

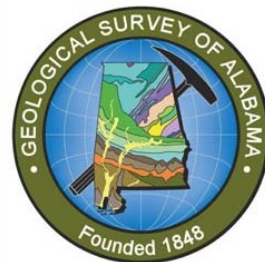
SOUTHEAST OFFSHORE STORAGE RESOURCE ASSESSMENT (SOSRA)

PROJECT NUMBER: DE-FE0026086

OFFSHORE CO₂ STORAGE POTENTIAL OF THE EASTERN GULF OF MEXICO

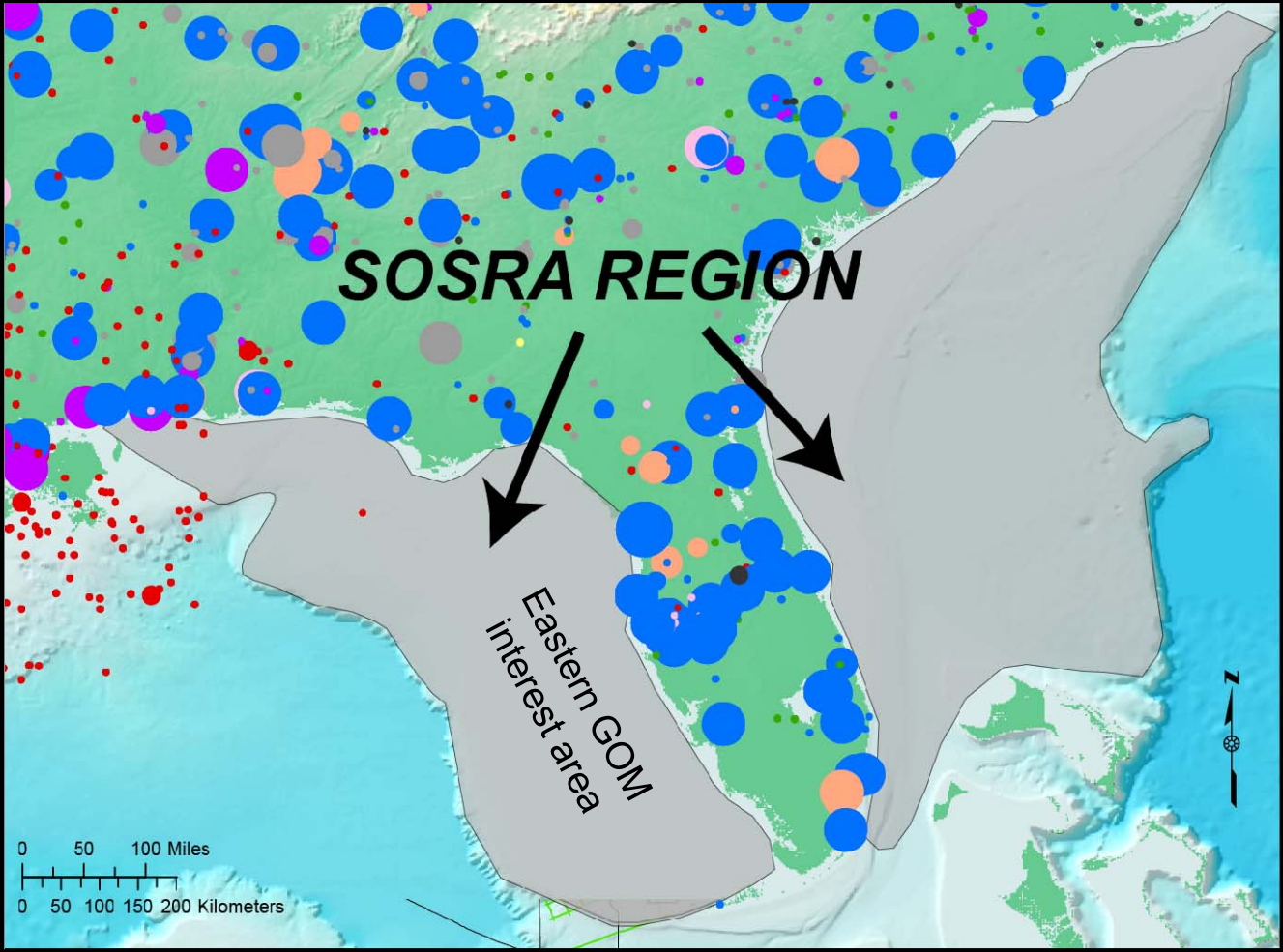
Jack C. Pashin, Avinash Chandra, Paul Charbonneau, and Jenny Meng, Oklahoma State University

Denise J. Hills, Guohai Jin, and Marcella R. Redden, Geological Survey of Alabama

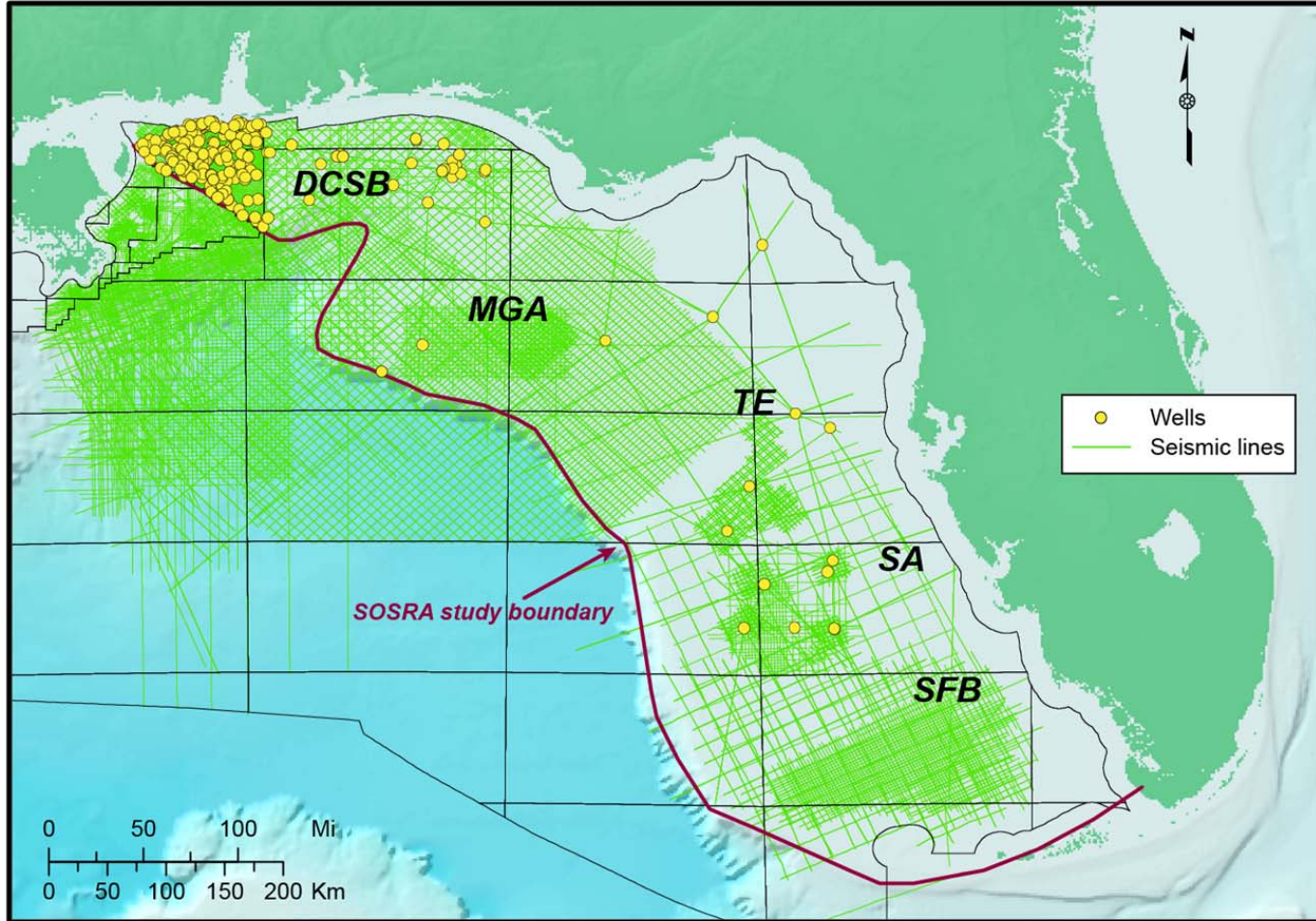


Carbon Management Technology Conference
Hilton Americas, Houston, TX
July 17-20, 2017

SUMMARY — SOSRA



STUDY AREA AND SUBREGIONS



DCSB DeSoto Canyon
Salt Basin

MGA Middle Ground
Arch

TE Tampa
Embayment

SA Sarasota Arch

SFB South Florida
Basin

*This material is based upon work supported by the
U.S. Department of Energy National Energy
Technology Laboratory.*

*Cost share and research support are provided by the
Project Partners and an Advisory Committee*

CRETACEOUS FACIES

SOSRA REGION

NETL EOR TEST
SECARB ANTHROPOGENIC TEST

SW

NE

~100 mi (160 km)

Continental margin

Citronelle area

Lower Cretaceous
reef trend

Platform lagoon

Shore zone

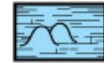
Coastal plain

Sea Level

Foreslope

**Pine Island, James, and
Rodessa carbonates**

Donovan sand



Limestone



Aggradational sandstone



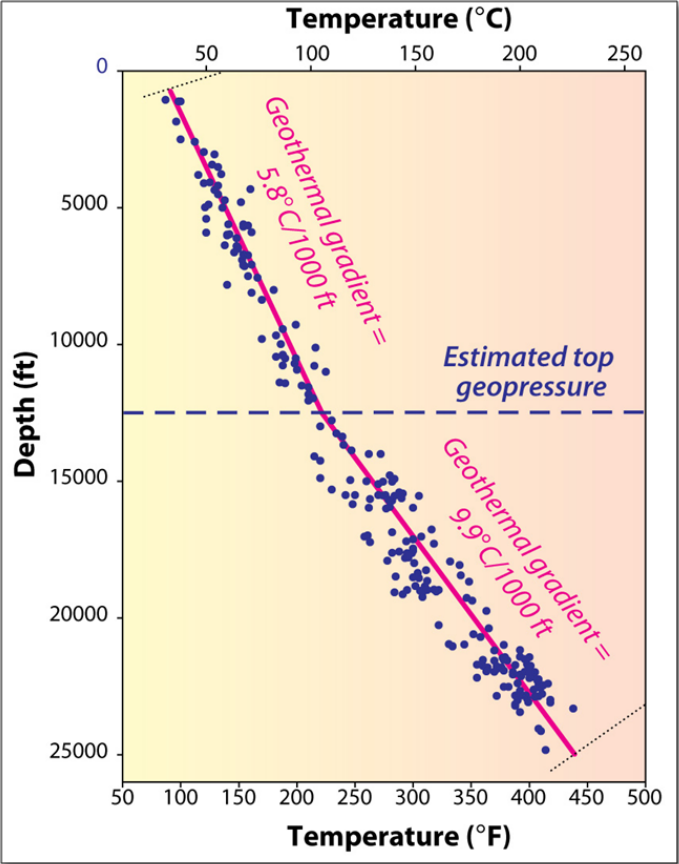
Variegated shale

1,000 ft
(300 m)

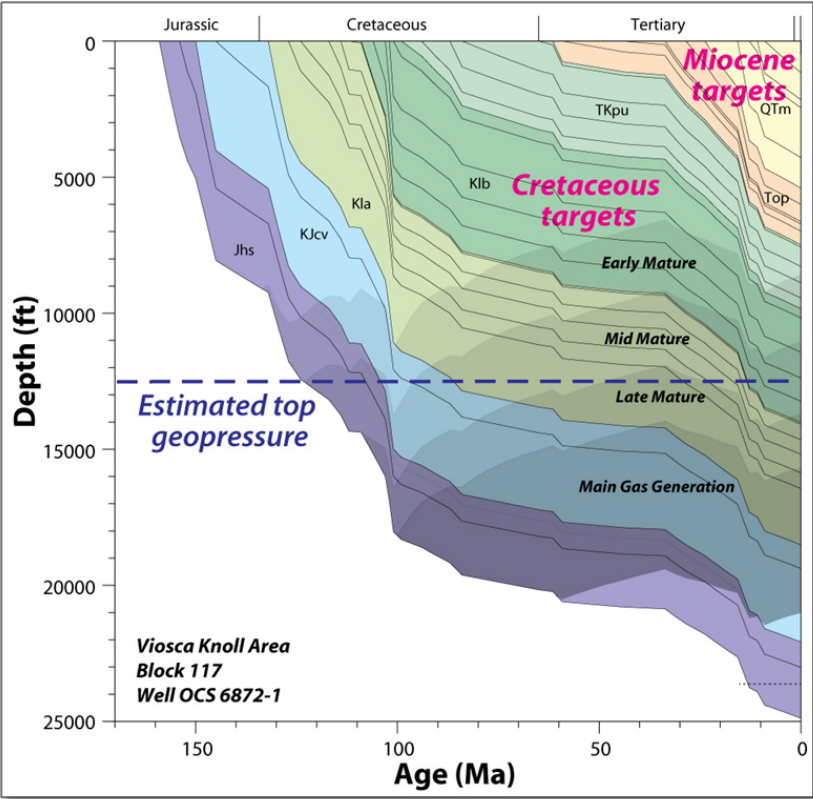
Pashin et al. (2014)

GEOTHERMAL AND BURIAL DATA, DCSB

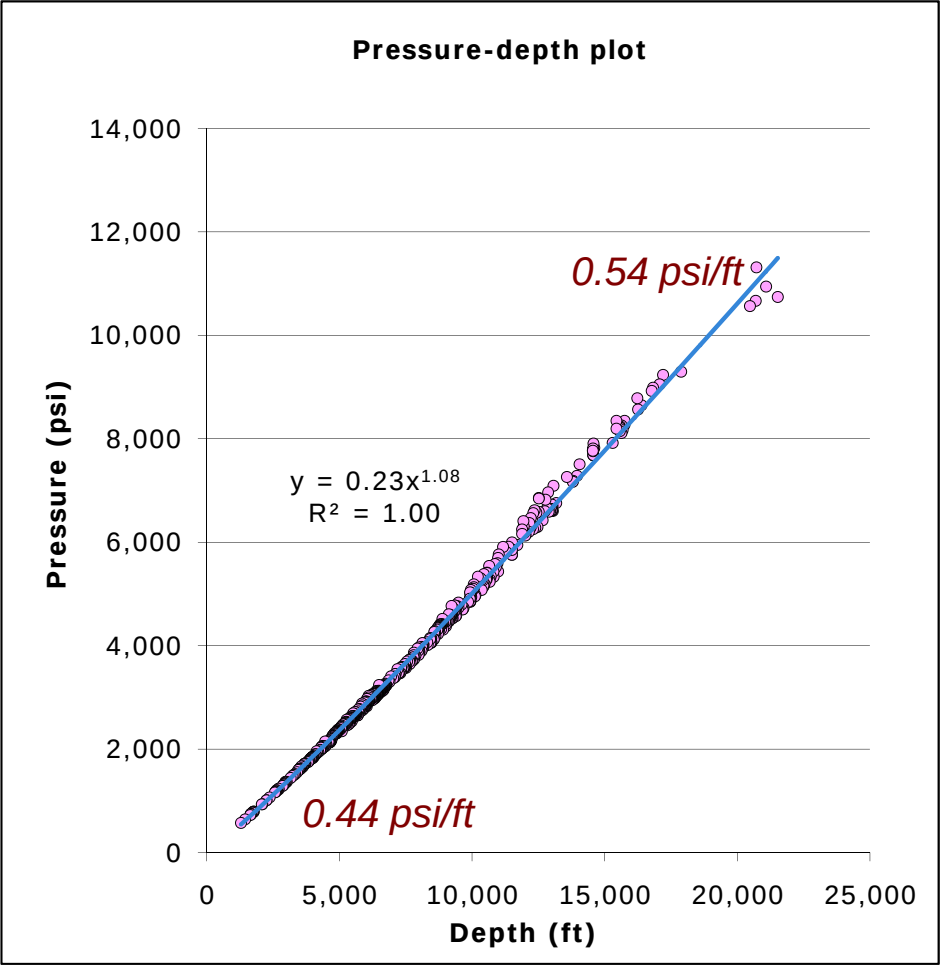
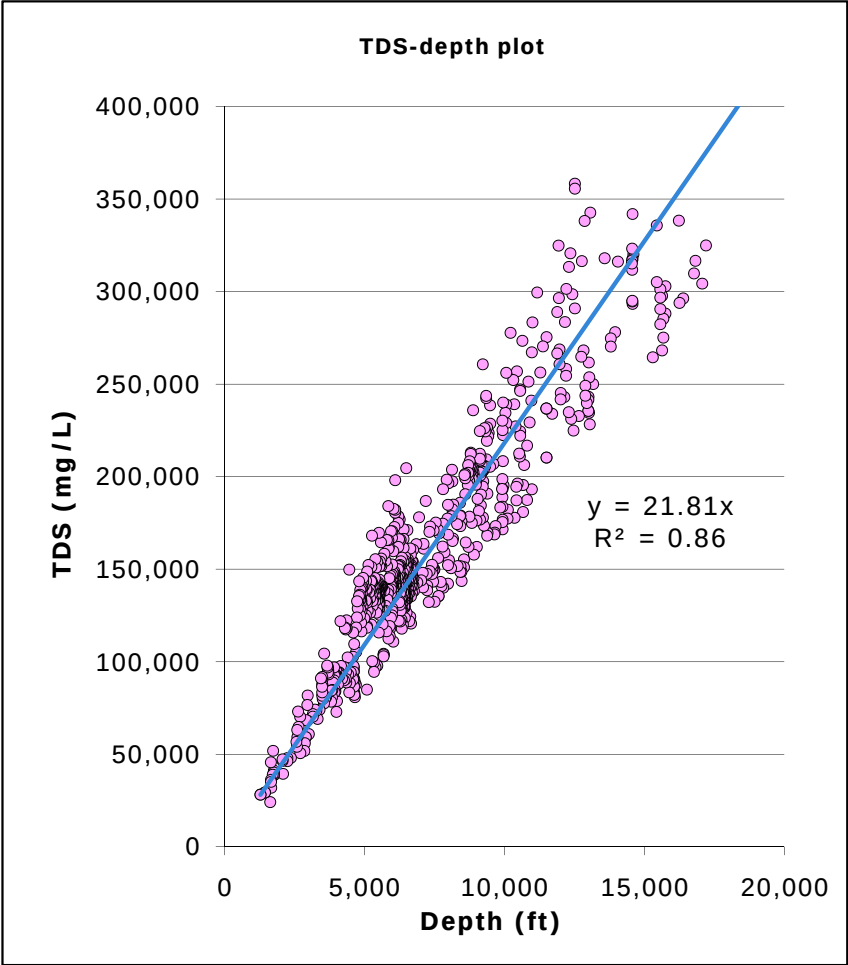
Temperature-depth profile



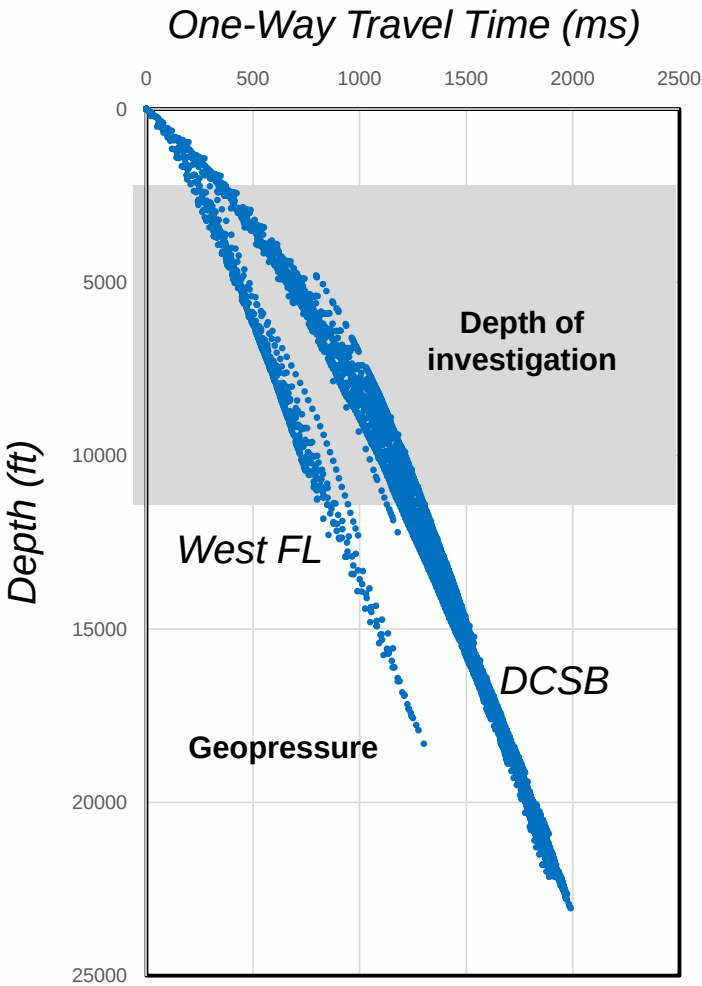
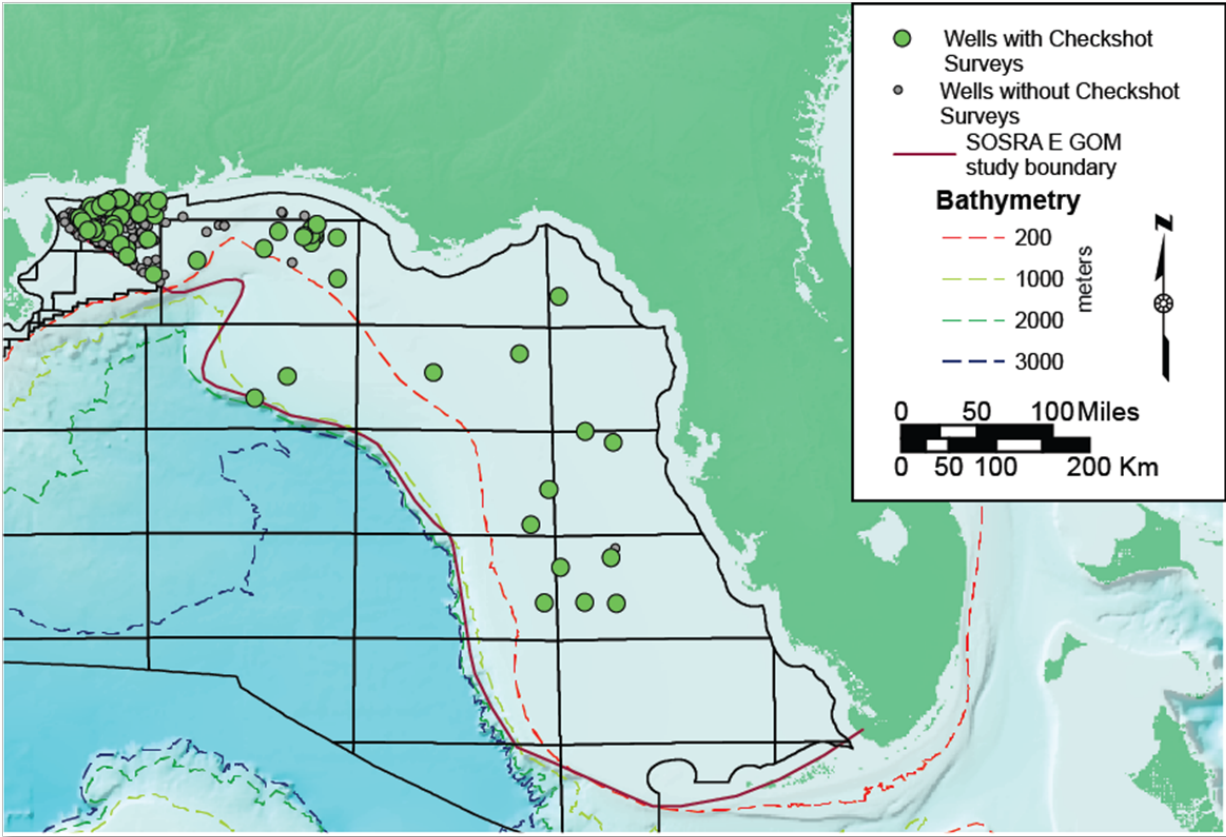
Burial history curve



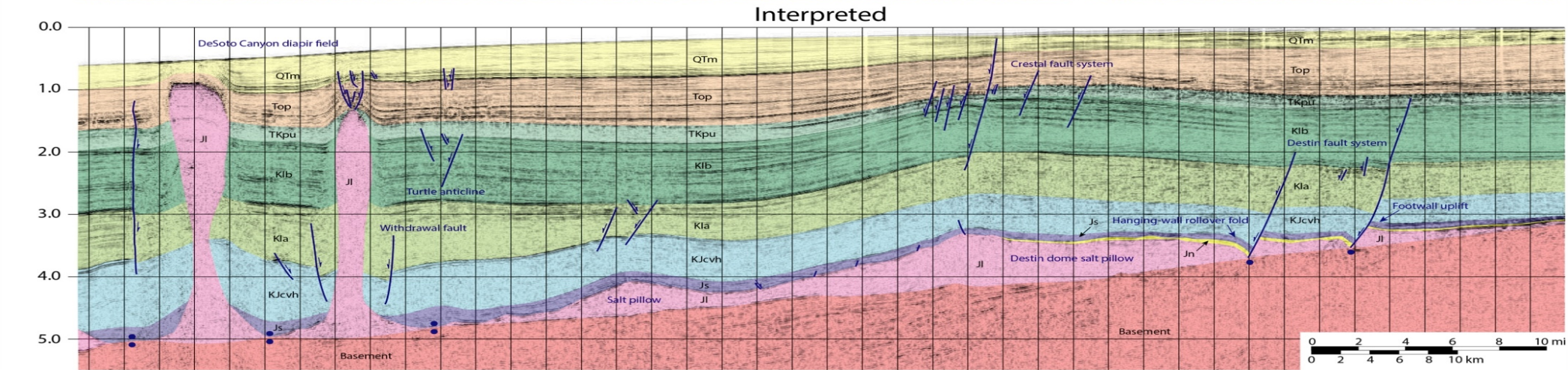
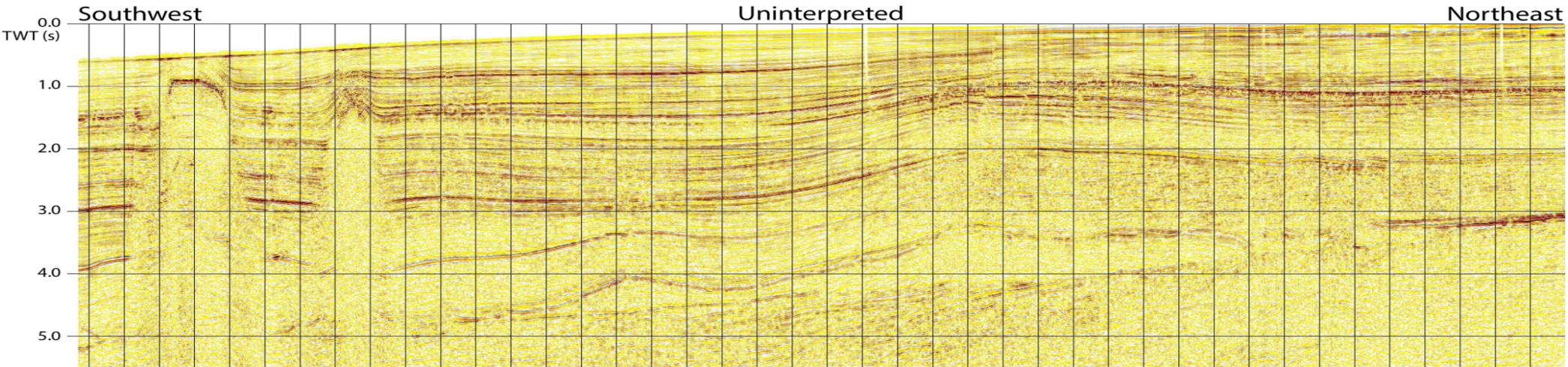
NORMAL BRINE, PRESSURE GRADIENTS, ONSHORE EASTERN GULF



SEISMIC VELOCITY SURVEYS

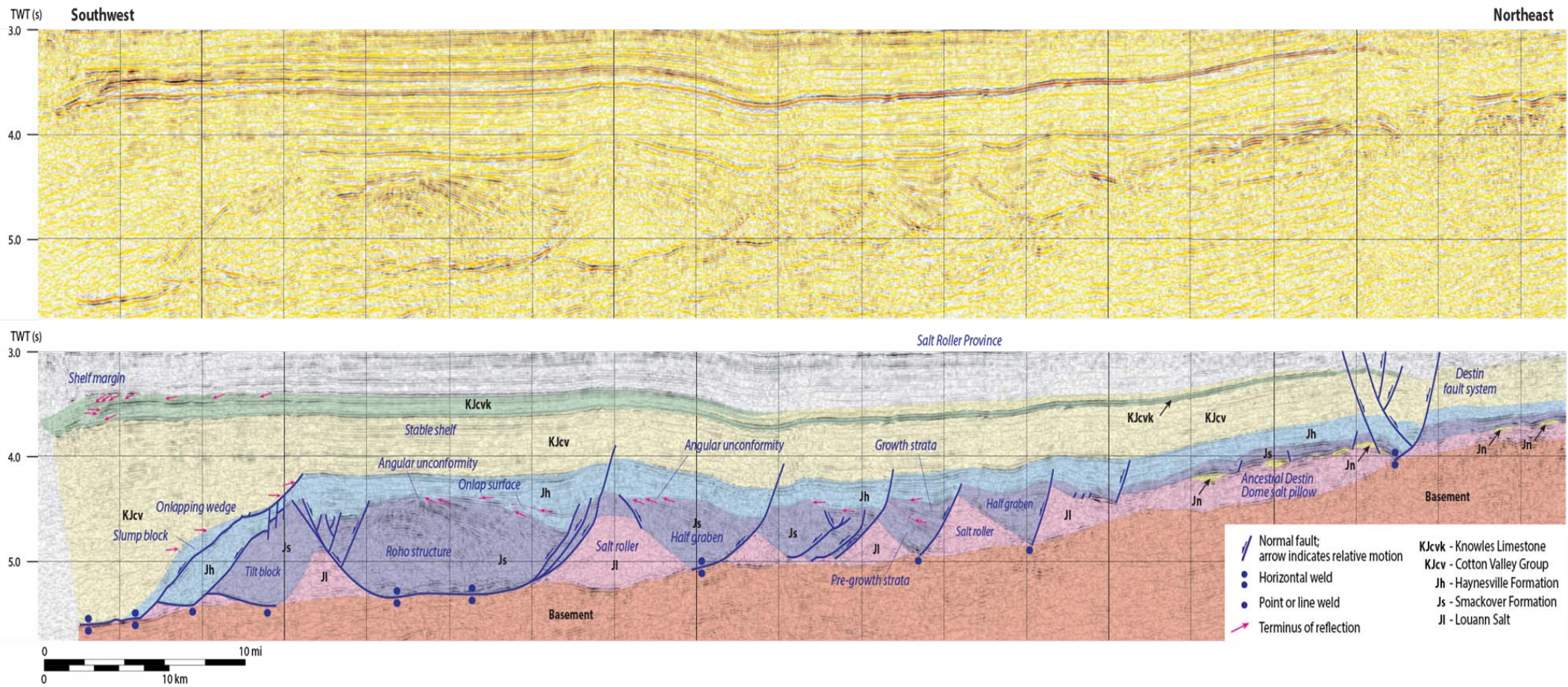


DCSB DESTIN DOME

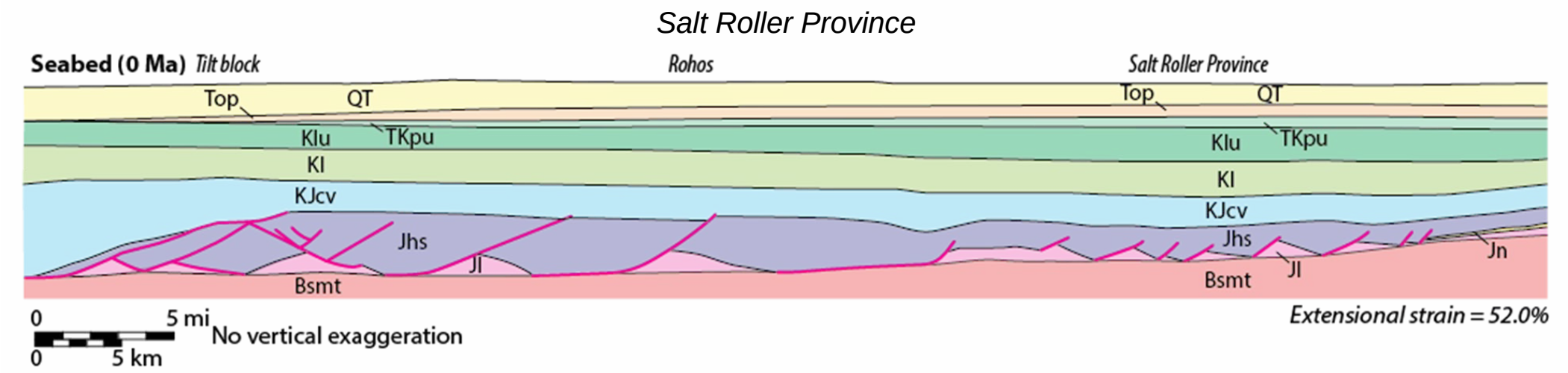
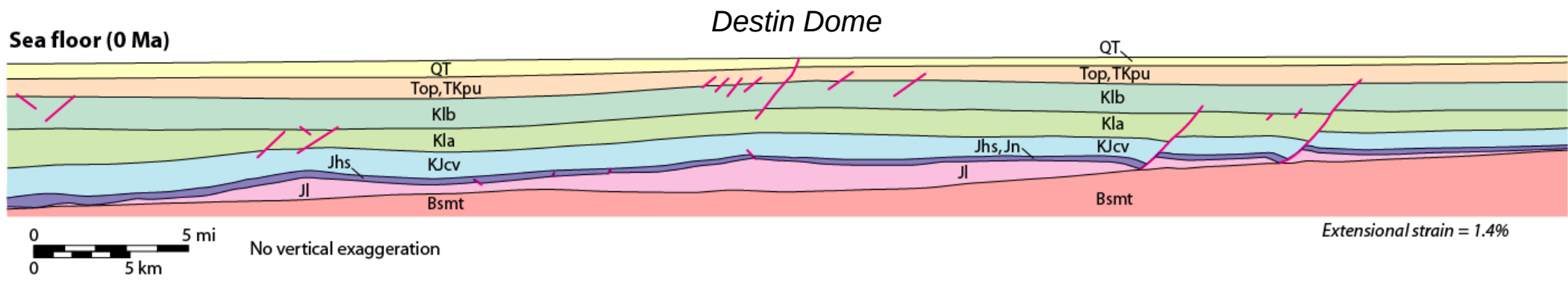


DCSB SALT ROLLER PROVINCE

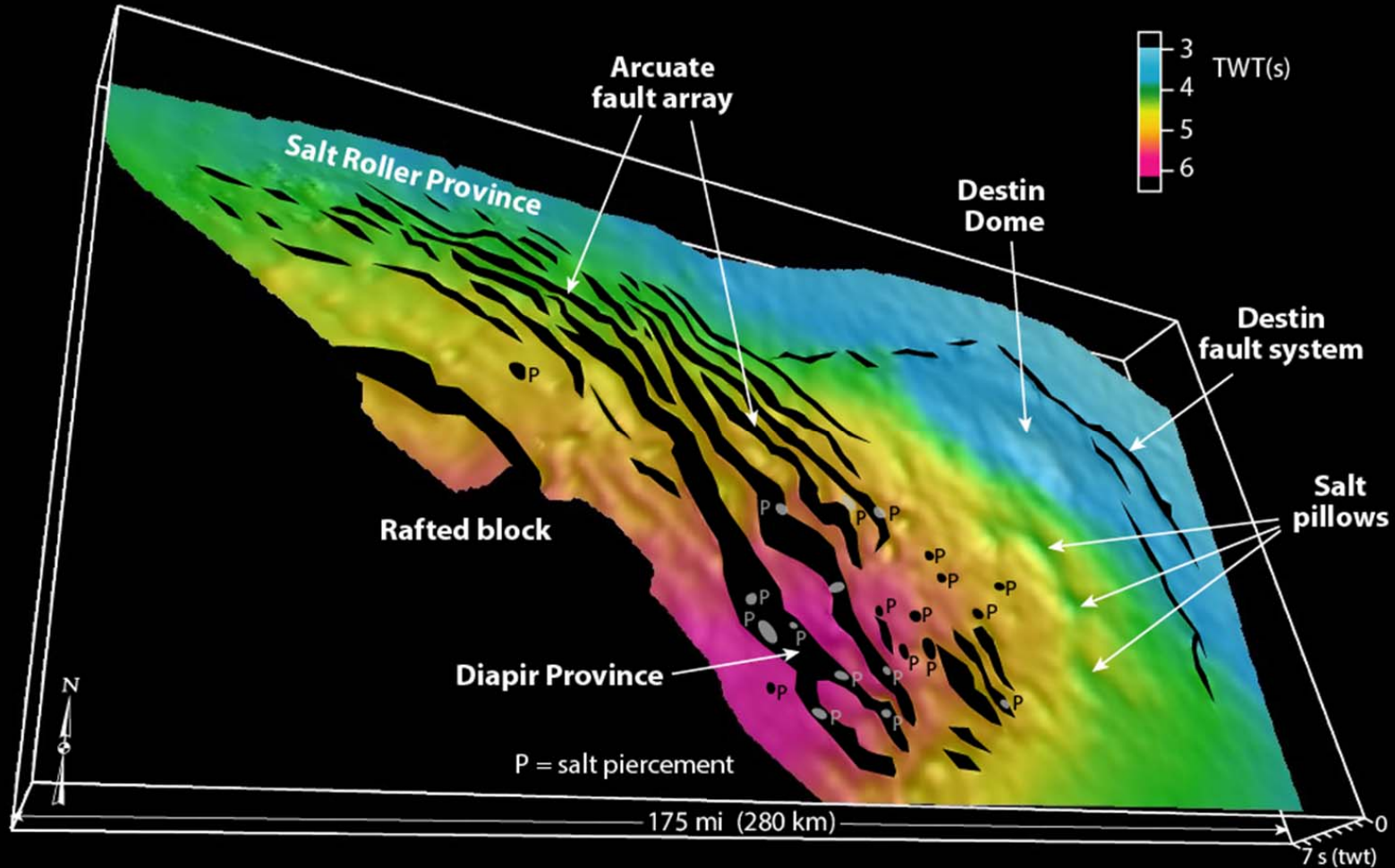
C. Destin Fault System-salt roller province transect (Line d8519)



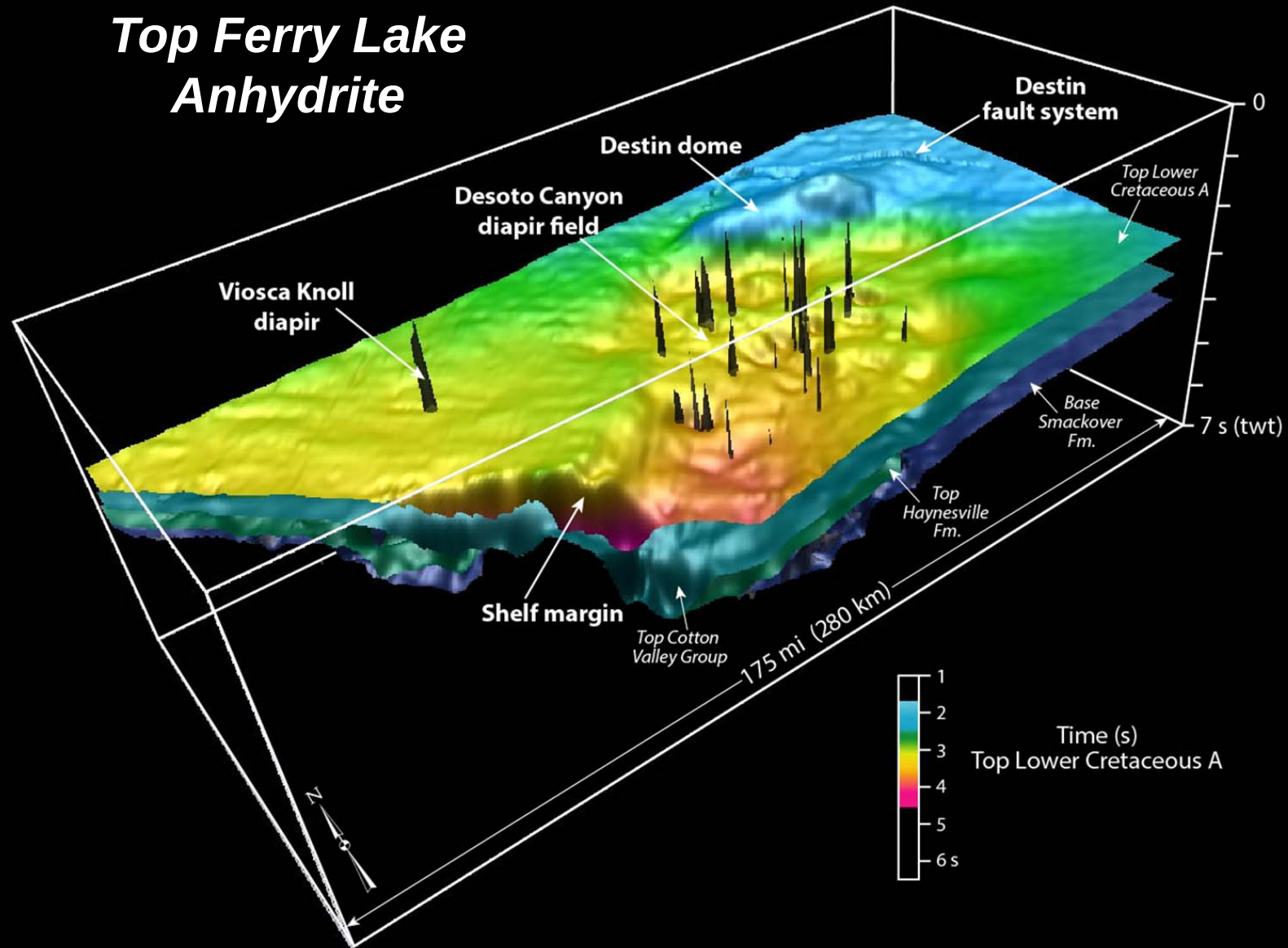
DEPTH CONVERTED STRUCTURAL CROSS SECTIONS, DESOTO CANYON SALT BASIN

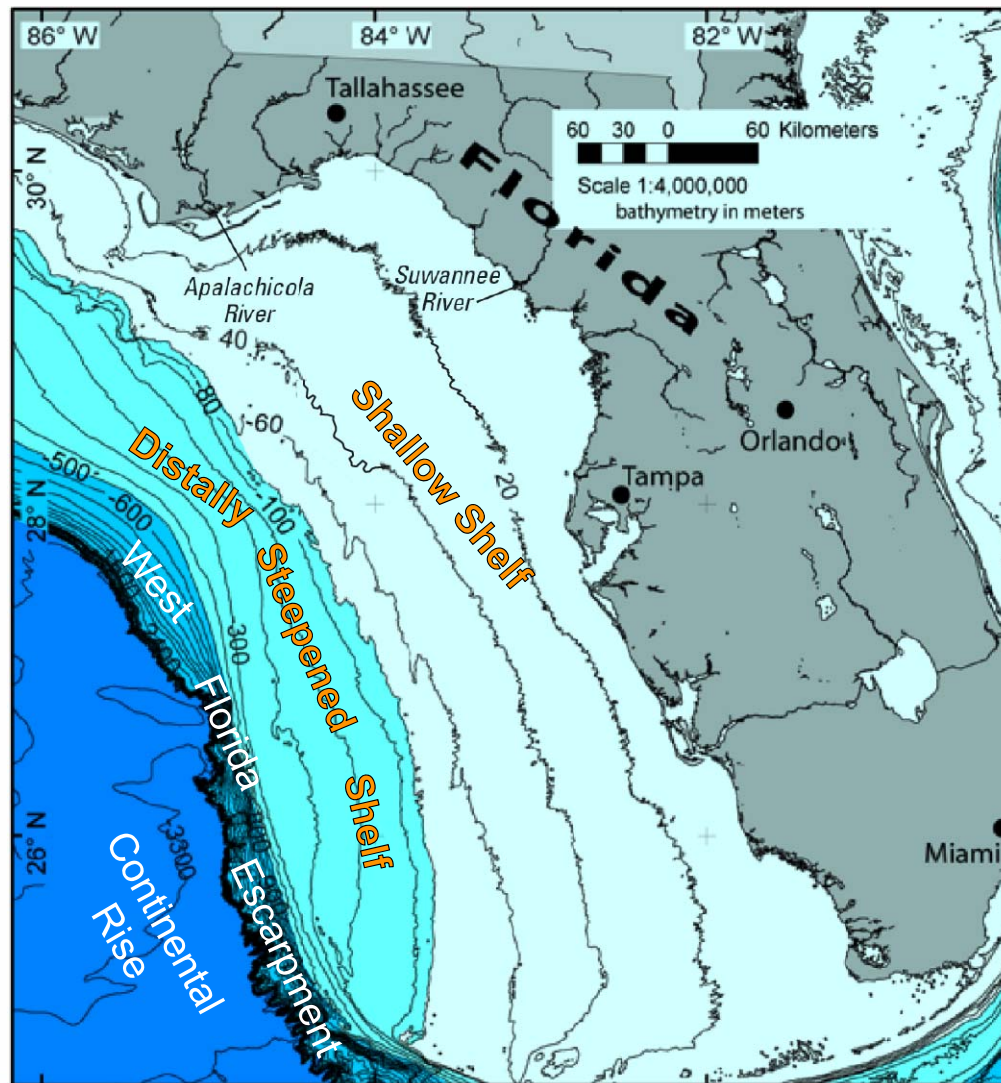


Top Smackover Limestone



Top Ferry Lake Anhydrite

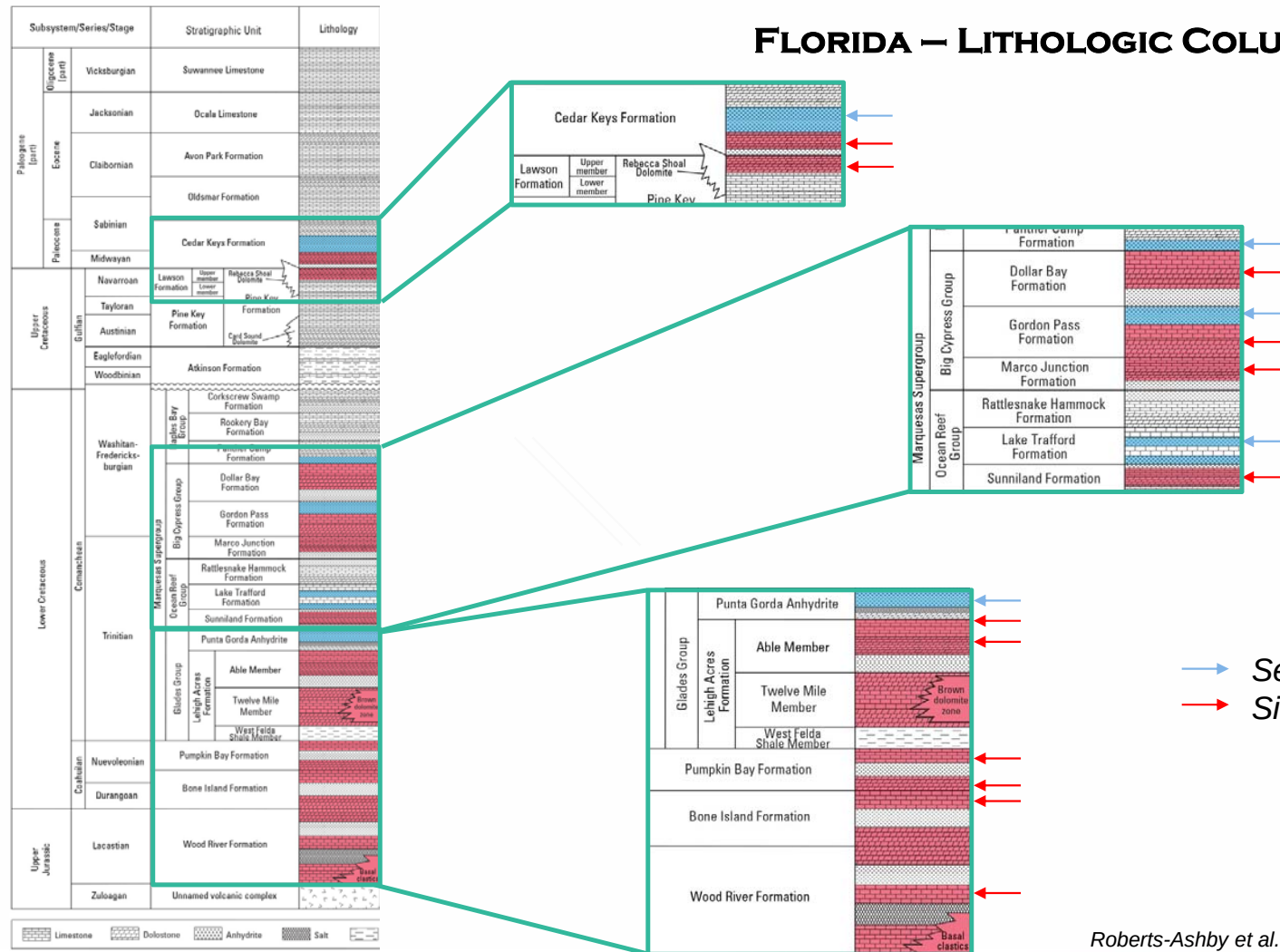




WEST FLORIDA SHELF BATHYMETRY

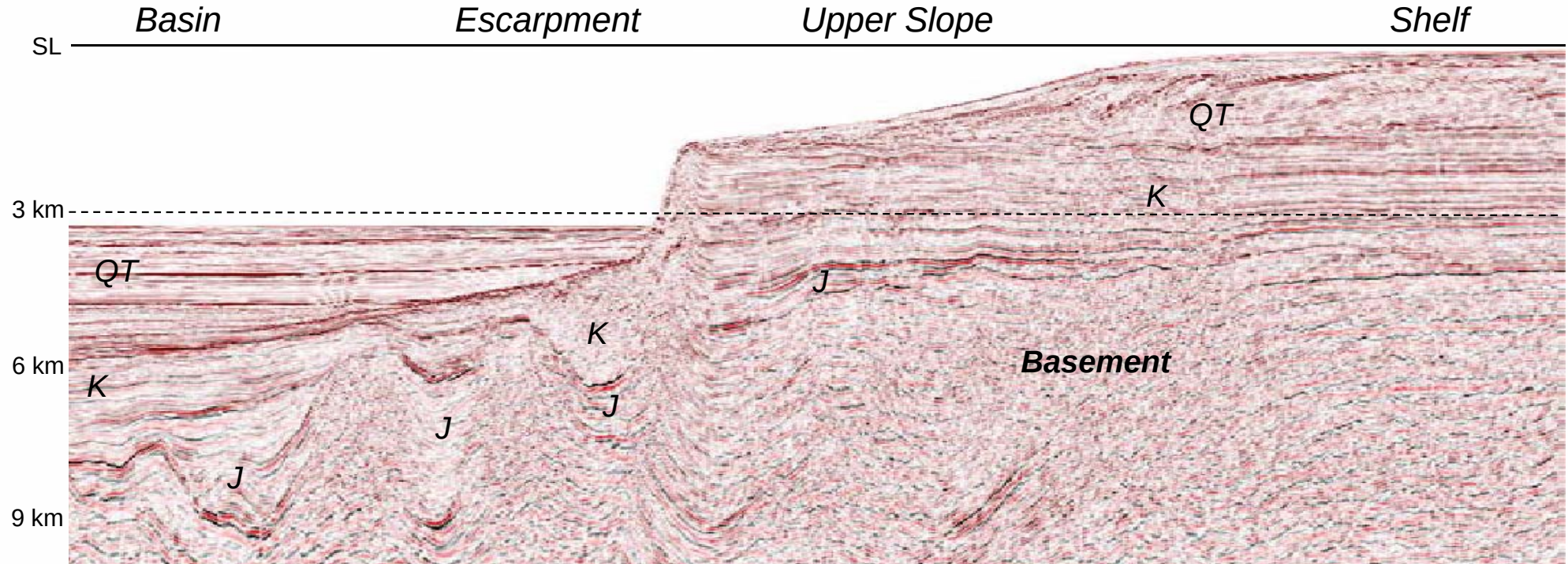
- Broad, shallow, region near shore (NE of 80 m contour).
- Distally steepening outer shelf leading to West Florida Escarpment.

FLORIDA – LITHOLOGIC COLUMN



Roberts-Ashby et al. (2015)

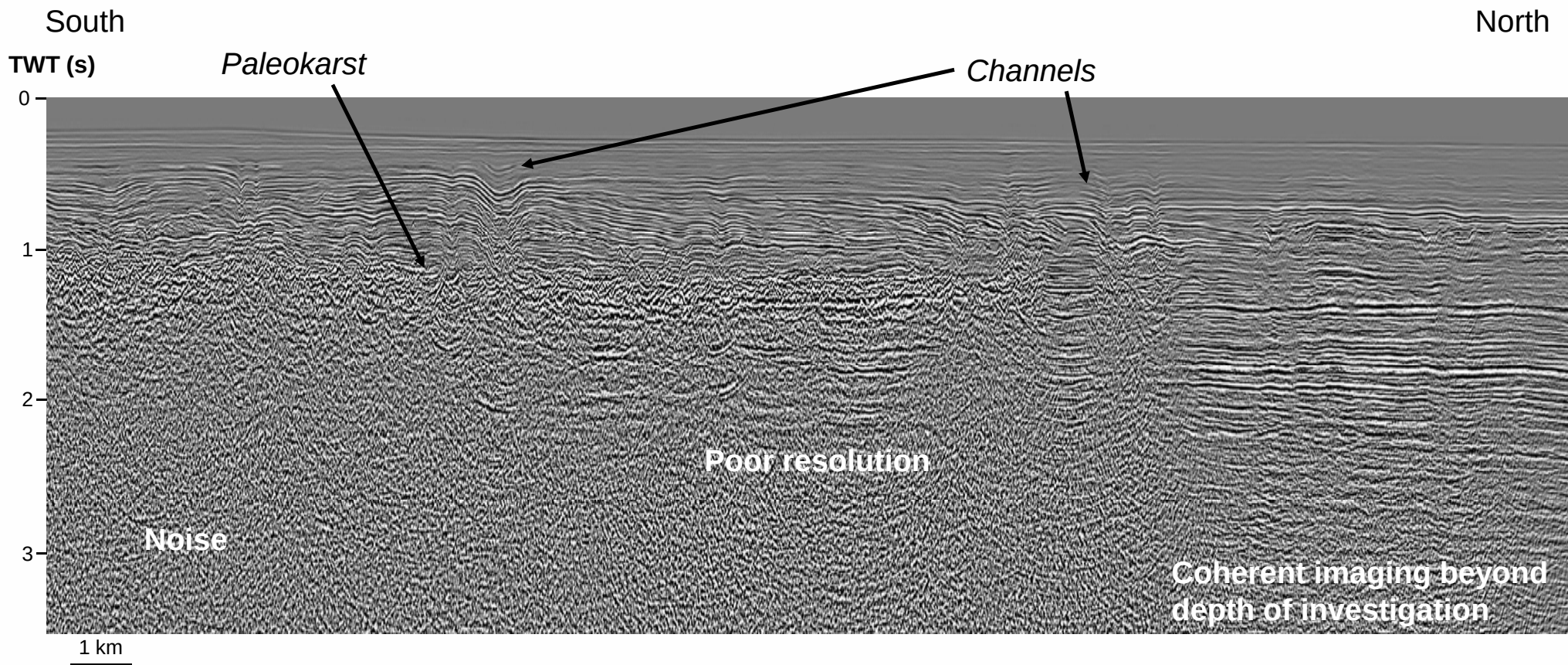
WEST FLORIDA SHELF-ESCARPMENT



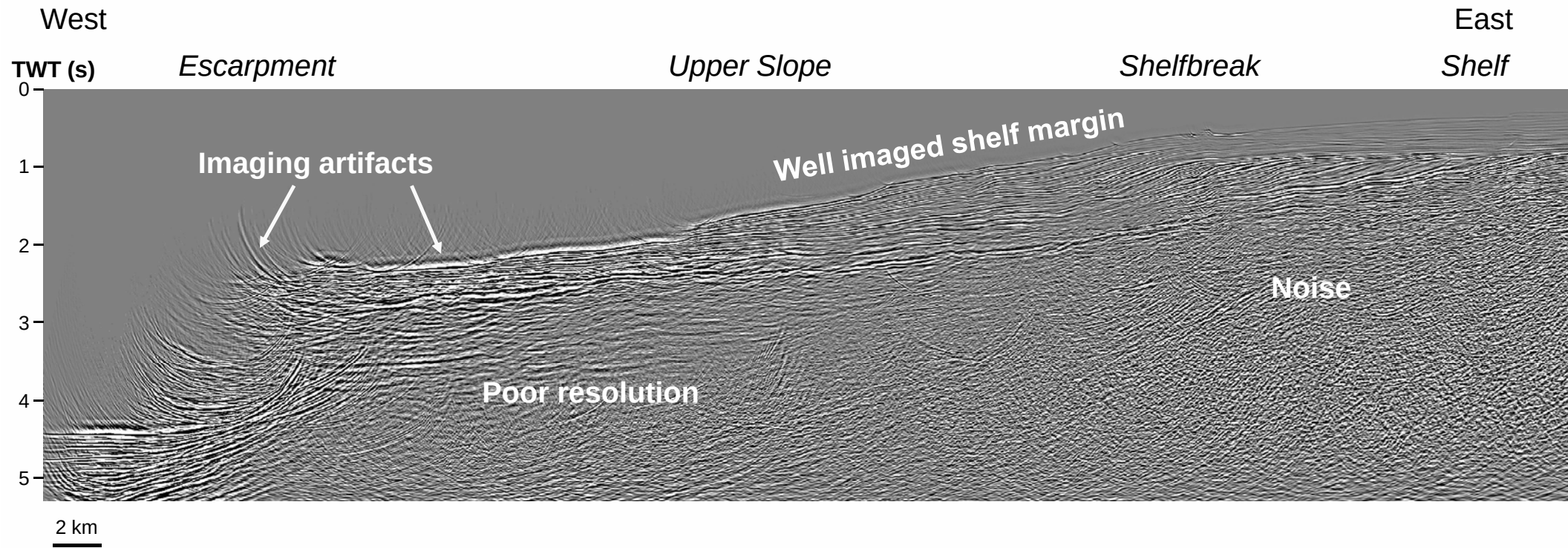
VE ~4x

Roberts and Erickson (2009)

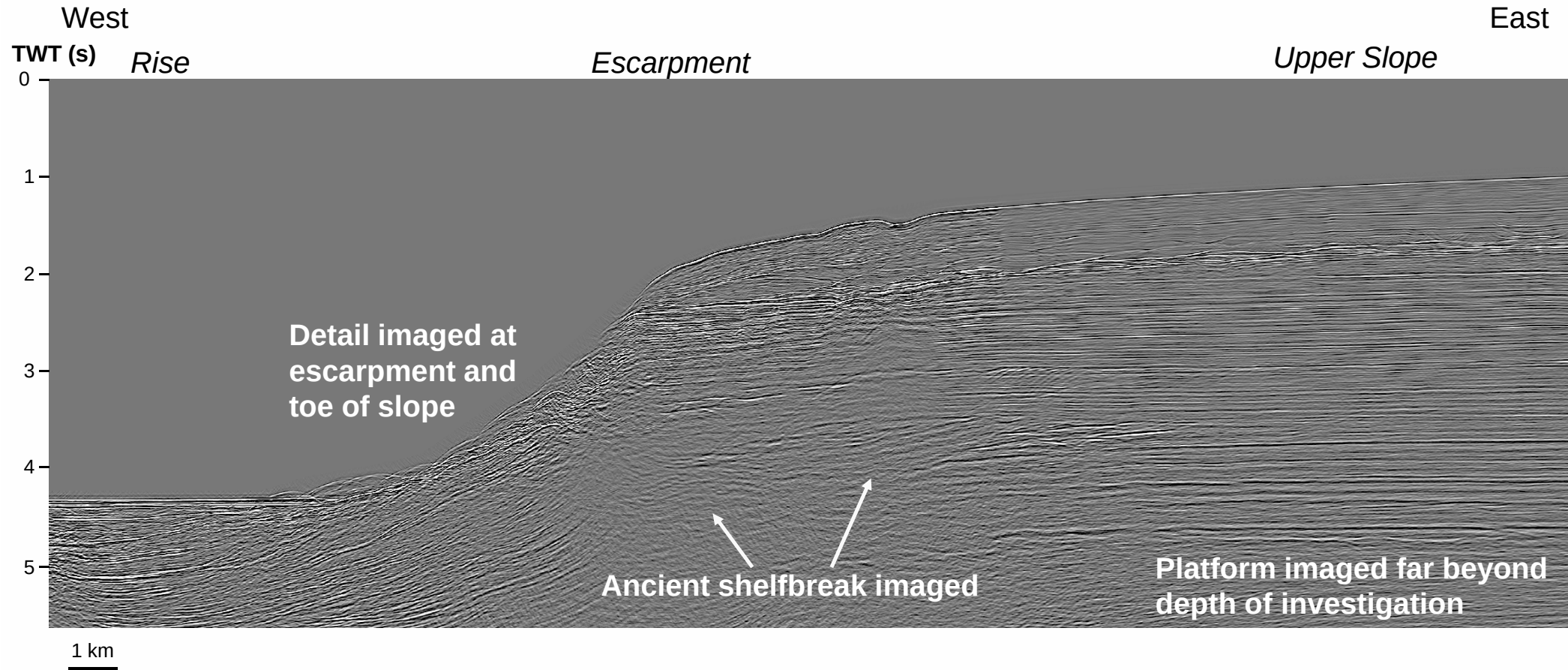
DATA QUALITY – WEST FLORIDA



DATA QUALITY – WEST FLORIDA

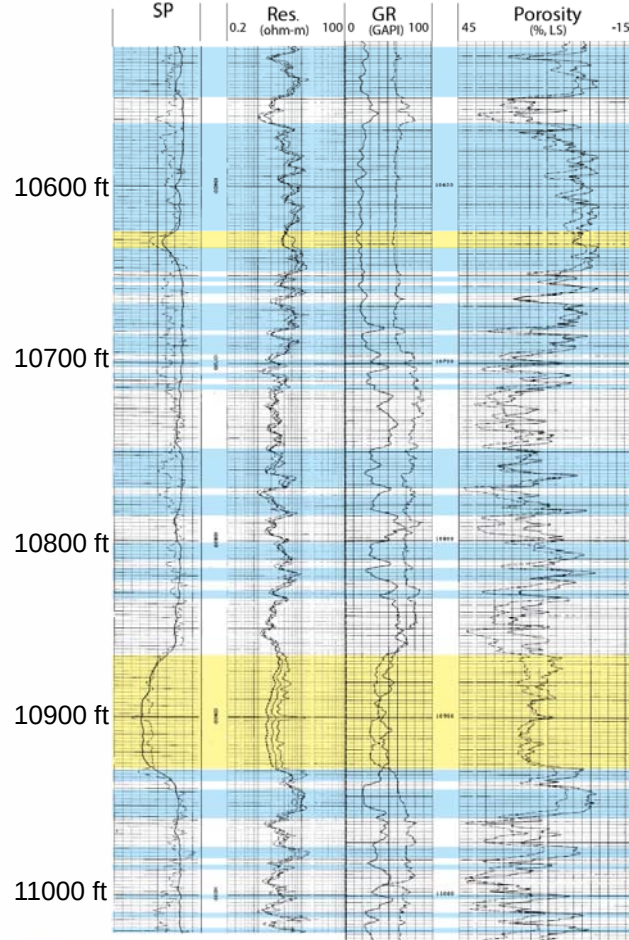


DATA QUALITY – WEST FLORIDA



PROSPECTIVE EGOM SINKS

Well G02468, Desoto Canyon Salt Basin



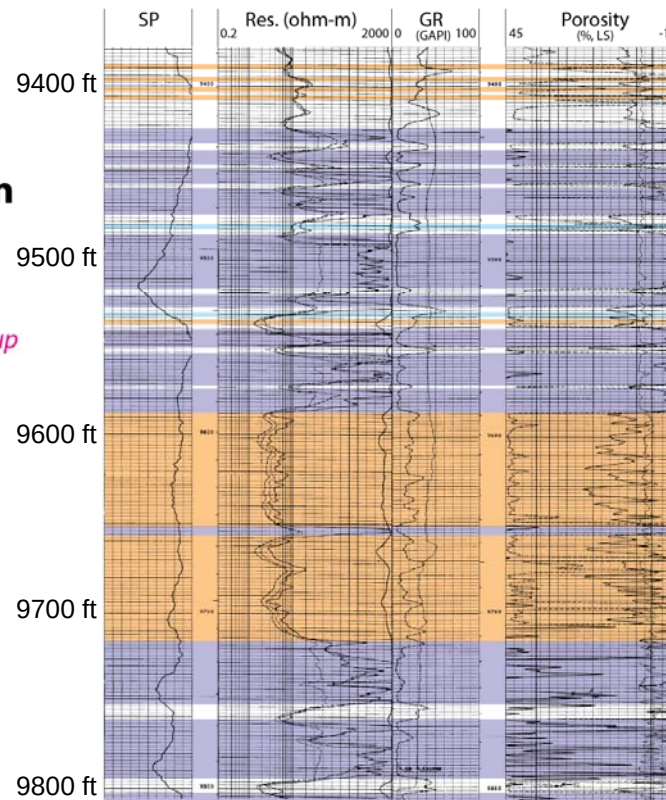
Paluxy Formation

Major prospects in sandstone of Tuscaloosa Group and Paluxy Fm.

Topseal

Reservoir
Porosity locally >20%

Well G3912, West Florida Shelf



Punta Gorda Anhydrite

Topseal

Reservoir

Porosity locally >15%

Reservoir

Major prospects in porous dolomite associated with anhydrite intervals



OBSERVATIONS AND ISSUES

- Large portfolio of potential sinks and seals in eastern Gulf of Mexico region.
 - Seismic and well data being interpreted.
 - Geopressure >12,000 ft; main storage prospects in Cretaceous-Miocene section.
 - Multiple sandstone formations prospective in DeSoto Canyon Salt Basin; abundant mudrock and carbonate seals, including chalk.
 - Relatively simple Cretaceous carbonate platform and distally steepened Cenozoic shelf in West Florida.
 - Variable seismic quality in West Florida.
 - Porous dolomite below anhydrite seals.
- 