



## An overview of EOS

<http://www.eos-cost.eu>

Chair : Aida Alvera-Azcarate

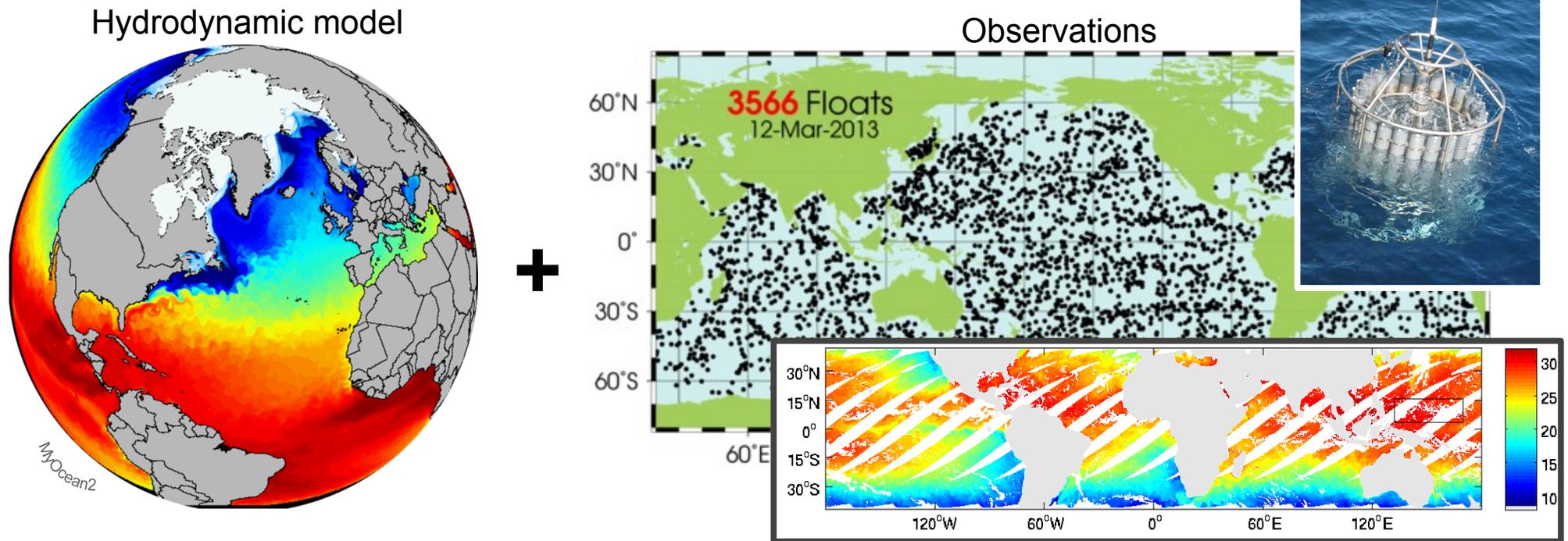
Vice-chair: Keith Haines



# What is an Ocean Synthesis?

→ a comprehensive estimation of the ocean state over the last decades (mainly temperature, salinity, sea level and currents)

→ calculated by merging hydrodynamic ocean models and all available observations using data assimilation



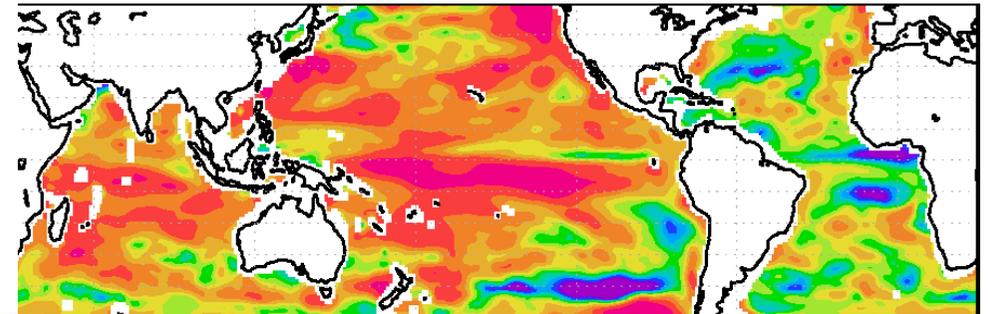
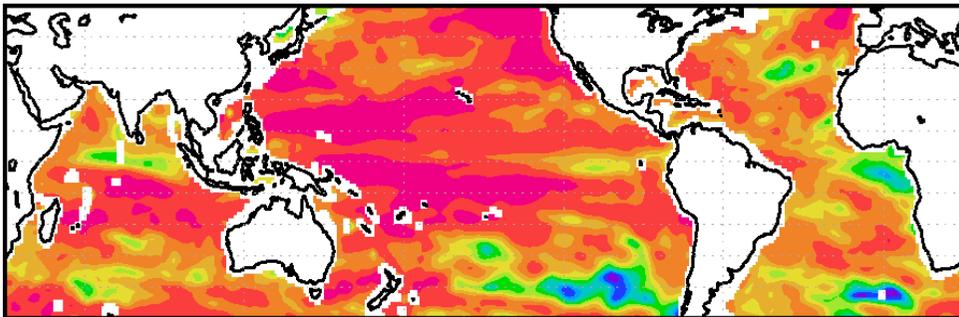
→ **Ocean syntheses are critical to understand climate and to predict future change**

# Applications for Ocean Syntheses

- Initial conditions in hydrodynamic models:
  - for operational forecasts of the ocean
  - for short-term predictions (study of specific processes)
  - for climate-related activities
- Study of ocean-atmosphere interactions (heat balance, global water cycle)
- Computation of transports across ocean basins and key straits (transport of heat)
- Monitoring the ocean
- Serving Copernicus downstream services

# Evaluation of Ocean Syntheses: what is missing?

- A wide range of ocean syntheses exist, each created to fulfill specific objectives.
- Ocean syntheses have been **insufficiently evaluated** – products present significant differences!
- Lack of coordination between different efforts
- Users of ocean syntheses **do not know**:
  - Which specific product to use for their application
  - How good this product is
  - How a particular ocean synthesis differs from others



# COST Action “Evaluation of Ocean Syntheses”

**November 2014 to November 2018**

## **Main objective:**

Establish and consolidate a network of European scientists working on the generation and evaluation of ocean synthesis products, data providers, experts in data assimilation and ocean modelling...

Support individual mobility, strengthen existing networks and foster collaboration between researchers.



- compile an inventory of end-user requirements (quality and availability of ocean syntheses)
- improve the understanding of the value and use of ocean syntheses
- issue recommendations on which data products are the most suitable for which task.
- increase awareness of ocean synthesis products among end users

# Working groups

## **WG 1: Preparation and harmonization of data**

- Catalog of available ocean syntheses
- Catalog of available independent data (including SeaDataNet and EMODNet)
- Guidelines for evaluation of ocean syntheses (MyOcean2, GODAE, CLIVAR/GSOP)
- Observation impact experiments

## **WG 2: Evaluation of ocean syntheses**

- Quality of ocean syntheses products and intercomparison
- Impact of new satellite/in situ data sets in the quality of ocean syntheses
- Assessment of adequateness of error fields

## **WG3: Applications: from short-term predictability to climate studies**

- Variability of ocean heat and freshwater transports
- Evaluation of Arctic and Antarctic circulation patterns and transports
- Evaluation of propagating modes in the ocean syntheses
- Near real-time monitoring of climate signals
- Characterization of the sea level variability at interannual and interdecadal scales

## **WG4: Downscaling issues: from global to regional syntheses**

- Impact of using higher resolution
- Assessment of the optimal temporal frequency of boundary conditions
- Inter-comparison of regional and global syntheses
- Consistency between global and regional syntheses

# COST Actions

COST Actions are a **networking instrument** for researchers to cooperate and coordinate nationally funded research activities.

- Pan-European
- Open to all researchers

Networking tools available through EOS:

- **Workshops**
- **Conferences**
- **Training schools**
- **Short-term scientific missions (STSMs)**
- **Dissemination activities.**

## **STSM:**

- A research stay, aligned with the goals of the Action that is providing the funding, extending for a period from 1 week to 3 months
- Between any institutes within the COST countries
- Funding of up to 2500 € per STSM

# EOS-COST: activities

## **First year:**

1<sup>st</sup> Working Group meeting: March 2015 (Liège)

2<sup>nd</sup> Working Group meeting: December 2015 (Brussels)

Dissemination meeting: GODAE Coastal Ocean and Shelf Seas Task Team (COSS-TT) (Lisbon)

2 finished STSMs

4 additional (planned) STSMs

## **Activities foreseen in 2016:**

Working group meetings

STSMs

Training School on end-user requirements

# EOS – Ocean heat community

## Topics of mutual interest

- Role of ocean reanalysis for the estimation of  
ocean heat fluxes  
freshwater fluxes  
climate signals
- Observing systems impact in the accuracy of ocean reanalyses
- Observations-based vs. model-based estimates of ocean fluxes
- Regional vs. global estimates of the state of the ocean



# EVALUATION OF OCEAN SYNTHESSES

COST Action 1402

<http://www.eos-cost.eu>

A COST Action to **improve the coordination** of European efforts in the evaluation of ocean syntheses:

- better understanding of the value and use of ocean syntheses
- promote the use of ocean syntheses

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