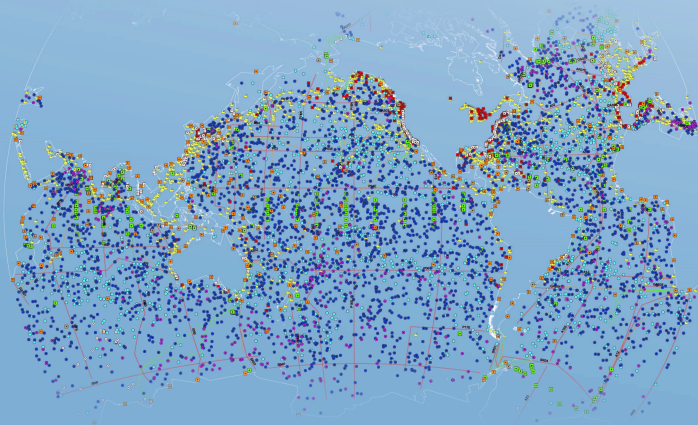
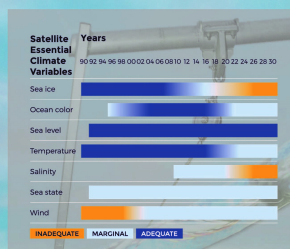


Ocean observing system report card 2019



In situ ocean observing networks

- Ship based meteorological measurements - GOOS
- Ship based aerological measurements - GOOS
- Ship based oceanographic measurements - GOOS
- Sea level gauges - GLSS
- Drifting and pole buoys - DBCP
- Moored buoys - DBCP
- Interdisciplinary moorings - OceanGTS
- Profiling floats - Argo
- Repeated transects - GO-SHIP
- OceanGliders
- HF radars
- Surface based measurements CO₂, SOCONET
- Biogeochemistry & Deep floats - Argo
- Animal borne sensors



With the current and increasingly urgent need for nations to take decisions related to the impact of climate change, the Ocean Observing System Report Card 2019 provides insight into the status of the global ocean observing system and highlights the need for sustained ocean monitoring.

To better meet expanding societal needs, the global ocean observing system is introducing new technologies and improved capabilities. These advancements will provide more observational information in real time, and long-duration high-quality data needed for detection of ocean change, as well as to help to address the lack of data in poorly-sampled regions. The sustained in situ ocean observing networks are coordinated by the GOOS Observations Coordination Group and a Joint WMO-IOC centre for oceanographic and marine meteorological observing programme support (JCOMMOPS).

Challenges

We still lack long time-series observations from the deep sea interior, below 2000 meters, and measurements of essential biology and biogeochemistry components of the ocean. We will need advancements in ocean observing instruments, computing, sensors and robotics, in order to expand our ocean monitoring capabilities.

Other challenges include filling observation gaps in the Arctic and Antarctic Ocean. Currently, the availability of new technological capabilities for under ice observations, based on ocean gliders and autonomous floats, are enabling us to monitor the increase of CO₂ concentrations at high latitudes.

Main Issues

New technology developments, in particular for biological and biogeochemical observations, will require new resources and strong collaboration with industry. In addition, the cost of some observing techniques and sensors are prohibitive for implementation at a global scale. As we move towards sampling in coastal areas, we will need to explore new solutions, including citizen involvement. The resources available for sustained observations programmes and for international coordination are insufficient to deliver these advances, and largely supported by short-term research-based project funding.