Session: C14 Poster: T49A

Observations for climate: NOAA support of sustained ocean and Arctic research

Diane Stanitski[†]; David Legler; John Calder; Candyce Clark; Kathleen Crane; Joel Levy; Gillian Lichota; Steve Piotrowicz; Sidney Thurston
[†] NOAA, USA
Leading author: diane.stanitski@noaa.gov

Observation is central to describing, understanding, and predicting the Earth's climate system. The NOAA Climate Observation Division supports and maintains one half of the current sustained global ocean observing system with projects focused on ocean and Arctic climate. These projects are designed to contribute to the long-term requirements of operational forecast centers, international research programs, and major scientific assessments. NOAA works with national and international partners to build and sustain this global observational system for climate with projects managed in cooperation with the Joint WMO-IOC Technical Commission for Oceanography and Marine Meteorology. International partnerships and US interagency cooperation have been critical to development, deployment, and operation of global ocean and Arctic observing arrays. Relatively close ties exist, through international research programs, between the climate observations, modeling/prediction, and process-oriented research communities leading to successes such as the IPCC and resulting assessments, improvements in climate forecasting, and advances in knowledge resulting from research efforts enabled by the observing systems. Although a focus of the Climate Observation Division is to support projects that deploy autonomous in situ platforms, the underlying objective is to foster a "system" approach to effective international organization of complementary in situ, satellite, data management and analysis, and modeling components of climate observation, with application to climate services. The updated Implementation Plan for the Global Observing System for Climate and OceanObs'09 Conference Summary highlight the future needs of the climate observing system for research and other applications. Ocean and Arctic observations produce climate data that lead to a better understanding of key climate issues like rising sea level, sea ice decline, increased drought, and impacts on marine biogeochemistry. Only through strong collaborations can the observing system help address these and other needs and issues. This poster, and accompanying cluster posters, provides an historic view of the development of the global ocean and Arctic observing systems with glimpses into the anticipated evolution of the system to develop a more robust understanding of sea level, carbon, heat, salinity, and air-sea exchange parameters via the complementary observing networks, including tide gauges, Argo profilers, drifting buoys, moored buoys, expendable bathythermographs, ocean reference stations, ocean carbon measurements, and the Arctic Observing Network. Future challenges include: 1) sustaining the global network at an effective level; 2) enhancing the global network to include biogeochemical variables to meet societal needs for ocean information; 3) developing new technologies to increase cost effectiveness and providing new observing capabilities; and 4) improving international agreements on access to marine waters under national jurisdiction and on sharing of data in near-real time.