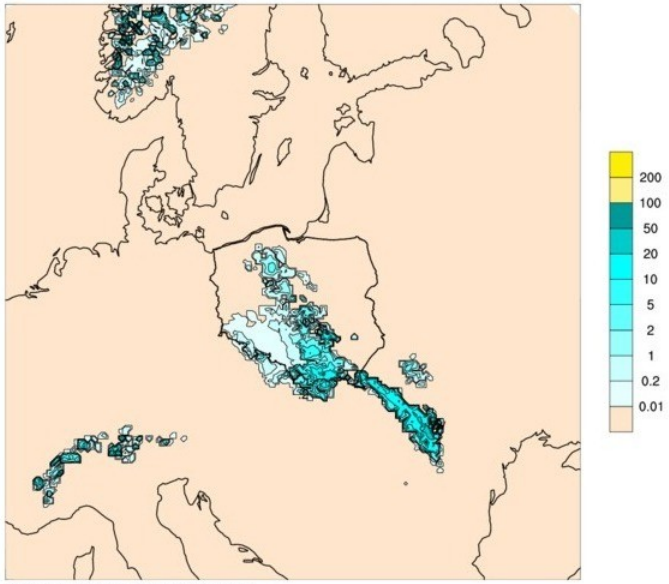
snieg / snow
[kg/m^2]



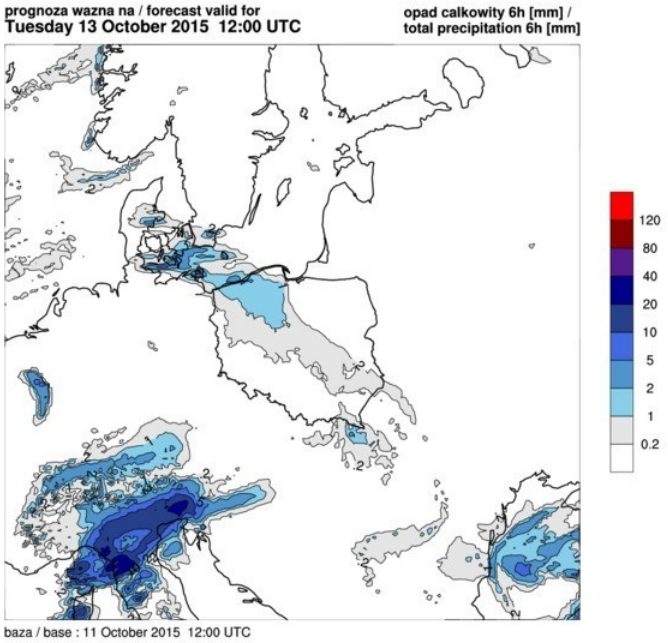
baza / base : 11 October 2015 12:00 UTC

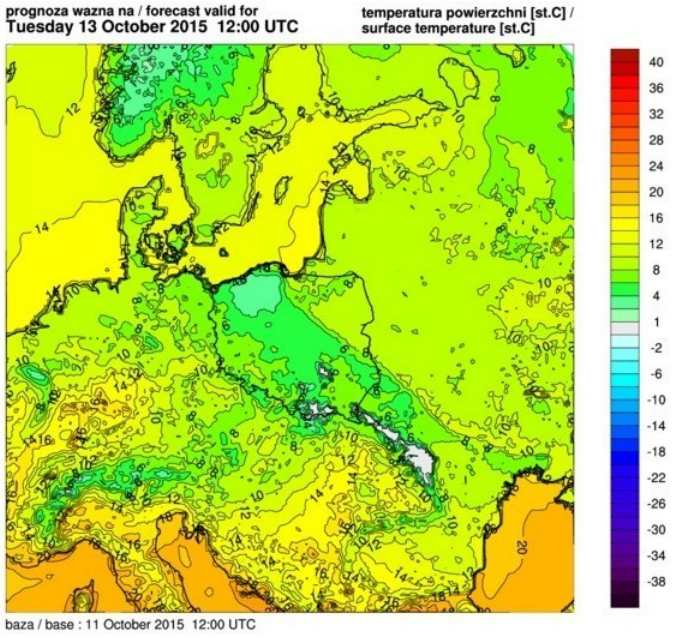
prognoza wazna na / forecast valid for
Tuesday 13 October 2015 06:00 UTC

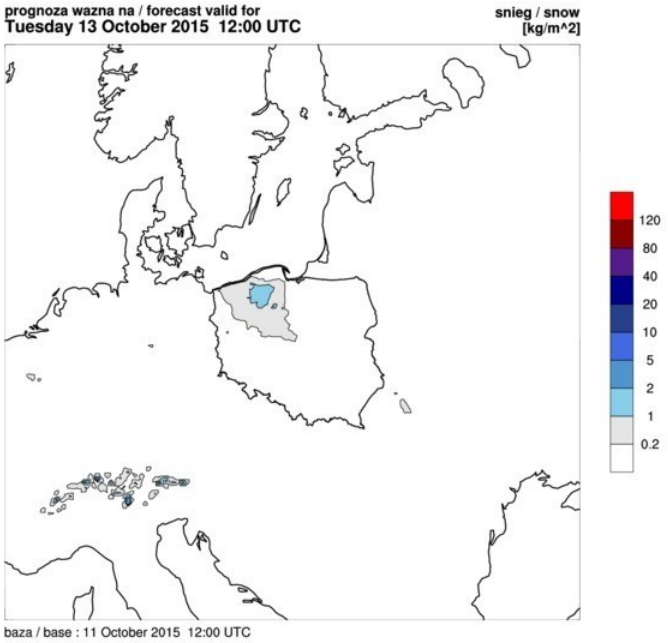
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC

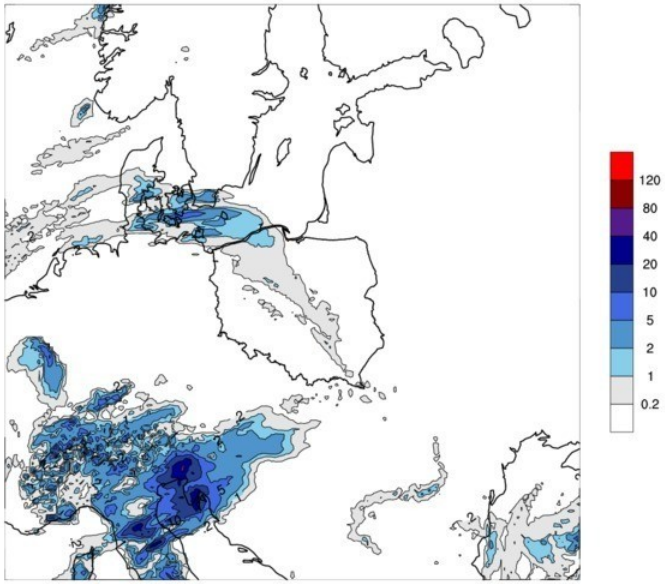

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 12:00 UTC
opad calkowity 6h [mm] /
total precipitation 6h [mm]
120
80
40
20
10
5
2
1
0.2
baza / base : 11 October 2015 12:00 UTC


prognoza wazna na / forecast valid for
Tuesday 13 October 2015 12:00 UTC
temperatura powierzchni [st.C] /
surface temperature [st.C]
40
36
32
28
24
20
16
12
8
4
1
-2
-6
-10
-14
-18
-22
-26
-30
-34
-38
baza / base : 11 October 2015 12:00 UTC


prognoza wazna na / forecast valid for
Tuesday 13 October 2015 12:00 UTC
snieg / snow
[kg/m^2]
120
80
40
20
10
5
2
1
0.2
baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 18:00 UTC

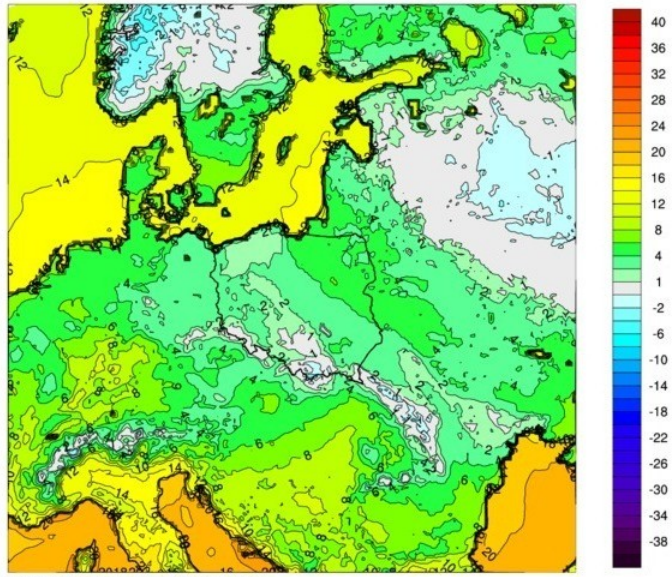
opad calkowity 6h [mm] /
total precipitation 6h [mm]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 18:00 UTC

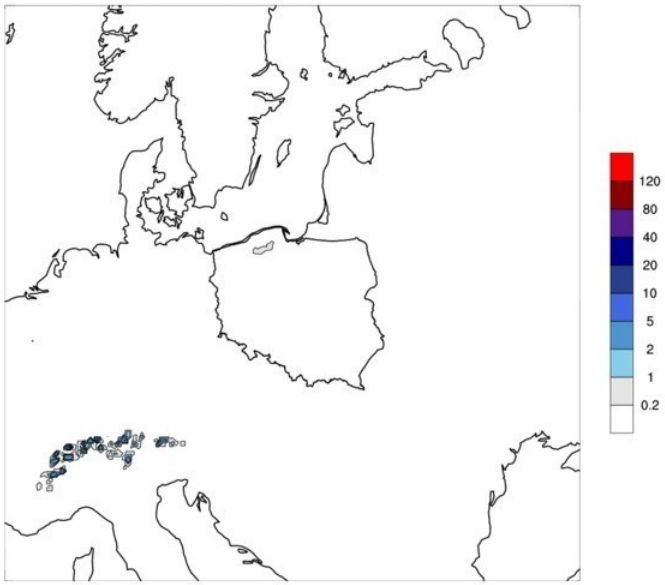
temperatura powierzchni [st.C] /
surface temperature [st.C]



baza / base : 11 October 2015 12:00 UTC

prognoza wazna na / forecast valid for
Tuesday 13 October 2015 18:00 UTC

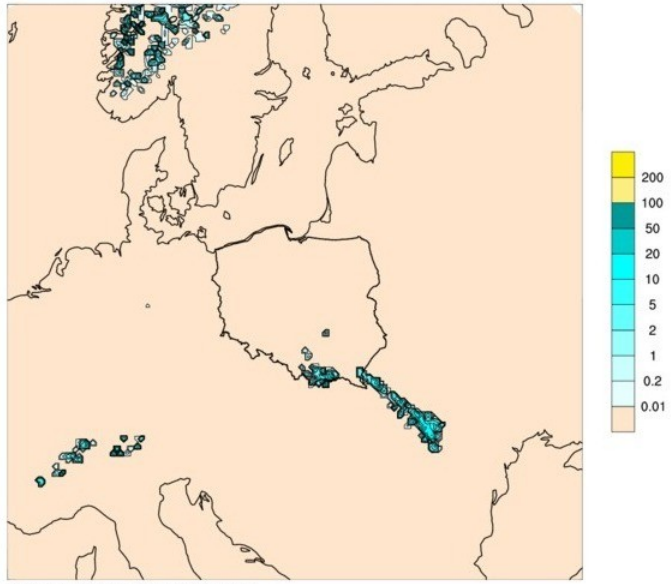
snieg / snow
[kg/m^2]



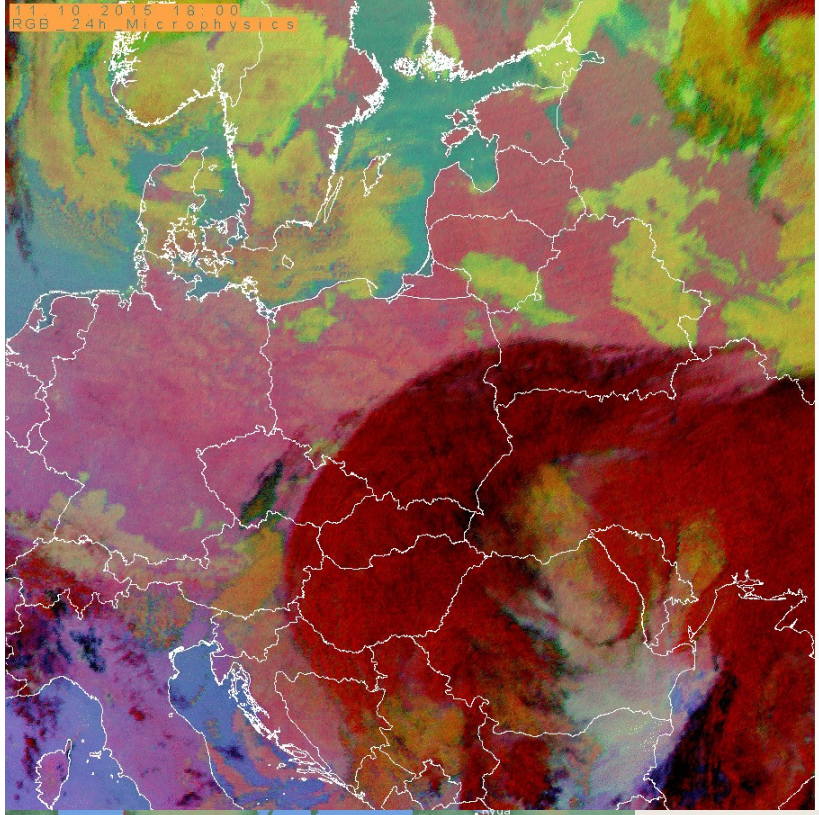
baza / base : 11 October 2015 12:00 UTC

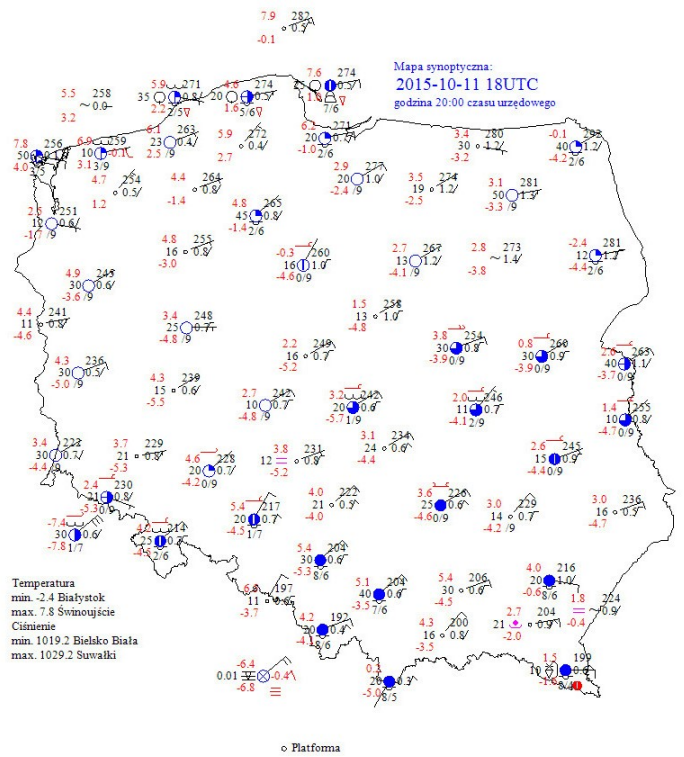
prognoza wazna na / forecast valid for
Tuesday 13 October 2015 18:00 UTC

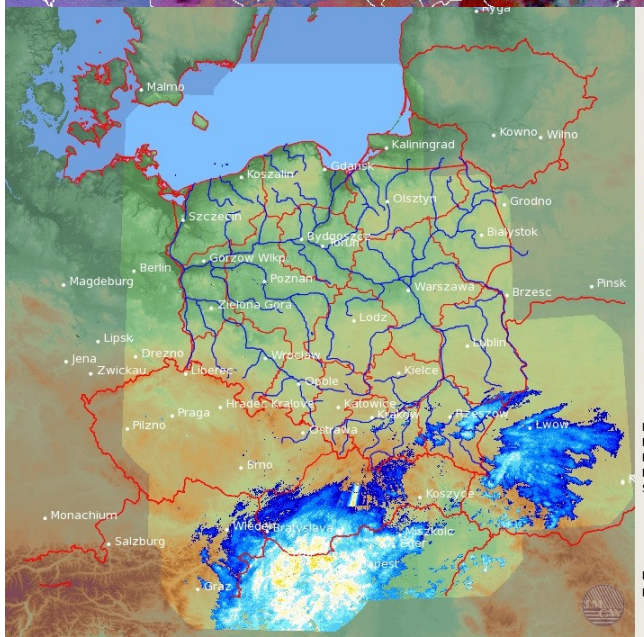
zapas wody w sniegu /
snow water reserve [kg/m^2]



baza / base : 11 October 2015 12:00 UTC



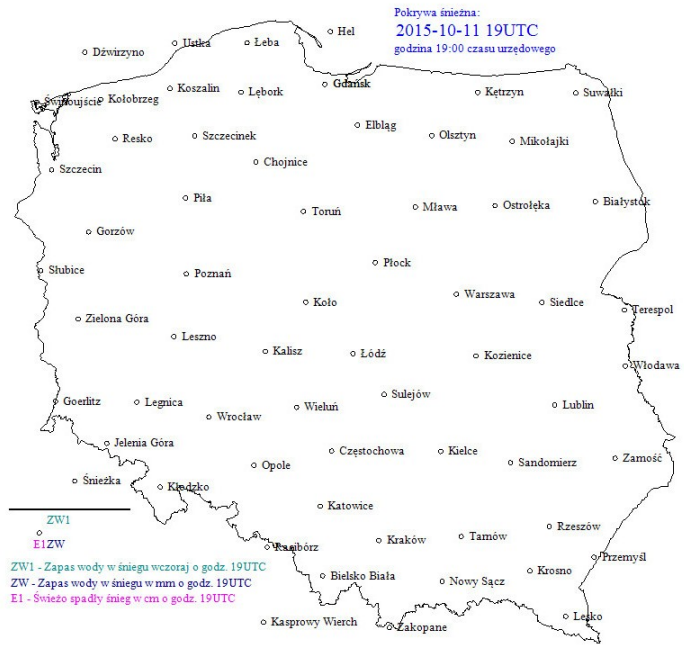


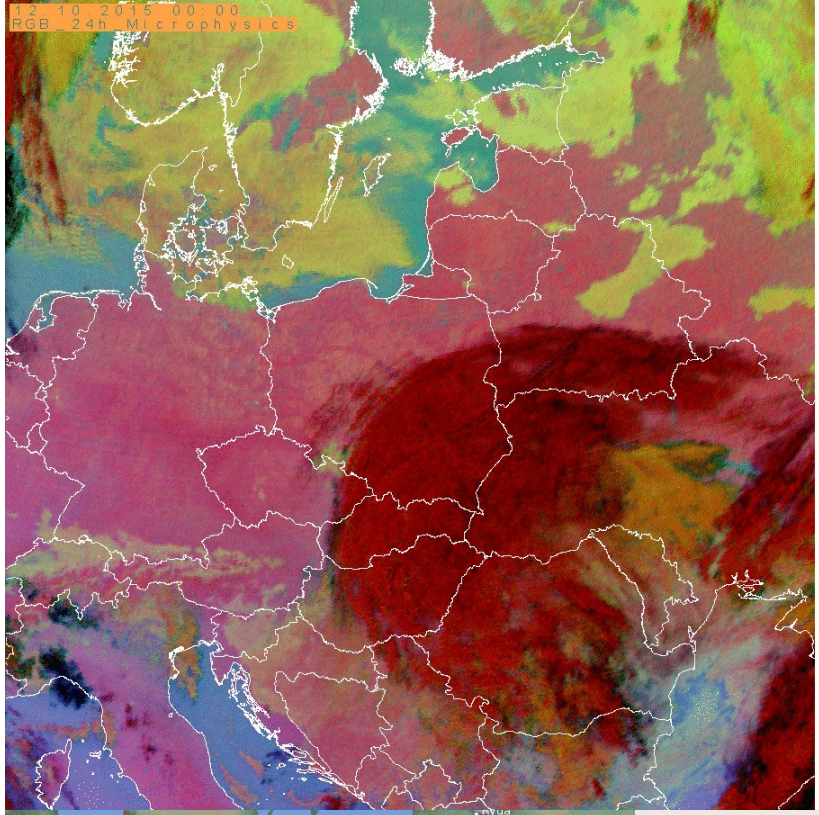


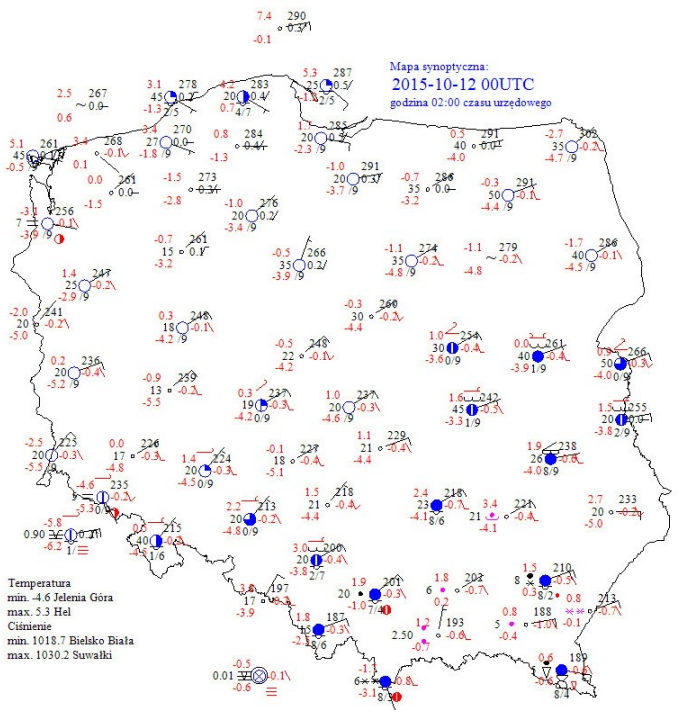
CMAX (dBZ)
18:00 / 11-Oct-2015
POLUKR Composite

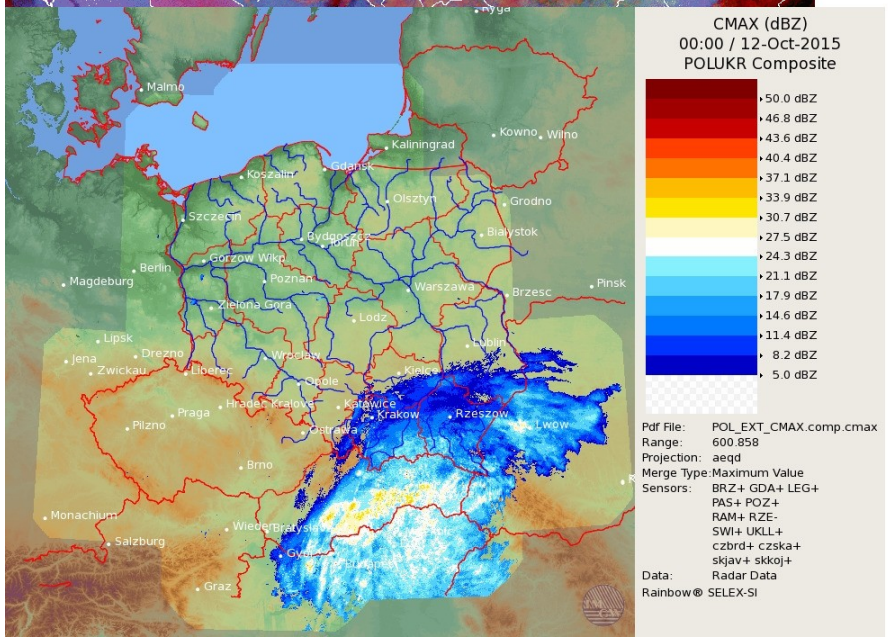
- 50.0 dBZ
- 46.8 dBZ
- 43.6 dBZ
- 40.4 dBZ
- 37.1 dBZ
- 33.9 dBZ
- 30.7 dBZ
- 27.5 dBZ
- 24.3 dBZ
- 21.1 dBZ
- 17.9 dBZ
- 14.6 dBZ
- 11.4 dBZ
- 8.2 dBZ
- 5.0 dBZ

Pdf File: POL_EXT_CMAX.comp.cmax
Range: 600.858
Projection: aeqd
Merge Type: Maximum Value
Sensors: BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE- SWI+ UKLL+ czbrd- czska+ skjav+ skkoj+
Data: Radar Data
Rainbow® SELEX-SI







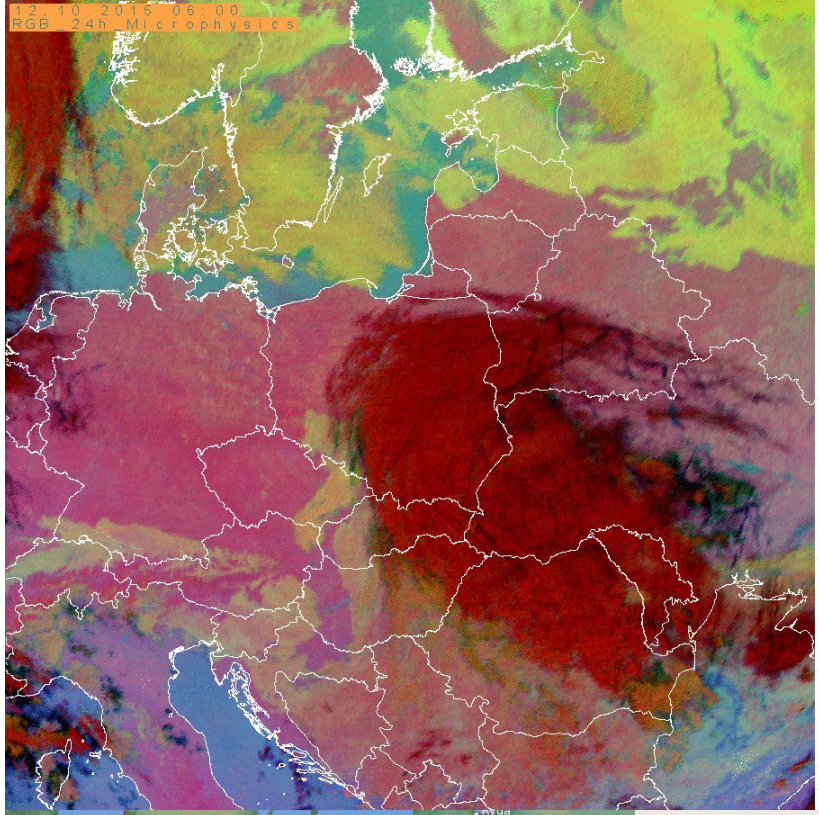


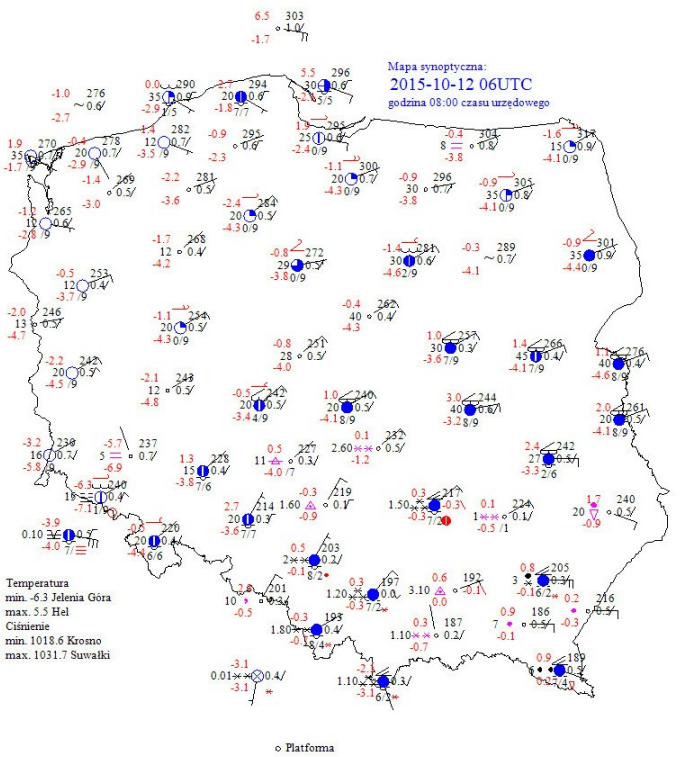
CMAX (dBZ)
00:00 / 12-Oct-2015
POLUKR Composite

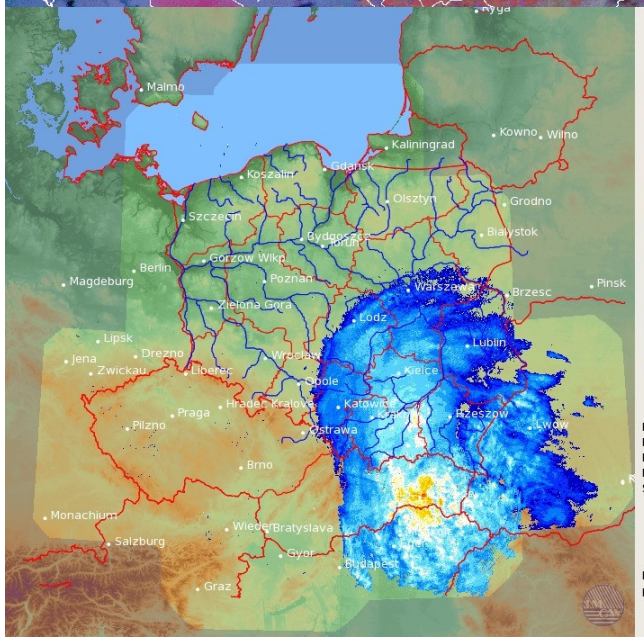
- 50.0 dBZ
- 46.8 dBZ
- 43.6 dBZ
- 40.4 dBZ
- 37.1 dBZ
- 33.9 dBZ
- 30.7 dBZ
- 27.5 dBZ
- 24.3 dBZ
- 21.1 dBZ
- 17.9 dBZ
- 14.6 dBZ
- 11.4 dBZ
- 8.2 dBZ
- 5.0 dBZ

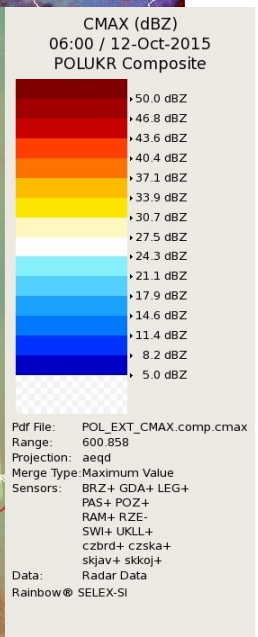
Pdf File:	POL_EXT_CMAX.comp.cmax
Range:	600.858
Projection:	aeqd
Merge Type:	Maximum Value
Sensors:	BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE- SWI+ UKLL+ czbrd+ czska+ skjav+ skkoj+
Data:	Radar Data

Rainbow® SELEX-SI

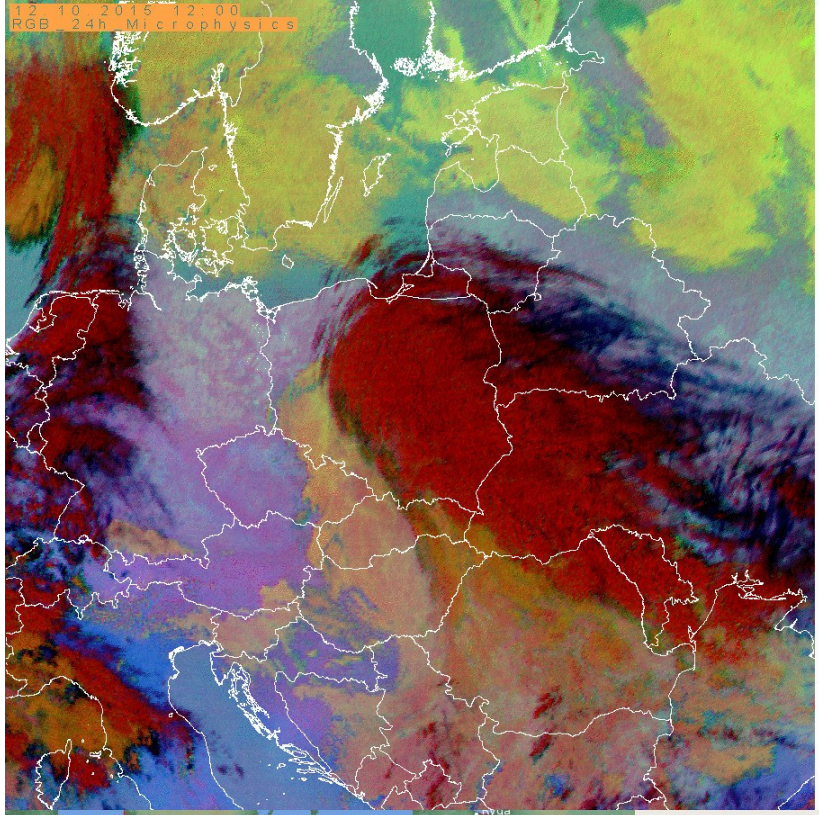

12 10 2015 06:00
RGB 24h Microphysics

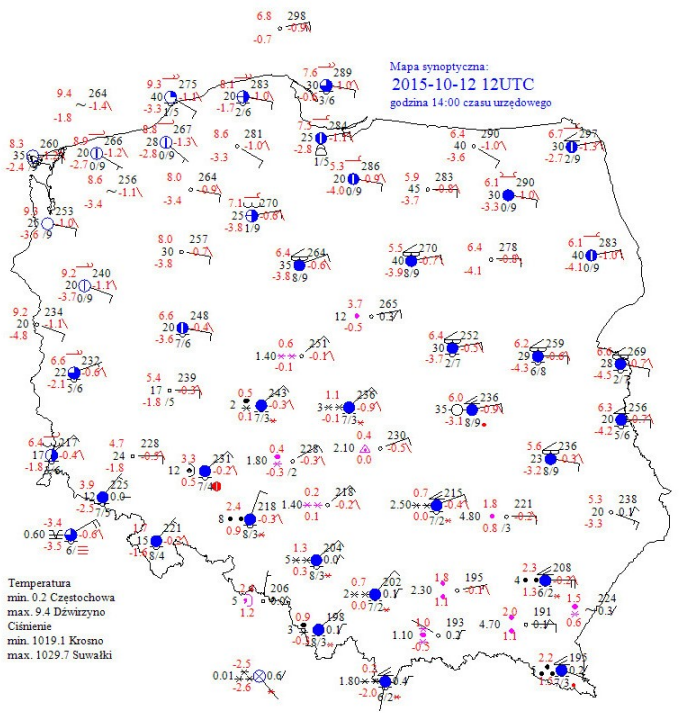

Mapa synoptyczna:
2015-10-12 06UTC
godzina 08:00 czasu urzędowego
Temperatura
min. -6.3 Jelenia Góra
max. 5.5 Hel
Ciśnienie
min. 1018.6 Krosno
max. 1031.7 Suwałki

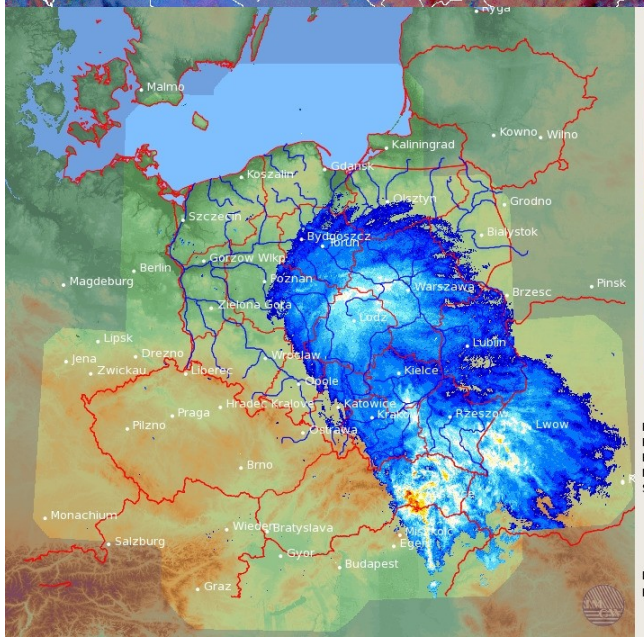

Malmo
Kowno
Wilno
Kaliningrad
Koszalin
Gdansk
Olsztyn
Grodno
Szczecin
Bydgoszcz
Bialystok
Gorzow Wlkp.
Berlin
Magdeburg
Poznan
Warszawa
Brzesc
Pinsk
Zielona Gora
Lodz
Lipsk
Drezno
Jena
Zwickau
Wroclaw
Lublin
Opole
Kielce
Praga
Hradec Kralove
Katowice
Rzeszow
Lwow
Pilzno
Ostrawa
Brno
Monachium
Wiedeń
Bratyslava
Salzburg
Gyor
Budapeszt
Graz


CMAX (dBZ)
06:00 / 12-Oct-2015
POLUKR Composite
50.0 dBZ
46.8 dBZ
43.6 dBZ
40.4 dBZ
37.1 dBZ
33.9 dBZ
30.7 dBZ
27.5 dBZ
24.3 dBZ
21.1 dBZ
17.9 dBZ
14.6 dBZ
11.4 dBZ
8.2 dBZ
5.0 dBZ
Pdf File: POL_EXT_CMAX.comp.cmax
Range: 600.858
Projection: aeqd
Merge Type:Maximum Value
Sensors: BRZ+ GDA+ LEG+
PAS+ POZ+
RAM+ RZE-
SWI+ UKLL+
czbrd+ czska+
skjav+ skkoj+
Data: Radar Data
Rainbow® SELEX-SI

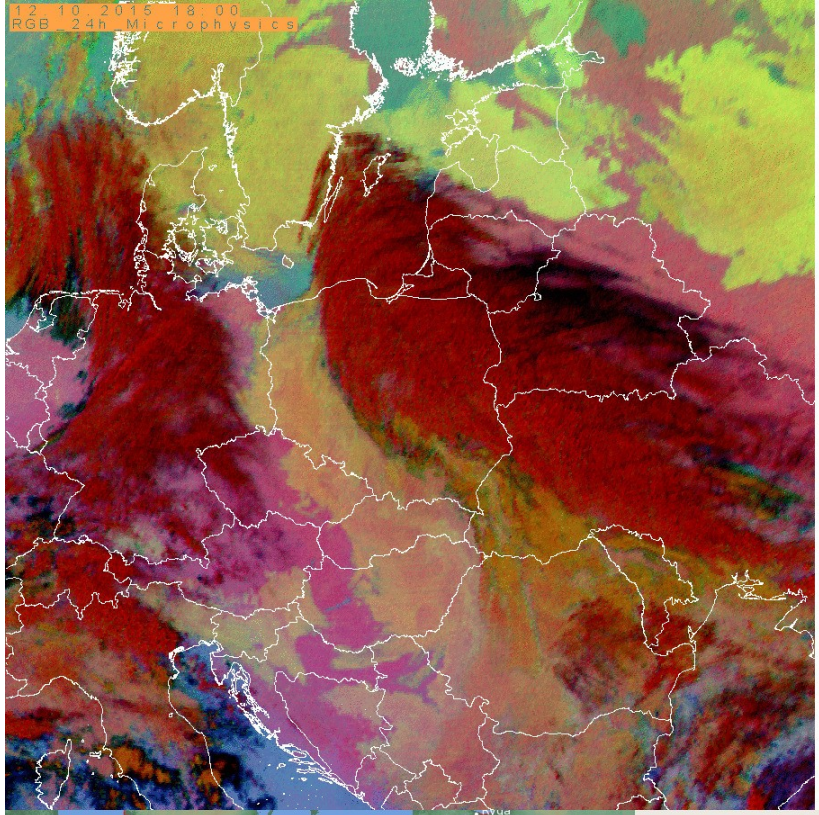

Platforma
Pokrywa śnieżna:
2015-10-12 07UTC
godzina 07:00 czasu urzędowego
Hel
Ustka
Leba
Dźwirzyno
Gdańsk
Kołobrzeg
Koszalin
Łeba
Lębork
Kętrzyn
Suwałki
Resko
Szczecinek
Elbląg
Olsztyn
Mikołajki
Szczecin
Chojnice
Piła
Toruń
Mława
Ostrołęka
Białystok
Gorzów
Słubice
Poznań
Płock
Zielona Góra
Koło
Warszawa
Siedlce
Terespol
Leszno
Kalisz
Łódź
Kozienice
Włodawa
Goerlitz
Legnica
Wieluń
Sulejów
Lublin
Wrocław
Jelenia Góra
Częstochowa
Kielce
Opole
Sandomierz
Zamość
Śnieżka
Kłodzko
Katowice
Rzeszów
Rabka
Kraków
Tarnów
Przemyśl
Bielsko Biała
Nowy Sącz
Krosno
Kasprowy Wierch
Zakopane
Lesko
S1 ZW1
SSS E1ZW
S1 - Pokrywa śnieżna wczoraj o godz. 06UTC
SSS - Pokrywa śnieżna w cm o godz. 06UTC
ZW1 - Zapas wody w śniegu wczoraj o godz. 07UTC
ZW - Zapas wody w śniegu w mm o godz. 07UTC
E1 - Świeżo spadły śnieg w cm o godz. 07UTC

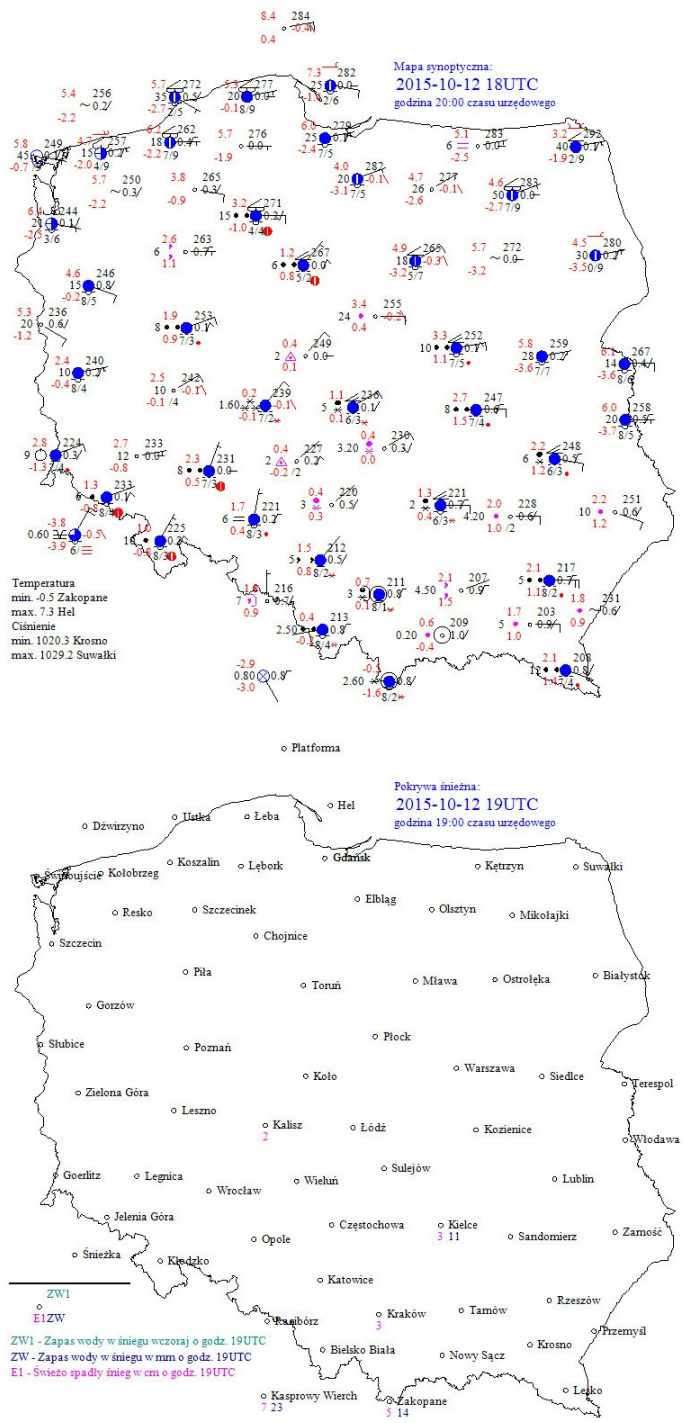


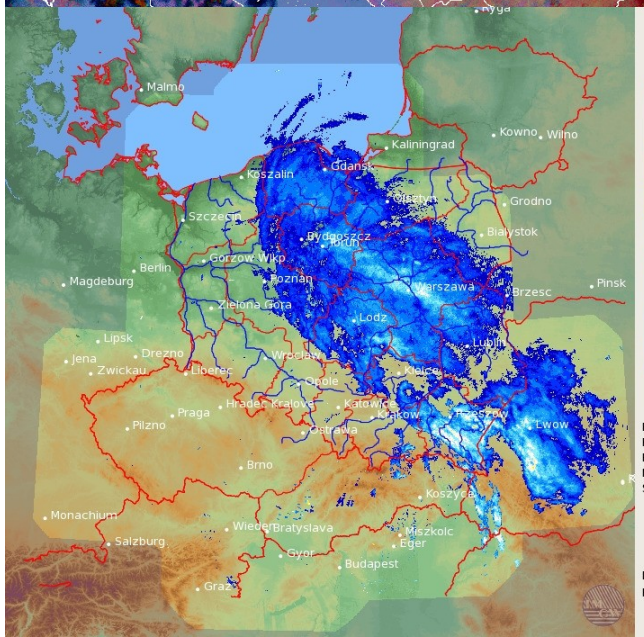




Pdf File: POL_EXT_CMAX.comp.cmax
Range: 600.858
Projection: aeqd
Merge Type: Maximum Value
Sensors: BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE- SWI+ UKLL+ czbrd+ czska+ skjav+ skkoj+
Data: Radar Data
Rainbow® SELEX-SI





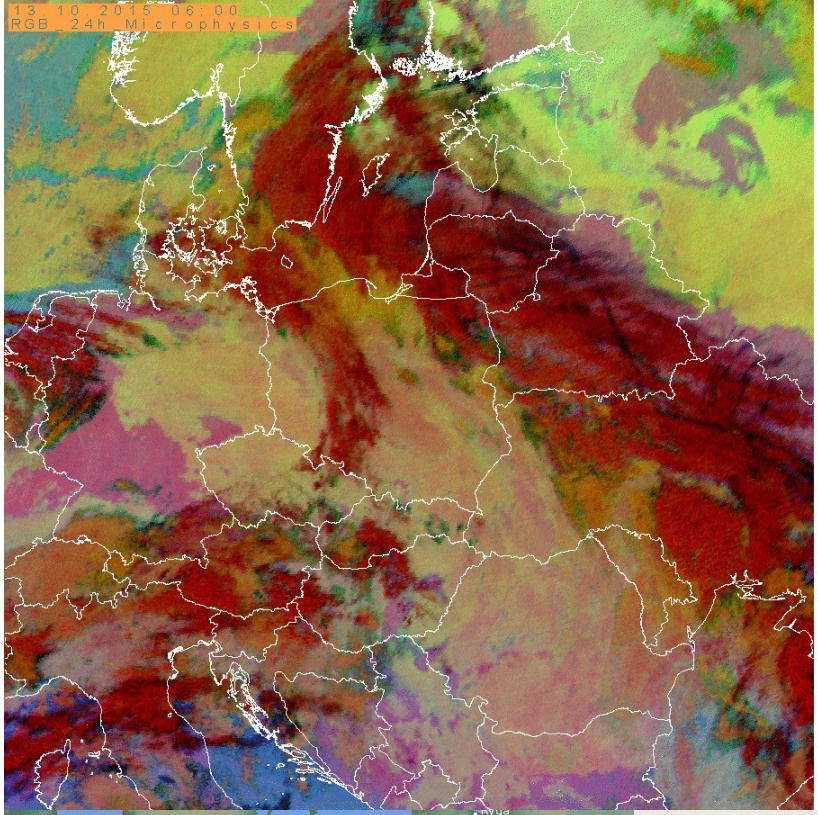


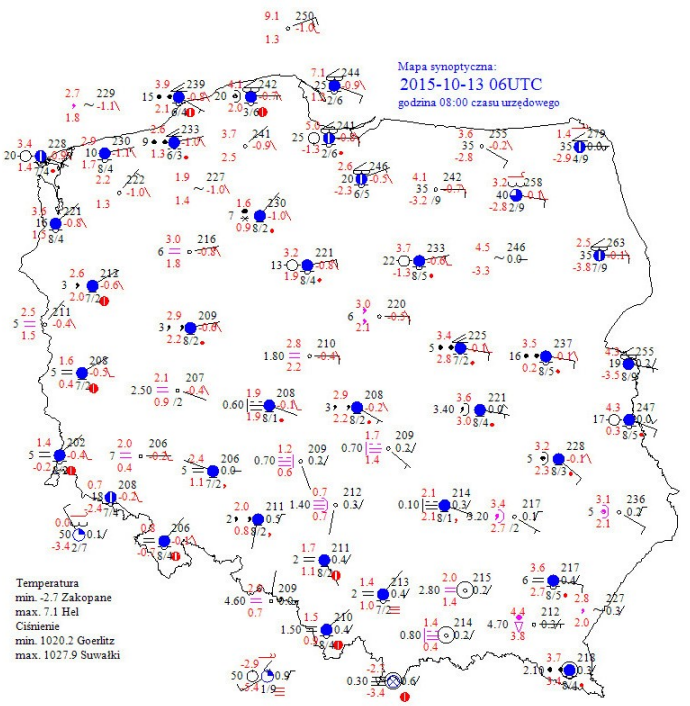
CMAX (dBZ)
18:00 / 12-Oct-2015
POLUKR Composite

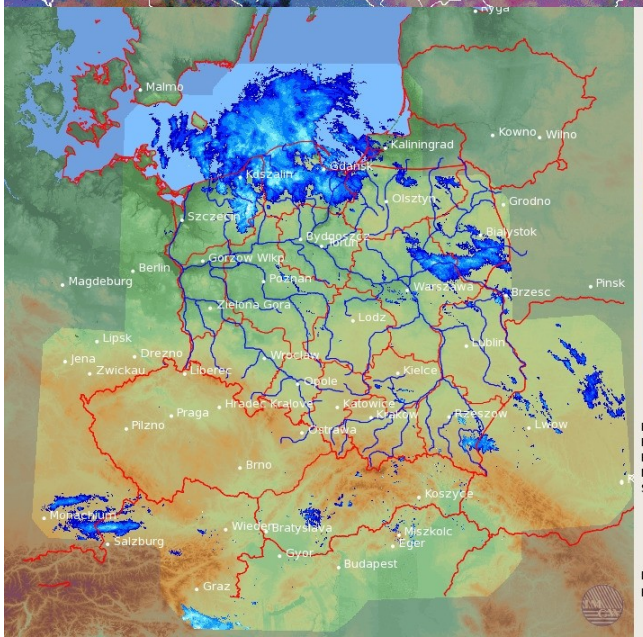
50.0 dBZ
46.8 dBZ
43.6 dBZ
40.4 dBZ
37.1 dBZ
33.9 dBZ
30.7 dBZ
27.5 dBZ
24.3 dBZ
21.1 dBZ
17.9 dBZ
14.6 dBZ
11.4 dBZ
8.2 dBZ
5.0 dBZ

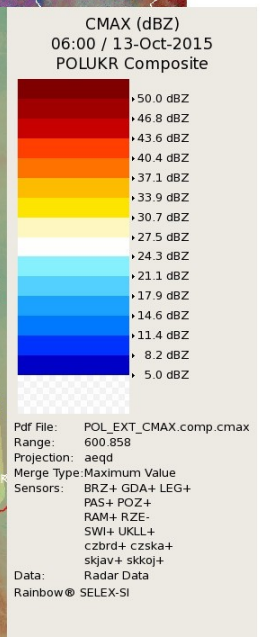
Pdf File:	POL_EXT_CMAX.comp.cmax
Range:	600.858
Projection:	aeqd
Merge Type:	Maximum Value
Sensors:	BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE- SWI+ UKLL+ czbrd+ czska+ skjav+ skkoj+
Data:	Radar Data

Rainbow® SELEX-SI

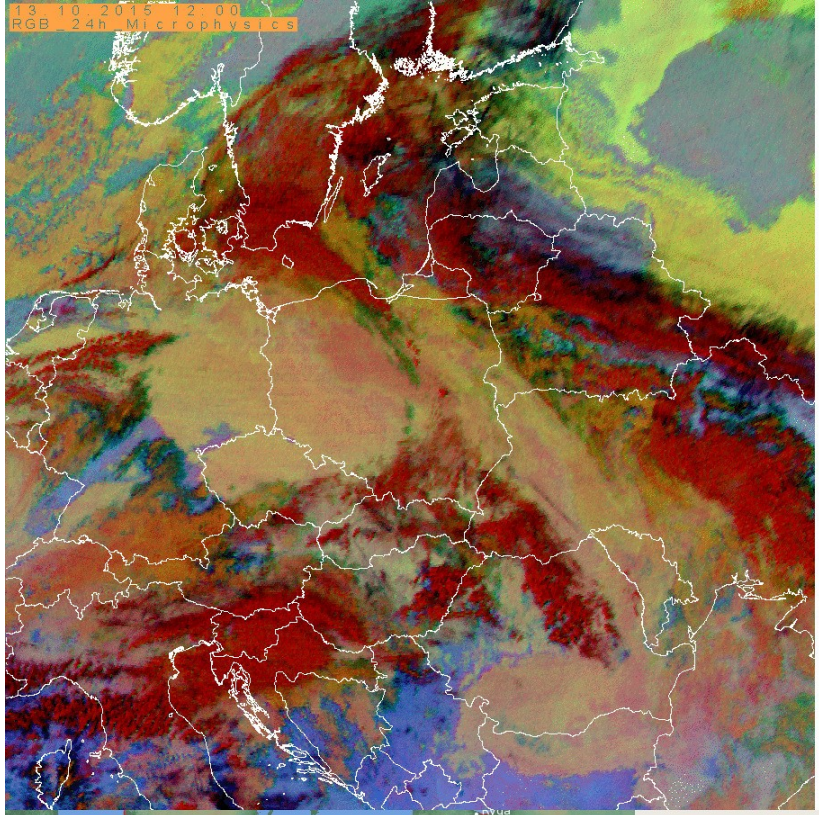

13.10.2015 06:00
RGB 24h Microphysics

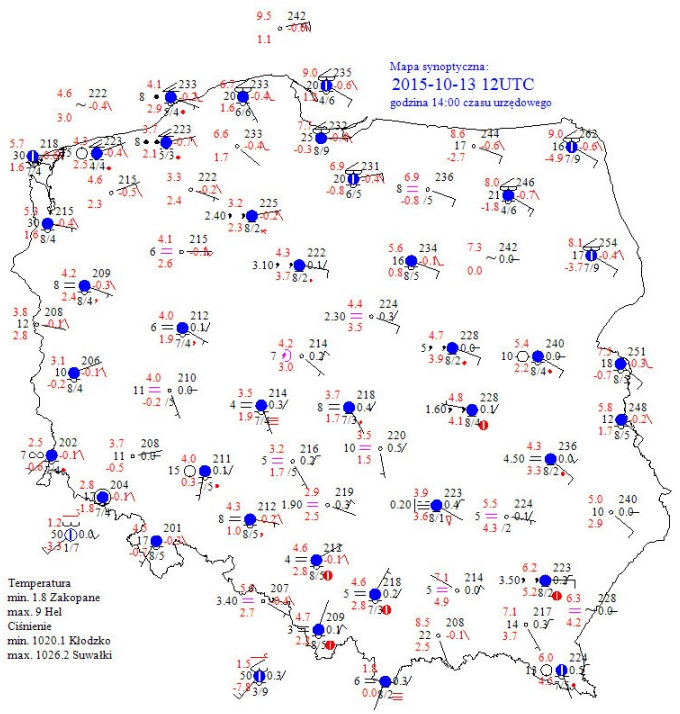

Mapa synoptyczna:
2015-10-13 06UTC
godzina 08:00 czasu urzędowego
Temperatura
min. -2.7 Zakopane
max. 7.1 Hel
Ciśnienie
min. 1020.2 Goerlitz
max. 1027.9 Suwałki

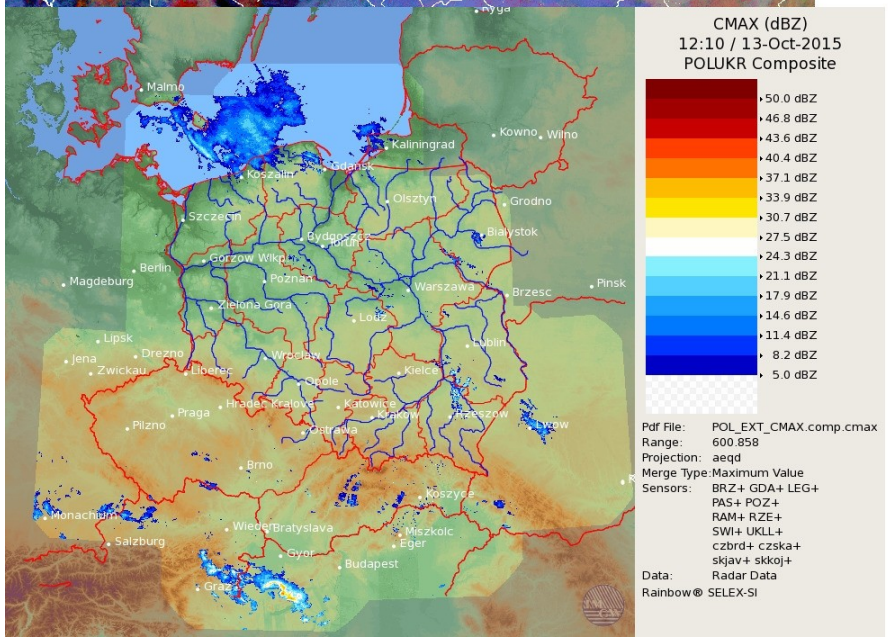

Malmo
Kowno
Wilno
Kaliningrad
Koszalin
Gdansk
Olsztyn
Grodno
Szczecin
Bydgoszcz
Bialystok
Gorzow Wlkp.
Berlin
Magdeburg
Poznan
Warszawa
Brzesc
Pinsk
Zielona Gora
Lodz
Lipsk
Jena
Drezno
Zwickau
Wroclaw
Kielce
Opole
Katowice
Praga
Pilzno
Brno
Koszyce
Wiedeń
Bratislava
Miszkolc
Eger
Salzburg
Gyor
Budapest
Graz


CMAX (dBZ)
06:00 / 13-Oct-2015
POLUKR Composite
50.0 dBZ
46.8 dBZ
43.6 dBZ
40.4 dBZ
37.1 dBZ
33.9 dBZ
30.7 dBZ
27.5 dBZ
24.3 dBZ
21.1 dBZ
17.9 dBZ
14.6 dBZ
11.4 dBZ
8.2 dBZ
5.0 dBZ
Pdf File: POL_EXT_CMAX.comp.cmax
Range: 600.858
Projection: aeqd
Merge Type:Maximum Value
Sensors: BRZ+ GDA+ LEG+
PAS+ POZ+
RAM+ RZE-
SWI+ UKLL+
czbrd+ czska+
skjav+ skkoj+
Data: Radar Data
Rainbow® SELEX-SI

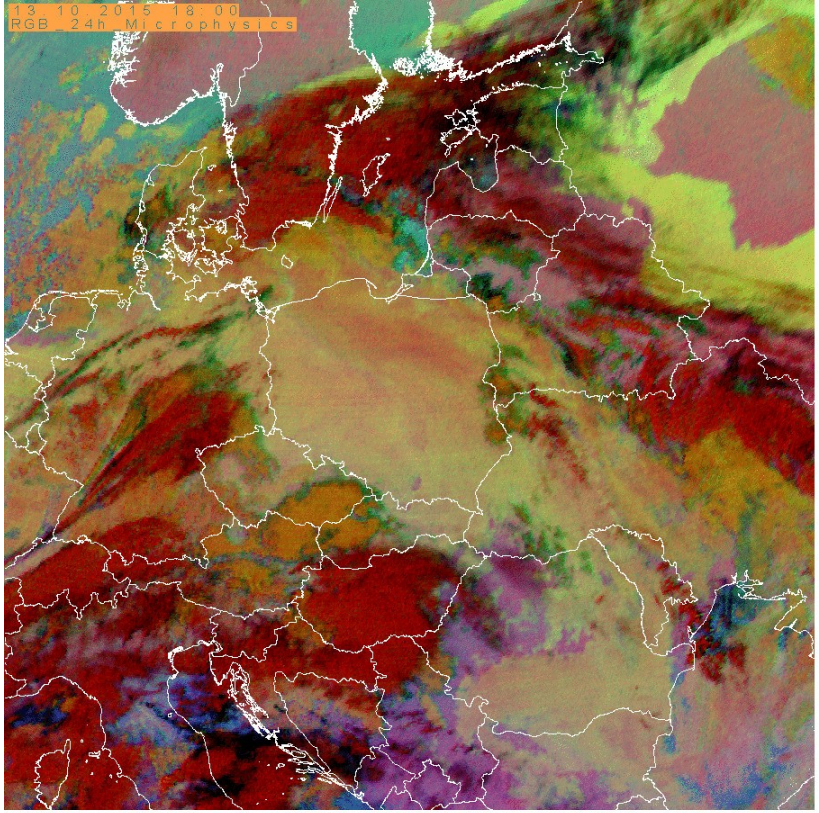

Platforma
Pokrywa śnieżna:
2015-10-13 07UTC
godzina 07:00 czasu urzędowego
Hel
Ustka
Leba
Dźwirzyno
Gdańsk
Kołobrzeg
Koszalin
Łeba
Ełk
Suwałki
Resko
Szczecinek
Elbląg
Olsztyn
Mikołajki
Szczecin
Chojnice
Piła
Toruń
Mława
Ostrołęka
Białystok
Gorzów
Słubice
Poznań
Płock
Zielona Góra
Koło
Warszawa
Siedlce
Terespol
Leszno
Kalisz
Łódź
Kozienice
Włodawa
Goerlitz
Legnica
Wieluń
Sulejów
Lublin
Wrocław
Jelenia Góra
Częstochowa
Kielce
Opole
Sandomierz
Zamość
Śnieżka
Kłodzko
Katowice
Rzeszów
Rybnik
Kraków
Tarnów
Przemyśl
Bielsko Biała
Nowy Sącz
Krosno
Kasprowy Wierch
Zakopane
Leśko
S1 ZW1
SSS E1ZW
S1 - Pokrywa śnieżna wczoraj o godz. 06UTC
SSS - Pokrywa śnieżna w cm o godz. 06UTC
ZW1 - Zapas wody w śniegu wczoraj o godz. 07UTC
ZW - Zapas wody w śniegu w mm o godz. 07UTC
E1 - Świeżo spadły śnieg w cm o godz. 07UTC

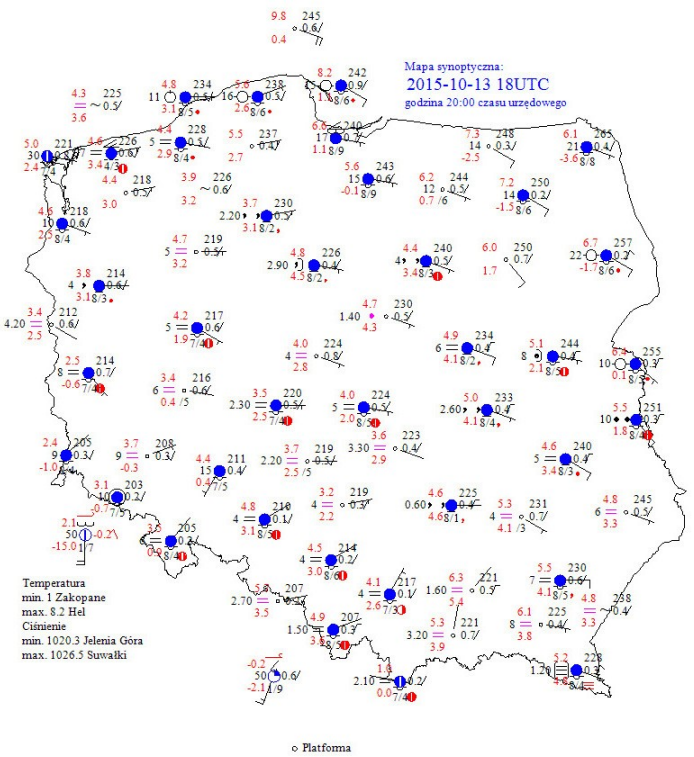






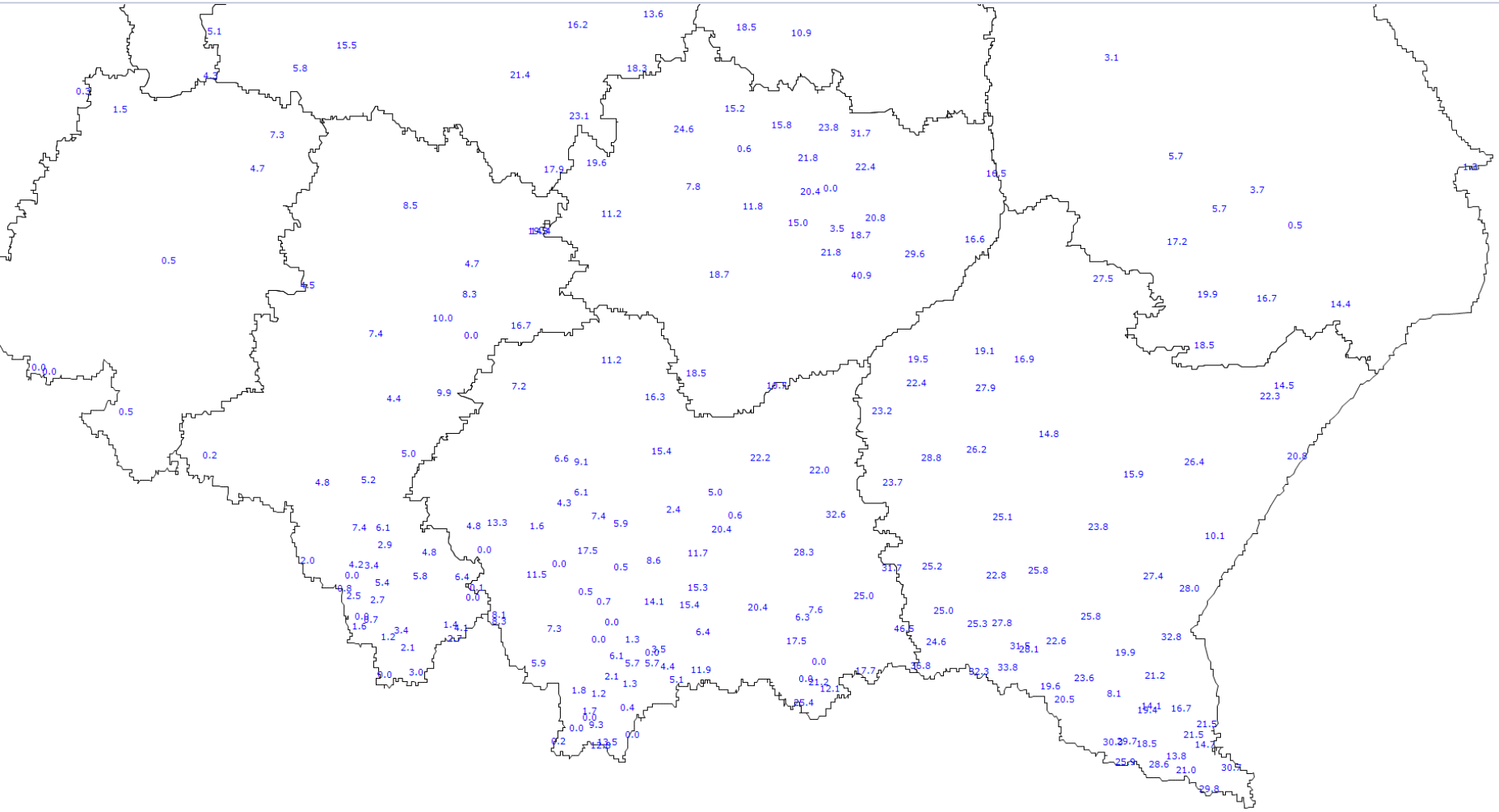
Pdf File: POL_EXT_CMAX.comp.cmax
Range: 600.858
Projection: aeqd
Merge Type: Maximum Value
Sensors: BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE+ SWI+ UKLL+ czbrd+ czska+ skjav+ skkoj+
Data: Radar Data
Rainbow® SELEX-SI


13 10 2015 18:00
RGB 24h Microphysics


Mapa synoptyczna:
2015-10-13 18UTC
godzina 20:00 czasu urzędowego
Temperatura
min. 1 Zakopane
max. 8.2 Hel
Ciśnienie
min. 1020.3 Jelenia Góra
max. 1026.5 Suwałki


Platforma
Pokrywa śnieżna:
2015-10-13 19UTC
godzina 19:00 czasu urzędowego
Hel
Dźwirzyno
Ustka
Łeba
Gdańsk
Kołobrzeg
Koszalin
Łeborк
Kętrzyn
Suwałki
Resko
Szczecinek
Elbląg
Olsztyn
Mikołajki
Szczecin
Chojnice
Piła
Toruń
Mława
Ostrołęka
Białystok
Gorzów
Słubice
Poznań
Płock
Warszawa
Siedlce
Terespol
Zielona Góra
Leszno
Koło
Kalisz
Łódź
Kozienice
Włodawa
Goerlitz
Legnica
Wrocław
Wieluń
Sulejów
Lublin
Jelenia Góra
Częstochowa
Kielce
Sandomierz
Zamość
Śnieżka
Kłodzko
Opole
Katowice
Rzeszów
Kraków
Tarnów
Przemyśl
Bielsko Biała
Nowy Sącz
Krosno
Kasprowy Wierch
Zakopane
Leżko
ZW1
E1ZW
ZW1 - Zapas wody w śniegu wczoraj o godz. 19UTC
ZW - Zapas wody w śniegu w mm o godz. 19UTC
E1 - Świeżo spadły śnieg w cm o godz. 19UTC

Use of ALADIN numerical products in Polish **Meteorological** Service



source: OSP Więcławice

https://www.facebook.com/OSPWieclawice/posts/883063211769881

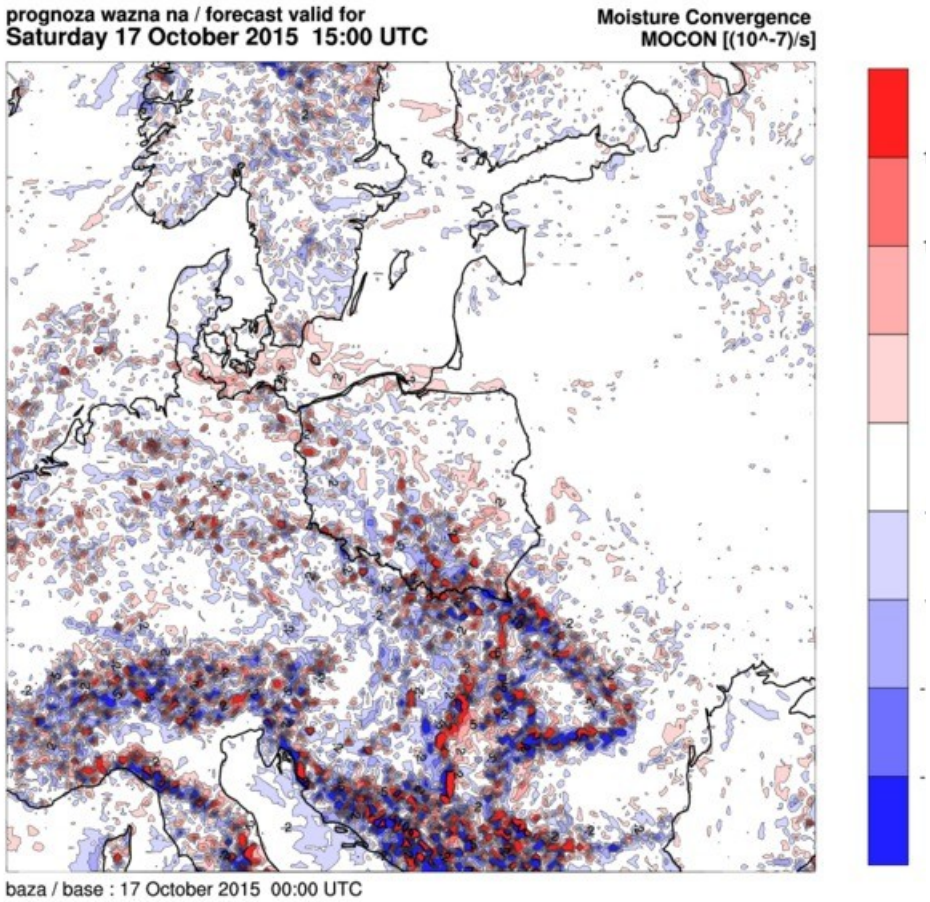
https://www.facebook.com/OSPWieclawice/posts/883063211769881

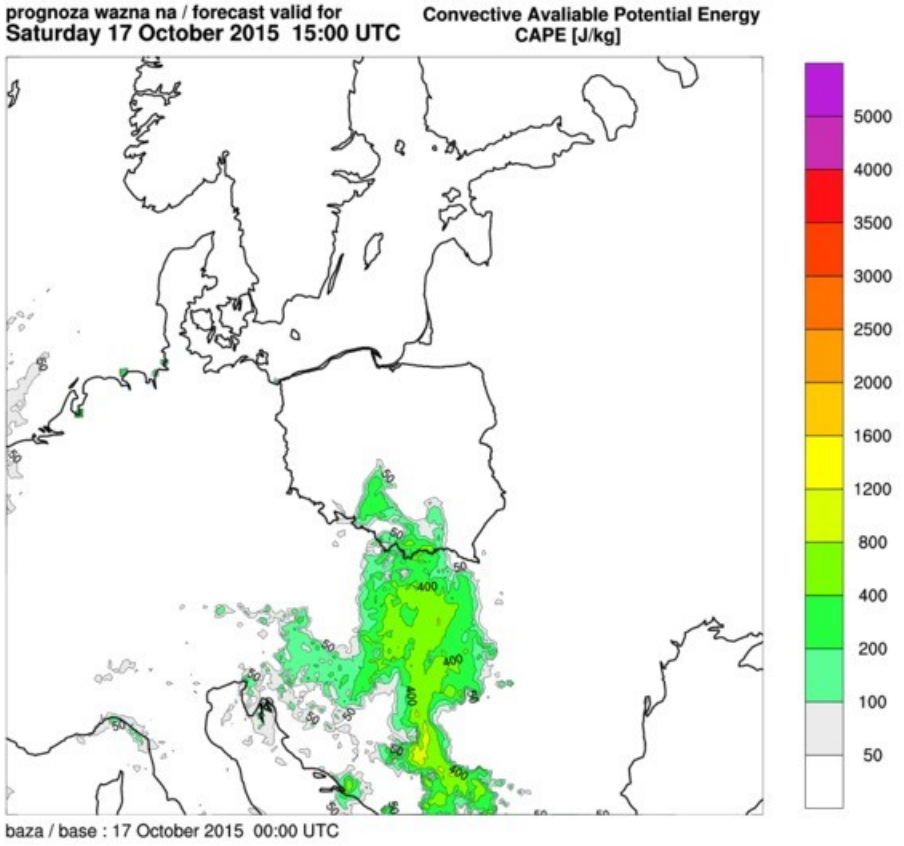
https://www.facebook.com/OSPWieclawice/posts/883063211769881

https://www.facebook.com/OSPWieclawice/posts/883063211769881

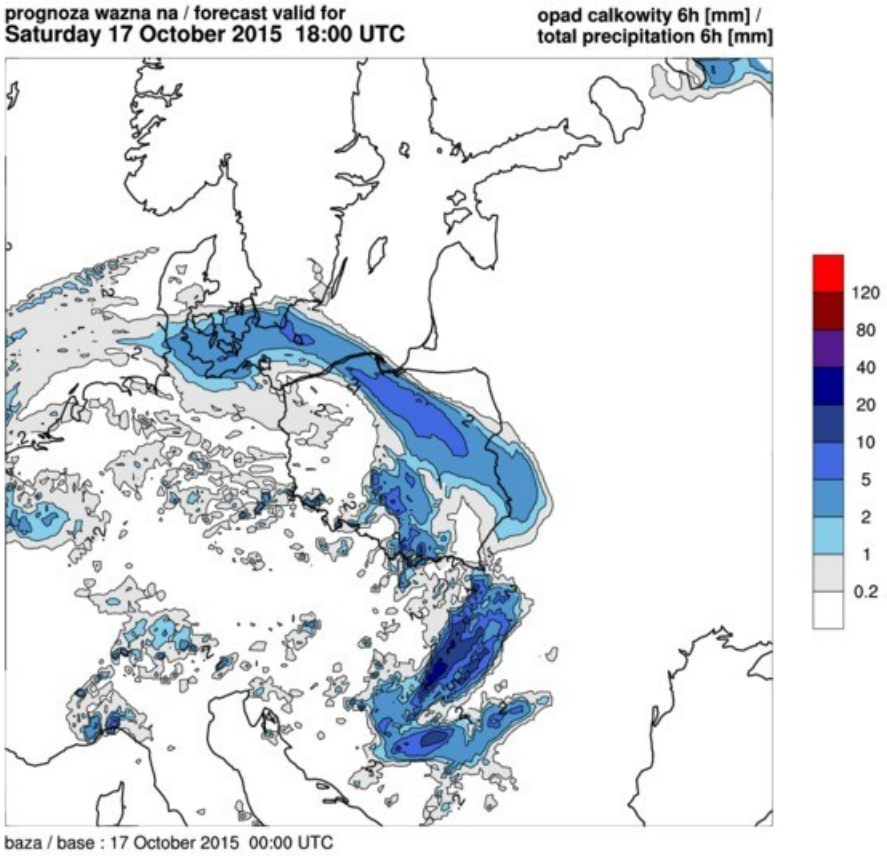
https://www.facebook.com/OSPWieclawice/posts/883063211769881

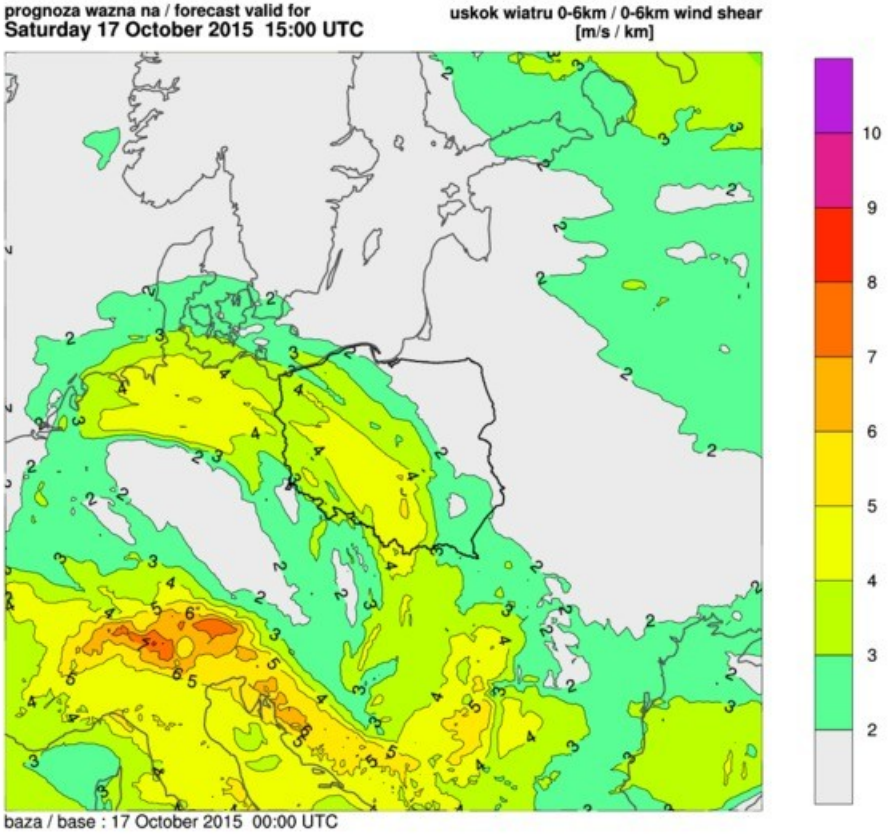
Other products often use for forecasting:

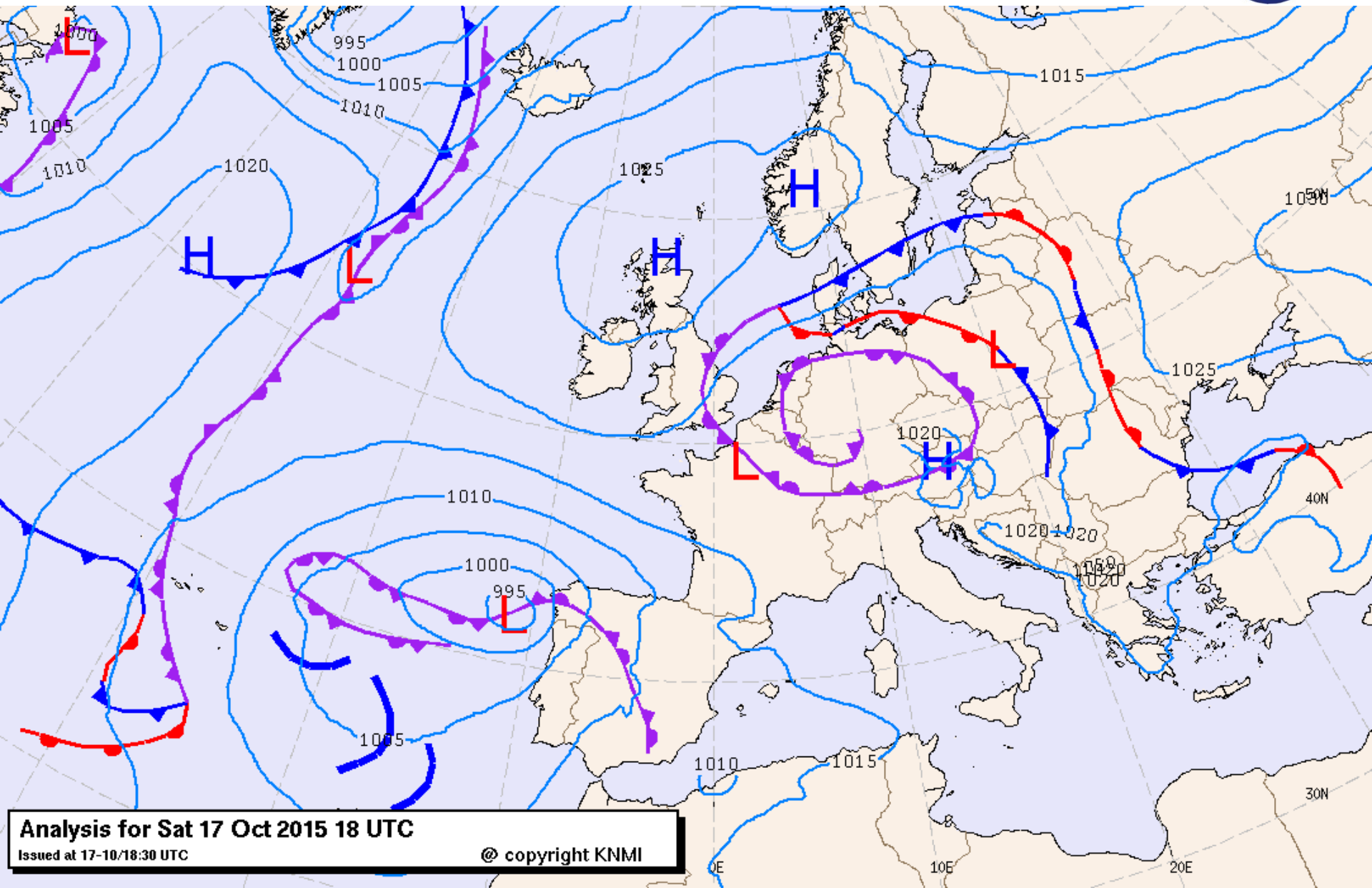




Other products we often use for forecasting:






995
1000
1005
1010
1015
1020
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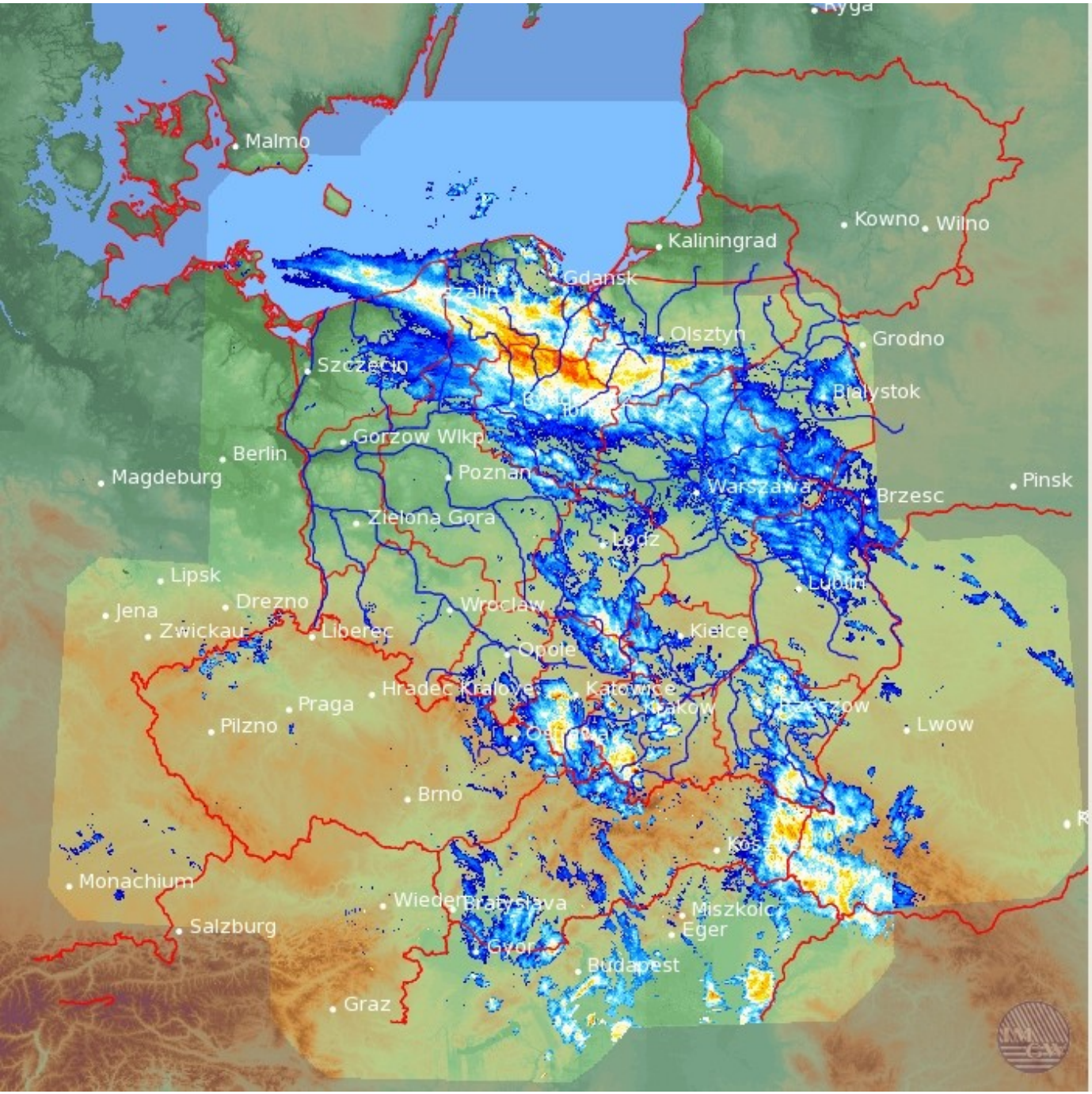
1030
1010
1005
1000
995
1005
1010
1015
1020
1025
1020
1020
1020
40N
30N
10E
20E
Analysis for Sat 17 Oct 2015 18 UTC
Issued at 17-10/18:30 UTC
@ copyright KNMI



CMAX (dBZ)
14:30 / 17-Oct-2015
POLUKR Composite

- 50.0 dBZ
- 46.8 dBZ
- 43.6 dBZ
- 40.4 dBZ
- 37.1 dBZ
- 33.9 dBZ
- 30.7 dBZ
- 27.5 dBZ
- 24.3 dBZ
- 21.1 dBZ
- 17.9 dBZ
- 14.6 dBZ
- 11.4 dBZ
- 8.2 dBZ
- 5.0 dBZ

Pdf File:	POL_EXT_CMAX.comp.cmax
Range:	600.858
Projection:	aeqd
Merge Type:	Maximum Value
Sensors:	BRZ+ GDA+ LEG+ PAS+ POZ+ RAM+ RZE+ SWI+ UKLL+ czbrd+ czska+ skjav+ skkoj+
Data:	Radar Data

Rainbow® SELEX-SI

Thank you for your attention

contact:

Rafał Kielar
CBPM Central Meteorological Forecasting Office IMGW-PIB
30-215 Kraków, ul. P. Borowego 14
tel.: (012) 639 81 51
rafal.kielar@imgw.pl
www.imgw.pl