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TITLE: A Global Ocean Observing System (GOOS), Delivered Through Enhanced Collaboration Across Regions, Communities, and New Technologies

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ABSTRACT:

Since OceanObs?09, the Global Ocean Observing System (GOOS) has evolved from its traditional focus on the ocean?s role in global climate. GOOS now also encompasses operational services and marine ecosystem health, from the open ocean into coastal environments where much of the world?s population resides. This has opened a field of opportunity for new collaborations?across regions, communities, and technologies?facilitating enhanced engagement in the global ocean observing enterprise to benefit all nations. Enhancement of collaboration is considered from the perspectives of regional alliances, global networks, national systems, in situ observing, remote sensing, oceanography, and meteorology. Reinvigoration of GOOS Regional Alliances has been important in connecting the power of this expanded remit to the needs of coastal populations and the capabilities of regional and national marine science communities. An assessment of progress is provided, including issues/challenges with the current structure, and opportunities to increase participation and impact. Meeting the expanded requirements of GOOS will entail new system networks. The Joint Technical Commission for Oceanography and Marine Meteorology Observations Coordination Group has been working with some communities to help assess readiness, including high frequency radars, ocean gliders, and animal tracking. Much more needs to be done, with a range of strategies considered. Other opportunities include partnering with programs such as the Global Ocean Acidification Observing Network, engaging with mature and emerging national ocean observing programs, and learning from multinational projects such as Tropical Pacific Observing System 2020 which are bringing renewed rigor to the design and operation of observing systems. Consideration is given to the expansion and advancement that is coming in both in situ and remote sensing ocean observation platforms over the next decade. In combination they provide the potential to measure new Essential Ocean Variables routinely at global scale. Opportunities provided by the World Meteorological Organization Integrated Global Observing System (WIGOS) in fostering a comprehensive and integrated approach across meteorology and oceanography are also considered. The focus of WIGOS on providing accurate, reliable and timely weather, climate, and related environmental observations and products sits well with the expanded requirements of GOOS, in climate, operational services, and marine ecosystem health.

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