NOAA ship *Okeanos Explorer*
Shakin' it down. . .

DESSC
June 17, 2009

Catalina Martinez

NOAA ship *Okeanos Explorer*

Length: 224 feet
Breadth: 43 feet
Draft: 15 feet
Displacement: 2,298.3 metric tons
Berthing: 46 (19 Mission/science)
Speed: 10 knots
Range: 9600 nm
Endurance: 40 days

Launched: October 28, 1988
Transferred to NOAA: September 10, 2004
Commissioned: August 13, 2008

NOAA ship *Okeanos Explorer*

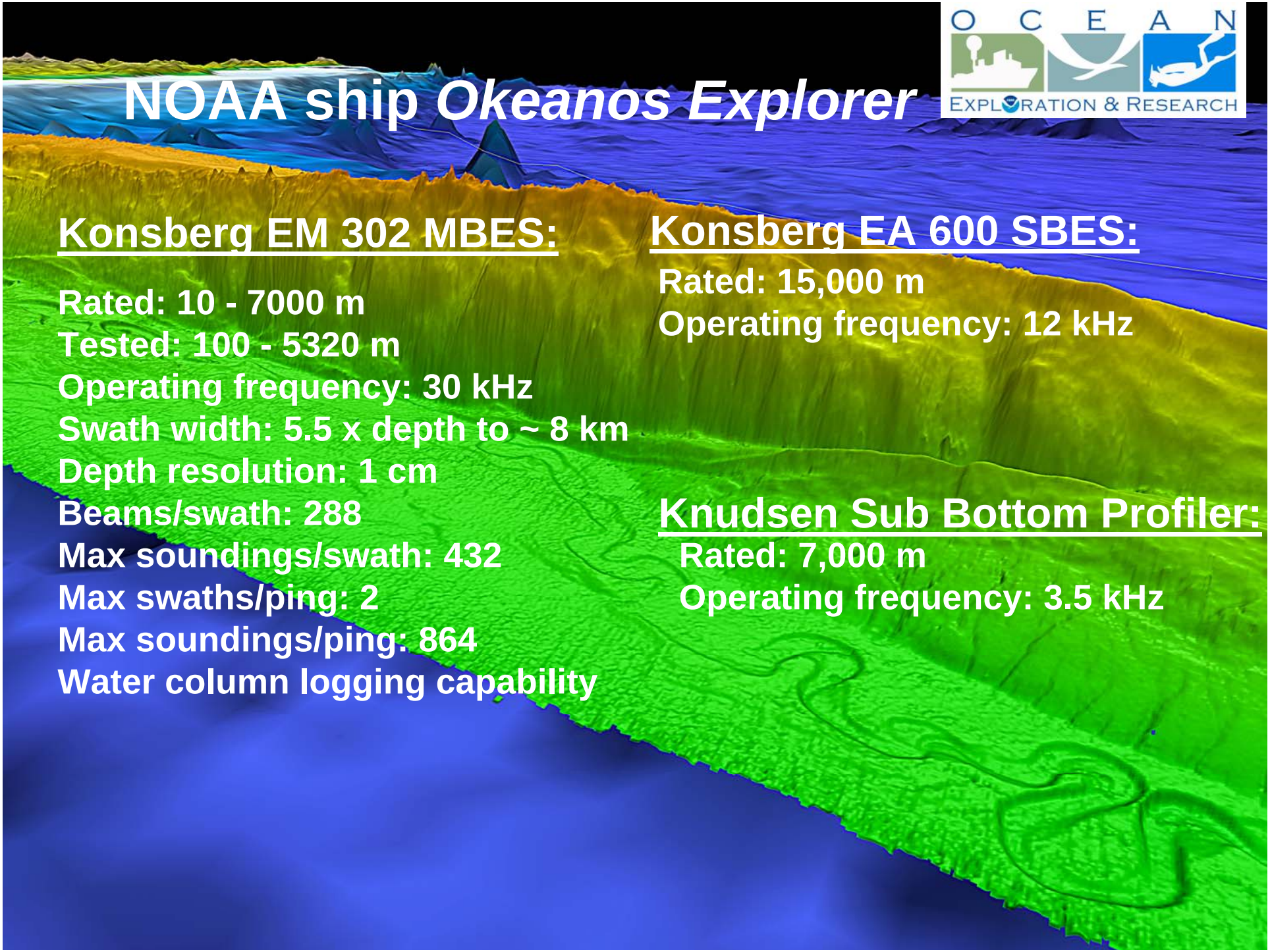
OCEAN EXPLORATION & RESEARCH

Outfitted to serve three primary missions:

1. Deep water (to 7,000 m) mapping
2. Deep water (to 6,000 m) science class ROV operations
3. Real-time broadband satellite transmission of data

Milestones . . .

- Conversion Completed - 2 shipyards, Sept 2006-May 2008
- VSAT and Remote Science Systems Integrated - May-Jun 2008
- Ship Shakedown Completed - Jul-Aug 2008
- Ship Commissioned - Aug 13, 2008
- Mapping System Acceptance, Testing and Shakedown Complete - Sep 2008
- VSAT and Network Established, Initial Testing Complete - Oct -Nov 2008
- Staffing - ongoing
- Workshops (07-09):
  - Expedition Planning @ Nat Geo DC
  - Advanced Technology @ MBARI
  - Mapping Products @ UNH
  - ROV Tool and Sensor @ PMEL
  - Website Planning @ PMEL
  - Education Forum @ PMEL



NOAA ship *Okeanos Explorer*

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Konsberg EM 302 MBES:

Rated: 10 - 7000 m
Tested: 100 - 5320 m
Operating frequency: 30 kHz
Swath width: 5.5 x depth to ~ 8 km
Depth resolution: 1 cm
Beams/swath: 288
Max soundings/swath: 432
Max swaths/ping: 2
Max soundings/ping: 864
Water column logging capability

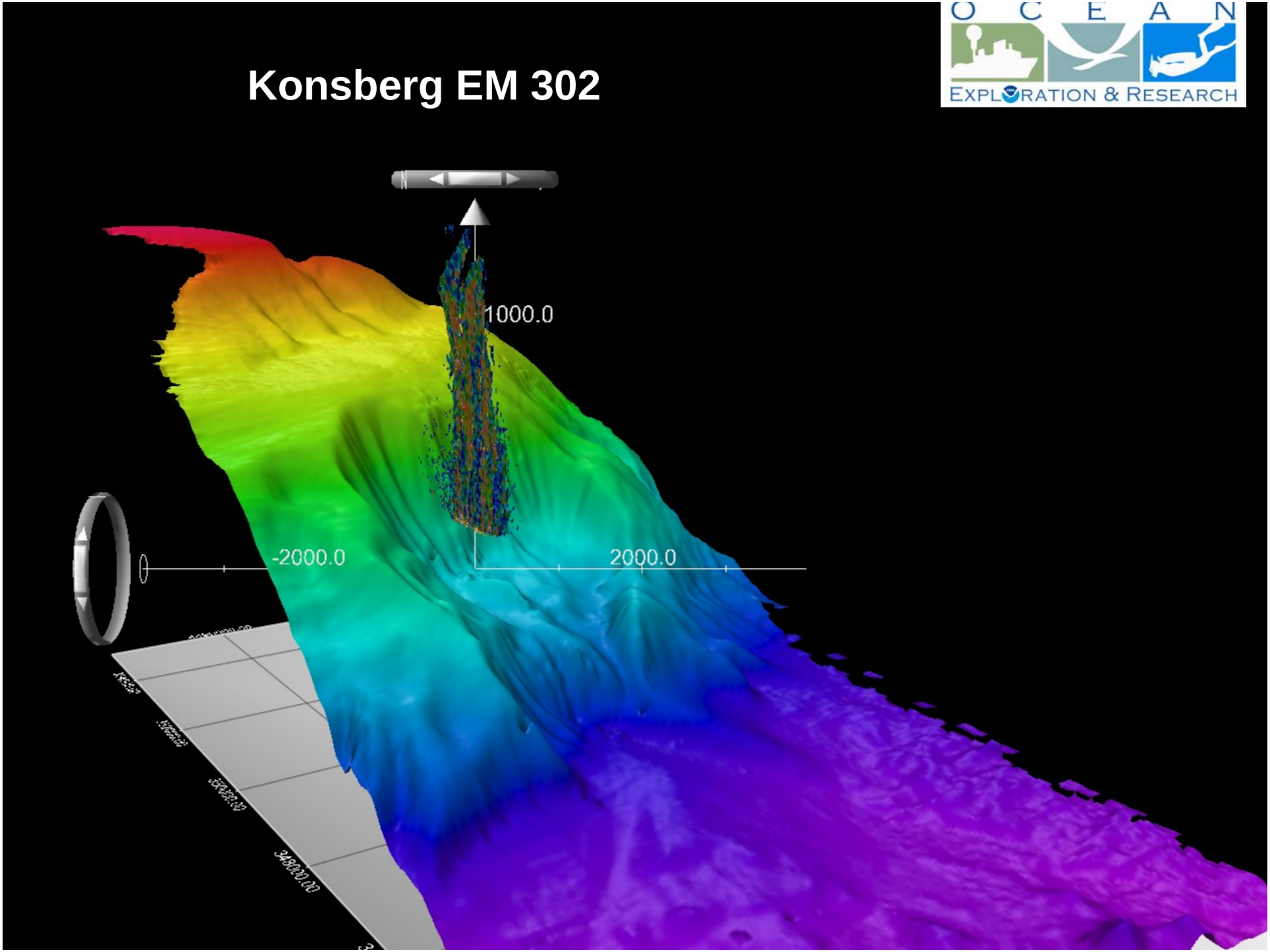
Konsberg EA 600 SBES:

Rated: 15,000 m
Operating frequency: 12 kHz

Knudsen Sub Bottom Profiler:

Rated: 7,000 m
Operating frequency: 3.5 kHz

Konsberg EM 302



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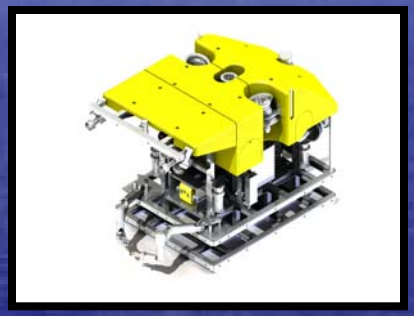
NOAA ship *Okeanos Explorer*

Phoenix ROV Specifications

Length:	3.1 m (121.87 inches)
Width:	1.8 m (70.75 inches)
Height:	2.47 m (97.25 inches)
Weight in air:	~ 3400 kg (7500 lbs)
Payload:	113 kg (250bs.)
Depth Rating:	6000 m



Umbilical:	8000 m / Rochester 0.68”
ROV to sled tether:	120 feet, neutrally buoyant
USBL Tracking:	Linkquest Tracklink 10000HA
Manipulators:	Two Schilling Orions
Sensors:	Doppler Velocity Log (600 kHz)
	Depth, Altitude, Attitude/Heading

URI Ocean Science and Exploration Center

Courtesy of RI Film Office

Ribbon Cutting June 1, 2009

Future . . .

OCEAN EXPLORATION & RESEARCH

Mission Control

Data

ISC

Production

Technical Support

Outreach Sites **I1, I2**

ECC's

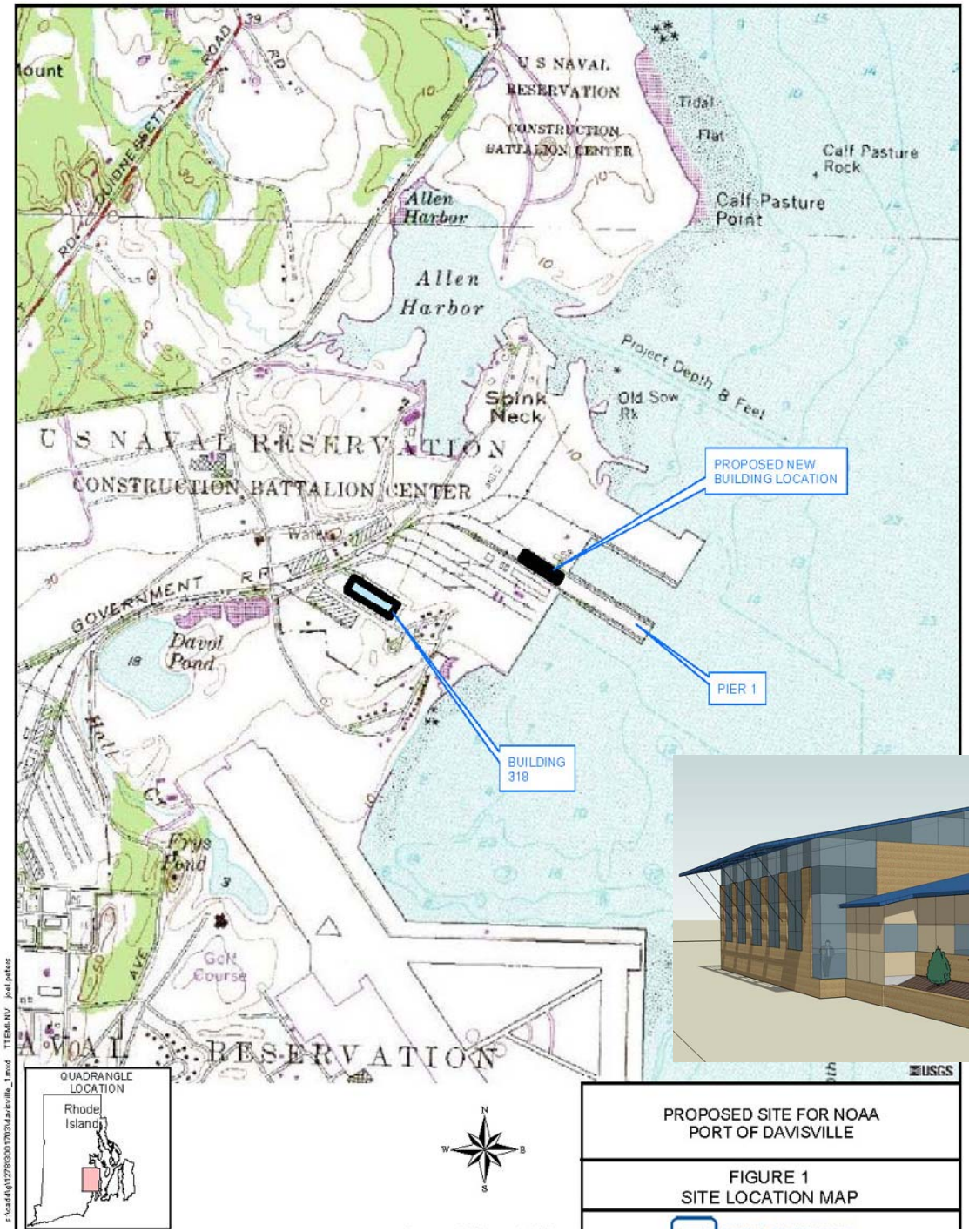
Outreach Sites **SAT**

ISC functions

Data and video multicast from ship to Internet 1, 2, I2 enabled ECC's, ISC, and outreach sites

Video transmitted from ISC to KU Band Satellite enabled outreach sites

Internet enabled intercom through ISC



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Okeanos Explorer

Likely home ported in Quonset Point, RI

Image courtesy of QDC

Schedule

CA OR

HAWAII

WESTERN PACIFIC

RHODE ISLAND?

2009

2010

2011

summer

fall

winter

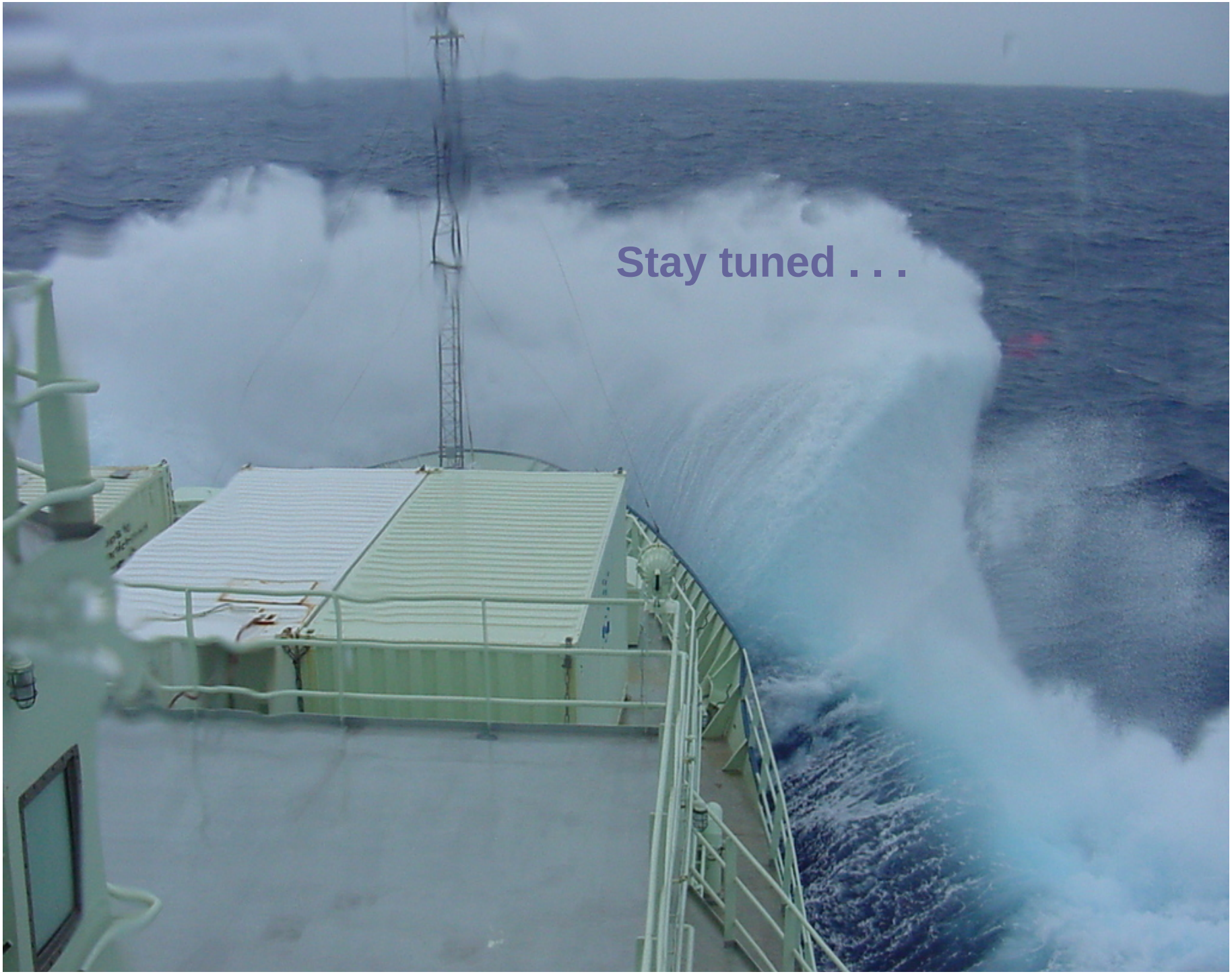
spring

summer

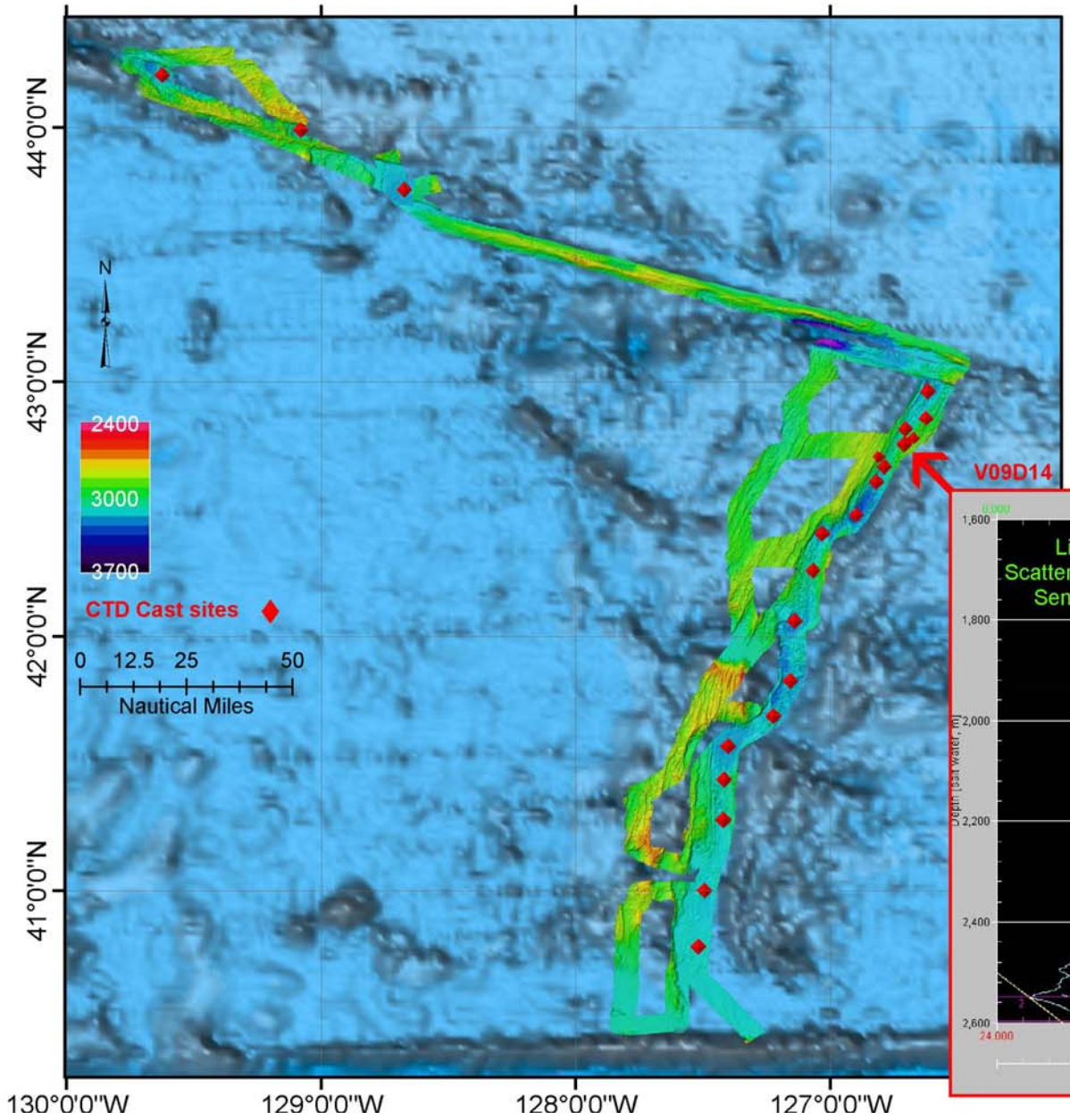
fall

Shakin' it down

- Continued R&D
  - Remote Science
  - Protocols
  - Concept of ops
  - Data
  - New applications
  - Products
- ROV integration, performance & acceptance
- Policy Dev't
  - Data access, dissemination, archive
  - Metadata
  - Participation
- Education and training opportunities
- New collaborations/partnerships
- Outreach and Education opportunities, access and products


Stay tuned . . .

EX0904 Water Column Exploration
Gorda Ridge and East Blanco Fracture Zone
June1-12, 2009



Vertical cast V09D-14 was positioned at the Sea Cliff hydrothermal field. Evidence of hydrothermal venting was seen in this area during the first water column survey of the Gorda Ridge in 1985, and high-temperature vents were located at this site with the Navy's Sea Cliff submersible in 1988. The image shows the profile with depth of data from sensors on the CTD. The particle anomaly began as the CTD descended past 2250 m, and increased dramatically along with the onset of the ORP anomaly at 2350 m. The plume was present nearly all the way to the seafloor (2610 m), and density inversions below 2500 m suggest we were sampling within the buoyant plume. All indications are that we were very close to the source, and that this site is still quite active after 25 years!