

Ferrybox Work shop: Color Fantasy, 2017-10-17



# Merchant vessels facilitates enlargement of ferrybox observation systems in the Northern Europe

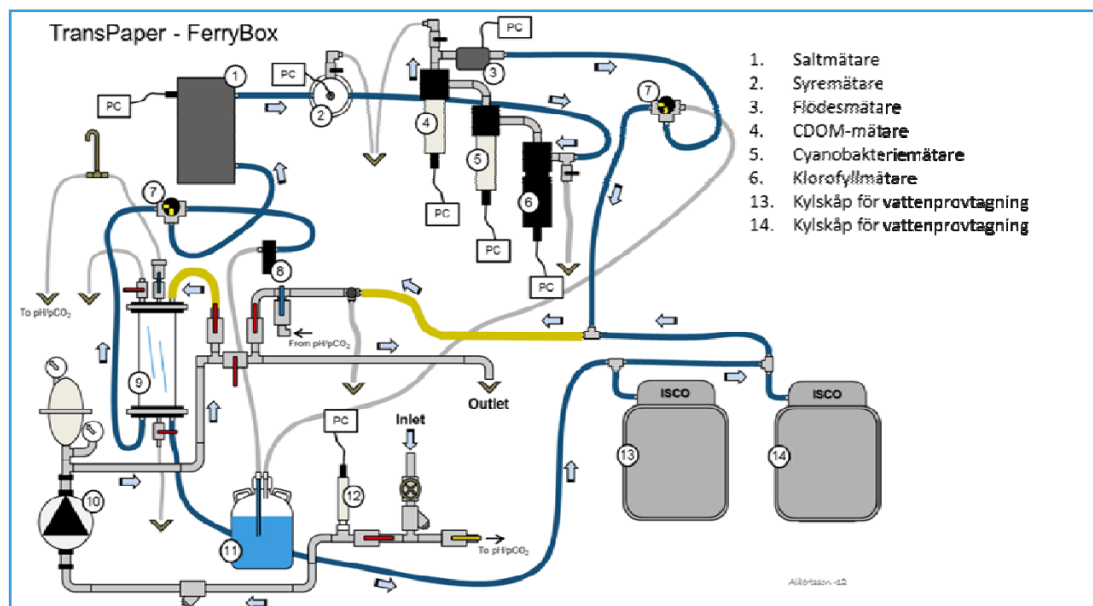
Anna Willstrand Wranne

Bengt Karlson, Johanna Linders, Johan Kronsell, Fredrik Waldh

Swedish Meteorological and Hydrological Institute, Sven Källfelts gata 15,  
426 71 Västra Frölunda, Sweden



# FerryBox on Tavastland







# pCO<sub>2</sub> on Tavastland

## Instrument:

- General Oceanics 8050
- Licor 7000

Installed on M/S Tavastland 2010

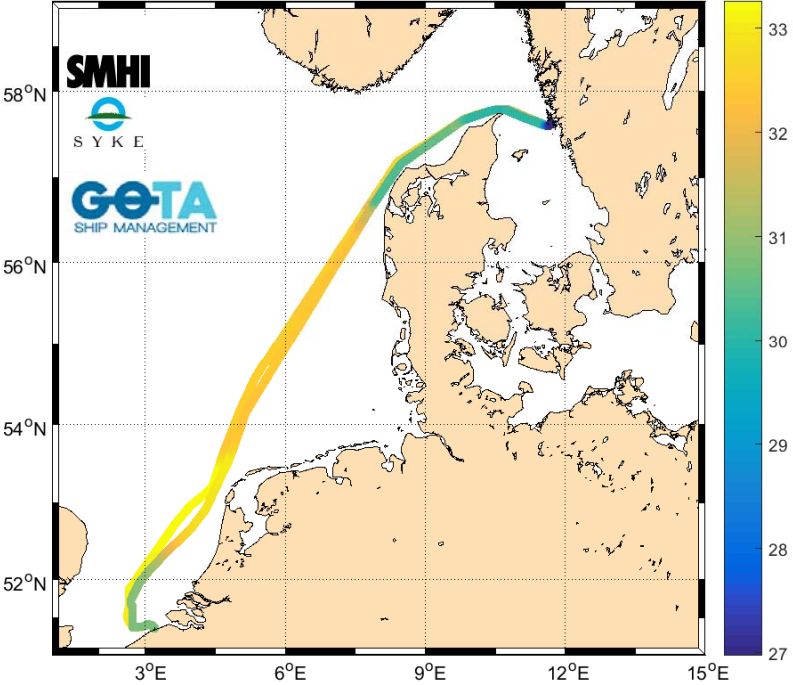


CO<sub>2</sub>-Reference gases on a deck above: 0, 250, 350, 450, 550 ppm

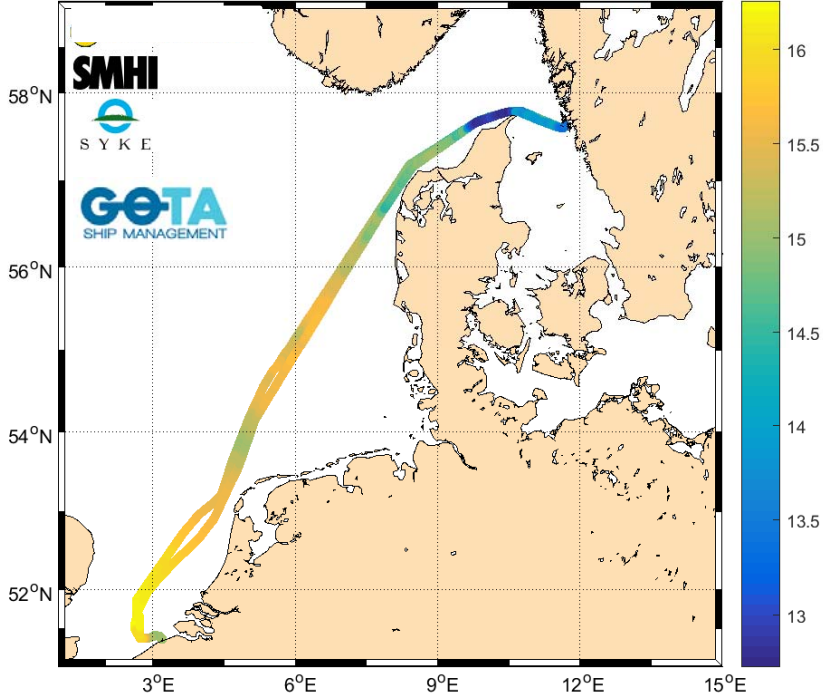
# Resultat Tavastland, October 12-16 2017



Salinity (PSU) TransPaper 2017-10-12 20:55:22 to 2017-10-16 03:52:07



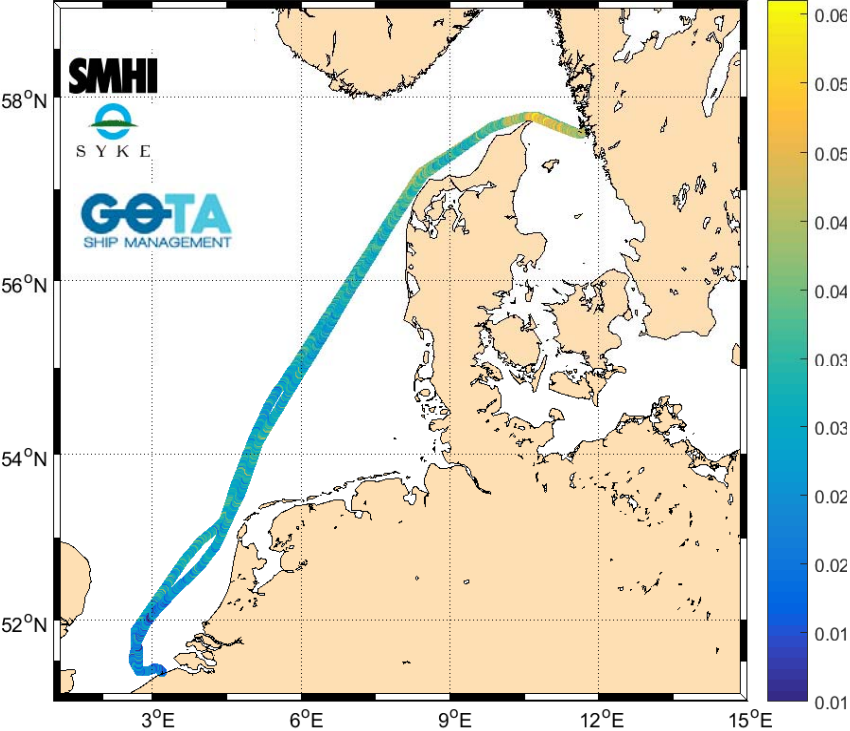
Temperature (°C) TransPaper 2017-10-12 20:55:22 to 2017-10-16 03:52:07



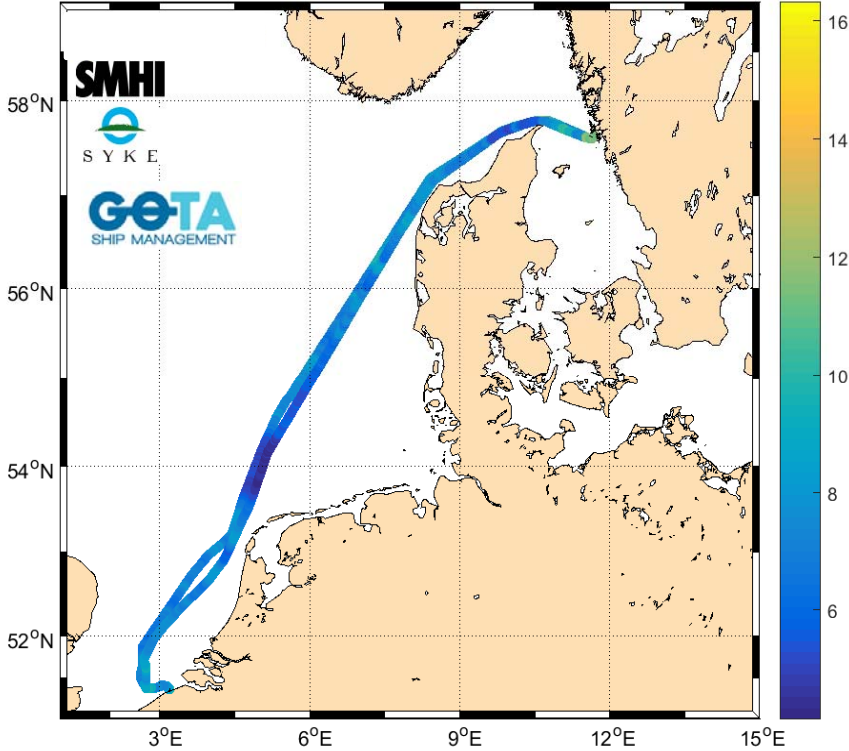
# Resultat Tavastland, October 12-16 2017



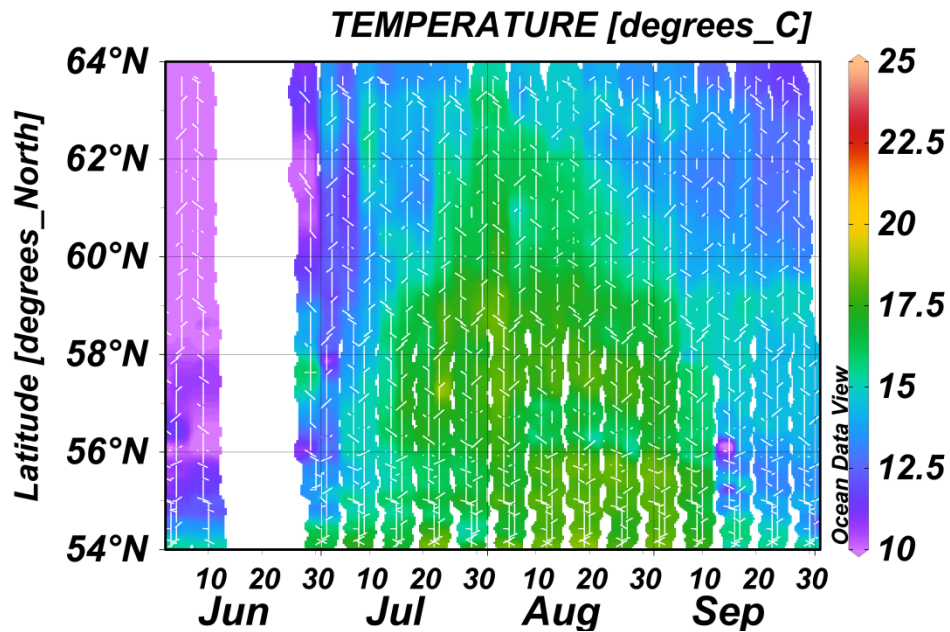
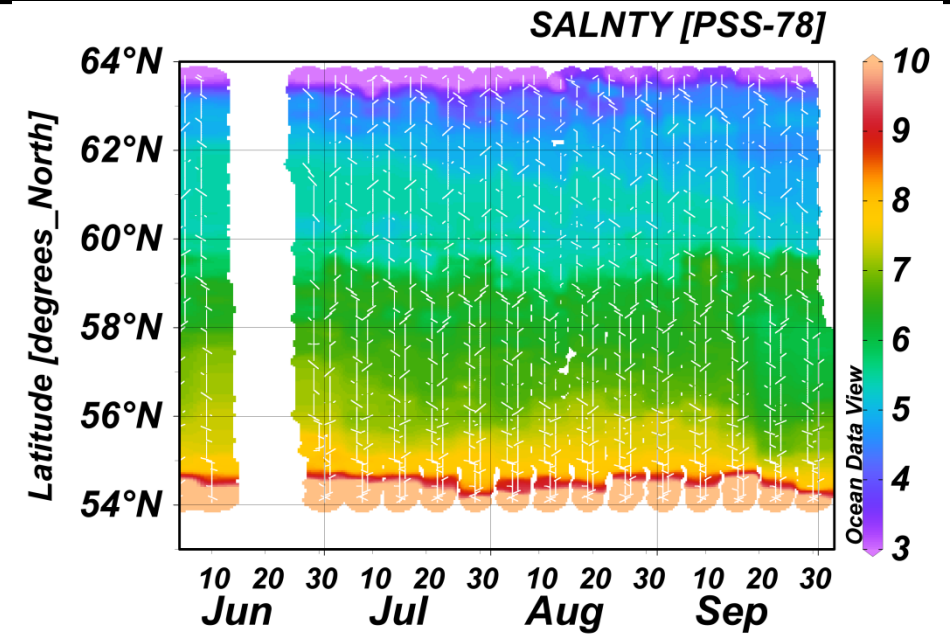
Phycoc. fluor. ( $\mu\text{g/l}$ ) TransPaper 2017-10-12 20:55:22 to 2017-10-16 03:52:07



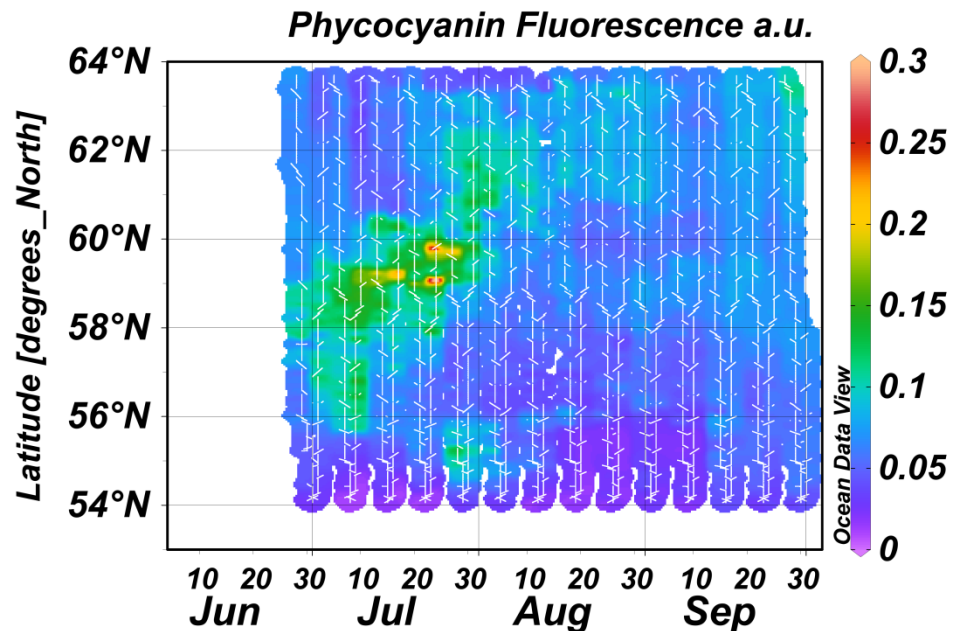
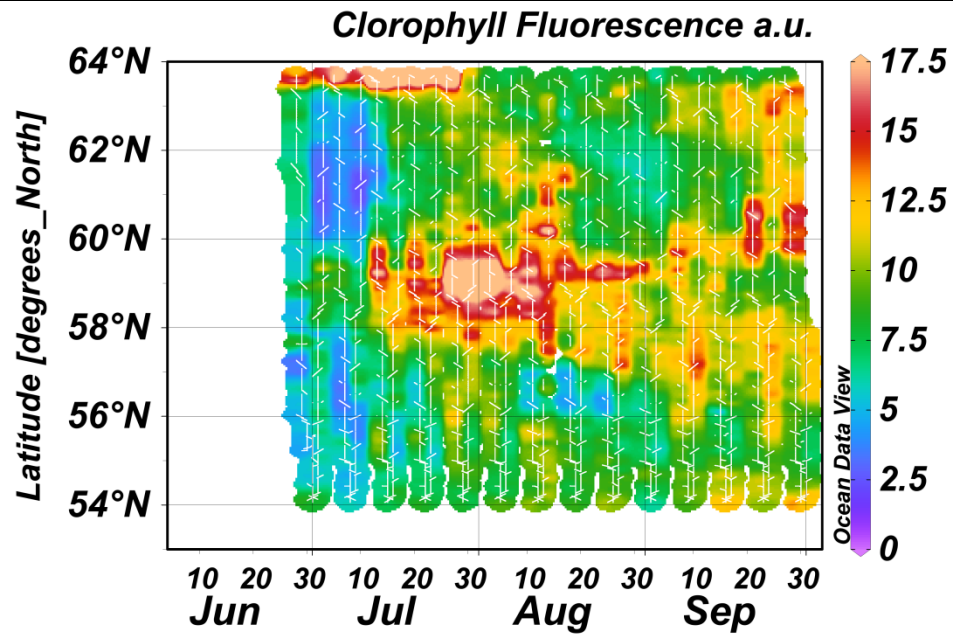
Chl. fluor. ( $\mu\text{g/l}$ ) TransPaper 2017-10-12 20:55:22 to 2017-10-16 03:52:07



# Resultat Tavastland, June - September 2017



# Resultat Tavastland, July – September 2017





# Stena Line

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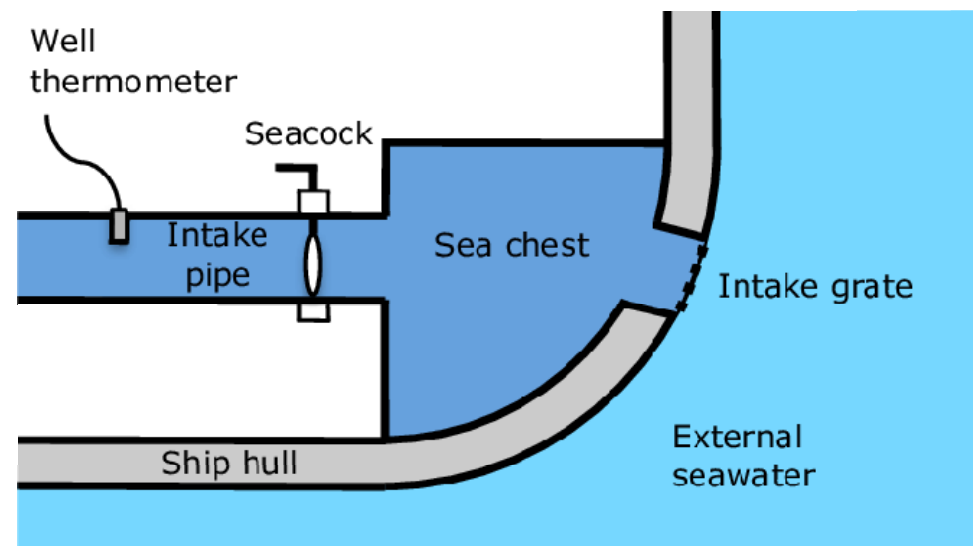
Stena Line have delivered data to SMHI since 1973 from the ferry line between Gothenburg and Fredrikshamn.

They did manual readings from their own SST measurements at 3 specified positions, and sent the results by letter or fax and later email.

During the autumn of 2016 we decided to modernise this and try to create a automatic dataflow.



- Stena Line has developed a Fuel Management System that collects data and measurements from different places on the vessels.
- One collected parameter is Sea Surface Temperature. A pt-100 sensor is placed at the intake of the cooling water to the engine.

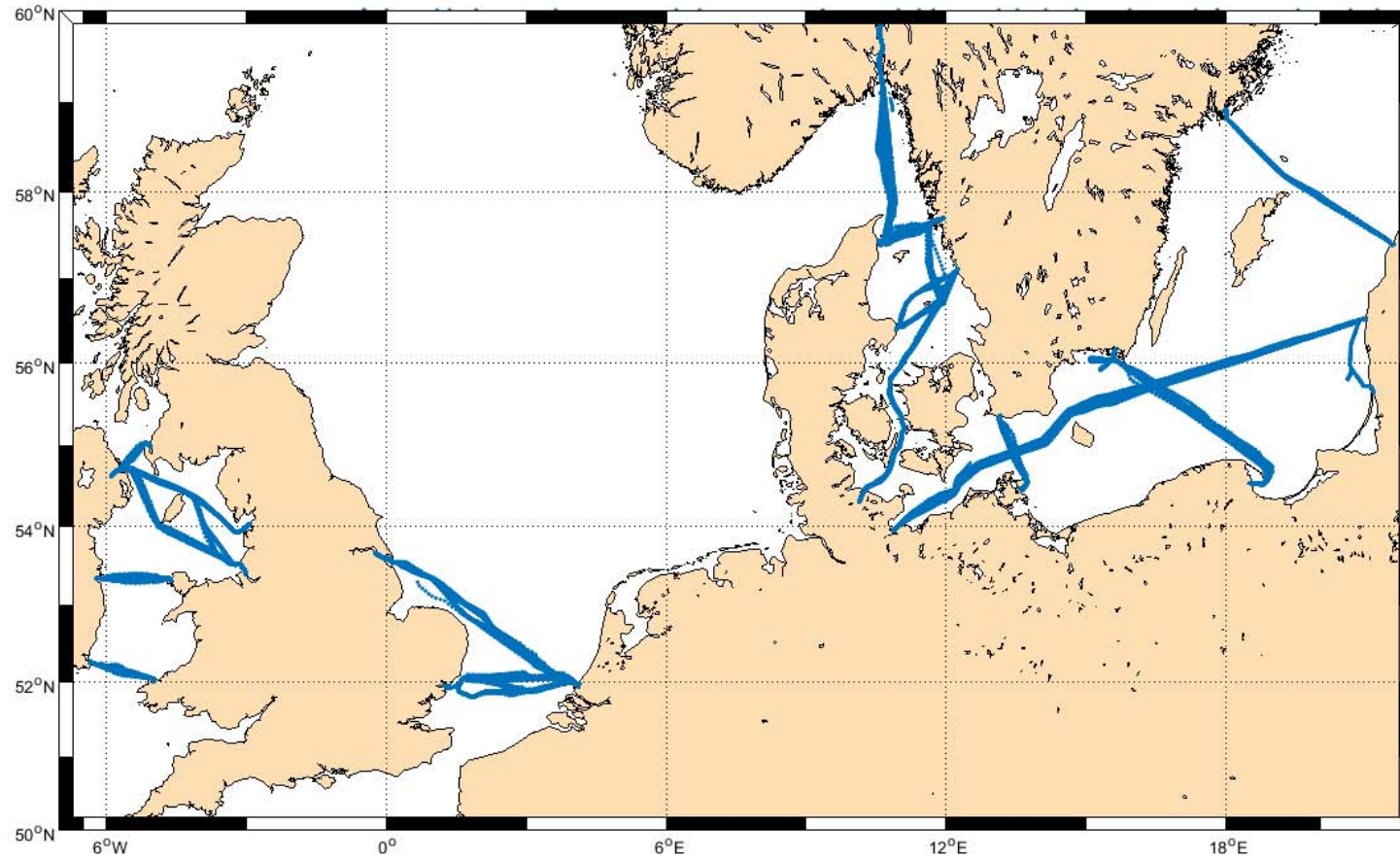


Picture: Comparing historical and modern methods of sea surface temperature measurements – Part 1.  
J.B.R Matthews, *Ocean Science* 2013

- Stena Line delivers data from 28 vessels around Europe
- Parameters delivered: SST, wind speed, wind direction, current speed and current direction
- Stena Line set up a script that delivers 10 minut average values every hour.
- Good dialogue with Stena Line but difficult to correct measurements when data is corrupted
- Automatic QC very important to avoid wrong data in modell assimilation

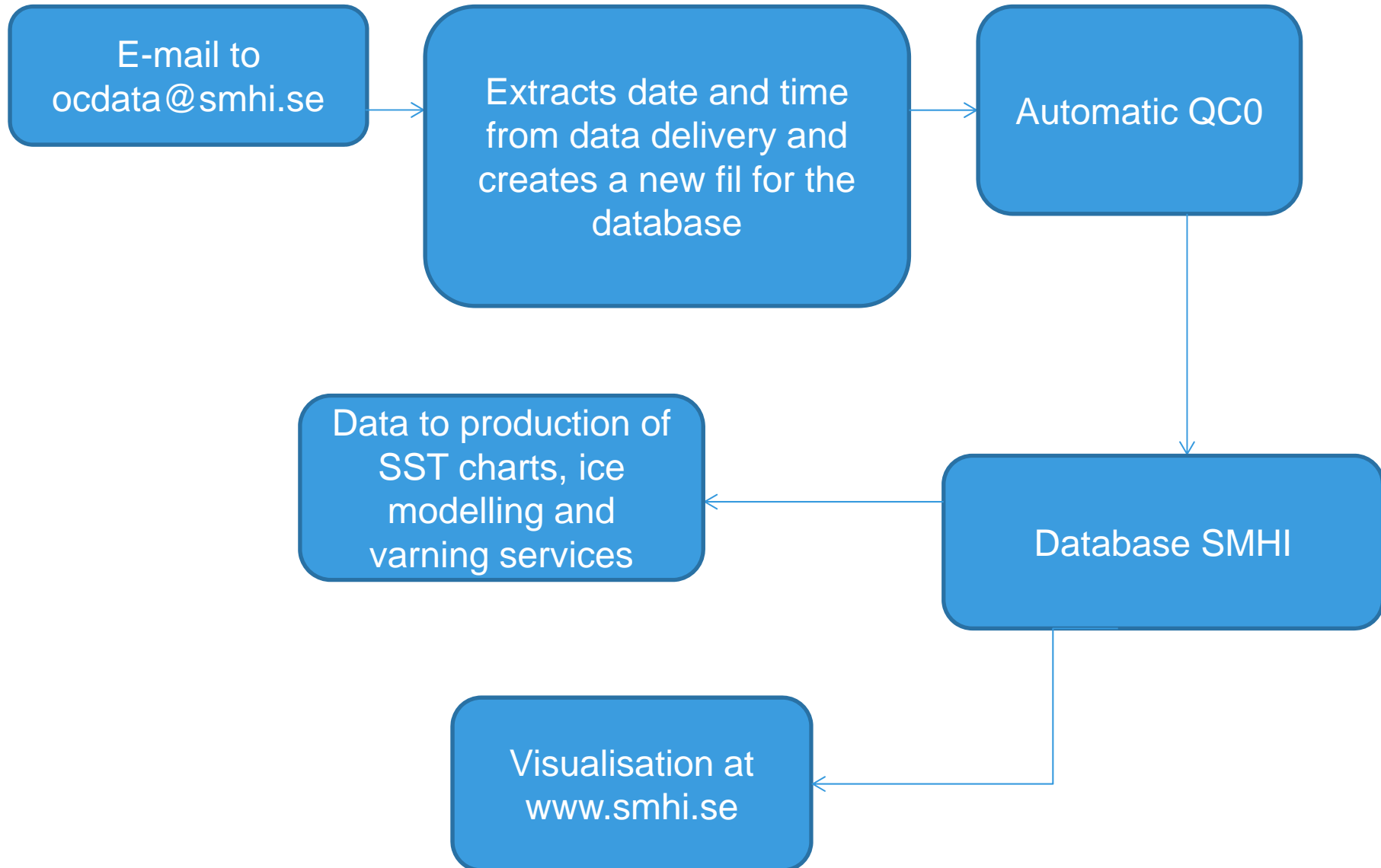


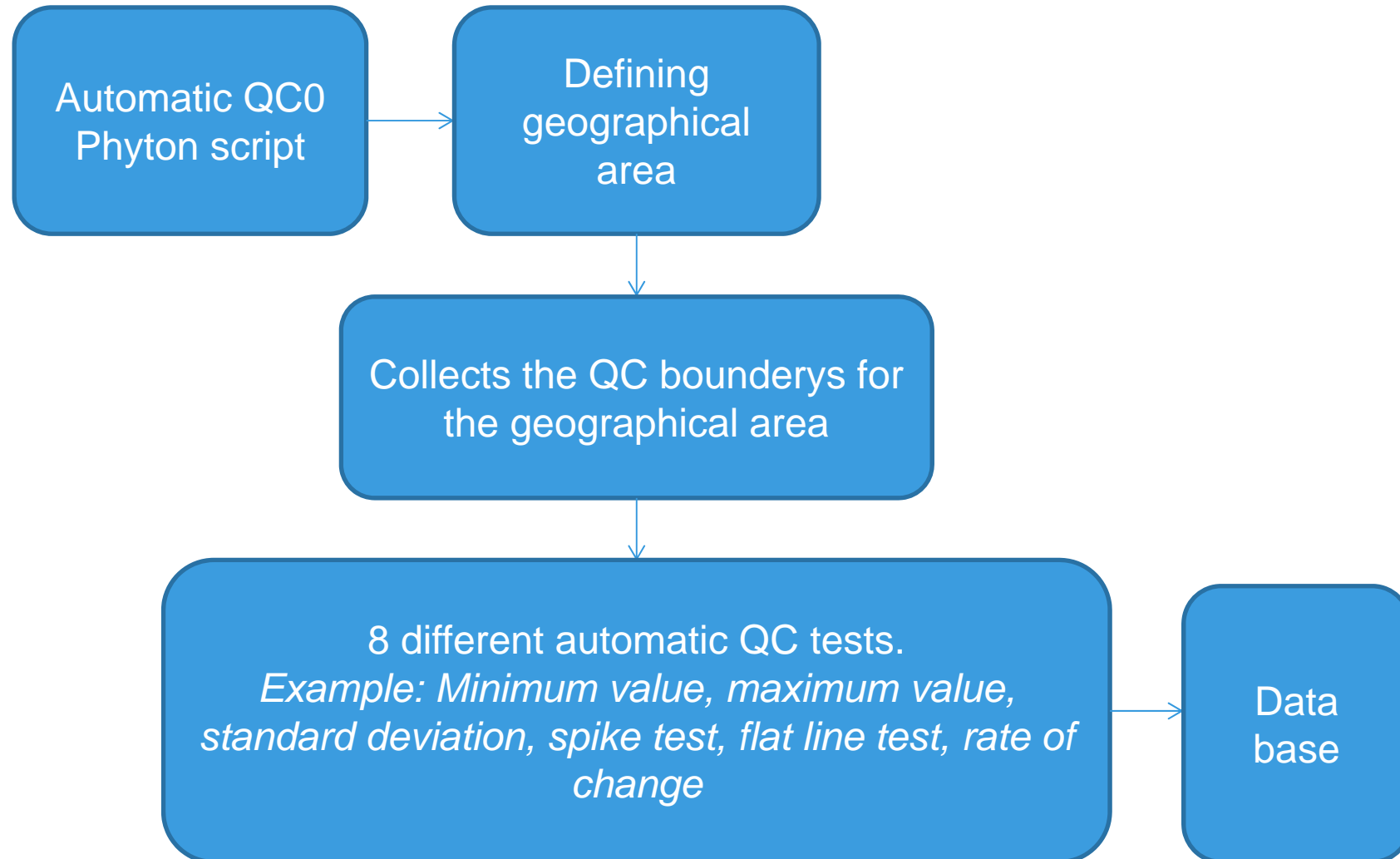
# Stena Line routes



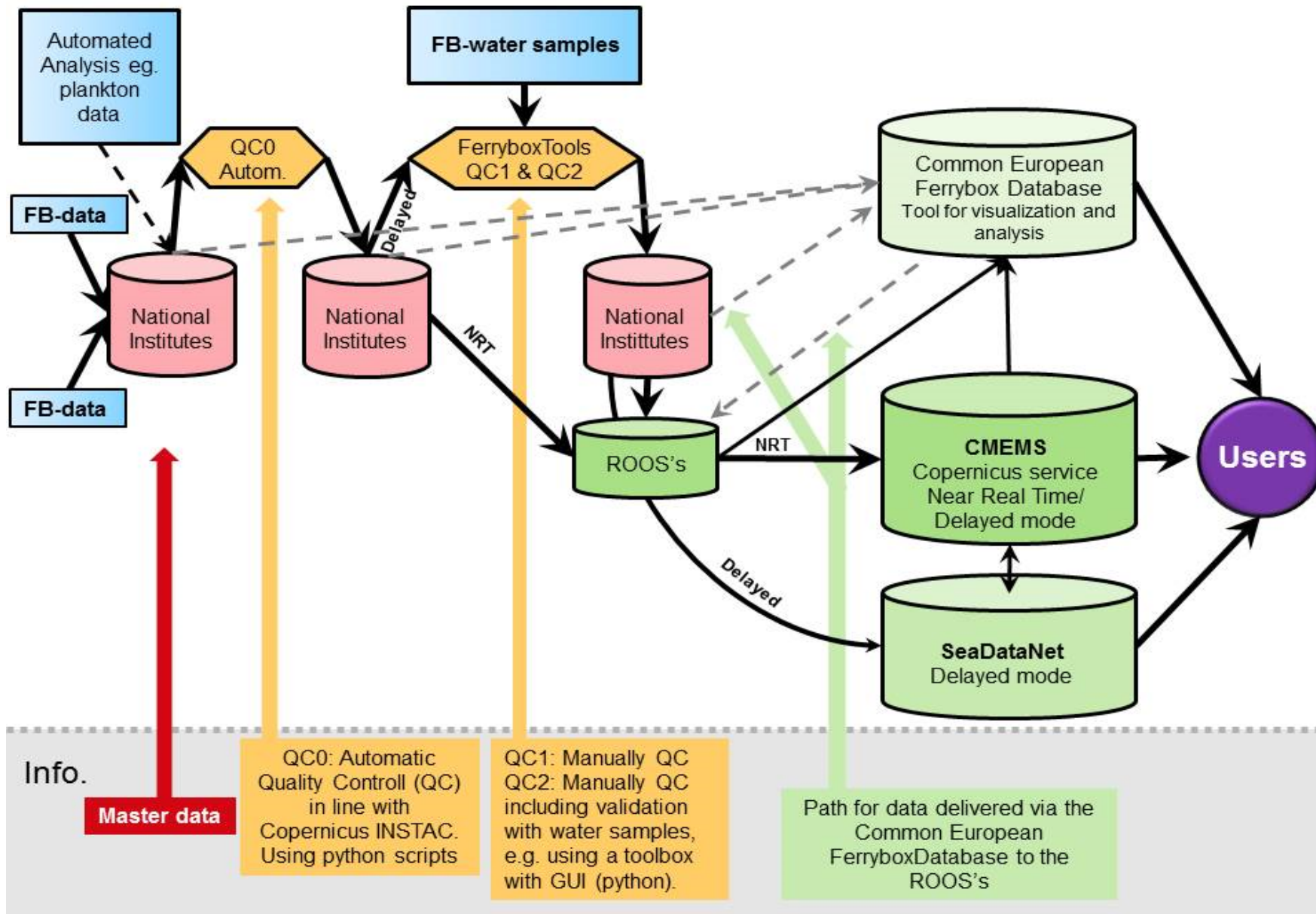


# Stena Line – data flow

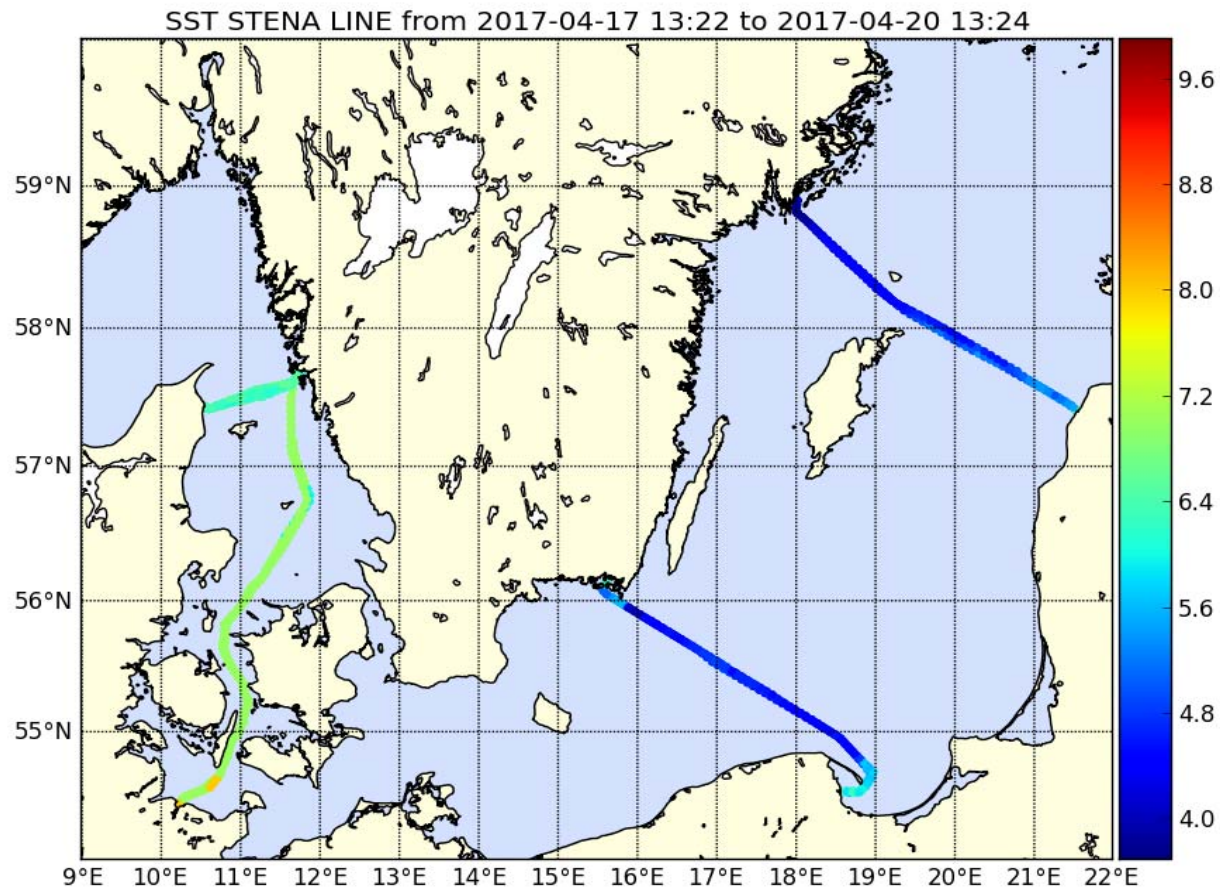




# Data flow for Near Real Time data

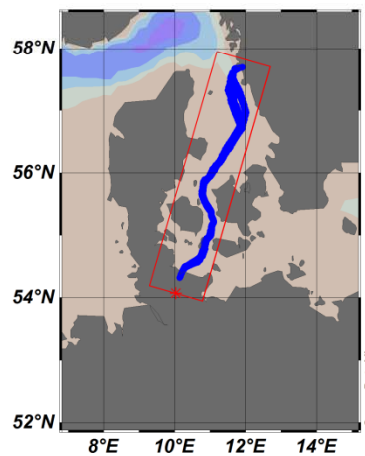
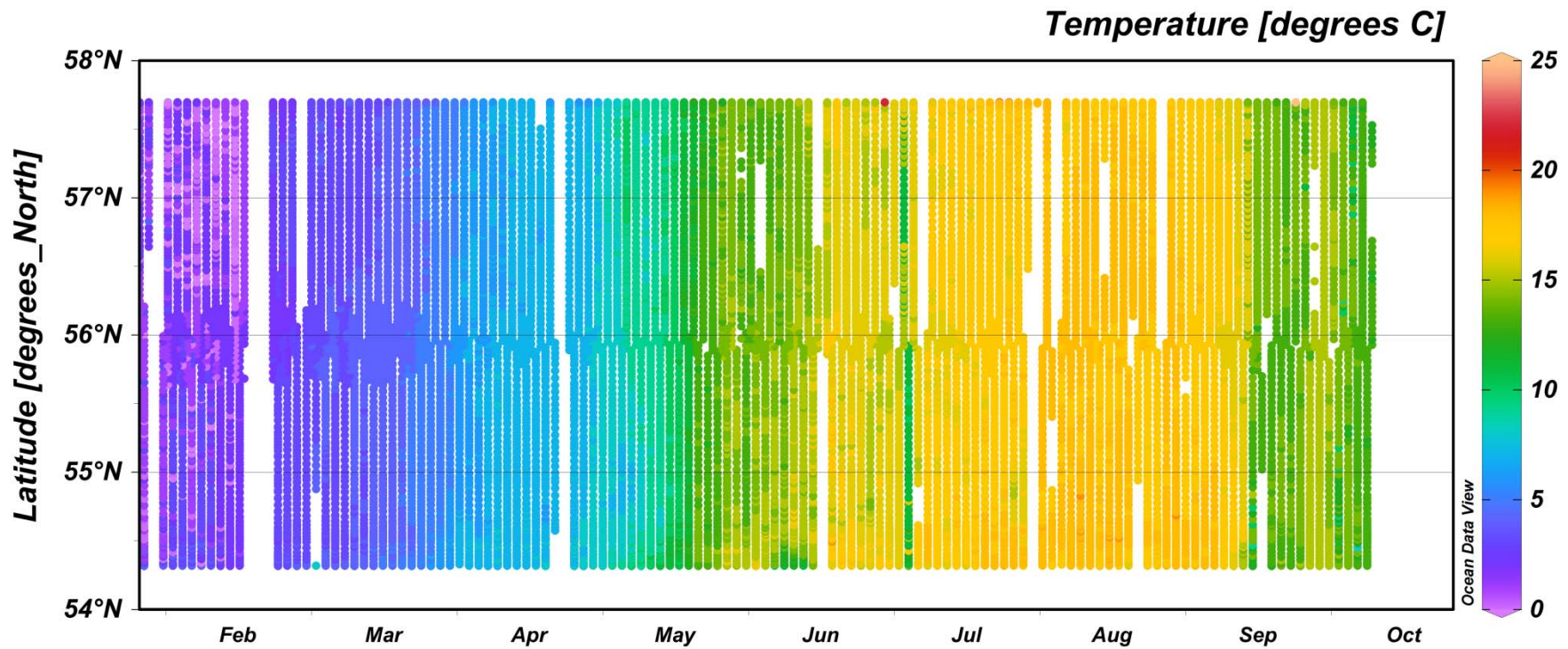


# Stena Line SST data, April 17-20,

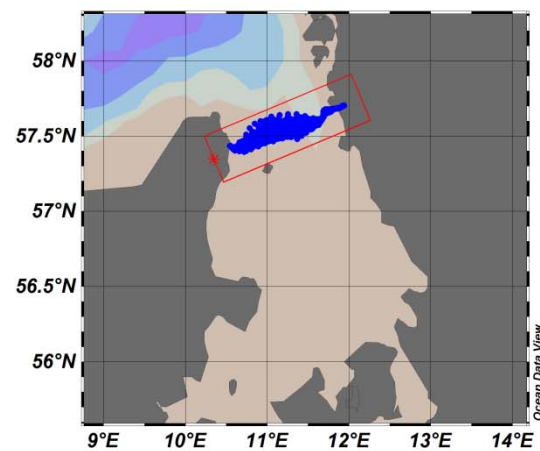
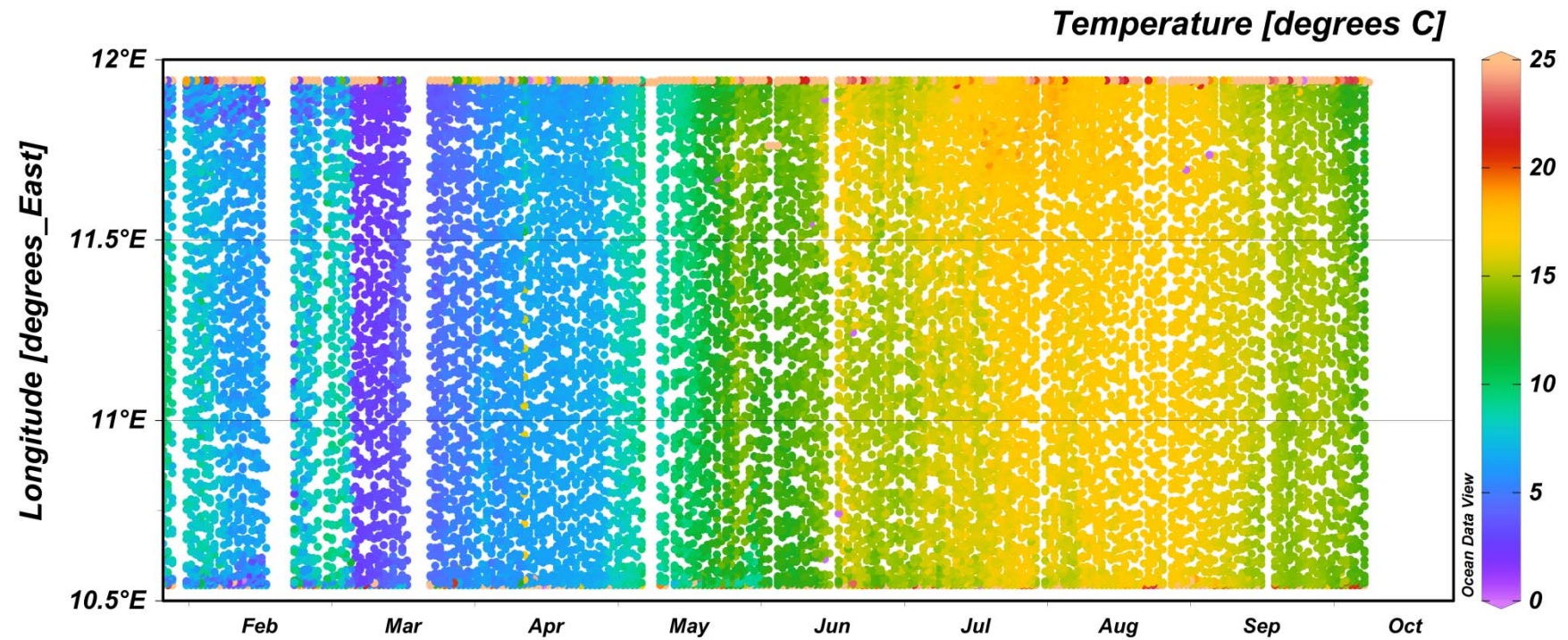




# Stena Scandinavica: Gothenburg - Kiel

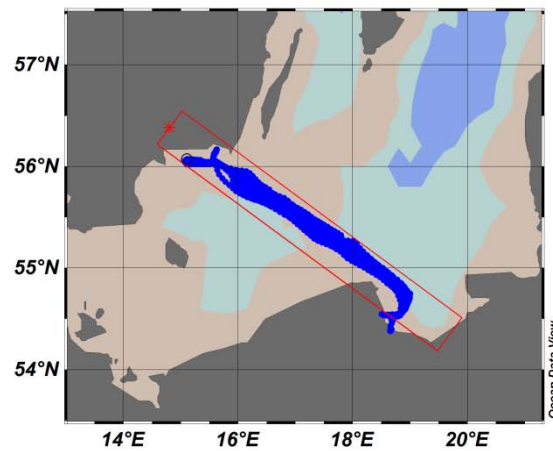
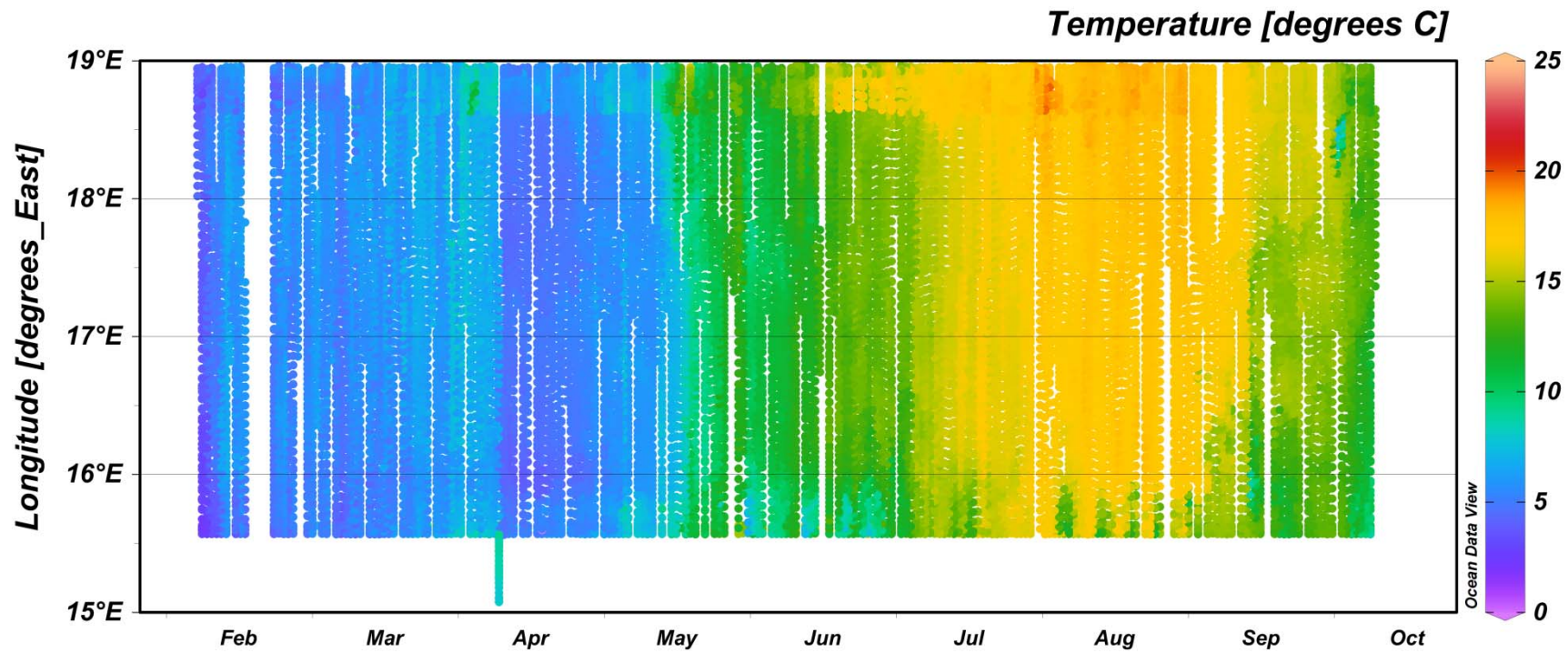


# Stena Jutlandica: Gothenburg - Fredrikshamn

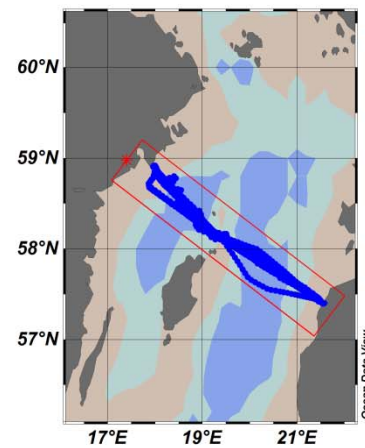
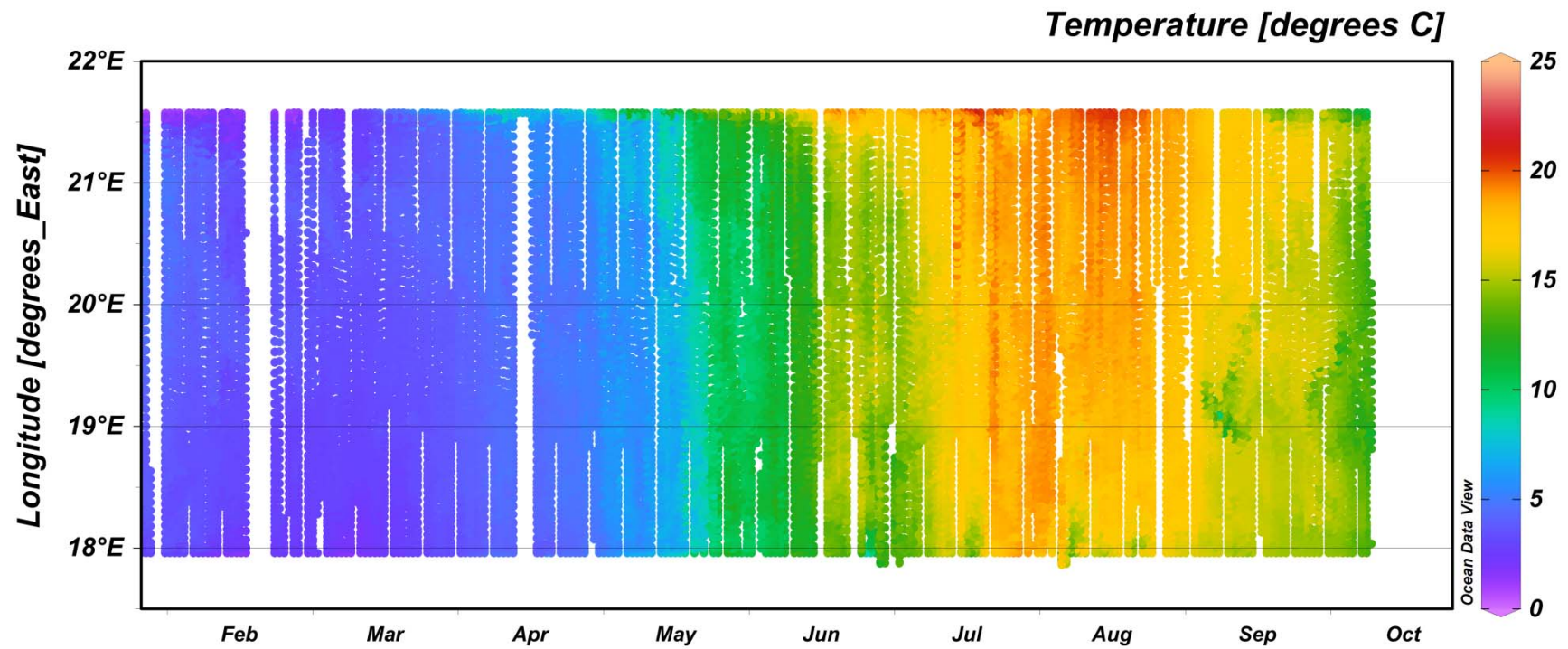




# Stena Vision: Karlskrona - Gdynia



# Stena Flavia: Nynäshamn - Ventspils





Thank you!  
Questions?

