



## National Report of Sweden geodetic activities at Lantmäteriet

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## New reference frames

#### Implementation at the national level

- In 2007, RT 90 was replaced by SWEREF 99 in databases and production lines at Lantmäteriet – and new map sheet divisions and a new index system were adopted
- In 2005, RH 2000, the Swedish realization of EVRS was finalised. A systematic inventory/updating of the levelling network is continuously performed



#### Implementation in the municipalities

- 132 (out of 290) have changed to SWEREF 99
- 22 (out of 290) have changed to RH 2000 (Swedish EVRS realisation)





### **National ETRS realization vs. ETRF2000**



SWEREF 99 minus ETRF2000 (release Dec. 2008, epoch 2000.0). Unit: mm

Station	dN	dE	dU
KIR0	11	-22	-16
SKE0	11	-19	-7
VIL0	5	-20	-20
MAR6	4	-15	-19
VIS0	5	-13	-15
SPT0	-1	-10	-26
ONSA	-3	-12	-17

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# SWEPOS

- SWEPOS is the foundation for SWEREF 99 (ETRS89 in Sweden)
- Currently 167 stations (May 2009)
  - 21 original SWEPOS sites
  - 32 on bedrock (incl. the original)
  - 7 EPN
  - 6 real time streaming to EUREF-IP
- Dual-frequency GPS/GLONASS receivers on all SWEPOS stations
- Lantmäteriet operates the NKG EPN LAC (50 sites, May 2009)

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### SWEPOS Network RTK Service

### \* Passed 1200 subscriptions! (May 2009)

- Trend: increased use in machine guidance and precision navigation
- Distribution using GSM & GPRS

The northern part will be completed in this year

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Further info: <u>www.swepos.com</u>

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## New Geoid Model

meter

40

35

30

25

20



#### The Model SWEN08\_RH2000

- ... is computed by adaption of the gravimetric model KTH08 utilizing
- GNSS/levelling residuals,
- corrections for land uplift/permanent tide,
- \* a smooth interpolation surface
  - The mean error is estimated to 10-15 mm in almost all Sweden







## Absolute Gravity Program



In 2006, a new absolute gravity meter (FG5) was purchased by Lantmäteriet

- Objective is to study the Fennoscandian land uplift
- 7 out of 14 sites have been observed annually since 2003
- Several observing teams, coordinated within NKG w. g. for geodynamics



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## New National DEM

- Based on airborne laser scanning from ~3000 m altitude
- $\clubsuit$  Estimated accuracy 0.5 m (1  $\sigma$ ) at 2.5 m grid spacing
- ✤ 7 year project (2008-2015)
- Financing based on governmental founding
- \* Agreement with a main contractor

