OOI Web Quest

*This web quest is designed to help you orient to the OOI program. Explore the OOI Website (oceanobservatories.org) to learn more about the program.*

**Section 1:** **What is OOI?**

1. The National Science Foundation established the OOI for oceanographers in the early stages of their career as well as for those established with years of sea-going experience. What is the major goal of the observatory for researchers?

The OOI is based upon a scientific community vision resulting from two decades of workshops, meetings, and reports that established science drivers for the observatory infrastructure. Science is central to the OOI, its technology, and its data.  The OOI is structure around six major science themes covering the open ocean to the coast and the atmosphere to the seafloor.  There are 6 major science themes that provide an impetus for the OOI design- however the list is not exclusive. **The OOI is an infrastructure program designed to provide data in near-real time to its user community, as such these data may be used to answer innumerable scientific inquiries (new research questions or expand current research goals).**

1. What can I do with OOI as a research scientist? Can I use open access data from OOI to write an NSF proposal? Can I add an instrument of my own to the OOI Array?

YES- All Ocean Science Researchers are encouraged to use OOI data, and to propose 1) to connect new instruments to the observatory network, 2) sampling rate modifications for existing instrumentation, and/or 3) ancillary work during normally scheduled OOI cruises. The Researcher section of the website defines and communicates the processes and costs (where applicable) for researcher proposals and interactions with the observatory. The OOI operations budget covers the staff and costs for operating and maintaining the core instruments and infrastructure. Additional tasks and cruise costs must be budgeted and funded by the requesting institution, subject to OOI approval.

1. Who is publishing science papers with OOI data? How many OOI related publications have appeared in *Science*?

Many scientists are starting to write proposals to NSF to include OOI in their sampling plan.

Wilcock, W.S.D., M. Tolstoy, F. Waldhauser, C. Garcia1, Y.J. Tan, D.R. Bohnenstieh, J. Caplan-Auerbach, R.P. Dziak, A.F. Arnulf, M.E. Mann, 2016. Seismic constraints on caldera dynamics from the 2015 Axial Seamount eruption. Science, 354: 1395-1399, doi: [10.1126/science.aah5563](http://science.sciencemag.org/content/354/6318/1395.full)

**Section 2: Why should I be interested in OOI?**

1. What does the OOI do that traditional oceanographic sampling cannot do?

The OOI is a networked collection of ocean and seafloor sampling platforms that record data at high sampling rates over years to decades. OOI researchers are making simultaneous, interdisciplinary measurements to investigate a spectrum of phenomena including episodic, short-lived events (tectonic, volcanic, biological, severe storms), to more subtle, longer-term changes or emergent phenomena in ocean systems (circulation patterns, climate change, ocean acidity, ecosystem trends).

1. What are the benefits of OOI to society? How long will OOI exist?

The OOI network was designed to address critical science-driven questions that will lead to a better understanding and management of our oceans, enhancing our capabilities to address critical issues such as climate change, ecosystem variability, ocean acidification, and carbon cycling. The OOI has transformed research of the oceans by integrating multiple scales of globally distributed marine observations into one observing system and allowing for that data to be freely downloaded over the internet in near-real time.  The OOI will continue to deliver data and data products for a **25-year-plus** time period within an expandable architecture that can meet emerging technical advances in ocean science.

**Section 3: How can I access the OOI?**

1. Go to the OOI Data section and review the range of options for accessing data. How many ways can you access/utilize data from the OOI?

1) Data portal; 2) data products; 3) cruise data. There are several data tools including raw data server, ERDAPP and live video feed from the cabled array.

1. What is the Pioneer Array? What range of depths do the moorings in the Pioneer Array cover? Why is it called Pioneer?

Seven site mooring array – ranging in depth from 95-450 meters. Located in New England. Mid Atlantic Bight Shelf Break.- Site does not say why it is called Pioneer – but it should ☺

1. What are the Global Arrays? How are they set up?

Located in Irminger Sea; Papa; Southern Ocean; and Argentine Basin – all areas that have been sparsely sampled. Each global array consists of a triangular set of moorings with the sides of the triangle having a length roughly 10 times the water depth to capture mesoscale variability in each region. The global array design consists of a combination of three mooring types: the paired Global Surface and subsurface Global Profiler. Moorings are at one corner of the triangle, with the other two corners occupied by Flanking Subsurface Moorings. Two types of gliders are deployed within the array: open-ocean gliders (dashed lines) sample spatial variability within and around the moored array, and vertically profiling gliders sample the waters above the subsurface Global Profiler Mooring.

1. What is the cabled Array? Why is it really cool? Can you find live video from the Array?

The Cabled Array spans coastal to blue-water environments and includes electro-optical submarine cables that provide high-power, bandwidth, and two-way real-time communication to seafloor and water column instrumentation. Within the Axial Seamount Array, infrastructure is located in the active caldera of Axial Seamount and at its base. There is a link to video footage of hydrothermal vents on the homepage.

11. What page would you check out to find datasets and websites provided by other researchers?

There are lots of ways to access data – see

<https://oceanobservatories.org/community-tools/>

12. What is one question you still have about the OOI?