SANGOMA WP5
Data assessment

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Objectives

- Assess the impact of **new remote sensed ocean data on the model state estimations** and their potential in a data assimilation setup.
- A preparatory step before those observations are assimilated in an operational context.
- Partners: ULg, UREAD, CNRS-LEGI, CNRS-LEGOS, NERSC

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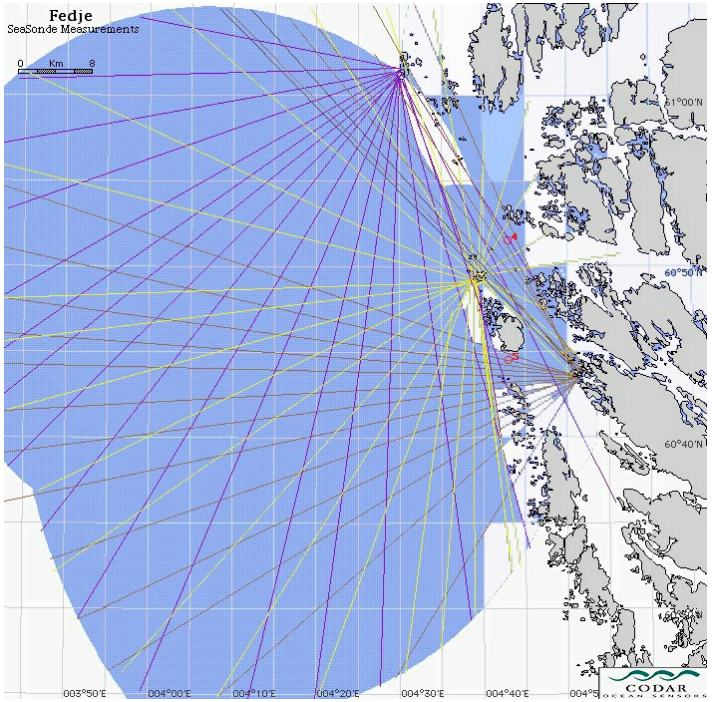
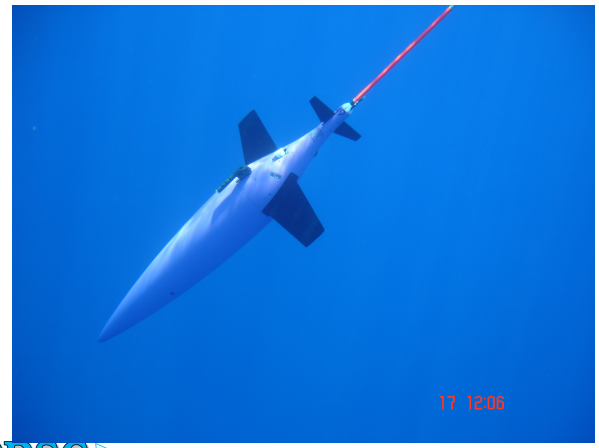
Task 5.1 Identify new data types

- Surface salinity, SST (geost. Sat.)
- Coastal altimetry, gliders, HF radars
  - Observation operators?
  - Error characteristics? (spatial scales …)





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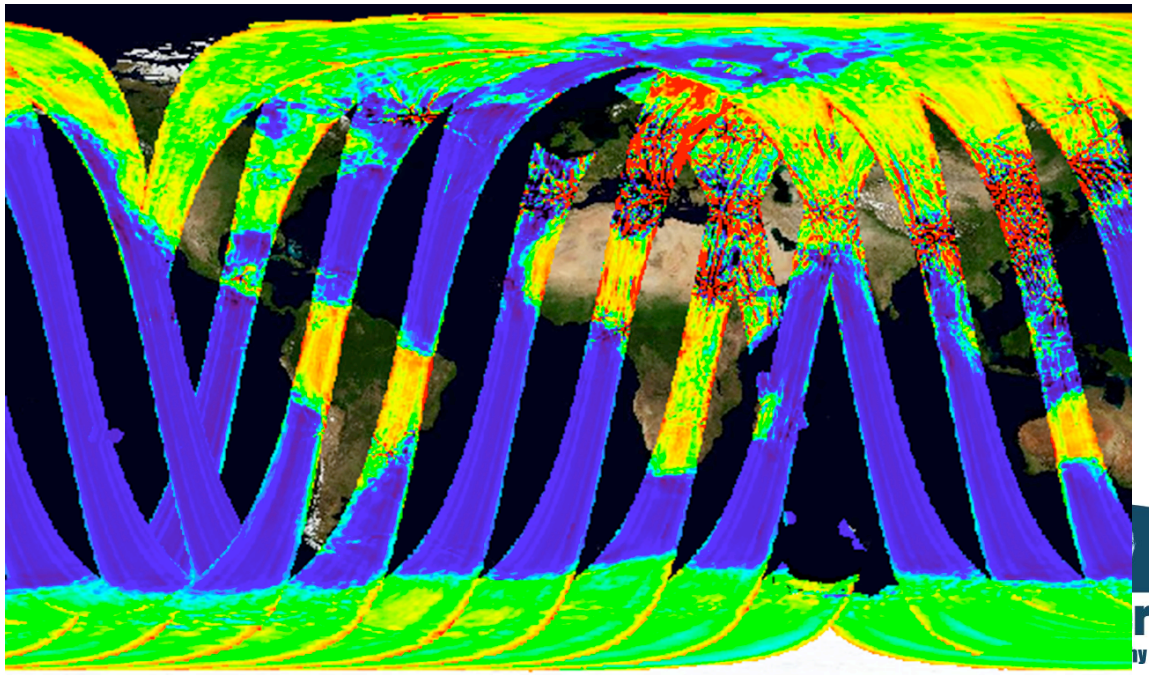
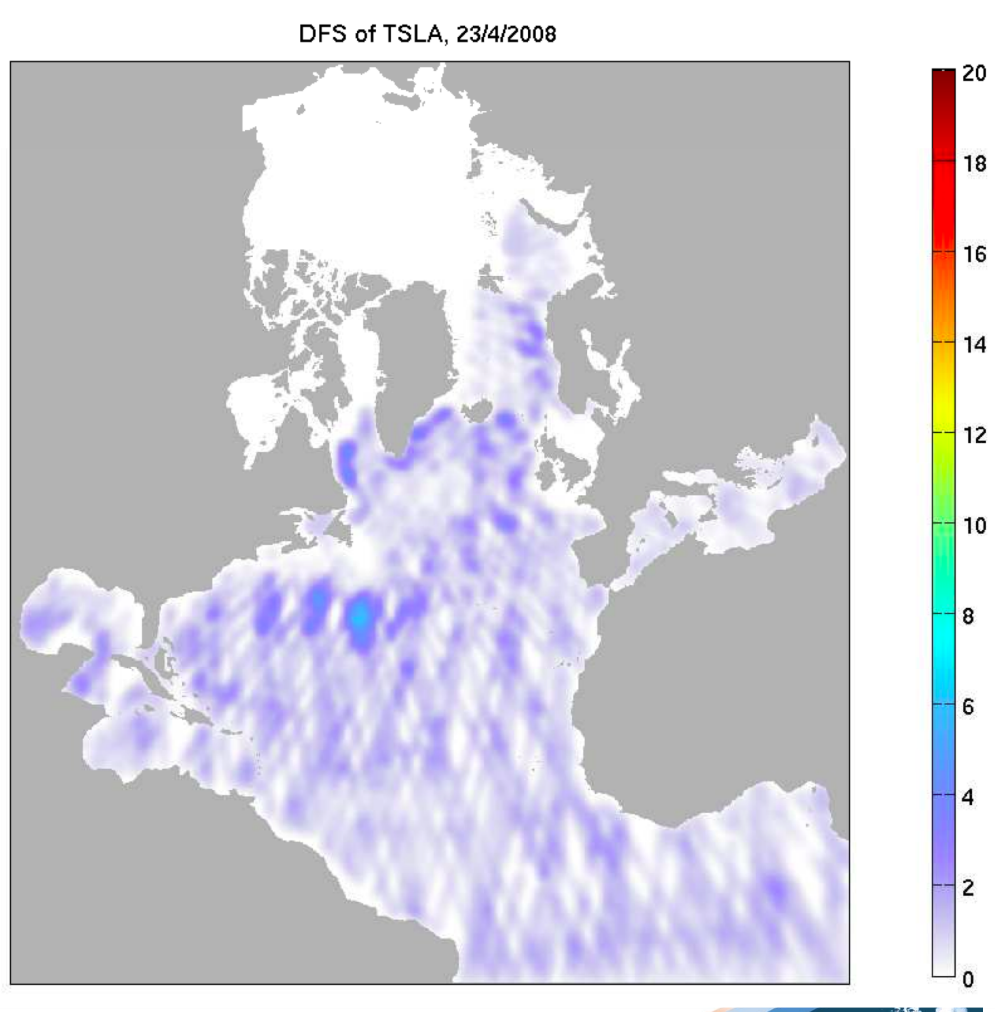


WP 5.2 Assessing observing systems

- LEGI, ULg, UREAD
- Degrees of Freedom of Signal (DFS)
- Non linear methods from WP3
  - Entropy, anamorphosis
- NEMO benchmark



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Task 5.3 Expts. Large-scale models

- ULg, CNRS-LEGI
- NEMO configuration
- Non-linear assimilation methods from WP4
- Validation with MyOcean and SeaDataNet data

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Task 5.4 Exp in regional scale models

- ULg
- ROMS in Ligurian Sea 1/60th Deg.
- HF radar data
- Same validation approach as in Task 5.3

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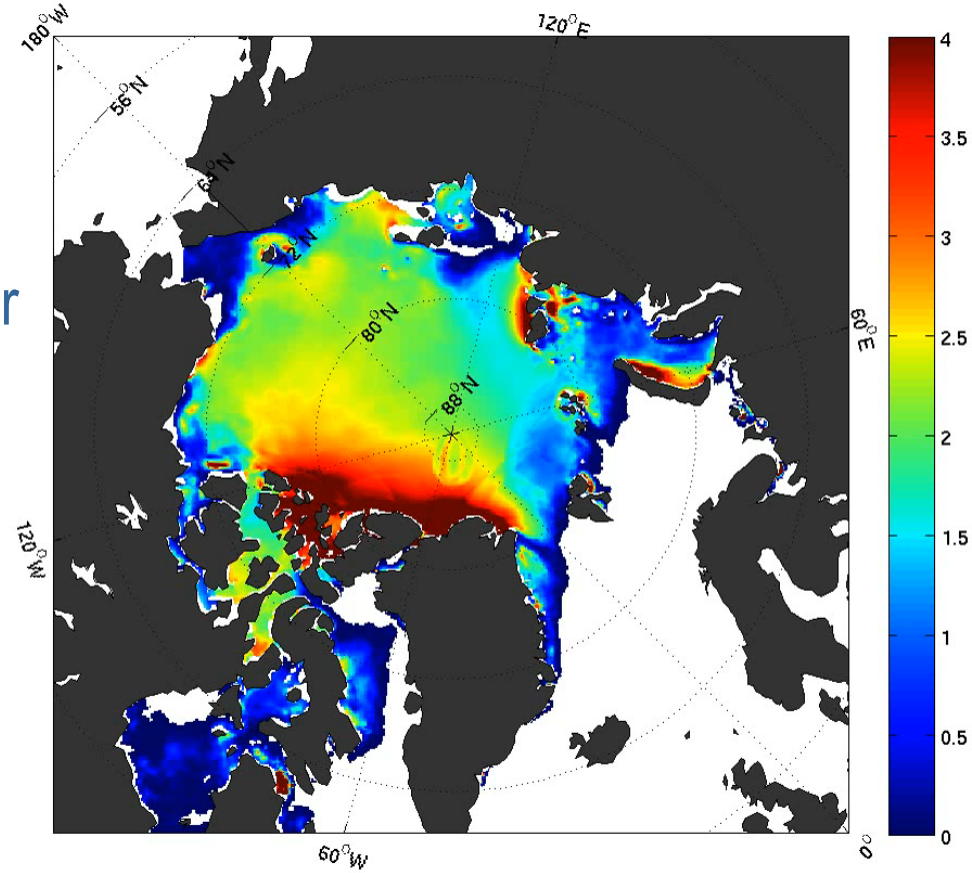
Task 5.5 Lagrangian sea ice parameters

- NERSC
- Sea ice strength parameter from the EVP rheology.
- A Lagrangian forward model for the parameter
- Otherwise parameter estimation by a standard state augmentation procedure.
- Qualitative validation against ice types.



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Task 5.6 Prior errors detection by observational arrays

- CNRS-LEGOS
- Representer Matrix Spectrum in asynchronous (4D) mode.
  - A modular formulation: portability to other Ensemble-based systems
  - Regional array performance assessment, Bay of Biscay, BELUGA EnKF implementation. Observations as in Task 5.1.
  - Large-scale array performance assessment in 1-2 other Ensemble-based assimilation systems.

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Deliverables

- D5.1 List of remote-sensed variables with their associated characteristics (M12, **all**)
- D5.2 Report on the impact of new ecosystem data (M36, **CNRS-LEGI**)
- D5.3a,b Results of a data assimilation experiment with a large-scale ocean model, preliminary version V1 and final version V2 (M36, M48, **CNRS-LEGI**)
- D5.4a,b Results of a data assimilation experiment with a regional-scale ocean model, preliminary version V1 and final version V2 (M36 V1, M48 V2, **ULg**)
- D5.5: Result of the data assimilation experiment aiming to estimate Lagrangian sea ice parameters (M48, **NERSC**)
- D5.6: RMSpectrum library and results of array performance analyses (M48, **CNRS-LEGOS**)

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