

Mapping Active Faults in the Houston

Geologic Overview

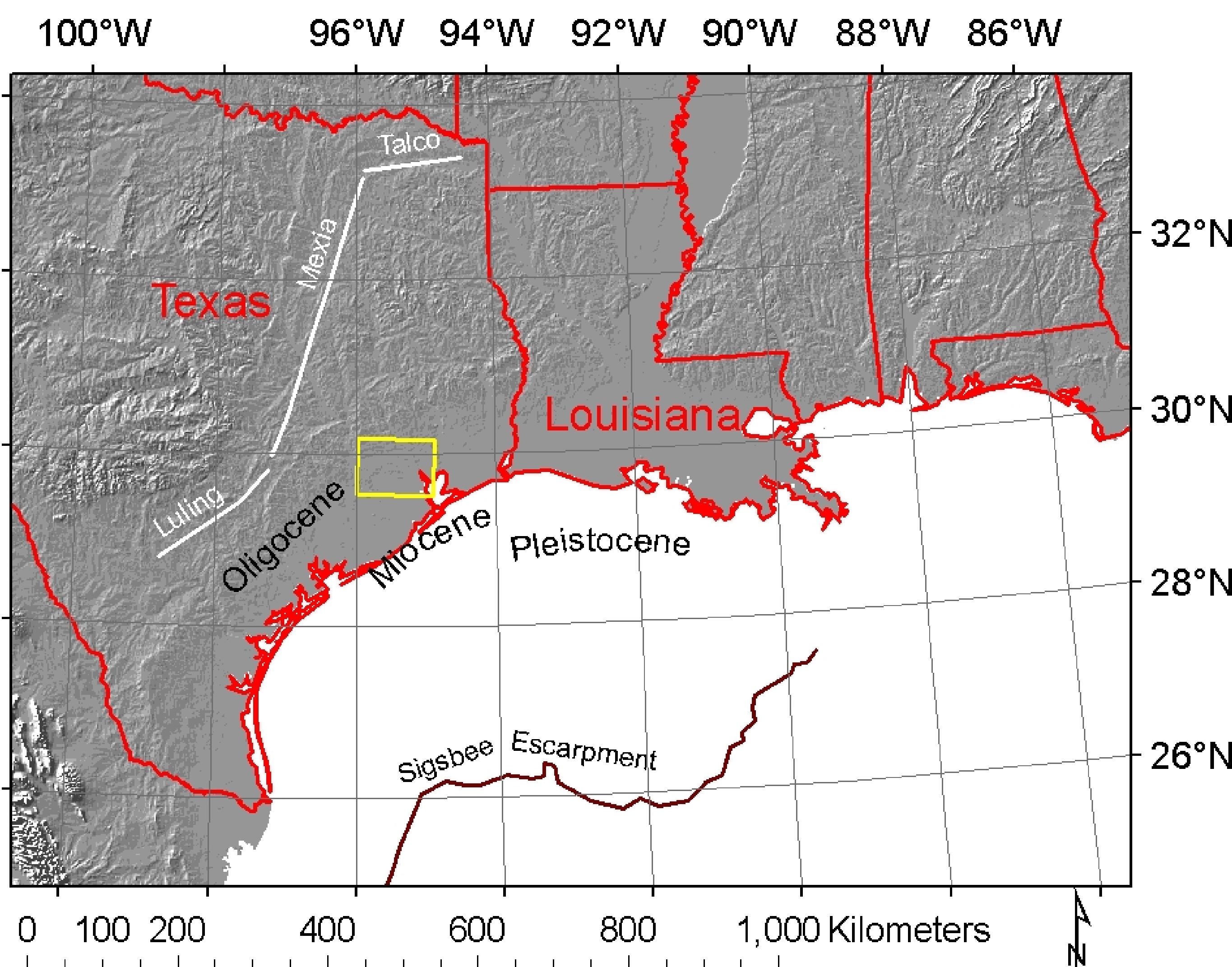
Salt deposited during extension prior to sea floor spreading

Deposition prograding into basin

Faulting initiating along shelf margin

Depositional and salt role in faulting

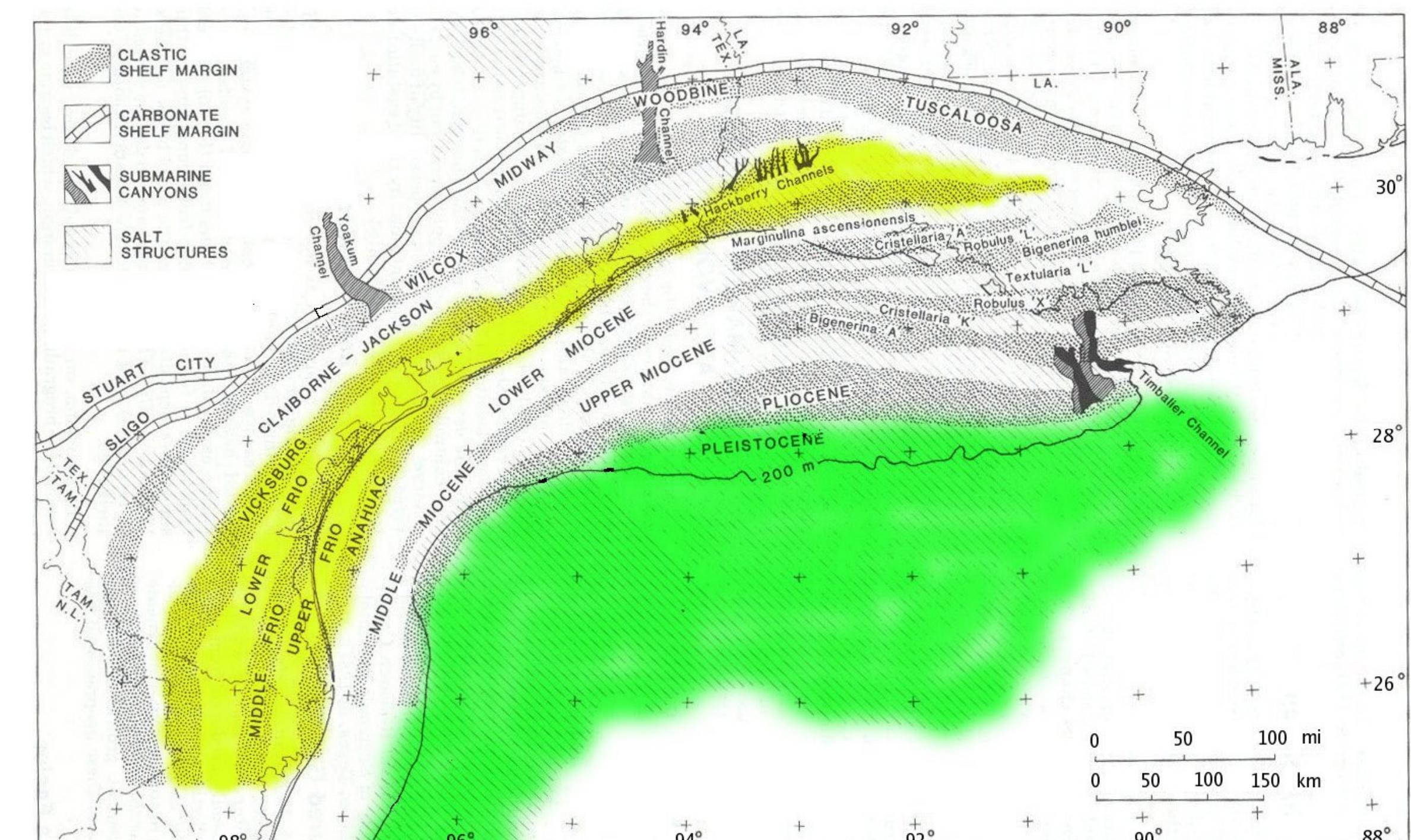
Northwest Gulf of Mexico Region



Regional map, showing the Northwestern Gulf of Mexico. The labels indicate the primary depocenters, showing the prograding into the basin along with the eastward migration of depocenters. The salt basin limits are shown. The salt basin extends from the Luling-Mexia-Talco faults to the Sigsbee escarpment. The box shows the study area (Harris County).

We see the general basinward progression of deposition.
Tectonic subsidence is amplified by sediment loading.
Is Basement high the northern half of the split mantle plume in Bird et al, 2005
?

Cenozoic Shelf Margins



Note progradation of shelf margins throughout Cenozoic. Most active growth faulting occurs at shelf margin. Significant subsidence due to loading of sediments (perhaps also mantle causes).

Late Cretaceous – Woodbine, Tuscaloosa

Paleocene – Midway, Lower Wilcox

Eocene – Upper Wilcox, Claiborne, Jackson

Oligocene – Vicksburg, Frio, Anahuac (yellow) – Houston on shelf margin

Miocene (undifferentiated)

Pliocene-Pleistocene (green)

Paleogene predominately in S. Texas; Neogene in E. Texas and Louisiana

Salt deposited during period of extension which preceded sea floor spreading in Middle Jurassic

The weight of the sediments has displaced the salt.

Note that bulk of salt now to the South.

Also note growth faults. The faults typically dip into the basin.

Deposition and Salt Migration

