National report Norway

GNSS netwrok

- Continue to improve our network of GNSS stations (almost 300)
- 33 new PGS stations
- Most of them build with coparation with BaneNor (railroad)
- We plan on dropping rinex2 in favor of rinex3 from 1 june 2021.

Quality Controll

- For quality controll we use:
  - Anubis software
    - We plan on putting these result into a database
  - Daily calculation of coordinates of all stations using Bernese software.
    - Ultra Rapid solutions.
  - Monitor stations: Continuesly calculation of the accuracy of our positioning service

Report on future height systems in Norway

- Main conclusions
  - Geoid models and GNSS can not yet replace levelling as the primary bearer of physical heights
  - A new realization of a physical height system is closely connected to a common reference frame on land and sea
  - Proposed actions
    - Levelling 1600 km
    - Relative gravity 5-6000 points
    - Sea gravity: 30.000 km
    - Temporary tide gauges 194

Proj

NMA has decided to replace all transformation libraries and routines with proj, within the next years.

So far we have

- Implemented transformations between EUREF89 and ITRF2014/ITRF2000 based on NKG transformation
- Implemented the height reference frames NN1954 and NN2000
- Implemented transformations between EUREF89 and NGO1948 based on Triangle-based transformation

Yet to be done

- Support old referance frames, eg. ED50.
- Local reference frames, eg. Oslo, Bergen, Trondheim.

Goal

Make proj available on common platforms for most users.

Kartverket

Ny-Ålesund geodetic observatory

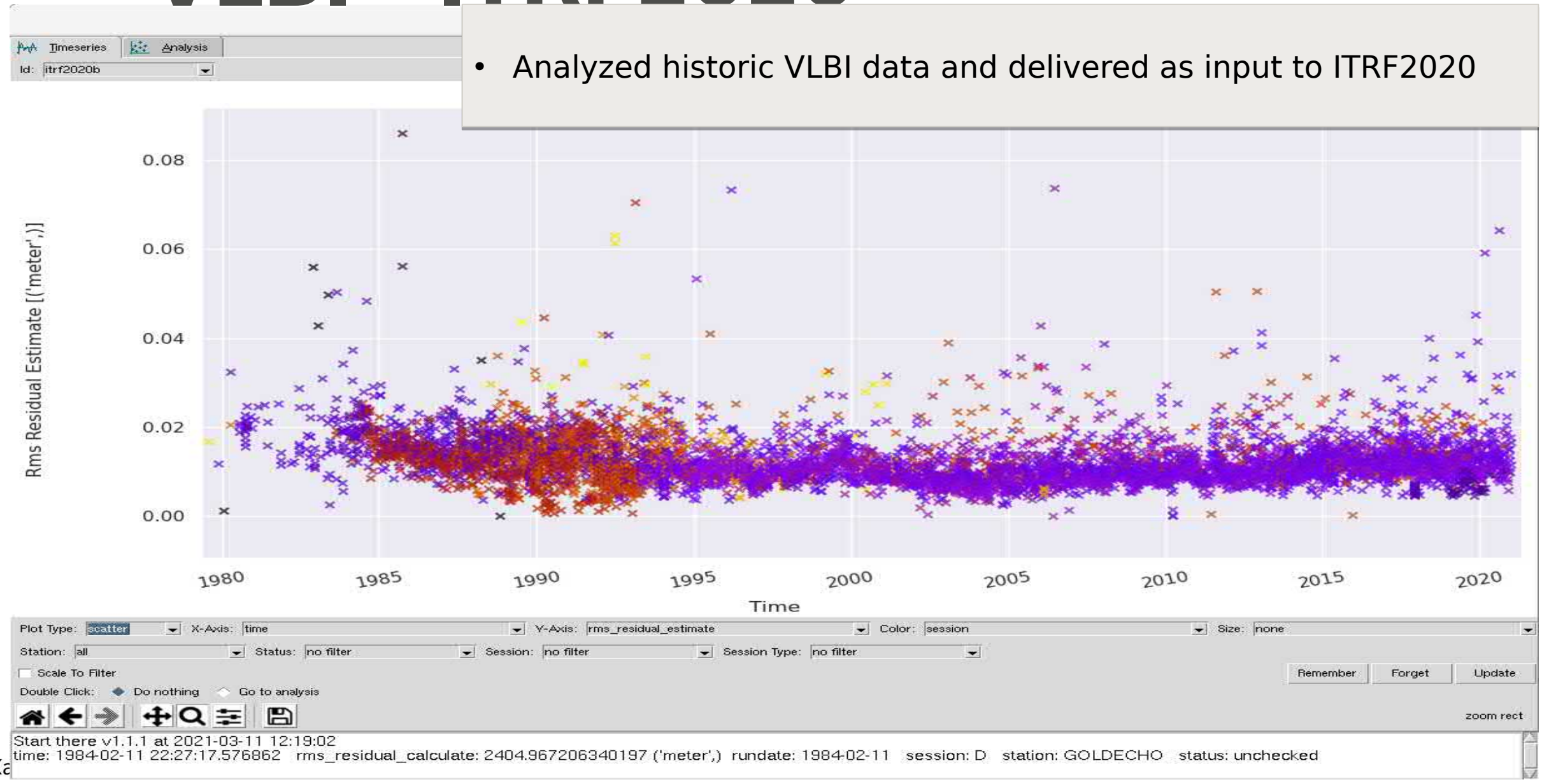
VLBI – NYALE13S and NYALE13N

- NYALE13S started observations in February 2020. In June DBBC3 crashed/havoc. New DBBC2 installed and observation restarted in November.
- NYALE13N has a broadband receiver and will soon participate in VGOS measurements

Kartverket

VLBI - ITRF2020

- Analyzed historic VLBI data and delivered as input to ITRF2020



SLR

- 2021 - Installation of the first components with setup of the dome on the roof at Brandal and installation of the riser.
- 2022 - Gimbal and telescope assembly and the
- 2023 – laser system will be installed
- 2025 - SLR fully operational

- 2025 – The observatory – a fundamental station with all space geodetic techniques co-located