

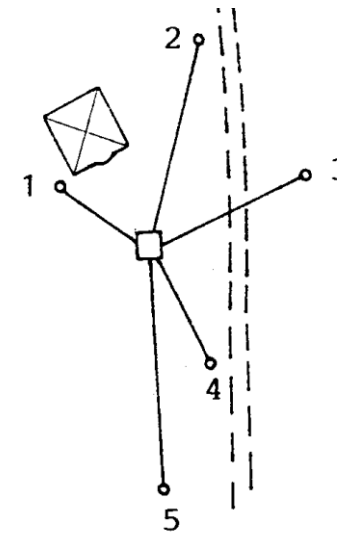


NATIONAL REPORT FROM SWEDEN

NKG WORKING GROUP OF REFERENCE FRAMES

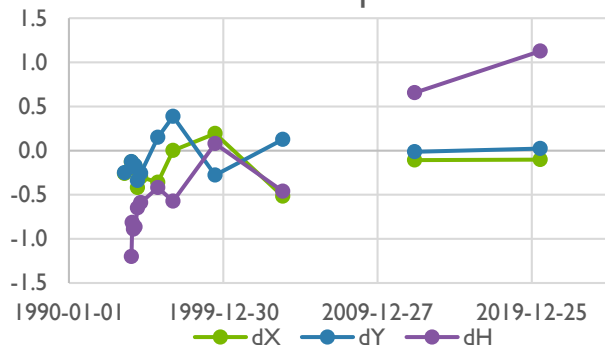
MARCH 22-23, 2021

LOCAL TIE AT SWEPOS FUNDAMENTAL STATIONS

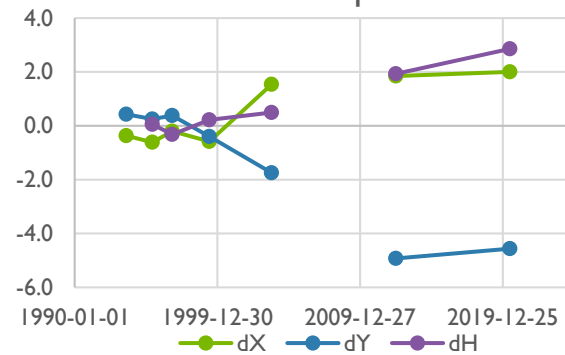


- New local tie measurements 2020
- Angular measurements only
- 3 setups for each monument

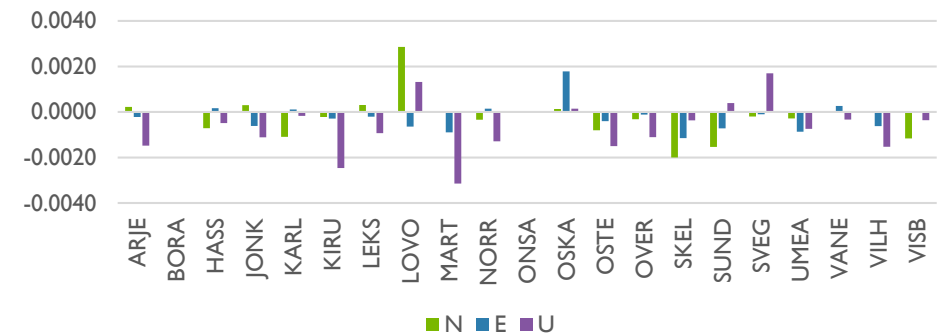
Leksand pelare



Skellefteå pelare



Masts 2020 - 2012 (mm)



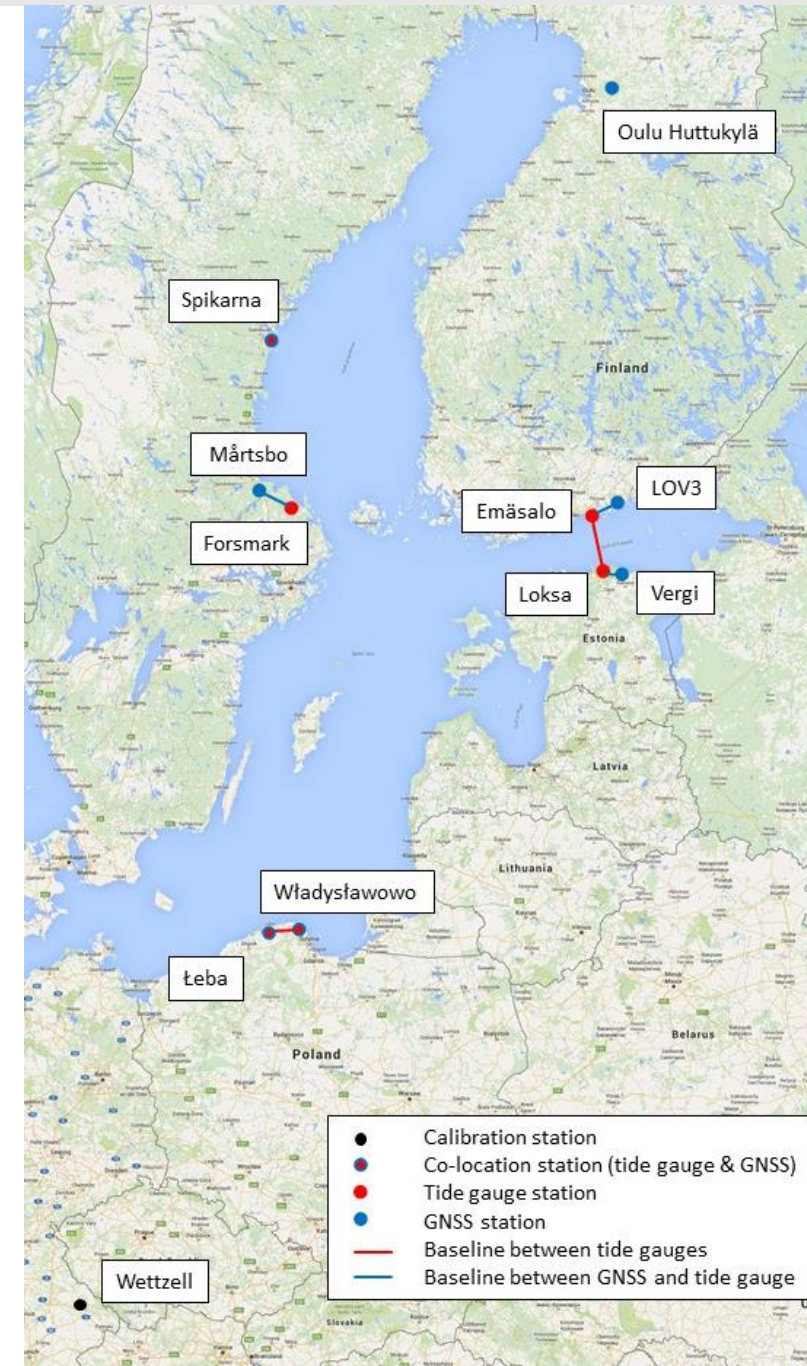
GEODETTIC SAR PROJECT

Lantmäteriet participates in the ESA project on Geodetic SAR

- Three transponders installed in 2020: Mårtsbo, Forsmark (Kobben) and Vinberget/Spikarna

Objectives

- Connection of tide gauge markers with the GNSS network geometrically by the geodetic SAR technique in order to determine the relative vertical motion
- Joint analysis of geometrical and physical reference frames
- The Baltic Sea serves as test area with very good geodetic infrastructure in order to identify the capabilities of the geodetic SAR technique for height system unification and determination of the absolute sea level at tide gauges



INSAR PROJECT

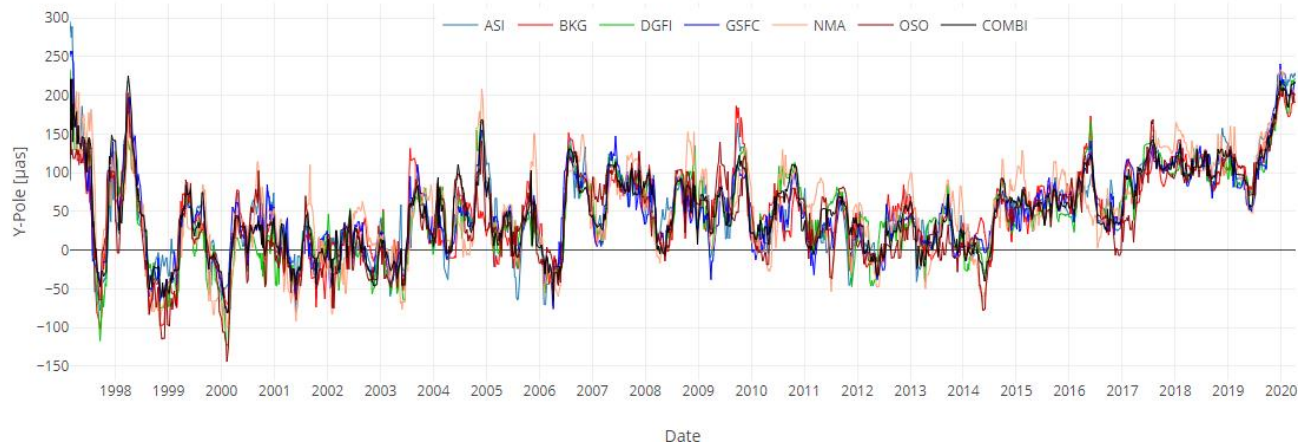
- The Swedish National Space Agency coordinates development project (2020-2022), investigating the need of a Swedish ground motion service, similar to those in Norway and Denmark
- First release of yearly dataset about now
- Lantmäteriet's contribution
 - Georeferencing and validation of data
 - Install corner reflectors at the fundamental Swepos stations, of which one third is planned to be installed in 2021



VLBI ANALYSIS

- Cooperation with Onsala Space Observatory
- We have submitted a solution for the IVS combination for ITRF2020
 - Analyzed and submitted all 6519 requested session (as of Feb 10, 2021, only analysis center to manage this)
- Contributing to standard IVS quarterly and rapid combinations
- Further developing the ASCOT VLBI analysis software

Y-Pole Residuals w.r.t. IGS



- Difference in y-pole relative to IGS for the latest IVS quarterly solution (2020b)
- Shown are combined solution and individual contributions
- OSO contribution on the same level as the other solutions

NATIONAL BOUNDARY SWEDEN – NORWAY

During 2020

- Helicopter reconnaissance along the border
- Initial fieldwork tests
- 57 boundary markers visited and measured
- 23 km boundary line staked out

Plans for 2021

- Three teams working in parallel along the border
- Restore and measure approx. 150 boundary markers
- Stake out 40 km boundary line
- Clear 25 km boundary line from vegetation



PROJECT ON ROBUST SATELLITE POSITIONING

Main objective

- Study if and how Swepos stations near airports can be used to detect, investigate and warn about GNSS interference, to continuously check the reliability of GNSS data

Lantmäteriet's contribution

- Host FOI's interference detection systems at some Swepos stations
- Lend GNSS receivers to FOI for lab tests
- Study possible use of the spectrum analyzing option that is built-in into some GNSS receivers

PNK4UTM PROJECT

- Test, document and evaluate the possibility of using the cell phone network for positioning and navigation of, as well as communication with, unmanned vehicles
- High-accuracy positioning and distribution of correction data are important components

Lantmäteriet's interests are e.g.

- Understanding of future user needs
- Test of technology and methods for future mass-market applications
- Test of new distribution channels for RTK corrections (3GPP)

PNK4UTM = Positioning, Navigation, Communication for a future Unmanned Traffic Management

THANKS FOR YOUR ATTENTION!

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LANTMÄTERIET

