



NATIONAL REPORT – SWEDEN

NKG WORKING GROUP OF REFERENCE FRAMES

27–28 MARCH, 2025

EPN-REPRO3

- Processing of daily solutions from October 2023 to August 2024
 - Advanced clustering
 - Two parallel virtual servers
 - Mostly trouble-shooting, outlier rejection and re-processing from April 2024 on
- Weekly combinations September – October 2024
- Re-re-processing early 2025
 - ~1600 daily solutions and all weekly solutions

ULTRA-RAPID PRODUCT FOR EPN

- Currently we are producing NRT hourly coordinates for all SWEPOS stations, as a complementary product to SWEPOS weekly and daily solutions, with a higher frequency of coordinates
 - The goal is to provide an independent data set for the SWEPOS monitoring system for the quality control of the network RTK measurement
- The EPN ultra-rapid product will be extracted from the NRT hourly coordinates to create hourly SINEX files including all EPN and EPN densification stations in Sweden

EXTENDED CONTRIBUTION TO EPOS

- Data from 28 EPN stations
- Since September 2024 daily RINEX files from ~40 additional stations (EPN-D stations)

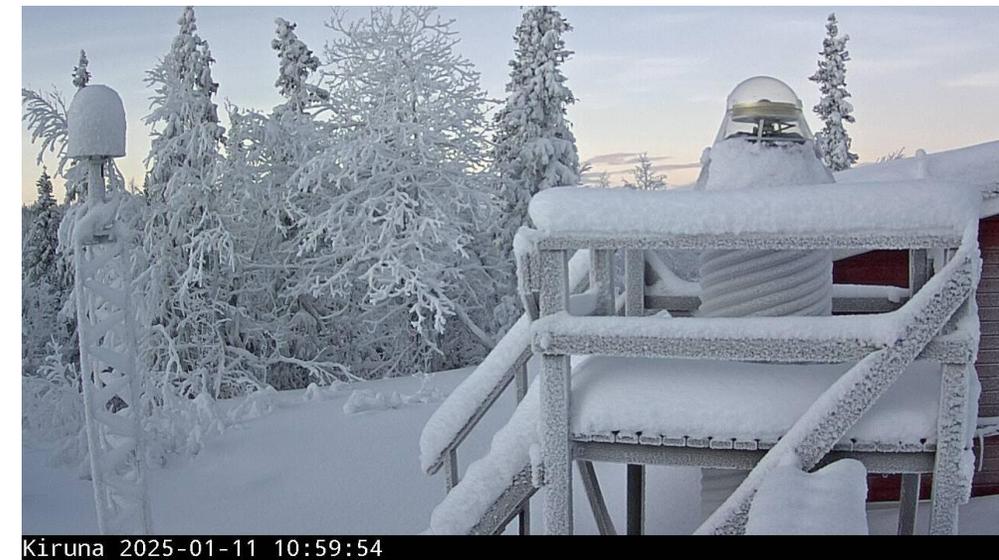
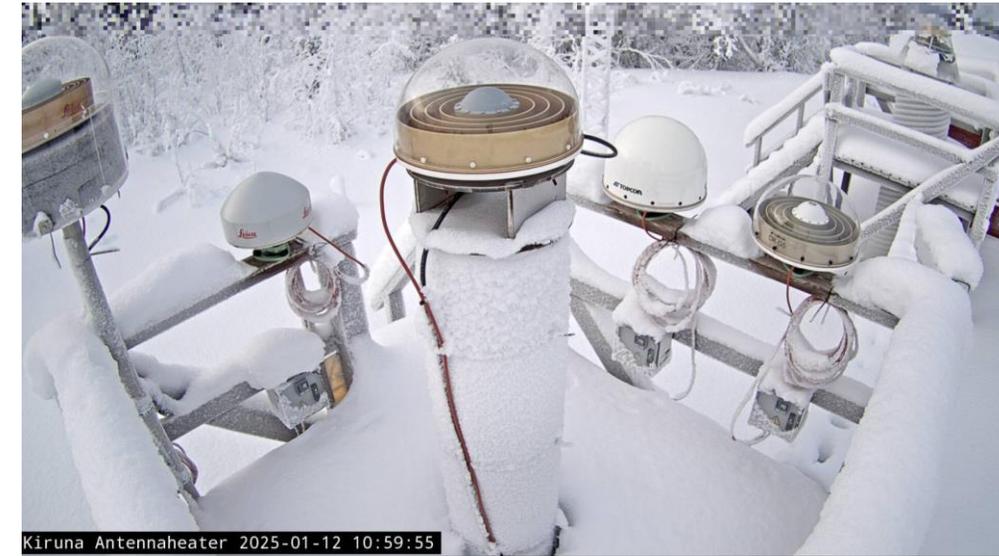


IGS20-ADAPTED COORDINATES FOR SWEPOS

- Type-mean antenna models – following EPN guidelines
- Coordinate corrections based on processing of SWEPOS using igs14.atx and igs20.atx, respectively
- Implemented in SWEPOS Post-processing Service in April 2024
- Implemented in SWEPOS real-time services in February 2025
 - Had to wait for closing of the previous post-processing service, for technical reasons
 - Coordinated with implementation of new version of TPP, for practical reasons
 - (IGS20 antenna models implemented in TPP already in November 2023)

ANTENNA HEATING SYSTEM

- To prevent snow accumulation on radomes
- No significant impact of the antenna heater on antenna properties
- First test installation in Kiruna in autumn 2022
- Test of different antennas/radomes in Kiruna since Oct 2024
 - LEAIR20 + OSOD vs LEIM
 - TPSCR.G5 + OSOS vs TPSH
 - JAVRINGANT_DM + OSOS vs OSOD
- The lower part of the OSOD radomes at the pillars are wider and the snow stick to that part. An extra heating cable attached to the radome (DEVliceguard™)



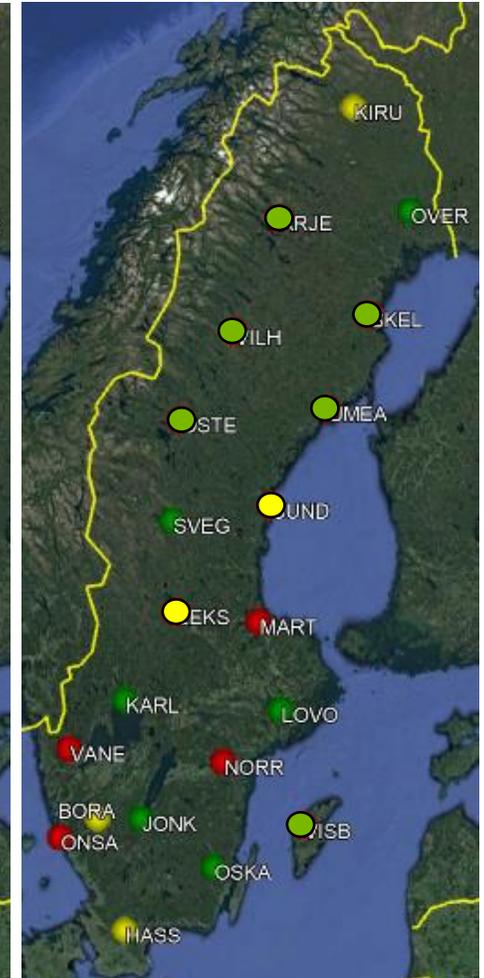
ANTENNA EXCHANGES AT SWEPOS

- Spring 2025 (17–26 March)
 - VILH.0, UMEA.0, VISB.0 (P)
 - HASS.6, JONK.6, KARL.6, NORR.7 (M)
 - Heater installed: MART.6
- Autumn 2025 (August)
 - OSTE.0 (P)
 - BORA.7, KIRU.8, ONSA.1, OVER.6, SVEG.6, MART.7 (M)
 - Heater installation: LEKS.0, SKEL.0
- Spring 2026 (March)
 - SUND.6 (LEIAR20), LEKS.6 (LEIAR20) ? (M)
 - Heater installation: ARJE.0, SVEG.0 (P)
- Autumn 2026 (August)
 - Heater installation: OVER.0
- Equipment
 - Antenna Heaters from MART & LEKS and further north
 - Mainly JAVRINGANT_DM + OSOD at pillars
 - Mainly TPSCR.G5 + OSOS or TPSH (IGS) at masts

Pillars



Masts

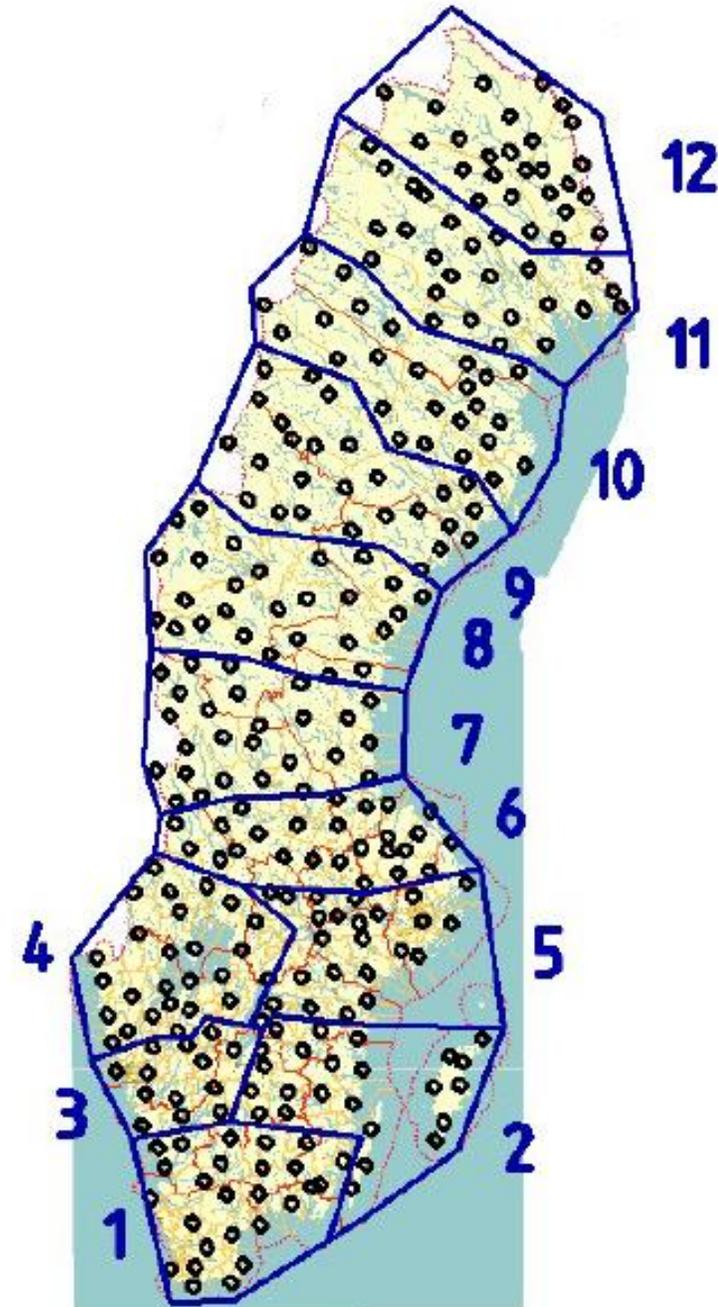


CONSOLIDATION POINTS

- About 300 nationally distributed (35–50 km apart) passive points
- Remeasured with static GNSS for 2×24 hours on a yearly basis (50 each year)
- Main purpose to verify the active reference network SWEPOS
- Some of them are also levelled and used for geoid determination

The set of consolidation points is now being adjusted in order to increase the number of GNSS/levelling points, mainly as input to future geoid models

- Connect existing consolidation points to the height network, RH 2000
- Control of existing RH 2000 heights
- Aim to use existing bench marks in the height network when adding new or replacing existing consolidation points
- The future number of consolidation points should still be about 300



A NEW GEODESY STRATEGY

- Important tool for showing the direction of Lantmäteriet's geodesy activities
- Aiming at the period 2025–2035
- Internal discussions going on, e.g.
 - Geoid modelling and height system
 - Mass market applications of SWEPOS's services
 - Future surveying technologies
 - InSAR
- Reach-out activities
- Publication in the end of the year



THANKS FOR YOUR ATTENTION!

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