NLS
FINNISH GEOSPATIAL RESEARCH INSTITUTE FGI

Jammertest 2022 and 2023

Andøya, Norway

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The Plan, Data, and devices

- What are you going to measure?
  - Plan test cases early
  - Make a dry run of the tests so you know everything will work
- Devices
  - What devices you need?
  - If possible, don't make updates to the devices on the last minute
- What will you do if something breaks while on the go?
  - Spare devices? (cables, splitters etc.)
- Getting there?
  - Official documents
  - How are you going through customs and airport security?

Traveling

- How are you going to travel?
  - Ground?
  - Plane?
    - How to pack things?
    - Is the thing allowed on plane?
    - Airport security?
    - Or should you ship the stuff there after all?

- Where are you going to travel?
  - Outside of Finland?
    - SPAN IMU is export controlled, exportation likely requires a few months of paperwork…
  - Outside of EU?
    - ATA Carnet for customs

Hint: Start planning early, preferably yesterday!

Jammertest: There and back again

'Fun with customs

Flying? Think twice…

Helsinki – Tromsø – Bodø – (Harstad) - Andøya

Test area

- All tests run by the FGI during Jammertest 2022 done within the town of Bleik

- We travelled light
  - Limitations on equipment

DATA collection

Aim: Collect data for a research project funded by the Academy of Finland, Resilience and Security of Geospatial Data for Critical Infrastructures (REASON)

- Measurements that are compatible with the FinnRef network

- Measurements that can be replayed in laboratory conditions using other receivers

- Equipment should be as light as possible
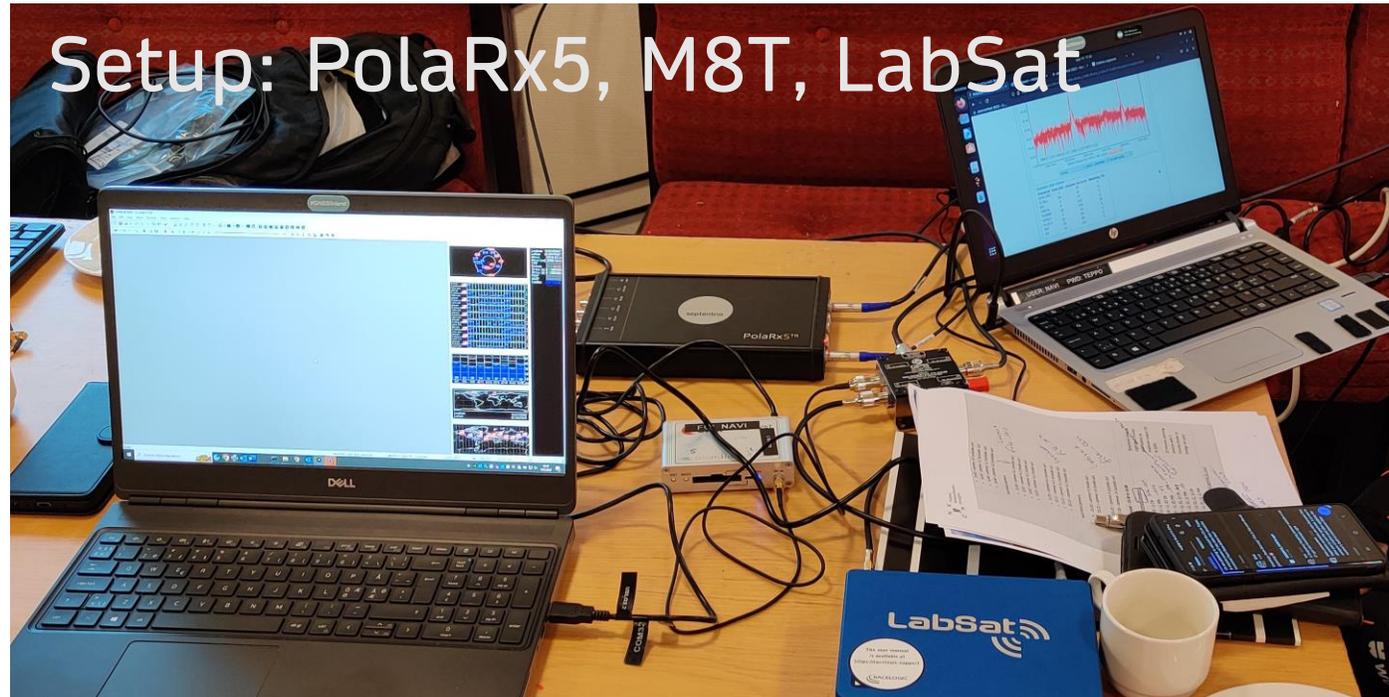
Setup: PolaRx5, M8T, LabSat

Novatel antenna + tripod

Some results

Spoofing:

- test the behaviour of various receivers under simulated and live conditions

- Difference in CN0 values and resolved ENU parameters

Jamming

- Signal correlation-based method for jamming detection and classification

- Automated jamming detection system for FinnRef

- Create a machine learning based method that can use Septentrio 'burst' data products
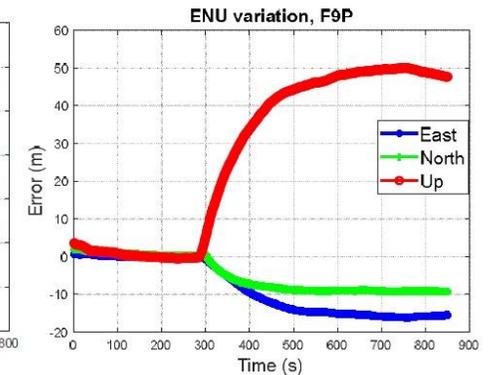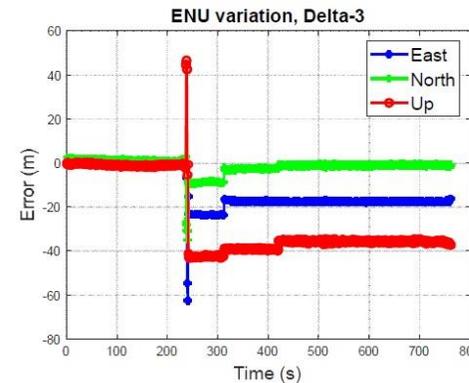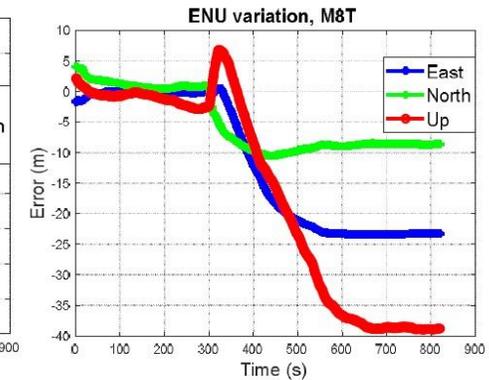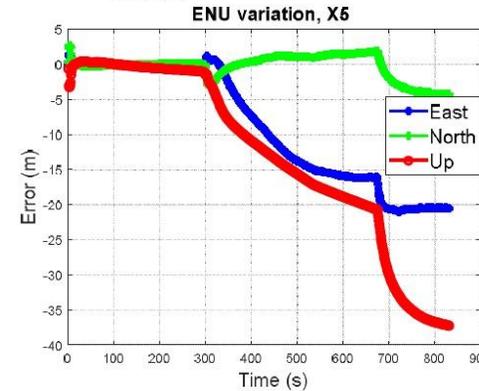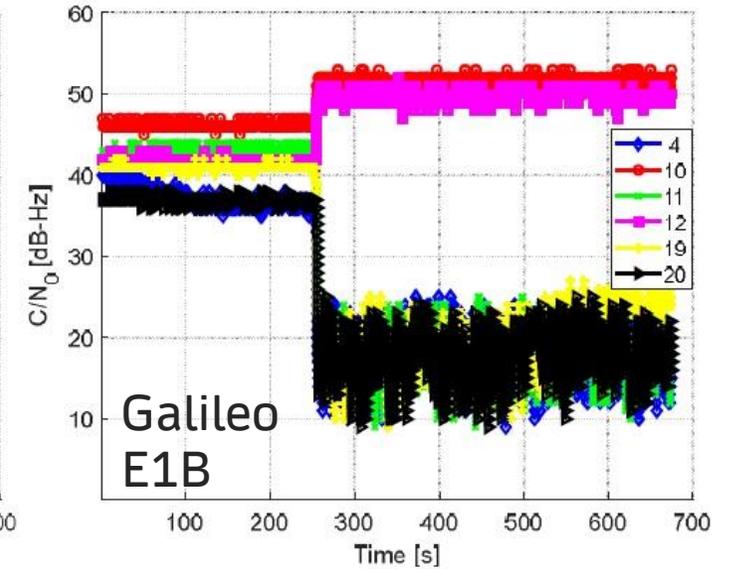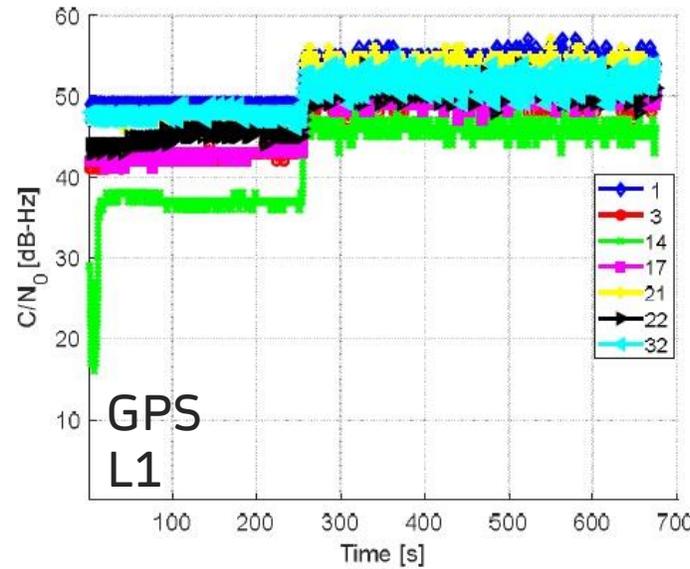
Jammertest 2023

- FGI is sending a team to Jammertest 2023

- Current plan for experiments still to be decided

Some ideas:

- No flying this time,
  we'll take the car

- Since we are driving,
  collect data on the trip
  (test HAS, OSNMA…)

- LabSat seems like a must

- Collect data with phones?