

Ocean Innovation 2008
World Summit – Ocean Observing Systems
Workshop Outline

Title: “From Sensors to Applications: Advancing the Interoperability of Ocean Sensors”

Date: Wednesday October 22, 2008

Venue: Marine Institute, Memorial University

Overview:

The “system of systems” concept has become widely recognized as the system design for observing the entire planet, including the oceans. To go from concept to reality, the operative term is interoperability. This workshop will explore what many now believe to be the linchpin in the emerging ocean observing systems market - interoperable ocean sensors. Early work on ocean observing systems has largely focused on the interoperability of data and information systems (i.e., the legacy data silos) to support a variety of applications, such as sea state forecasting or inundation modeling. More recent initiatives, such as OGC’s Sensor Web Enablement, are focusing attention on the interoperability of sensors, thereby enabling observing systems to move closer to the vision of ‘network as platform’. This workshop will begin with case studies to illustrate how standards are developed and why standards are important to interoperability. Live demonstrations will be used to show how standards are already being implemented in the real world of ocean observing systems. Participants will then be engaged in a detailed discussion of the requirements for future sensor standards in the context of the vision of global interoperability. The need for ‘smart’ sensors and the role of middleware will be considered in detail. The workshop will conclude with a discussion of a new international initiative to benchmark and implement ocean sensor standards.

Results:

Participants will take away from the workshop:

- A better understanding of OOS standards, best practices and interoperability.
- Best Practices Guide (OGC ocean science interoperability experiment - OCEANS IE)
- Sample use case on how to implement standards (OOSTethys)
- Reference implementations of open standards in oceans science, including OGC Web Services standards, OGC Sensor Web Enablement standards, IEEE 1451 “smart sensor” standards, and OASIS Standards.
- A draft outline of an international experiment to advance the interoperability of OOS sensors in support of a global application (e.g. inundation modeling).

Who should attend?

This workshop will be of interest to sensor manufacturers, standards bodies, OOS program managers, ocean scientists and others with an interest in how standards are developed and implemented to improve interoperability within and between cooperating organizations in the ocean observation community of interest.

This workshop is being co-sponsored by the Open Geospatial Consortium and the Alliance for Coastal Technologies.

0800 - 0830 Welcome and Introductions

Workshop Chair: Henry Kucera, Executive Director, Pacific Marine Analysis and Research Association

Purpose, agenda, format, introduction of participants.

0830 - 0930 Sensor Standards and Best Practices

Experts from the standards community will discuss work advanced and in-work by Standards Development Organizations to promote open standards in support of sensor applications. Results from previous related ocean workshops will be covered.

- IEEE 1451
- OGC Sensor Web Enablement and core geospatial standards
- OASIS
- Wireless

0930-1015 Taking an Enterprise Architecture Perspective

Discussion by selected manufacturers, researchers and application developers on 1) how sensor and other complimentary open standards can address different Enterprise Architecture needs and 2) issues and opportunities that require attention.

Panel members:

Frank Johnson, RBR Limited
 Harry Weiler, AXYS
 David Murphy, Seabird
 Benoit Pirenne, NEPTUNE Canada

1015-1030 Break

1030-1230 Sensor Interoperability Case Studies

Experts from the community will discuss their implementations of oceans sensor capabilities, with emphasis on application-driven requirements satisfaction, benefits achieved through an emphasis on open standards, value that comes from having communities of practice and opportunities for emerging markets. In this 1.5-hour session, showcase some of the actual implementations so that sensor manufacturers and others can see that progress is being made in real-world applications, and that there's an opportunity to get in on the leading edge.

1. Defense & Intelligence – Experts from the Defense Community of Practice will be on hand to discuss how sensors and related standards best practices are being deployed to establish situational awareness across the community
 - PulseNet , Scott Fairgrieve, Northrop Grumman (Confirmed)
2. Ocean Observation – Community of Practice that had need for ocean observation in particular for sensor interactions → SWE (emerging market is vision of sensor web and interoperable sensors)
 - SensorBay (GeoConnections Canada, Compusult)
Barry O'Rourke, Compusult (Confirmed)
 - Oceans Science Interoperability Experiment and OOSTEthys,
Luis Bermudez, Southeastern University Research Association (Confirmed, via remote)
 - NOAA/IOOS
Jeff de La Beaujardiere, NOAA (Confirmed, via remote)

- ESONET
Eric Delory, ESONET / dBScale (Confirmed)
- MBARI PUCK protocol and ocean observatories
Tom O'Reilly, Monterey Bay Aquarium Research Institute (Confirmed)

3. Taking it Global

- Global Earth Observing System of Systems (GEOSS)
Michael Tanner

1230-1315 Lunch

Lunch will be provided. Please use this time for recharge and network with other attendees and presenters!

1315-1430 Demonstrations of Open Standards-based Capability

This segment will focus on 1 to 2 use case driven demonstrations to illustrate the capability and architectural flexibility of IEEE 1451, OGC, ISO and complimentary standards in action. Demonstrations will include:

- IEEE 1451 Smart Sensor and MBARI PUCK capability deployed by the Monterey Bay Aquarium Research Institute and others
- PulseNet – Northrop Grumman and others
- EO-1 Satellite Tasking and acquisition, US NASA
- SensorBay – Compusult

1430-1600 Group Discussion – Next Steps for the Oceans Community

The first 45 minutes of this segment will focus on a structured discussion of near-term steps that can / should be taken to define the standards "best practice" for the Oceans Community. Possibilities include - establishment of a Oceans standards profile, definition of follow on initiative to directly engage manufacturers, users and applications developers. Remaining time will be reserved for networking amongst workshop attendees and participants (beer and wine will be provided).