



# FINNREF & FINPOS

## FinnRef

- National GNSS **reference station network**
- Defines highest class of points for definition of EUREF-FIN reference frame, the national ETRS89 realization
- 47 high-class stations (on the map)
- All GNSS observed (GRECJS)
- <https://www.maanmittauslaitos.fi/tutkimus/tutkimustoiminta/muut-tutkimus-ja-mittausasemat/finnref-gnss-asemat>

## FINPOS

- **GNSS positioning service** of National Land Survey
- Uses data from FinnRef and similar FINPOS stations, and data from Sweden, Norway, Estonia + from other partners
- Provides Network-RTK (NRTK), SSR-PPP, DGNSS, RINEX service, raw data streaming ...
- <https://www.maanmittauslaitos.fi/kartat-ja-paikkatieto/asiantuntemukseen-kayttajalle/paikannuspalvelu>

# FINPOS: USER ACCOUNT

- **Username:** *Sent by email*
  - **Password:** *Sent by email*
  - Purpose: education & research
  - For other purposes please contact by email
- [paikannuspalvelu@maanmittauslaitos.fi](mailto:paikannuspalvelu@maanmittauslaitos.fi)
- This account allows access to all FINPOS services described below:
    - single station streams,
    - Network RTK,
    - RINEX download.
  - Account allows 50 simultaneous connections (more connections can be added if number of students is high).

# FINPOS: DATA ACCESS (1/2)

- **Single station streams**

- ☐ **Address:port:** opencaster.nls.fi:2103
- ☐ **Mountpoints:** RAW\_XXXX (e.g. RAW\_MET3, RAW\_OLOS)

- These are RTCM MSM7 streams containing “raw” observations from reference stations
- The streams contain RTCM message 1006 which includes official E1/E2 coordinates of the station. This message is sent every 30 seconds, and might be that it is not sent immediately after connecting to the stream, which means RTK fixing can take few moments.
- Official E1 coordinates for FinnRef stations you can find [here](#)

# FINPOS: DATA ACCESS (2/2)

- **Network RTK**
  - ❑ **Address:port:** opencaster.nls.fi:2101
  - ❑ **Mountpoints:** VRS-FKP
- This mountpoint creates a virtual reference station (VRS) to the location sent by the user as NMEA message.
- **Post-processing data**
  - RINEX format
  - <https://finpos.nls.fi/gppweb/rinex>