

Facies reconstruction of a Late Pleistocene cypress forest discovered on the Northern Gulf of Mexico Continental Shelf

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ABSTRACT

A previously buried bald cypress forest (*Taxodium distichum*) was discovered on the continental shelf seafloor, offshore of Orange Beach, Alabama, USA, in ~20 m water depth. The forest was likely buried in the late Pleistocene, possibly exhumed by Hurricane Ivan in 2004, and is now exposed as stumps in life position. We are investigating local stratigraphy and mode of forest preservation. In August 2015 and July 2016, submersible vibracores were collected. Sediment cores revealed, from top to bottom, a surface of Holocene transgressive sands, underlain by interbedded sand and mud (potentially Holocene or Pleistocene), overlying a swamp or delta plain facies (likely Pleistocene) containing woody debris and mud that has been provisionally dated using C-14 to ca. 41-45 ka. Cores collected in 2016 revealed a Pleistocene paleosol beneath Holocene sands in a nearby trough.

We hypothesize that floodplain aggradation in the area was a key factor that might have allowed forest preservation. A temporary sea-level rise of 10-15 m occurred ca. 40 ka, which could have produced local floodplain aggradation that would have buried the swamp and forest sediments. During the subsequent lowstand, sediments that comprise the floodplain were eroded. Subsequently, paleosols were formed in other nearby areas. It is hypothesized that some swamp sediments located in paleo-topographic lows might have been preserved and buried due to the deep coverage of the eastern-trending channel infill sediments. Coastal wave erosion during transgression likely eroded high ground but enough sediment remained to keep the cypress forest blanketed and therefore allowed preservation.

BIOGRAPHY



Suyapa Gonzales Rodriguez is currently a first semester graduate student at LSU pursuing my master's in geology in an accelerated program. I was born and raised in Honduras, where I spent my childhood swimming and snorkeling the crystalline waters of the Caribbean Sea. I lived in the northern coast of the country, where we have beaches, rainforests, and mountains all in one place. Being surrounded by so much beauty taught me to truly respect and love nature. I took a year off from high school to travel, moving to Germany, where I lived with a host family and learned my third language. When I came back to Honduras, I decided to go abroad once again, but this time for college. I came to LSU almost four years ago. Ever since my first geology class at LSU, I've been mesmerized and inspired by this amazing science and how diverse it is. Up until this day, becoming a geologist has been one of the best decisions I've made.