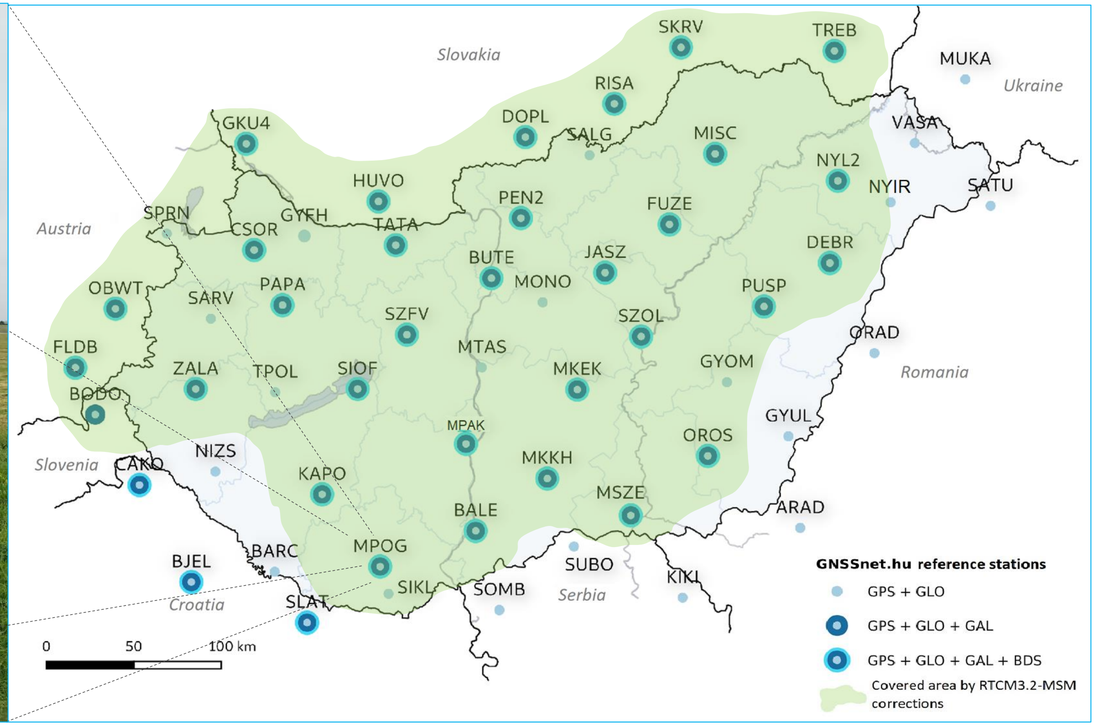
National Report of Hungary

EUPOS Council and Technical Meeting

November 22-23. 2023 - Riga, Latvia



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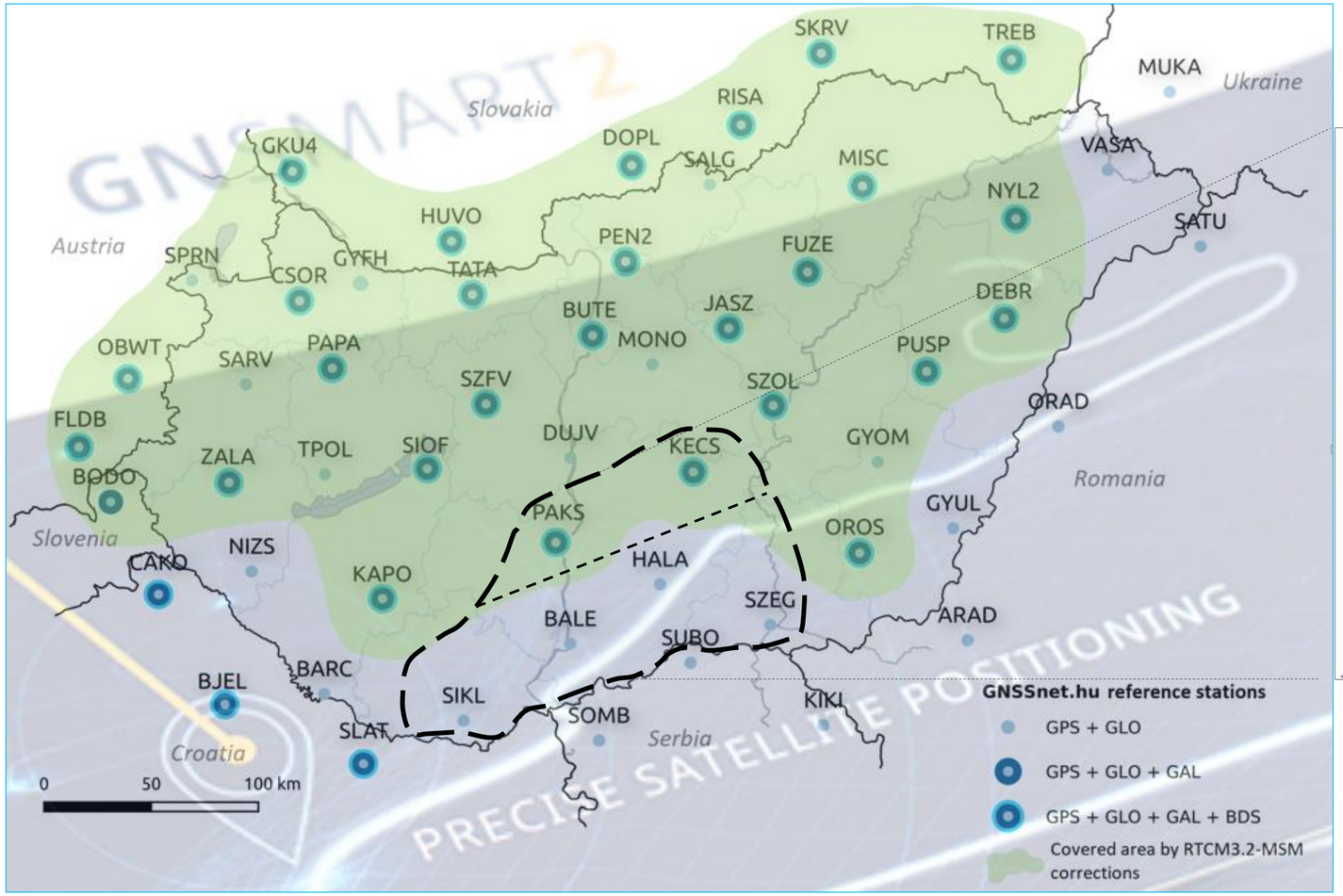
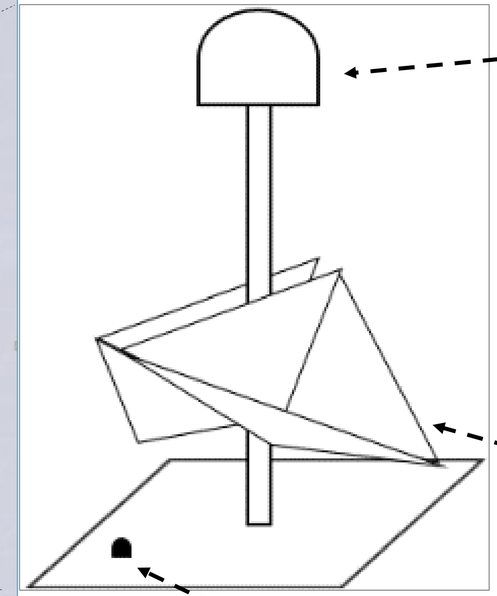
Satellite Geodetic Observatory (SGO),

Lechner Nonprofit Ltd., Hungary

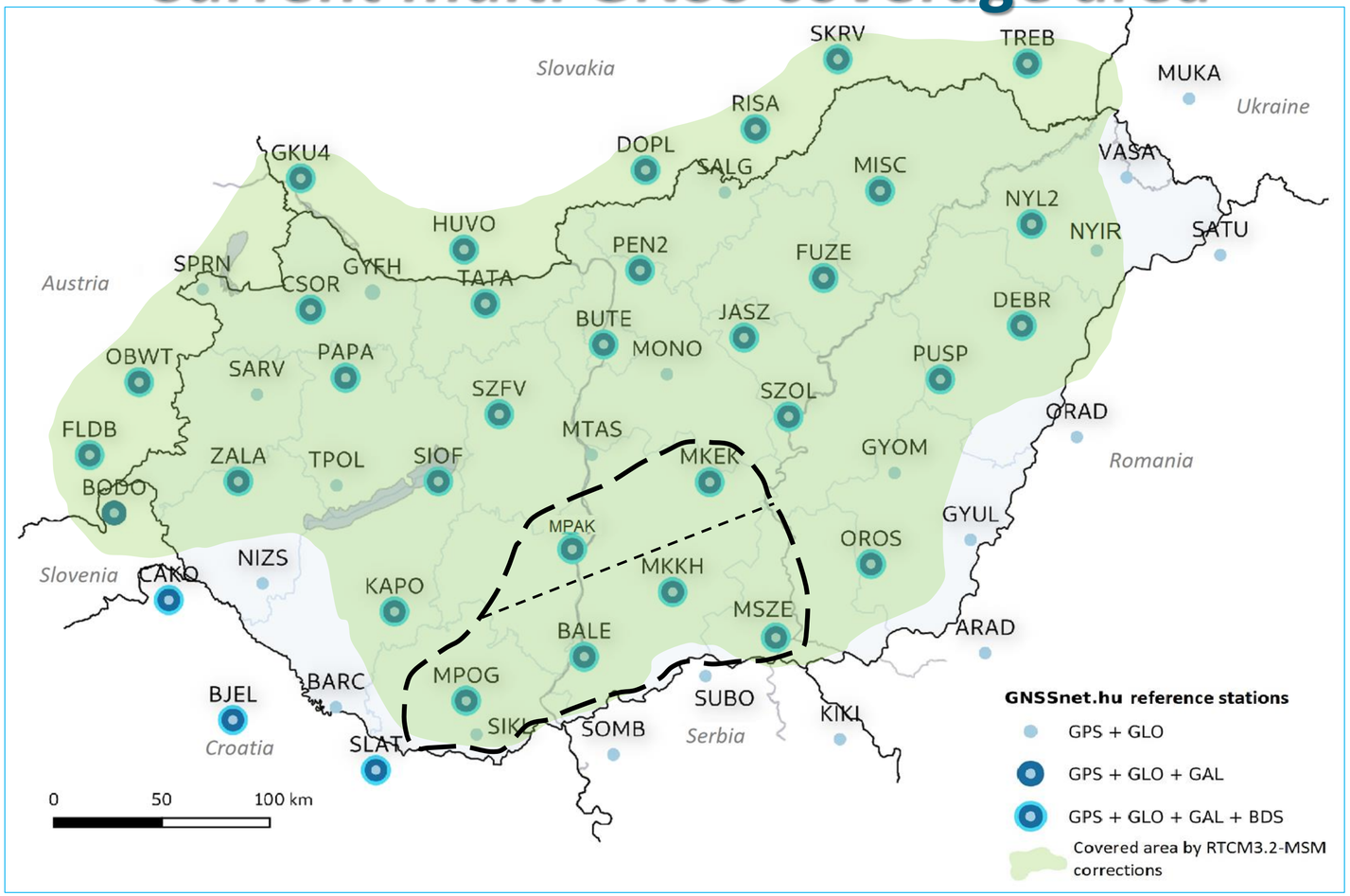
Multi GNSS coverage area in 2022





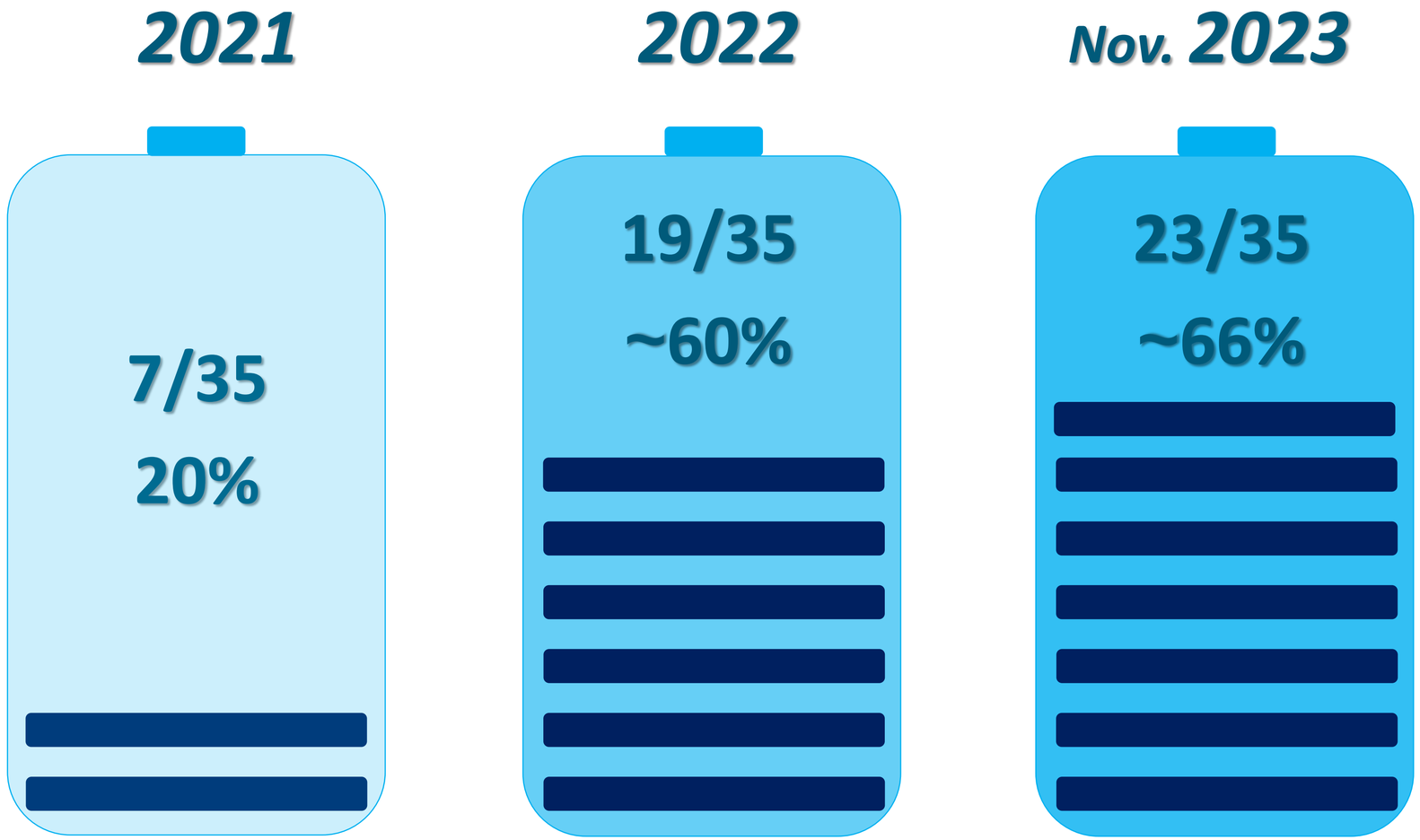
7 GNSS + InSAR collocation stations were planned in the southern part of the country

Current multi GNSS coverage area



- 7 new monument constructed for the GNSS + InSAR observations
- 4 new multi GNSS stations were started: MPOG; MKKH; MSZE; BALE;
- PAKS -> MPAK (near PAKS) and KECS -> MKEK (near KECS)

Current multi GNSS (GPS/GLO/GAL/BDS) „charge level” in the GNSSnet.hu service



Process of the foundation




Stable foundation –> concrete block:
depth: 1.4 m; lenght: 1.4 m; width: 0.8 m

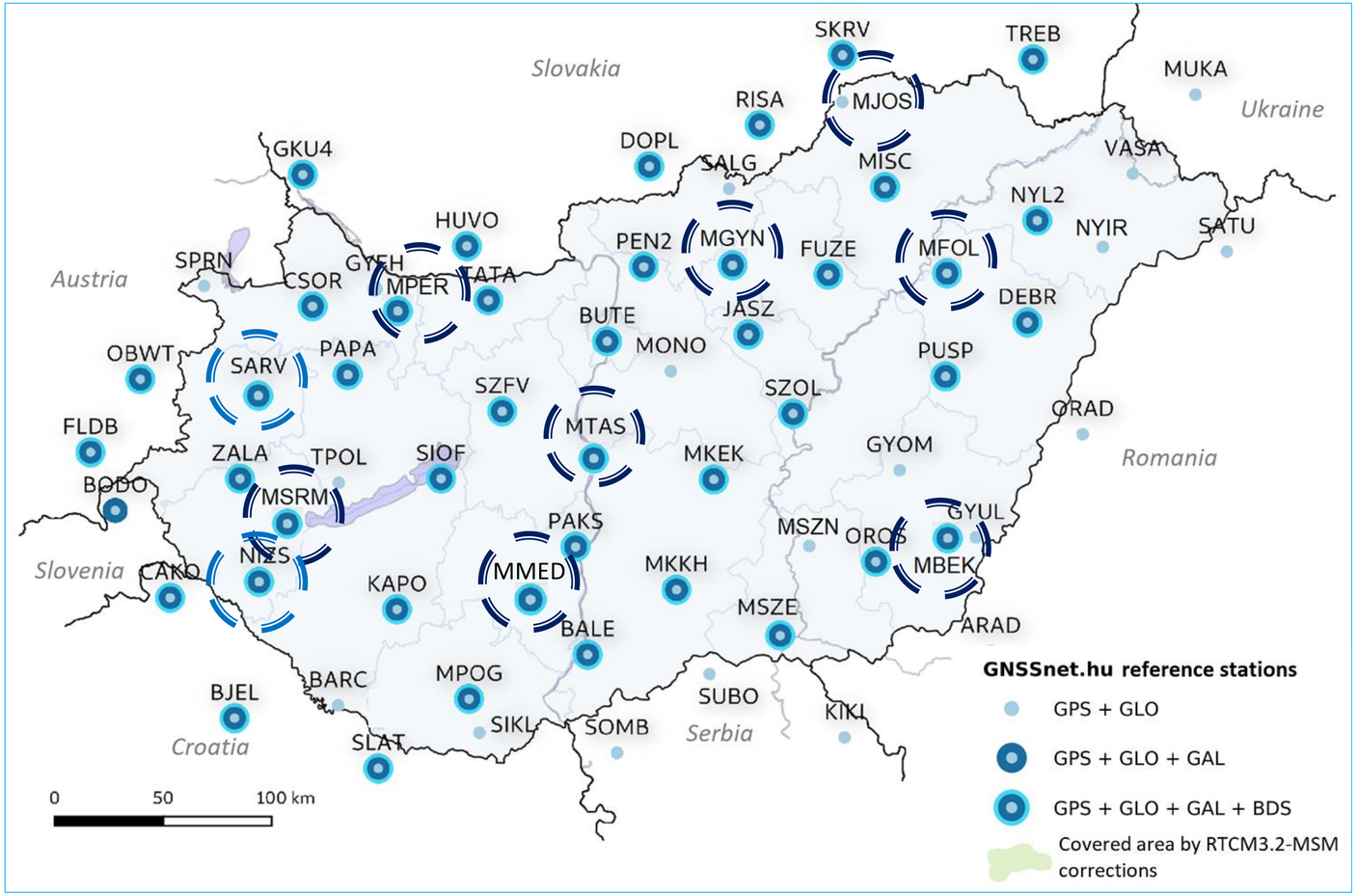
MPOG – steel mast and radar corner reflectors

(Airport, Pécs-Pogány)

Plans for the near future_I.

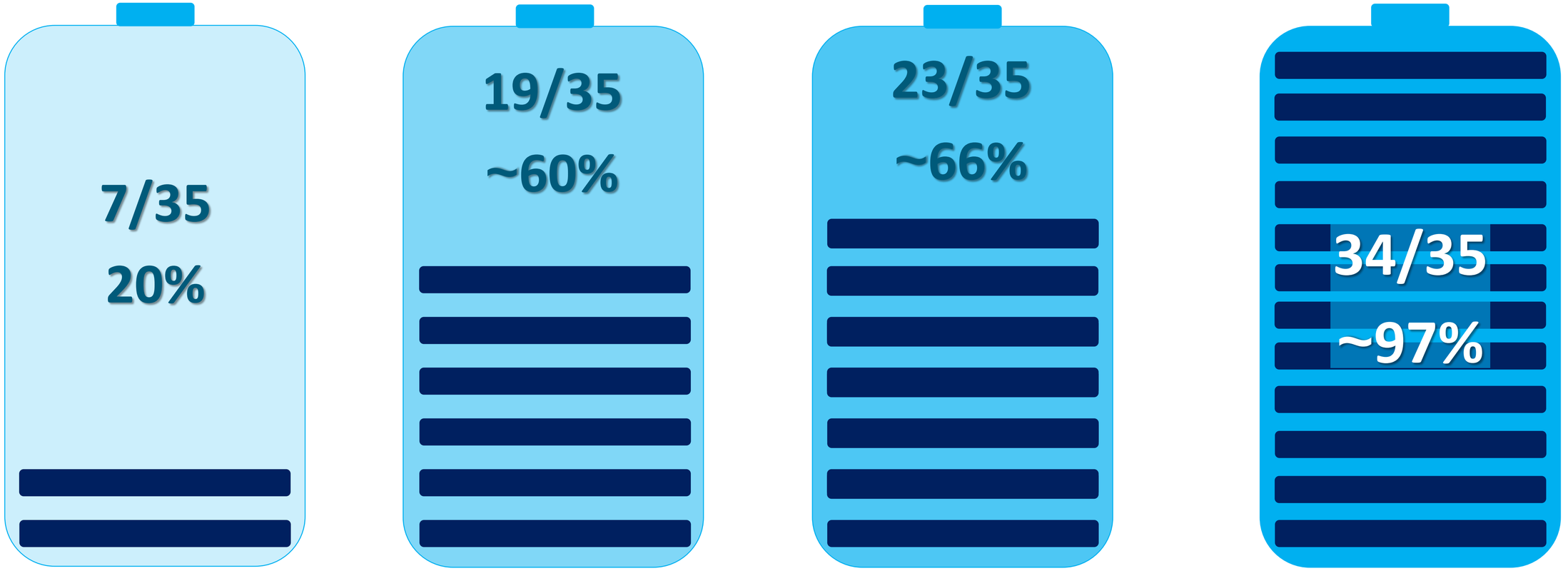
After a successful public procurement 10 new GNSS + InSAR collocation stations will be started in the near future!

Plans for the near future_II.

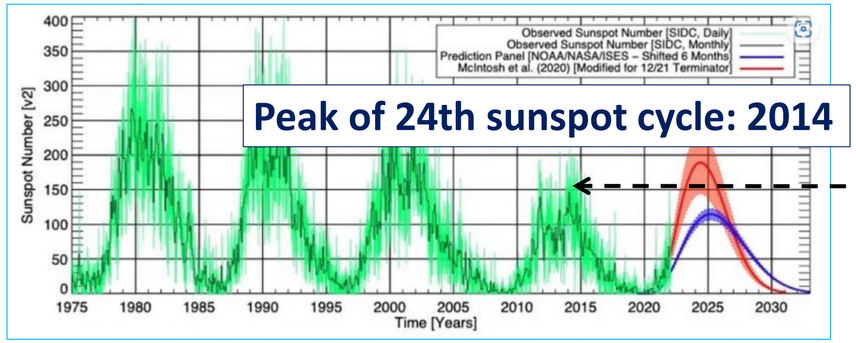


Location of the 10 new GNSS + InSAR integrated stations

Multi GNSS (GPS/GLO/GAL/BDS) „charge level” in the near future



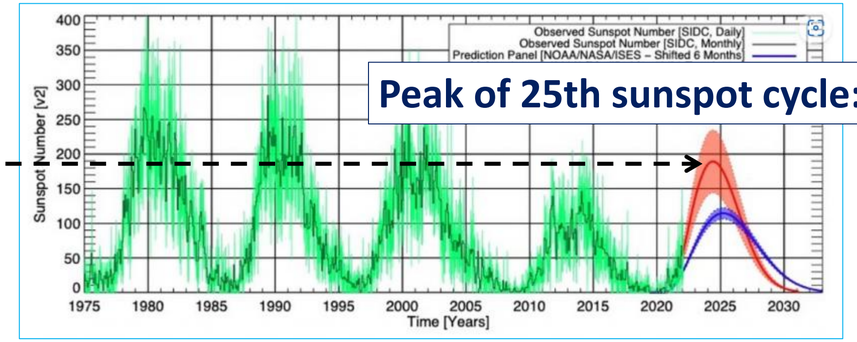
Approaching to peak of the 25th sunspot cycle



Peak of 24th sunspot cycle: 2014

2014

2023



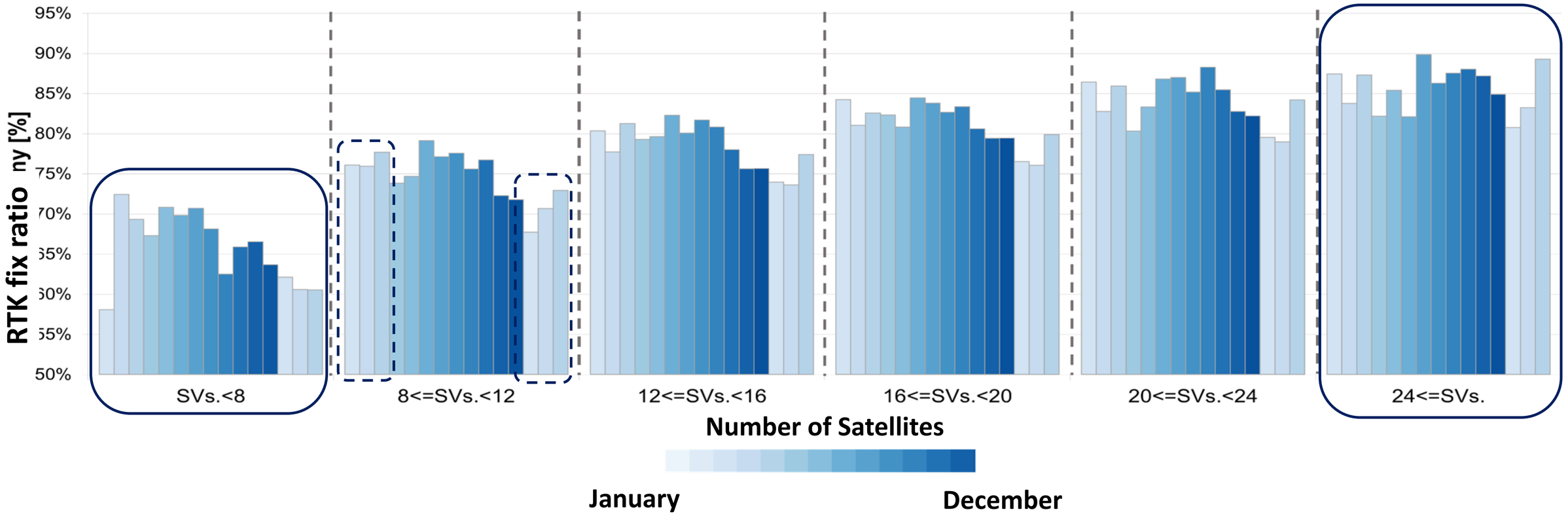
Peak of 25th sunspot cycle: 2025

Source: NASA/NOAA

It is clear that RTK measurement becomes more difficult during the coming winter periods around 2025

RTK fix ratio at different number of satellites

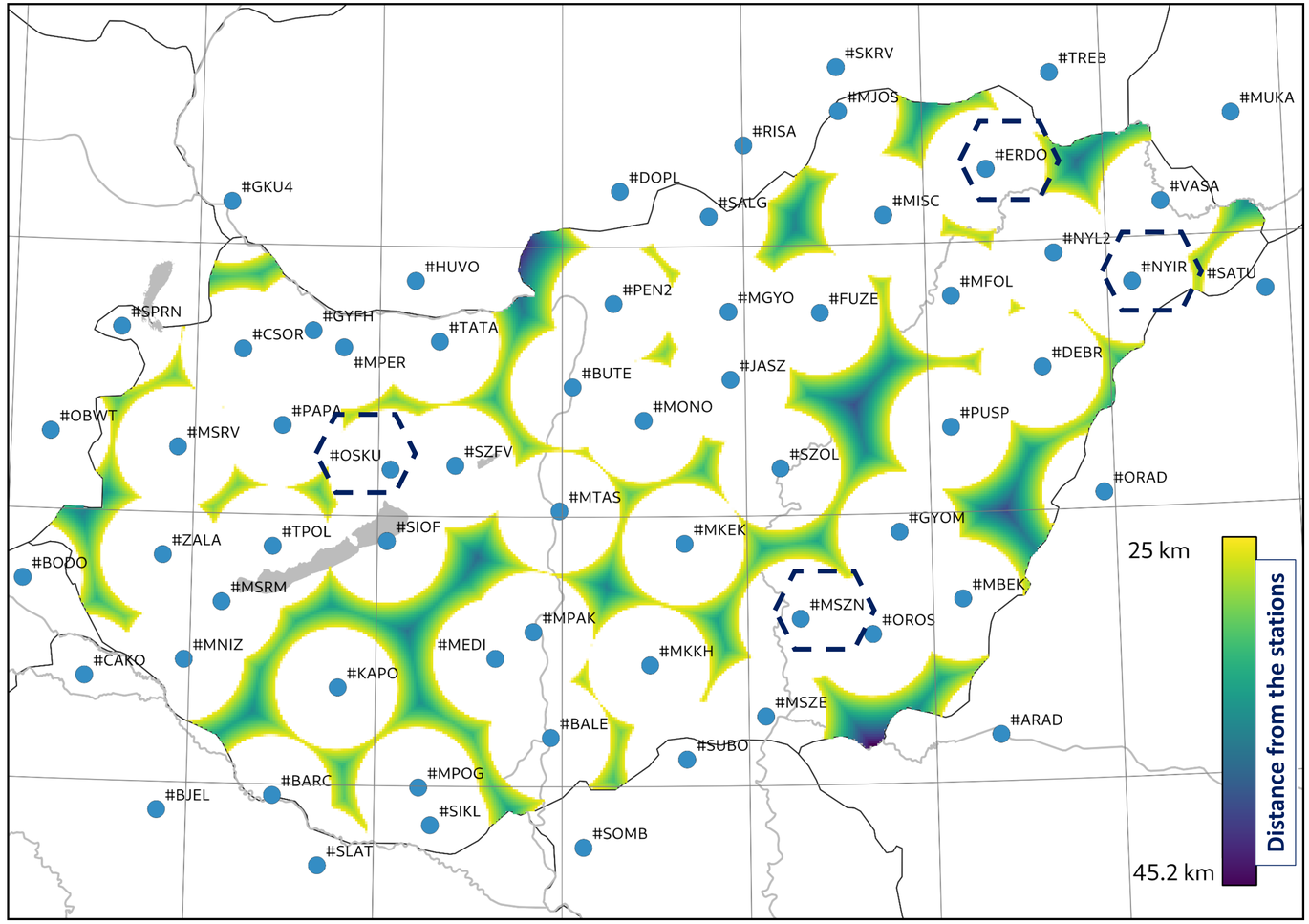
(Period: January 2022 – March 2023)



- More satellites give better RTK fix ratio (e.g.: 2022.01.: SV<8=58% vs. SV>24=87%),
- Based on 15 months data, contained more than 111 million sent NMEA GGA messages,
- Used SVs. divided into 6 categories,
- In 2023 the winter had stronger effect of the ionosphere than it was in 2022 (e.g.: in the 2. categories).

Planned nationwide coverage

(using 25 km radius circles at the stations)



- Sufficiently dense station network could also help

- We are planning to densify our network with some stations

Thank you for your attention!

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