



BONUS

SCIENCE FOR A BETTER FUTURE OF THE BALTIC SEA REGION



**BONUS
INTEGRAL**

ICOS

**INTEGRATED
CARBON
OBSERVATION
SYSTEM**

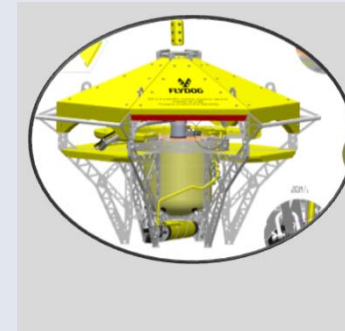
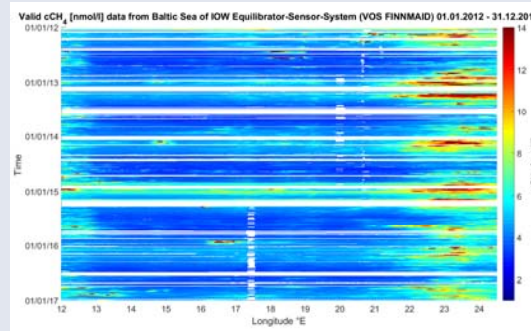


Baltic Earth

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Integrated carbon and Trace Gas monitoring for the bALTic sea

“Using ICOS and similar infrastructure for an improved environmental monitoring of the Baltic Sea”





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Project Details

- **Grant Agreements and national contracts in place, prepayment to arrive soon, starting date July 1st, 2017, 3 years**
- Anticipated budget 2.1 Mio €
- 8 Partners from 5 countries
- Including three current Baltic ICOS stations



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Key Theme

5.1 Developing and improving the scientific basis for integrated monitoring programmes for continuous assessment of ecological status and human pressures

Subthemes

1.1 Ecosystem resilience and dynamics of the biogeochemical processes, including cumulative impacts of human pressures

5.2 Developing and testing innovative in situ, remote sensing and laboratory techniques

2.2 The role of coastal systems in the dynamics of the Baltic Sea



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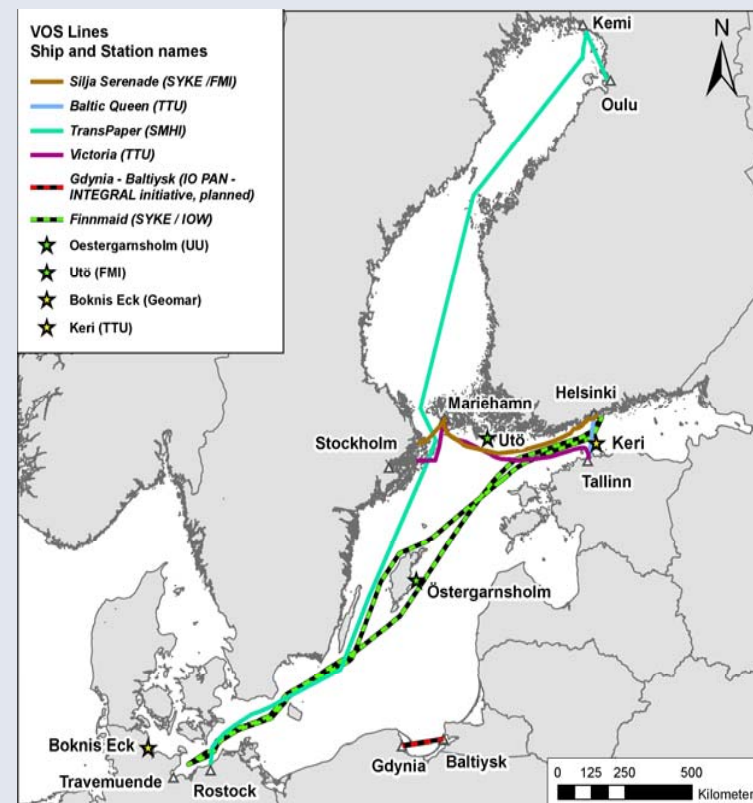
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Overarching ideas:

- Use of the (extended) ICOS network for biogeochemical monitoring of the Baltic Sea, in combination to existing monitoring programs
- Improved ASE-parameterizations for the Baltic Sea
- Provide best experimentally based seasonal concentration charts for carbon dioxide, methane, and nitrous oxide
- Full integration of carbon system into high resolution physical biogeochemical model
- Advice for countries with upcoming ICOS infrastructure
- Model-output based recommendations on effective biogeochemical monitoring





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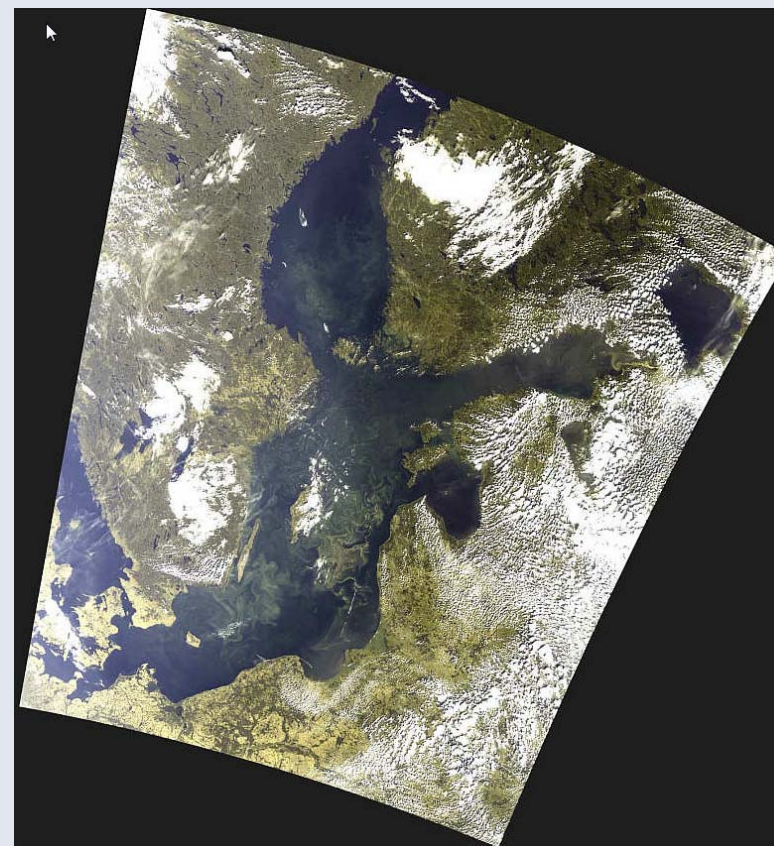
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Approach

- Compilation of new and existing data
- Use of BOOS Metadata platform and the Memento data base and tools for non-CO2 GHGs
- Development of (smart) interpolation tools, including potential remote sensing data sources
- Best-possible measurement based “climatology of GHG fluxes
- Assessment of GHG flux as an ecosystem health indicator in the framework of the MSFD





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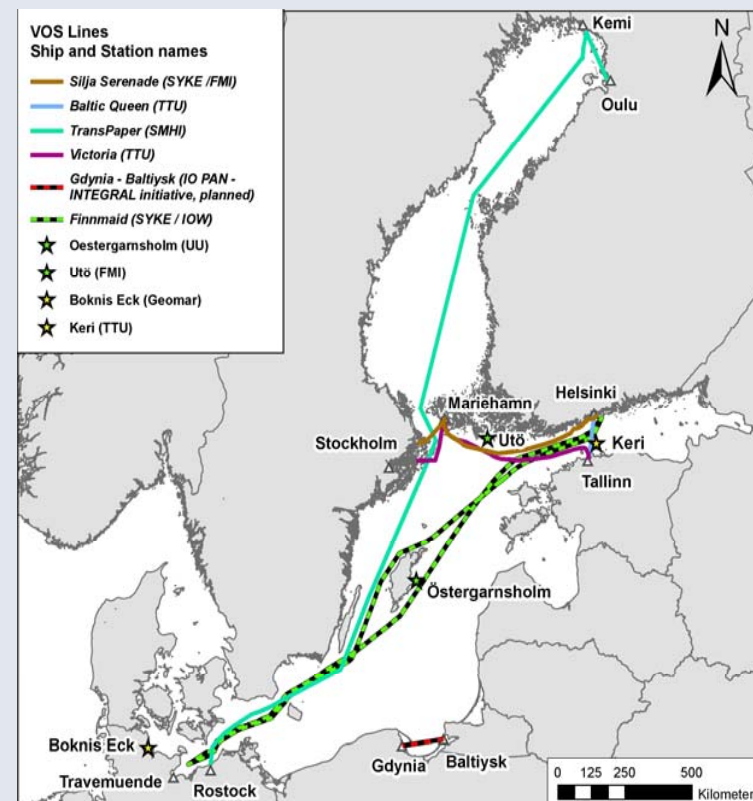
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VOS lines and platforms

- VOS Finnmaid – SYKE & IOW, Finland and Germany
- Östergarnsholm – Uppsala Univeristy, Sweden
- Utö – FMI, Finland
- VOS Silja Serenade – SYKE, Finland
- VOS Tavastland - SMHI & SYKE, Sweden and Finland
- Keri station – TTU, Estonia
- Boknis Ech – Geomar, GErmany
- New VOS line in the Bay of Gdynia – IOPAN, Poland





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Thank you for
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Helmholtz-Zentrum für Ozeanforschung Kiel



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