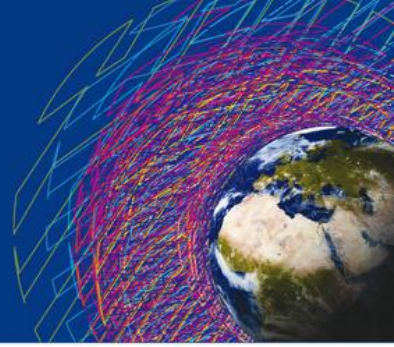
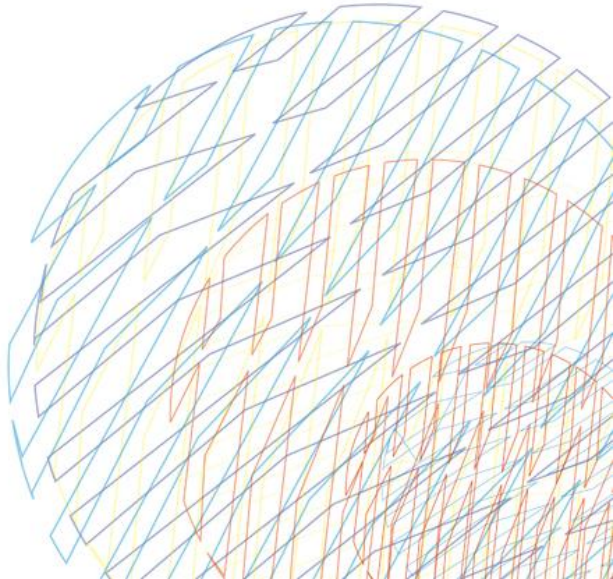


- Ocean Splinter
  - Addressing SB-01 Oceans and Society: Blue Planet
  - [Projects support other areas e.g. Infrastructure…]



Presentations and Poster

- Presentations
  - Keynote: Oceans and Society: Blue planet Christoph Waldman, U. Bremen/Marum, DE
  - THOR – "Thermohaline overturning at risk?" Laurent Mortier (UPMC / ENSTA, FR)
  - EMSO European Multidisciplinary Seafloor Observatory (Paolo Favali, INGV, IT)
  - EAMNet- Europe-Africa Marine EO Network (Steve Groom, PML, UK)
  - MyOcean – Building the GMES marine core service - EU contribution to GEOSS (Jun She, DMI, DK)
  - OPEC Operational Ecology: Ecosystem forecast products to enhance marine GMES applications (Jun She, DMI, DK)
  - GROOM : Towards a European Glider Infrastructure for the benefit of marine research and operational oceanography. Laurent Mortier (UPMC / ENSTA, FR)
- Posters and presentations in other sessions
  - JERICO: towards a joint European research infrastructure network for coastal observatories
  - GEOWOW: GEOSS interoperability for weather ocean and water
  - MEDINA: indicators and tools for on-going monitoring and assessment of marine ecosystems in North Africa
  - EarthServer – European scalable Earth science service environment network

C1 Global Ocean Information Coordination and Access

- Existing projects: GMES / GEOWOW, EAMNet, MyOcean, [ESA ocean CCI projects], training for OC in Africa [JRC & EAMNet], GROOM, JERICO, [EMODNET] + research infrastructures e.g. EuroARGO, EMSO
- Gaps /new projects:
  - Continuity: projects can have limited lifetime obviously; how to maintain→ Framework for Ocean Observing?
  - Dealing with heterogeneity of data type/variables
  - Support for IOCCG
  - Infrastructure facilitating user uptake particularly in developing countries (relevant to C1 – C4)
- [EU] *Leads: EC (GMES), Germany (Bremen University), IOC,POGO*
- Promote the implementation of the Global Ocean Observing System (GOOS) ….
- Support and provide access to GOOS products which describe the state of the ocean globally at regular intervals. In particular…. GOOS Essential Ocean Variables datasets through the GEOSS Common Infrastructure building upon the GEOWOW project
- Continue to establish data management and communications systems (e.g. Regional Alliances) for interoperability among monitoring systems and data integration. Promote the development of internationally- and intergovernmentally-agreed coastal ocean observation standards, data sharing, and data management arrangements
- Establish a Global Ocean Information System (GOIS), building on existing capabilities such as GMES MyOcean and forging close links between data providers (in situ and satellite-based) which already have effective monitoring, forecasting, and other information tools available, and potential users
- Promote activities of the International Ocean Colour Coordinating Group (IOCCG) and applications of remotely-sensed ocean-colour data through coordination, training, liaison between providers and users, advocacy and provision of expert advice. Coordinate with CEOS climate activity plans to optimize its marine elements
- Develop vulnerability and integrated management of coastal zones in order to inventory, protect, and monitor coastal lands in the context of climate change and associated risk. Form links with disaster management activities (see also DI-01)
- Provide advanced training in ocean observations and services, especially for personnel from developing countries and economies in transition, through a series of fellowship schemes, pilot projects (e.g. MARINEMET, EAMNet) and a Centre of

C2 Operational Systems for Monitoring of Marine and Coastal Ecosystems

- Existing: GMES / MyOcean, [OceanSITES], OPEC, EAMNet
- Gaps / new projects?:
  - High resolution coastal monitoring from EO → Sentinel 2 provides one answer
  - Monitoring for offshore exploration;
  - Support for ChloroGIN

- [EU] *Leads: Estonia (University of Tartu), UK (PML),*
- Support the implementation of OceanSITES, a worldwide system of deep water time-series stations, featuring capabilities such as surface moorings (observing air-sea interactions), and subsurface moorings (that can carry instrumentation down to the sea floor). OceanSITES complement satellite imagery and Argo float data by adding dimensions of time and depth
- Promote rapid development of a global high frequency radar network to measure coastal surface currents. High frequency radar is recognized as a cost-effective solution to augment in-situ measurements and provide increased spatial and temporal resolution
- Establish a global coastal network of observations and modeling that target sentinel and reference sites for rapid detection of changes in ecosystem states caused by land-based sources of pollution, fishing and climate change
- Promote the Chlorophyll Global Integrated Network (ChloroGIN) project which coordinates in- situ measurement of chlorophyll and related bio-optical properties of the ocean, in combination with satellite derived estimates of the same. ChloroGIN is a network of regional networks
- Develop and expand global plankton biodiversity monitoring, building upon 80 years of phytoplankton and zooplankton biodiversity data obtained in the North Atlantic by means of the “Continuous Plankton Recorder” survey (see also BI-01)
- Support the development of the “International Quiet Ocean Experiment” to quantify global ocean sound (natural/anthropogenic) and measure the effects of changing sound exposure on marine life. Implement essential acoustical applications within existing ocean observing systems (e.g. GOOS)
- Fully engage with the four ocean-related CEOS Virtual Constellations: Ocean Surface Vector Wind, Ocean Surface Topography, Ocean Colour Radiometry, and Sea Surface Temperature (see also IN-01)

C3 A Global Operational Ocean Forecasting Network

- Existing projects: GMES / MyOcean2, OPEC
- Gaps/new projects:
  - Linking ocean and met forecasting?
  - Capacity building / maintenance in developing countries
  - Support for global ocean network coordination

- [EU] Leads: Denmark (DMI), EC (GMES), UK (MetOffice), IOC/WMO (JCOMM), POGO
- Support the continuation of the GODAE OceanView international programme for the consolidation and improvement of global and regional ocean forecasting systems, including development and scientific testing of the next generation of systems extending from open-ocean into shelf-seas and coastal waters, covering biogeochemistry and ecosystems, and using multi- model ensemble forecasting techniques
- Build upon forecasting systems, information and services developed in the framework of the GMES projects MyOcean and MyOcean2
- Establish a global operational oceanography network, connecting advanced operational forecasting centres in developed countries and quasi-operational centers in Asia, Africa and Latin America. Promote and extend international collaboration, and establish regional cooperation projects between advanced and less-developed operational centers
- Support assessment of observing system impact on ocean forecasting for the various components of the international ocean observation system
- Support events which provide a platform for communication and collaboration between national ocean forecasting systems to allow wide exchange of knowledge and expertise. Promote initiatives aiming to exploit operational ocean forecasting services for greater societal benefit

C4 Applications of Earth Observations and Information to Sustainable Fishery and Aquaculture Management

- Existing Projects: GMES / MEDINA (N Africa only); OPEC
- Gaps/ new projects?:
  - Support for a European SAFARI
  - Global ecological indicators

- *[EU] Estonia (University of Tartu), UK (PML)*
- Facilitate the application of rapidly-evolving satellite technology to fish harvesting and fish health assessment. Accelerate the assimilation of Earth observation into fisheries research and ecosystem-based fisheries management on a global scale, through international coordination and outreach. Support the development of the Societal Applications in Fisheries and Aquaculture using Remotely-Sensed Imagery (SAFARI) project
- Design and implement a suite of ecological indicators with a view to detecting changes in ocean ecosystems (e.g. due to climate change, overfishing). Design and implement indicators responsive to seasonal and inter annual changes in ocean ecosystems (see also EC-01)