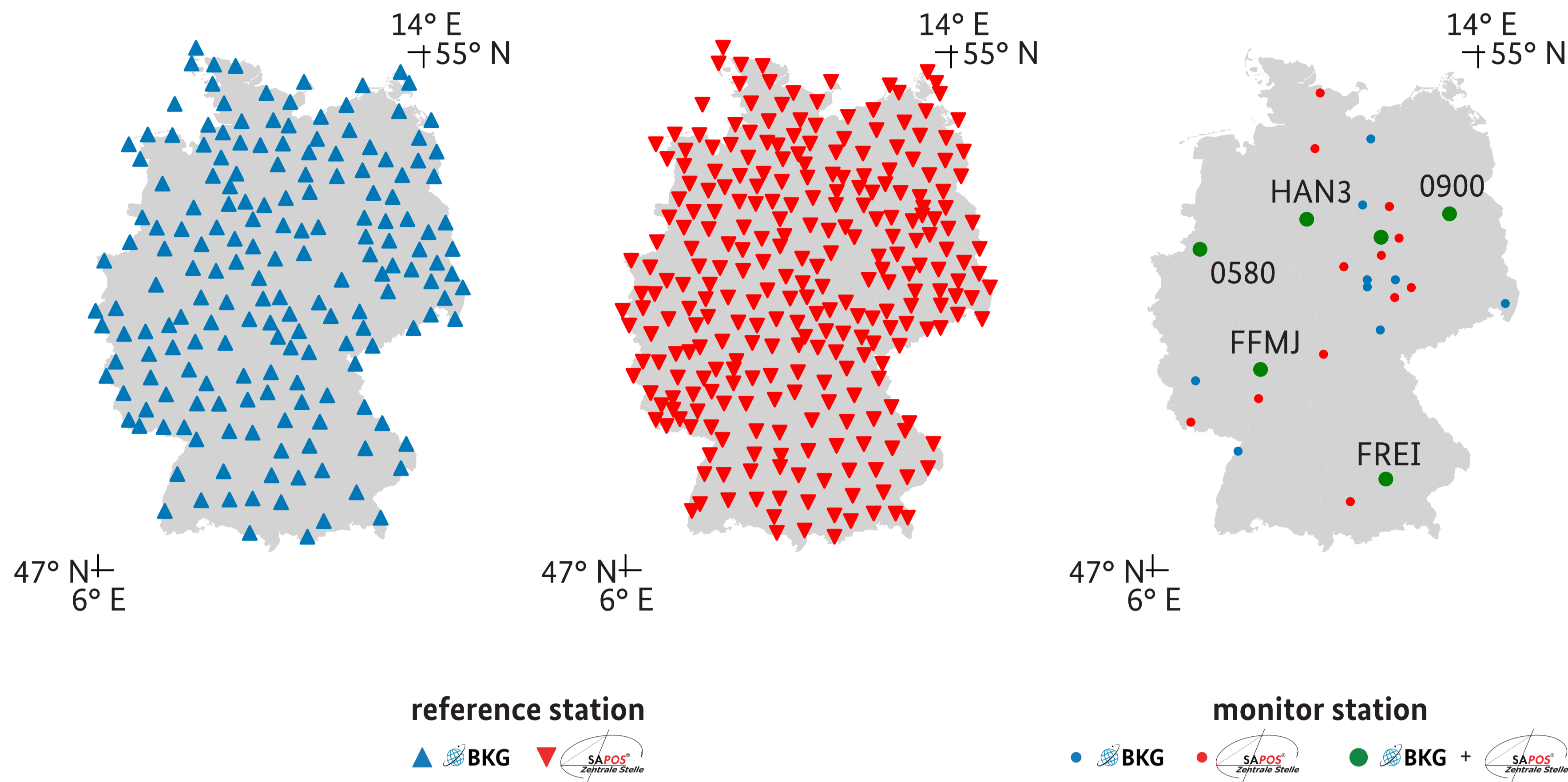
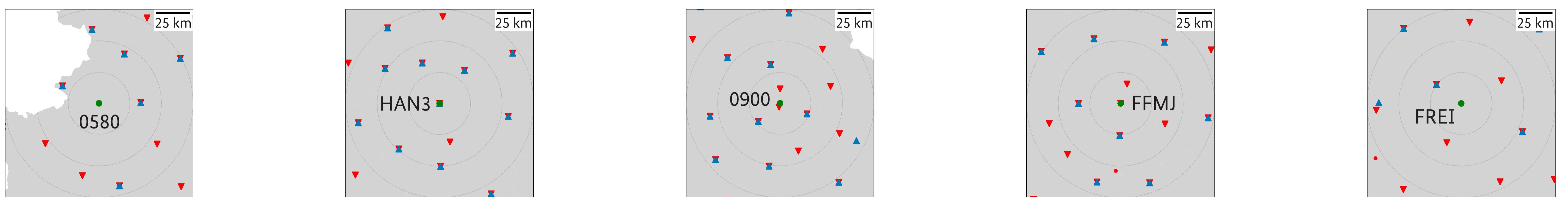


### PPP-RTK in Germany



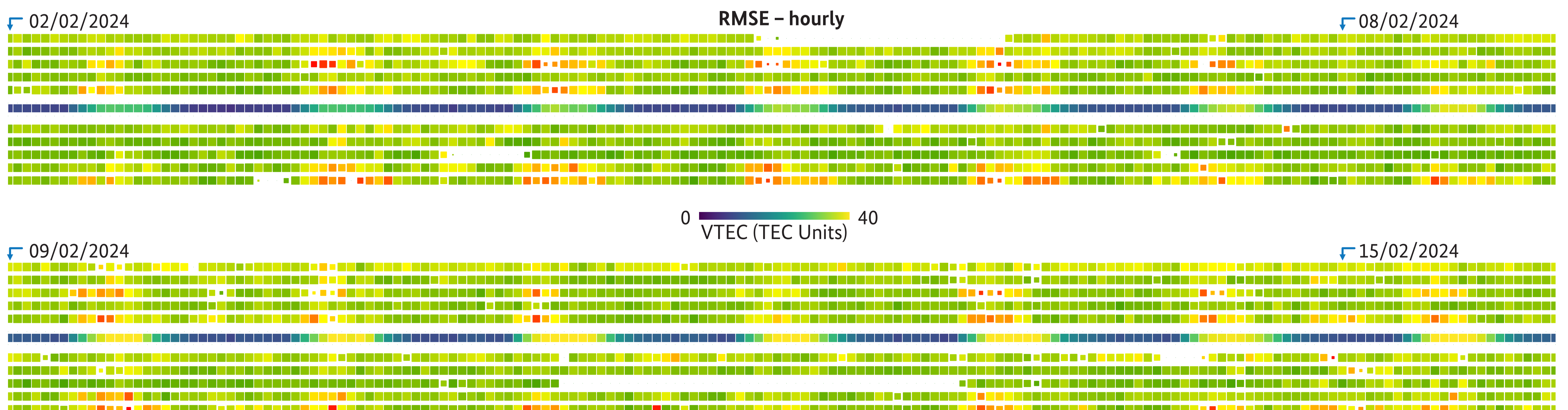
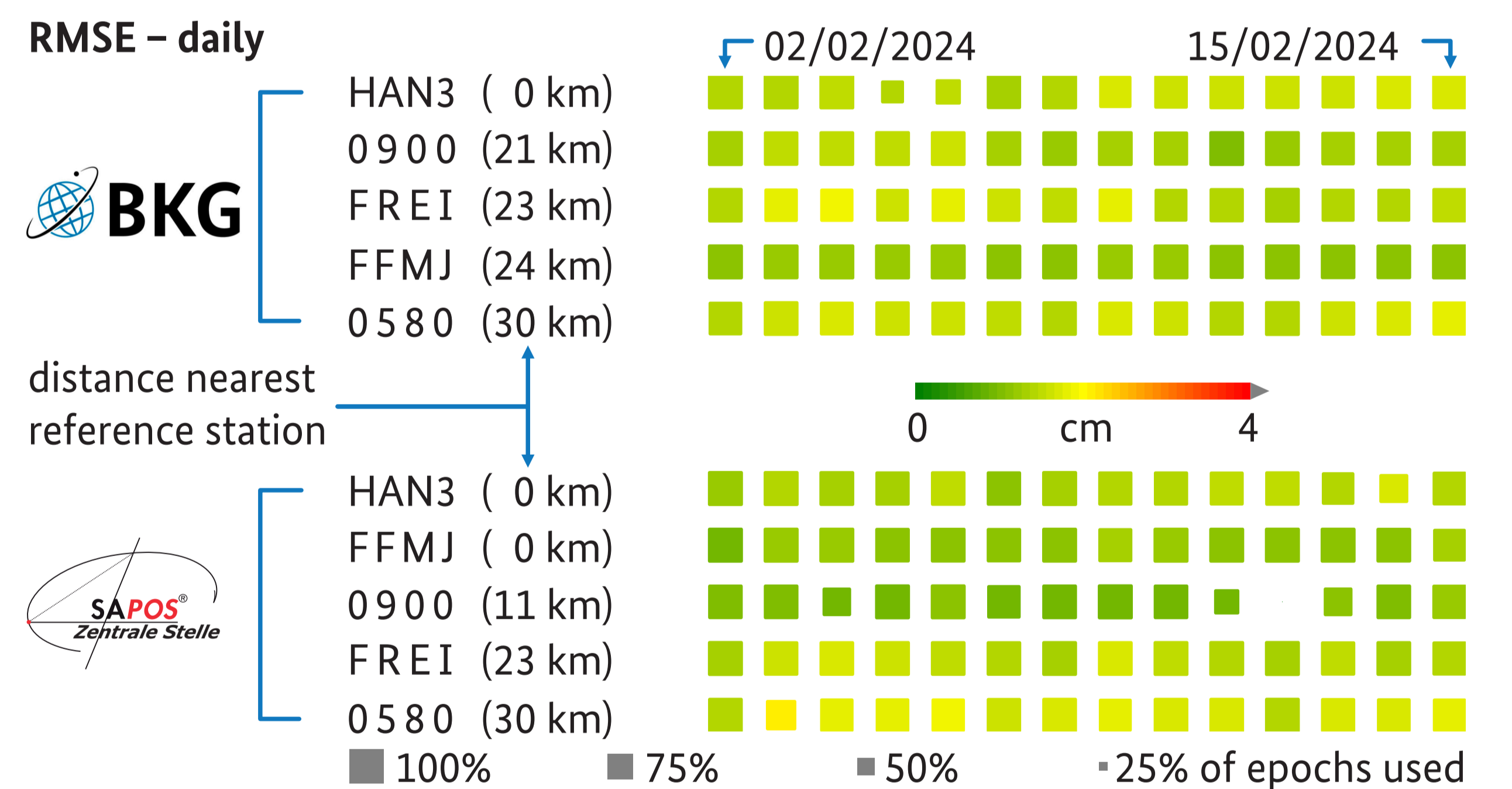
- A **nationwide PPP-RTK service** for Germany is established in collaboration between federal state surveying authorities – represented by **Zentrale Stelle SAPOS® (ZSS)** – and the Federal Agency for Cartography and Geodesy (BKG).
- The service's reliability is underscored by **two independent computing facilities** located at BKG and ZSS, both leveraging **Geo++® GNSS processing software GNSMART** with different reference station networks.
- Ongoing rigorous testing across diverse scenarios ensures comprehensive **performance evaluation** of the service **through a nationwide monitoring network**.
- Five monitor stations, with two identical real-time kinematic receivers on a shared antenna, serve as stations for **comparative analyses between service corrections** sourced from BKG and ZSS.

### Reference station network around selected monitor stations



### Results from Test campaign

- A **14-day assessment** conducted in February aimed to **evaluate the impact of reference station networks on the horizontal position accuracy** of these five monitor stations.
- Corrections, computed as state-space representation, undergo conversion into observation space representation before being utilized by monitor receivers for real-time position computation, followed by comparison with reference coordinates.
- Daily and hourly root mean square error (RMSE) metrics **providing insights into horizontal position accuracy**.
- Graphical representations of daily RMSE values highlight, apart from minor differences, **consistent** position accuracies across both service **instances**.
- **Hourly RMSE values reveal temporary decreases in accuracy during midday**, potentially linked to increased ionospheric activity around noon.
- Comparative insights are further enriched by comparing hourly values of vertical total electron content (VTEC) from ESA for station FFMJ with hourly RMSE values.
- Notably, the **PPP-RTK service is consistently able to meet predefined accuracy thresholds** established by SAPOS® most of the time.



#### Further information

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