



MISO Web Site <http://www.whoi.edu/page.do?pid=13575>

TowCam Web Site <http://www.whoi.edu/page.do?pid=17619>

MISO

MULTIDISCIPLINARY INSTRUMENTATION IN SUPPORT OF OCEANOGRAPHY

The Multidisciplinary Instrumentation in Support of Oceanography (MISO) Facility at WHOI provides a well-maintained and dependable pool of commonly used and essential digital imaging equipment and associated sensors for diverse large-scale experiments and multidisciplinary field programs in the ocean sciences.

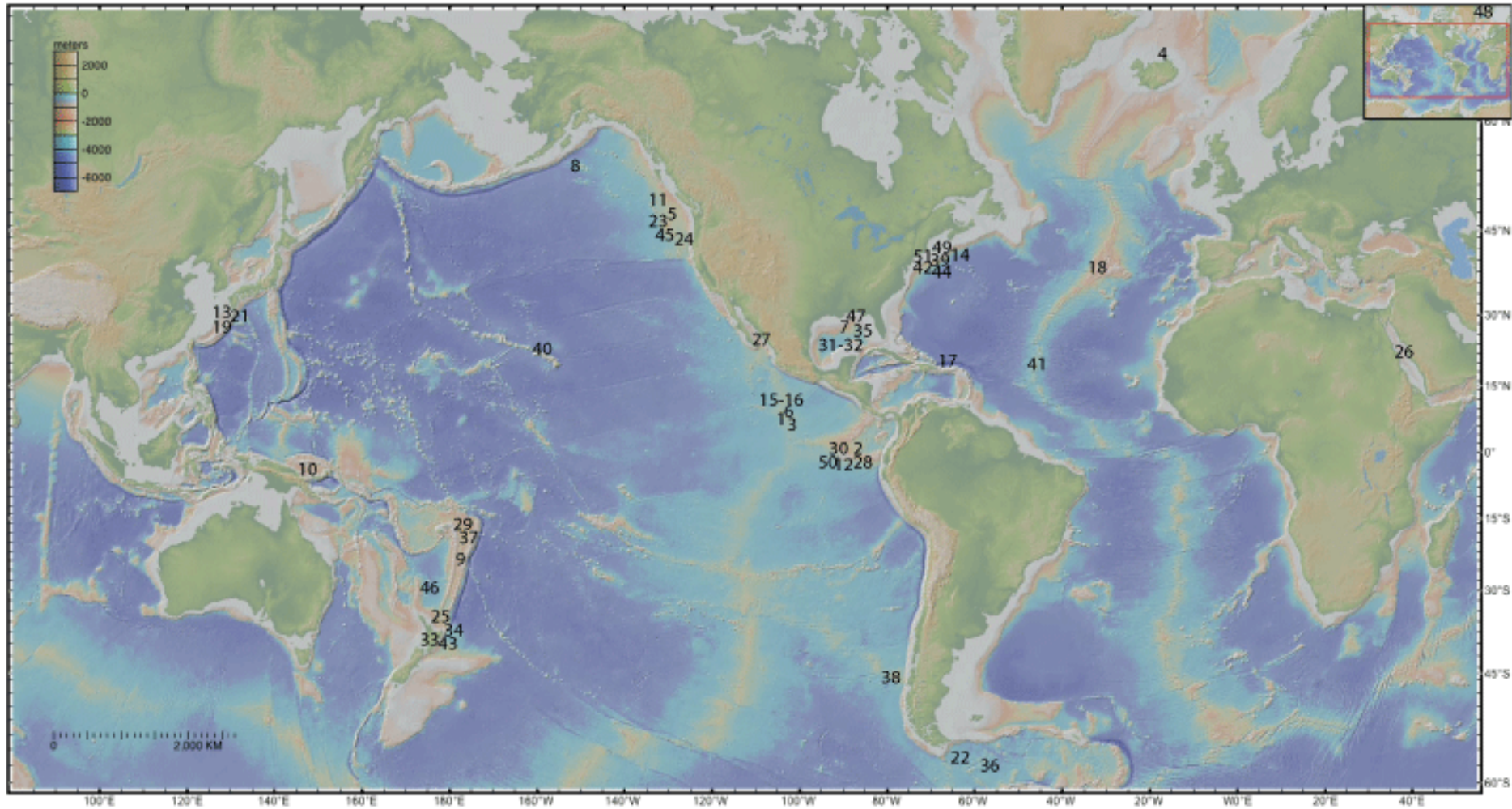
MISO systems have been used on over 50 cruises throughout the global ocean over the past 13 yrs.

MISO is supported through a modest
‘5-year Facility Grant’ through the
NSF-OCE- OI & MGG Programs
(currently in 2nd 5-year term, renews in 2017)

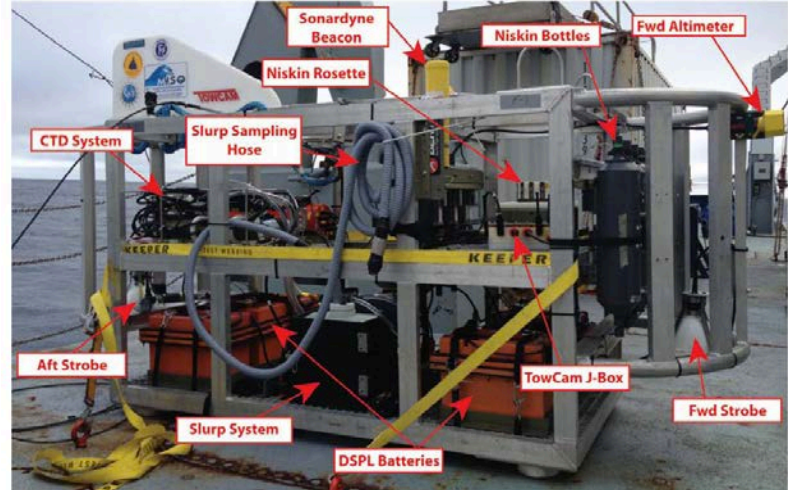
Funding for field-use of the system is supported
by grants and contracts from individual science
programs through NSF, NOAA, ONR, and
foreign research organizations.

51 MISO Supported TowCam and Related Cruises

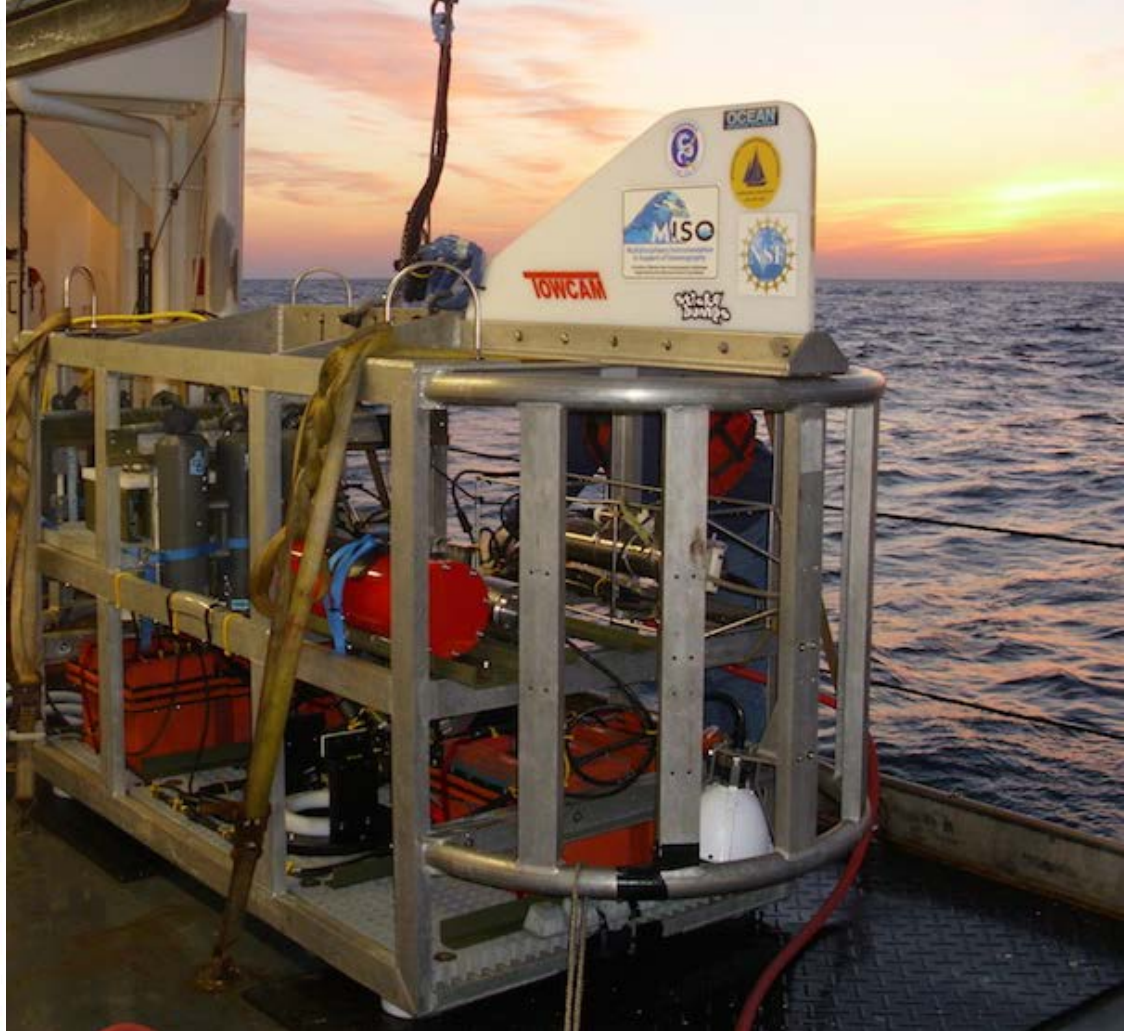
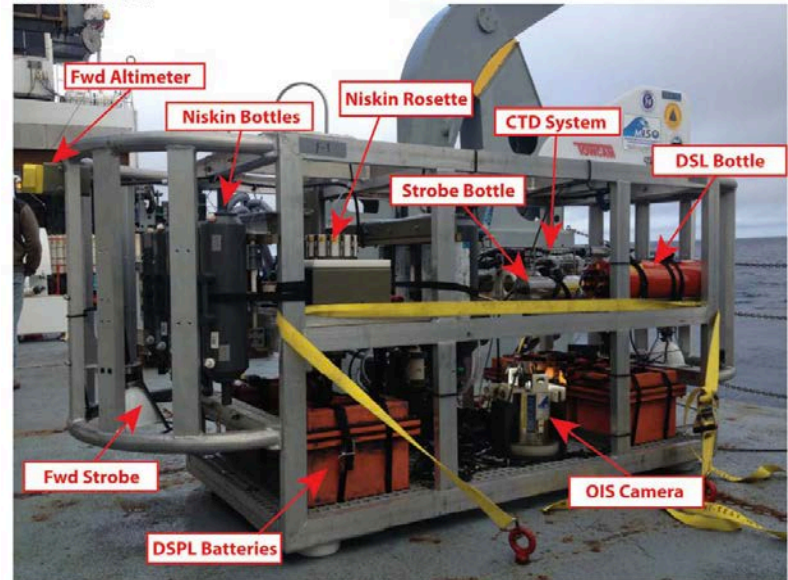
MISO TowCam Cruises - 2002-2015



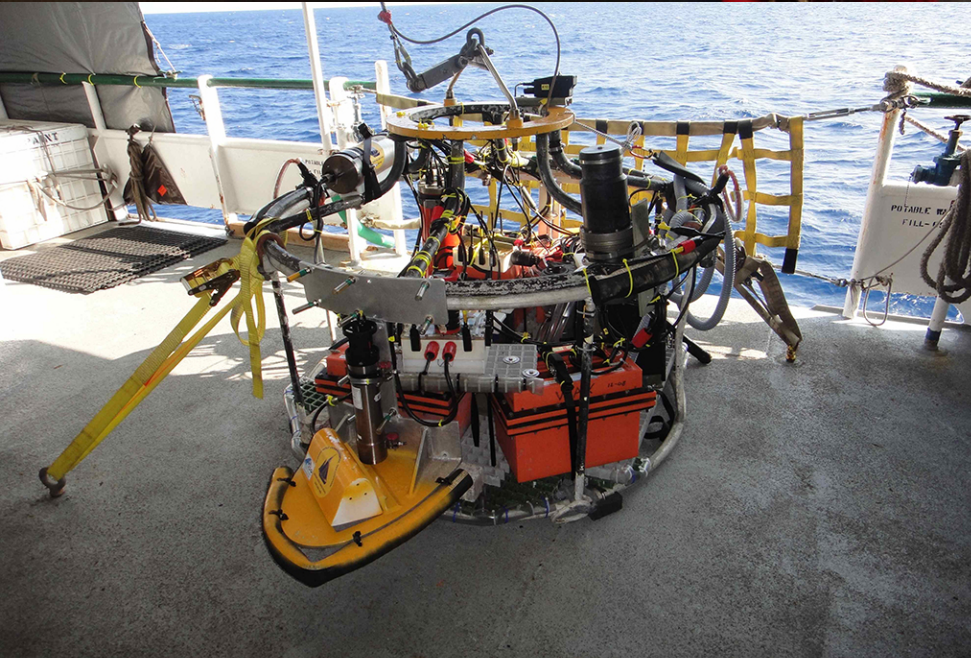
TowCam Stbd View



TowCam Port View



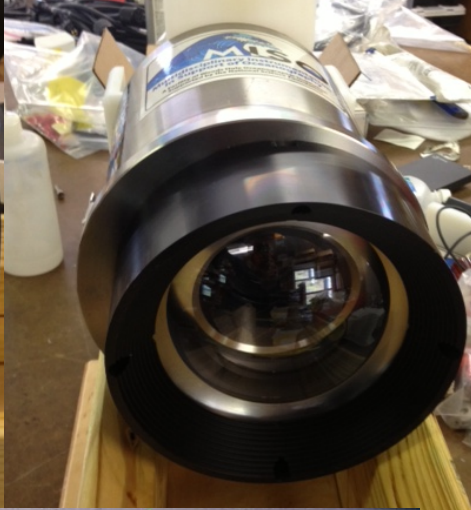
TowCam Systems



'Other' TowCams

The MISO Facility has served scientists working in many oceanographic disciplines and from a wide spectrum of US and foreign institutions over the past ~15 years.

Scientists from these institutions have used MISO TowCam and related instrumentation: Penn State U.; U. Washington; U. Hawaii; George Mason U.; NOAA, The Smithsonian Institution, U. Tromsø, Norway, National Taiwan University, Taipei, Taiwan, IGP U. Paris, France; KAUST; Duke University; Navy Research Lab.; Scripps Institution of Oceanography, GNS New Zealand; U. New Hampshire; Oregon State U., WHOI.



OIS Camera 16 MP Stills

Operational Metrics

Between 2010-2015 the MISO Facility has funded ~60 WHOI employees from many departments, primarily engineering and technical support staff, providing ~12,800 total hours of salary support for MISO related work.

Totals on a per-year basis are:

2010 = 794hrs; 2011 = 1950hrs; 2012 = 2125hrs;
2013 = 2964hrs; 2014 = 1914hrs; 2015 = 3087hrs.

22 TowCam and related cruises in the last 5 years

MISO instruments currently available:

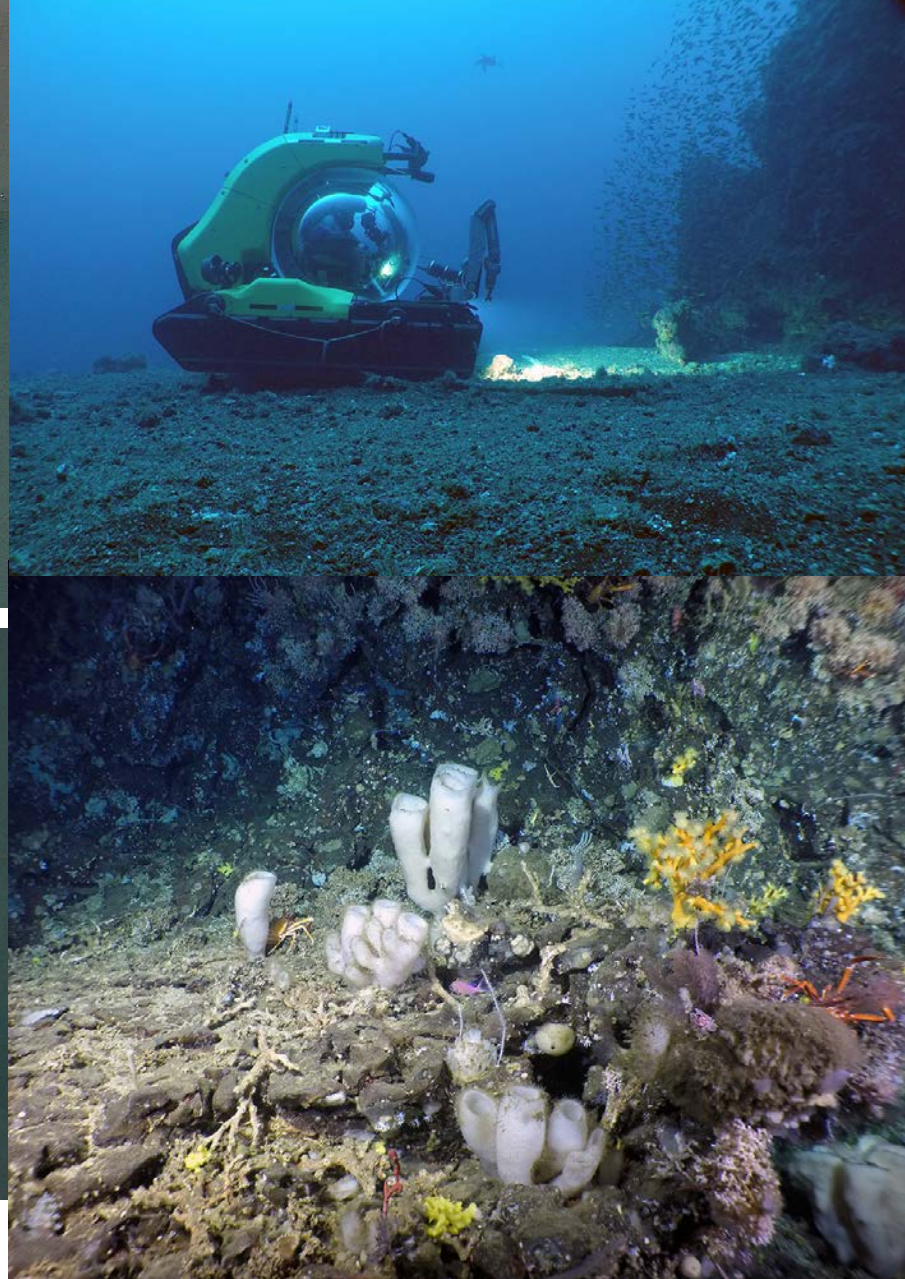
- The WHOI TowCam Systems (4- towed digital deep sea cameras & sampling systems)
- 4 – 16 MP OIS color digital still cameras with water corrected lens
- 8 – deep-sea strobes (300 to 600 watt/sec)
- 2 – deep-sea strobes (150 watt/sec)
- Time-Lapse Deep-Sea Digital Still Camera
- 22 – Deep-Sea Batteries 24VDC (42 amp/hr)
- Deep-Sea ON/OFF Switches capable of controlling power to 24VDC and 120VDC instruments
- Bottom-Moored Acoustic Transponders
- High- & Low- Temperature self-recording loggers for use at hydrothermal vents
- HD video cameras, GoPro cameras, NiMH battery packs



3.3 m to target



1.8 m to target



GoPro and DSPL HD FlexLink video camera

UNOLS RVTech Meeting – Miami, FL Nov. 3, 2015

Adaptability of MISO Equipment for Diverse Applications

MISO cameras, strobes, Junction Boxes, DataLinks, depth/altitude sensors, CTDs are adaptable to a wide range of deep-sea imaging requirements.

Latest adaptation is the multicorer with camera/CTD/sensors instrument development.

Multicoring with real-time imagery and depth/altitude sensing now a reality for all UNOLS ships/users.

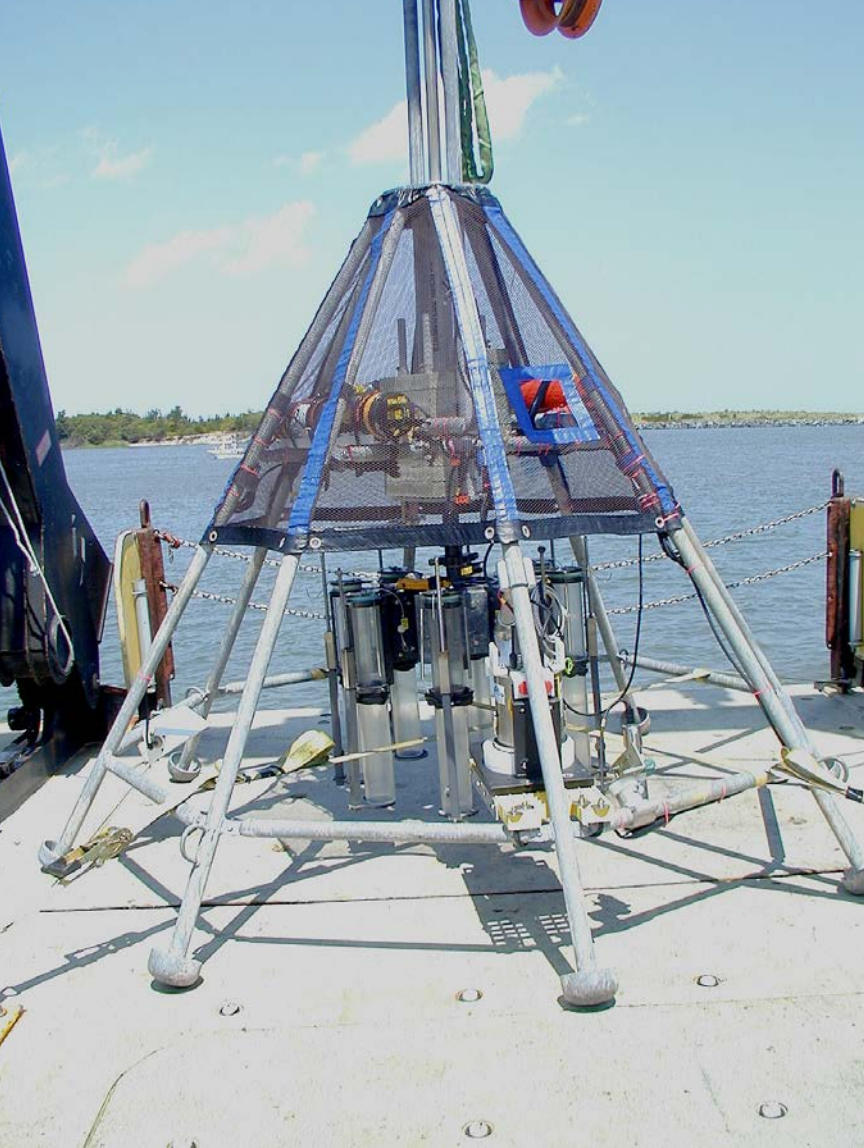
Proposal to implement MC-800 multicoring with imaging funded in 2015 through OCE-OI to: WHOI, SIO, UW, U. Hawai; WHOI-MISO is the lead.

In 2015, we jump-started the multicoring with real-time camera effort with support of 3 programs

Leila Hamdan – George Mason U. – April 2015
R/V Pelican – Gulf of Mexico

Giuliana Panieri – U. Tromsø, Norway – May 2015
R/V H. Hanssen - Svalbard, 80°N

Allen Reed – NRL – August 2015
R/V Sharp – offshore Long Island, NY



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- MISO has fabricated all the platforms required for MC-800 installation of camera/strobe/DataLink gear.
- MISO is acquiring additional cameras, strobes, Jboxes, cabling and batteries to be able to support multiple, simultaneous operations throughout the UNOLS fleet. We are working on full documentation and best-practices documentation for MC-800 operations with imaging/sensing systems.
- In 2016 we will work with UNOLS operators to distribute some of the platforms and discuss options for training shipboard technical personnel in operation of MISO equipment for multicoring.
- Looking for input from all UNOLS operators on upcoming multicoring programs on your vessels so we can help support them with MISO imaging/sensing equipment.