



Fisheries and Oceans
Canada

Pêches et Océans
Canada

C3O/DBO/AON Plans 2013



Science-CCG Planning Meeting
Freshwater Institute, Winnipeg
Jan 15, 2013

GEM 2012

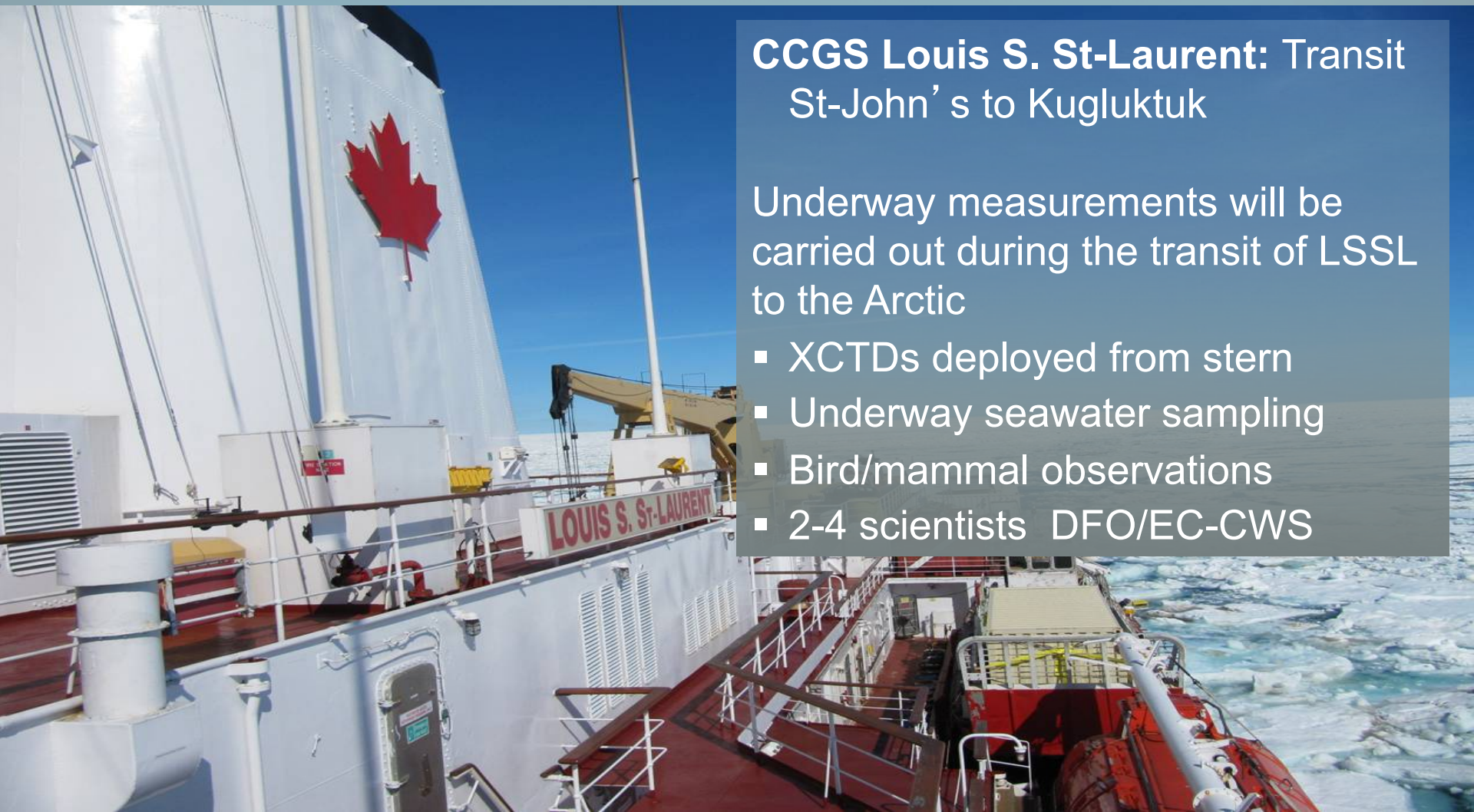
Jane Eert

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Fisheries and Oceans Canada

Canada



Canada's Three Oceans – East



CCGS Louis S. St-Laurent: Transit St-John's to Kugluktuk

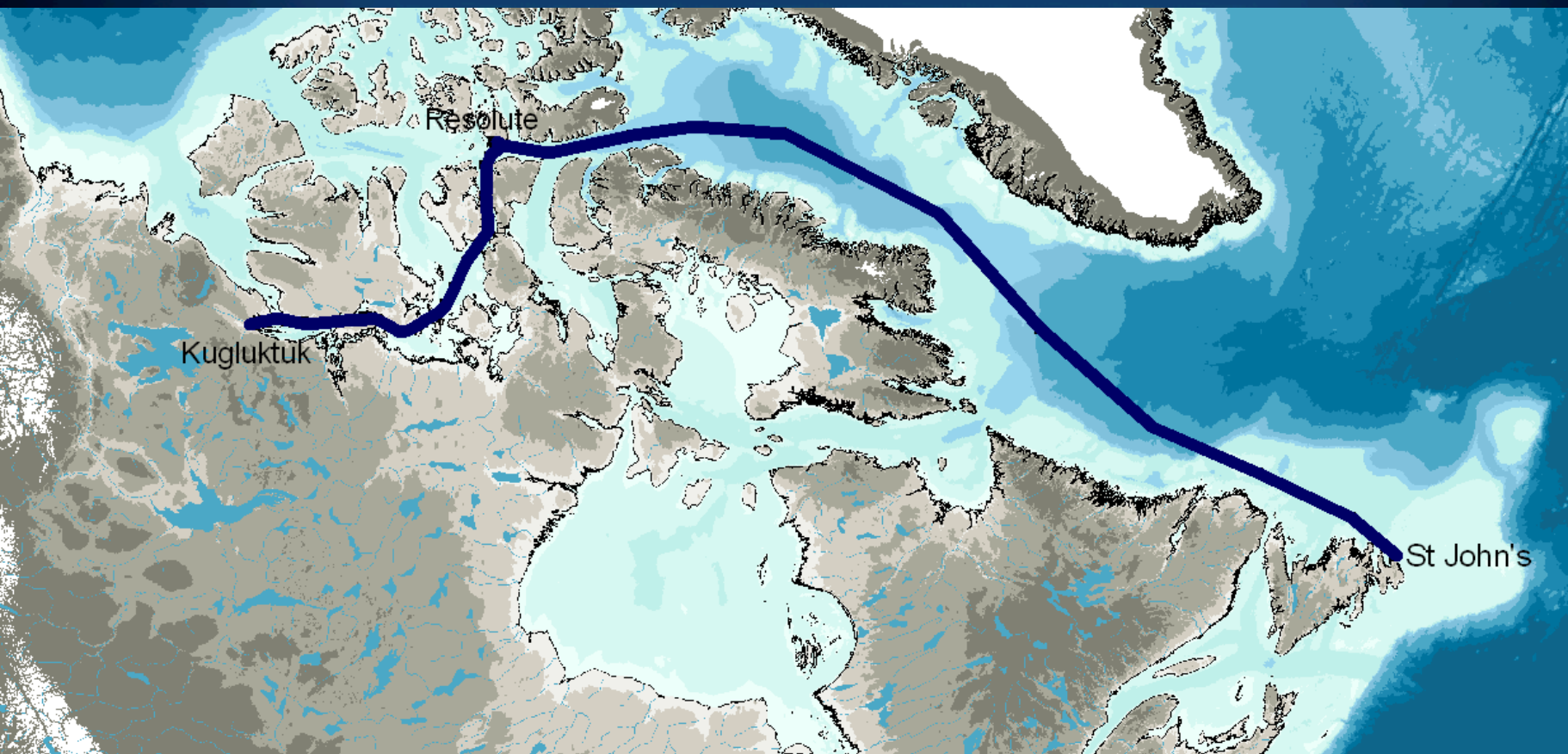
Underway measurements will be carried out during the transit of LSSL to the Arctic

- XCTDs deployed from stern
- Underway seawater sampling
- Bird/mammal observations
- 2-4 scientists DFO/EC-CWS





CCGS LSSL: St-John's transit to Kugluktuk





C3O – Distributed Biological Observatory

CCGS Sir Wilfrid Laurier: Victoria to Barrow

- 6 days, 16 berths requested,
- Stop at Dutch Harbor to pick up about 12 scientists
- UCTD and XCTDs deployed from stern during transit
- Underway seawater sampling
- Bird observations
- Deployment of 5 Argo floats (no deviation from track)
- Collect sediment samples using VanVeen grabs and Happs corer at stations in the Bering and Chukchi Seas. Also, collect CTD and geochemical samples with the rosette and plankton samples with vertically towed bongos.
- Time permitting, drag for sediment equipment lost during 2010 C3O July cruise at UTBS5 station.
- Recover and redeploy 2 pairs of physical-bio-geochemical moorings for JAMSTEC



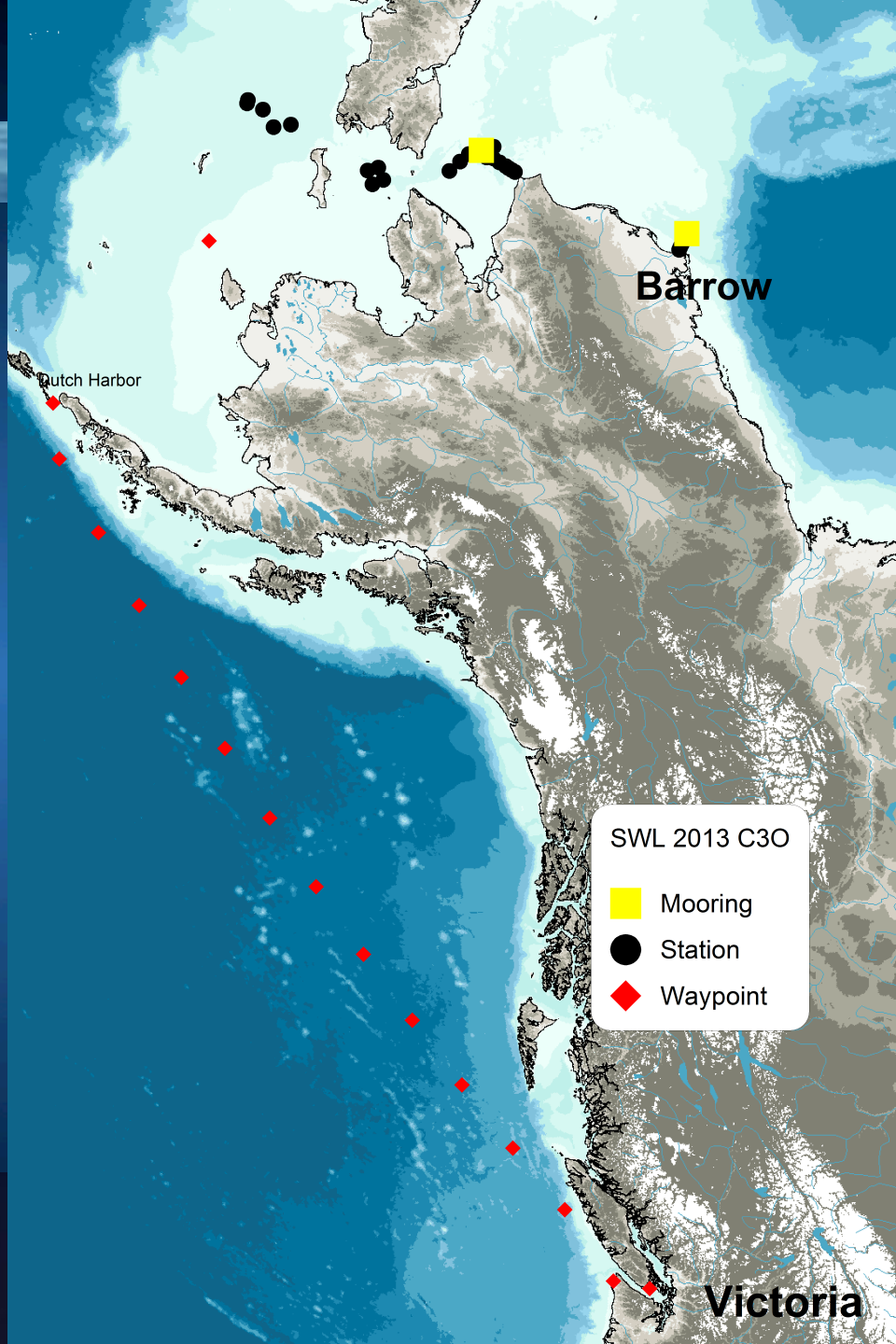


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CCGS Sir Wilfrid Laurier: Victoria to Barrow





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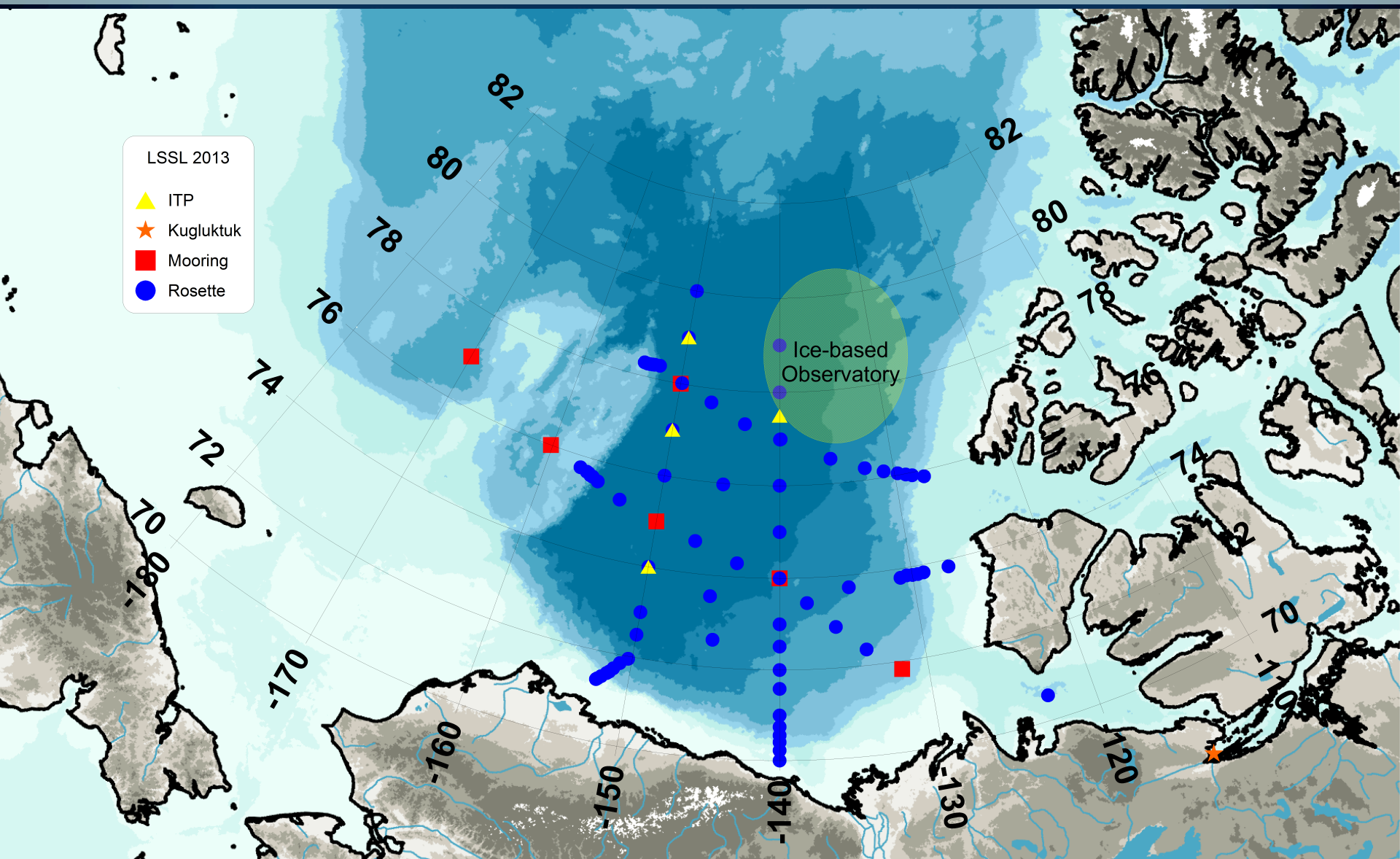
CCGS Louis S St-Laurent: Kugluktuk to Beaufort Sea & Canada Basin



- 32 days, 35 berths requested
- CTD/rosette profiling and sampling
- Vertical net casts
- Turbulence probe casts
- XCTD and UCTD casts
- Recover 5 moorings (WHOI, NIPR)
- Deploy 3 moorings (WHOI).
- Recover 2 & deploy 4 Ice Tethered Profiler buoys.
- Underway measurements
- Ice Observations (ship, ice and helicopter based)



AON/JOIS



CCGS Sir Wilfrid Laurier Leg-3 Science Request 2013

Beaufort & Chukchi Seas

Winnipeg, 15 January 2013

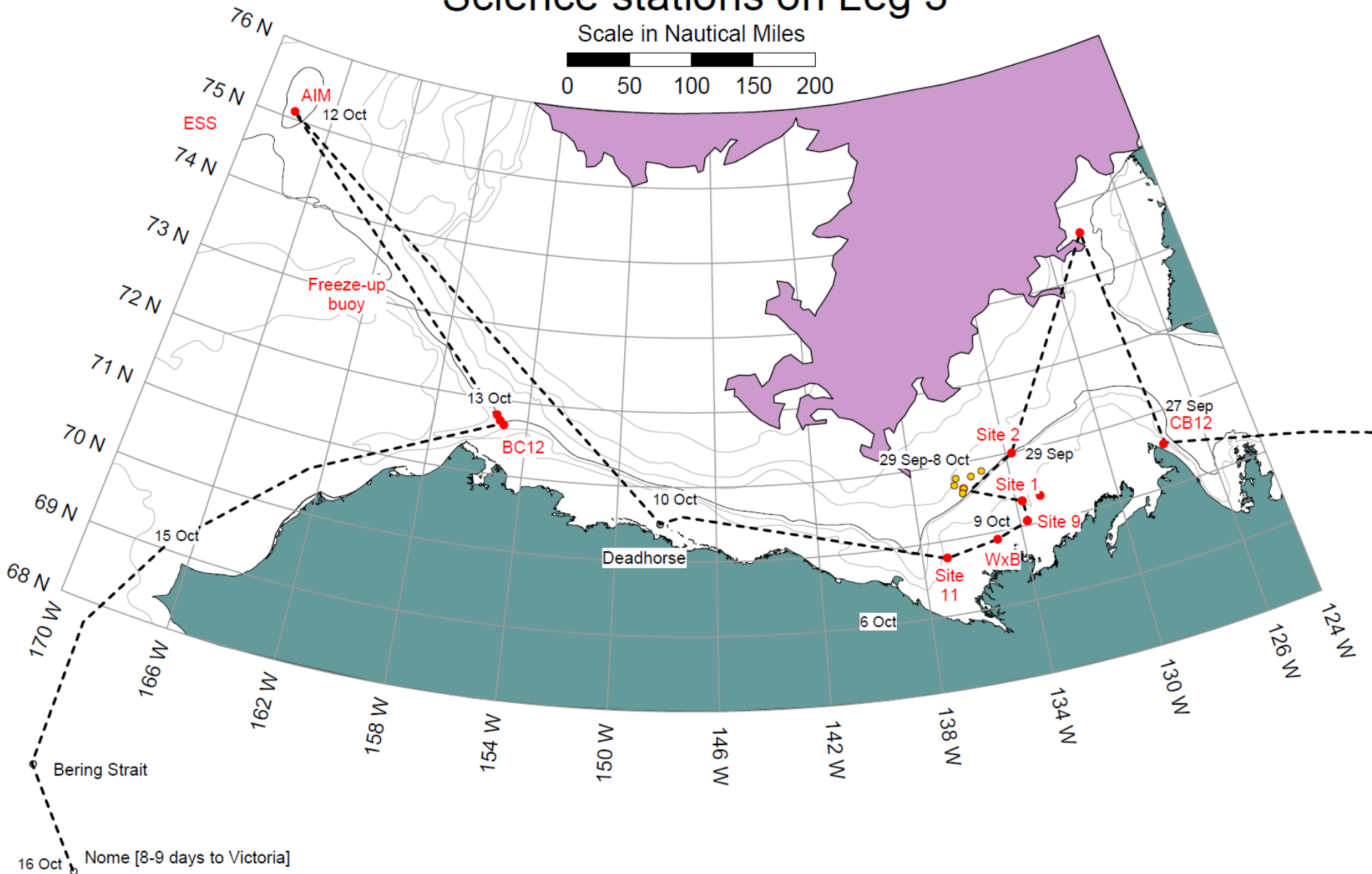


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Possible leg-3 cruise track: Sir Wilfrid Laurier 2013

Science stations on Leg 3



Parameters for Science Work, Leg 3, *Sir Wilfrid Laurier*

Science leg begins 24 September at
Cambridge Bay (crew change)
ETA Victoria 26 October (Saturday)
32 days to work with
15-16 days of travel, 4000 n miles direct
15-16 days (maximum) for science
14 science berths

Beaufort component needs 14 berths
Chukchi component needs 6 berths
Propose off-loading 11 persons at
Deadhorse on 10 Oct & loading 3
6 to disembark at Nome on 16 Oct
Estimated 15 days of primary tasking
Weather delays & CCG activities may
diminish the window for science



Approximate schedule of activity

Crew change 24 September (Tues)

2 days to Cape Bathurst, arriving 27 September

3 mooring sites on the way to the geoscience area, 2 days

ROV & AUV for 10 days, 29 Sep through 8 Oct

4 mooring sites on the way out, 1 day

Stop at Deadhorse on 10 Oct to off-load 11 science folk (GSC, MBARI), load 3 (Japan)

Proceed to Chukchi Plateau AIM site (Japan arrivals need time to prepare equipment)

Launch X-CTDs on route

Back to Barrow Canyon for 3 JAMSTEC moorings, plus CTD work

Proceed to Nome to disembark 6 on 16 Oct

8-9 days travel to Victoria, plus up to a day fuelling at Dutch Harbor, permitting arrival home on the 26th (Saturday)

Training week starts on the 28th.

All assuming no Simpson Strait diversion & good conditions for travel & work

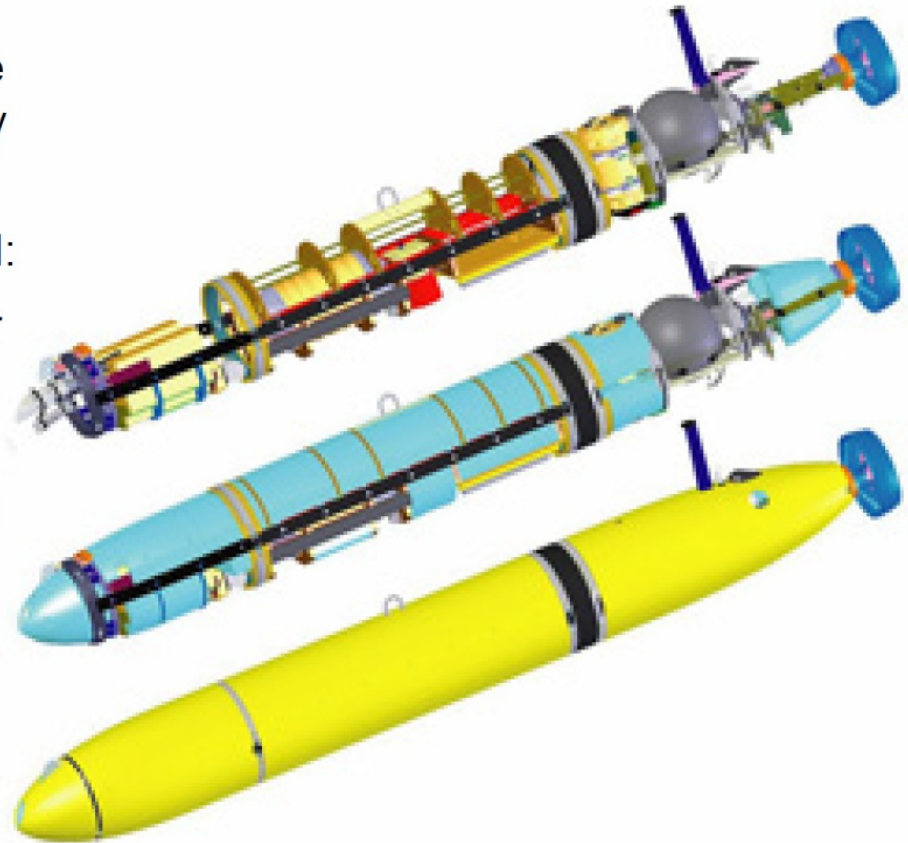
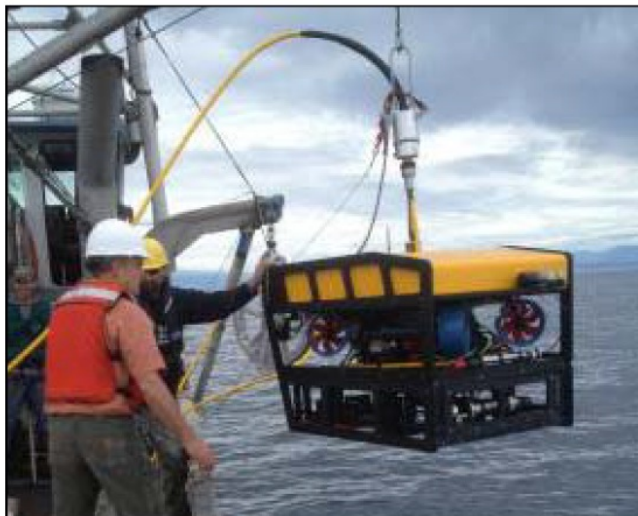
Geohazards survey is the primary activity on Sir Wilfrid Laurier

Seabed mapping via collaboration between the Geological Survey of Canada & Monterey Bay Aquarium Research Institute

Uses under-water survey vehicles from MBARI:

Autonomous Under-water Vehicle (AUV) for seabed mapped at high resolution

Remotely Operated Vehicle (ROV) for video exploration at the seabed, for sample collection (gas, mud) & for AUV rescue



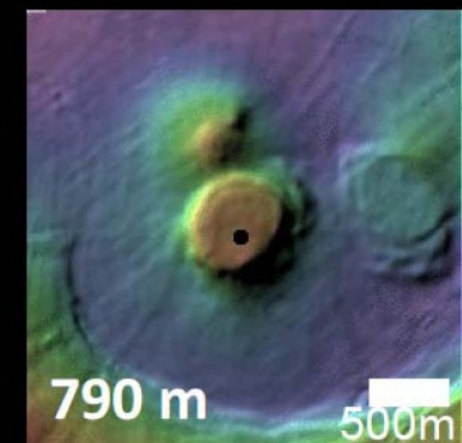
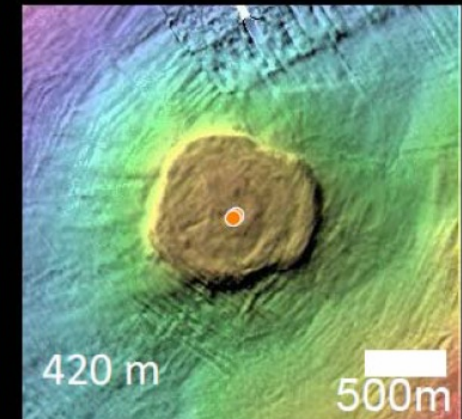
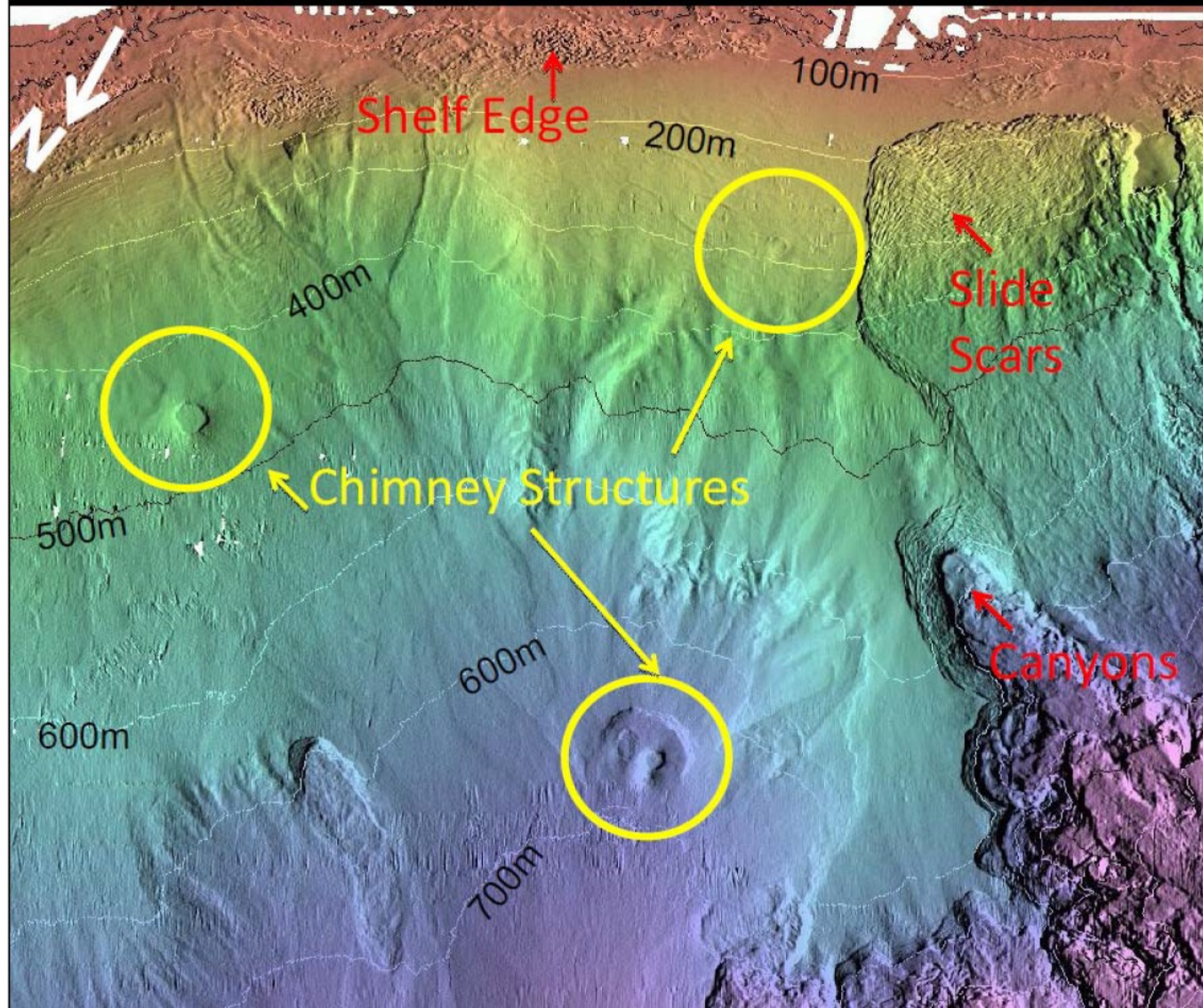
Free-fall devices (GSC) for shelf-slope transects:

Geothermal heat flux probe

Sediment shear-stress probe

Sea-floor dredge

3 expulsion features visited in 2012 are among the 6 high-priority mapping targets



Servicing of sub-sea moorings is the secondary activity on Sir Wilfrid Laurier

This is a familiar activity for the Laurier

There are submerged moorings at 11 sites in the Beaufort & Chukchi Seas (total of 13 moorings) for recovery & deployment

There is a surface wave+weather buoy to be deployed in late July & recovered in early October

The oceanographic plan also includes:

Shore visit by helicopter (2-4 h) for calibrating instrument compasses

Operation of the thermo-salinograph

CTD rosette casts at mooring sites & in sections across Barrow Canyon

Deployment of X-CTDs at intervals during traverse west across the Beaufort Sea

Deployment of drifting buoys



IBRV Araon in the Beaufort Sea, 12-28 September 2013

Araon is the new icebreaking science ship operated by the Korean Polar Research Institute (KOPRI)

Class DNV Polar 10

110 m x 19 m x 9.9 m

6950 tons (gross)

25 crew. 60 scientists! (Wow! CCG gets off pretty easy)

Araon is *Laurier's* collaborator in geo-hazards research at the shelf edge

Multi-channel seismic survey

Swath mapping & sub-bottom sonar

Jumbo piston coring of sediment

Seawater & microbiological sampling

CH₄, CO₂ sampling, ocean-atmosphere

All groundwork for IODP scientific drilling



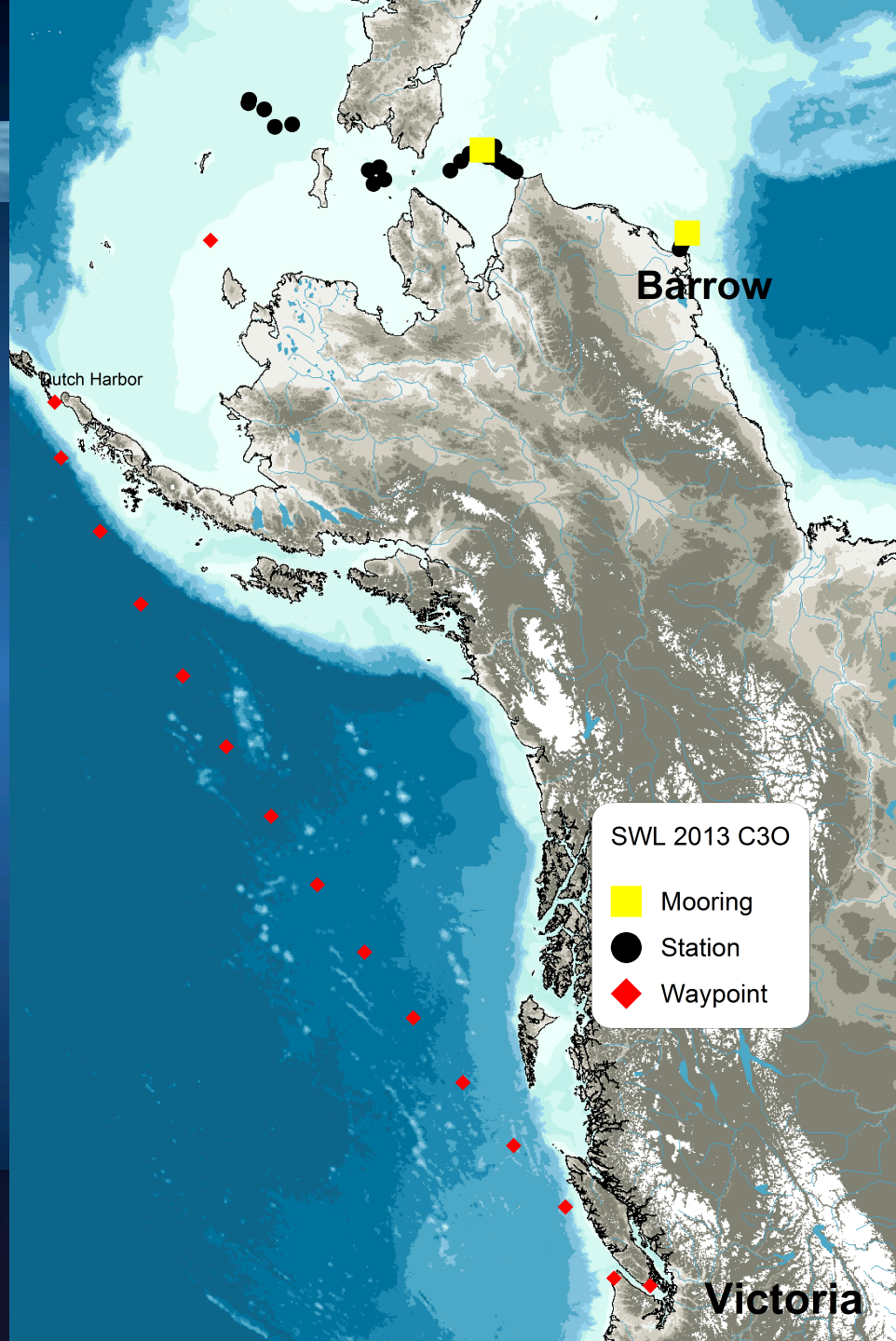


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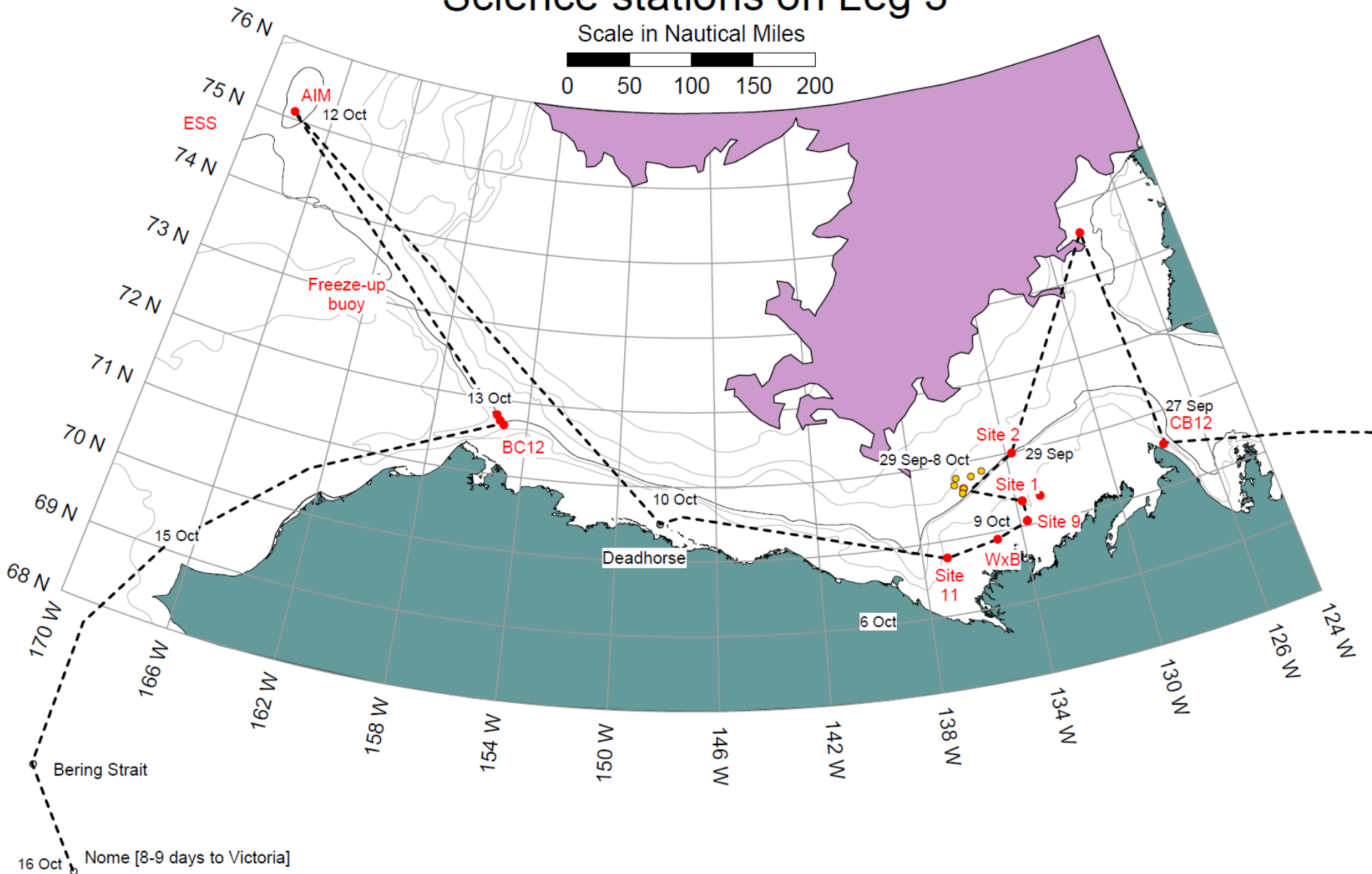
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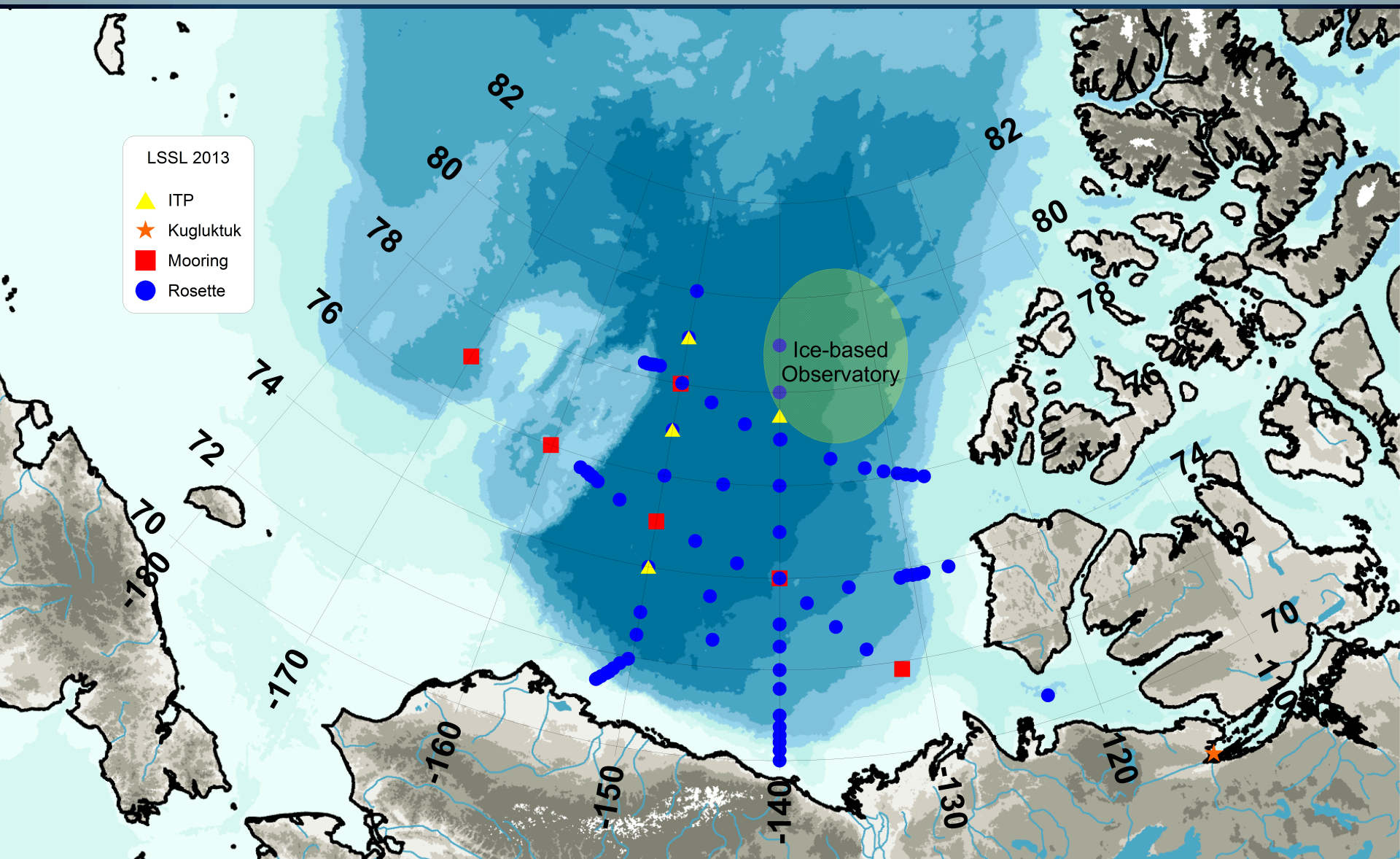
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Questions?

