



BOOS News relevant for CDWG

BOOS Representative in CDWG

Thomas Hammarklint

Thomas.Hammarklint@sjofartsverket.se

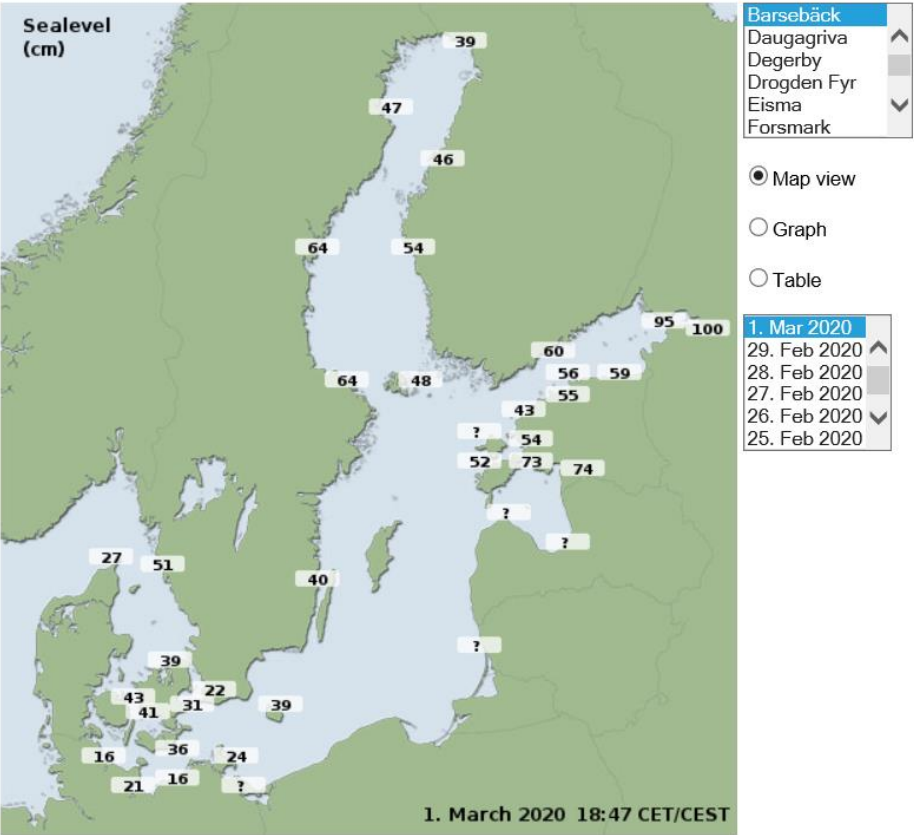
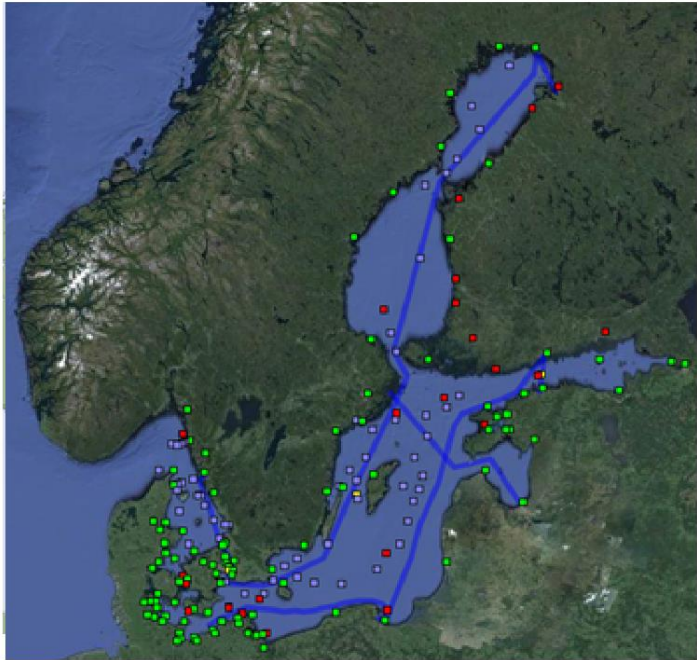
CDWG12 Gdynia 2020-03-03

BOOS Sea Level Products



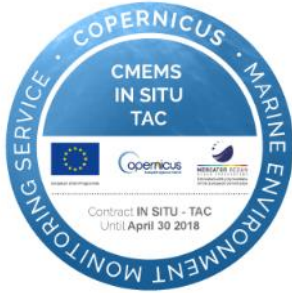
| HOME | PRODUCTS | REPORTS | HIROMB | PROJECTS | BACKGRND | EVENTS | DATA | LINKS | NEWSLETTER |
|---------------|-----------|---------|--------------|----------|-------------------|--------|------|-------|------------|
| Observations | Forecasts | Models | Member prod. | | | | | | |
| BOOS Stations | Currents | Waves | Sealevels | SST | Vertical profiles | Algae | ICE | | |

BOOS Stations



Copernicus Marine Environmental Monitoring Service (CMEMS)

INSTAC – In-situ observations



INSTAC objectives

- Provide oceanographic in-situ observations from European Seas
 - Both real-time and delayed mode data
 - Sealevel data from ~ 200 tide gauges is provided from the Baltic Sea
- Harmonized data format (NetCDF) and vocabularies (CF)
 - Implement routines for quality control (QC) on the data
 - Cooperation with EuroGOOS Tide Gauge Task Team (TGTT)

BOOS Data Portal



■ 200 Tide gauges



■ 20 Fixed platforms

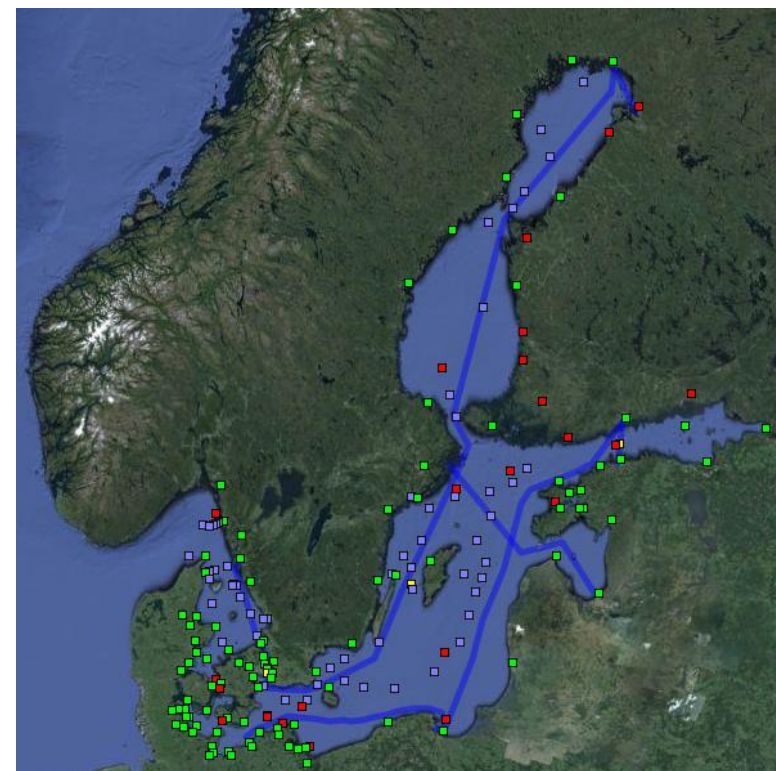


■ 20 Moored buoys

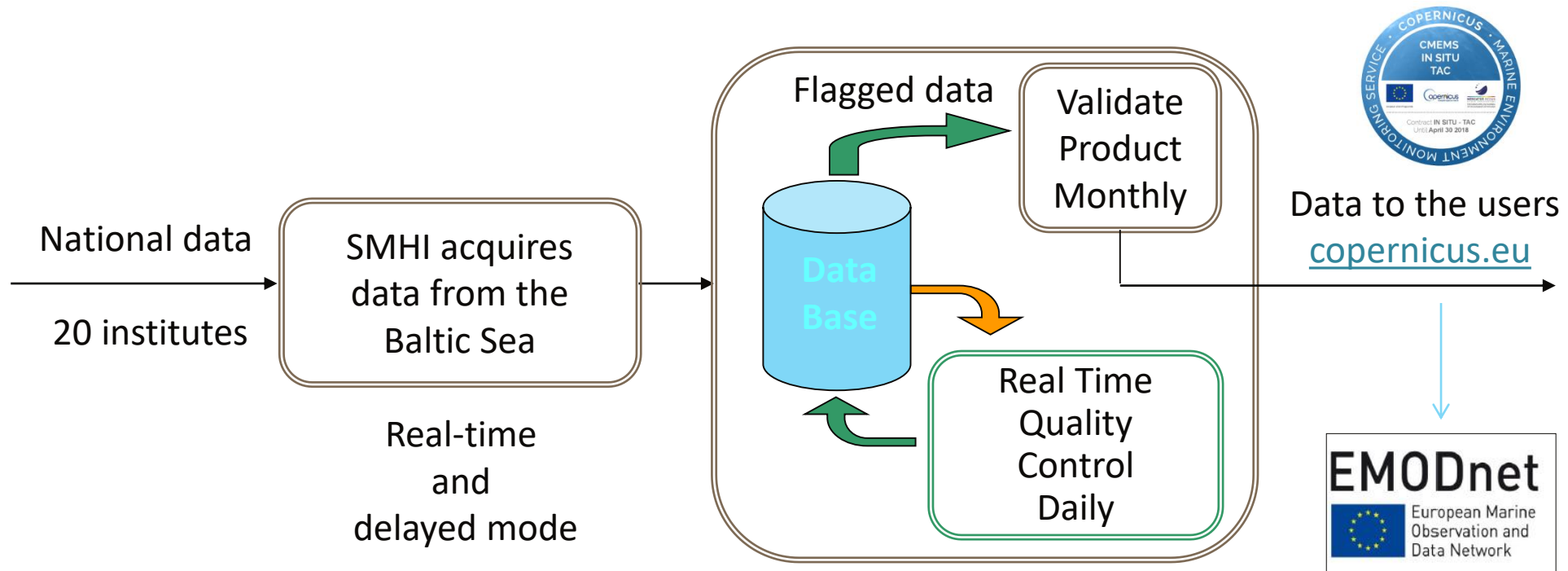


— 10 Ferryboxes + 5 Ice-breakers

■ >1000 Monitoring stations



Schematic data flow



Cooperation BSHC-BOOS

MoU - Memorandum of understanding, signed 2014

Memorandum of Understanding
between BOOS and BSHC
on transition to a harmonised vertical reference
on the Baltic Sea

Noting that

- the IHO Baltic Sea Hydrographic Commission Conference (BSHCC19) has approved the goal to have a harmonised vertical reference on Baltic Sea for all water level and depth related information (e.g. tides, mareographs, interpolation and prediction of water levels, nautical charts). Chart datum Working Group was established to promote transition to the harmonised vertical reference which will be based on the European Vertical Reference System,
- the Baltic Oceanographic Observation System (BOOS) has a similar goal to have a harmonised vertical reference based on European Vertical Reference System on Baltic Sea,
- and both organisations expect that there will be many benefits with mutual co-operations and other relevant bodies

both organisations agree to co-operate on the transition to a common vertical reference for depth and water level information, with the aim to avoid duplication of work and to maximize mutual assistance.

Signatures

Tallinn, 30 June 2014


Urmas Lips
BOOS Chair

Riga, 12 June 2014


Taivo Kivimäe
BSHC Chair

Mean Sea Level

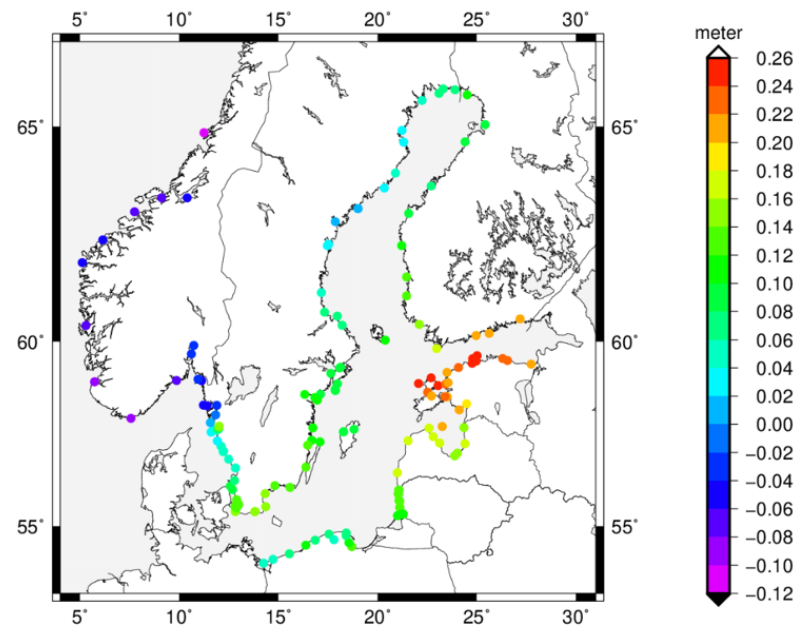




Fig. 4b: Differences between the reference levels of the old national chart datums with respect to Baltic Sea Chart Datum (BSCD2000). In Sweden and Finland, the old reference levels are equal to Mean Sea Level transferred to year 2019 (according to different national conventions). The values from Norway shows the Mean Sea Level over the period 1996-2014, relative NN2000/BSCD2000. In Estonia, Latvia, Lithuania and Poland, the Kronstadt reference level is used as old chart datum. Notice how postglacial rebound reduces the magnitude of the mean sea level in the Bay of Bothnia; it is now just a few cm near the land uplift maximum.



BOOS SEALEVEL STATIONS 2020

Mean sealevel (MSL) in different height systems

MSL based upon regression analysis since measurement start (Sweden)

2020-02-28

BSCD2000 = Baltic Sea Chart Datum 2000, heights referred to Amsterdam (NAP)

RH2000 = Swedish Height System 2000, heights referred to Amsterdam (NAP)

* = Correction of provided sea level data to Baltic Sea Chart Datum 2000 (BSCD2000)

| COUNTRY | OWNER | NR | STATION NAME | LAT | LO | BSCD2000 RH2000 cm | Apparent landuplift cm/year | Correction* to BSCD2000 m |
|---------|-------|------------|-------------------------|---------|---------|--------------------------|-----------------------------------|------------------------------------|
| SWEDEN | SMHI | 2588/33088 | Haparanda discontinued | 65.7717 | 23.9031 | 6.8 | 0.72 | 0.066 |
| SWEDEN | SMA | 59/35103 | KALIX KARLSBORG | 65.7889 | 23.3033 | 6.8 | 0.72 | 0.068 |
| SWEDEN | SMHI | 2157/33051 | KALIX STORÖN | 65.6969 | 23.0961 | 6.0 | 0.73 | 0.060 |
| SWEDEN | SMA | 115/35183 | STRÖMÖREN | 65.5497 | 22.2383 | 5.1 | 0.75 | 0.051 |
| SWEDEN | SMHI | 2055/33052 | FURUÖGRUND | 64.9158 | 21.2306 | 1.3 | 0.82 | 0.013 |
| SWEDEN | SMA | 40/35240 | GÄSÖREN | 64.6786 | 21.2492 | 1.6 | 0.82 | 0.016 |
| SWEDEN | SMHI | 2056/33053 | RATAN | 63.9861 | 20.8950 | 3.2 | 0.80 | 0.032 |
| SWEDEN | SMA | 57/35124 | HOLMSUND | 63.6958 | 20.3472 | 2.2 | 0.80 | 0.022 |
| SWEDEN | SMHI | 2321/33054 | Skapudde discontinued | 63.1906 | 19.0125 | 0.4 | 0.80 | 0.004 |
| SWEDEN | SMA | 110/35138 | SKAGSÖUDE2 | 63.1906 | 19.0125 | 0.4 | 0.80 | 0.004 |
| SWEDEN | SMA | 172/35209 | LUNDE | 62.8806 | 17.8764 | 0.9 | 0.77 | 0.009 |
| SWEDEN | SMHI | 2062/33074 | Dråghällan discontinued | 62.3333 | 17.4667 | 1.4 | 0.74 | 0.014 |
| SWEDEN | SMHI | 2061/33055 | SPIKARNA | 62.3633 | 17.5311 | 1.4 | 0.74 | 0.014 |
| SWEDEN | SMA | 66/35166 | LIUSNE ORRSKÄRSKAJEN | 61.2069 | 17.1456 | 4.1 | 0.64 | 0.041 |
| SWEDEN | SMA | 33/35119 | BÖNAN | 60.7386 | 17.3186 | 5.6 | 0.58 | 0.056 |
| SWEDEN | SMHI | 2067/33075 | Björn discontinued | 60.6333 | 17.9667 | 6.2 | 0.56 | 0.062 |
| SWEDEN | SMHI | 2179/33056 | FORSMARK | 60.4086 | 18.2108 | 6.8 | 0.53 | 0.068 |
| SWEDEN | SMA | 67/35154 | LOUDDEN | 59.3389 | 18.1372 | 8.8 | 0.38 | 0.088 |
| SWEDEN | SMHI | 2069/33057 | STOCKHOLM | 59.3242 | 18.0819 | 8.9 | 0.38 | 0.089 |
| SWEDEN | SMA | 71/35113 | NYNÄS FISKEHAMN | 58.9175 | 17.9722 | 8.4 | 0.31 | 0.084 |
| SWEDEN | SMHI | 2507/33058 | LANDSORT NORRA | 58.7689 | 17.8589 | 8.6 | 0.29 | 0.086 |
| SWEDEN | SMHI | 2073/33076 | Landsort discontinued | 58.7500 | 17.8667 | 8.6 | 0.29 | 0.086 |
| SWEDEN | SMA | 34/35185 | E4 BRON SÖDERTÄLJE | 59.1847 | 17.6428 | 8.5 | 0.33 | 0.085 |
| SWEDEN | SMA | 10/35118 | OXELÖSUND VINTERKLASEN | 58.6617 | 17.1247 | 9.6 | 0.26 | 0.096 |
| SWEDEN | SMA | 58/35101 | JUTEN | 58.6342 | 16.3247 | 10.0 | 0.25 | 0.100 |
| SWEDEN | SMHI | 2076/33059 | Marviken discontinued | 58.5536 | 16.8372 | 10.0 | 0.25 | 0.100 |
| SWEDEN | SMHI | 2545/33085 | ÄRKÖ | 58.4842 | 16.9606 | 10.0 | 0.25 | 0.100 |
| SWEDEN | SMA | 93/35151 | VÄSTERVIK | 57.7483 | 16.6753 | 11.2 | 0.16 | 0.112 |
| SWEDEN | SMA | 81/35114 | SLITE | 57.7058 | 18.8100 | 9.1 | 0.12 | 0.091 |
| SWEDEN | SMHI | 2080/33060 | VISBY | 57.6392 | 18.2844 | 9.1 | 0.12 | 0.091 |
| SWEDEN | SKB | 77/35200 | SIMPEVARP | 57.4103 | 16.6758 | 11.8 | 0.12 | 0.118 |
| SWEDEN | SMHI | 2083/33061 | ÖLANDS NORRA UDDE | 57.3661 | 17.0972 | 11.7 | 0.12 | 0.117 |
| SWEDEN | SMHI | 2085/33062 | OSKARSHAMN | 57.2750 | 16.4781 | 12.1 | 0.10 | 0.121 |
| SWEDEN | SMA | 60/35105 | KALMAR | 56.6589 | 16.3783 | 12.6 | 0.06 | 0.126 |
| SWEDEN | SMHI | 2088/33063 | KUNGSÖLMSFORT | 56.1053 | 15.5894 | 13.3 | 0.01 | 0.133 |
| SWEDEN | SMA | 61/35131 | KARLSHAMN | 56.1542 | 14.8214 | 13.8 | -0.01 | 0.138 |
| SWEDEN | SMHI | 2543/33083 | Ähus discontinued | 55.9283 | 14.3286 | 15.0 | -0.05 | 0.150 |
| SWEDEN | SMHI | 2320/33064 | SIMRISHAMN | 55.5575 | 14.3578 | 15.9 | -0.08 | 0.159 |
| SWEDEN | SMHI | 2093/33078 | Ystad discontinued | 55.4167 | 13.8167 | 15.7 | -0.07 | 0.157 |
| SWEDEN | SMA | 94/35159 | YSTAD2 | 55.4167 | 13.8167 | 15.7 | -0.07 | 0.157 |

Thank you!



Thomas Hammarklint
Thomas.Hammarklint@sjofartsverket.se