Use of high resolution NWP porducts in operational forecasting at ZAMG

Christoph Zingerle
with courtesy of colleagues Susanne Drechsel and Alfred Neururer

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Forecasting at ZAMG

Headquarter at Vienna

- Forecasting and warnings for all of Austria 24/7
- Regional forecasting + warning for the easternmost regions (local customers)
- Research and development (model, aplications, ...)

Regional centers in Graz, Klagenfurt, Salzburg and Innsbruck

- Detailed forecasts and warnings for the regions, 10-12 hours/day, all week
- Wide range of different products for local customers
- Strong collaboration with local governmental structures and civil protection
- Development of applications + special topics

Web meetings scheduled once a day and in case of high warning levels

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Forecasting at ZAMG

In the meteorological workstation quite a selection of models is available:

- ECMWF
- ALARO5
- Arome
- INCA
- LAEF (deterministic mode – model mean)
- + ICON, GFS, UKMO, Cosmo-EU for traditional reasons
- Quite an **ENSEMBLE** … however
- No probabilistic forecasting data / maps (only on internal web-page)
- Discussion during the daily web conference (no guidance forecast but ECMWF is main source of forecast information)

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LAEF-EPSGRAM from 20151018 00 UTC
11121 Innsbruck 47.2667; 11.3500; 579m (1797m)

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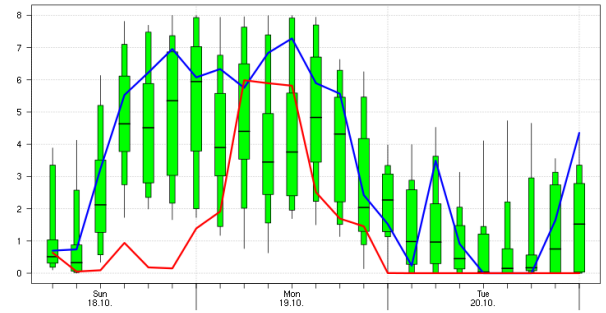
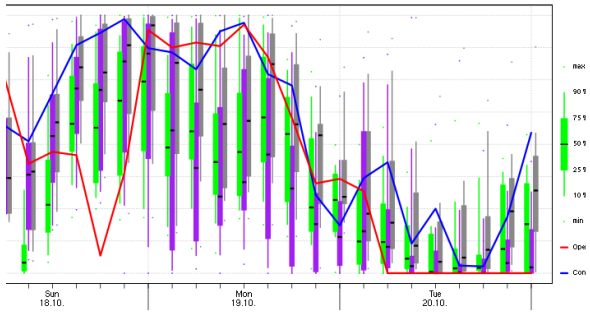
11121 Innsbruck 47.2667; 11.3500; 579m (1797m)

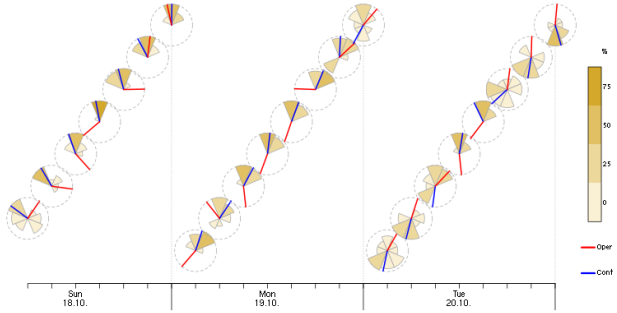
Low cloud cover [octet]



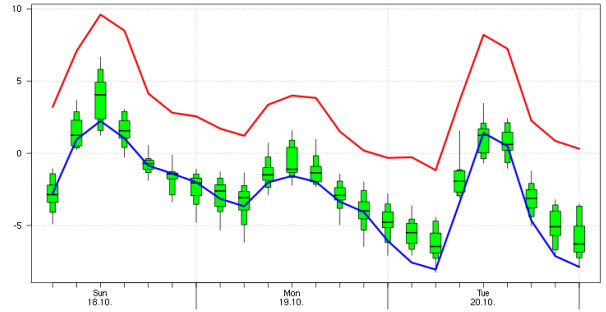
Low (green), medium (purple) and total (grey) Cloud Cover [octet]



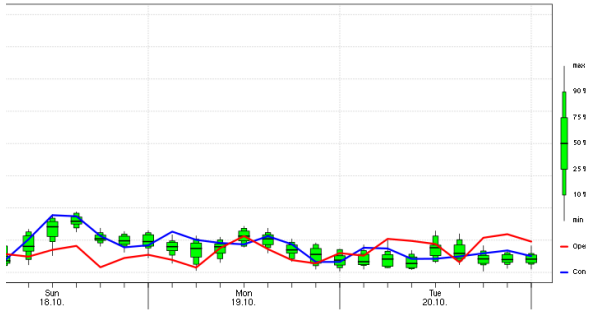
Distribution of 10 m wind direction



Wind Chill [C]



Mean 10m wind speed [m/s]



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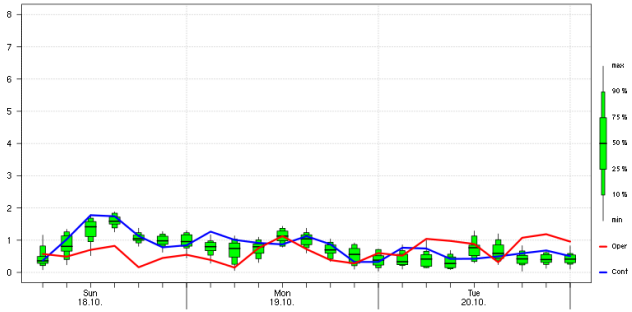
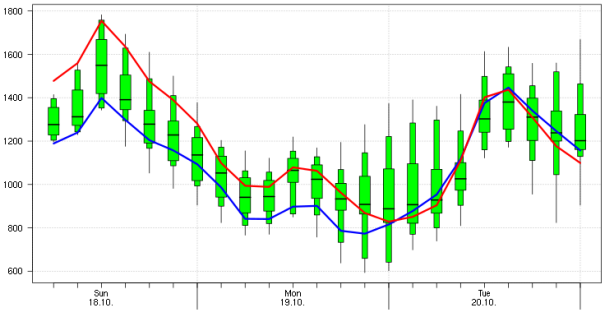
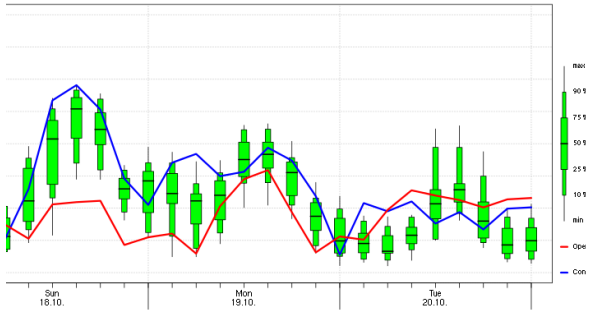


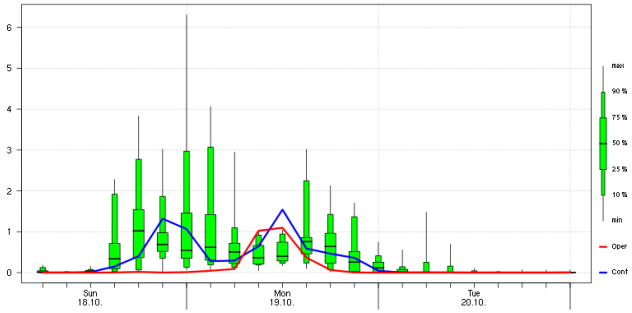
Snow fall line [m]



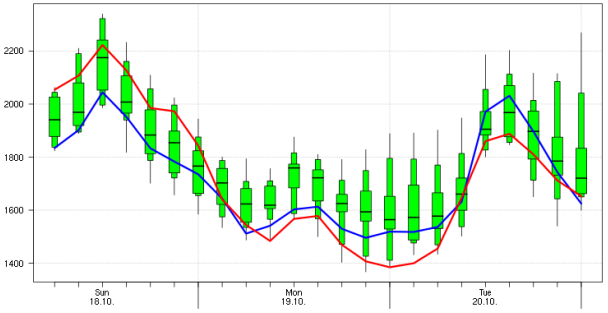
Maximum gusts/3h [km/h]



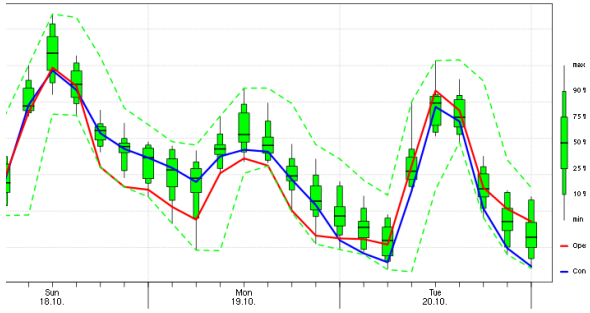
Total Precipitation [mm/3h]



0C Level [m]



Reduced 2m Temperature and Min,Max in 3h [C]



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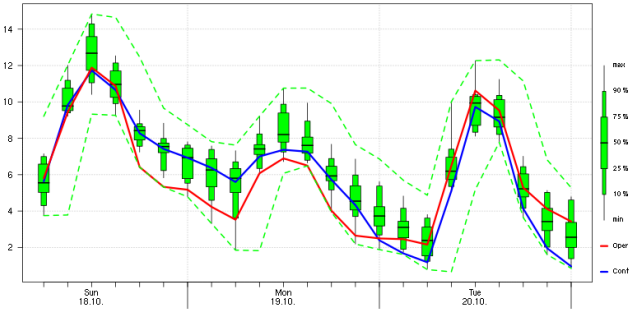
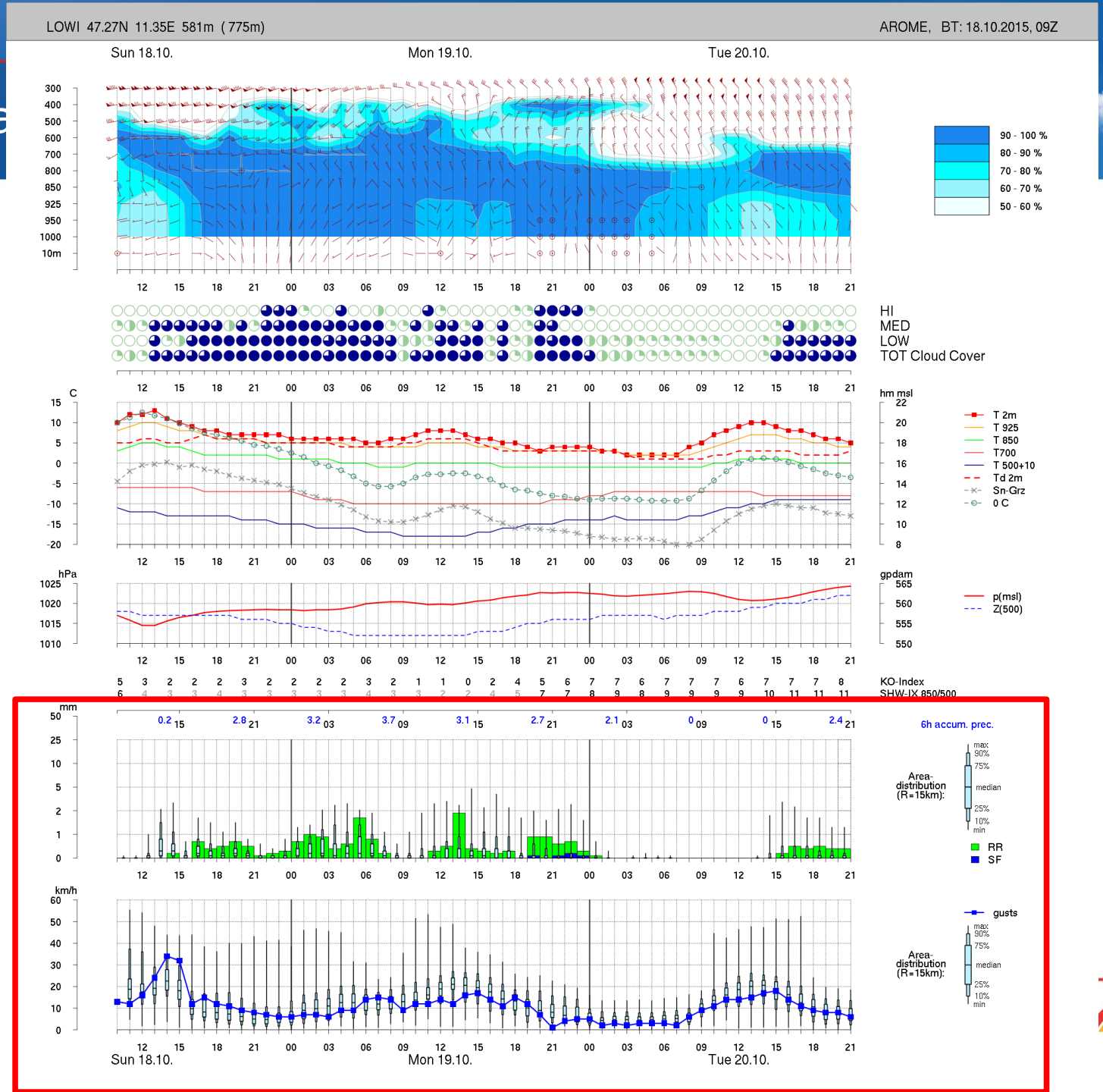


Foreca

AROME



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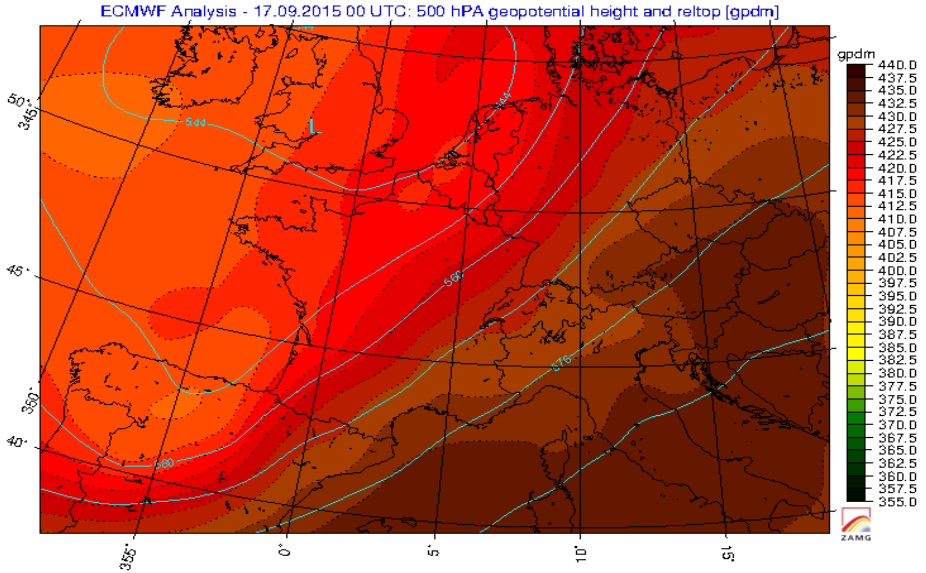
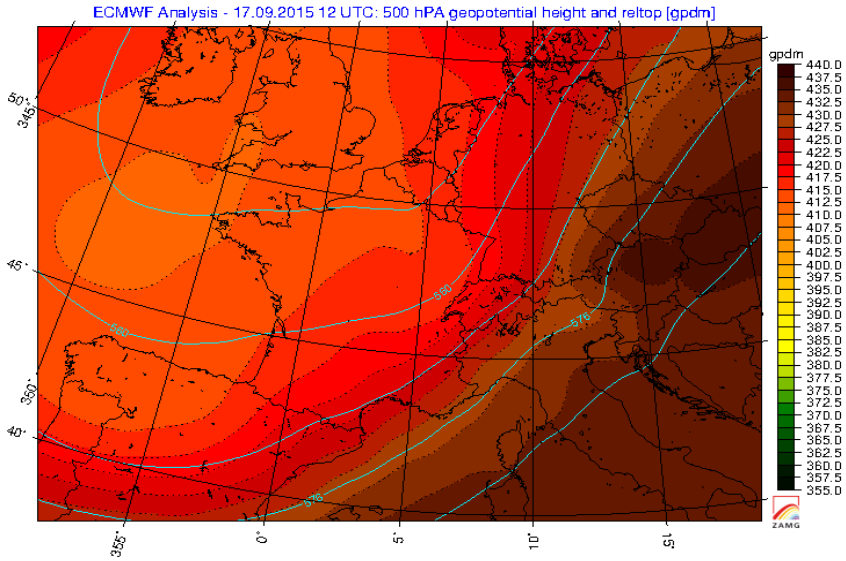
ECMWF – analysis at 500 hPa



17.9.2015, 00UTC



17.9.2015, 12UTC

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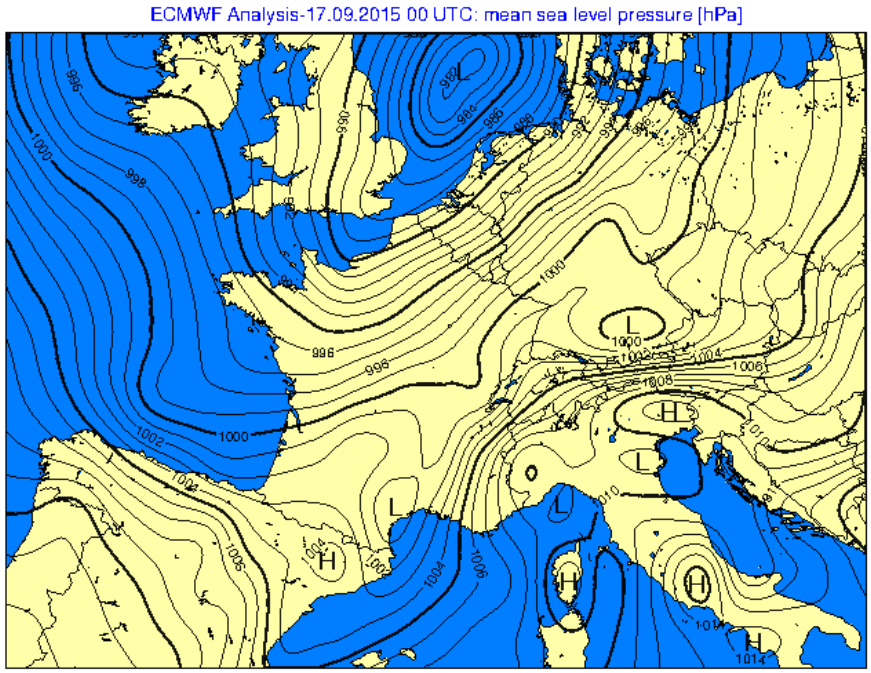
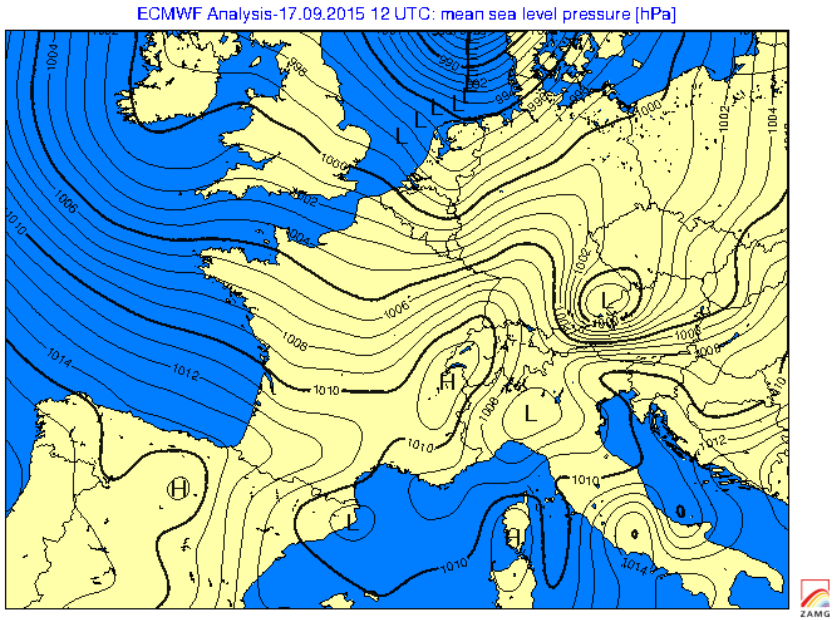
ECMWF – surface analysis



17.9.2015, 00UTC



17.9.2015, 12UTC

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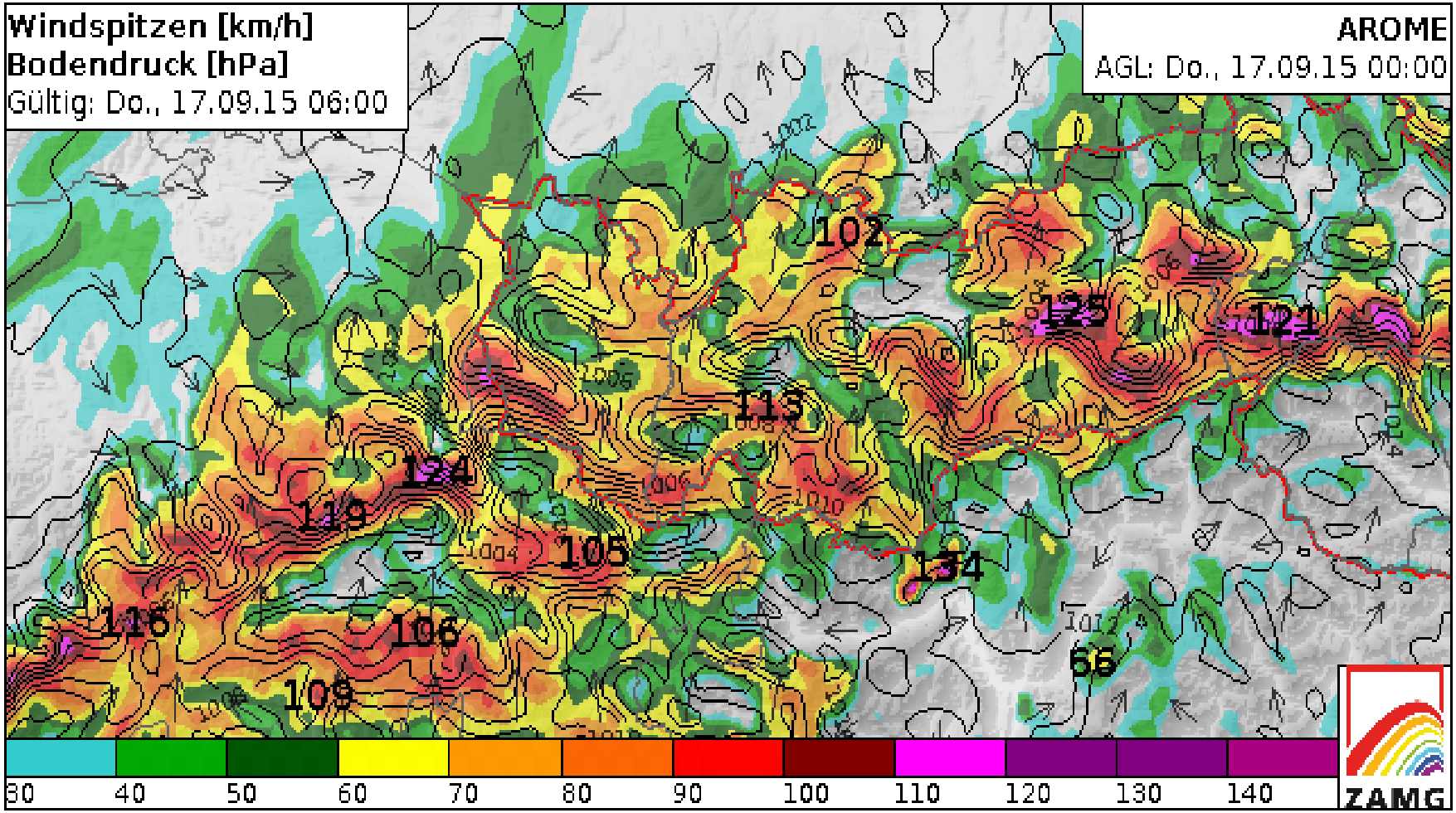
06 UTC:
AROME (2km) - forecast PMSL+ffx



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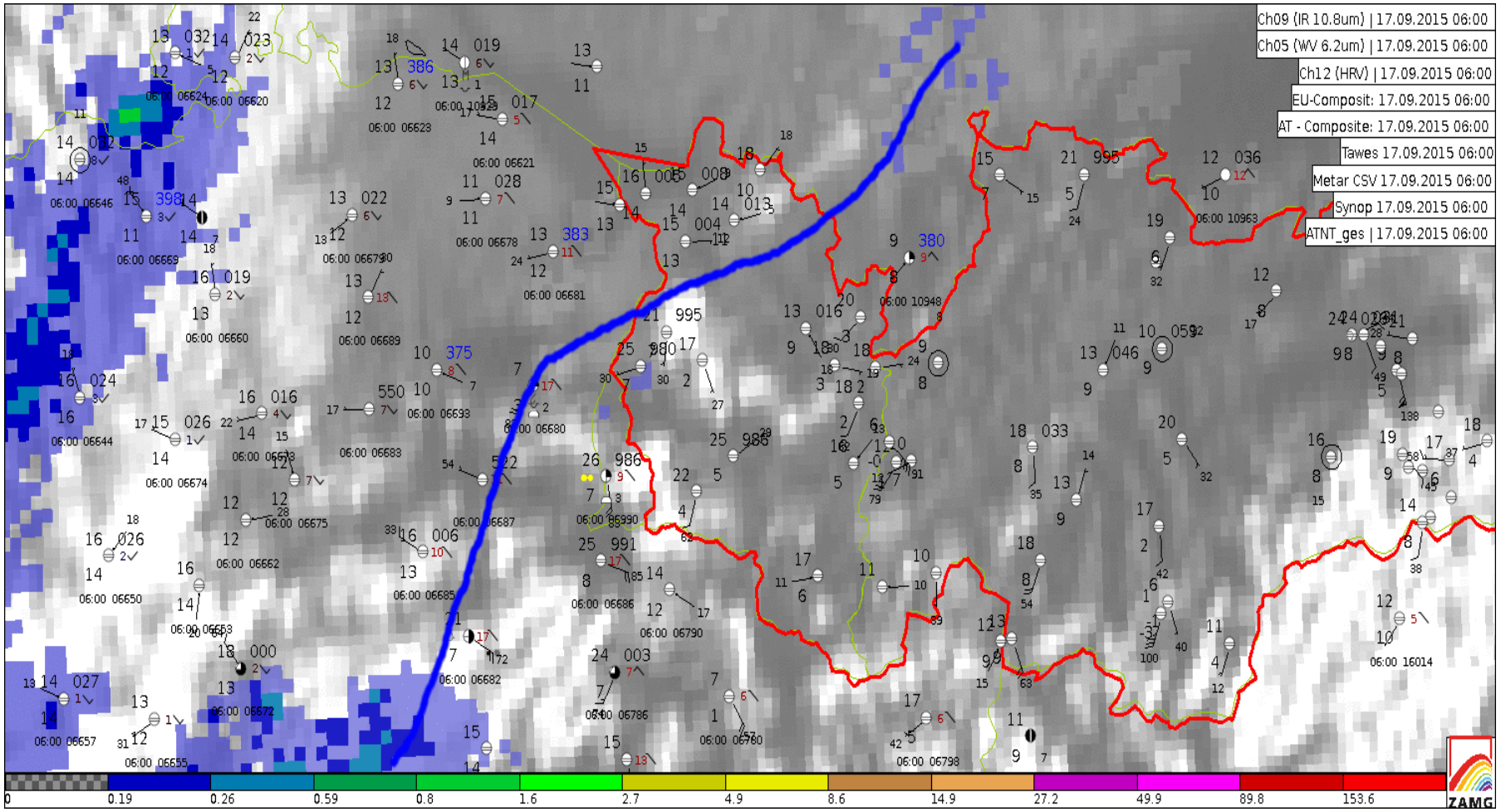
06 UTC:
Combiplot + analysis of frontal position



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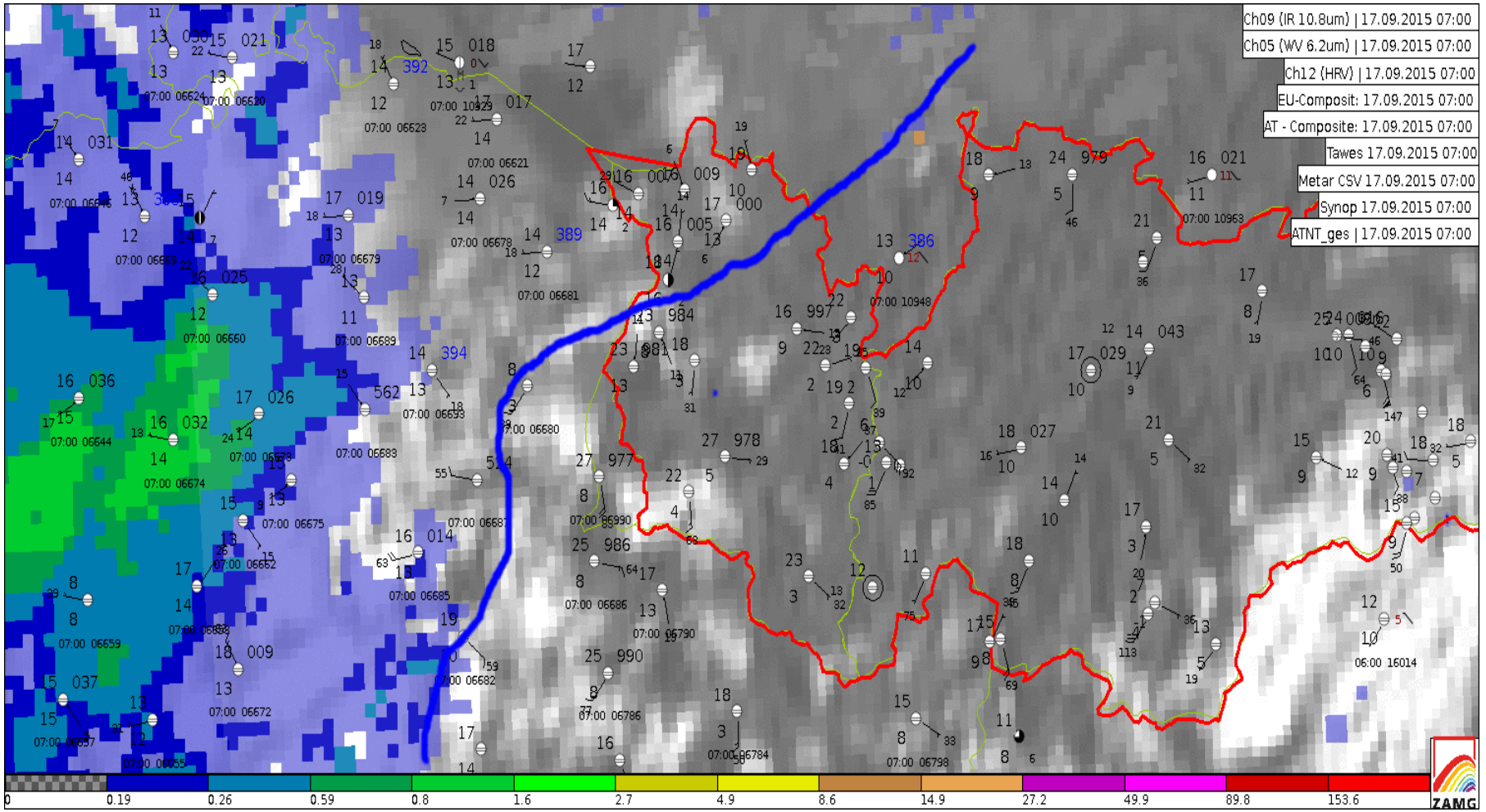
07 UTC:
Combiplot + analysis of frontal position



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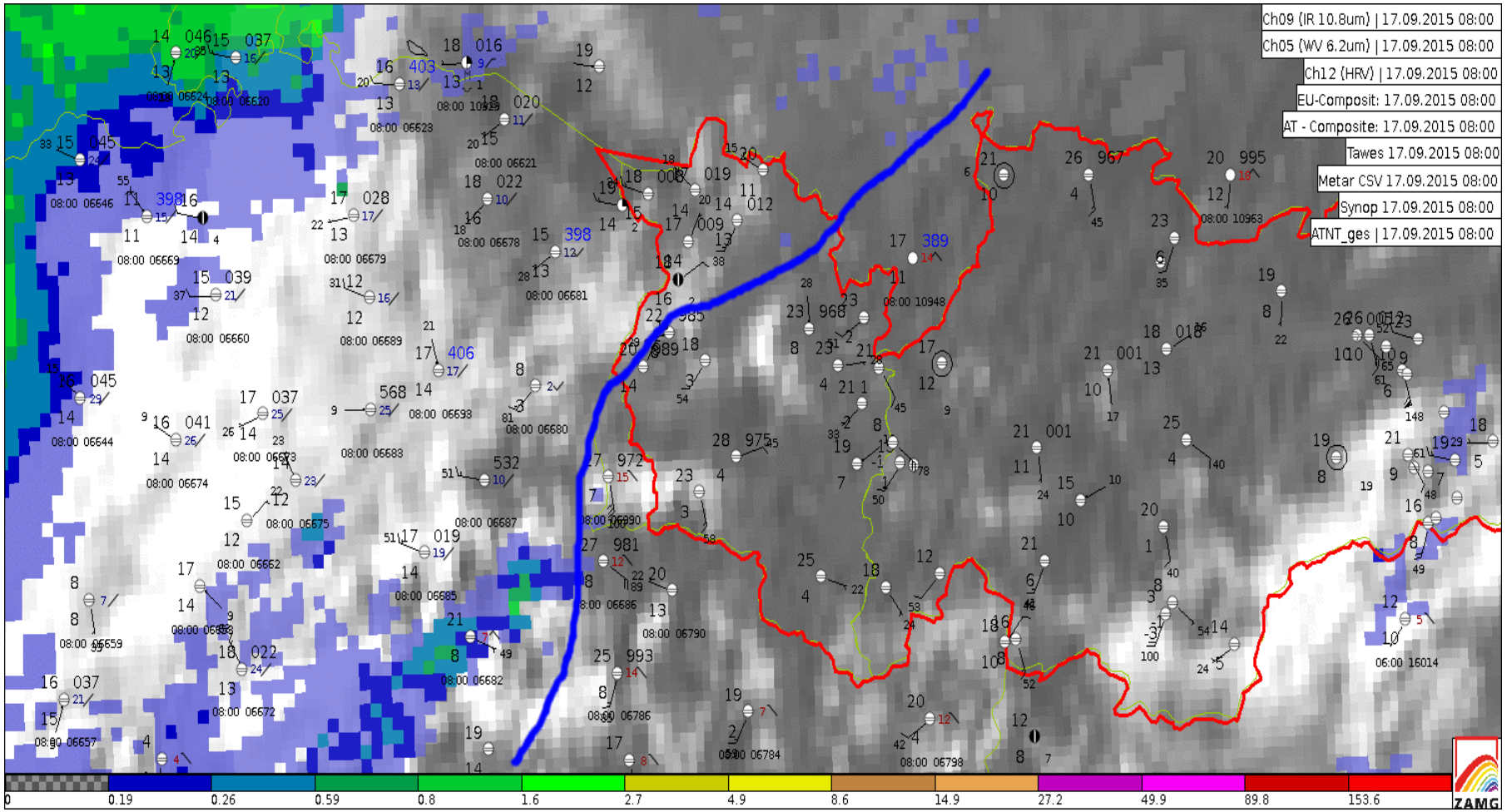
08 UTC:
Combiplot + analysis of frontal position



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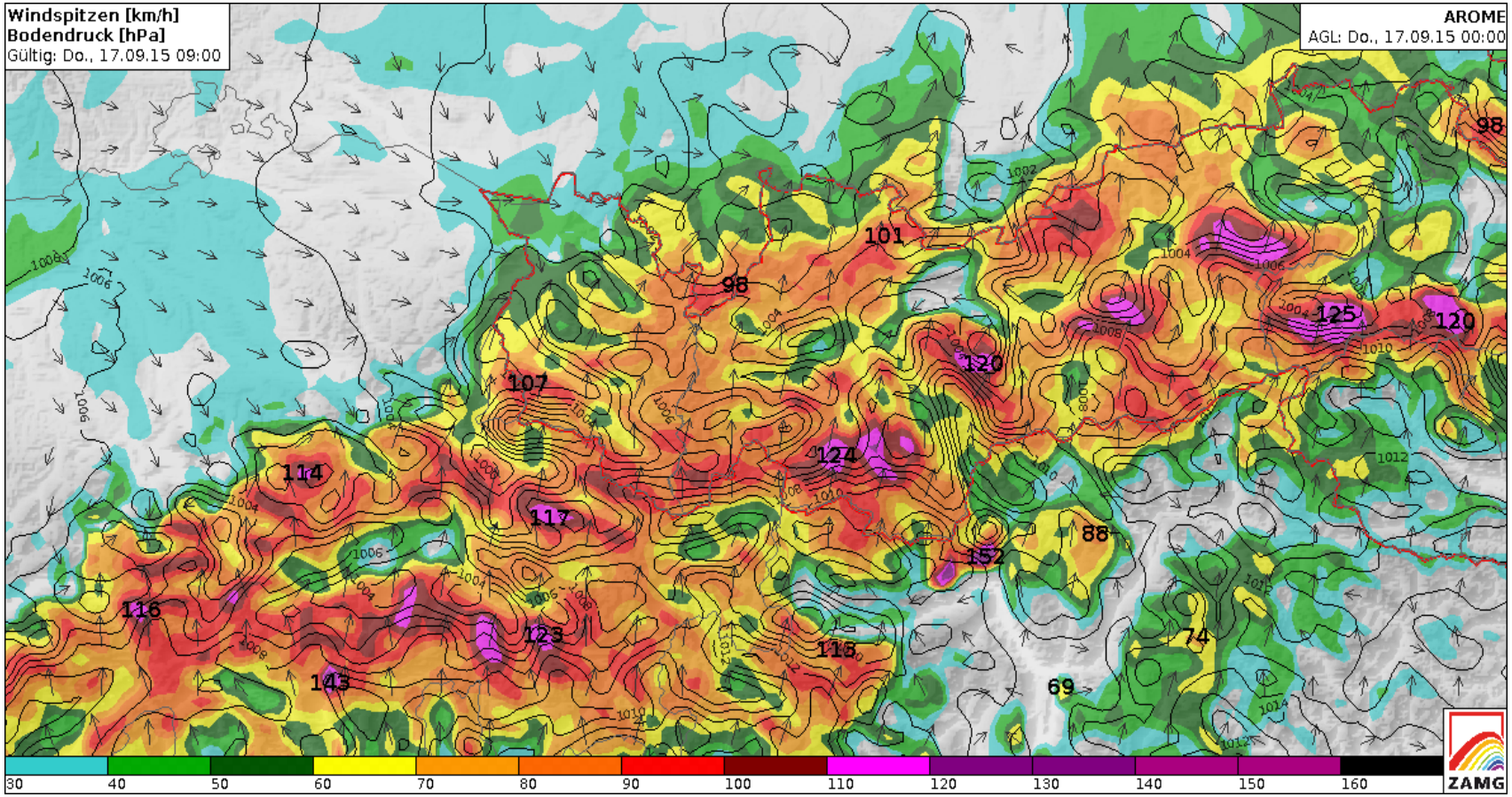
09 UTC:
AROME (2km) - forecast PMSL+ffx



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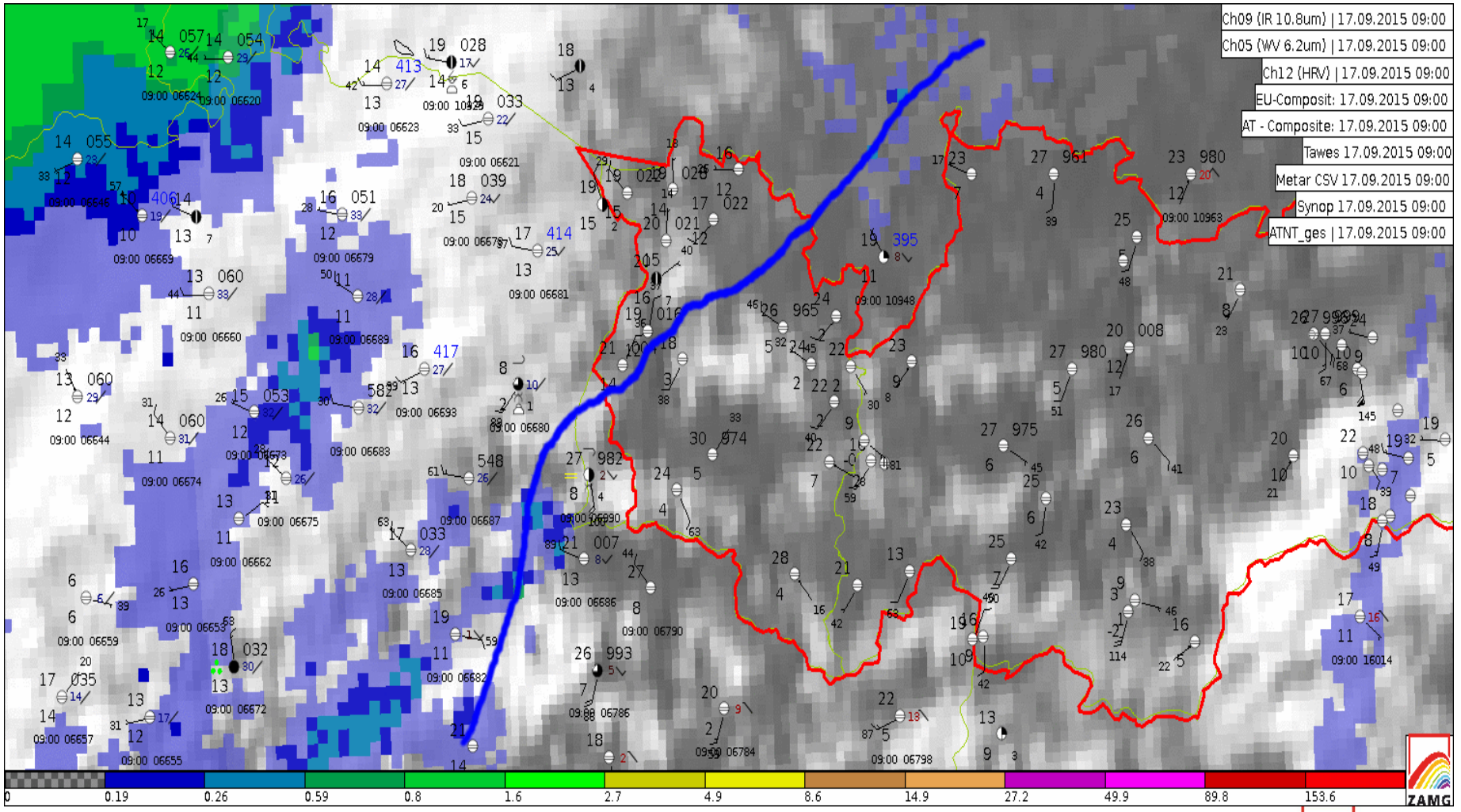
09 UTC:
Combiplot + analysis of frontal position



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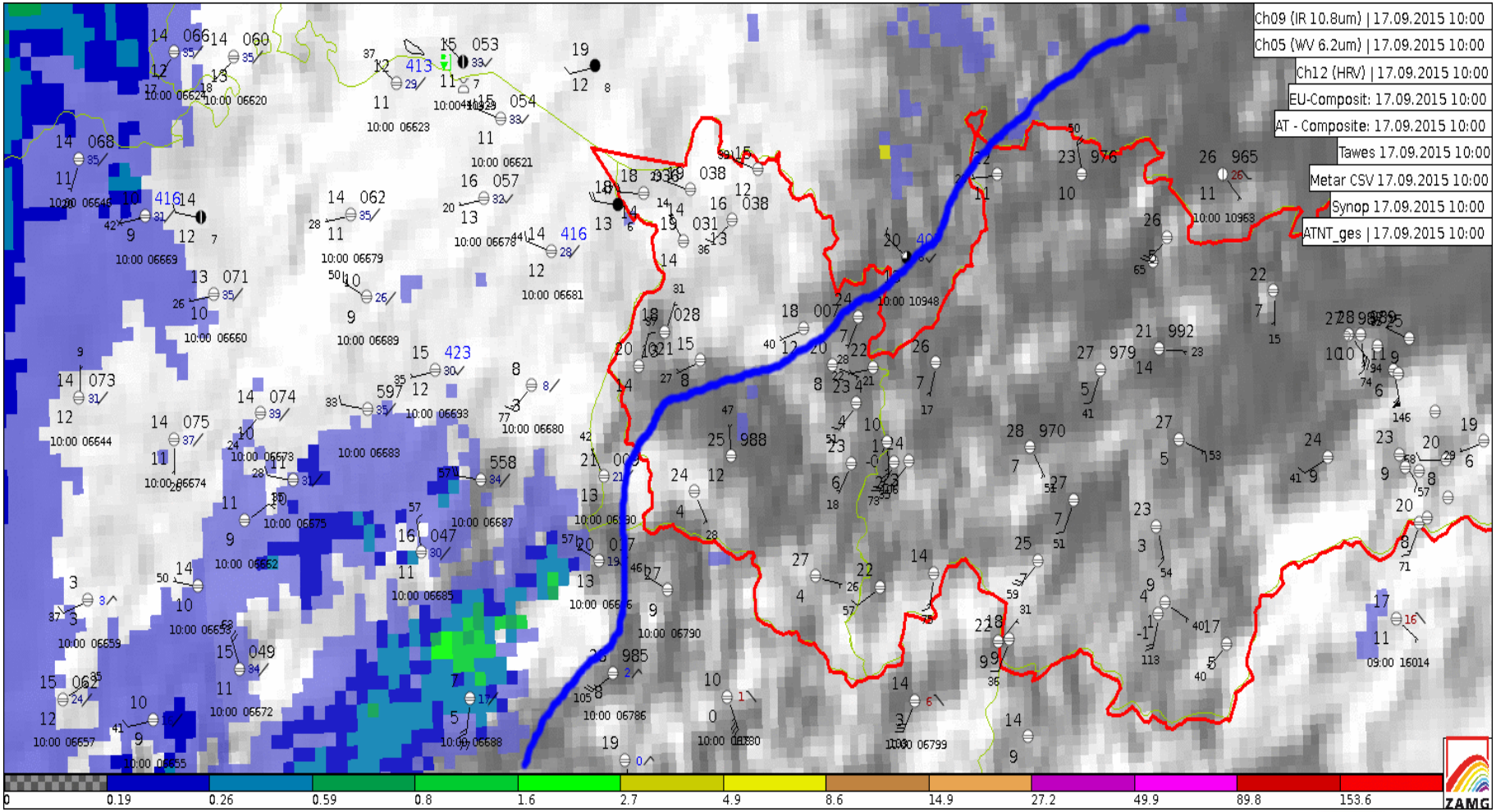
10 UTC:
Combiplot + analysis of frontal position



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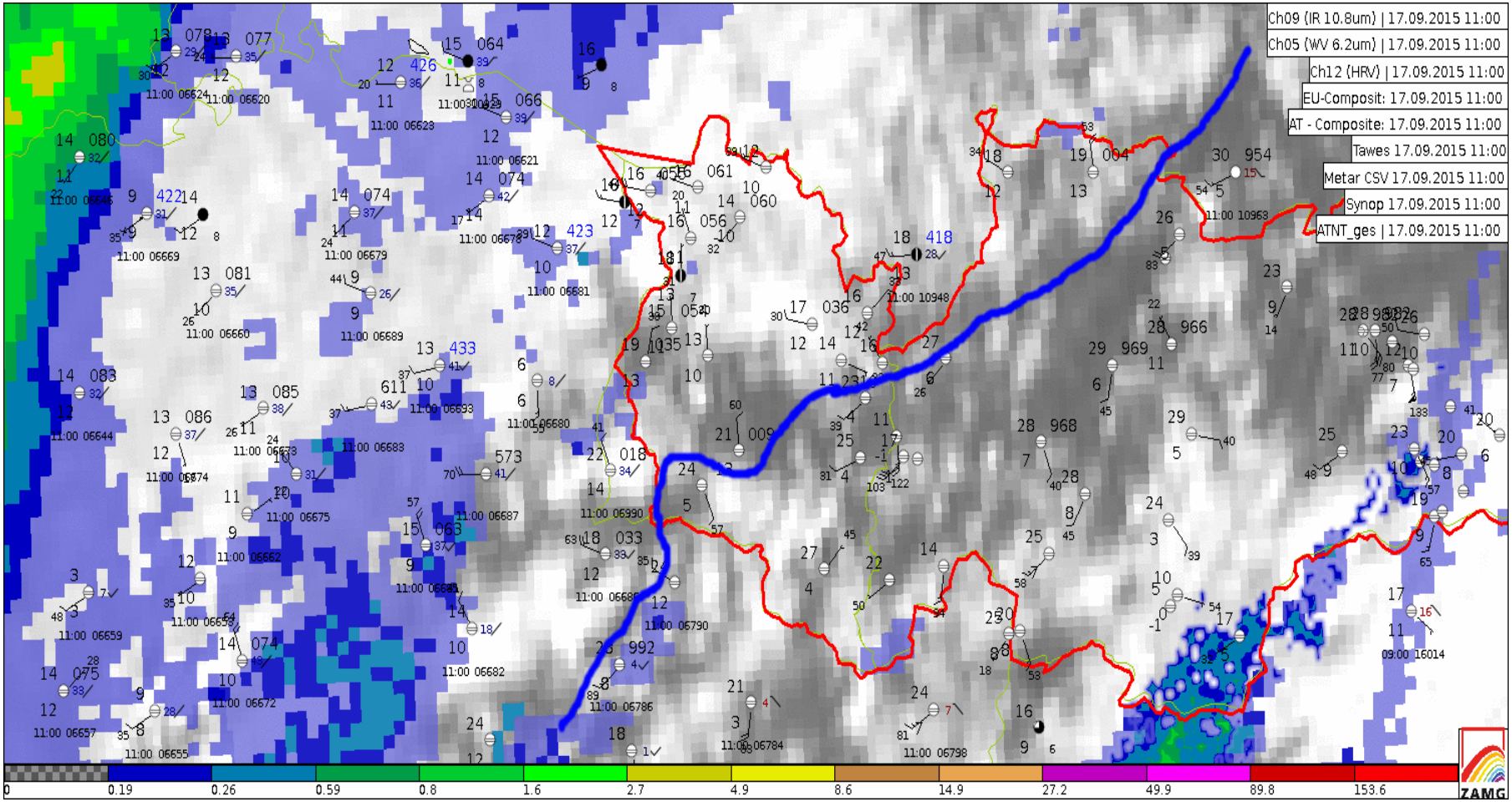
11 UTC:
Combiplot + analysis of frontal position



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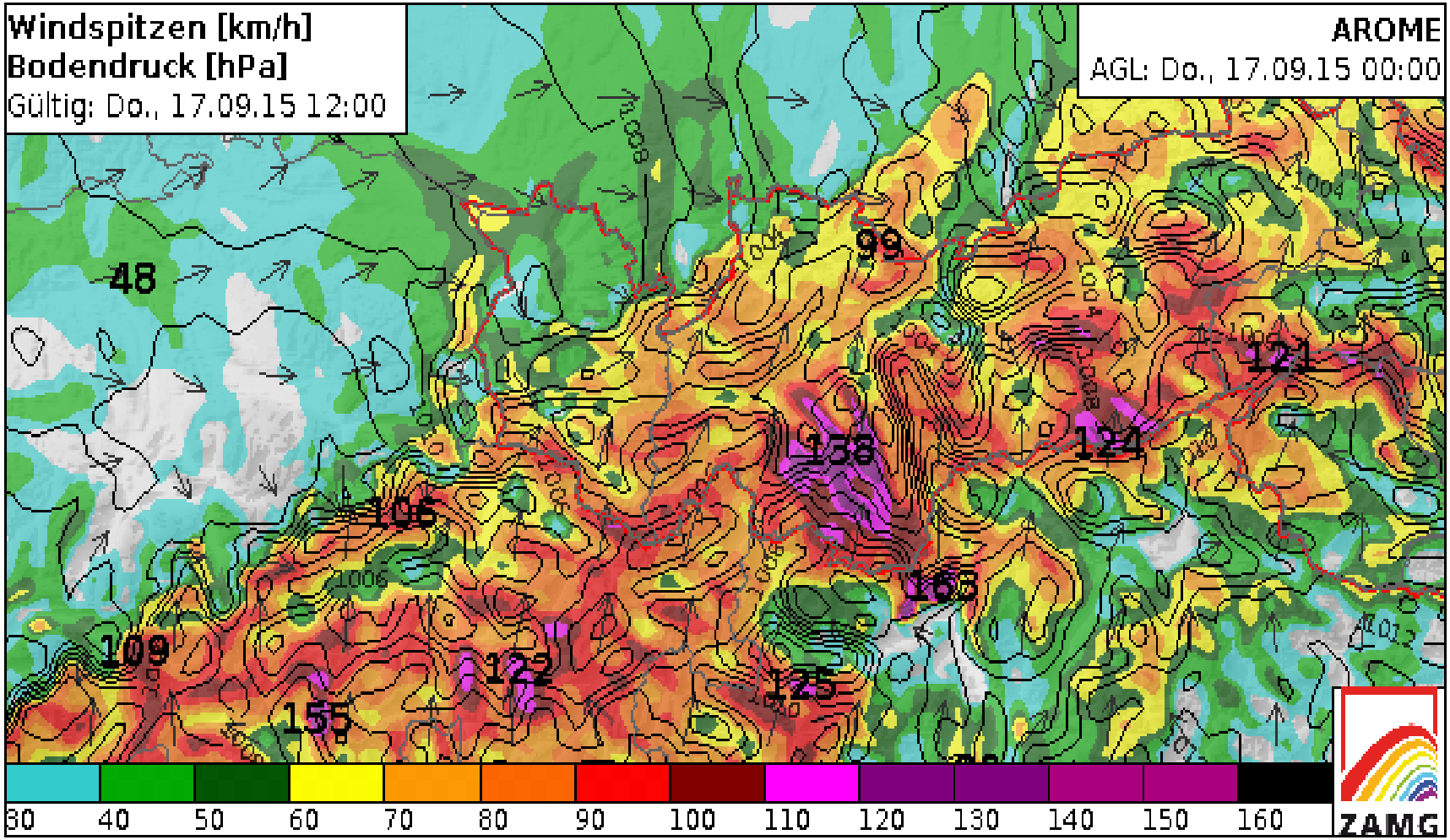
12 UTC:
AROME (2km) - forecast PMSL+ffxx



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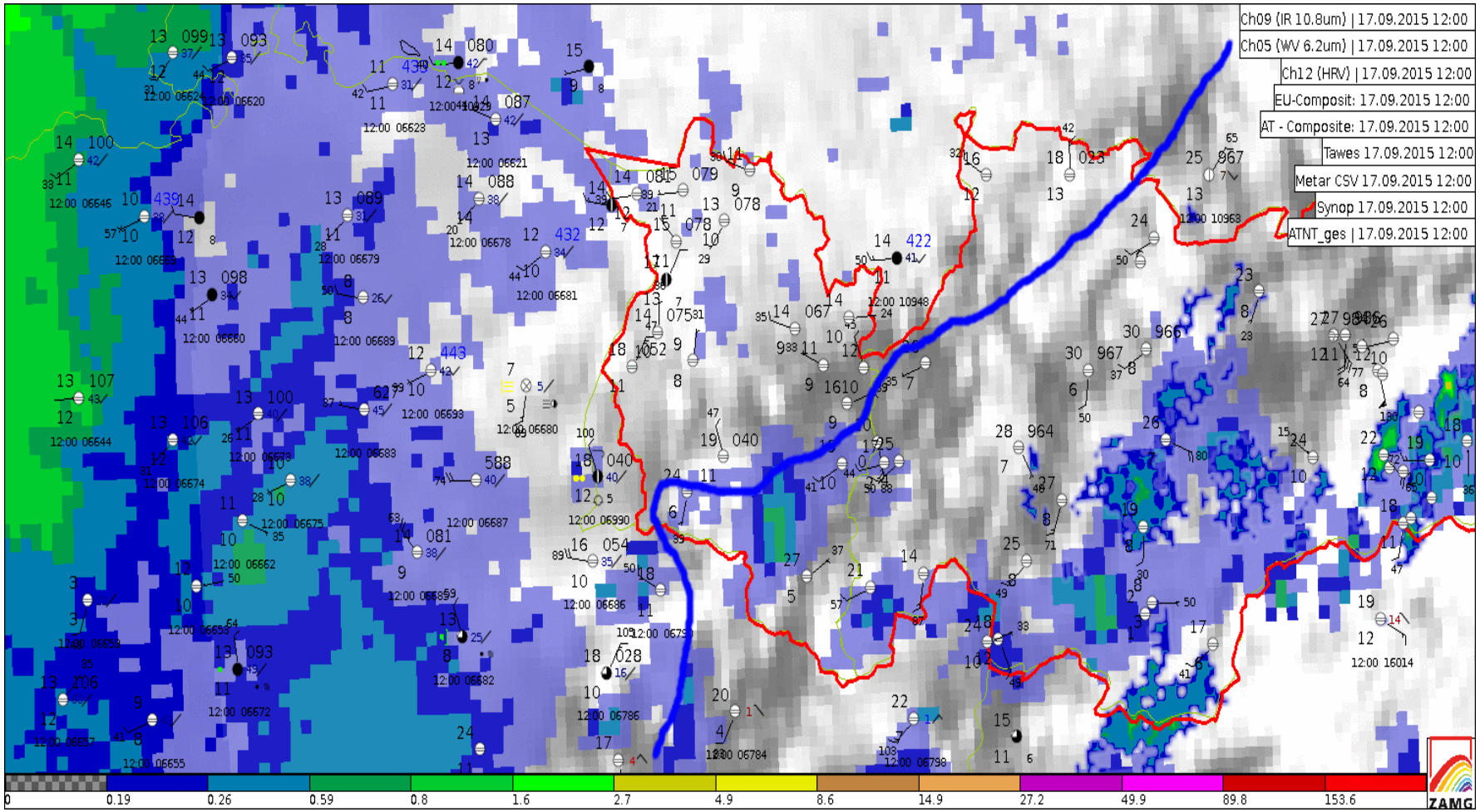
12 UTC:
Combiplot + analysis of frontal position



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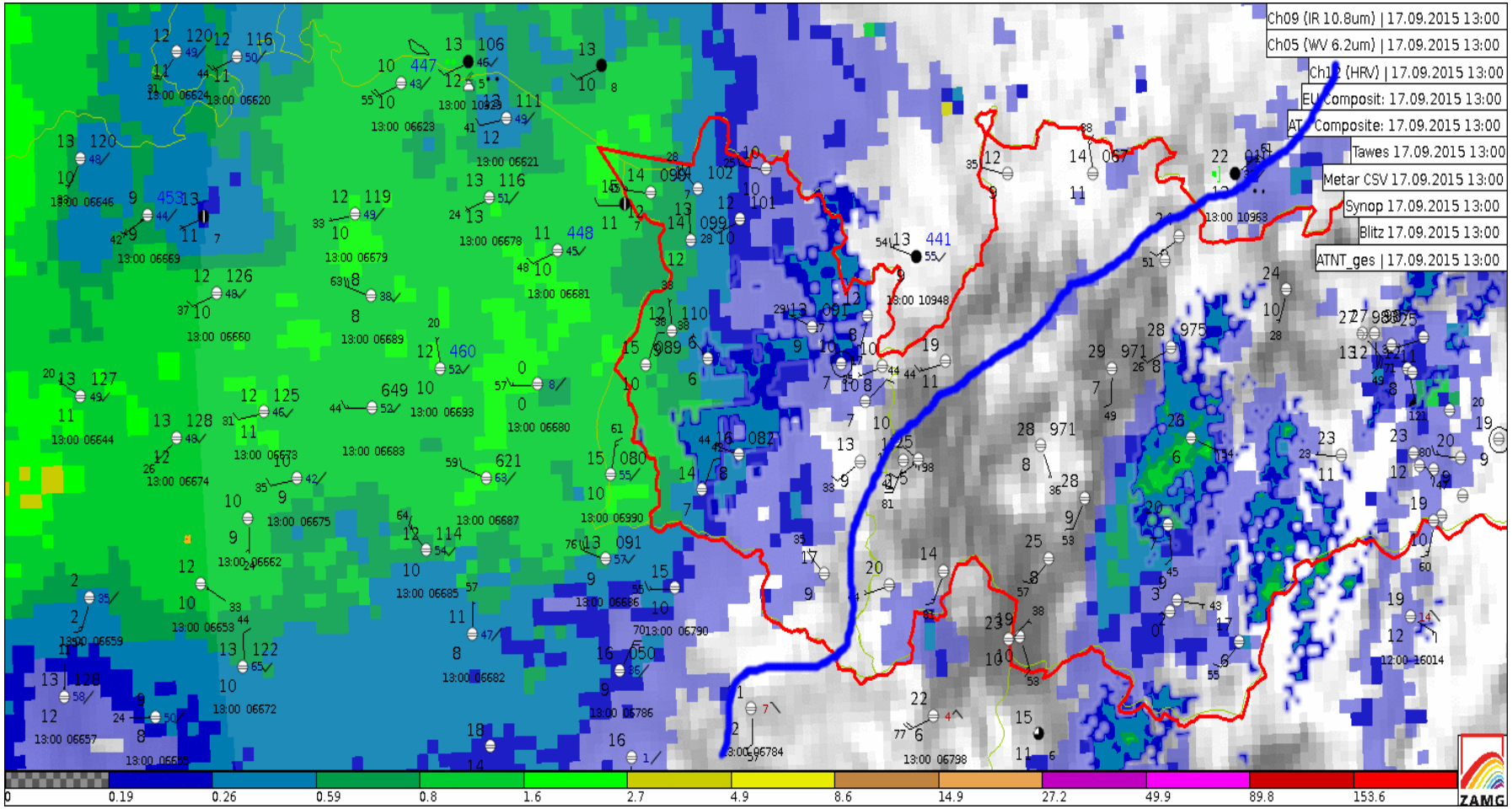
13 UTC:
Combiplot + analysis of frontal position



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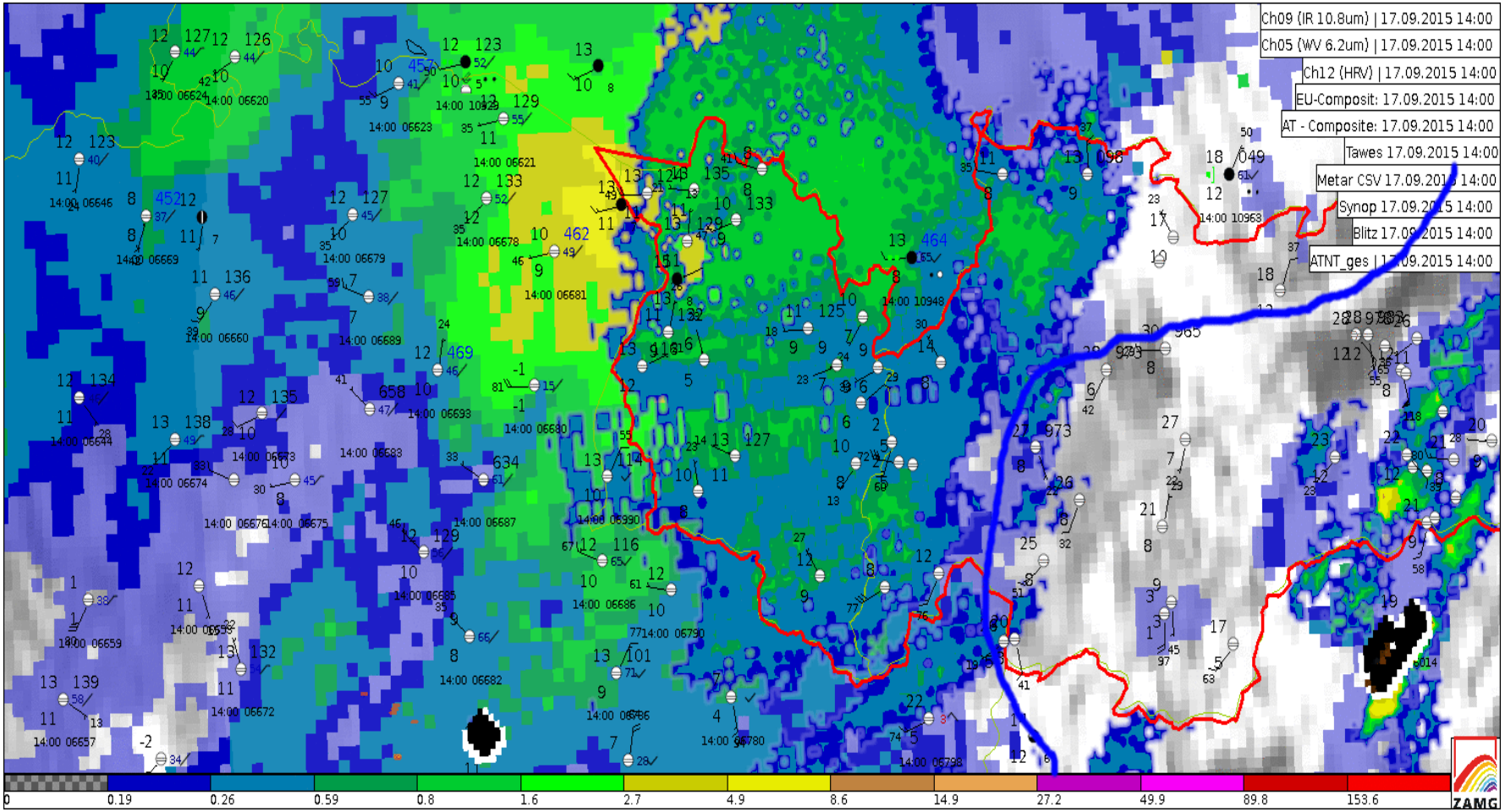
14 UTC:
Combiplot + analysis of frontal position



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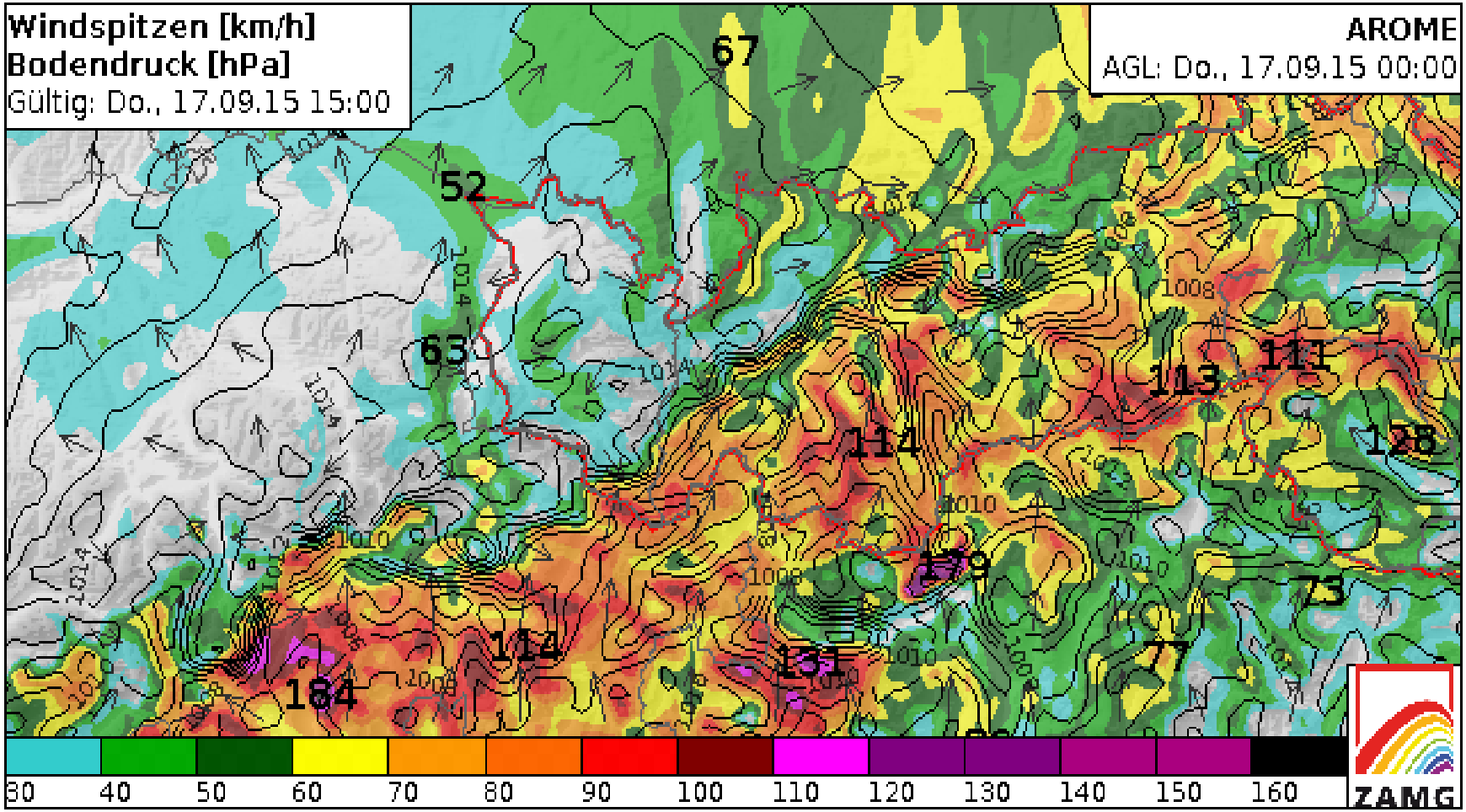
15 UTC:
AROME (2km) - forecast PMSL+ffx



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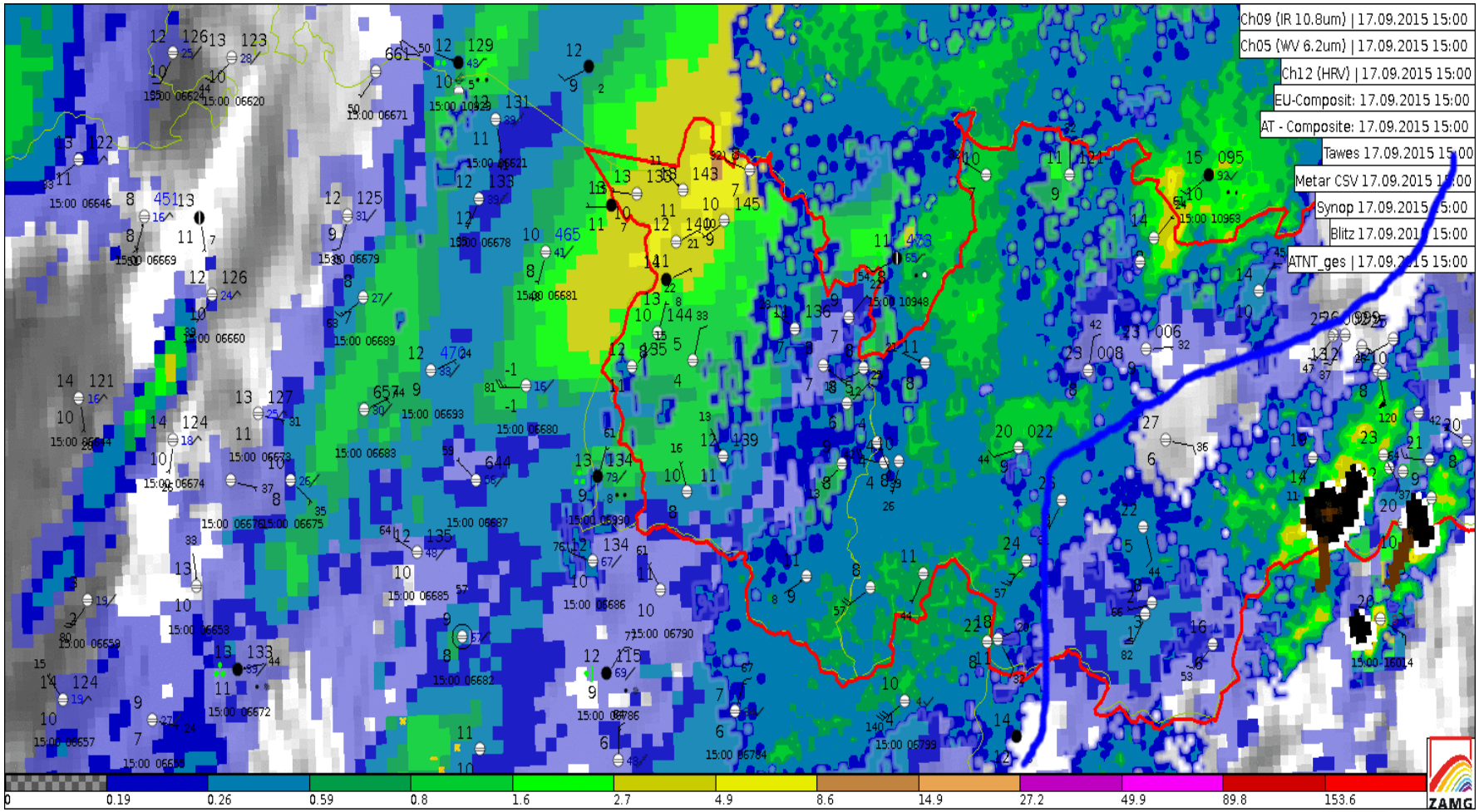
15 UTC:
Combiplot + analysis of frontal position



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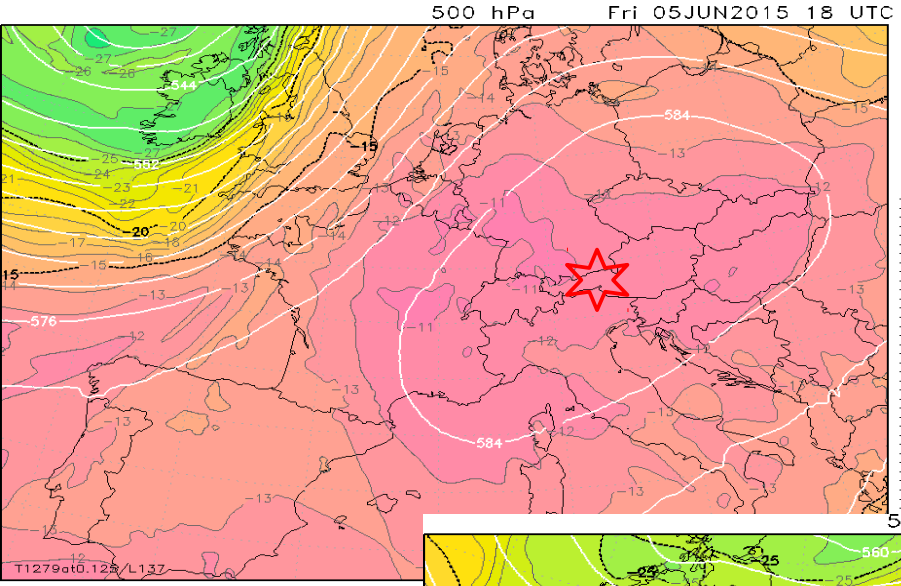
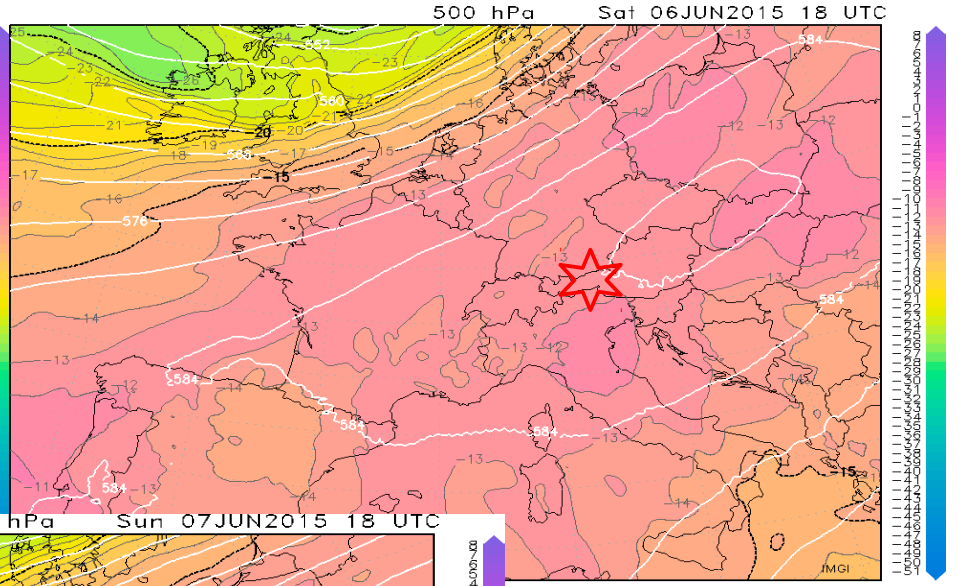
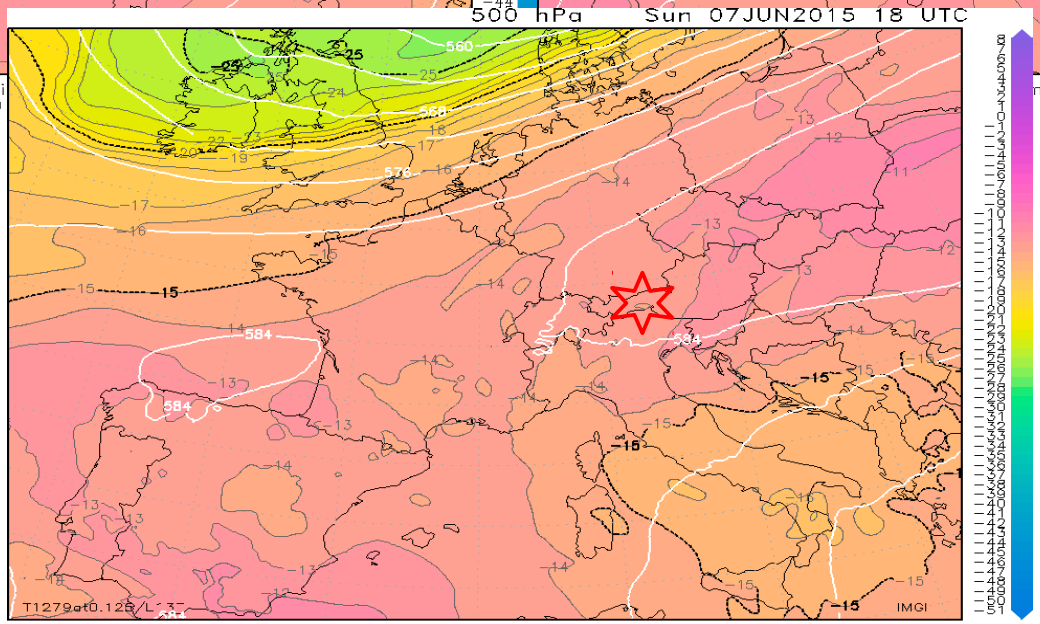
ECMWF – analysis at 500 hPa
convective precipitation: 07. - 08.06.2015



ECMWF ANALYSIS: geopotential hei
and temperature at 500



n, spacing: 4, white contours]
spacing: 2, shaded]



ECMWF ANALYSIS: geopotential height [10m, spacing: 4, white contours]
and temperature at 500 hPa [C, spacing: 2, shaded]

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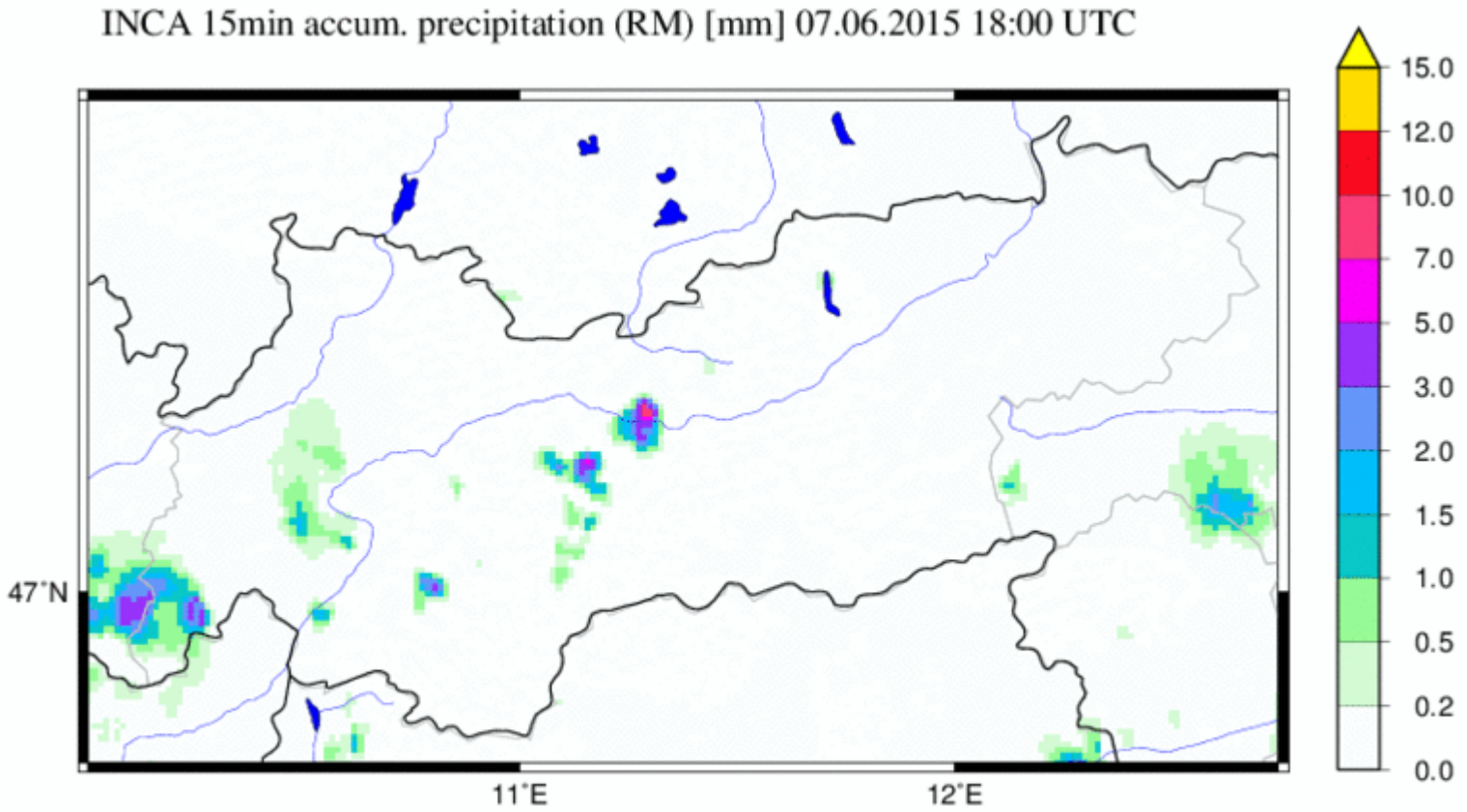
INCA – analysis
convective precipitation: 07. - 08.06.2015



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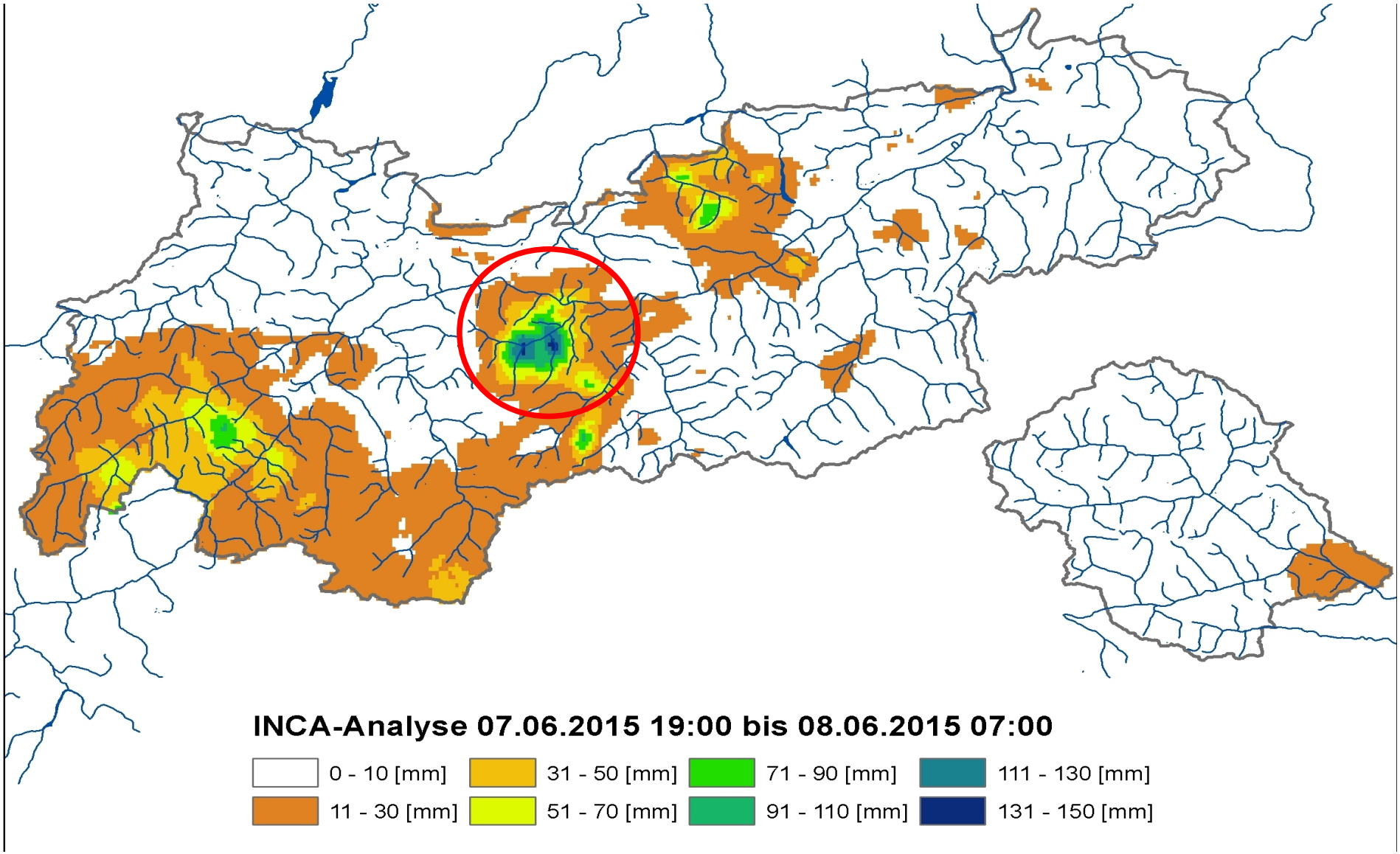
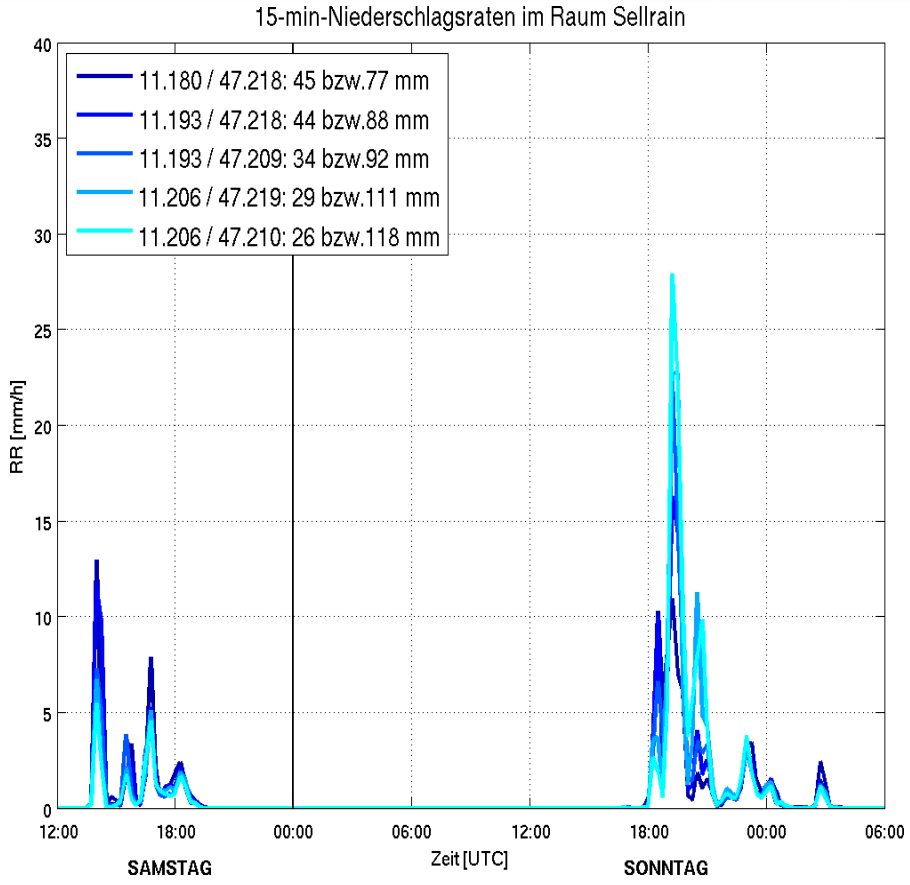
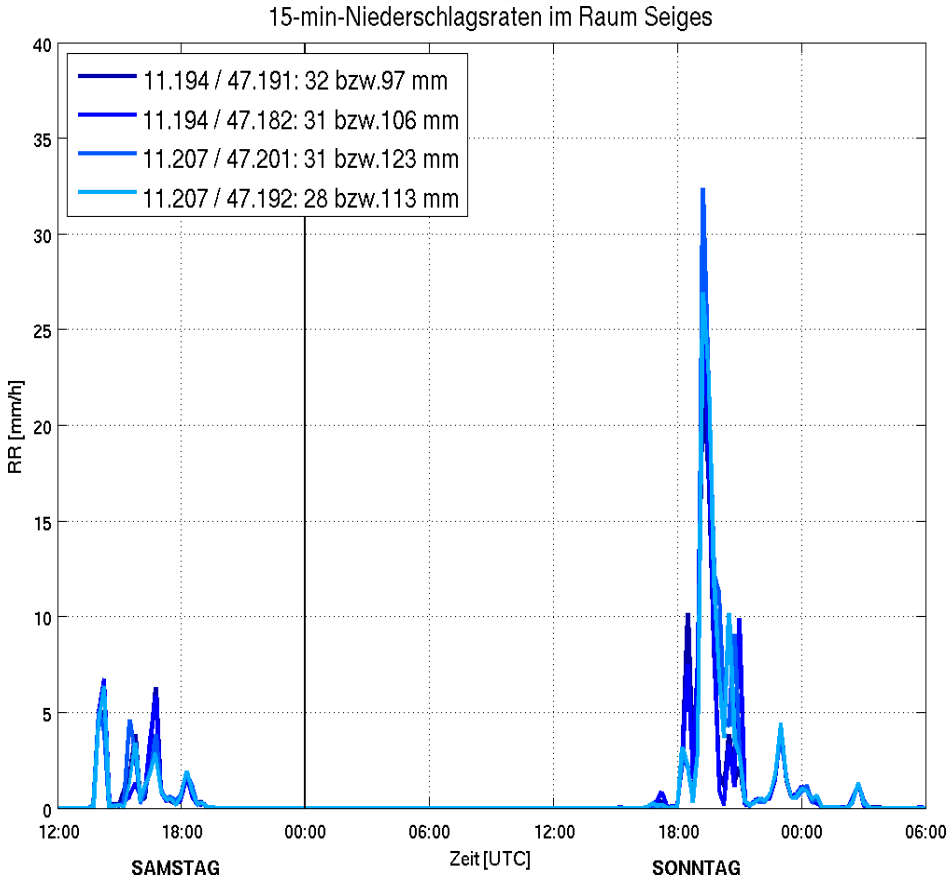


INCA – analysis
convective precipitation: 07. - 08.06.2015





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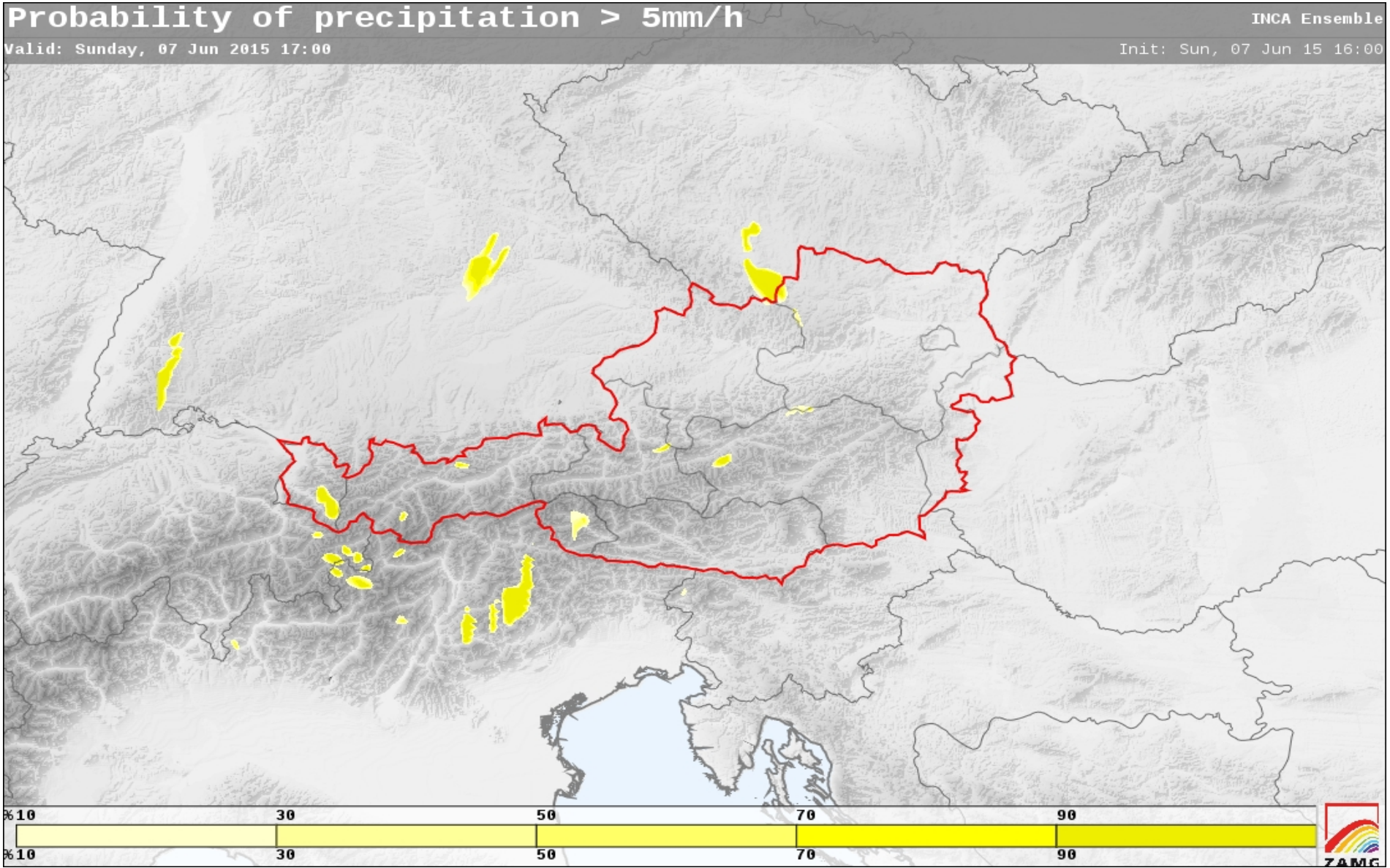

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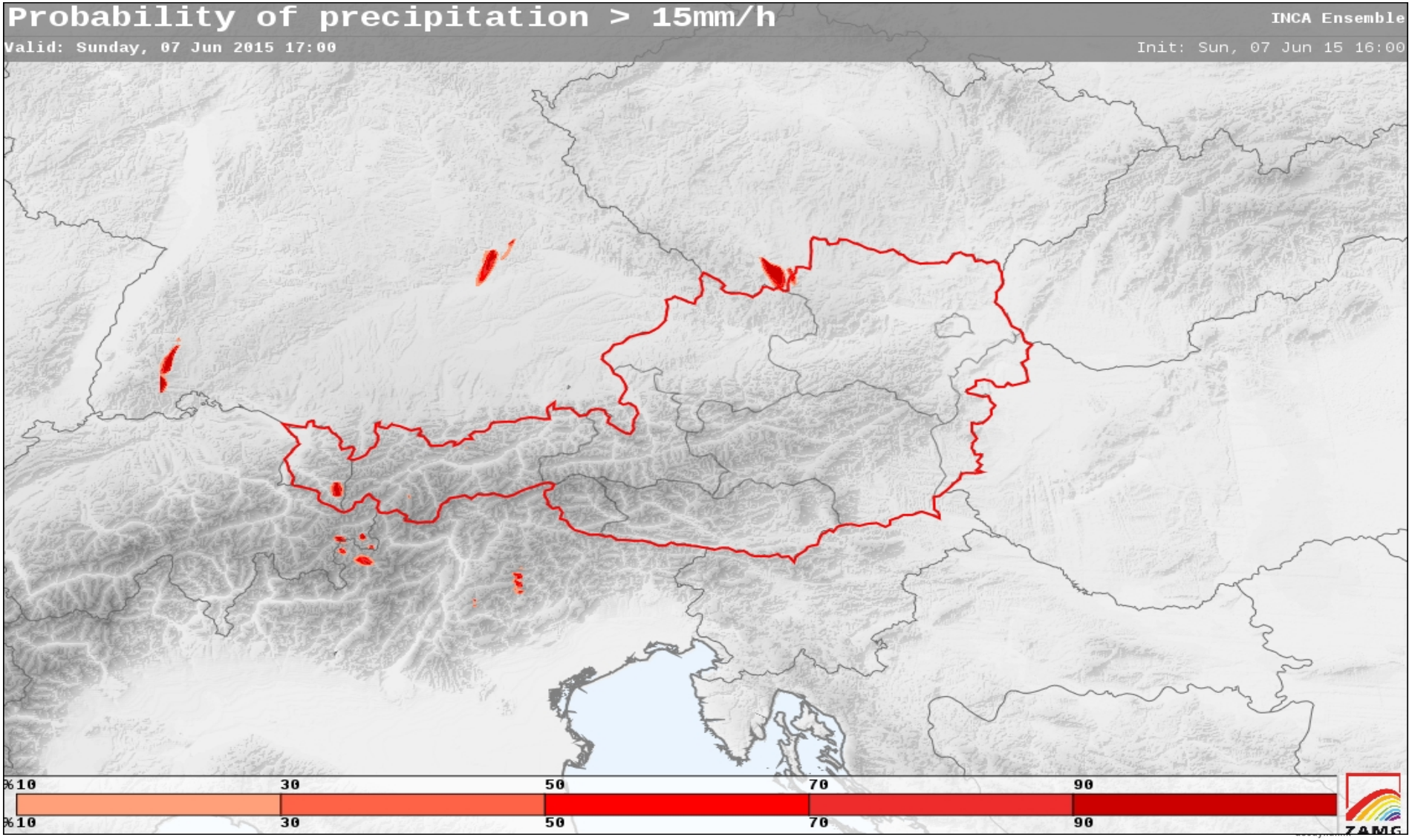

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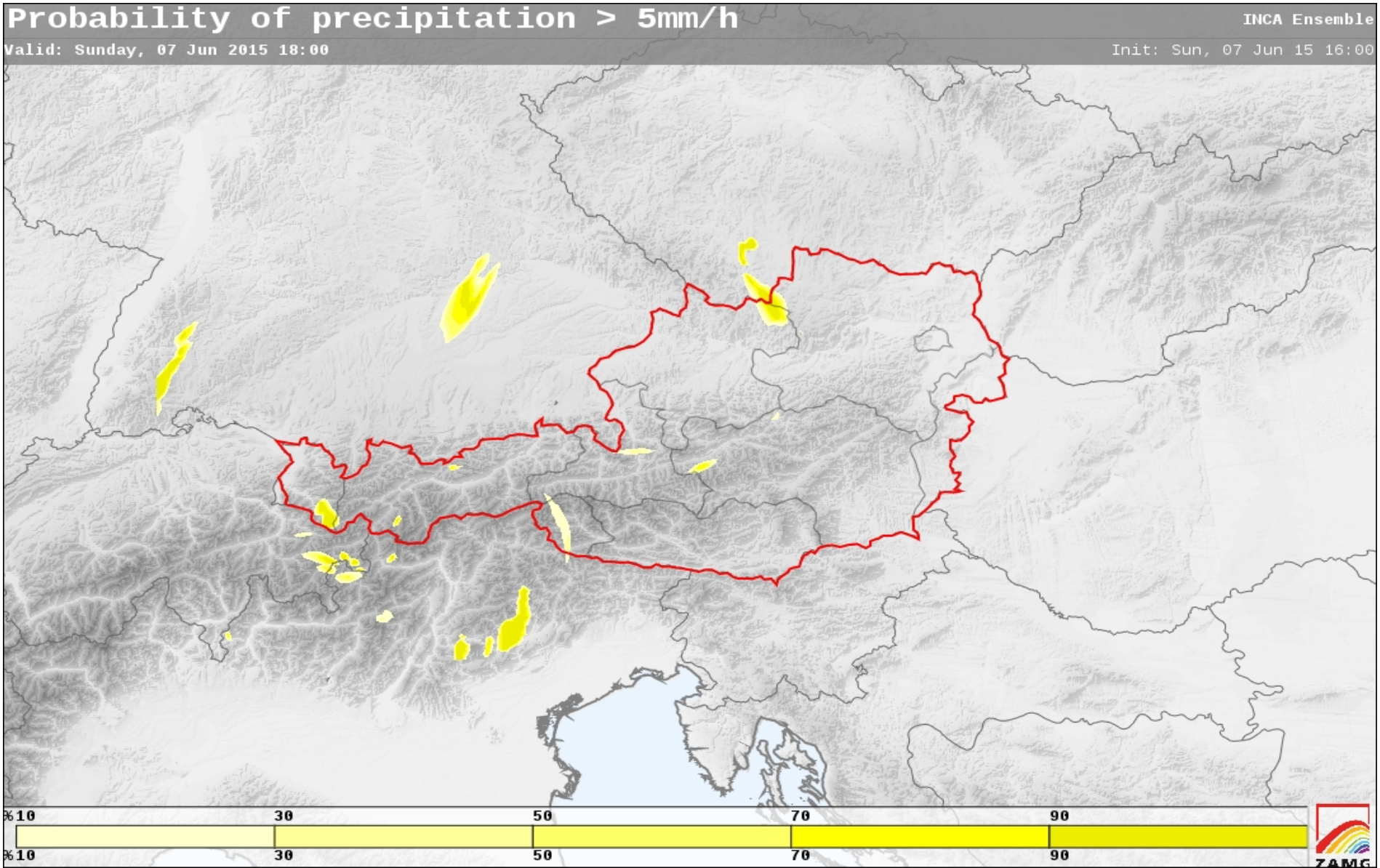

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