

Evaluation of NWC-SAF precipitation products for the Adriatic region

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DHMZ

Meteorological and
Hydrological Service of
Croatia

EUMETSAT

Training Placement



Where are you from?





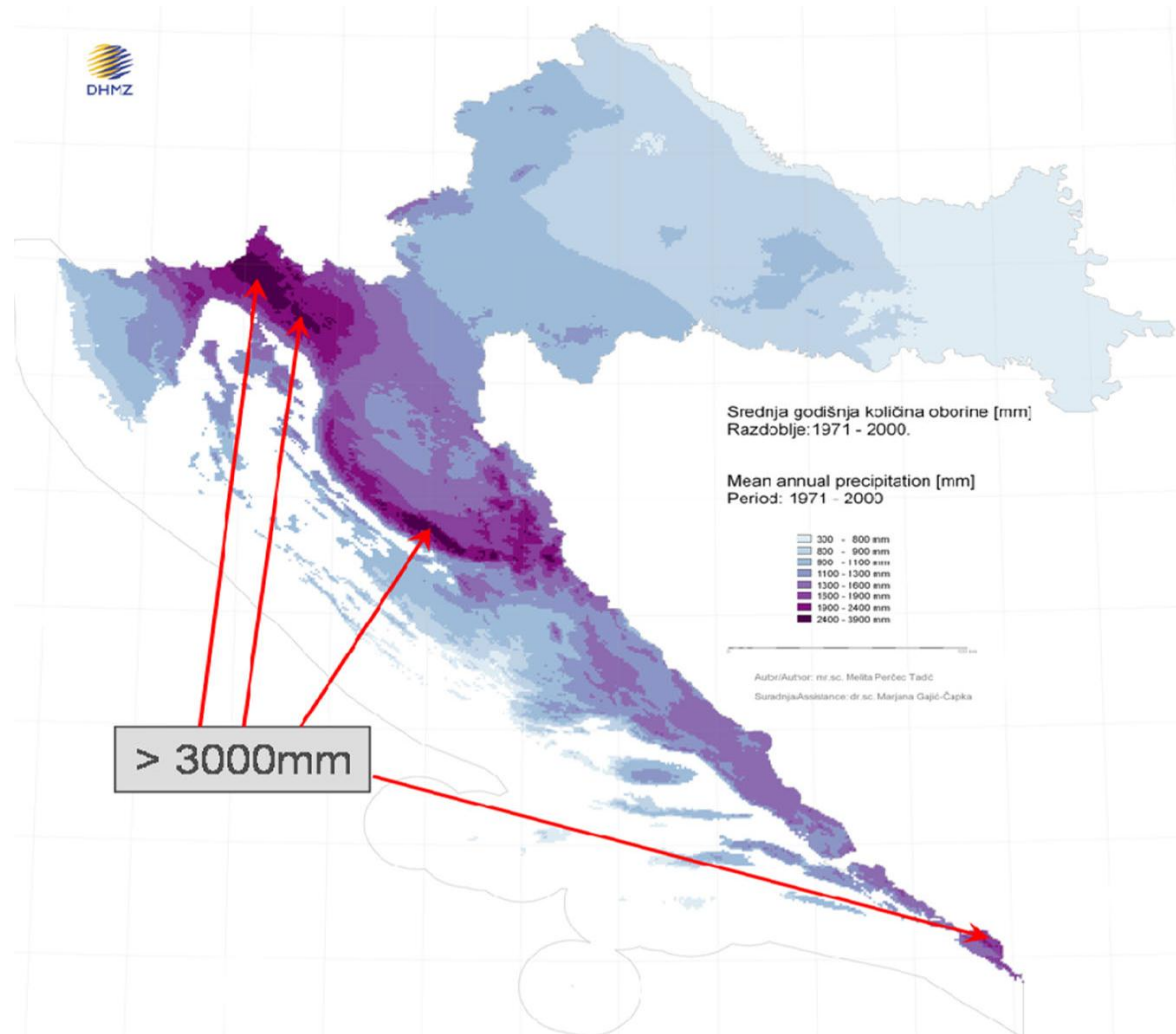
Outline

- Motivation
- NWCSAF
- Validation – at first glance
- Validation mark II
- Conclusion



Motivation

- Croatian Adriatic coast is one of the rainiest areas in Europe
- Lack of radar coverage along the coast
- No precipitation data over the sea





NWCSAF

- Satellite Application Facility for Support to Nowcasting and Very Short Range Forecasting

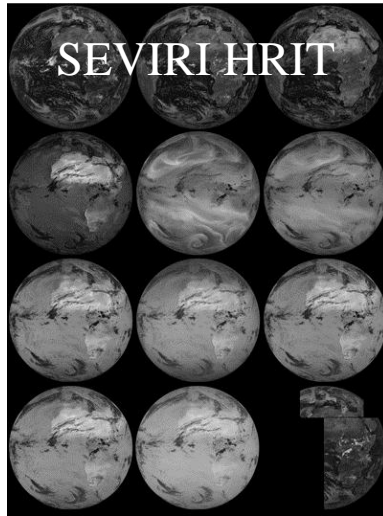


“The general objective of the SAFNWC is to provide operational services to ensure the optimum use of meteorological satellite data in Nowcasting and Very Short Range Forecasting by targeted users.”

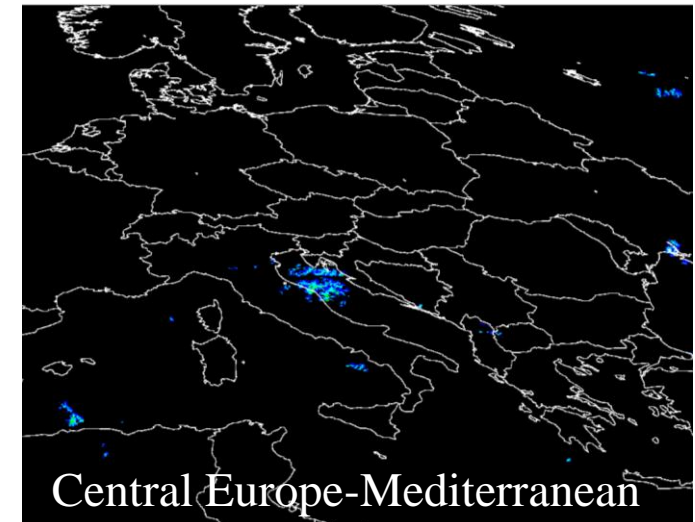


NWCSAF @ DHMZ

- NWCSAF precipitation products used since 2012



NWCSAF
MSG

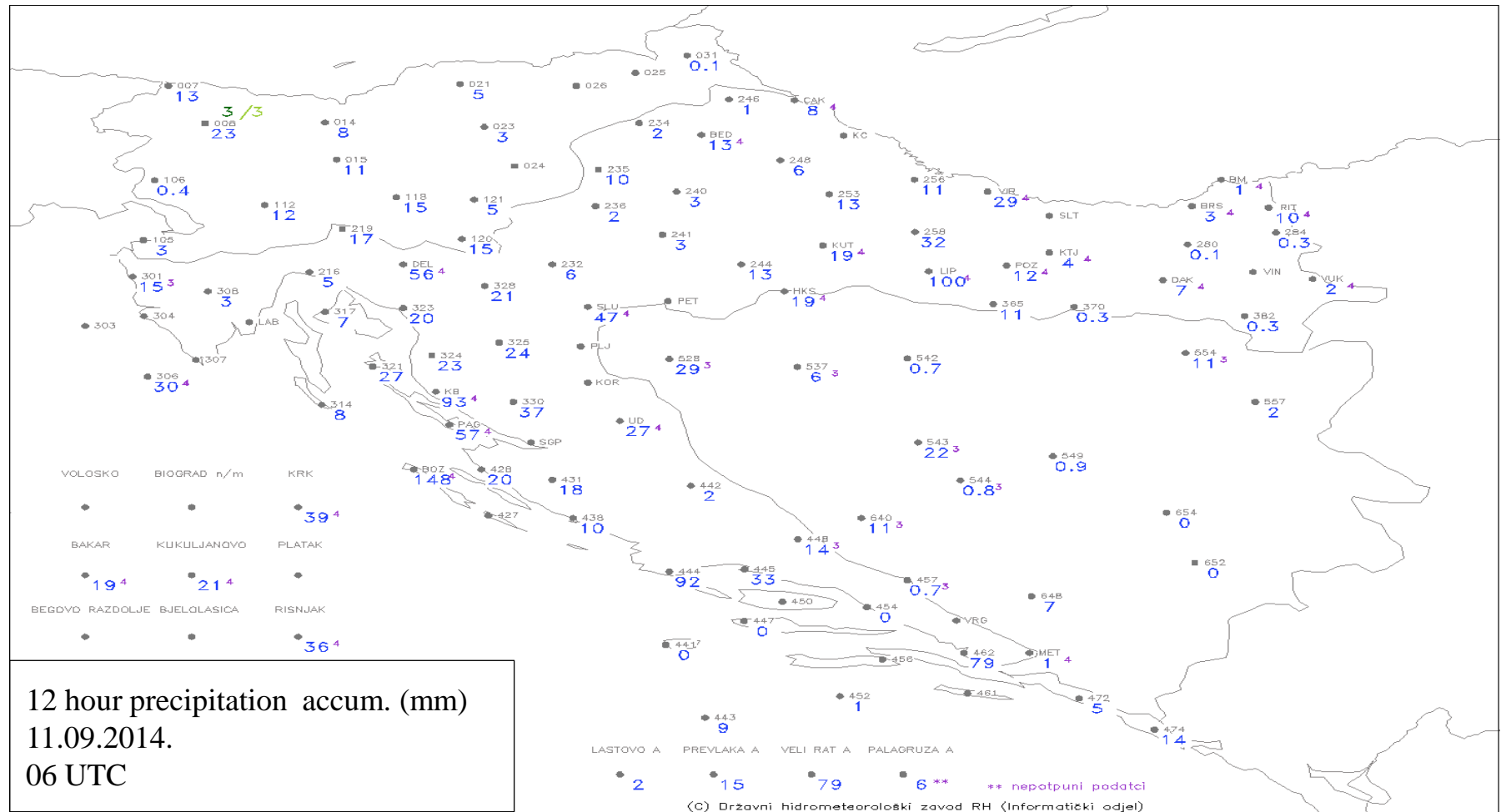


OBSERVATION



Validation efforts

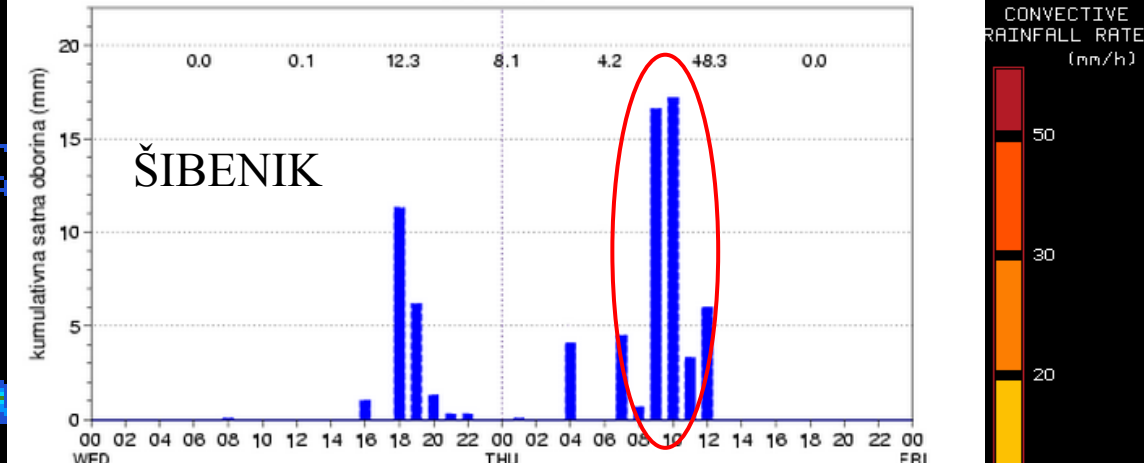
- Comparison with:
 - radar data where available
 - Raingauges data
 - Aladin and ECMWF model forecasts



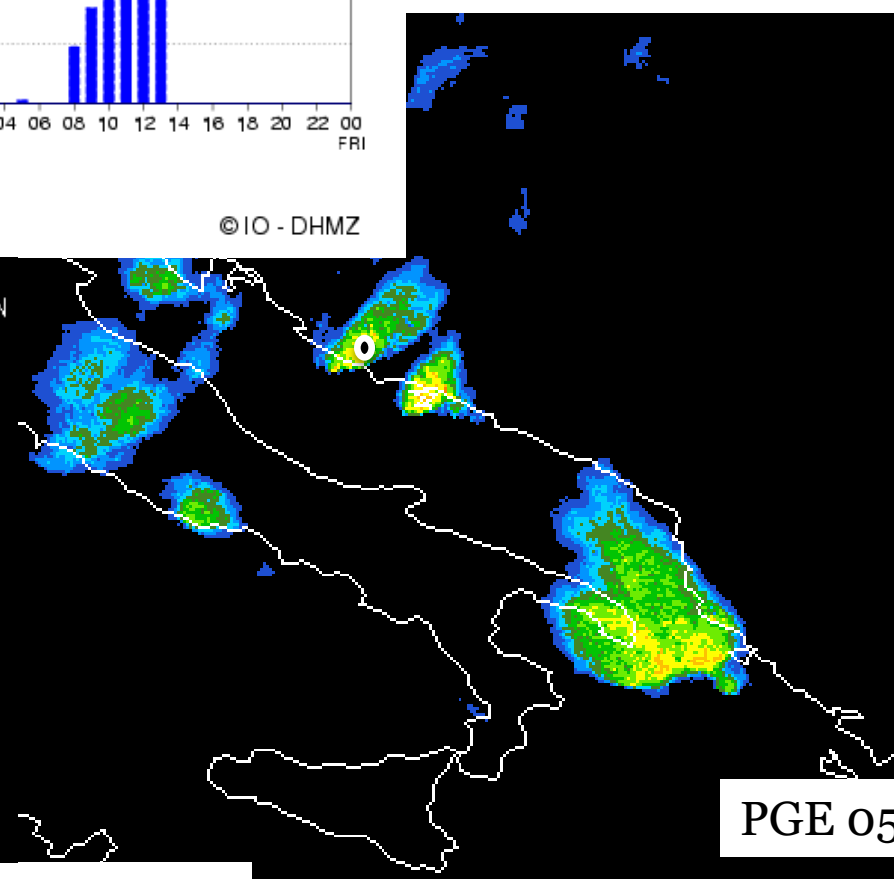
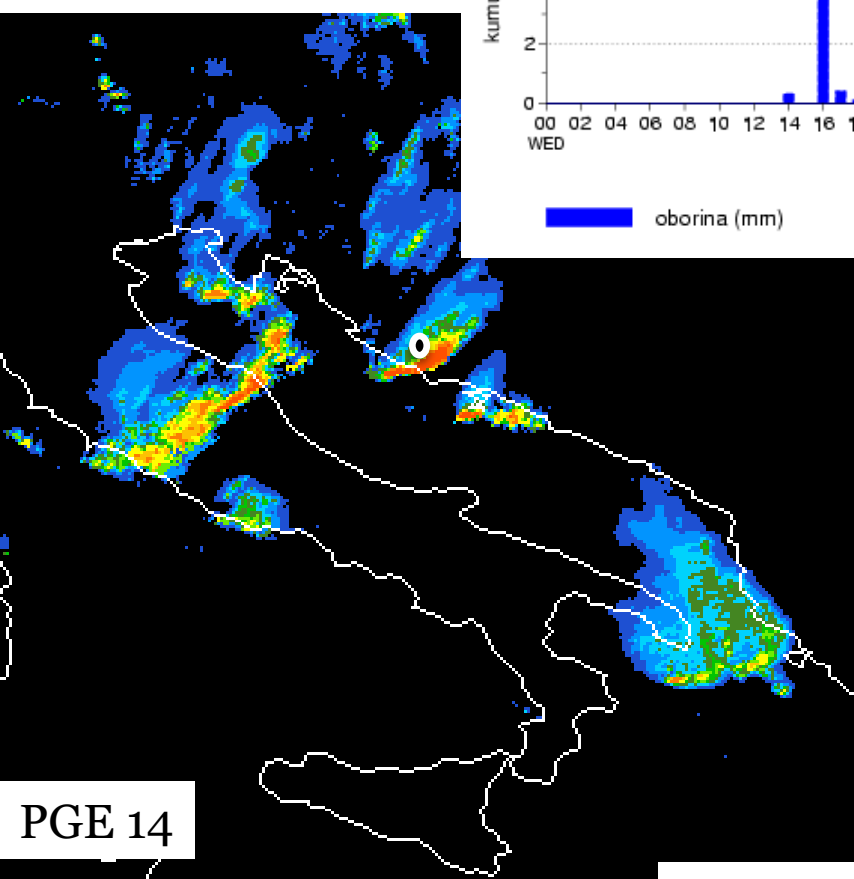
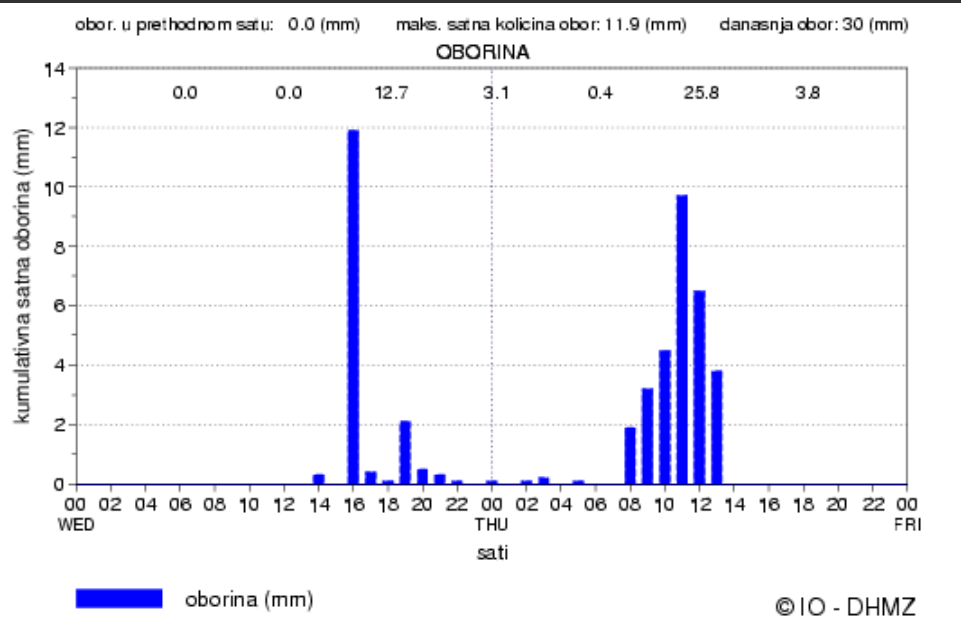
11 September 2014 – 09 UTC

Torrential rain in Dalmatia (Vodice)

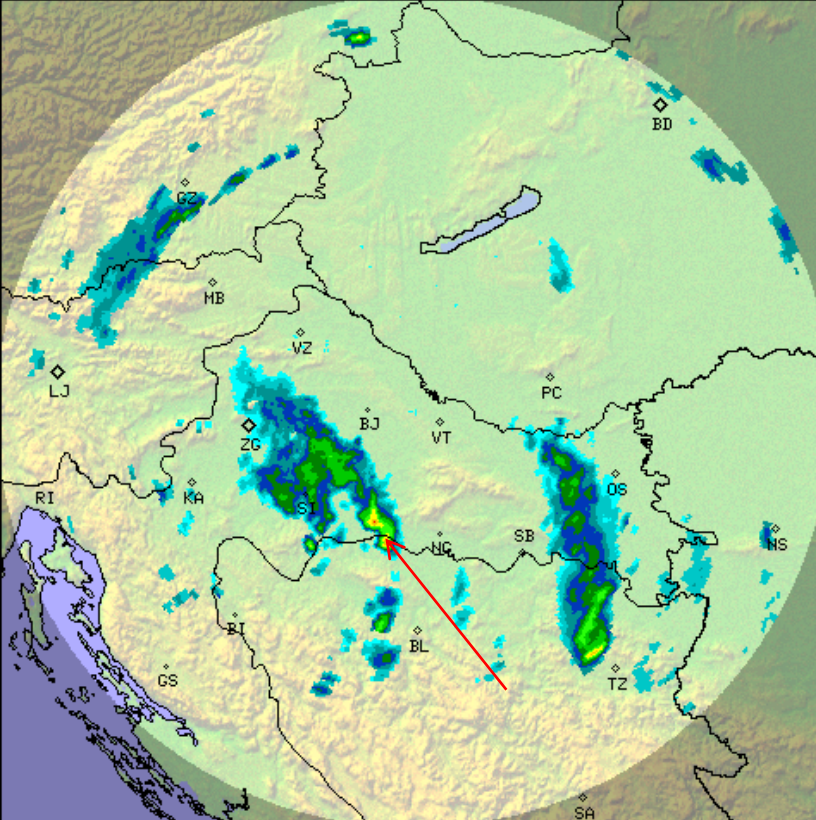
Up to 280 mm/6 h



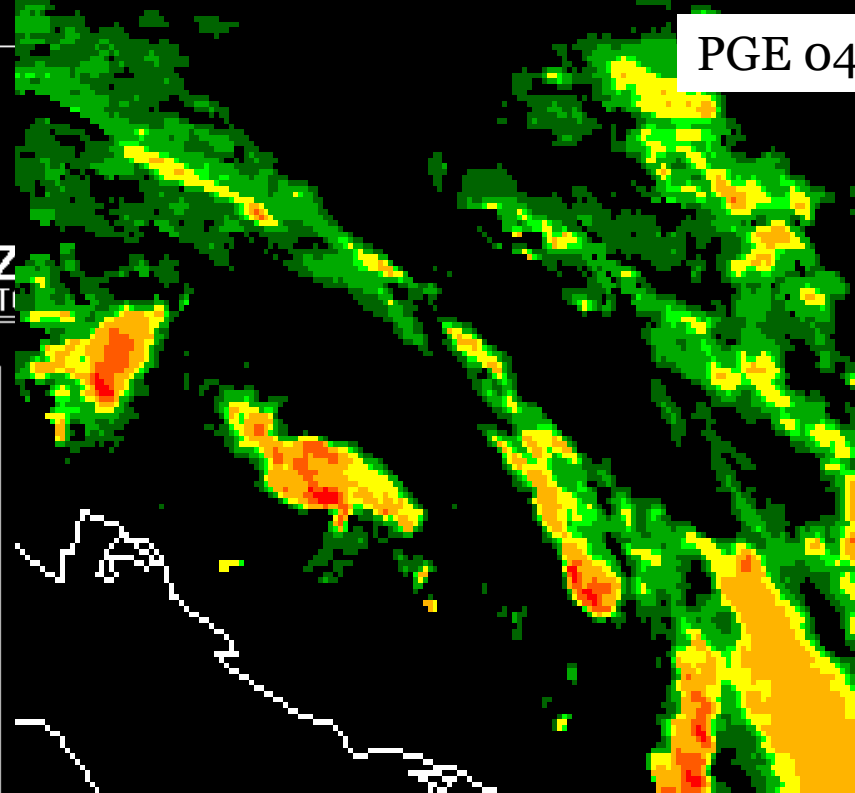
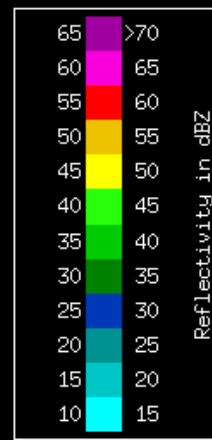
KNIN



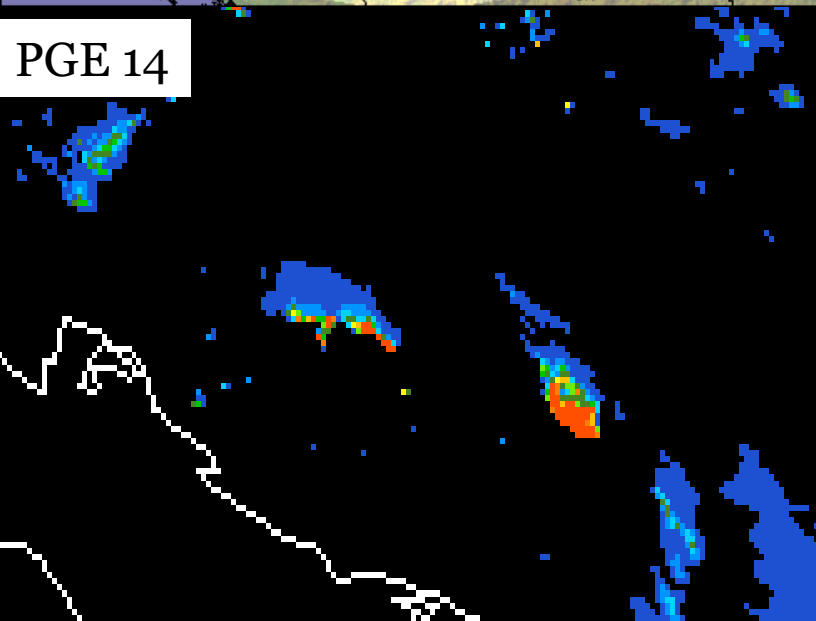
11 September 2014 – 09 UTC



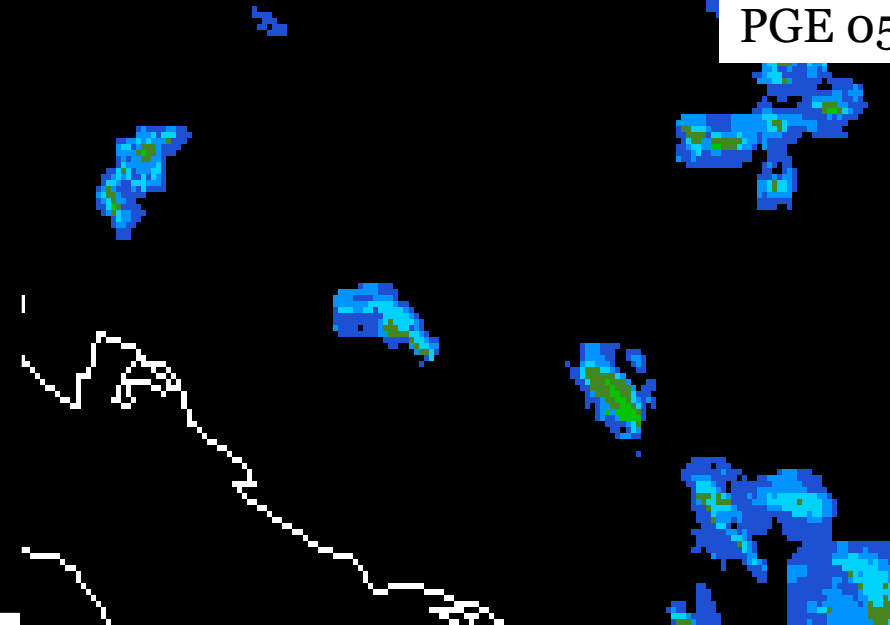
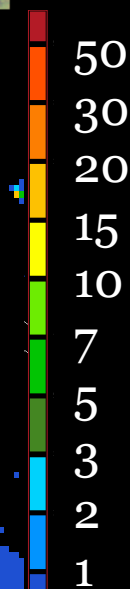
Bilogora
CAPPI
DEF_CAPPI
Task: DEFAULT
PRF: 620Hz
Height: 2.0 km
Max Range: 240 km
12:00:10Z
13 SEP 2014 UT



PGE 04



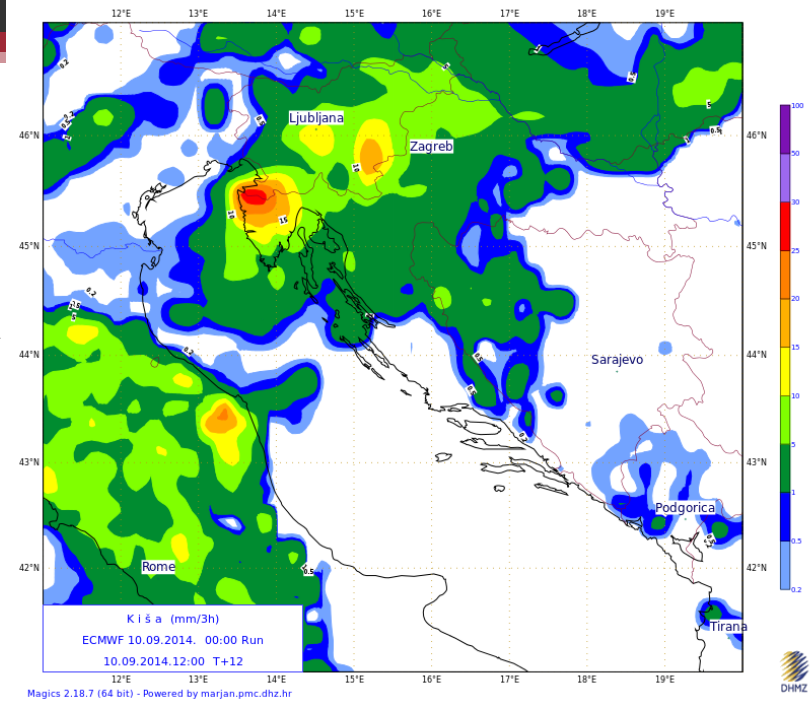
PGE 14



PGE 05

Comparison with model

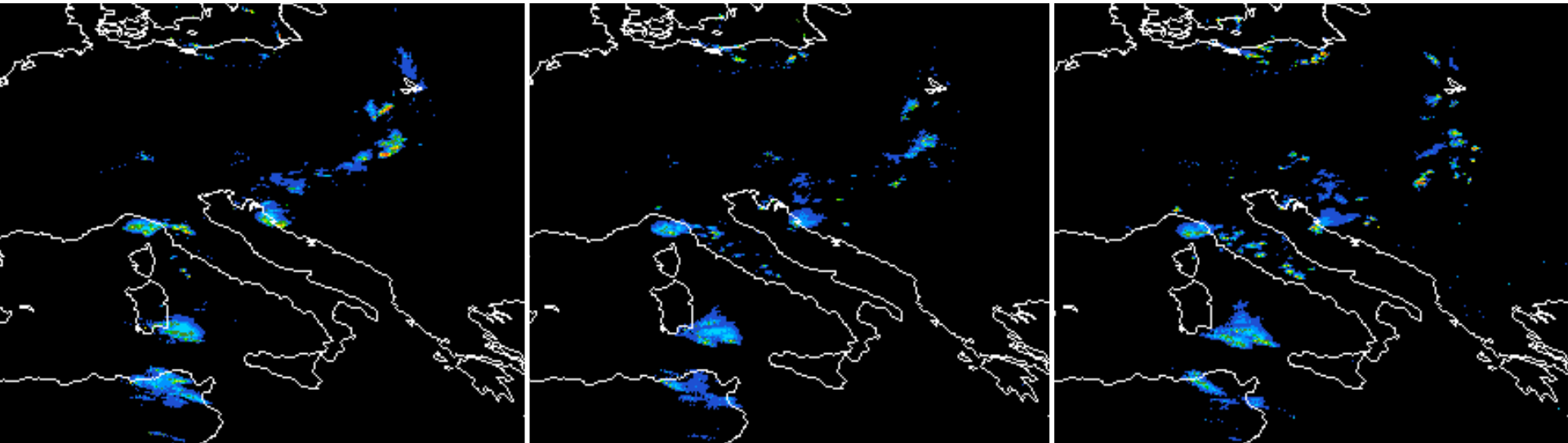
- ECMWF 9 – 12 UTC accum.
- PGE 14 Hourly accum.



9-10

10-11

11-12





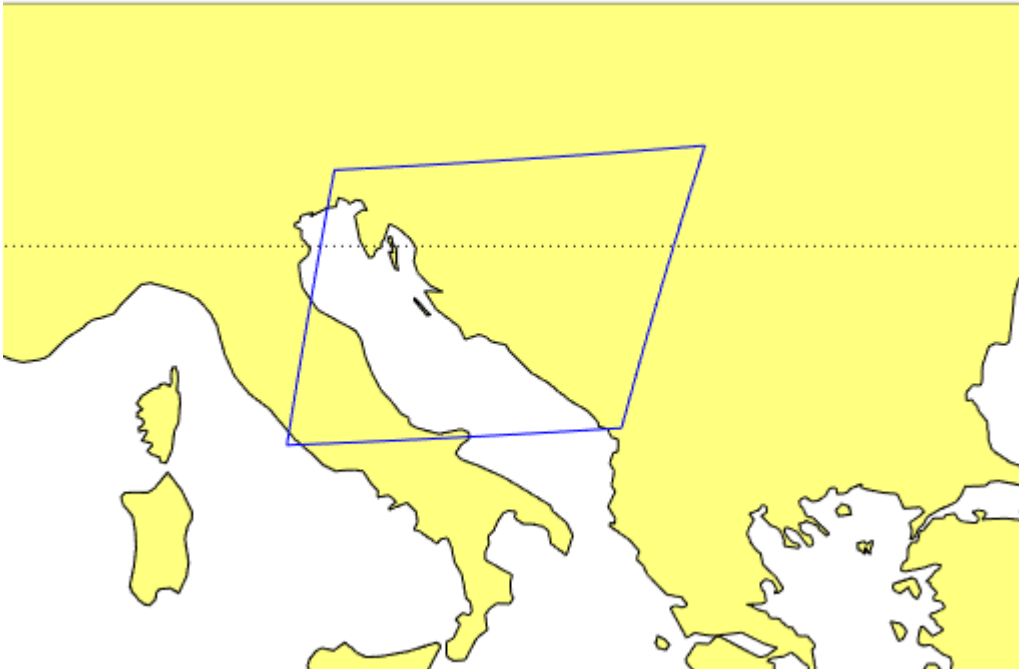
Validation II

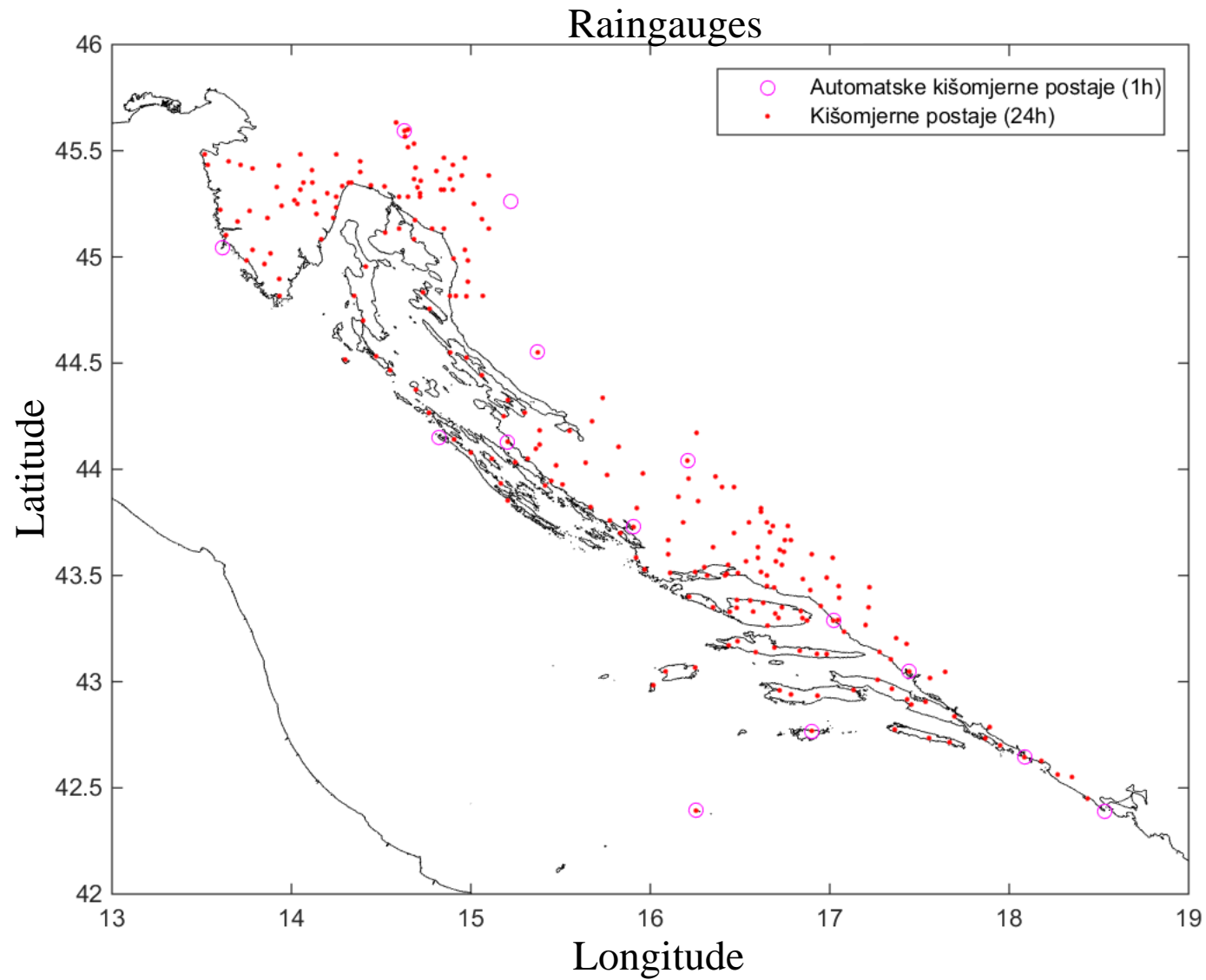
- HyMeX-SOP1
 - HYdrological cycle in the Mediterranean EXperiment
 - From 5 September to 6 November 2012
 - 12. 9. – 14. 9.
 - 19. 9. – 20. 9.
 - 1.10. – 2. 10.
 - 15. 10. – 16. 10.
 - 26. 10. – 29. 10.
 - 31.10. – 01. 11.



CRR

- Adriatic region





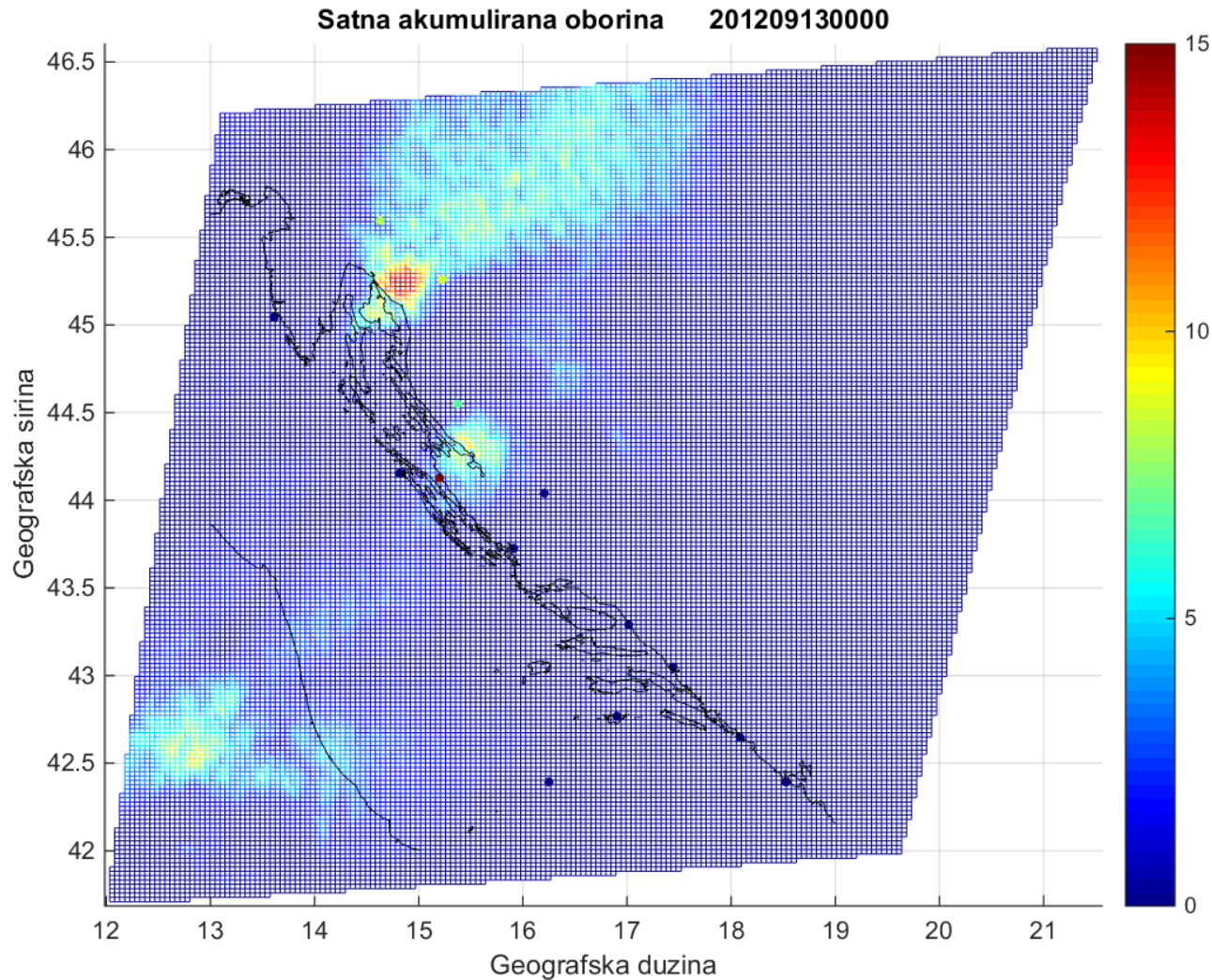


Analysis

- Hourly rainfall accumulations from CRR
- Daily rainfall accumulations from CRR
- Orography effects

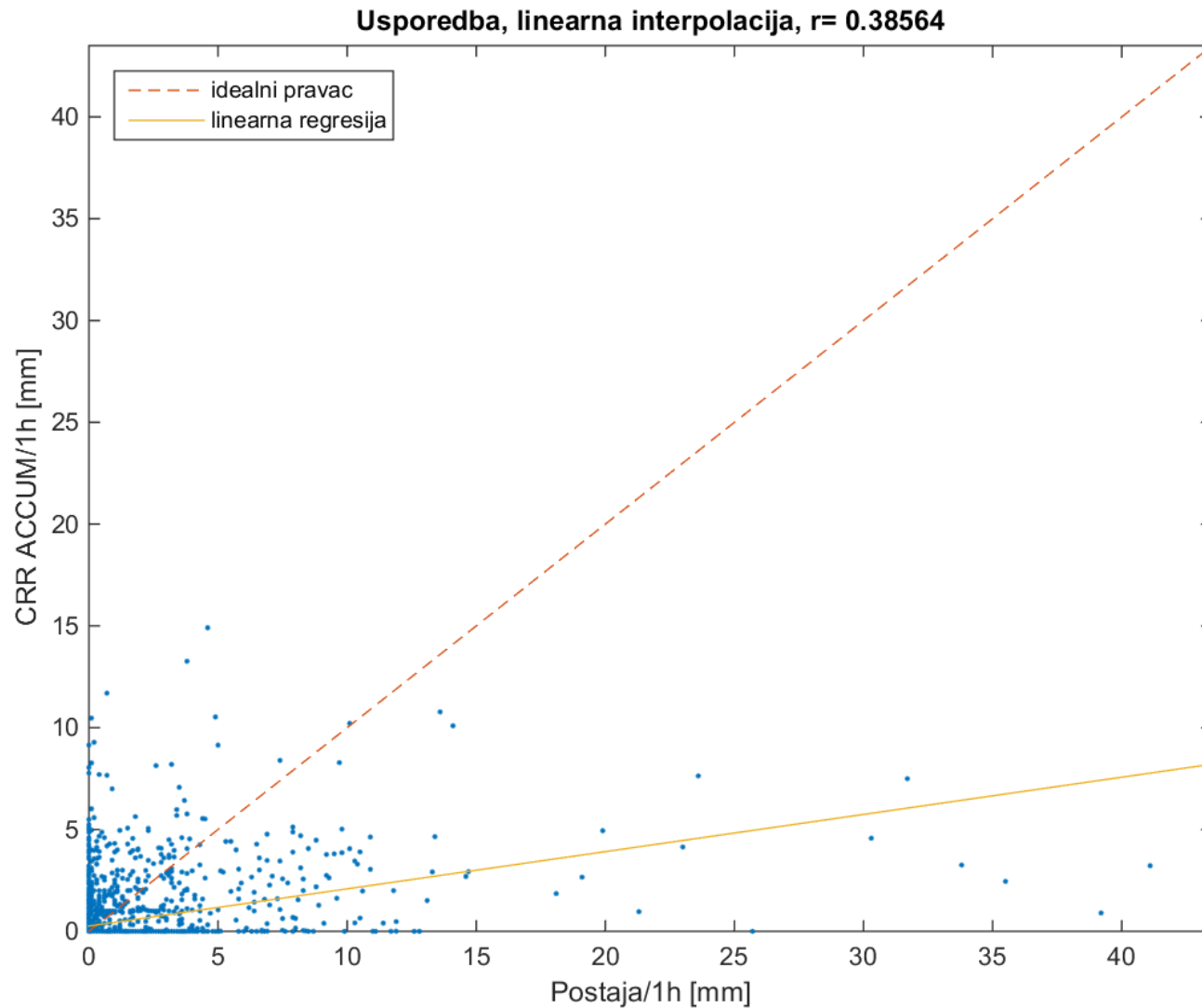


Hourly accumulation



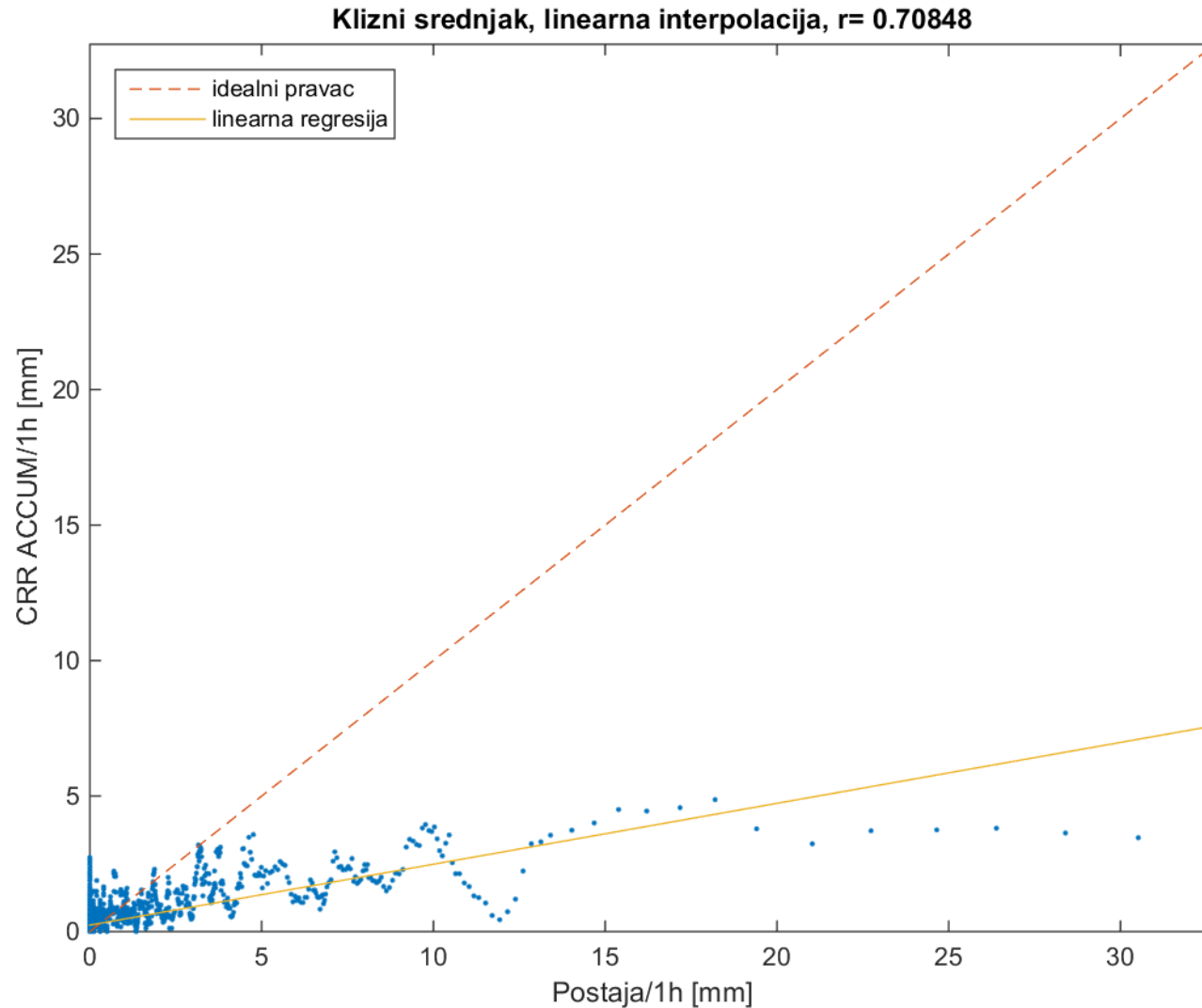


Hourly accumulation



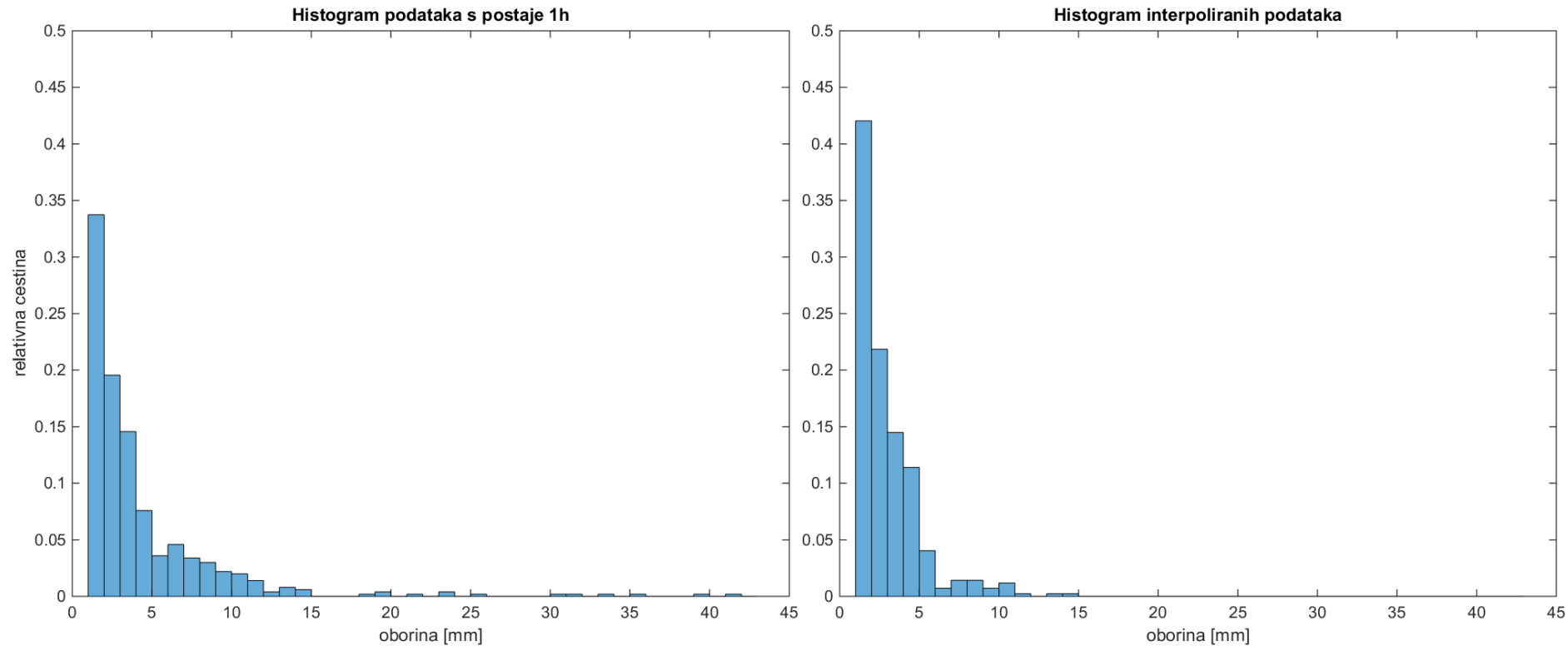


Hourly accumulation



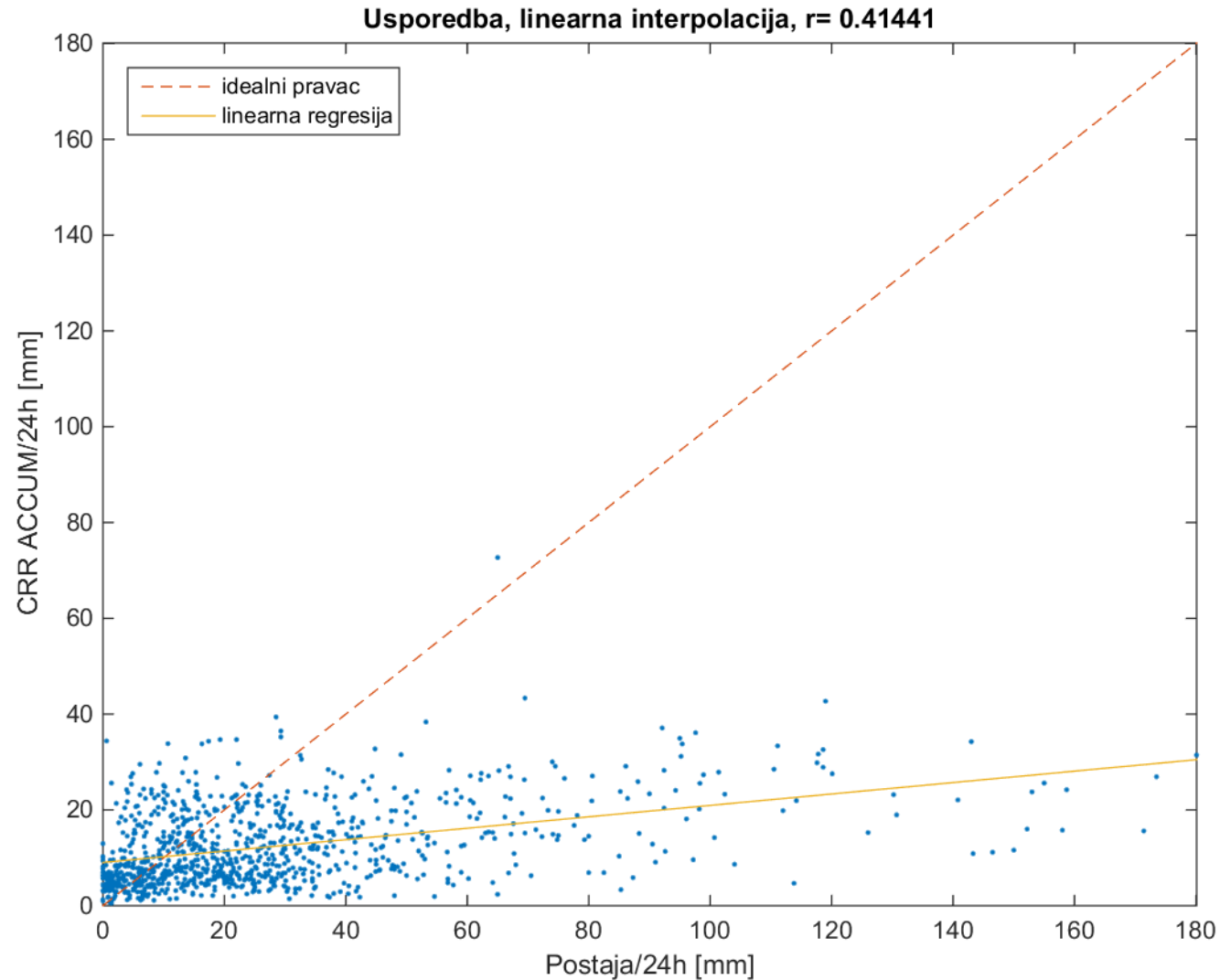


Hourly accumulation



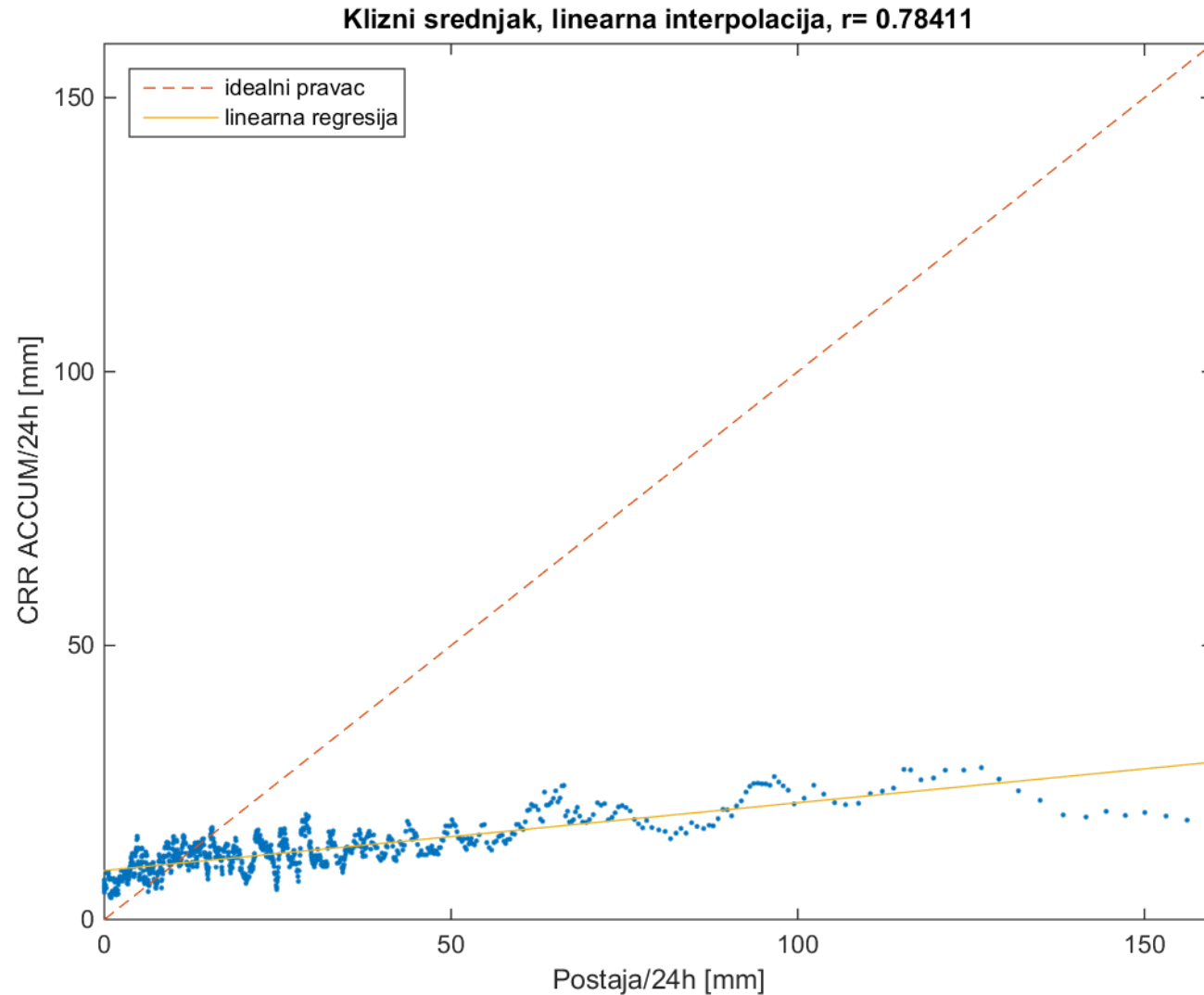


24h accumulation (06-06 UTC)



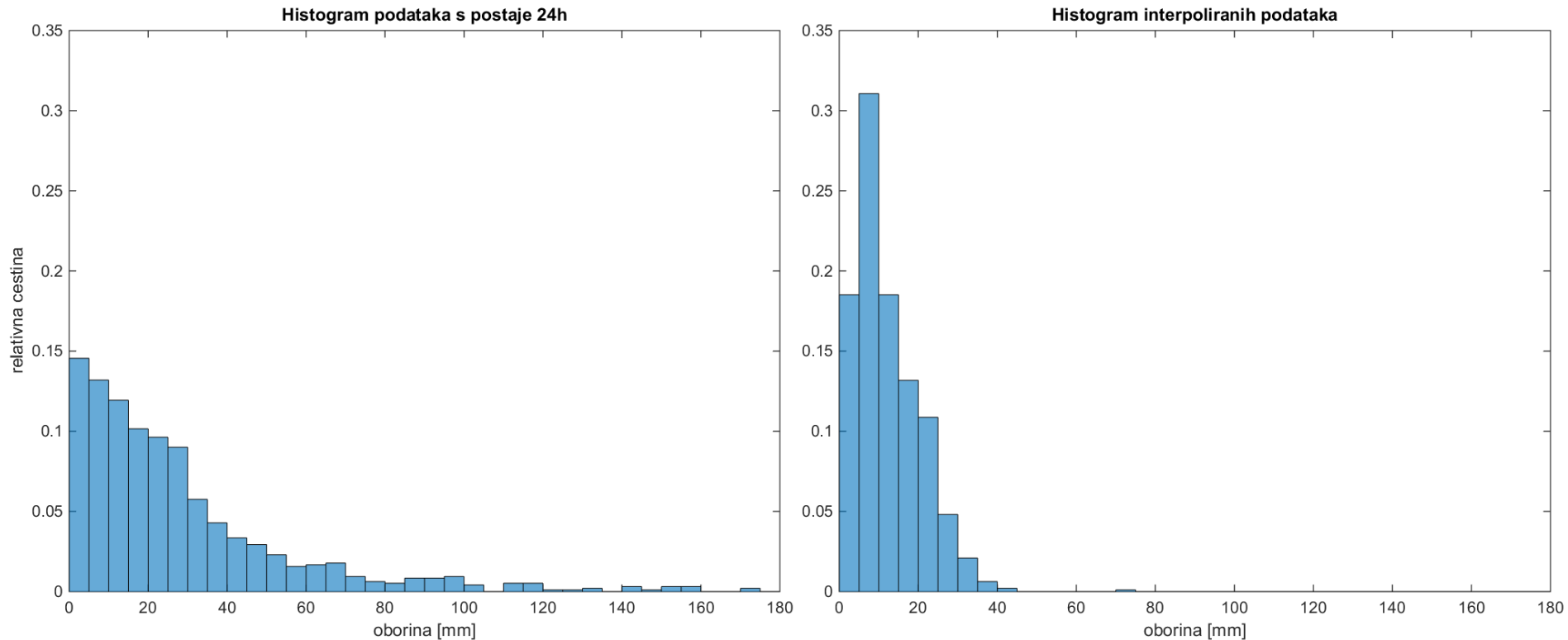


24h accumulation (06-06 UTC)



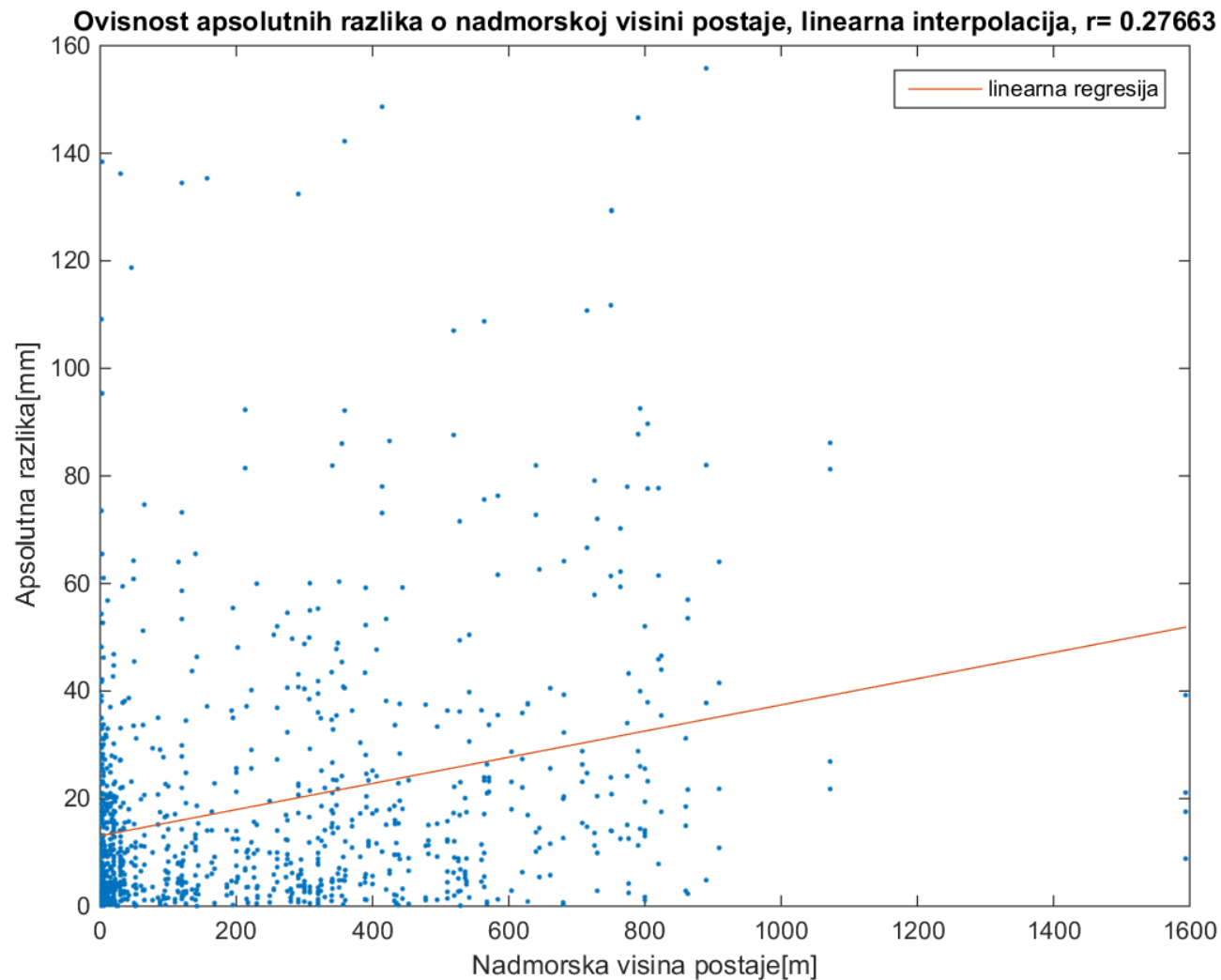


24h accumulation (06-06 UTC)



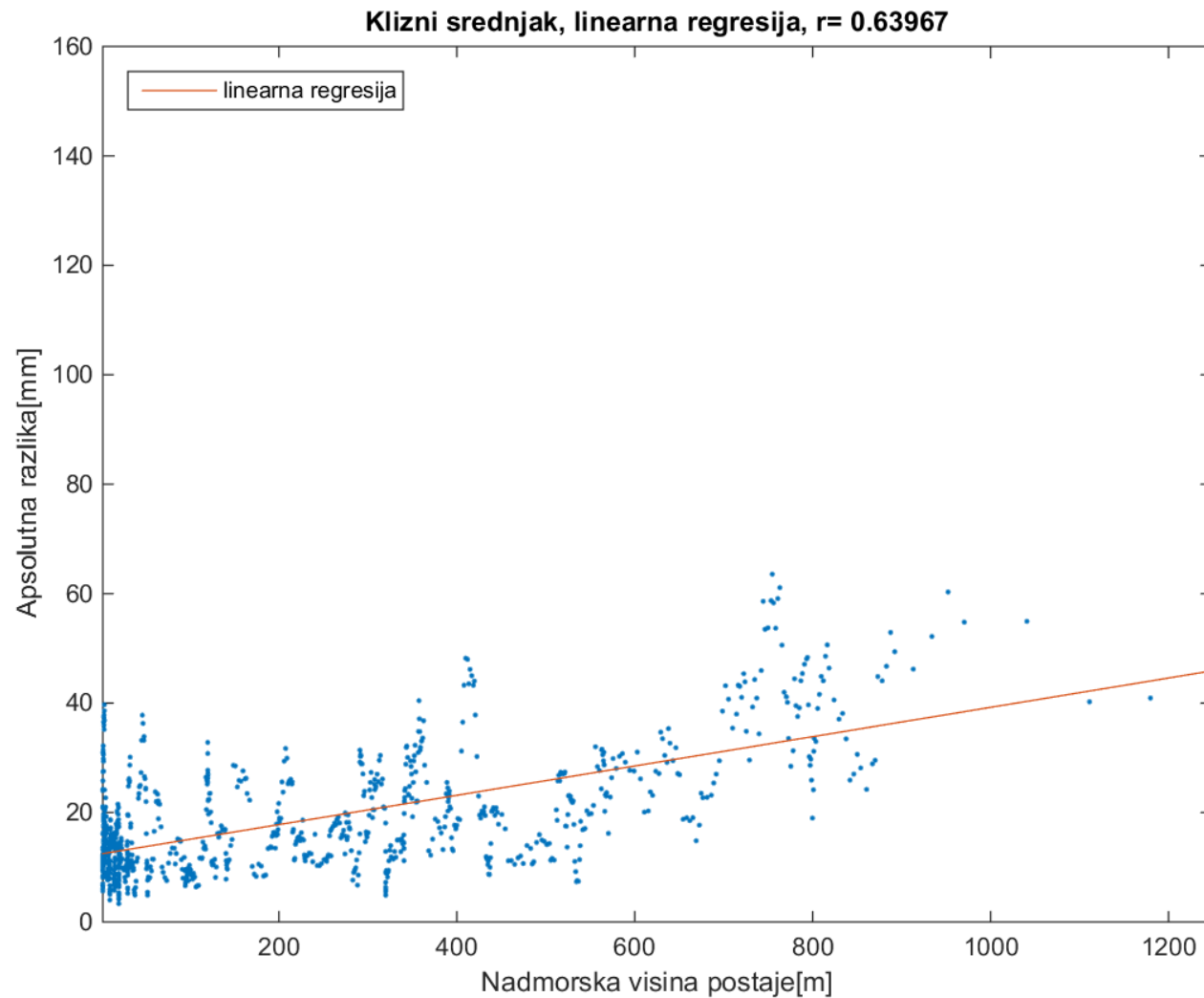


Orography





Orography





Conclusion

- NWC SAF precipitation products are great asset in Nowcasting
- Physical retrieval precipitation products utilising HRV channel provide significant improvement in precipitation spatial distribution



Conclusion

- Validation efforts for daily and hourly convective precipitation values suggested:



Conclusion

- Validation efforts for daily and hourly convective precipitation values suggested:
 - Hourly and daily precipitation is underestimated for high values and overestimated for low values



Conclusion

- Validation efforts for daily and hourly convective precipitation values suggested:
 - Hourly and daily precipitation is underestimated for high values are overestimated for low values
 - There is room for improvement in orography correction applied to precipitation products.



Thank you!

For questions and comments use:
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