National Report of Finland

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Metsähovi modernization 2012-2018

- State-of-the-art SLR:
  - Telescope installed in the beginning of 2016
  - Current plan:
    - Testing of the system (2016)
    - Calibration of the system (2016/2017)
    - ”Routine” observations (2017)

- VGOS-compatible VLBI:
  - Procurement of the system is ongoing
  - Operational in 2018/19
FinnRef permanent GNSS network

- Renewed in 2012-13, 20 new GNSS stations
  - Old FinnRef stations (13) still running parallel with the new stations, 11 twin stations
  - Inter-station distance on average 200 km
- Positioning service(s), GNSMART (Geo++):
  - DGNSS free-of-charge 2014-
  - (network RTK service pilot 2014-15)
- Development project 2015: how FinnRef network and its network-RTK services should be developed that it would fulfill NLS internal needs for cadastre work (~10cm)
  - Outcome: Current network works under favourable conditions (open sky, good pdop), but in more challenging environment denser network is needed.
EGNOS RIMS (Ranging and Integrity Monitoring Stations)

- FinnRef permanent GNSS network supports Galileo
- FGI begins utilize FinnRef to monitor EGNOS with Pegasus sofware by Eurocontrol
- Second RIMS station to Finland in 2018/2019
EMRP JRP SIB60 Broader Scope
"Metrology for long distance surveying"

- Nummela standard baseline
  - Test: TeleYAG distance meter (PTB)
  - Test: Telediode distance meter (CNAM)
  - Test: Laser spectroscopy for temperature over long distances (VTT-MIKES)
- Scale transferred to Metsähovi, PTB and UniBW Baselines
- Facility for validating GNSS antenna calibrations "Revolver" was developed
- Metrologically optimum processing strategy for baselines <200m was created
- Local tie vector between CORS and VLBI using GNSS and Robot tacheometer
  - Total uncertainty of the local tie
- Guidelines will be written
FAMOS Freja Project Gravity Survey in Bothnian Sea

Finnish Transport Agency - participant in FAMOS Freja
- Contract with Meritaito Oy
  Airisto Survey vessel
- Contract with NLS-FGI
  Local ties on vessel, harbour ties, 10 Hz GNSS data collection on land

GFZ → Gravimeter (Chekan-AM) operation