National Report of Finland

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by

Finnish Geodetic Institute

N2000 height system

- ^{3rd} Precise Levelling completed in 2006
- Realization of N2000 follows the guidelines of EVRS and Nordic Geodetic Commission (NKG):
 - Datum: NAP (Normaal Amsterdams Peil)
 - Normal heights computed to the epoch 2000
- Difference between N60 and N2000 up to 40cm, mostly due to the land uplift
- Published Autumn 2007
- Related geoid model FIN2005N00



FIN2005N00 geoid model





calculated by fitting the GPSlevelling data of the 50 EUVN_DA points to the Nordic geoid model NKG2004 links EUREF-FIN heights to the new national height system of Finland N2000



Ollikainen 2006

GEODEETTINEN LAITOS SUOMEN KOLMAS TARKKAVAAITUS 1978-2006 PÄÄKIINTOPISTE KORKEUS N2000-JÄRJESTELMÄSSÄ 54,4233 M.

GEODETISKA INSTITUTET FINLANDS TREDJE PRECISIONSAVVÅGNING 1978-2006 HUVUDFIXPUNKTEN HÖJD 1 N2000 - SYSTEMET 54,4233 M. Monument and fundamental benchmark of the Third Precise Levelling

Permanent GNSS Networks

FinnRef

13 stations, 4 in EPN, 1 in IGS Data download (ADSL) hourly Real-time data stream to **EUREF-IP** started 2007: Metsähovi, Sodankylä, Joensuu and Vaasa



Permanent GNSS Networks



GNSSnet.fi (GPSnet.fi)

- Private network (Geotrim Ltd.)
- 87 stations
- Network-RTK services
 - VRS-RTK
 - VRS-DGPS
 - Post-processing data
- Upgrade to GNSS in 2007



EUREF-FIN and densifications

I order network

- FinnRef Permanent GPS network – 13 stations
- Realization 1996-97 100 points



60°



EUREF-FIN and densifications

I order network

- FinnRef Permanent GPS network – 13 stations
- Realization 1996-97 100 points

Ib order network

Densification 1998-99 – 350 points

60°





EUREF-FIN and densifications

I order network

- FinnRef Permanent GPS network 13 stations
- Realization 1996-97 100 points
- Ib order network
 - Densification 1998-99 350 points

II order network

- Densifications by NLS
 - approx. 2400 points (5.6.2008)
 - will be completed in 2008





geoVLBI

8 campaigns in 2007 IVS, EURO campaigns

Iew

Repo

2 kHz p

Se

nation 2007-2008

EPS, CLONASS, SCG DORIS



Metsähovi local ties

- Previous tie measurements in 1997 and 2004
 - VLBI telescope has radome
 - with precision tacheometry
 - problems with definition of the geometric centre of VLBI
- project continued in 2007
 - new 7-pillar network established
 - started development of centring method of VLBI telescope based on GPS





National Standards Laboratory

- Acceleration of free fall
 - Intercomparisons in Luxemburg and Metsähovi
 - Several AG measurements in Finland and abroad in 2007; Russia, Iceland, Poland and Lithuania



National Standards Laboratory

- Length
 - Nummela Standard Baseline
 - Measured 15th time (since 1947) in 2007 with Väisälä white light interference comparator
 - Standard uncertainty (k=1) less than 0.1 mm for 864m
 - Other baselines (scale transfers)
 - with calibrated mekometer or other EDM
 - Lithuania in 2007
 - Olkiluoto: EDM baseline to control the scale of GPS
 - Rod and system calibrations



