

POLAR SEA ARCTIC WEST SPRING 2008



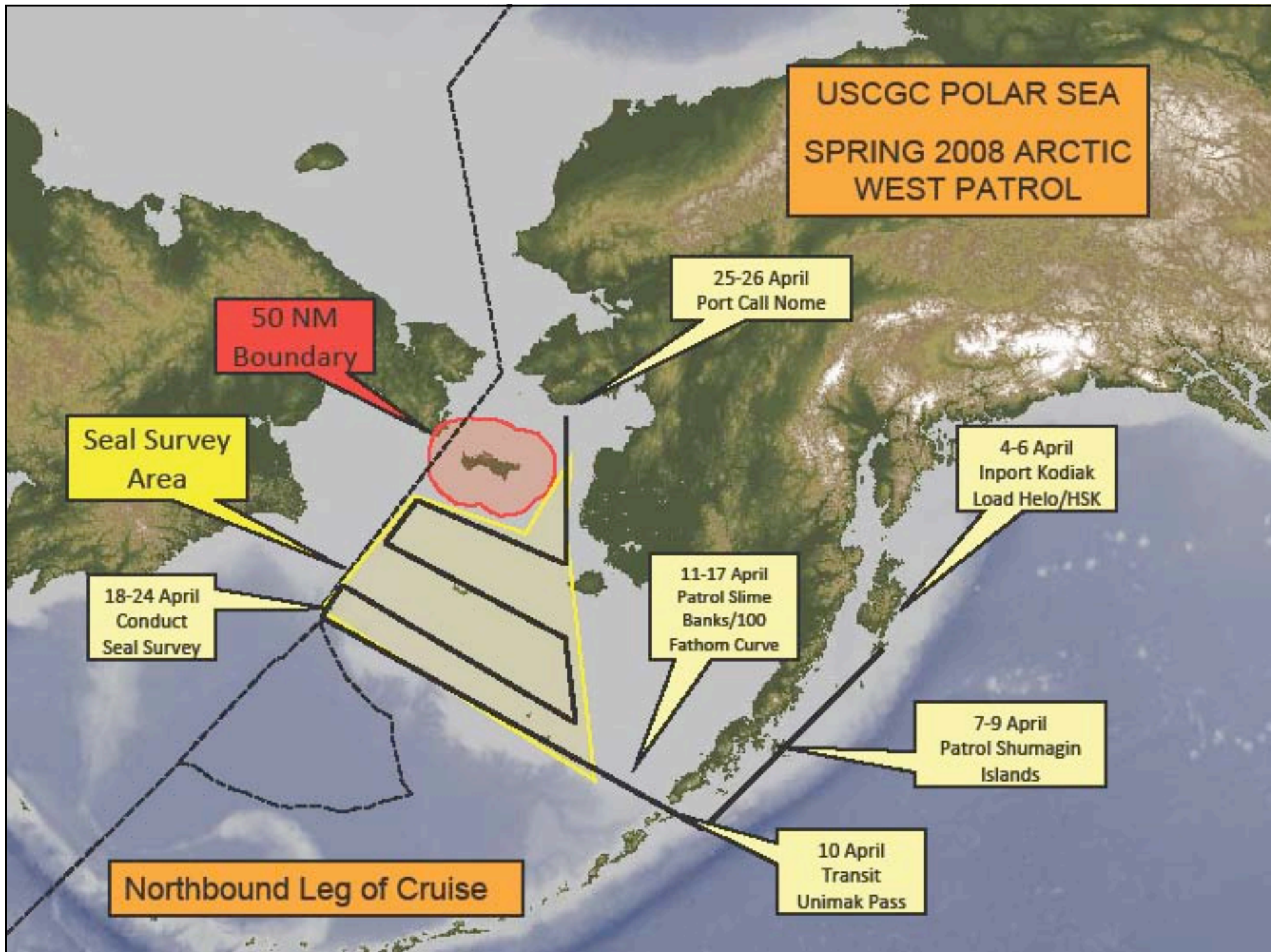
UNITED STATES COAST GUARD CUTTER - POLAR SEA (WAGB-11)

PSEA AWS08 Science Focus

- Restoration SDL computer network
- Restoration continuous sw pump
- Transfer Seakeeper from PSTAR
- Restoration of Hi-AB crane/knuckle boom

PSEA Science Done / Delayed

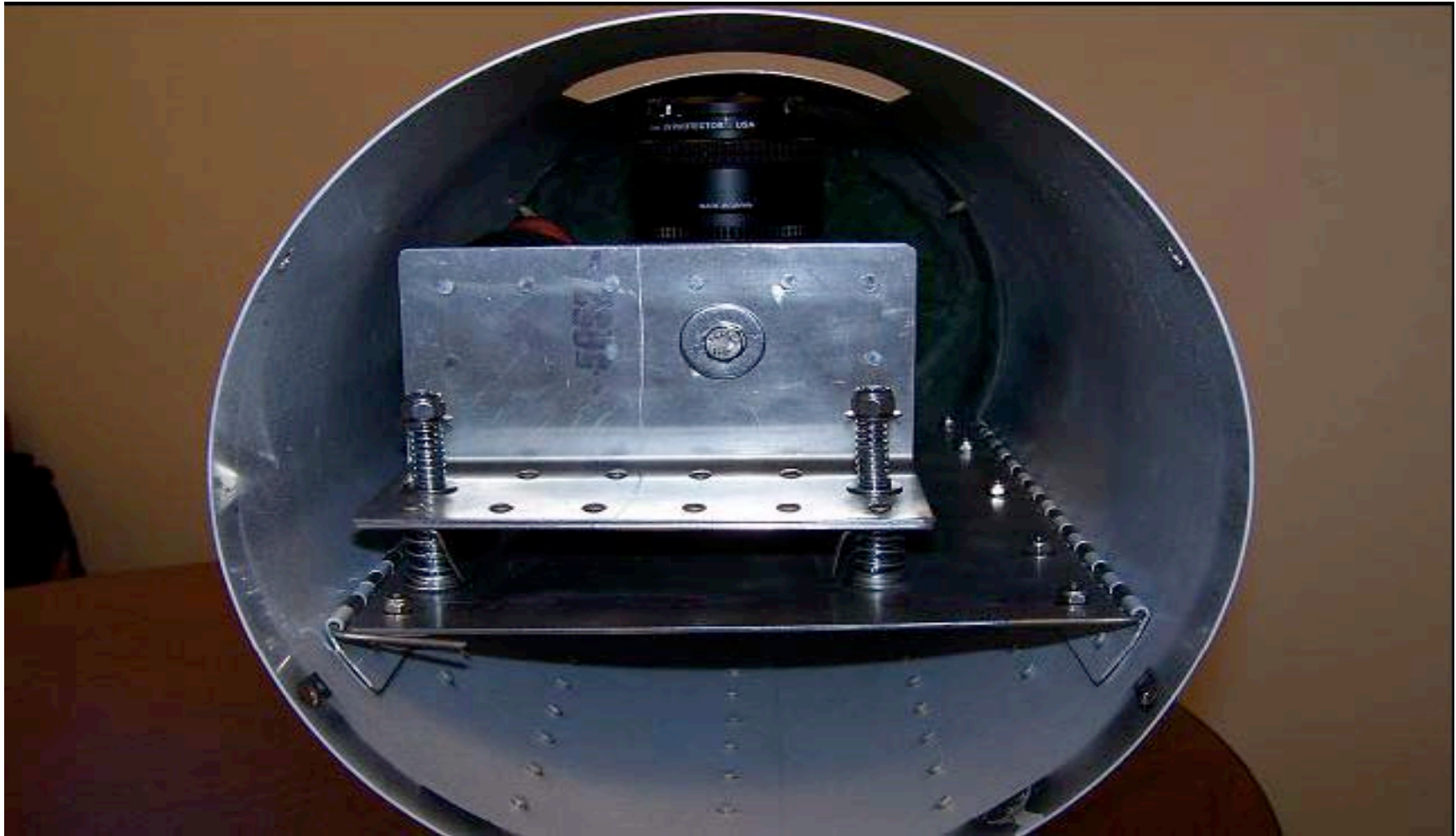
- Ice seal counts: NOAA/NMML
- Test SCOT-D air-sea heat flux sensor, for SAMOS & ARGO: NSF, NASA, NOAA
- ISAR Radiometer, Reynolds: NASA, DOE
- CO2 sensor comparison, ACT: NSF, NOAA
- Zooplankton carbonate measurements
 - V. Fabry, Cal State San Marcos: NSF, NOAA
- Tagging sleeper sharks, seals: NOAA, NSF



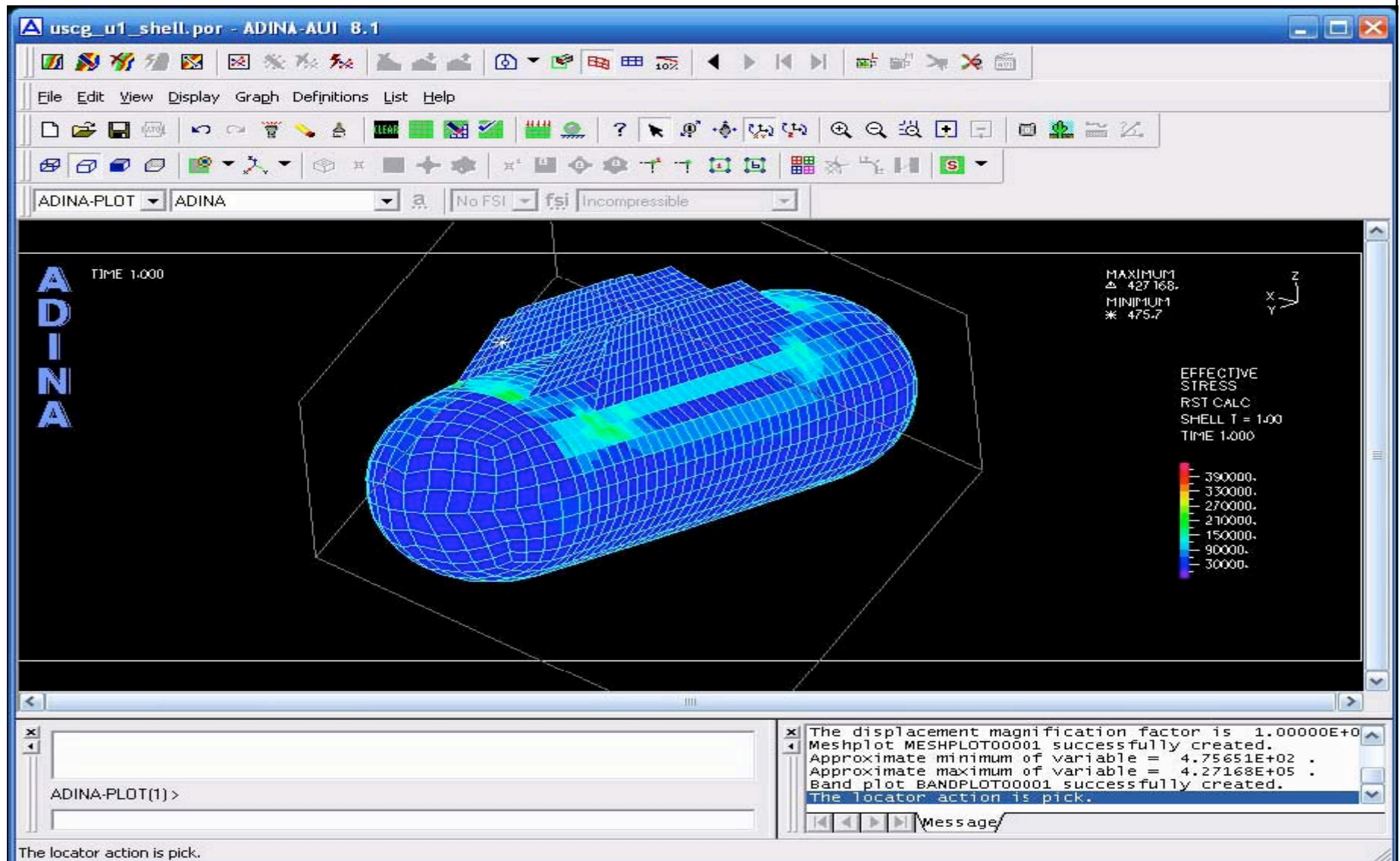
External camera pod: cylinder of aluminum, ends fiberglass cones



Camera mounted inside pod



Stress, strain, drag modeling



Ribbon Seal (adult male)

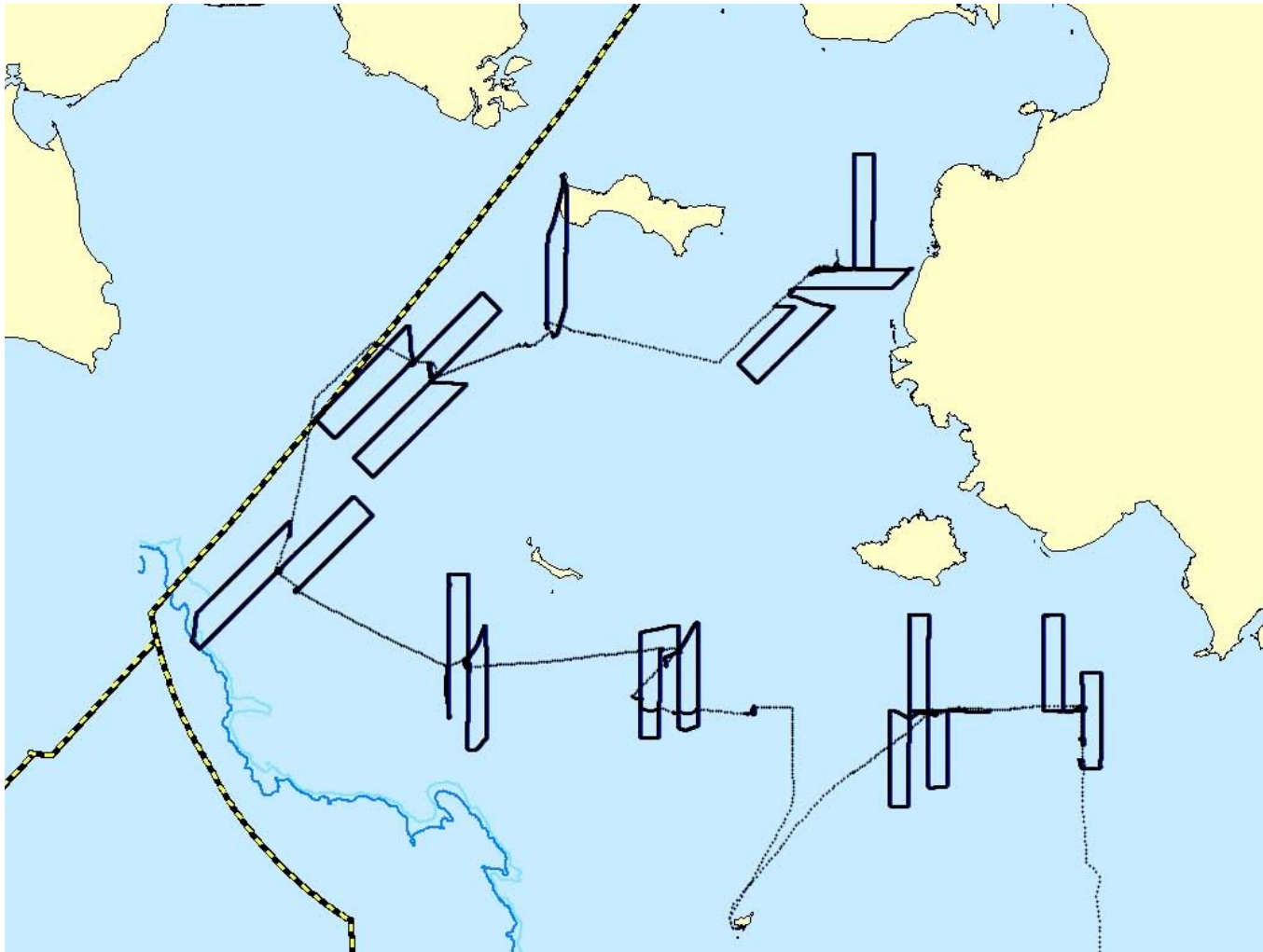


**Ice Seal Surveys: 41.4 helo hours
of 66.2 helo hrs total**

Below: March 26 ice, St. Paul Isld.

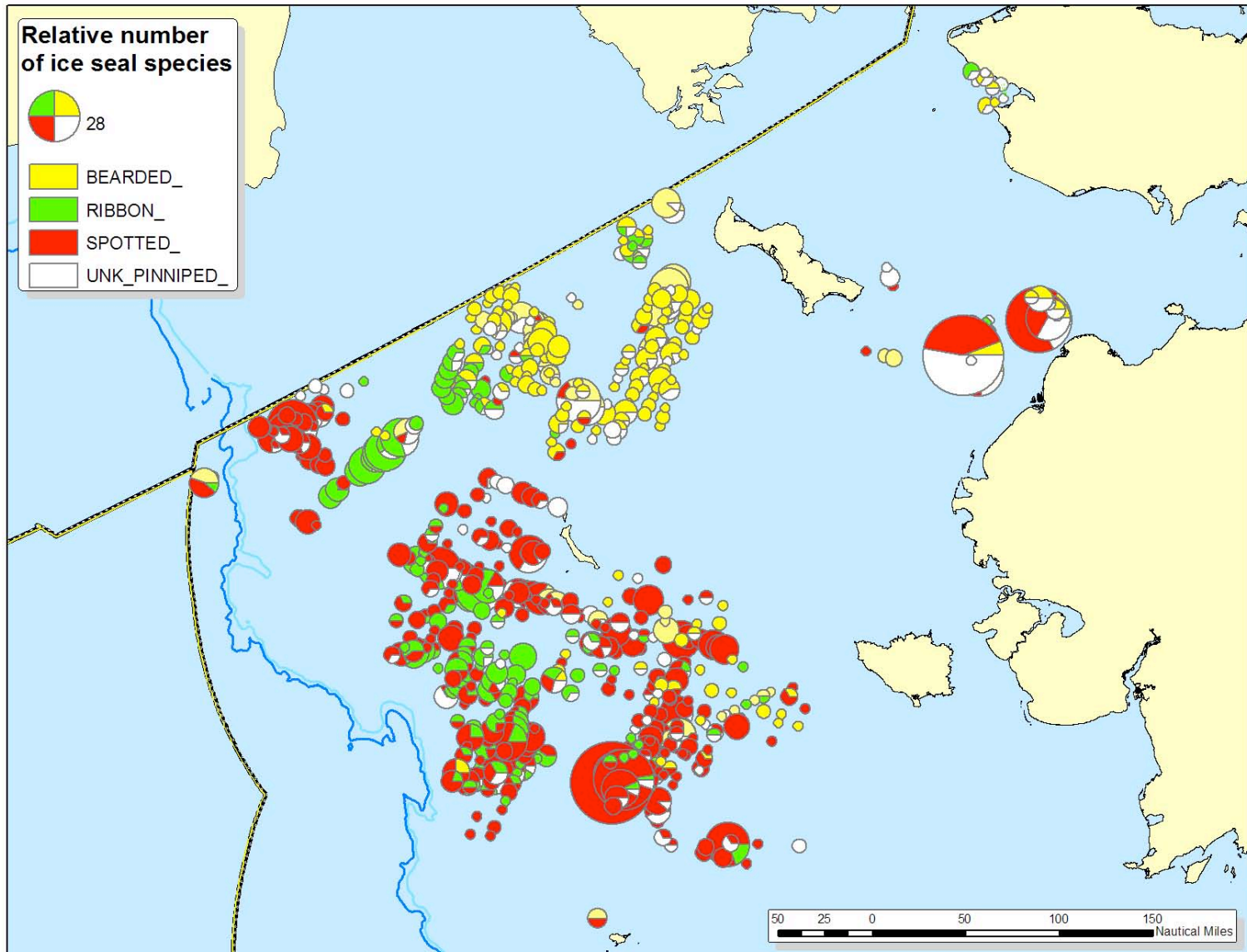


PSEA AWS08 ship & helo tracks

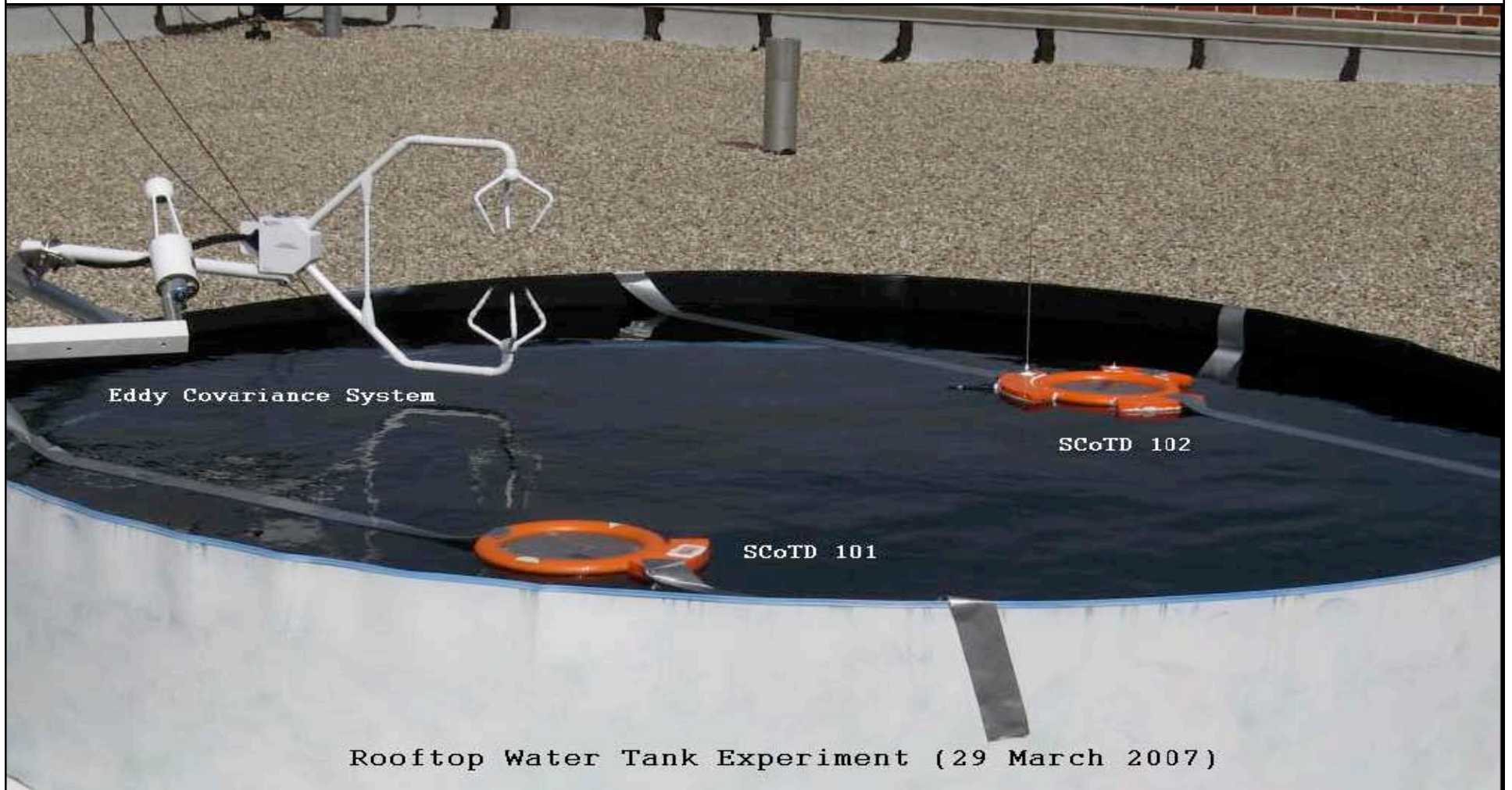


Ice Seal Count results

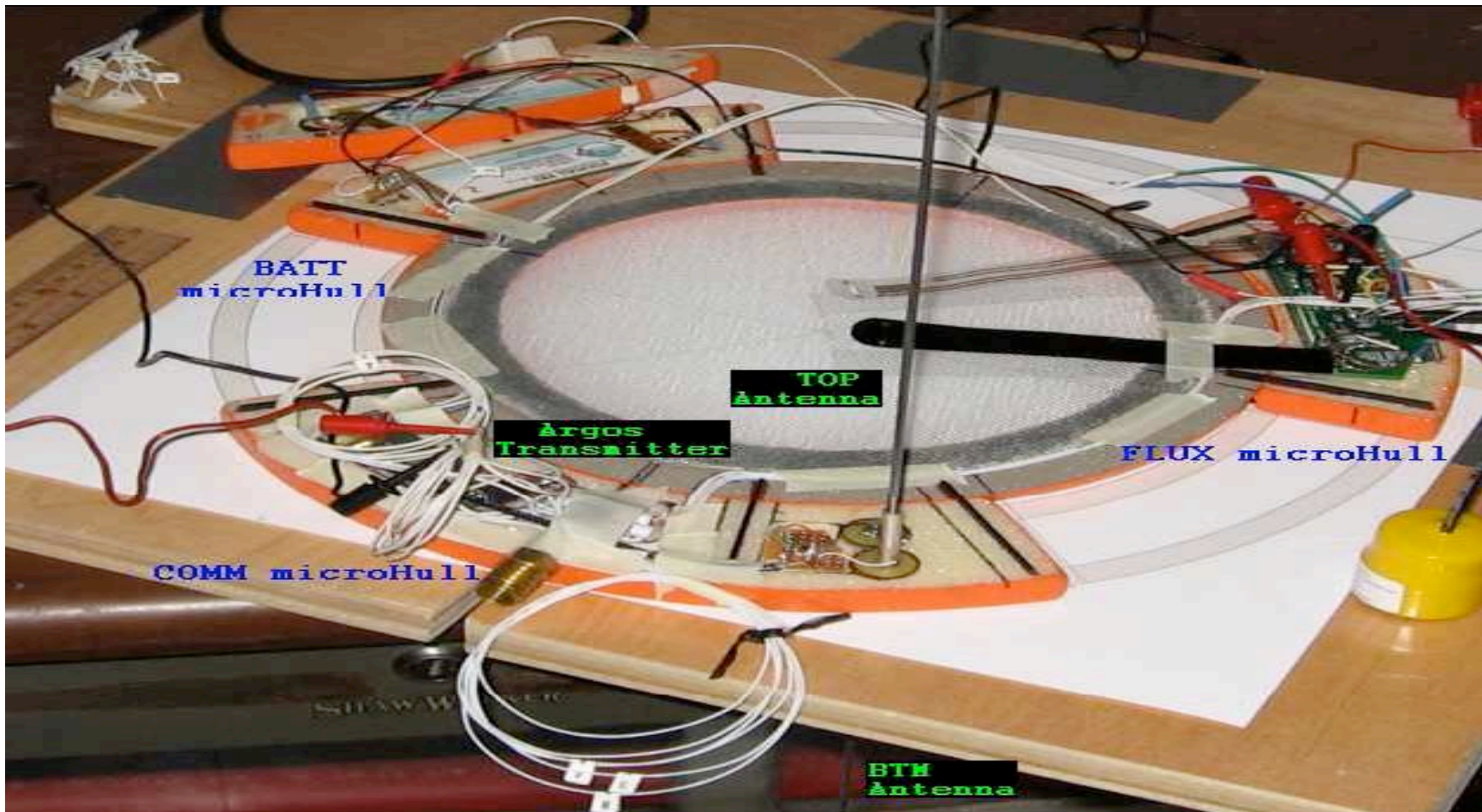
Ice Seal Abundance, Distribution



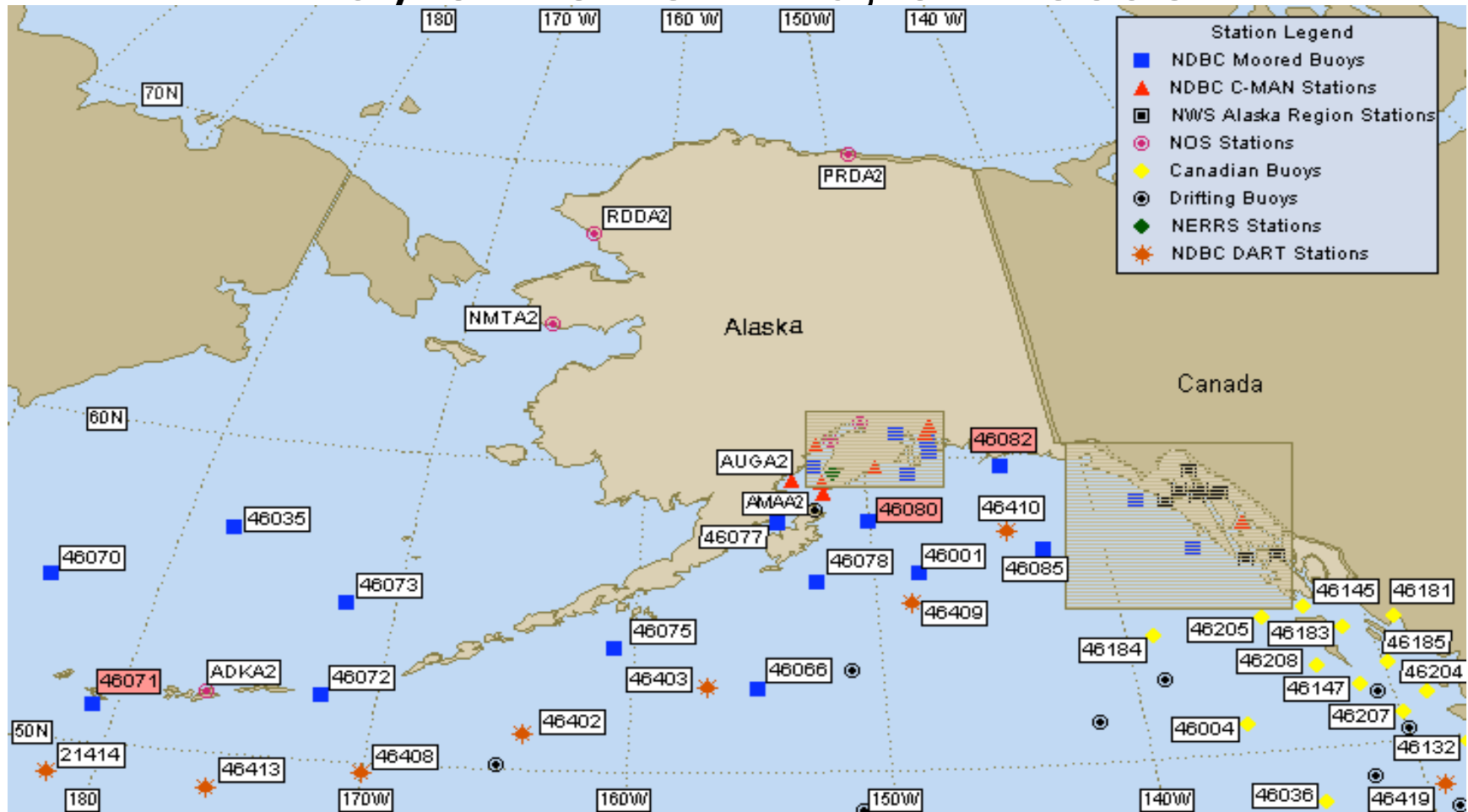
Surface Contact Thermodynamics & Dynamics Drifter (SCoT-D)

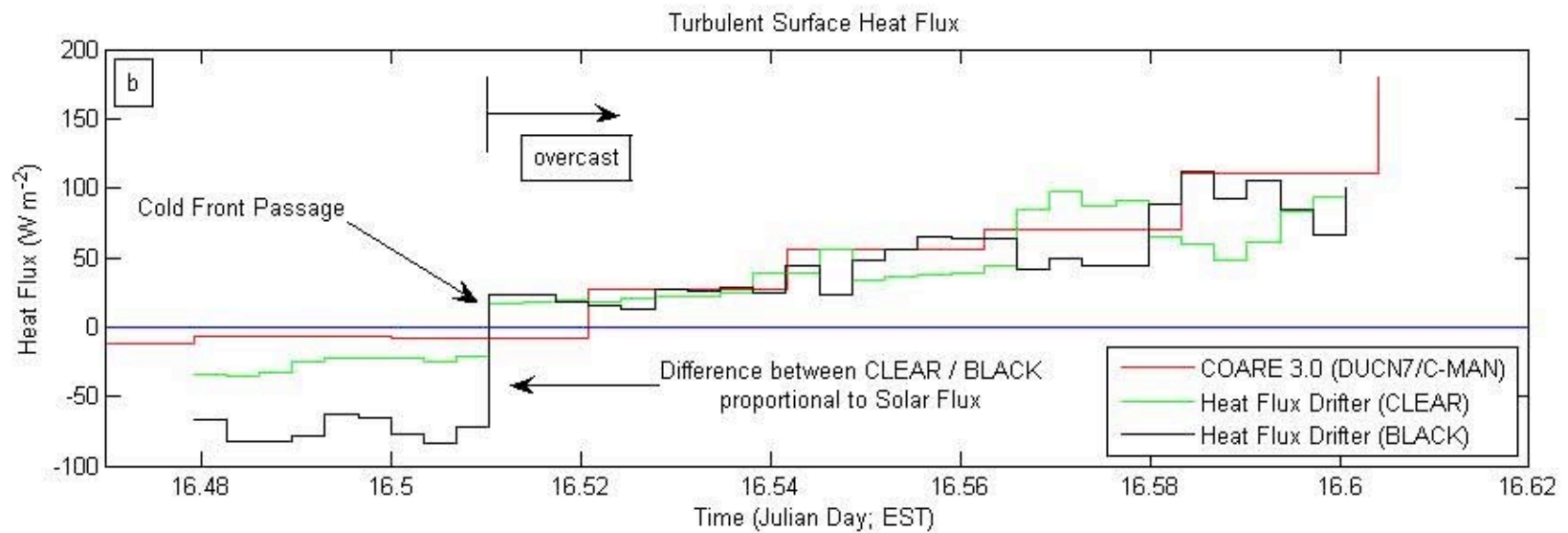
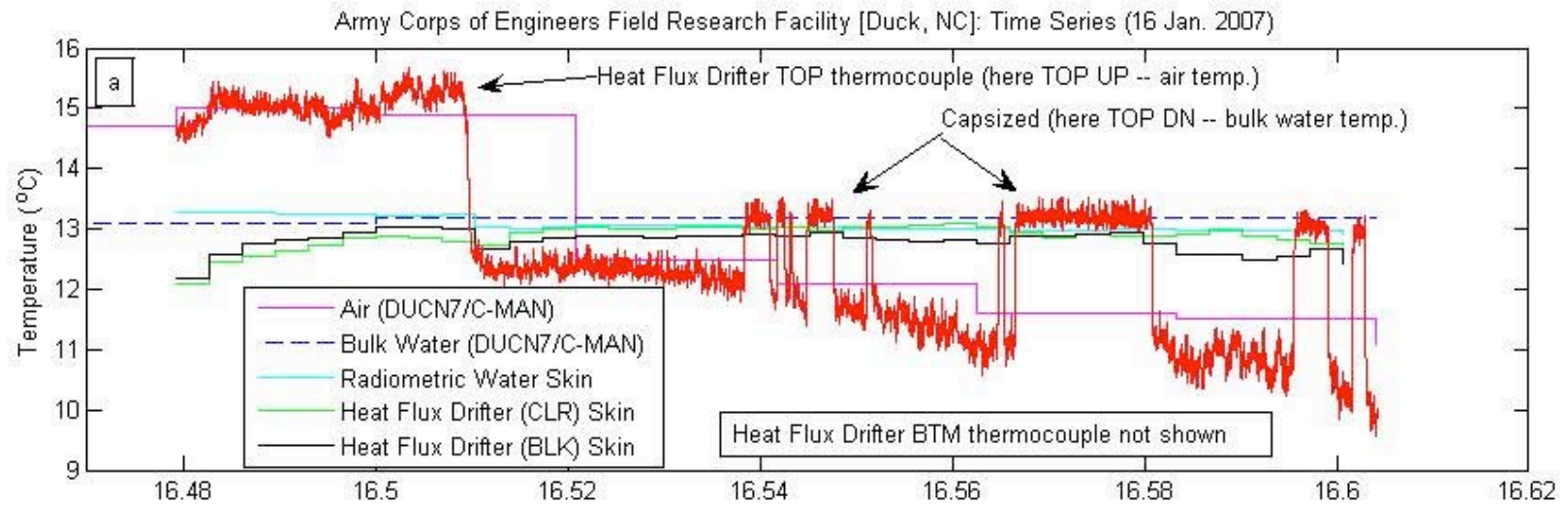


SCoT-D: two plates w/ different solar absorbance;
each with thermocouple.
Measure temp, separate solar irradiance & heat flux
due to evaporation, radiation and sensible transport



Intercalibrate w NOAA Buoy 46035, Seakeeper wind/temp data. May 8: 18kts wind, 6-7' seas

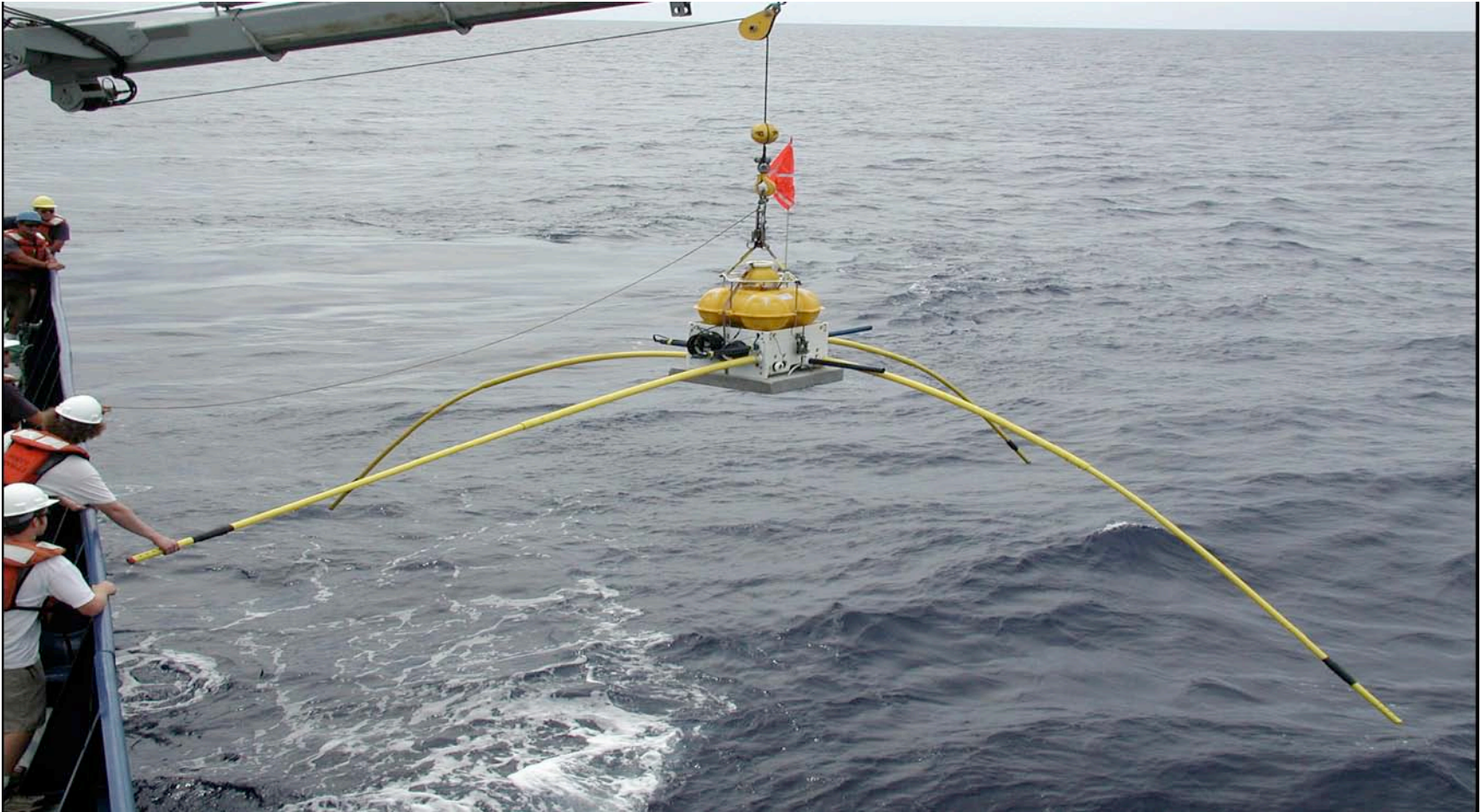




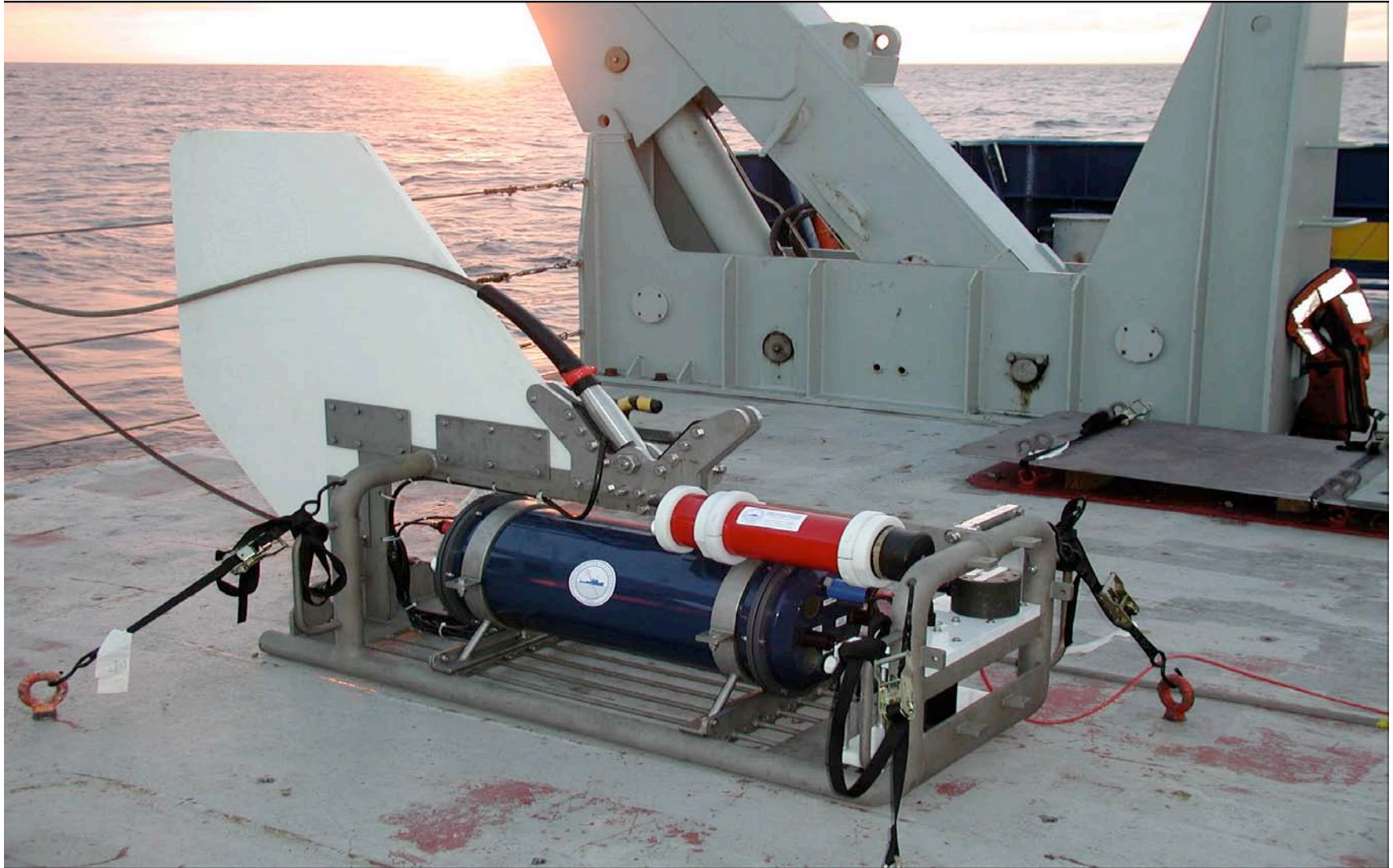
PSEA AWS09 Science Options

- NOAA NMML: Further ice seal counts, compare with AAV counts from OSCAR DYSON; seal tagging w/ or w/o DYSON
- NOAA NURP: planned KoK methane hydrate study cancelled due to KoK shaft break, now need ship for: (1) piston coring; (2) Controlled Source EM; (3) heat probe/flow study
- NAVY spring 09 SCICEX ice camp support studies: bathym, XCTD, Water, ice thickness...want ice cam on POLAR
- Canada seismic escort, NE Beaufort

CSEM set up, bottom unit



CSEM, towed unit



PSEA AWS09 Science Options

- Sleeper, salmon shark tagging
- Beluga Whale Genetic Sampling, Tagging:
Greg O'Corry-Crowe (HBOI)
- New free-floating Eye-in-the-Sea
Deployments: Edie Widder (ORCA)
- ROV video collection, False Pass:
L.Barrett-Lennard (Vancouver Aqm.)

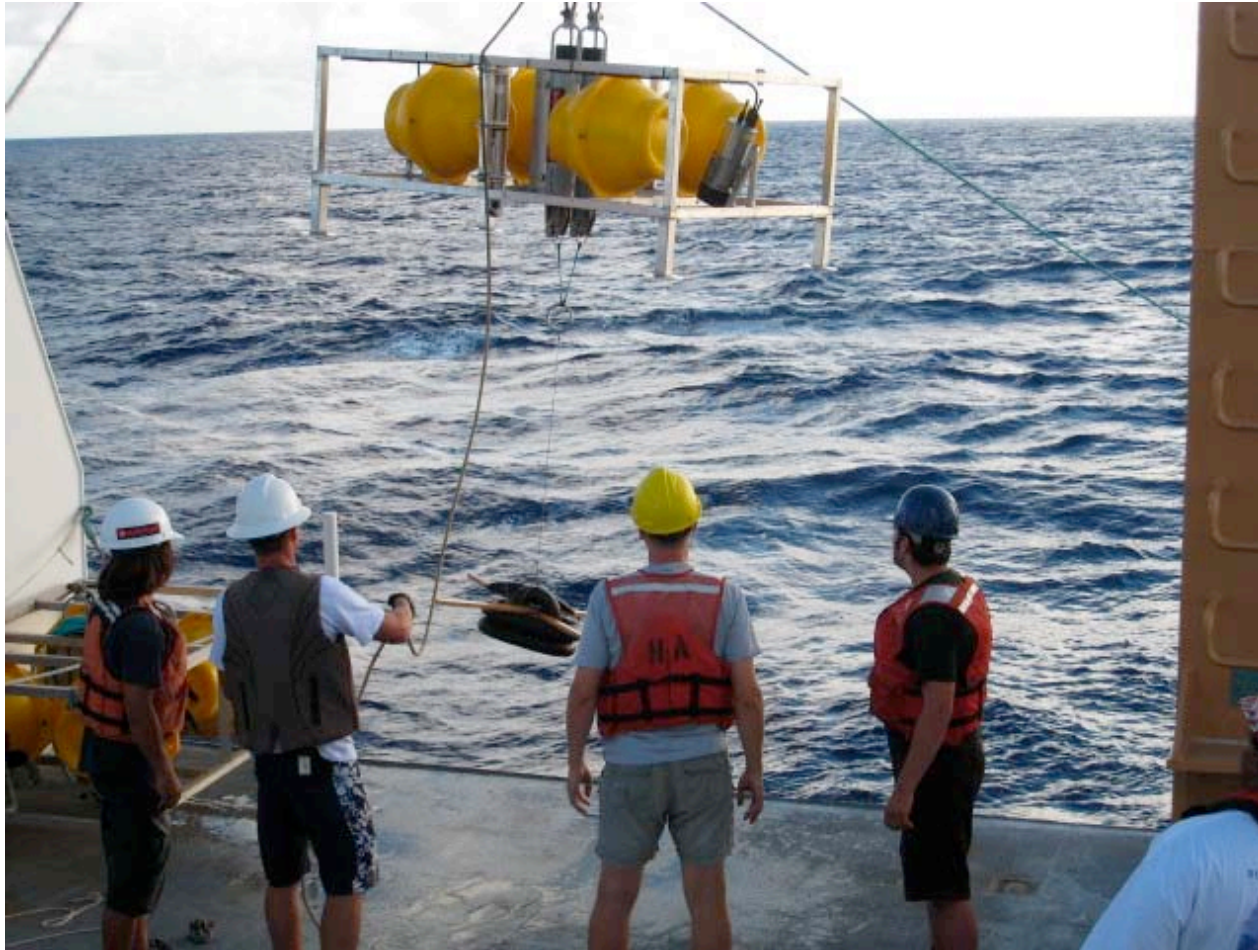
PSEA AWS09 Science Options

NOAA: Sleeper, Salmon Shark, Beluga tagging (TOPP)



On 15 November 1998 a Pacific sleeper shark was found near Pt. Hope. This is a very rare occurrence but since it was so sensational we included it! Few elders along the Chukchi Sea Coast recall seeing such an animal - a time span of at least 70 years. The shark was 7 1/2 feet (2.29 m) in length; the weight was estimated at over 200 pounds (90.7 kg).

Jeff Drazen baited drop cam (float which keeps off bottom out of pix)

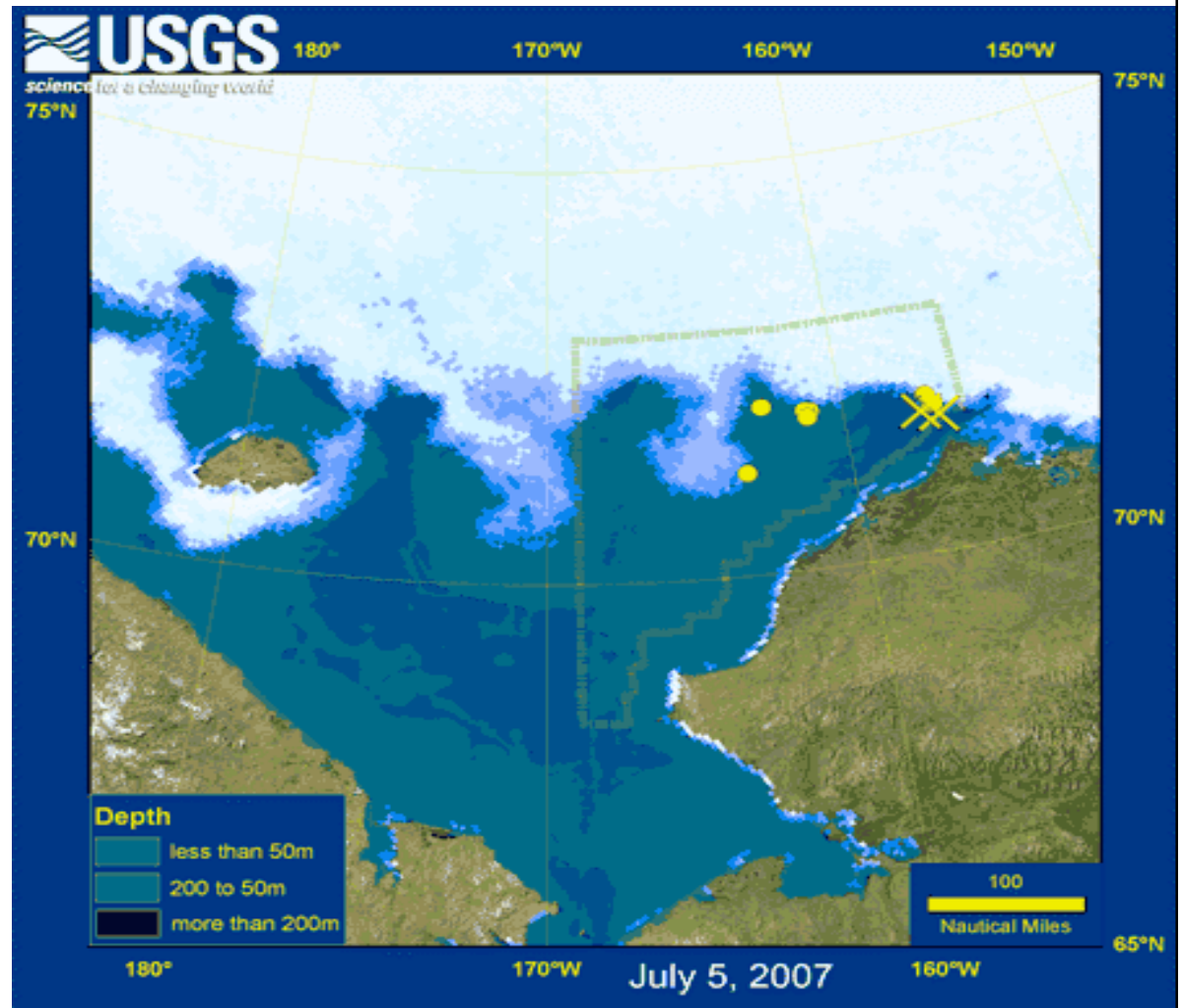


PSEA AWS09 Possible Science

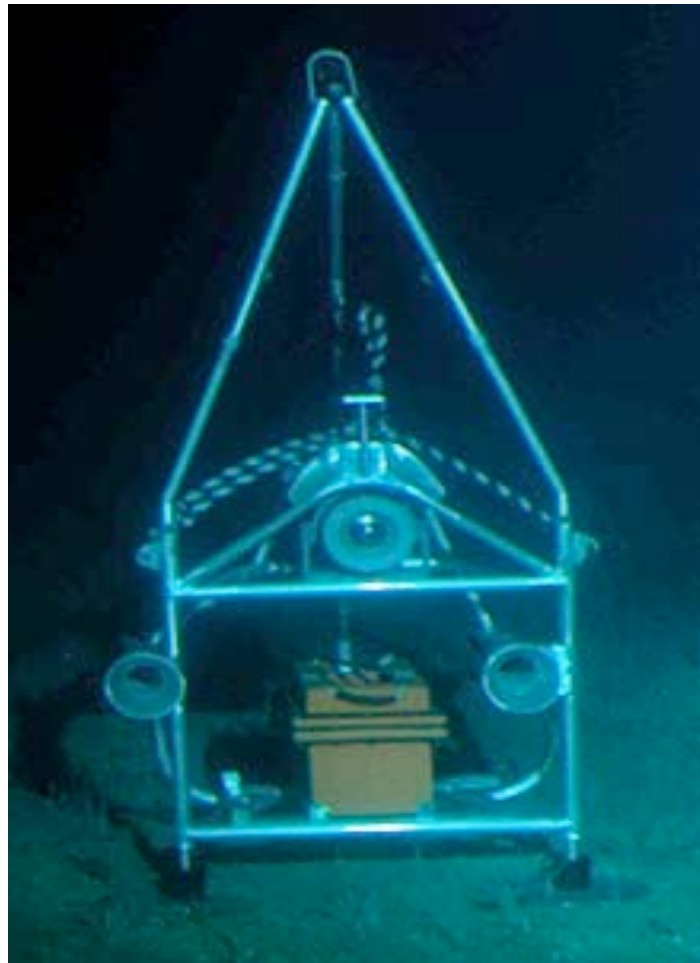
Walrus Tagging re Chukchi Lease Sale:

T.Fishbach (USGS), N.Liebsch (U.Swansea)

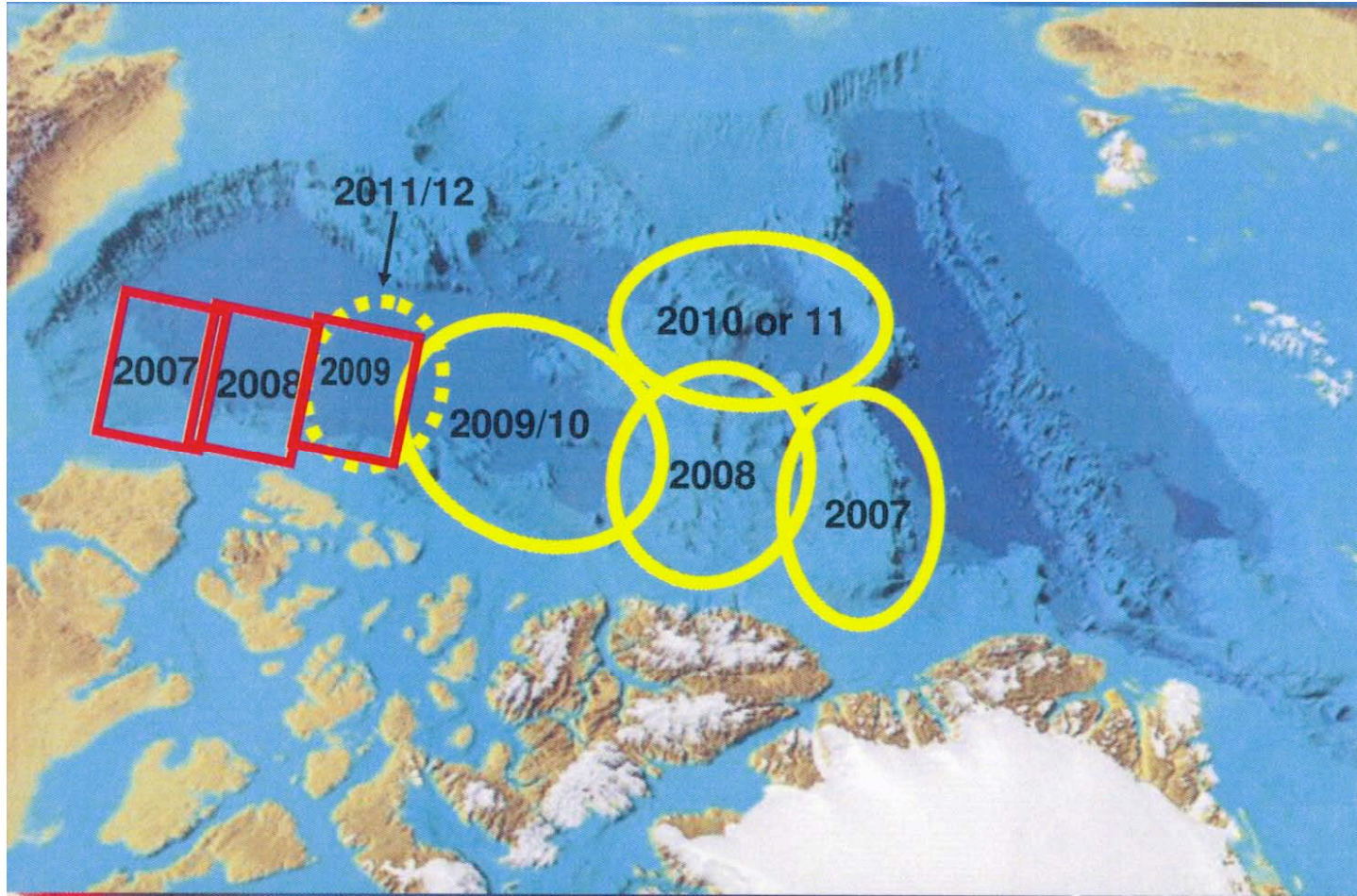
- X= tag site
- Dots=location
- Boundary=
- Lease area

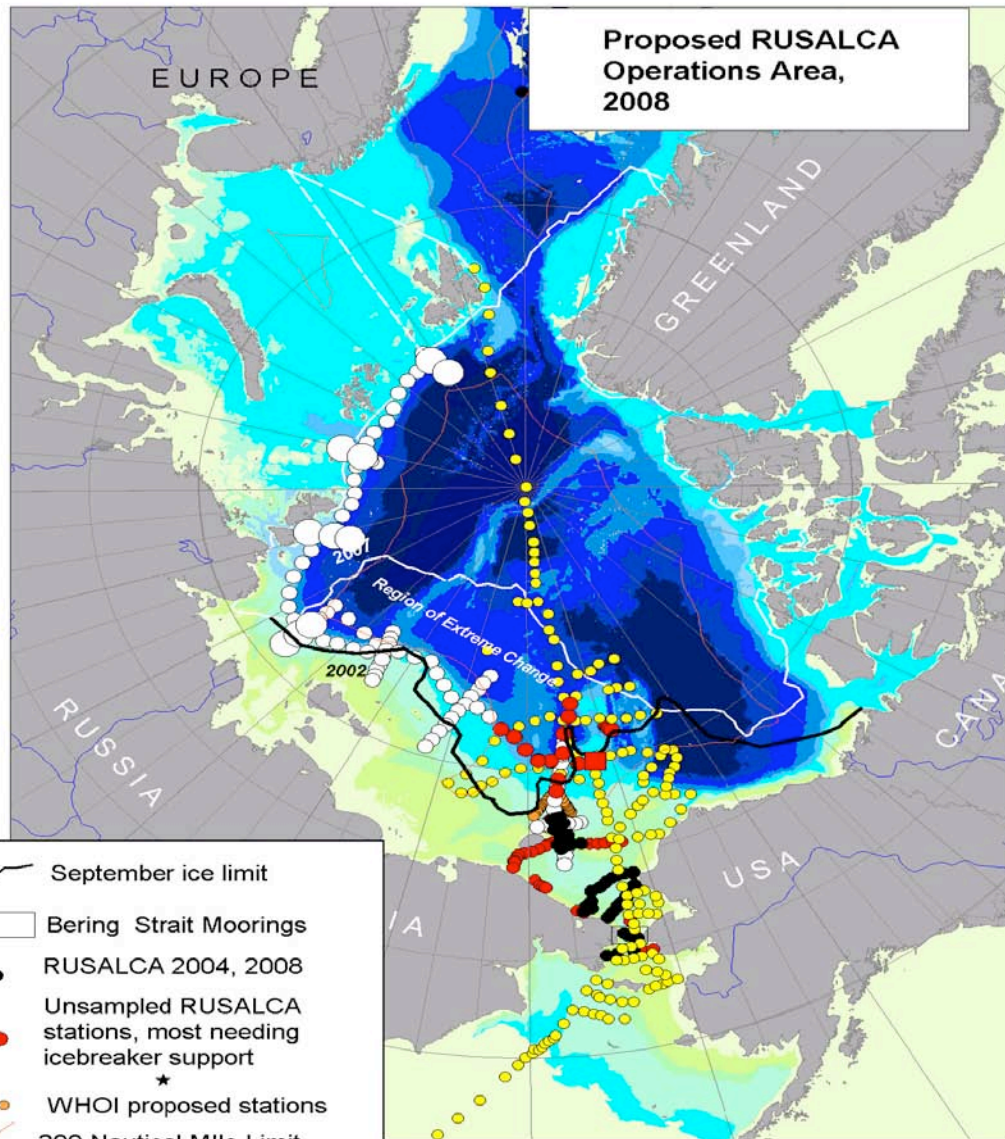


Eye in the Sea IR videocam











Canada UNCLOS plans





**Proposed RUSALCA
Operations Area,
2008**

-  September ice limit
-  Bering Strait Moorings
-  RUSALCA 2004, 2008
-  Unsampled RUSALCA stations, most needing icebreaker support
-  WHOI proposed stations
-  200 Nautical Mile Limit
-  NABOS stations
-  Xue Long Stations

Arctic Sea Ice Cover, September 2002 vs 2007; bathymetry in meters. K. Crane Arctic, CPO

International Icebreaker Updates

- Russia: 2007 ODEN escort Lincoln Sea, 50 YEARS of VICTORY breaks prop in “heaviest ice I’ve seen” (Ch.Sci. M. Jakobsson)
- Japan: MIRAI fall 08 Canada basin ops; new SHIRASE launch 4/18/08 (\$356M; 452’) ops 09
- China: XUE LONG 2009 escort to No.Pole from No.Beaufort Sea still on the table
- Korea: new icebreaker ARAON done spring 09, fall09 ops Bering/Chukchi; 359’, 6950MT, 60sci
- Germany/Europe: AURORA BOREALIS, drilling icebreaker construction start 2012; 75khp

**New Shirase (Japan) 4/17/08
launch, Nov 09 arctic ops
\$356M, 452'x92', 12,500MT**



**Korean icebreaker ARAON,
359'x62', 6950MT, 60 sci; 25 crew
Arctic shakedown Nov 09**



Questions?

(pix: PSEA AWS08)

