SUPPORTING OCEAN OBSERVATIONS TO ADDRESS CLIMATE CHANGE

Policy Brief #2

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Although the political and scientific discourse surrounding the ocean's relationship with climate change has pivoted towards actionable solutions, it remains imperative that ocean observation persists. Dynamic science and earth observation require an ongoing collection of data to extract knowledge about trends and patterns in the environment and understanding the Earth’s system. Monitoring and observing the oceans are essential to comprehend their state, dynamics, properties, and their impact on the Earth's climate. However, a one-time collection of information is not sufficient to understand the effects of climate change, whose rapidity of occurrence requires continuous and sustained observations. Hence, it is imperative to maintain and increase the efforts of ocean observation to stay up to date with the changes taking place. Slowing down ocean observation efforts is not an option, and we must prioritize the long-term monitoring and collection of data to stay informed about the state of our oceans. This policy brief highlights the importance of ocean observations and the need for continued support.

Recommendations

The Importance of Ocean Observation in a Changing Climate

The ocean and climate are changing rapidly and unpredictably, and we can only begin to understand the extent and impact of these changes with permanent or very long-term monitoring data. Despite advances in science and earth observation, data sets are not always of excellent quality, and once data is collected, it represents just one specific time in history. Therefore, ocean observation efforts must continue in order to maintain a comprehensive understanding of the ocean as we face climate change, to have an appreciation of how dynamics vary over time.
The Need for Ongoing and Better Support for Ocean Observation

Ocean observation is critical in understanding the Earth’s system, particularly in the face of climate change. Therefore, it is essential that ocean observation and scientific research continue in parallel to better guide and evaluate the actions taken. A call for action is being made for ongoing and improved support for integrated ocean observation through funding and policy enabling for continuous ocean observing programs and infrastructure. There is a need for integration between EU initiatives (e.g., EMSO-Eric, EMODnet, JERICO-RI, EUROGOOS, etc) and publicly funded projects.

The Importance of Closing Data and Knowledge Gaps

NAUTILOS has identified critical data gaps from in situ observations and deep ocean research. Closing these gaps requires more extensive and strategic investment in the ocean observation network. The use of new and innovative technologies, such as autonomous data collection systems, will be essential in achieving these goals. A call for action is being made for greater efforts and support to close the knowledge gaps in ocean observation, develop new observational sites, and leverage innovative technologies. Incorporating the latest advancements in software and hardware technologies, such as IoT, pattern recognition, and sensing, can lead to significant improvements in ocean monitoring. By expanding and optimizing the communication capabilities between oceanographic measurement instruments, we can further enhance the accuracy and efficiency of our observations.

The Need for a Balance Between Action and Observation

Conversation at the political level and at the science-policy interface has started to turn towards the actions needed to deal with the ocean and climate rather than the knowledge needed to understand it. While this is a positive step in the right direction, it is important to note that action cannot replace, and should not exclude, observation. Indeed actions should be based on acquired knowledge and continuous observation of the changing ocean conditions. Now is not the time to slow down ocean observation efforts. Excellent data sets are vital to obtaining new knowledge about trends and patterns in the environment, and continuous or very long-term monitoring data is necessary to fully understand the extent and impact of the changes occurring in the ocean and climate.
The ocean is a critical component of the Earth’s system, and its improved comprehension is essential in the face of climate change. The measurement of Essential Ocean Variables (EOVs) is necessary to maintain a thorough understanding of the ocean and its role in the Earth’s climate. There is a need for ongoing and robust support for ocean observation, closure of data and knowledge gaps, and a balance between action and observation. The ocean and climate are changing rapidly and unpredictably, and long-term monitoring is essential to fully understand the extent and impact of these changes.