II. Oil and Gas Formation and the Eagle Ford Shale

The Eagle Ford Shale Play

Eagle Ford Shale Play Play, Western Gulf Basin, South Texas

The Eagle Ford Shale Play

The Eagle Ford Shale and other Devonian and younger units are the cradle of the Gulf of Mexico to the southeast. The Eagle Ford is a complex and heterogeneous formation, which has high potential for hydrocarbon production. The Eagle Ford Shale Play is comprised of various depositional environments, including marine and terrestrial settings. The formation is characterized by high porosity and permeability, which makes it a promising target for hydrocarbon exploration.

Research Questions:

2. What is the vertical separation between the base of the aquifers and the upper of the Eagle Ford Shale?
3. Based on the vertical separation, are there areas in Texas where the fracking process is possible to result in groundwater resources?

Oil and Gas Windows

Gulf Coast waters are formed through three stages: diagenesis, catagenesis, and metagenesis. Diagenesis occurs in an oceanic environment from processes that have taken place on the seafloor. Catagenesis is the process of conversion of organic material into petroleum. Metagenesis is the process of conversion of petroleum into natural gas.

In general, chemical reactions caused by increased pressure and temperature promote a decrease in the molecular composition of the rock. As a result, the porosity and permeability of the rock are reduced, which affects the ability of the rock to store and transmit hydrocarbons.

Porosity and permeability are the leading controls on the rate and distribution of oil and gas production. Therefore, the identification of regions with high porosity and permeability is crucial for successful hydrocarbon exploration.

Porosity and permeability are typically measured using core analysis and log analysis. Core analysis involves examining rock samples to determine their physical properties, such as porosity and permeability. Log analysis involves interpreting well logs to determine the porosity and permeability of the rock.

We developed a new map that shows the vertical separation between the top of the Eagle Ford shale and the base of the aquifer. This map includes the published contour lines at 2000 foot intervals for 1000--0 ft. These maps include: 1) a map displaying depths to the top of the Eagle Ford shale as well as the base of the aquifer. 2) a map displaying the depth of the top of the Eagle Ford Shale at 1000--0 ft. The new map is generated by overlaying the contour maps at 2000 foot intervals with the published contour lines.

We estimate the positions of contour lines at 1000 foot intervals between existing 2000 foot contour lines. We developed an estimate of the position of contour lines at 2000 foot intervals for 1000--0 ft. These maps include the published contour lines from both maps. The map includes the published contour lines from both maps. We estimate the positions of contour lines at 2000 foot intervals between existing 2000 foot contour lines. We used the intersections of these contour lines and spatial estimations to develop the contour depth map shown in Section IV.

We present the new map and the depth map for each of the contour lines at 2000 foot intervals for 1000--0 ft. These maps include the published contour lines from both maps. We estimate the positions of contour lines at 2000 foot intervals between existing 2000 foot contour lines. We used the intersections of these contour lines and spatial estimations to develop the contour depth map shown in Section IV.