Liikennevirasto

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Baltic Sea Harmonized Vertical reference System

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Why harmonization needed?

Today there is no common vertical reference for nautical charts and navigational publications in the Baltic Sea (**M**ean **S**ea **L**evel, MSL)

The solution

EVRS-based Harmonized vertical reference for hydrography and navigation

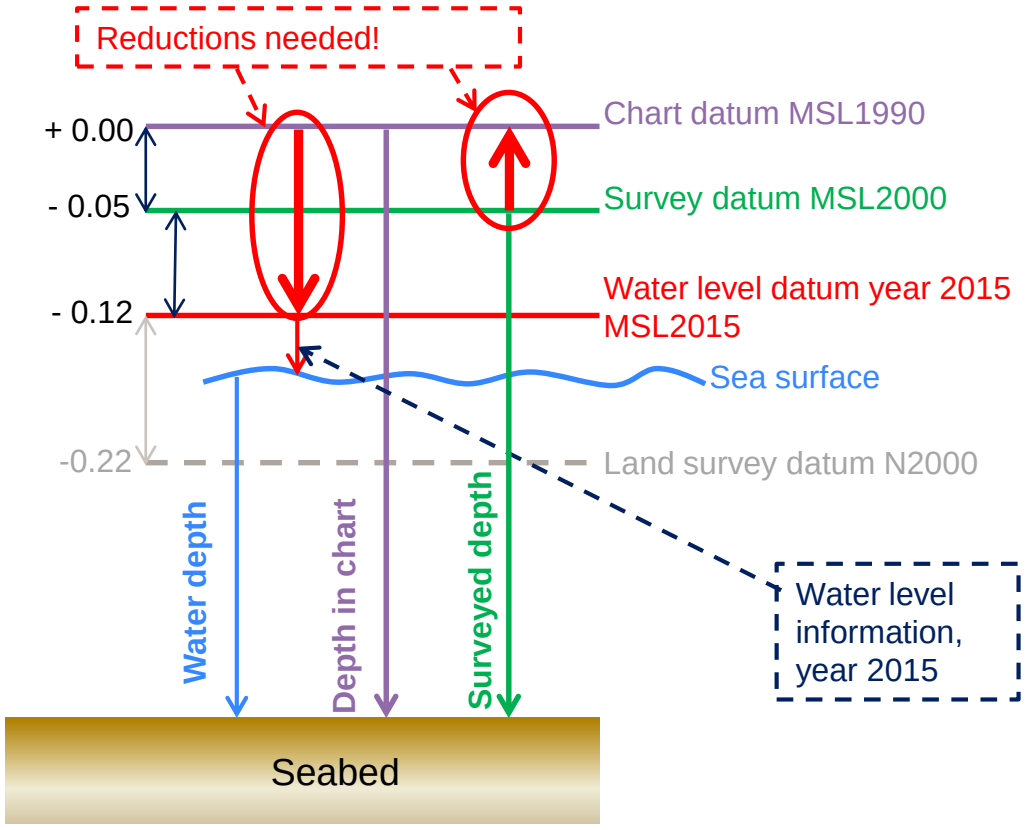
land uplift epoch 2000.0

national realizations

Present challenges and future benefits

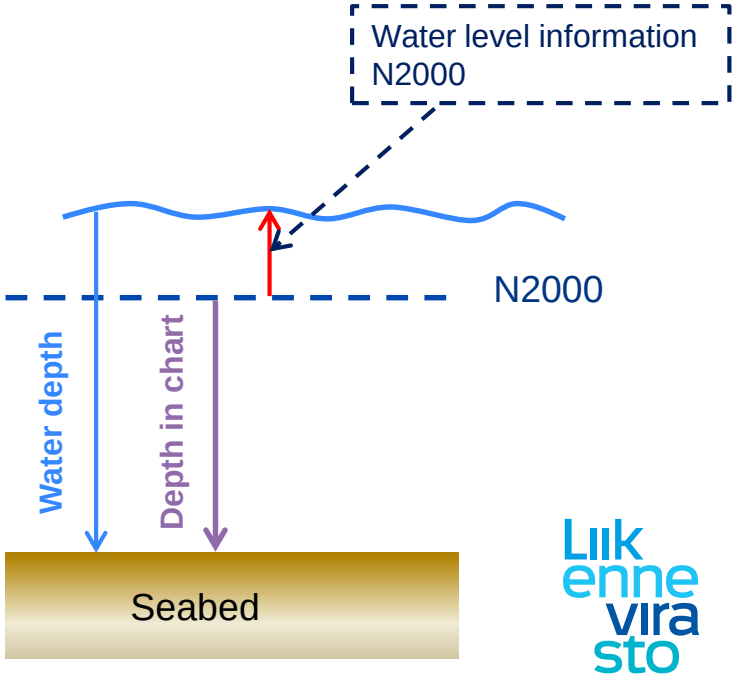
Present situation

Illustration of different datums in nautical charts
(height differences in meters in Vaasa mareogrph in Finland)



After harmonization

One datum for depths in charts, hydrographic surveys and water level information.



Who are involved?

- International Hydrographic Organization (IHO)
- Baltic Sea Hydrographic Commission (BSHC)
- Chart Datum Working Group (CDWG)
- National Hydrographic Offices

Image by BSHC

Important organizations

- BOOS (Baltic Operational Oceanograp
- Geodetic community
- National geodetic organizations
- Organizations providing water level information

Major changes

Change from ***sea level (MSL)*** based to ***geodetic*** vertical datum!

Depths and heights in land in the same vertical reference system

Nautical charts and navigational information in common European system

Northern Baltic Sea: around 20 cm reduction to plotted depths

Future studies and needs

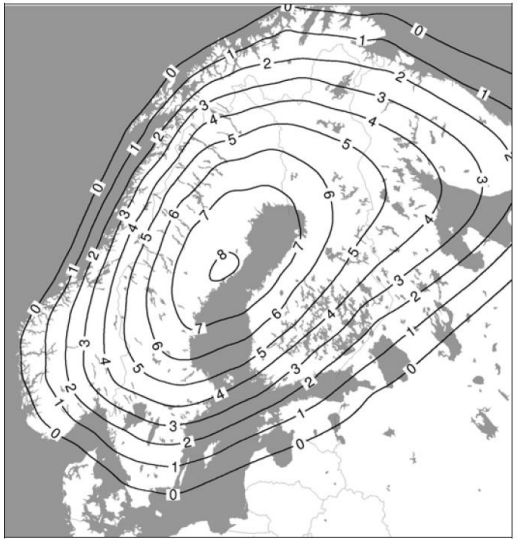
Common enhanced geoid model for the Baltic Sea

- co-operation with FAMOS –project, (EU-project, not yet granted)

Land uplift models

Sea Surface Topography in relation to geoid

=> Supporting in future 3D GNSS navigation



Land uplift relative to MSL (mm/year).
Source: Vestöl, 2005

Summary

Present challenge: No common reference system for hydrographic or navigational tasks

Solution: EVRS as a reference system

Implementation by 2020

Expected benefits of common EVRS-based reference system:

- Easier, safer and more efficient shipping and navigation
- Wider use of a bathymetric data
- Nautical charts and topographical maps in same system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Thank You!