OceanSITES Virtual Meeting, Sept. 2020

Meeting Objective: Create a vision and mission for OceanSITES in 2030

Session Title: Deep Ocean Observing

Session Date and Time: Wed., 16 Sept 2020, 14:45-16:15 UTC

Format:
- Pre-recorded short talks by panelists, focussing on the role of their work in OceanSITES, their views of OceanSITES, and their questions and ideas for OceanSITES
- Summary by session chairs, reflecting on OceanSITES and extracting questions and ideas from the talks
- Panel discussion

Panel Moderators:
R. Venkatesan, National Institute of Ocean Technology, Chennai, India
M. Lankhorst, Scripps Institution of Oceanography, La Jolla, CA, USA

Panel Members:
N. Anderson, NOAA Pacific Marine Environmental Laboratory, Seattle, WA, USA
K. Ariyoshi, Japan Agency for Marine-Earth Science and Technology, Yokohama, Japan
D. Atamanchuk, Dalhousie University, Halifax, Canada
J. Klinke, Sea-Bird Scientific, Bellevue, WA, USA
L. Levin, Scripps Institution of Oceanography, La Jolla, CA, USA
J. Potemra, School of Ocean and Earth Science and Technology, Honolulu, HI, USA

Session Description:
OceanSITES platforms have made observations of the deep ocean for decades, but even so, data amounts are sparse. This session will explore how OceanSITES fits into the Deep Ocean Observing Strategy (DOOS) of the Global Ocean Observing System (GOOS), and what scientific and technical achievements we hope to make in the next decade. The discussion is structured into technical, infrastructure, and scientific parts that should each outline what progress is envisioned and achievable. A series of pre-recorded video talks by panel members, which participants should review before the session, forms the basis of these deliberations. The videos will be summarized at the beginning of the session, leaving plenty of time for discussion.

Proposed Discussion Topics:
- Technical
  - Coordinated approaches to calibration and validation across observing systems
  - What technical requirements are unique to the deep ocean, and how to address them efficiently (e.g. signals are small, calibration/validation data are sparse, available ship time to visit sites is limited, instruments need to withstand high pressure and corrosion)
  - Insights from OceanSITES Working Group on Deep Ocean Temperature and Salinity Observations
- Infrastructure
Organisation and delivery of data in different “levels”: derived data products versus in-situ data at native resolution in space and time

Does the focus on EOVs help accelerate or organize our results?

Collaboration with other observing groups: DOOS, Deep Argo, GO-SHIP, IAPSO Best Practice Study Group on Moored CTD Measurements. How can these be fostered and deliver tangible results?

Science

What science is enabled by existing deep ocean observing, and what would we like to address in the future?

Is real-time data telemetry from the deep ocean important?

What is the role of time series observations made by OceanSITES, and how do they fit in with other systems such as Argo and GO-SHIP? Does DOOS articulate these relationships properly?

What is the relevance of mid-water-column data versus near-bottom data, and for which science questions is each of them important?

What science disciplines are underrepresented in OceanSITES observations of the deep ocean? E.g.: biology, optical measurements and cameras, seismic and geophysics, cabled observatories. Biogeochemistry, sediment traps, carbon (and other) fluxes through the earth system. How should this evolve until 2030?

List of Video Presentations:
1. L. Levin: Deep Ocean Observing Strategy
3. N. Anderson: Abyssal Measurements: Present and Future Ocean Climate Station Observations
6. R. Venkatesan: Deep Ocean Observing
7. D. Atamanchuk: Deep moorings as reference sites for the ocean observing networks. Quality control and utility of oxygen time-series from the optodes
8. K. Ariyoshi: Future Perspective for effective utilization of ocean bottom pressure gauges
9. J. Klinke: Recent Developments in Deep Ocean Sensor Technology at Sea-Bird Scientific