Galápagos Rift 2002 Expedition

NOAA Ocean Exploration

NSF • WHOI

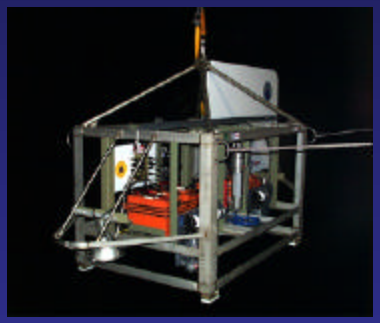
May 24 - June 4, 2002

R/V Atlantis

Alvin

ABE

TowCam



CTD

QuickTime™ and a TIFF (Uncompressed) decompressor are needed to see this picture.

Galápagos Rift 2002 Expedition

Operation Summary

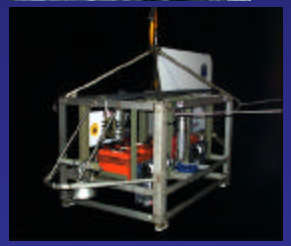
9 Alvin dives (3788-3796)

Total track length 27.76 km

Total bottom time 48:26

7 ABE dives (66-72)

Distance covered	118.38 km^2
Survey area	8.6km^2
Total bottom time	50.5 hours



5 Towed Camera (TowCam) lowerings

Distance Covered	8.01 km
Pictures taken	4,100

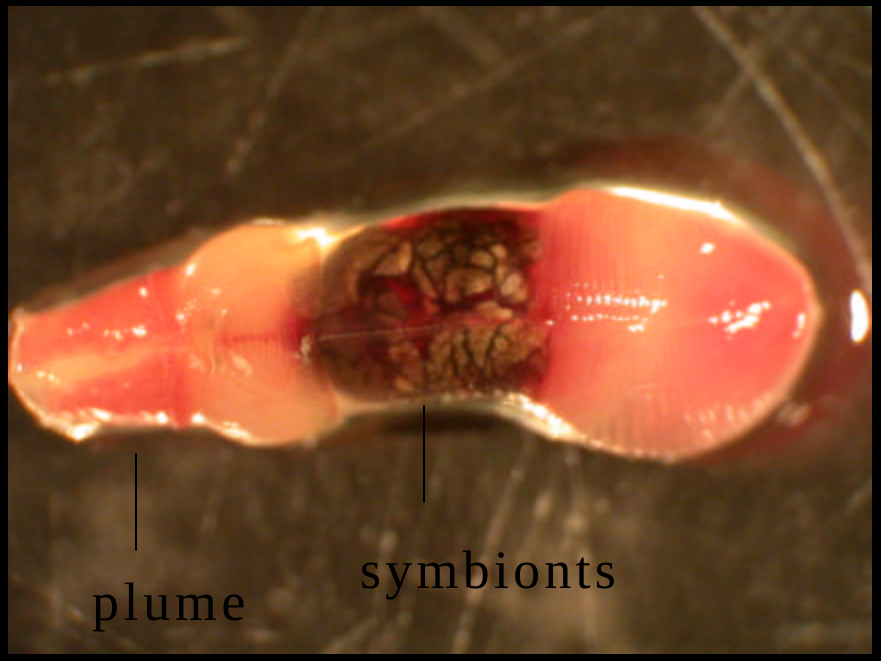
6 CTD tows/vertical casts

Distance Covered	20.58 km

26 scientists from 10 institutions

Rosebud

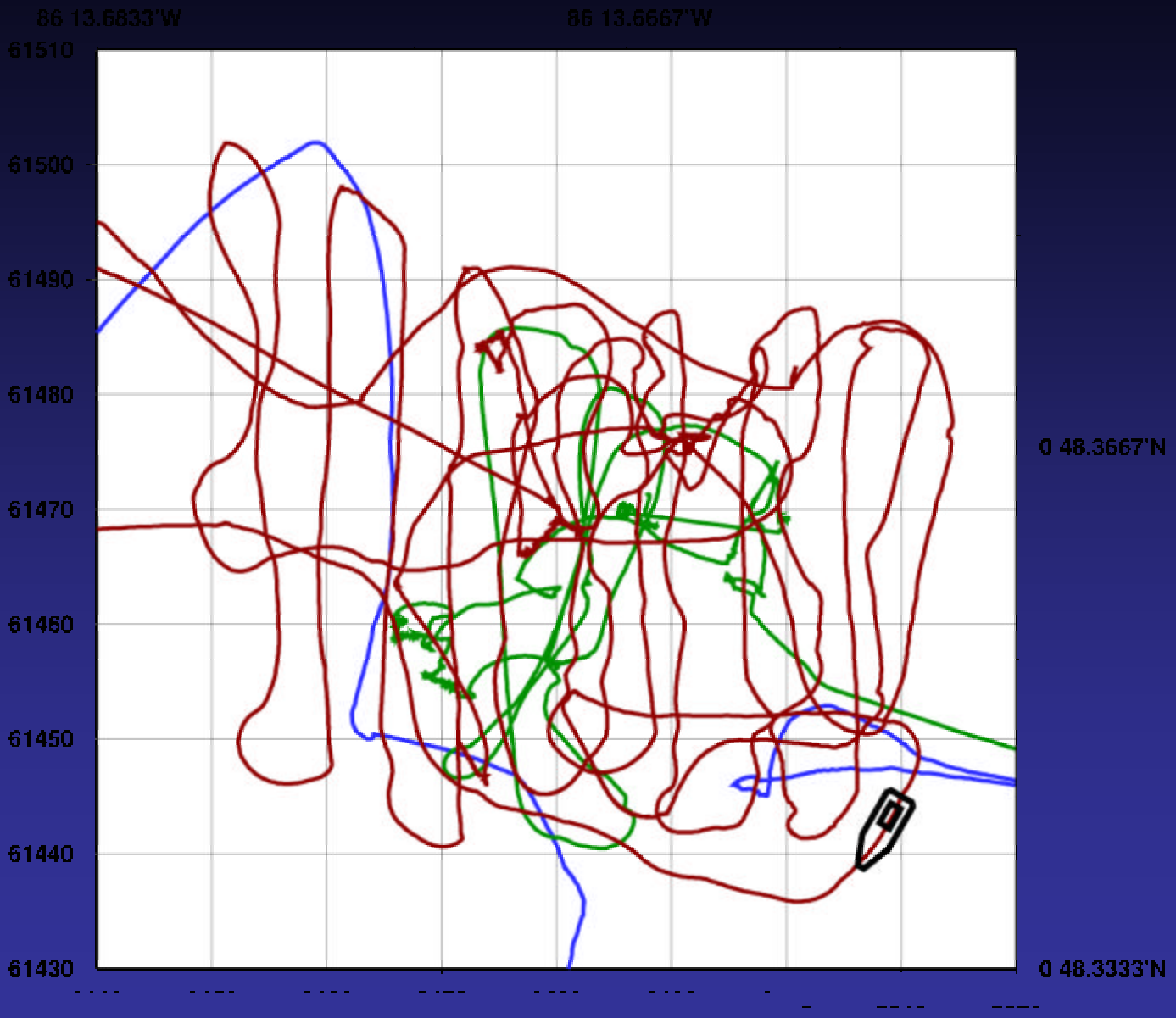
- Recent lava flows
- Young vent communities
- Fluid chemistry similar to previous measurements on the Galápagos Rift



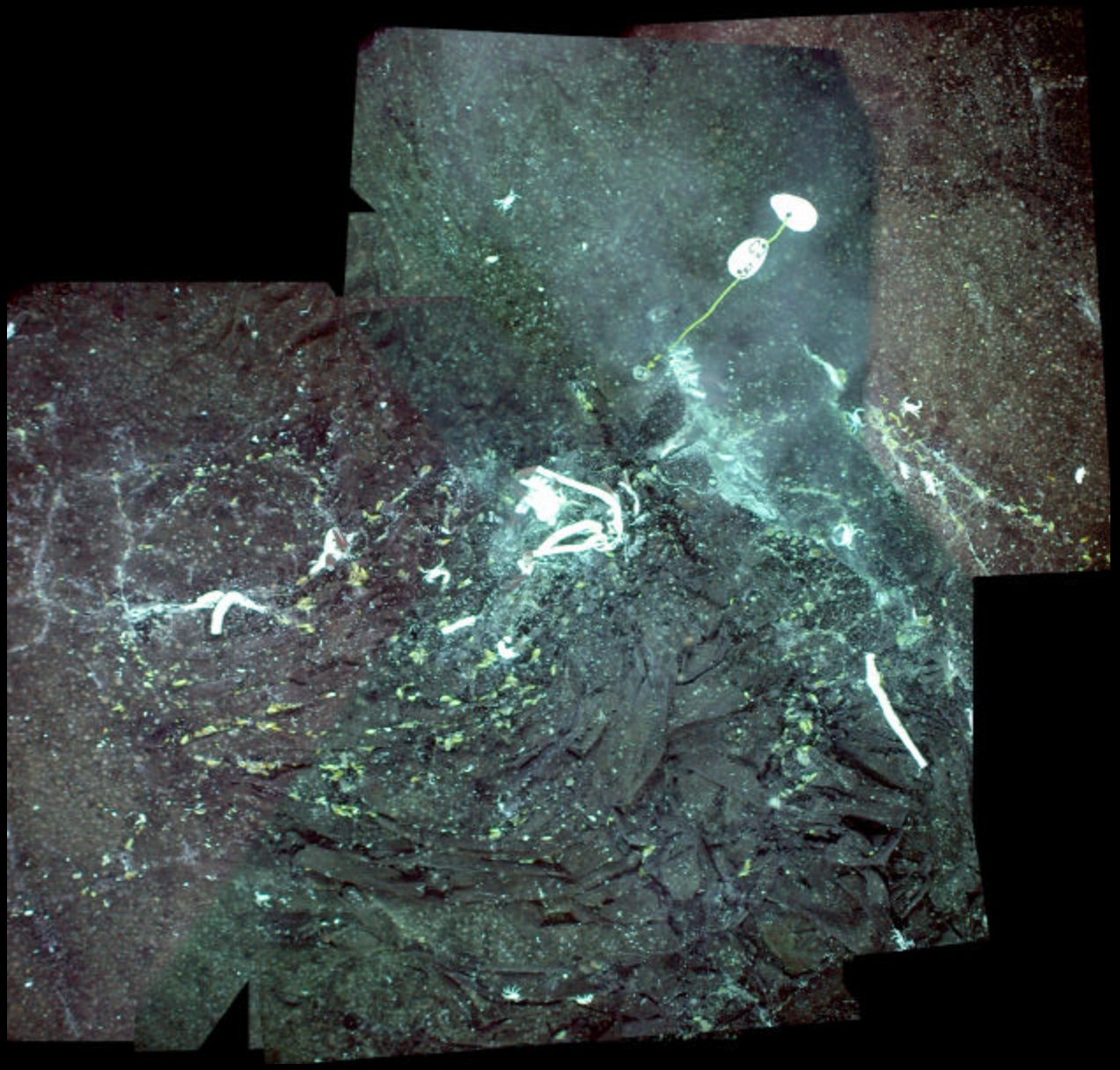
Recovery of recent colonizers
- *Riftia* tube worms

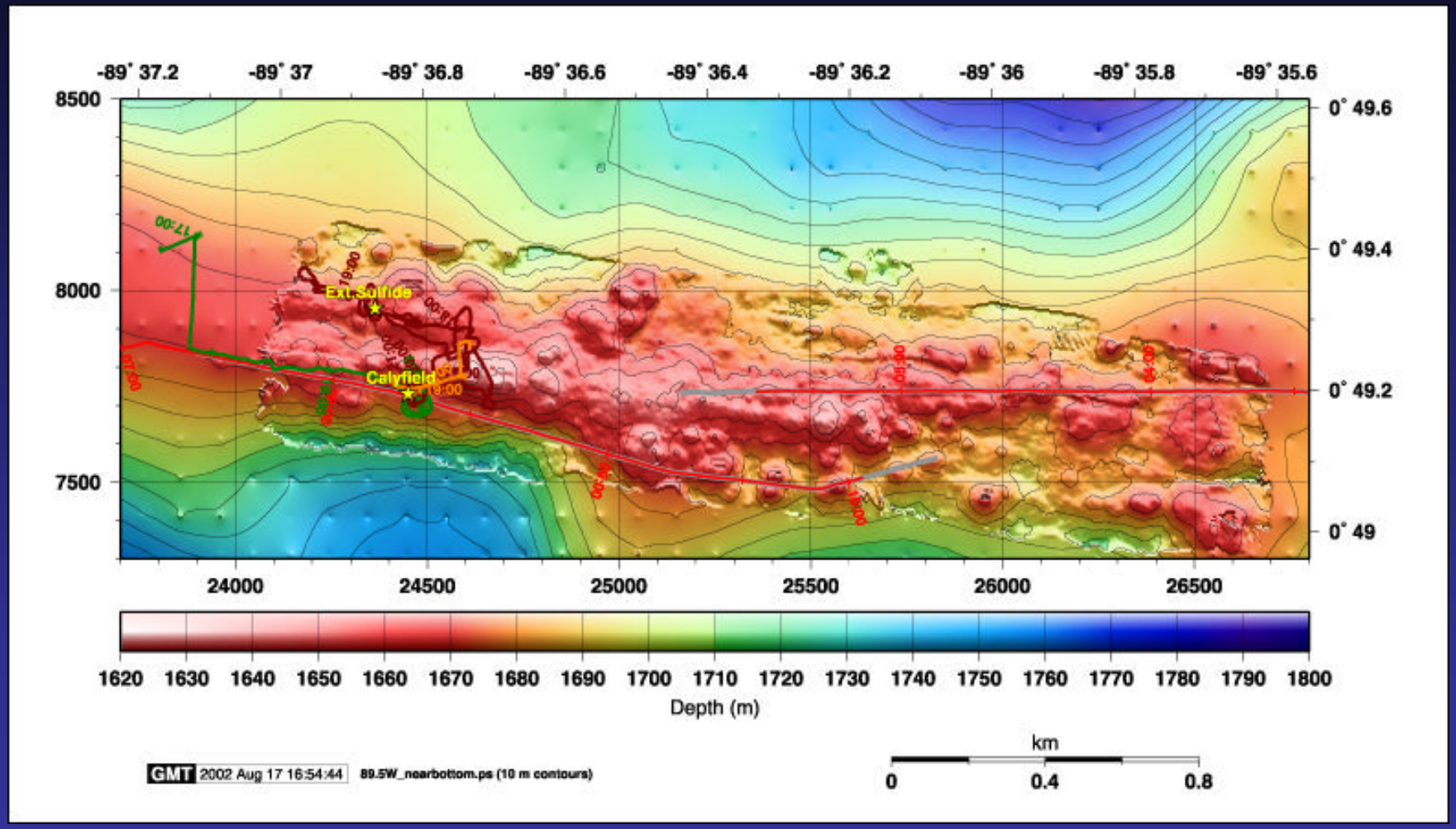
< 4mm long

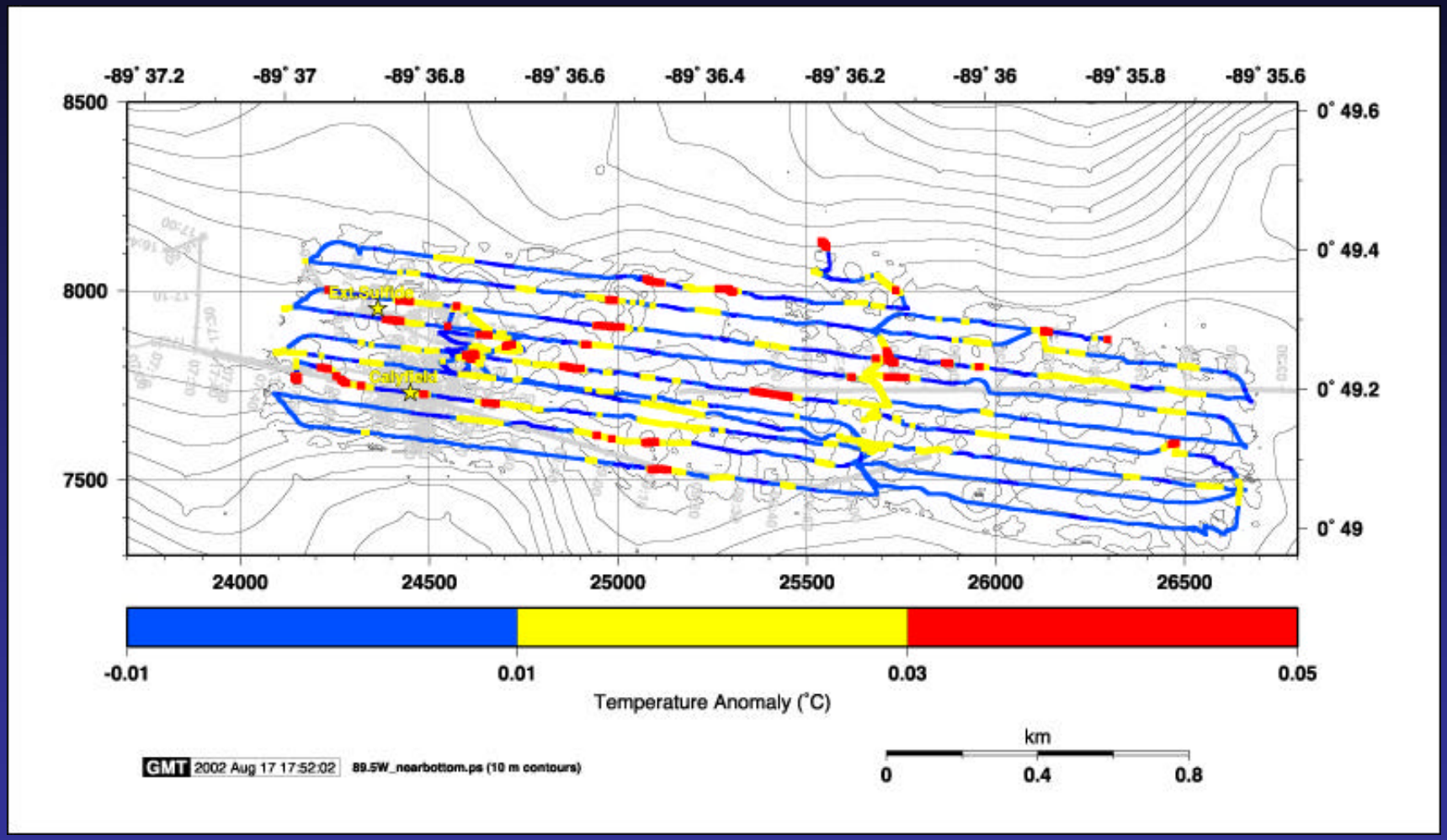
Rosebud Survey Tracks

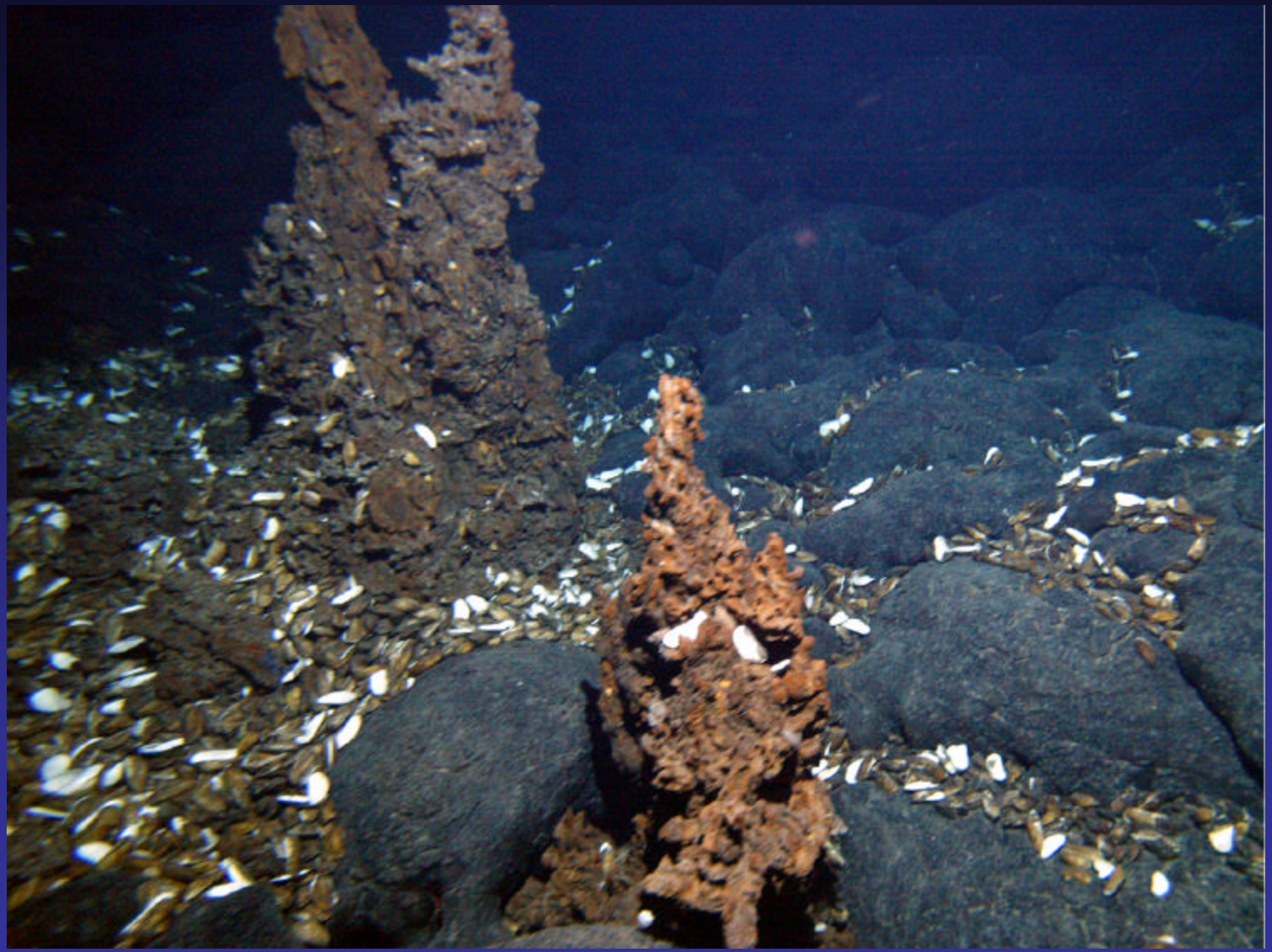


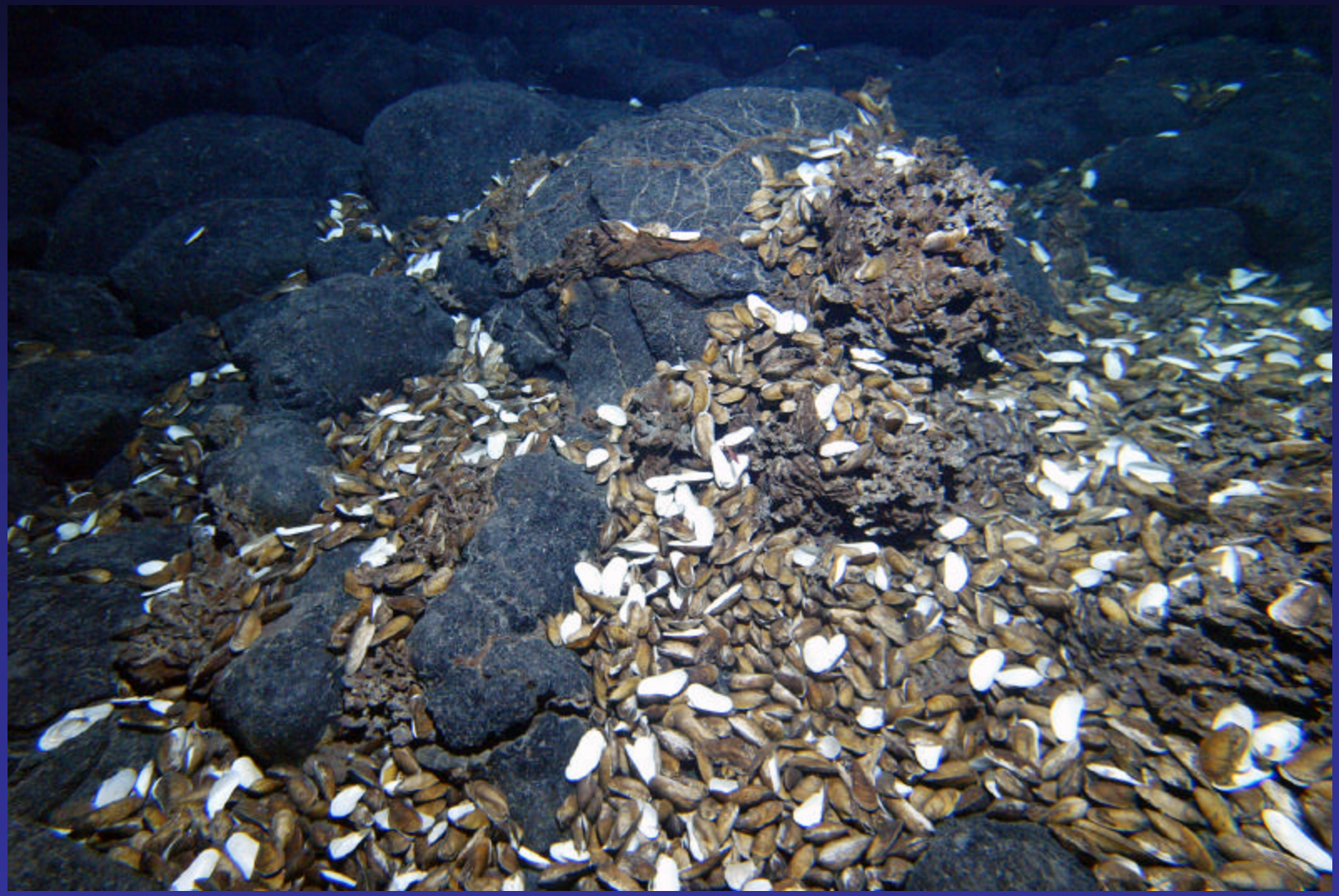
Rosebud
Marker B
Community

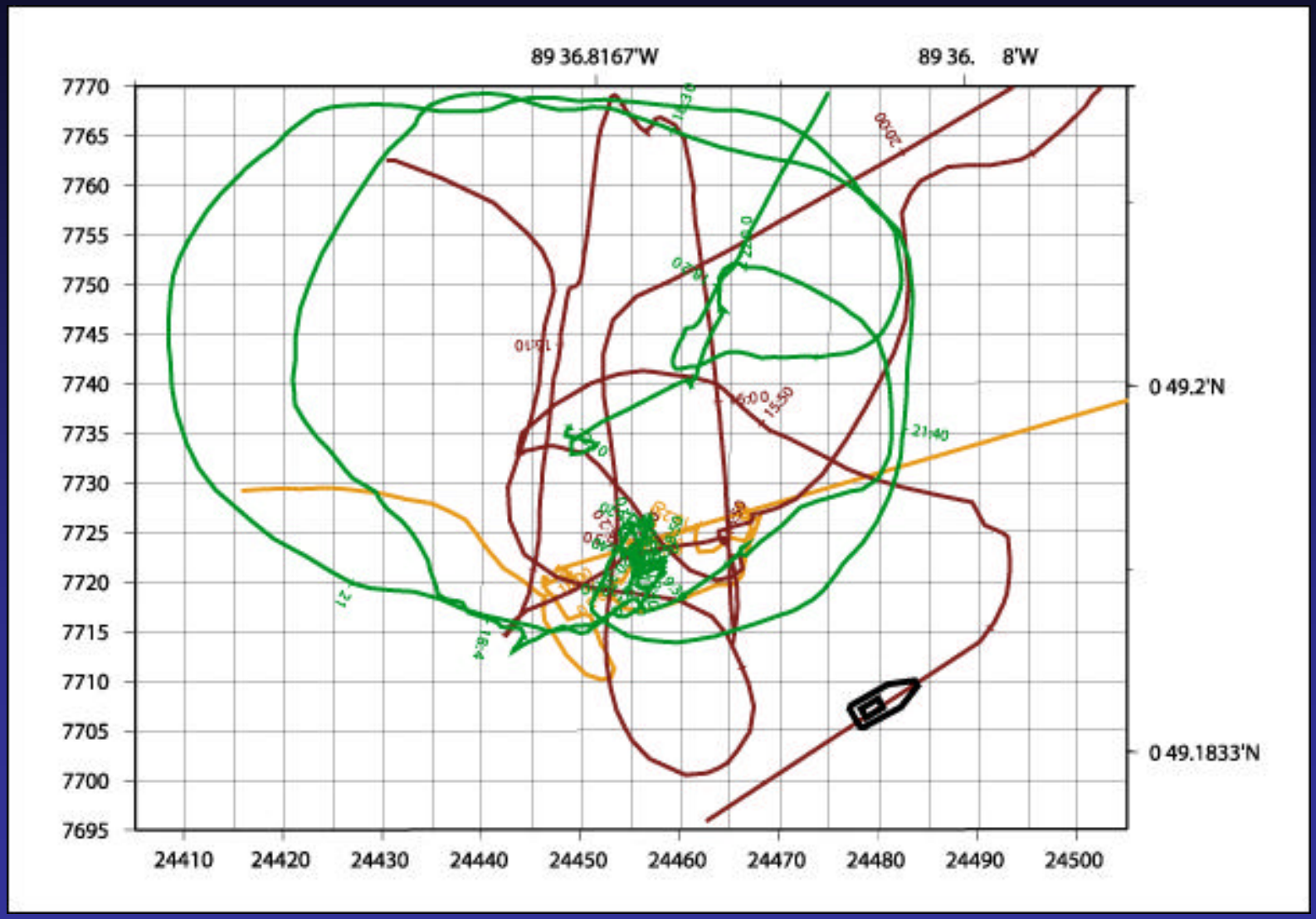



-89° 37.2
-89° 37
-89° 36.8
-89° 36.6
-89° 36.4
-89° 36.2
-89° 36
-89° 35.8
-89° 35.6
8500
8000
7500
0° 49.6
0° 49.4
0° 49.2
0° 49
Ext.Sulfide
Calyfield
17:00
18:00
19:00
05:00
04:00
24000
24500
25000
25500
26000
26500
1620 1630 1640 1650 1660 1670 1680 1690 1700 1710 1720 1730 1740 1750 1760 1770 1780 1790 1800
Depth (m)
km
0
0.4
0.8
GMT 2002 Aug 17 16:54:44
89.5W_nearbottom.ps (10 m contours)


-89° 37.2
-89° 37
-89° 36.8
-89° 36.6
-89° 36.4
-89° 36.2
-89° 36
-89° 35.8
-89° 35.6
8500
8000
7500
0° 49.6
0° 49.4
0° 49.2
0° 49
24000
24500
25000
25500
26000
26500
-0.01
0.01
0.03
0.05
Temperature Anomaly (°C)
km
0
0.4
0.8
GMT 2002 Aug 17 17:52:02
89.5W_nearbottom.ps (10 m contours)






89 36.8167'W
89 36. 8'W
0 49.2'N
0 49.1833'N
7770
7765
7760
7755
7750
7745
7740
7735
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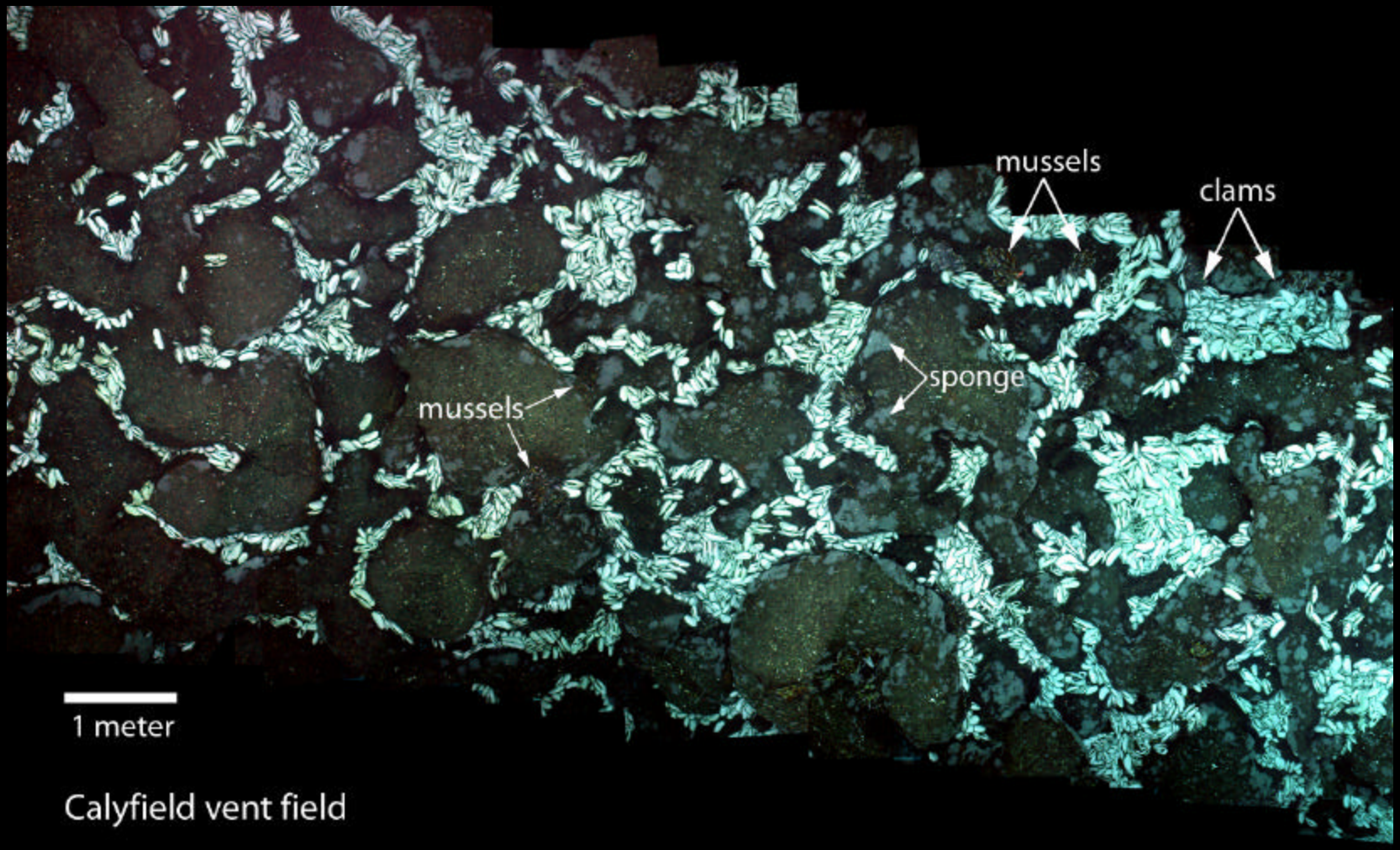
24470
24480
24490
24500



Calyfield Mosaic

(Nikon digital camera system on Alvin; 13 images)

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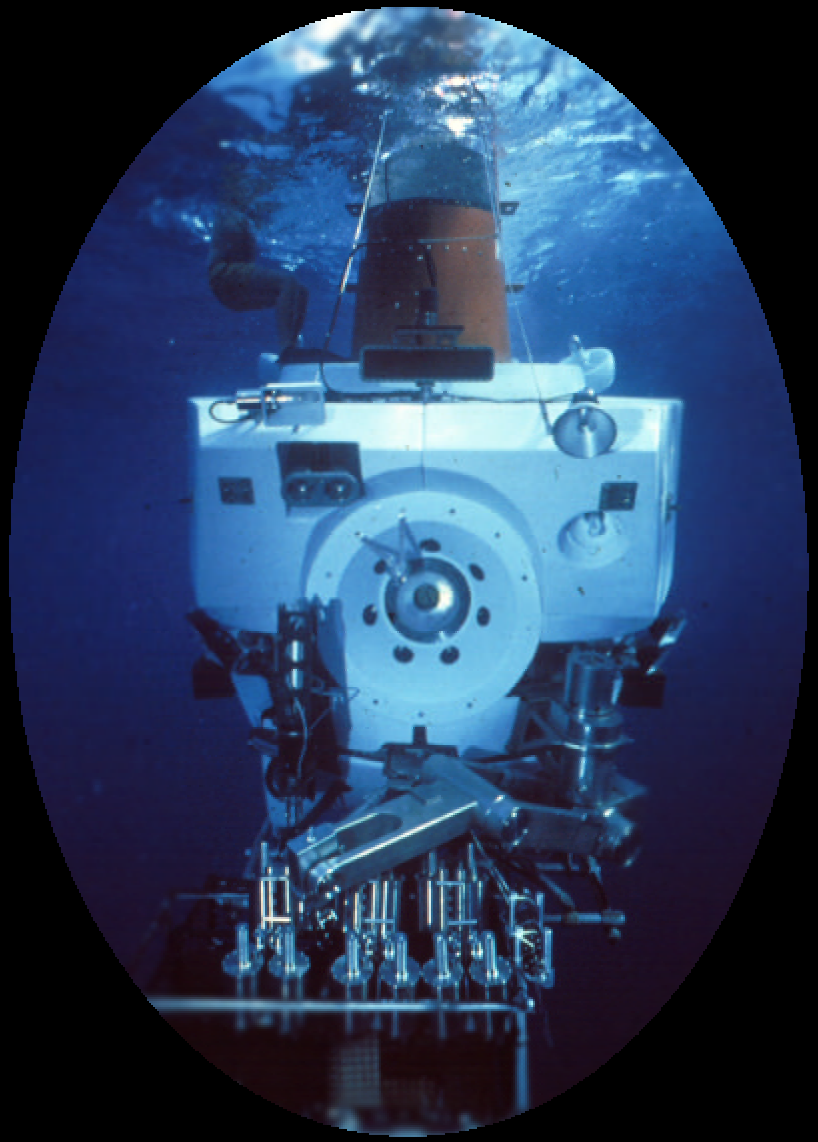
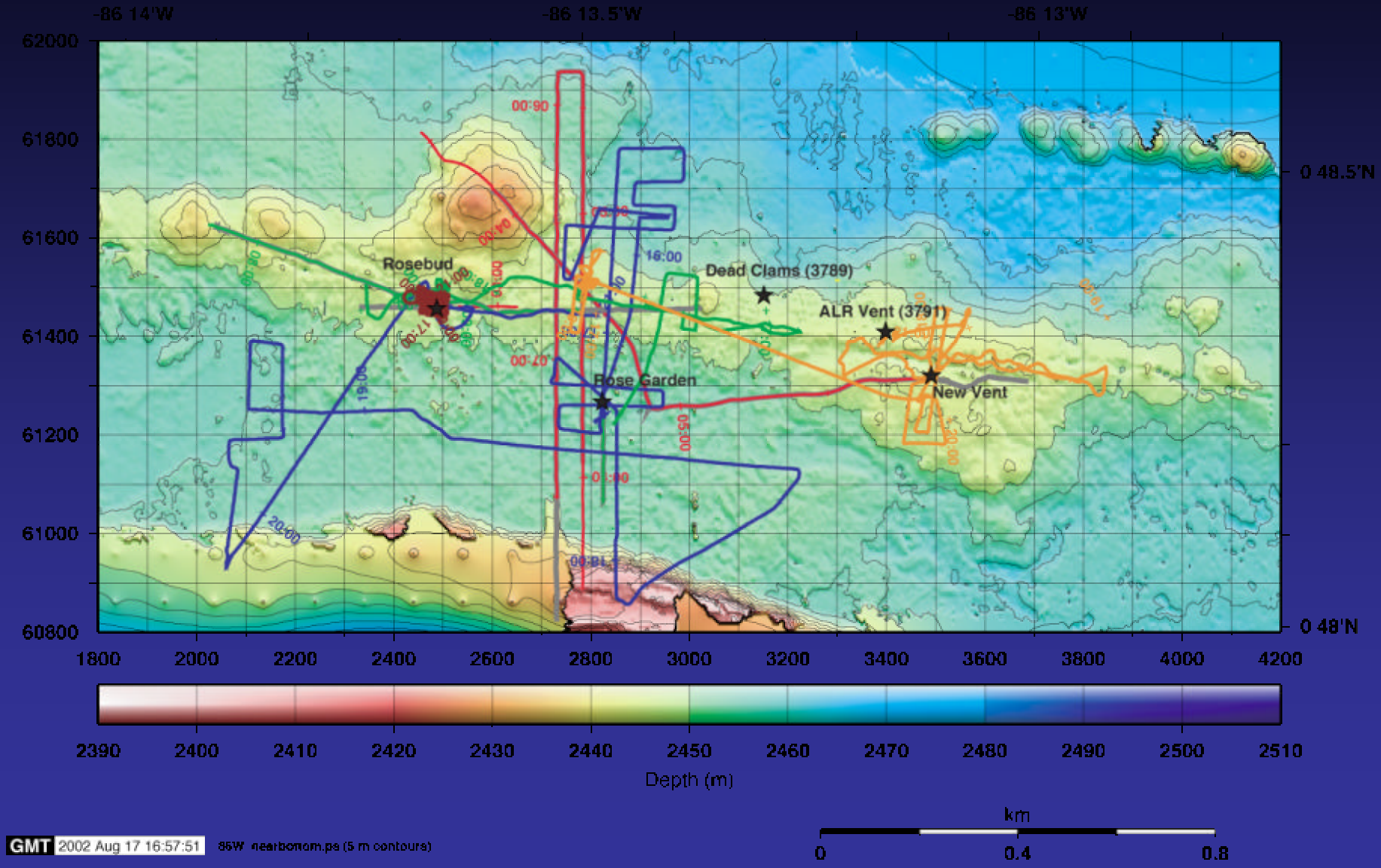
Summary of Highlights

1. Surveyed three regions of the Galápagos Rift (86°13'W, 88°59'W, 89°37'W)
2. Rose Garden (86°13'W) considered an area of recent eruption- "paved over"
3. Recent lava flows and young communities at Rosebud (86°W)
4. Discovery of clam field (Calyfield) at 1660m
5. New species of vent-endemic sponge
6. Discovery of extinct high-temperature sulfide chimneys (89°36W)
7. Effective vent detection with ABE and synergism with Alvin operations
8. Education: 25th An. CD; Dive and Discover, NOAA, NGeo; NPR; NGeo TV



NCC 1701/B
ABE

ABE micro-bathymetry, Alvin tracks, and TowCam lines