



ILMATIETEEN LAITOS  
METEOROLOGISKA INSTITUTET  
FINNISH METEOROLOGICAL INSTITUTE

# S-104 & S-111 in the Baltic Sea

IHO's standards for sea level (S-104)  
and currents (S-111) in the Baltic Sea.

26.3.2025 Anni Jokiniemi



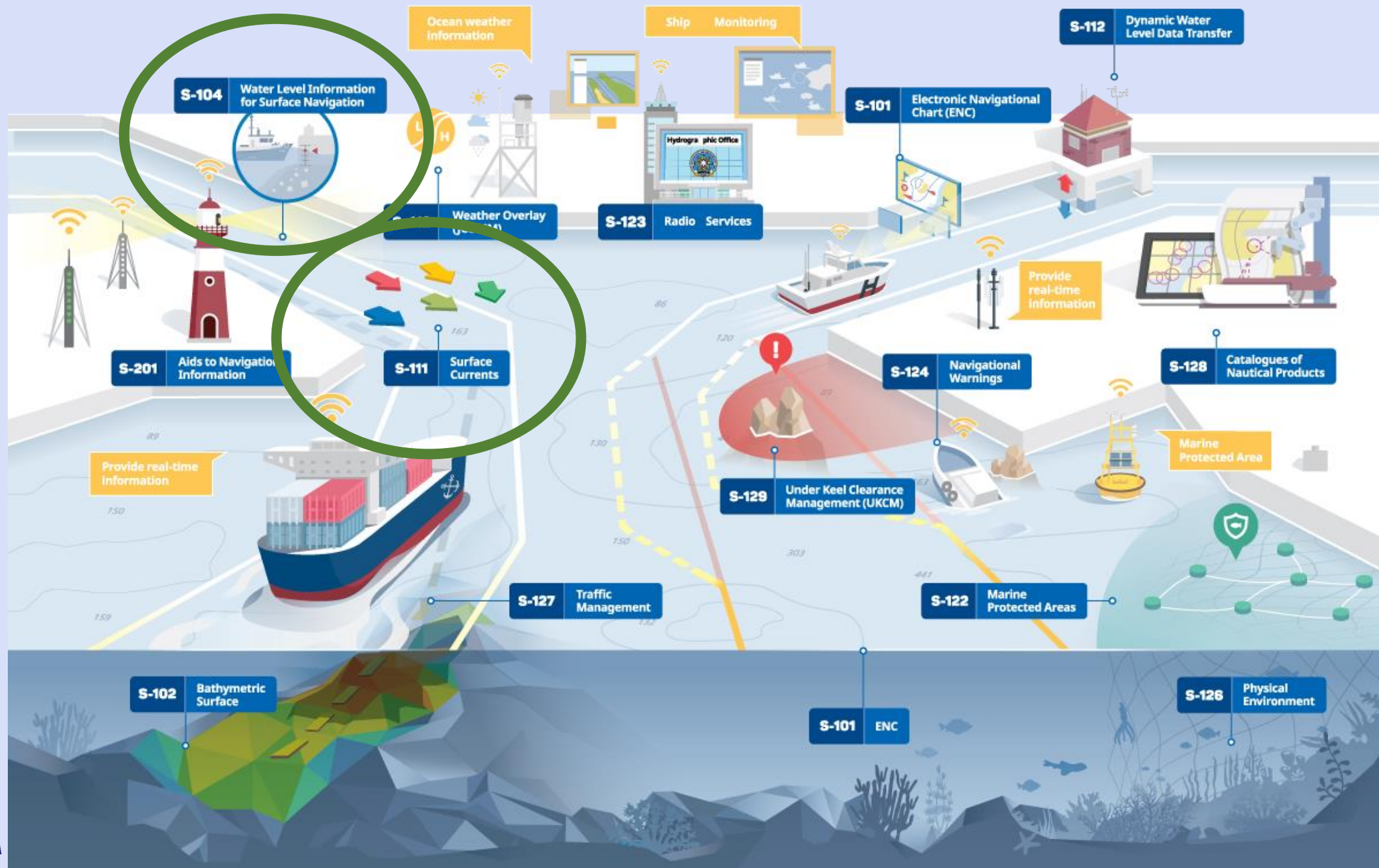
# S-104 and S-111 – what are they?

- ECDIS = Electronic Chart Display and Information System
  - Mandatory in all vessels over 3000 GT
  - Data standardized by IHO (International Hydrographic Organization)
  - **Now:** the data standard is S-57
    - Static data of nautical charts etc.
  - **Future:** 2026 -> the data standard is S-100
    - Nautical charts
    - Weather/ocean data that is updated every hour for example





# S-100 world



# Baltic Sea e-Nav

- A project to start the implementation of the S-100 products in the Baltic Sea
- Transnational cooperation: Partners from almost all Baltic Sea countries.
  - Mainly hydrographic offices, developing S-101 (ENC) and S-102 (Bathymetry) products
  - Finnish Meteorological Institute as the only oceanographic service in the project is also responsible to arrange co-operation to other providers of oceanographic data in the Baltic.
    - Developing S-104 and S-111



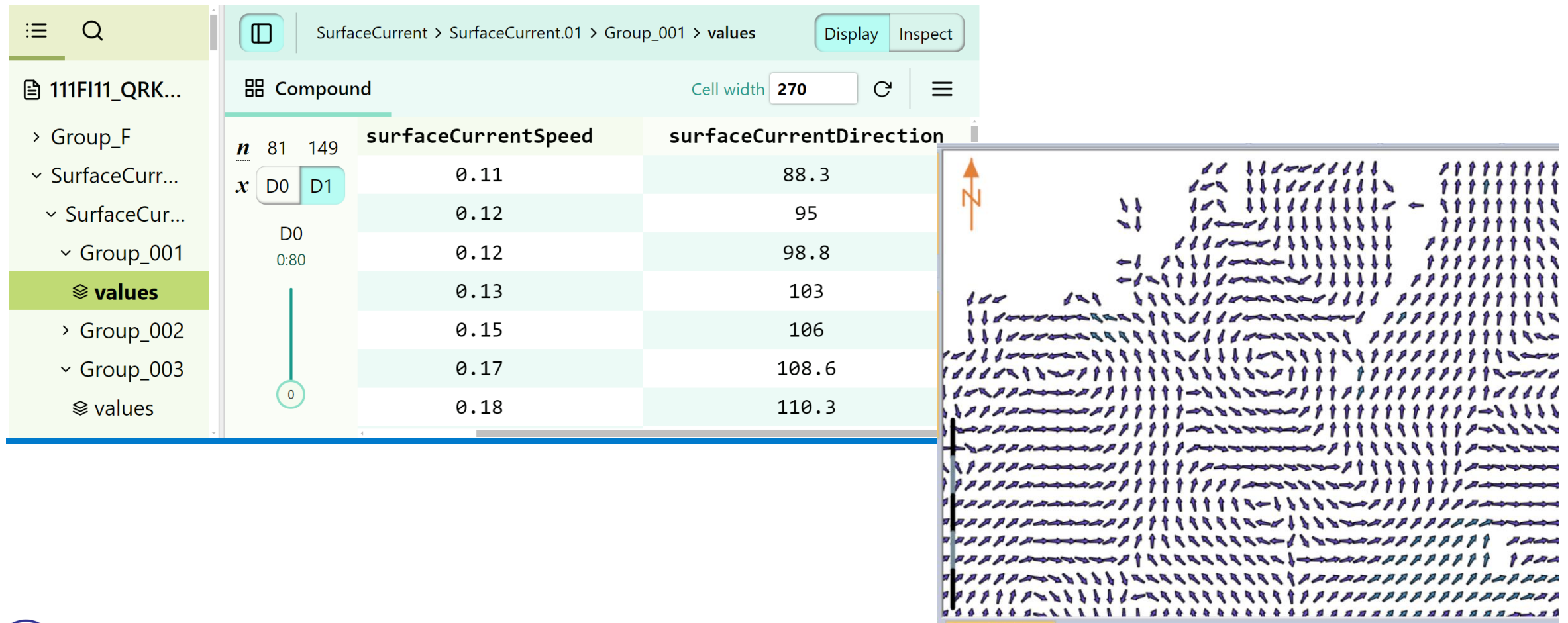


# S-104 / S-111 data package include

- Hdf5-file: the data itself
- XML-file: Catalog (metadata)
- Signature file

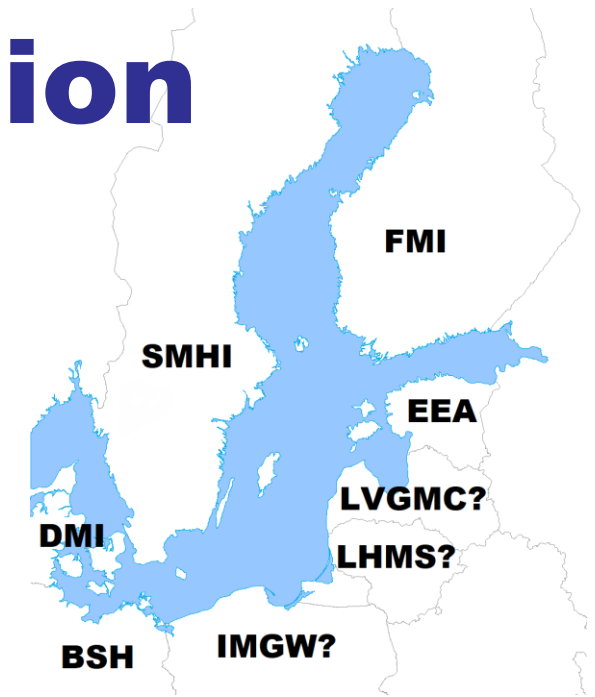


# Test files have been created: for example S-111



# Co-operation & Harmonization

- Many potential data providers in the Baltic Sea region.
- To serve maritime operators best, is it possible to co-operate with S-104 and S-111?
- Letter sent to all possible contacts in January.



Sweden	Finland	Estonia	Latvia	Lithuania	Poland	Germany	Denmark	Norway
SMHI	FMI	EEA	LVGMC	LHMS	IMGW	BSH	DMI	?
Sveriges meteorologiska och hydrologiska institut	Ilmatieteen laitos	Keskkonnaagentuur	Latvijas Vides, ģeoloģijas un meteoroloģijas centrs	Lietuvos hidrometeorologijos tarnyba	Instytut Meteorologii i Gospodarki Wodnej	Bundesamt für Seeschifffahrt und Hydrographie	Danmarks Meteorologiske Institut	

# Co-operation & Harmonization

- Common rules needed in the Baltic Sea area?
- Task to CDWCWG to write a harmonization document
  - Example: BSHC's harmonization document to ENC
- What could or should be harmonized or agreed?
  - Reference system used in sea level?
  - Model used?
  - Interpolation method of the observations to a grid?
  - How the products are delivered?
  - Quality and uncertainty of the data?
  - Else?





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# Thank you!

More info:

- IHO:  
<https://iho.int/en/introduction-0>
- Baltic Sea e-Nav –project:  
<https://interreg-baltic.eu/project/baltic-sea-e-nav/>
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