Southeast Offshore Storage Resource Assessment (SOSRA)
Project Number: DE-FE0026086

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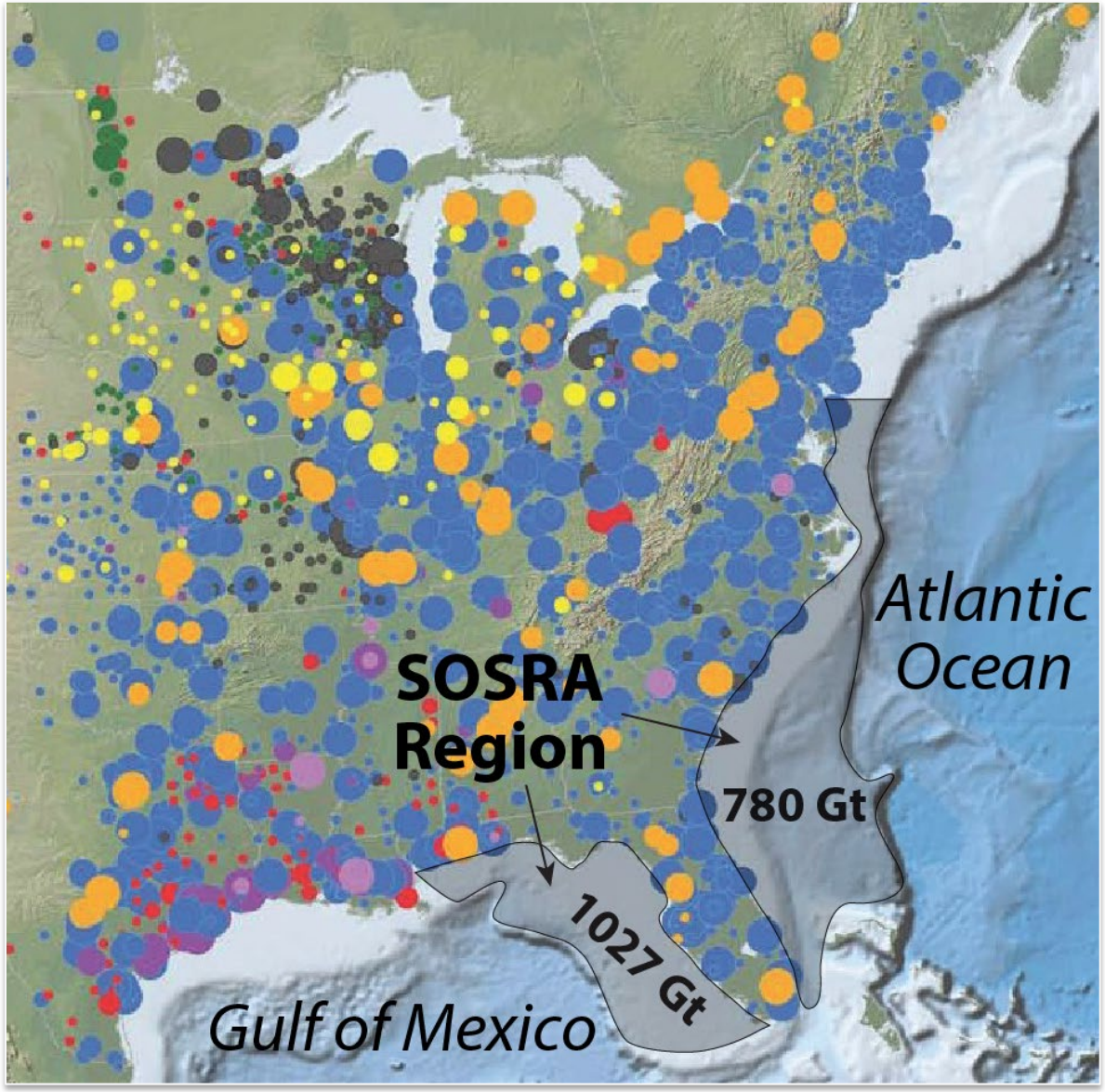
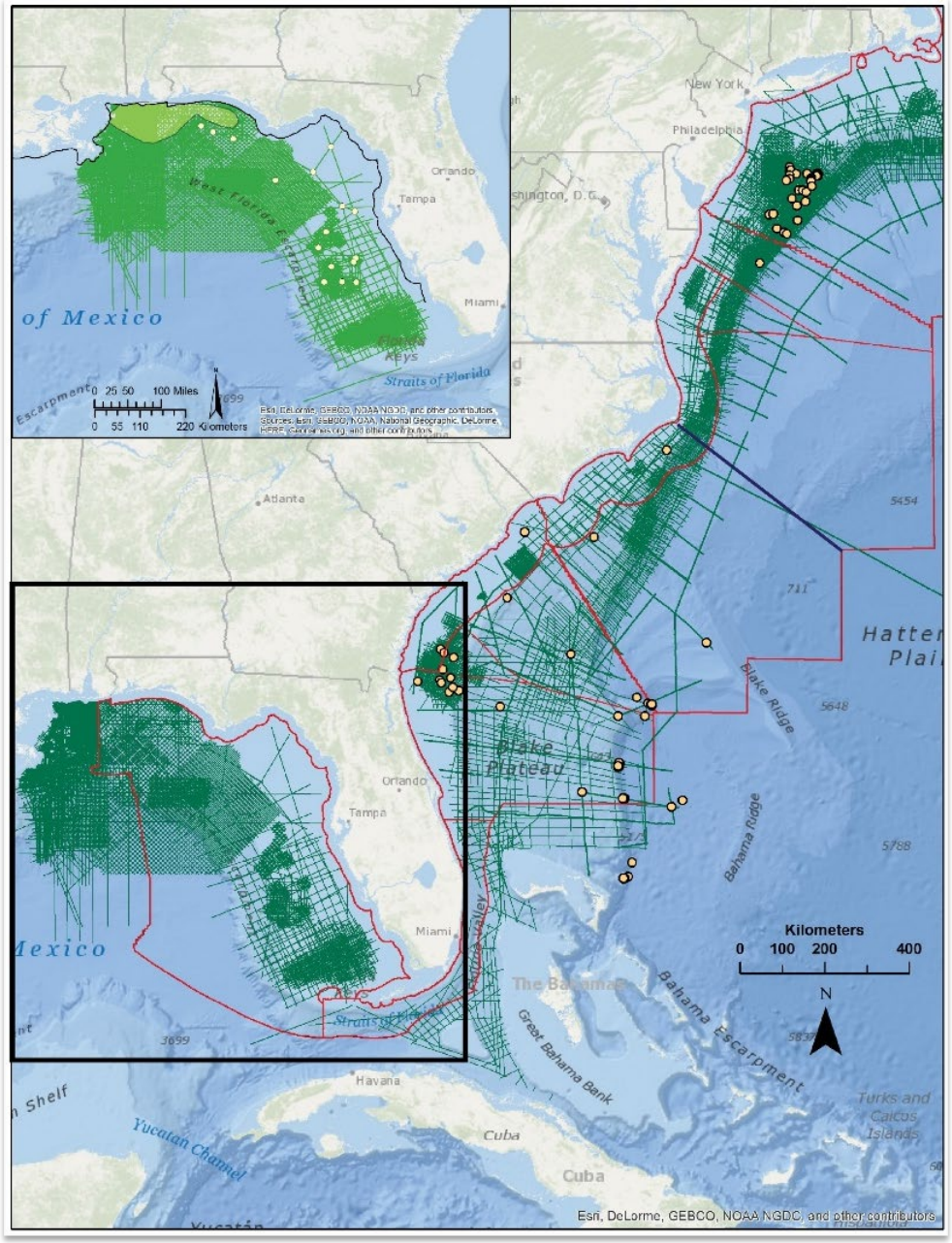
Patricia Berry | Southern States Energy Board

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.

GOMCarb-SECARB Offshore Partnership Meeting
Beaumont, TX
February 10-12, 2019

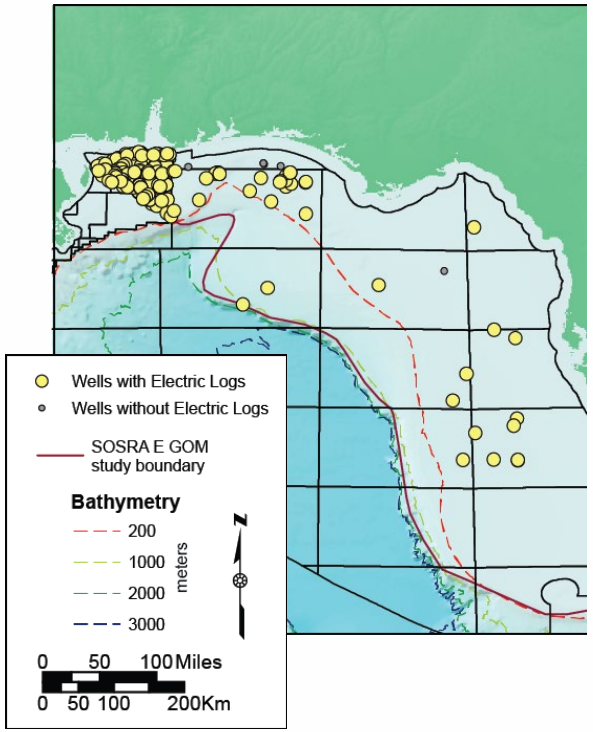
SOSRA Project Area



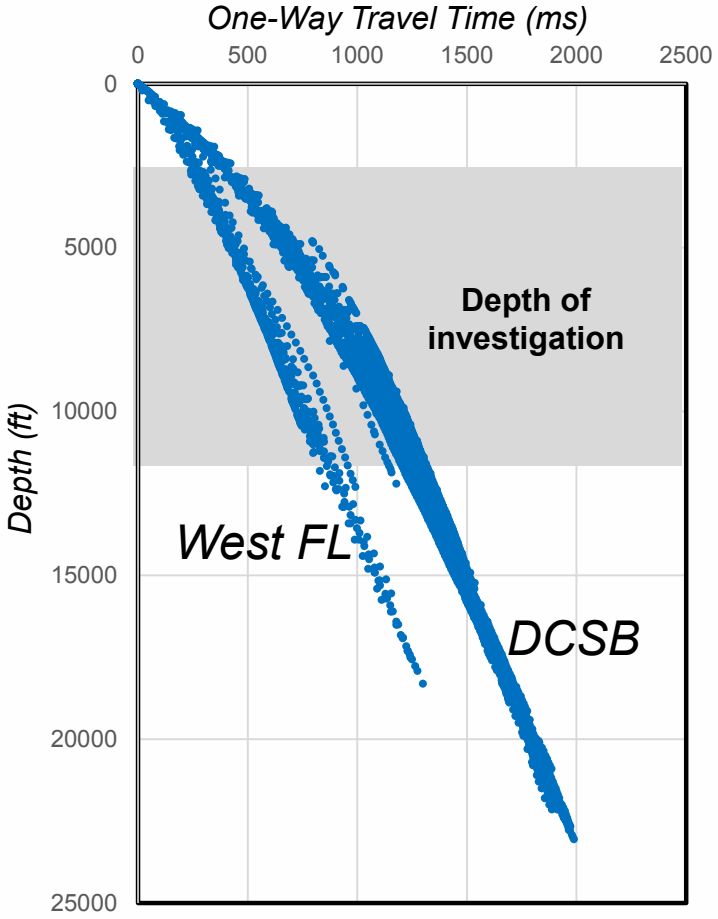


Workflows: Data Acquisition, Analysis

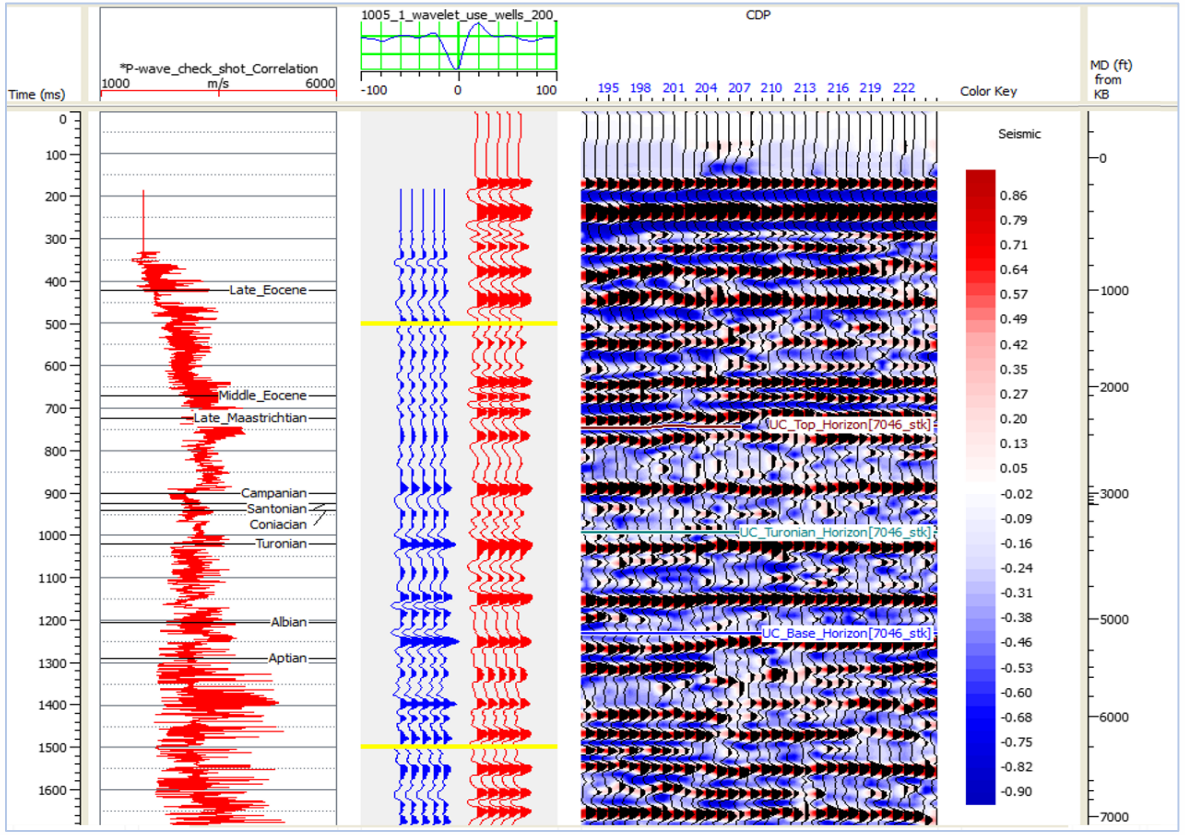
Well and log identification, EGOM



Velocity Surveys, EGOM

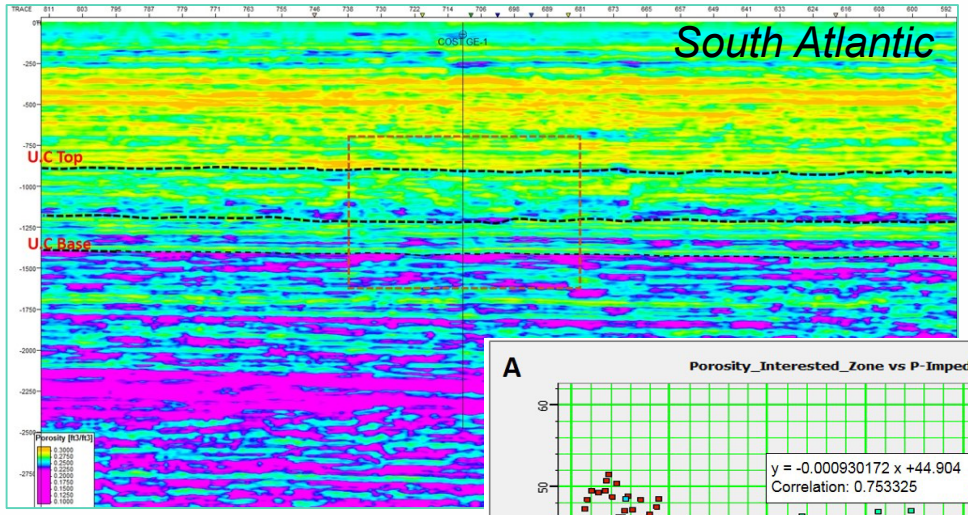


Seismic-well tie, Southern Atlantic

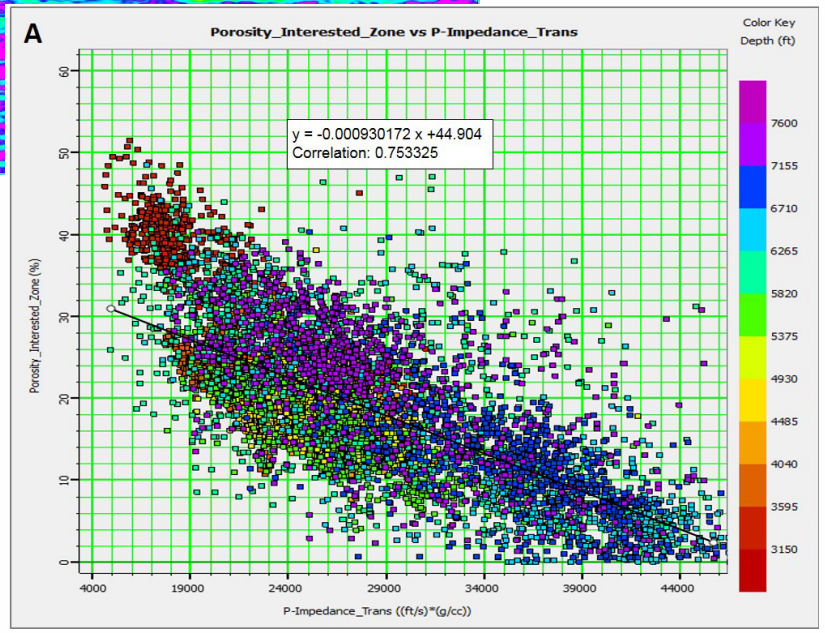


Workflows: Interpretation, Mapping

Seismic interpretation, inversion



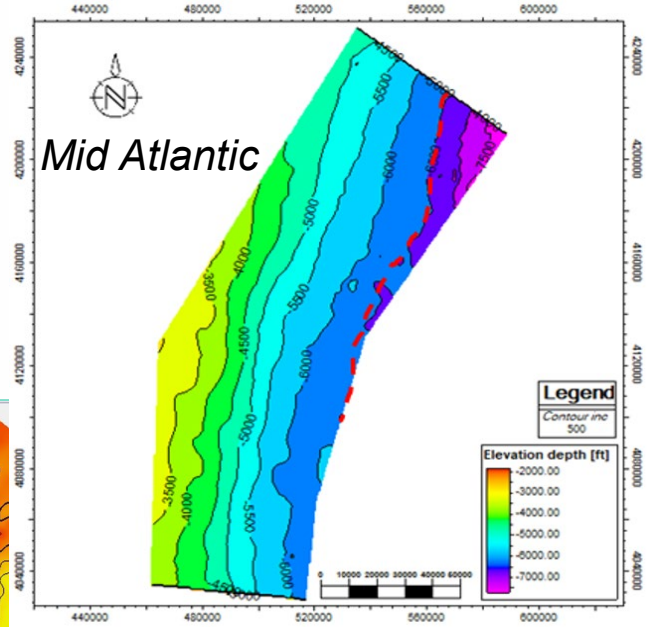
Well log analysis

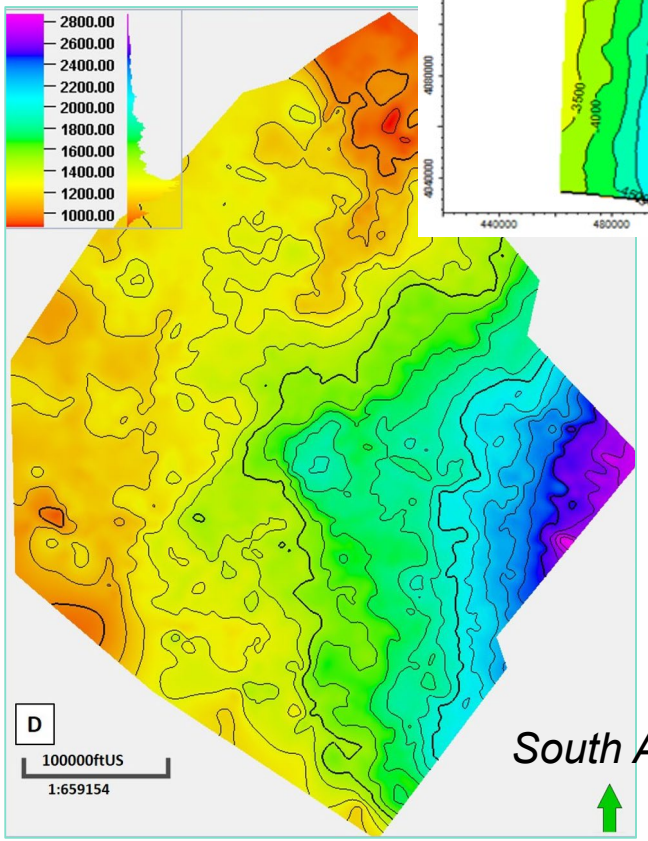


Impedance vs. porosity

Mapping

Time/depth structure
Isochron
Gross/net reservoir
Seal thickness
Porosity
Storage Resource

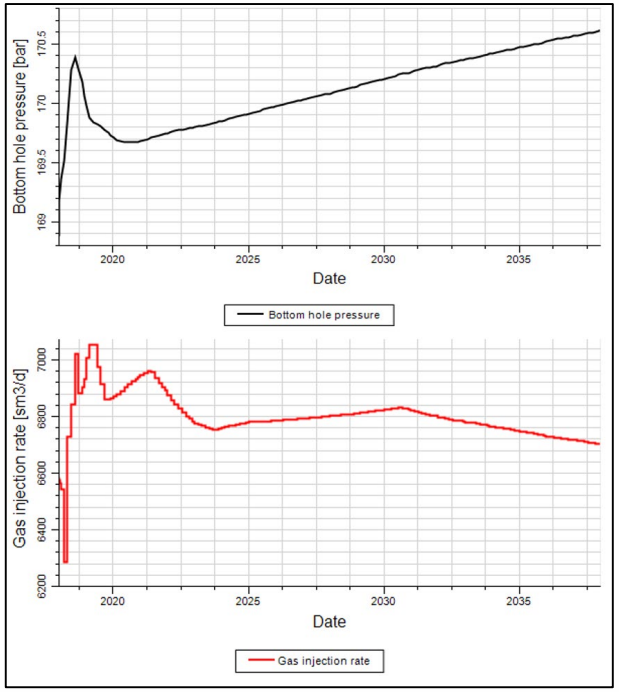




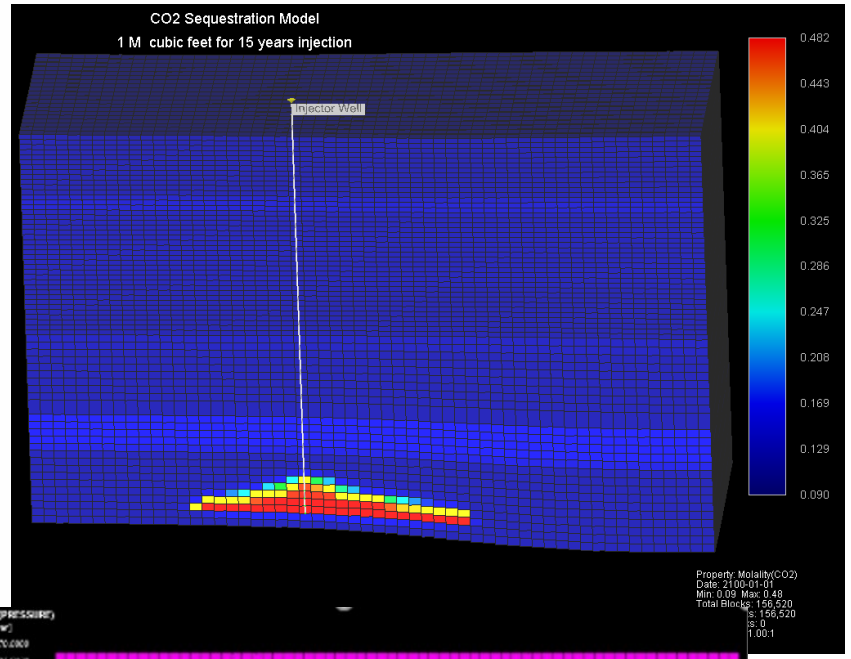
Structure maps

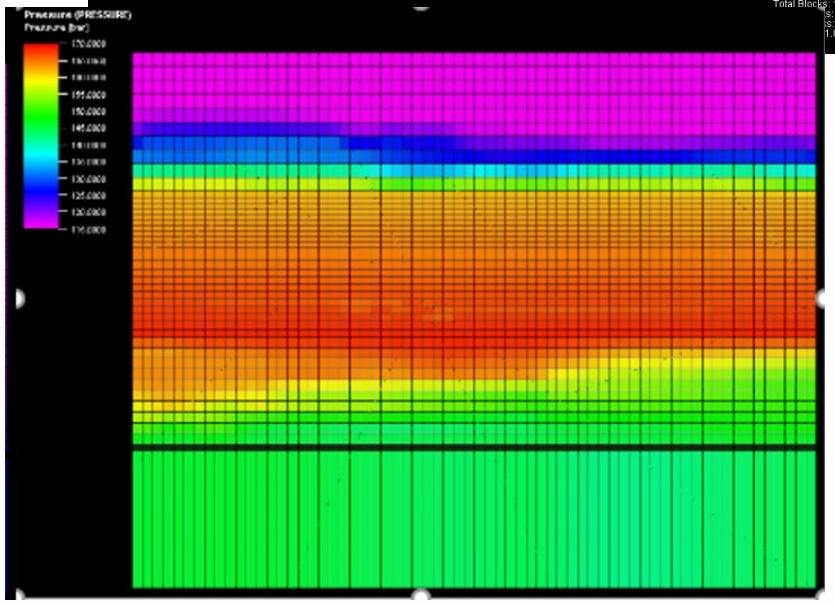
Workflows: Modeling

Bottom-hole pressure

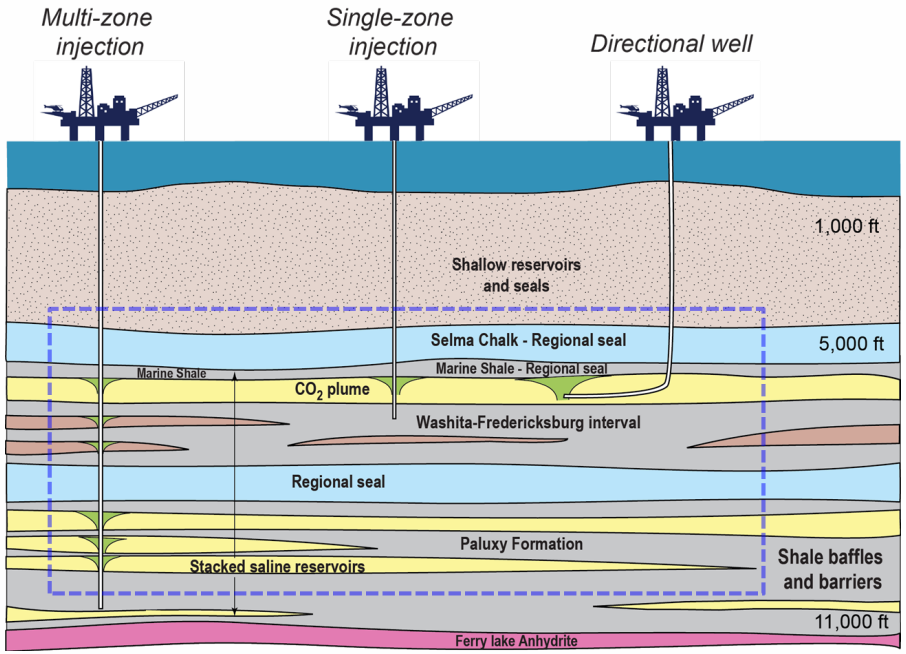


Plume and pressure footprint

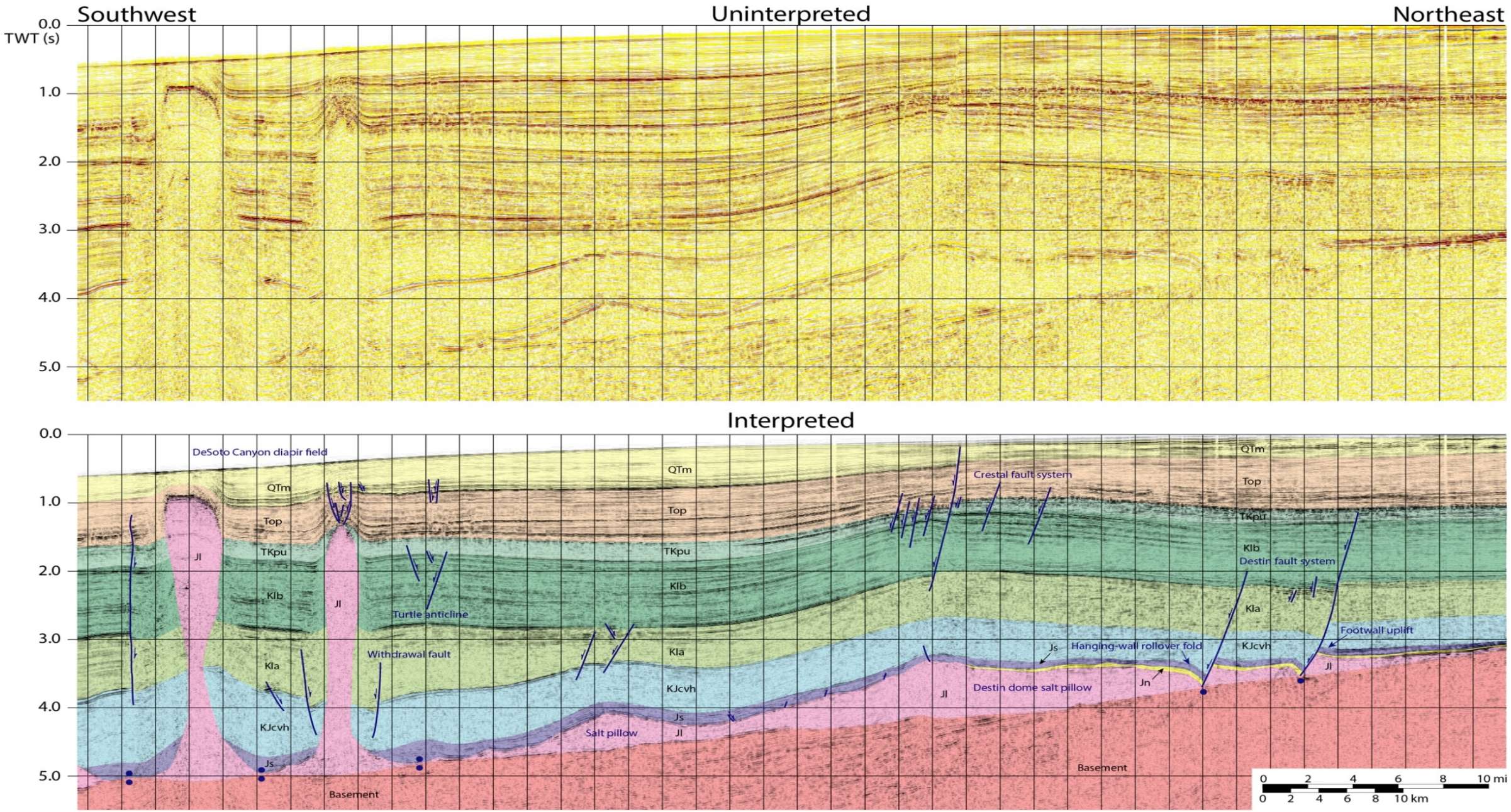




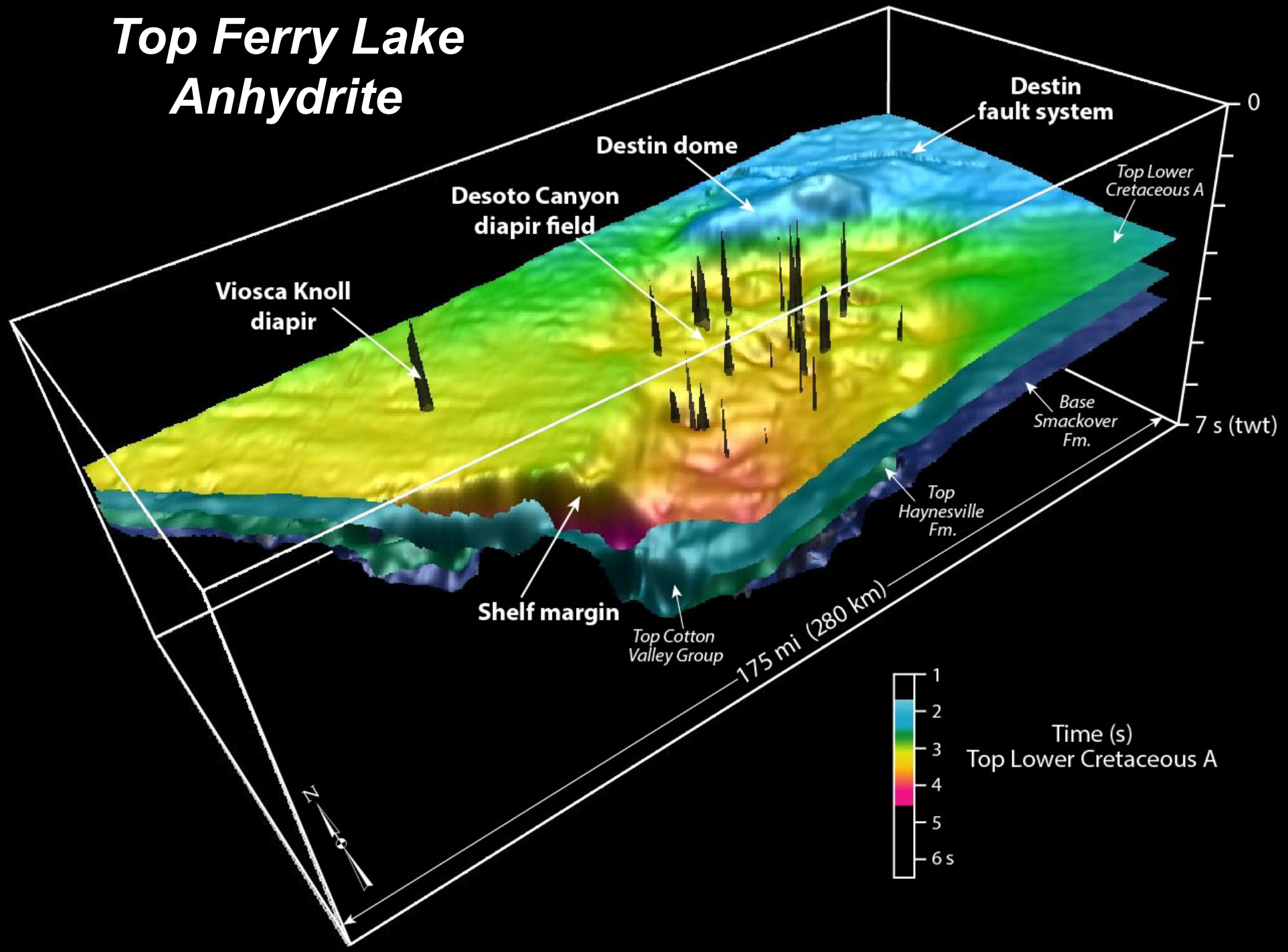
Development strategies



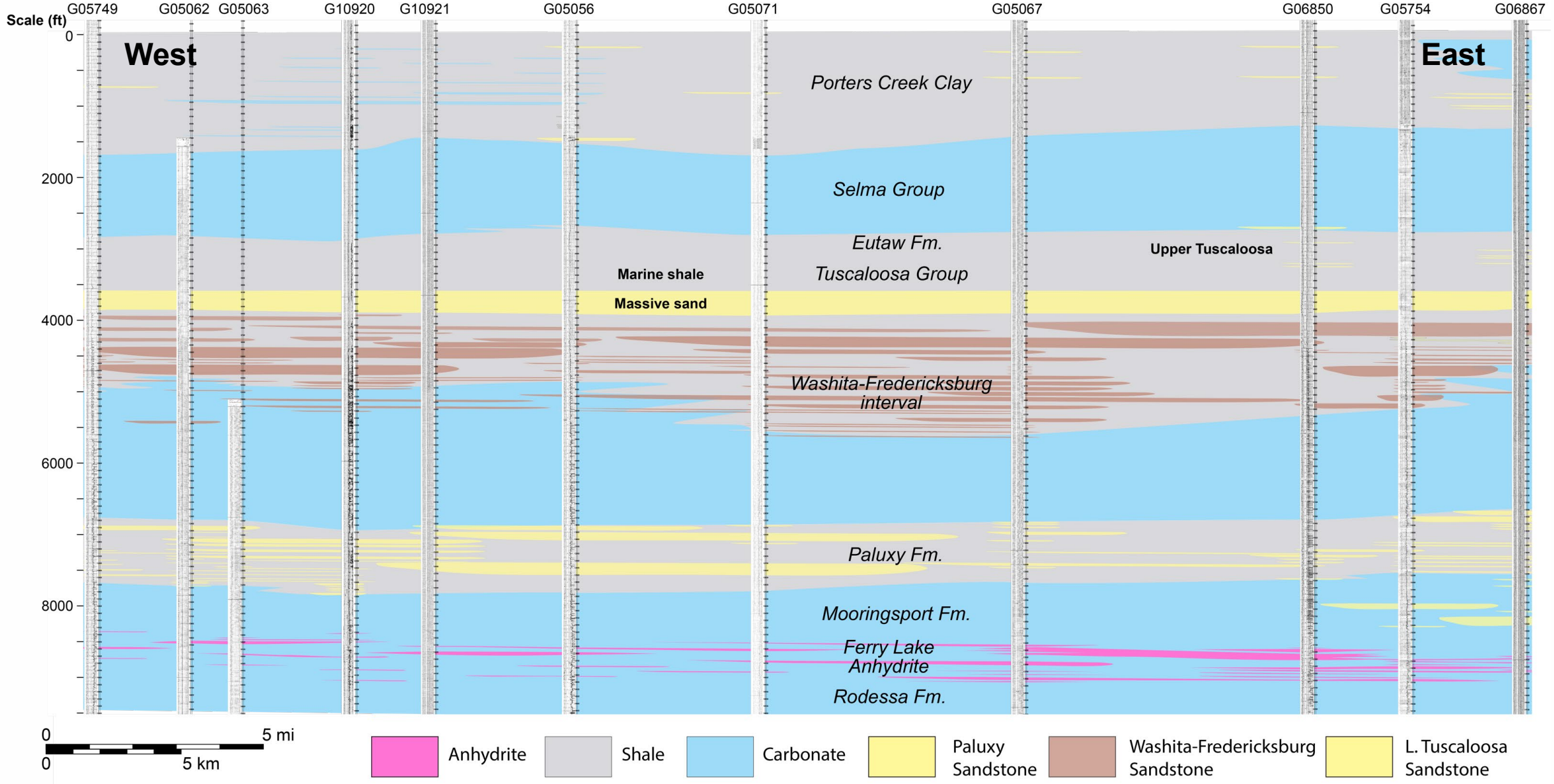
DCSB Destin Dome



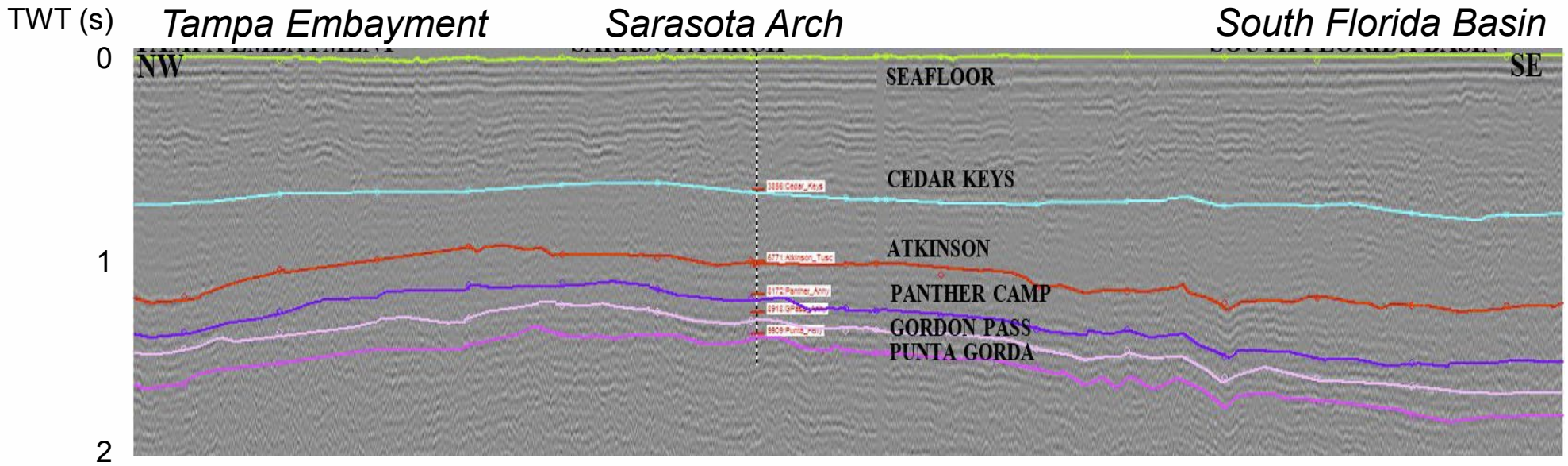
Top Ferry Lake Anhydrite



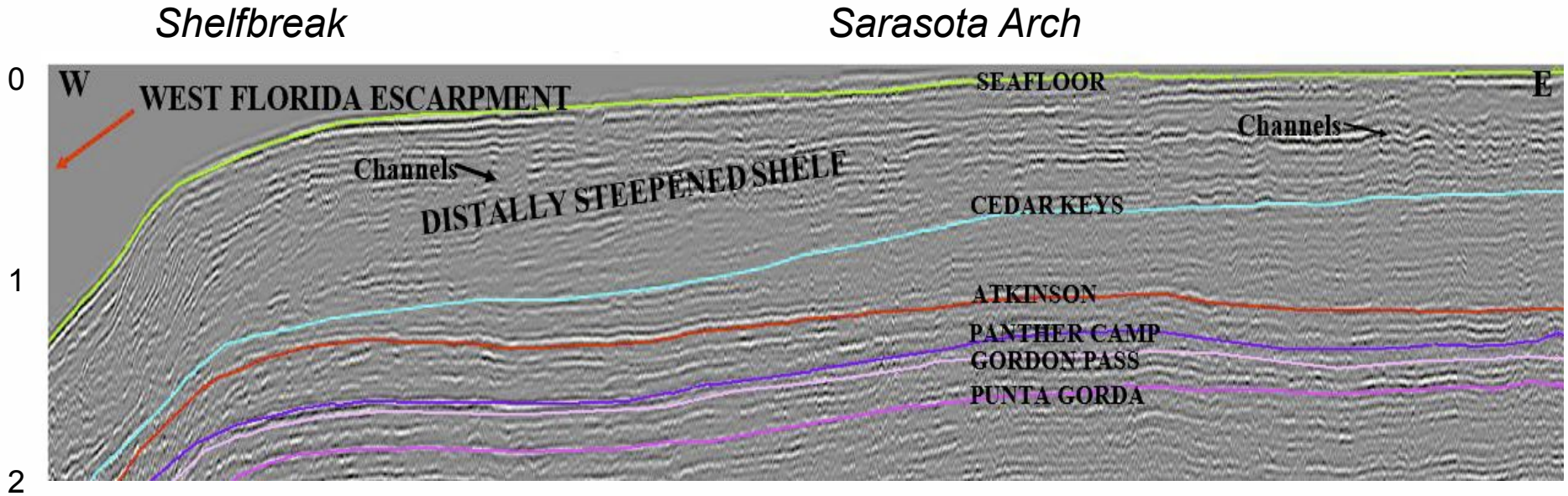
Stratigraphic Cross-Section, Cretaceous, Mobile Area



West Florida Shelf Seismic Profiles

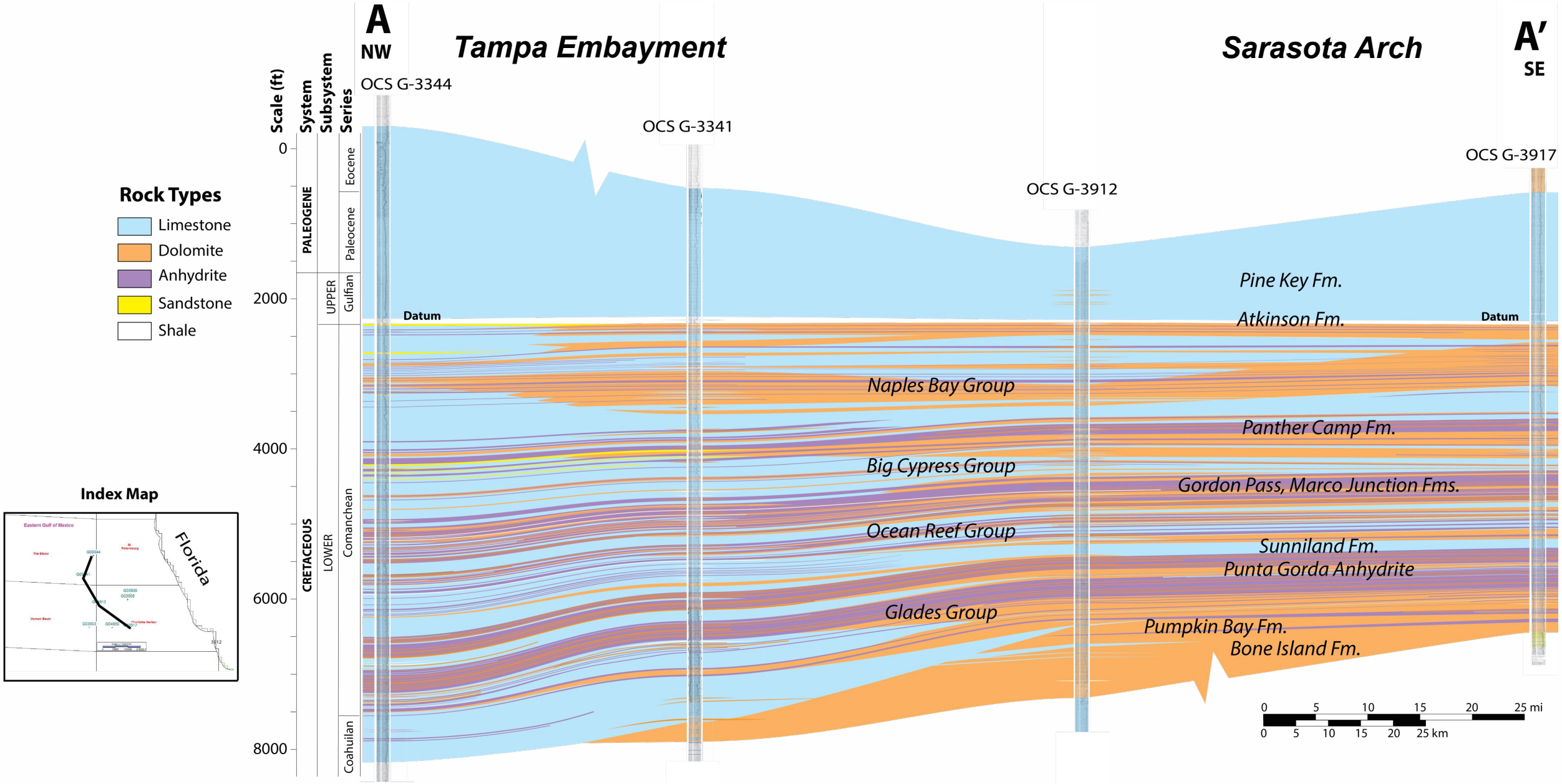


Strike profile



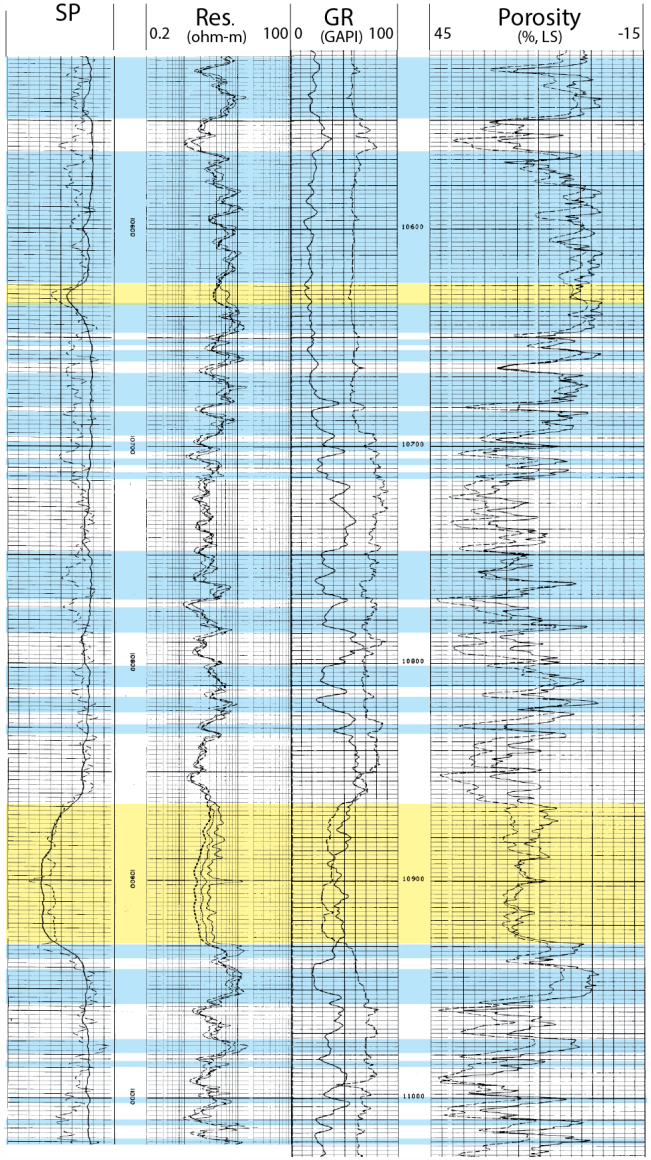
Dip profile

West Florida Shelf Stratigraphic Cross-Section



Prospective EGOM Sinks

Well G02468, Desoto Canyon Salt Basin



Paluxy Formation

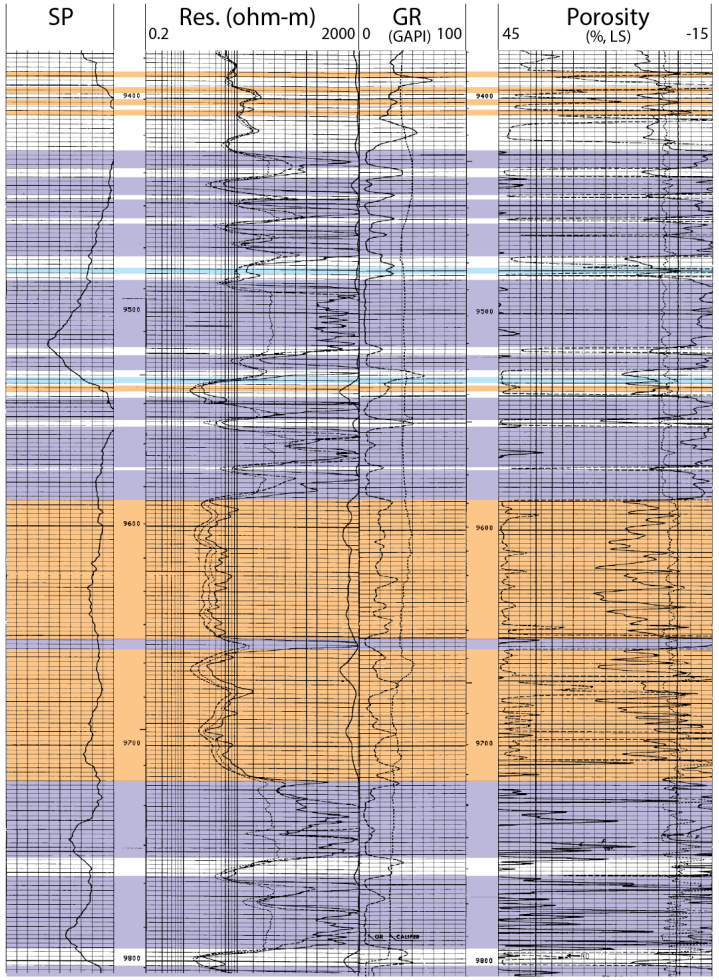
Major prospects in sandstone of Tuscaloosa Group and Paluxy Fm.

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

Volumetric Assessment, DeSoto Canyon Interest Area

$$G_{CO_2} = A_t h_g \phi_{tot} \rho E_{saline}$$

Where,

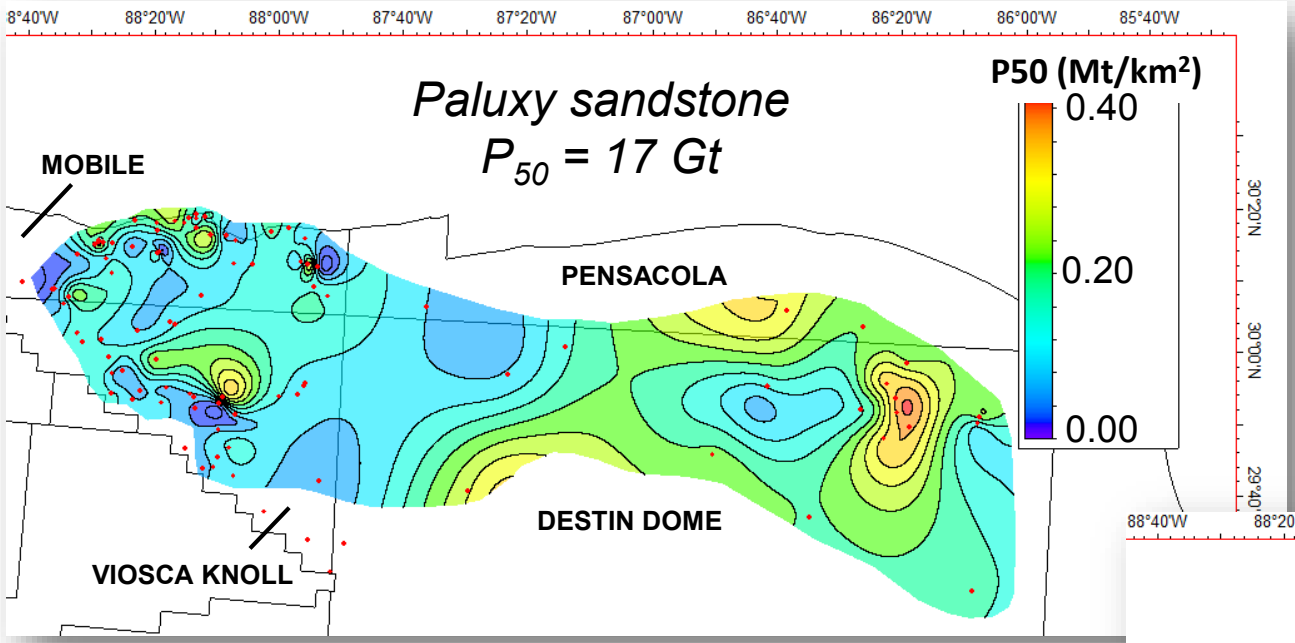
A_t is the reservoir area

h_g is the gross formation thickness

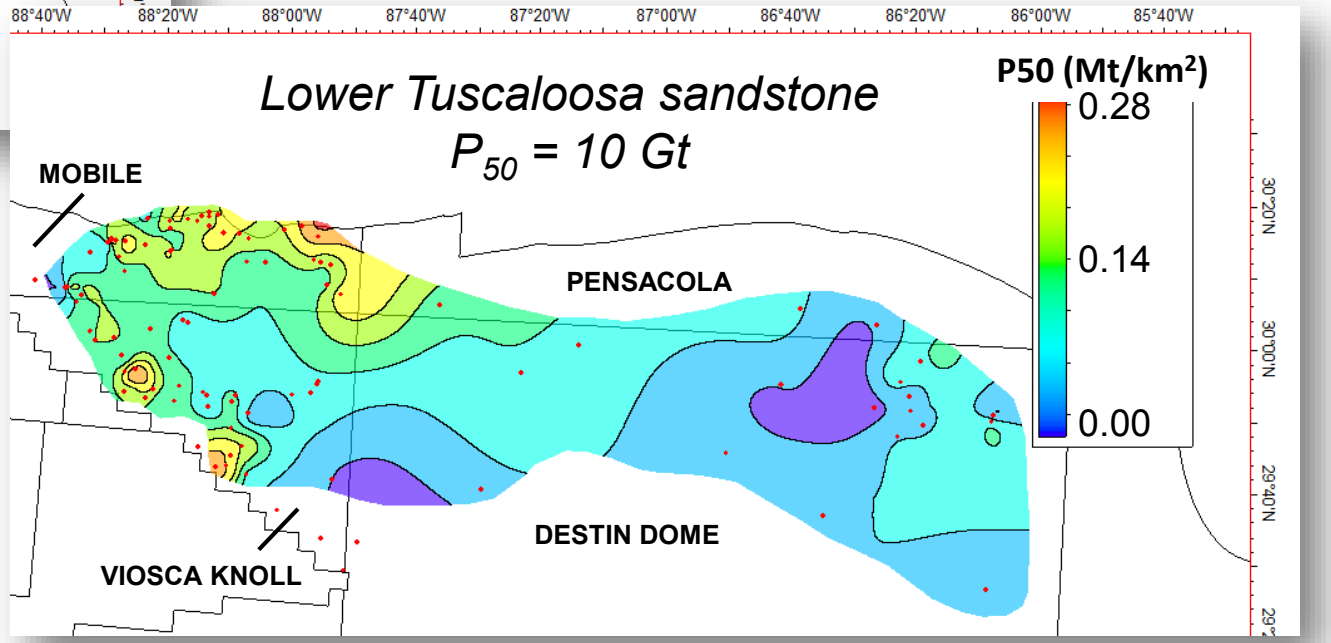
ϕ_{tot} is the net formation thickness

ρ is the CO_2 density

E_{saline} is the CO_2 storage efficiency factor



Paluxy + Lower Tuscaloosa
P50 = 3.6 Gt

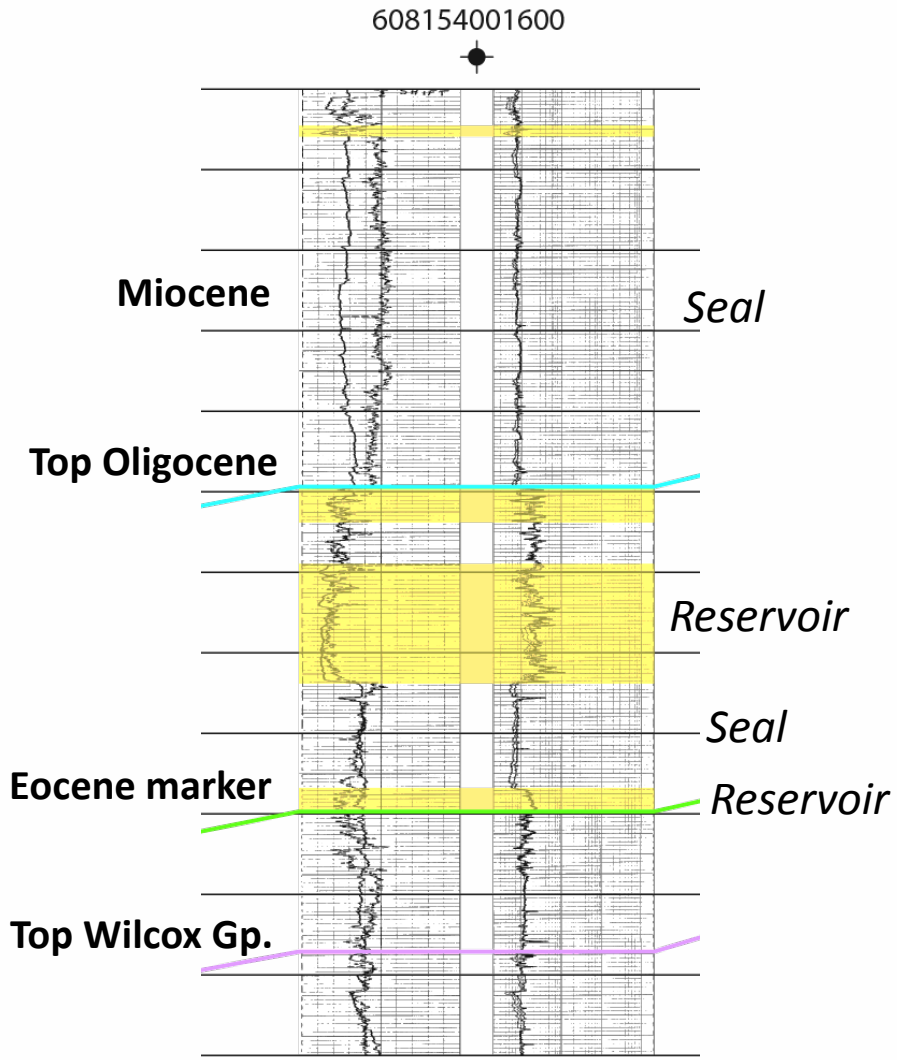


$E_{P10} = 7.4\%$
$E_{P50} = 14.0\%$
$E_{P90} = 24.0\%$

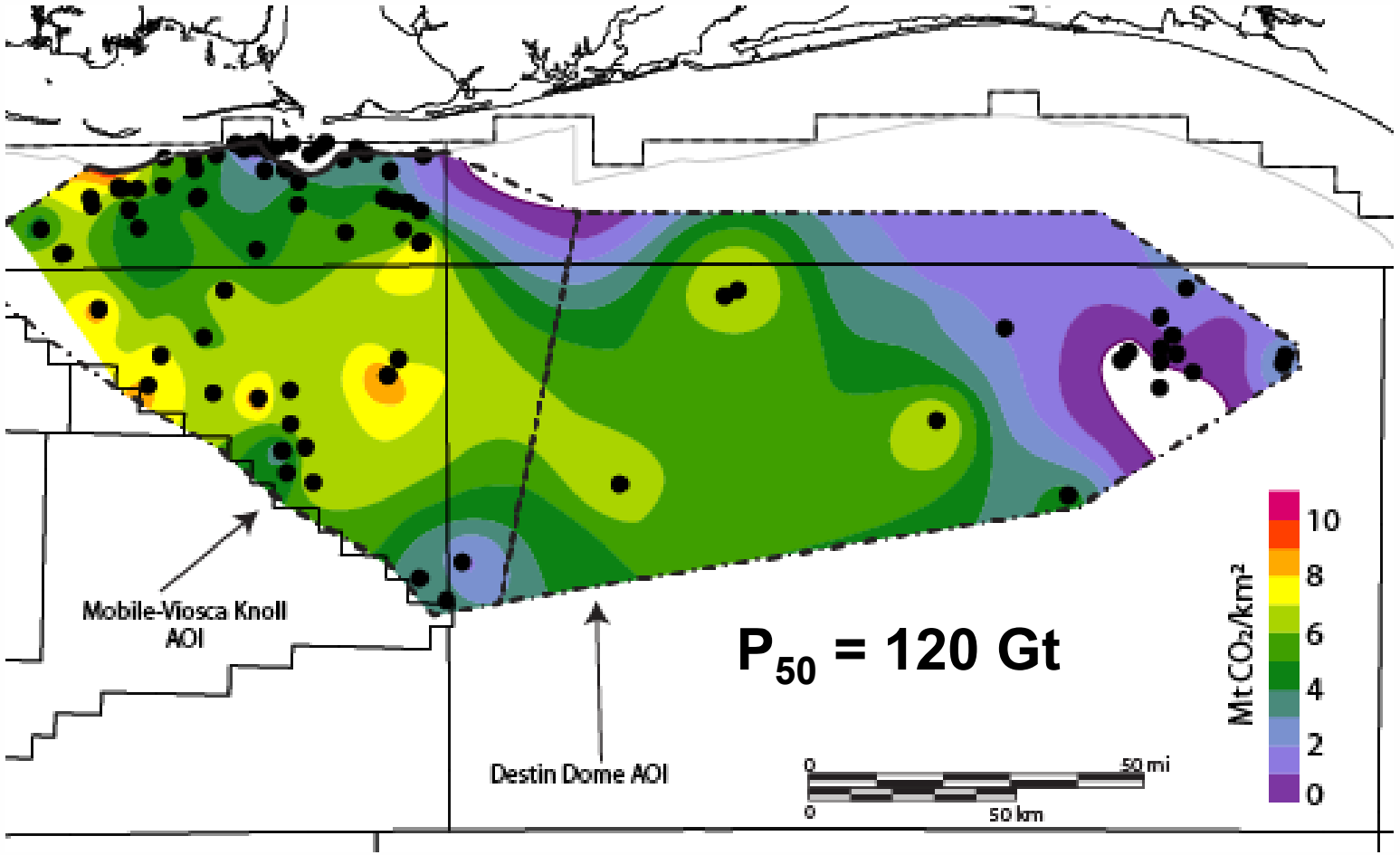
Porosity cutoff = 15%

Paleogene-Neogene Reservoirs, DeSoto Canyon Salt Basin

Gamma-SP-Resistivity Logs



Storage Resource



Observations

- Large portfolio of potential sinks and seals in eastern Gulf of Mexico and South-Mid Atlantic continental shelves.
- Main storage prospects in Cretaceous-Miocene section.
- Porosity of sandstone in DeSoto Canyon Salt Basin and Atlantic shelf commonly > 20%; mudrock and chalk seals common.
- West Florida Shelf contains dolomite with porosity > 15% and anhydrite seals on Sarasota Arch.
- P_{50} storage resource of 1,807 Gt identified (148 Gt in DeSoto Canyon Salt basin; 879 Gt in West Florida Shelf; 780 Gt in South Atlantic and Mid Atlantic interest areas.
- Static volumetrics and dynamic reservoir models indicate that average prospective offshore block is capable of storing multiple decades of emissions from a large power plant.