

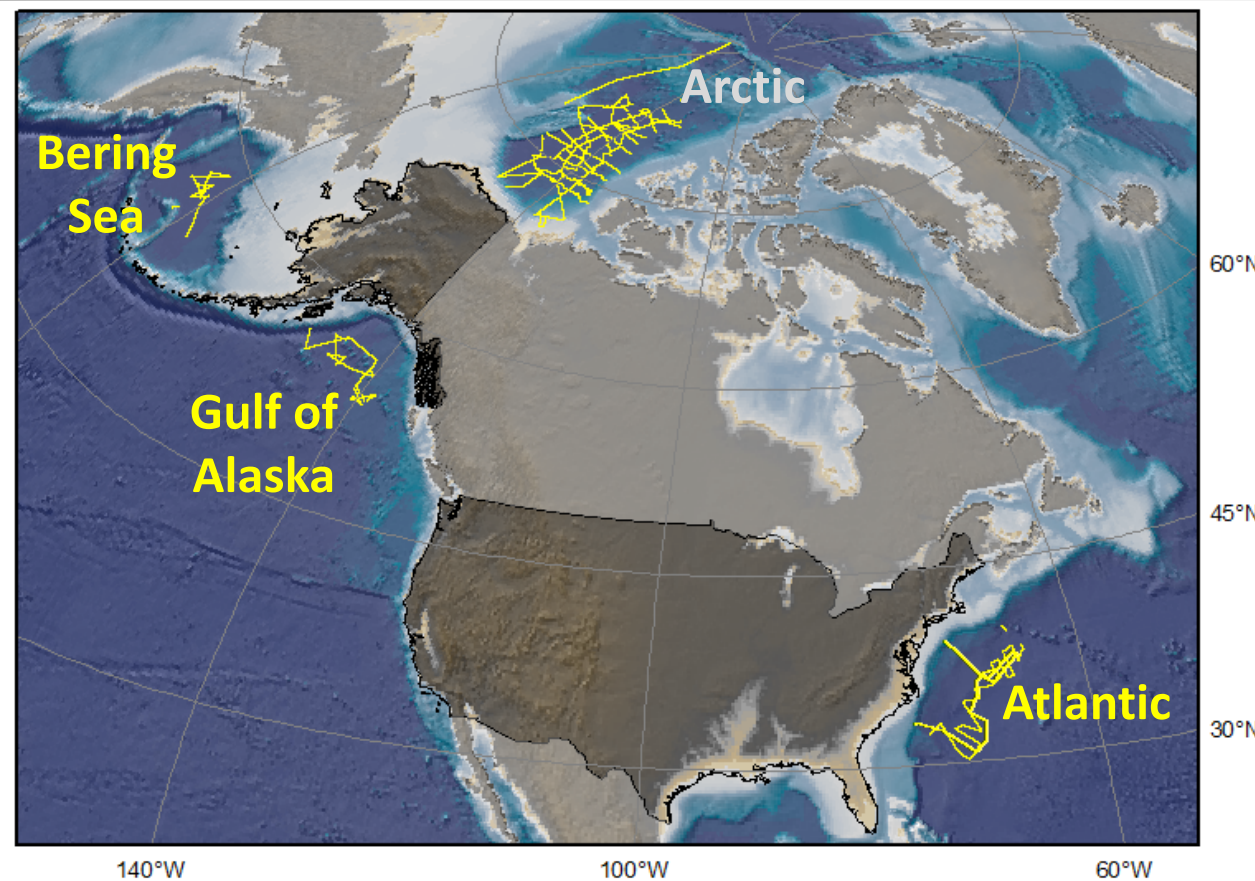
USGS Update on the U.S Extended Continental Shelf Project in the Atlantic

Preliminary Science Results

MLSOC
San Francisco
December 13, 2015



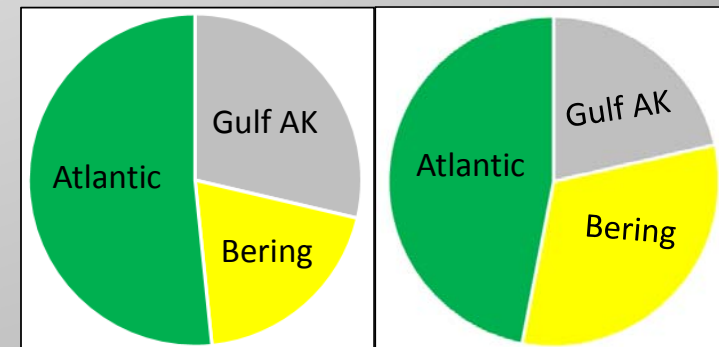
Langseth Data Collection and Analysis



3 regions
4 Cruises
11,160 km mcs data
More km MBES & 3.5 kHz
98 days at sea

Km MCS
(11,160)

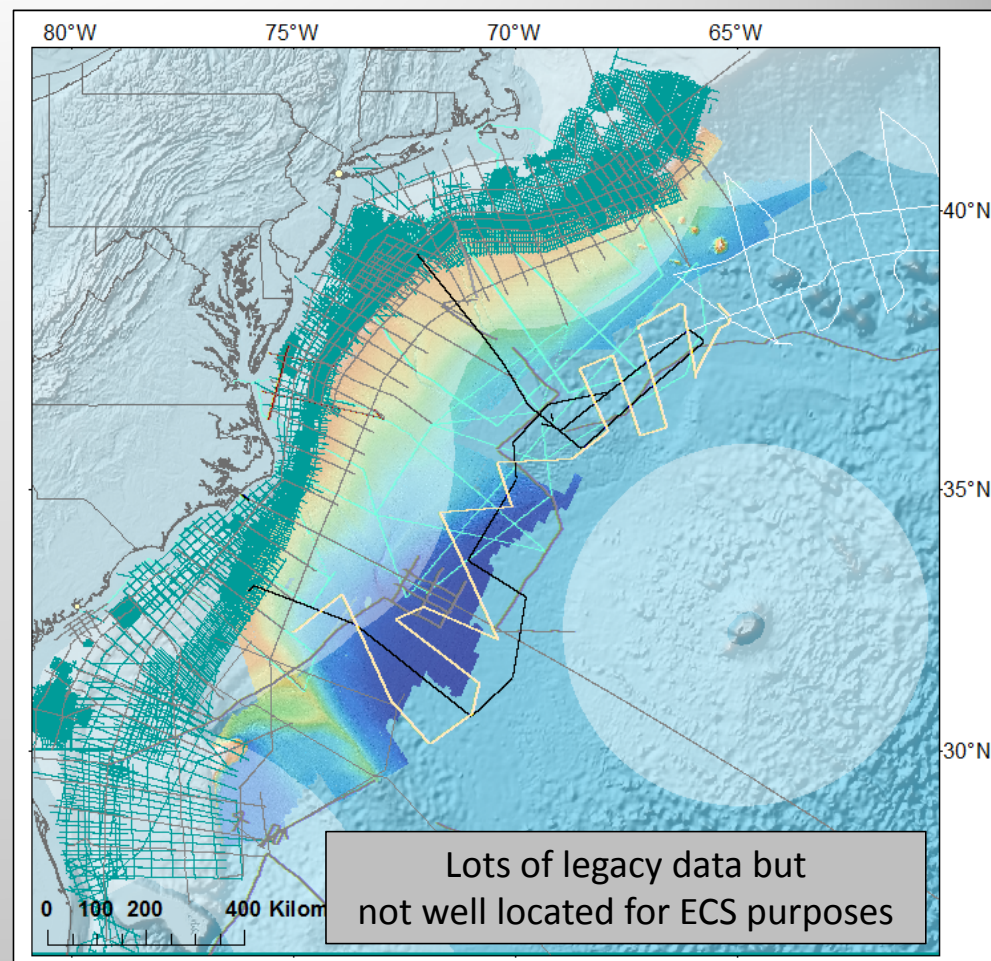
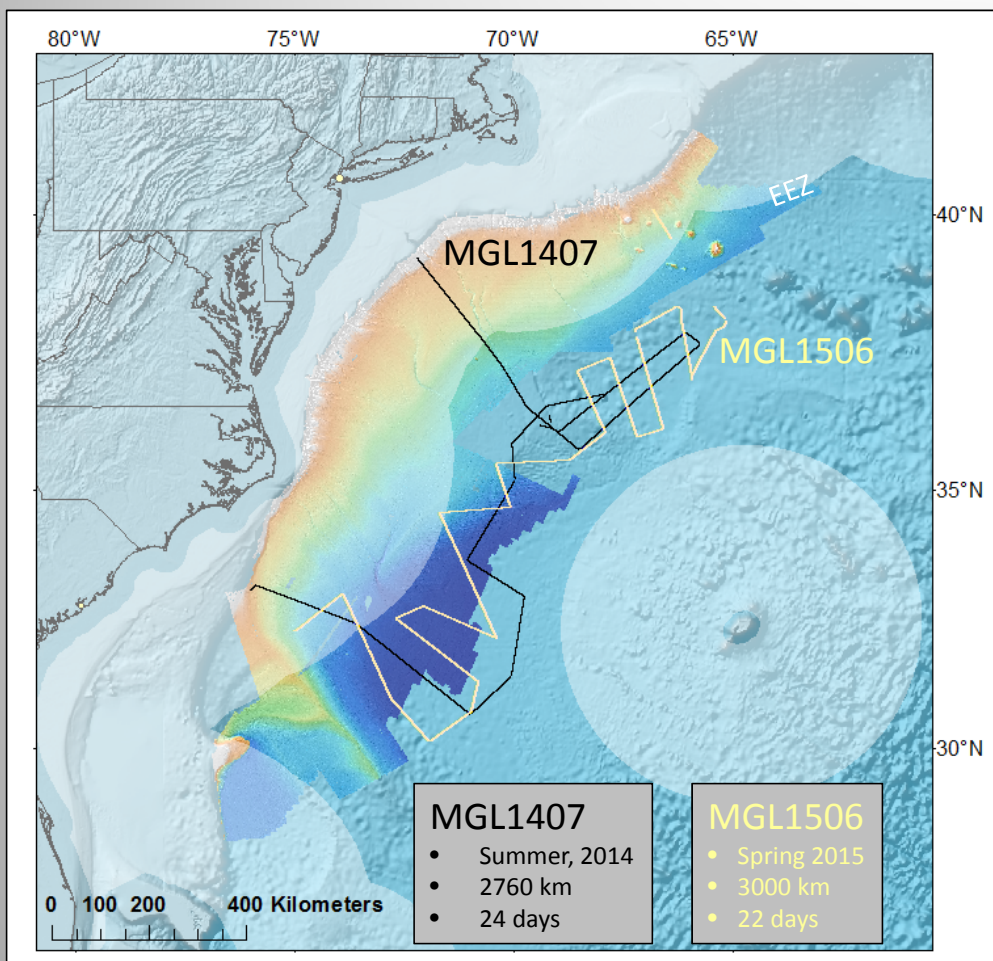
Days at Sea
(98)



Atlantic Trackline Coverage

MGL1407 – 21 Aug- 13 Sep 2014

MGL1506 – 10 Apr-2 May 2015

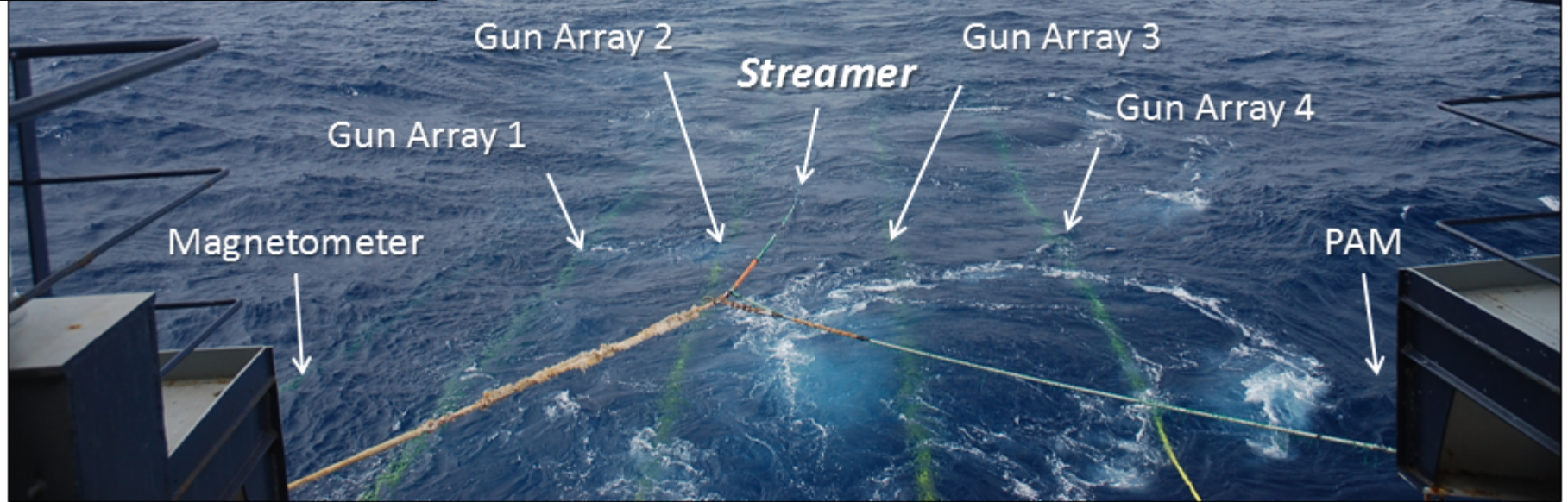


Atlantic

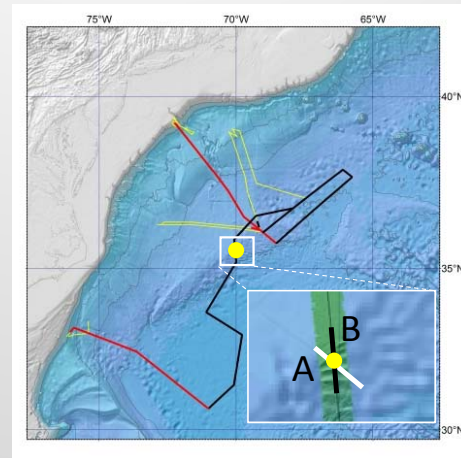
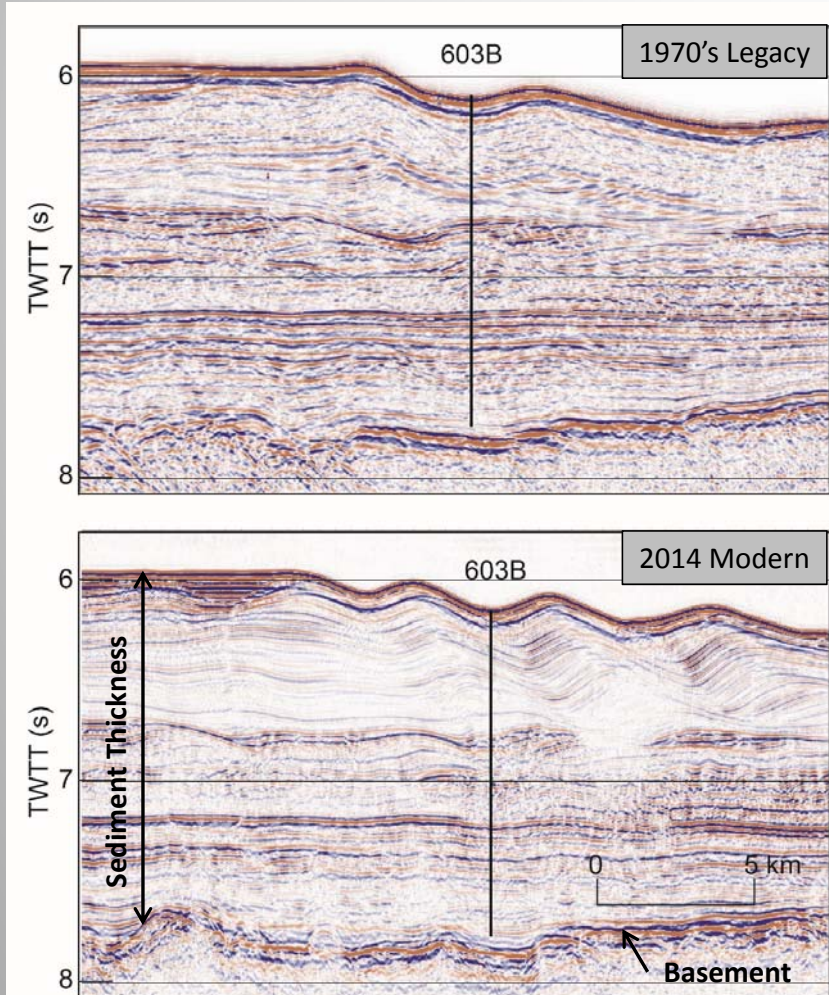


Towing Configuration

6600 in³ – 36 airguns
8 km streamer
1 or 2 ms sample
25 or 50 m shot interval



Legacy vs Modern Imaging



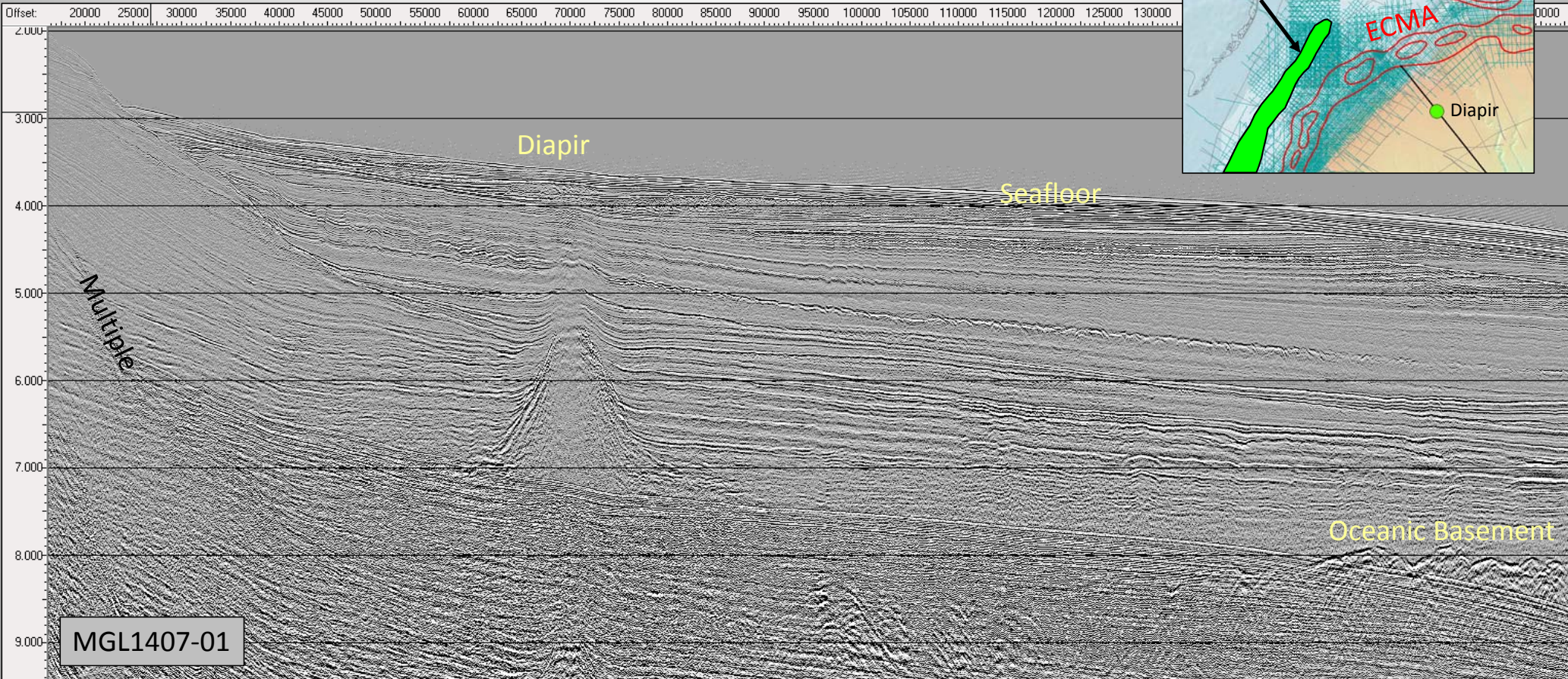
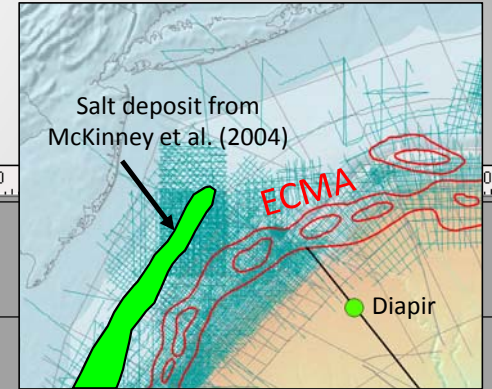
1970's legacy

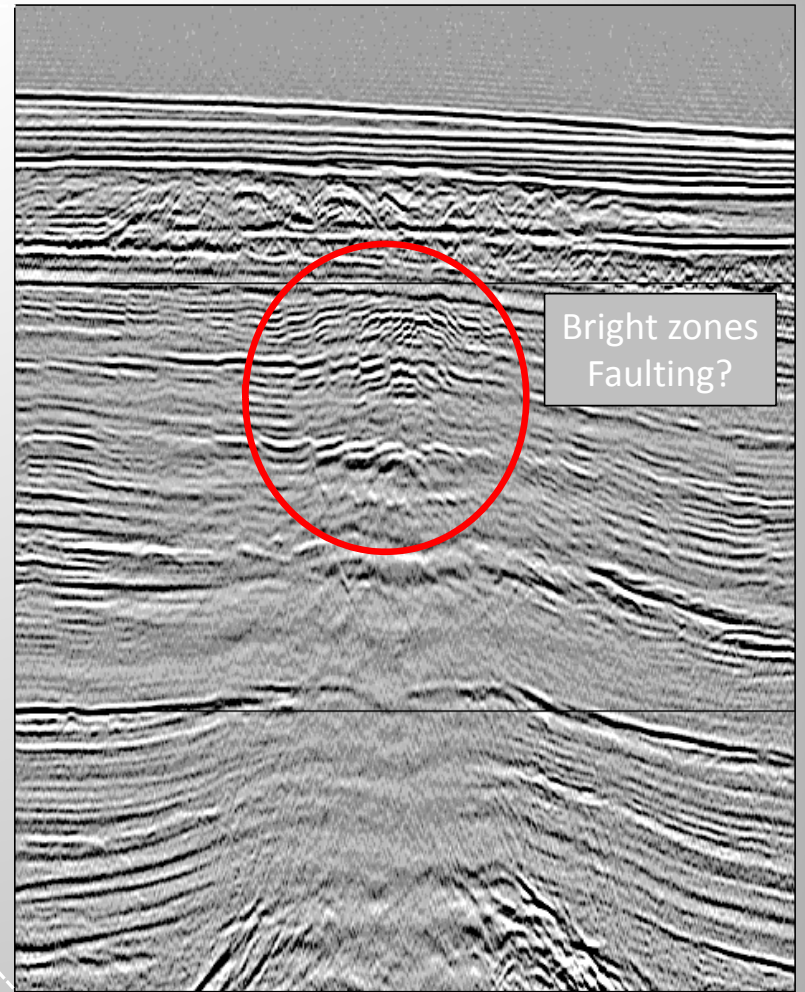
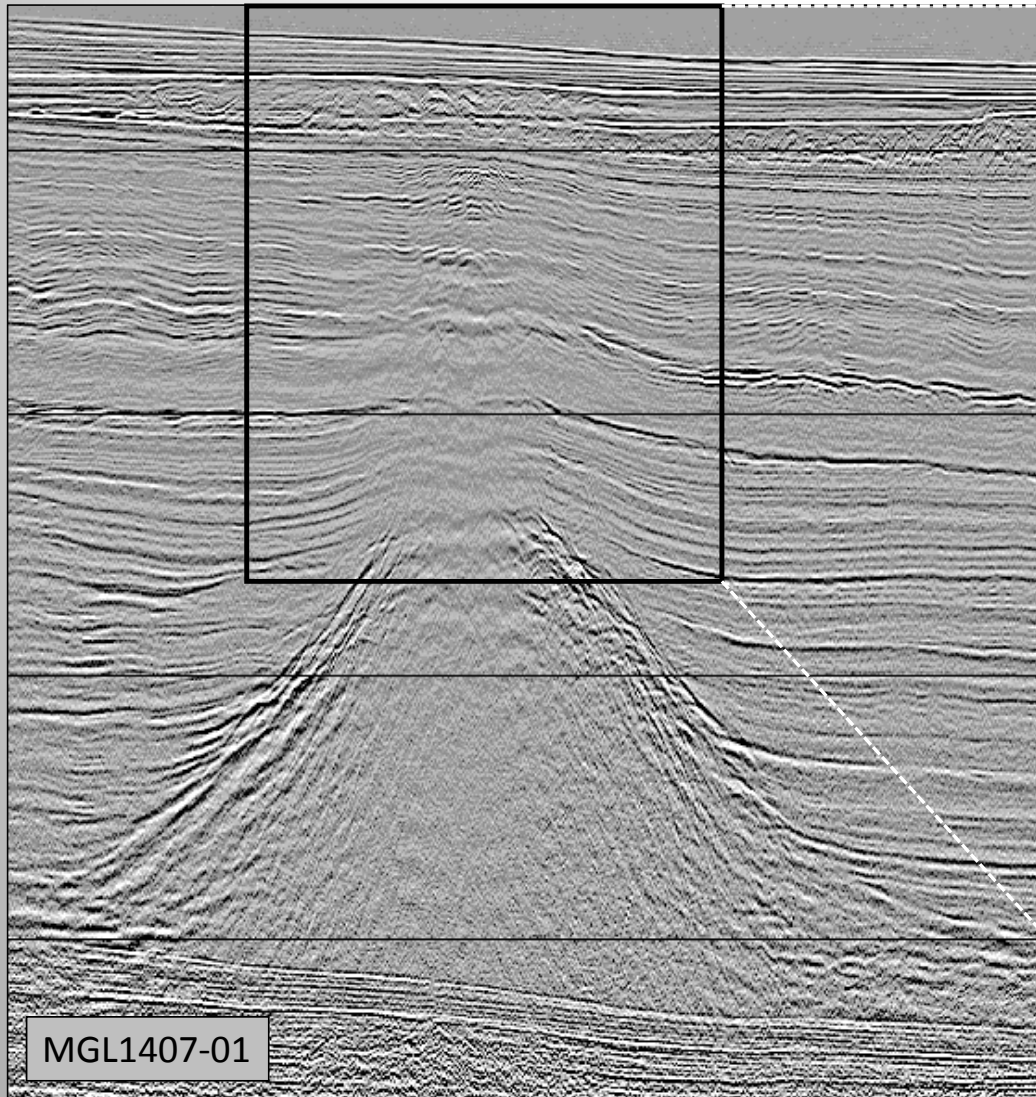
- 24 channels
- 100 m channels
- 1800 in³ source

MGL

- 636 channels
- 12.5 m channels
- 6600 in³ source

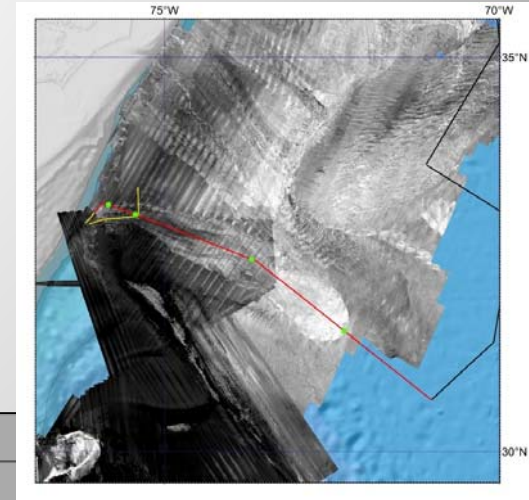
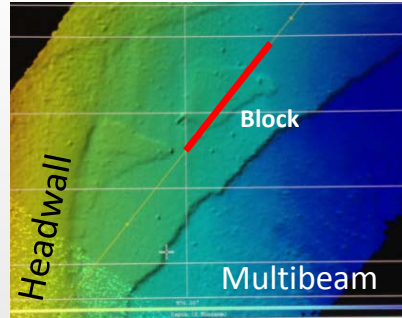
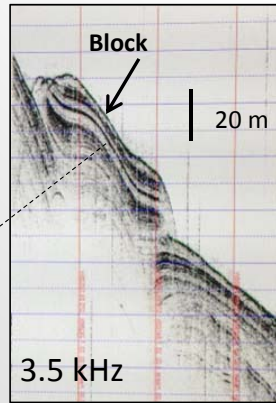
BCT Diapir



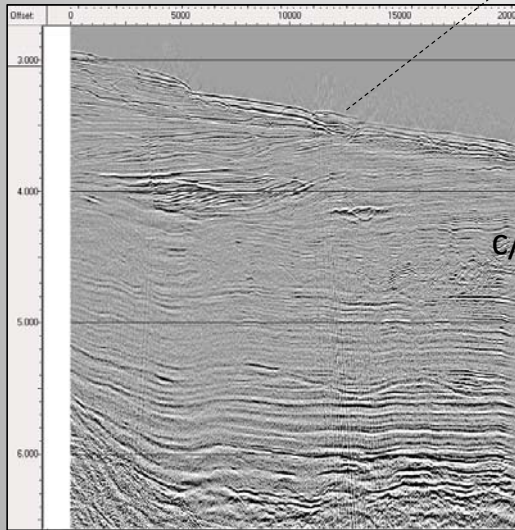


Ages of diapirism and fluid deformation

Cape Fear Landslide



Headwall



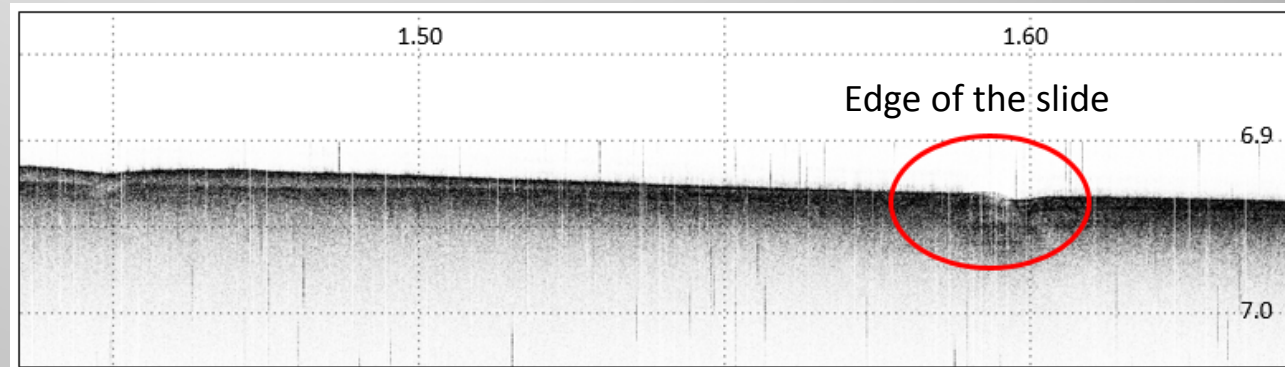
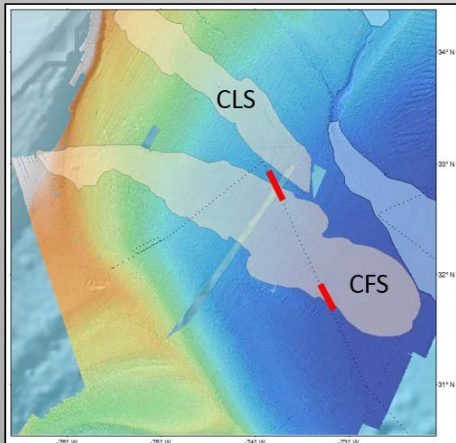
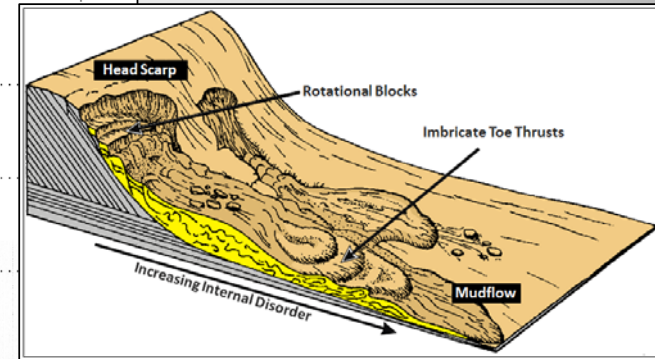
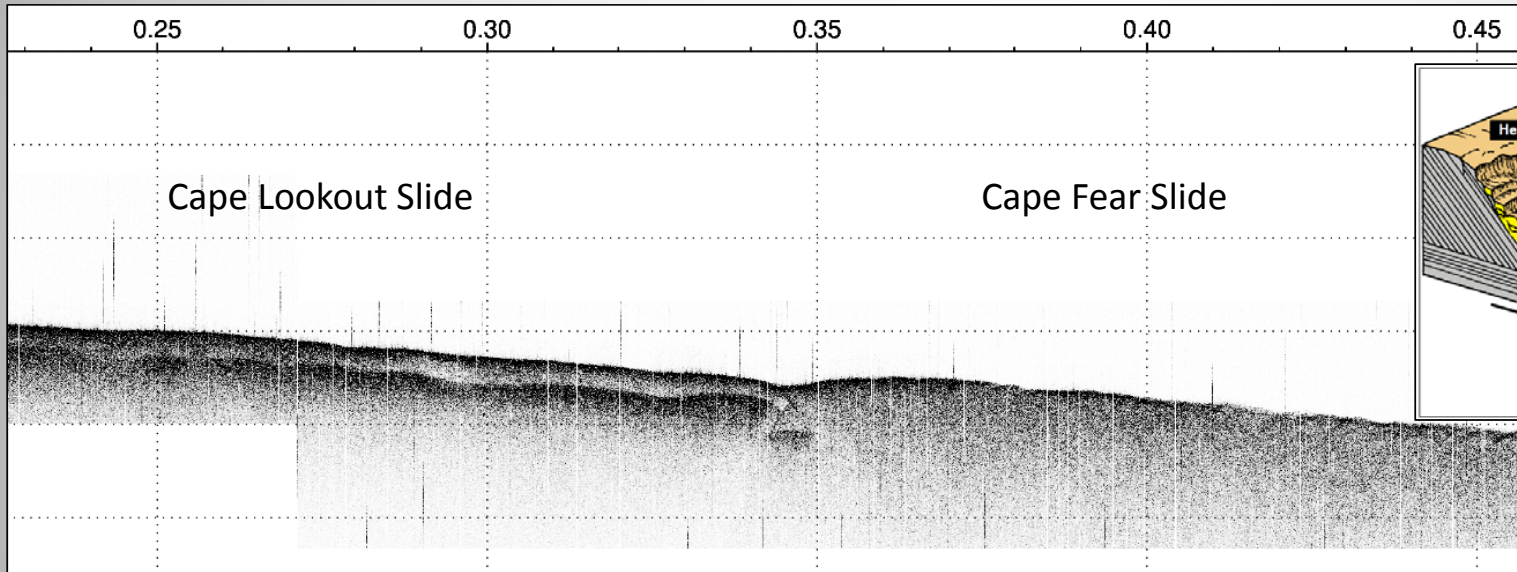
c/c

Glide plane?

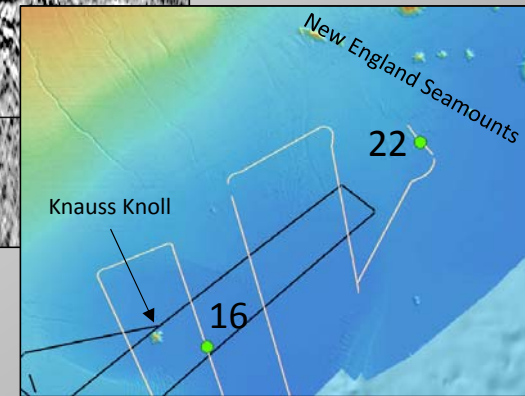
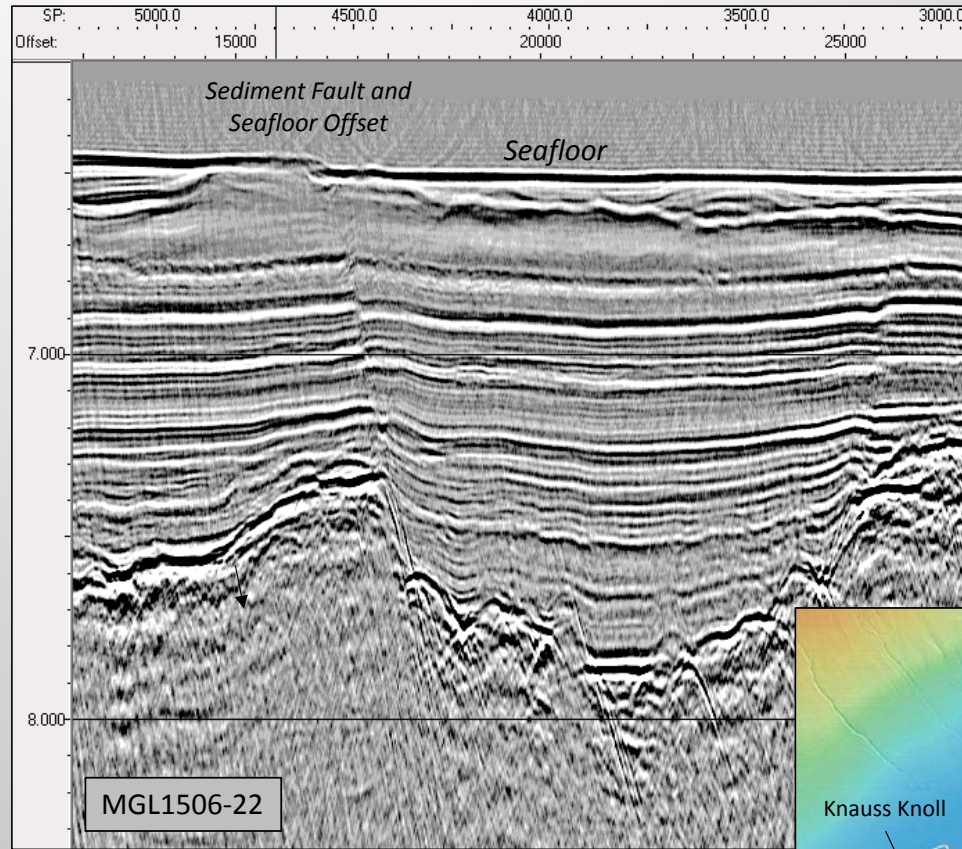
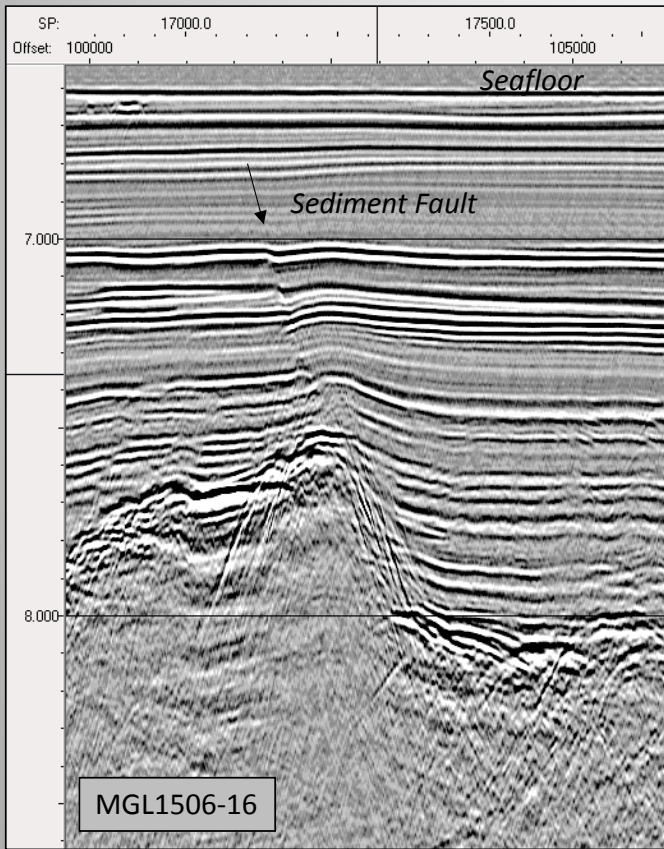
Older MTD

Cape Fear Diapir
(Off line)

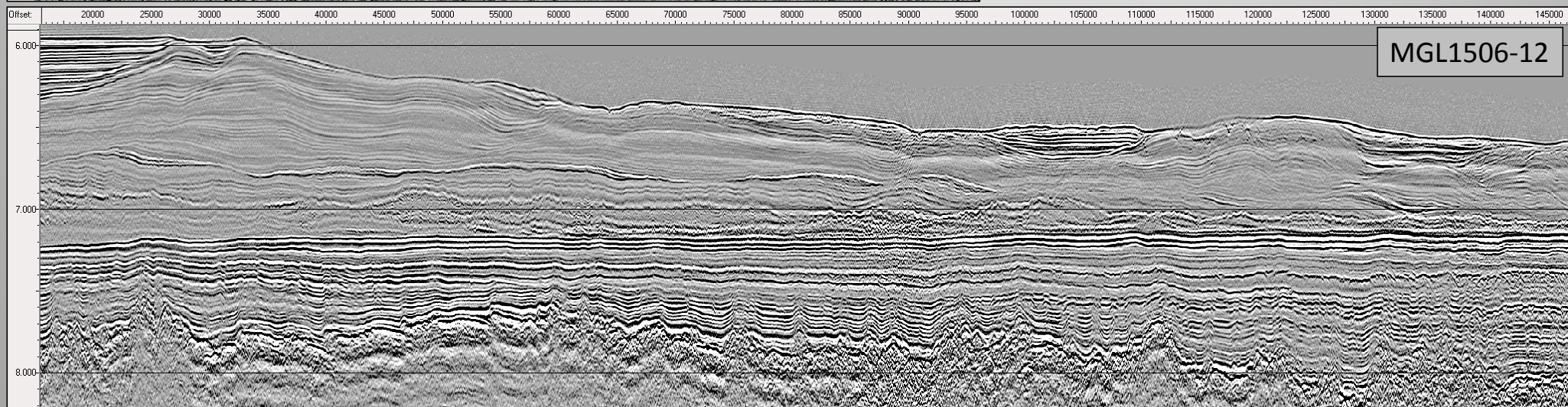
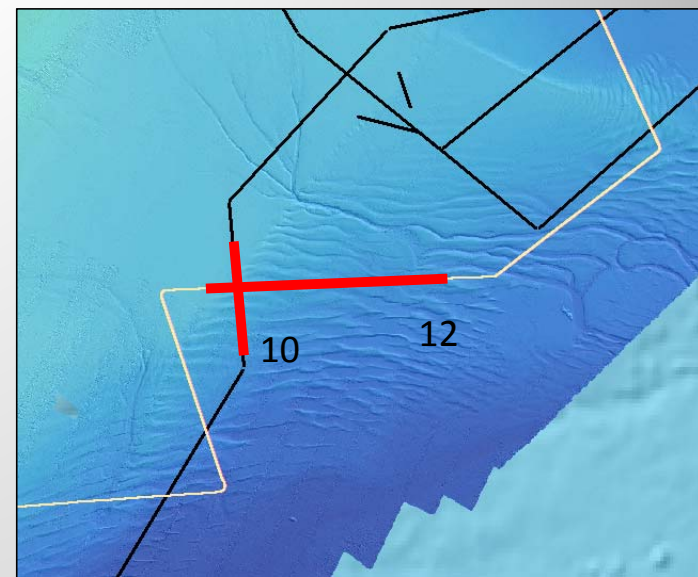
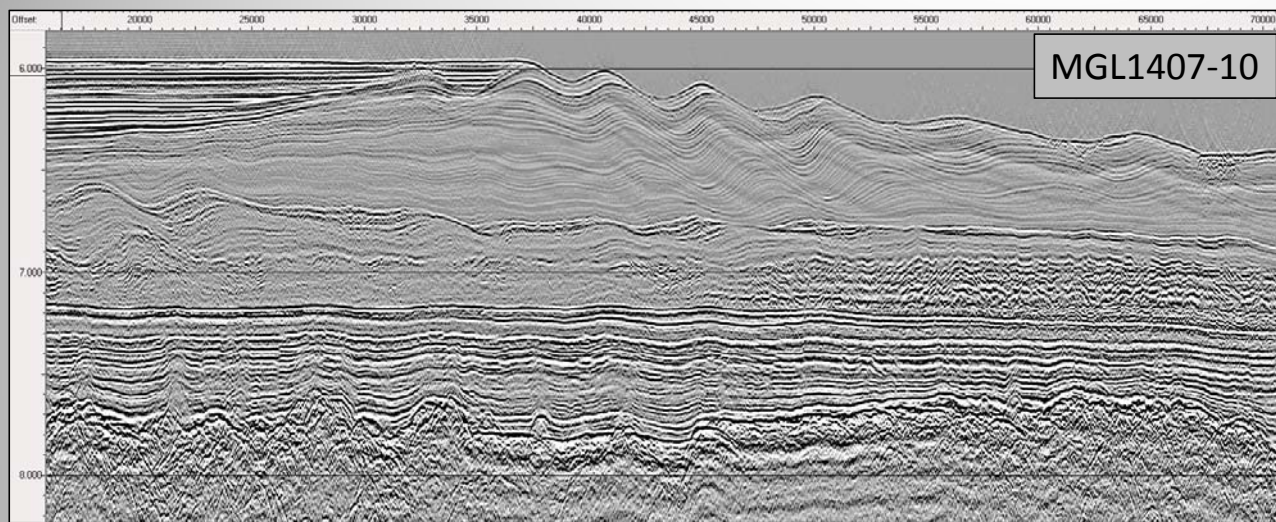
MCS1506-02 – Cape Fear Slide truncates Cape Lookout Slide



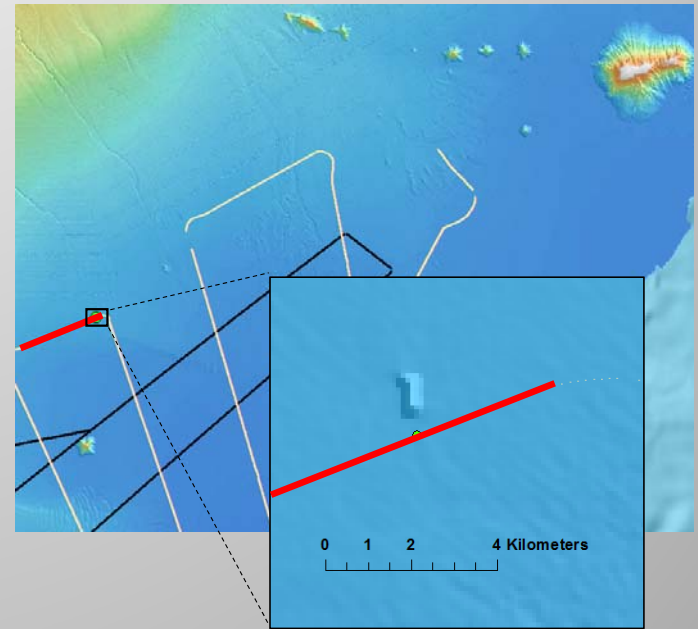
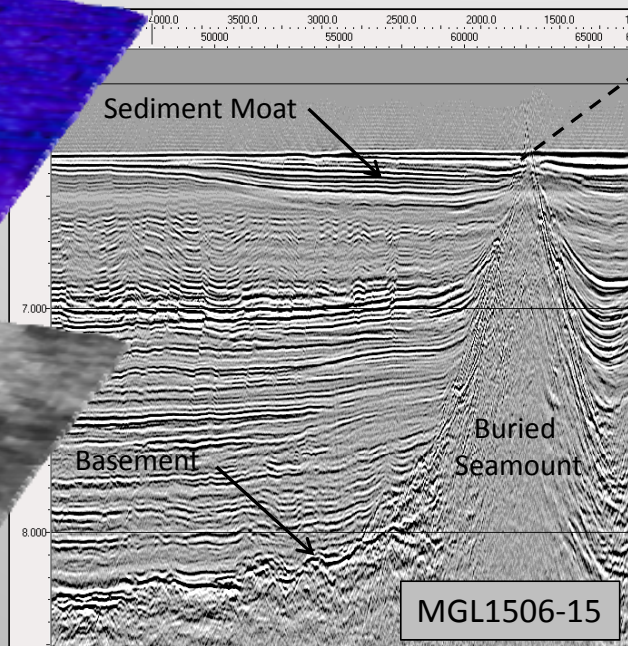
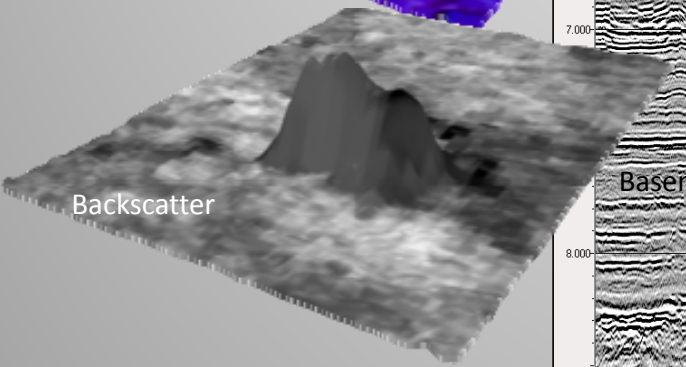
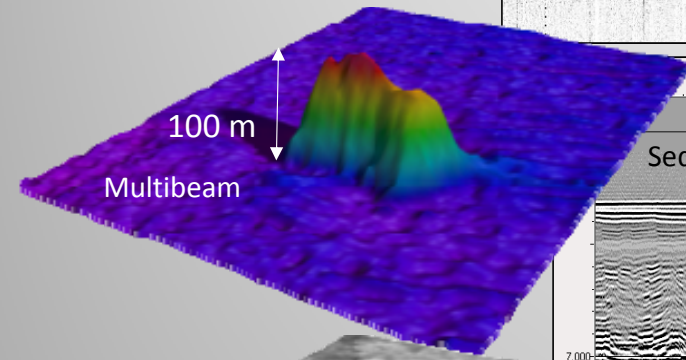
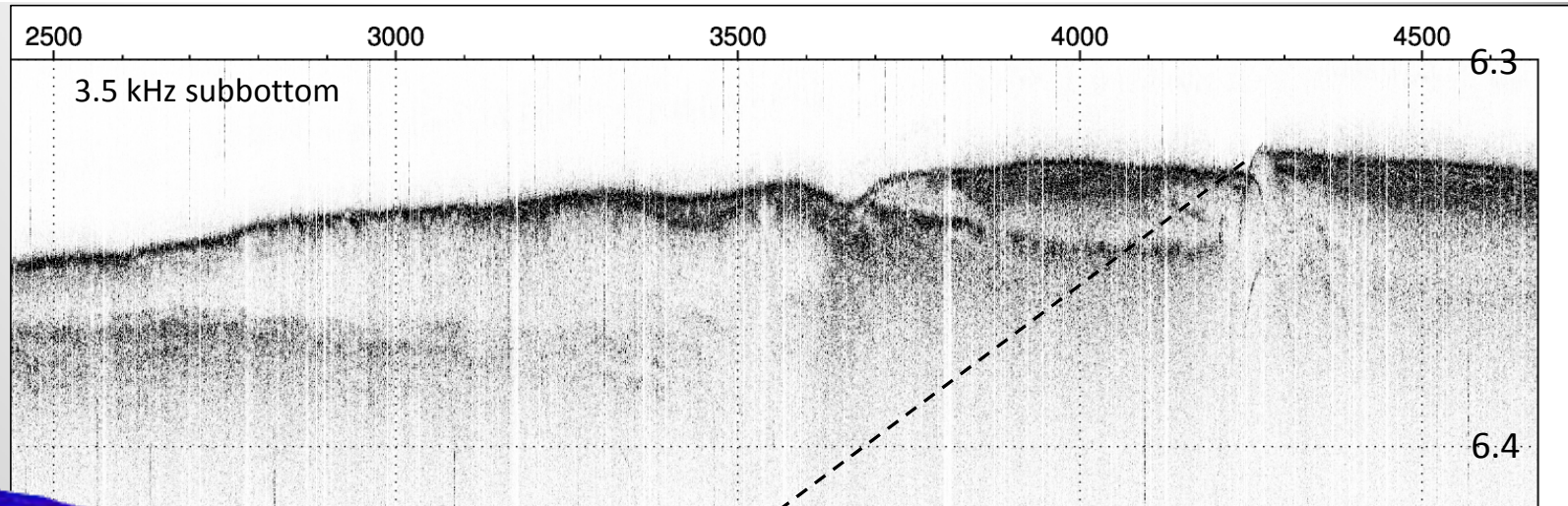
Young Deformation

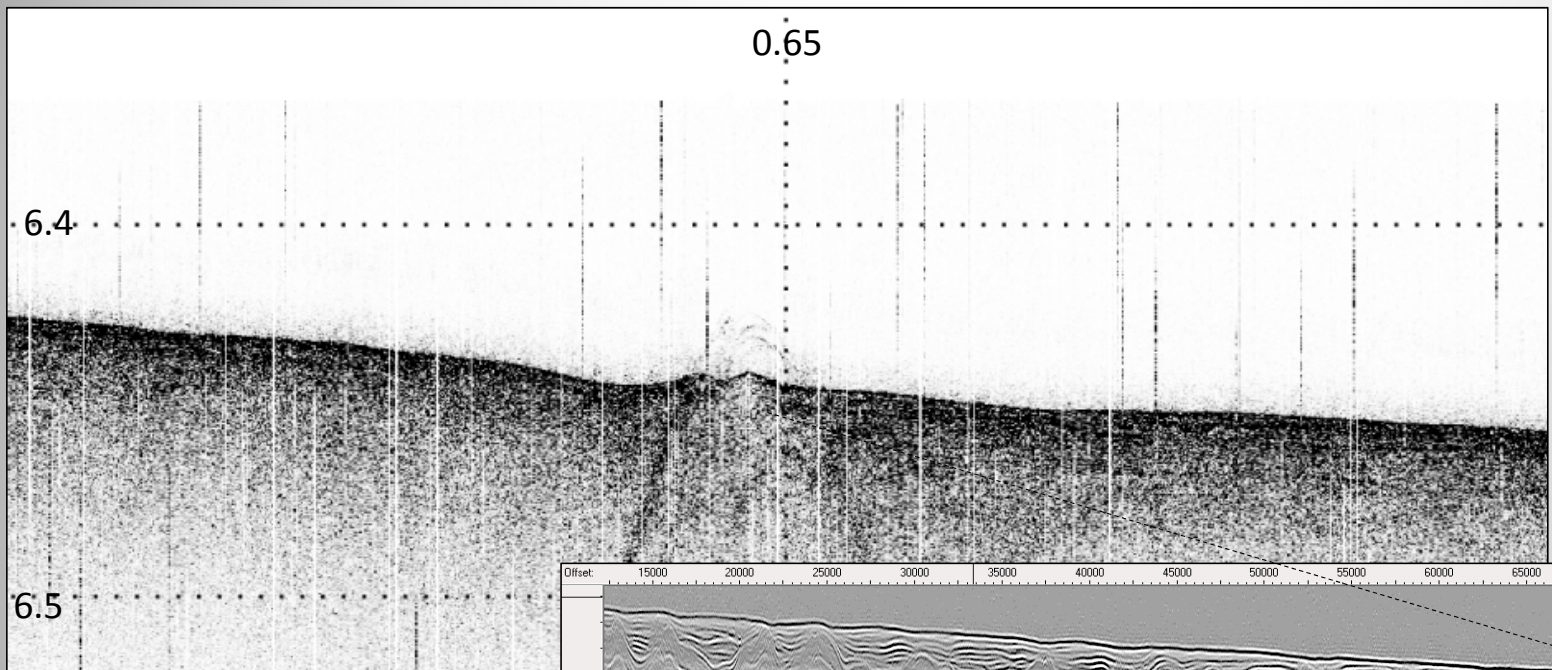


Hatteras Contourite Deposit

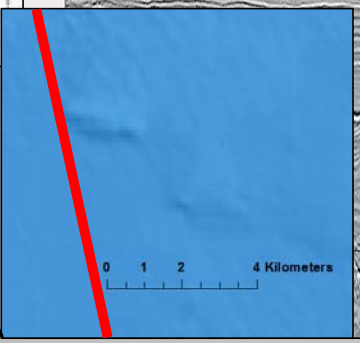
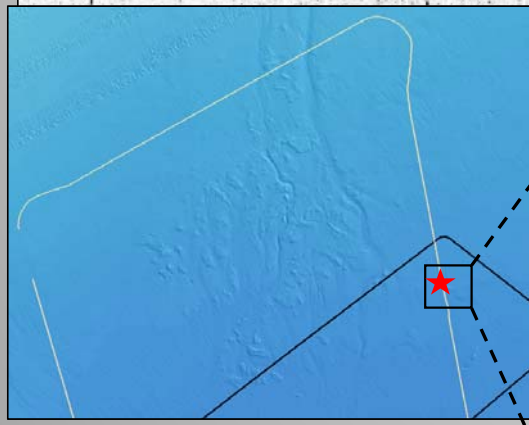
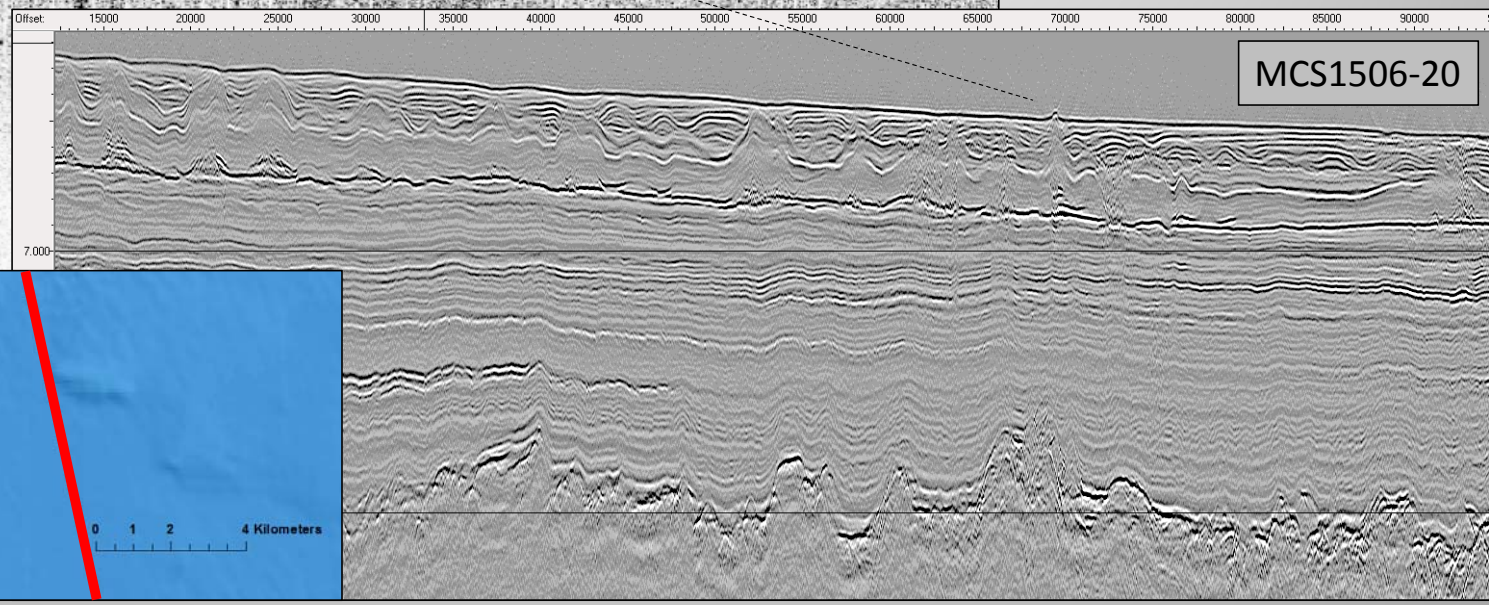


Buried Seamounds

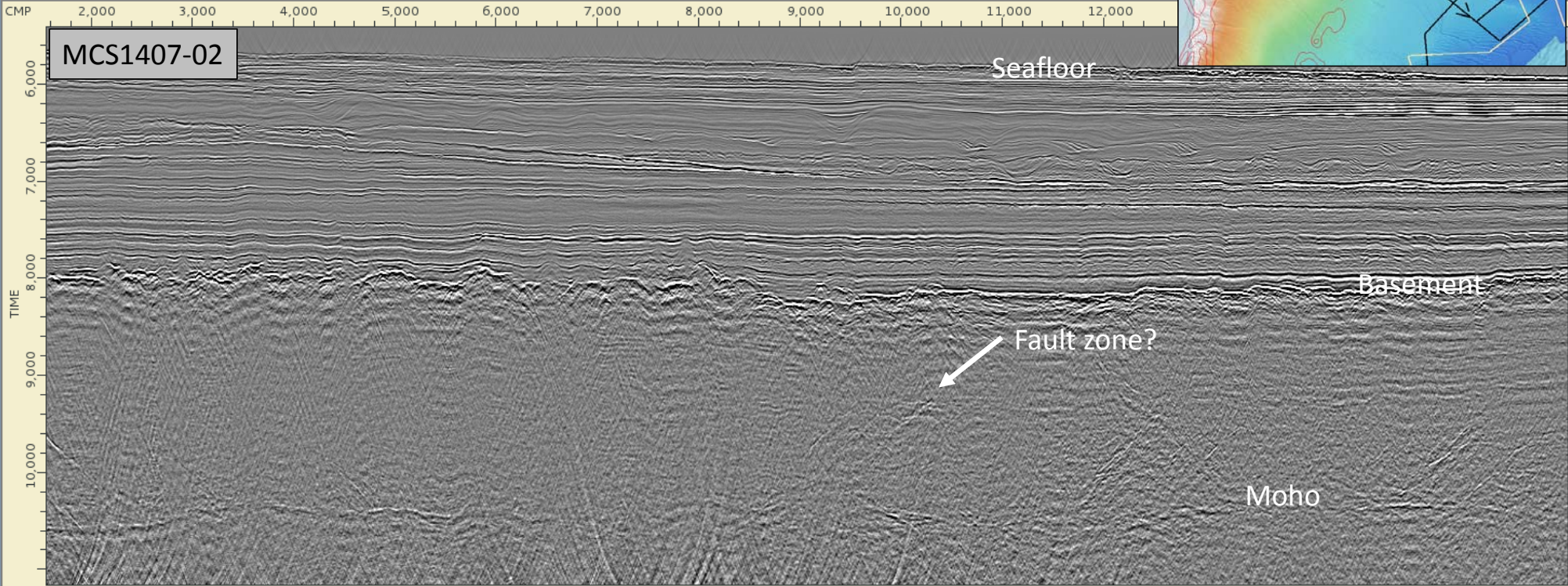


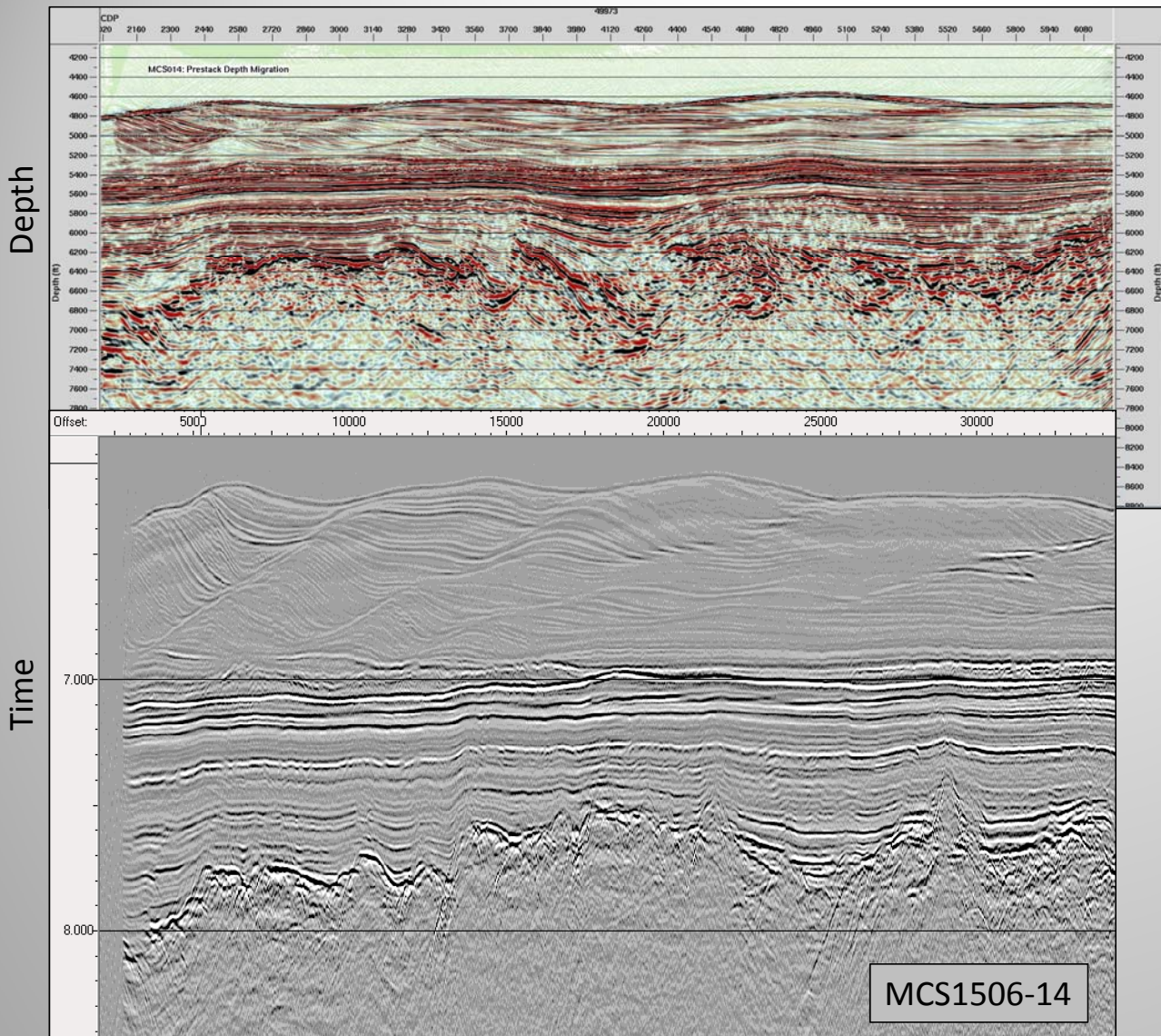


MCS1506-20
Mud diapir?
Eroded contourite?



Crustal Structure

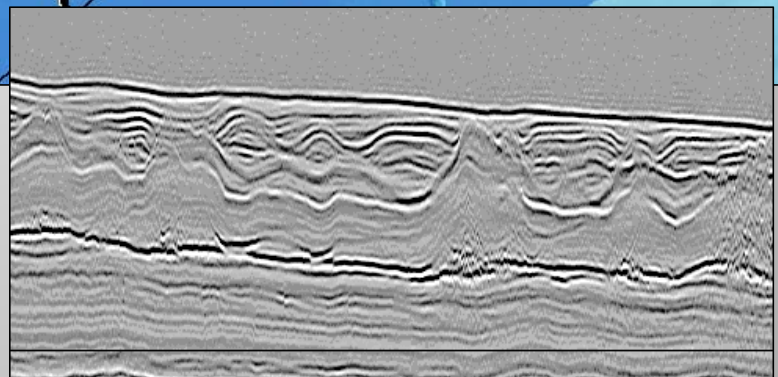
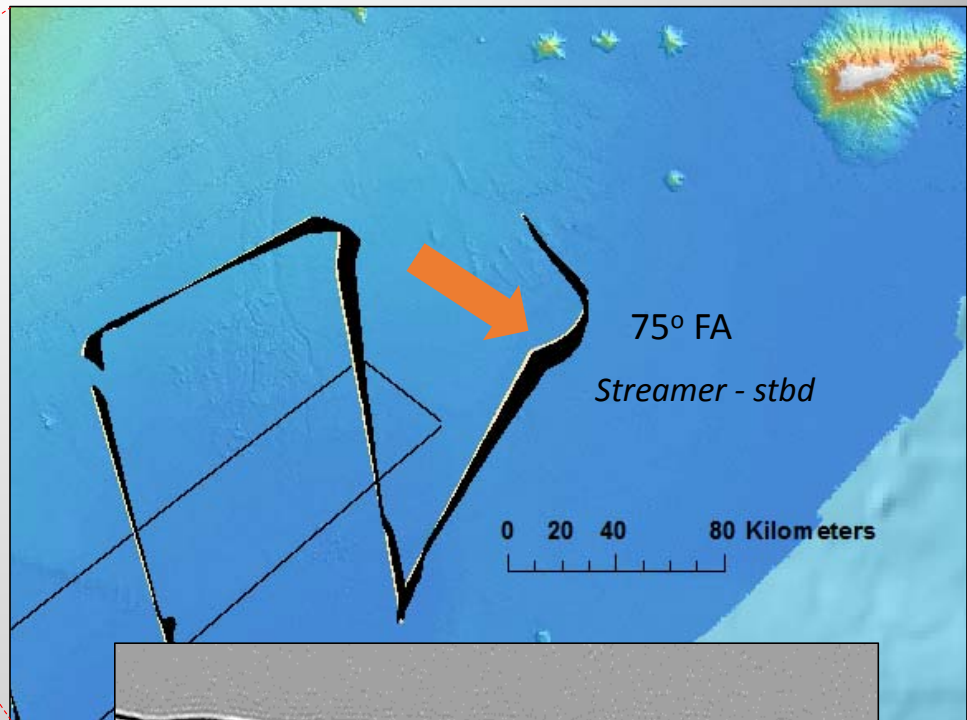
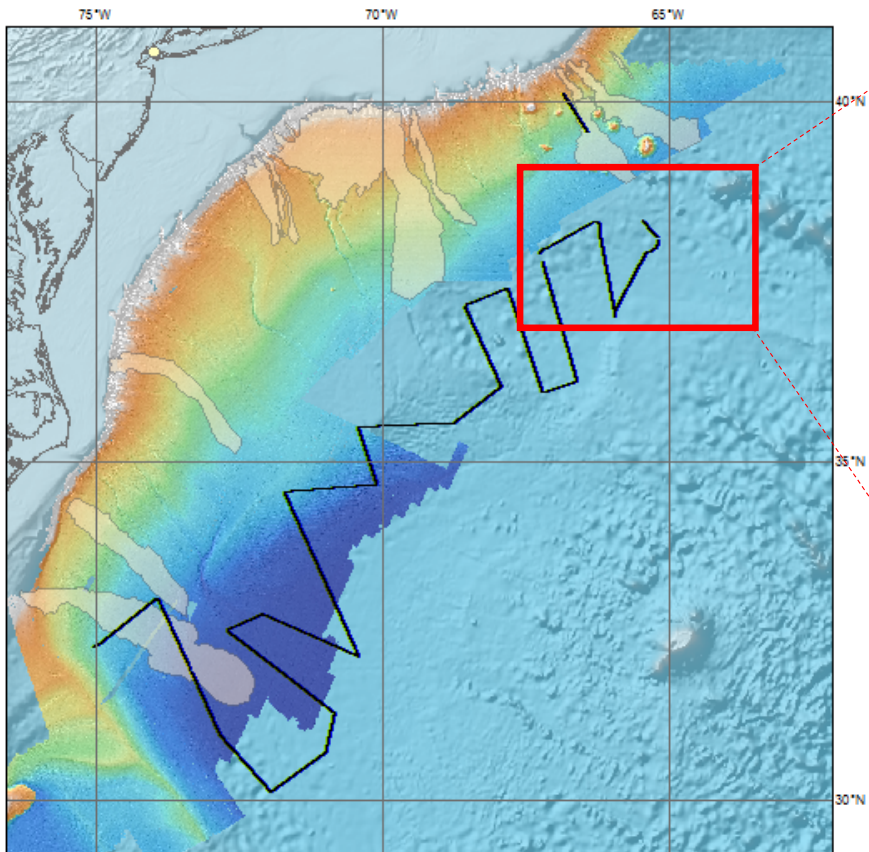




Additional Processing

- Pre-stack time or depth migration
- Automatic velocity picking
- Regional velocity model
- Near mutes for higher frequencies
- Depth conversion

MCS14 – Streamer Feather



Possibility of 3D Binning and Processing



NEPA/Environmental Compliance

During Airgun operations:

- MGL1407 - 1 power down – 3 unidentified dolphins - ~12 minutes
- MGL1506 - 1 mitigation for a dolphin ~15 min

Authorized Takes

- MGL1407 – 11,367
- MGL1506 – 12,764
- Total 24,131 animals

