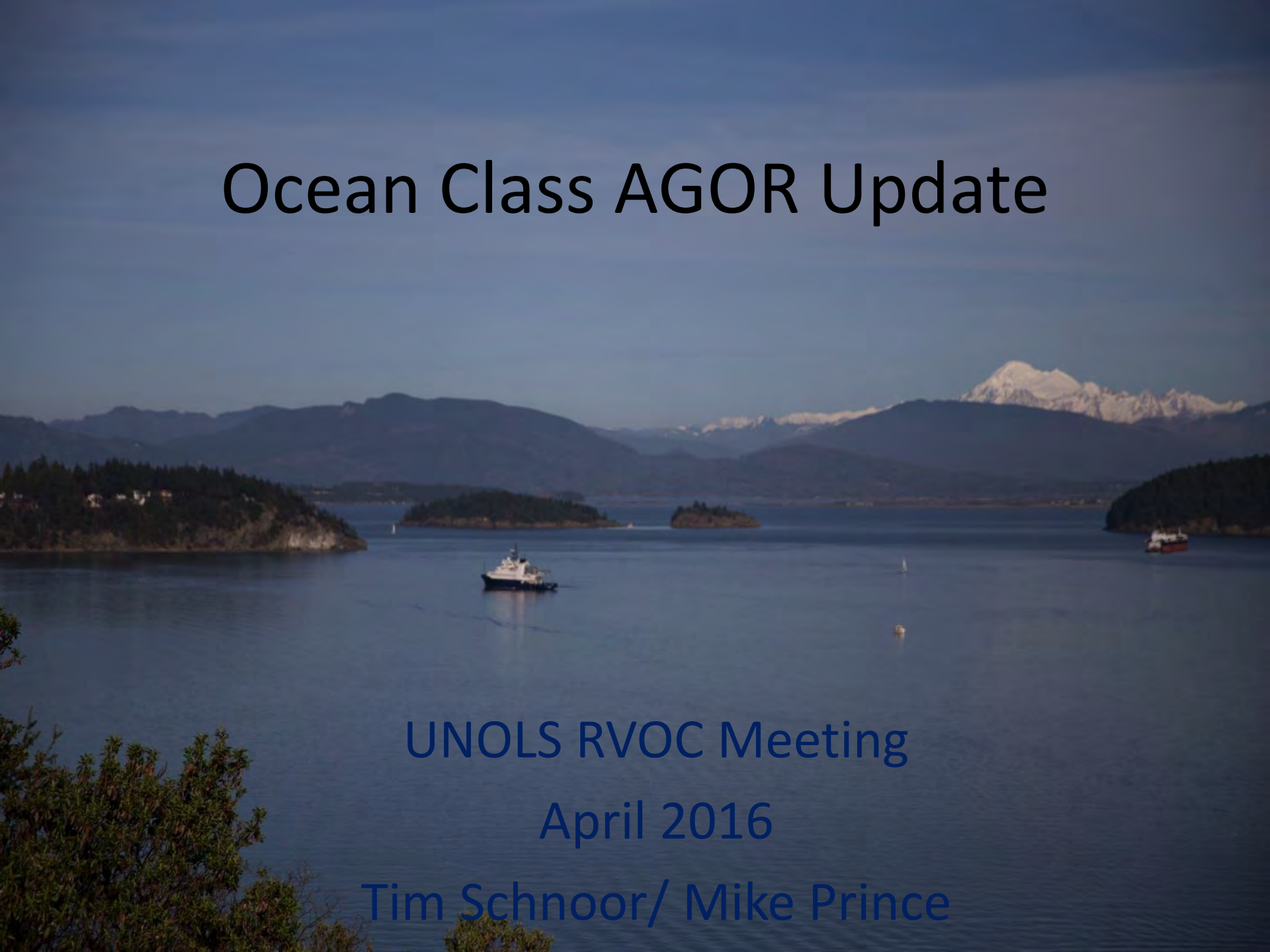
Ocean Class AGOR Update



UNOLS RVOC Meeting

April 2016

Tim Schnoor/ Mike Prince

Ocean Class AGOR Characteristics

Key Characteristics:

- Hull Material — Steel; Aluminum pilothouse
- Length — 238 ft
- Beam (Max) — 50 ft
- Draft — 15 ft
- Displacement — 3043 LT (Full Load)
- Sustained Speed — 12 kts
- Range — 10,545 nm
- Endurance — 40 days
- Propulsion Electric — 4 x 1044 kW Diesel Gensets, 2 x 879 kW Propulsion Motors, 2 x Controllable Pitch Propellers, Bow & Stern Thrusters
- Accommodations — 20 crew, 24 science berths
- ABS Classed/ABS Designed to ABS ✠A1 Circle E, ✠AMS and ✠ACCU, NIBS, Ice Class D0, USCG COI

Mission: Integrated, interdisciplinary, general purpose oceanographic research in coastal and deep ocean areas. Oceanographic sampling and data collection of surface, mid-water, sea floor, and sub-bottom parameters.

Owner – U.S. Navy – Office of Naval Research (ONR)
R/V *Neil Armstrong* (AGOR 27) – Woods Hole Oceanographic Institution
R/V *Sally Ride* (AGOR 28) – Scripps Institution of Oceanography
Builder: Dakota Creek Industries, Inc., Anacortes WA
Delivery: September 23, 2015 – *Neil Armstrong*
June 2016 – *Sally Ride*

Mission Equipment

- Multi-Beam: EM-122 1º x 2º
- Multi-Beam: EM-710 0.5° x 1°
- ADCPs: 38 kHz, 75 kHz or 150 kHz, 300 kHz
- Knudsen Chirp 3260, 16 3.5 kHz & one 12 kHz
- Fleet Broadband, HiSeas Net: C-Band/Ka/Ku
- Kongsberg HiPap or Sonardyne ATNS
- Fisheries Echosounder EK860 (5 frequencies)
- 2 Hydro Winches, 2 drum traction winch
- Local Area Network servers, printers, plotters, AHRS, TSG, SSSV, etc.

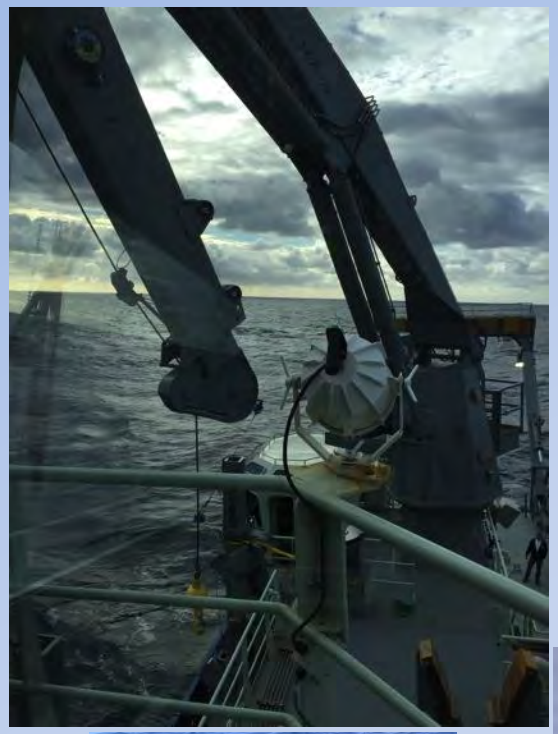
R/V *Neil Armstrong (AGOR 27)*

WHOI Photo

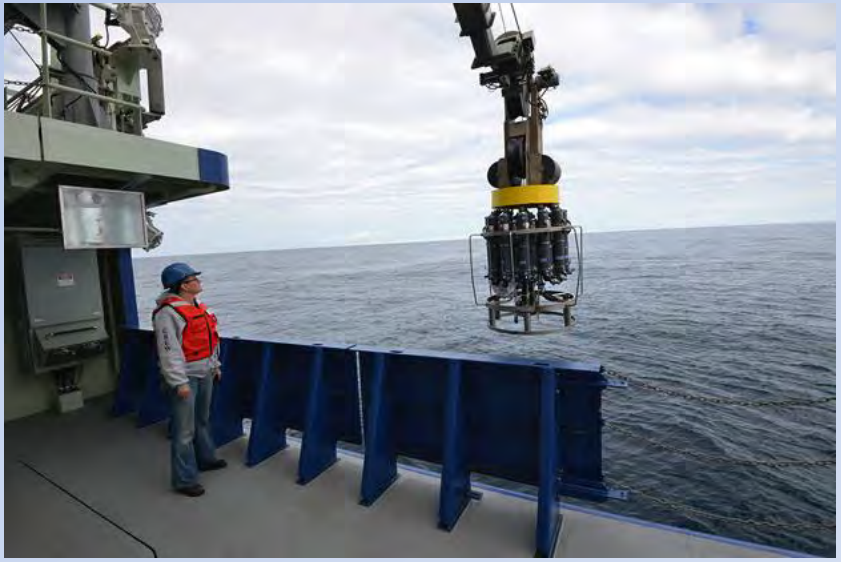
ARMSTRONG Crew takes possession of their new vessel

Mike Prince Photos

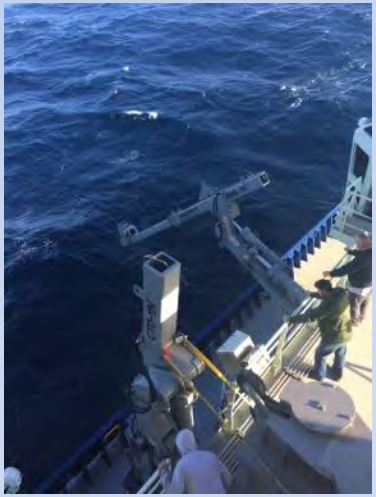
R/V *Neil Armstrong (AGOR 27)*

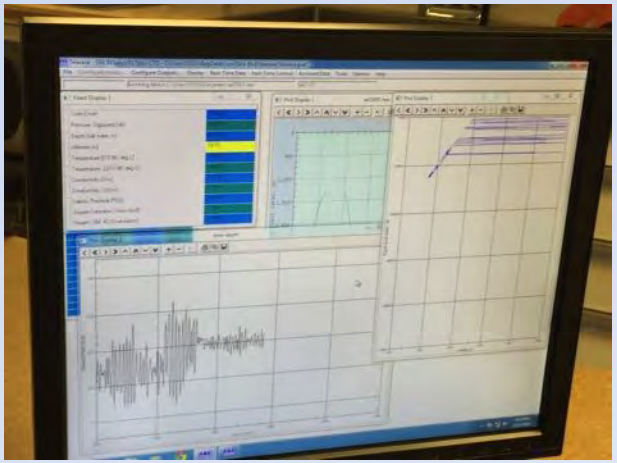


Winch testing enroute to San Francisco



Ken Kostel, WHOI Photo





Mike Prince Photos

R/V *Neil Armstrong (AGOR 27)*

R/V *Armstrong* arrives at her homeport for the first time. Photo by Daniel Cojanu, WHOI

Project Status

- R/V *Neil Armstrong* (AGOR 27)
  - Delivered to the Navy and WHOI on 9/23/15
  - Completed Phase III Mission Equipment installation shipyard period at Deytens in Charleston South Carolina in Feb 2016
  - Completed Radiated Noise tests at AUTEC Range
  - Completed 3 Science Verification cruises
  - Arrived in Woods Hole for the first time on April 6th
  - In Maintenance period until April 25
  - NSF/UNOLS inspection April 26-28
  - First Paid Science Cruise starting May 12th for OOI

R/V *Sally Ride (AGOR 28)*

SIO Crew becoming familiar with their new Research Vessel

Photos by
Paul Bueren, SIO

R/V *Sally Ride (AGOR 28)*

Mission System installation and final outfitting

Photos by
Paul Bueren, SIO and Mike Prince

R/V *Sally Ride (AGOR 28)*

Photo by SIO

Project Status

- R/V *Sally Ride* (AGOR 28)
  - Successful completion of Acceptance Trials 3/10/16
  - Hauled out for Phase III Mission Equipment installation at Dakota Creek on 4/4/16
  - Phase III scheduled to be completed by 5/15/16
  - Delivery some time between June 9th and 29th
  - 30 day Fitting Out Availability and SAT Tests for Mission equipment through early August.
  - Science Verification Cruises, Equipment testing, possible Radiated noise tests and public outreach port calls through Late October
  - NSF/UNOLS inspection Late October
  - First Paid Science Cruise starting Nov 7th for CALCOFI

The Good, the Bad and the Ugly

(Captain Desjardins uses this to describe progress on SALLY RIDE as requested by the Marine Superintendent)

- The Good
  - Overall workmanship and construction is excellent
  - Ships are quiet –
    - airborne noise meets rigorous specifications with just a few exceptions. Staterooms are extremely quiet.
    - SONAR Self Noise meets or exceeds requirements.
    - Radiated noise requirements (for 8 knots) is met at 10 knots and ICES curve is essentially met at 8 knots.
  - Tier 3 engines and integrated bus result in meeting EPA emission requirements and fuel consumption is better than expected at somewhere between 2,000 and 2,700 gals per day.
  - Bubble sweep down and acoustic system performance is still being evaluated, but preliminary results are very good.
    - Some bubble sweep down issues headed into seas.
  - The suite of acoustic systems and their performance provide a wide range of functionality and have been well received on SVC cruises.
  - Performance of winches, handling devices and cranes is generally very good.
  - DP and maneuverability is very good.
  - Despite being smaller than the Global Class vessels the open back deck is still effective for mooring work.

The Good, the Bad and the Ugly

- The Bad
  - The lightship displacement is considerably less than design requiring ballast and full load of fuel to get close to design draft.
    - Affects acoustic performance, bubble sweep down, ship motions and sea suction for science seawater system.
  - Ship's motion in seaway is greater than predicted.
    - Could be related to weight issue.
  - Main Crane location and design (knuckleboom) makes it difficult (impossible?) to effectively place it in a crutch and use it as a Starboard side overboarding system for the traction winch.
    - An alternate solution will need to be developed for using traction winch wires/cables over the starboard side.
  - Airborne noise on the working deck is above requirements in some locations. Fix is a box around the stacks. (might be ugly)
  - The main working decks take on quite a lot of water. Several issues related to preventing this and draining of water on decks and in labs need to be resolved.
  - Over 100 Guarantee Deficiencies have been reported. Many are minor and have been corrected, but several will take more planning and effort during the Post Shakedown Availability.

The Good, the Bad and the Ugly

- The Ugly
  - just me

Questions?

Photo – Paul Bueren, SIO