Ocean Observatories Initiative

Status

September 26, 2017

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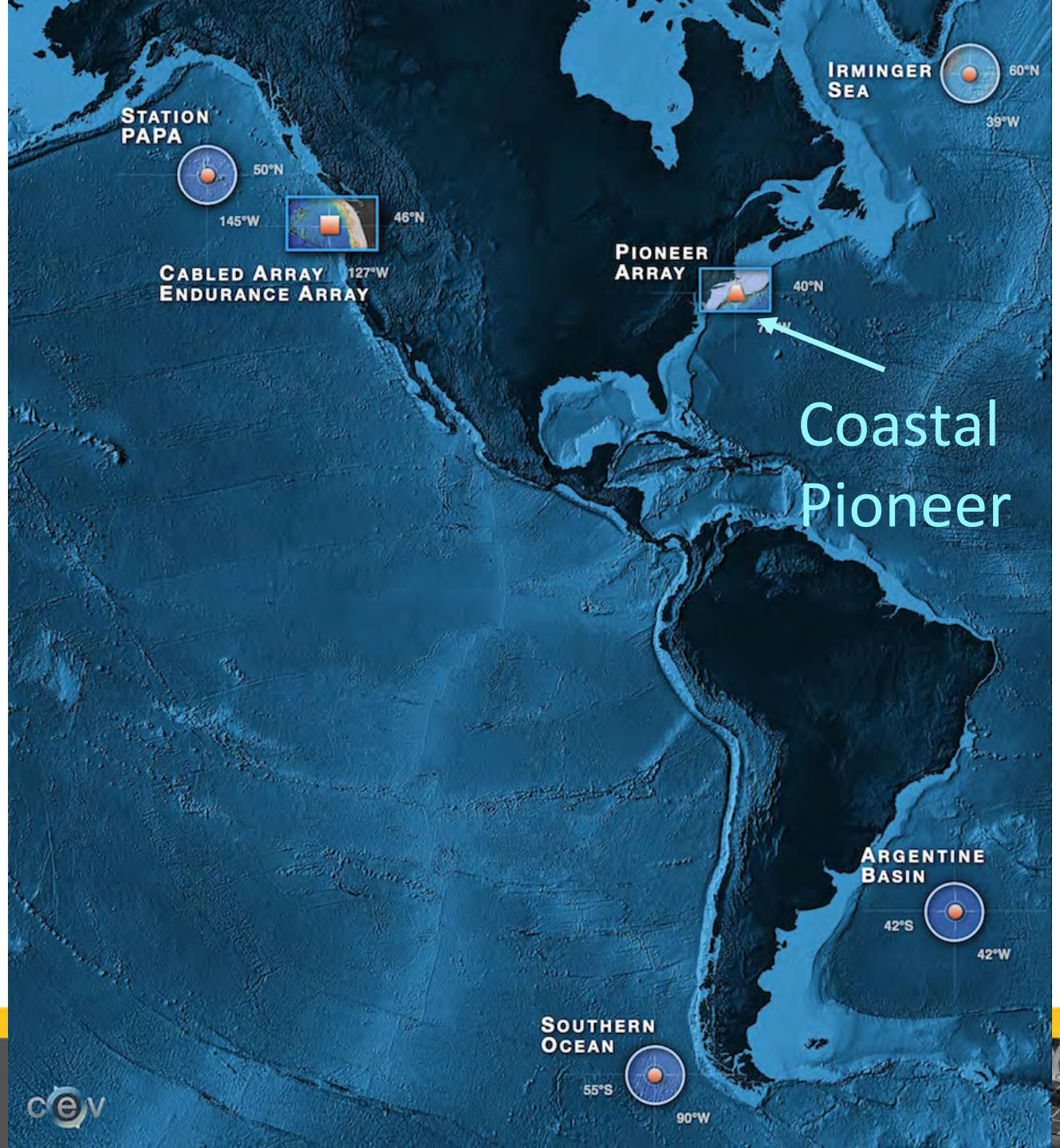
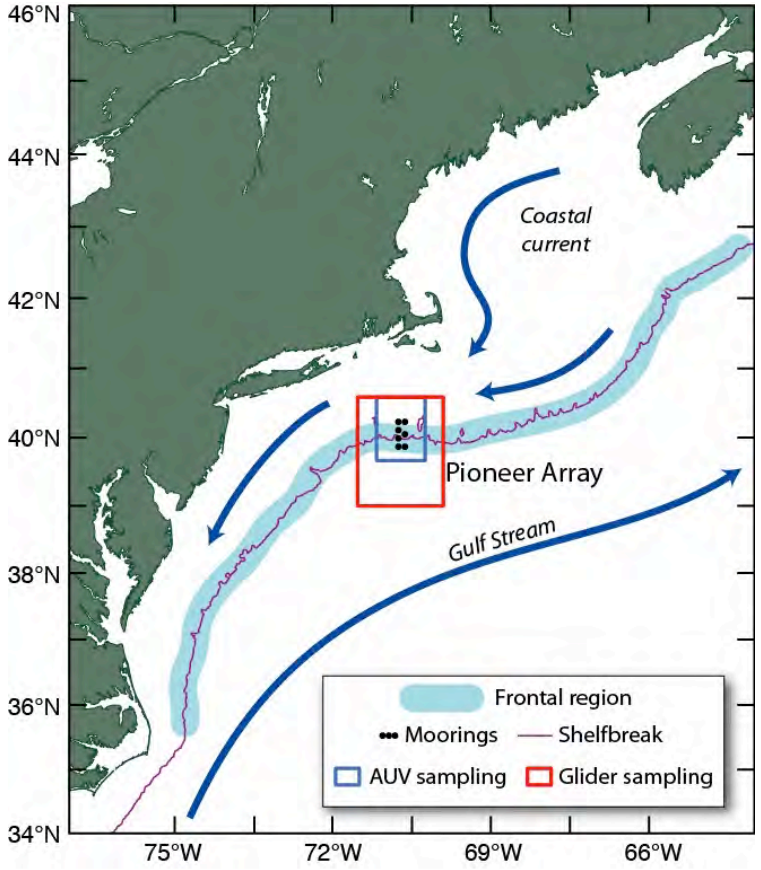
Woods Hole Oceanographic Institution

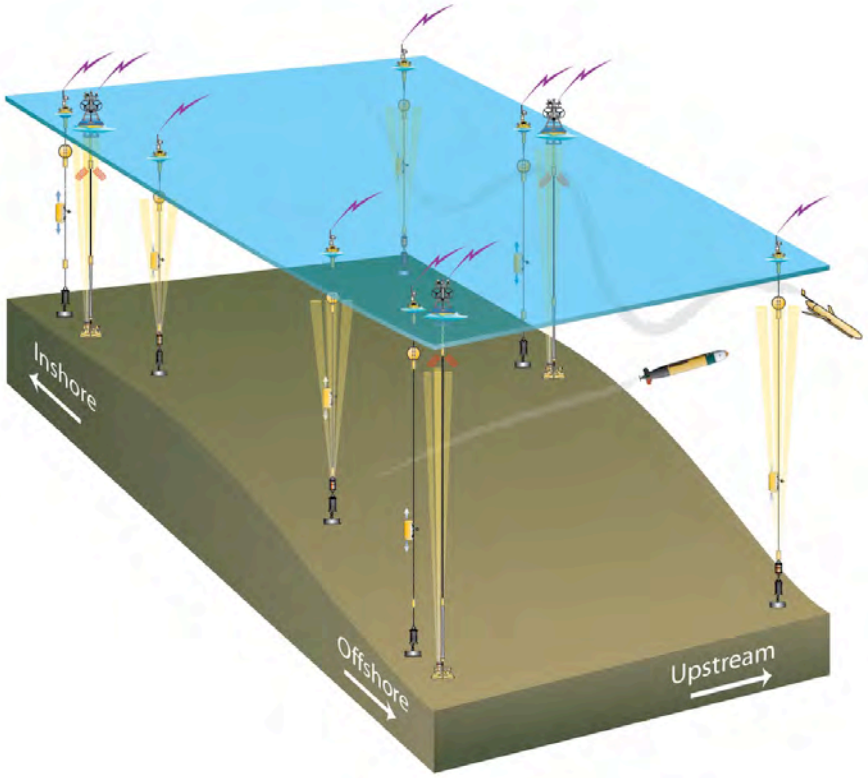
OOI

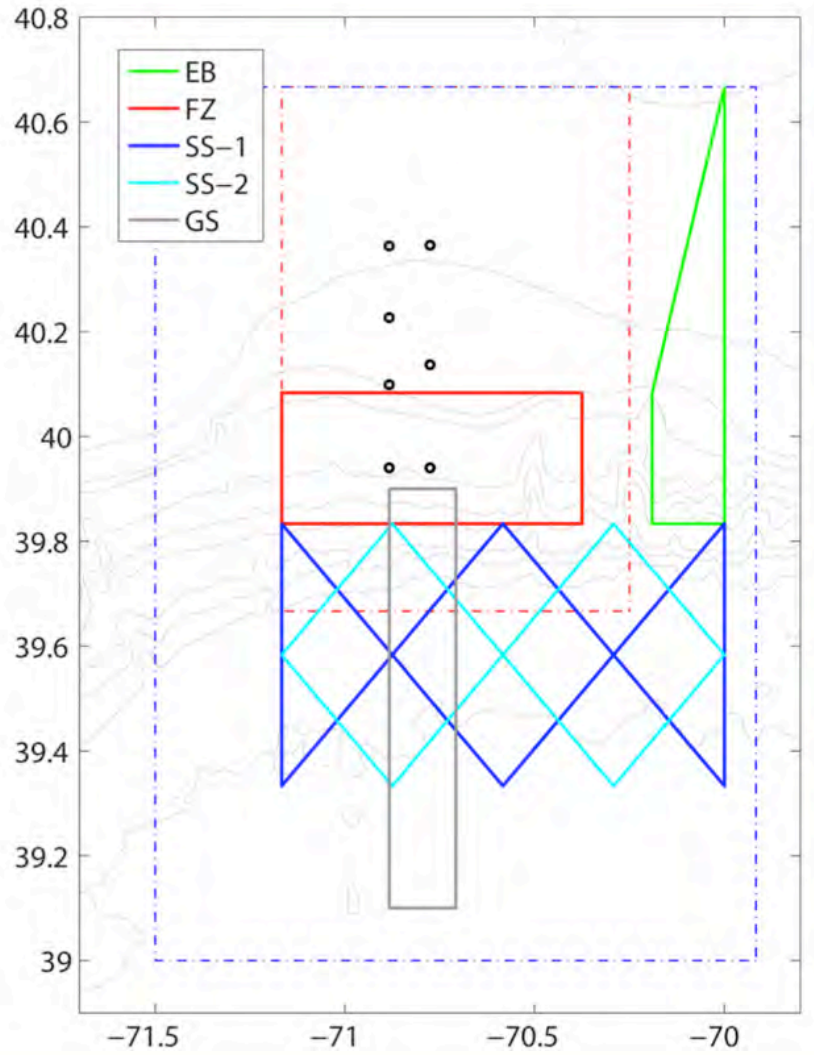
Status Update Since May 2017



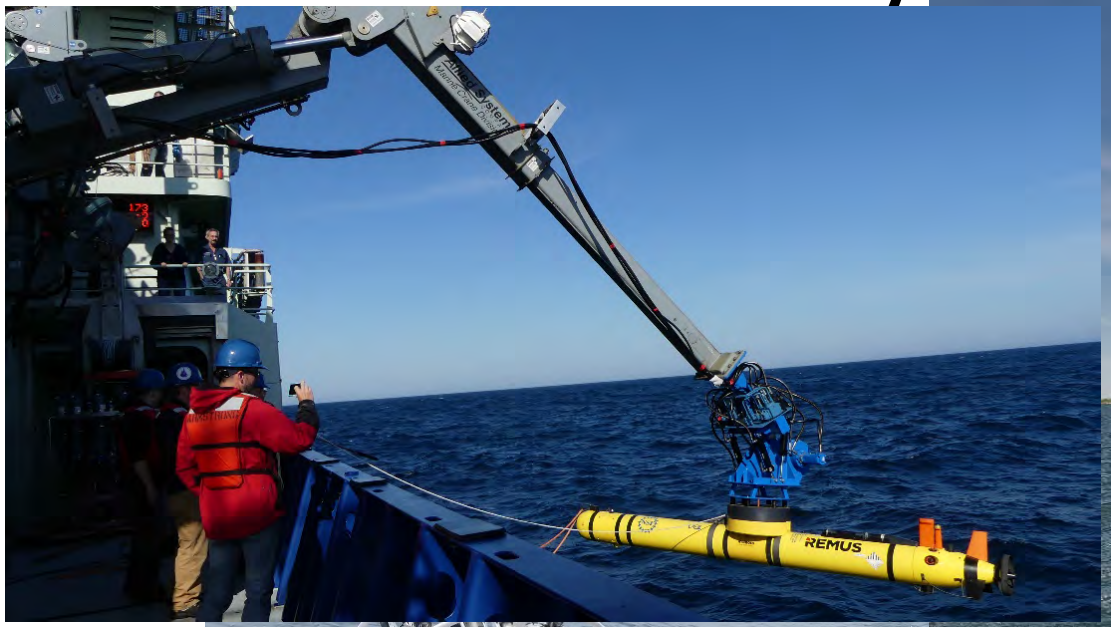
Coastal Pioneer Array

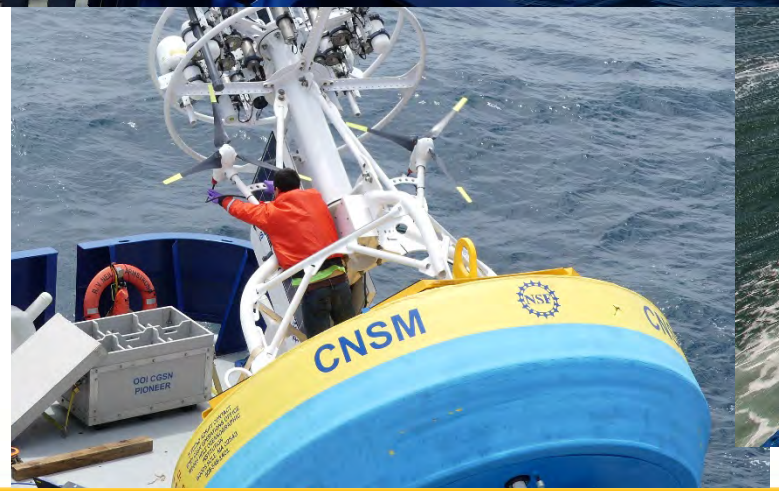






Pioneer 8 30 May – 20 Jun 2017





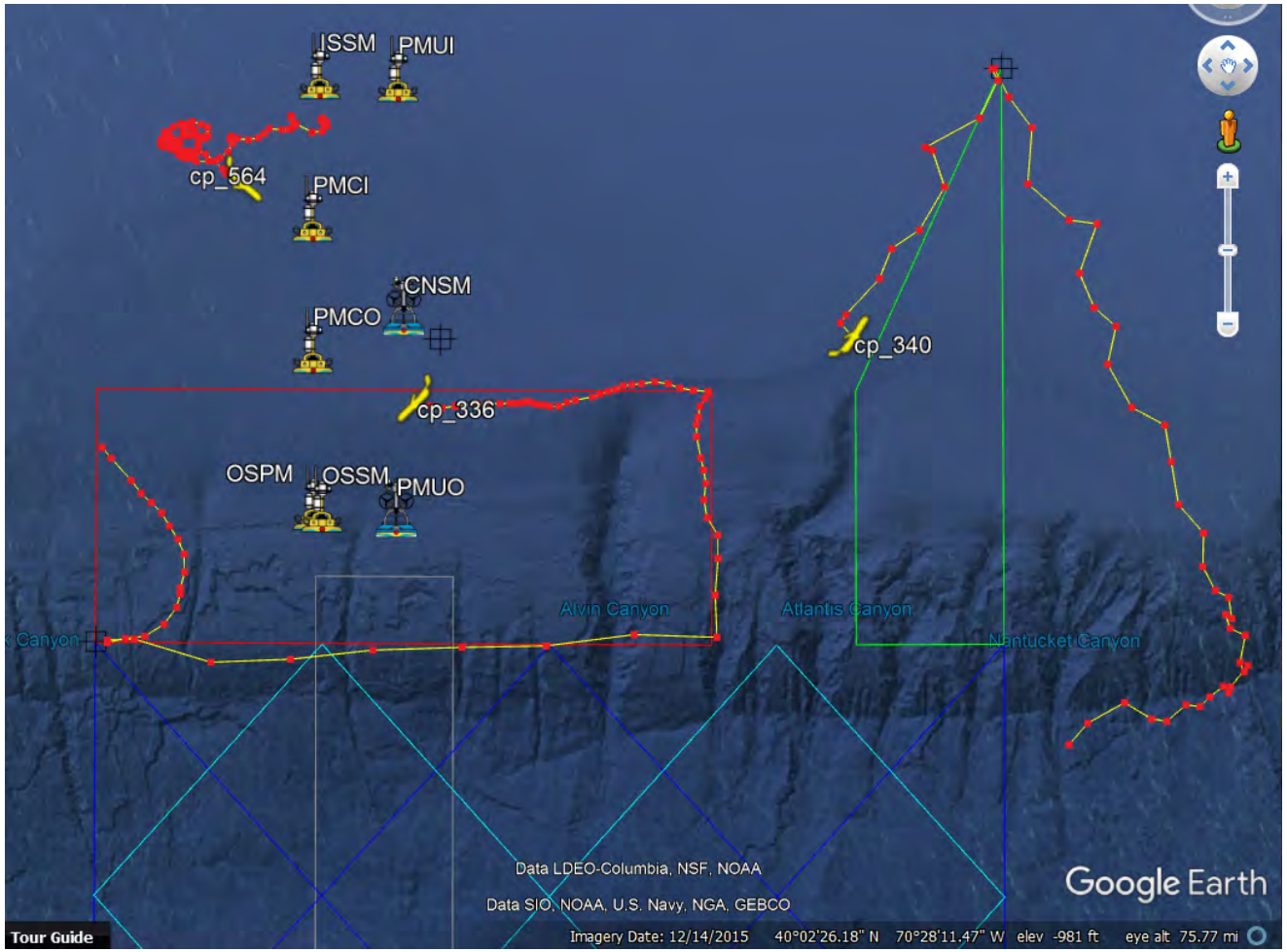
Coastal Pioneer

- **Pioneer 8** 30 May – 20 Jun 2017 RV Armstrong
- Navy operations restrict Leg 2&3

Platforms Recovered/Deployed
- 3 x Surface Moorings
- 5 x Coastal Profiler Moorings
- 3 x Gliders deployed (total of 5)
- AUV Cross- and Along-Shelf surveys
- **Pioneer 8a** August 15-18 (3x gliders deployed)

- **Pioneer 9** 28 Oct – 12 Nov, 2017 RV Armstrong
  - Additional CPM
  - 5 gliders, AUV

- **Instrument Issues** (see summary)



Coastal Pioneer 8 Status

19 September 2017

CP01CNSM

19-Sep-17	
	%good
Num Inst.	25
Inst. %	100
Data System	100
GPS	100
Power	85
Battery	100
PV	100
Wind Turbine	100
Telemetry	100
Beacon	100

CP03ISSM

19-Sep-17	
	%good
Num Inst.	20
Inst. %	93
Data System	100
GPS	100
Power	85
Battery	100
PV	100
Wind Turbine	100
Telemetry	100
Beacon	100

CP04OSSM

19-Sep-17	
	%good
Num Inst.	12
Inst. %	57
Data System	67
GPS	100
Power	93
Battery	100
PV	100
Wind Turbine	100
Telemetry	100
Beacon	100

CP02PMCI

19-Sep-17	
	%good
Num Inst.	7
Inst. %	100
Profiles	100
Data System	100
GPS	100
Battery	100
Telemetry	100
Beacon	100
Instruments	Flag
mopak	1
adpct	1
velpt	1
dosta	1
ctd	1
flort	1
par	1

CP02PMCO

19-Sep-17	
	%good
Num Inst.	7
Inst. %	100
Profiles	100
Data System	100
GPS	100
Battery	100
Telemetry	100
Beacon	100
Instruments	Flag
mopak	1
adpct	1
velpt	1
dosta	1
ctd	1
flort	1
par	1

CP02PMUI

19-Sep-17	
	%good
Num Inst.	7
Inst. %	100
Profiles	100
Data System	100
GPS	100
Battery	100
Telemetry	100
Beacon	100
Instruments	Flag
mopak	1
adpct	1
velpt	1
dosta	1
ctd	1
flort	1
par	1

CP02PMUO

19-Sep-17	
	%good
Num Inst.	7
Inst. %	100
Profiles	100
Data System	100
GPS	100
Battery	100
Telemetry	100
Beacon	100
Instruments	Flag
mopak	1
adpct	1
velpt	1
dosta	1
ctd	1
flort	1
par	1

CP04OSPM

19-Sep-17	
	%good
Num Inst.	6
Inst. %	100
Profiles	100
Data System	100
GPS	100
Battery	100
Telemetry	100
Beacon	100
Instruments	Flag
mopak	1
velpt	1
dosta	1
ctd	1
flort	1
par	1

GL 336	GL 340	PG 563
FZ-1	EB	ISPM
100	100	100
No issues	No issues	No issues
Alert storm	Alert storm	Alert storm

CP01CNSM – D00006/7

Pioneer 7 → Pioneer 8

	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd
Num Inst.	19	19	19	18	12	12	12	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	24	24	25	25	25	25	25	25	25	25	8	8	25			
Inst. %	79	79	82	80	52	52	52	54	54	54	58	58	58	58	58	58	58	58	58	58	58	58	96	96	100	100	100	100	100	100	100	100	35	35	100			
Data System	100	100	100	100	66.67	100	100	100	100	100	100	66.667	67	67	67	67	67	67	67	67	67	67	100	100	100	100	100	100	100	100	100	100	33	33	100			
GPS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100			
Power	96	96	93	60	60	96	92	95	87	95	97	97	97	97	97	97	97	90	90	90	90	95	91	95	89	100	100	74	70	46	40	32	22	22	56	99		
Battery	100	100	100	100	100	100	100	100	100	100	100	92	94	88	98	89	93	87	87	91	99	100	100	100	100	100	82	100	100	100	100	100	100	100	100	100		
PV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
Wind Turbine	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
Telemetry	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	75	100	100	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
Beacon	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100			
Instruments	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag			
mopak	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
metbk1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
hyd1	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
rte	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
metbk2	1	1	1	1				1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1			
pco2a	1	1	1					1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1			
wavss	1	1						1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1			
fdchp	1		1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1			
hyd2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1							1	1	1			
nutnr	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1			
phsen1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1			
spkir	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1			
velpt1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1			
ctdbp1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1									1	1	0	0	1		
dosta1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									1	1	0	0	1		
flort	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									1	1	0	0	1		
optaa1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1									1	1	0	0	1		
adcp	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1									1	1	0	0	1		
pco2w	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
phsen2	1	1	1	0.5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
velpt2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
presf	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
ctdpb2	1	1	0.75	0.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
optaa2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
dosta2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	0	0	1		
zpslc	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1	0.1	1	1	1	1	1	1	1	1	1	1	0	0	1		

PHSEN
PCO2W
CTDBP

Weather related power limit

MFN comms fault

CP01CNSM – R00006/7 with Battery-Powered Instruments

Pioneer 7 → Pioneer 8

	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd	%gd
Num Inst.	19	19	19	18	12	12	12	13	13	13	14	14	14	14	14	14	14	14	14	14	14	14	14	24	24	25	25	25	25	25	25	25	25	8	8	25
Inst. %	79	79	82	80	52	52	52	54	54	54	58	58	58	58	58	58	58	58	58	58	58	58	58	96	96	100	100	100	100	100	100	100	100	35	35	100
Data System	100	100	100	100	66.67	100	100	100	100	100	100	66.667	67	67	67	67	67	67	67	67	67	67	67	100	100	100	100	100	100	100	100	100	100	33	33	100
GPS	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Power	96	96	93	60	60	96	92	95	87	95	97	97	97	97	97	97	97	90	90	90	90	95	91	95	89	100	100	74	70	46	40	32	22	22	56	99
Battery	100	100	100	100	100	100	100	100	100	100	100	92	94	88	98	89	93	87	87	91	99	100	100	100	100	100	82	100	100	100	100	100	100	100	100	100
PV	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Wind Turbine	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	50	100	100	100	100	100	100	100	100	100	100	100	100	100
Telemetry	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	75	100	100	75	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Beacon	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	0	100
Instruments	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag	Flag
mopak	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
metbk1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
hyd1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
rte	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
metbk2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
pco2a	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
wavss	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
fdchp	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
hyd2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
nutnr	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
phsen1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
spkir	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
velpt1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ctdbp1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1
dosta1	0.5	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
flort	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
optaa1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	1
adcp	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
pco2w	0	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
phsen2	1	1	1	0.5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
velpt2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
presf	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
ctdpb2	1	1	0.75	0.75	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
optaa2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1
dosta2	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	0	0	1
zpslc	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

No Batteries:
DOSTA
FDCHP
FLORD
FLORT
METBK
OPTAA
PCO2A
SPKIR
WAVSS

Battery backup for all other instruments

OOI Core Science Instrument Issues

- **PCO2W, PHSEN** (SAMI-CO2, SAMI-pH) – Often fail, and often have inductive communications problems; and have sometimes not been deployed due to long vendor refurb times.
- **CTDBP Series P** (16plusV2-IM) – Inductive communications failures; often run out of battery power (can be addressed operationally).
- **NUTNR** (ISUS) – Have had failures where no data was collected; also potential shutter issues. Transitioning to the SUNA instrument.
- **OPTAA** (AC-S) – Sometimes not deployed due to long vendor refurb times.
- **ZPLSC** (ASL Environmental) -- Instruments at Offshore sites are too deep (~500 m) [consider moving or removing]
- **Wire-Following Profilers** (MMP) – Some have been fouled and get stuck at one depth; some have had issues with the controller getting hung in a sleep state
- **Moorings** – Have had problems having enough power and/or getting power to the seafloor MFNs. These issues are all being addressed by the design teams at WHOI to resolve/mitigate the problems.
- **Coastal Surface Piercing Profiler** – These have not been consistently deployed as planned at Pioneer. A Plan B is being implemented to replace the CSPPs with Profiling Gliders (in the Summer) and WFPs (in the Winter).
- **Gliders** (Slocum G2) – All baseline gliders not deployed, occasional failures of gliders and instruments (CTD, DOSTA, PARAD, NUTNR)

Pioneer Science Activity

- Inquires for ancillary activities
  - Toole LAMP test mooring
  - Scott Lindell “kelp mooring”
  - Aleck Wang carbon sampling
  - NE Shelf LTER sampling
  - EK-80 sampling in frontal zone
- Pioneer cruises with completed or planned ancillary activities:
  - Pioneer-7 Legs 1 and 2
  - Pioneer-8 Leg 1
  - Pioneer-9 Legs 1 and 3
- Publications
  - Array design paper submitted to J. Operational Oceanography
  - Six paper concepts in response to TOS special issue
  - Two TOS papers submitted after consolidation by editors
- Other
  - NSF Proposals for data analysis (Todd, Wilkin)
  - MIT/WHOI student cruise sampled at Pioneer Array
  - Continued engagement with commercial fishermen

Pioneer Science Activity

Paper details:

- Gawarkiewicz and Plueddemann, Scientific rationale and conceptual design of a process-oriented shelfbreak observatory, *J. Operational Oceanography*, submitted.
- Chen, Gawarkiewicz and Plueddemann, Scale dependence of the heat balance in the northwest Atlantic coastal ocean, *Oceanography*, submitted.
- Gawarkiewicz, Todd, Zhang, Partida, Gangopadhyay, Monim, Fratantoni, Malek-Mercer, and Dent, The Changing Nature of Shelfbreak Exchange Revealed by the OOI Pioneer Array, *Oceanography*, submitted.