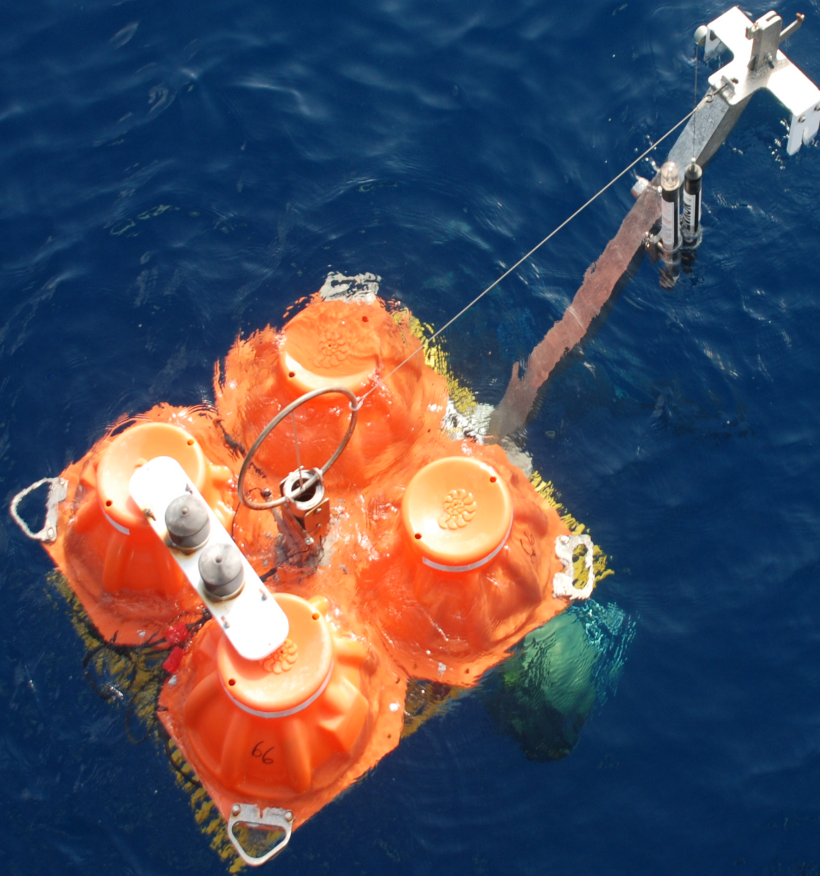


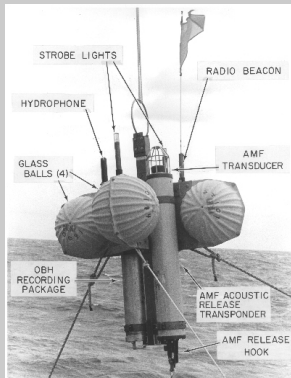
WHOI Ocean-Bottom Seismograph Lab



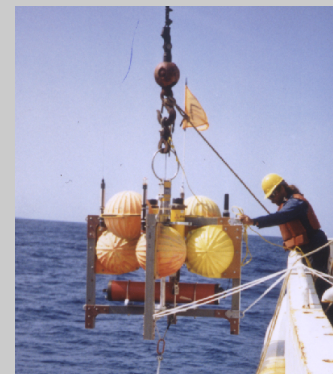
John Collins



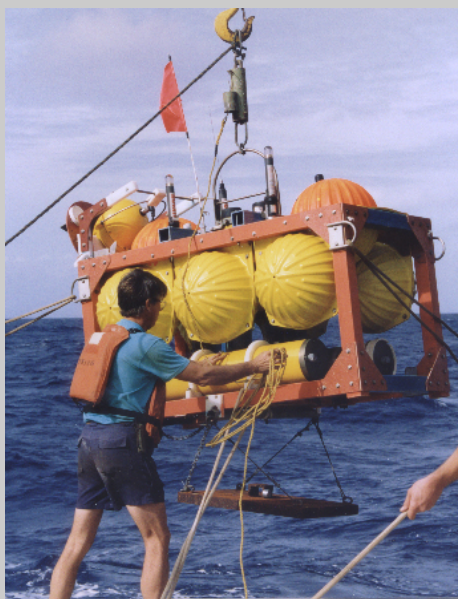
WHOI Analog OBH, 1976



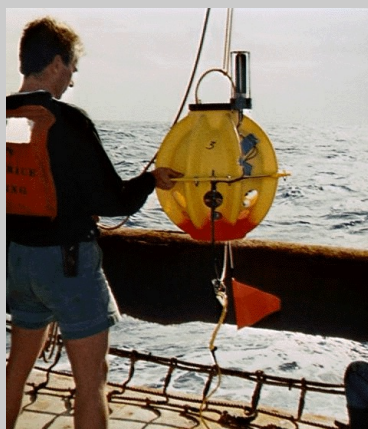
WHOI Digital OBH, 1981



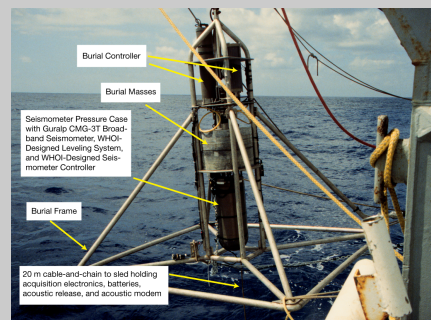
WHOI 2nd Gen. Digital OBH, 1991



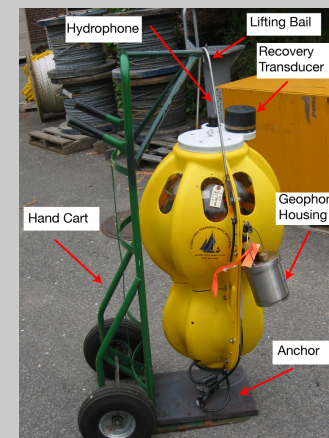
WHOI "ONR" OBS, 1991



WHOI "ORB" 3rd-Gen. OBH, 1996

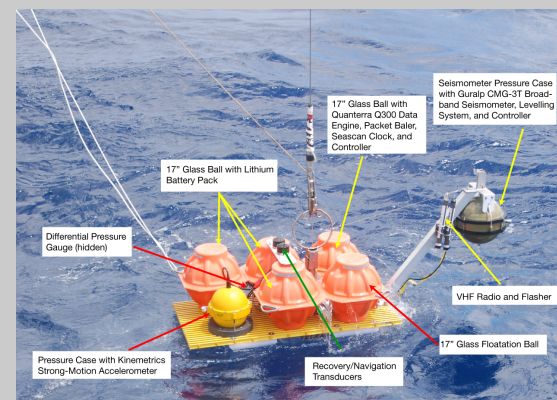
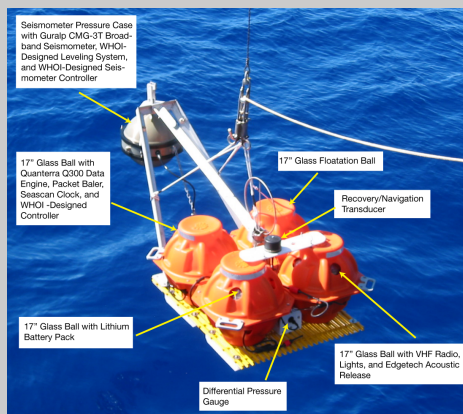


WHOI Buriable Broadband OBS, 1998



WHOI OBSIP Short-Period OBS, 2002

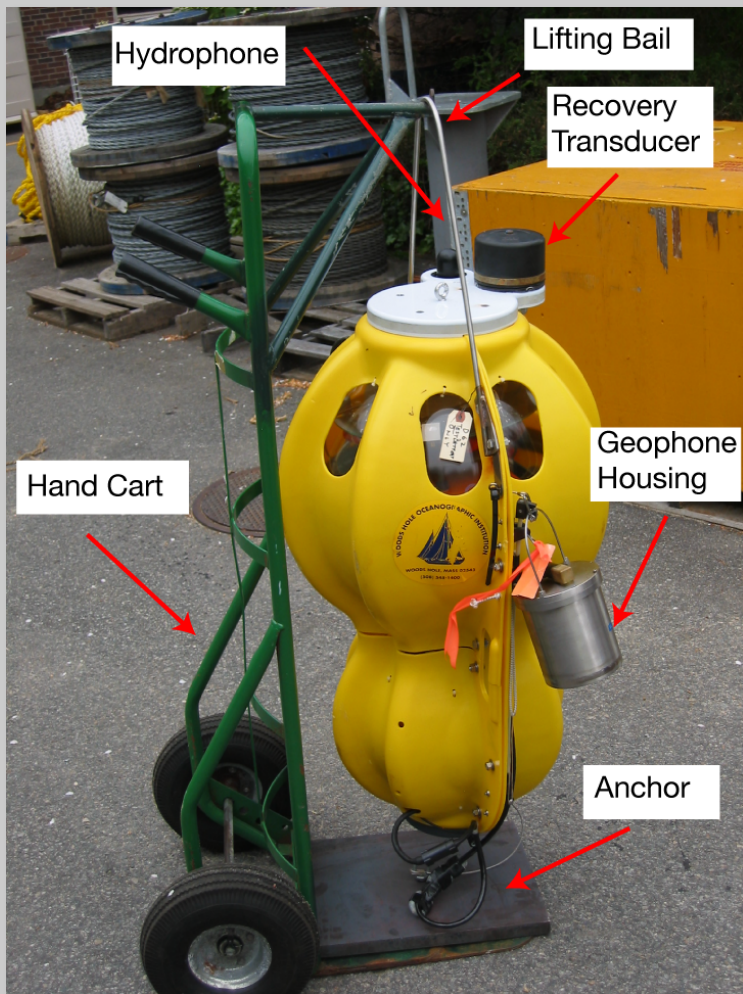
WHOI OBSIP BroadBand OBS, 2004



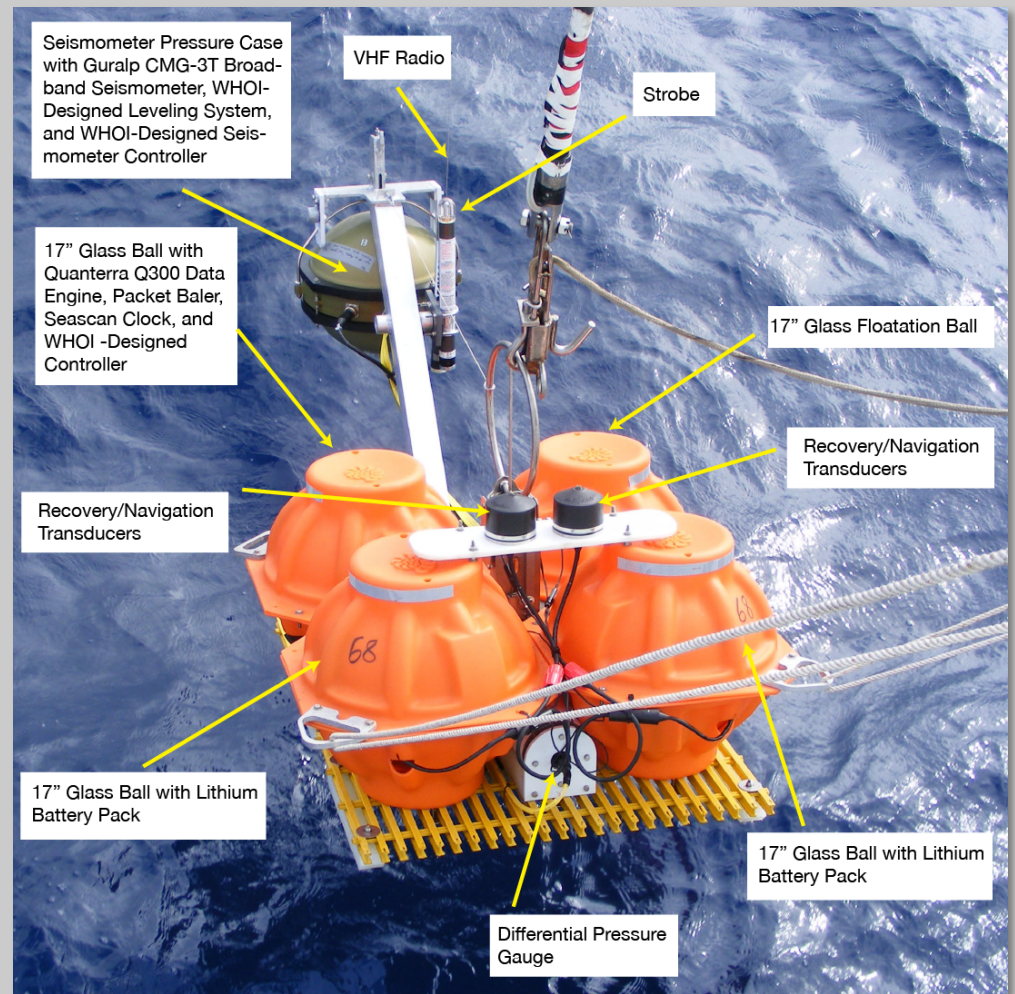
WHOI Keck OBS, 2007

Current instruments: “OBSIP” instruments

OBSIP SPOBS (“D2”), 2002

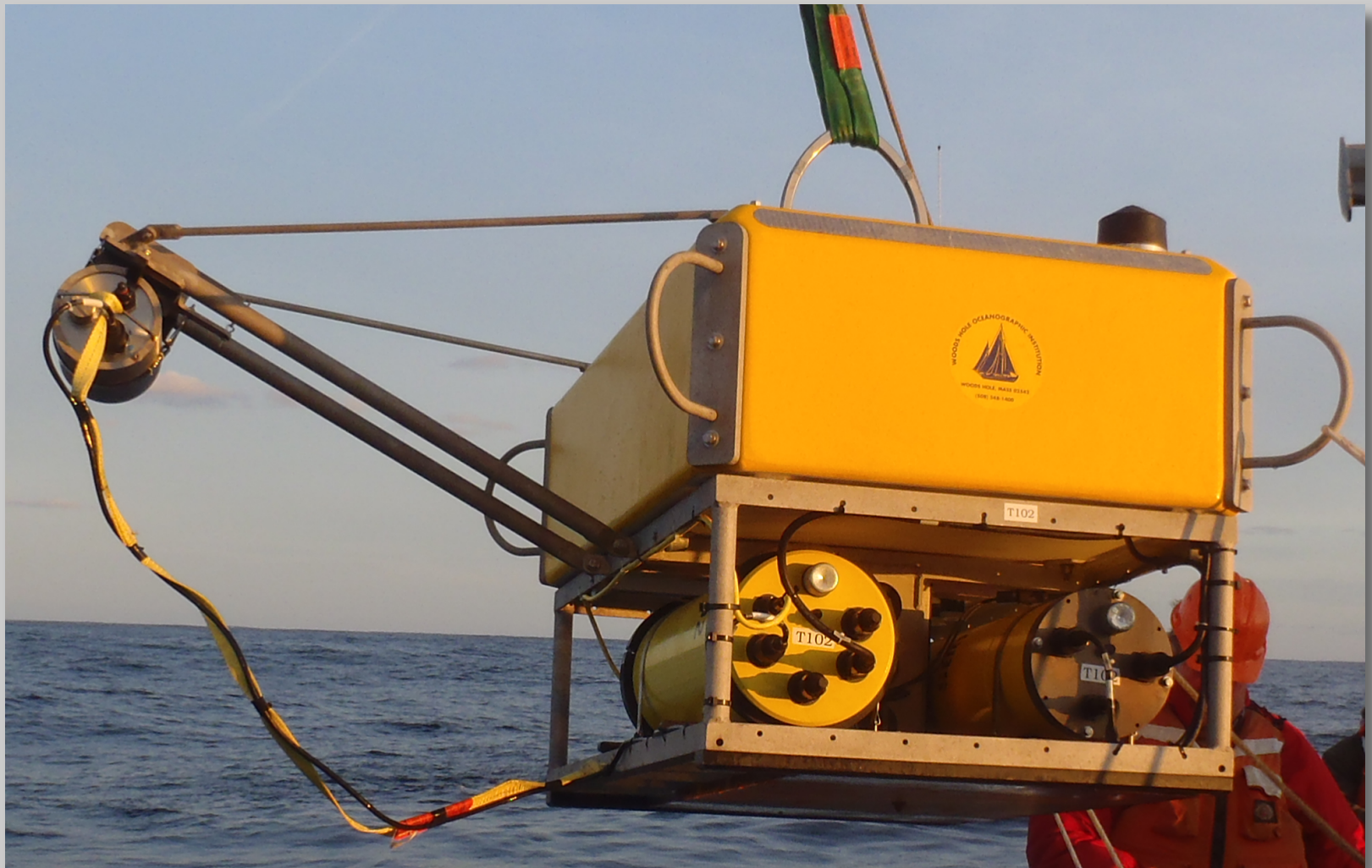


OBSIP BB OBS, 2004

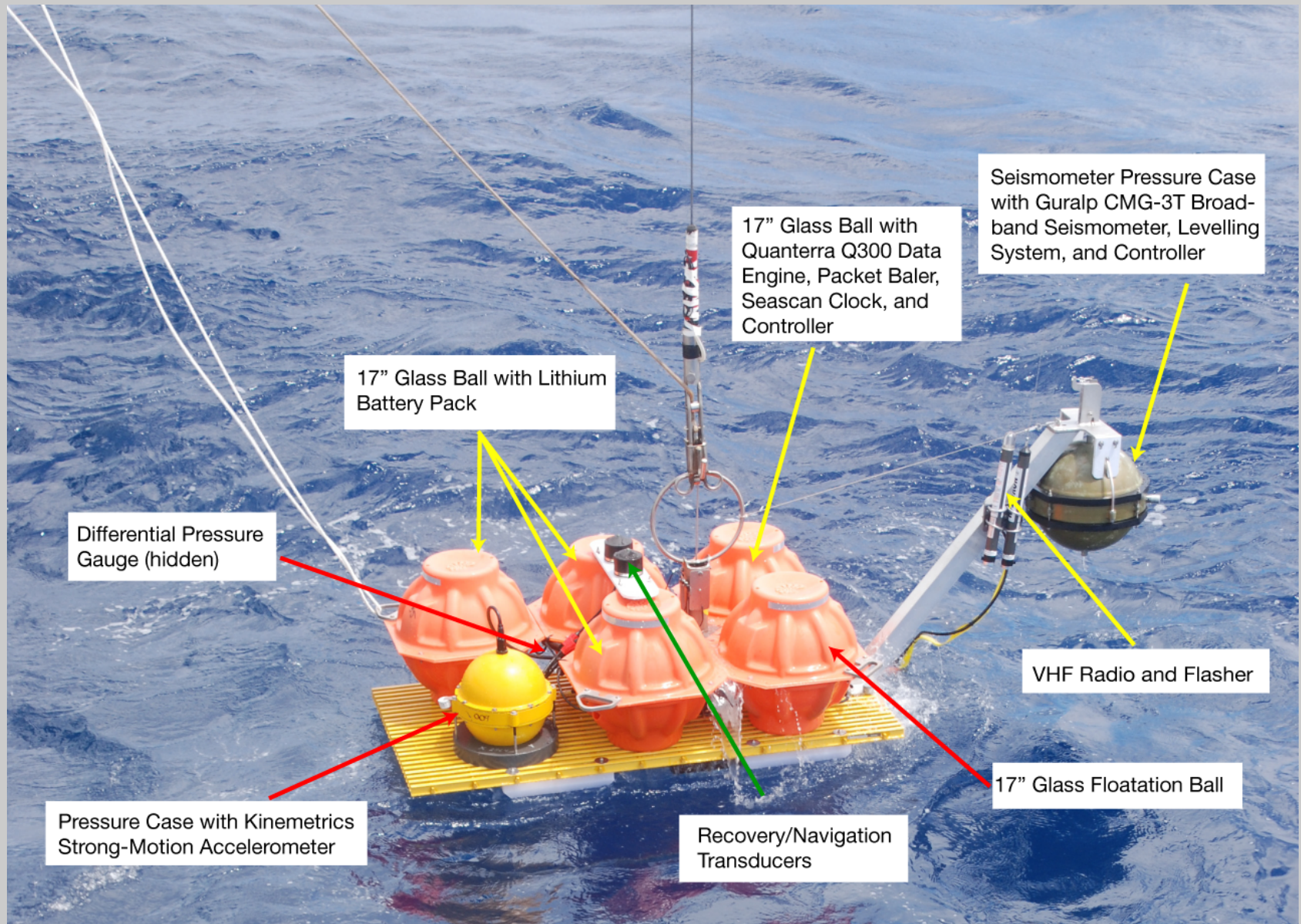


Current instruments: “Cascadia” instruments

NSF ARRA-funded
Nanometrics Trillium Compact(2011)



Keck Strong-Motion/Broad-Band OBS, 2007



Coupling: Standard Deployment Procedure is “Drop and Pray”

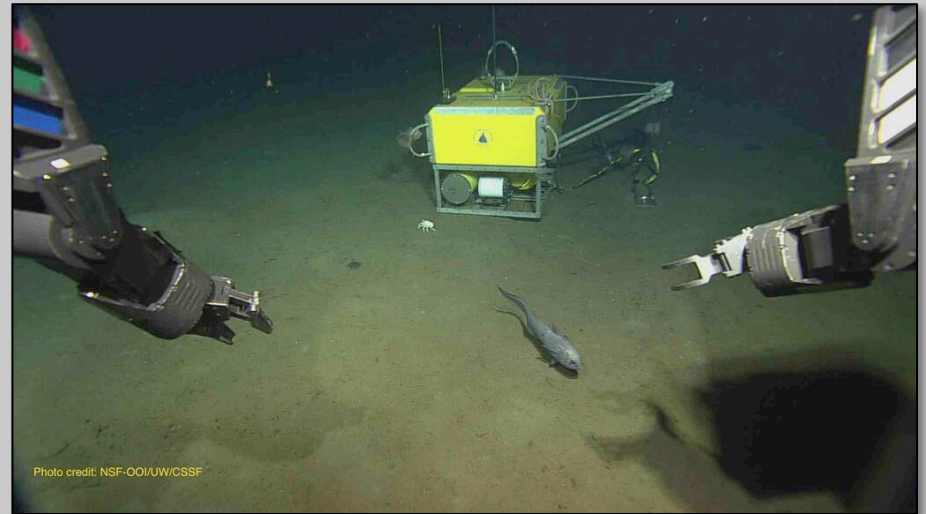
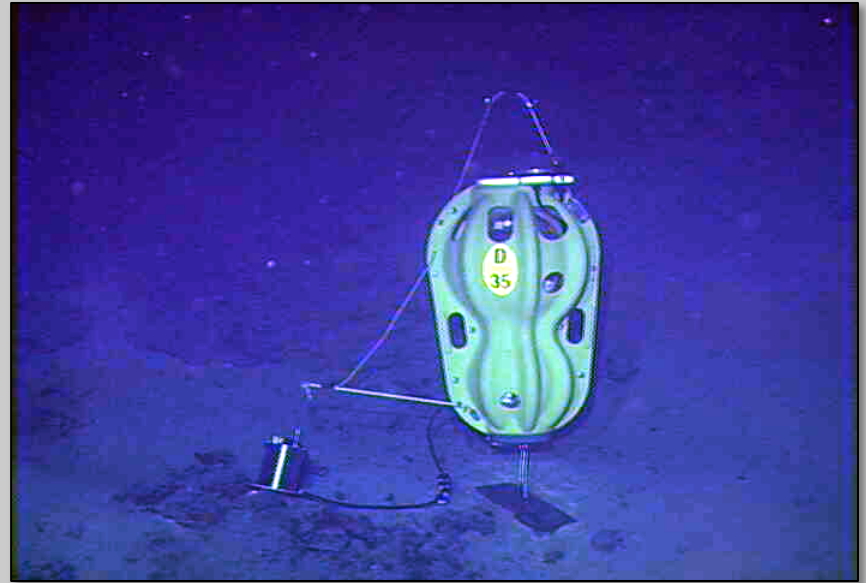
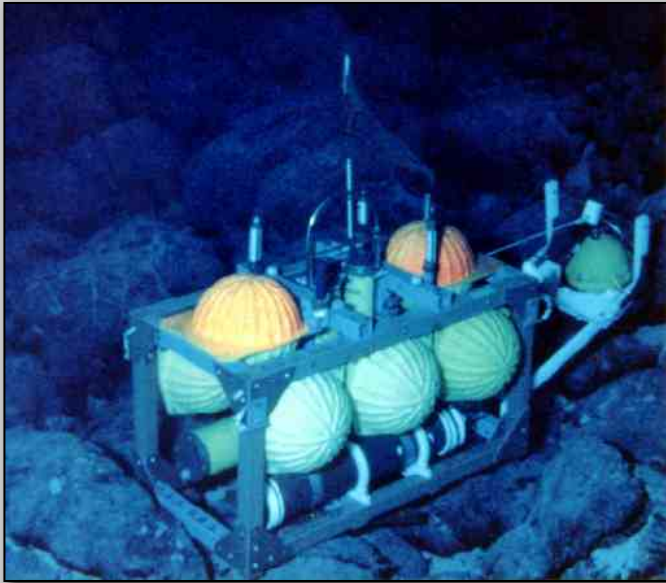


Photo credit: NSF-OOI/UW/CSSF

WHOI OBSIP Performance Statistics (March 10, 2016)**

**does not include 6 ARRA OBS deployed USGS offshore Puerto Rico

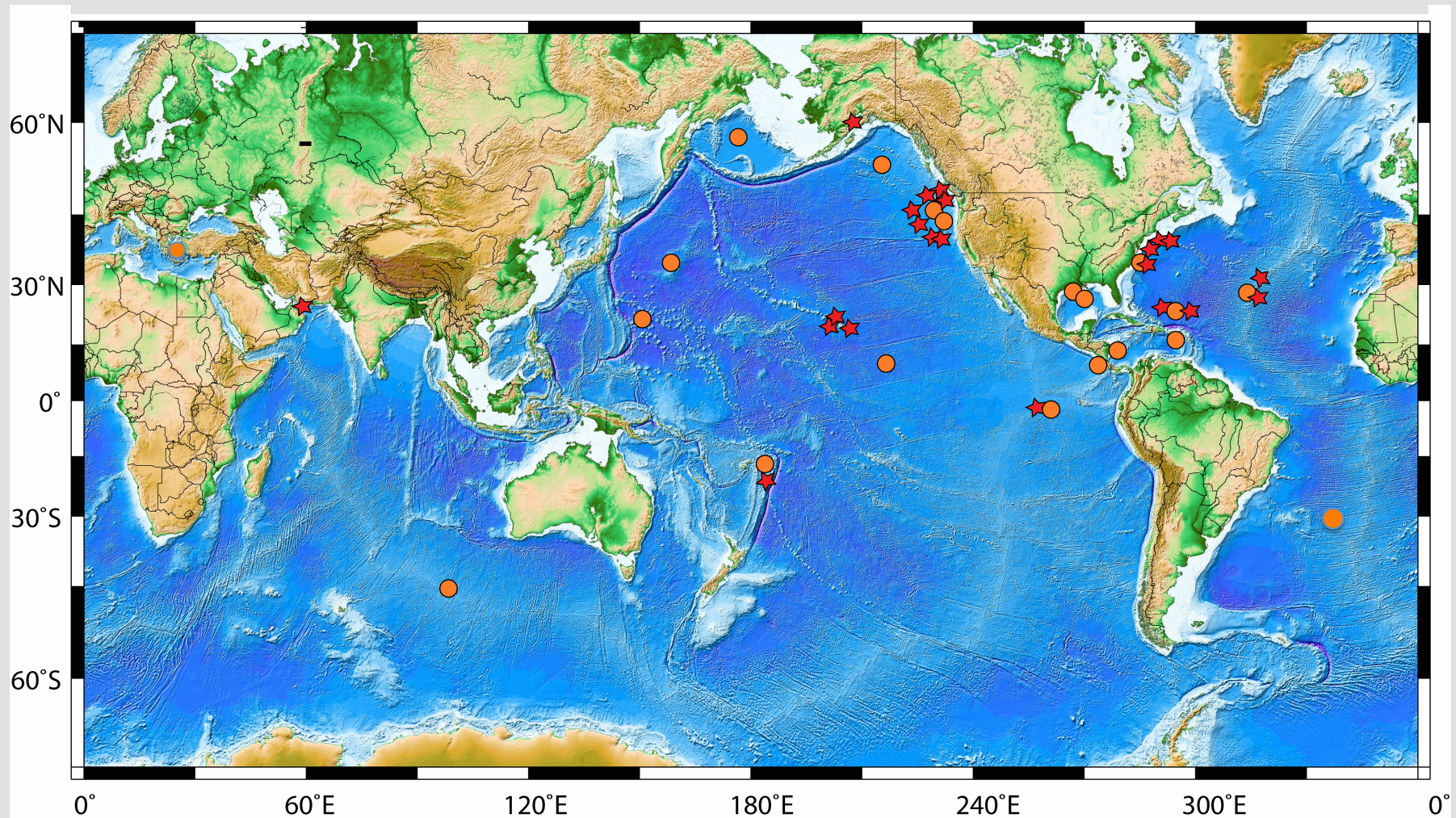
WHOI OBSIP		Short-Period OBS		Broad-Band OBS	
Total Number of Deployments (all OBS)	931	Total Number of Deployments	655	Total Number of Deployments	276
Total Number of Recoveries	910	Total Number of Recoveries	639	Total Number of Recoveries	271
# OBS Lost	21	# Short-Period OBS Lost	16	# Broadband OBS Lost	5
Recovery Percentage	98	Recovery Percentage	97	Recovery Percentage	98

324 On-Bottom Years (All Data at DMC in SEED Format)

WHOI OBS Inventory (March 11, 2016)

	Short-Period OBS	Broadband OBS	ARRA	Keck Broadband OBS (+Accelerometer)	Total
Deployed	0	0	6	0	6
Lost	0	0	1 ARRA (G36B)	0	1
Available	30	30	14	10	84

WHOI OBSIP Experiment Locations

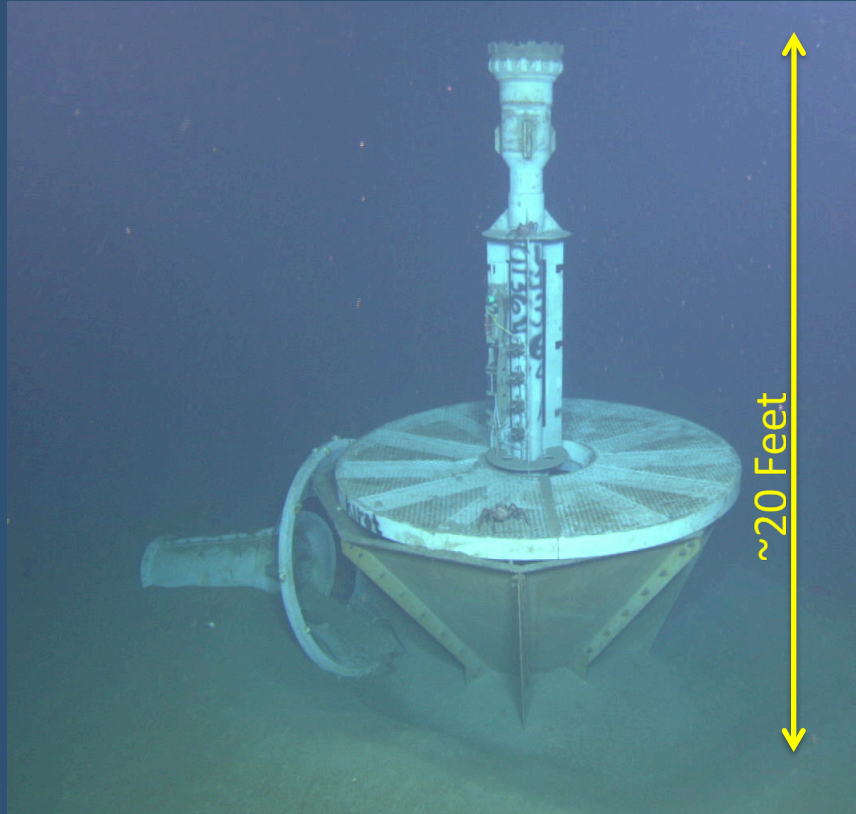


324 On-Bottom Years; 910 Deployments/Recoveries; 31 Unique Experiment; 65 Cruises;
81 Unique P.I.s; 2.96 TBytes in SEED at DMC.

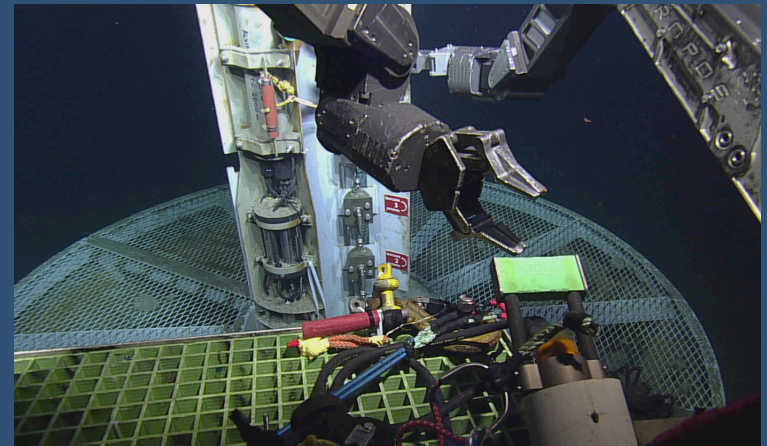
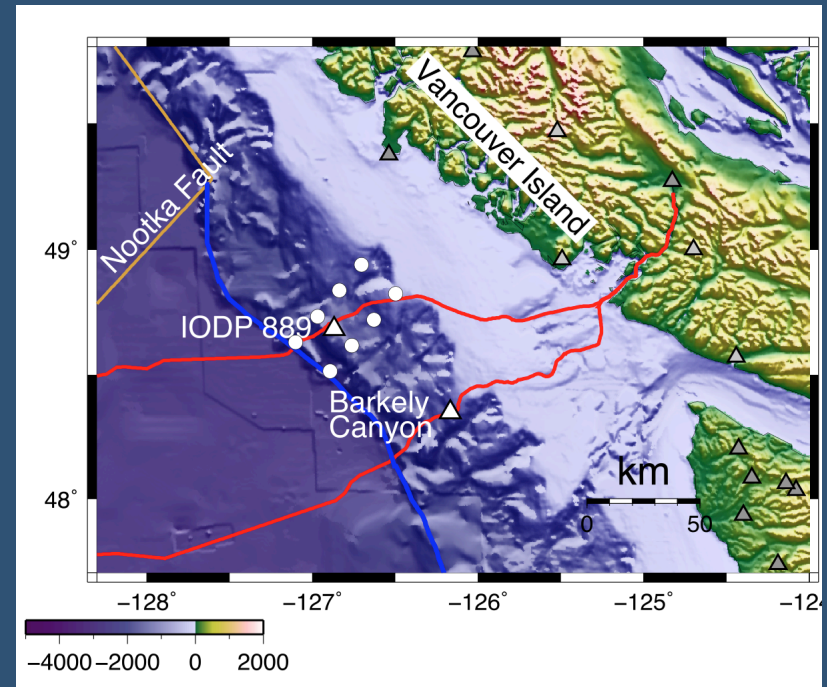
WHOI OBSIP Personnel

- 1 Engineer (9 mnths)
 - 1 Electronics Tech. (11 mnths)
 - 1 Mechanical Tech. (11 mnths)
 - 1 tech (6 mnths)
 - 1 Data Submitter, System Management (5 mnths)
 - Management (3 mnths)
 - Myself (8 mnths)
-
- \$1.15M for 2016

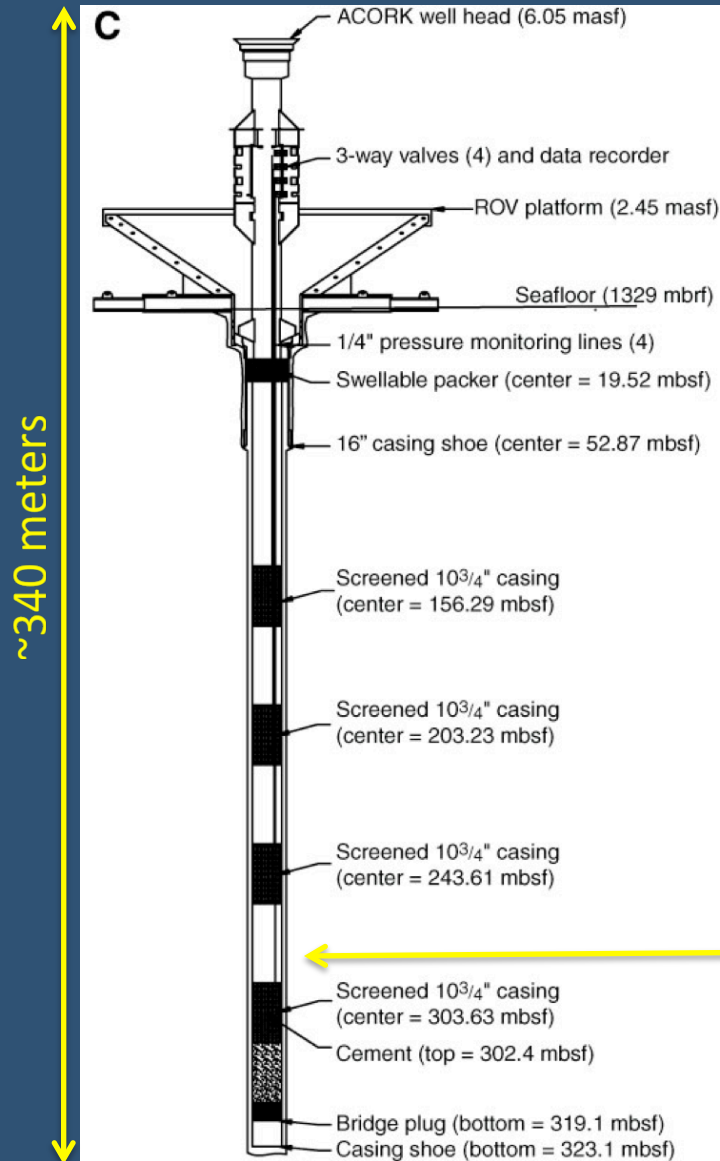
The IODP 889/Neptune Sub-Seafloor Hydrological Observatory



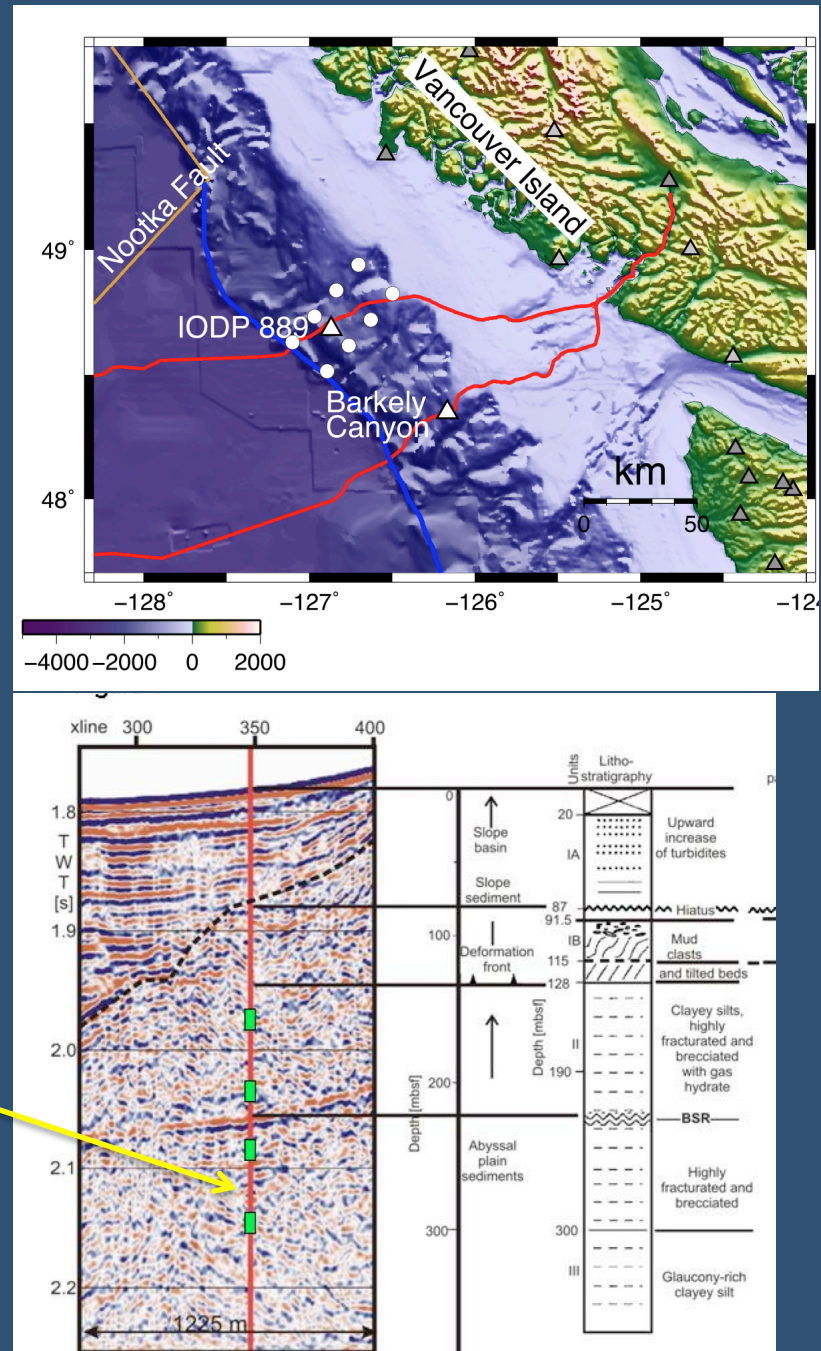
Hydrological observatory installed in 2010.
Will be connected to NEPTUNE cable in 2016.
~4 km above the plate boundary.



The IODP 889/Neptune Observatory

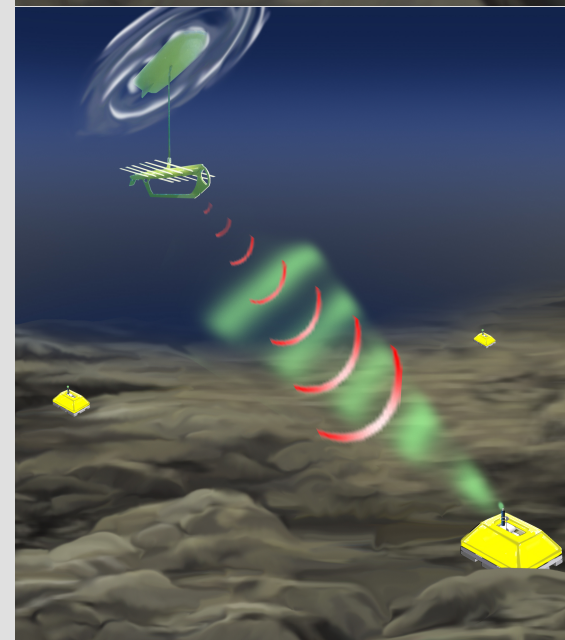
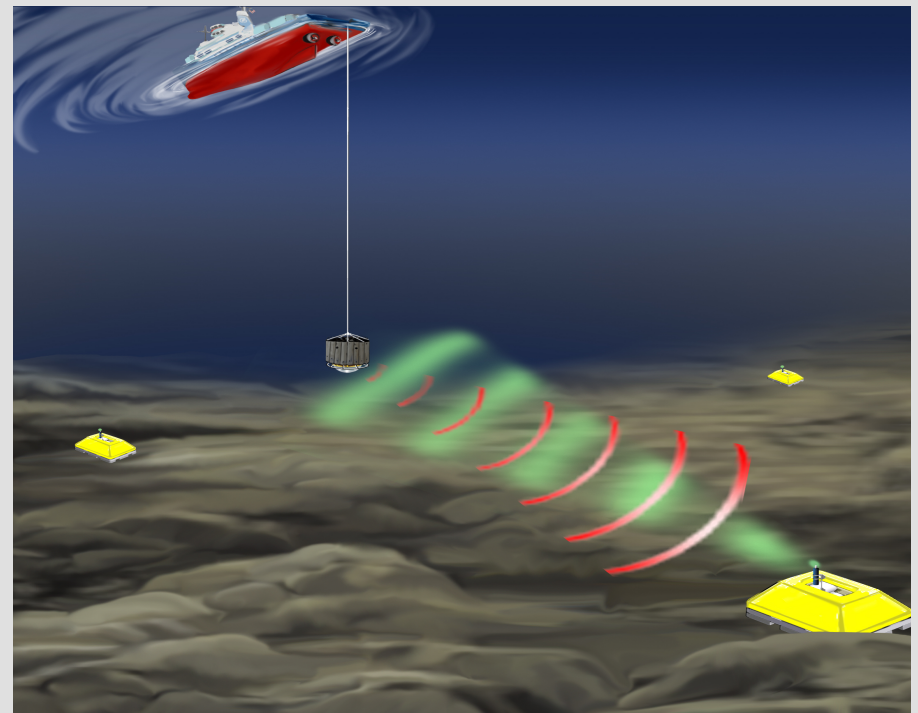
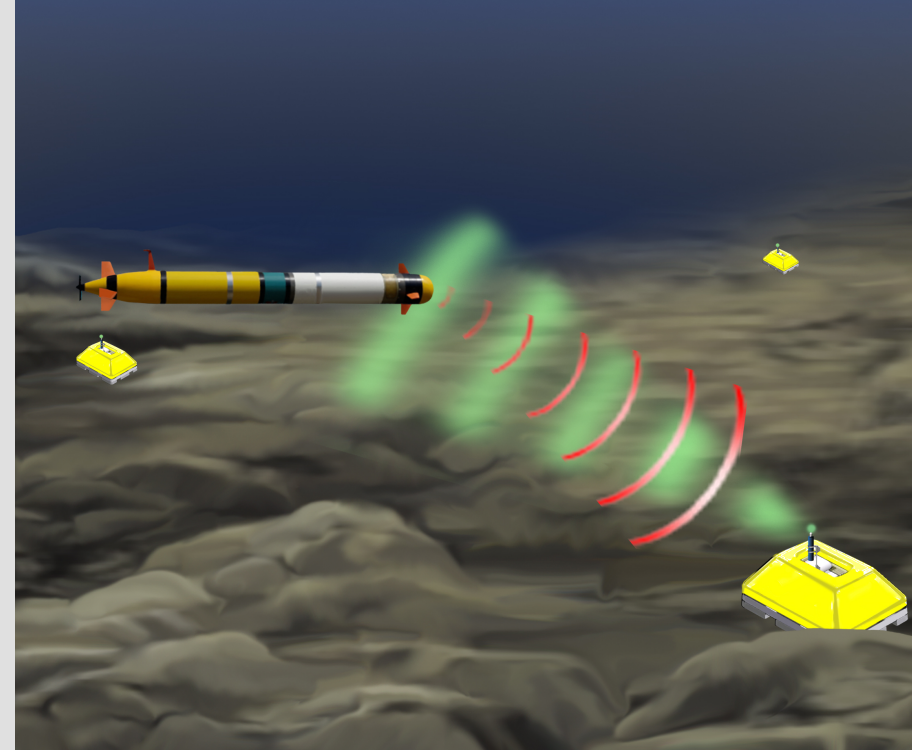


Tilt-meters





BIP being retrieved from a 10" I.D. cased hole drilled outside WHOI OBS Lab. BIP and SIM deployed for ~5 months.



WHOI 2015 MRI Award: Shielded 2-year OBS with optical and acoustic telemetry capability. Field test offshore northern California in 2017 with WHOI AUV.

Data delivery via: (i) optical-modem equipped AUV; (ii) ship-lowered optical modem; and (iii) acoustic modem suspended from a wave-glider. Optical modem has demonstrated telemetry rates of 20 Mbits/s => < 2 hours to offload a year of high-rate (100 Hz) data or <3 minutes for a week of data. OBS will have CSAC clock => drift is 0.01 ms/day. AUV will measure clock offset to accuracy of ~100 micro-seconds.