

UNIVERSITY OF SOUTH FLORIDA

Defense of a Master's Thesis

*A Quantitative Analysis of Shape Characteristics of Marine Snow Particles with
Interactive Visualization:
Validation of Assumptions in Coagulation Models*

by
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For the MSCS degree in Computer Science & Engineering

The Deepwater Horizon oil spill in the Gulf of Mexico was the largest marine oil spill in the history of the petroleum industry. There was an unexpected and prolonged sedimentation event of oil-associated marine snow to the seafloor due to the oil spill. The sedimentation event occurred because of the coagulation process among oil associated marine particles. Marine scientists are working on modeling the coagulation process of the marine particles to estimate the amount of oil that may reach the seafloor along with marine particles. While developing the model, scientists use certain assumptions regarding the shape and the texture parameters of marine particles. This work performed quantitative analysis of assumptions used in modeling the coagulation process of marine particles. It also investigated the changes in model parameters (shape and texture) during and periodically after the Deepwater Horizon oil spill in different seasons like spring and summer. An Interactive Visualization Application was developed for data exploration and visual analysis of the trends in these parameters. An Interactive Statistical Analysis Application was developed to create a statistical summary of these parameter values.

Friday, June 1, 2018

2:30PM

ENB 313

THE PUBLIC IS INVITED

Examining Committee

Dmitry B Goldgof, Ph.D., Co-Major Professor

Kendra Daly, Ph.D., Co-Major Professor

Lawrence Hall, Ph.D.

Robert Bishop, Ph.D.

Dean, College of Engineering

Dwayne Smith, Ph.D.

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