

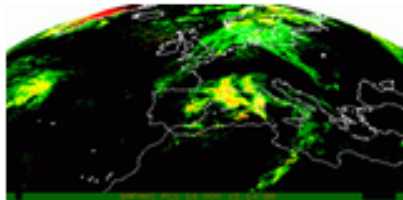


# Using NWC SAF Precipitation products at DHMZ

## MSG Precipitation Products

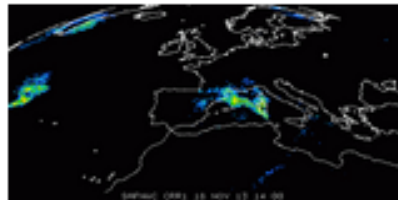
### Precipitating Clouds

(Description)



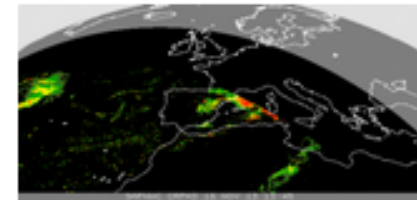
### Convective Rainfall Rate

(Description)



### Prec. Prod. Cloud Physical Properties

(Description)



Nataša Strelec Mahović

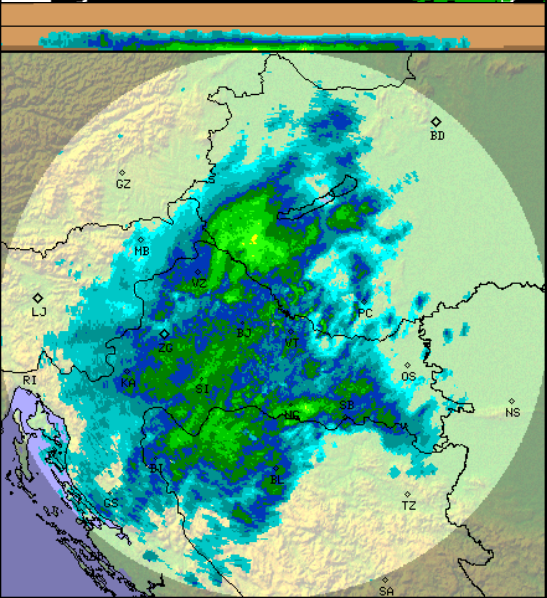
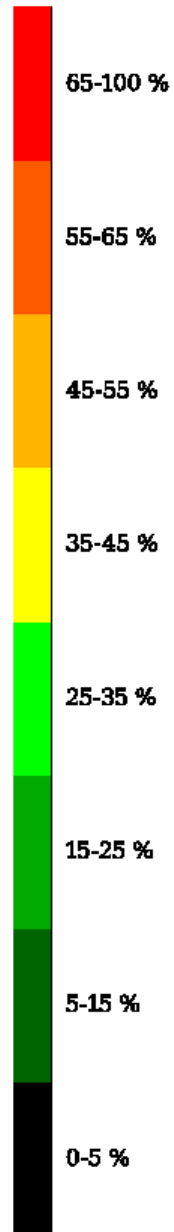
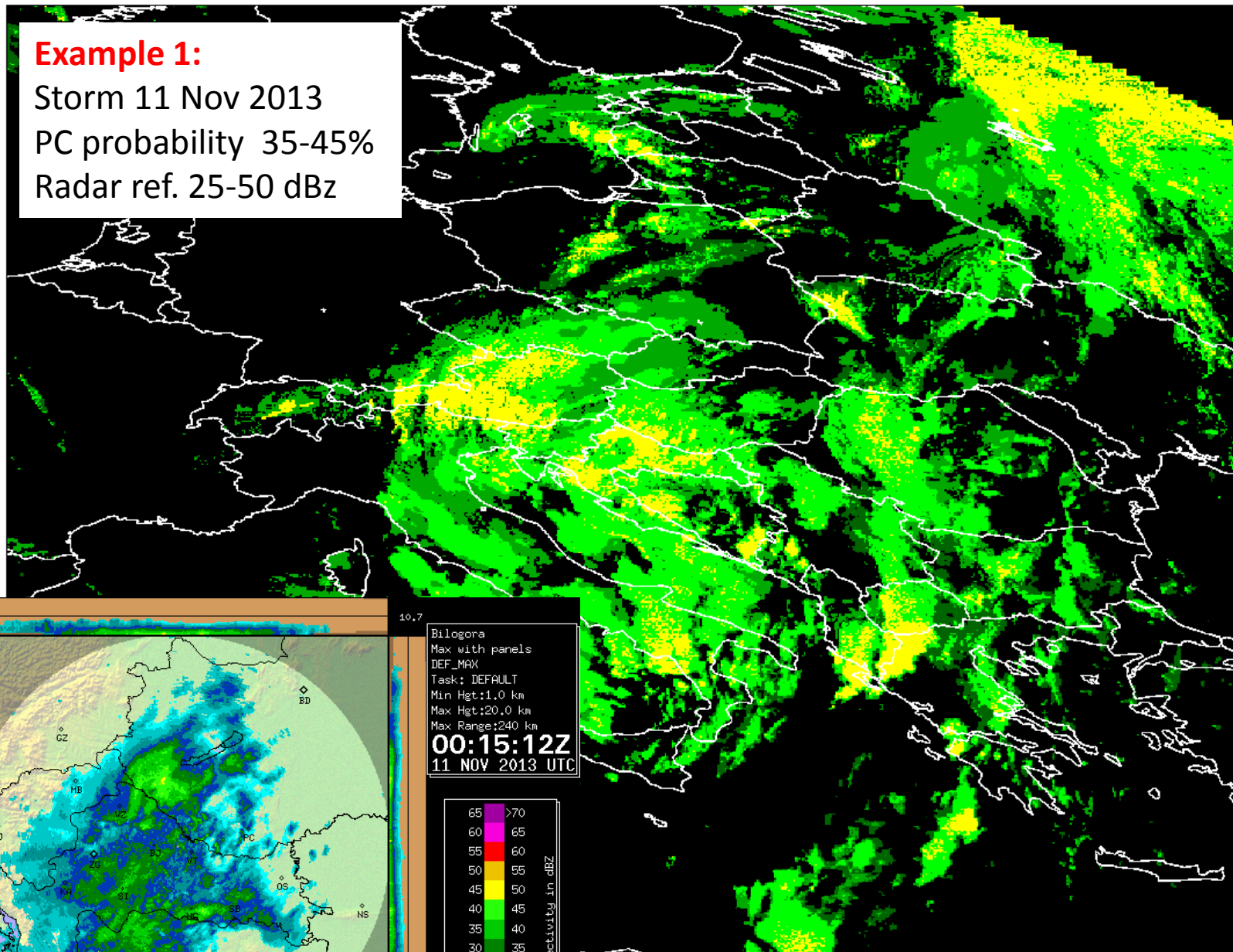


# Status of NWC SAF at DHMZ

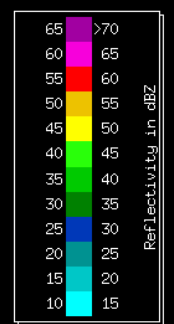
- NWC SAF package installed in 2012
- Currently performing upgrade to Version 2013
- At the moment all products run on a domain covering all Europe – smaller region (Central Europe) will be used in future
- PC and CRR products used
- Precipitation products not locally verified yet – some comparison to radar data and raingauges being done on case-to-case basis

**Example 1:**

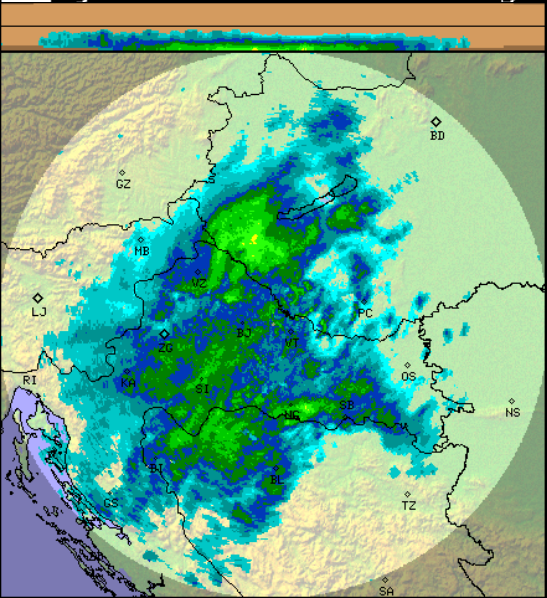
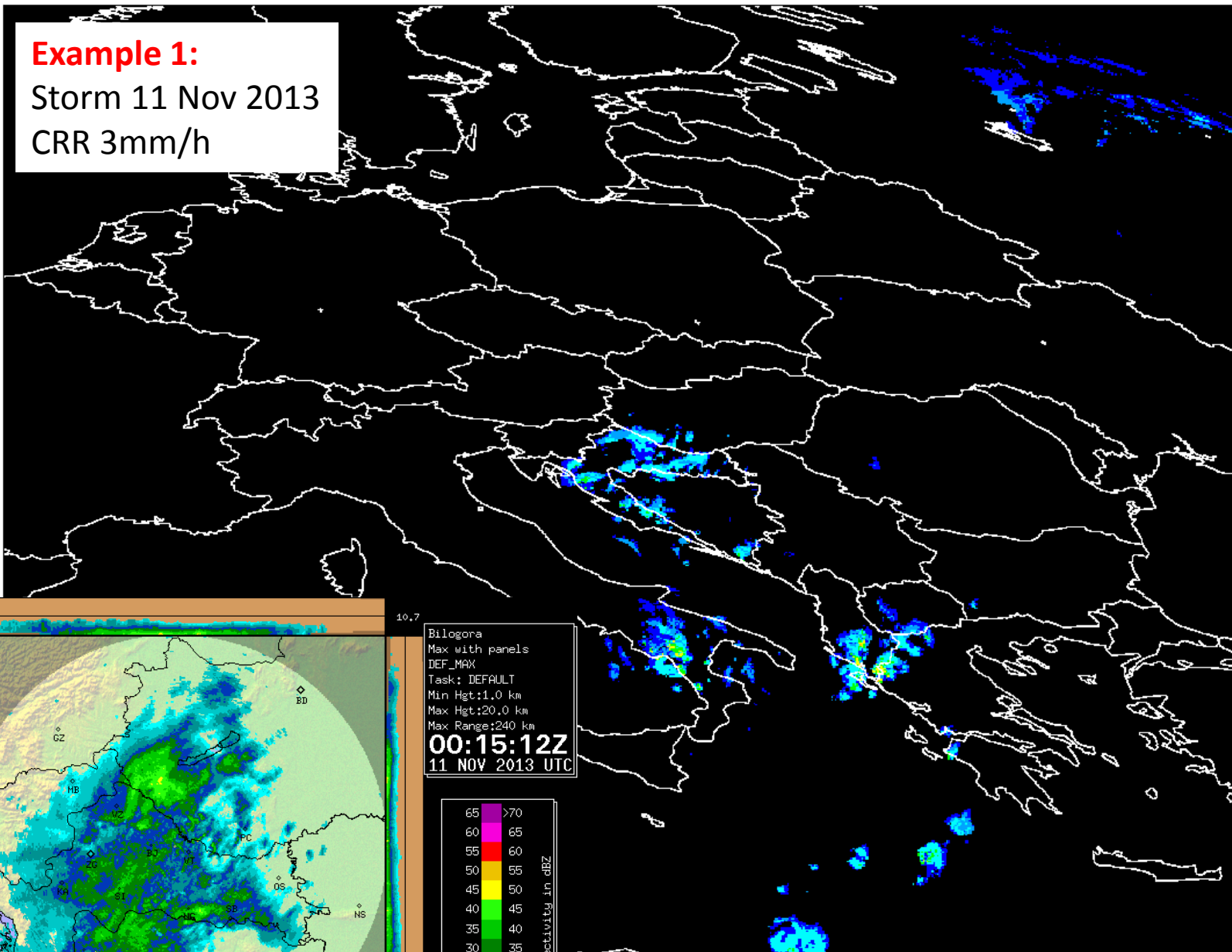
Storm 11 Nov 2013  
PC probability 35-45%  
Radar ref. 25-50 dBz



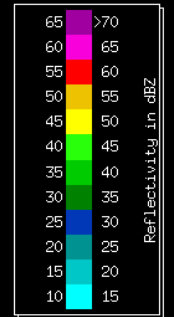
10.7  
Billogora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1.0 km  
Max Hgt:20.0 km  
Max Range:240 km  
**00:15:12Z**  
11 NOV 2013 UTC



**Example 1:**  
Storm 11 Nov 2013  
CRR 3mm/h



10.7  
Bilogora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1.0 km  
Max Hgt:20.0 km  
Max Range:240 km  
**00:15:12Z**  
11 NOV 2013 UTC

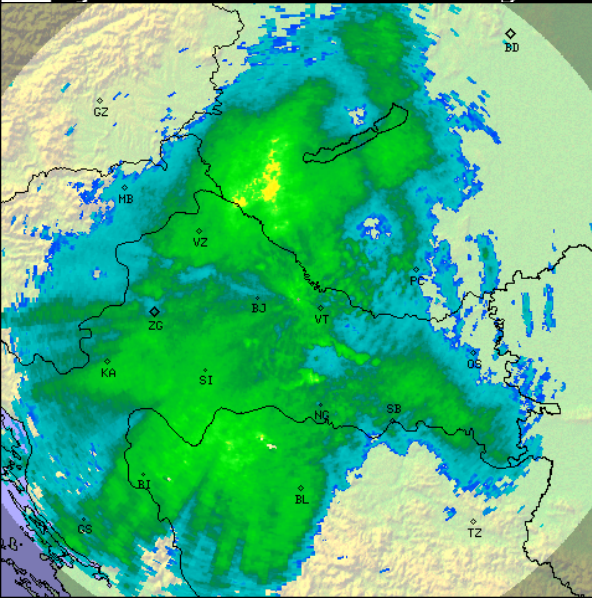
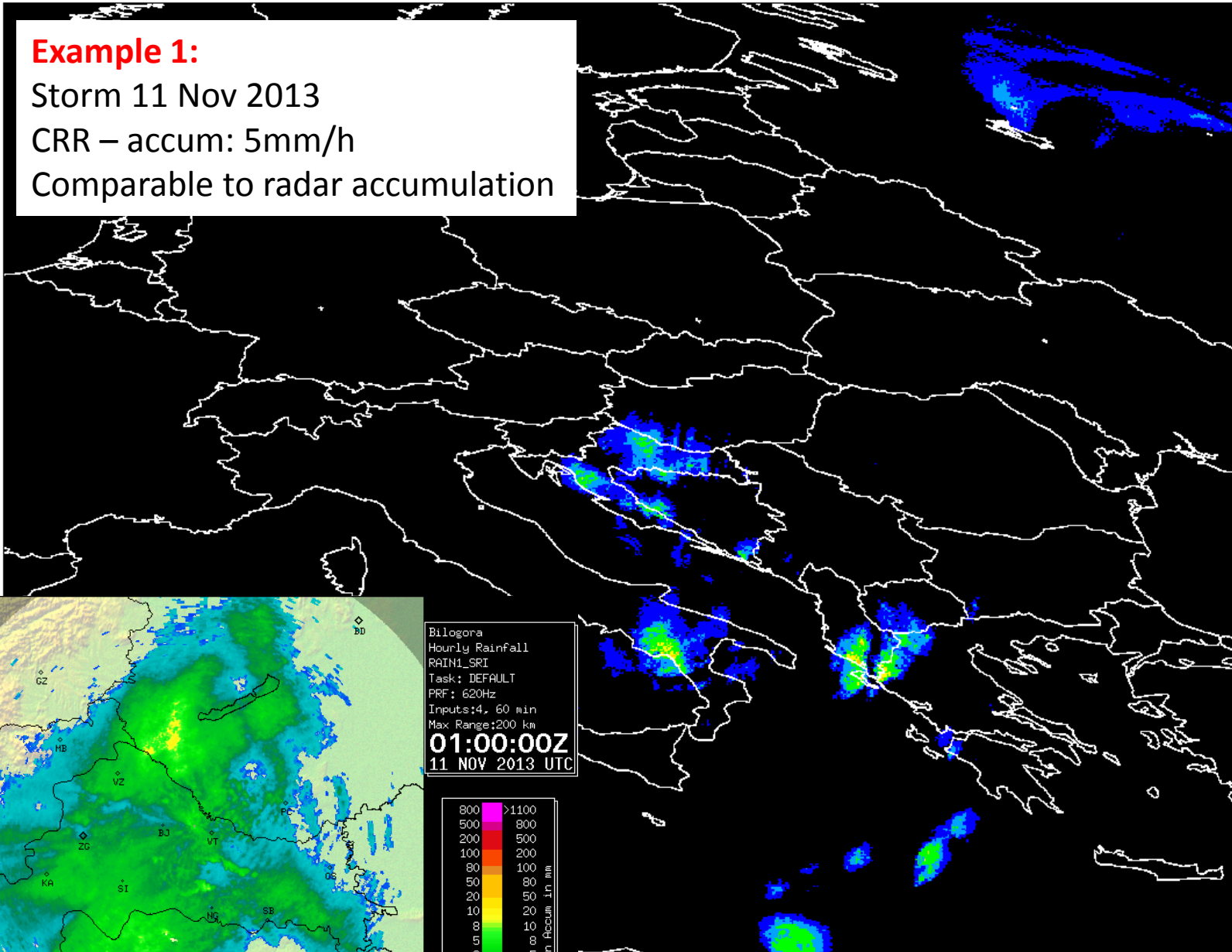


**Example 1:**

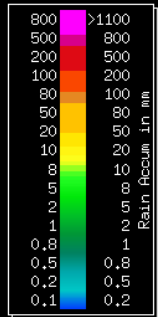
Storm 11 Nov 2013

CRR – accum: 5mm/h

Comparable to radar accumulation



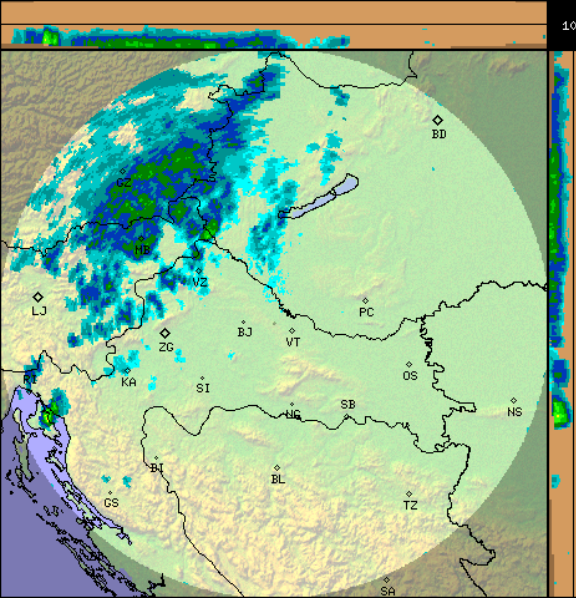
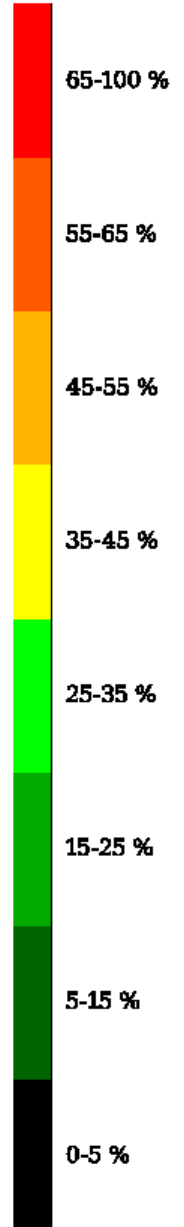
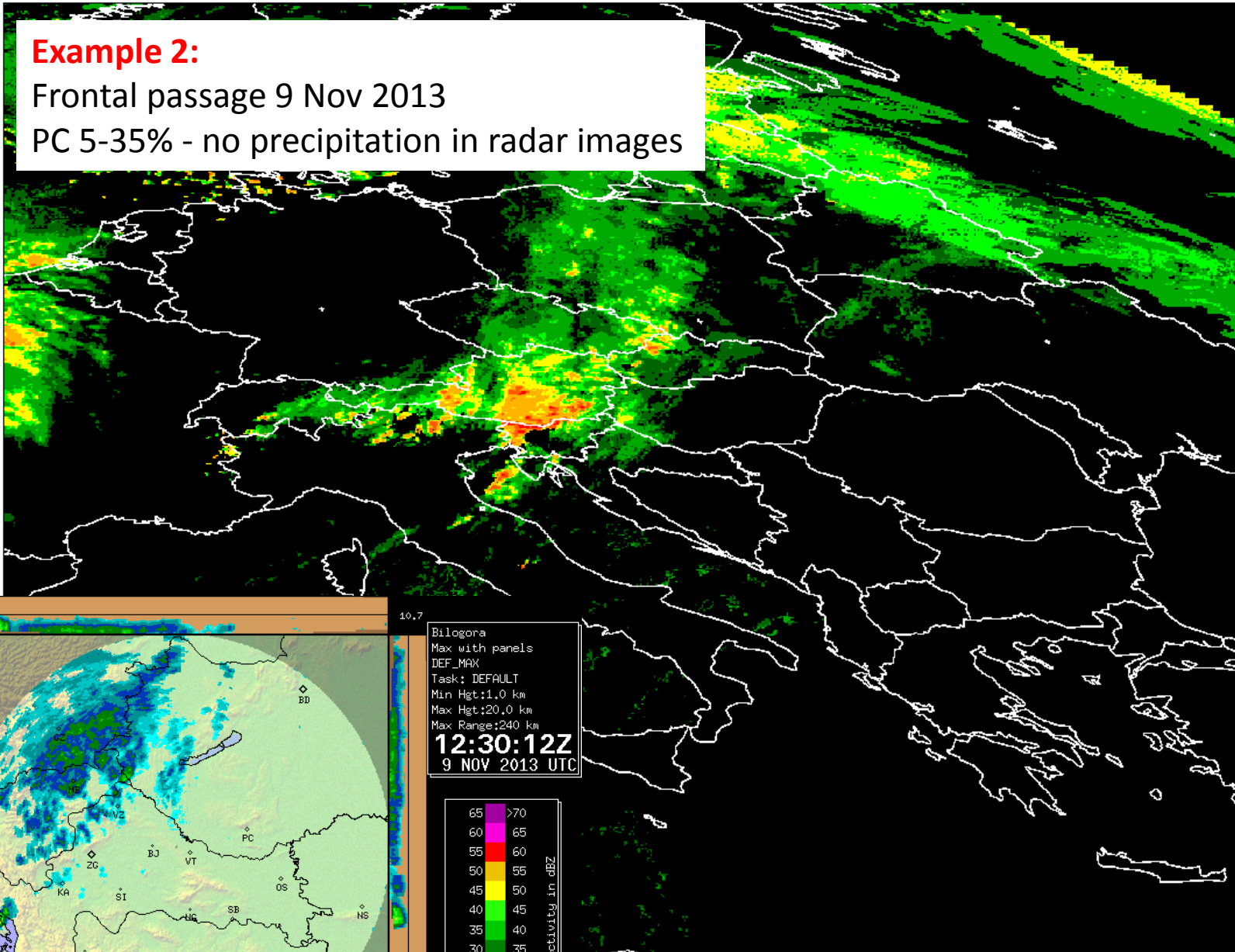
Bilgora  
Hourly Rainfall  
RAIN1\_SRI  
Task: DEFAULT  
PRF: 620Hz  
Inputs:4, 60 min  
Max Range:200 km  
**01:00:00Z**  
**11 NOV 2013 UTC**



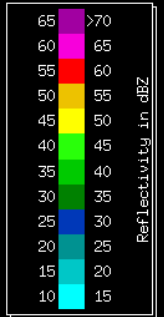
**Example 2:**

Frontal passage 9 Nov 2013

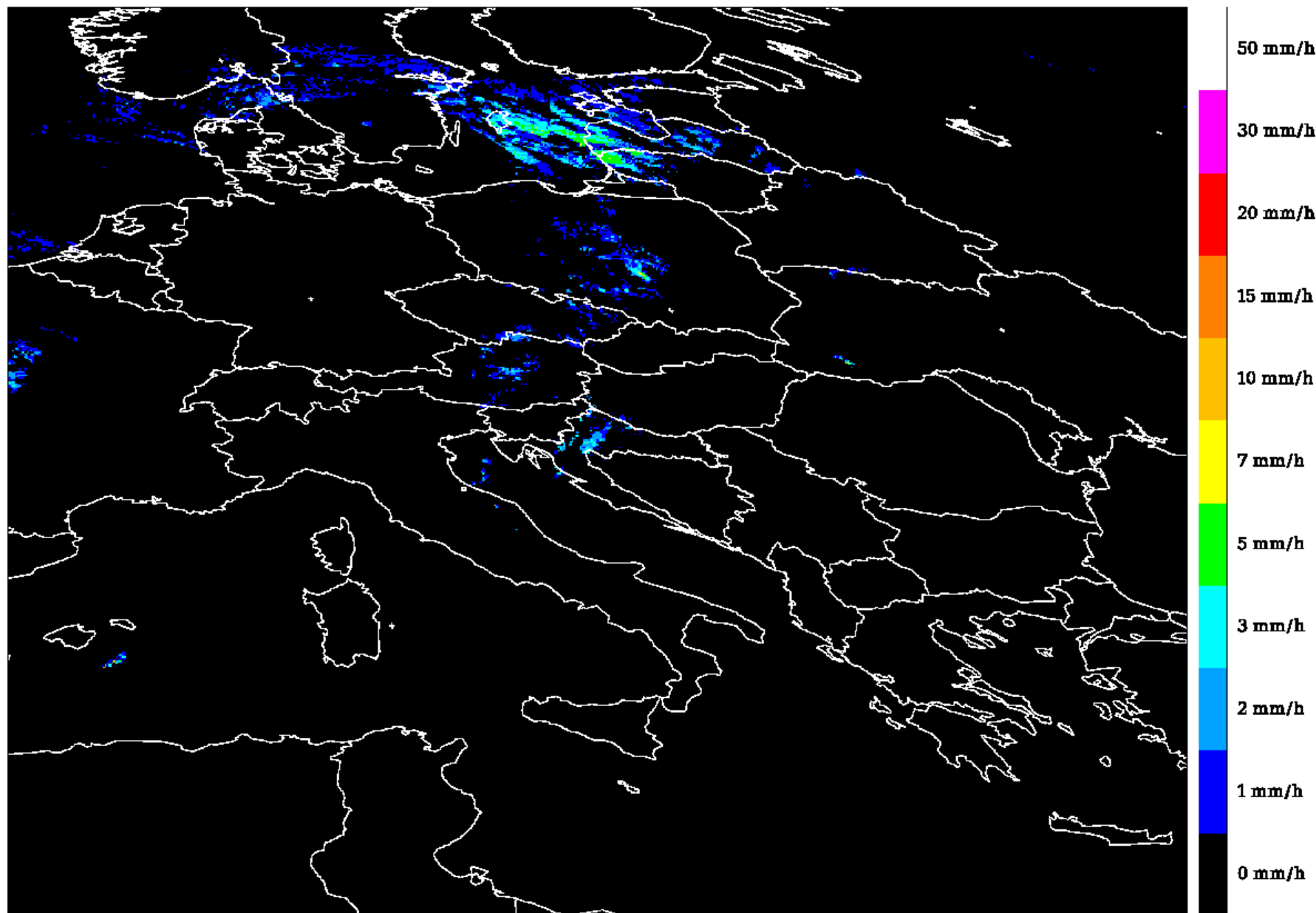
PC 5-35% - no precipitation in radar images

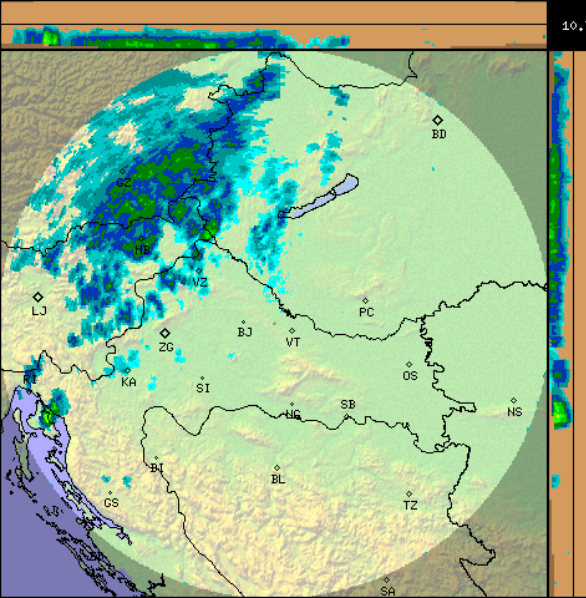
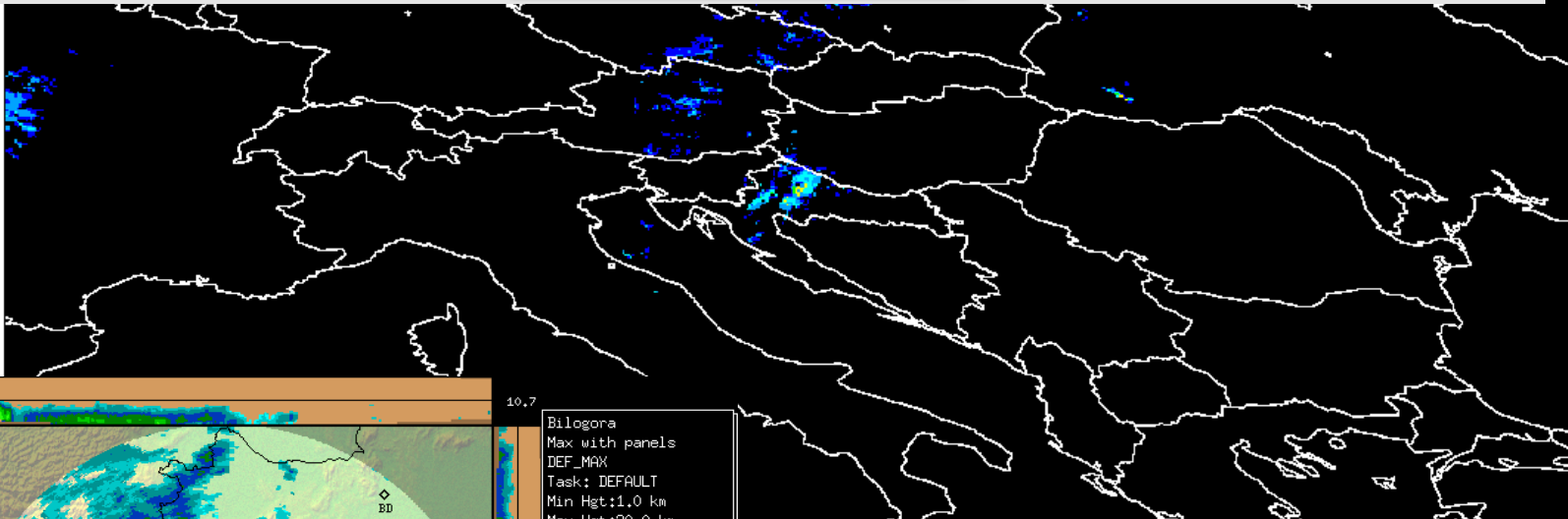
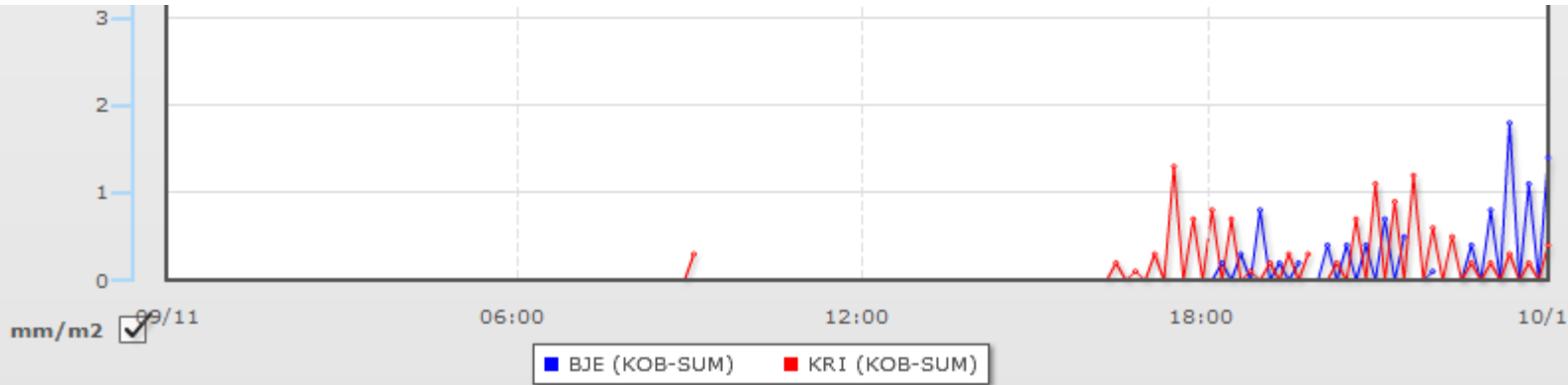


Bilgora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1.0 km  
Max Hgt:20.0 km  
Max Range:240 km  
**12:30:12Z**  
9 NOV 2013 UTC

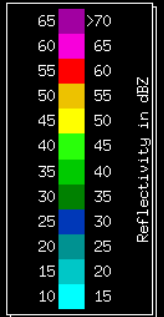


CRR 09.11.2013 12:15 DHMZ1



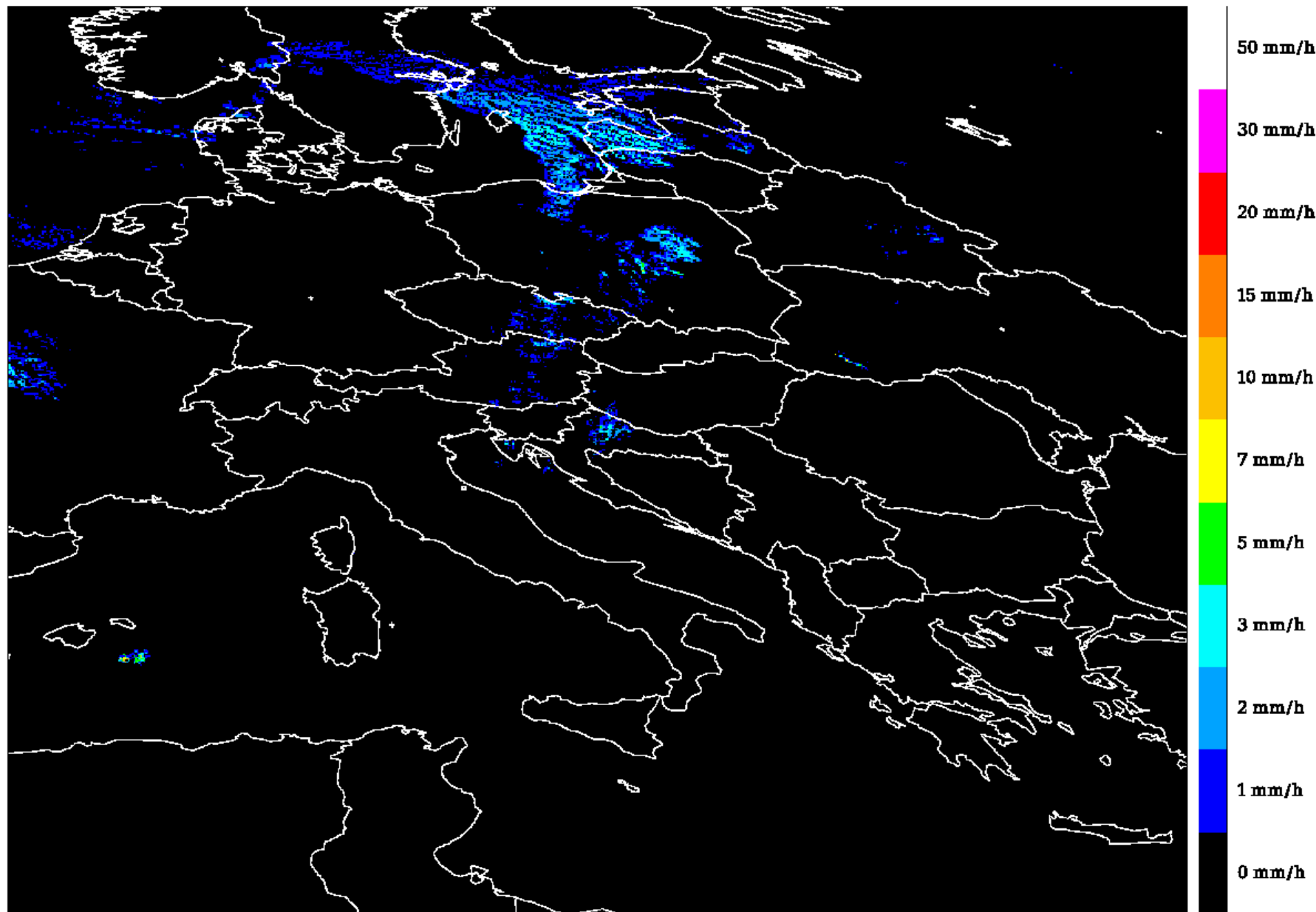


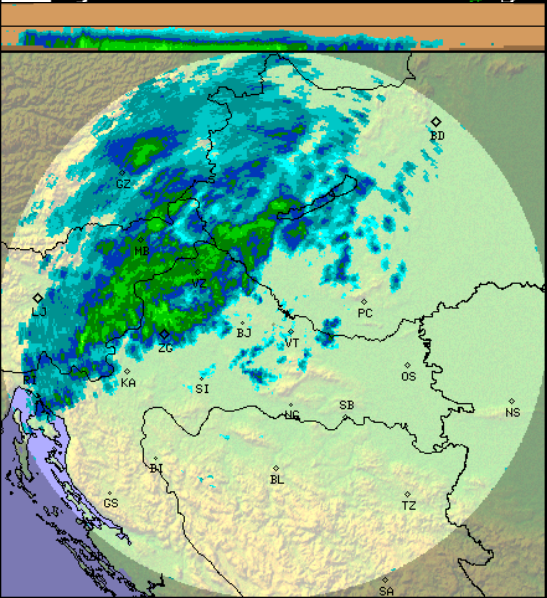
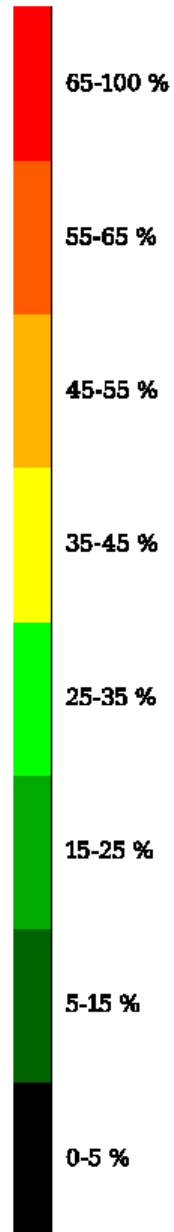
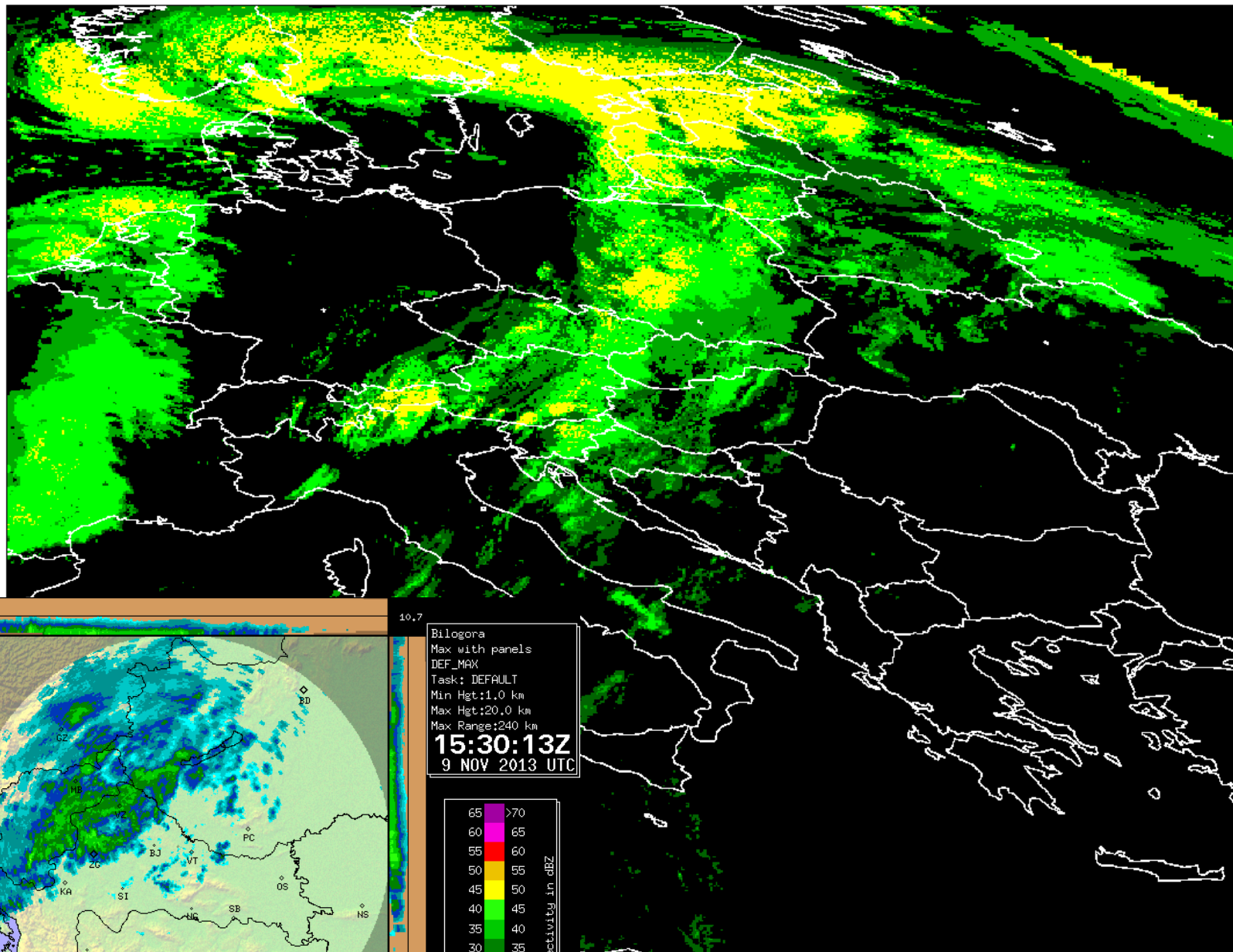
Bilogora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1.0 km  
Max Hgt:20.0 km  
Max Range:240 km  
**12:30:12Z**  
9 NOV 2013 UTC



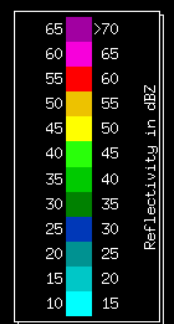
**Example 2:**  
Frontal passage 9 Nov 2013  
CRR 7mm/h ????  
NO RADAR SIGNAL  
NO RAINGAUGE PRECIPITATION



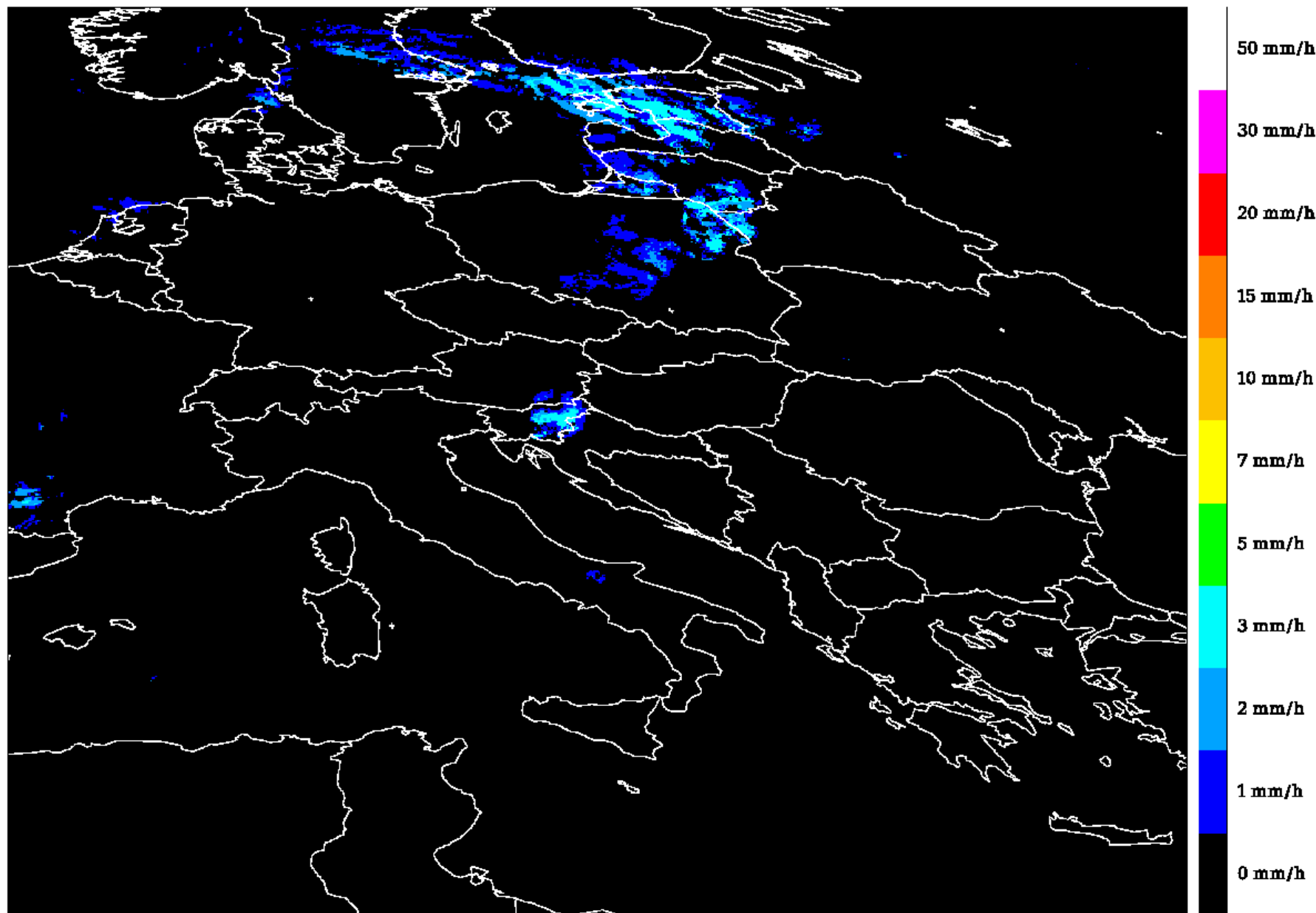


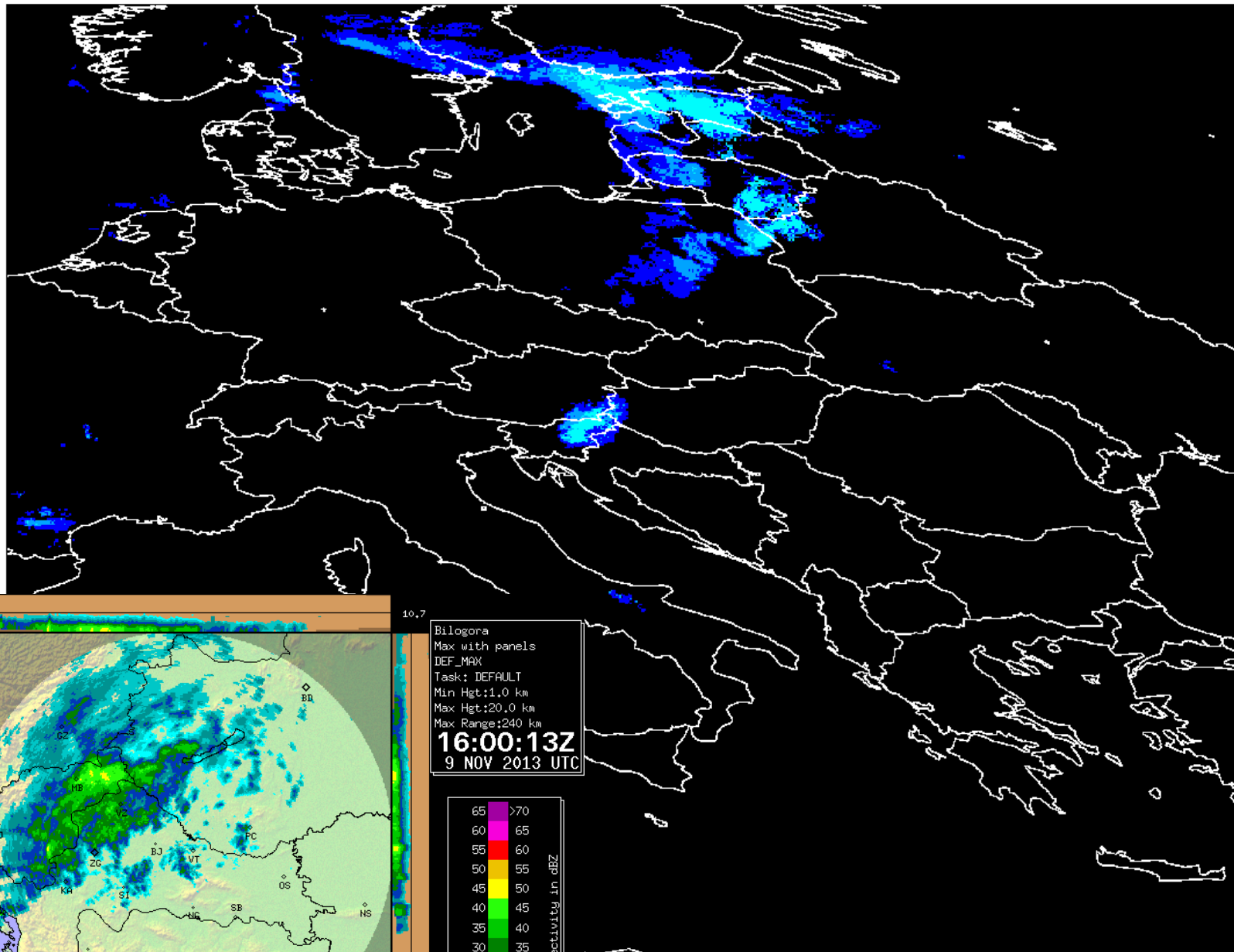


10.7  
Bilgora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1.0 km  
Max Hgt:20.0 km  
Max Range:240 km  
**15:30:13Z**  
9 NOV 2013 UTC



CRR 09.11.2013 15:30 DHMZ1





50 mm/h

30 mm/h

20 mm/h

15 mm/h

10 mm/h

7 mm/h

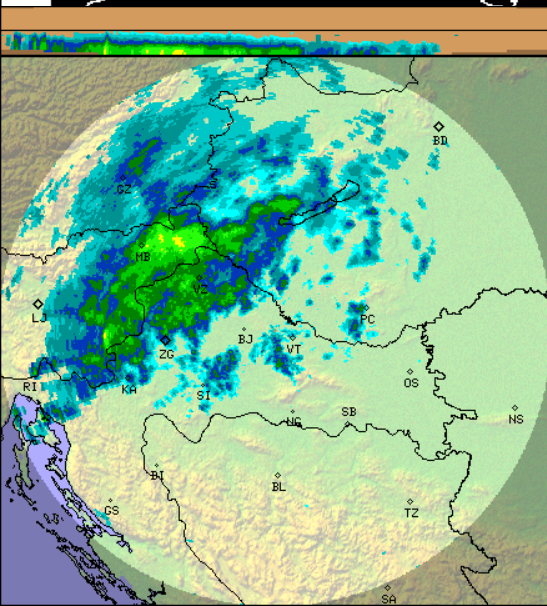
5 mm/h

3 mm/h

2 mm/h

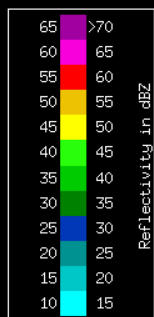
1 mm/h

0 mm/h



10,7

Billogora  
Max with panels  
DEF\_MAX  
Task: DEFAULT  
Min Hgt:1,0 km  
Max Hgt:20,0 km  
Max Range:240 km  
**16:00:13Z**  
9 NOV 2013 UTC

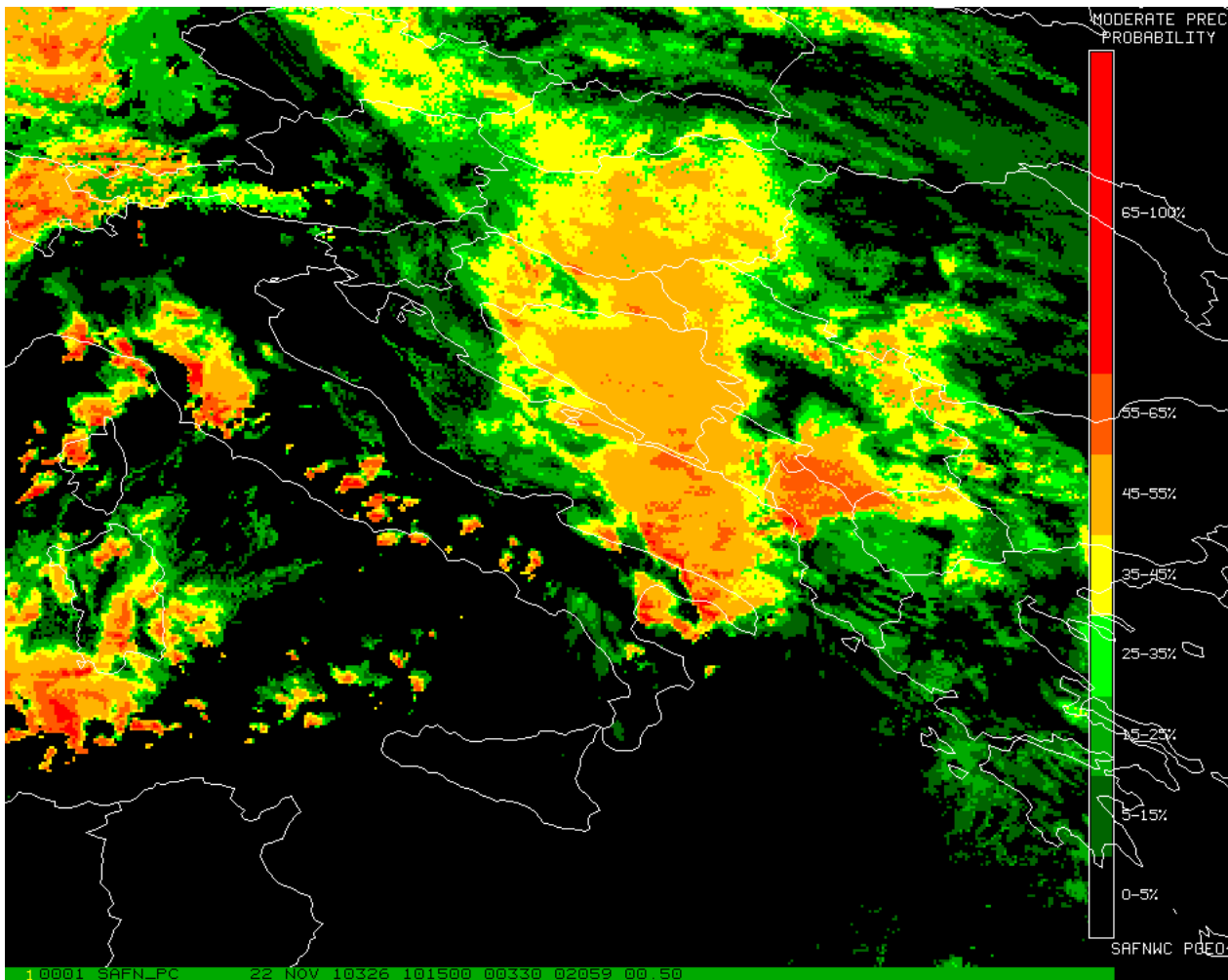


Reflectivity in dBZ

# Dubrovnik flood 22-11-2010

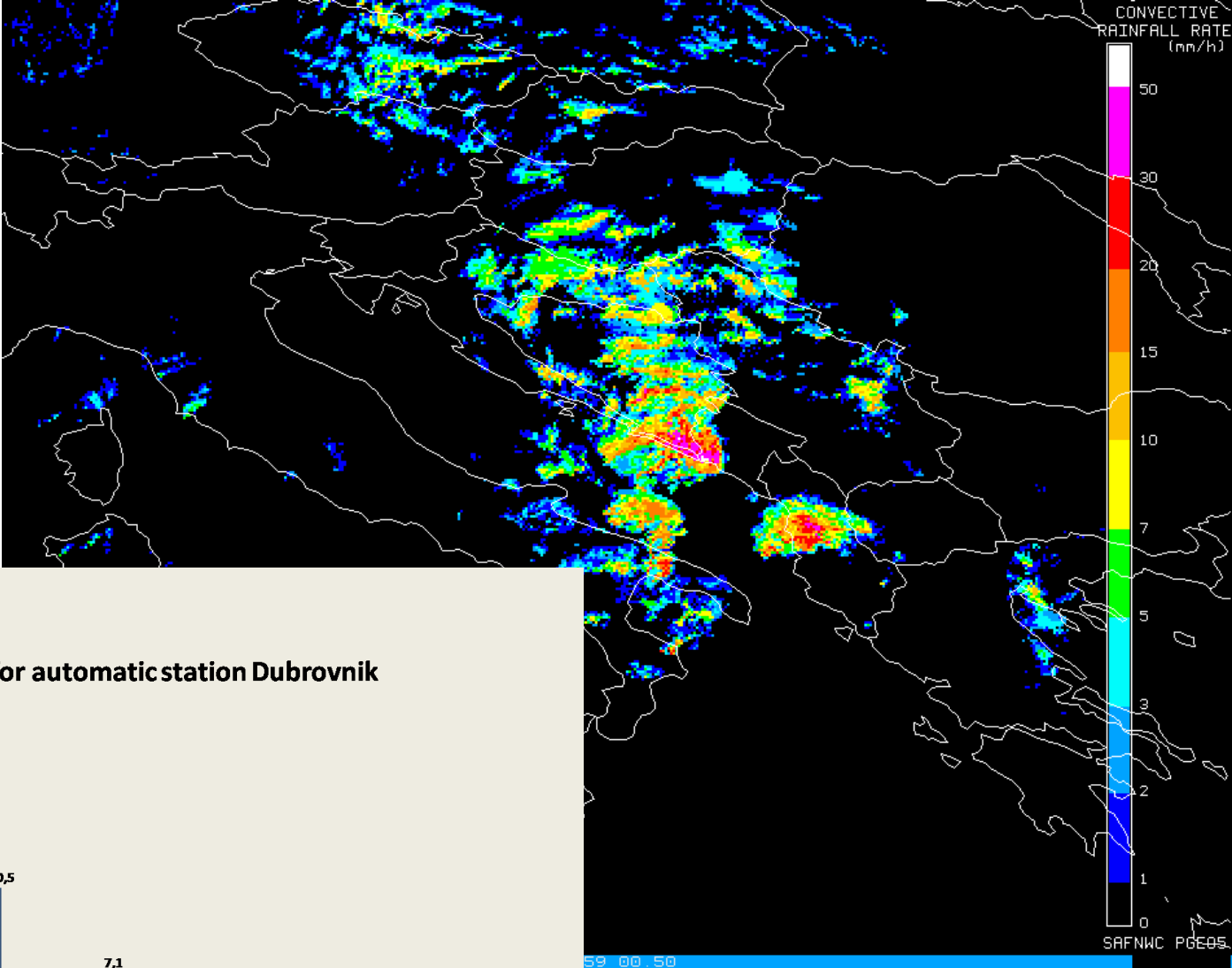


- \* Extreme precipitation case
- \* No radar coverage at the coast and over the sea
- \* Satellite products and raingauge data used for the analysis

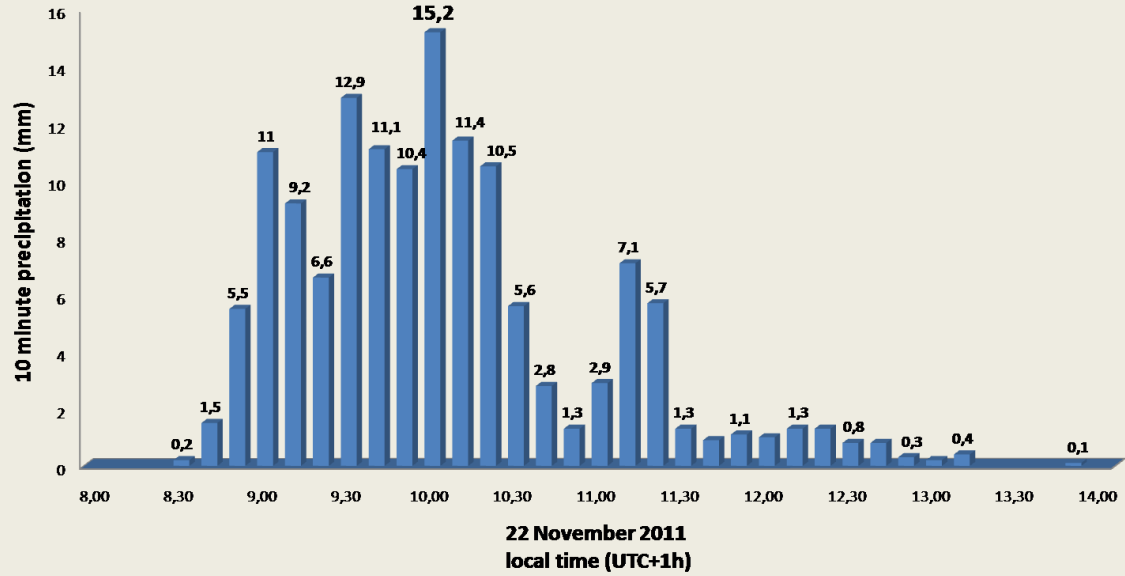


- Precipitating clouds – high precipitation probability

- Rain gauge measurements in Dubrovnik **>160 mm/24 h**
- Peak intensities: **71.5 mm/h** (return period 25 years)
- 15.2 mm/10 minutes**

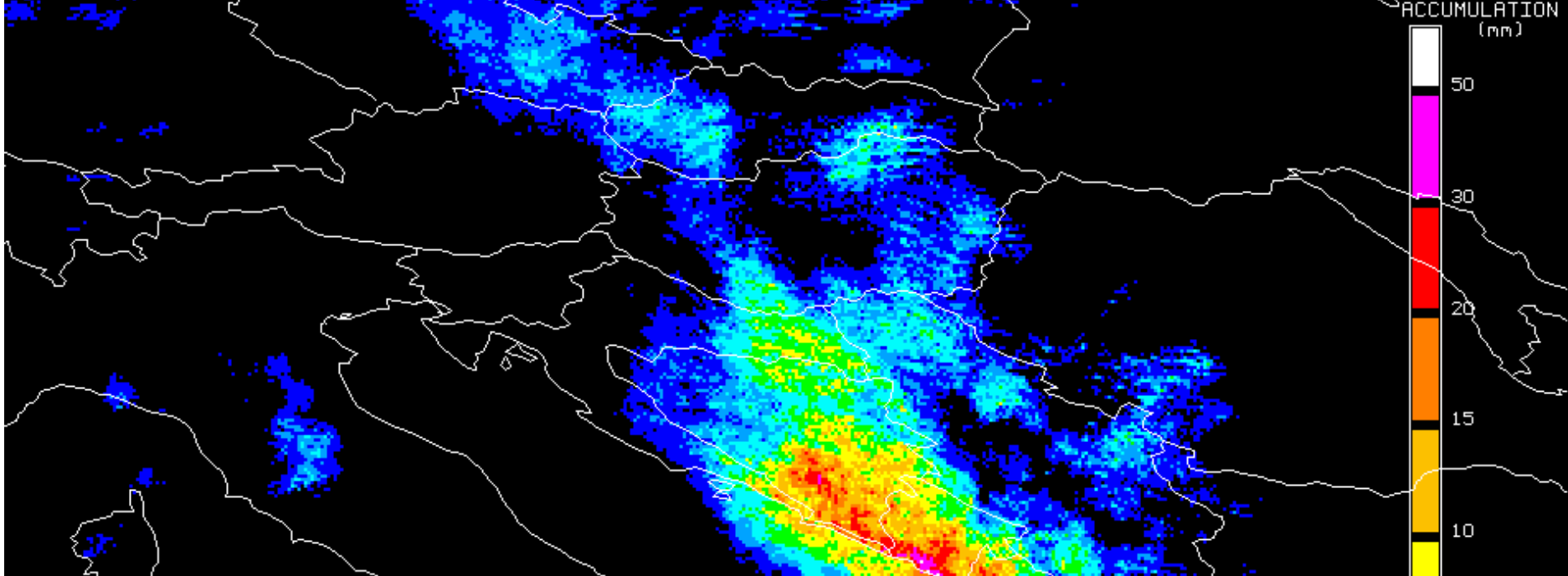


**10 min precipitation for automatic station Dubrovnik**

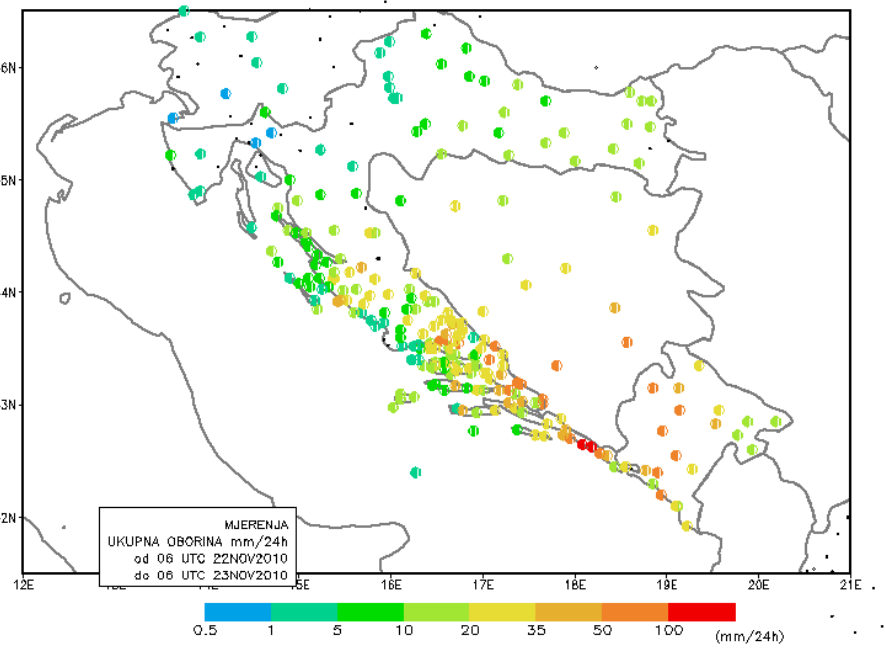


8:45 UTC

CRR – Instantaneous rain rate

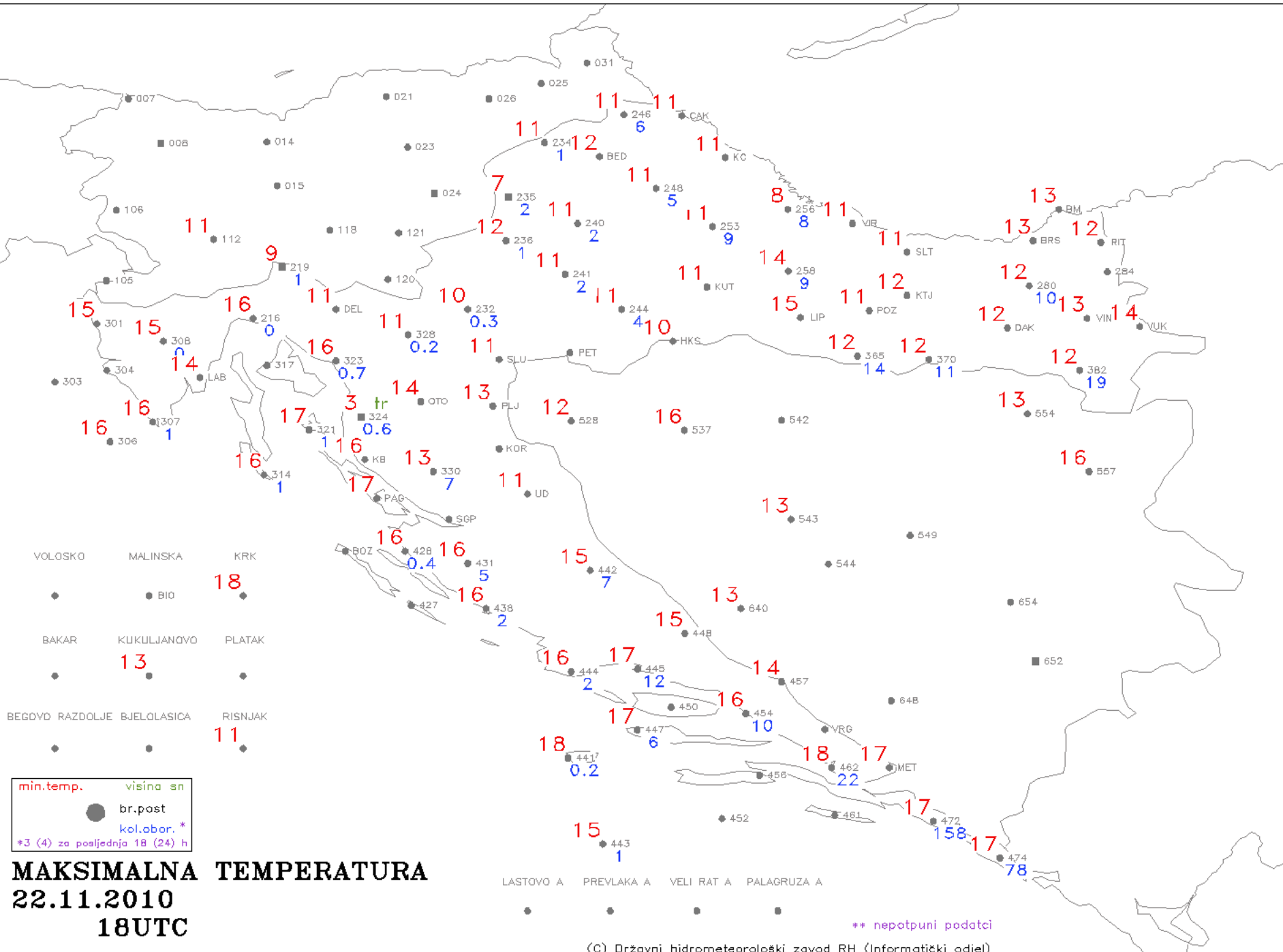


MJERENJA UK. OBORINA od 06 UTC 22NOV2010 do 06 UTC 23NOV2010



Hourly accumulation  
11:45 UTC





min.temp.      visina sn  
 ●      br.post  
          kol.obor.\*  
 \*3 (4) za posljednja 18 (24) h

**MAKSIMALNA TEMPERATURA**  
**22.11.2010**  
**18UTC**

LASTOVO A    PREVLAKA A    VELI RAT A    PALAGRUZA A

\*\* nepotpuni podatci

# Conclusion

- Product validation performed only on some cases
- Intensive precipitation – well depicted
- Light precipitation – some problems with calibration
- Occasional error detections – needs to be tested
- Most important application of the products - in the areas not covered by radar measurements! (Croatian Adriatic coast and mountain areas)



# THANK YOU!

Questions, comments, suggestions?

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