## Forecast Predictions of Winds, Waves and Storm Surge during Hurricane Arthur (2014)

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## Introduction

- □ ADCIRC Surge Guidance System (ASGS) provides forecast predictions for winds, waves and storm surge during a hurricane
- □ The forecast guidance is used by emergency managers in the coastal counties of NC to plan safety measures and advance the hurricane preparedness of the coastal communities
- Model results are validated for Arthur, a Category 2 hurricane which made landfall at Cape Lookout, NC at 2014/07/04/0315 UTC





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- □ National Hurricane Center (NHC) issues wind forecast advisories at 6 hour intervals during a hurricane
- □ ASGS runs coupled ADCIRC+SWAN simulations on the NC9 mesh, forced by a wind field generated from the NHC wind forecast, to predict coastal ocean behavior
- □ Archived ASGS results are visualized in ArcMap using **Kalpana** – a new Python based software

## Results

- □ Forecast system (ASGS) predictions during Hurricane Arthur are realistic and match well with the measurement data
- □ Coastal ocean physics captured correctly by the coupled ocean model (ADCIRC+SWAN )
- Accuracy of predictions sensitive to the accuracy of meteorological forcing (wind input)
- □ Visualization tool Kalpana tested successfully
- □ For historical records and real-time storm surge and wave guidance for the Atlantic Coast visit : <u>http://nc-cera.renci.org/</u>