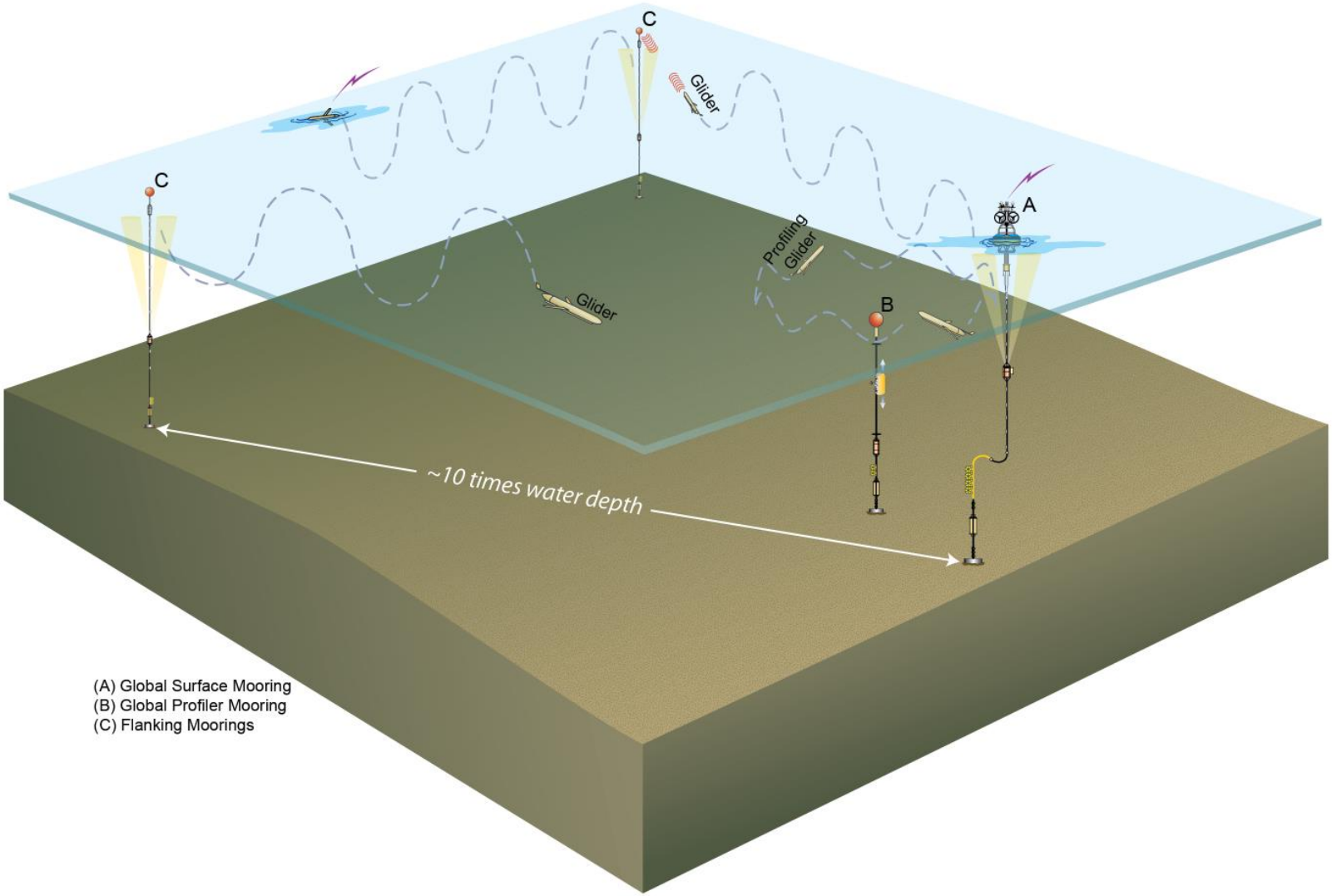
- A distributed network of fully open access data for sustained periods open to anyone with open access to the web the democratization of oceanography
- Ability to characterize the importance of episodic versus seasonal, annual variability over eddy, shelf and plate scales
- >800 unique sensors deployed at any given time on the network
- A network capable of absorbing new sensors as they are developed by the wider scientific community
- A scalable cyber infrastructure providing a service orientated architecture
- A system that provides web service data management with visualization
- An integrated education and public engagement suite of tools that can be directly integrated into undergraduate education modules


C
Glider
C
A
Profiling
Glider
Glider
B
~10 times water depth
(A) Global Surface Mooring
(B) Global Profiler Mooring
(C) Flanking Moorings

(A) Southern Ocean Surface Mooring

Location: 54.47°S, 89.28°W
Approximate Depth of Water Column: 4,800 m

Instrument Name (OOI Instrument Class)	Instrument Manufacturer	Instrument Make/Model	Data Products
Surface Buoy: Sensors located at the sea surface or 5 meters above*			
Bulk Meteorology Instrument Package (METBK)*	Star Engineering	ASIMET	Barometric Pressure; Sea Surface Conductivity; Downwelling Longwave Irradiance; Precipitation; Relative Humidity; Downwelling Shortwave Irradiance ; Specific Humidity; Air Temperature; Sea Surface Temperature; Mean Wind Velocity
Spectral Irradiance (SPKIR)*	Satlantic	OCR507 ICSW	Downwelling Spectral Irradiance
Direct Covariance Flux (FDCHP)*	WHOI	DCFS	Direct Covariance Flux of Heat; Direct Covariance Flux of Momentum; Platform Direction and Tilt (3 axes); Turbulent Air Temperature; Wind Velocity in 3 Dimensions
pCO_2 Air-Sea (PCO2A)	Pro-Oceanus	pCO_2-pro	Flux of CO_2 from the Ocean into the Atmosphere; Partial Pressure of CO_2 in Atmosphere; Partial Pressure of CO_2 in Surface Sea Water; pCO_2a Gas Stream Pressure; CO_2 Mole Fraction in Atmosphere; CO_2 Mole Fraction in Surface Sea Water
Surface Wave Spectra (WAVSS)	Axys Technologies	TRIAXYS	Wave Spectral Properties
Sensors located on the bottom of the Surface Buoy, 1-meter below sea surface			
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4330	Oxygen Concentration from Stable DO Instrument; Oxygen Concentration from Stable DO Instrument
3-Wavelength Fluorometer (FLORT)	WET Labs	ECO Triplet-w	Fluorometric CDOM Concentration; Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Absorption Spectrophotometer (OPTAA)	WET Labs	AC-S	Optical Absorption Coefficient; Reference Absorption; Signal Absorption; Optical Beam Attenuation Coefficient; Reference Beam Attenuation; Signal Beam Attenuation; Temperature from OPTAA
Nitrate (NUTNR)	Satlantic	ISUS	Nitrate Concentration

Sensors located on an instrument frame 12-meters below sea surface

CTD Pumped (CTDBP)	Sea-Bird	SBE 16plusV2	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4330	Oxygen Concentration from Stable DO Instrument; Oxygen Concentration from Stable DO Instrument
Absorption Spectrophotometer (OPTAA)	WET Labs	AC-S	Optical Absorption Coefficient; Reference Absorption; Signal Absorption; Optical Beam Attenuation Coefficient; Reference Beam Attenuation; Signal Beam Attenuation; Temperature from OPTAA
Nitrate (NUTNR)	Satlantic	ISUS	Nitrate Concentration
Spectral Irradiance (SPKIR)	Satlantic	OCR507 ICSW	Downwelling Spectral Irradiance
pCO2 Water (PCO2W)	Sunburst	SAMI-pCO2	Optical Absorbance Ratio at 434nm; Optical Absorbance Ratio at 620nm; PCO2W Thermistor Temperature; Partial Pressure of CO2 in Water
3-Wavelength Fluorometer (FLORT)	WET Labs	ECO Triplet-w	Fluorometric CDOM Concentration; Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Single Point Velocity Meter (VELPT)	Nortek	Aquadopp 300m	Mean Point Water Velocity

Disclaimer: All data are subject to revision without notice; exact locations of mooring sites are not yet finalized; exact depths of sensors will be determined at the time of deployment.

(A) Southern Ocean Surface Mooring

Location: 54.47°S, 89.28°W
Approximate Depth of Water Column: 4,800 m

Instrument Name (OOI Instrument Class)	Instrument Manufacturer	Instrument Make/Model	Data Products
pH sensors are located at 20 and 100-meters below sea surface along the Mooring Riser			
Seawater pH (PHSEN)	Sunburst	SAMI-pH	PHSEN Thermistor Temperature; Optical Absorbance Signal Intensity at 434nm; Optical Absorbance Signal Intensity at 578nm; pH
Sensors are attached 40, 80, and 130-meters below sea surface along the Mooring Riser			
CTD Pumped (CTDBP)	Sea-Bird	SBE 16plus-IM V2	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4330	Oxygen Concentration from Stable DO Instrument; Oxygen Concentration from Stable DO Instrument
2-Wavelength Fluorometer (FLORD)	WET Labs	ECO FLBB-SB	Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
pCO2 Water (PCO2W)	Sunburst	SAMI-pCO2	Optical Absorbance Ratio at 434nm; Optical Absorbance Ratio at 620nm; PCO2W Thermistor Temperature; Partial Pressure of CO2 in Water
CTD's are located at several depths along the Mooring Riser: 20, 60, 100, 180, 250, 350, 500, 750, 1000, 1500			
CTD Mooring, Inductive (CTDMO)	Sea-Bird	SBE 37IM	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
Mounted 500-meters below sea surface; uplooking, measures to surface			
Velocity Profiler, long range (ADCPS)	Teledyne RDI	WorkHorse LongRanger Sentinel 75khz	Echo Intensity; Velocity Profile

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Southern Ocean Profiler Mooring

Location: 54.41°S, 89.28°W

Approximate Depth of Water Column: 4,800 m

Instrument Name (OOI Instrument Class)	Instrument Manufacturer	Instrument Make/Model	Data Products
Located on the Mooring Riser, 164-meters below sea surface			
CTD Mooring, Inductive (CTDMO)	Sea-Bird	SBE 37IM	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
Mounted 150-meters below sea surface, uplooking; measures to surface			
Bio-acoustic Sonar, Global (ZPLSG)	ASL Environmental Sciences	AZFP	Multi-Frequency Acoustic Backscatter
Wire Following Profiler 1: moves from 310-meters below sea surface to 2,445-meters			
2-Wavelength Fluorometer (FLORD)	WET Labs	FLBBRTD	Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4330	Oxygen Concentration from Stable DO Instrument
CTD Profiler (CTDPF)	Sea-Bird	SBE 52MP	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
3-D Single Point Velocity Meter (VEL3D)	Falmouth Scientific	ACM-Plus	Turbulent Point Water Velocity
Wire Following Profiler 2: moves from 2,470-meters below sea surface to 4,605-meters			
2-Wavelength Fluorometer (FLORD)	WET Labs	FLBBRTD	Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4330	Oxygen Concentration from Stable DO Instrument
CTD Profiler (CTDPF)	Sea-Bird	SBE 52MP	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
3-D Single Point Velocity Meter (VEL3D)	Falmouth Scientific	ACM-Plus	Turbulent Point Water Velocity

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(C) Southern Ocean Flanking Moorings

There are two identical Flanking Moorings in the Southern Ocean Array

Locations: A: 54.08°S, 88.89°W
B: 54.08°S, 89.67°W

Depth of Water Column: 4,800 m

Instrument Name	Instrument Manufacturer	Instrument Make/Model	Data Products
Located on the Mooring Riser, 40-meters below sea surface			
3-Wavelength Fluorometer (FLORT)	WET Labs	ECO Triplet-w	Fluorometric CDOM Concentration; Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Seawater pH (PHSEN)	Sunburst	SAMI-pH	PHSEN Thermistor Temperature; Optical Absorbance Signal Intensity at 434nm; Optical Absorbance Signal Intensity at 578nm; pH
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4831	Oxygen Concentration from Stable DO Instrument
Mounted 500-meters below sea surface; uplooking, measures to surface			
Velocity Profiler, long range (ADCPS)	Teledyne RDI	WorkHorse LongRanger Sentinel 75khz	Echo Intensity; Velocity Profile
CTD's are located at several depths along the Mooring Riser: 30, 40, 60, 90, 130, 180, 250, 350, 500, 750, 1000, 1500			
CTD Mooring, Inductive (CTDMO)	Sea-Bird	SBE 37IM	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature

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Southern Ocean Mobile Assets – Gliders

Depth of Water Column: 4,800 m

An array of 3 Gliders will survey within/between moorings.

Gliders will travel along saw-toothed transects, penetrating the sea surface and diving down to a maximum depth of 1,000 meters.

Instrument Name	Instrument Manufacturer	Instrument Make/Model	Data Products
2-Wavelength Fluorometer (FLORD)	WET Labs	ECO Puck FLBB-SLC	Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4831	Oxygen Concentration from Stable DO Instrument
CTD Glider (CTDGV)	Sea-Bird	SBE Glider Payload CTD (GP-CTD)	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature

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Southern Ocean Mobile Assets – Profiling Gliders

Depth of Water Column: 5,200 m

Two Gliders will survey the upper water column above the Southern Ocean Profiler Mooring. Gliders will travel along saw-toothed transects, penetrating the sea surface and diving down to a maximum depth of 1,000 meters.

Profiling Glider 1

Instrument Name	Instrument Manufacturer	Instrument Make/Model	Data Products
CTD Glider (CTDGV)	Sea-Bird	SBE Glider Payload CTD (GP-CTD)	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
Dissolved Oxygen Stable Response (DOSTA)	Aanderaa	Optode 4831	Oxygen Concentration from Stable DO Instrument; Oxygen Concentration from Stable DO Instrument
Nitrate (NUTNR)	Satlantic	SUNA V2	Nitrate Concentration

Profiling Glider 2

Instrument Name	Instrument Manufacturer	Instrument Make/Model	Data Products
CTD Glider (CTDGV)	Sea-Bird	SBE Glider Payload CTD (GP-CTD)	Conductivity; Density; Practical Salinity; Pressure (Depth); Temperature
2-Wavelength Fluorometer (FLORD)	WET Labs	ECO Puck FLBB-SLC	Fluorometric Chlorophyll-a Concentration; Optical Backscatter (Red Wavelengths)
Optical Backscatter	WET Labs	BB3-SLC	Optical Absorption Coefficient; Reference Absorption; Signal Absorption; Optical Beam Attenuation Coefficient; Reference Beam Attenuation; Signal Beam Attenuation; Temperature from OPTAA
Photosynthetically Available Radiation (PARAD)	Biospherical Instruments	QSP-2155	Photosynthetically Active Radiation (400-700 nm)

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