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METEOROLOGISKA INSTITUTET
FINNISH METEOROLOGICAL INSTITUTE

Finland wave measurement network

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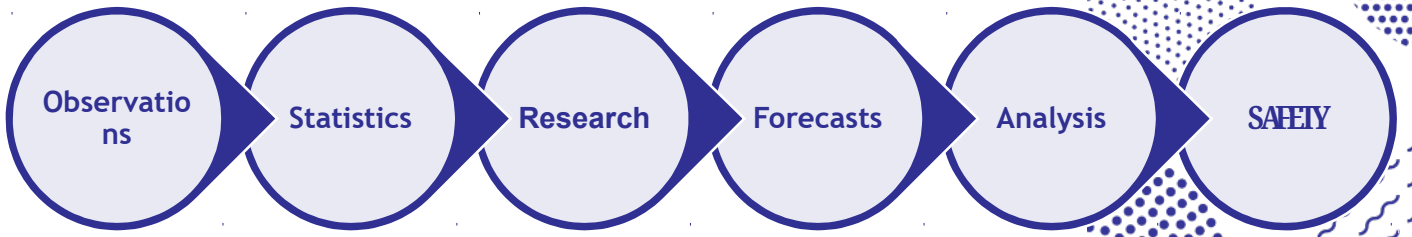
Waves at FMI

Where we use wave measurements

- Marine warnings
- Sea state monitoring
- Wave modelling
- Wave research

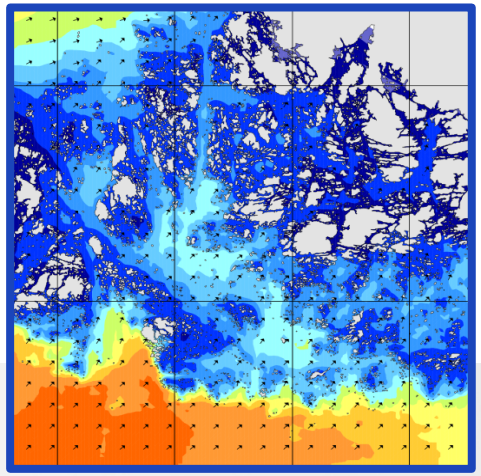
Our main area of interest area is the Baltic Sea



FMI’s wave products

Observations

Forecasts



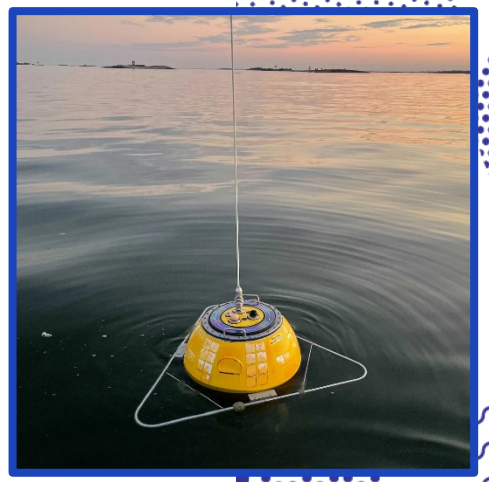
Warnings

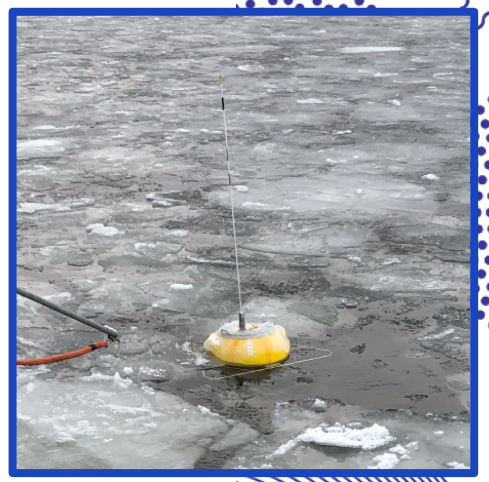
FMI wave buoys

- Presently FMI operates 5 wave buoys
  1. Baltic Proper (since 1996)
  2. Gulf of Finland (since 2001)
  3. Sea of Bothnia (since 2011)
  4. Bay of Bothnia (since 2012)
  5. Helsinki (since 2016)
- additional long term research buoy east of Gotland and short-term research measurements at different locations.
- The northern parts of the Baltic Sea are ice covered appoximately 150 days a year. When there is a risk of ice, the buoys are recovered. The maintenance work is usually done during these measurement breaks.
- Wave measurements at different locations in Finnish waters have been made since 1973.

FMI wave buoy instruments

- Long-term measurements
  - Datawell Directional Waverider 70 or 90 cm
    - Acceleration-based
    - DWR Mk III: directional wave data and SST
    - DWR 4: directional wave data, SST, surface currents, Ta
  - Transmission: Iridium SBD, HF radio and GSM data transmissions
- Short term measurements
  - Directional Waverider G4, 40 cm
    - Measurements and transmission: GSM
- Service cycle
  - Most of the buoys are serviced approx. every six months
  - Calibration interval 6 years at the manufacturer
  - Deployments, services and recoveries are made by FMI's own staff with vessels of governmental institutes (Environmental institute, coast guard, fire dept.)





FMI wave measurement dataset's

- In addition to the integral parameters Hs, Tp, mean direction at the peak and it spreading and SST, the spectral data and displacement timeseries are stored for research purposes.
- The basic parameters since 2005 are available from the FMI open data portal in real time
- Data delivery to Copernicus Marine Services, exchange with Baltic Operational Oceanographic System (BOOS).
- Yearly wave statistics are published in HELCOM BSEFS together with SMHI and BHS.

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