

Geologic formation of Florida

February 6 2014, by Katy Hennig



Credit: Katy Hennig/USF News

We all know why we love to live in Florida - the sun, sand, and seashore. What is it that truly makes this state unique? According to Geological Oceanographer Albert C. Hine – Professor of Geological Oceanography at USF's College of Marine Science - it's a matter of time: lots of it.

"To a scientist it's special because of its attachment to the ocean," Hine said. After studying the coastal ocean or shoreline for more than 33 years, Hine has composed an informative collection of research to share with us all explaining the geographical processes that formed the state that we enjoy so much.

In his newly-released book, *A Geologic History of Florida Major Events That Formed the Sunshine State*, Hine presents the evolution of the state in a way in which we can all understand, tracing back 700 million years.

With more than 19 million residents, Florida is the third largest state and because of growth and an influx in population the need to plan to preserve it all for future generations is crucial. In his book, Hine discusses the formation of the state and the impacts that the economy and tourism will have on the quality of lifestyle, infrastructure, and future planning for the environment.

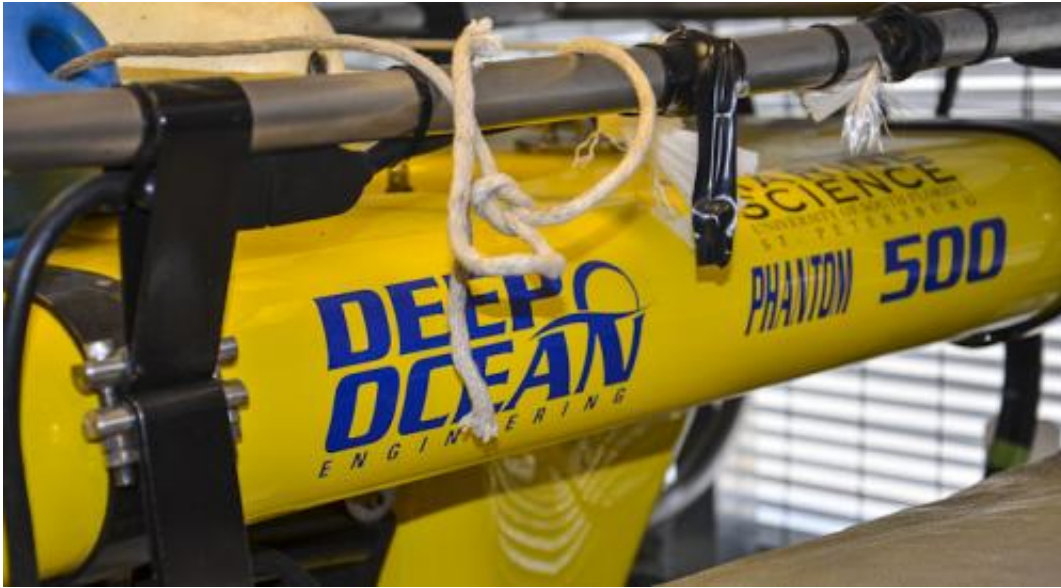
Hine's ocean research is technology driven – utilizing tools like bioacoustics – which put sound into the ocean to image the sea floor. According to Hine, this is an efficient way to gather data about areas below the surface that we cannot see. "It's invisible to us from the surface, we need remotely operated vehicles and sound that will penetrate the [water](#) column, making maps to determine what's down there and then we can figure it out," Hine said.

Coastal Ocean

Hine says understanding oceanography is about creativity and teamwork, with marine scientists working together to gather and interpret images. The area that Hine and his team focus on is the coastal ocean; describing in detail the unique nature of Florida because of its location, surrounded by coastal ocean.

Three Layers

In his book, Hine details the formation of the state over the course of time, from 700 million years ago up until 10,000 years ago, building up upon a layer of carbonate, limestone and quartz veneer.

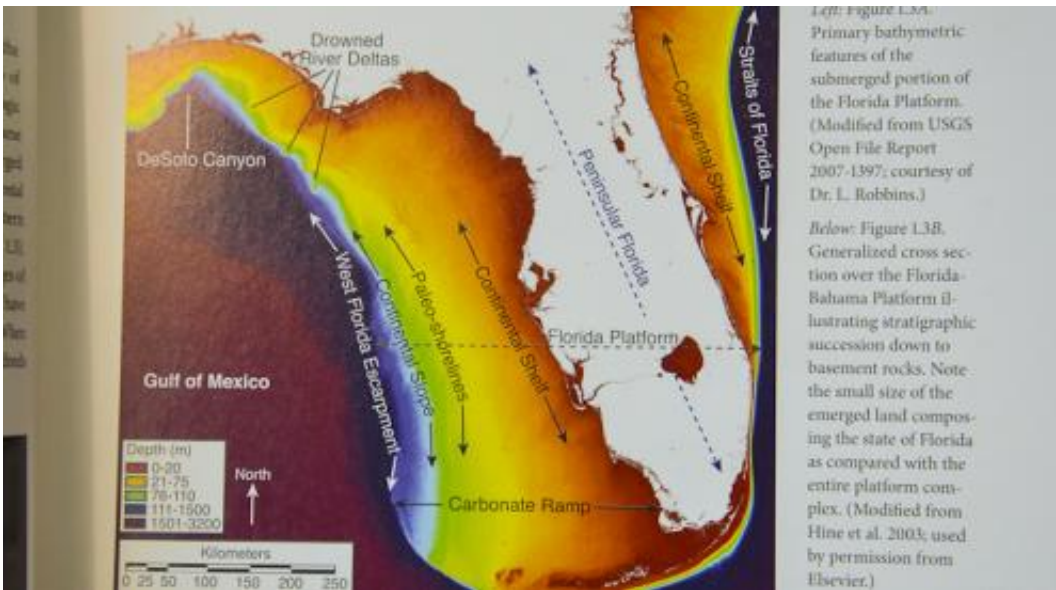


Hine and his team use autonomous underwater vehicles and bioacoustics to image the sea floor. Credit: Katy Hennig/USF News

Most of us are familiar with the quartz, the part of Florida that attracts both residents and tourists to the beautiful coastline. Hine describes how the quartz travelled from the Appalachian mountains and covered the state.

"All of these are chapters in my book, where did the sand come from? Where did the carbonates come from where did the limestone come from. Where is the groundwater coming from? Those are the primary components. I try to paint a big story using a word called connectivity," said Hine.

Hine highlights the connection between Florida and the global system, "It's connected to the global ocean. Sea level has gone up and down and the global sea level rises and falls have affected Florida."



Hine's book is full of colorful imagery and graphs to support his geological research.

Sustainability in the Future

Hine explains how the history of the geology of Florida will help us all better understand the future of sustainability in our state, from the water cycle to the infrastructure, economy. In his book, he details the hydrologic cycle or [water cycle](#) and explains why Floridians should be informed about where our fresh water comes from.

"We have 19 million people in Florida, the aquifer is being depleted," said Hine. "So we do have a shortage of potable water, believe it or not. That's why we have one of the largest desalination plants in Tampa Bay. So we're storing water on the surface of the ground as well as desalinization and drawing it out of the ground to provide water for the 19 million of us, and growing."

Provided by University of South Florida

Citation: Geologic formation of Florida (2014, February 6) retrieved 26 April 2024 from <https://phys.org/news/2014-02-geologic-formation-florida.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.