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## Hypothetical Presalt Play in the Deepwater Gulf of Mexico, Northwestern Yucatan Block, Mexico

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### ABSTRACT

A presalt sequence was identified by PEMEX with a recent 2D seismic acquisition campaign in the deepwater Gulf of Mexico. This sequence represents a new hypothetical prospective play for hydrocarbons. This presalt sedimentary package is widespread, borders the northern and western Yucatan Block, and stratigraphically lies between the base level of Jurassic salt and crystalline basement rocks. Two identified seismic facies are separated by an angular unconformity, and both suggest shallow marine or transitional origin that could contain source and reservoir rocks.

In order to understand its origin and geological characteristics, our focus was on tectonic reconstructions before the opening of the Gulf of Mexico, when the Yucatan Block was located south of the Marathon-Ouachita belt during Late Paleozoic time. The tectonostratigraphic terranes in Mexico and the U.S. show a mosaic of blocks forming this region, where the Yucatan Block is now located. The hypothetical play can be regarded as a presalt play as has happened in similar conditions at West Africa and Brazil. The area of this sequence could become a prospective geological province with great hydrocarbon potential, where 3D seismic and detailed studies are necessary, including petroleum system modeling, regional play, and prospect studies, before any wildcat well could test this play.