

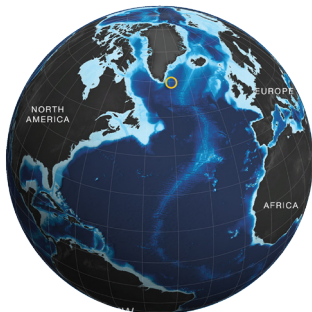
OOI Global Arrays

The OOI Global Arrays provide sustained open-ocean observations in high-latitude areas that have been historically sparsely sampled. Global Array data can be used to address science questions related to ocean-atmosphere exchange, climate variability, ocean circulation, ecosystems, the global carbon cycle, turbulent mixing, and biophysical interactions.

Global Irminger Sea Array

60°N, 39°W 2,800 meters

The Irminger Sea Array is located in a region with high wind and large surface waves, strong atmosphere-ocean exchanges of energy and gases, CO₂ sequestration, high biological productivity, and an important fishery. It is one of the few places on earth with deepwater formation that feeds the large-scale thermohaline circulation.



Global Station Papa Array

50°N, 145°W 4,200 meters

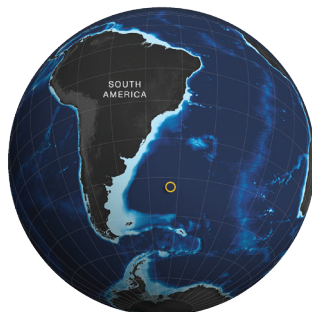
The Station Papa Array is located in the Gulf of Alaska next to the NOAA Pacific Marine Environmental Laboratory (PMEL) Surface Buoy. The region is extremely vulnerable to ocean acidification, has a productive fishery, and low eddy variability. It is impacted by the Pacific Decadal Oscillation and adds to a broader suite of OOI and other observatory sites in the NE Pacific.



Global Argentine Basin Array*

42°S, 42°W 5,200 meters

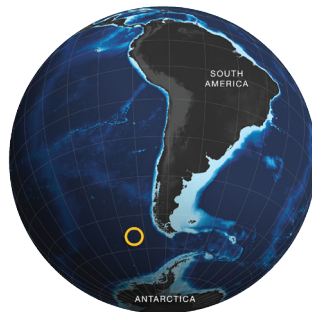
The Argentine Basin Array was selected to explore the global carbon cycle because of its high biological productivity fueled by iron-laden dust supplied by the nearby continent. Strong currents persisting to the sea floor and water mass mixing also characterize this region with elevated levels of eddy kinetic energy similar to those in the Gulf Stream.



Global Southern Ocean Array*

55°S, 90°W 4,800 meters

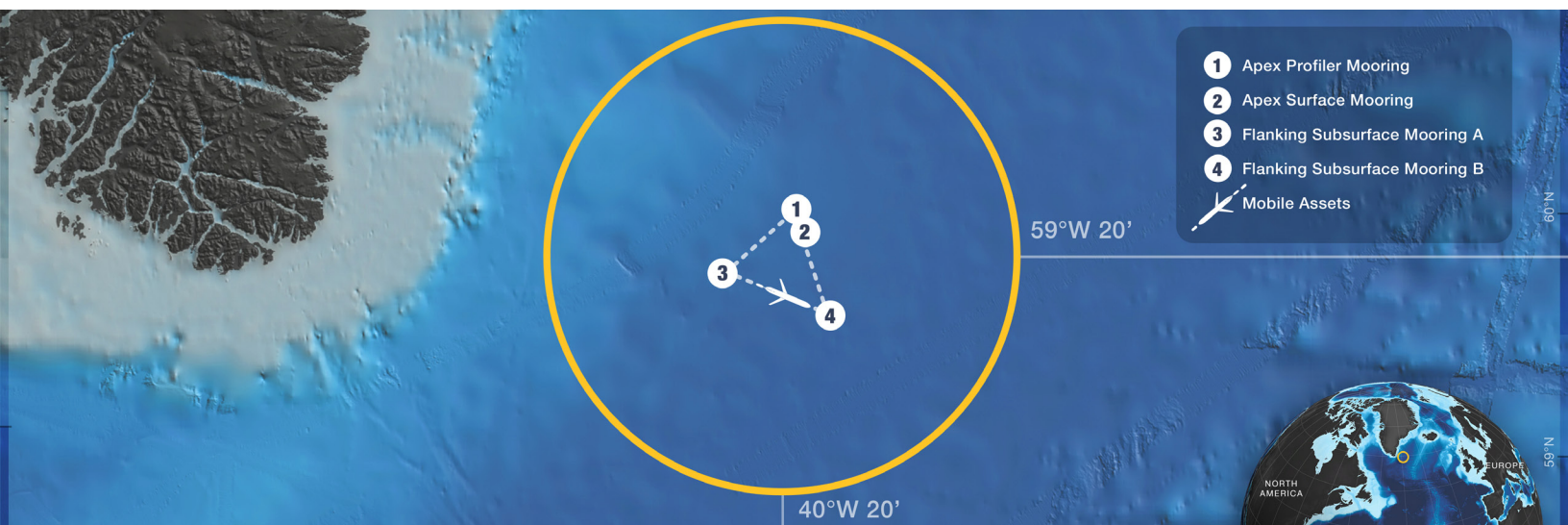
The Southern Ocean Array was located in the high-latitude S. Pacific, west of the southern tip of Chile in an area of large-scale thermohaline circulation, intermediate water formation, and CO₂ sequestration. It permits examination of linkages between the Southern Ocean and the Antarctic, including strengthening westerly winds and upwelling, and samples the data sparse, cold, dry Southern Hemisphere, providing critical information to calibrate remote sensing and air-sea flux products.



**Deployment of Southern Hemisphere Arrays was suspended in Dec. 2017.*

Design

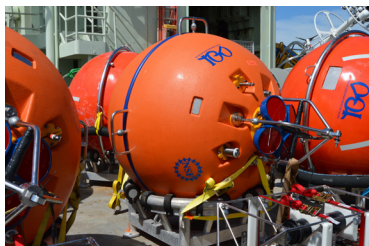
Each global array consists of a triangular set of moorings (white circles), with the sides of the triangle having a length roughly 10 times the water depth to capture mesoscale variability in each region. The global array design consists of a combination of three mooring types: the paired Global Surface (2) and subsurface Global Profiler (1) Moorings are at one corner of the triangle, with the other two corners occupied by Flanking Subsurface Moorings (3,4). 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).



Global Array Platforms & Instruments

Global Profiler Mooring

Instrument	Data Products
Bio-acoustic Sonar	Multi-frequency Acoustic Backscatter
CTD	Salinity, Temperature, Depth, Density
Dissolved Oxygen	Dissolved Oxygen Concentration
2-Wavelength Fluorometer	Chlorophyll, Optical Backscatter
3-D Single Point Velocity Meter	Turbulent Point Water Velocity



Flanking Subsurface Mooring

Instrument	Data Products
CTD	Salinity, Temperature, Depth, Density
Dissolved Oxygen	Dissolved Oxygen Concentration
3-Wavelength Fluorometer	Chlorophyll, CDOM, Optical Backscatter
Seawater pH	pH
ADCP	Water Velocity Profile
Single Point Velocity Meter*	Mean Point Water Velocity

**only located on Irminger Sea Array*

Open Ocean Gliders

Instrument	Data Products
CTD	Salinity, Temperature, Depth, Density
Dissolved Oxygen	Dissolved Oxygen Concentration
2-Wavelength Fluorometer	Chlorophyll, Optical Backscatter

Global Profiling Gliders

Instrument	Data Products
CTD	Salinity, Temperature, Depth, Density
Dissolved Oxygen	Dissolved Oxygen Concentration
3-Wavelength Fluorometer	Chlorophyll, CDOM, Optical Backscatter
3-Wavelength Fluorometer	Optical Backscatter
Nitrate	Nitrate Concentration
PAR	Photosynthetically Active Radiation

Global Surface Mooring*

Instrument	Data Products
Air-Sea Interface pCO ₂	Partial Pressure of CO ₂ in Atmosphere & Surface Seawater, Air-Sea CO ₂ Flux
CTD	Salinity, Temperature, Depth, Density
Dissolved Oxygen	Dissolved Oxygen Concentration
2- & 3-Wavelength Fluorometer	Chlorophyll, CDOM, Optical Backscatter
Spectral Irradiance	Downwelling Irradiance
Meteorological Instrument Package	Water Temperature & Salinity, Precipitation, Atmospheric Pressure, Air-Sea Heat Flux, Wind Velocity, Humidity, Air Temperature, Downwelling Longwave & Shortwave Irradiance
Nitrate	Nitrate Concentration
Direct Covariance Flux*	Air-Sea Heat Flux, Wind Velocity, Air Temperature
Seawater pCO ₂	Partial Pressure of CO ₂
Seawater pH	pH
Surface Wave Spectra	Wave Properties
Spectrophotometer	Optical Absorption & Attenuation
ADCP	Water Velocity Profile
Single Point Velocity Meter	Mean Point Water Velocity

**Station Papa does not have a Surface Mooring
only located on Irminger Sea & Southern Ocean Arrays

