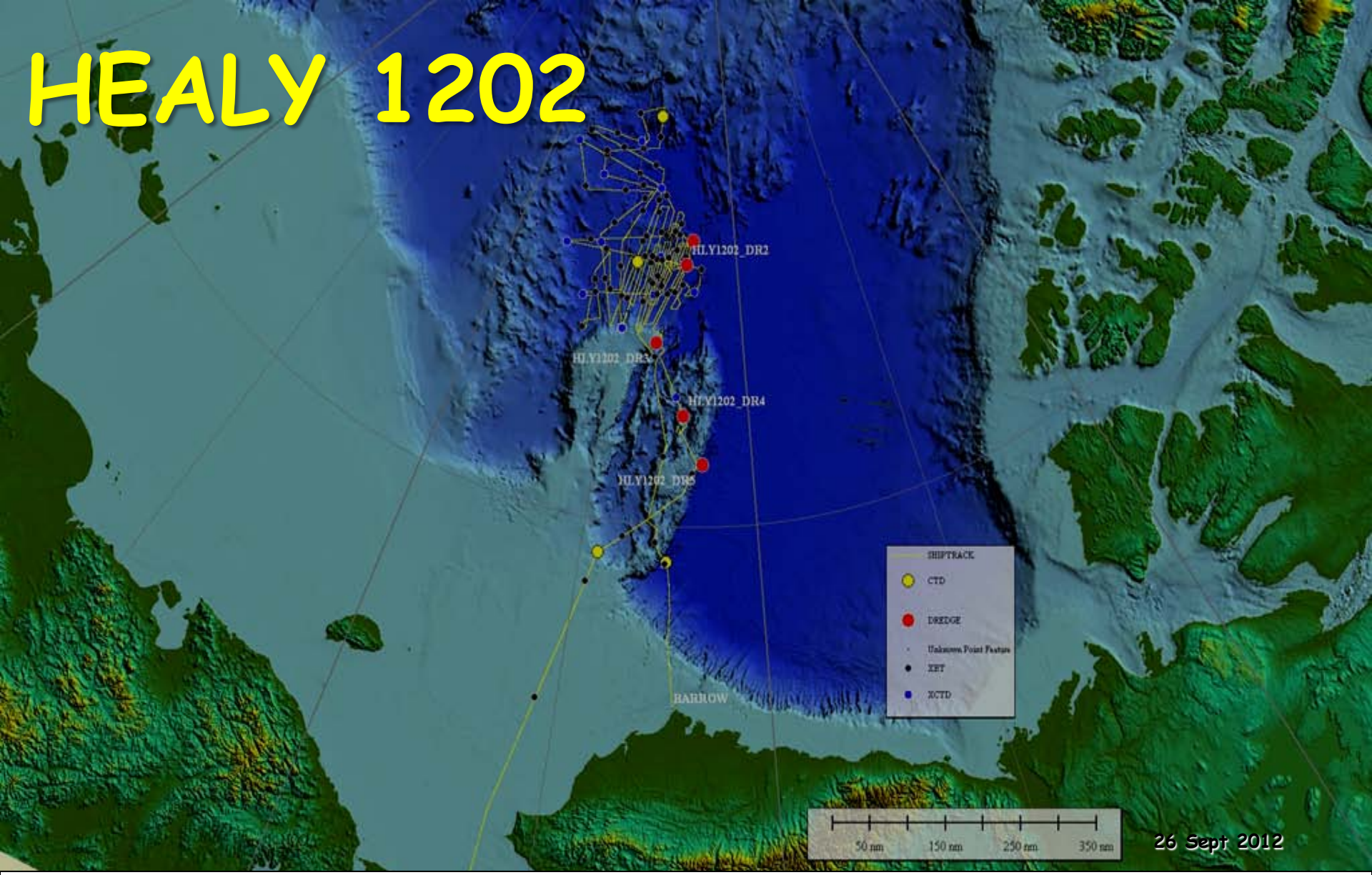
HEALY 1202



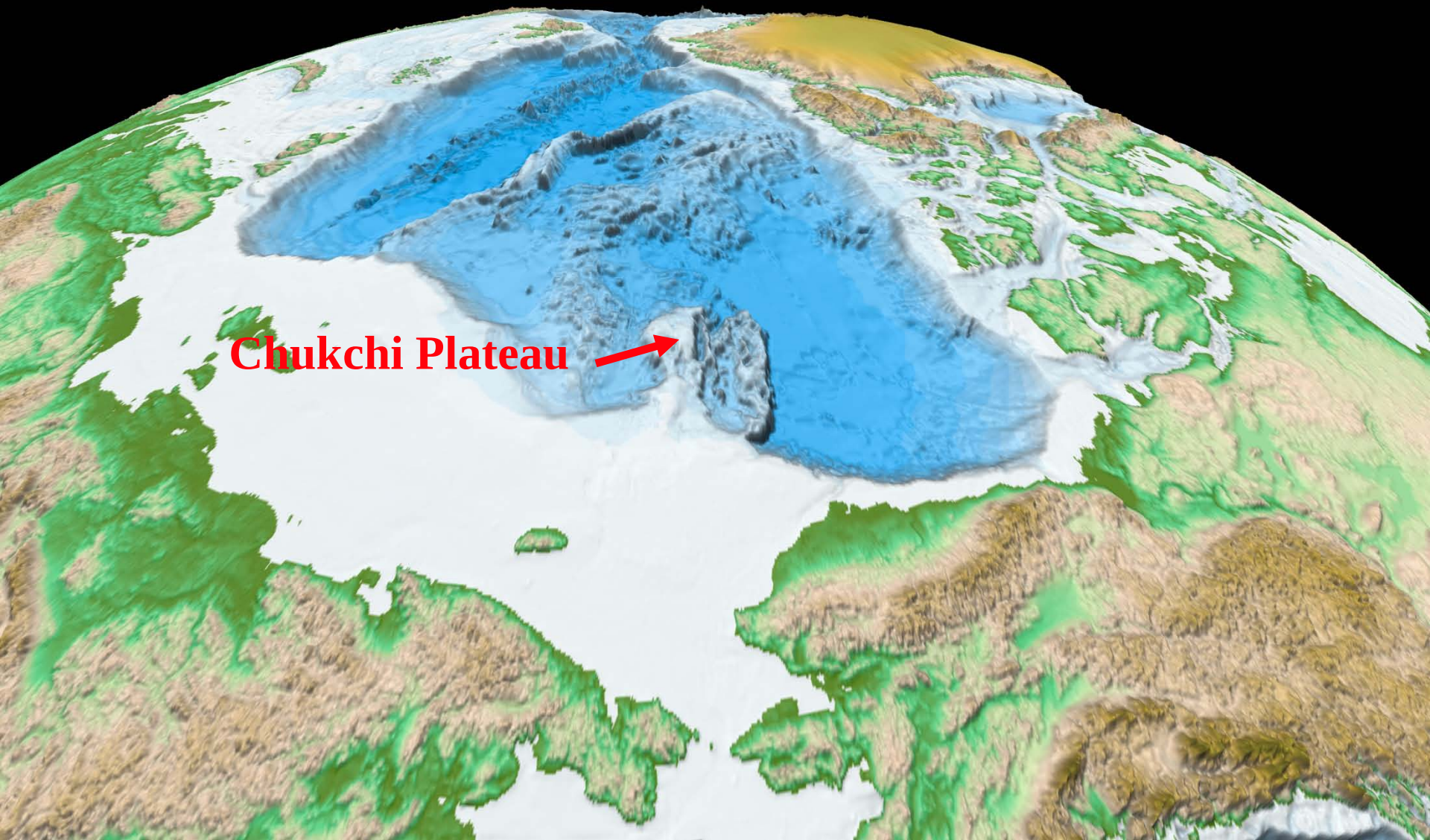
CCOM JHC
Center for Coastal & Ocean Mapping
Joint Hydrographic Center
University of New Hampshire

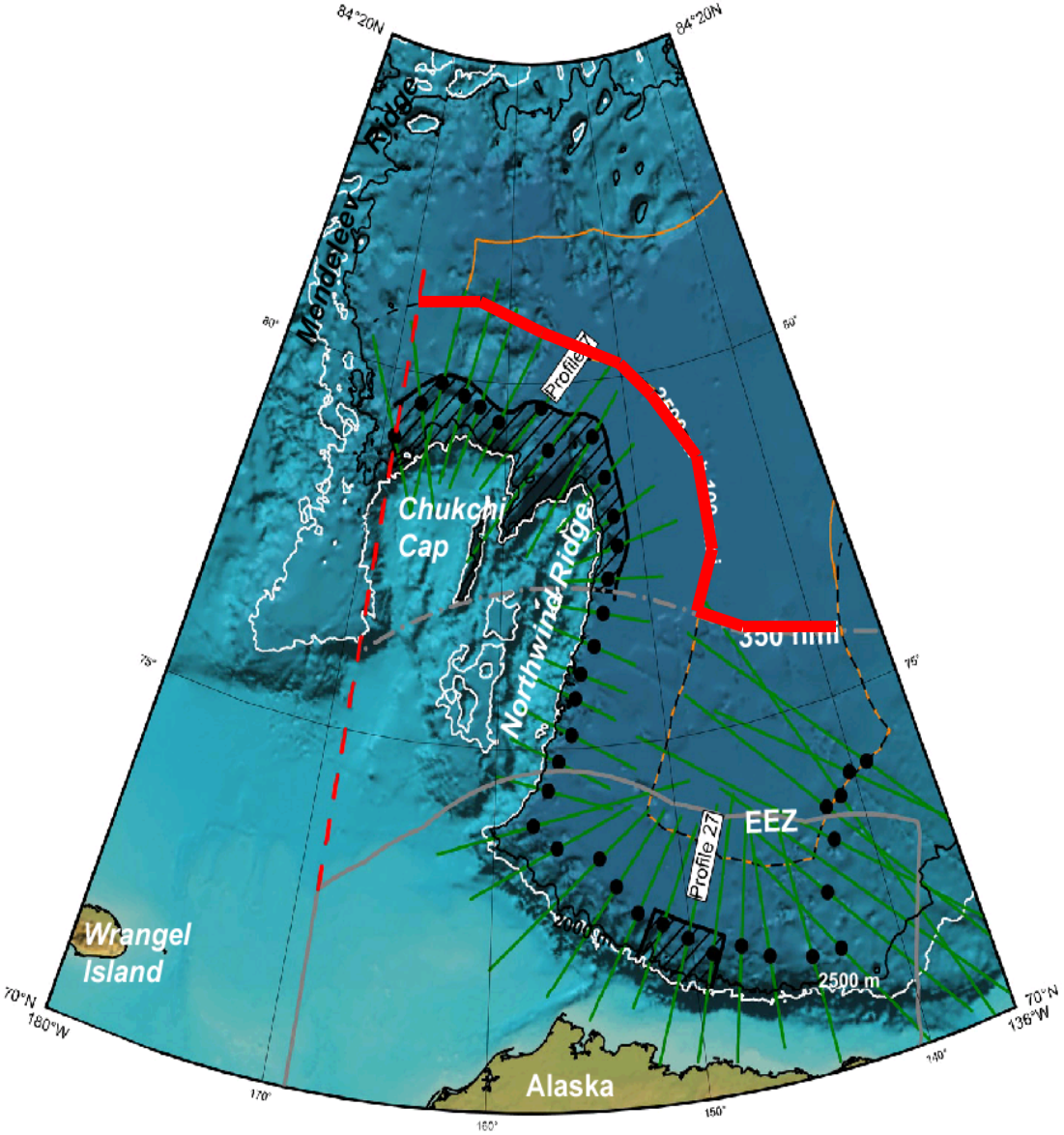
U.S. Extended Continental Shelf Project

USGS science for a changing world

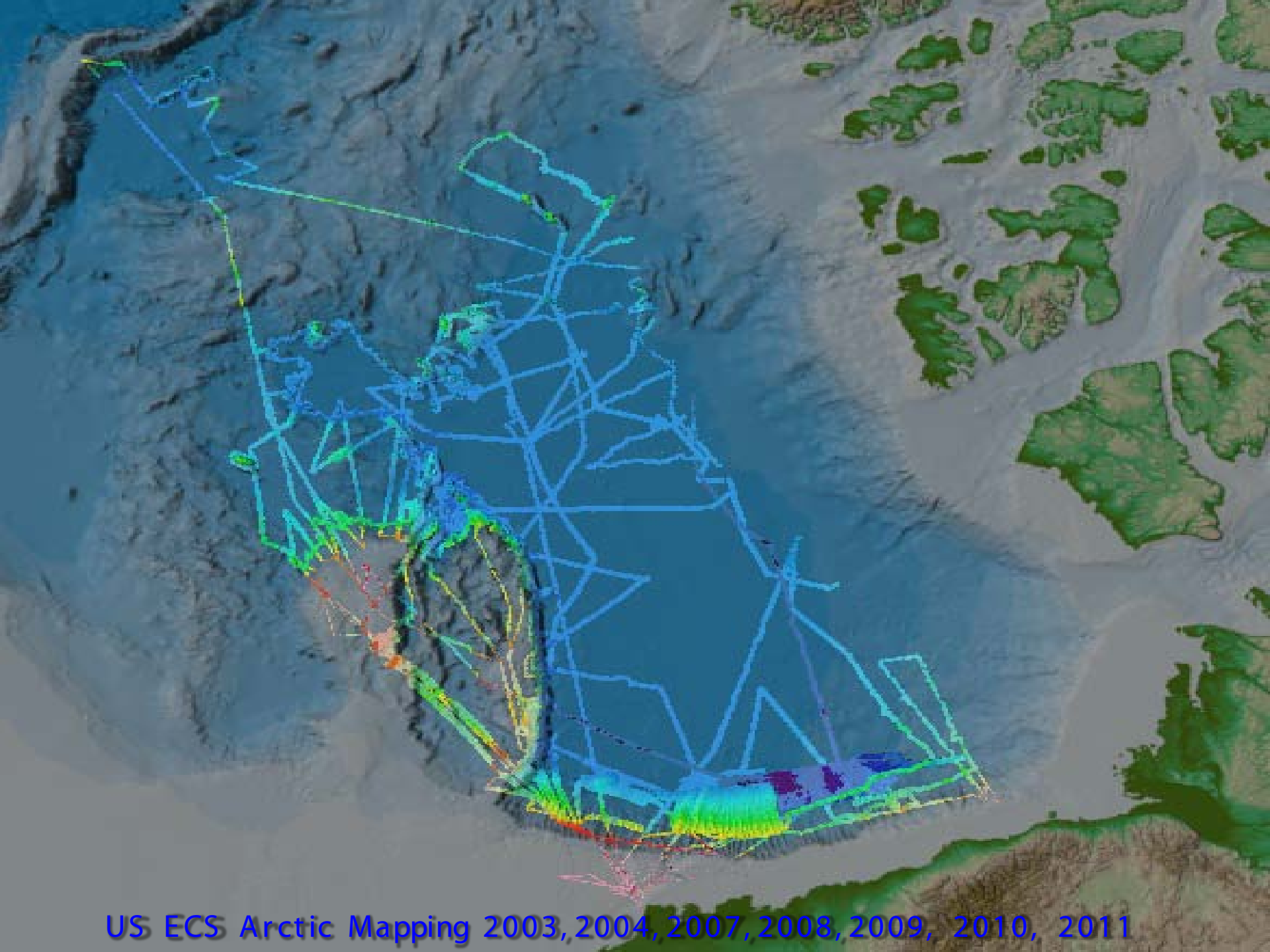
NOAA
National Oceanic and Atmospheric Administration
U.S. Department of Commerce

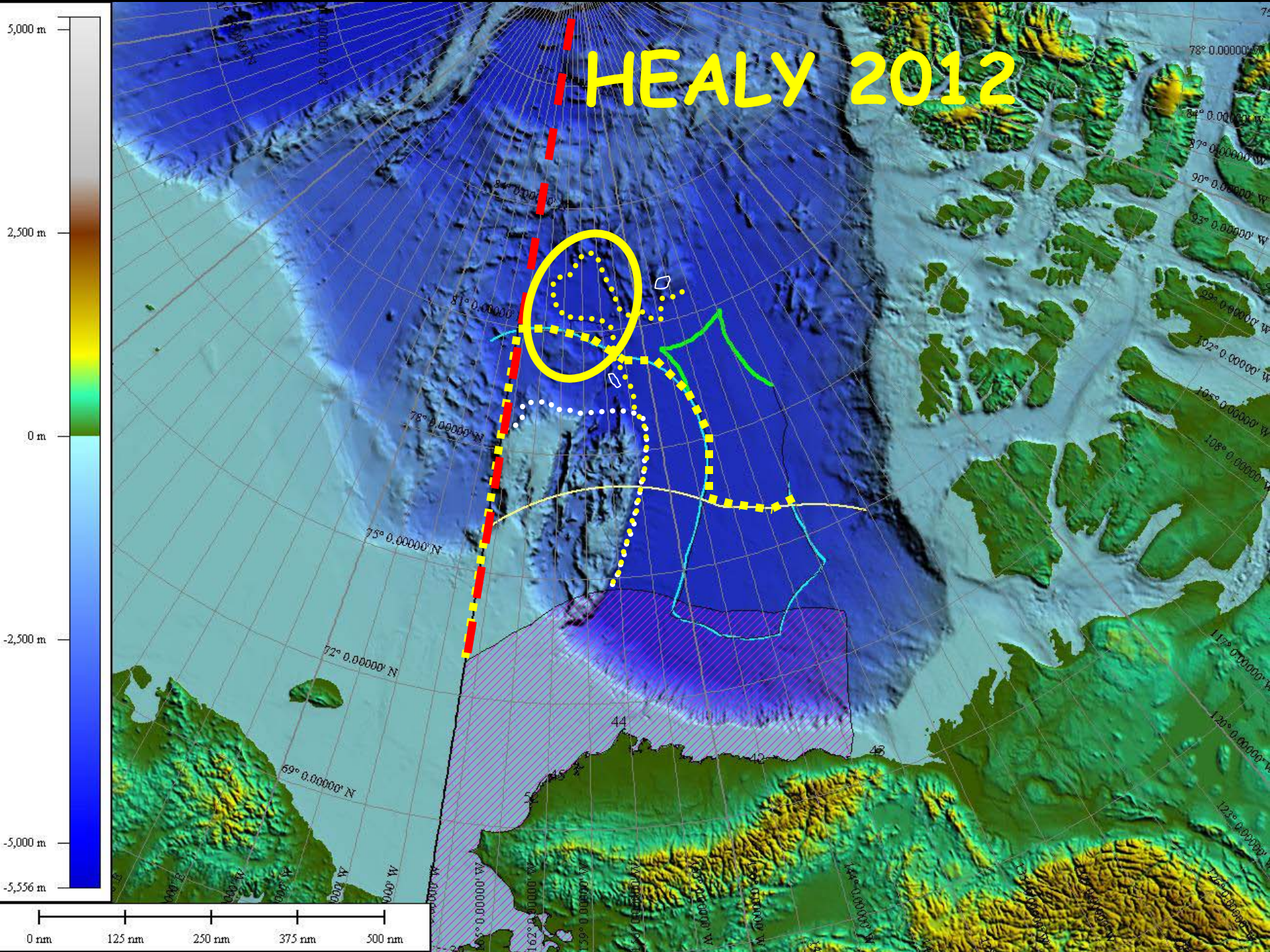
Chukchi Region and Barrow Margin



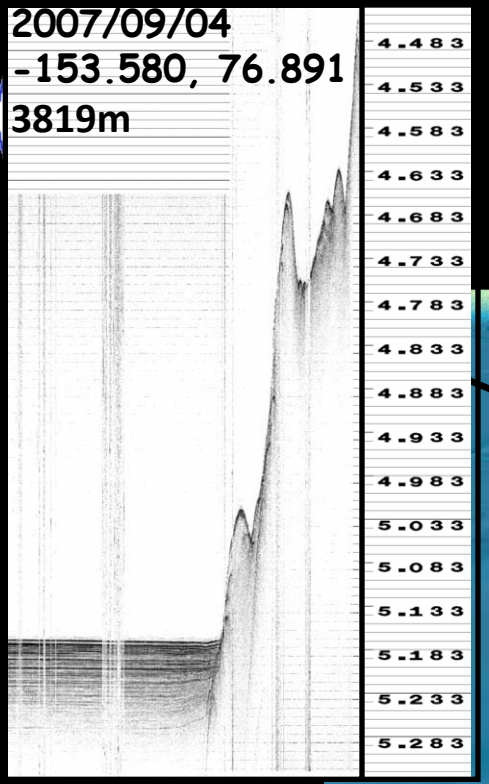


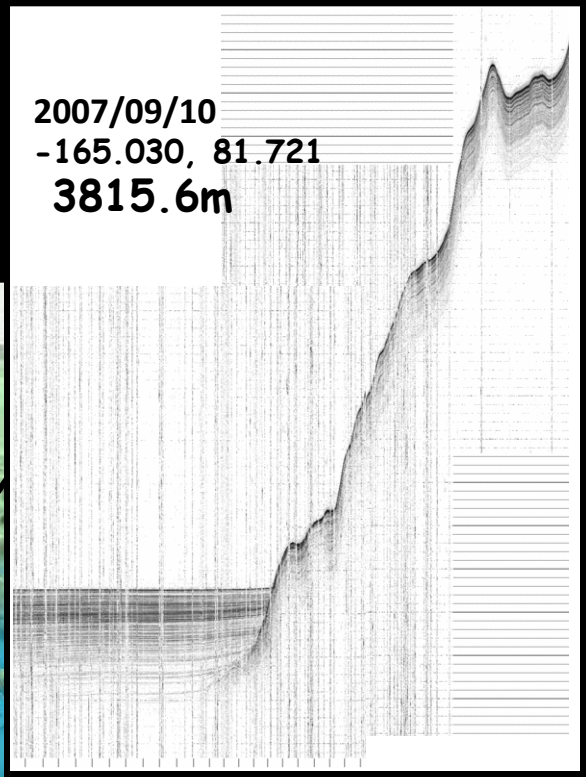
5.10B. Bathymetry from IBCAO in detailed area ARC, drawn bathymetric profiles, and possible locations of the FOS. Labeled profile is shown in figure 5.11. Note that the orange line, which represents the 2500 m + 100 nm, makes use of the 2500 m contour of the Alpha-Mendeleev Ridge as well as the Canadian shelf.

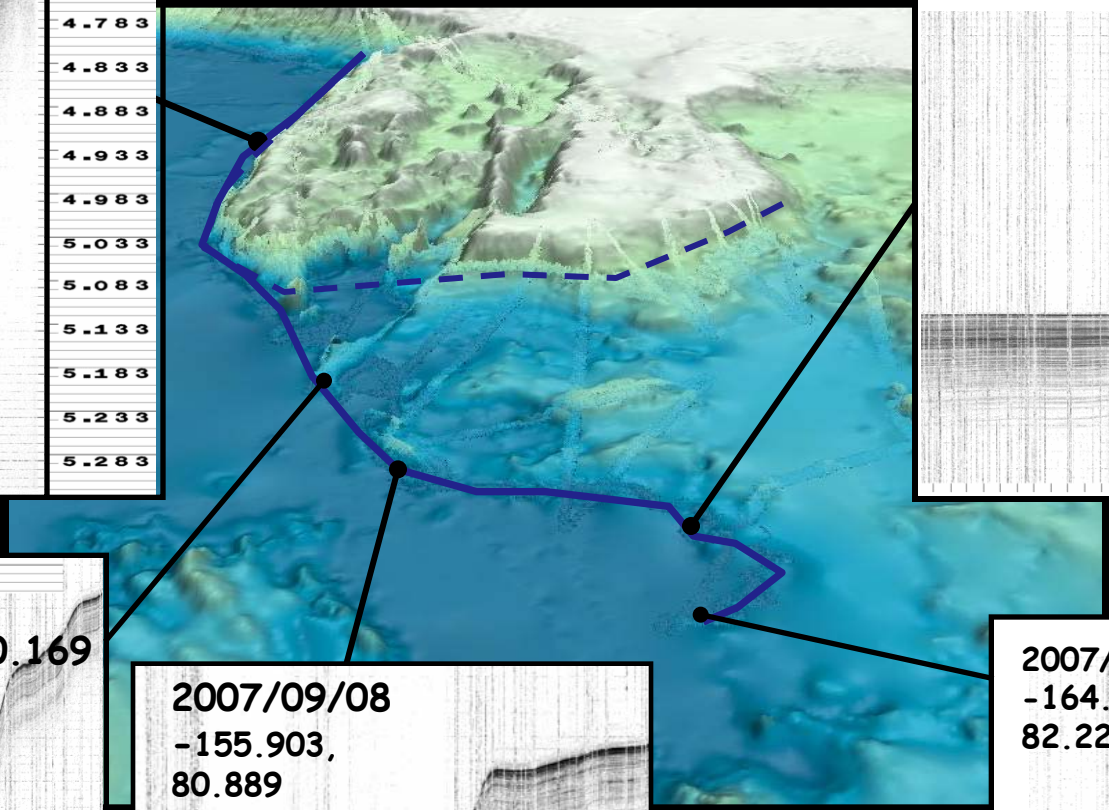

US ECS Arctic Mapping 2003, 2004, 2007, 2008, 2009, 2010, 2011

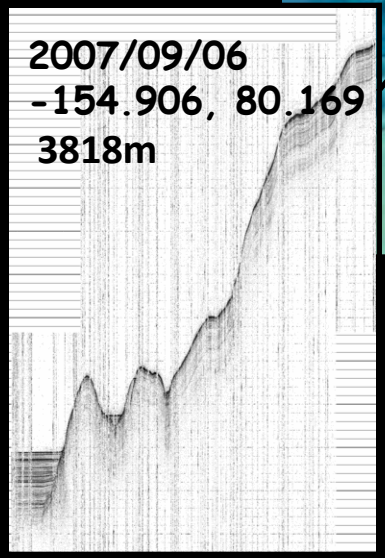

HEALY 2012
5,000 m
2,500 m
0 m
-2,500 m
-5,000 m
-5,556 m
0 nm
125 nm
250 nm
375 nm
500 nm

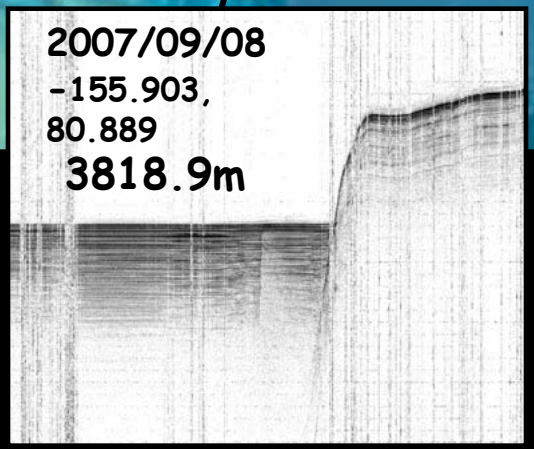
The "Foot of the Slope"

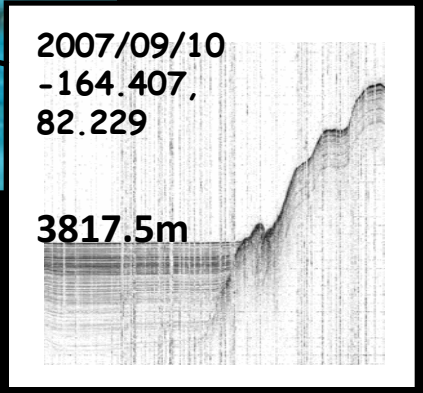




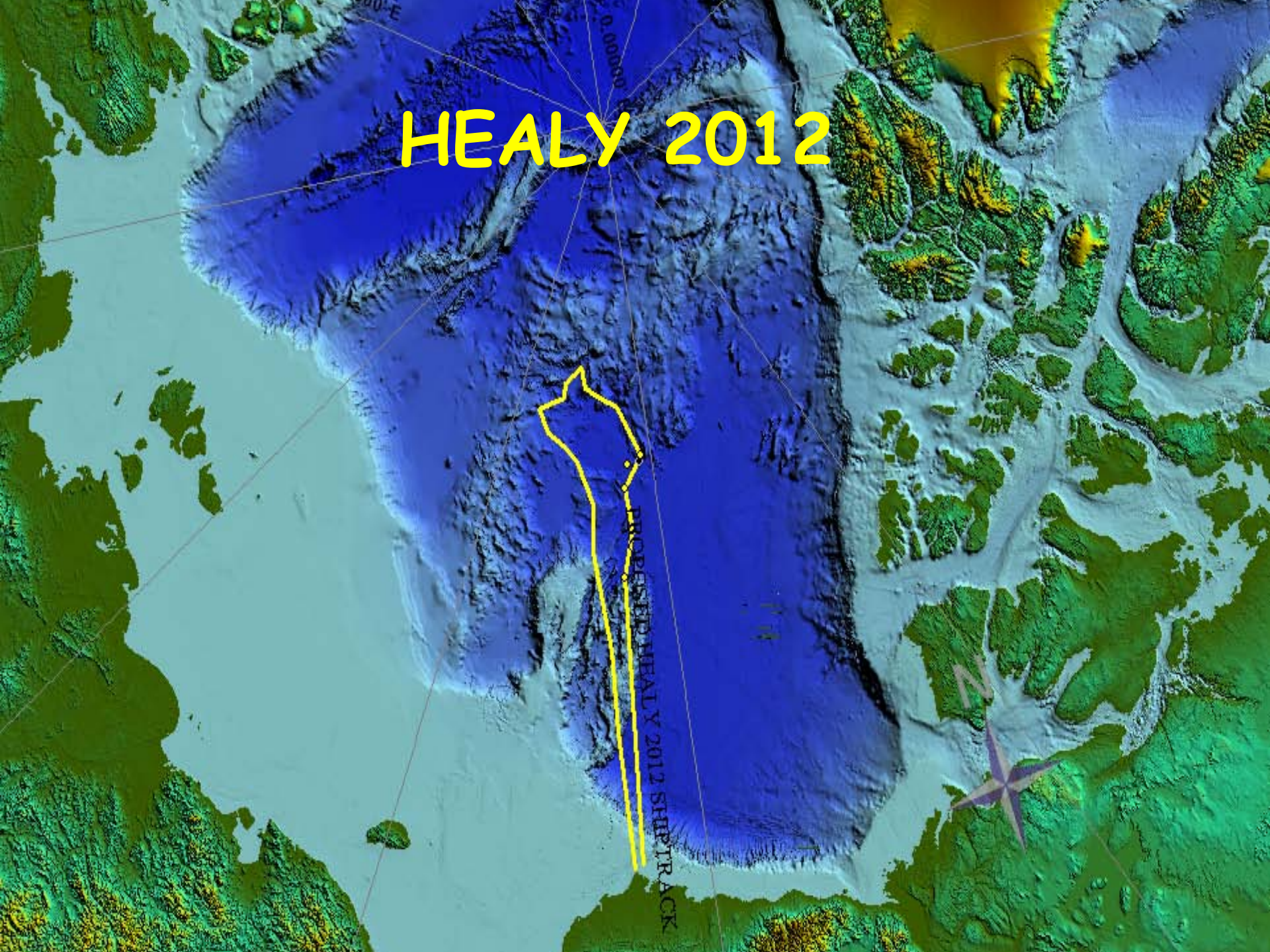






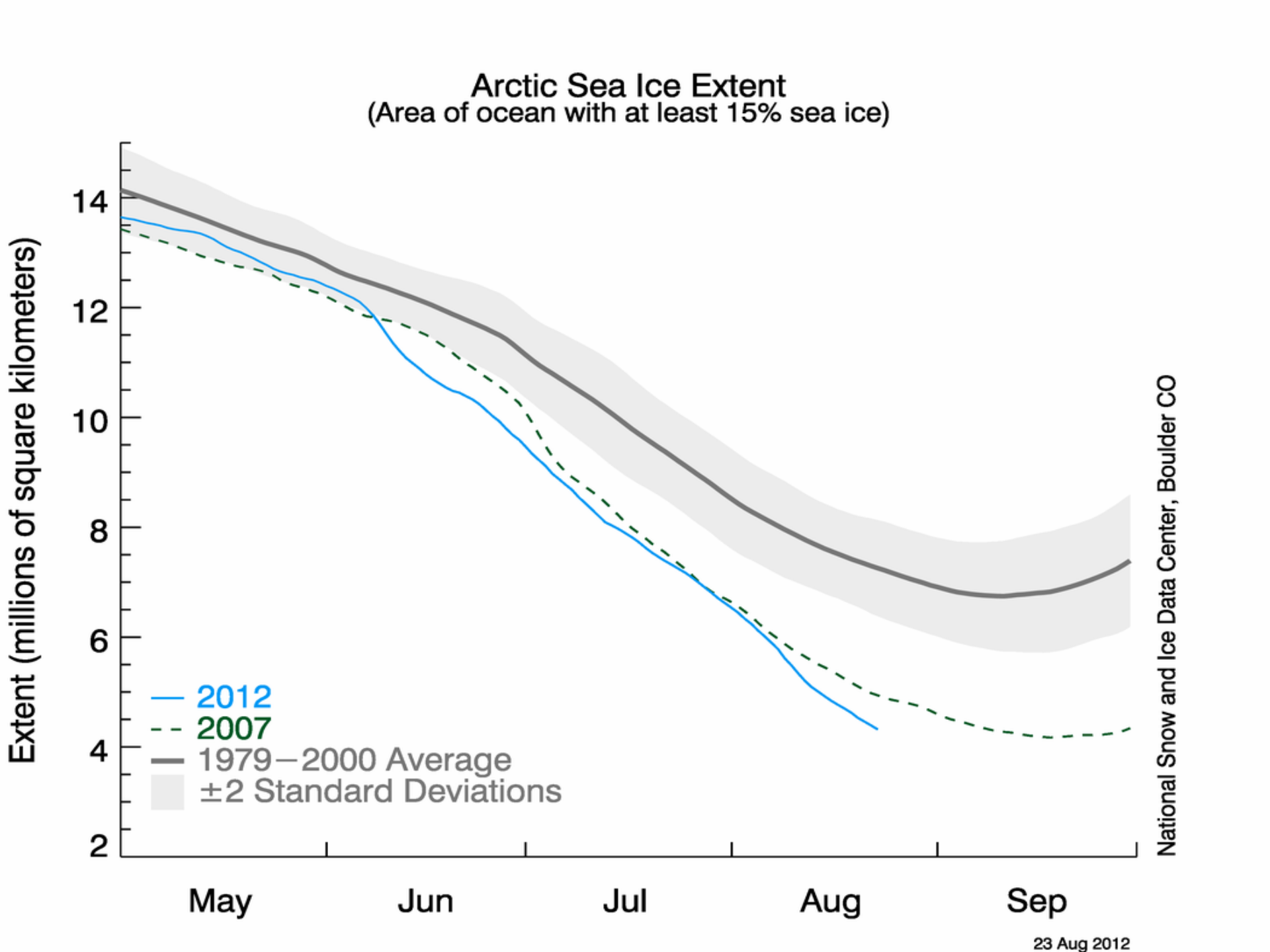


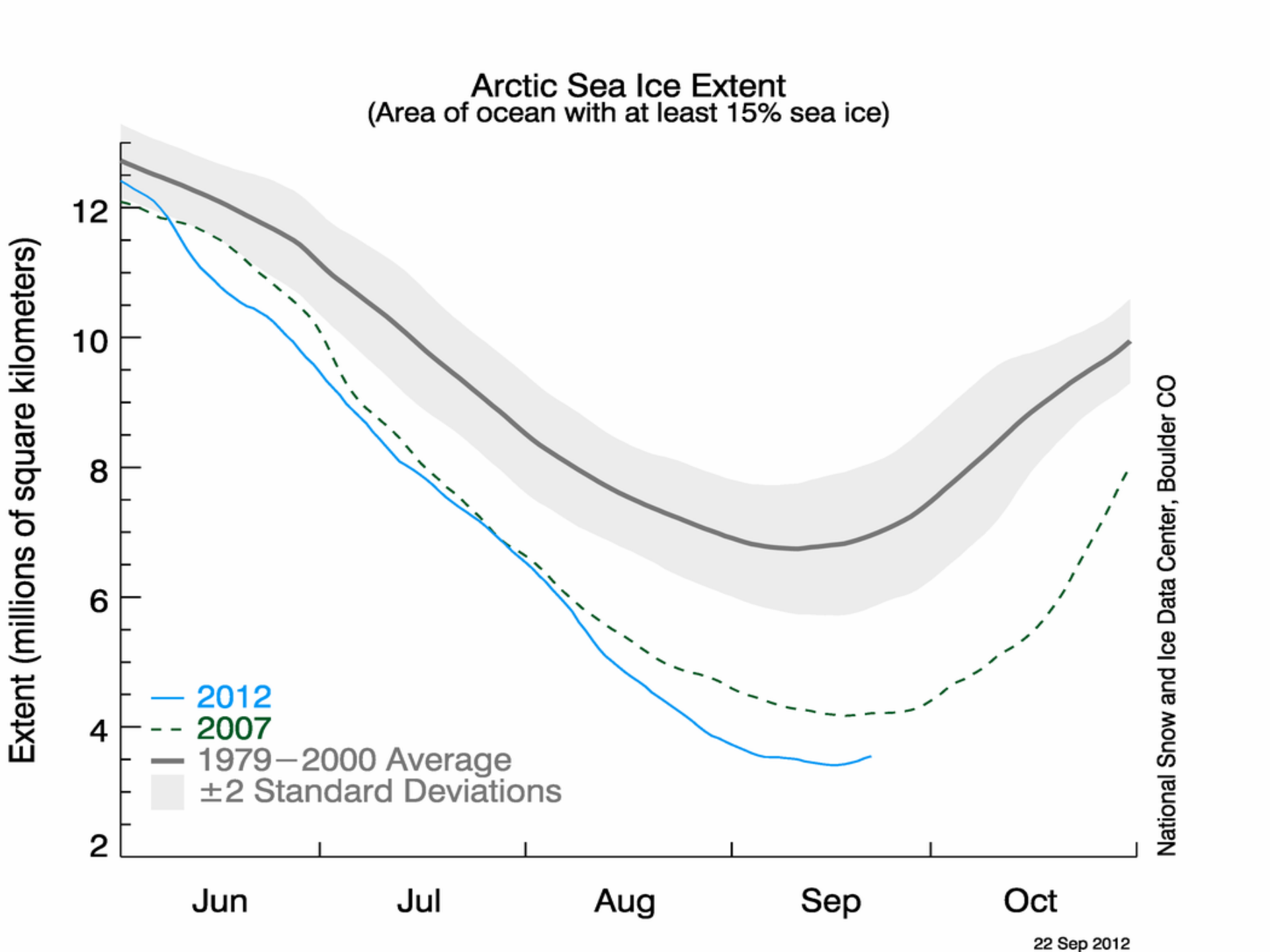
(From Brumley, 2009)


HEALY 2012
PROPOSED HEALY 2012 SHIPTRACK
N

Ancillary Projects

- Ice Buoys– Pablo, Chad,Behnjamin
- Ice Observations – historic vs new – Matt
- GeoCamera - Roland
- MMO – Mabel
- Ocean Acidification – Lisa, Jon Wynne, Paul, Bogdan, Kate
- Dredging,Samples – Dale, Kelley, Kate
- Gravity – Bernie, Ashton


Arctic Sea Ice Extent
(Area of ocean with at least 15% sea ice)
Extent (millions of square kilometers)
14
12
10
8
6
4
2
2012
2007
1979–2000 Average
±2 Standard Deviations
May
Jun
Jul
Aug
Sep
National Snow and Ice Data Center, Boulder CO
23 Aug 2012


Arctic Sea Ice Extent
(Area of ocean with at least 15% sea ice)
Extent (millions of square kilometers)
12
10
8
6
4
2
2012
2007
1979–2000 Average
±2 Standard Deviations
Jun
Jul
Aug
Sep
Oct
National Snow and Ice Data Center, Boulder CO
22 Sep 2012

Long/Lat.: -156.072055 W, 80.293353 N

2007 (9-6-2007)

Long/Lat.: -156.072055 W, 80.293353 N

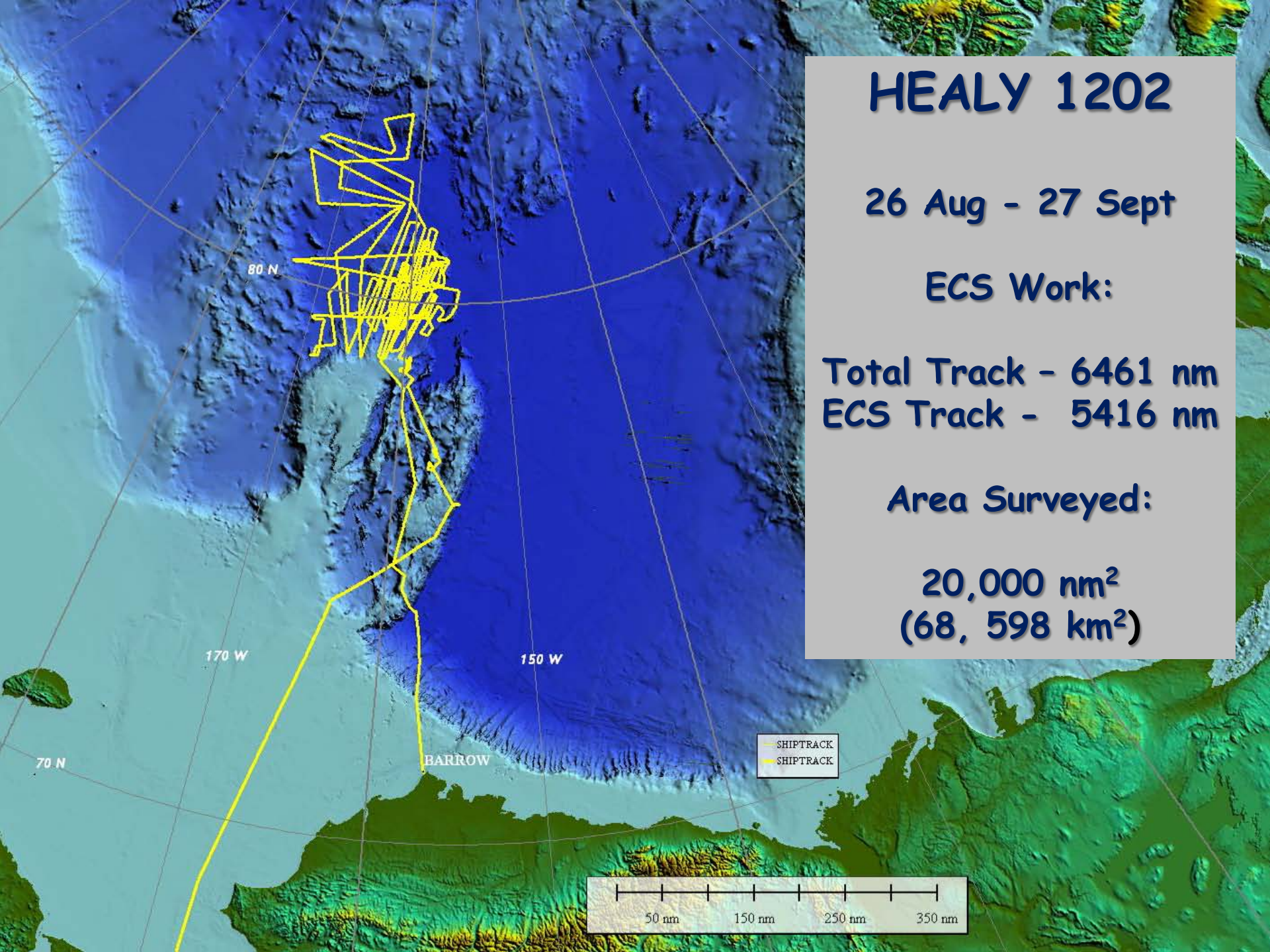
2012 (9-12-2012)

Long/Lat.: -156.580587 W, 79.911450 N

2007 (9- 7- 2007)

Long/Lat.: -156.580587 W, 79.911450 N

2012 (9-12-2012)



HEALY 1202

26 Aug - 27 Sept

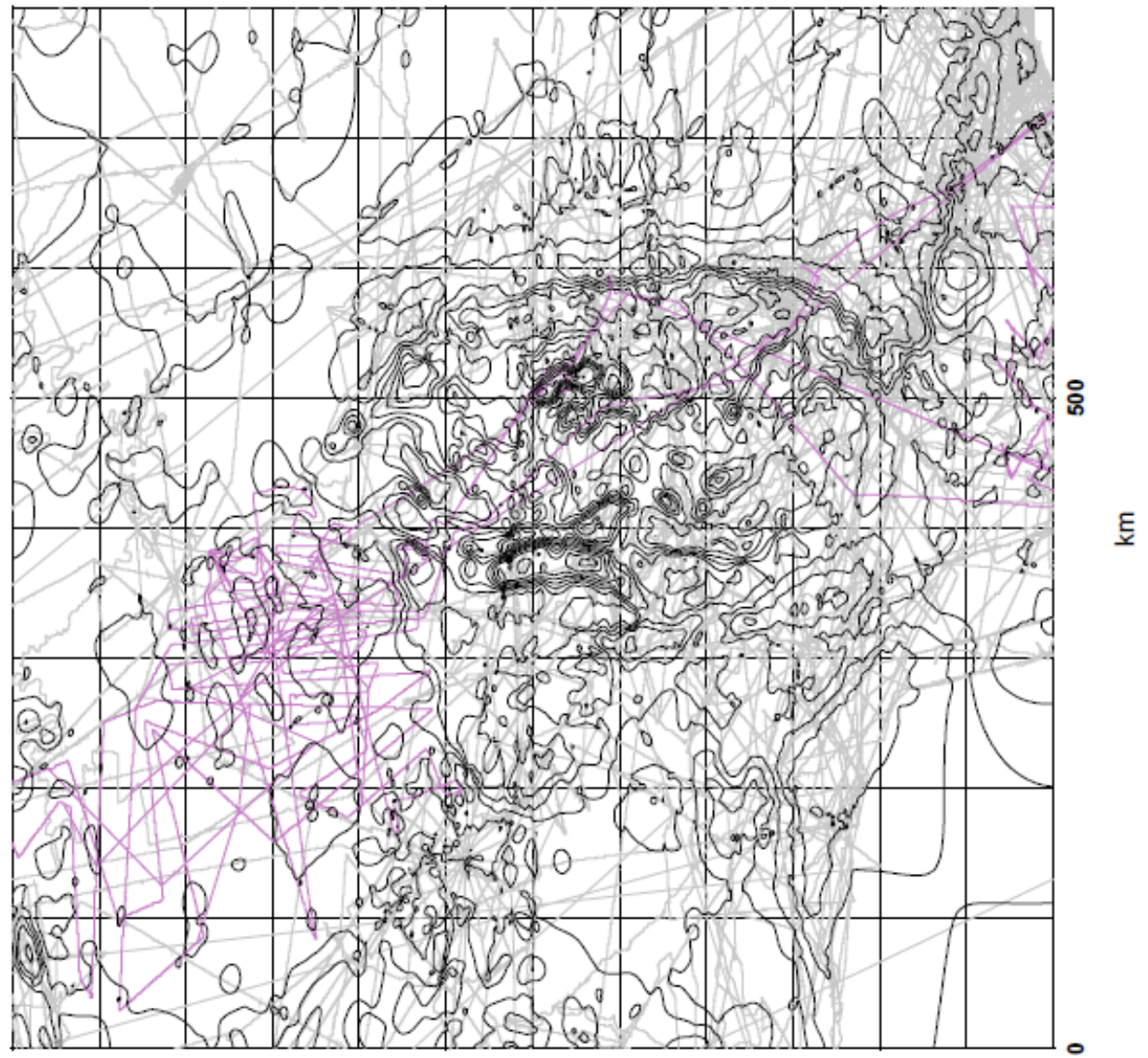
ECS Work:

Total Track – 6461 nm
ECS Track - 5416 nm

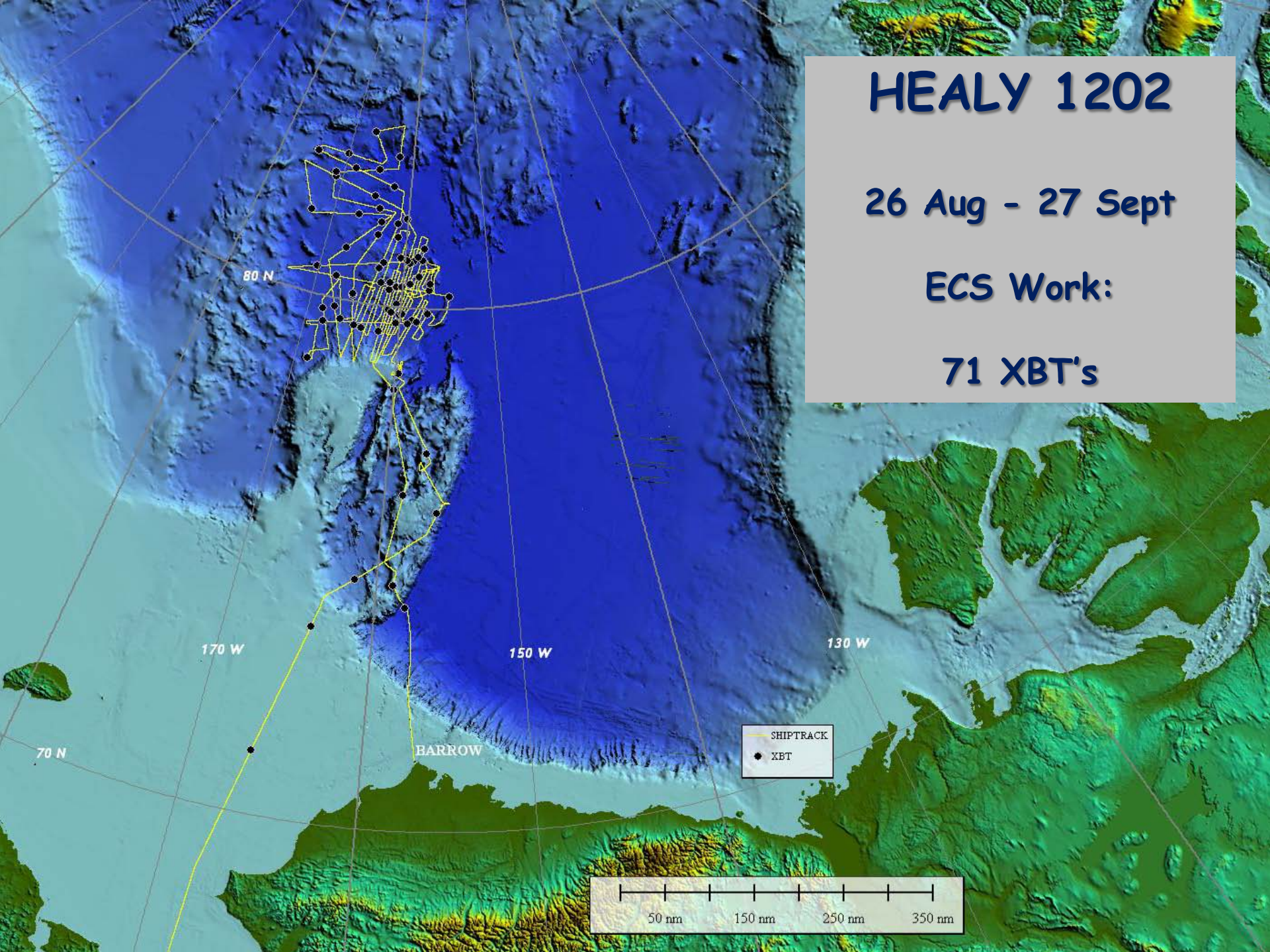
Area Surveyed:

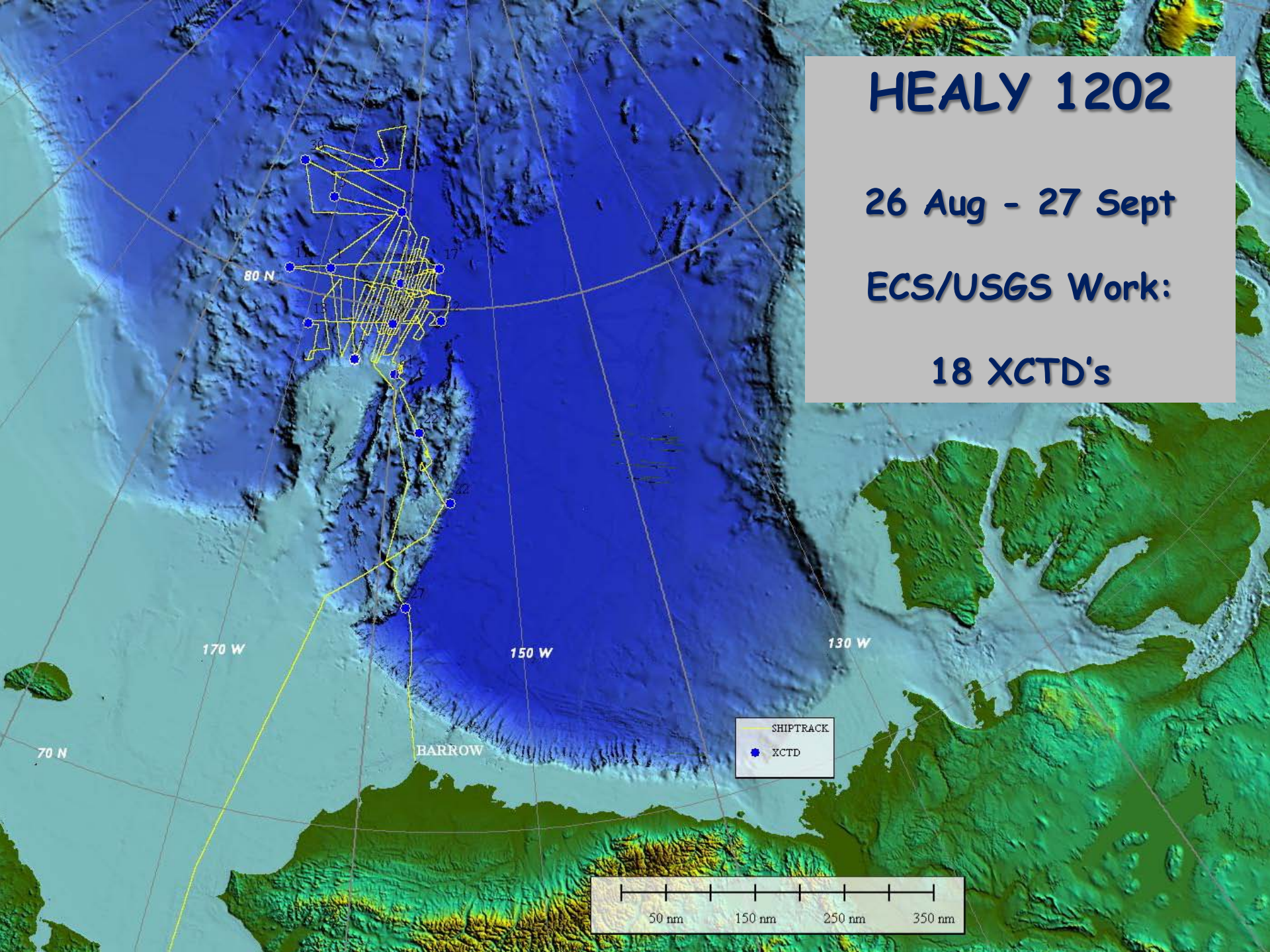
20,000 nm^2
(68, 598 km^2)

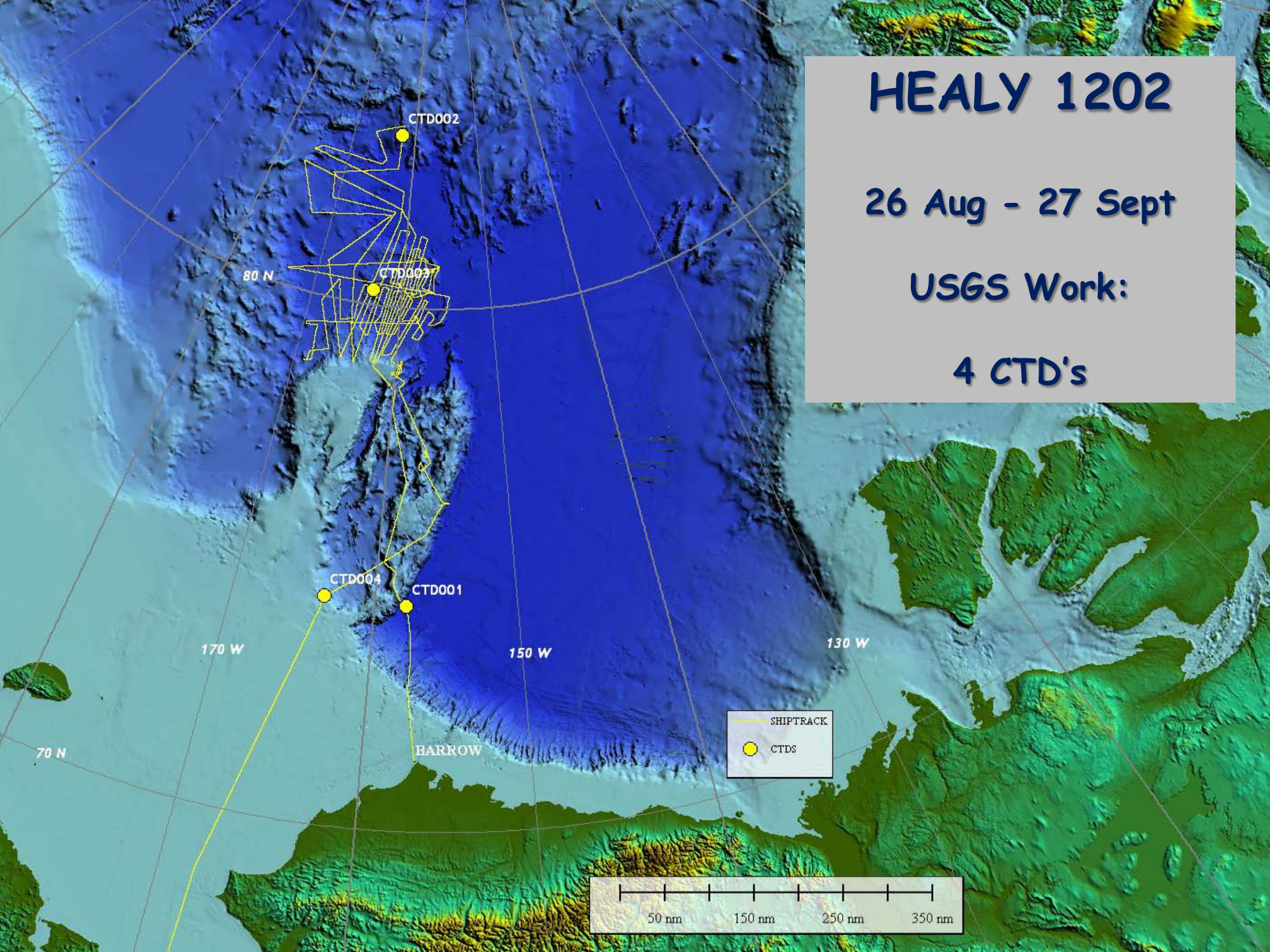
Gravity - Bernie

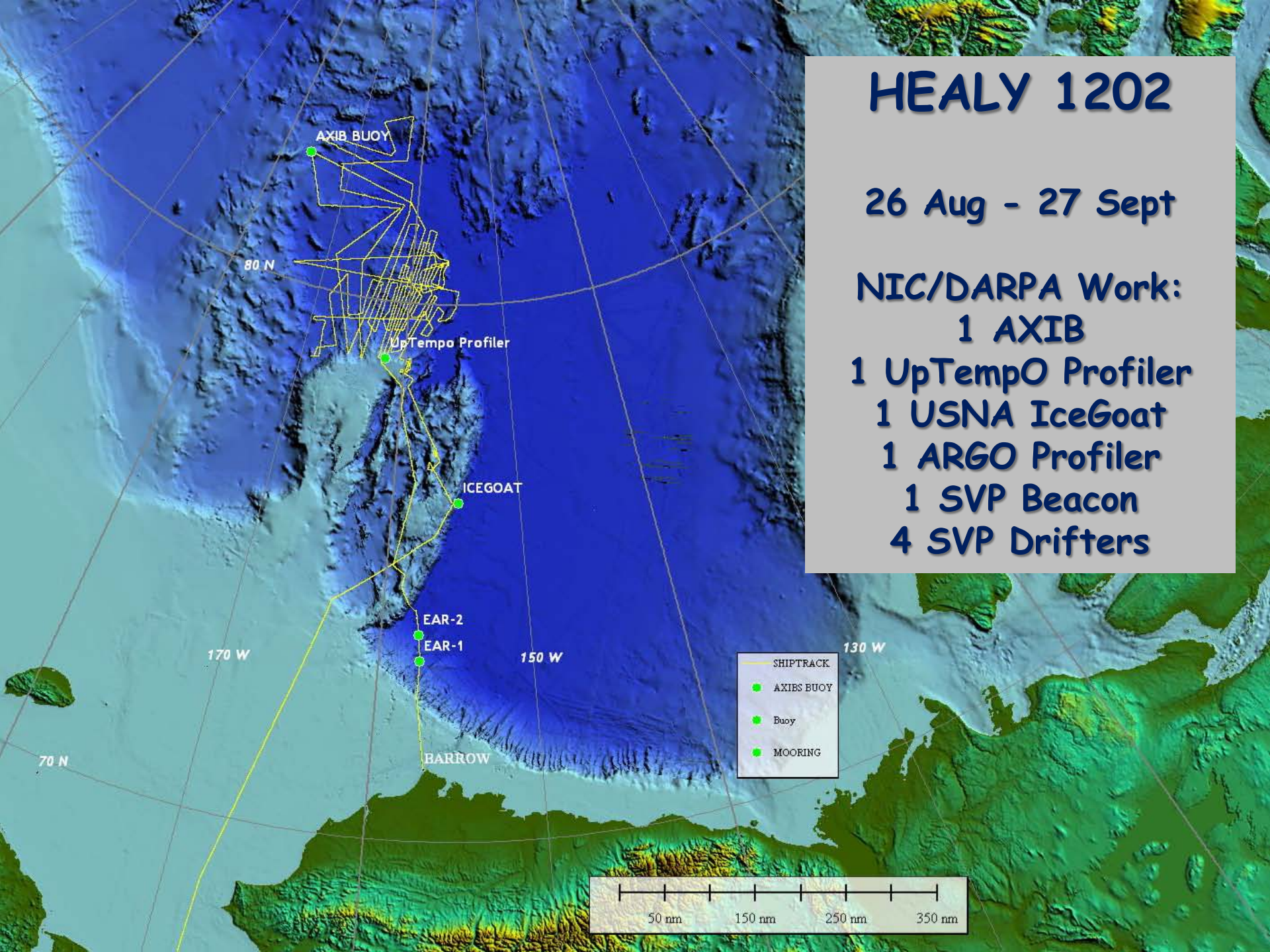


70 N


HEALY 1202
26 Aug - 27 Sept
ECS Work:
71 XBT's
80 N
170 W
150 W
130 W
70 N
BARROW
SHIPTRACK
XBT
50 nm
150 nm
250 nm
350 nm


HEALY 1202
26 Aug - 27 Sept
ECS/USGS Work:
18 XCTD's
80 N
70 N
170 W
150 W
130 W
BARROW
SHIPTRACK
XCTD
50 nm
150 nm
250 nm
350 nm


HEALY 1202
26 Aug - 27 Sept
USGS Work:
4 CTD's
CTD002
CTD003
CTD004
CTD001
80 N
70 N
170 W
150 W
130 W
BARROW
SHIPTRACK
CTDS
50 nm
150 nm
250 nm
350 nm

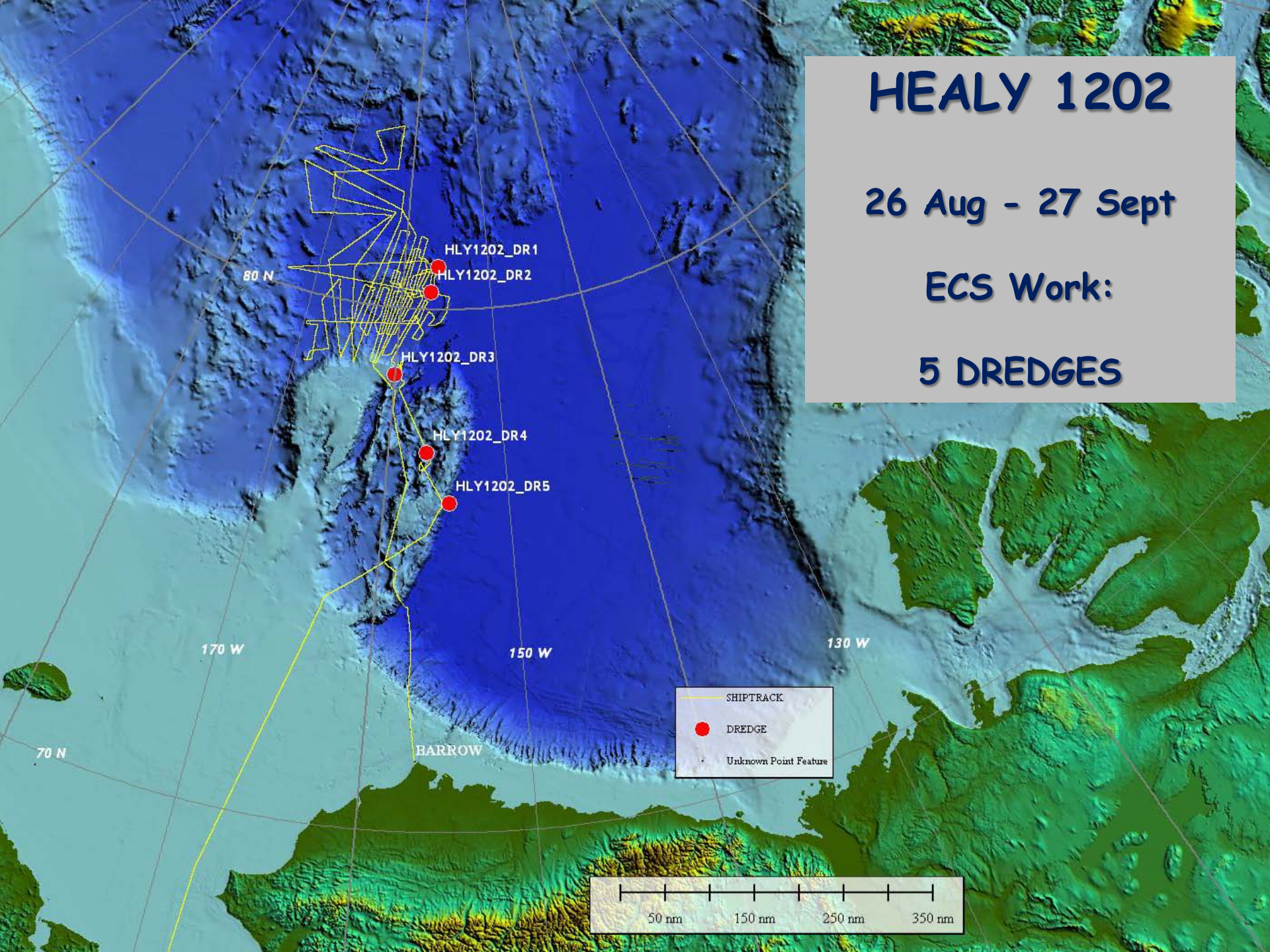


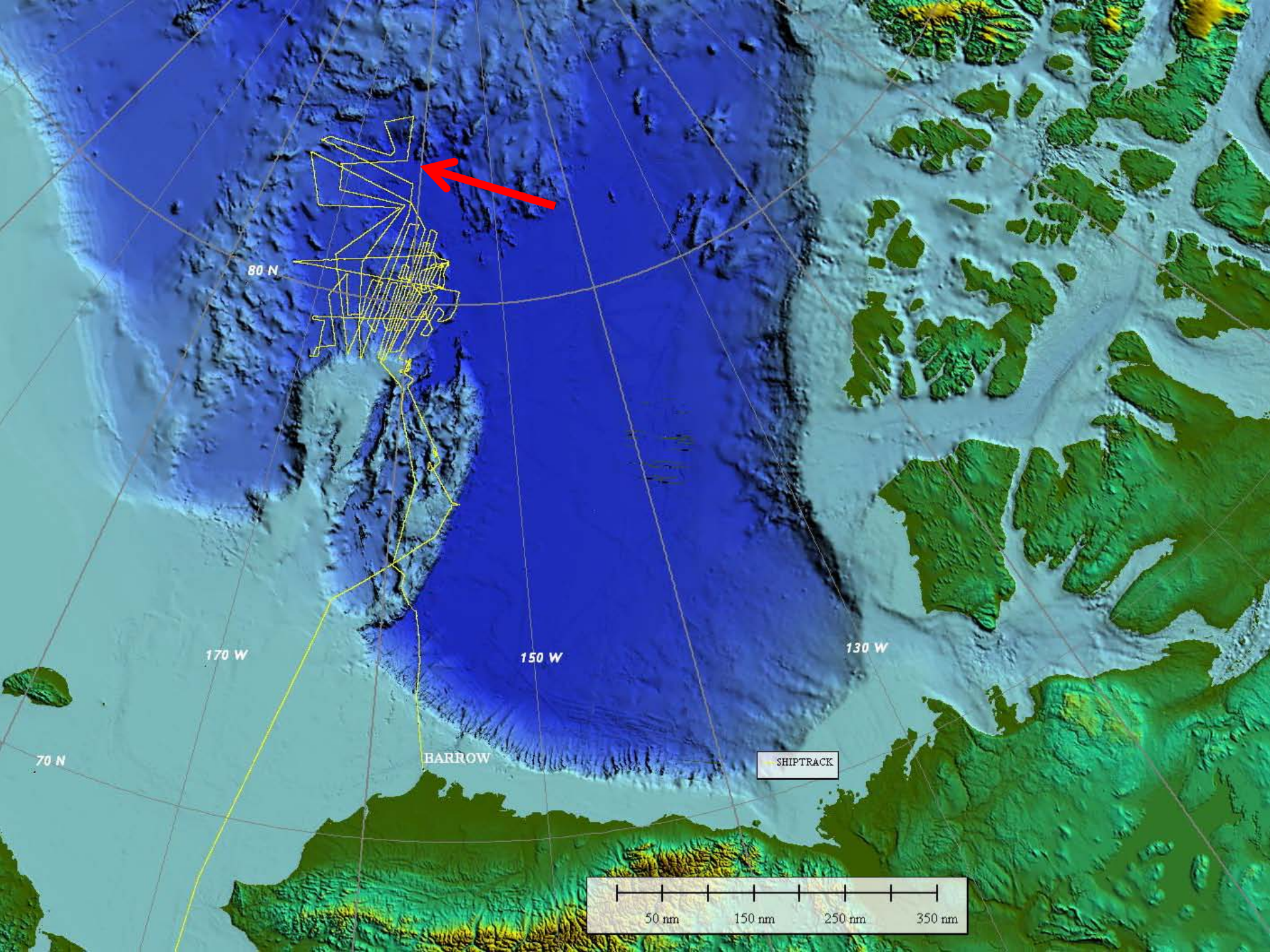
HEALY 1202

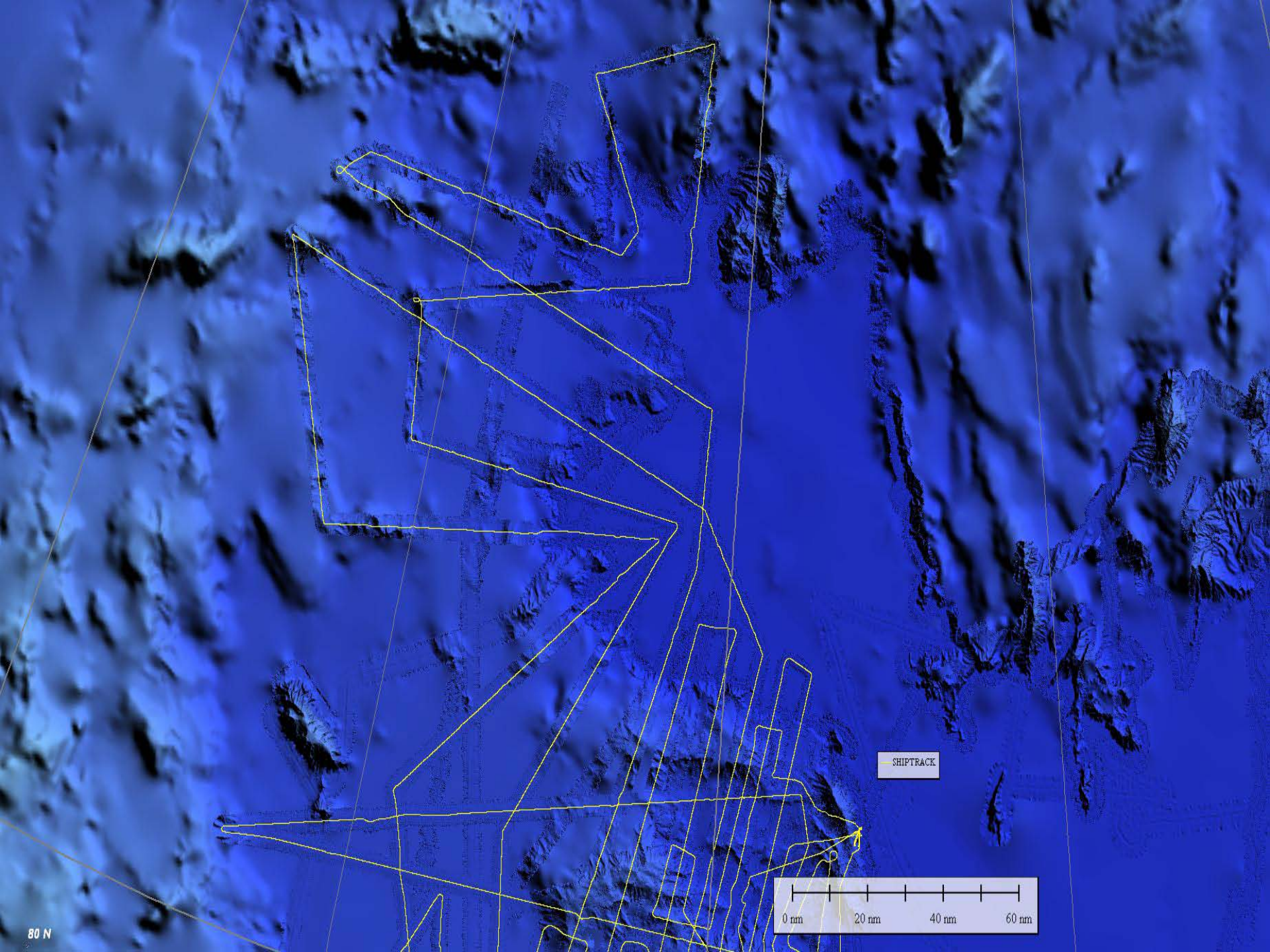
26 Aug - 27 Sept

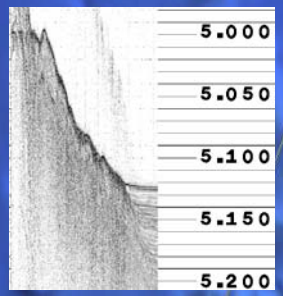
NIC/DARPA Work:

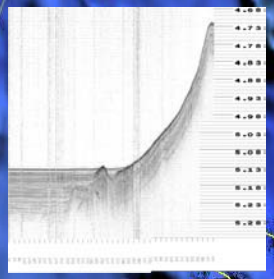
1 AXIB
1 UpTempO Profiler
1 USNA IceGoat
1 ARGO Profiler
1 SVP Beacon
4 SVP Drifters

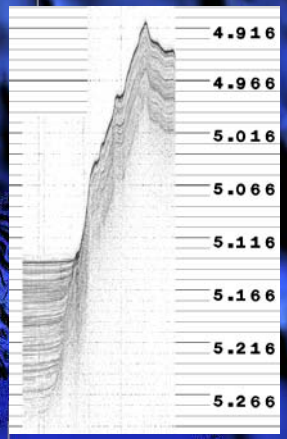

HEALY 1202
26 Aug - 27 Sept
ECS Work:
5 DREDGES
HLY1202_DR1
HLY1202_DR2
HLY1202_DR3
HLY1202_DR4
HLY1202_DR5
80 N
70 N
170 W
150 W
130 W
BARROW
SHIPTRACK
DREDGE
Unknown Point Feature
50 nm
150 nm
250 nm
350 nm

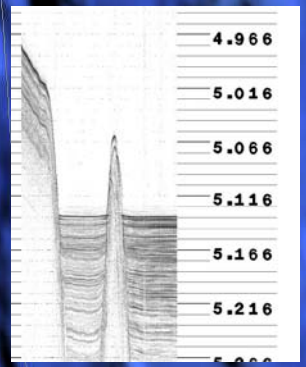

80 N
170 W
150 W
130 W
70 N
BARROW
SHIPTRACK
50 nm
150 nm
250 nm
350 nm

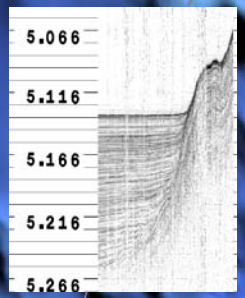

SHIPTRACK
0 nm
20 nm
40 nm
60 nm
80 N

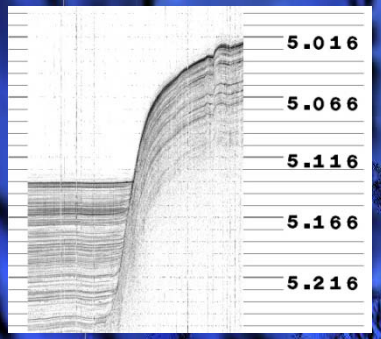

5.000
5.050
5.100
5.150
5.200

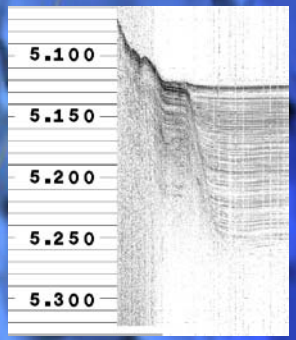


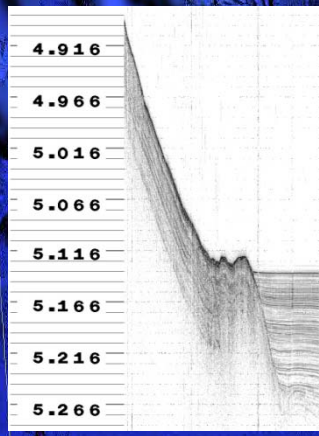

4.916
4.966
5.016
5.066
5.116
5.166
5.216
5.266

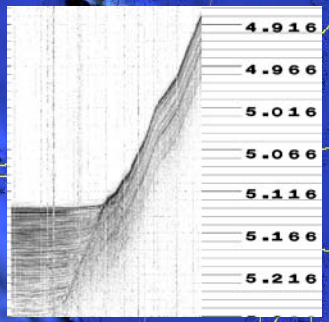

4.966
5.016
5.066
5.116
5.166
5.216

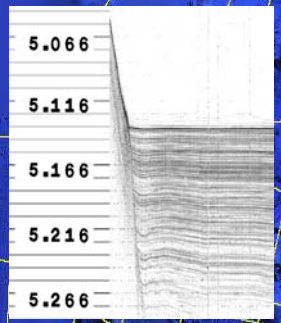

5.066
5.116
5.166
5.216
5.266

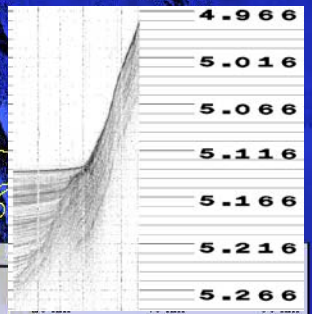

5.016
5.066
5.116
5.166
5.216


5.100
5.150
5.200
5.250
5.300


4.916
4.966
5.016
5.066
5.116
5.166
5.216
5.266

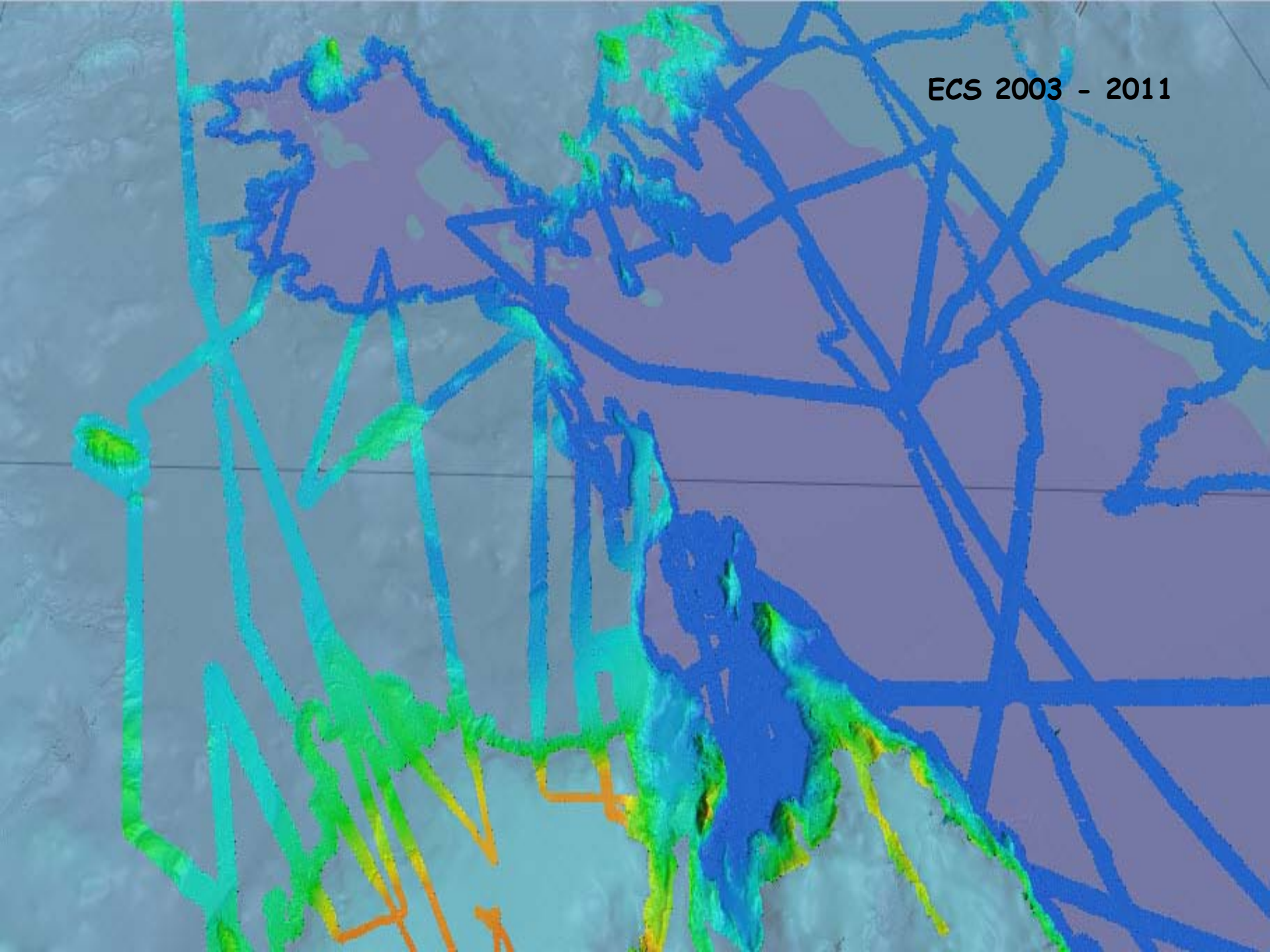

4.916
4.966
5.016
5.066
5.116
5.166
5.216

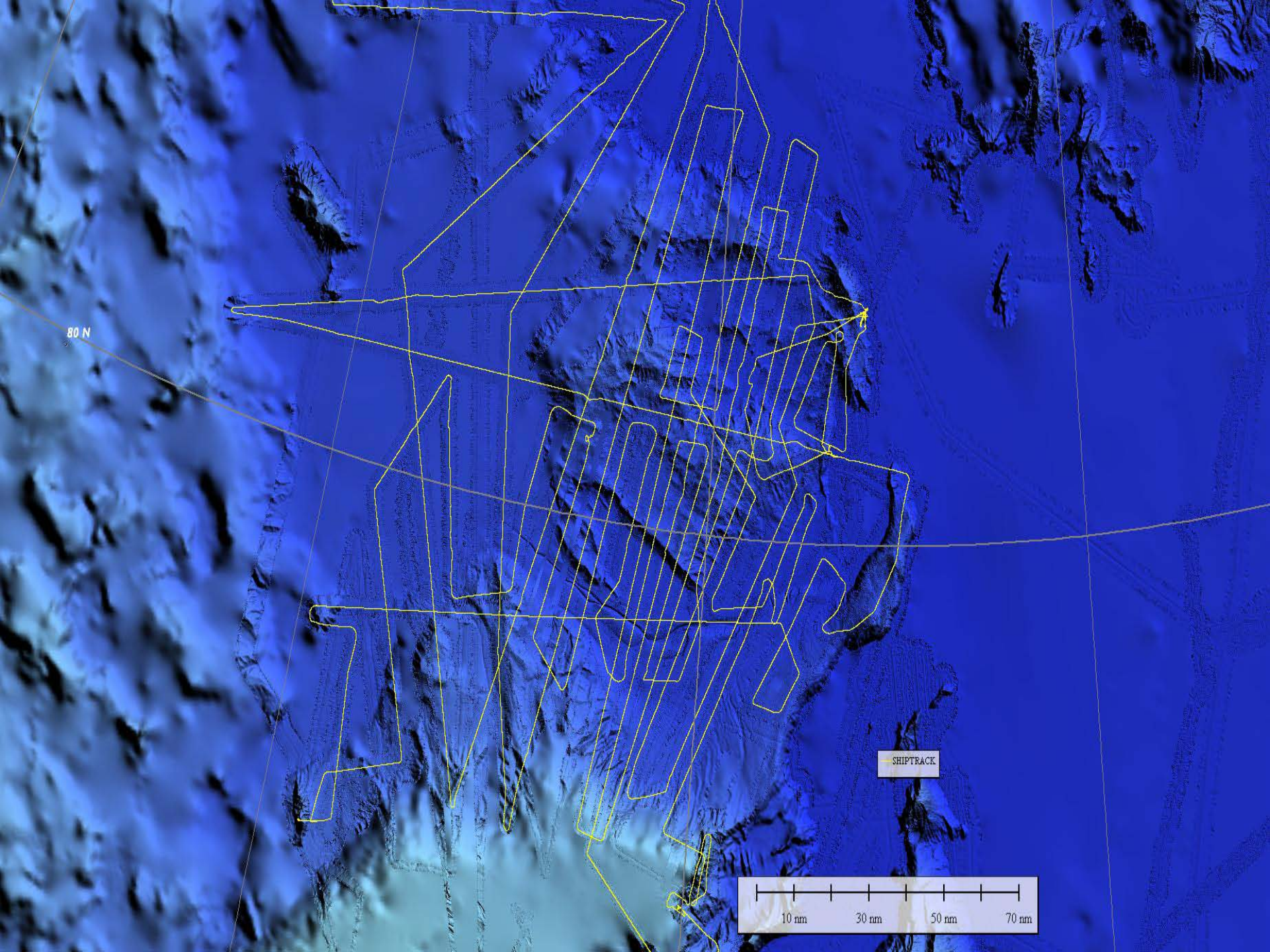

5.066
5.116
5.166
5.216
5.266

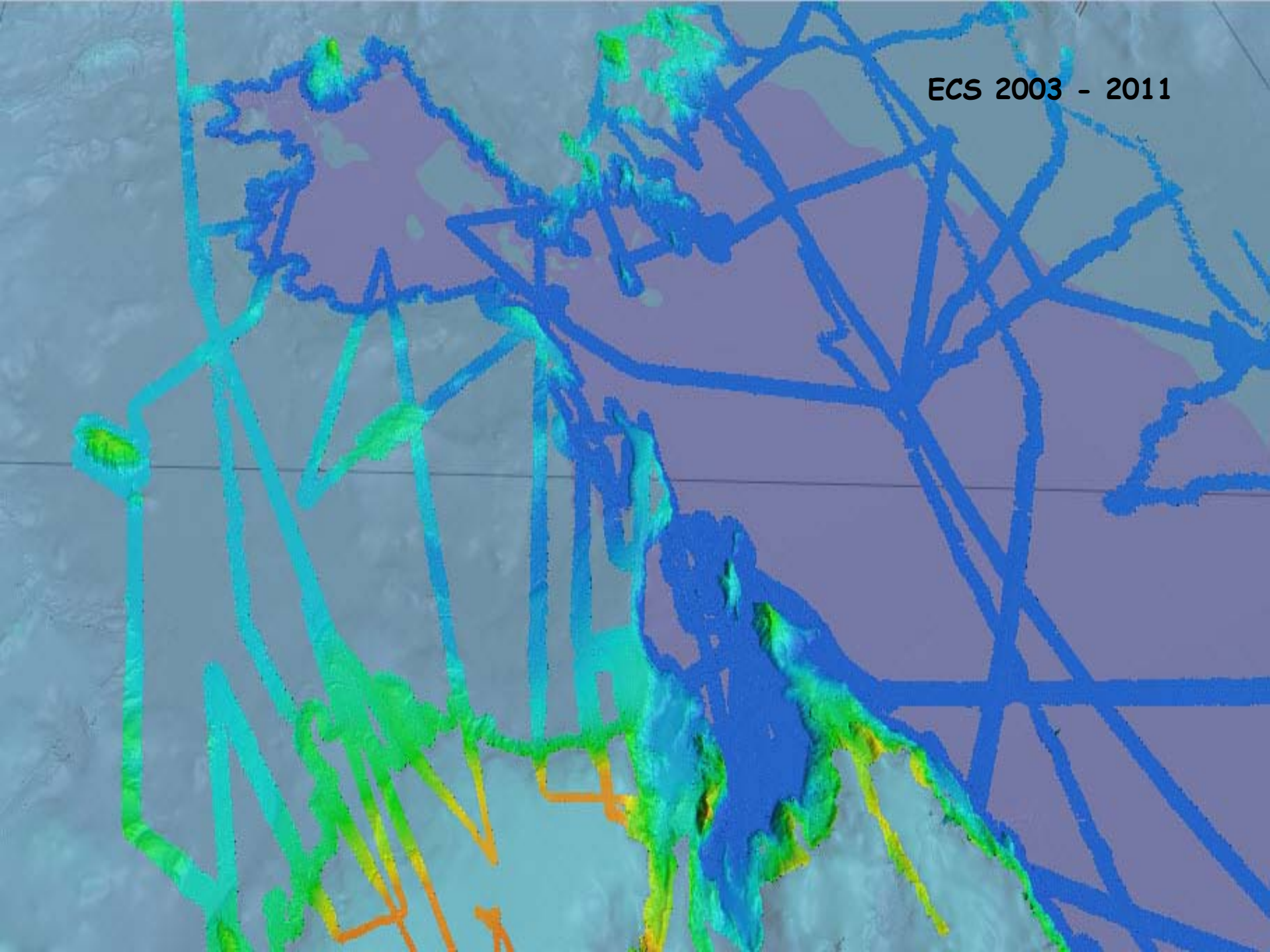

4.966
5.016
5.066
5.116
5.166
5.216
5.266

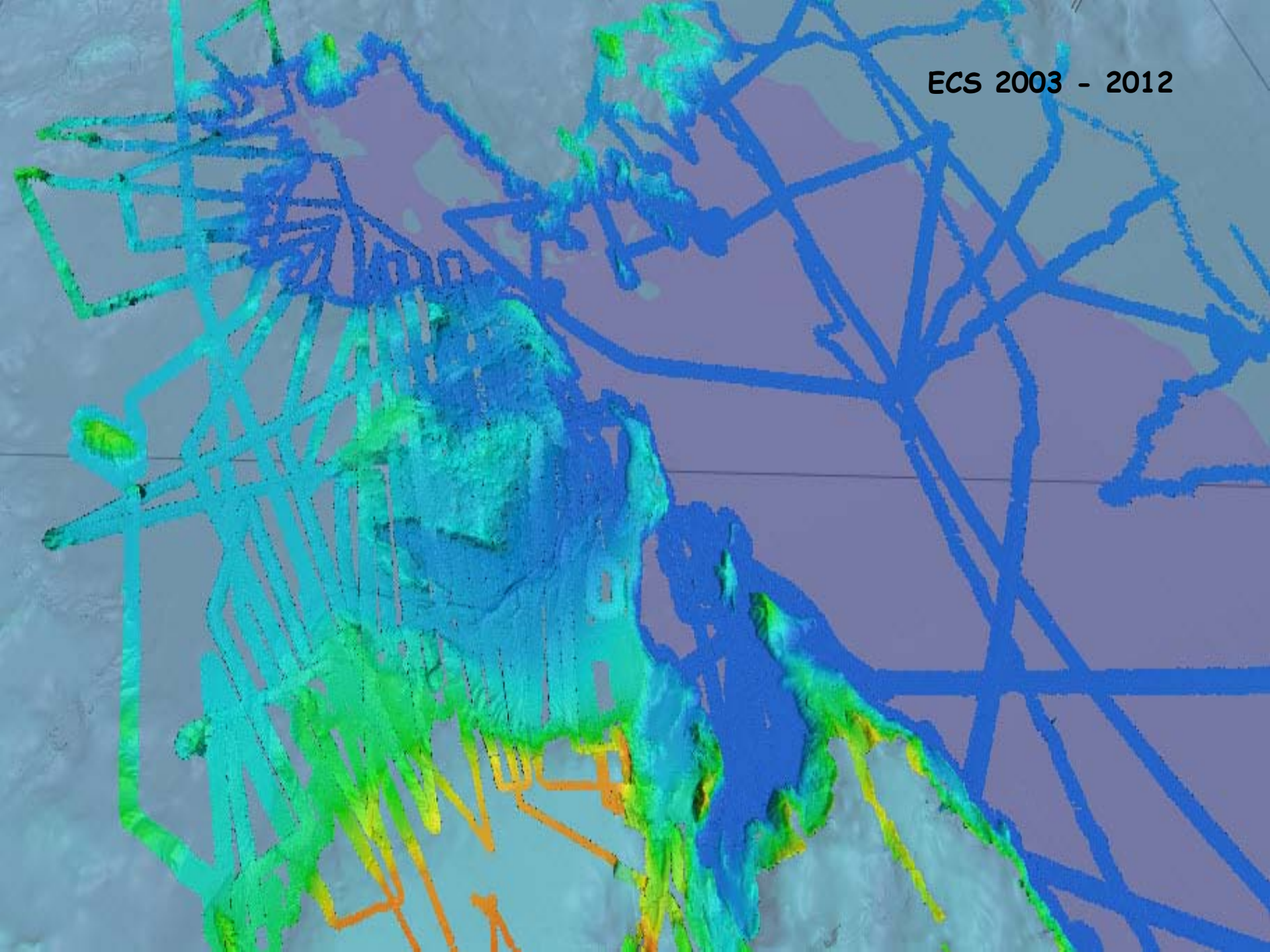
0 nm

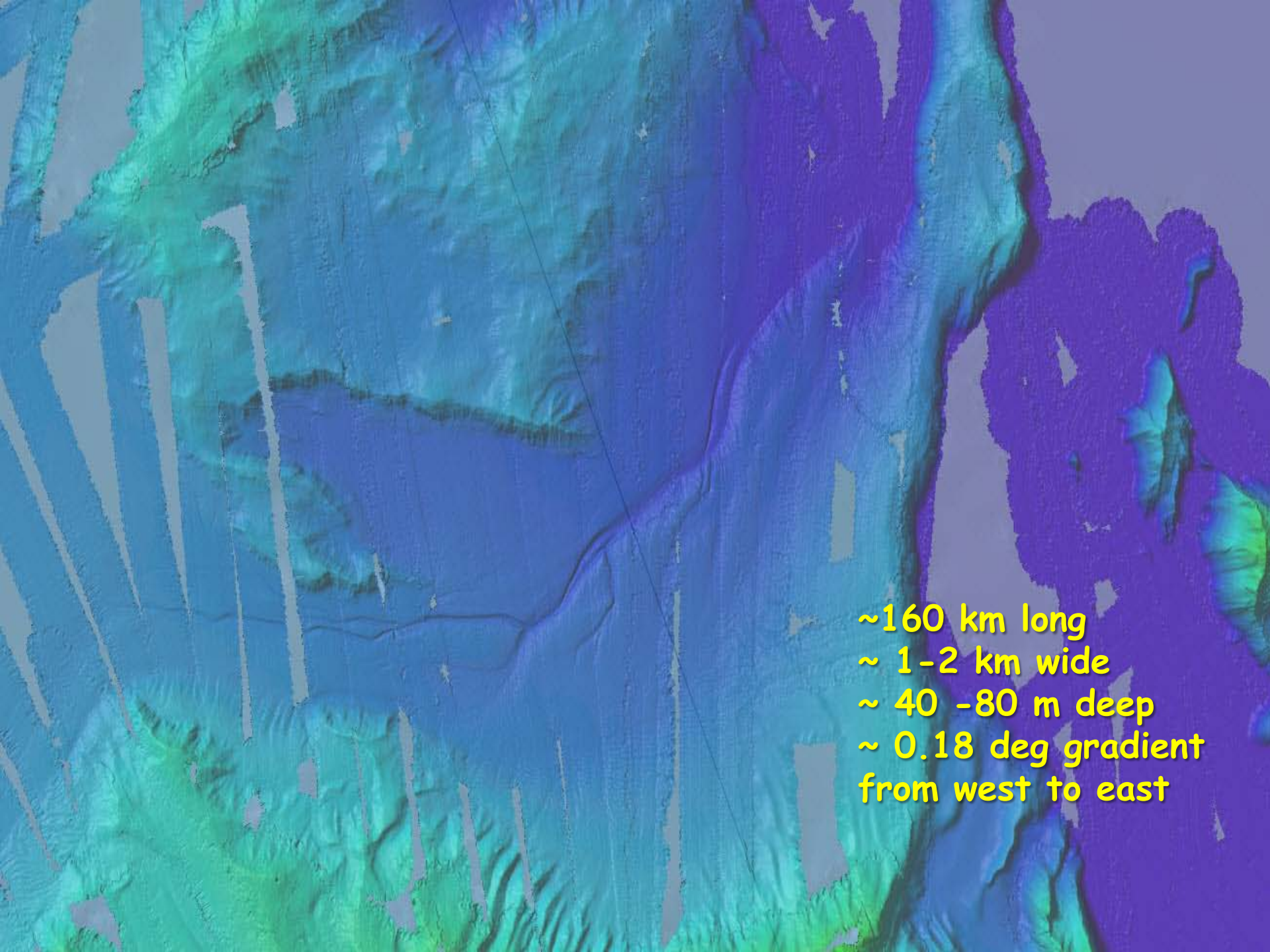
80 N


ECS 2003 - 2011

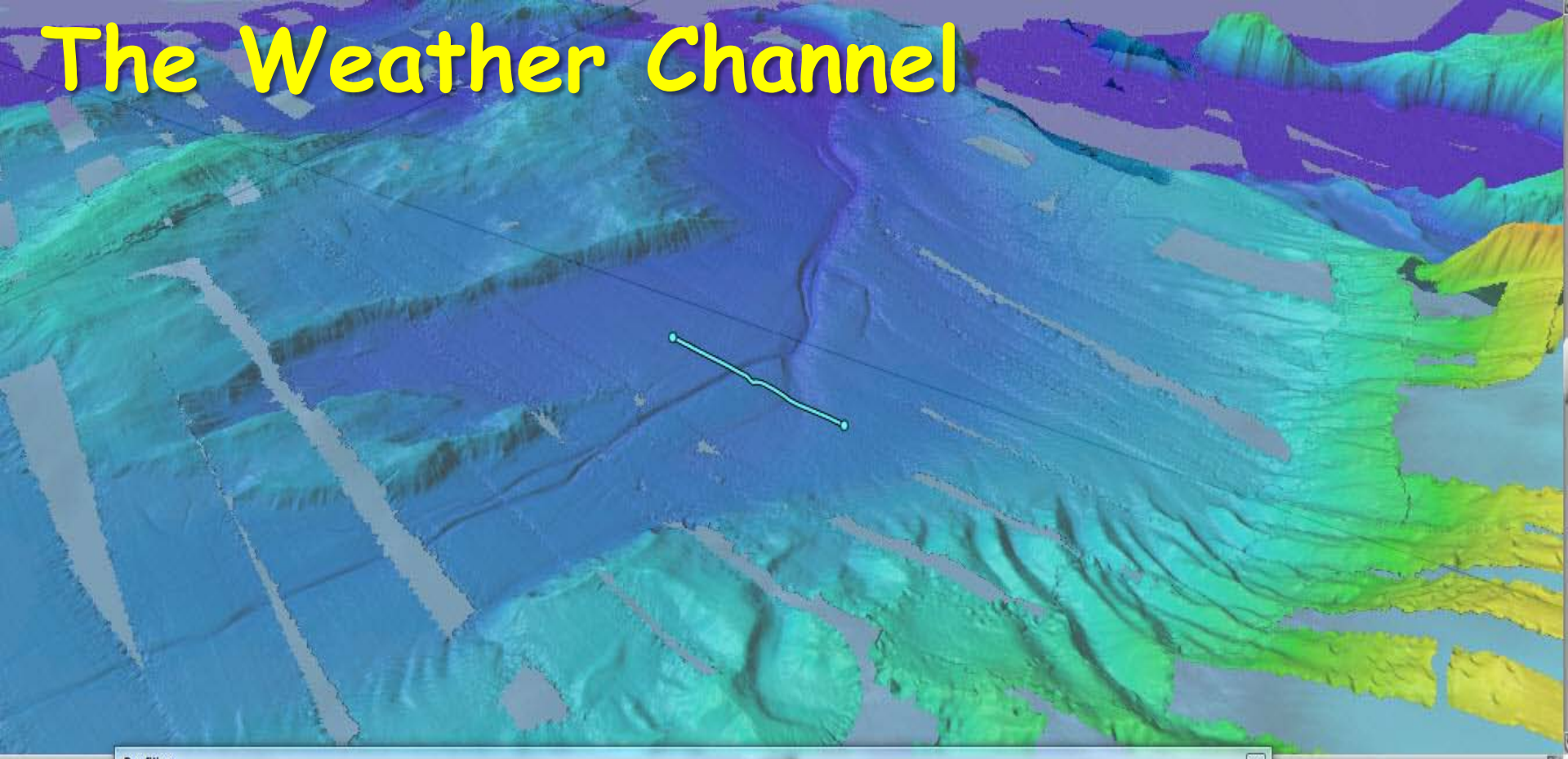

80 N
SHIPTRACK
10 nm
30 nm
50 nm
70 nm

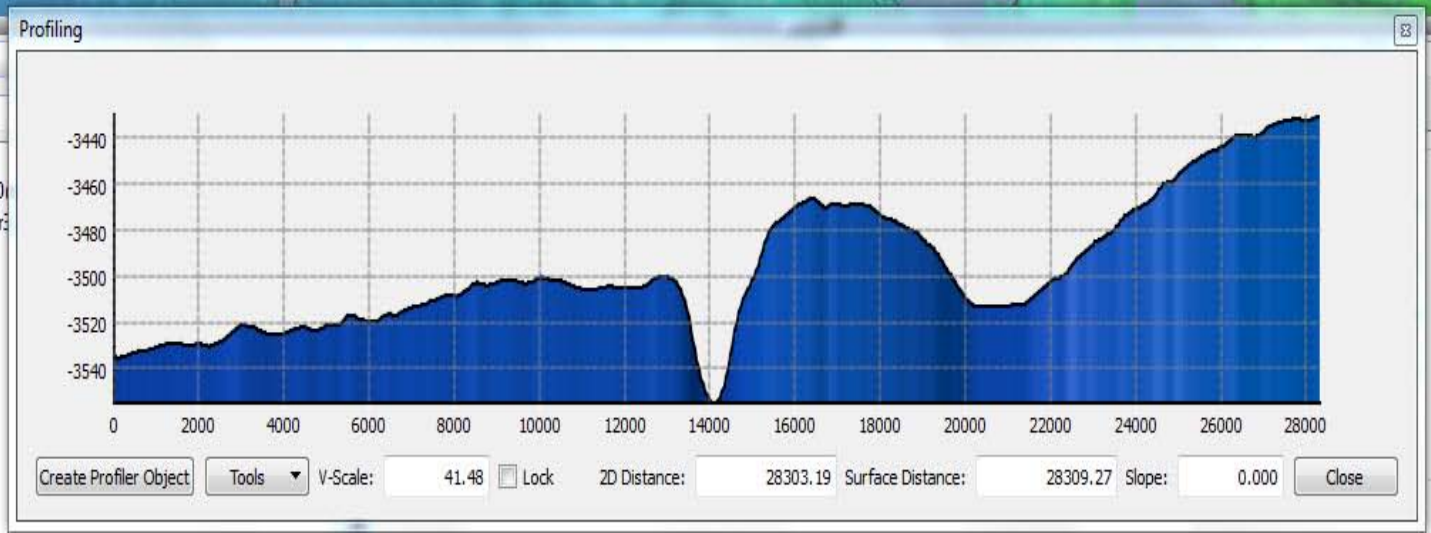

ECS 2003 - 2011


ECS 2003 - 2012

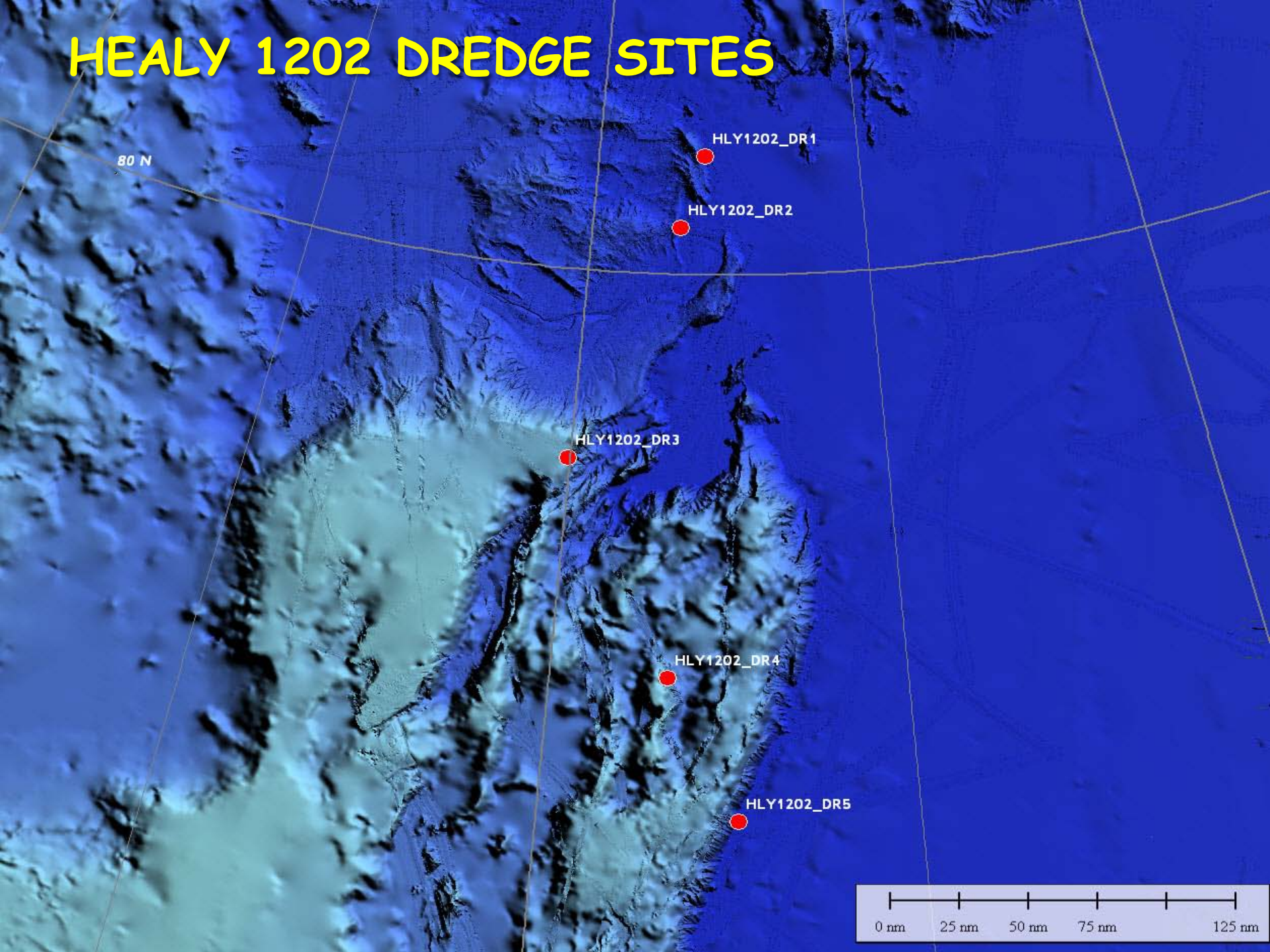

~160 km long
~ 1-2 km wide
~ 40 -80 m deep
~ 0.18 deg gradient
from west to east

The Weather Channel



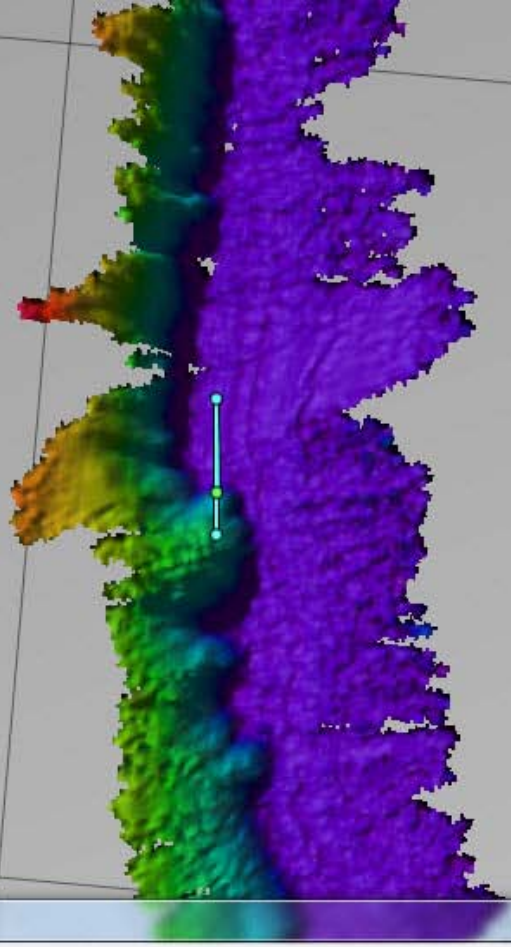


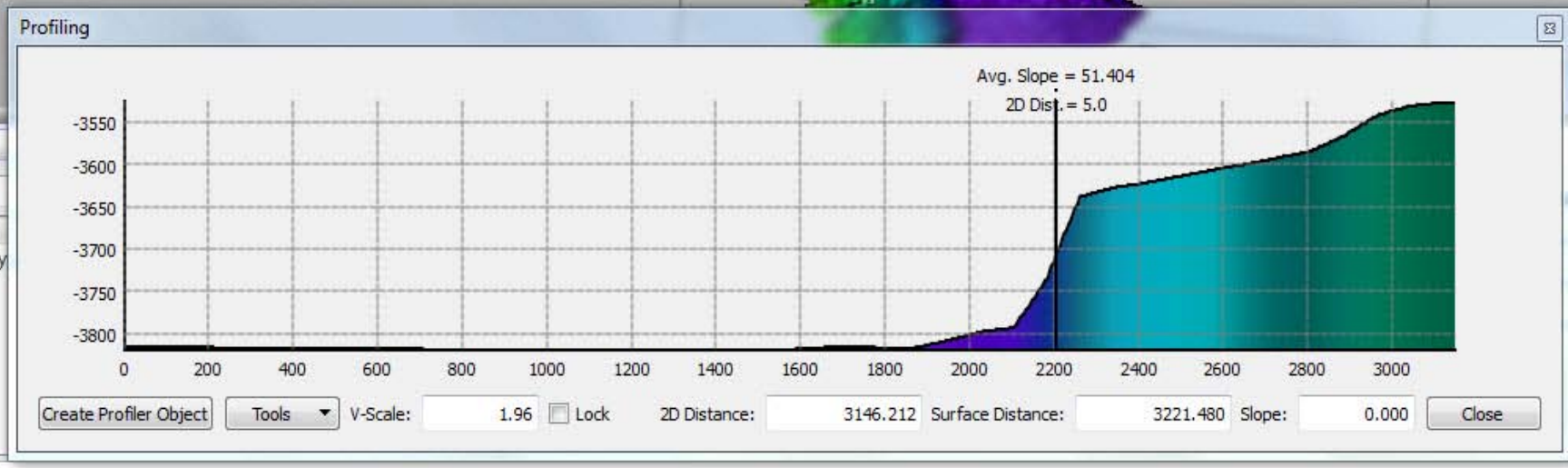
HEALY 1202 DREDGE SITES

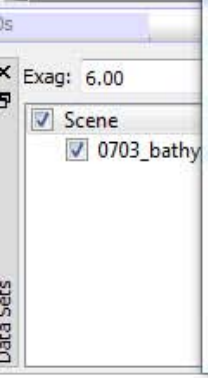


DR-1

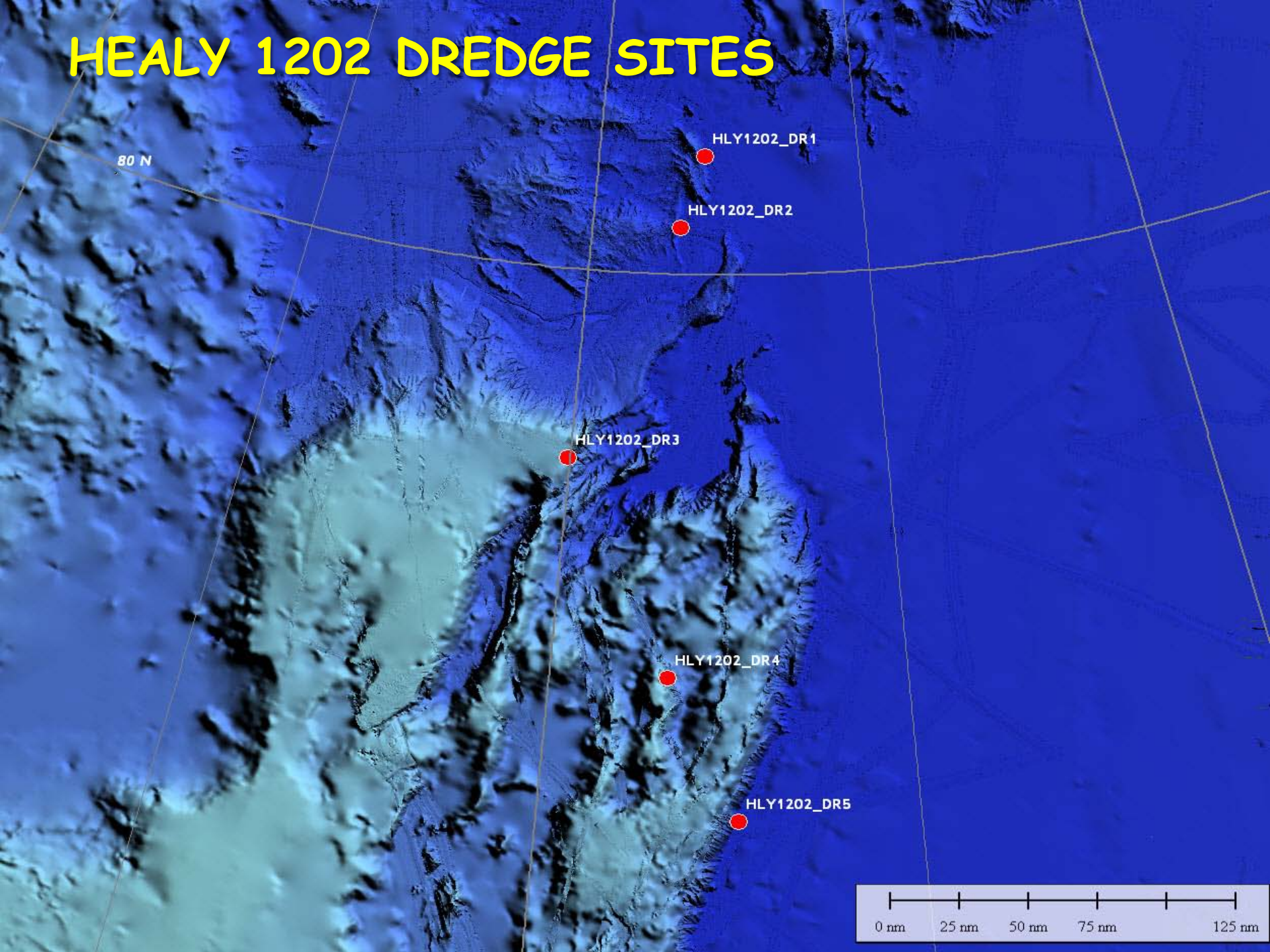
soft fine-grained ochre colored sedimentary rock (possibly volcaniclastics)





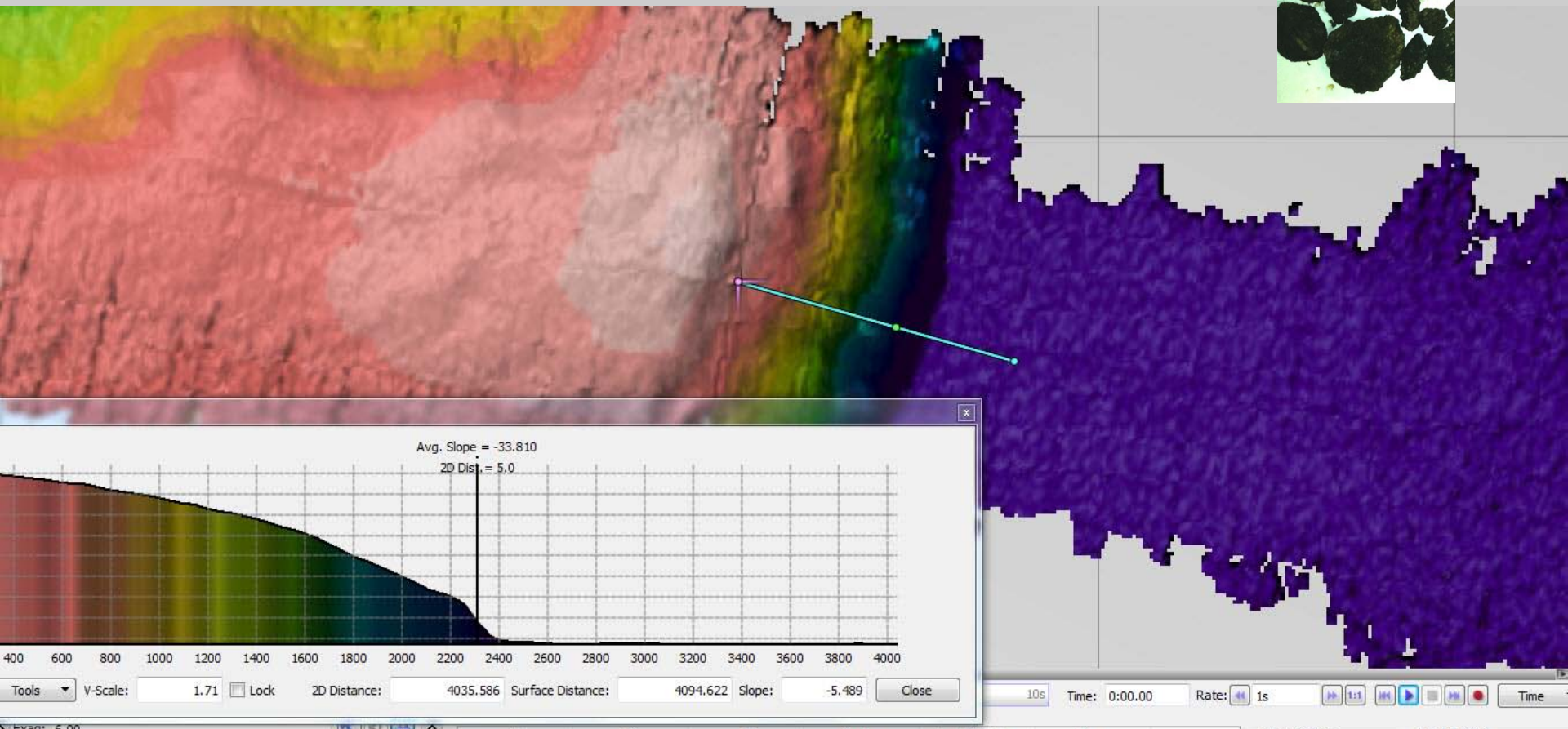


HEALY 1202 DREDGE SITES

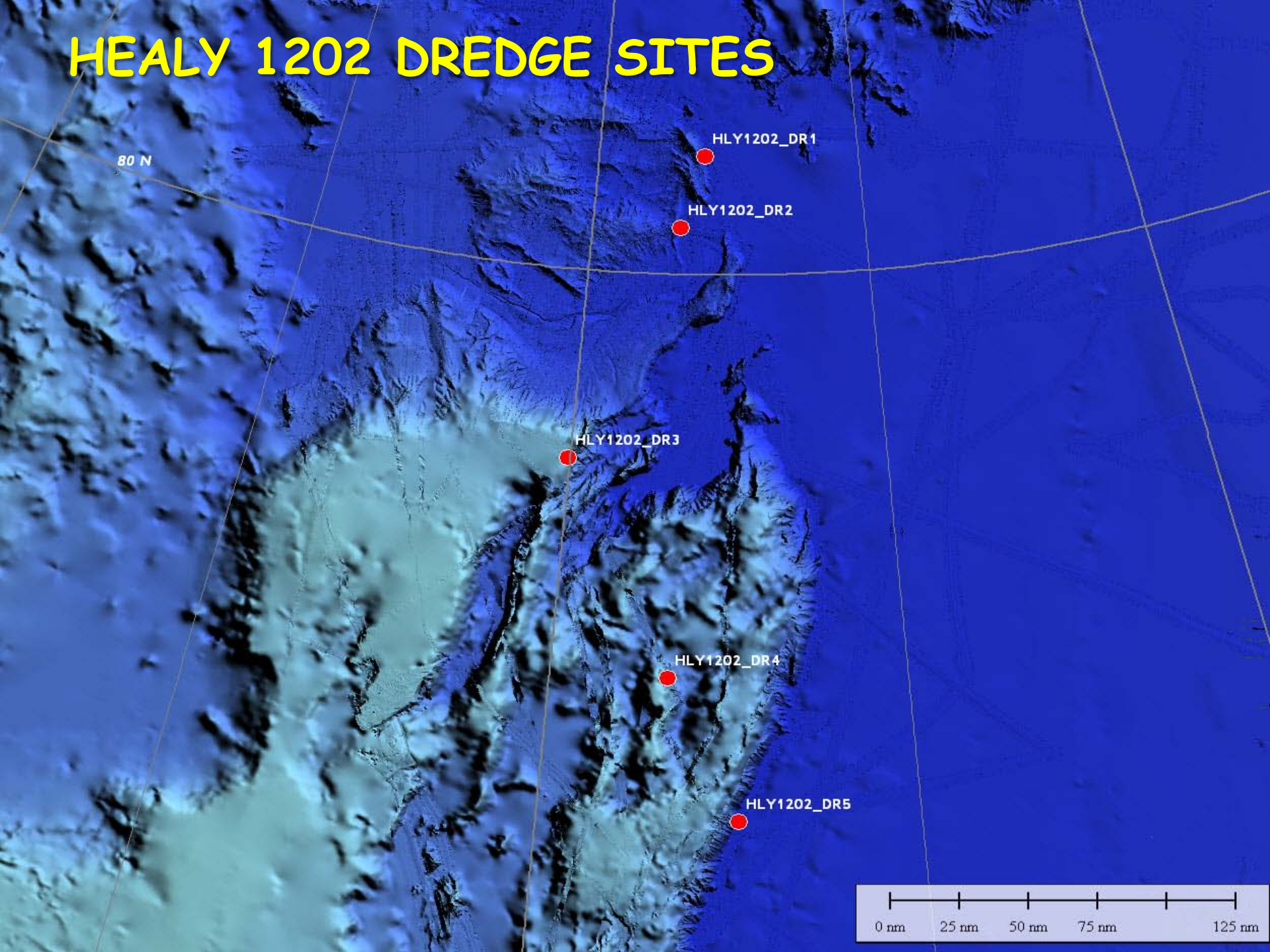


DR-2

Mn pavements, with few angular outcrop rocks of very highly altered basalt



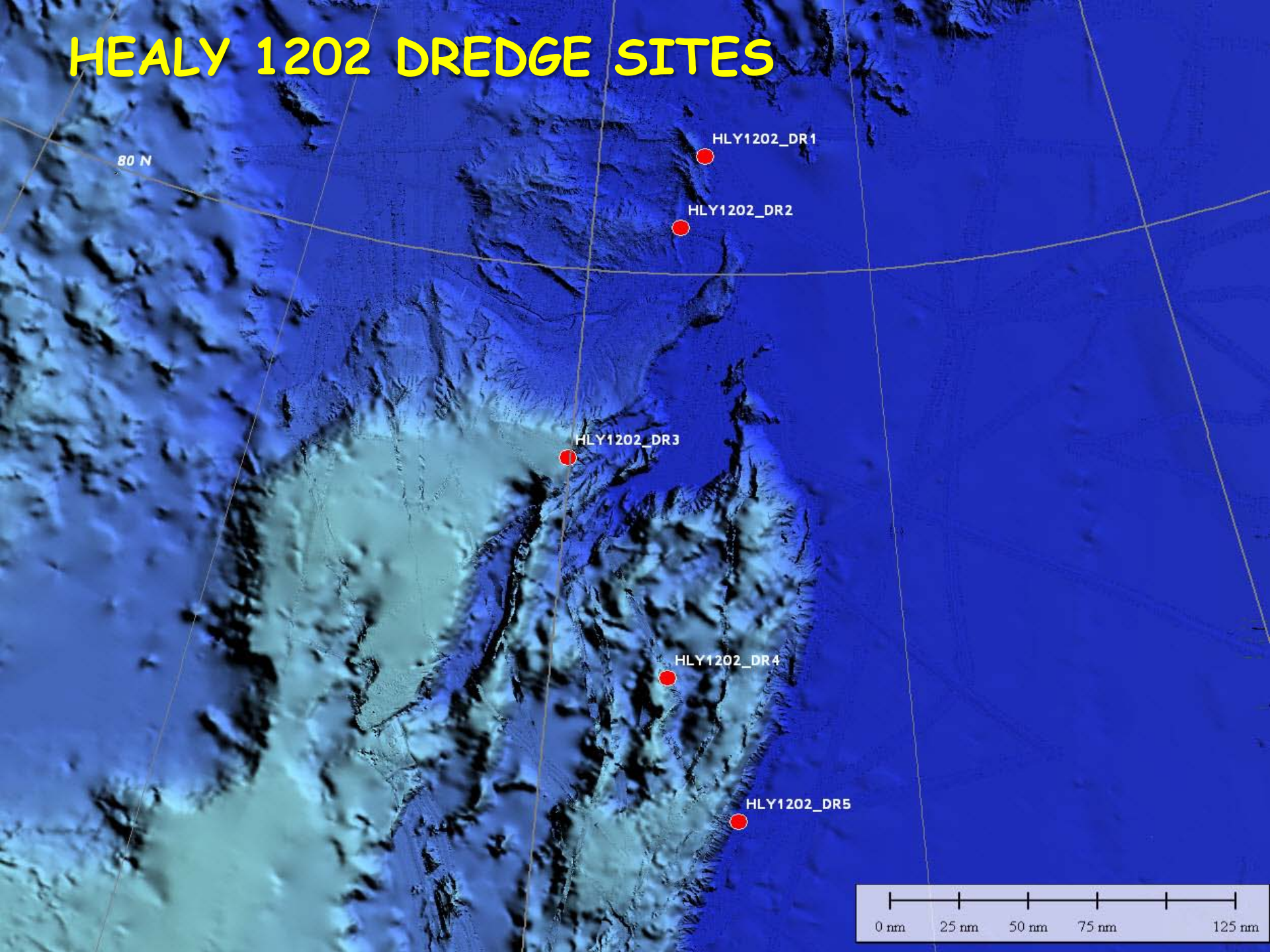
HEALY 1202 DREDGE SITES



DR-3

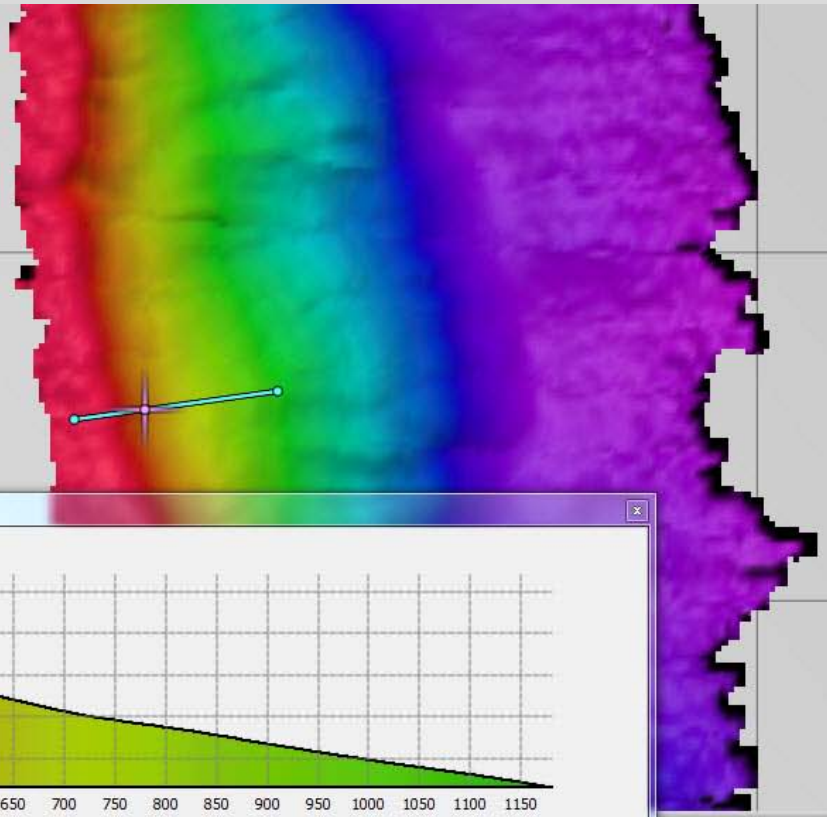
Metasediments, Mn & Carbonate Pavements, Coral fragments

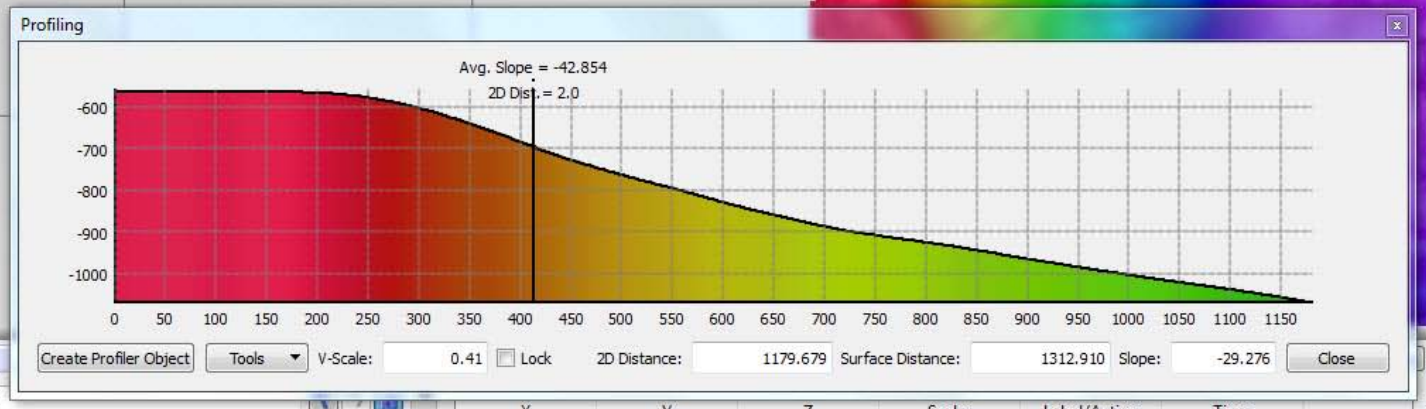
HEALY 1202 DREDGE SITES

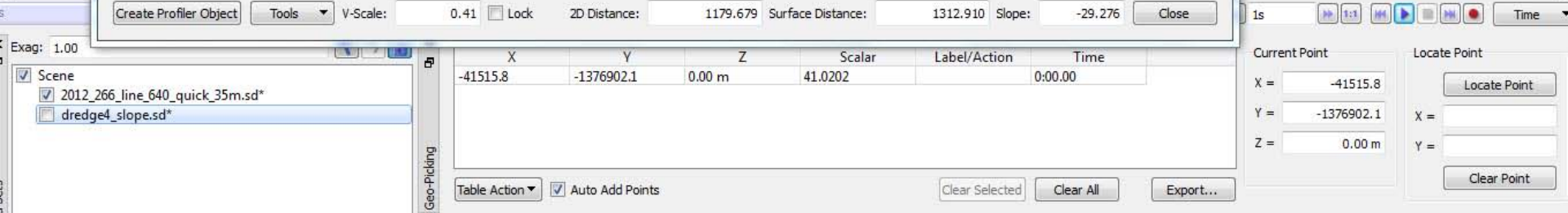


DR-4

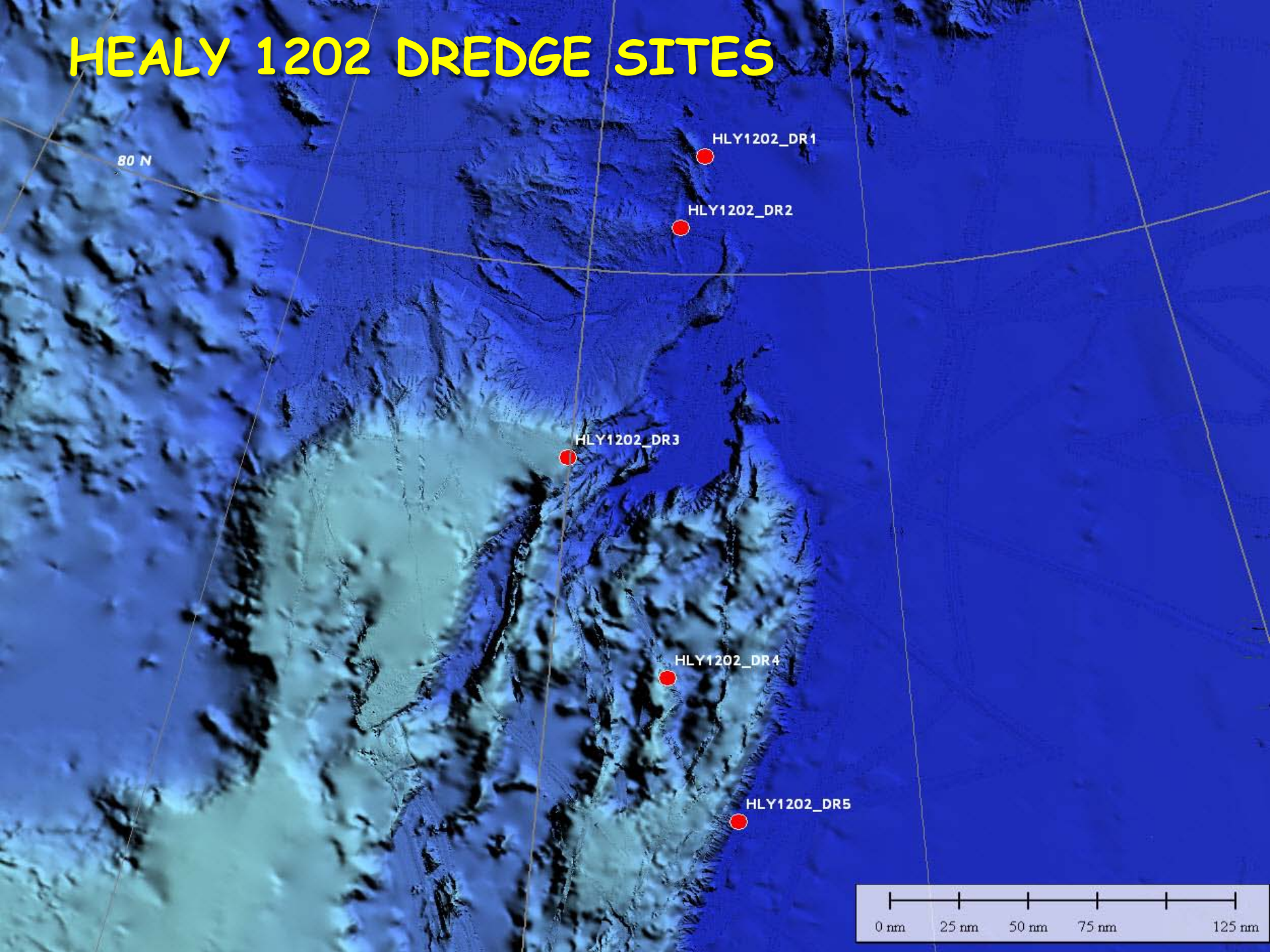
Metasediments (schist and slate?)







HEALY 1202 DREDGE SITES



DR-5 Metasediments – schists, phyllites?

Profiling

Avg. Slope = -47.052
2D Dist. = 2.0

-3400
-3500
-3600
-3700
-3800

0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500

Create Profiler Object | Tools | V-Scale: 0.56 | Lock | 2D Distance: 1539.720 | Surface Distance: 1700.385 | Slope: -28.510 | Close

Exag: 1.00

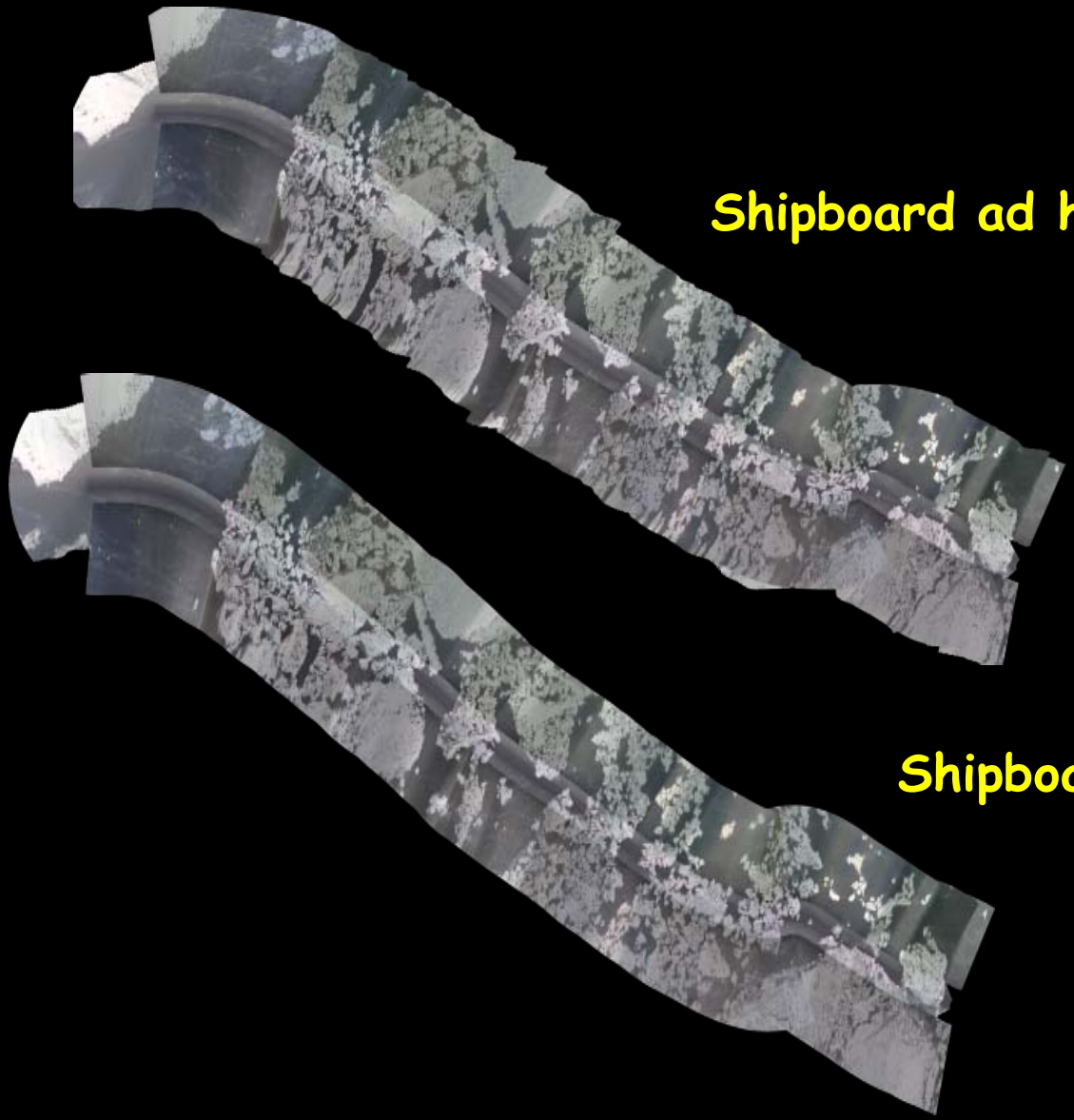
Scene
2012_266_1519_dredgeslope_
DREDGE_POINT_FROM_NEW
Vessel1*

Time

Display
Show VesselManager
Show View
Show Monitor
Options...

GeoCamera

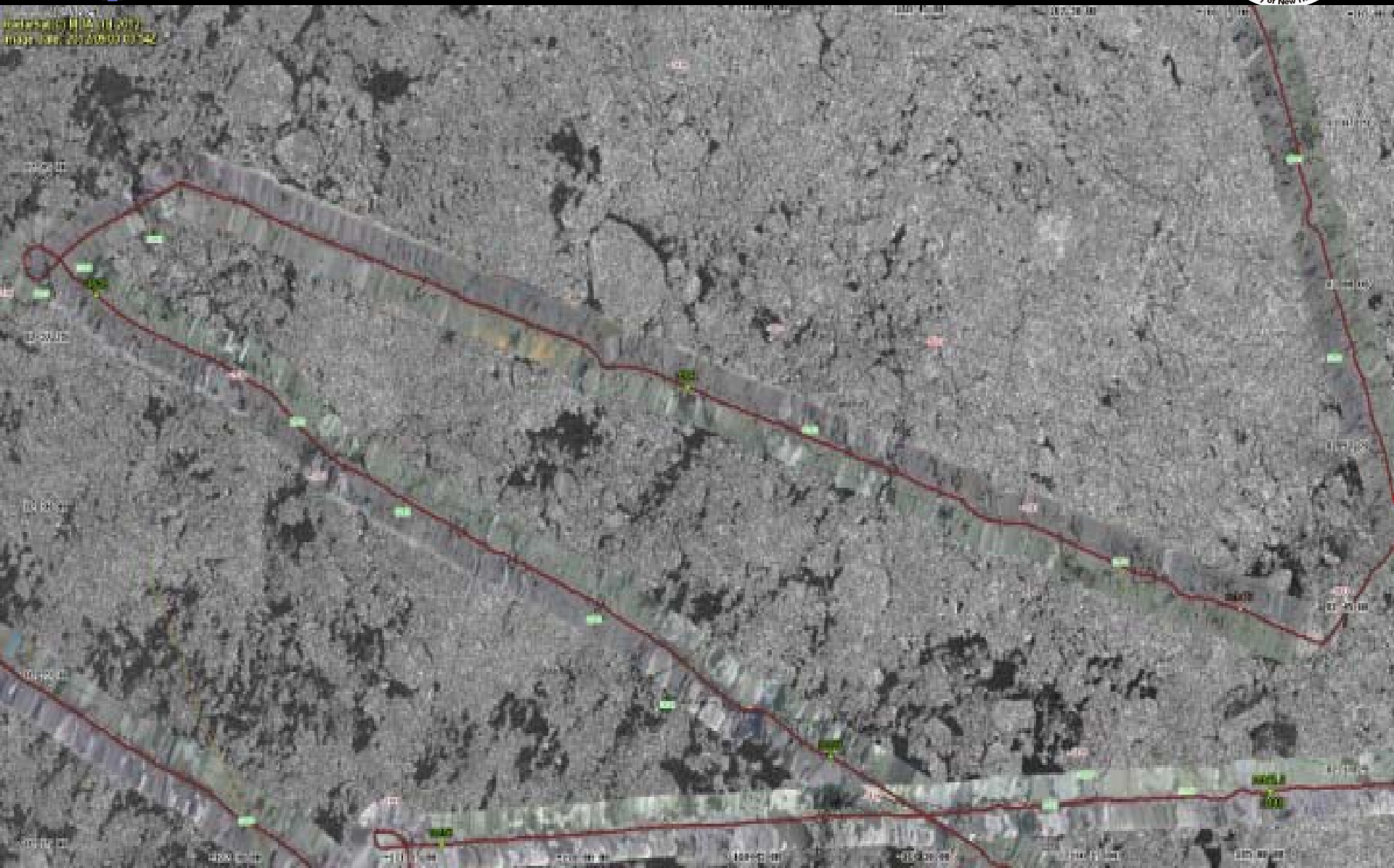
Calibration



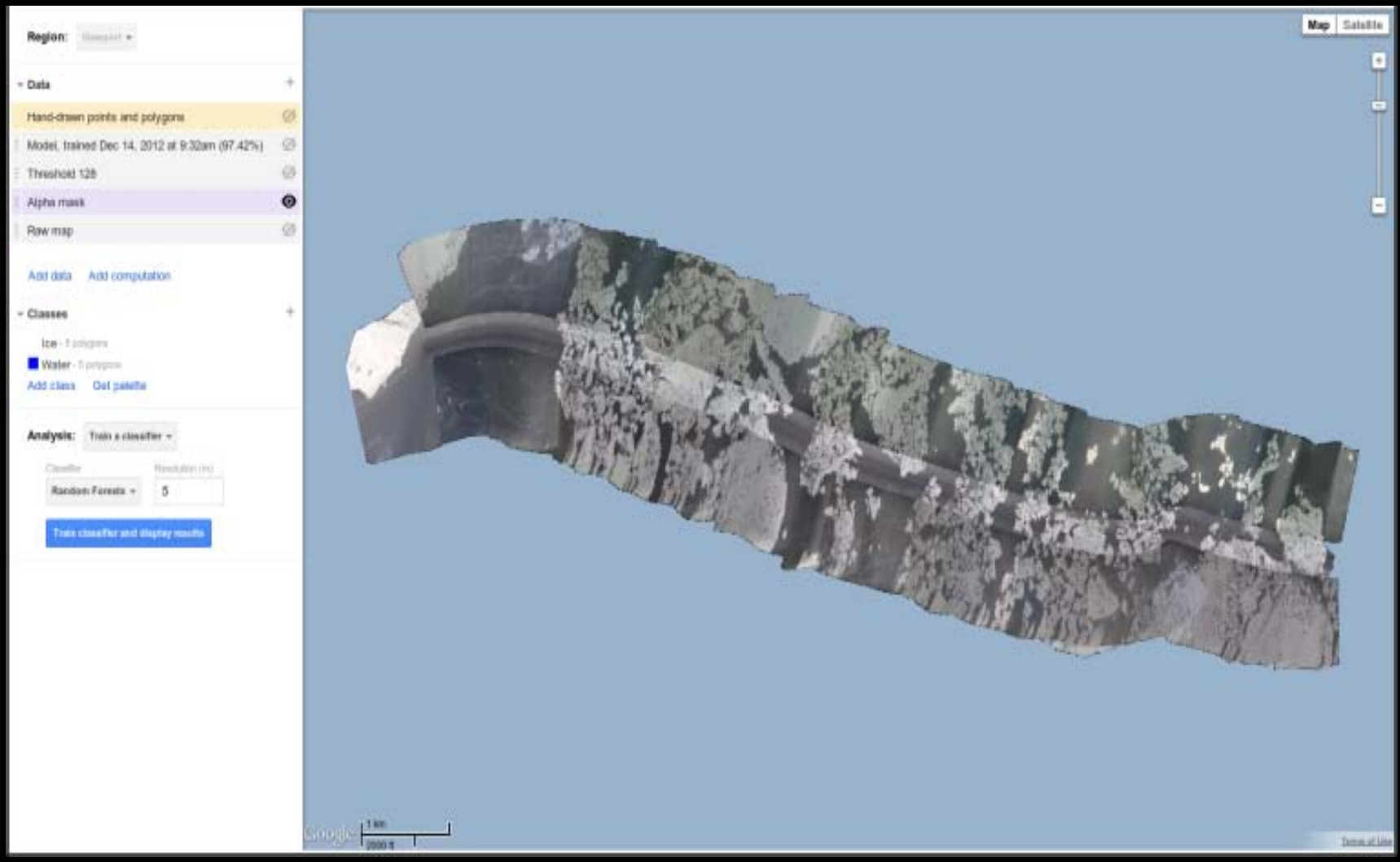
Shipboard ad hoc

Shipboard ad hoc

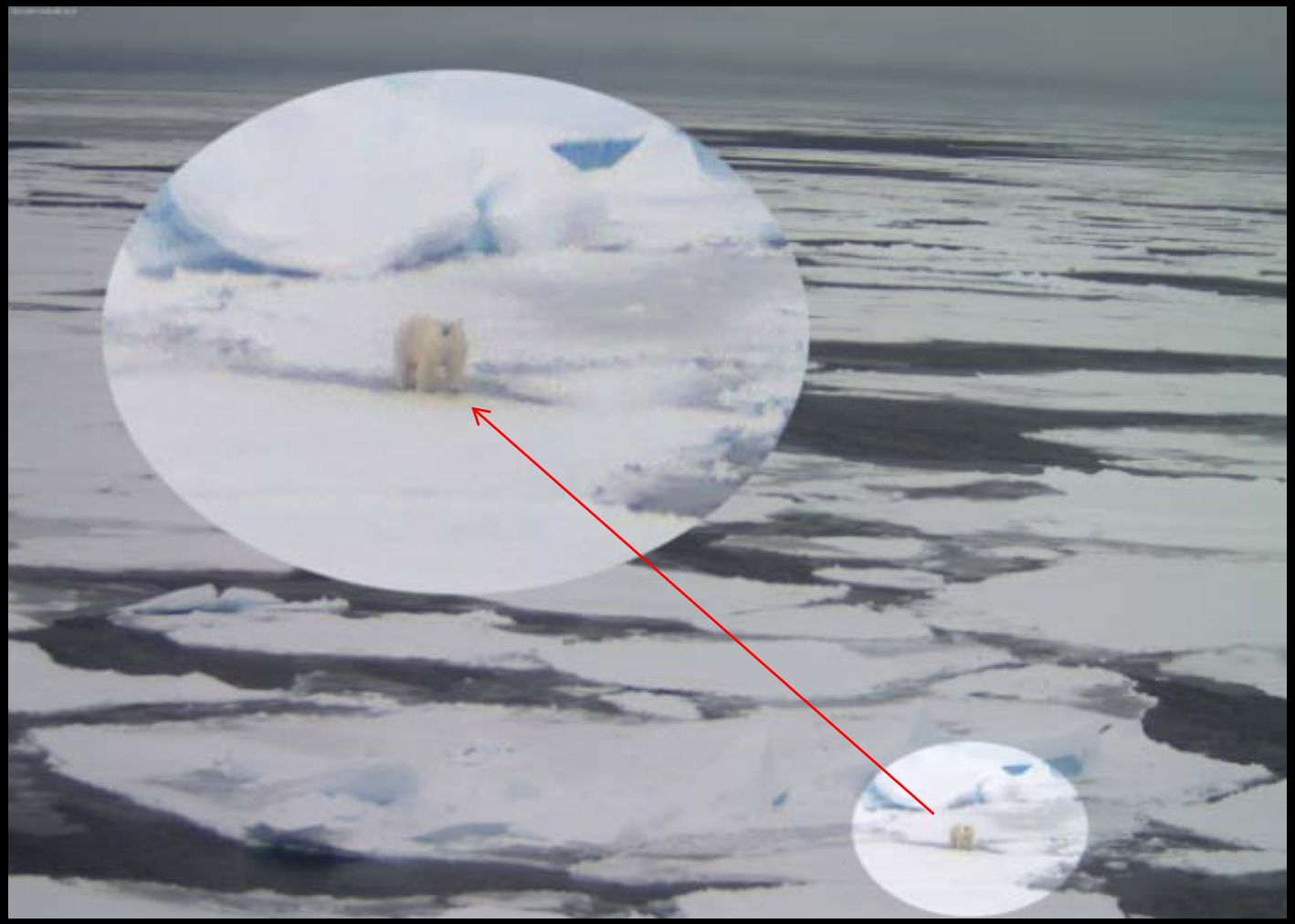
Directly into MapServer

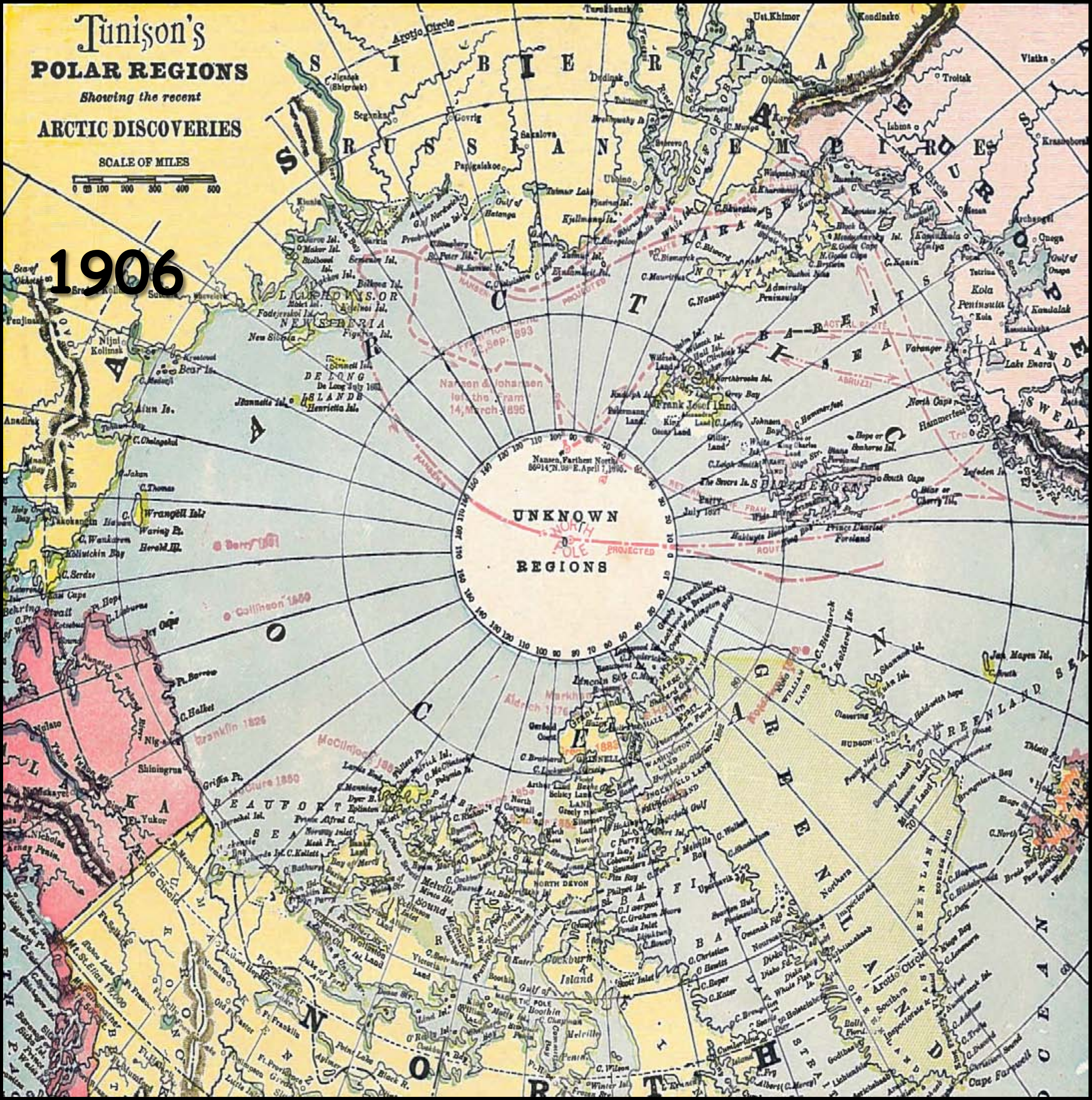


or Google Earth

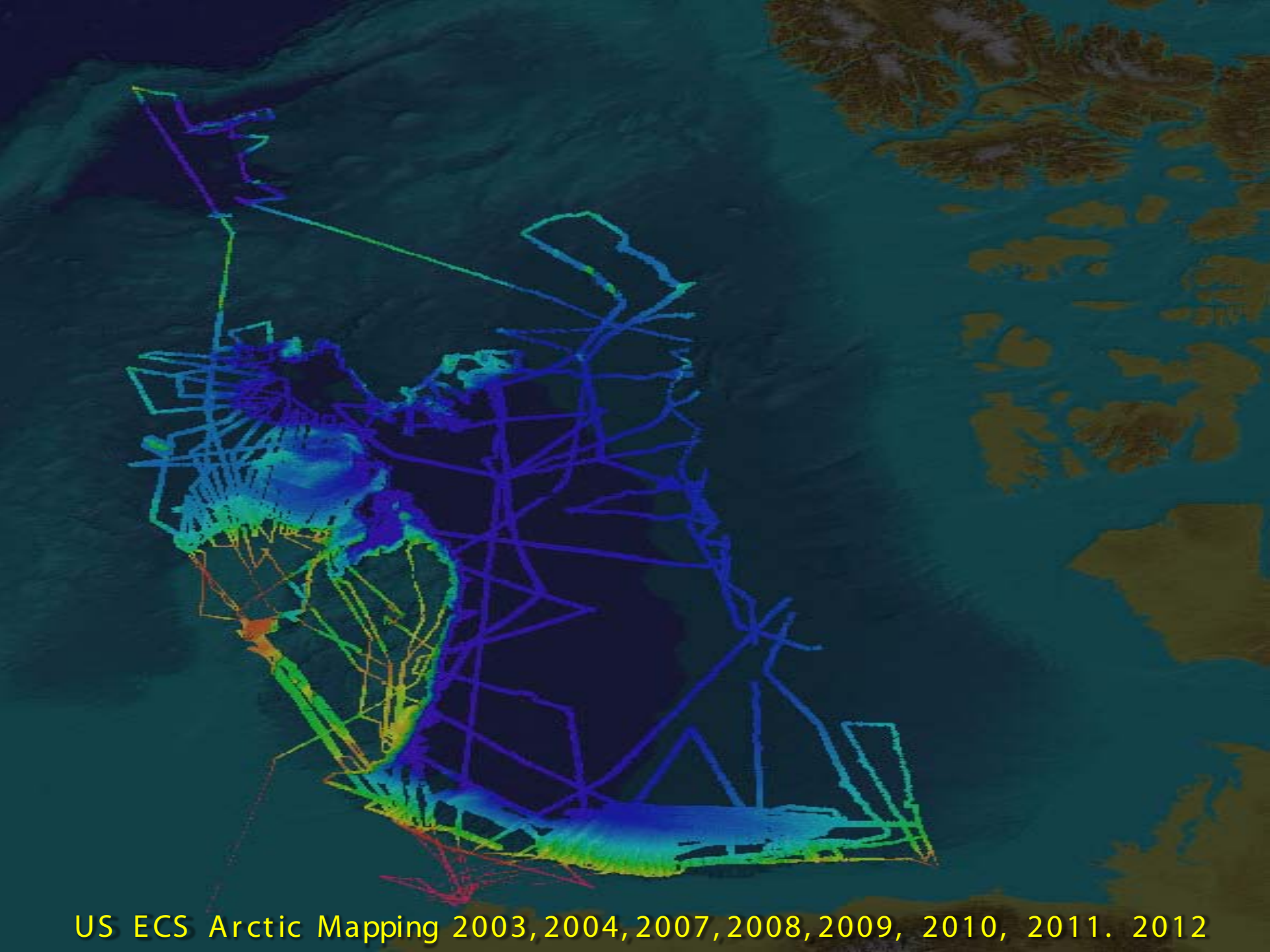


More than ice



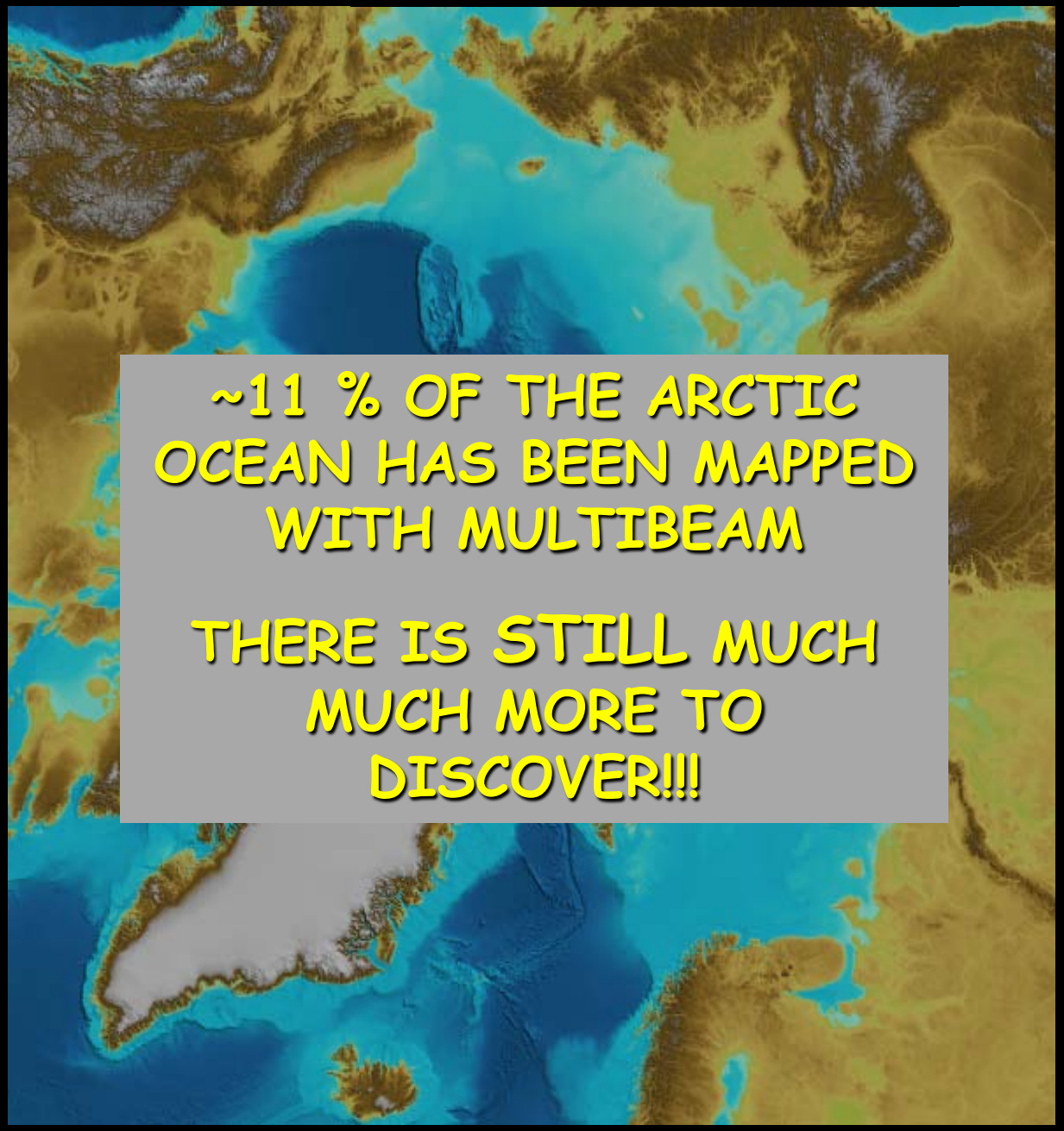


Tunison's
POLAR REGIONS
Showing the recent
ARCTIC DISCOVERIES
SCALE OF MILES
1906
UNKNOWN
NORTH POLE
REGIONS
SIBERIA
RUSSIAN EMPIRE
EUROPE
ARCTIC OCEAN
GREENLAND
BEAUFORT SEA
KARA SEA
BARENTS SEA
Frank Josef Land
SPITZBERGEN
Wrangell Isl.
ALASKA
Nansen & Johansen left the Fram 14, March 1895


US ECS Arctic Mapping 2003, 2004, 2007, 2008, 2009, 2010, 2011. 2012

THANKS TO YOU ALL!!!!!!!

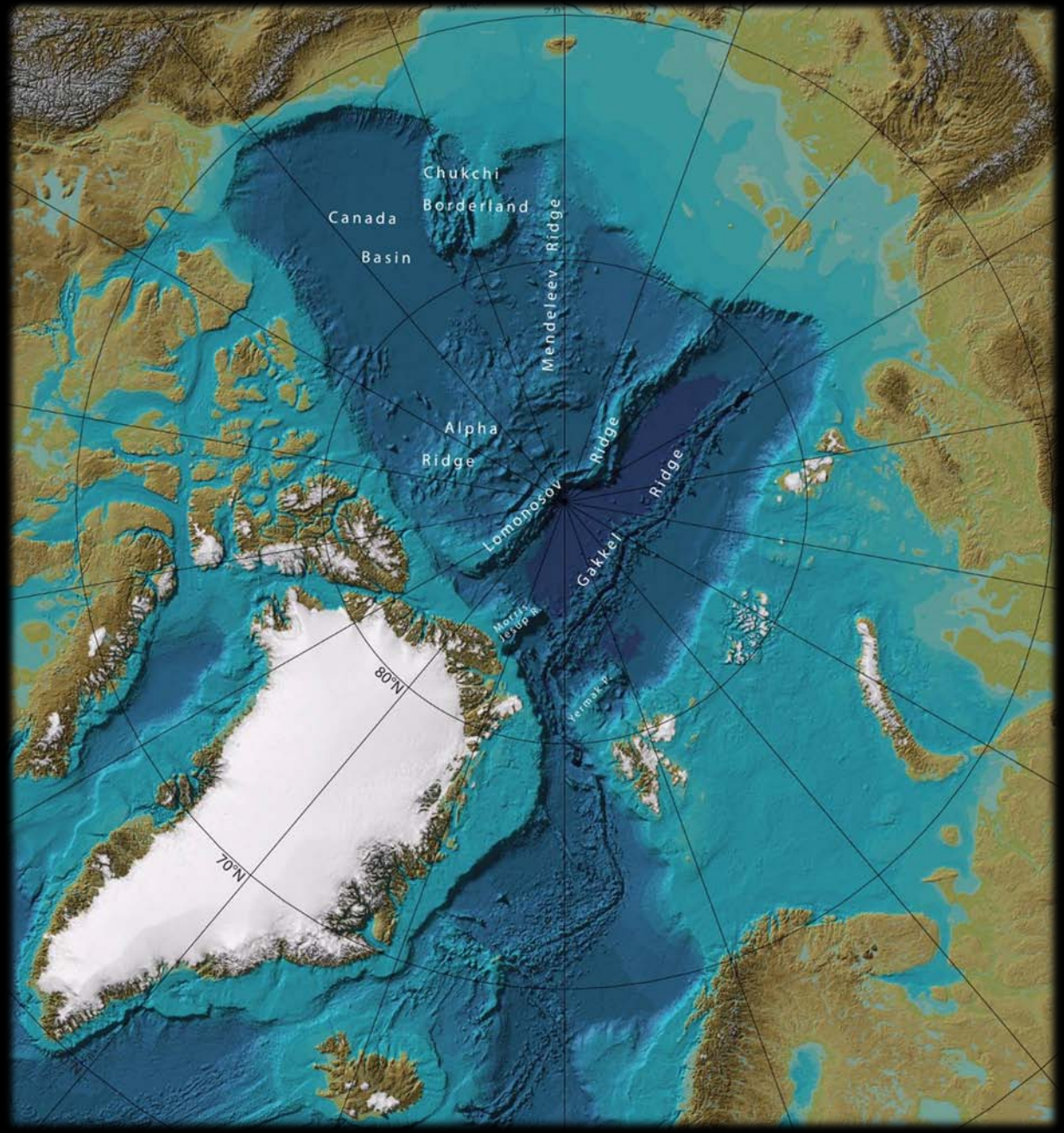
IBCAO VER 3.0



~11 % OF THE ARCTIC OCEAN HAS BEEN MAPPED WITH MULTIBEAM

THERE IS STILL MUCH MUCH MORE TO DISCOVER!!!

IBCAO 2008


Chukchi
Borderland
Canada
Basin
Mendeleev Ridge
Alpha
Ridge
Lomonosov
Ridge
Gakkel
Ridge
Nansen
Basin
Yermak Pl.
80°N
70°N

SINCE IBCAO 2008