STARC Report to AICC
Seattle, WA 19-20Nov2015

- Daniel Schuller (SIO)
- Woody Sutherland (SIO)
- Susan Becker (SIO)
- Andrew Woogen (OSU)
- Croy Carlin (OSU)
NSF STARC Grant

• Ship-based Technical support in the ARCtic
• Collaboration between SIO and OSU
• Entering 3rd year of 5 year grant
• 2014-2018
Fair Winds and Following Seas

- Daryl Swensen (STARC/OSU)
- David O’Gorman (STARC/OSU)

Scott Hiller
STARC/SIO 2011-2014
STARC 2015

• Woody Sutherland- SIO /STS manager
• Dan Schuller- SIO
  – With STS since 2003
  – Polar experience including Healy cruises, Alert field camp, Antarctica cruises and bases
• Andrew Woogen- OSU
  – Marine technician, Project Manager and Engineer
  – Texas A&M, TDI-Brooks, BIOS, WHOI, iRobot
Annual Maintenance

- Meteorological Instruments/sensors
- CTD and sensors
- Rosette carousel and bottles
- Lab clean water DI systems
- Underway pCO2 system
- Gravimeter
New in 2015

• 2 science vans relocated to “front porch” (ongoing project)
• Upgraded berthing
  – Flat panel TVs connected to ship’s entertainment system
  – Curtains on pull-down bunk (coffins)
• POSMV motion sensor antenna moved to vibration-free location
• Sippican ethernet XBT/XCTD deck box purchased/installed/used
• Met system software upgraded
• Knudsen echo sounder software upgraded
Shakedown
26-29 May 2015

• 1 OSU tech + MATE intern
• 3 SIO techs
• Groomed science systems
• CTD cast to 500 m
• EM122 calibration
Mobilization
Seattle 15-19June2015

• Load HLY1502 including vans over 4 days
• Holds stuffed full
• Lots of organization/reorganization
• Load HLY1501 on final day
Transit to AK
24-29 June 2015

• 1 STARC tech (SIO) on board to ready ship for RDC

• Installed last minute sensors onto CTD and Met system
HLY1501
3-26July2015

- USCG Research and Development Center
  - Communications: HF, UHF, SATCOM, MUOS and Iridium
  - Navigation: AIS and eMSI
  - Search and Rescue
  - Collaboration with NOAA (sea ice buoy deployment), SPAWAR, UA
Transit
1-4 Aug 2015

• Seward to Dutch Harbor
• 2 STARC techs aboard (SIO)
• Prepare ship for Geotraces
HLY1502
9Aug-11Oct (!) 2015

• 3 STARC techs (2 OSU + 1 SIO)
• Geotraces and CLIVAR/GO-SHIP
• North Pole! 5Sep2015
  – Full Geotraces station
  – Polarstern visit
• 3x CTD/rosette packages. Streamlined down to 2
• XBTs/XCTDs in open water and ice
• In-situ pumping
• Aerosol and precipitation sampling
• Ice stations (60% accomplished due to thin ice)
• Outreach -> many blogs, “float your boat”; oceanography class to Healy crew for credit
HLY1502
9Aug-11Oct (!) 2015

• Full berthing 51 scientists
• Full labs including climate control chambers
• Full hold ~70 pallet boxes
• Full deck 6 lab vans + trace metals winch + storage vans
• Full of gas 150+ gas cylinders
“Gremlins of the North”
- Multibeam and mapping issues above 86N
- Poor multibeam/Knudsen in ice and during ice stations
- XBT issues in ice
- Satellite ice imagery issues
- Equipment vulnerability to cold (CTD DO sensors, in particular)
Kadko Comments

• Load
• Gasoline
• Over-the-side
• Food service
• Medical
• Ice operations
• Communications
Transit
16-21 Oct 2015

• Dutch Harbor to Juneau
• 1 STARC tech (OSU)
• Upgrade Knudsen software
Transit
26-29Oct2015

• Juneau to Seattle
• 1 STARC tech (OSU)
• Gravimeter issues
• Write data
• Prep science systems for extended down time
Demobilization
2-5Nov2015

• Seattle
• 1 STARC tech (SIO)
• Vans off Monday
• Cargo out of hold onto dock where it was organized and palletized
Other STARC support

• Oden
• 29 July - 2 September 2015
• Petermann Glacier, Greenland
• Pre-cruise planning
• OSU- Gravity, piston, multi coring
• Bear watch
• 2018 ??
Projects for 2016

• Healy in dry dock Jan2016 - ??.
  Where-Monday??
  – ~monthly visits by STARC and/or ESU
• Van relocation project by 31Dec2015
• Gravimeter off and stored at ESU
• Icefloe.net migration to SIO
• High speed data acquisition/logging via serial server (position, attitude, winch)
• Mapserver- ongoing...
2016 Cruises

• No NSF-funded cruises for 2016
• BOEM
• ONR/OAS
• NOAA/OE
• USCG?
2016 Cruises

1. MARES Marine Arctic Ecosystem Study (BOEM)
   - Carin Ashjian WHOI
   - Dutch Harbor to Dutch Harbor
   - 3 STARC technicians
   - physical, biological, chemical oceanography, biological rate studies, ice algae, ice, plankton, larval fish, benthos, fish, marine mammals observations; Underway sampling; helicopters, gliders, drones
   Work will be conducted in the open water, ice covered water, and the marginal ice zone of the Beaufort Sea
2016 Cruises Cont

• 2. CANAPE- CANadian Basin Acoustic Propagation Experiment (ONR/OAS)
  – Peter Worcester SIO
  – Seward to Dutch Harbor
  – 2 STARC technicians
  – Large mooring deployments by WHOI buoy group
2016 Cruises Cont.

• 3. Chukchi Borderlands (NOAA/OE)
  – Russel Hopcroft UAF
  – Dutch Harbor to Dutch Harbor
  – 2-3 STARC technicians
  – ROV, CTD, box core, trawls, multi net

• 4. RDC ???
Mid-Life Refit

• Habitability
• Hull instruments
  – Knudsen echo sounder. Good
  – ADCP. Good
  – Multibeam
• Noise study
  – Pumps hard-mounted near transducers. Isolation mounts?
  – No ice under hull
• Shallow Arctic- broad shelf
  – Current EM122 is a deep water system
  – Quality NOAA can use for bathymetric charts
  – Shallow water multi-beam system (20-300m)
  – Kongsberg EM710 or 2040
  – Hull? Gondola on hydraulic pole?
THANK YOU

Picture by Cory Mendenhall