



# Possible mechanism for recognition of height systems/frames from EUREF in the perspective of INSPIRE

Martin Lidberg

[Martin.Lidberg@lm.se](mailto:Martin.Lidberg@lm.se)

L A N T M Ä T E R I E T



# Background

Within the framework of INSPIRE (*Infrastructure for Spatial Information in the European Community*) it has been developed rules regarding availability and format of spatial information within the European community. These rules will become mandatory and included in European law. One important theme for such rules are geodetic reference frames. In these rules it is mandatory to use:

- ETRS89 for geographical coordinates, and as base for coordinates in map-projections
- EVRS for “gravity related heights”

## Some thoughts...

- First – the decisions to adopt ETRS89 and EVRS must be considered good!
- But what coordinates and heights can be considered to fulfil the requirements for ETRS89 or EVRS?
- Regarding ETRS89 there is a mechanism in place where “national” realizations are recognized and accepted by EUREF through resolutions
- Regarding EVRS such mechanism is missing!

# Potential problem...

- Possible discussions on when a height value can be considered to be a realisation of EVRS
  - E.g. the new national height systems in the Nordic area, where height values on bench marks agree with EVRF2007 on the sub-mm (but there is a distinct bias at the 5mm level)
  - national levelling projects are going on, and there will be new national adjustments where the time table will be different to new releases of EVRF
- Transformations are demanded for national height systems that is not computed following the EVRS conventions, but where the height values agree at the few centimeter level with EVRF2007
  - E.g. Denmark, but probably also many other examples

## To consider

- ETRS89 and EVRS are EUREF “products”
- Therefore EUREF should be active regarding its use (also for less demanding applications)
- We may want to avoid a situation where some other organization/mechanism are invented for regulation of ETRS89 and/or EVRS within the framework of INSPIRE, which is out of control of EUREF!

# Proposal

- EUREF provide the possibilities for accepting national realizations of height systems as improvements and/or densifications of EVRS e.g. through resolutions
  - EVRF2007 is only available at the nodal points – thus densifications
  - New levellings may be considered as improvements
  - An uncertainty level may be stated in the resolution (similar to the “1 cm” sometimes mentioned for ETRS89)
- Possibly a good support for the national authorities
- would also fit well in to the spirit of the MoU between EUREF and EuroGeographics!