

# Holocene Record of Hurricane Landfall Along the Texas Coast

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# Why study past hurricanes?



[http://www.boston.com/bigpicture/2010/08/remembering\\_katrina\\_five\\_years.html](http://www.boston.com/bigpicture/2010/08/remembering_katrina_five_years.html)

- Hurricanes have significant impacts on modern society
- Historical records of hurricane events are limited
- Reconstructing hurricane events from geologic record extends knowledge of intense storms
- Helps determine whether frequency of hurricanes has varied

# Research objectives

1. Define what a hurricane deposit looks like in the sedimentary record
2. Conduct grain-size analysis on a core from Baffin Bay, Texas
3. Reconstruct hurricane record
4. Determine whether frequency of hurricanes striking Baffin Bay has varied throughout the Holocene



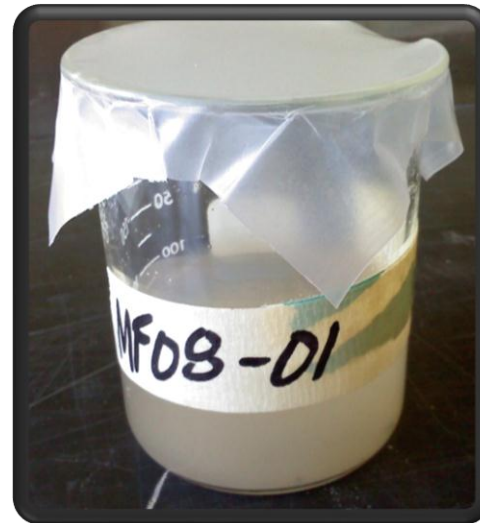


# Grain-size analysis

Sample



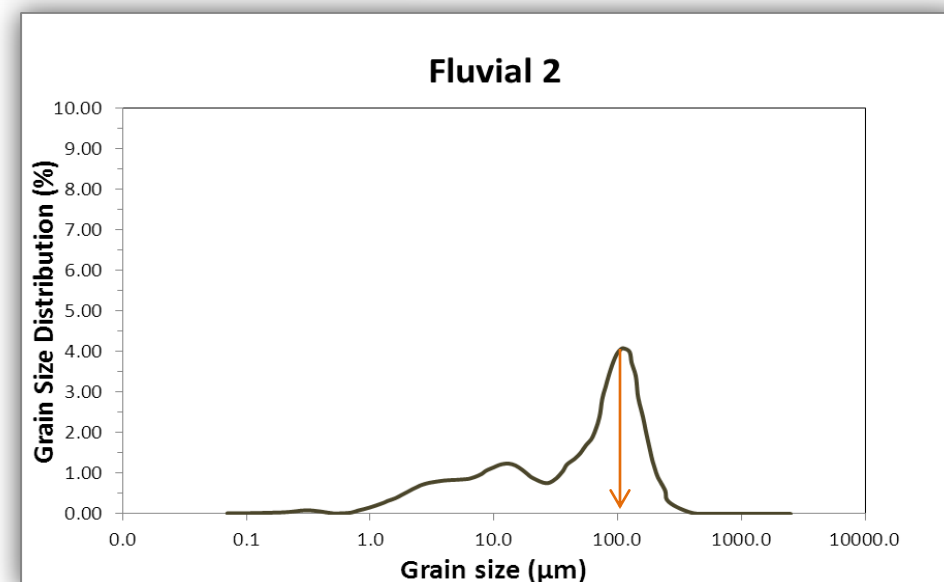
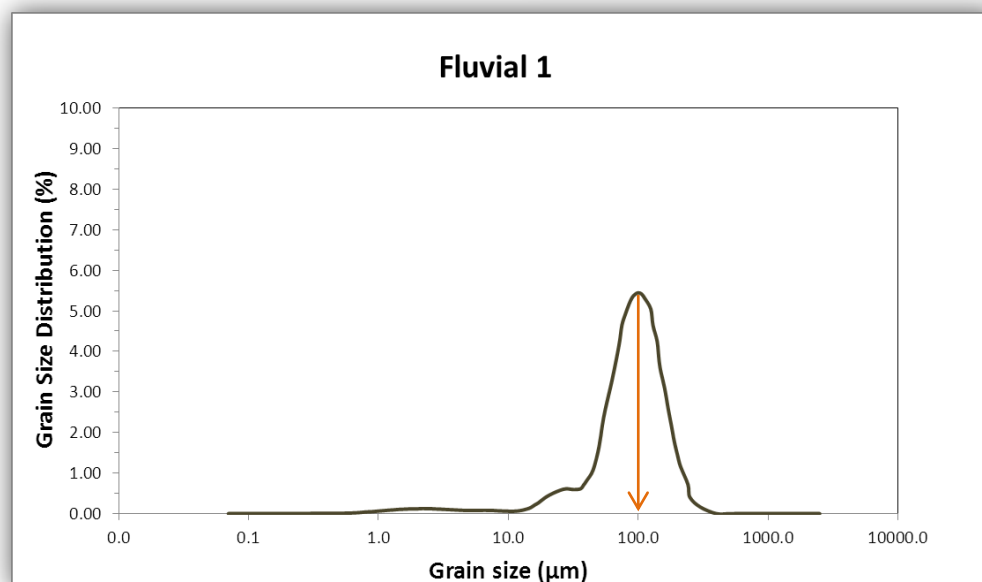
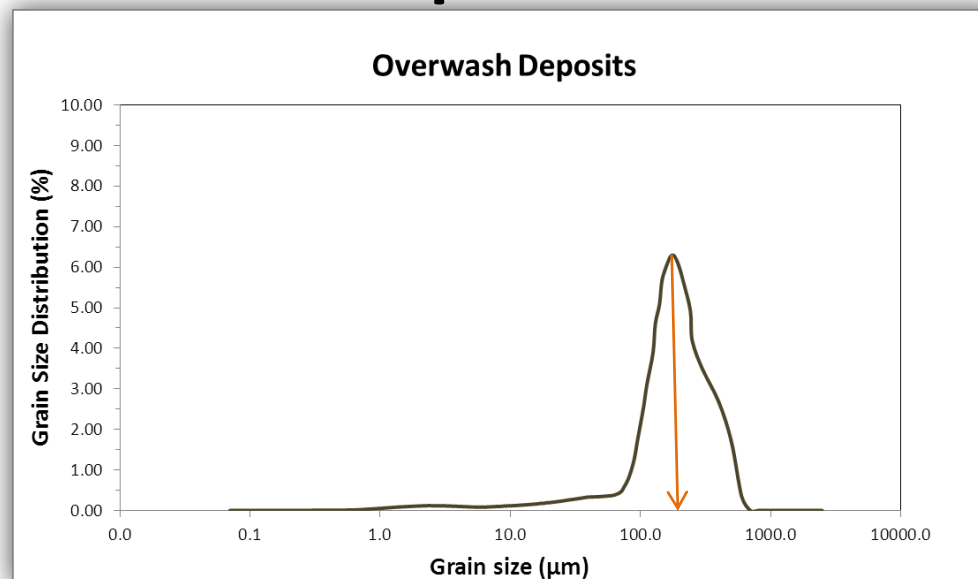
Soak



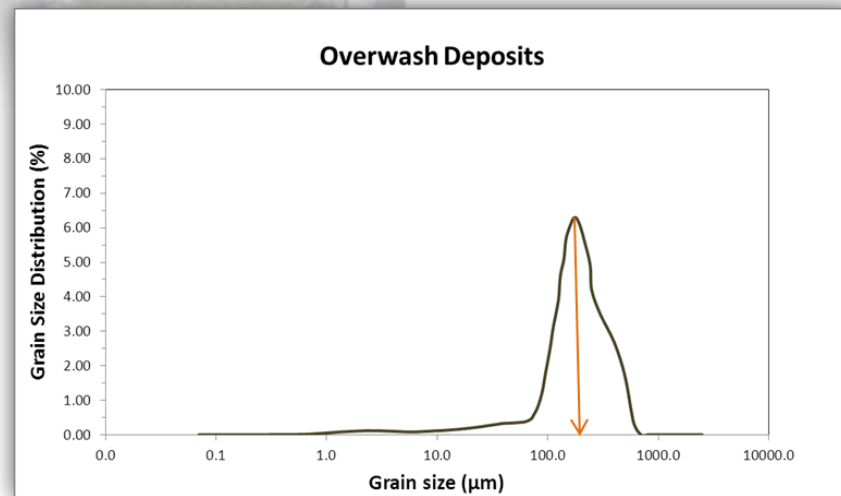
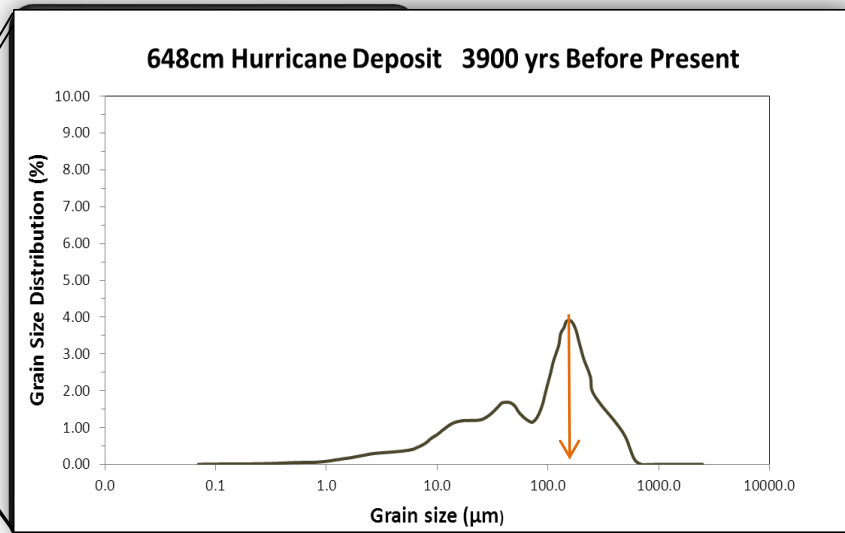
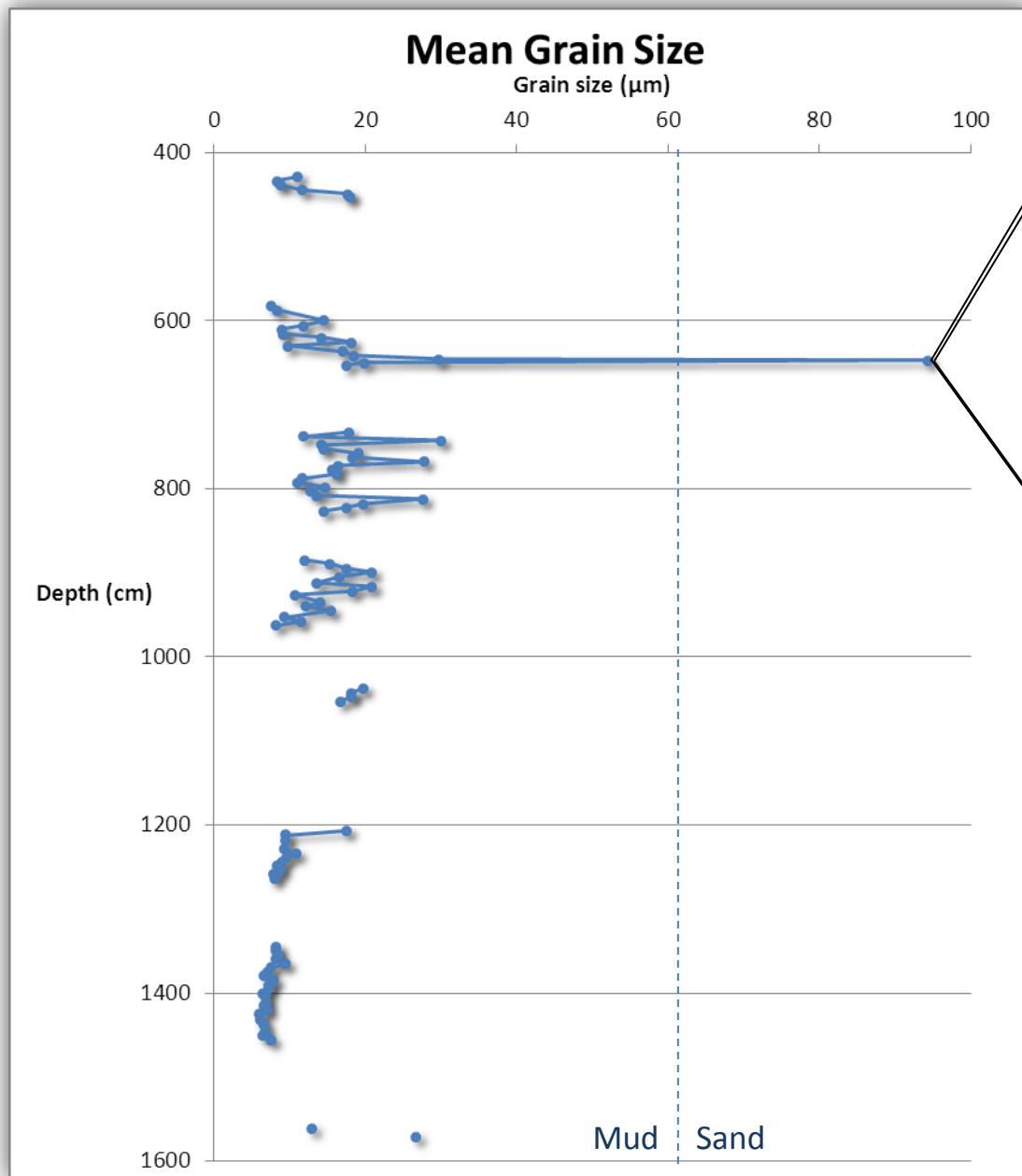
Analyze



# Hurricane deposits definition



# Grain-size profile

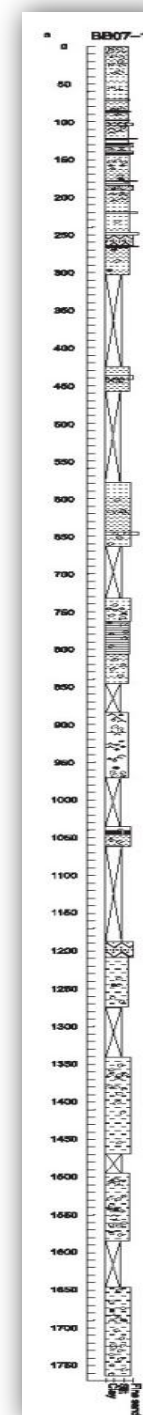


# Completed Objectives

- Defined hurricane deposits
- Completed grain size analysis on part of core
- One hurricane documented at 3900 years before present



[http://www.boston.com/bigpicture/2008/09/the\\_short\\_but\\_eventful\\_life\\_of.html](http://www.boston.com/bigpicture/2008/09/the_short_but_eventful_life_of.html)



Completed section



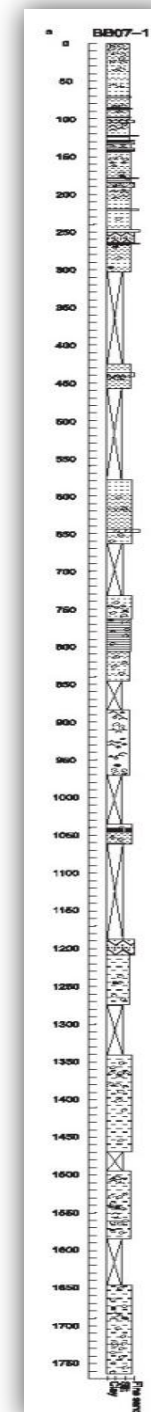
# Further work

- Finish grain-size for core
- Look at other cores from Baffin Bay
- Compare our complete record with other hurricane studies from the US Atlantic coast and the Gulf of Mexico



Storm Surge on Padre Island

[http://www.boston.com/bigpicture/2008/09/the\\_short\\_but\\_eventful\\_life\\_of.html](http://www.boston.com/bigpicture/2008/09/the_short_but_eventful_life_of.html)



← To be Completed

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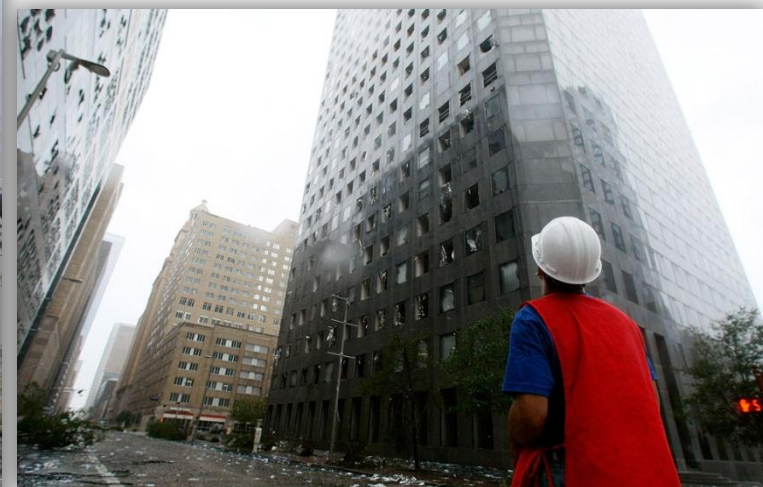
Stratigraphic column modified from Simms et al. 2010

# Acknowledgements

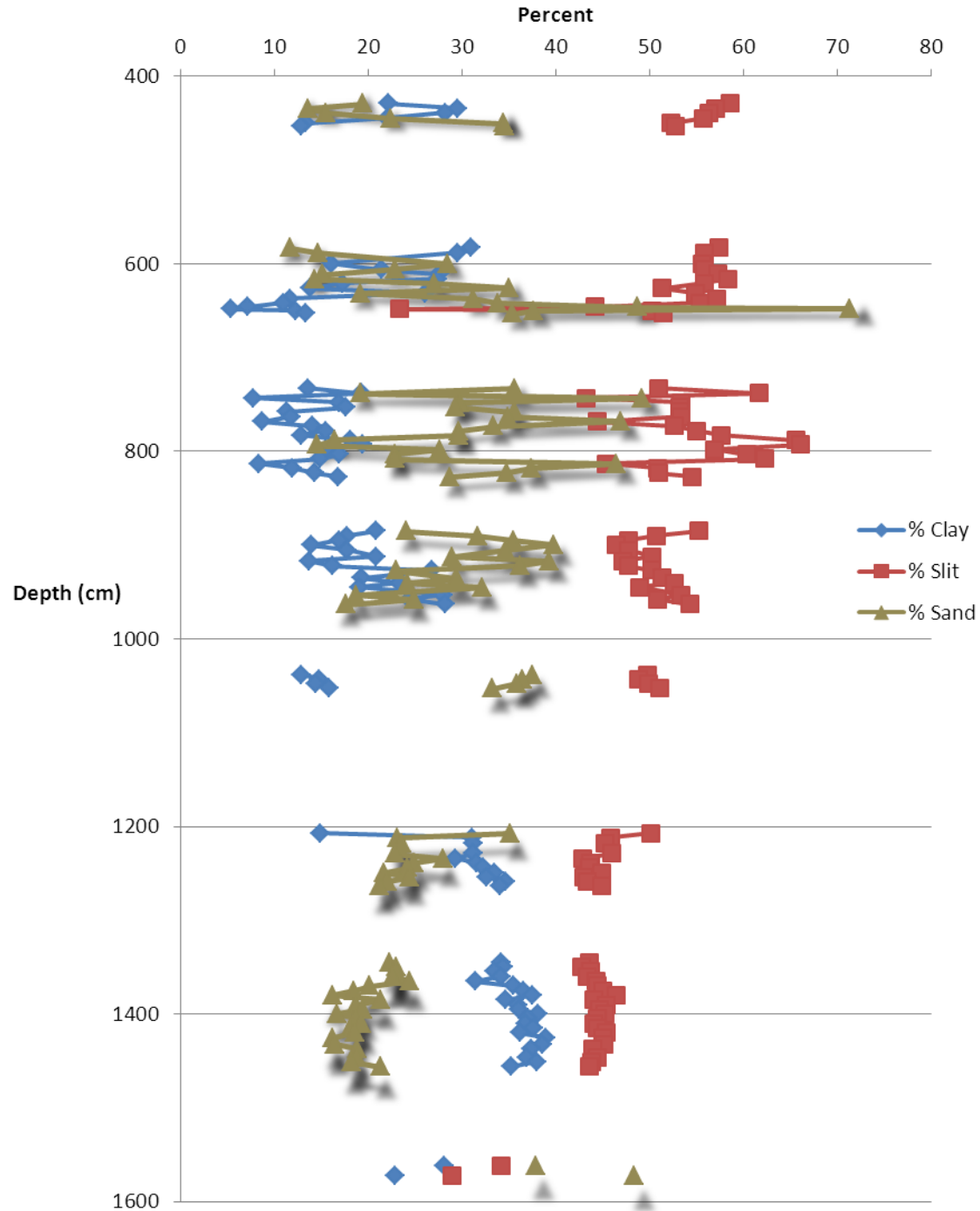
Thank you to the National Science Foundation and the American Chemical Society Petroleum Research Fund for their generous support.

Additionally, I would like to thank Lauren Simkins and Dr. Simms for their support and the rare and prestigious opportunity for undergraduate research.

I am honored to take a small part in an important an area of research that will address the looming questions that will affect all of us for generations to come.



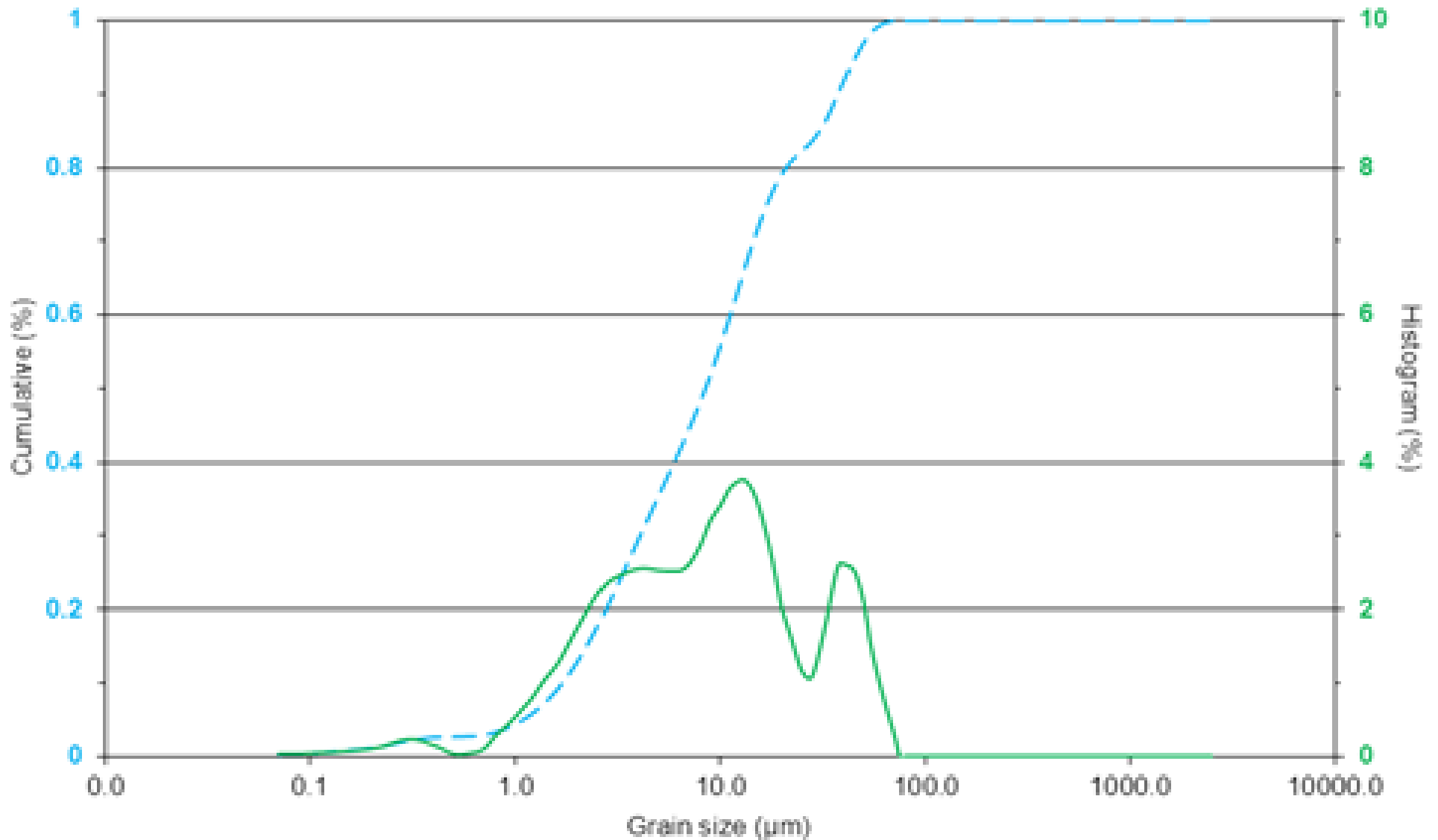
# Distribution of Grain Size by Percent



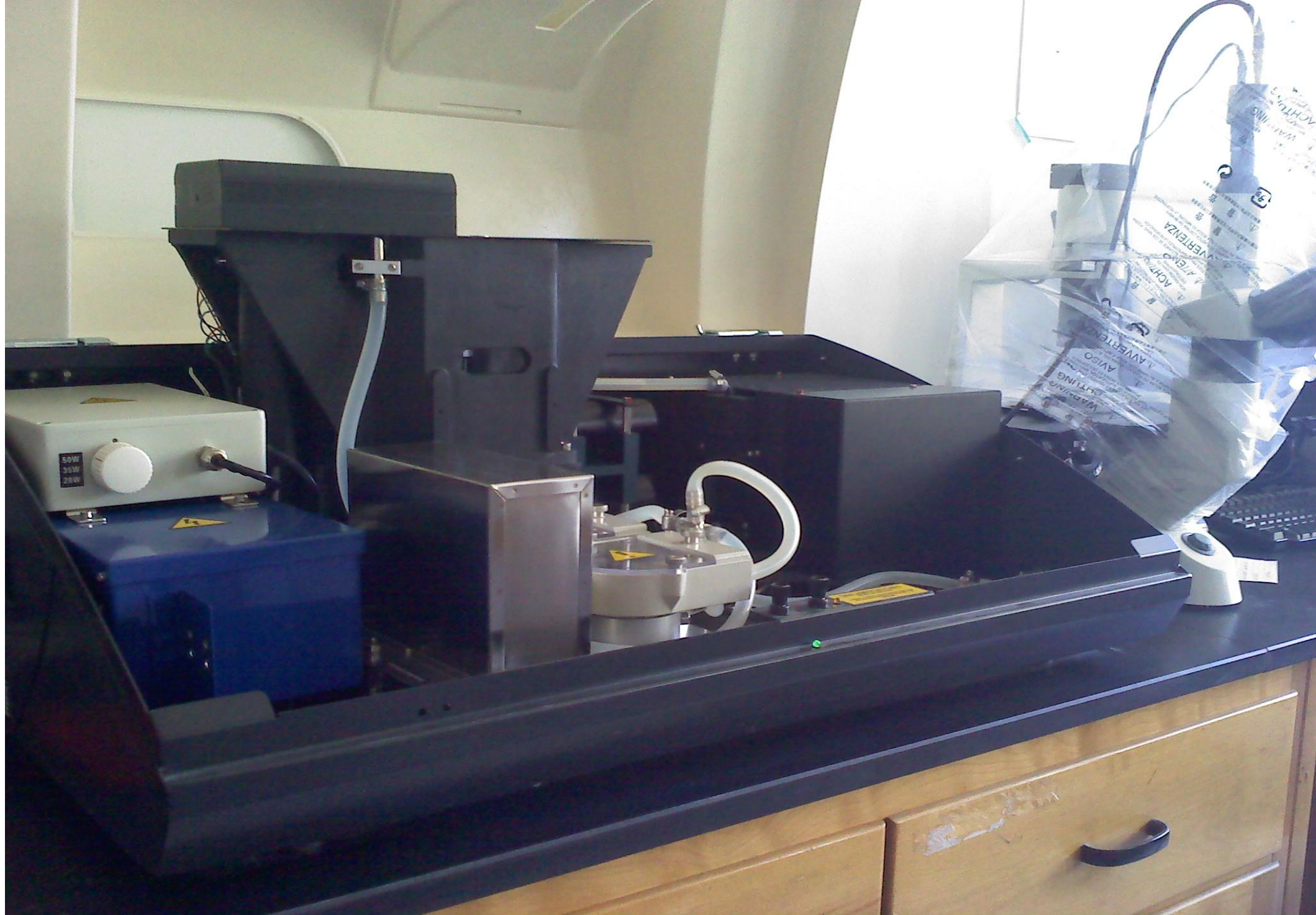


**Sand layer at 648cm. Image has been stretched, not to scale.**

BB07-11 439 cm



Typical estuarine deposit



Inside of CILAS particle size analyzer