

SOUTHEAST OFFSHORE STORAGE RESOURCE ASSESSMENT (SOSRA)

PROJECT NUMBER: DE-FE0026086

Patricia Berry | Southern States Energy Board

Nino Ripepi | Virginia Tech

James Knapp | University of South Carolina

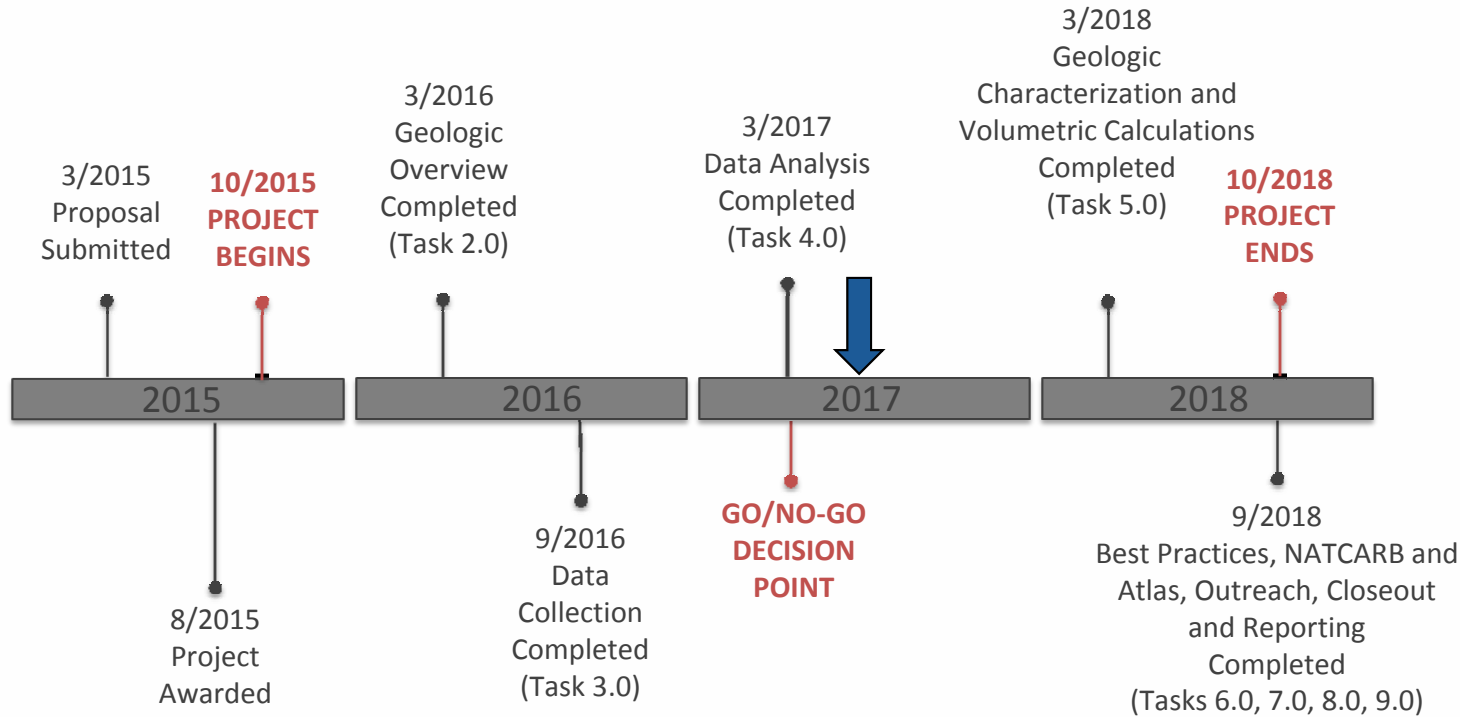
Jack Pashin | Oklahoma State University



*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.*

2nd International Workshop on Offshore Geological CO₂ Storage
Beaumont, TX
June 20, 2017

SOSRA PROJECT TIMELINE



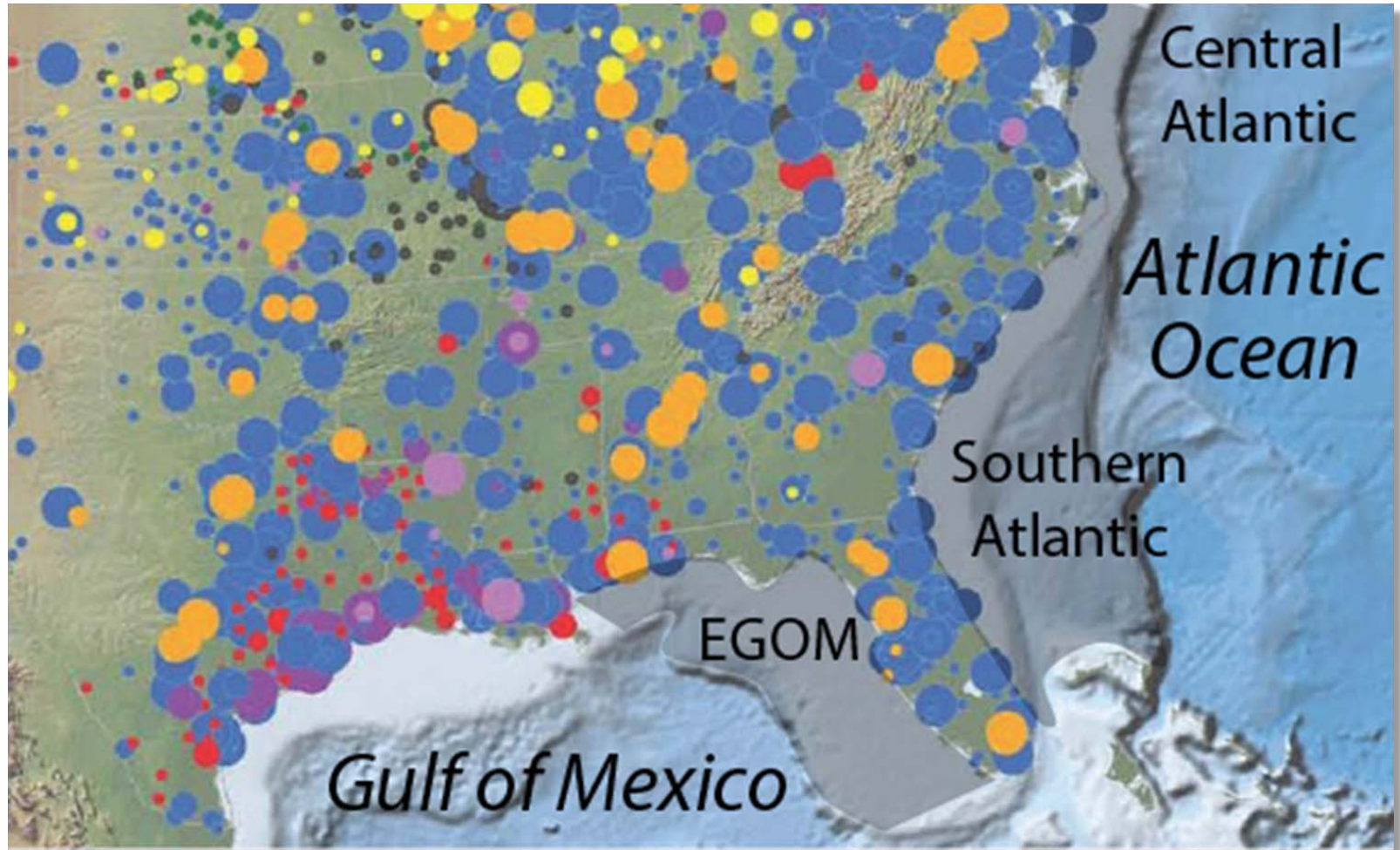
GO/NO-GO DECISION POINT: The data collected and analyzed in Phase I is sufficient to perform a quality prospective storage resource assessment and the project should proceed to Phase II.

Note: Task 1.0, Project Management and Planning, extends throughout the entire program period.

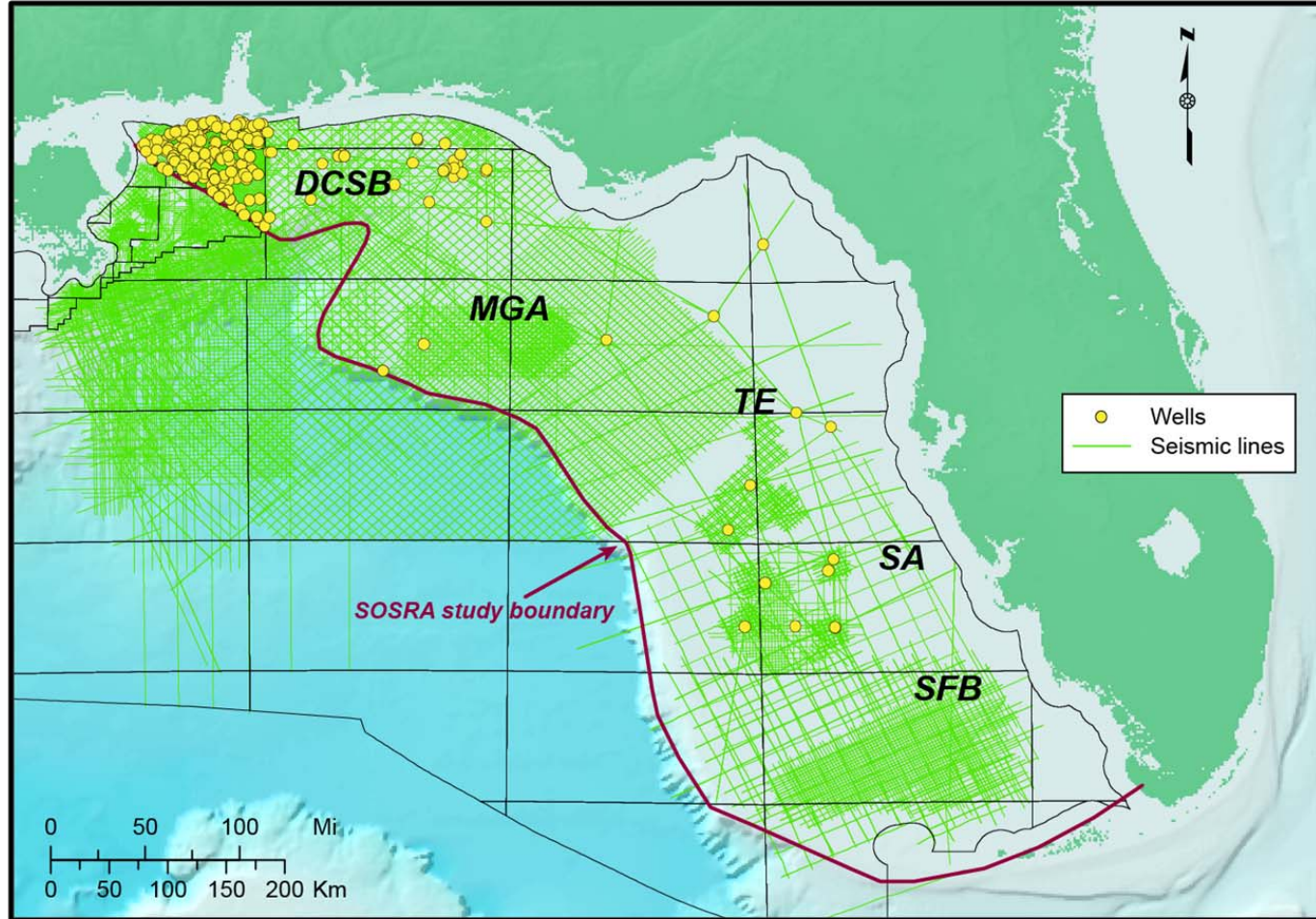
This material is based upon work supported by the U.S. Department of Energy National Energy Technology Laboratory.

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

LOCATION – SOSRA



EGOM STUDY AREA AND SUBREGIONS



DCSB DeSoto Canyon
Salt Basin

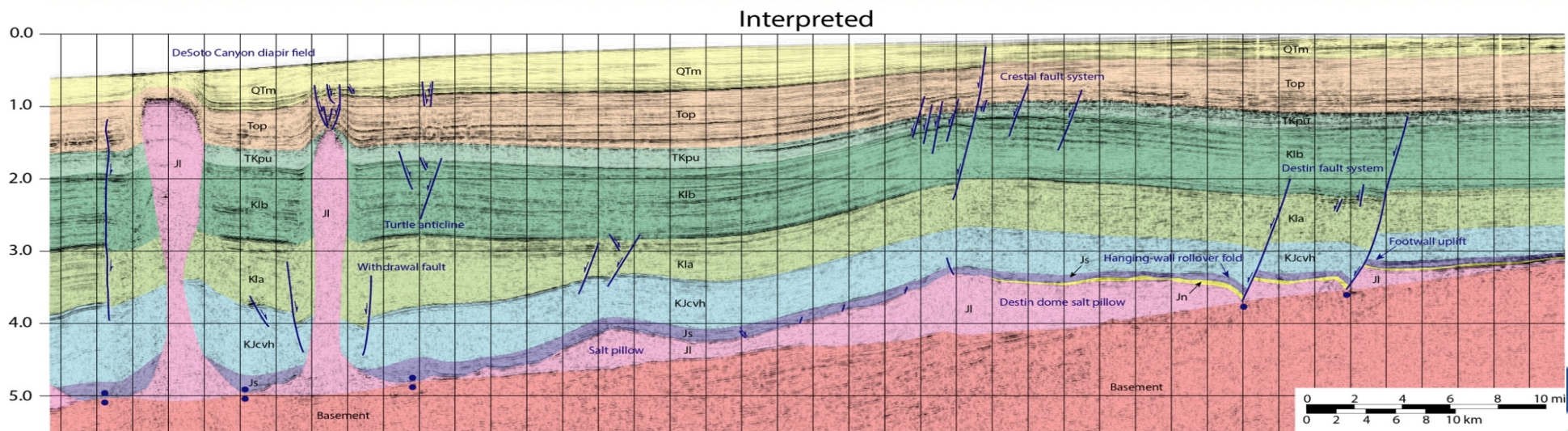
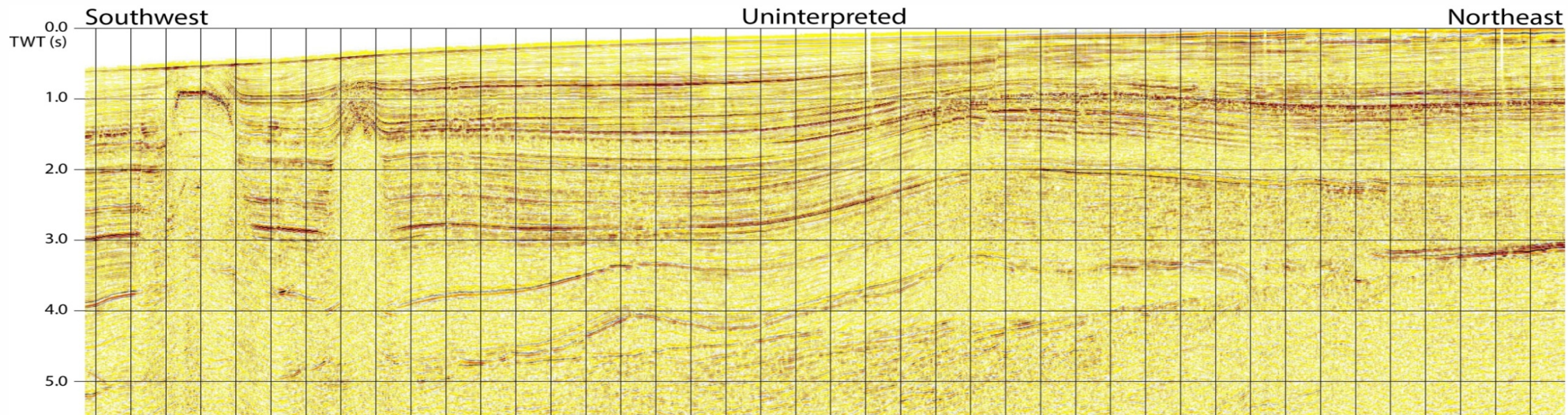
MGA Middle Ground
Arch

TE Tampa
Embayment

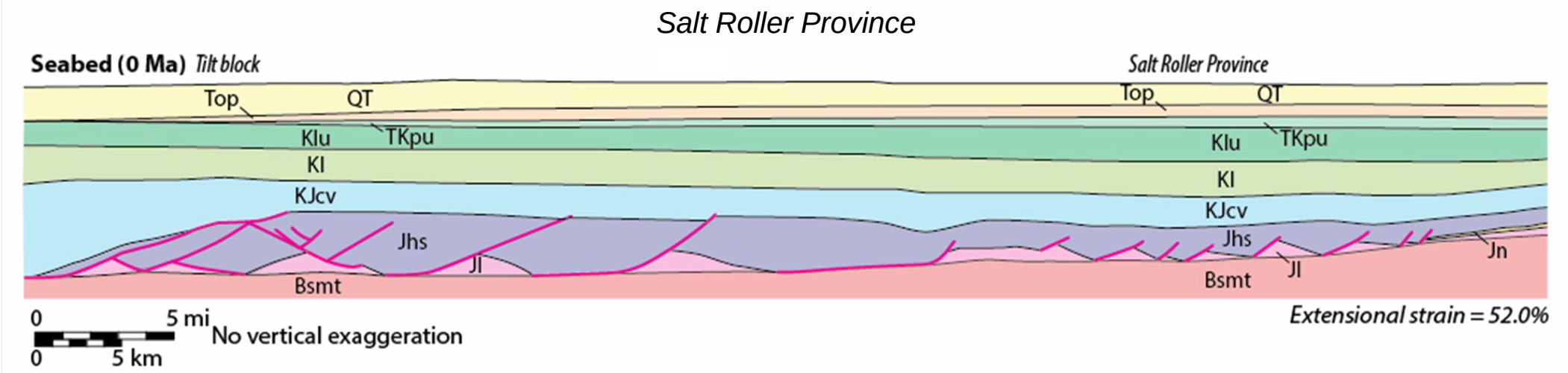
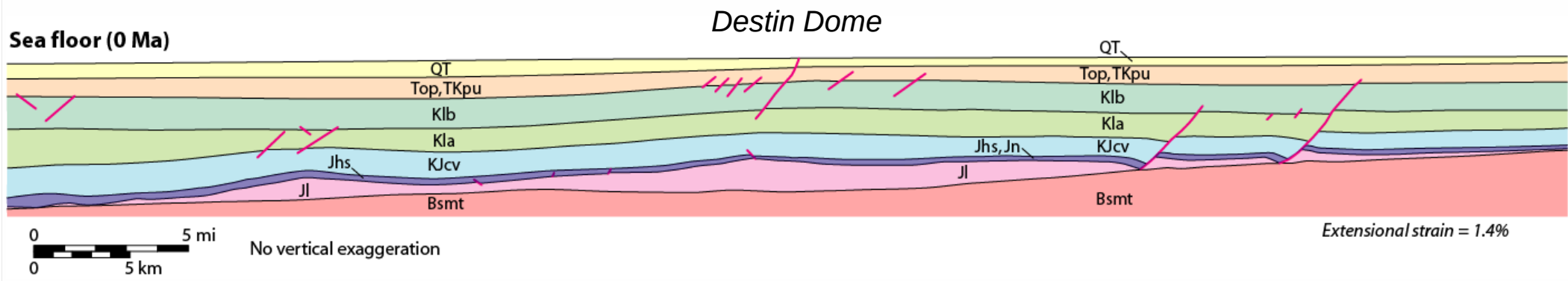
SA Sarasota Arch

SFB South Florida
Basin

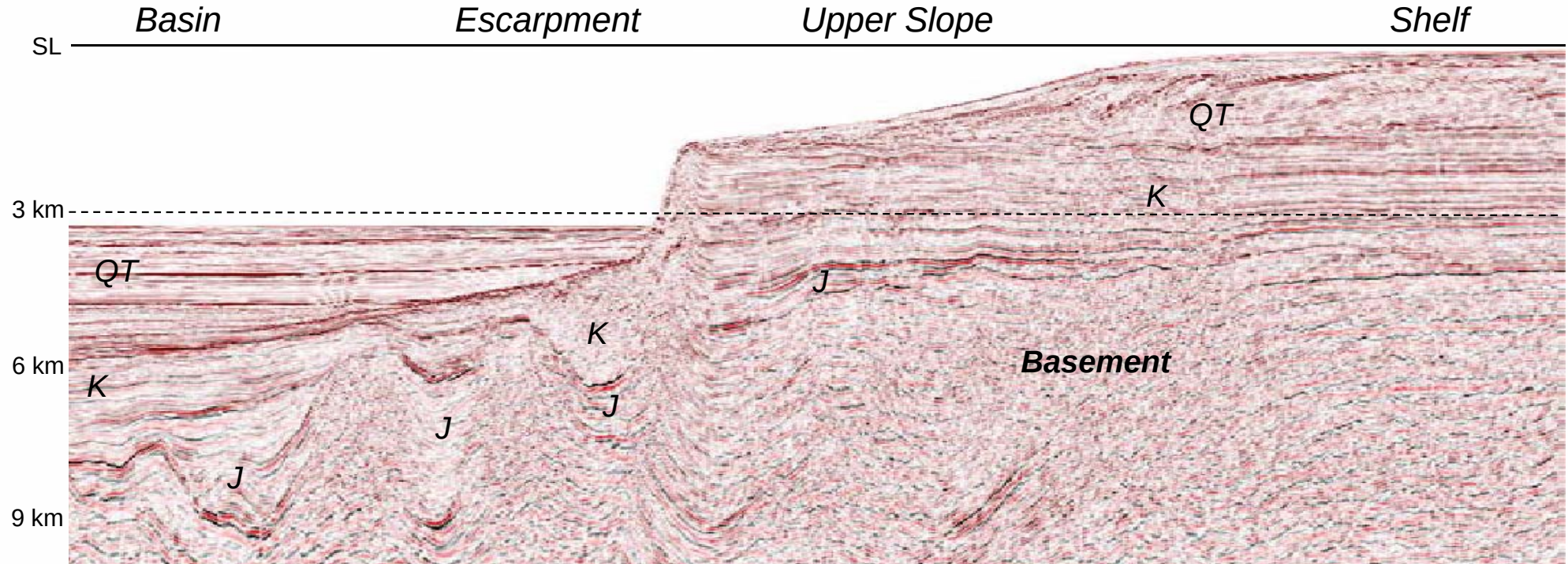
DCSB DESTIN DOME



DEPTH CONVERTED STRUCTURAL CROSS SECTIONS, DESOTO CANYON SALT BASIN



WEST FLORIDA SHELF-ESCARPMENT

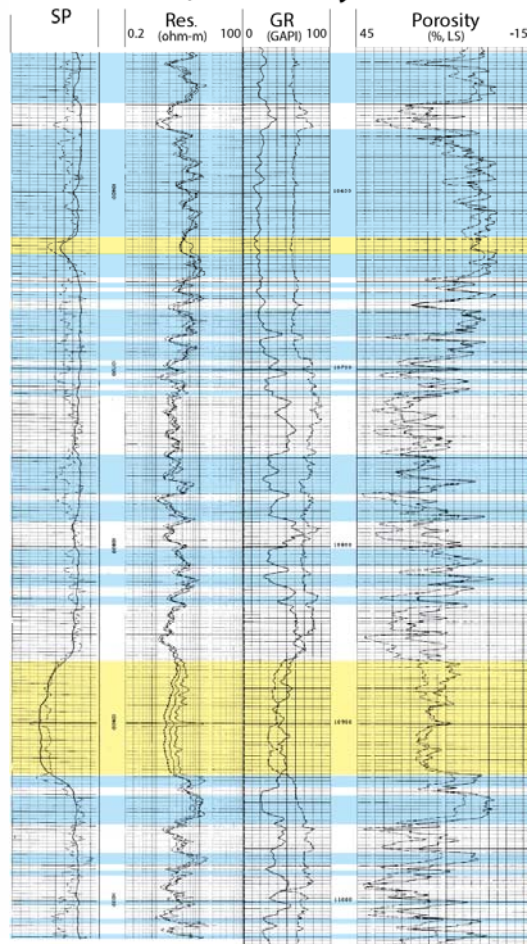


VE ~4x

Roberts and Erickson (2009)

PROSPECTIVE EGOM SINKS

Well G02468, Desoto Canyon Salt Basin



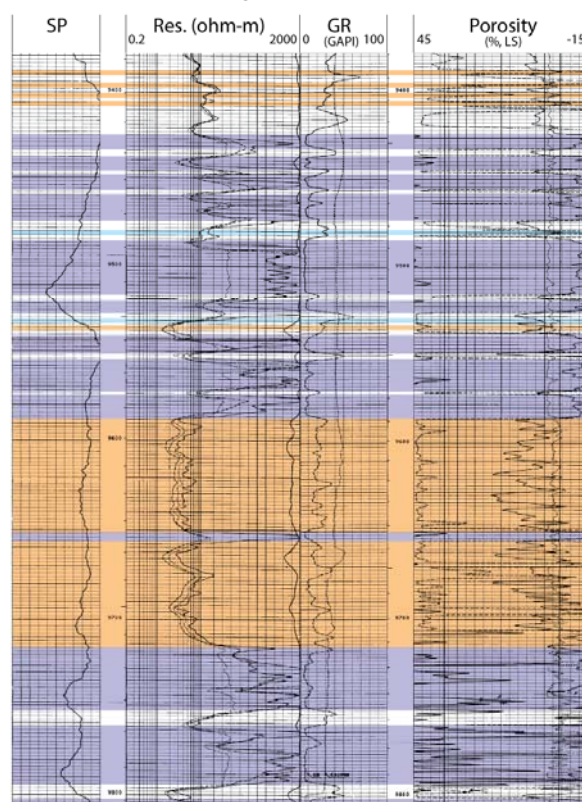
Paluxy Formation

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

Shale

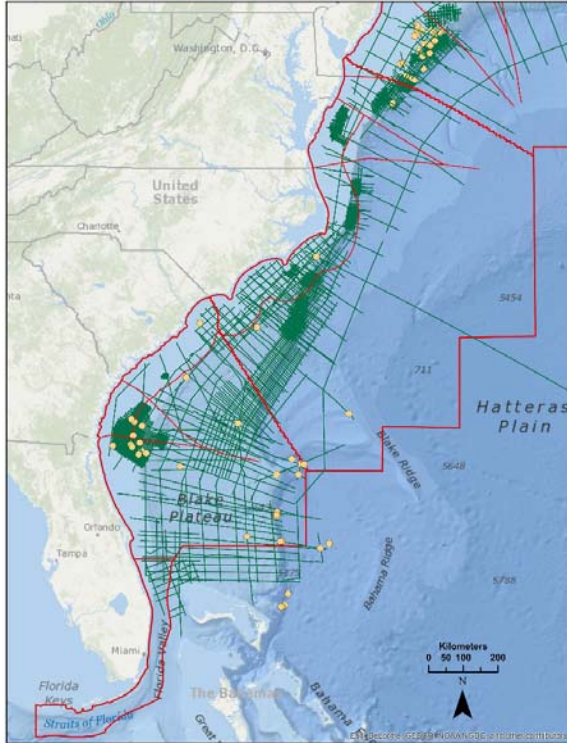
Sandstone

Limestone

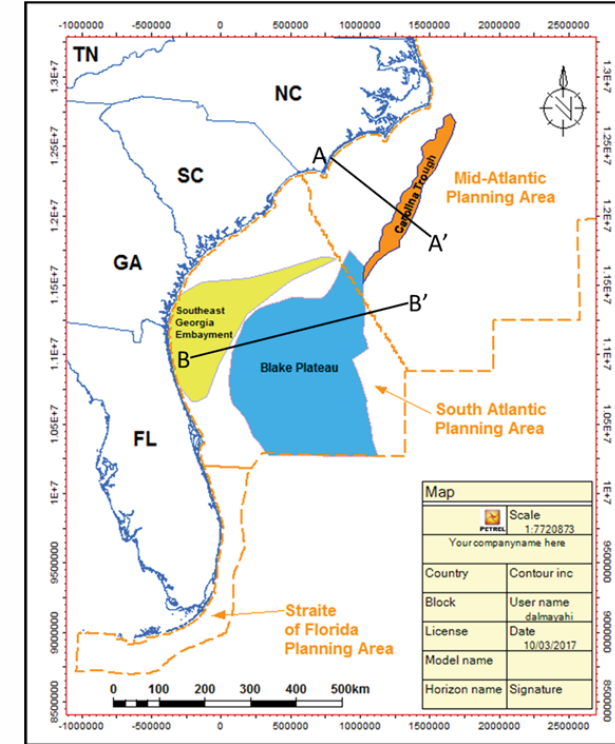
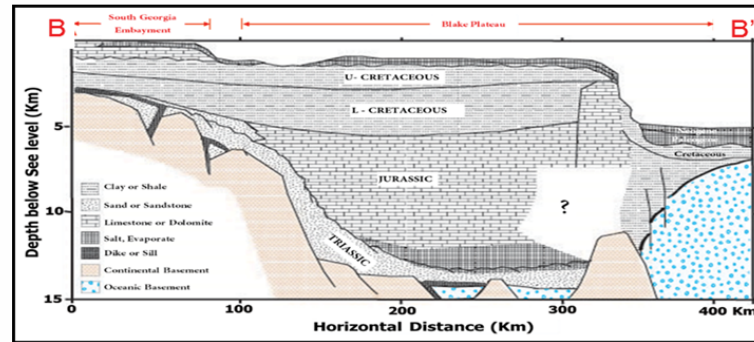
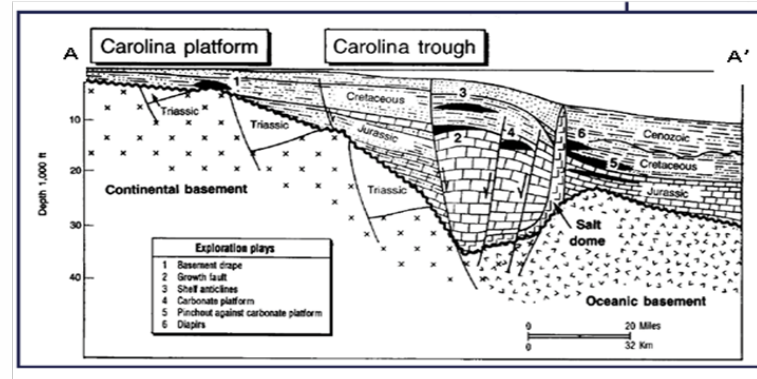
Dolomite

Anhydrite

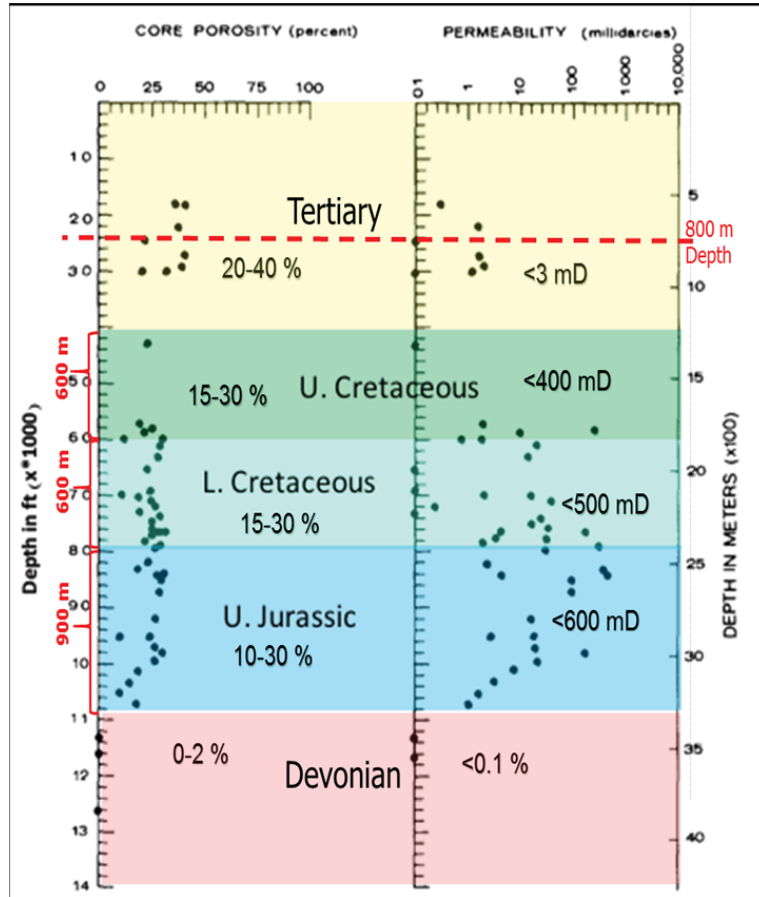
SOUTH AND MID-ATLANTIC PLANNING AREAS



- Total of six exploration wells, on Georgia/Florida shelf
- Major depocenters in Carolina Trough and Blake Plateau Basin



PROSPECTIVE MESOZOIC SECTION



Scholle (1979)

Reservoir Properties	Positive Indicators	Cautionary Indicators
Depth	>800 m, <2500 m	<800 m, >2500 m
Reservoir thickness	>50 m	<20 m
Porosity	>20%	<10%
Permeability	>500 mD	<200 mD
Salinity	>100 g/l	<30 g/l
Stratigraphy	Uniform	Complex lateral variation and complex connectivity of reservoir facies
Capacity	Estimated effective capacity much larger than total amount of CO2 to be injected	Estimated effective capacity similar to total amount of CO2 to be injected
Caprock Properties		
Lateral continuity	Stratigraphically uniform, small or no faults	Lateral variations, medium to large faults
Thickness	>100 m	<20 m

Chadwick et al (2008)

DATA COVERAGE

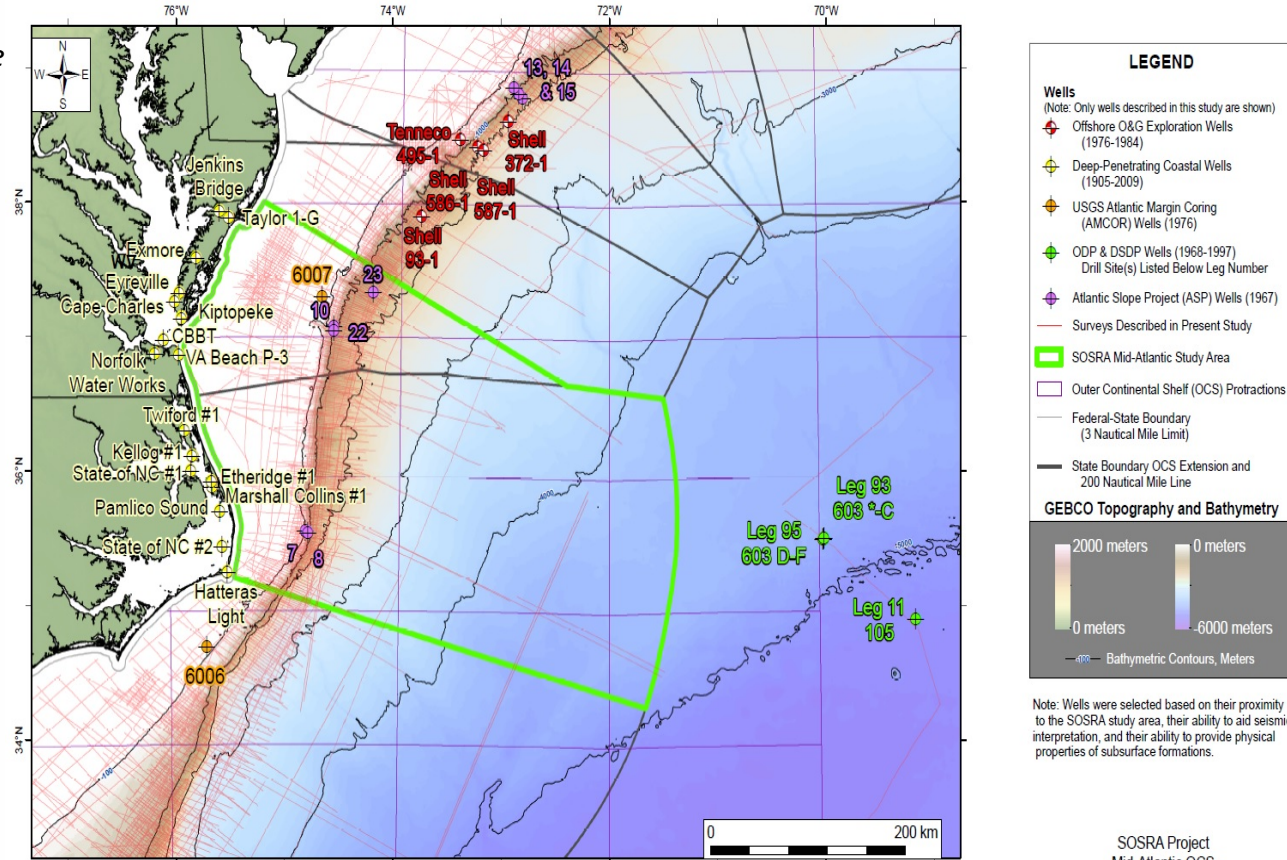
Over 1,000 lines and 34 wells (only 5 offshore) were selected for the study of the Mid-Atlantic Region.

Areal Coverage Method:

- Line/grid Spacing: Regional, Semi-Regional, Exploration scale
- Location of offshore wells outside the study area. Presence of 5 exploration wells at the North of the region.

Results:

Unlike the sparse distribution of well data, the seismic data collected on the Mid-Atlantic margin is of sufficient density to perform the interpretation task.



QUALITY ANALYSIS

Over 1,000 lines and 34 wells (only 5 offshore) were selected for the study of the Mid-Atlantic Region.

Quality Assessment Method:

- Resolution: frequency analysis, data stacked or migrated
- Survey Design: source volume and cable length
- Benefit of reprocessing: identify lines of poor quality and potentially reprocess if needed

Results:

The quality varies from fair to poor and is better for more recent data. Offshore wells were QC'd to improve their quality.

