Private observations Improve MET Norway's operational forecasts
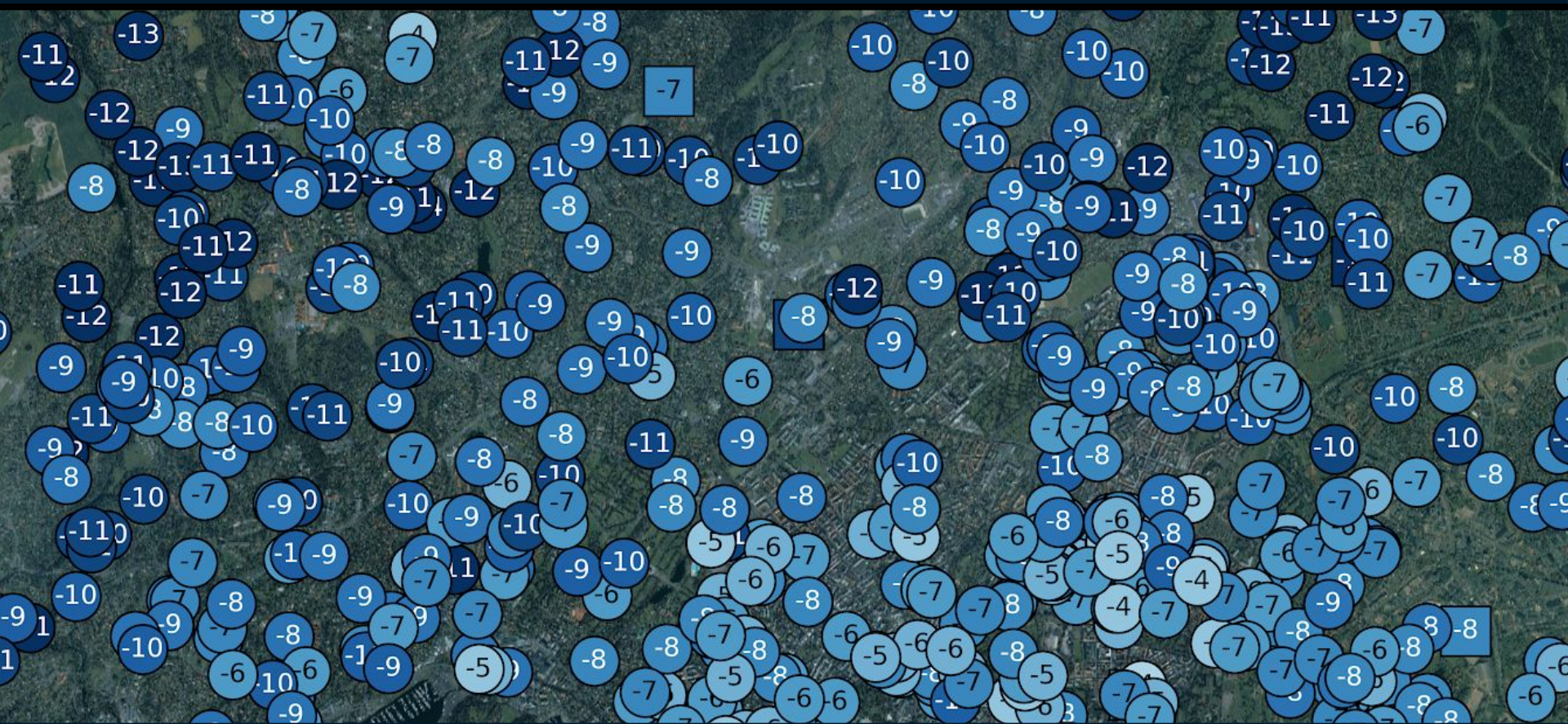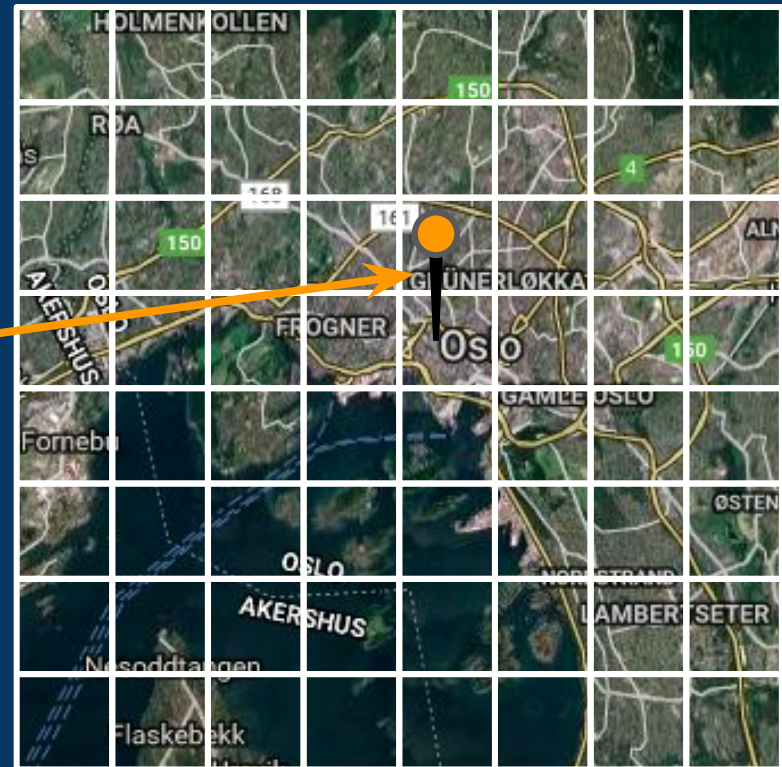
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❏ Interface allows lookup on the neighbourhood scale

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❑   In March 2018, MET Norway introduced Netatmo observation into the post-processing of operational temperature forecast on Yr (for Nordic countries)
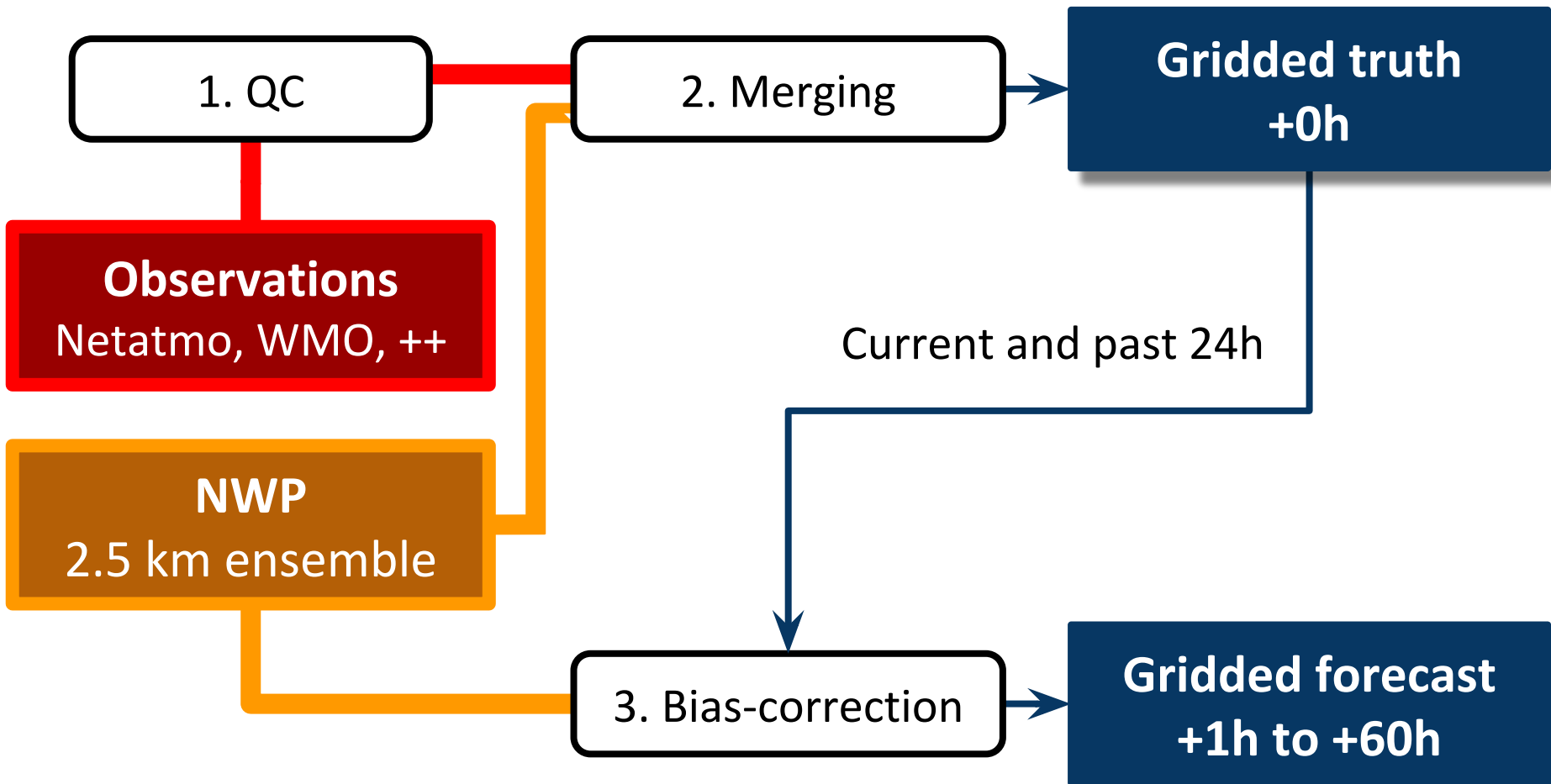
Network comparison

❑ Netatmo's station density is roughly 50 times greater than MET Norway's
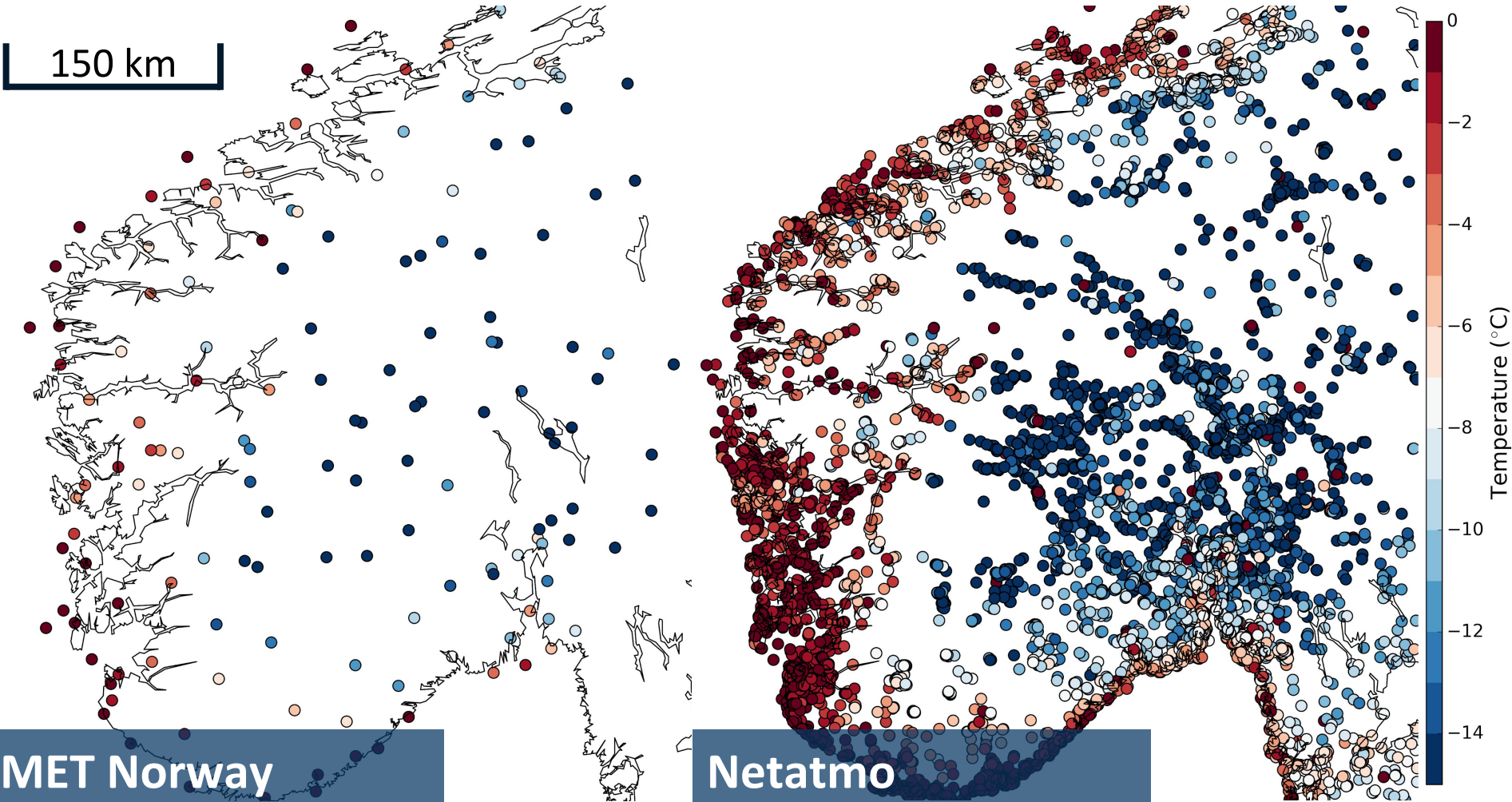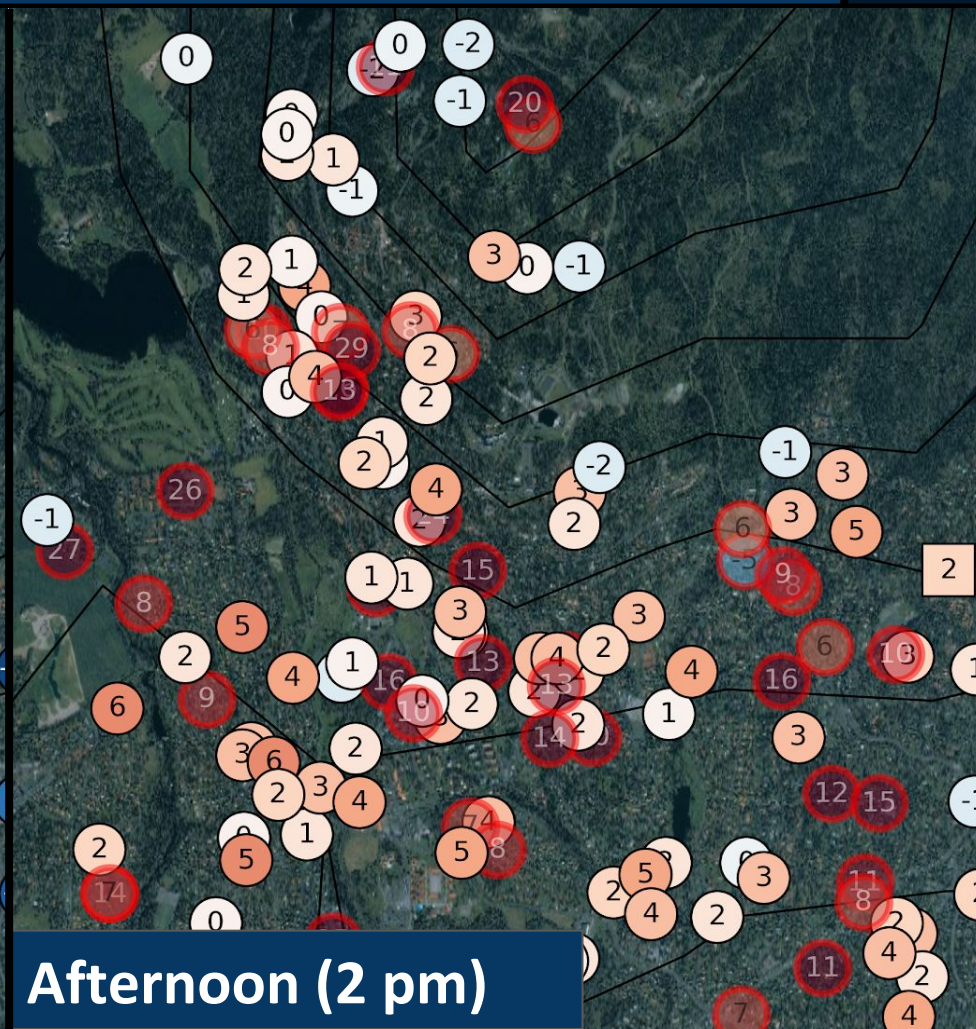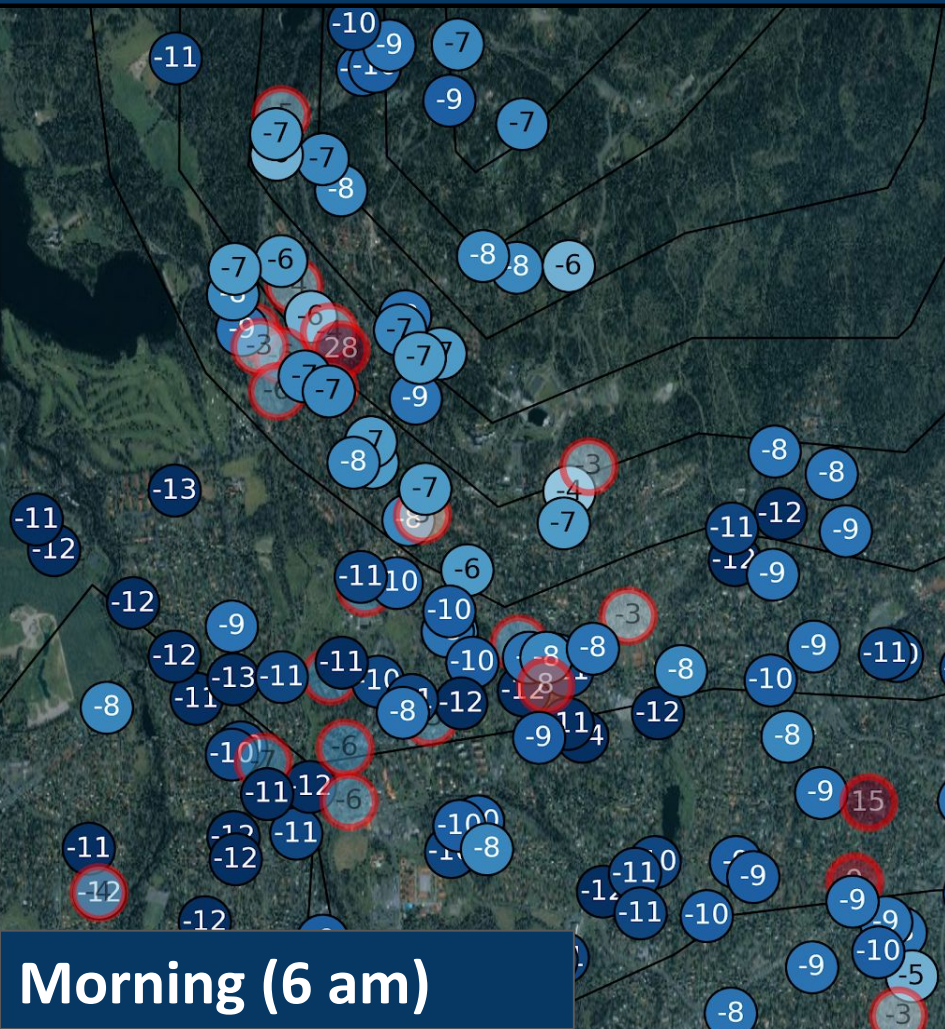
Integrating Netatmo into our operational system

- ❏ Used in post-processing of temperature from NWP
- ❏ System is run every hour
- ❏ Seamless transition from +0h to +1h

1. Observation quality control

❏ Use neighbouring stations to remove suspicious values (21%)
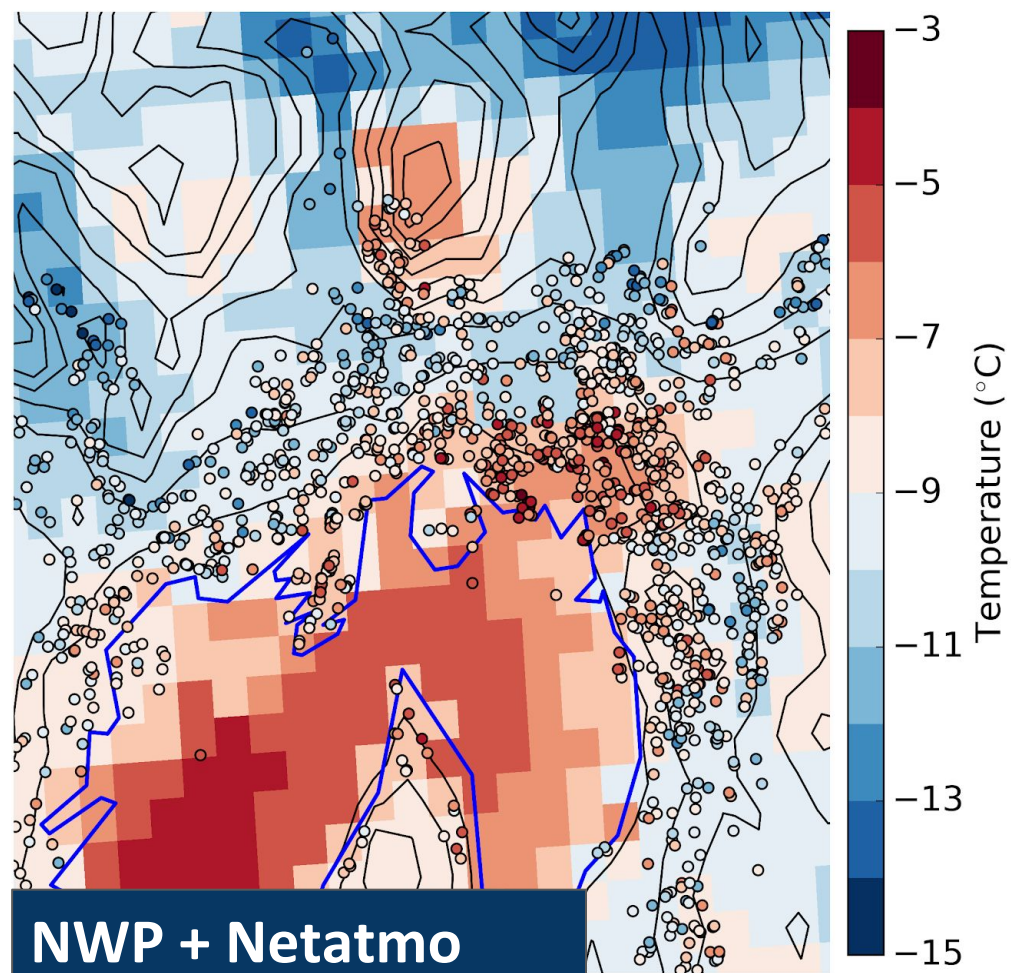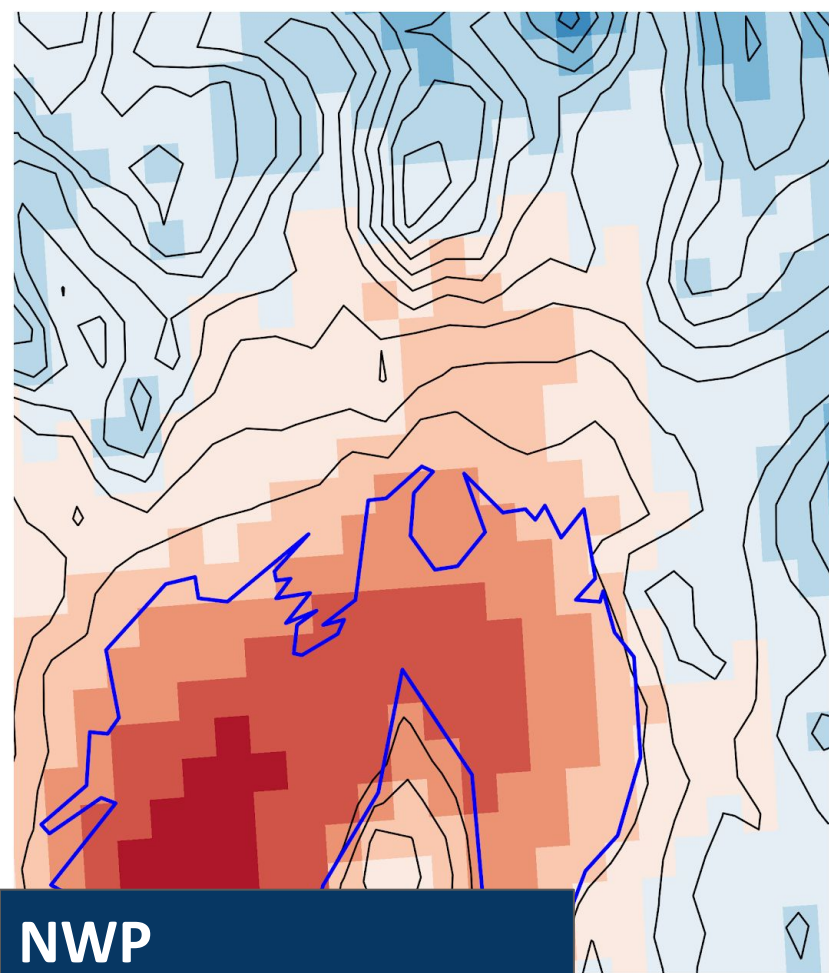❏ Each hour is checked independently

Morning (6 am)

Afternoon (2 pm)
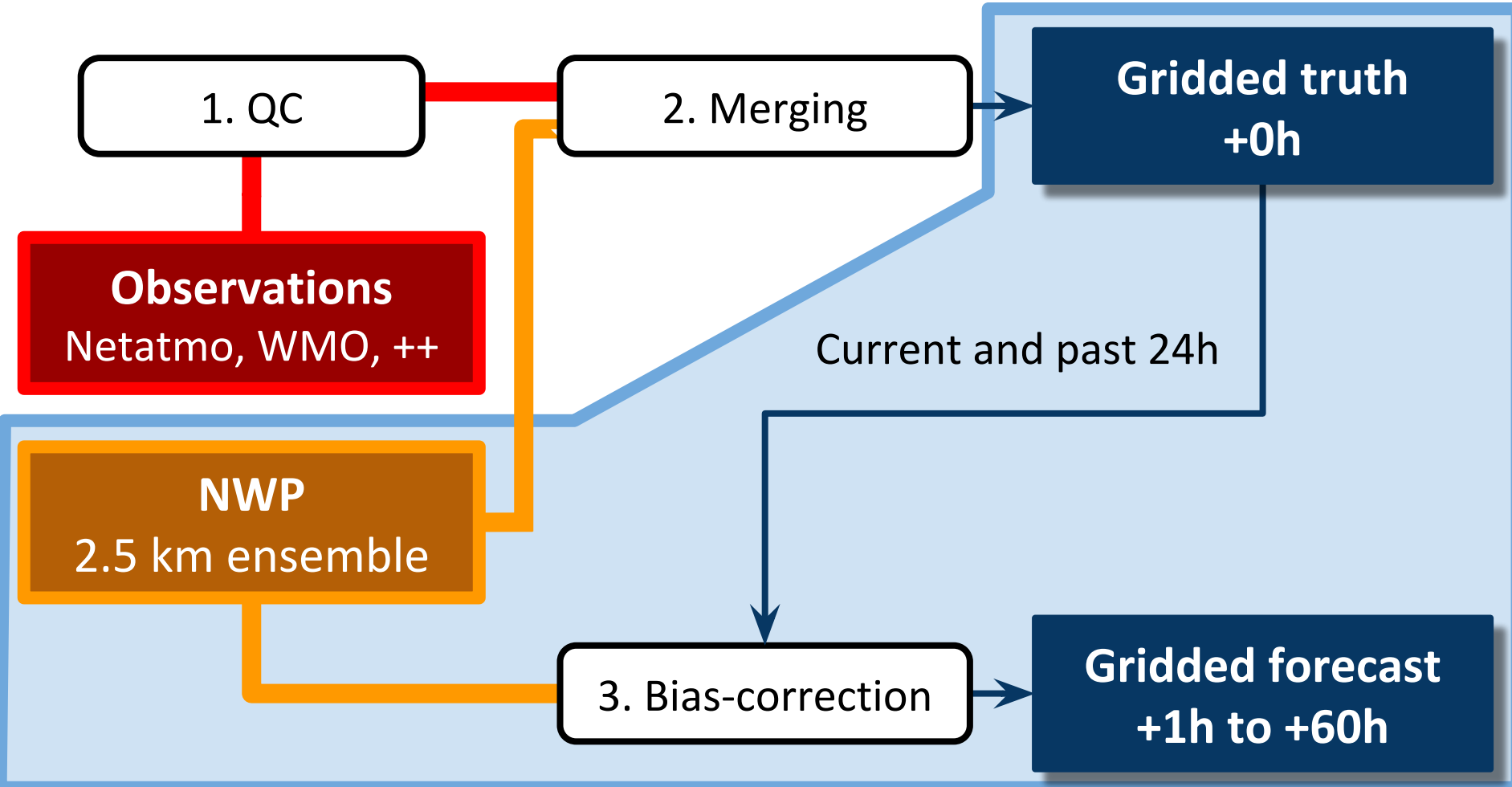
2. Merging observations and NWP

- ❏ Optimal interpolation (OI) is used to combine NWP and obs
- ❏ The covariance structure from EPS used

NWP

NWP + Netatmo
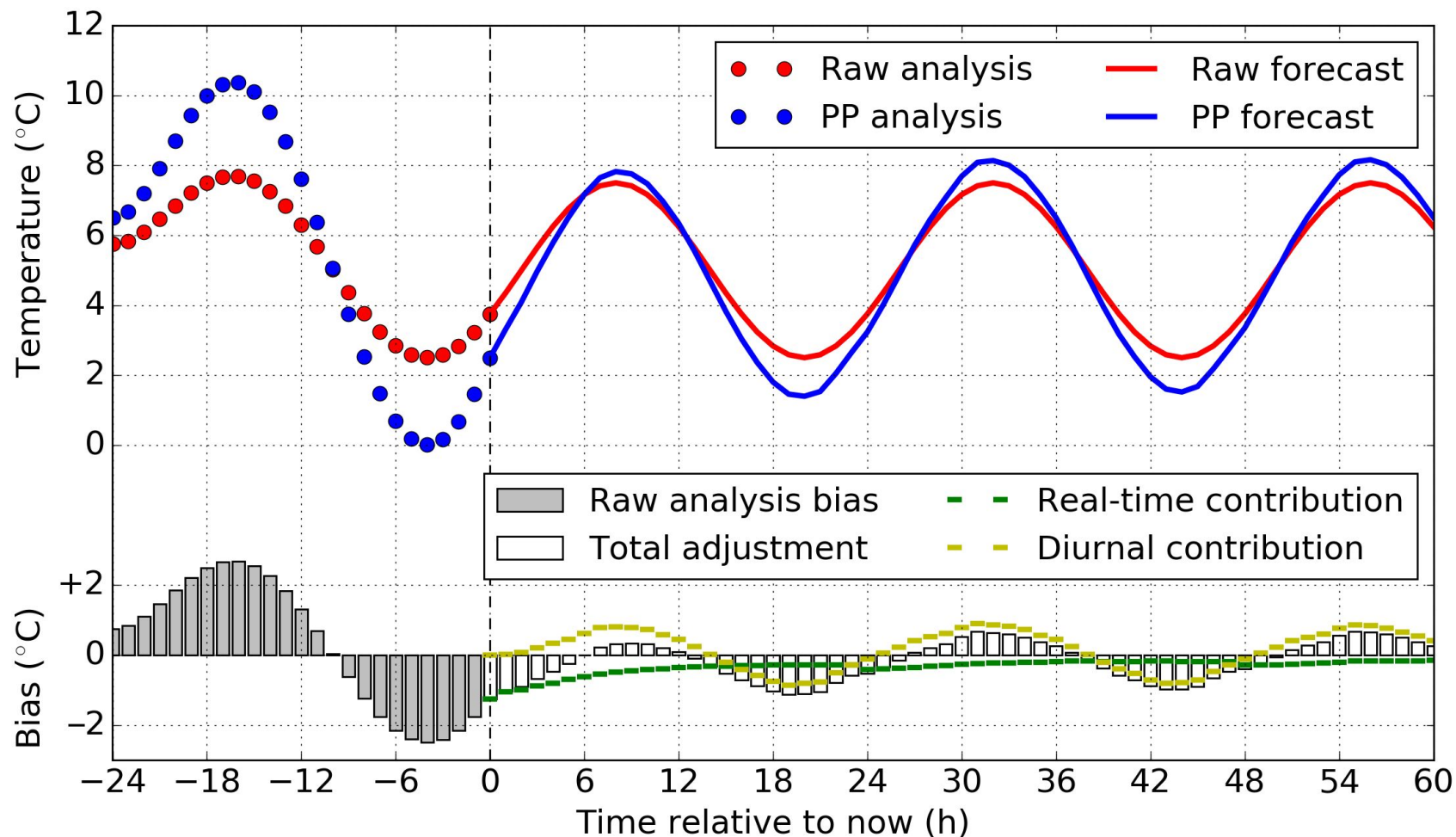
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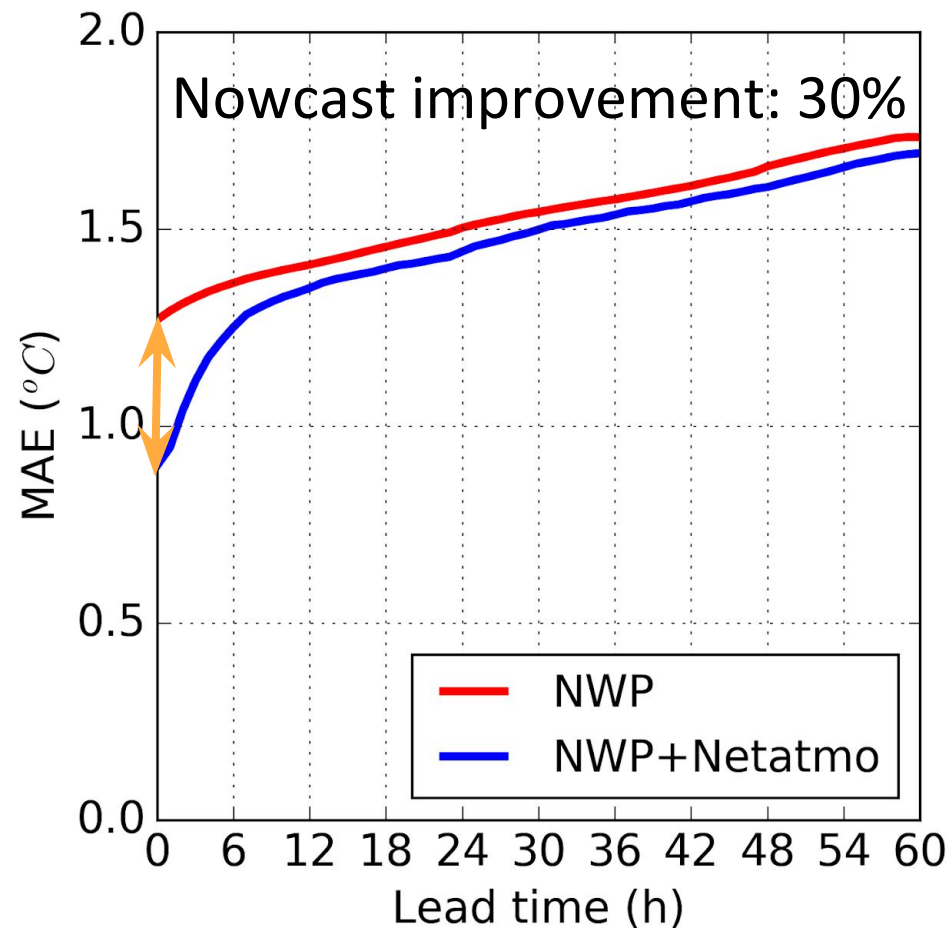- ❏ Seamless transition from +0h to +1h

3. Bias-correction

❏ Gridpoint by gridpoint correction
❏ Seamless transition from gridded truth to gridded forecast
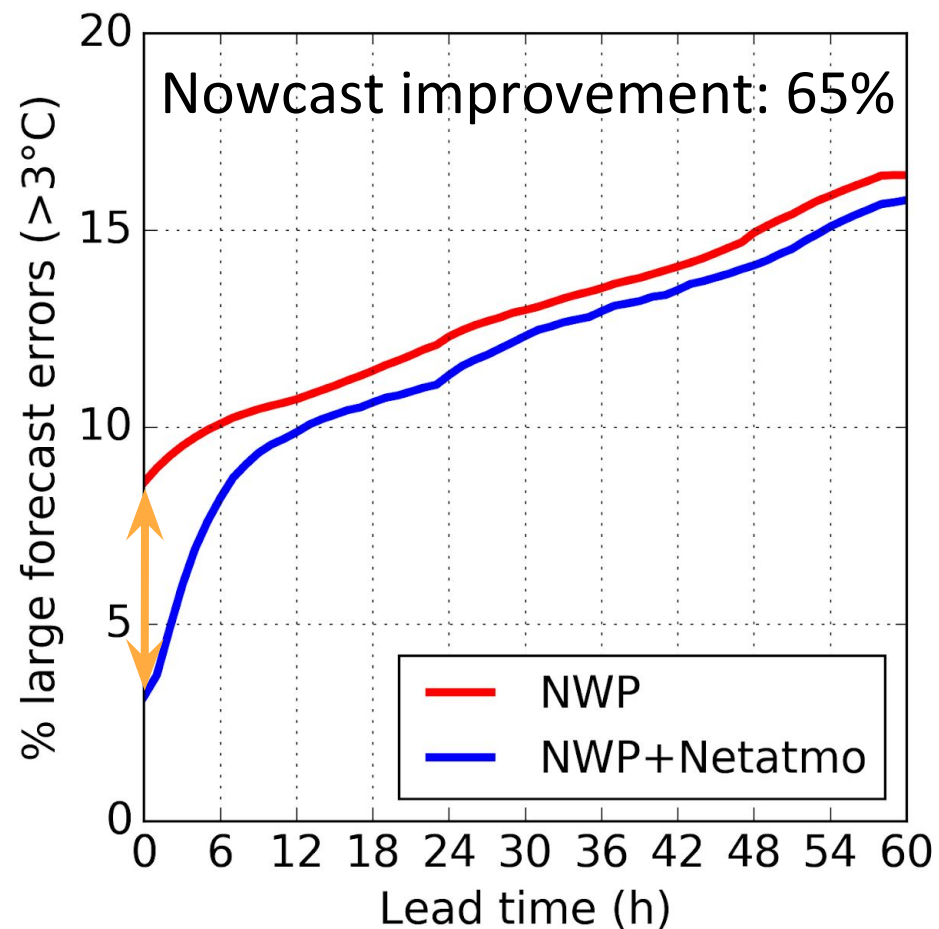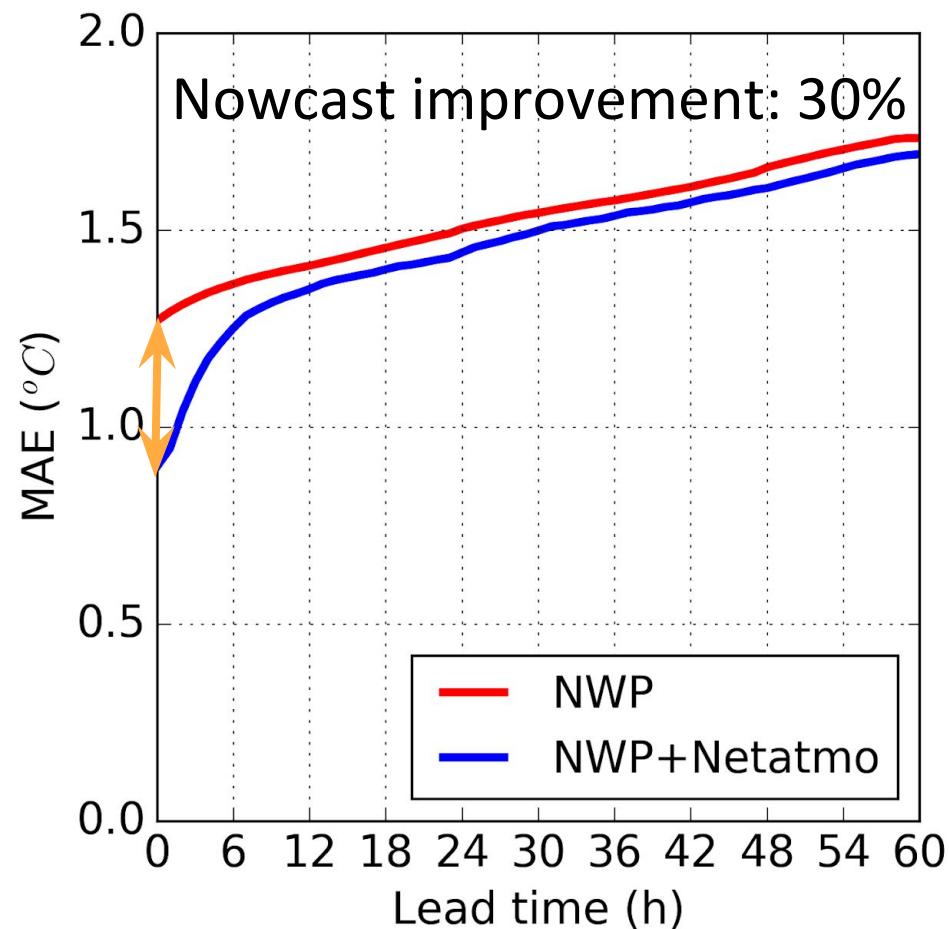❏ Diurnally varying bias based on last 24 hours

Impact on forecast accuracy

❏   1-year evaluation at 93 Norwegian WMO stations
❏   All stations have at least 5 Netatmo stations within 5 km

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Final remarks

- ❏   Private observations improve temperature forecasts on Yr
- ❏   Quality control is essential for getting added value
- ❏   The network has enabled us to use other non-WMO obs
- ❏   Future work: integrating Netatmo precipitation into forecasts

More information: Thomas Nipen (thomasn@met.no)

QC software: www.github.com/metno/TITAN

PP software: www.github.com/metno/gridpp