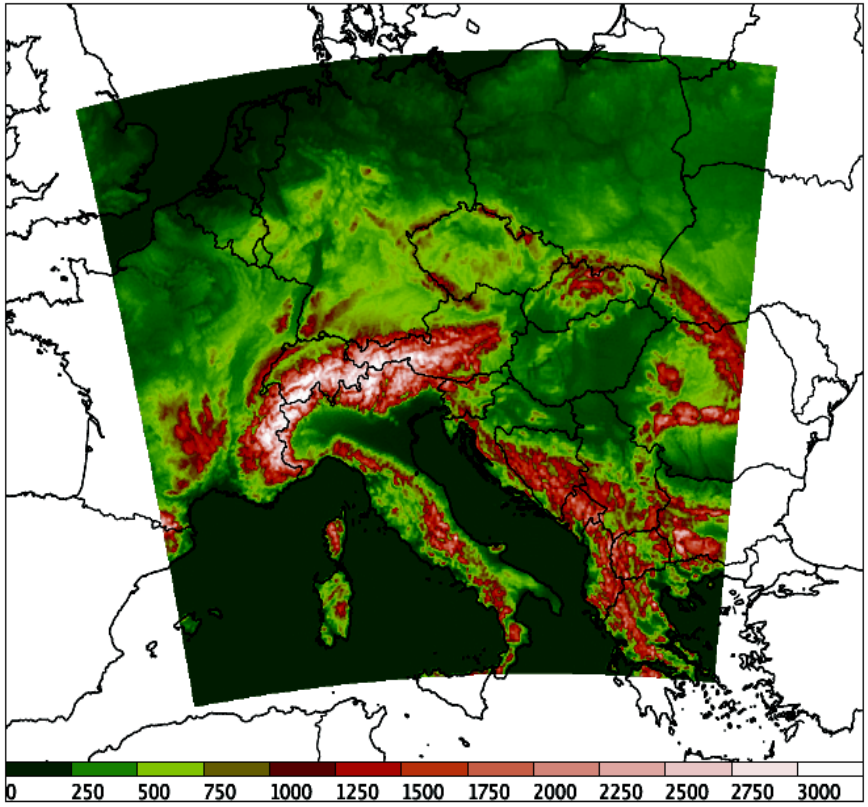
Data assimilation in Slovenia - 2015

Topics

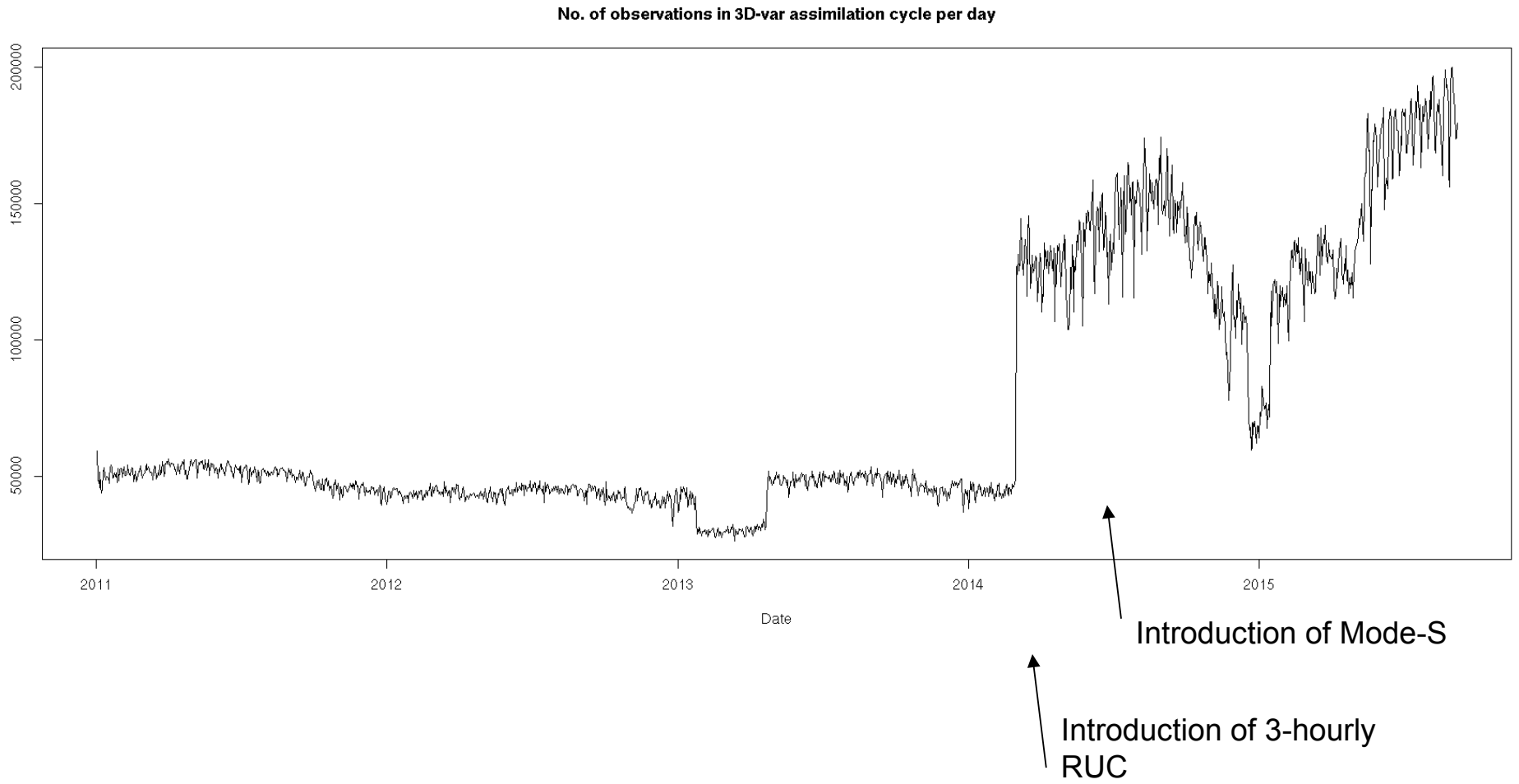
- System overview
- Data monitoring & Var-BC performance
- GPS ZTD
- Mode-S
- Snow analysis

System overview

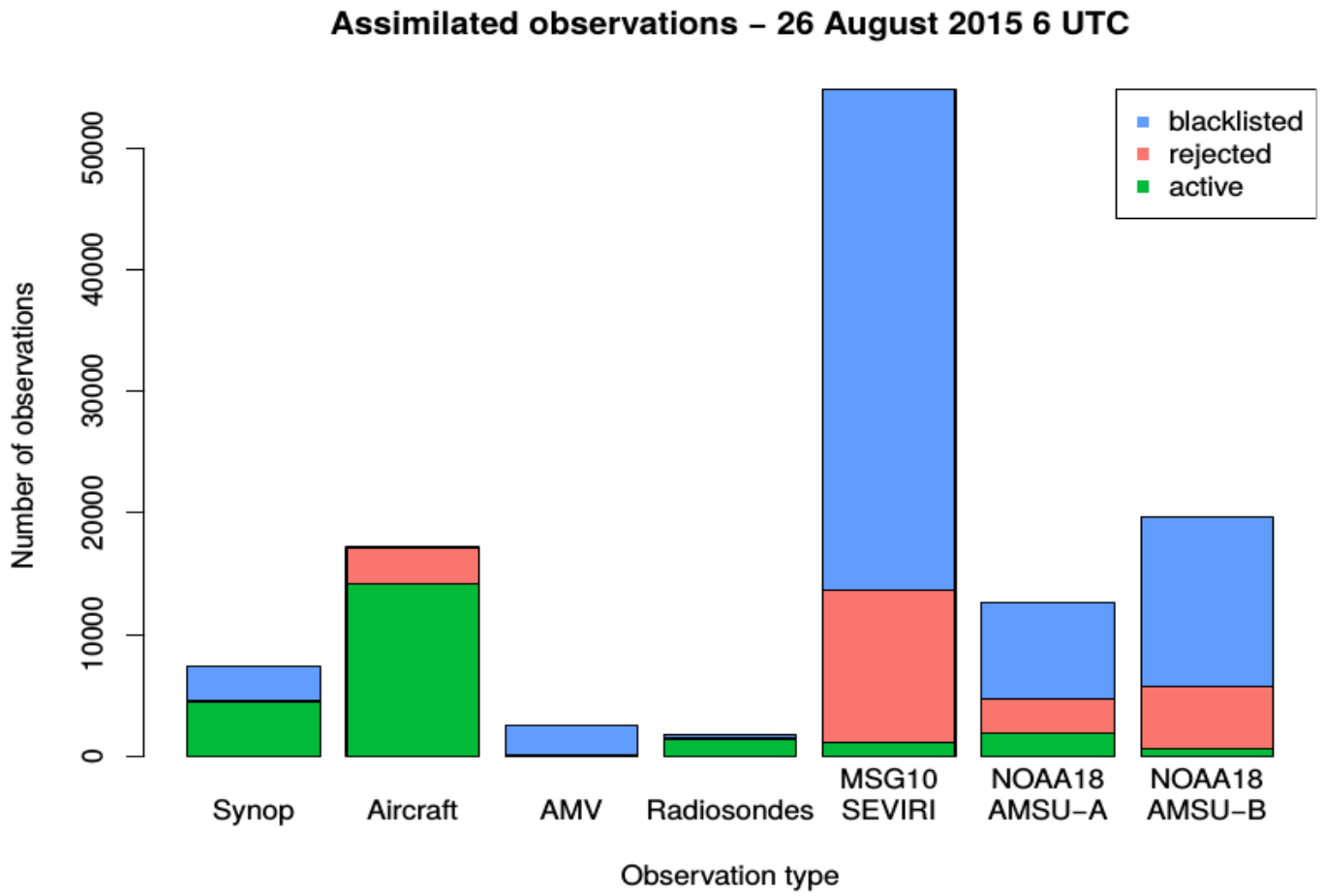
- ALARO cy38t1, 4.4 km resolution, 87 vertical levels
- 3-hourly data assimilation cycle
- 3D-Var + CANARI + SST replacement (POM in test)
- 8 production runs
- Coupled to ECMWF (oper.)
- Coupled to ARPEGE (parallel)



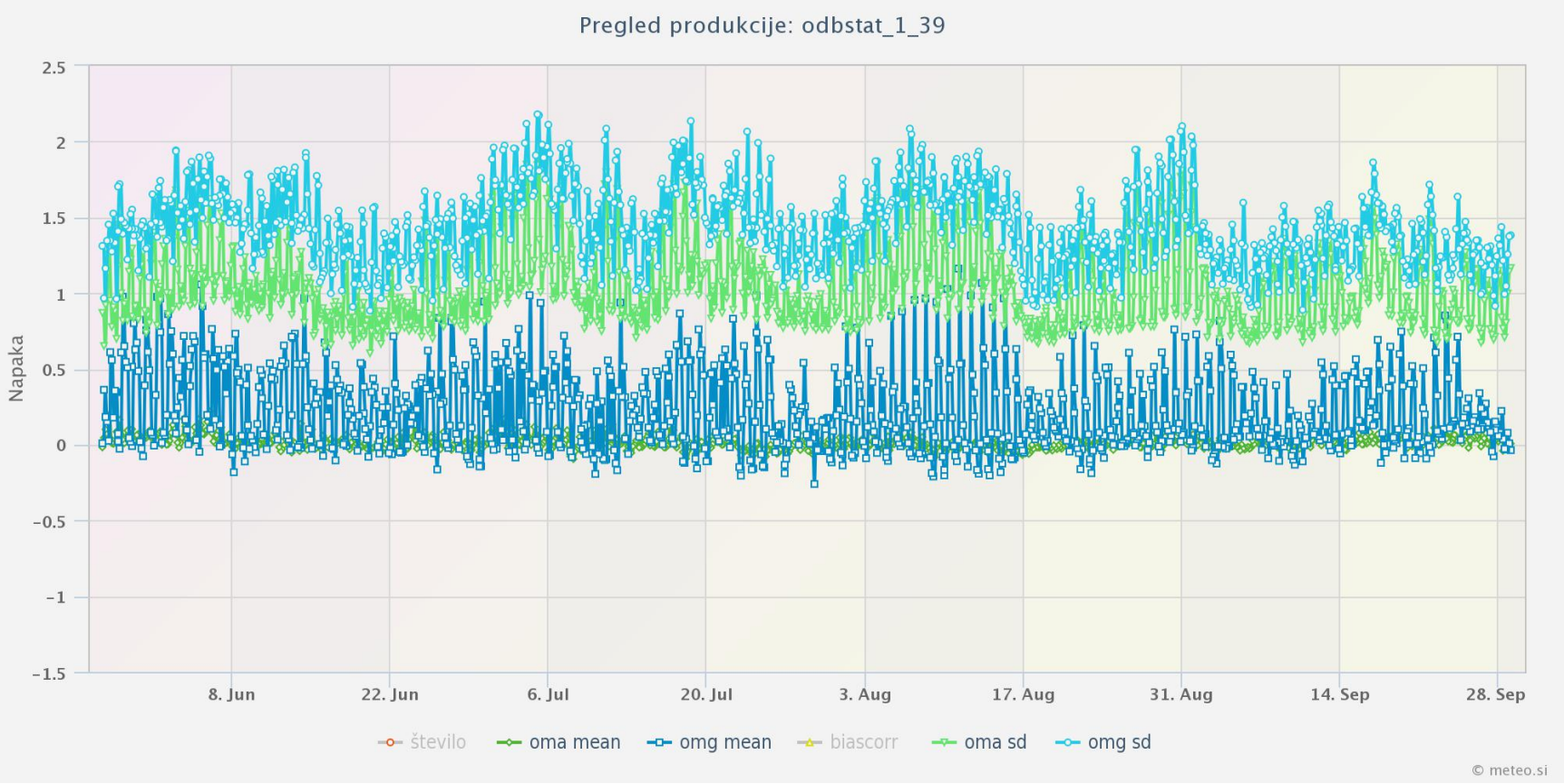
Number of assimilated observations



Structure of assimilated obs. - 6 UTC



Monitoring - Synop



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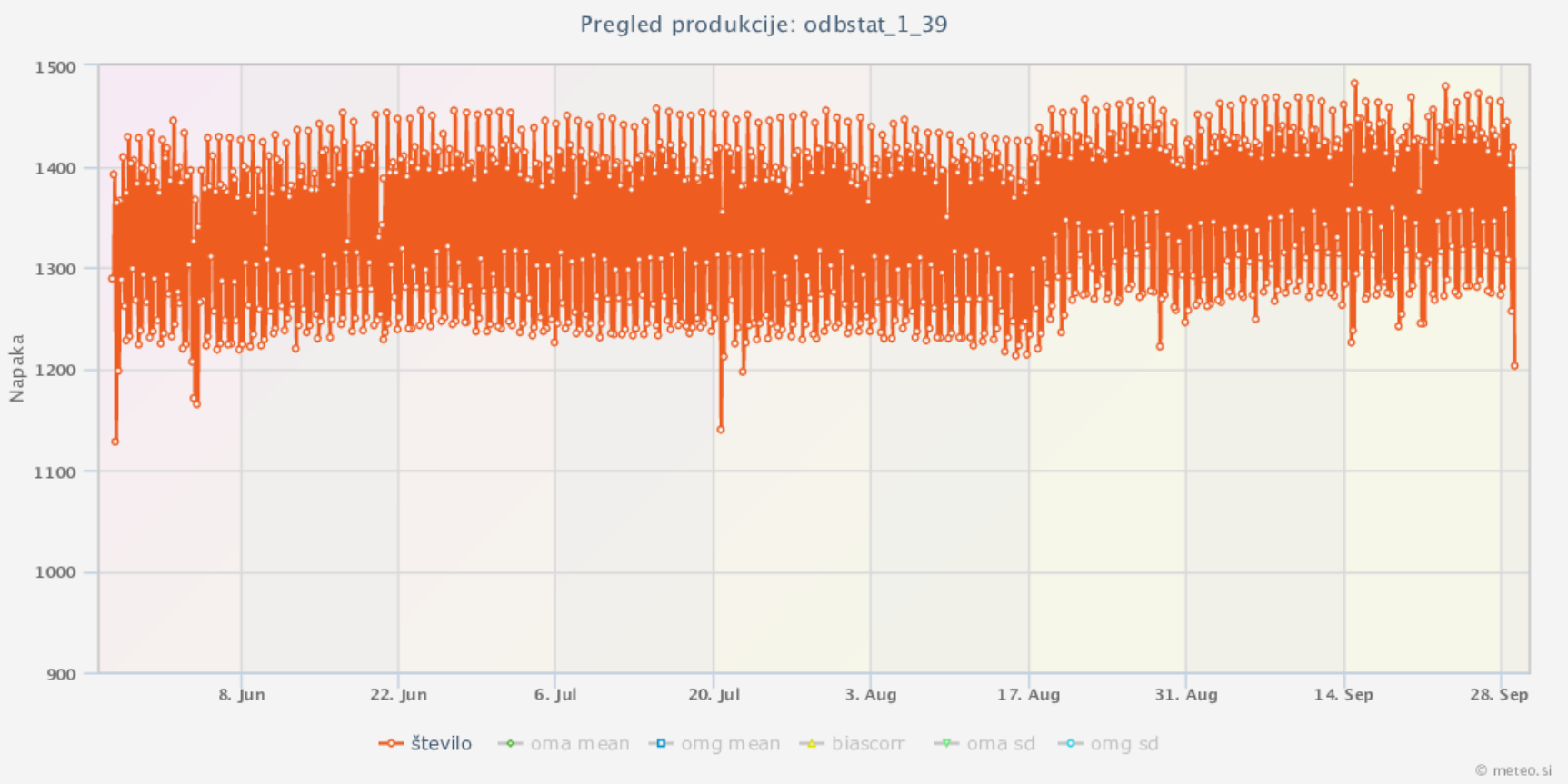
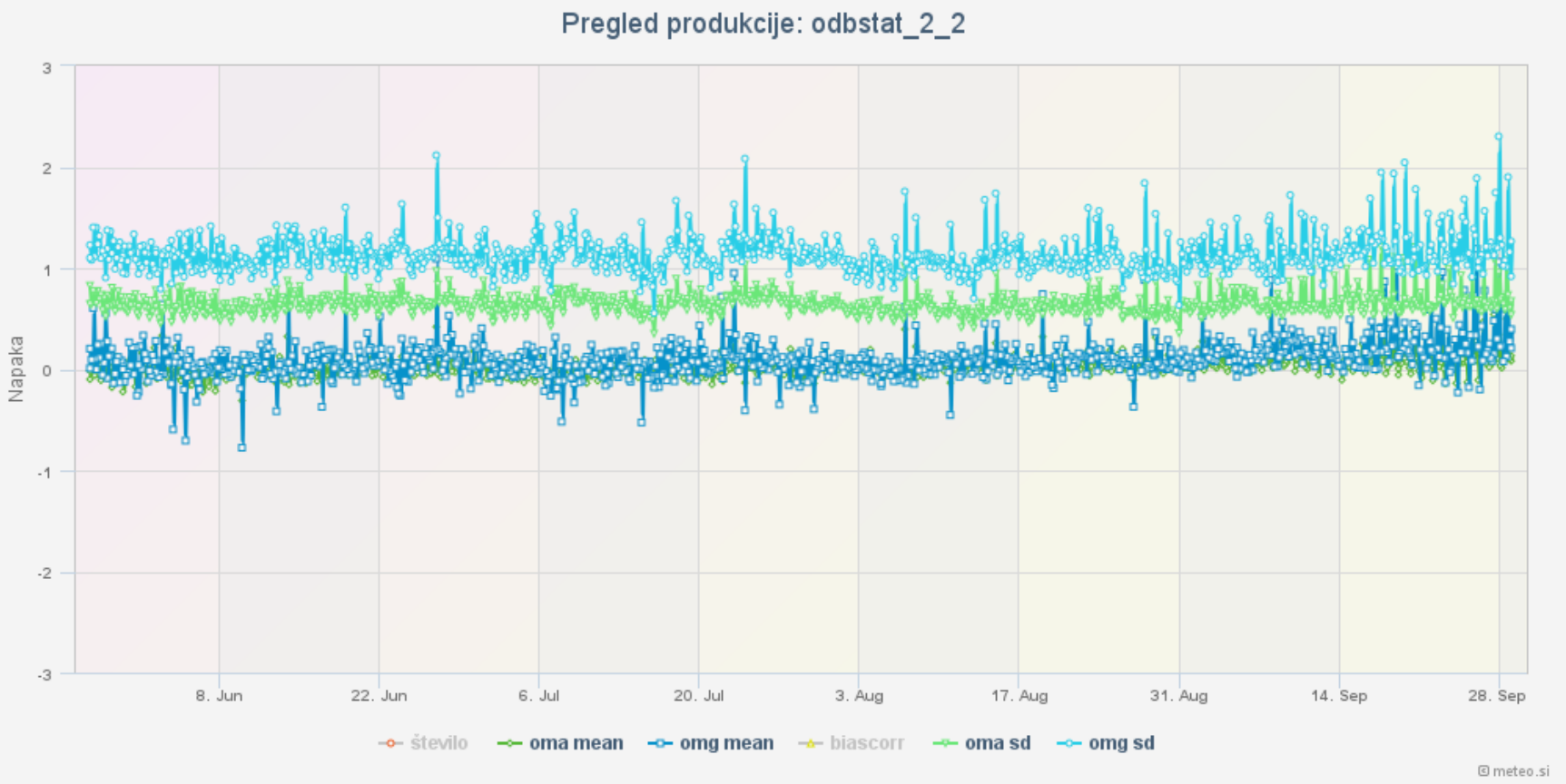


Monitoring – AMDAR + Mode-S



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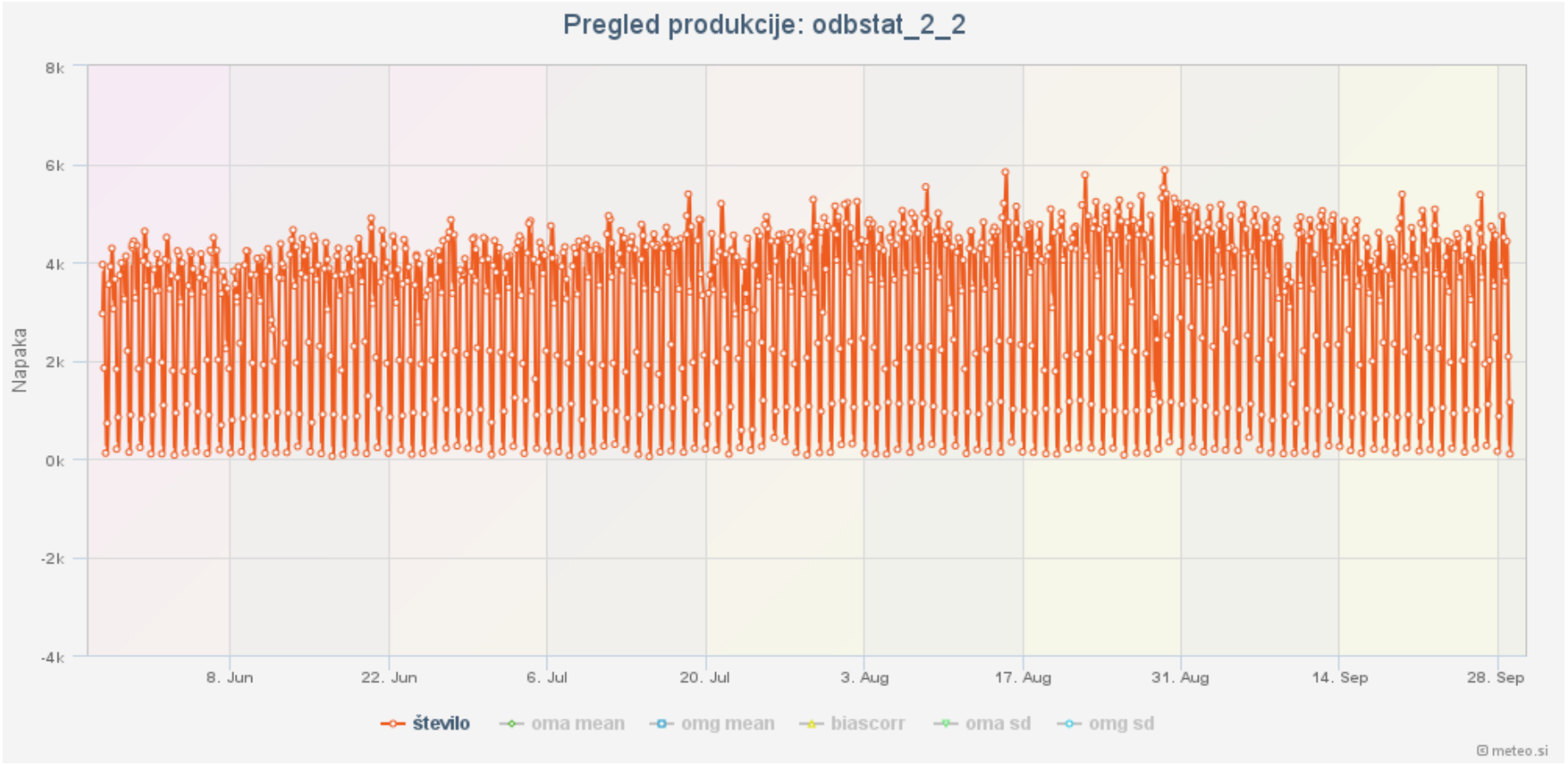
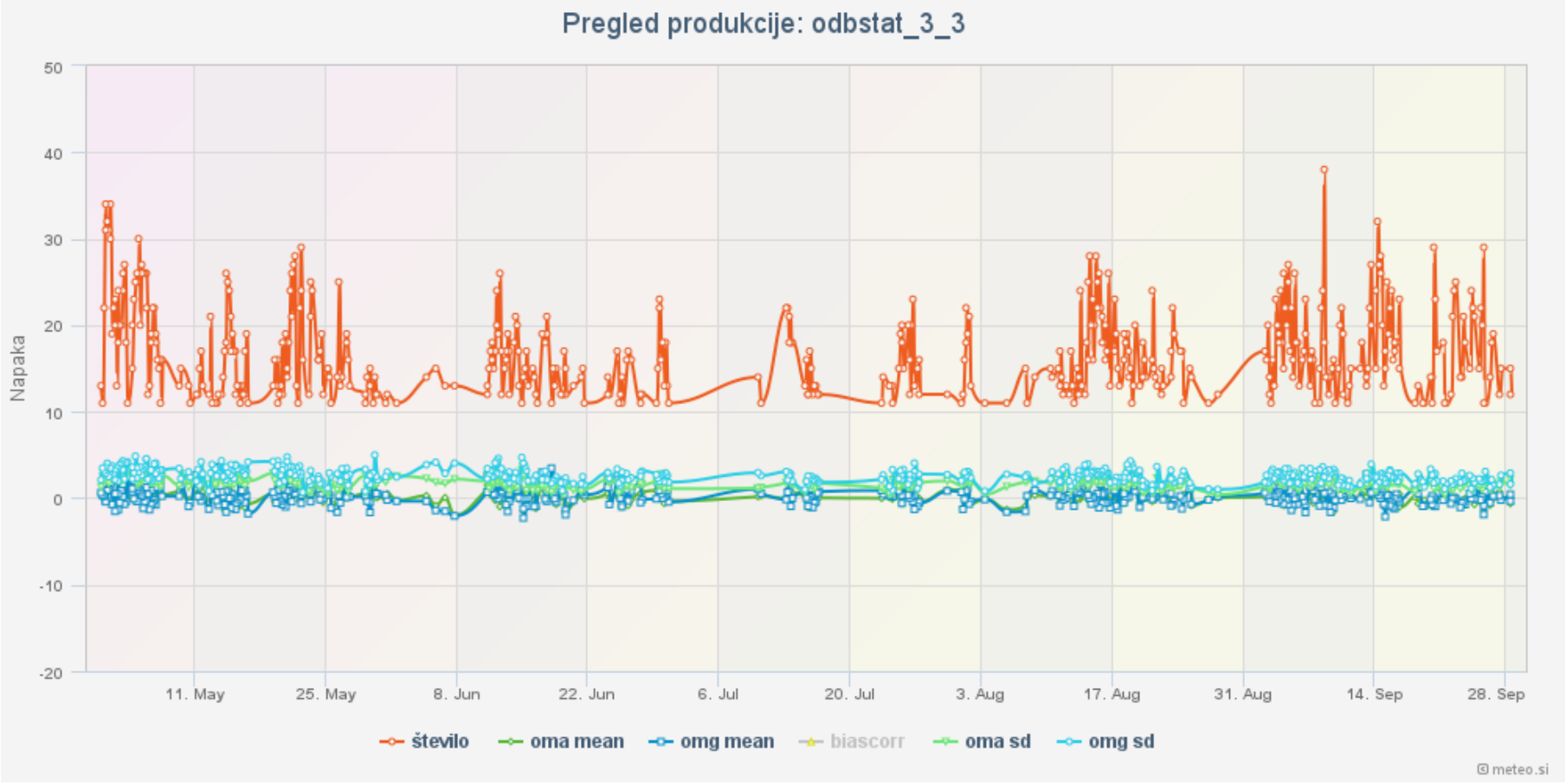
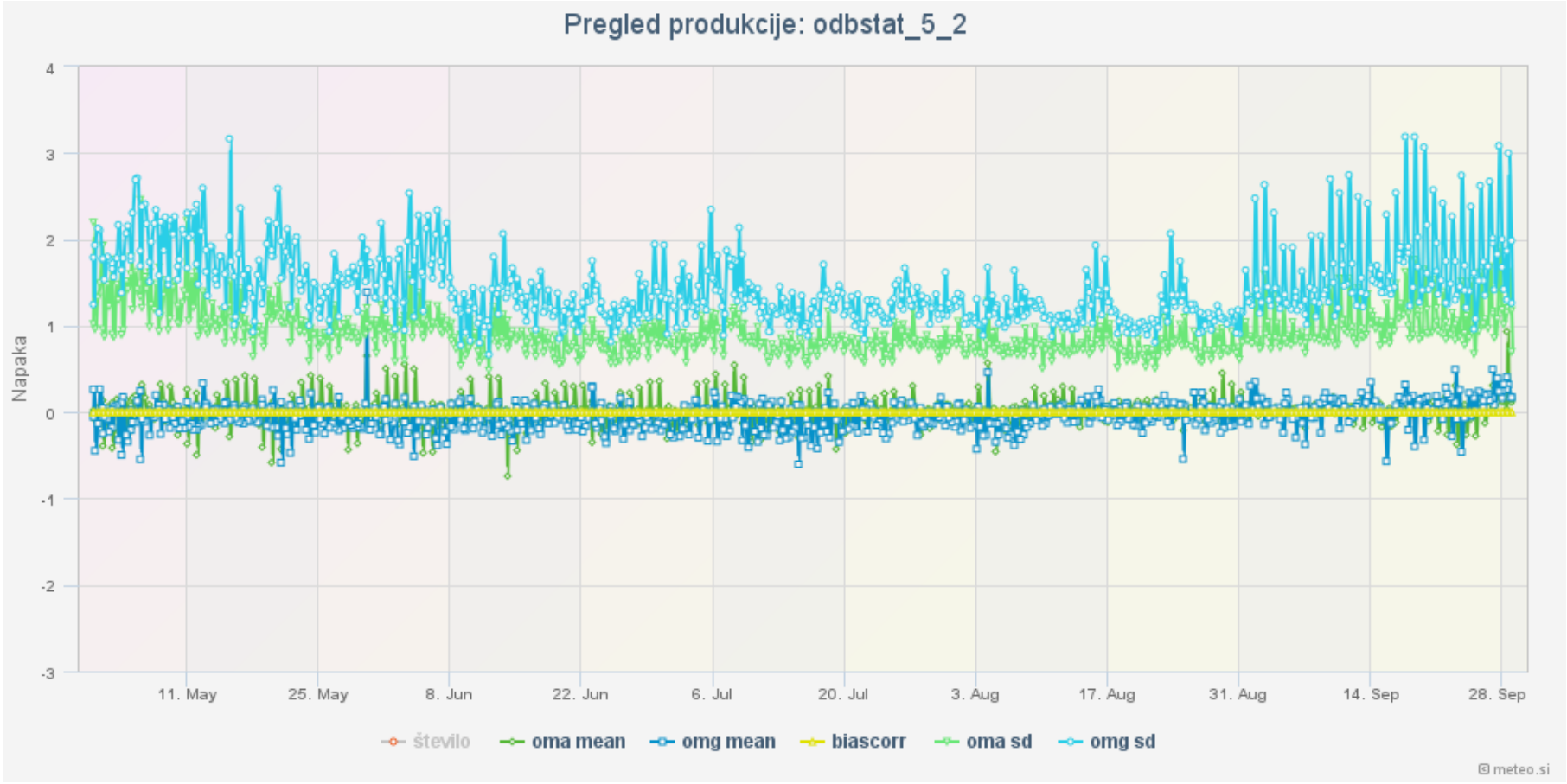


Monitoring - AMV



Monitoring - radiosondes



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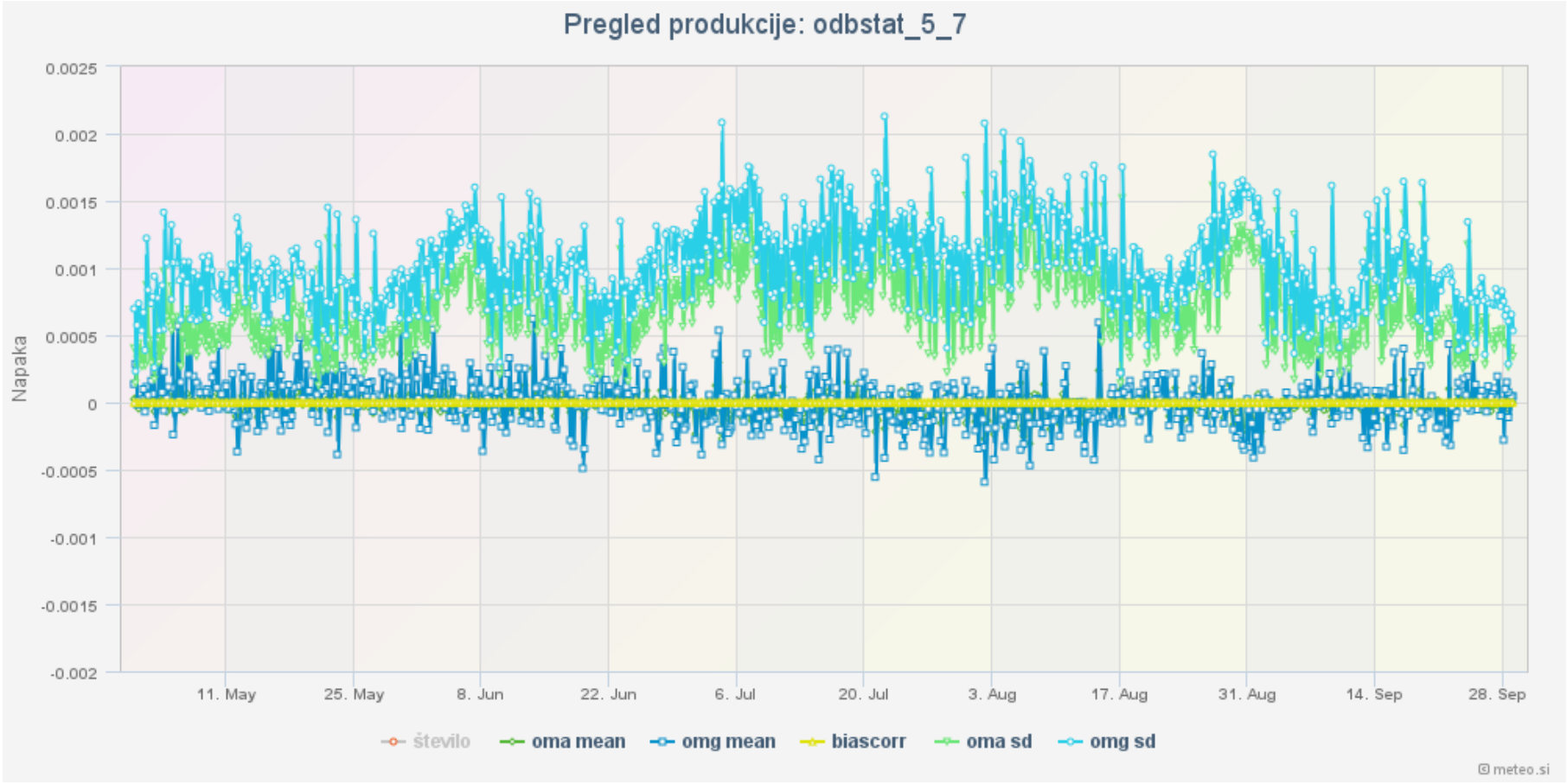

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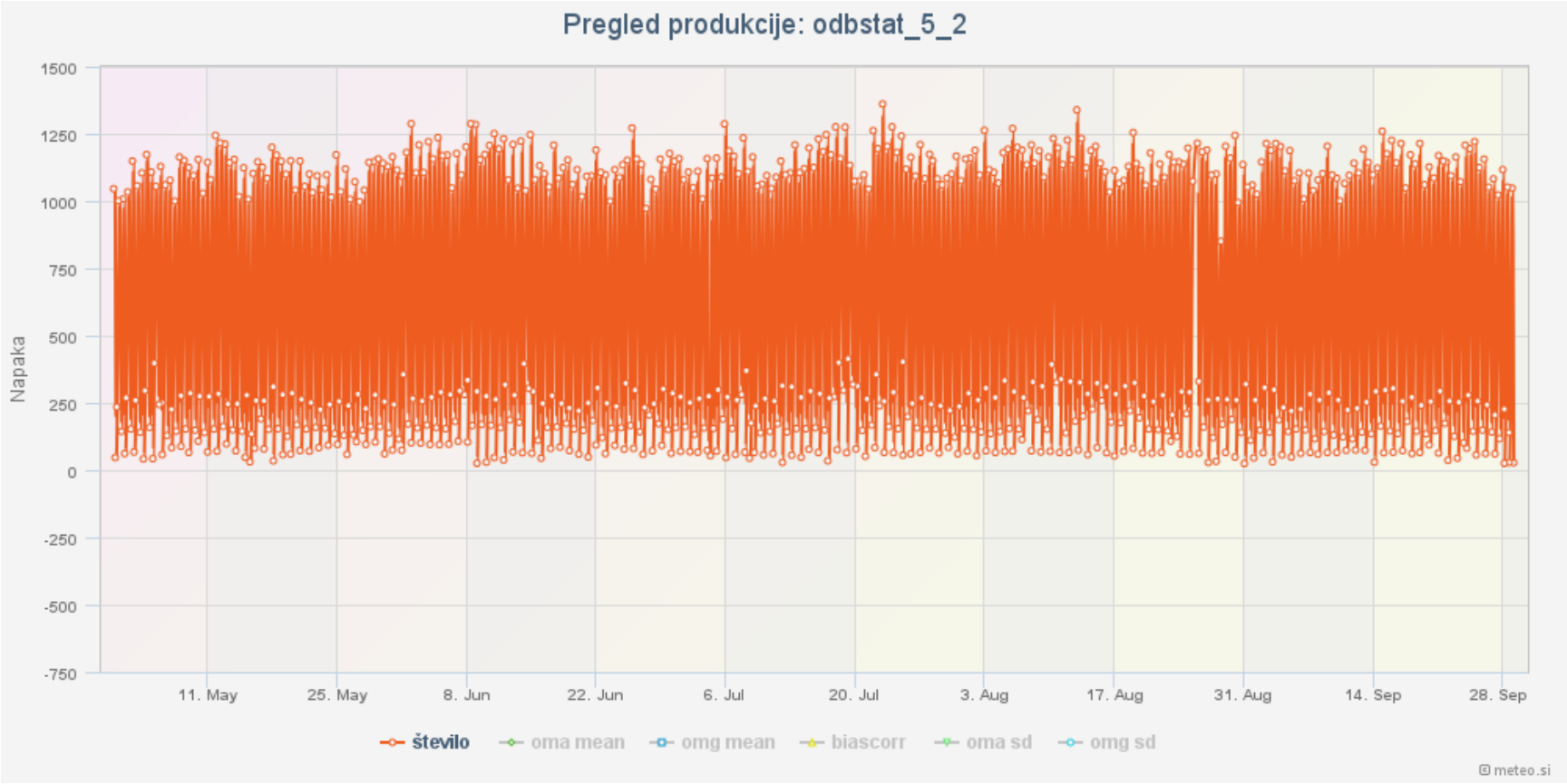
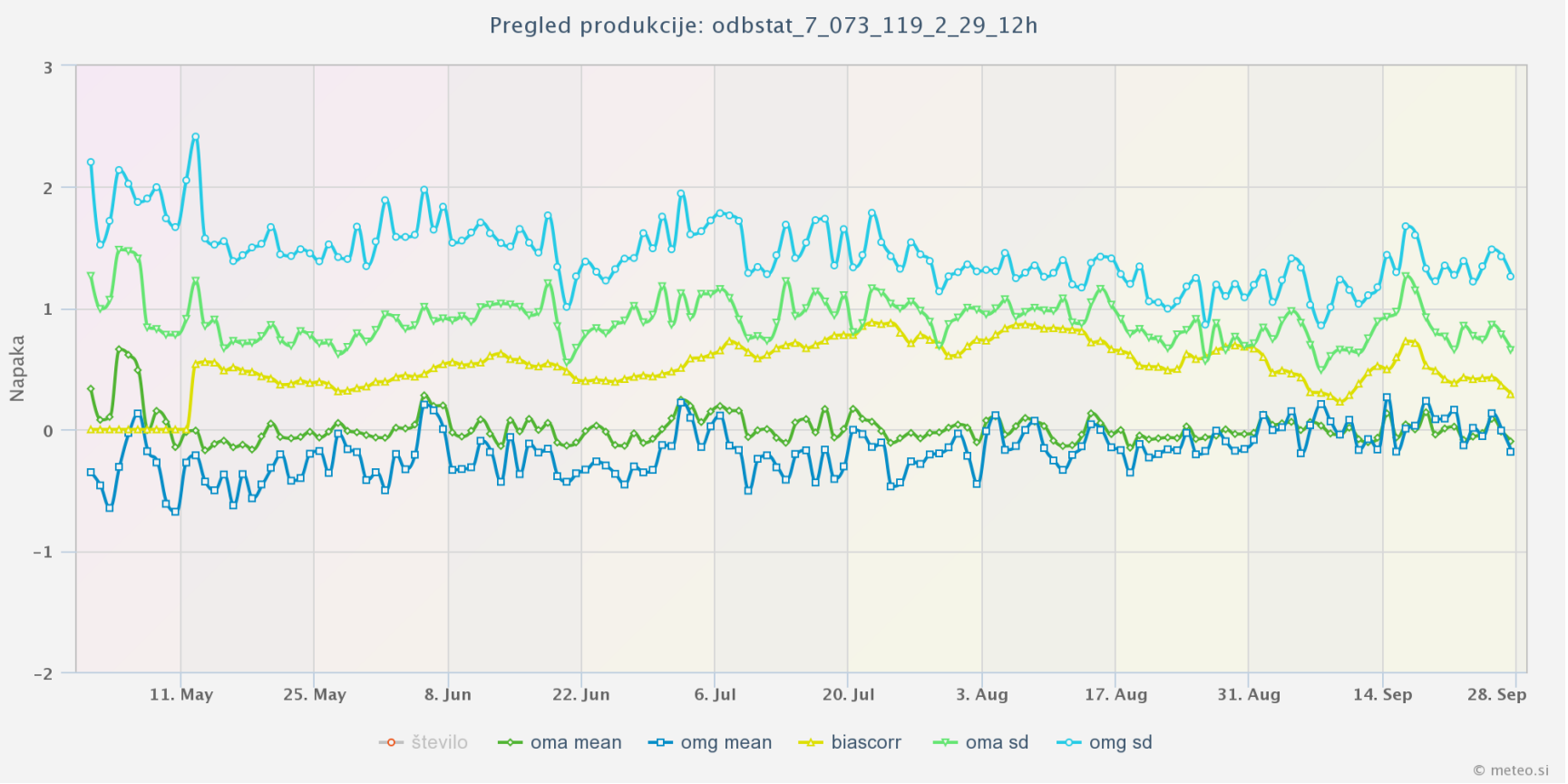


Monitoring - SEVIRI



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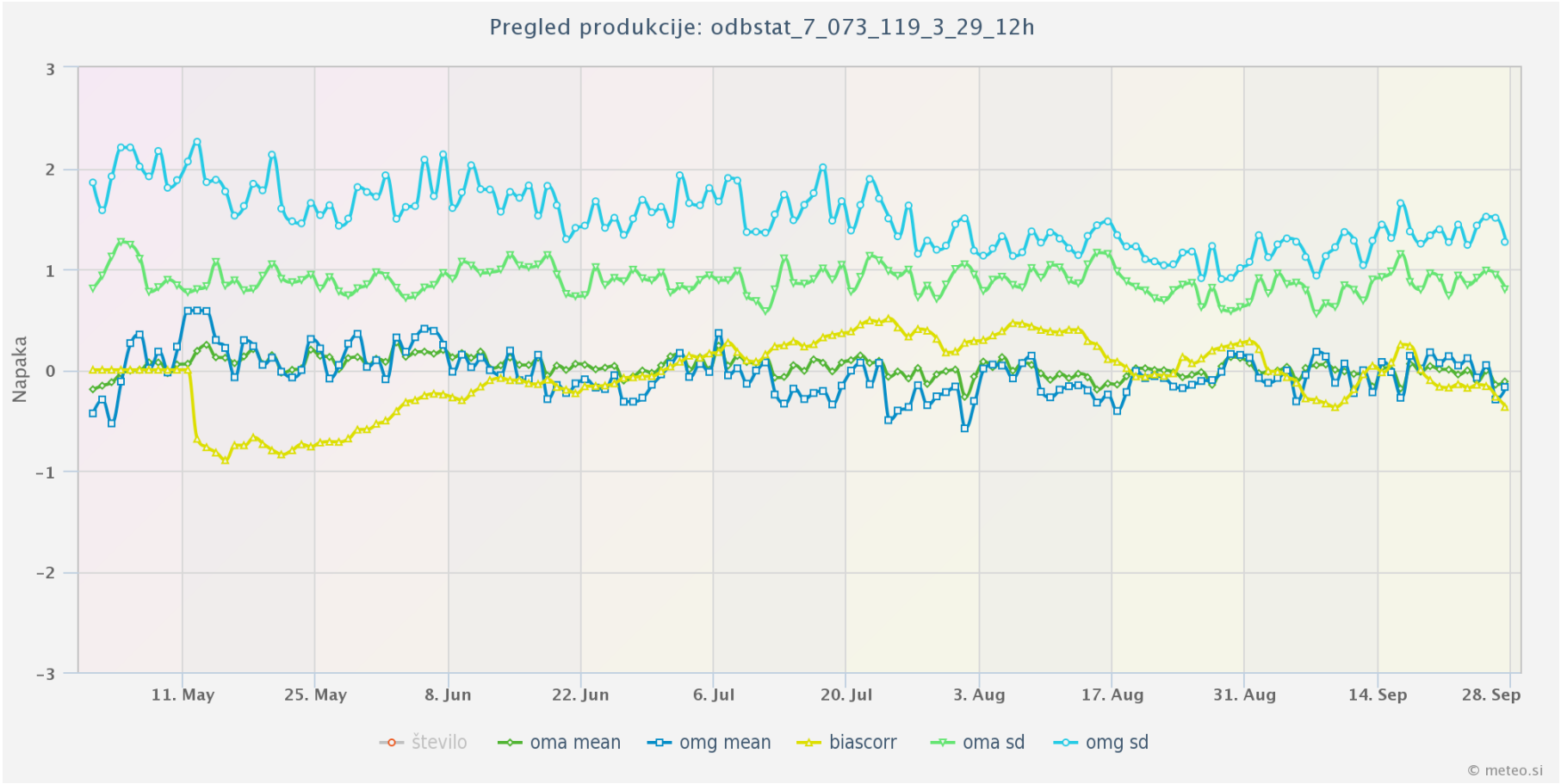

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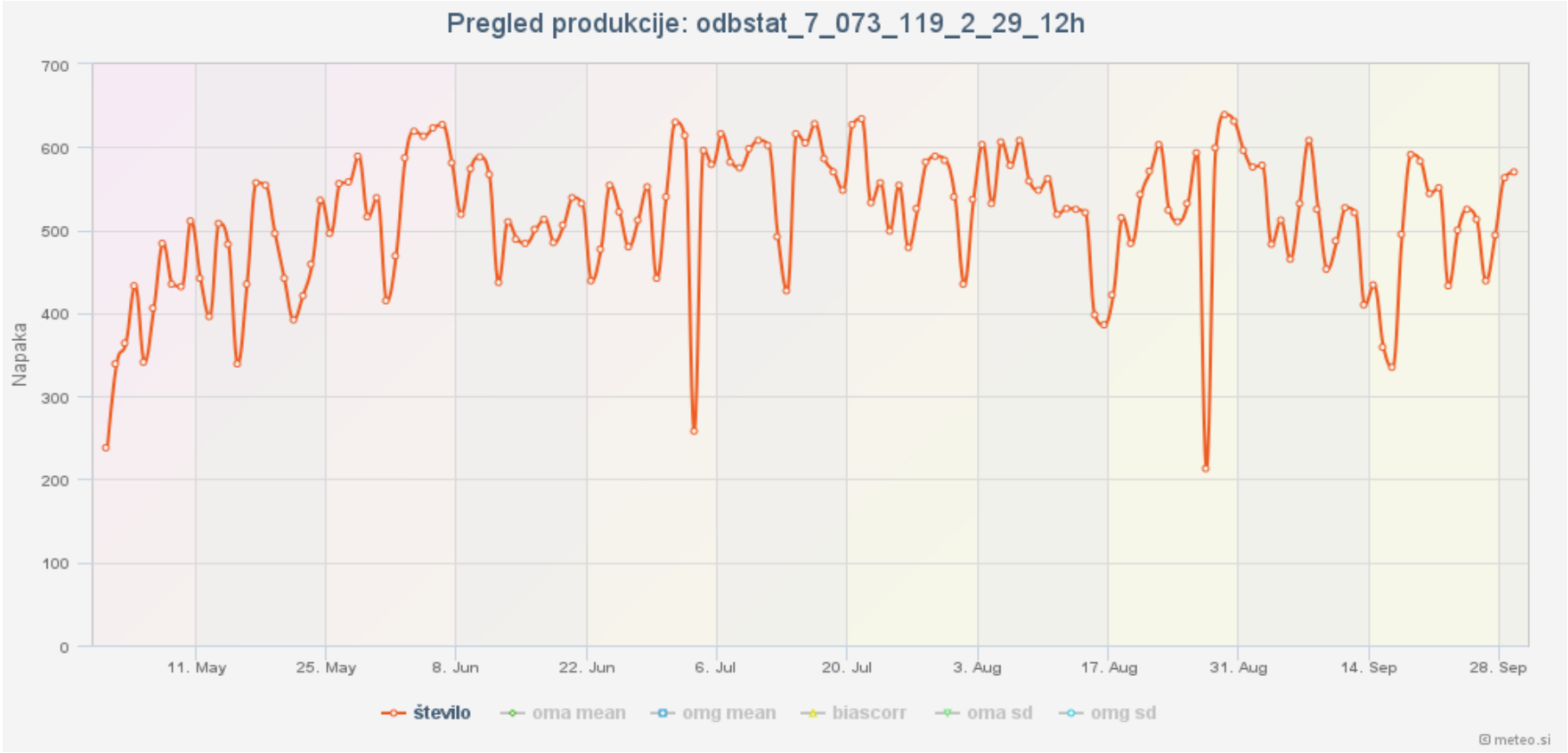
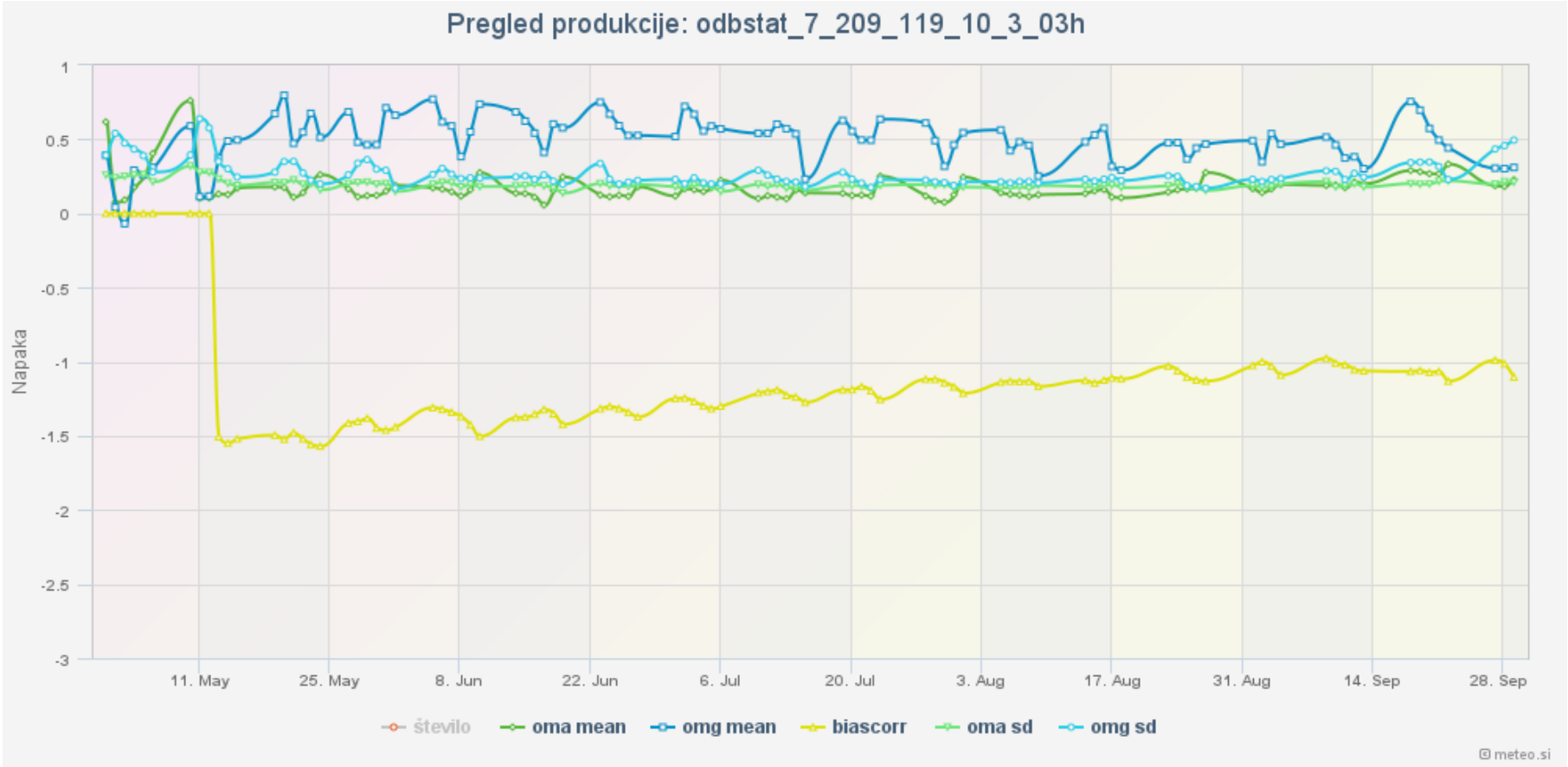


Monitoring – AMSU-A



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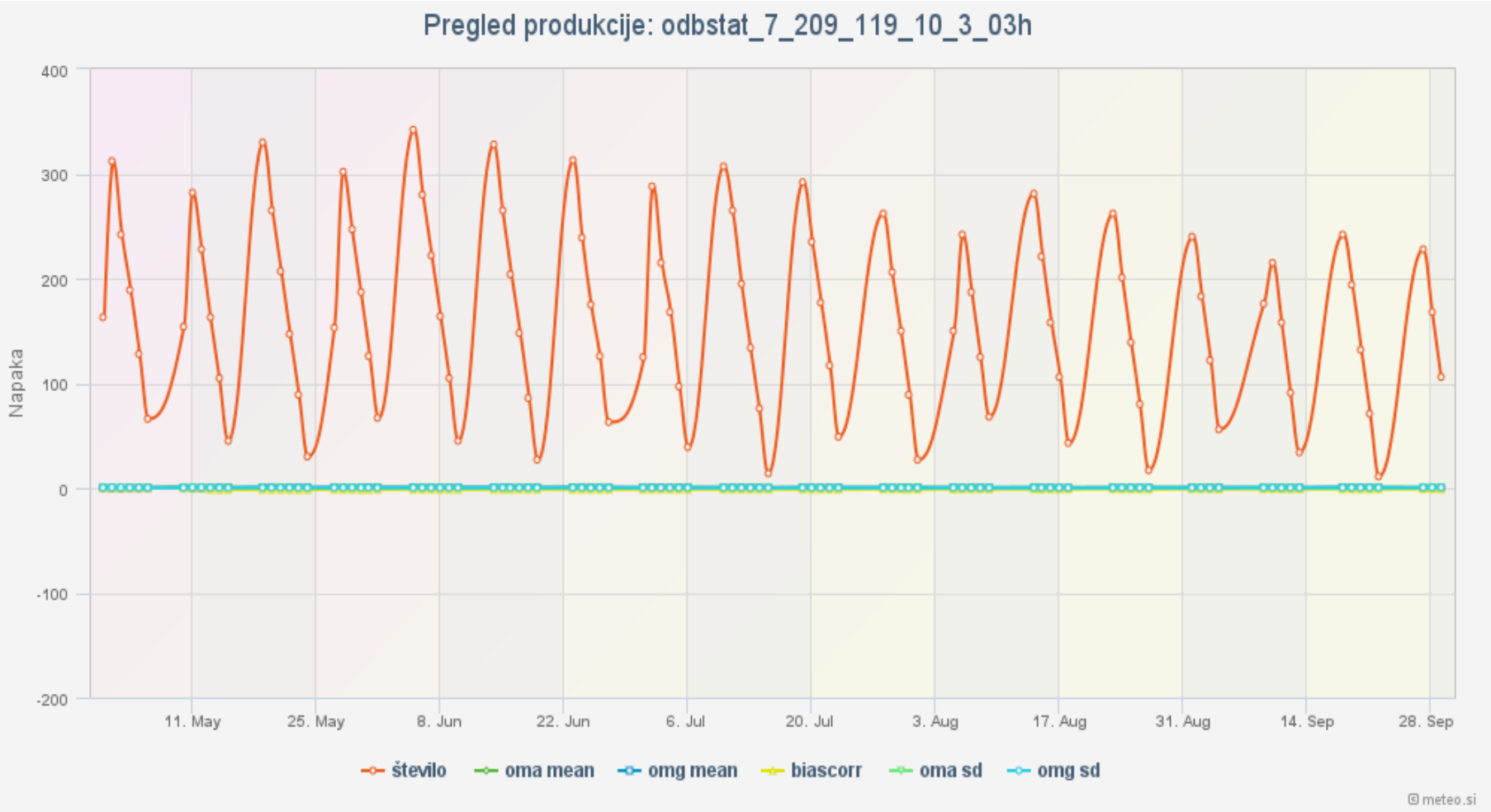

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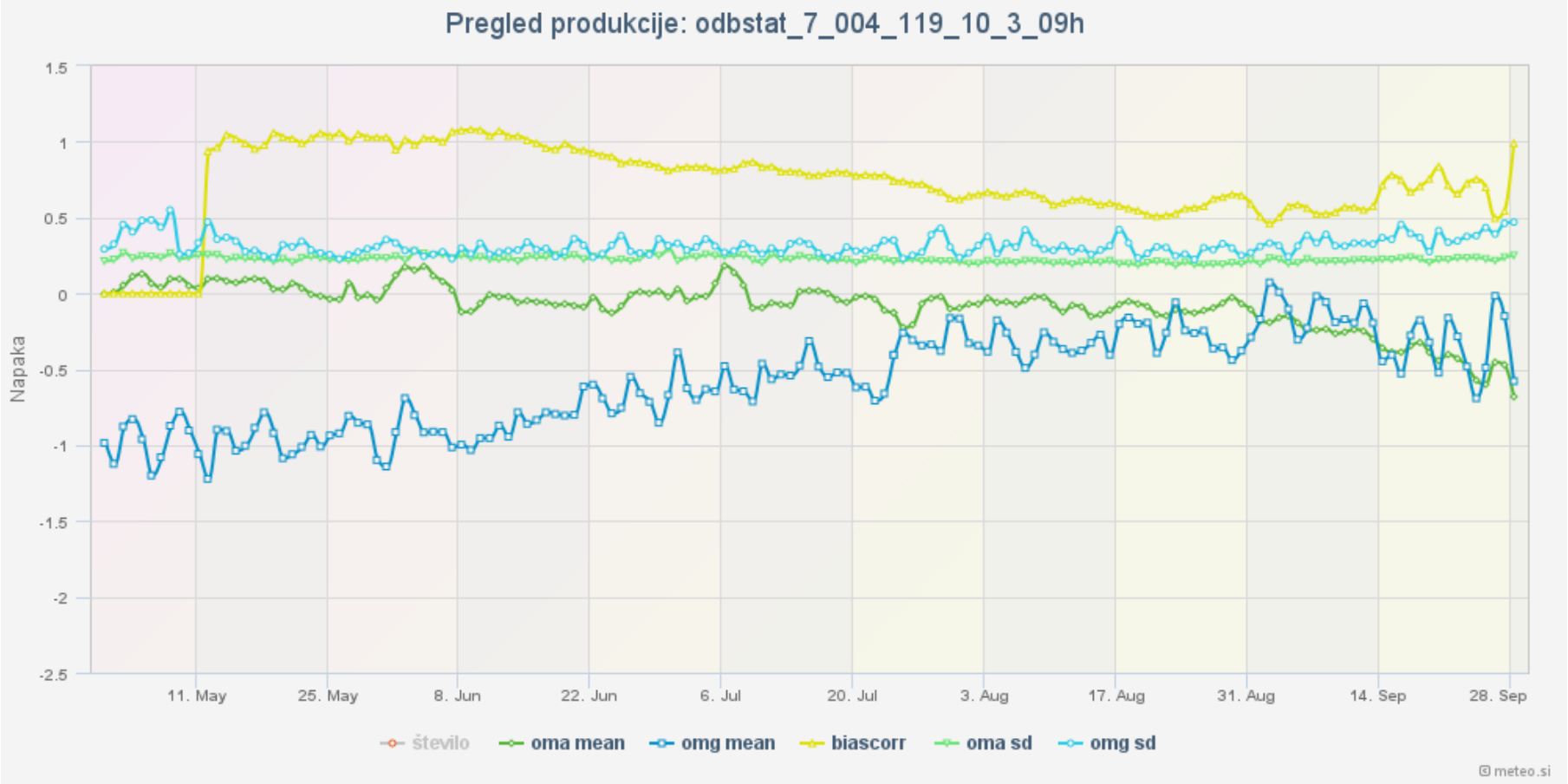

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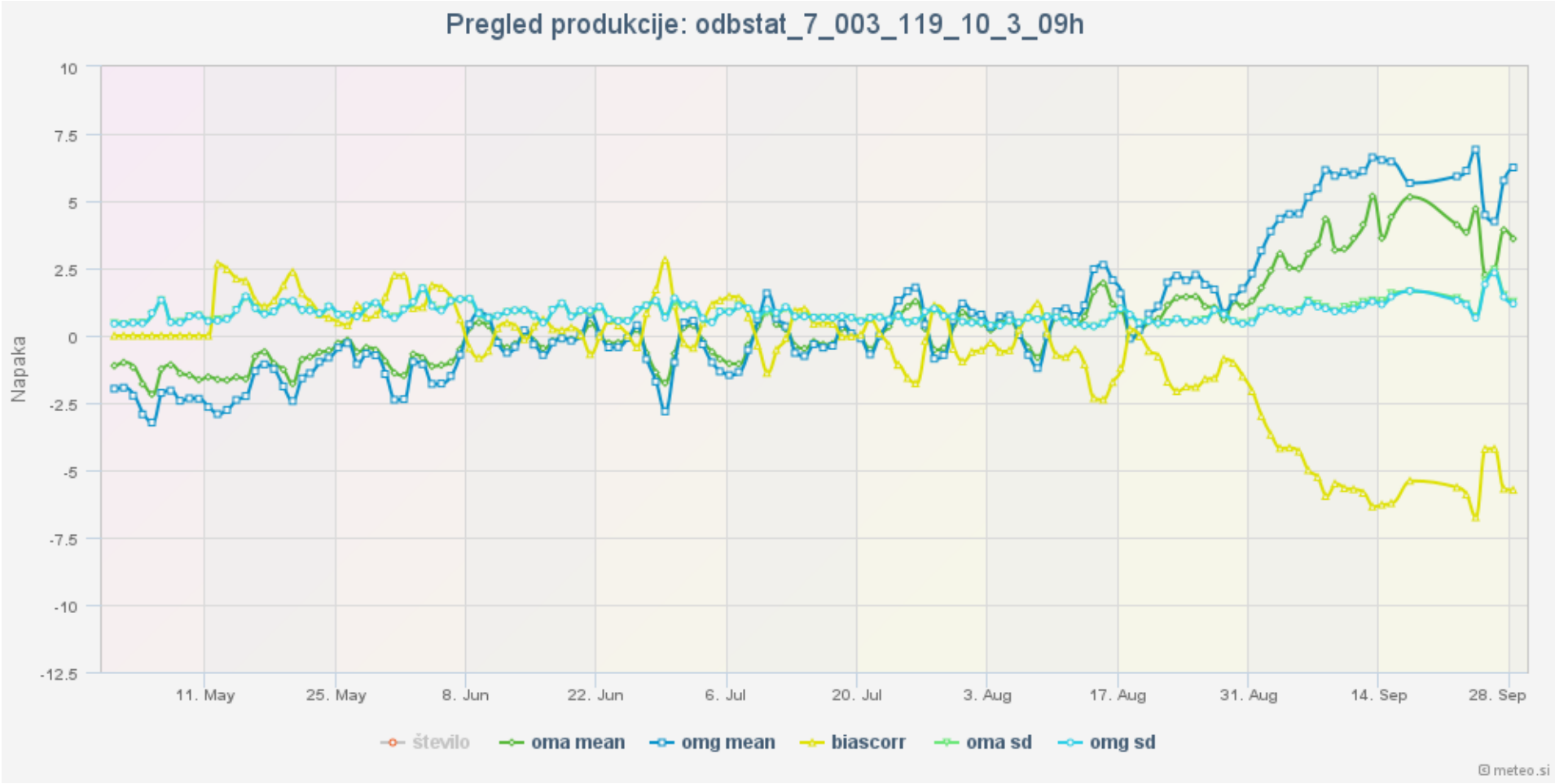
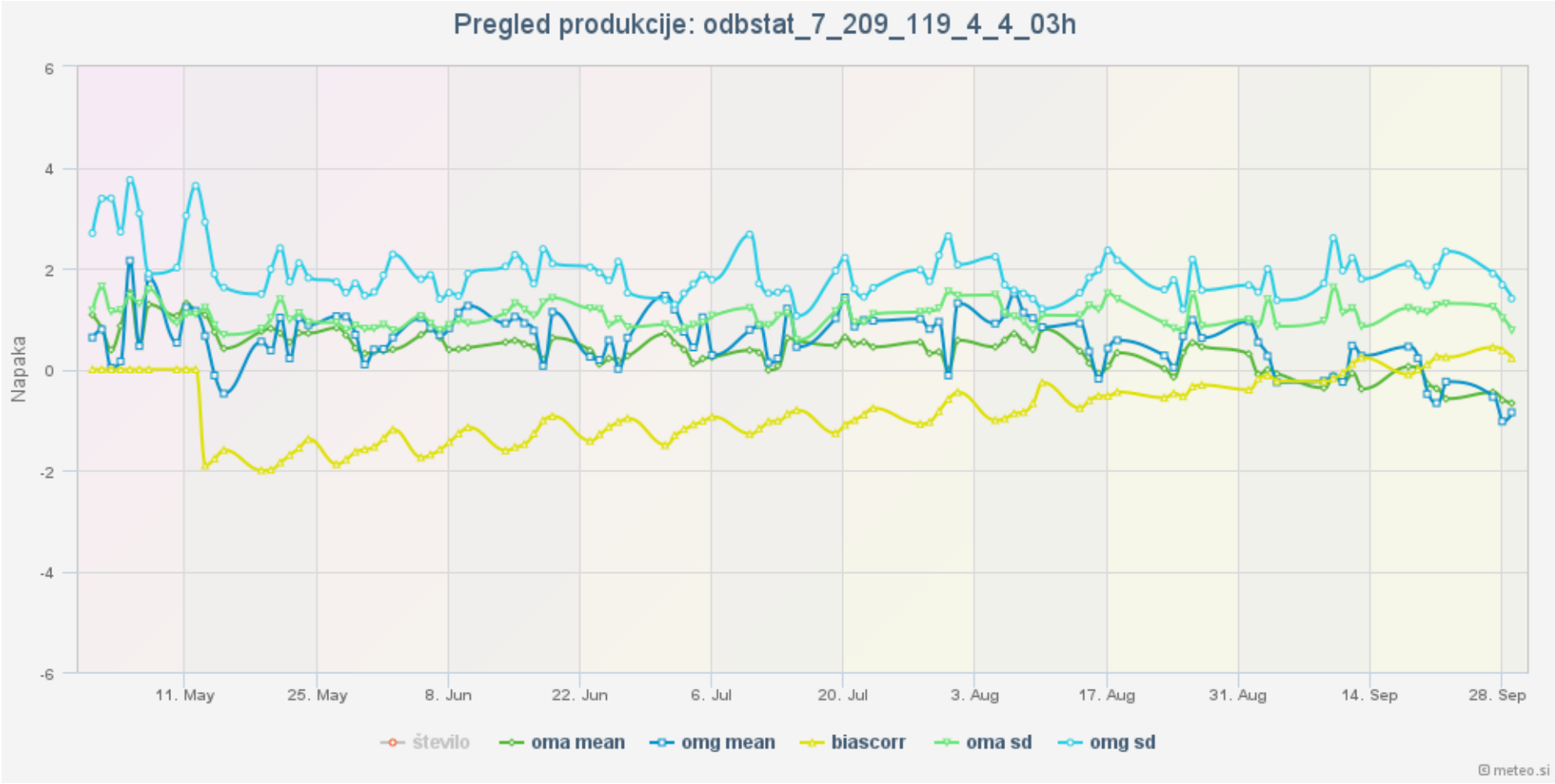


Monitoring – AMSU-B/MHS



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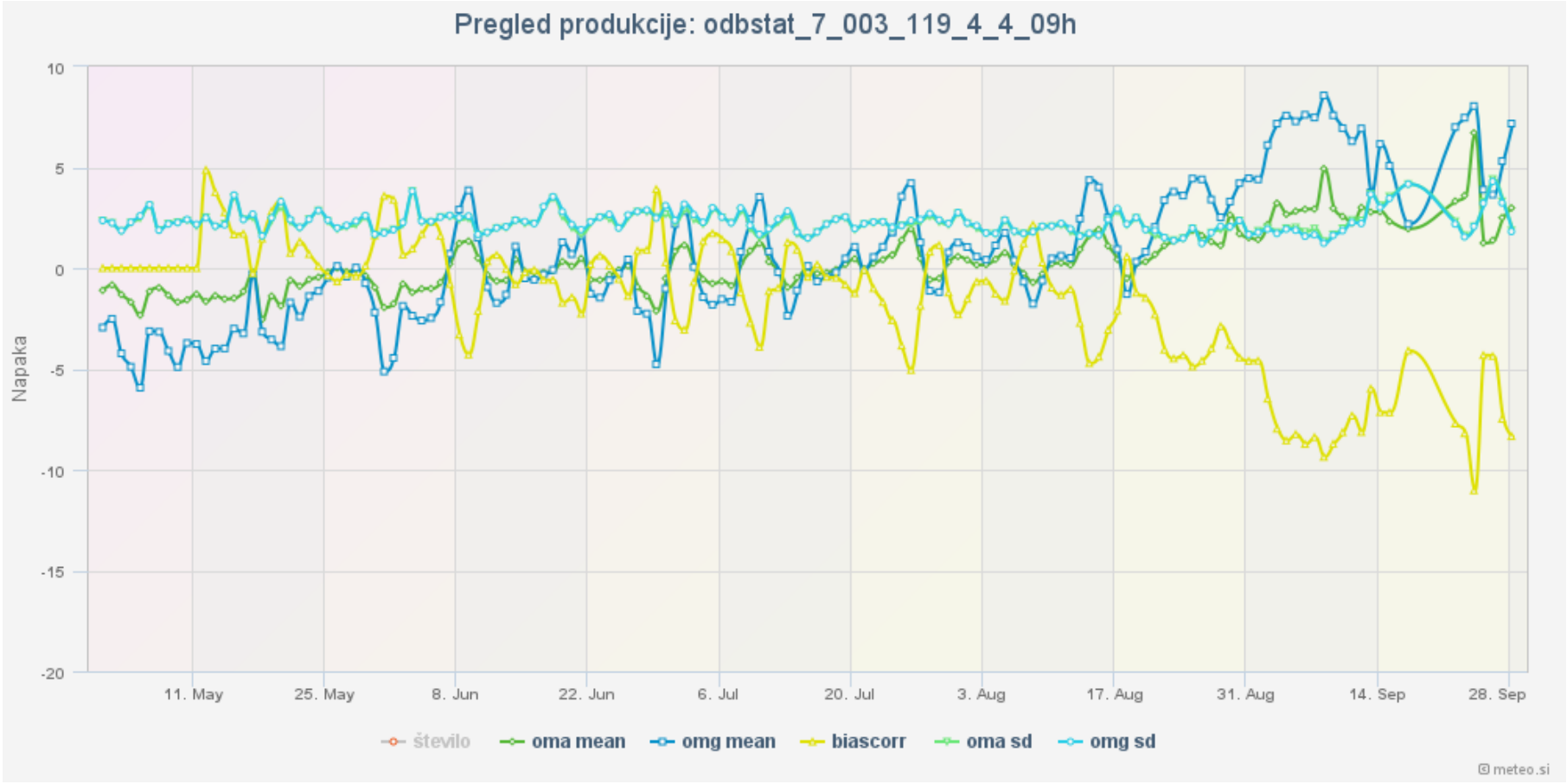

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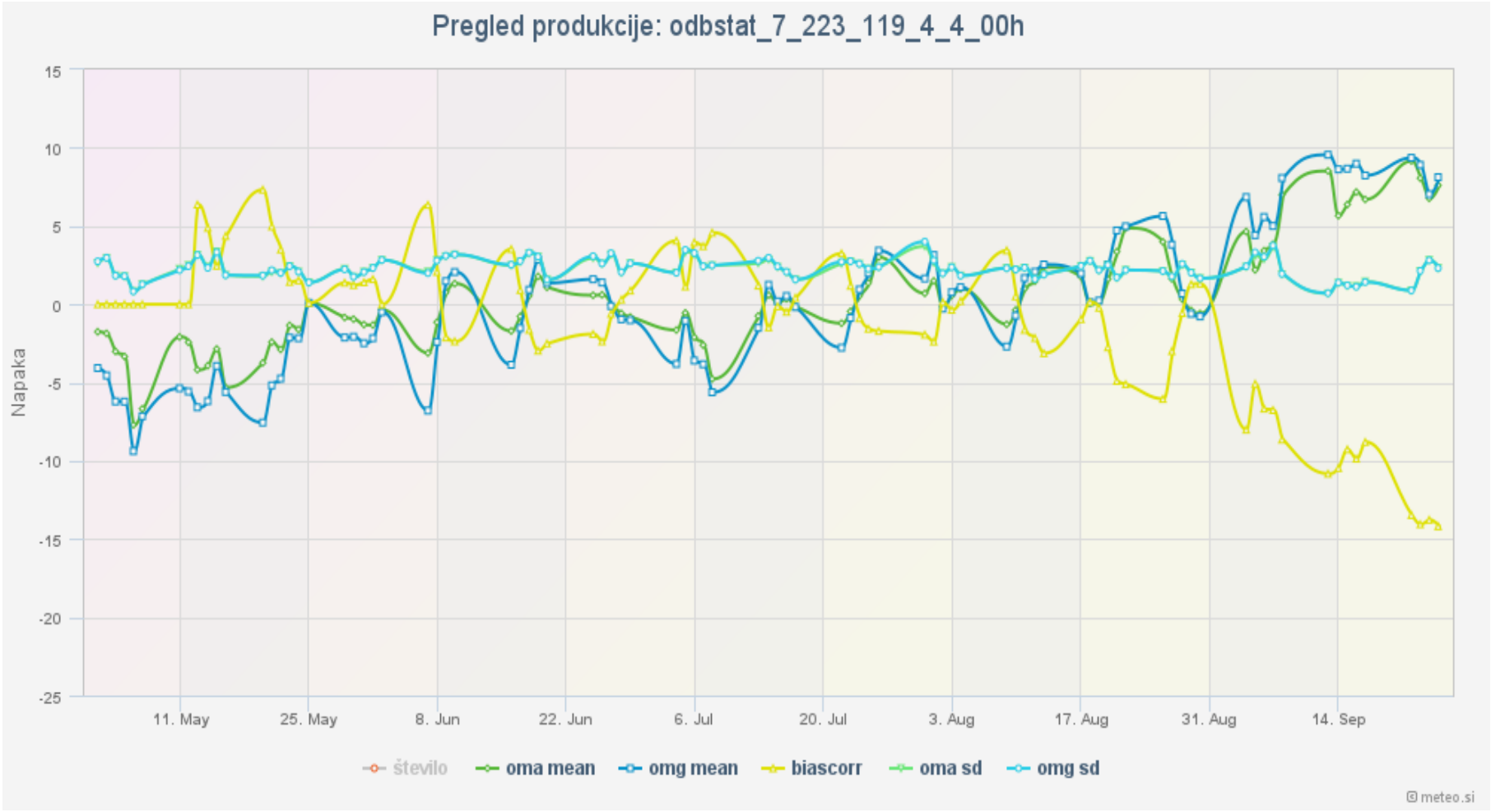
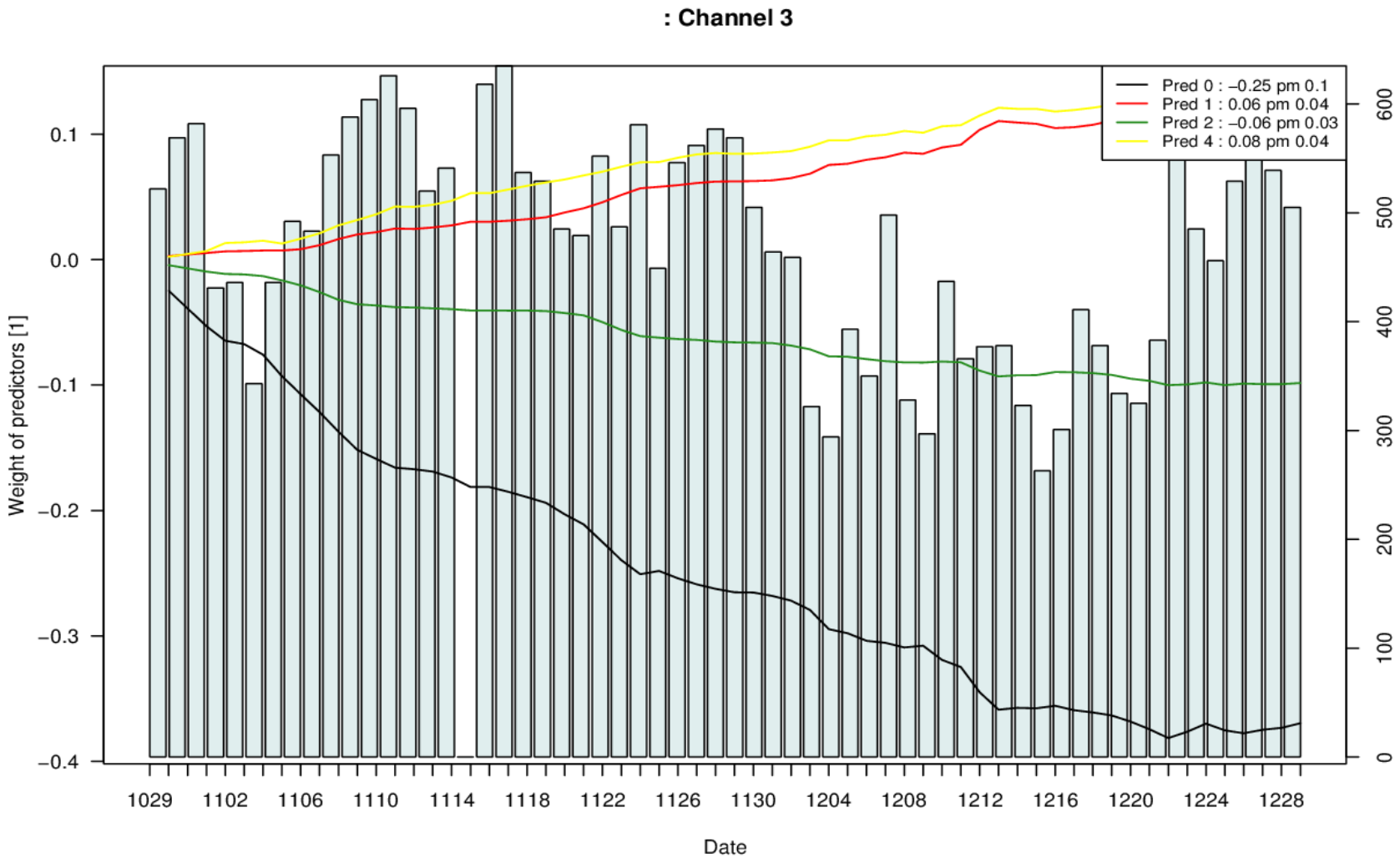
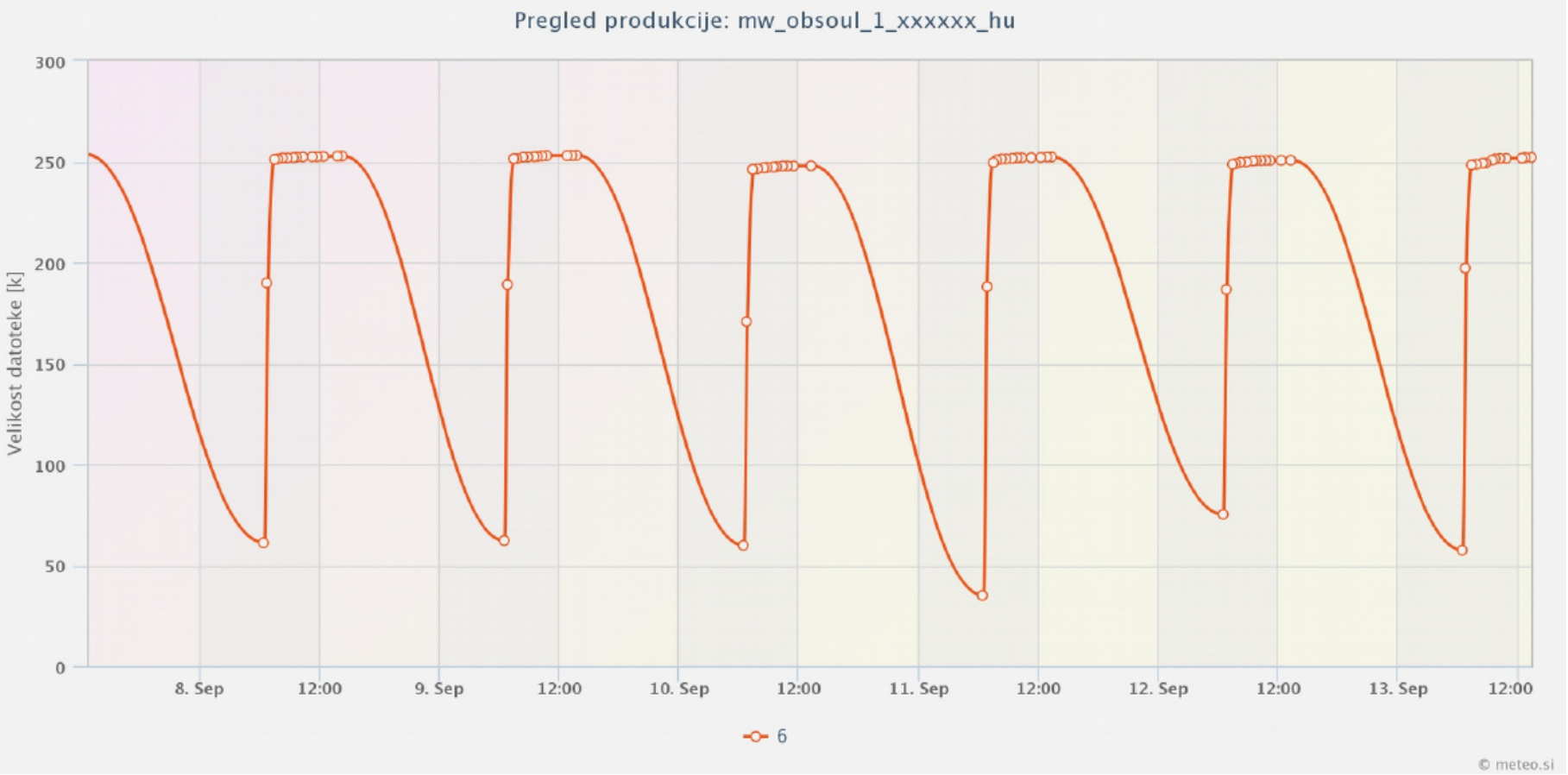


Var-BC – predictor evolution



Arrival times of observations

- A tool to display the size of obs. files from OPLACE



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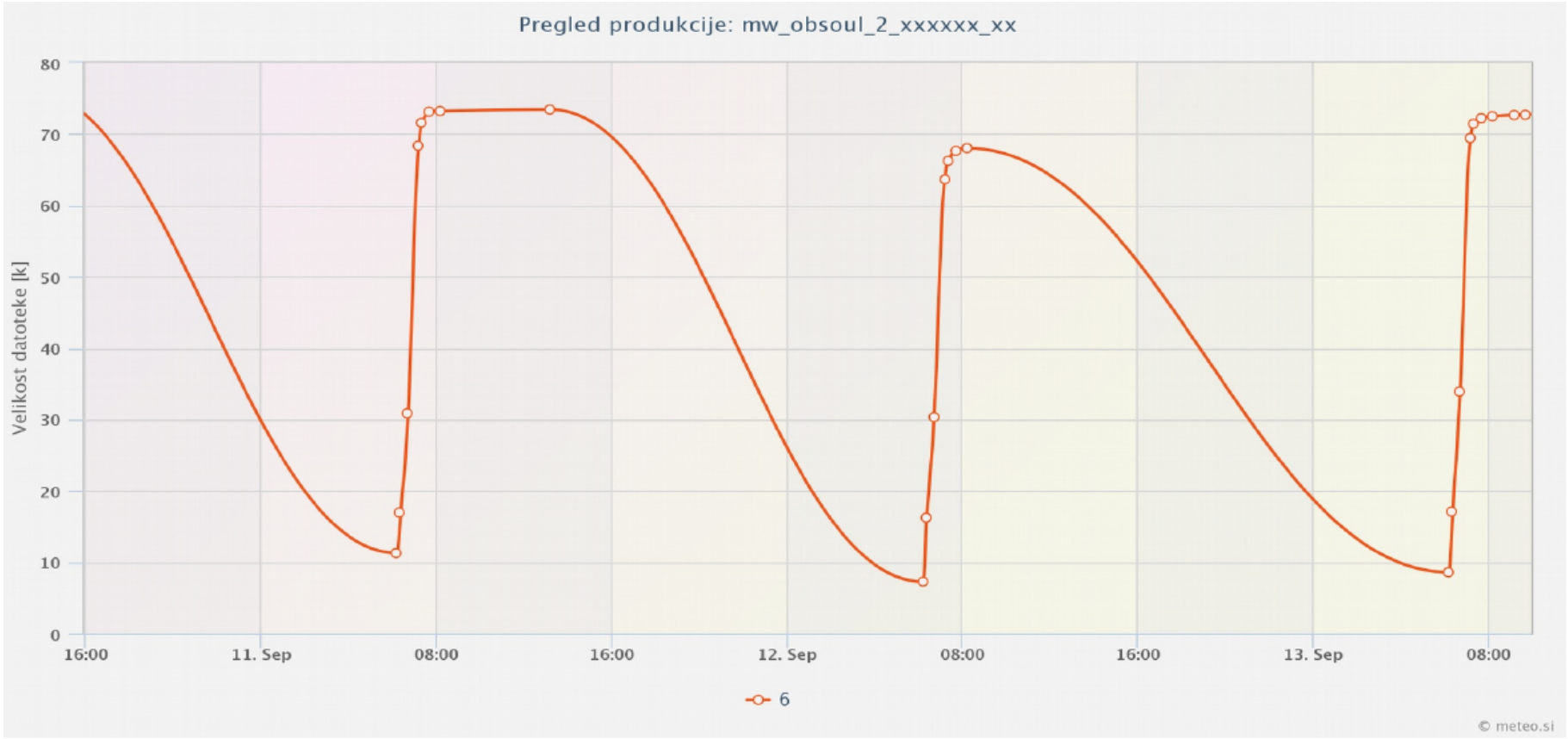
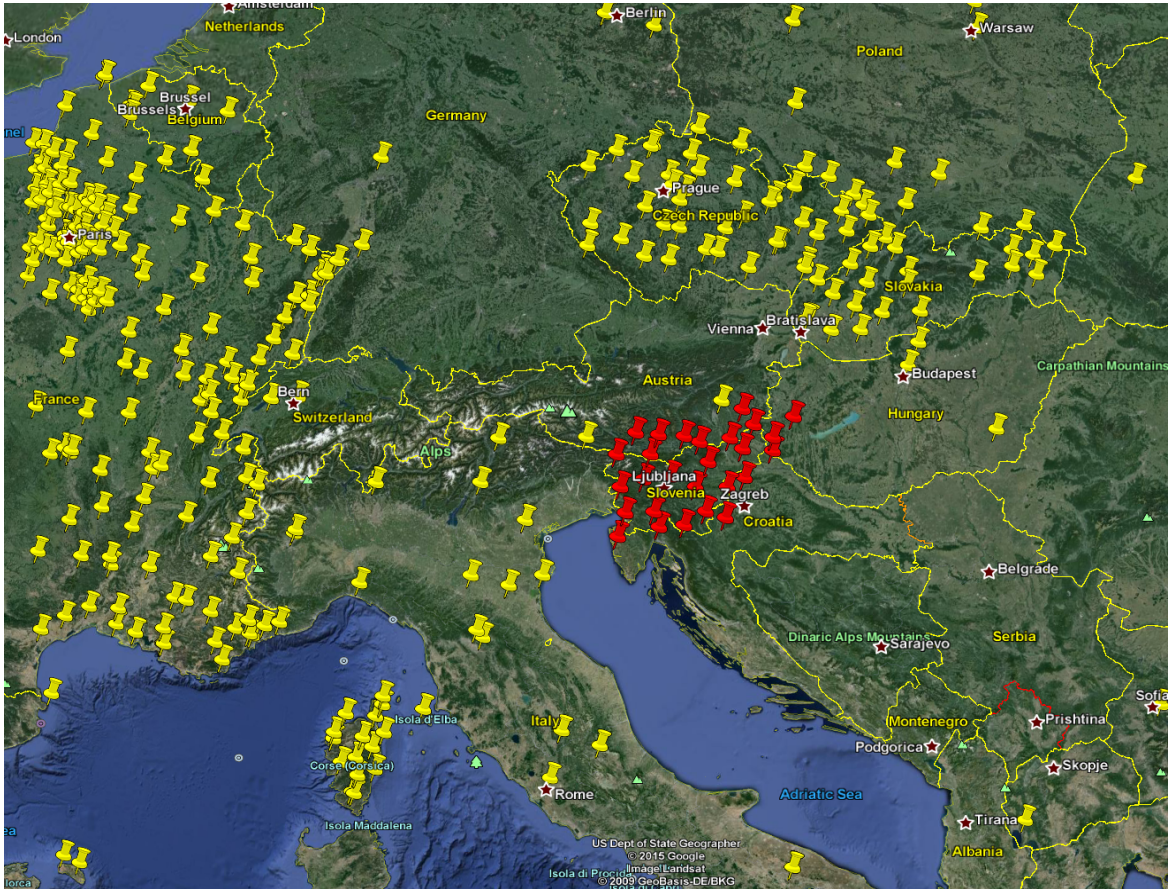


Mode-S news

- Second radar in Slovenia – cca. 80.000 obs per day
- EUMETNET's ADD Feasibility study
  - Mode-S EHS over western Europe (Germany, Benelux, France (2016),UK), data offered by KNMI (5 million per day)
  - Mode-S MRAR in Central Europe (Czech Republic, Slovenia, 200.000 per day)
  - Proposal to EUMETNET: common processing center for EHS and MRAR, tools available to NHMS to process locally
  - OPLACE: Access to EHS plus local MRAR/EHS observation

GPS ZTD data assimilation

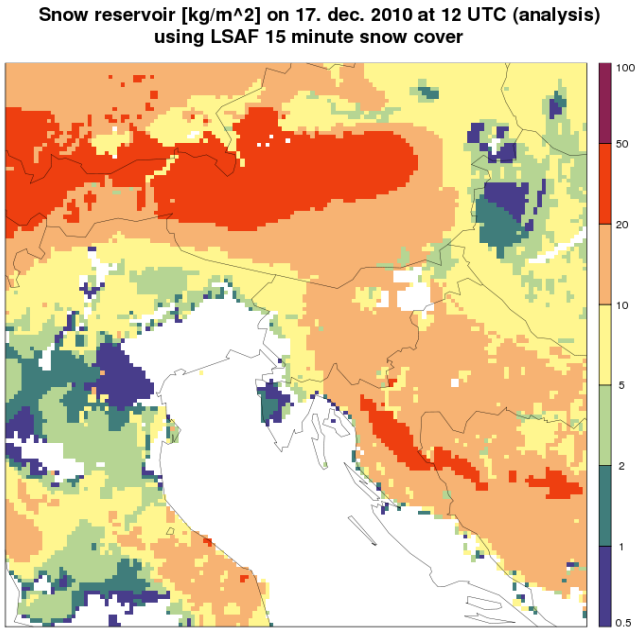
- E-GVAP (test data)
- 27 stations operationally provided by GIS
- Evaluation, bias computation ongoing (Z. Sassy)

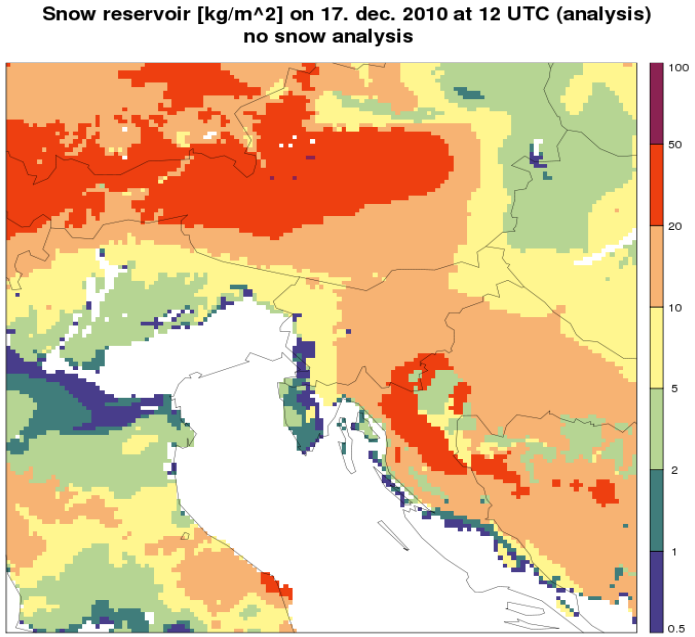


Land SAF snow cover assimilation

Snow cover product (15 minute intermediate product) from LandSAF

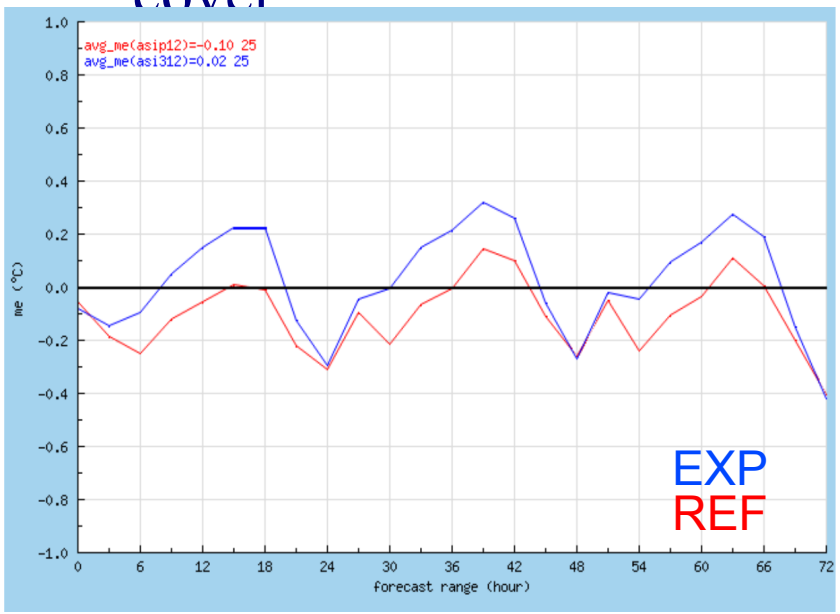
Snow either removed or added (10 cm) in ALADIN analysis

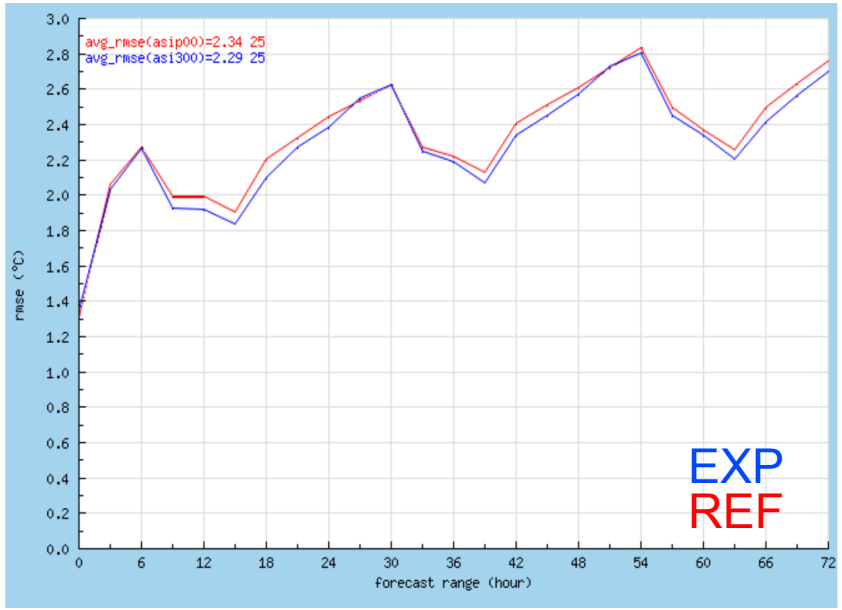




Land SAF snow cover assimilation

- Evaluation period: 15 days in December 2010
- Positive impact of Land SAF on forecast
- Not a standard product, but detects rapid changes in snow cover





Plans

- Do something on satellite Var-BC stability
- Short-term: Improve observational usage (GPS, Mode-S, satellites, high-res AMV, radar)
- Long-term: Consider 1-h RUC (recent request by a power user)