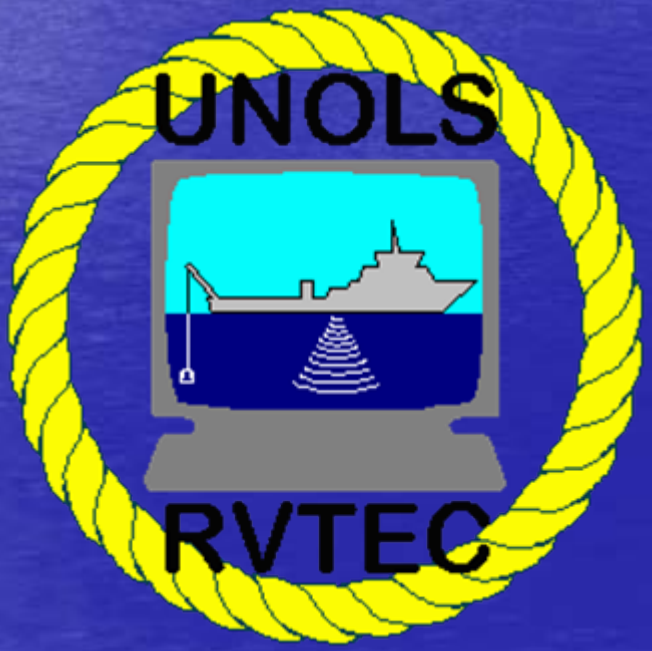
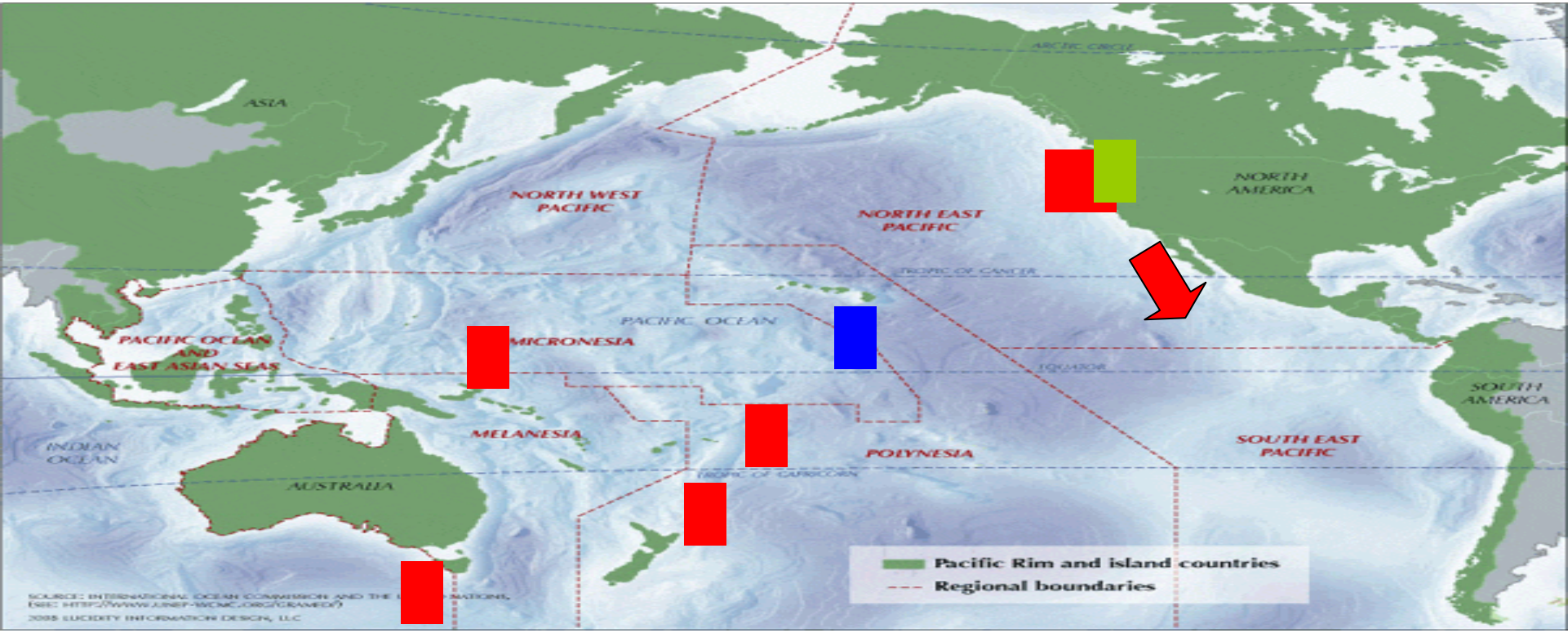
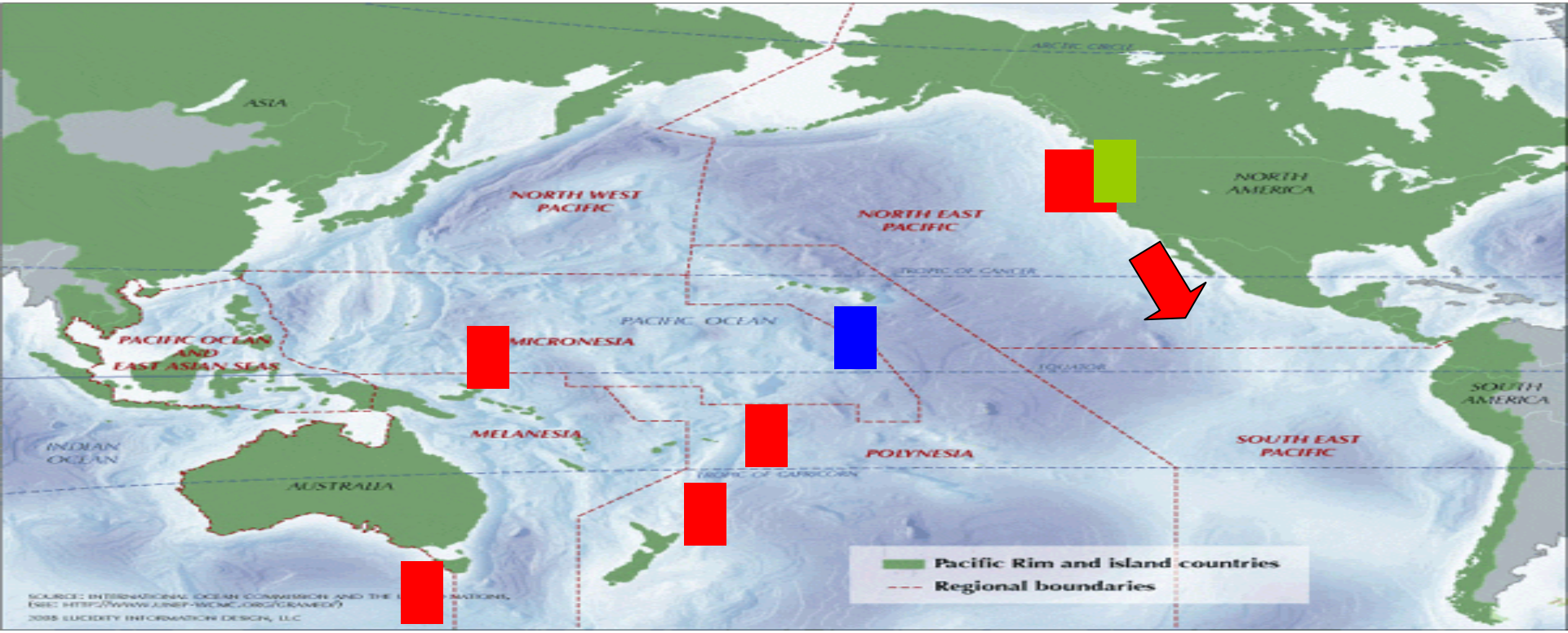
“Year in Review”
2009 Operations: Summary, Challenges, and Highlights





http://www.centerforoceansolutions.org/library/pacific_ocean/images/2008-11-02_pacific_ocean_regions_map.gif

- R/V ***Thomas G. Thompson*** 2009—297 days (NSF, NOAA, Navy, UW, Neptune Canada)-supporting MGG, coring, biogeochemistry, cabled observatories, education
- **Areas of operation** —Australia, New Zealand, Lau Basin, Pacific Northwest Coast, Puget Sound, headed to Punta Arenas
- **Highlights** —Undergraduate student capstone projects off New Zealand, Guam, Lau Basin, JASON, rescued sailor on way past Hawaii, helped deploy gear for the Neptune Canada project, ROPOS, INSURV inspection, upgraded data servers and network components, obtained funding to upgrade to EM302 swath bathymetry system.



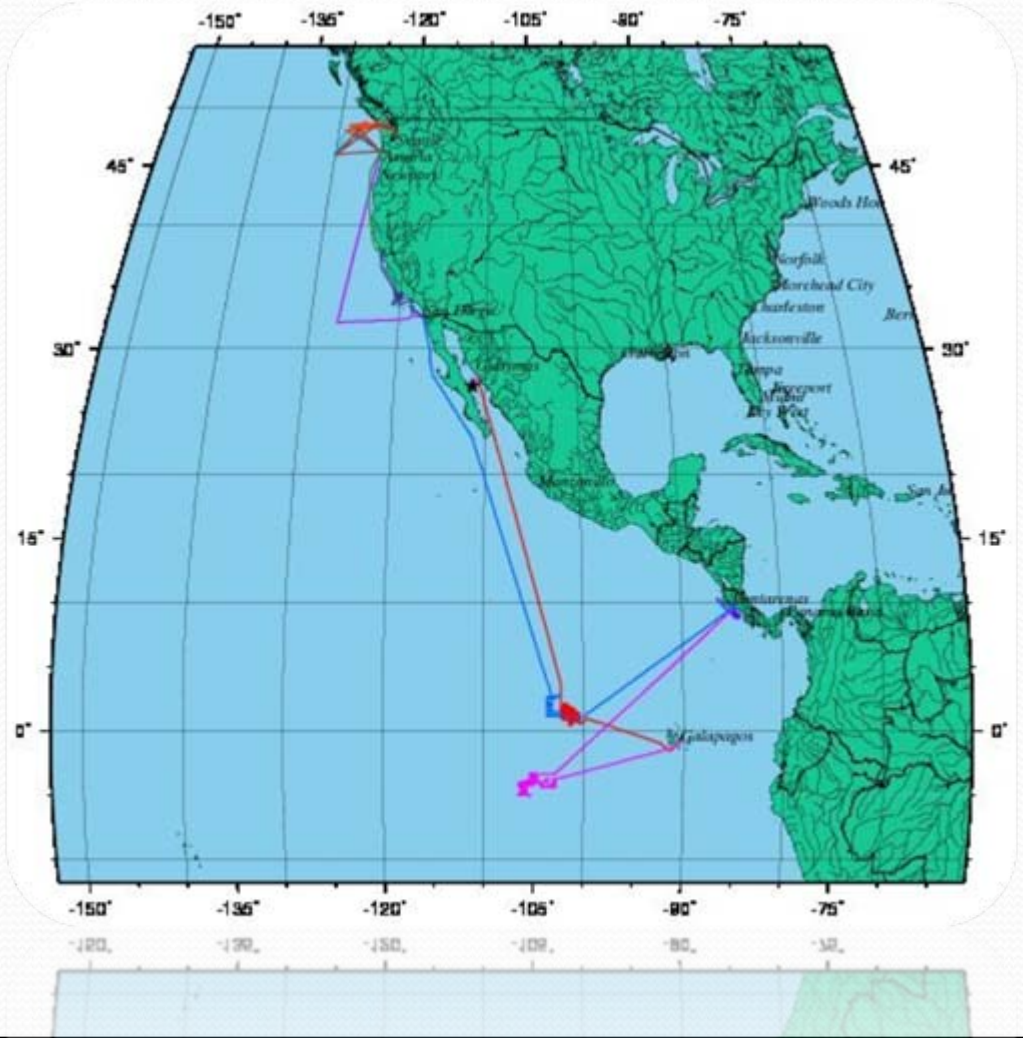
http://www.centerforoceansolutions.org/library/pacific_ocean/images/2008-11-02_pacific_ocean_regions_map.gif

- R/V ***Clifford A. Barnes*** 2009—75 days (NSF, UW) supporting education, biogeochemistry, physical oceanography
- **Areas of operation** —Puget Sound, Vancouver Island
- **Highlights** —Undergraduate student support for field sampling and training in Puget Sound, NSF inspection, coring and ctd sampling in Puget Sound and in western inlets of Vancouver Island, obtained funding to acquire back-up sensors for ctd package, a higher frequency ADCP, and a self-contained SBE19+/ECO water sampler system

R/V ATLANTIS
HOV ALVIN

2009 Operations Update

2009 Atlantis Cruise Tracks



R/V Atlantis

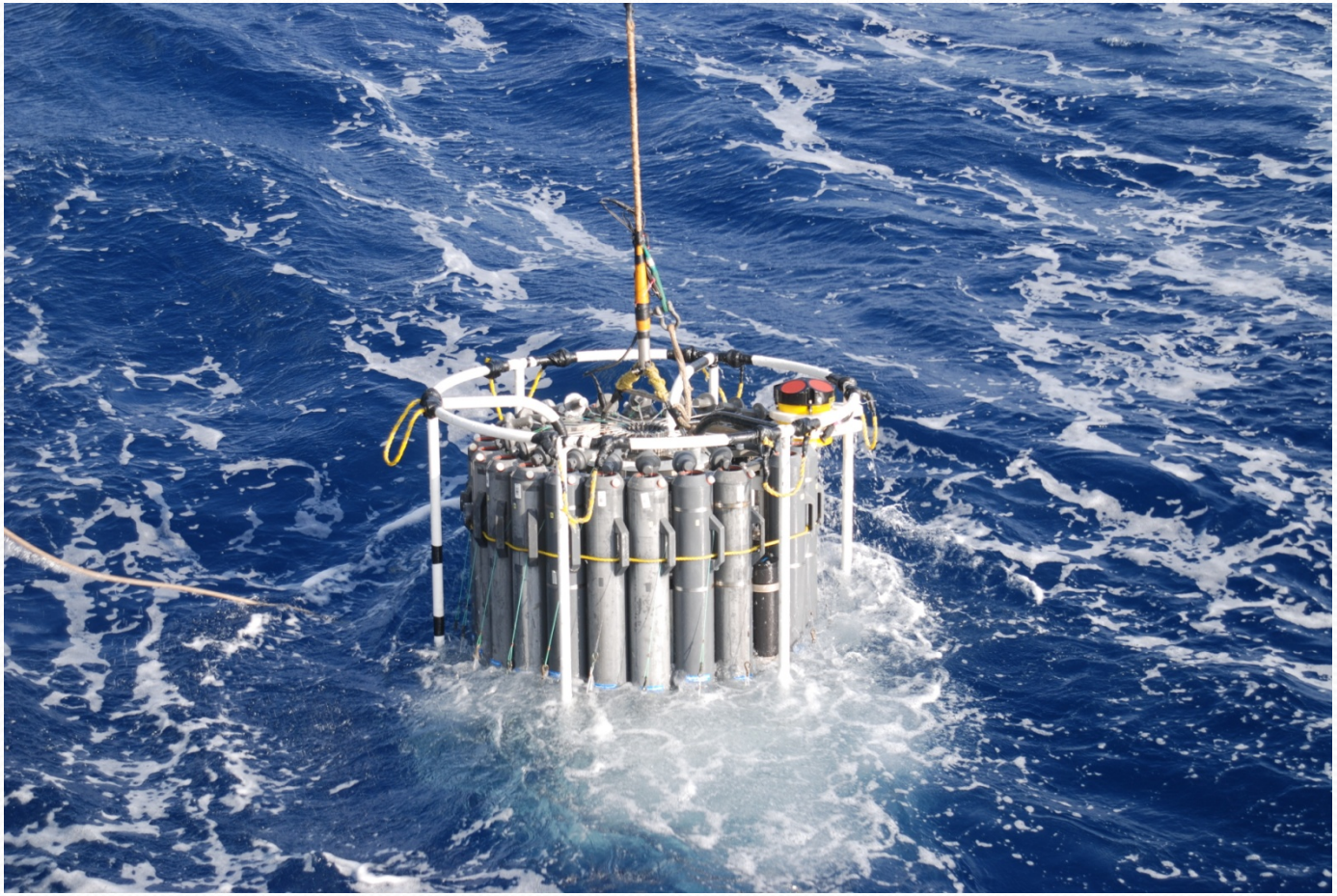
Atlantis in dry dock

Biofouling on SeaBeam array

HOV ALVIN

S.S.S.G.
Shipboard Scientific Services Group

CTD Launch

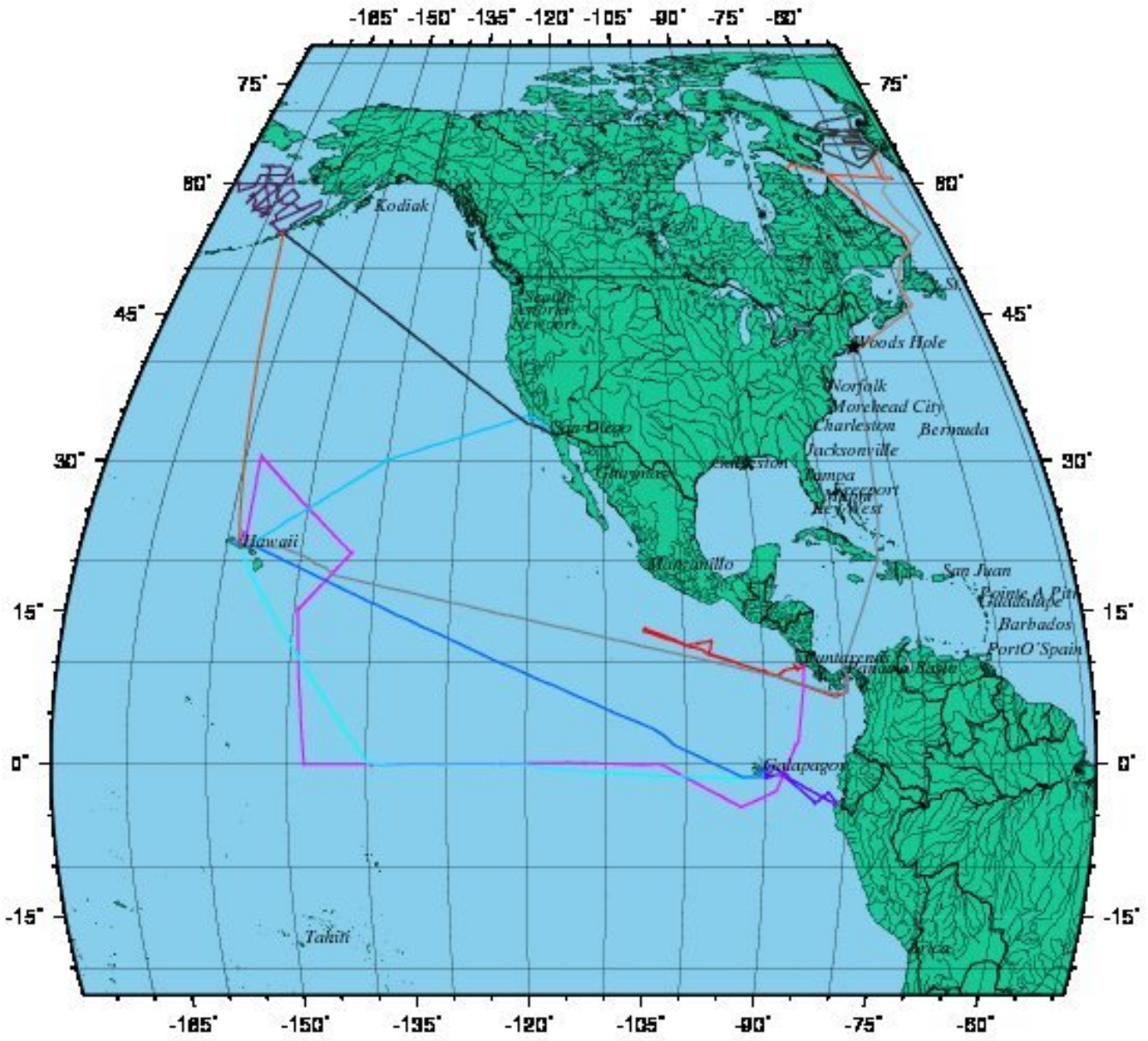


Late 2009 and into 2010

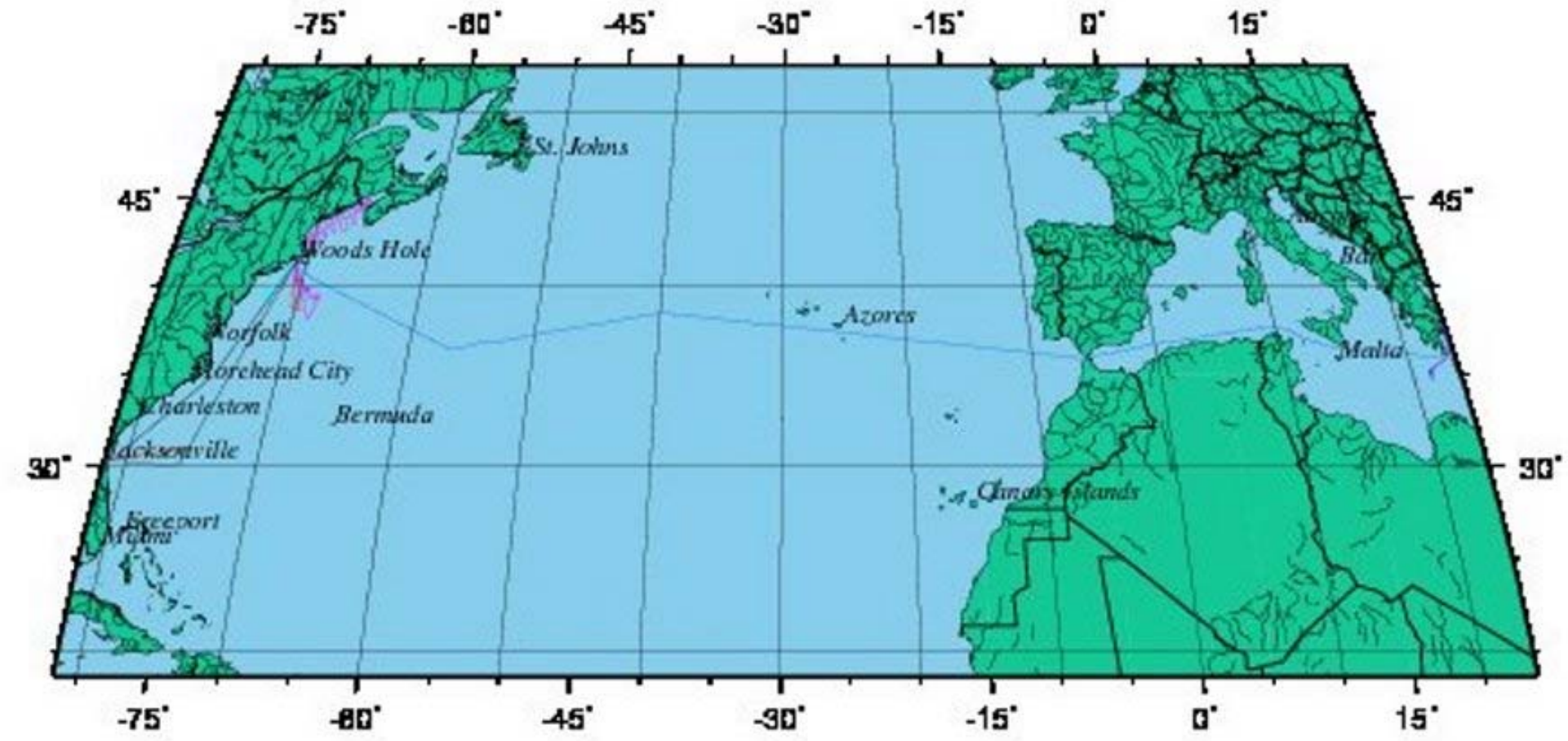
Alvin Upgrade Update

- Next scheduled overhaul: April 2011
- Plan Design Review due December 2009
- Final Design Review due September 2010
- Commissioning: Fall / Winter 2011 as 4500 m sub
- Will be ABS classed. Modifications to 6000 m sub at 3 years or first major overhaul
- New titanium sphere is forged, machined, welded and currently having veiwport fixtures welded
- Currently pressure testing syntactic foam
- Lead Acid batteries (no Lithium) at this time
- Sphere due to be delivered from SWRI to WHOI Feb. 2011

R/V Knorr 2009



R/V Oceanus 2009



R/V *Blue Heron*

R/V Cape Hatteras

Fish Tagging off NC & VA

air-sea fluxes of CO_2 in the Gulf of Mexico

AUV/ROV Nereus

Cayman Trench

http://oases-expedition.blogspot.com/

http://www.sailblogs.com/member/chmaster/

RV Hugh R Sharp

2009 Technical Summary:

- Increased use of Sailor broadband internet
- Ships measuring system by Measurement Technologies Northwest updated to provide data at 3hz
- Lots of CTD work
- Limited use of specialized equipment (Scanfish and Reson 8101 shallow water multibeam)
- Great experience with MATE program - mid-May through the end of July – kept on p/t afterwards
- Caley system display failing and tension not displaying – lack of support from Caley

R/V Kilo Moana

2009 Operations

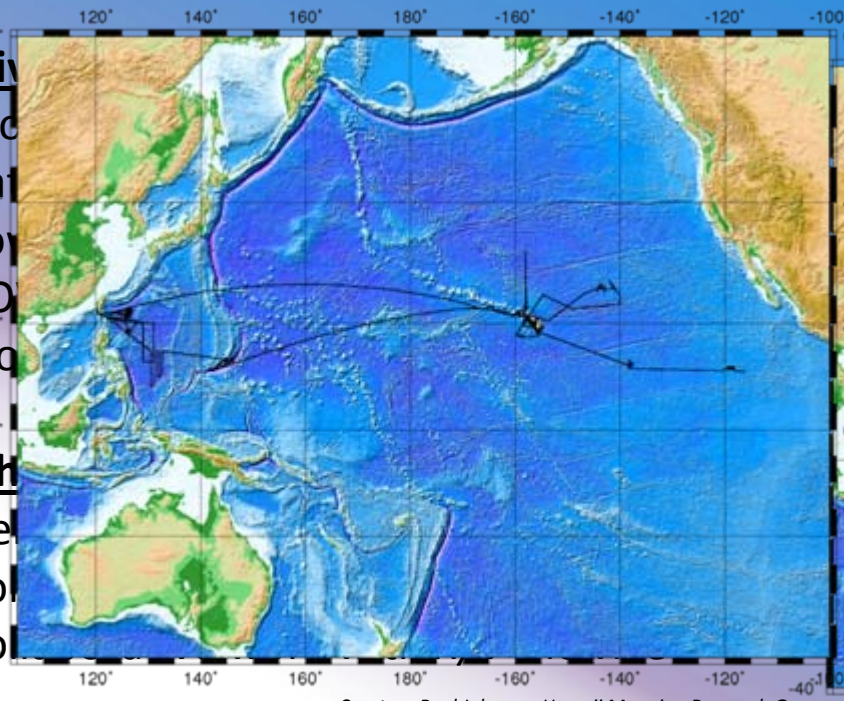
- 26 cruises, 275 sea days
- Steamed more than 35,000 nautical miles
- Hawaii, Taiwan, Philippine Sea, Guam, Oregon

Activ

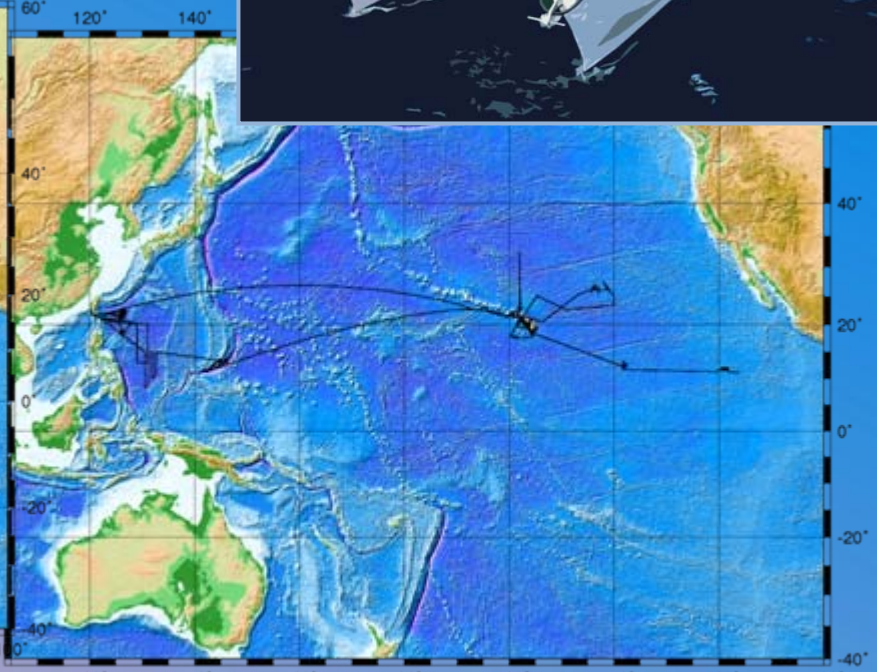
- Mc
- Bat
- Toy
- RO
- Bio

High

- Ne
- Co
- Co



Courtesy Paul Johnson, Hawaii Mapping Research Group



Courtesy Paul Johnson, Hawaii Mapping Research Group

Challenging Issue/Technical Hurdle

- Planned implementation of new integrated winch/crane system – Dec. 2009
- Upgrading deepwater multibeam system from EM120 to EM122 – Jan. 2010

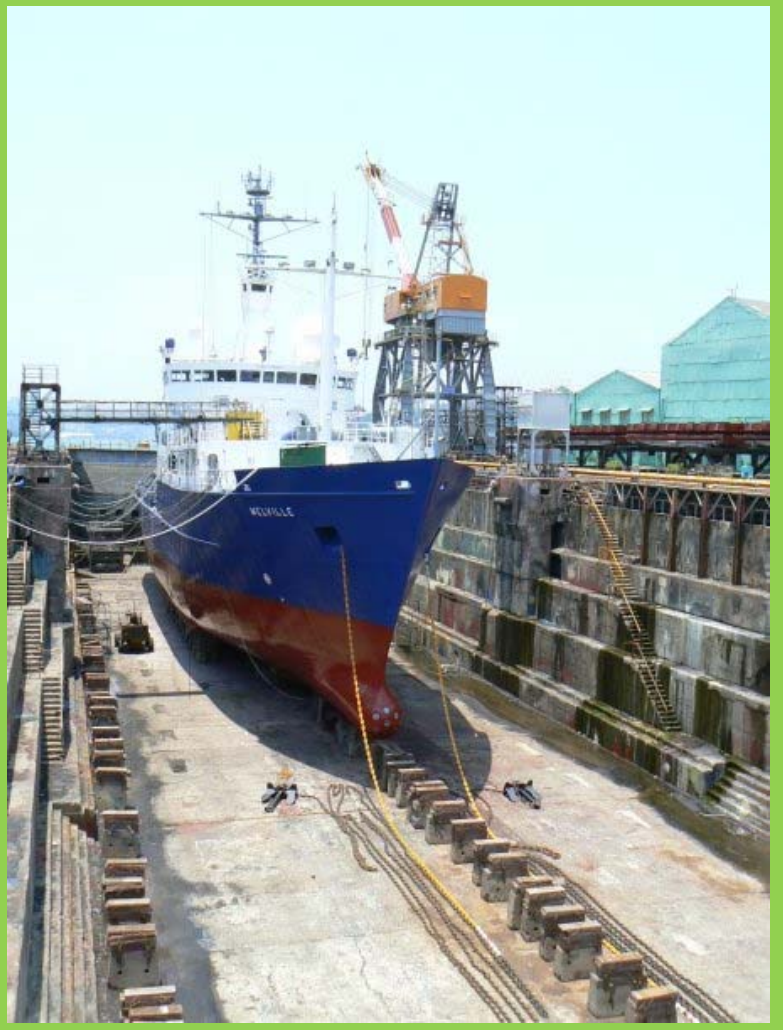
university of hawai'i ocean technology group

Roger Revelle

- OP Area: Southern Ocean, Indian Ocean, South Pacific, Philippine Sea, Northwest Pacific
- 333 days
- Circumpolar Current Study, CliVar, Electromagnetic instrument studies, ONR Typhoon Studies, OBS Studies, NOAA Tsunami Buoys, Seafloor Magnetics, And ocean acoustics
- Highlight of the Year: Rescuing a Juvenile Hawksbill Sea Turtle off of Taiwan, Installing the new EM122
- Most Challenging Issue: Training Science Parties how to do deck work when they do not speak English.

Melville

- Op Area: Taiwan, Philippines, South Pacific
- 199 days
- ONR Typhoon study, CliVar
- Highlight of the year: Melville sailing away from Keelung, Taiwan after 5 months in dry dock and 3 years in the region.
- Most Challenging Issue: Juggling the schedules and Equipment of Melville and Revelle to allow for the continuation of successful research for ONR.



New Horizon

- Op Area: California Bight, Oregon Coast including the Columbia River, Baja Coast
- 149 days
- CalCOFI, Moorings, CTDs, Dredging, Coring
- Highlight of the Year: Journey to the Pacific Garbage Patch
- Most Challenging Issue: 3 separate cruises with SIO Graduate Students as 1st time Chief Scientists.

Robert Gordon Sproul

- Op Area: California Bight
- 82 days
- Whale Acoustics, AUV Testing, Student Training, Sediment Water Interface Studies, Moorings, Testing newly engineered equipment, CTDs
- Highlight of the Year: Displaying our Research at San Diego Maritime Week
- Most Challenging Issue: Loading/Offloading uniquely engineered equipment

R/V PELICAN 2009

- 51 Different Cruises
- 268 Days at Sea
- Gulf of Mexico

- Precision
- Consistency
- Professionalism

On the Horizon

- TSS Motion Sensor
- USBL Tracking
- Com -7 render/recover

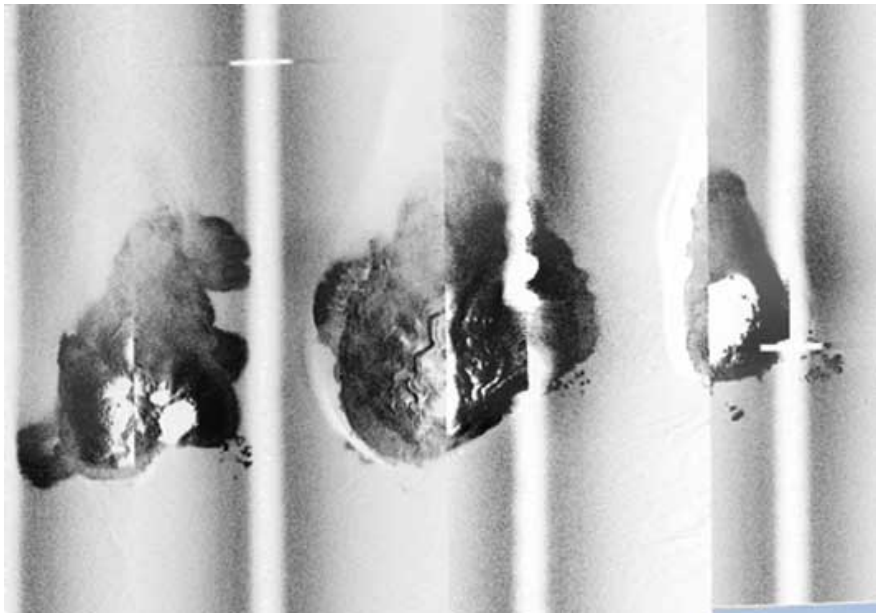
R/V *Point Sur*

2009 Year In Review: R/V SEWARD JOHNSON

- Waitt Institute of Discovery: Jan 2 – Jun 23rd, 173 days
  - Collabortive expedition: CATALYST ONE
    - WHOI designed and delivered 2 REMUS 6000m AUVs
    - HBOI's ship & subs
- HBOI Scientists identified an area of 3 *Lophelia* reefs, nicknamed it 'Triceratops'

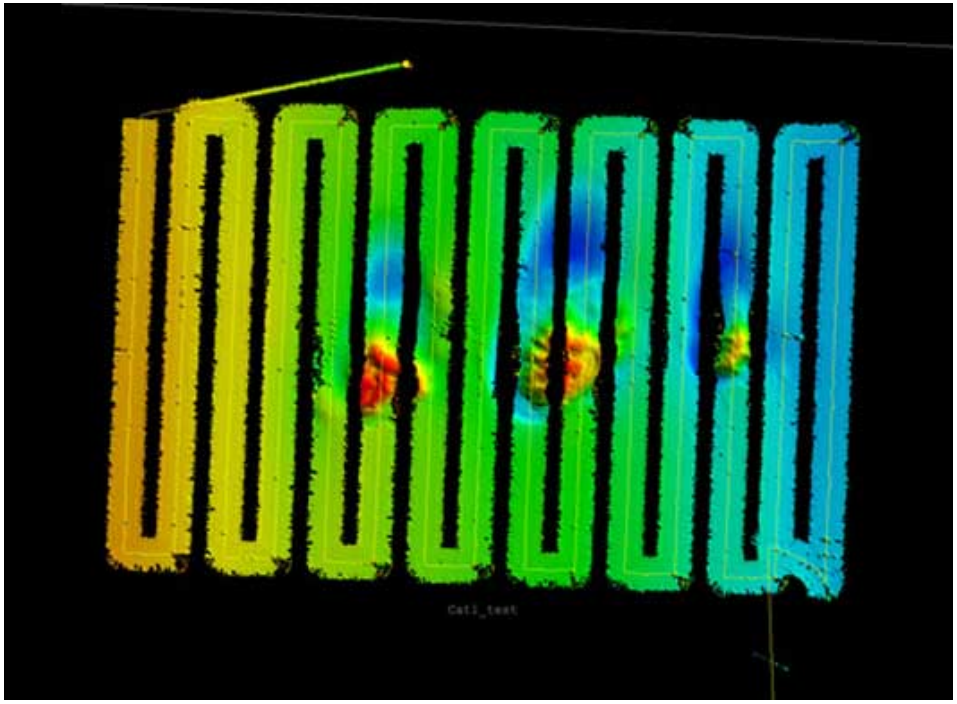
- Other cruises
  - Dr. Tammy Frank, Assoc Res Prof, HBOI
    - 11 days Bahamas; JSL dives; adaptations in dim light environments, light receptors in macrozooplankton, micronekton
  - Dr. Steve Ross, Res Assoc Prof, UNCW
    - 2 cruises, total 22 days, GOM; 'Deep Reef Habitats in the Gulf of Mexico'
  - Dr. Craig Young, Prof/Marine Lab Dir, OIMB
    - 10 days GOM; Collaborative Research: deep-sea larvae as grazers in the midwater microbial loop
  - Dr. Ken Halanych, Assoc Prof, Auburn
    - 5 days off N'Awlins; Identifying mechanisms of symbiosis…tubeworm study

Triceratops pinnacles– FL Straits
Lophelia Coral in HAPC's



Left: Side scan sonar mosaic

Below: Multi-beam sonar mosaic



Images Courtesy of Waitt Inst of Discovery: http://wid.waittinstitute.org/

next…BRAZIL…

- R/V Seward Johnson
  - Entering into a new contract with CEPEMAR Environmental Services (www.cepemar.com)
    - Large environmental company
      - Growing presence in FL: env impact, mangroves, SFWMD
    - 120 days to disembarkation after ink dries
  - Work for PETROBRAS
    - Petro Brasil – 8th largest global company in market value
    - Survey, environmental, oil
    - MTG expects to provide tech support for vessel
    - Very interested in submersibles

R/V WALTON SMITH

http://www.rsmas.miami.edu/support/mardep/

- Recent NSF Inspection – successful, considering last two
- No longer a 'new' ship: Age 9 yrs
- University of Miami – RSMAS Campus (Rosenstiel School of Marine & Atm Sc)
  - New Dean, Roni Avissar
  - New Director of Marine Operations, Richard Kniffin
  - New vessel crew (except Capt Shawn Lake)
  - Big changes in administration
- Lighter schedule, but steady
- Total 168 days (73 NSF; 53 NOAA; 39 ONR; 3 other)
- Most work in FL Bay, Keys and Straits and the Bahamas
  - S. FL Ecosystem (Libby Johns, NOAA)
  - FL Current study (Molly Baringer, NOAA)
  - Beaked whales (Diane Claridge, ONR)
  - ISIIS (Bob Cowen, NSF)
  - CSTORMS Larry Brand, NSF)

Biggest Challenges of '09

- R/V SEWARD JOHNSON
  - Providing high-speed Internet in the Pacific – switch from AOR to POR satellites
- R/V F. G. WALTON SMITH
  - Deploying MOCNESS in 3m

Oregon State University Marine Technician Group Year In Review

- 180 Sea Days
  - Oregon
  - California
  - Equator
    - 8N-8S
    - 95W-110W
  - 124 NSF
  - 40 NOAA
  - 16 ONR
- Highlights
  - TAO NOAA
  - Coring

Shakedown 2009

- Wire tests were our biggest challenge

Spring 09

Spring (BEST 01)

- Bering Sea (28 Jan - 08 Feb, 12 Days)
- CTD, benthic work, net tows, marine mammal surveys
- Harsh winter environment was our biggest challenge

Spring (BEST 02)

- Bering Sea (APR09 - MAY09, 30 days)
- CTD, benthic work, net tows, on ice deployments
- Harsh winter environment was our biggest challenge

Summer 09

- Arctic Ocean (23May - 06Jul, 11 Days)
- Beaufort Shelf - (hydrographic moorings)

- Extended Continental Shelf
  (07AUG - 16SEP, 40 Days.)
- Joint Canadian / United States
  mapping mission
- Dredging of the shelf break and slope

Challenges:
- ADCP150 beam failure and spares
- Crosstalk (acoustic and EMI)
- Reliable uncontaminated seawater in heavy ice conditions
- Improved integration of acoustic command deck unit with real-time data system
- On-deck seawater in sub-zero weather