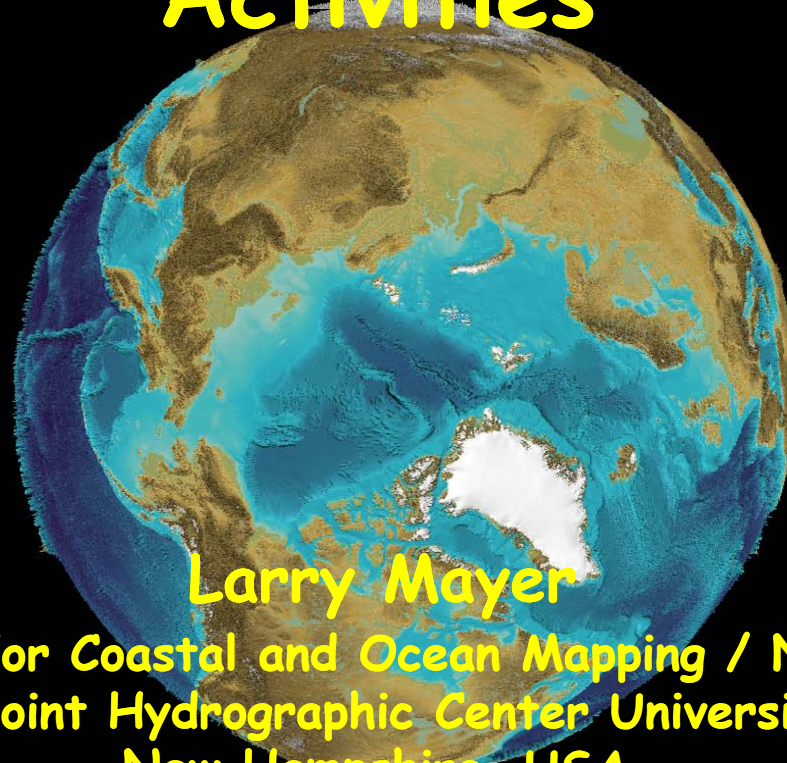




# Update on Arctic Extended Continental Shelf Mapping Activities



Larry Mayer

Center for Coastal and Ocean Mapping / NOAA-  
UNH Joint Hydrographic Center University of  
New Hampshire, USA



# HEALY 09-05

Start: 4 Aug. 2009 -- Barrow, Alaska

End: 16 Sept. 2009 -- Barrow, Alaska

Total Track Length - 5175 nm (9585 km)

Average Speed for survey - 4 knts

Science Party:

UNH-8; State Dept.-1; NGDC-1; Stanford-1; UMich-1; NIC-4; USGS-1; UCSD-2; USN-2, Vermont School of Law, 2 School teachers, MMO, Comm. Obs.



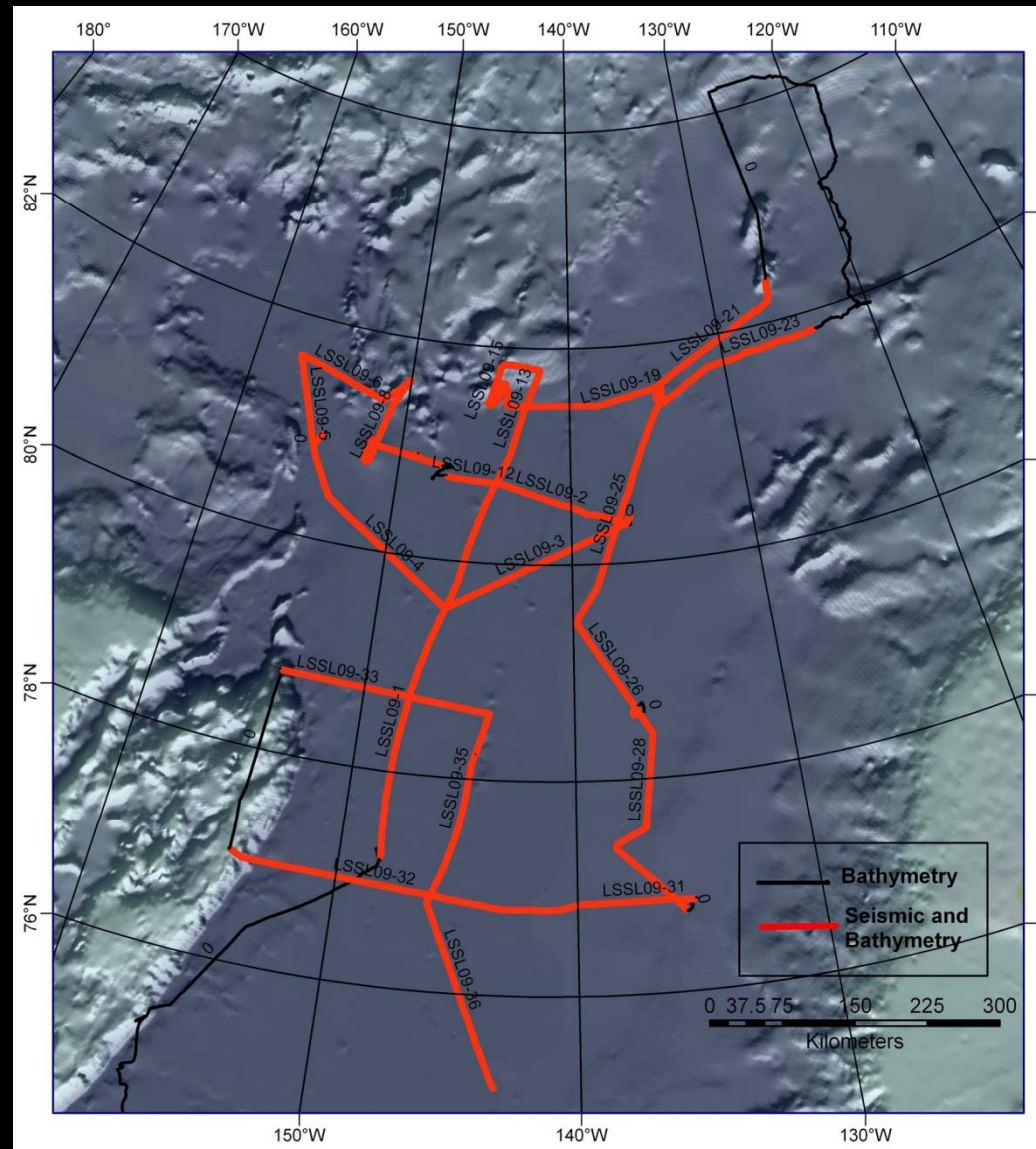




# Louis 2009 Seismic Data

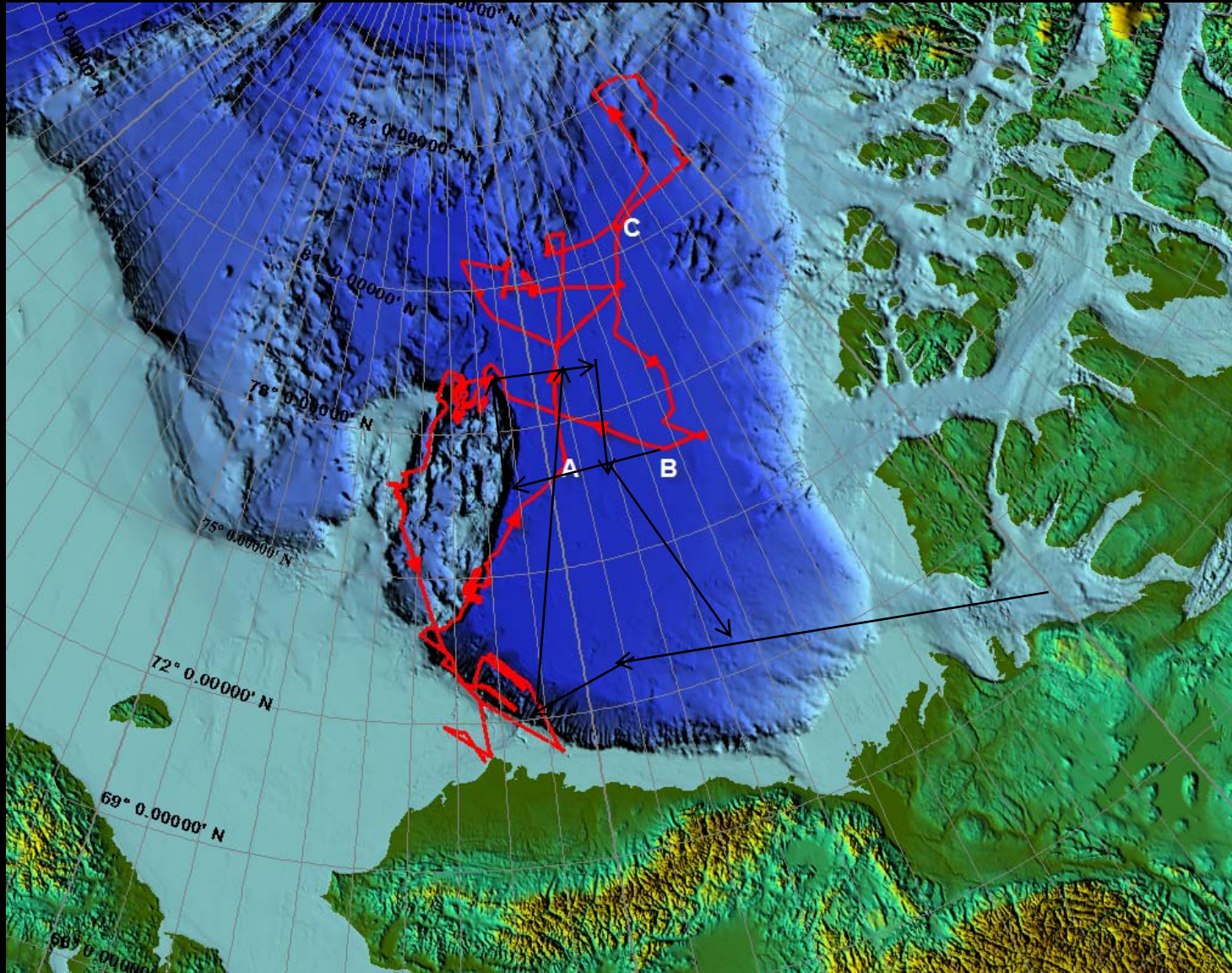


4069  
kms!!





# HEALY 0905



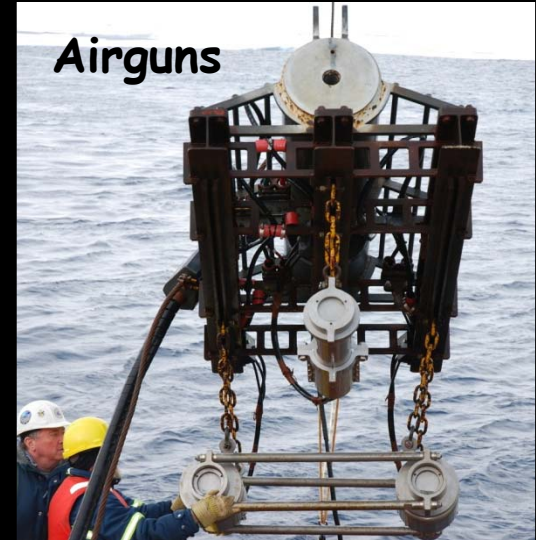
# Louis Seismics



Compressor



Navigation



# Technical Achievements

CCGS LOUIS S. ST. LAURENT

AUGUST 15TH  
2009  
1606Z

USCGC HEALY

- Planned 3000 km
- Achieved >4000 km
- Straight line tracks
- Robust Wireless link
- Minimized compressor failures
- Streamer stabilized near 11 m
- Seastar CTDs
- Overcame connector leakage
- >90 % sonobuoy success
- longer offset sonobuoys

# Science Successes

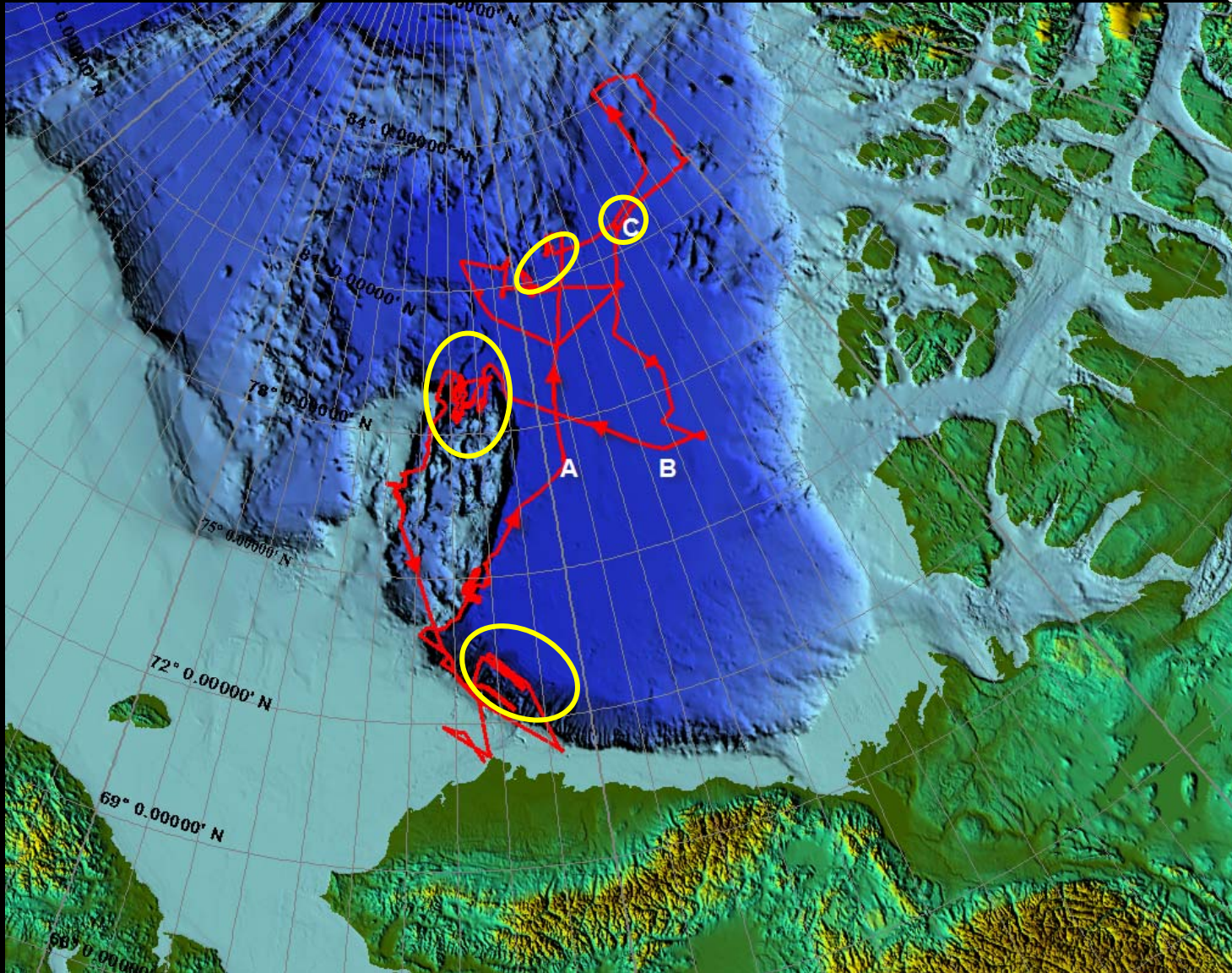
- Remarkable imaging of changes in basement morphology and geometry
- Stratigraphic relations to show relative timing of Alpha Ridge formation
- Unusually quiescent basin tectonically
- Adds to crossings of enigmatic CB Gravity Anomaly - associated with a basin/graben rather than a sea floor spreading center
- With sonobuoys an unequalled data set for imaging the ocean-continent boundary in the Canada Basin
- Many indicators of subbasement reflections
- Imaged numerous volcanic edifices
- Imaged over 2008 dredge site #1
- Adds multiple tie lines for relating results from 2007, 2008, and 2009 surveys.



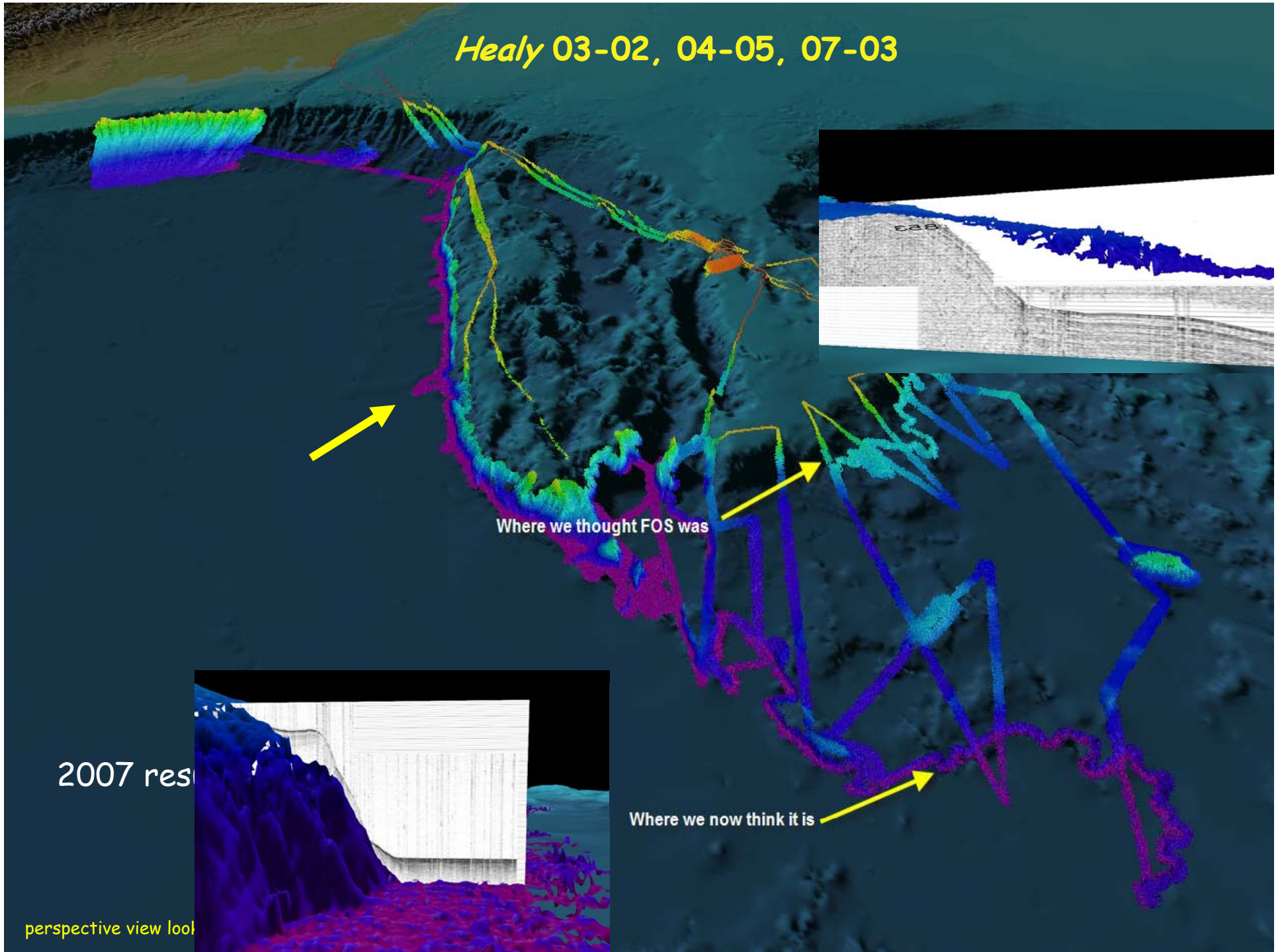


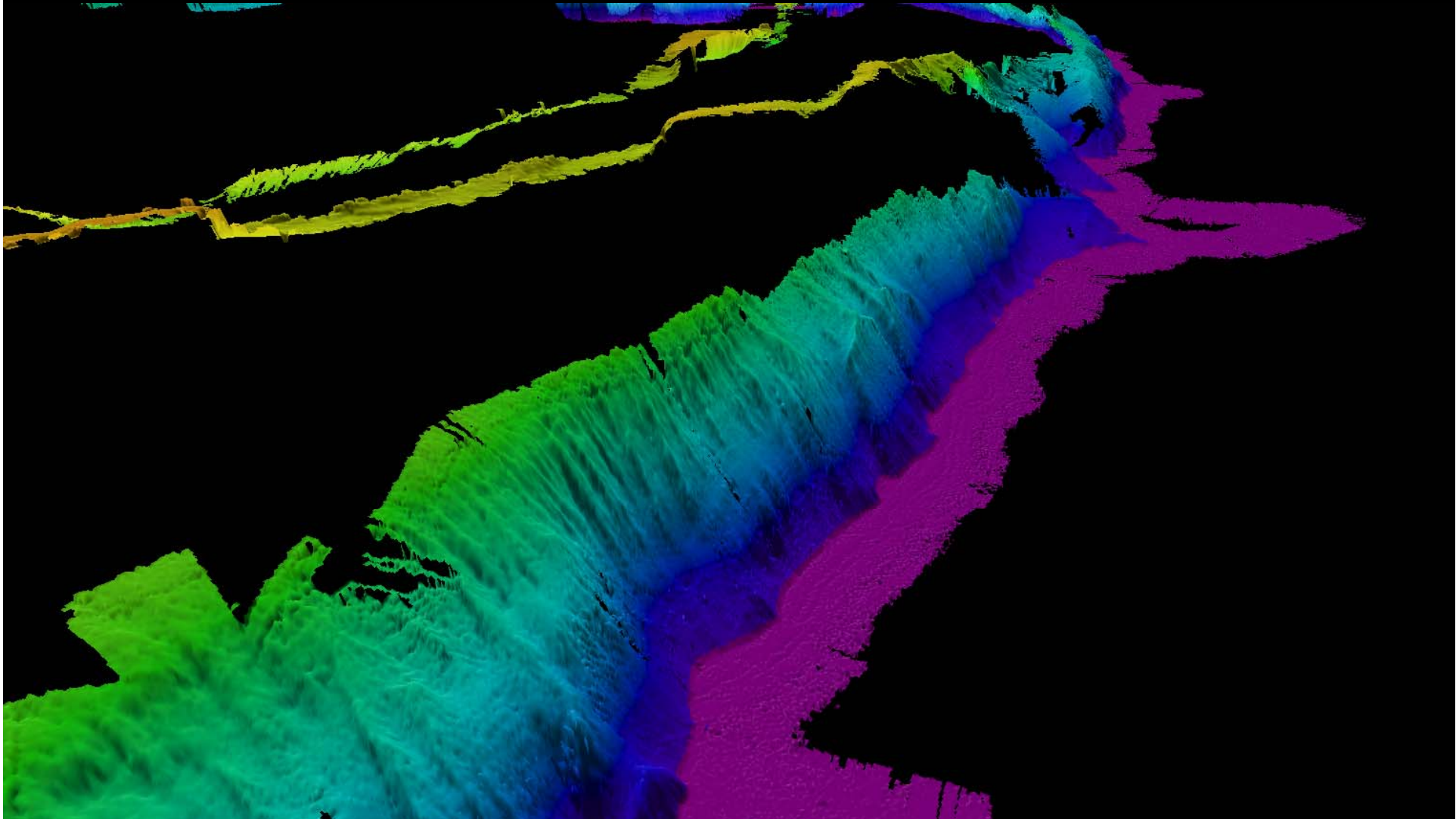
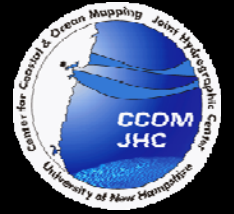


# HEALY 0905



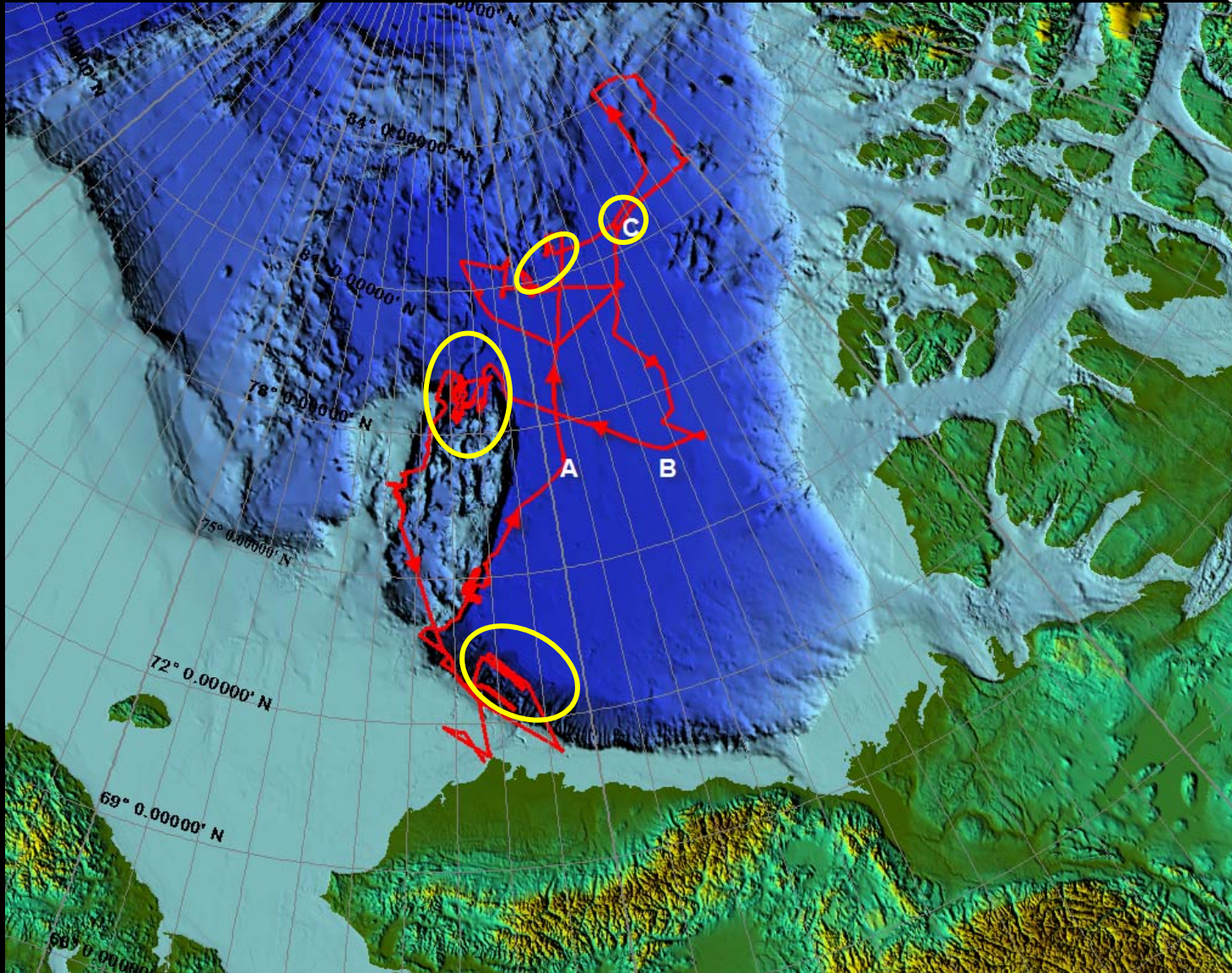
Healy 03-02, 04-05, 07-03





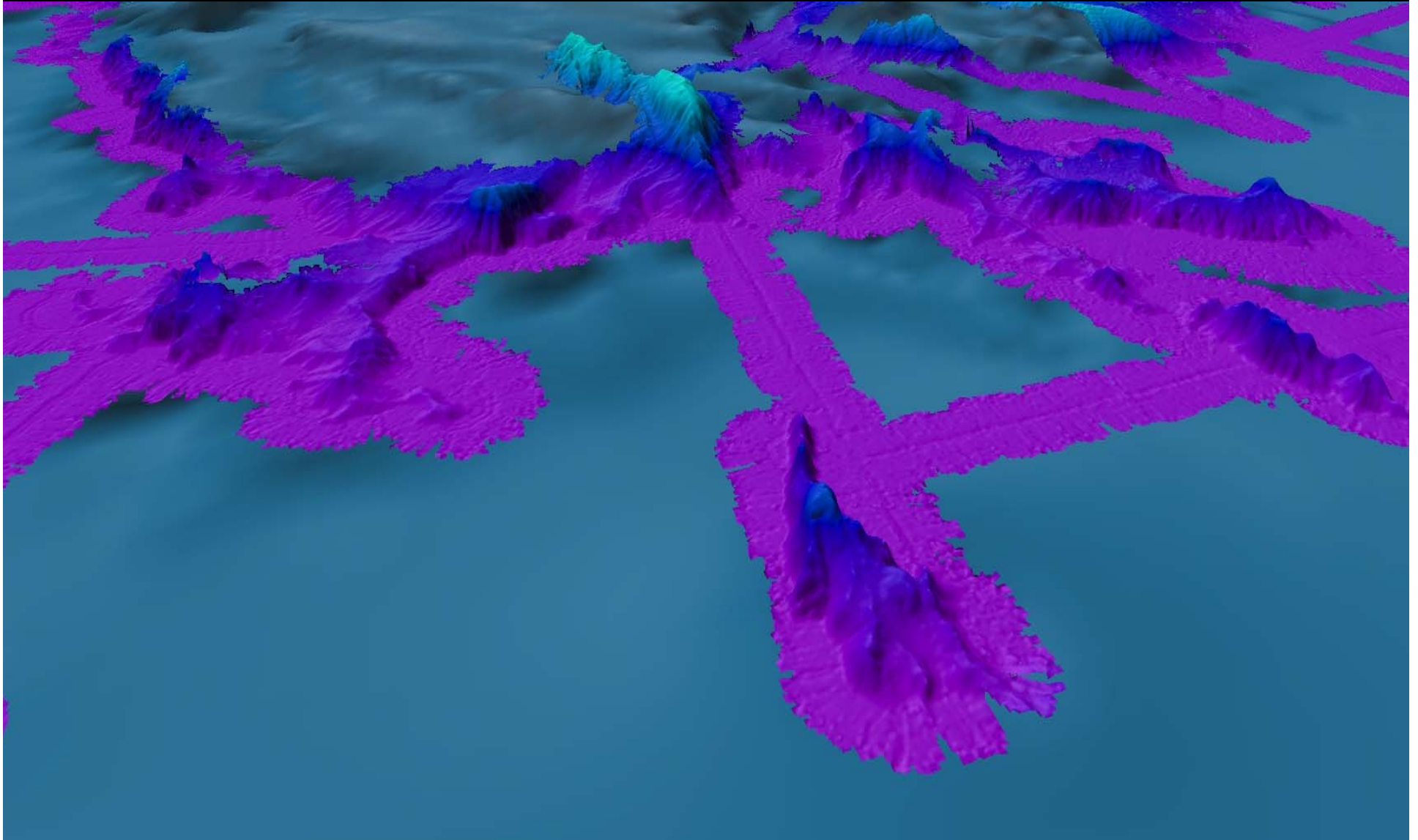
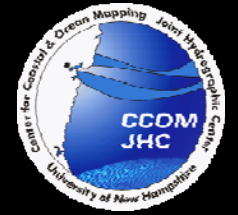


# HEALY 0905



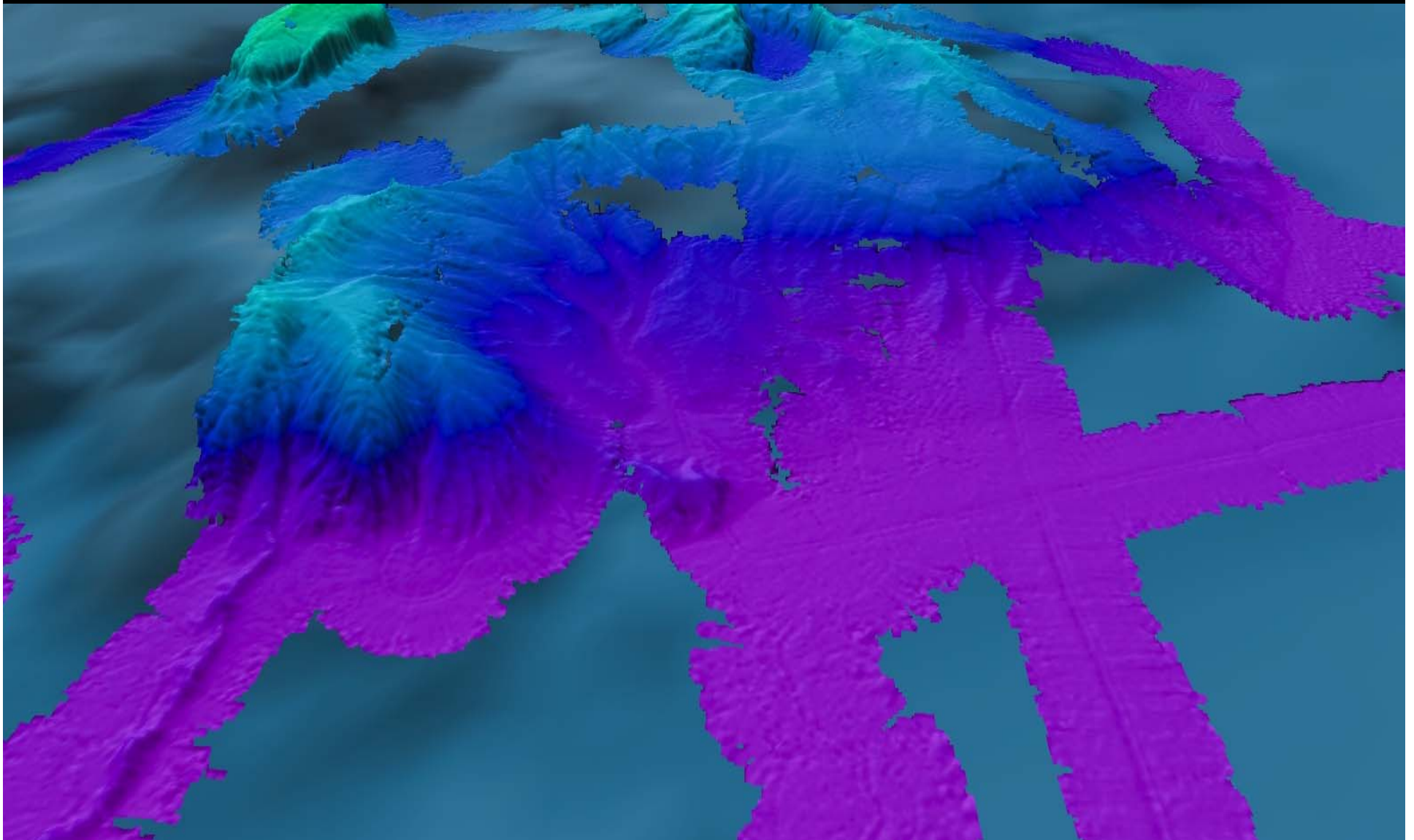


# HEALY 0905 FoS Surveys



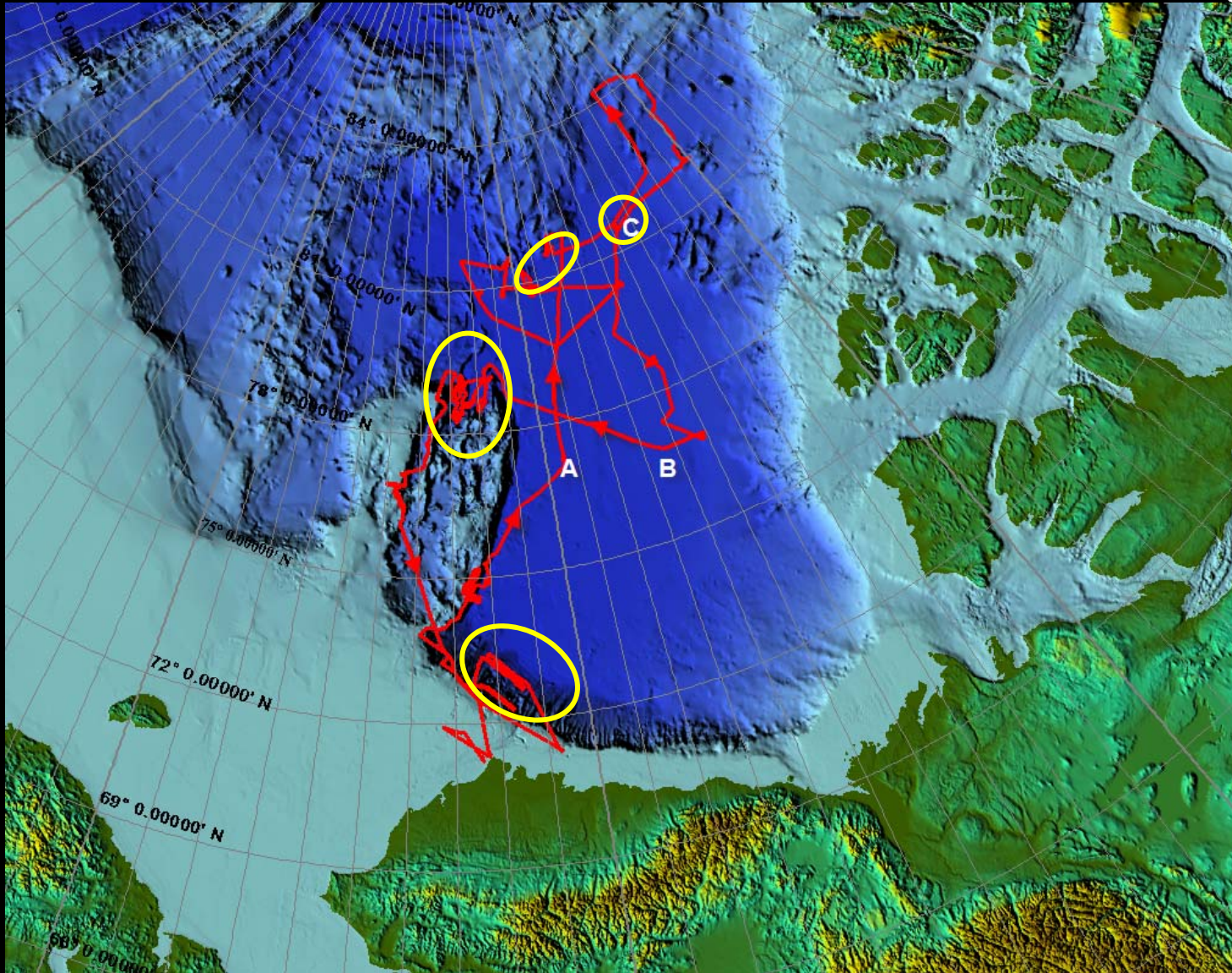


# HEALY 0905 FoS Surveys



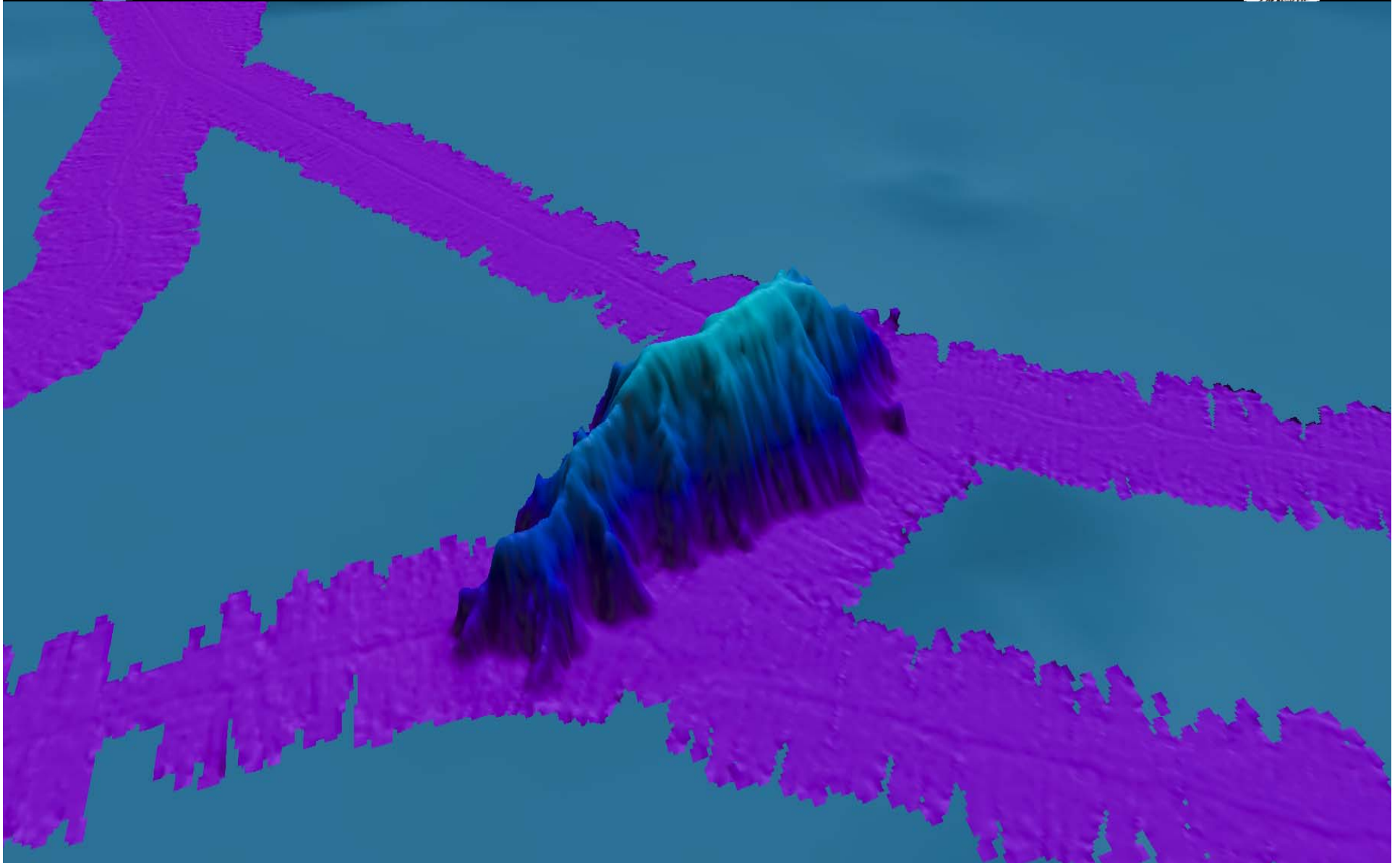


# HEALY 0905





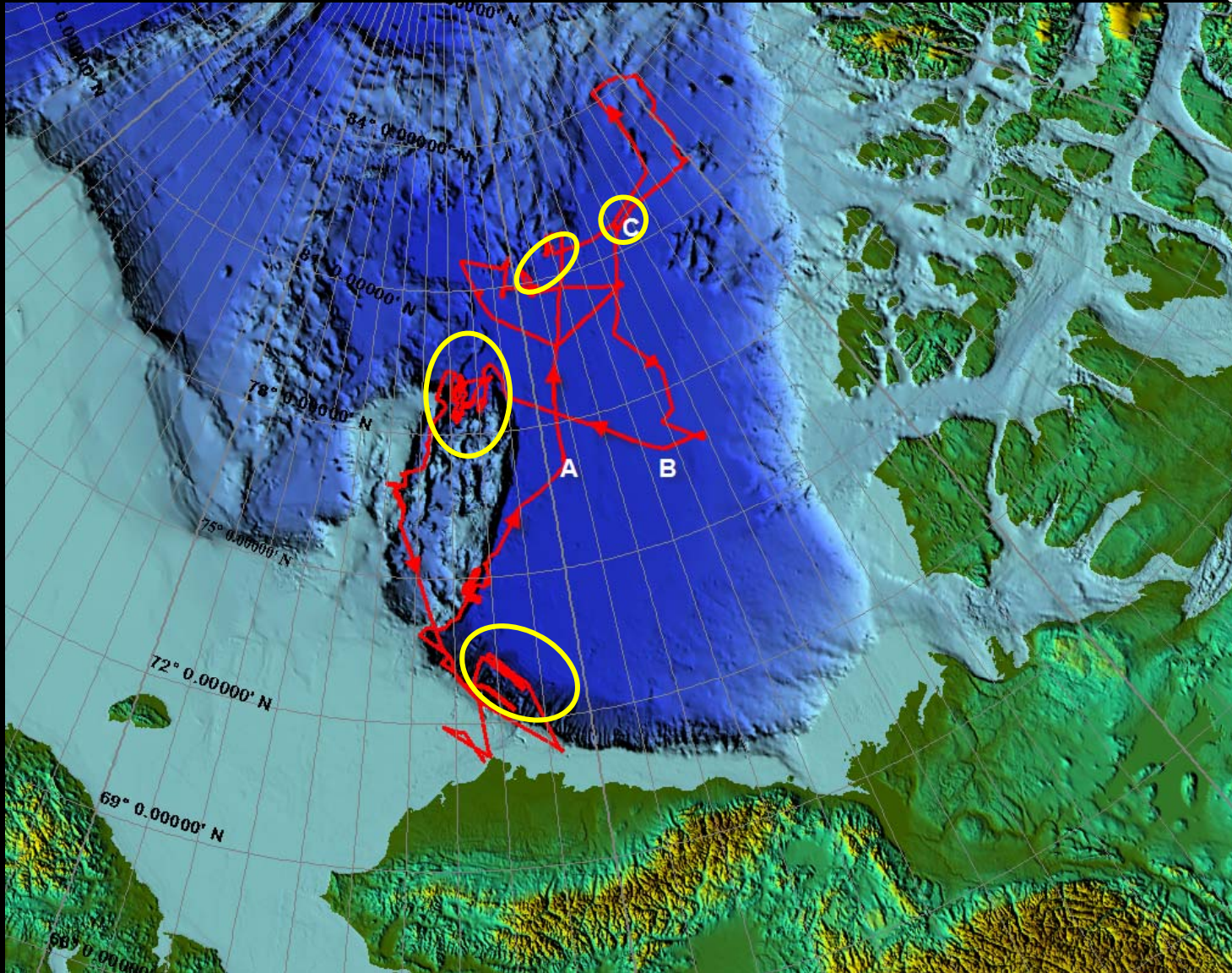
# New Seamount





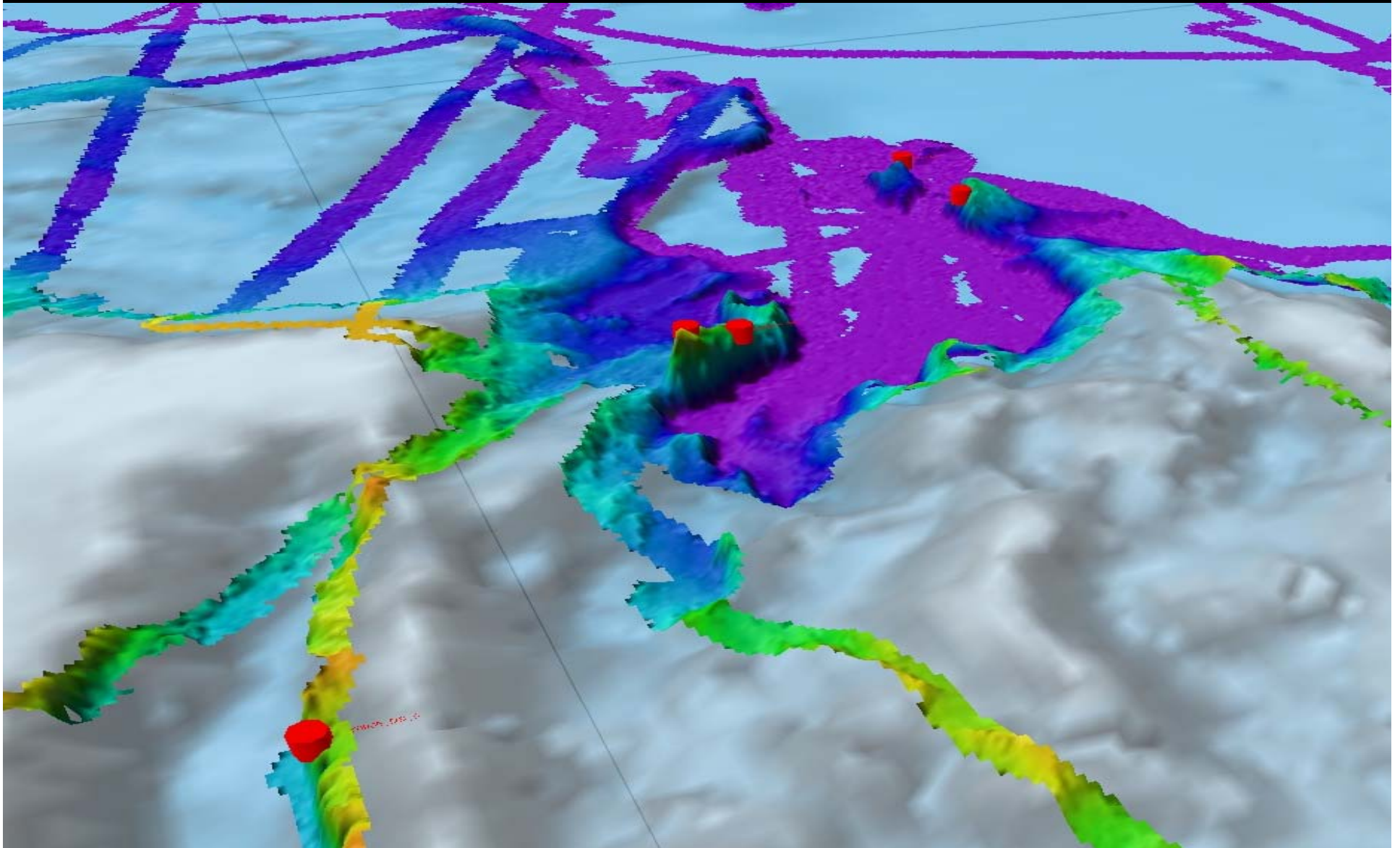
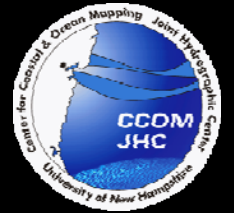


# HEALY 0905



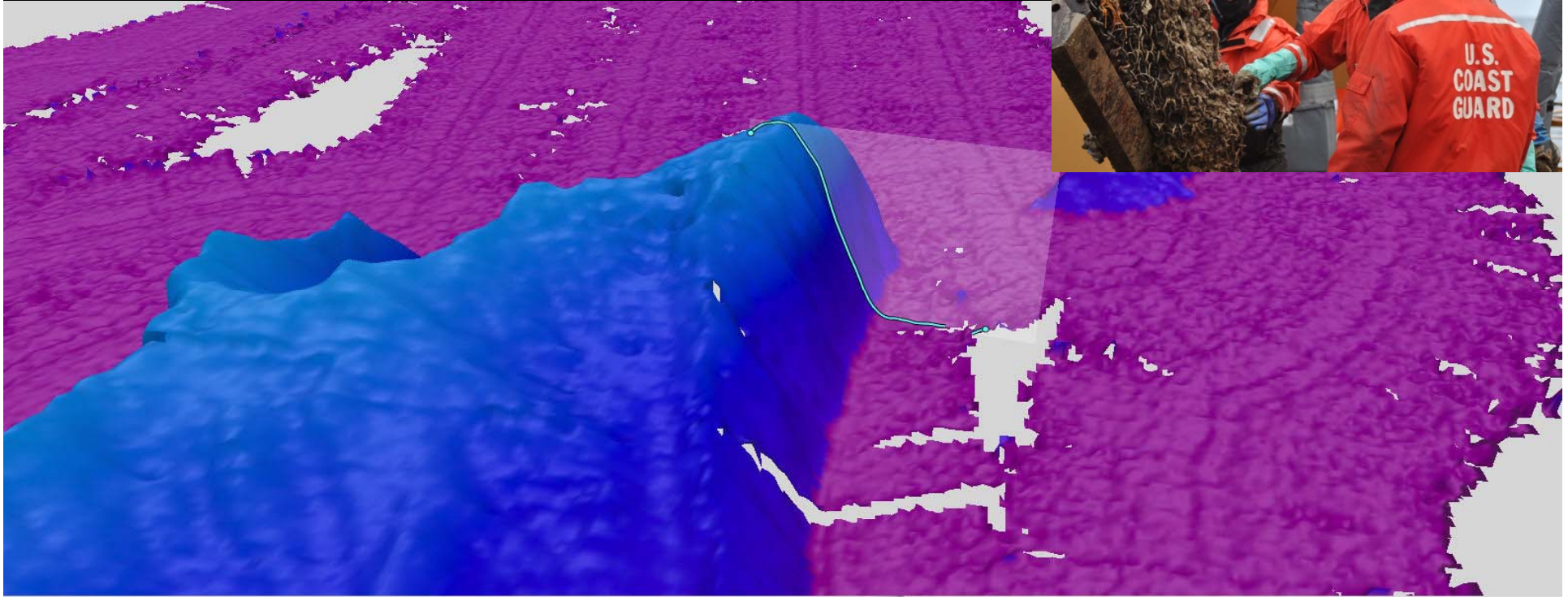


# Healy 0905 Dredge Sites

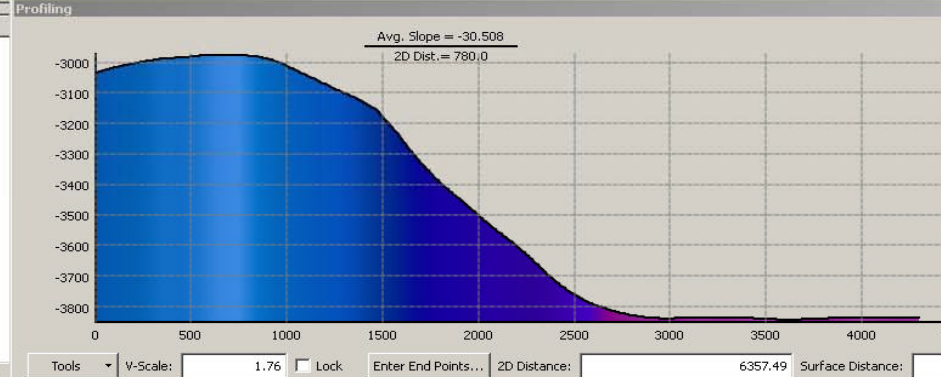




# Dredge Site 1



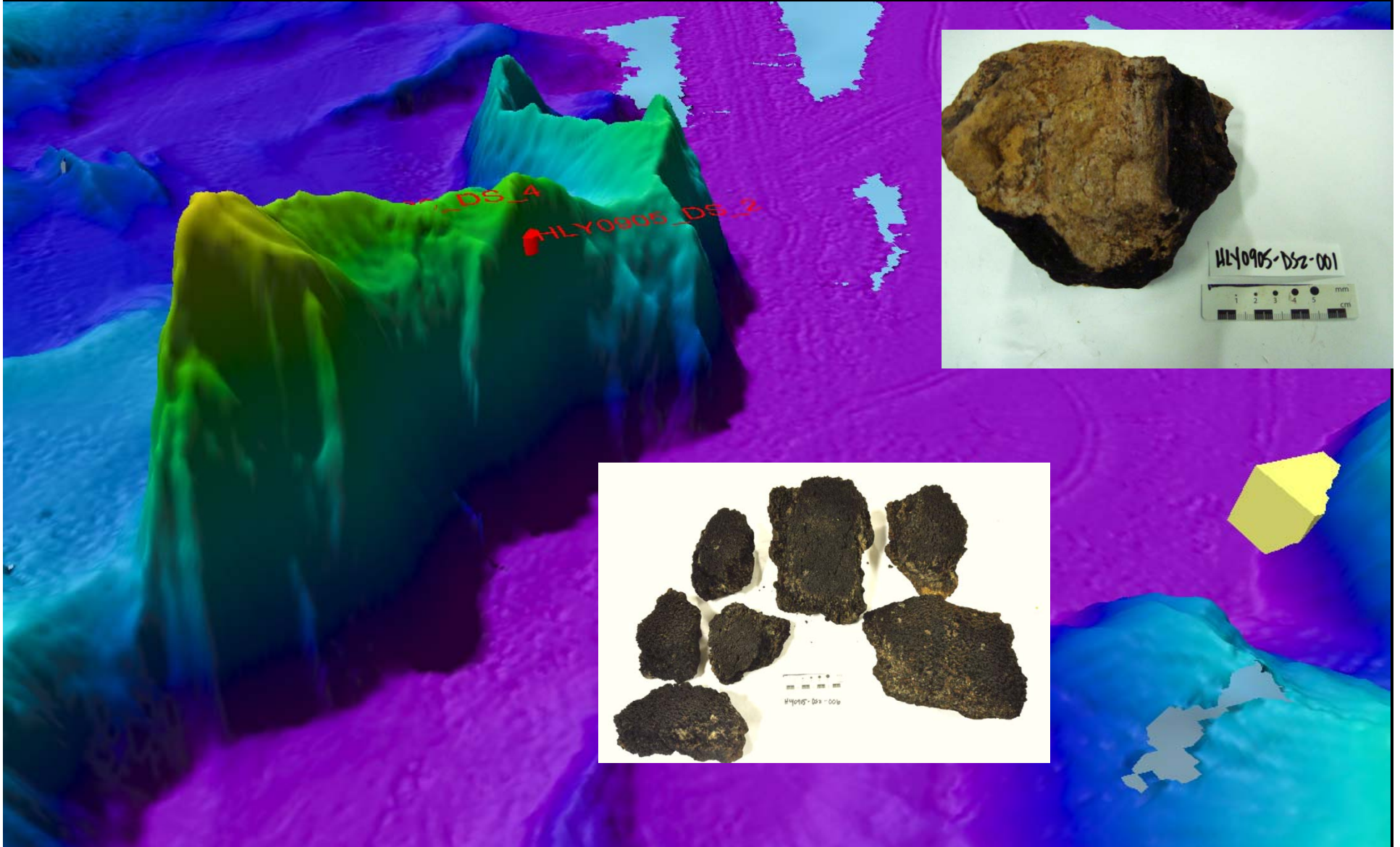
2s 4s 6s 8s 10s Time: 0:00.00 Rate: 1s



Tools V-Scale: 1.76 Lock Enter End Points... 2D Distance: 6357.49 Surface Distance: 6565.81 Slope: -2.721 Close

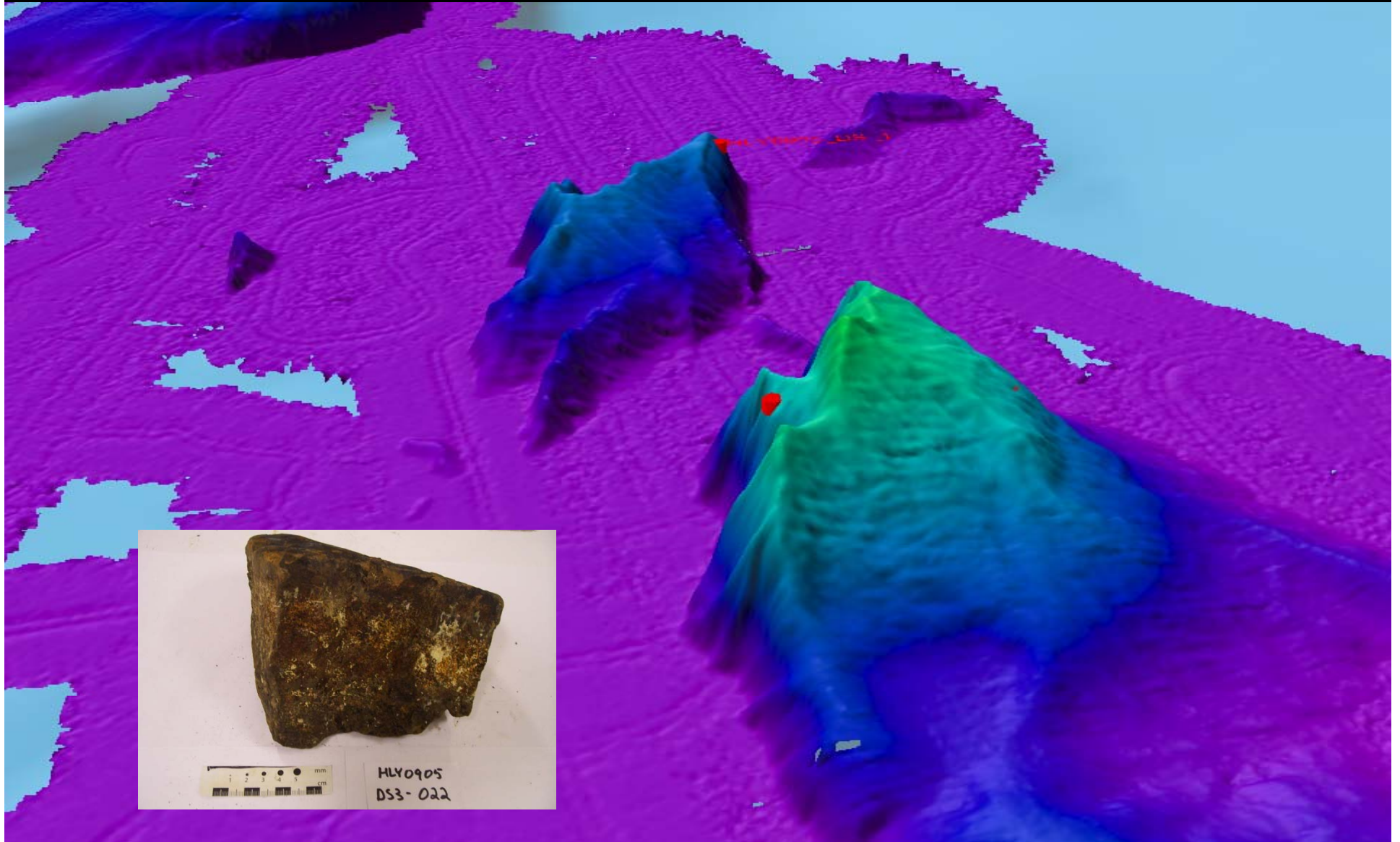


# Dredge Site 2



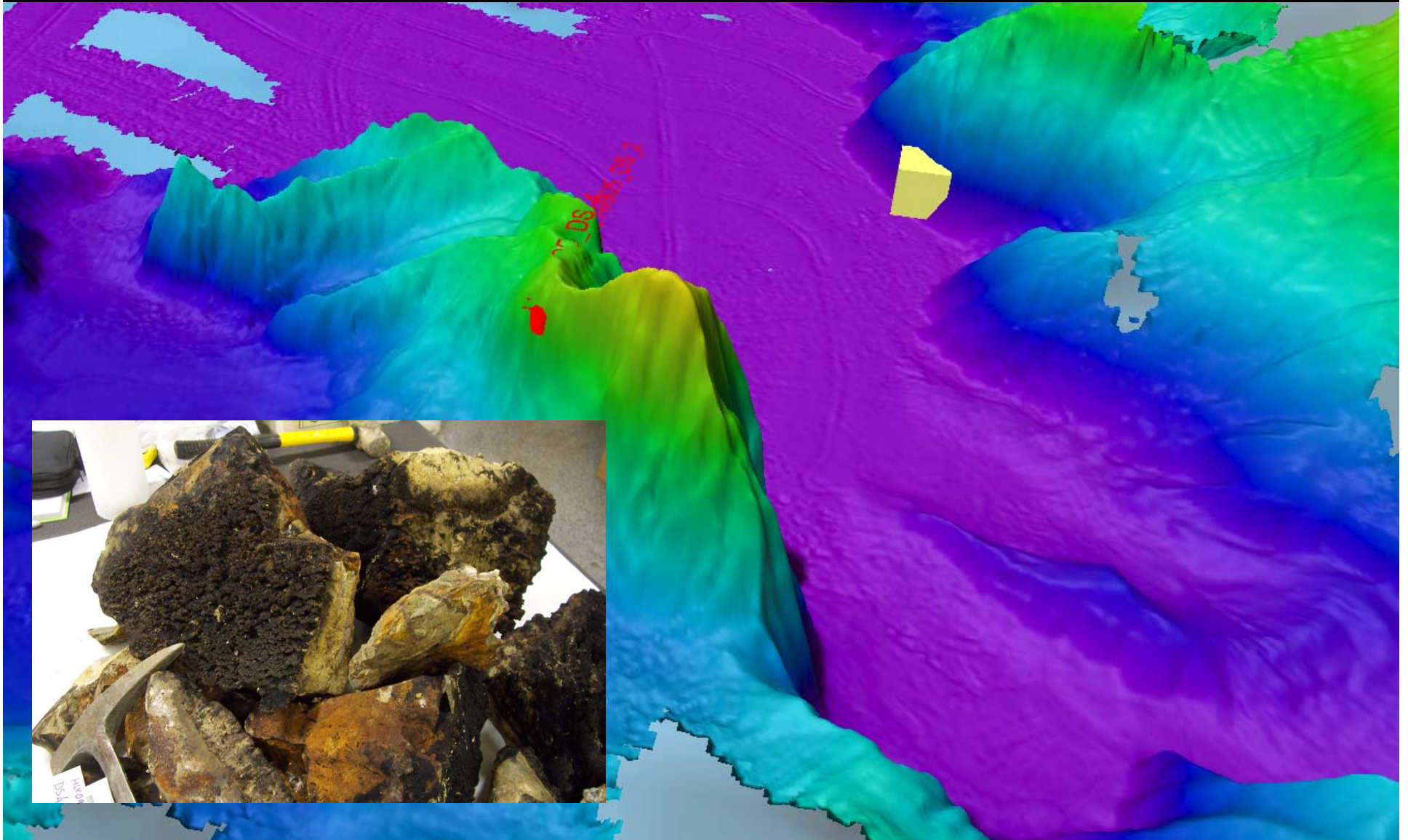


# Dredge Site 3



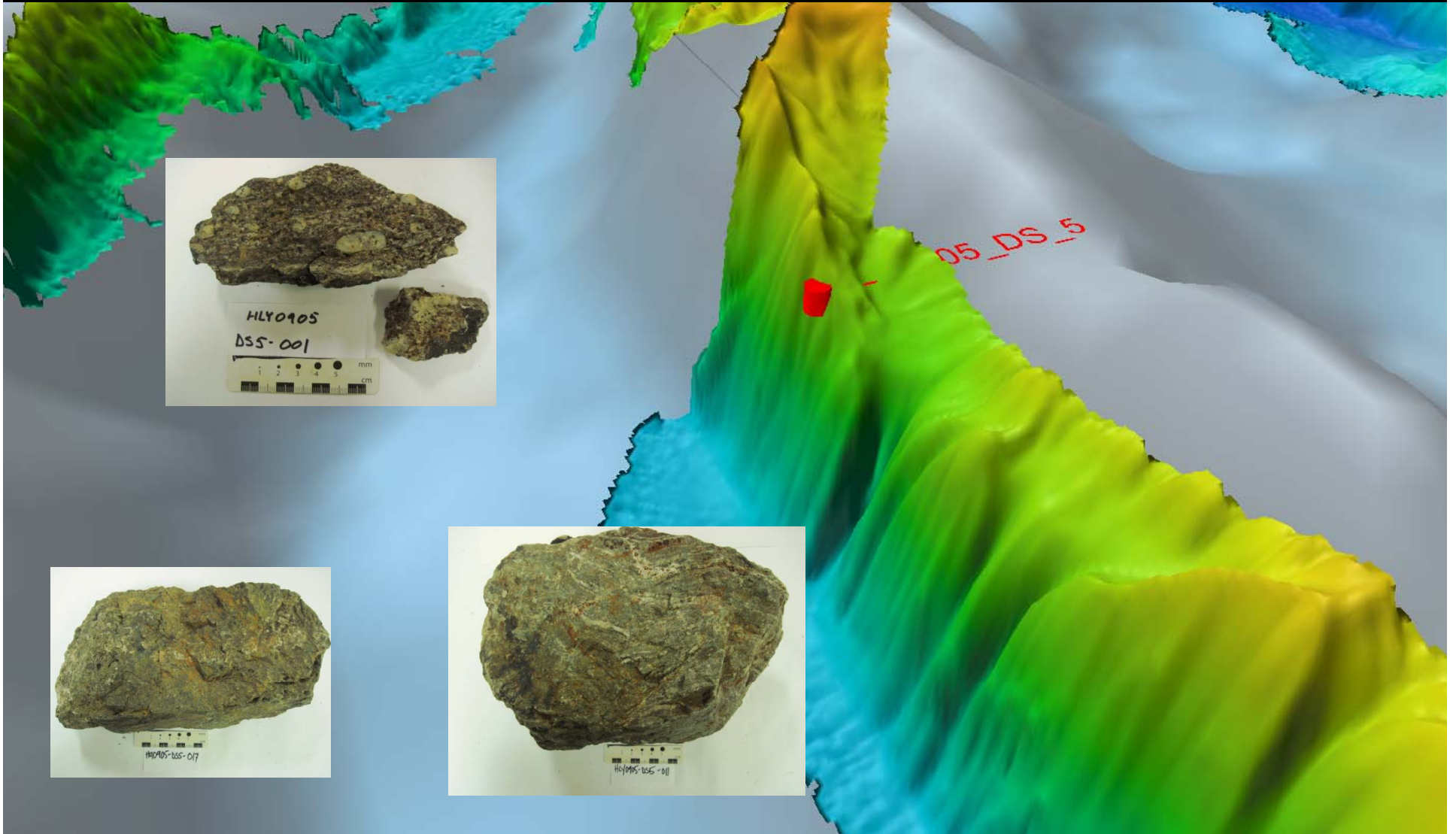


# Dredge Site 4



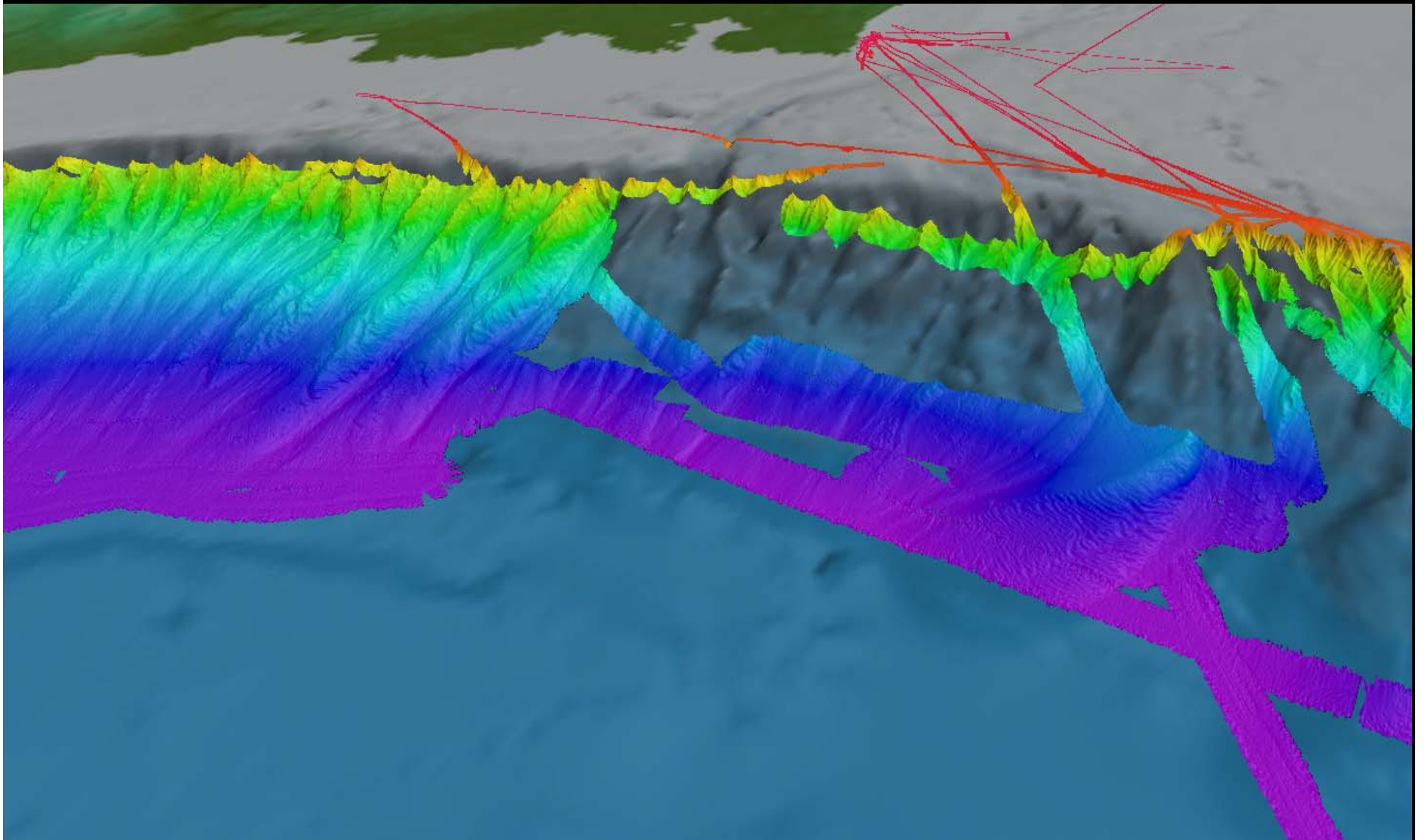


# Dredge Site 5





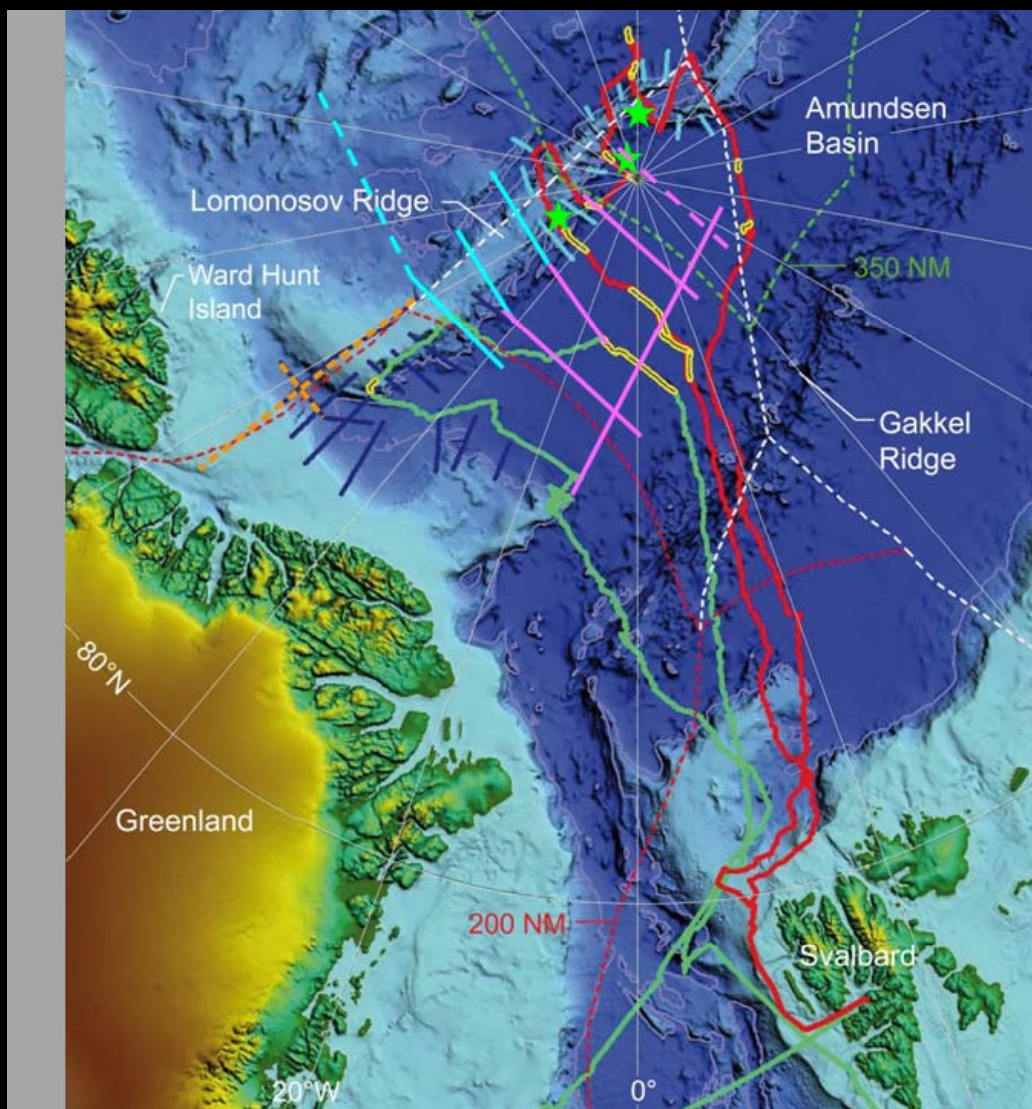
# Barrow Margin FoS







# Initial Thoughts for 2011 - ODEN/RUSSIAN NIB



## LOMROG III

Conceptual plan – details to be developed in autumn

**Turquoise** – Bathymetry

**Violet** – Seismic

**Stars** – Sampling

**Stippled turquoise** lines indicate possible extension of the bathymetric program – budget, time and ice permitting.

**Green** – LOMROG I, 2007

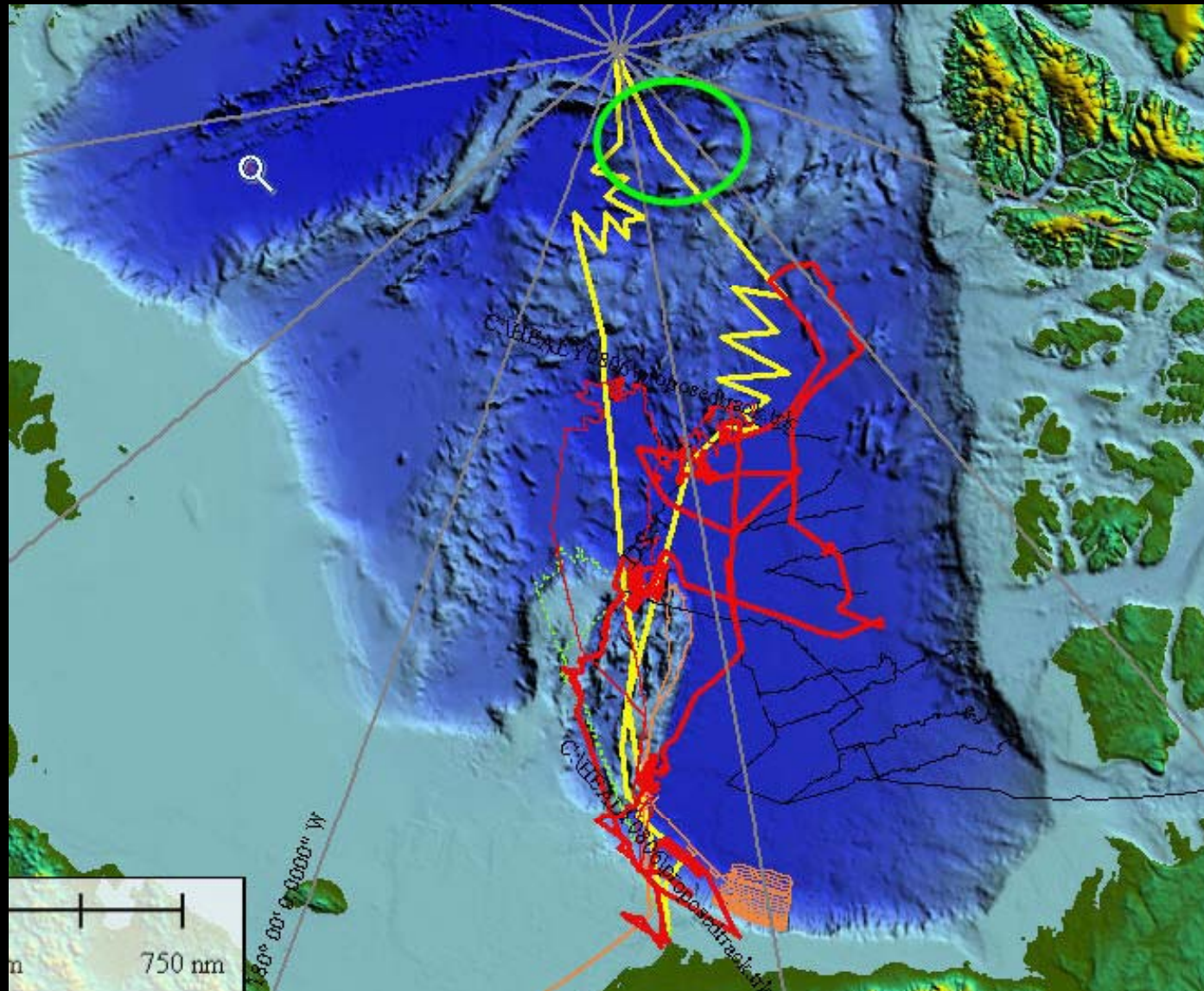
**Dark blue** – Spring 2009

**Red** – LOMROG II, 2009

**Yellow** – existing seismic



# Initial Thoughts for 2011 HEALY/LSSL







# HEALY 0905

