



Ocean Observatories Initiative

UNOLs Briefing

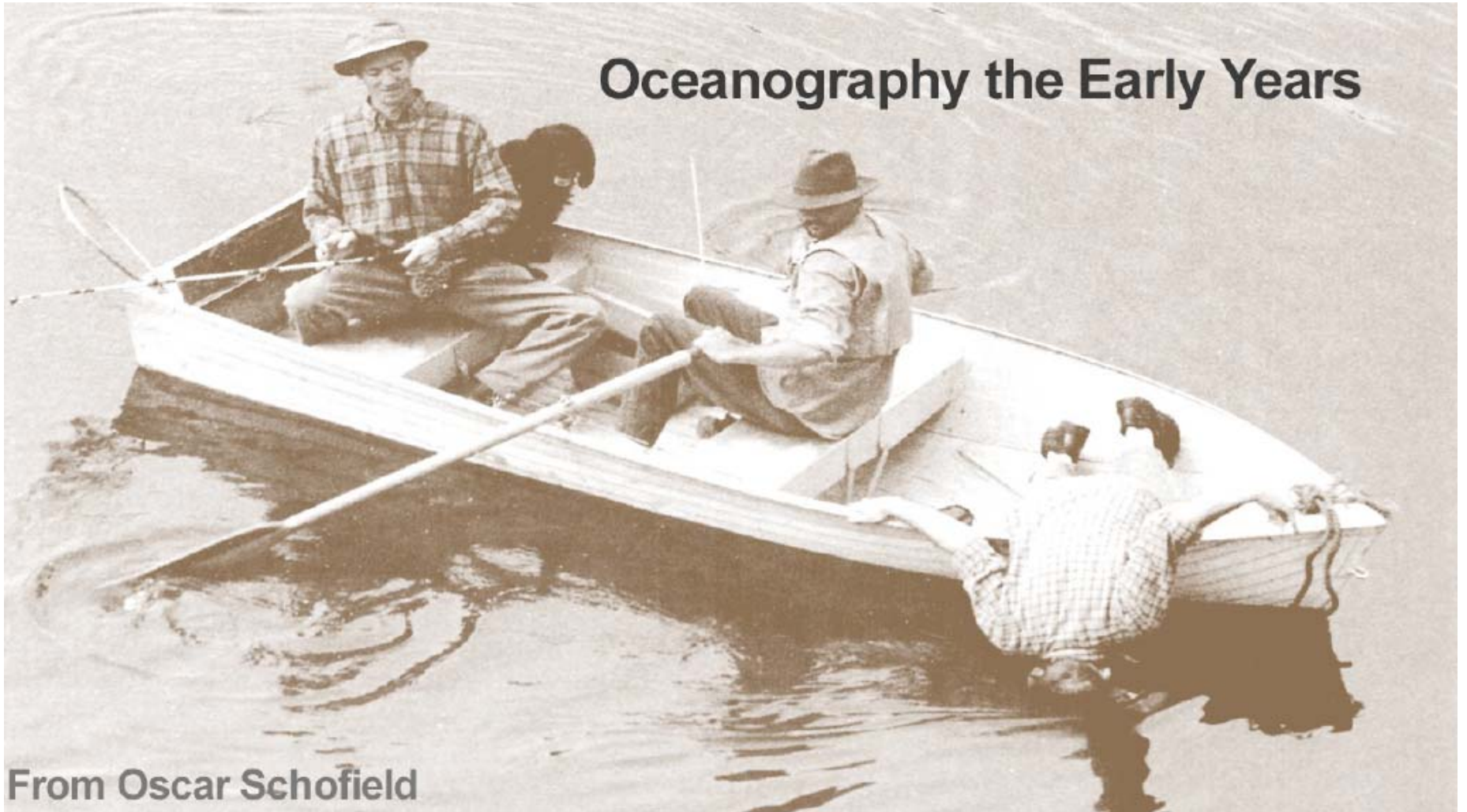
October 13, 2010

Jean McGovern

OOI Program Director, NSF



Oceanography the Early Years

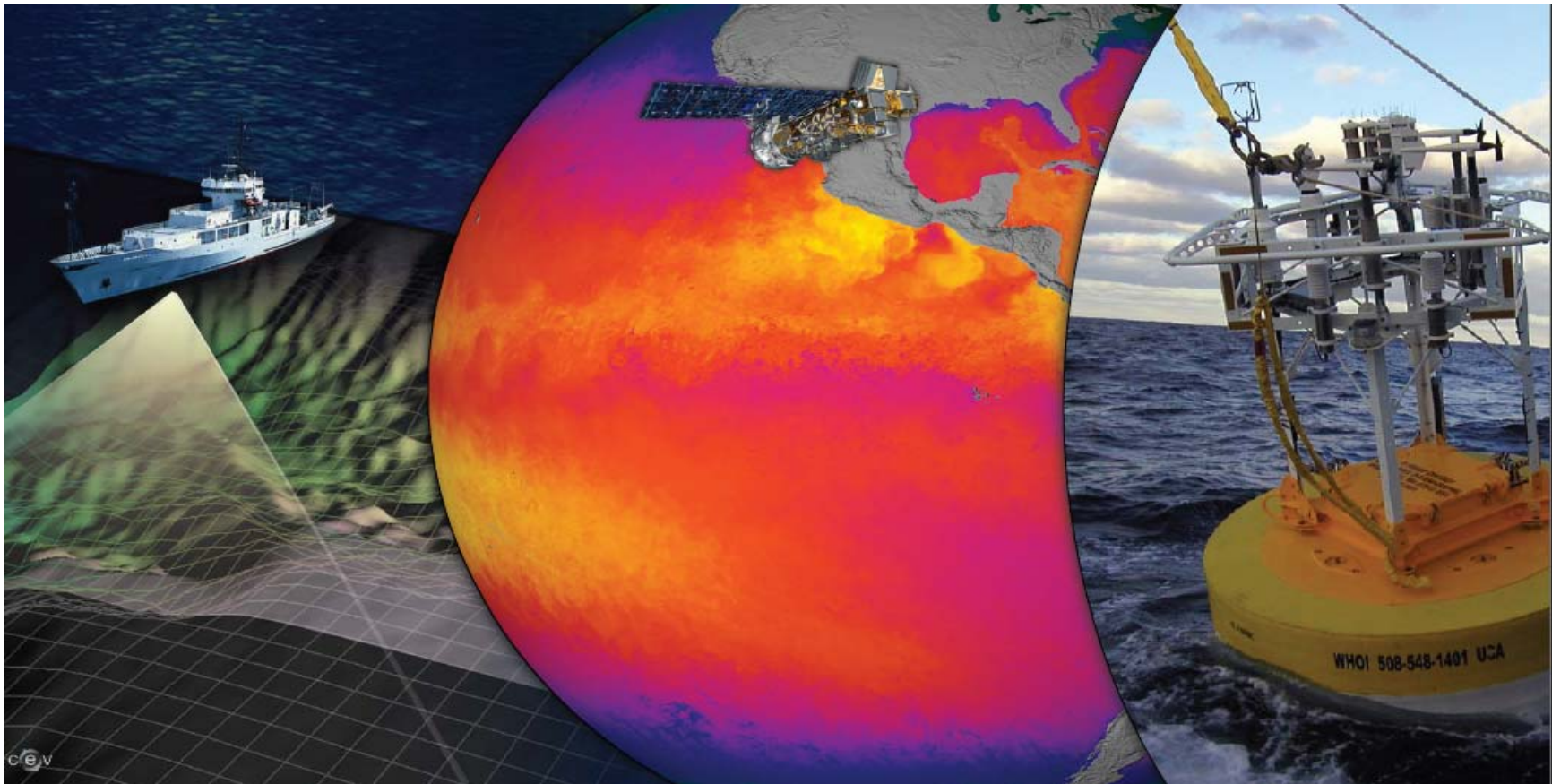


From Oscar Schofield

Current Oceanographic Research Infrastructure



Ocean Observing Data to Shore – Enabled by Technology



OOI Subsystems

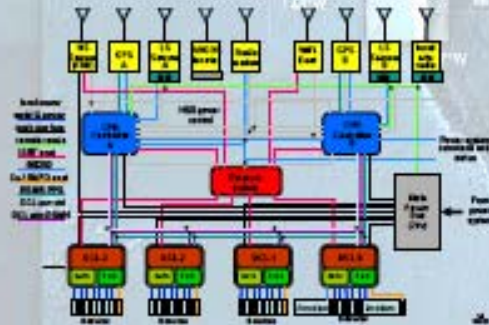
Buoys, Power, Telemetry



AUV/Dock



Platform Control, DCL



Sensors

Moorings

Benthic Nodes



Shore Station



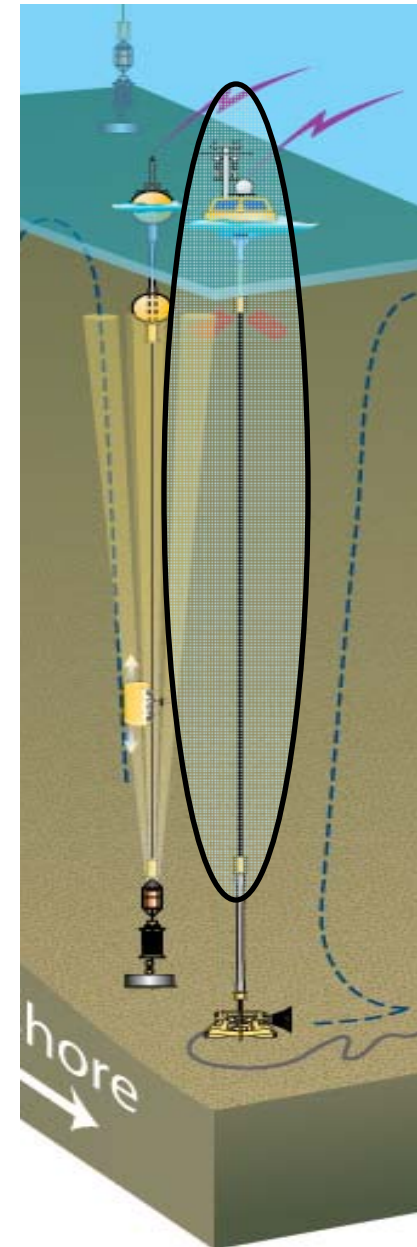
Profilers

Gliders



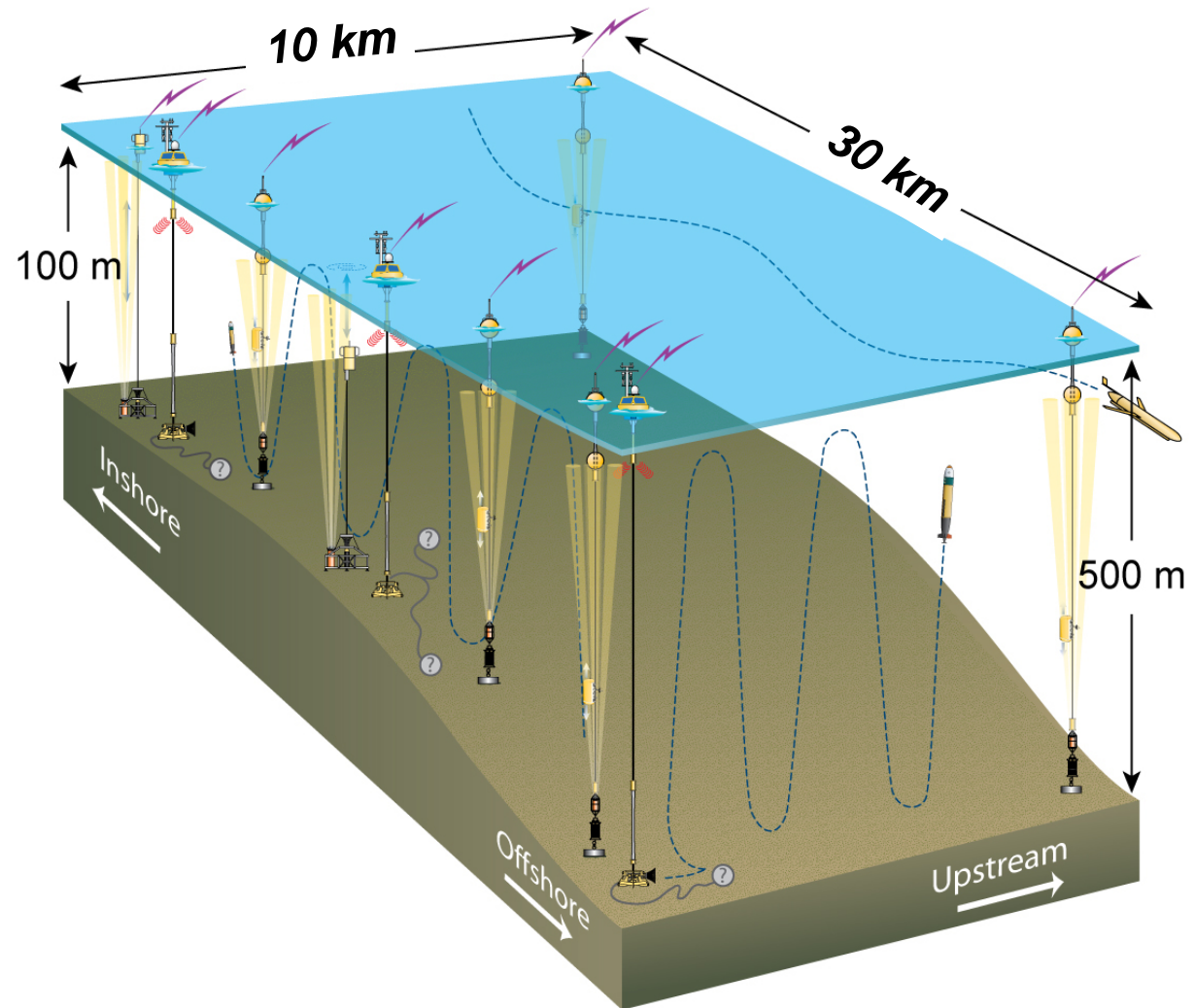
Surface Mooring

- Buoy (with telemetry to shore)
 - Surface meteorology
 - Waves
 - pCO₂ (air and sea)
- Subsurface
 - Temperature and salinity
 - Dissolved oxygen
 - pH
 - Water velocity
 - Turbidity
 - Optical properties
 - Chlorophyll, organic matter
 - Nitrate



Pioneer Array

- Full water column
- Cross-front resolution
- Power-generating buoys
- Multi-function nodes
- AUV docks



OOI Network Design

Multi-scale Observatory

Global Arrays

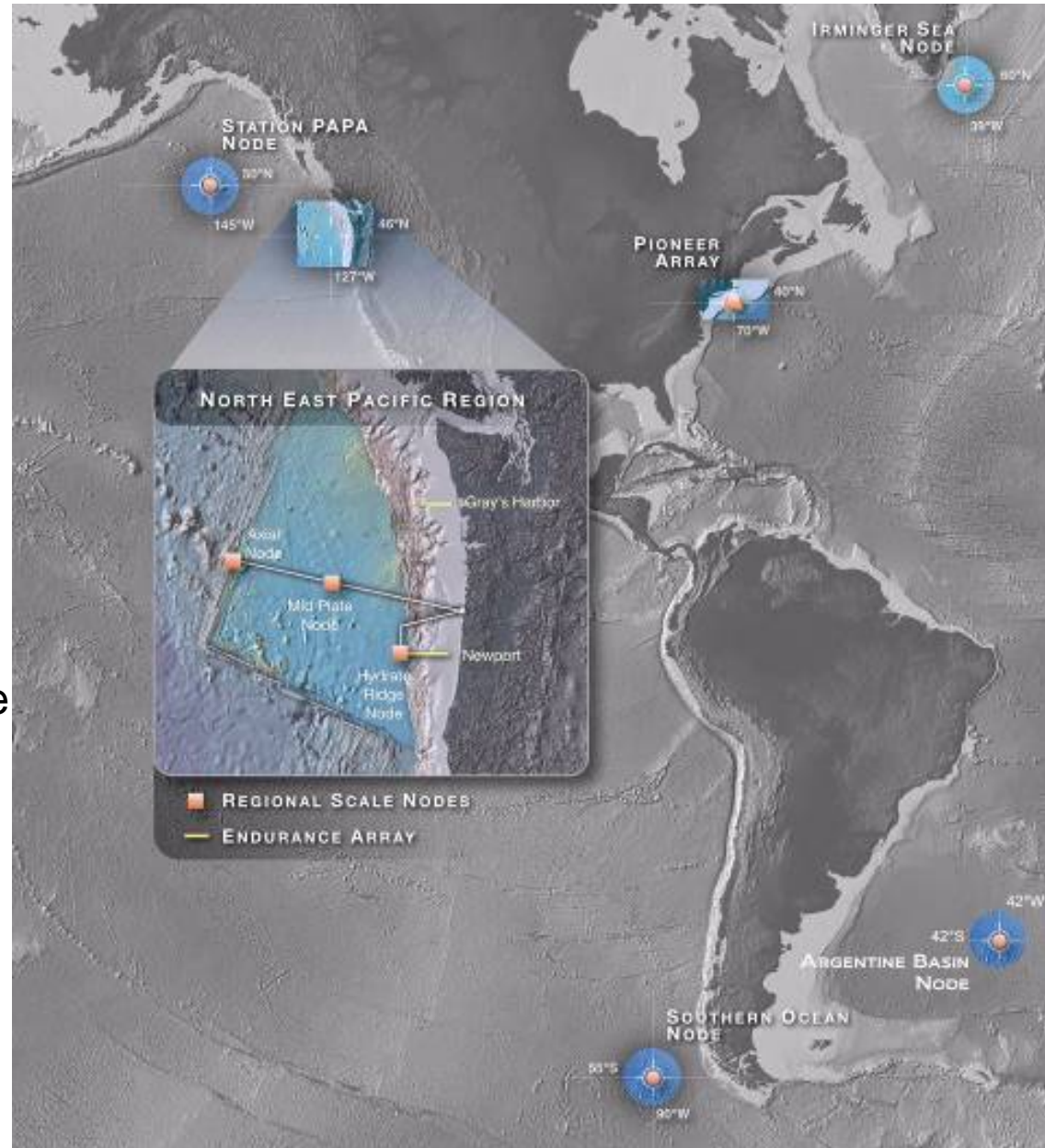
- Gulf of Alaska
- Irminger Sea
- Southern Ocean
- Argentine Basin

Regional

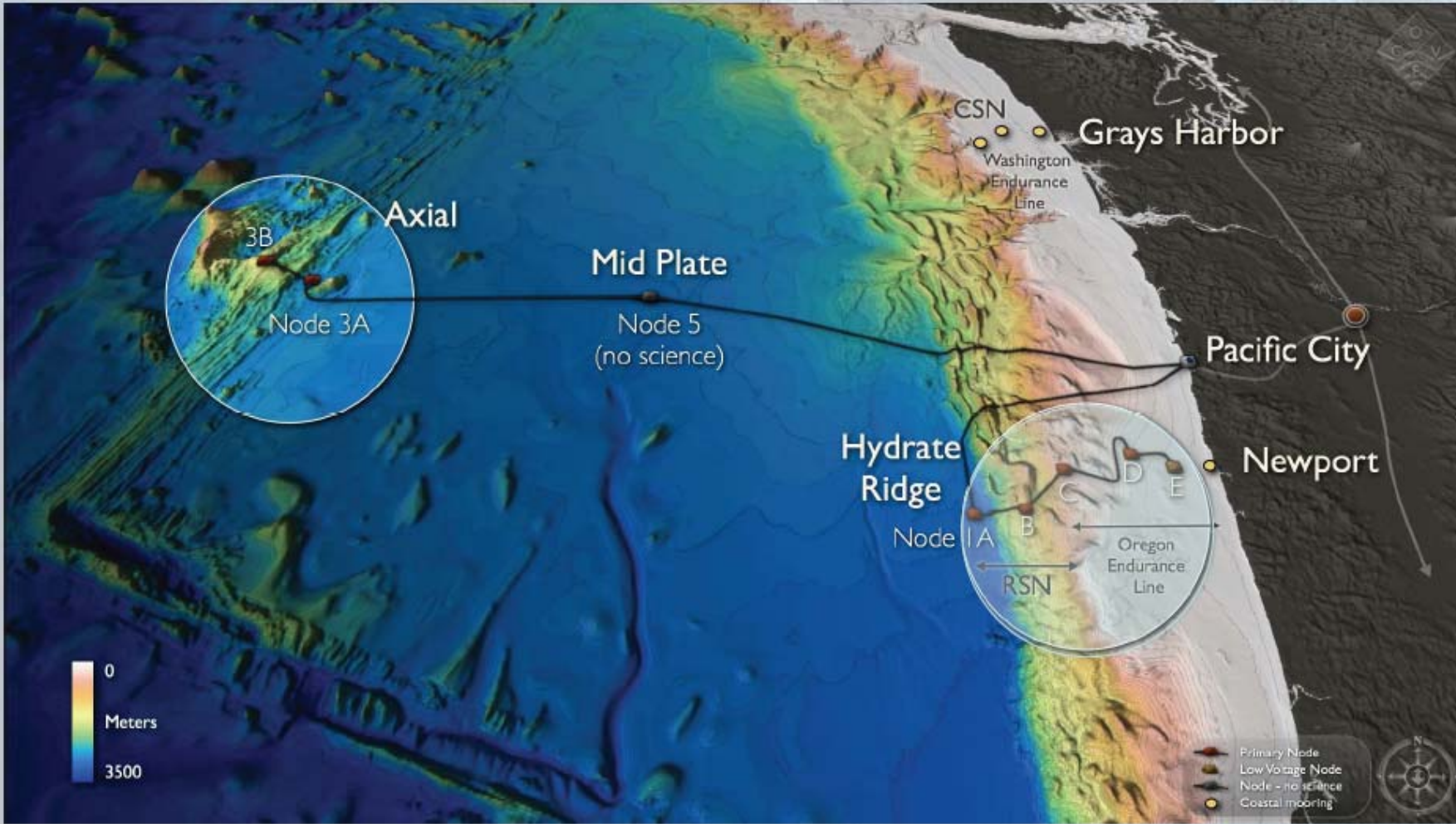
- Cabled
- Juan de Fuca Plate
- Oregon

Coastal Arrays

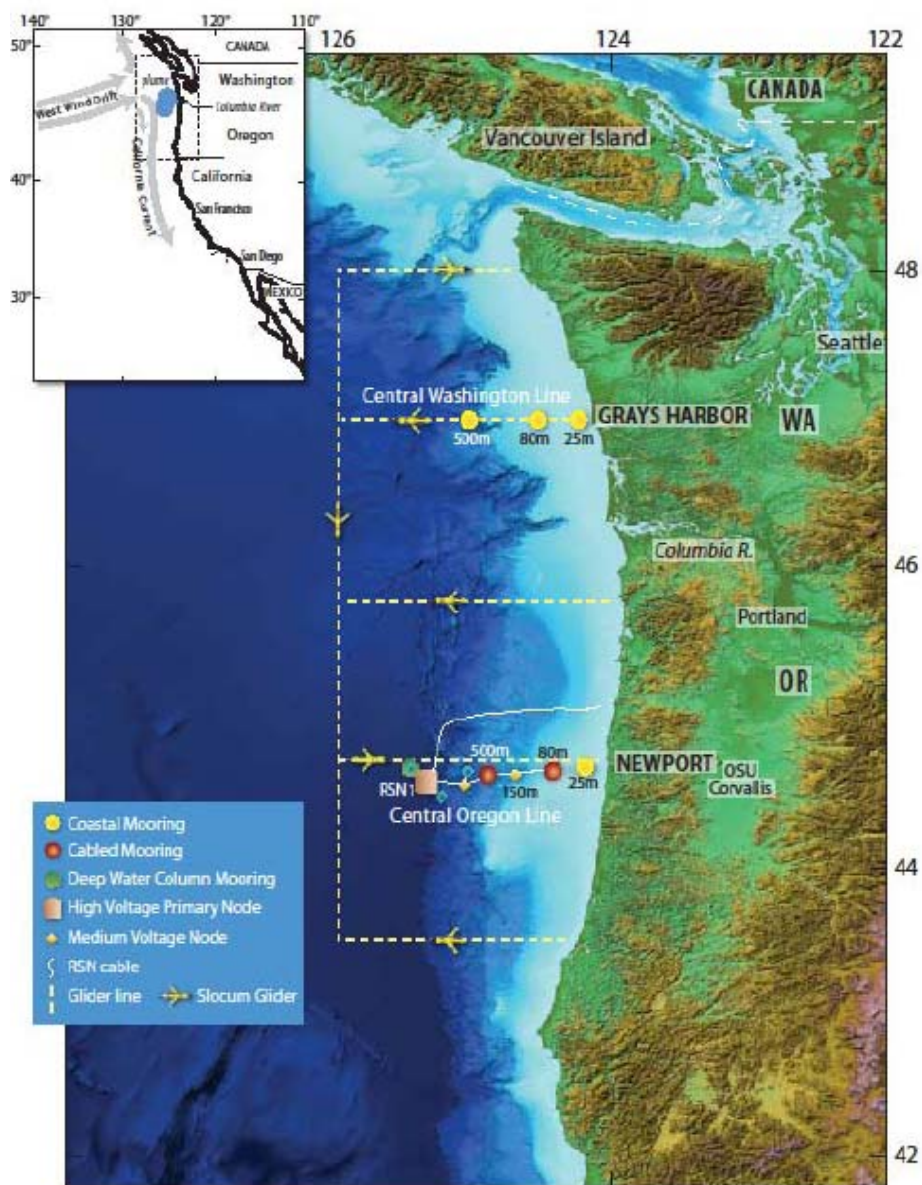
- Pioneer
- Endurance



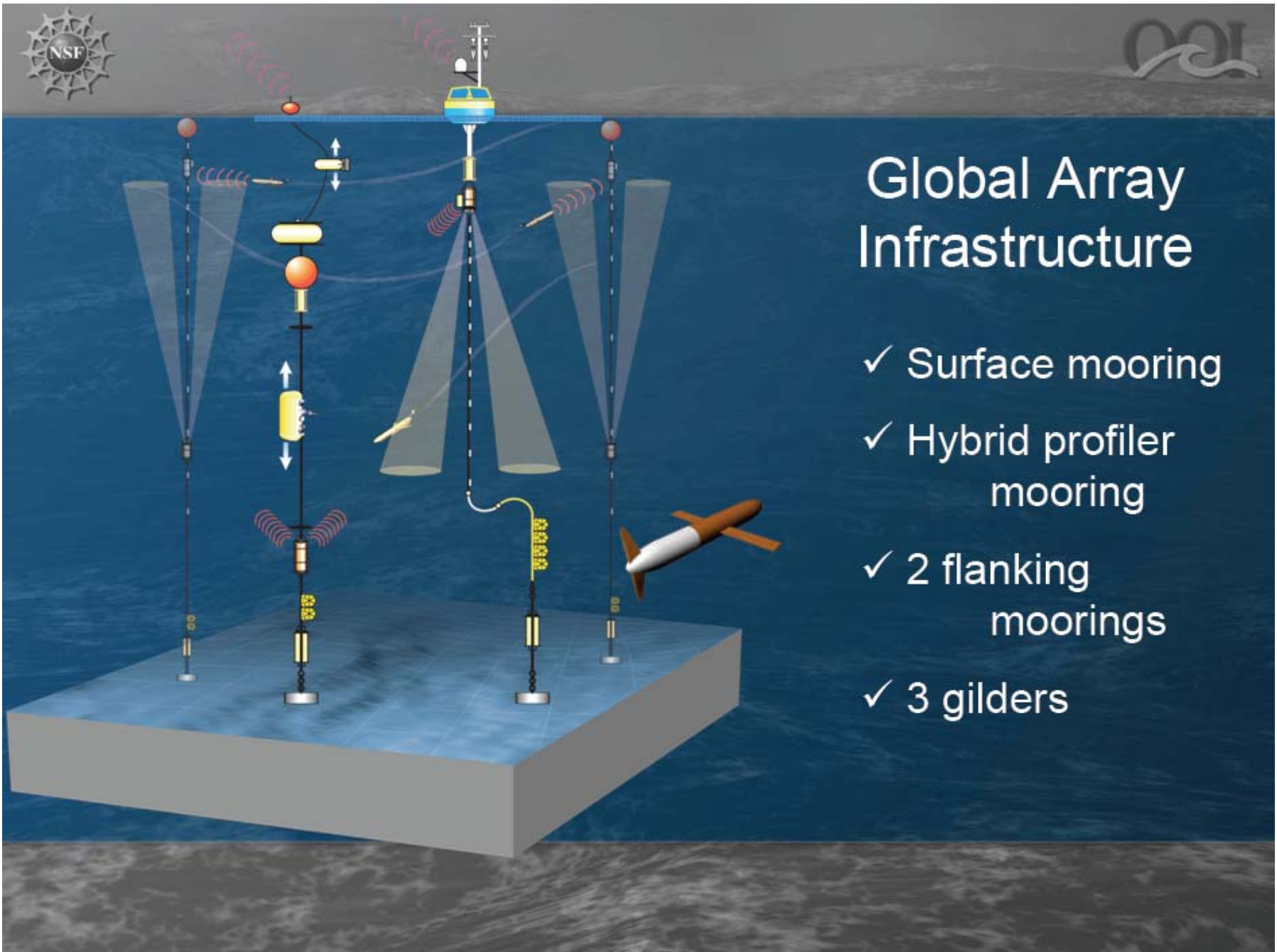
Regional Scale Nodes



Endurance Array



- ✓ 2 cross-shelf lines
- ✓ Moorings on inner shelf, mid-shelf, and slope
- ✓ Air-sea, water column, and benthic observing
- ✓ 6 Gilders
- ✓ Oregon Line connects to Regional cable; continuity with RSN mooring and PAPA
- ✓ Coastal to deep ocean observing

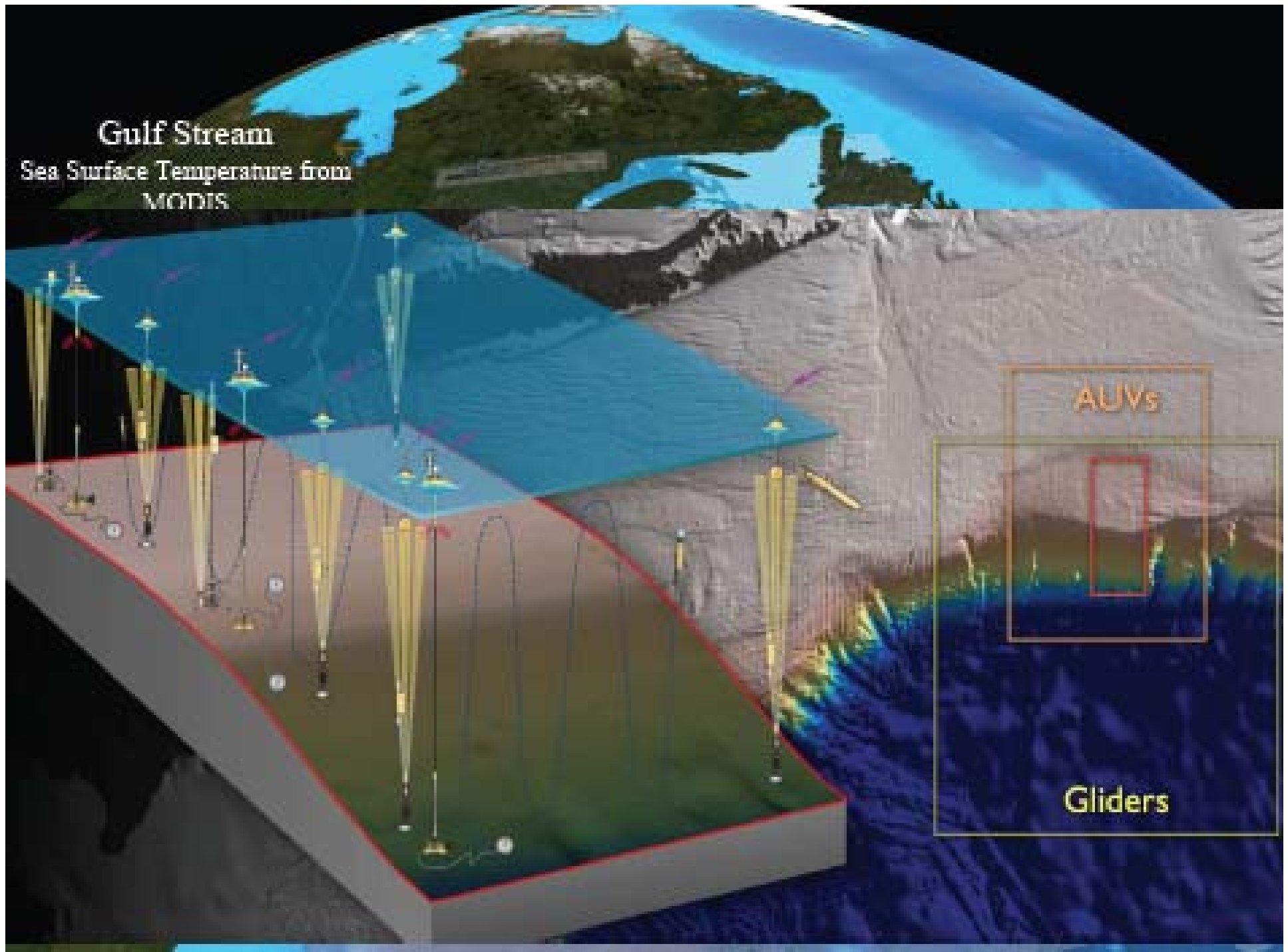


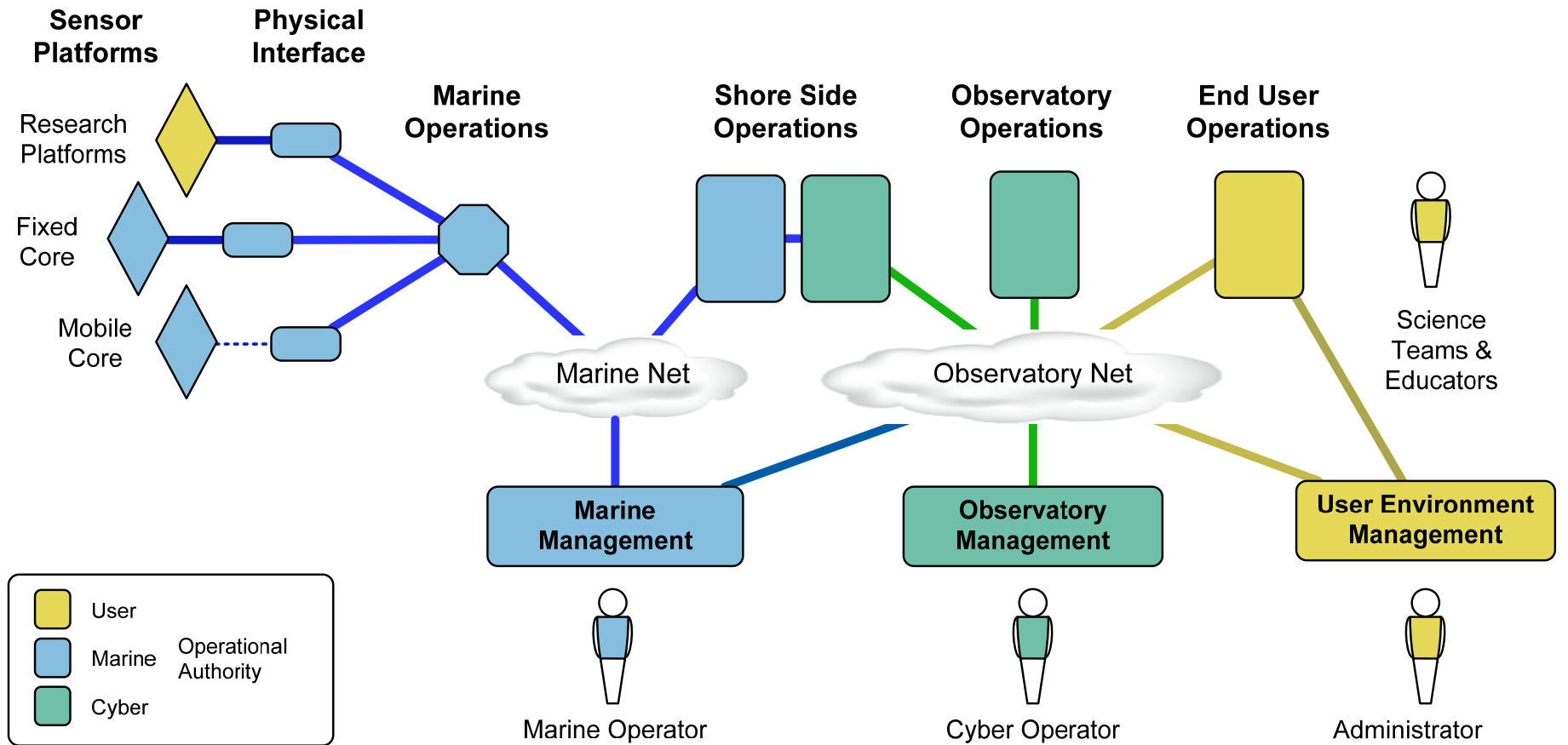
Global Array Infrastructure

- ✓ Surface mooring
- ✓ Hybrid profiler mooring
- ✓ 2 flanking moorings
- ✓ 3 gliders

Gulf Stream

Sea Surface Temperature from MODIS





Integrated Observatory Operational Domains



OOI Project Team



Organization

Project Role

Consortium for Ocean Leadership

NSF Awardee & Systems Integrator

Woods Hole Oceanographic Institution

Coastal and Global

- Oregon State University
- Scripps Institution of Oceanography
- Raytheon

University of Washington

Regional

UC San Diego

Cyberinfrastructure

Soon to Be Selected

Education & Public Engagement



Proposed OOI Installation Schedule	2011				2012				2013				2014			
	Q1 J F M	Q2 A M J	Q3 J A S	Q4 O N D	Q1 J F M	Q2 A M J	Q3 J A S	Q4 O N D	Q1 J F M	Q2 A M J	Q3 J A S	Q4 O N D	Q1 J F M	Q2 A M J	Q3 J A S	Q4 O N D

Global Sites	Argentine Basin															
	Irminger Sea															
	Southern Ocean 55 S															
	Station Papa															

Coastal Arrays	Endurance															
	Pioneer															

Regional Arrays	Primary Infrastructure															
	Secondary Infrastructure															

Legend
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Installation

Data Flow

Commissioning

Gliders Deployed

AUVs Deployed

Cruises: the Jiffy-Pop Diagram

