

Arctic 2-Icebreaker Research - U.S. Extended Continental Shelf



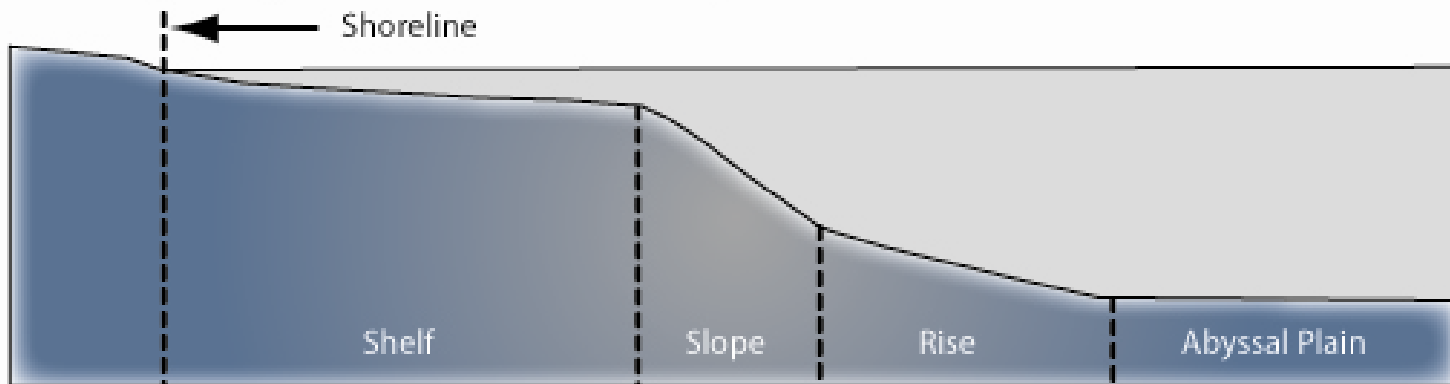
D.R. Hutchinson
U.S. Geological Survey
24 June 2009

LOS: Background
Seismic Component of Experiment
Plans 2009, 2010

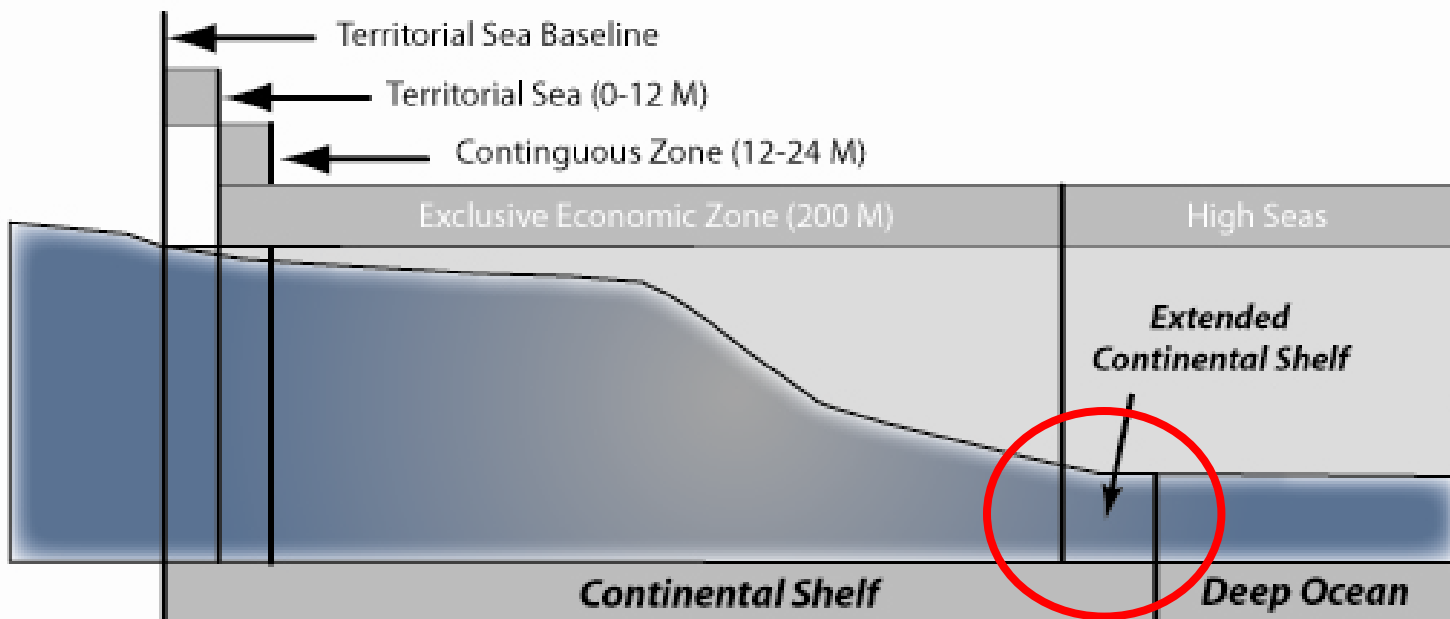


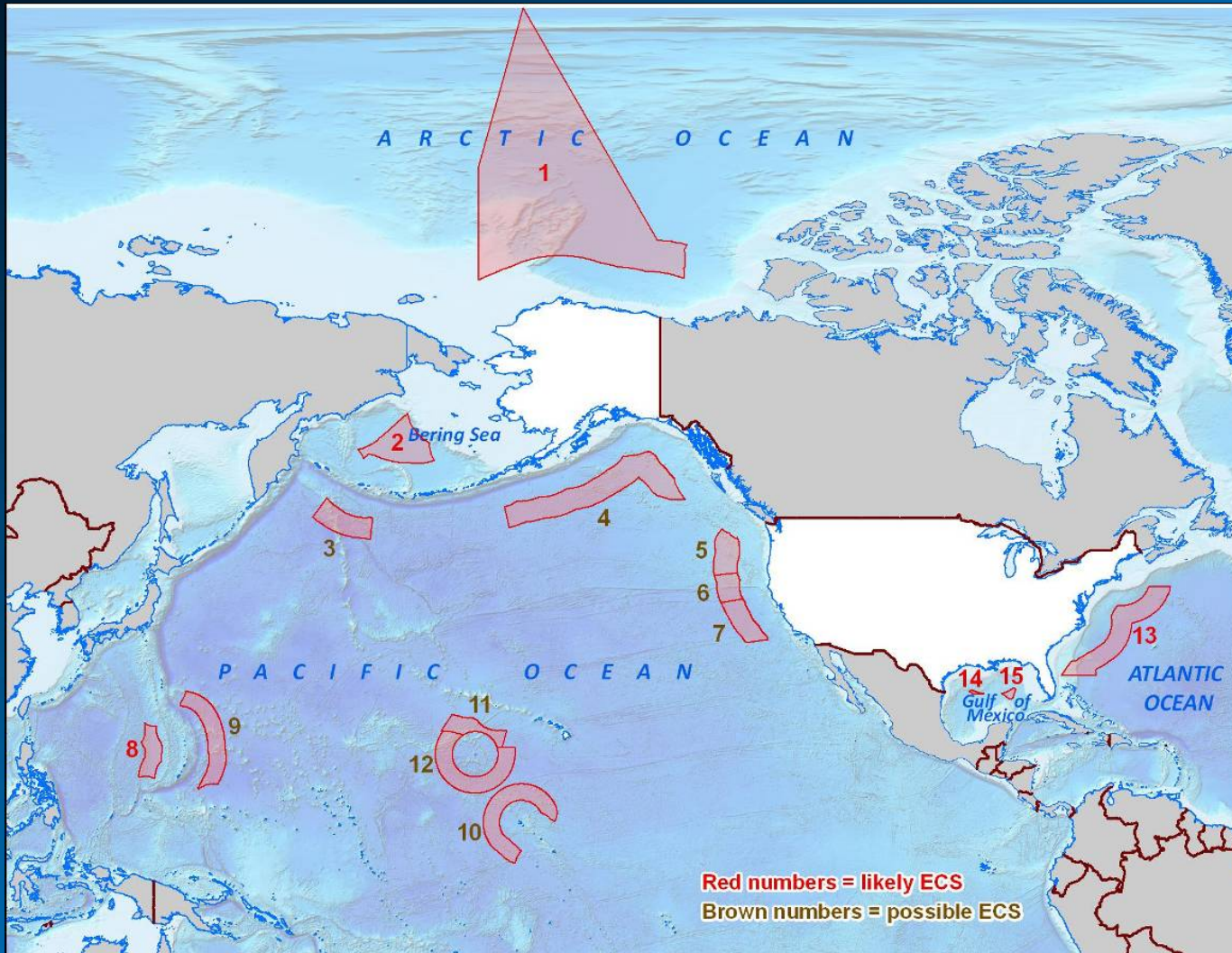
LOS: Extended Continental Shelf

A. Morphological Continental Margin



B. Legal Continental Shelf





Natural Prolongation
2 Formula Lines
2 Constraint Lines

Significant Overlap with Canada

Barrow

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Why Cooperate?

Mutual interest to define continental shelf in the Arctic

Saves millions for both countries

It's Canada and the U.S.—we're friends. And we also have a long history of scientific collaboration.

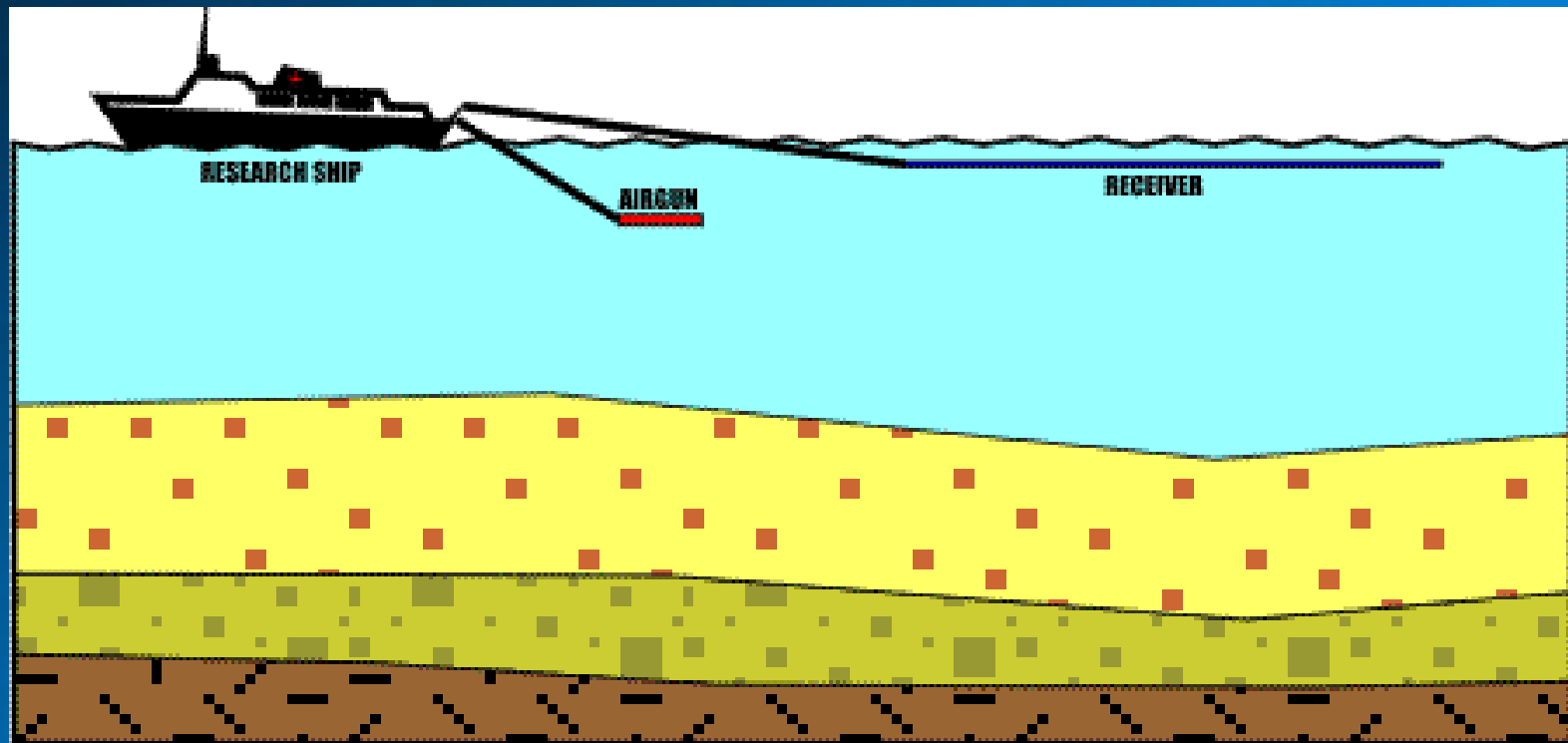
Utilize collective expertise, especially given the challenges of the Arctic

Collect data once over the same area

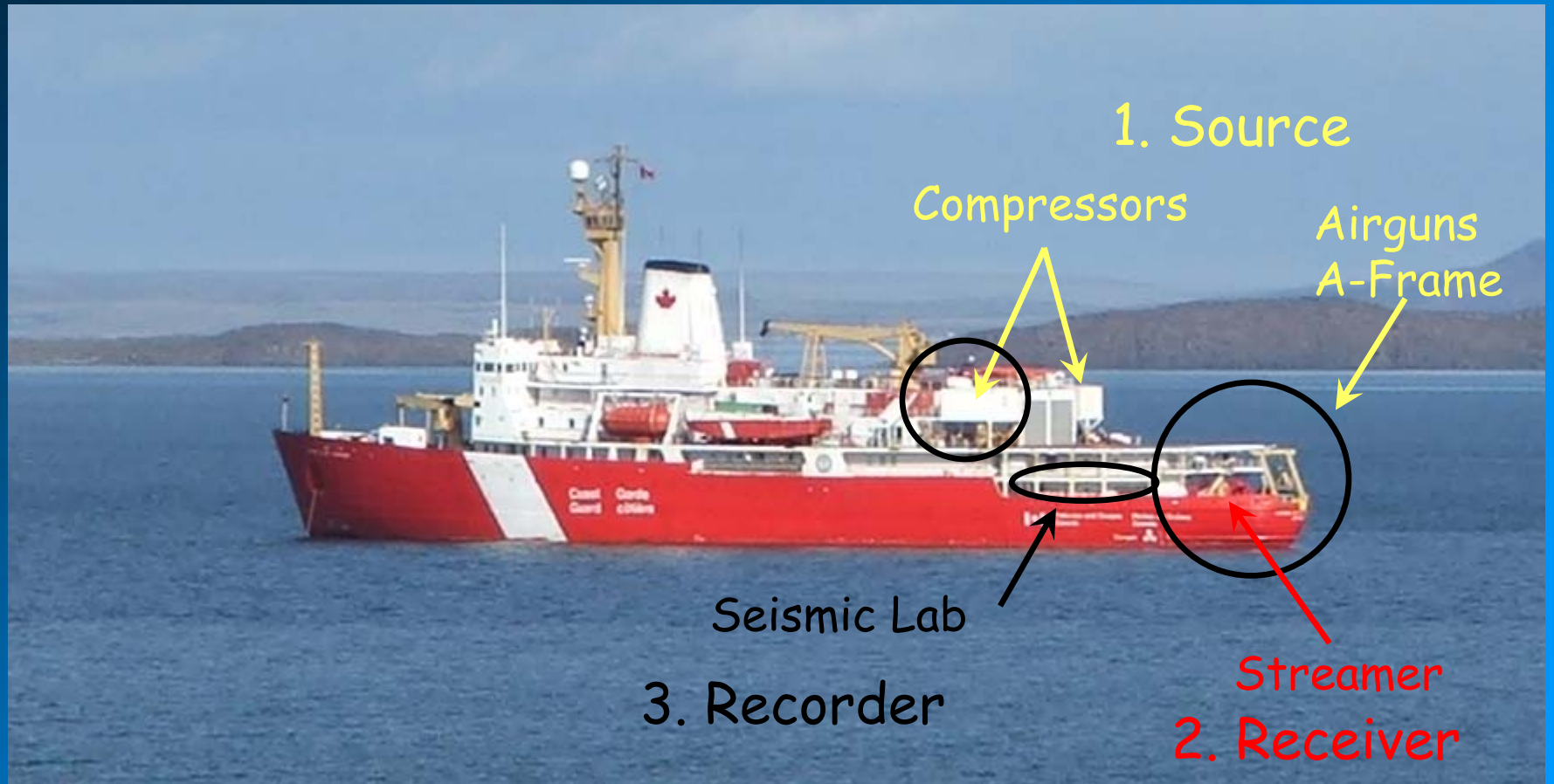
Provide data the other needs

- Canada has a proven multi-channel seismic system that works in ice-covered conditions
- The *Healy* has a multibeam bathymetric system and can clear a path

Seismic Technique

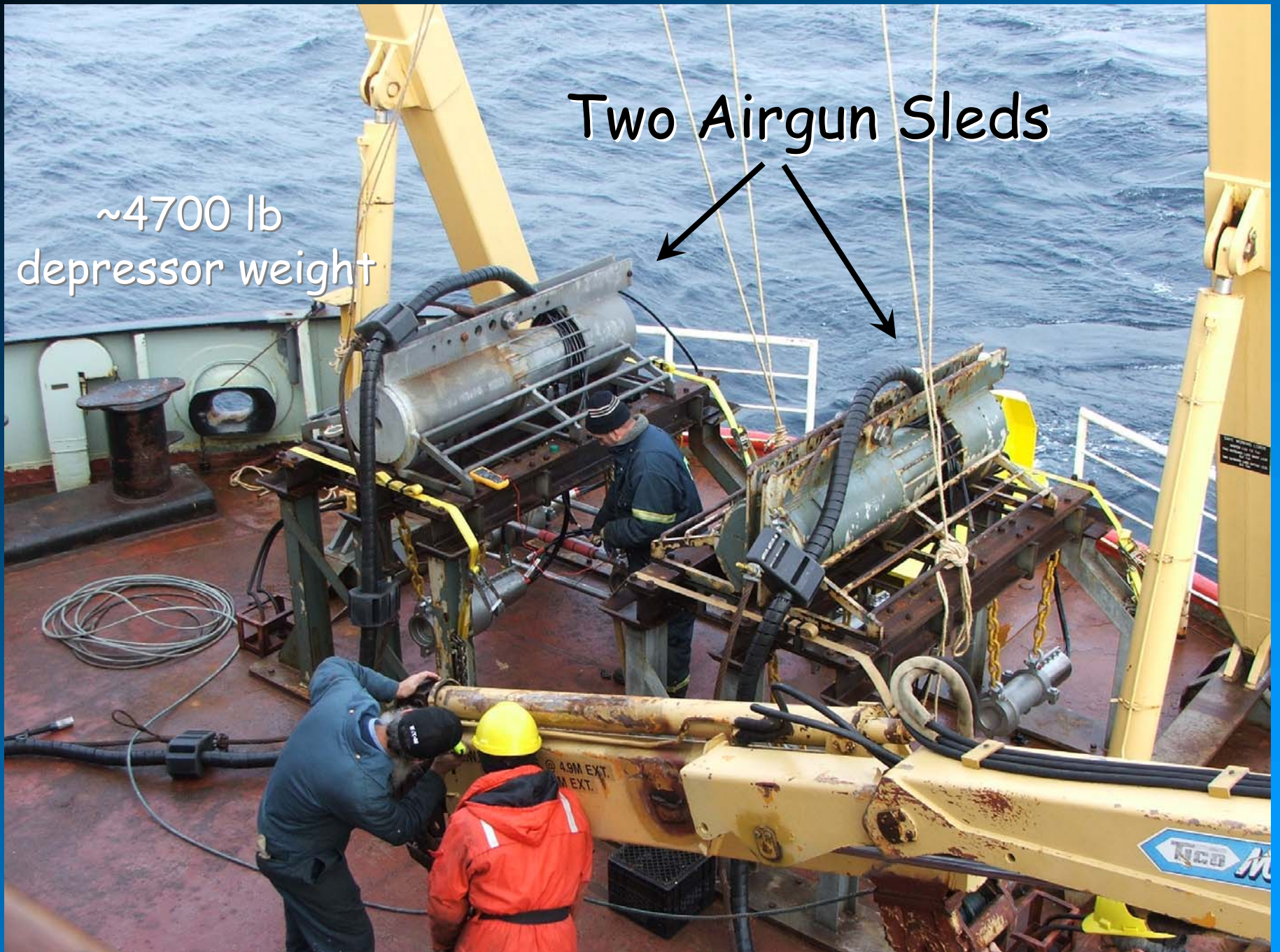


Louis S. St. Laurent Seismic Acquisition



Two Airgun Sleds

~4700 lb
depressor weight

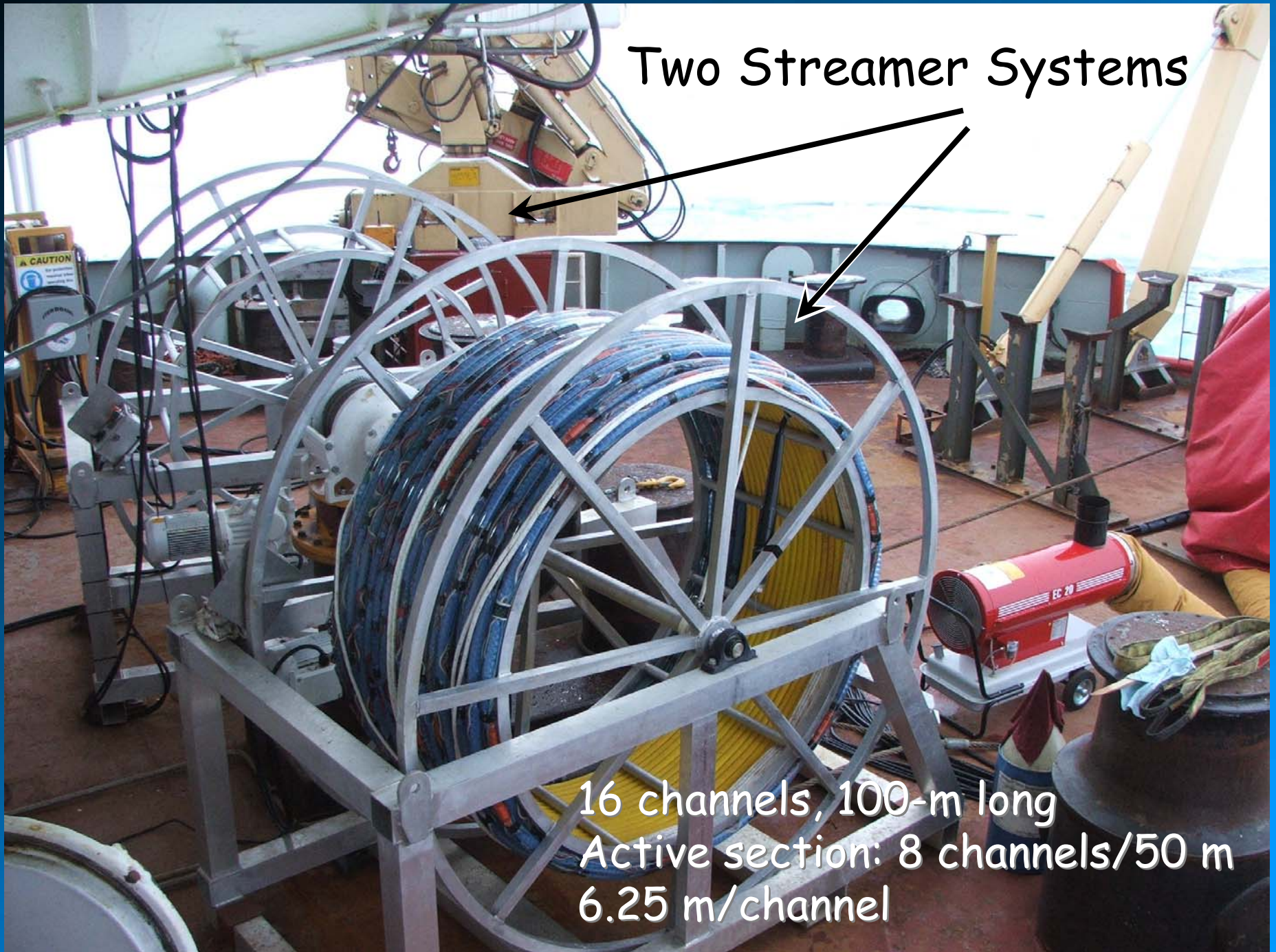


Airguns Firing



Two Streamer Systems

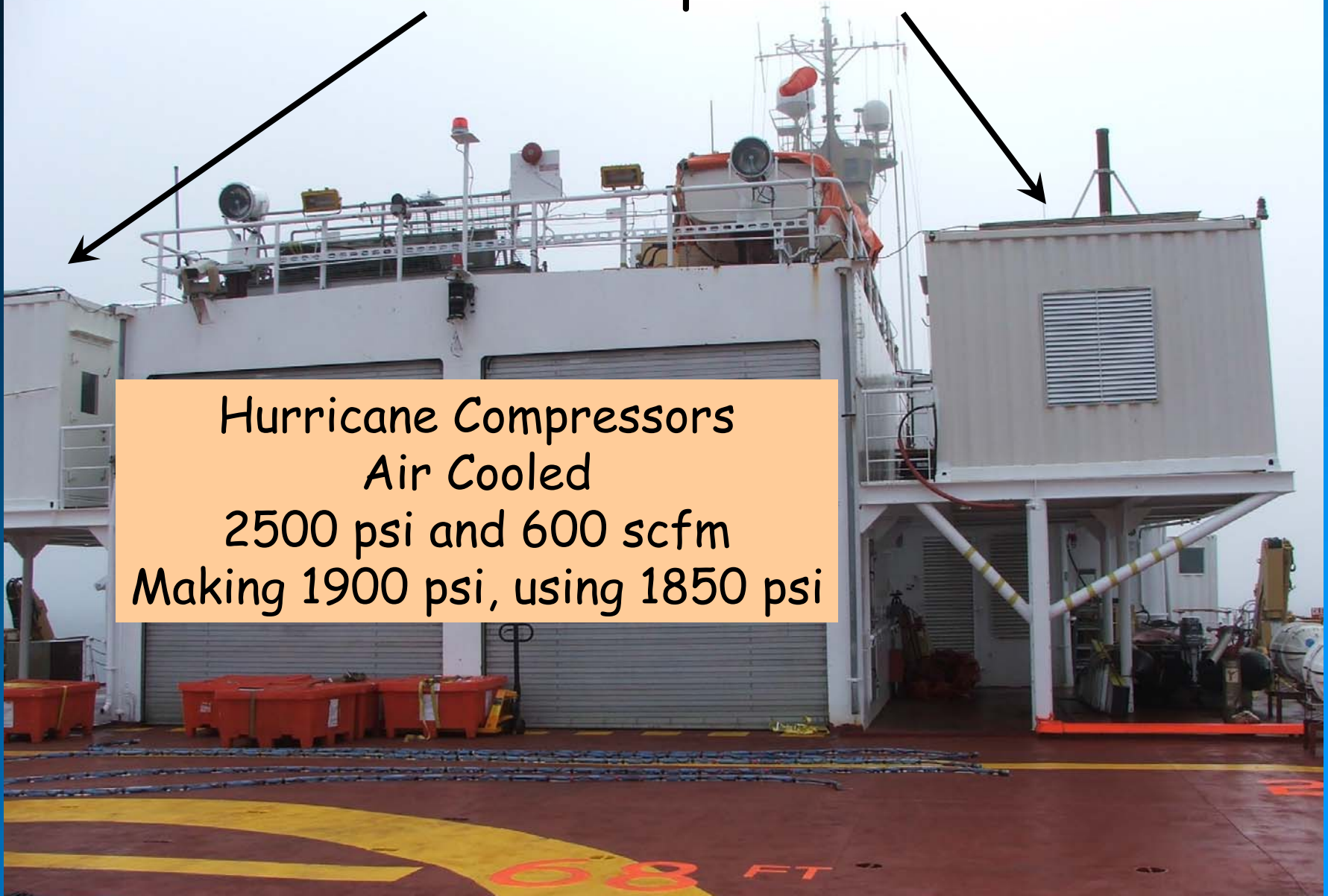
16 channels, 100-m long
Active section: 8 channels/50 m
6.25 m/channel



Two Compressors



Hurricane Compressors
Air Cooled
2500 psi and 600 scfm
Making 1900 psi, using 1850 psi

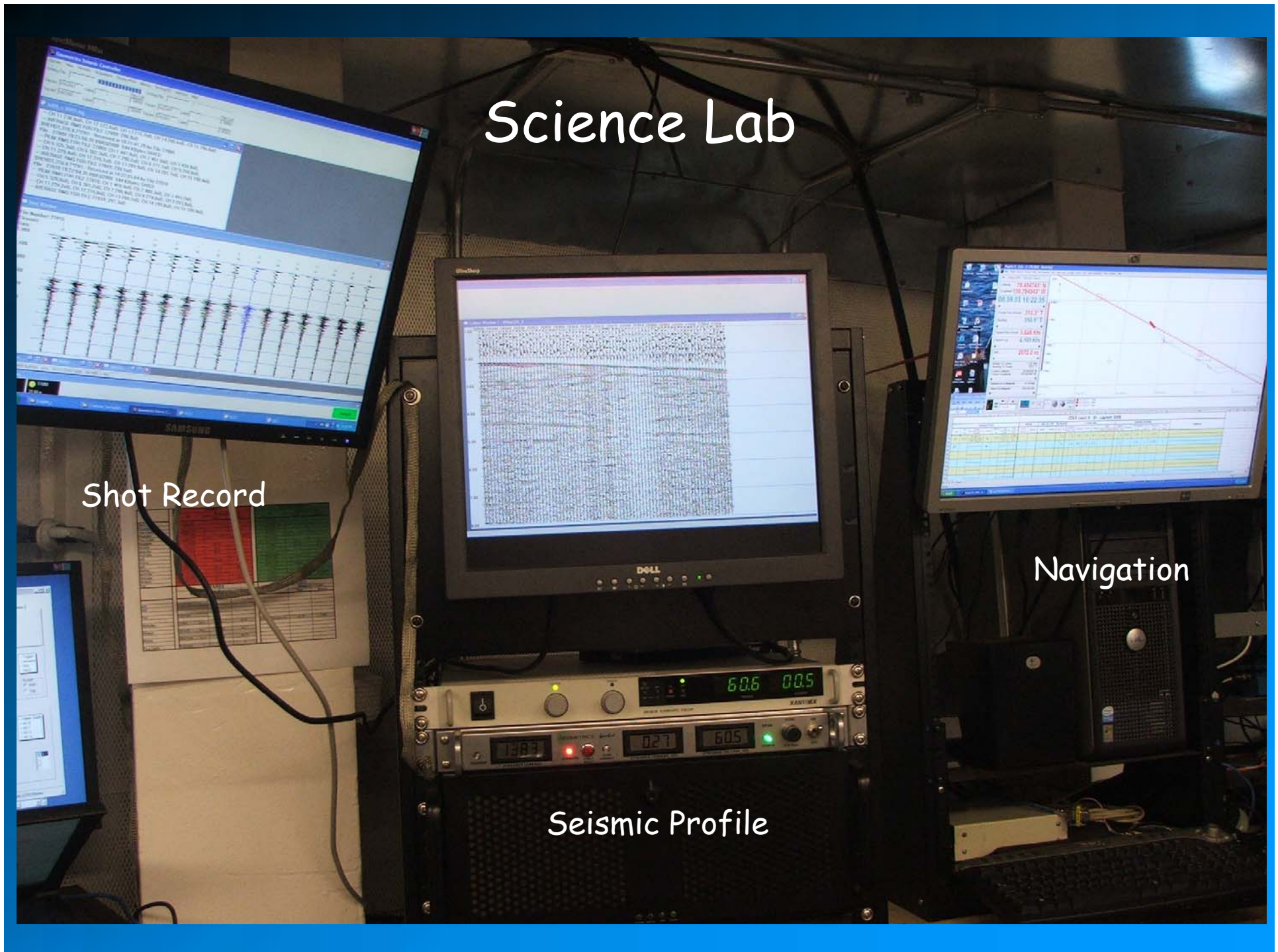


Science Lab

Shot Record

Navigation

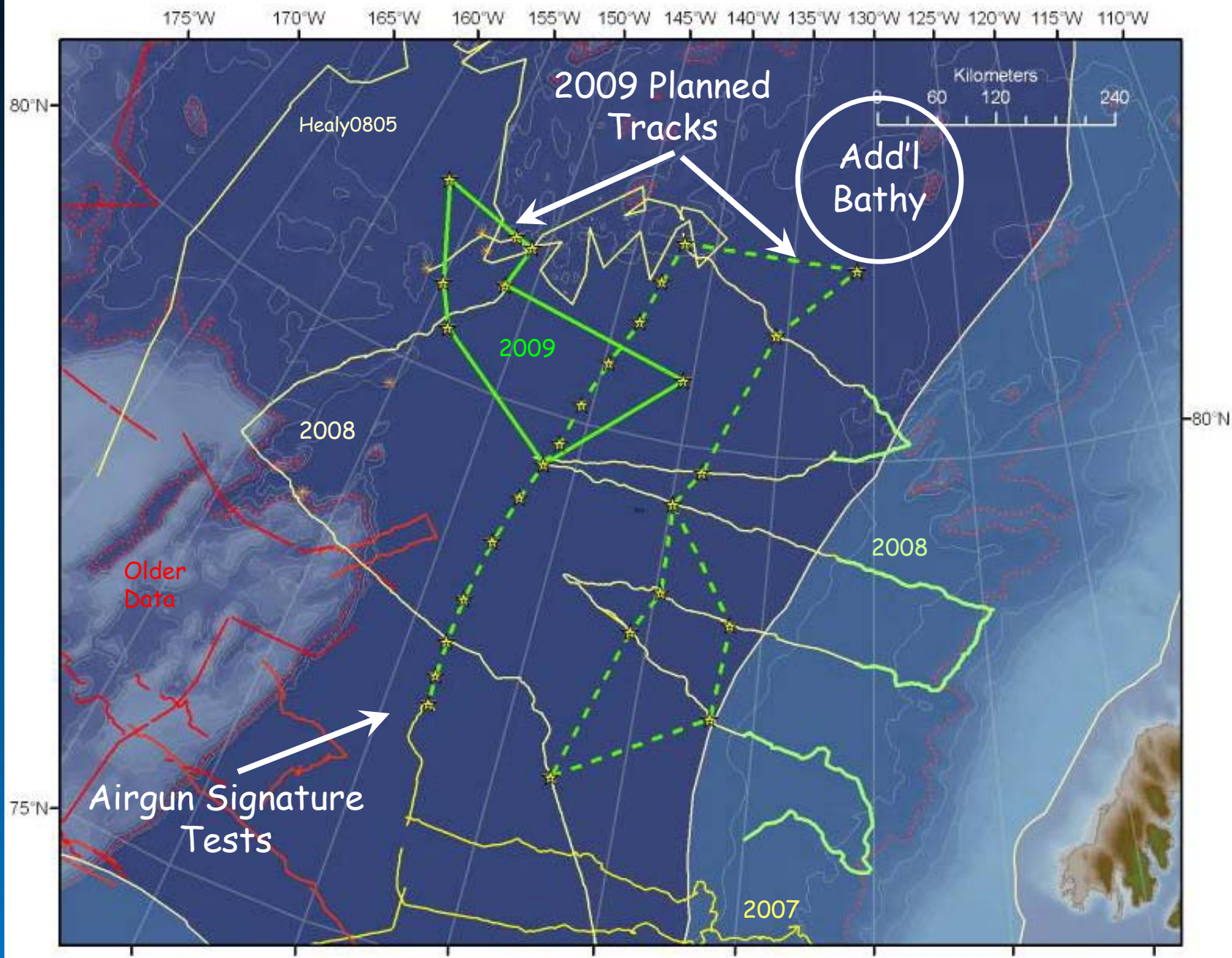
Seismic Profile





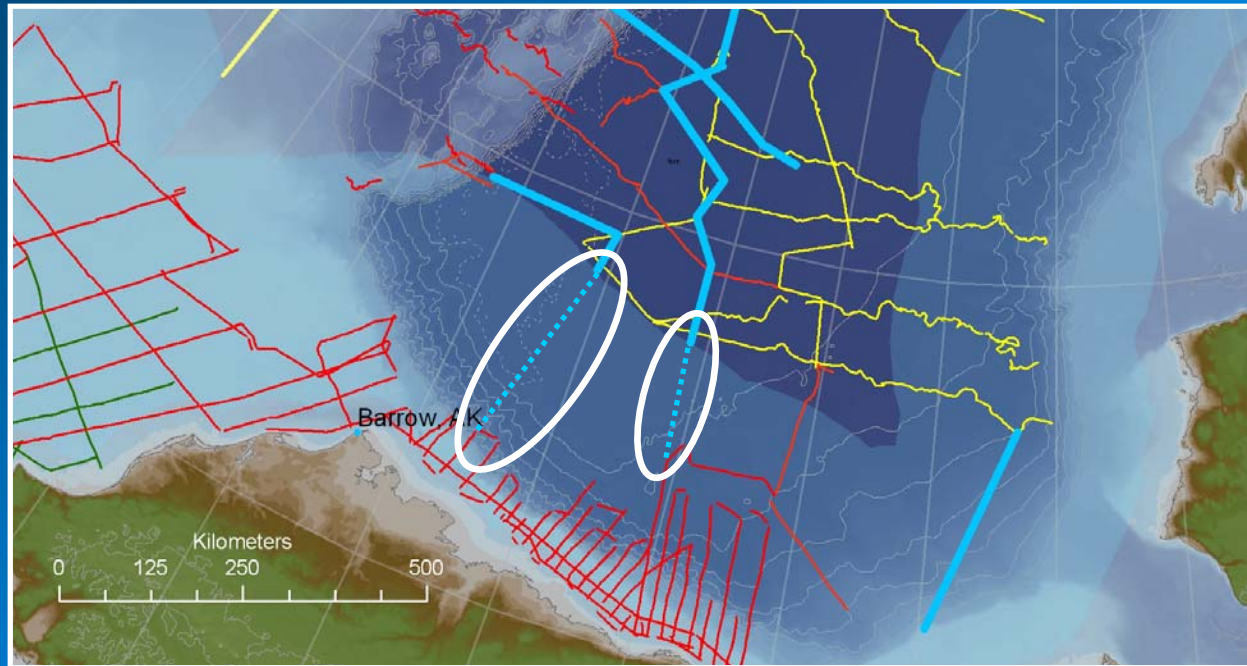
Healy breaking ice ahead of Louis





2010

- 2 lines in U.S. EEZ, > 2000 m water depth
- Permitting with NMFS - EA/IHA
- Two-ship contingency
- Line locations depend on success of 2009 + ice conditions!



Questions?

