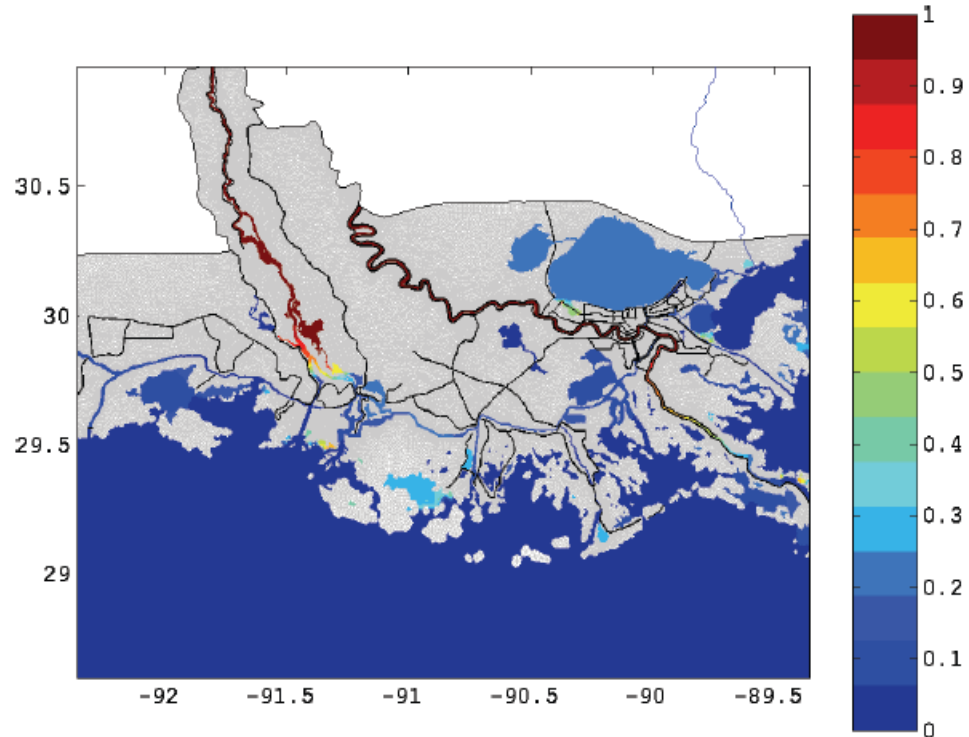


Integrated Modeling for Disaster Management

High Resolution Weather
Forecasting, Hydrology, and
Storm Surge Modeling

Computing for Disaster Response

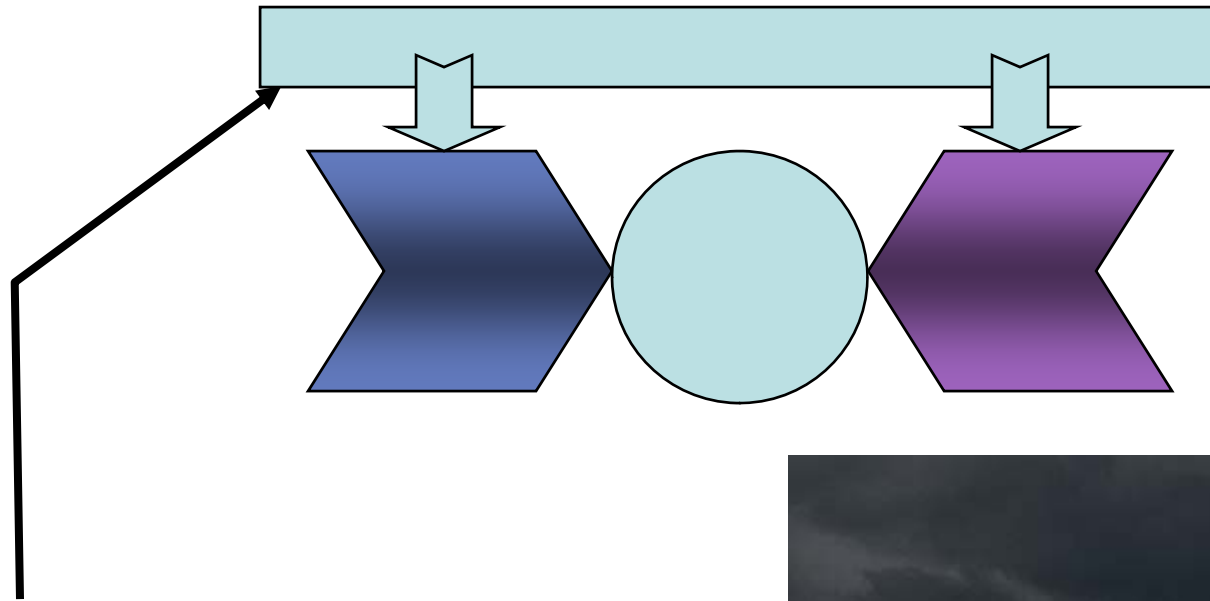
- **\$1M in loss to evacuate each mile of coastline**
 - We now over-warn by 3X and average over-warning is 200 miles!



Integrated Modeling

- **HydroMet integrates atmospheric and hydrology data with coastal storm surge data.**
 - **WRF (Weather Research and Forecasting)**
 - **RHESSys (Regional Hydro-Ecologic Simulation System)**
 - **LDAS (Land Data Assimilation System)**
 - **ADCIRC Coastal Circulation and Storm Surge Model**

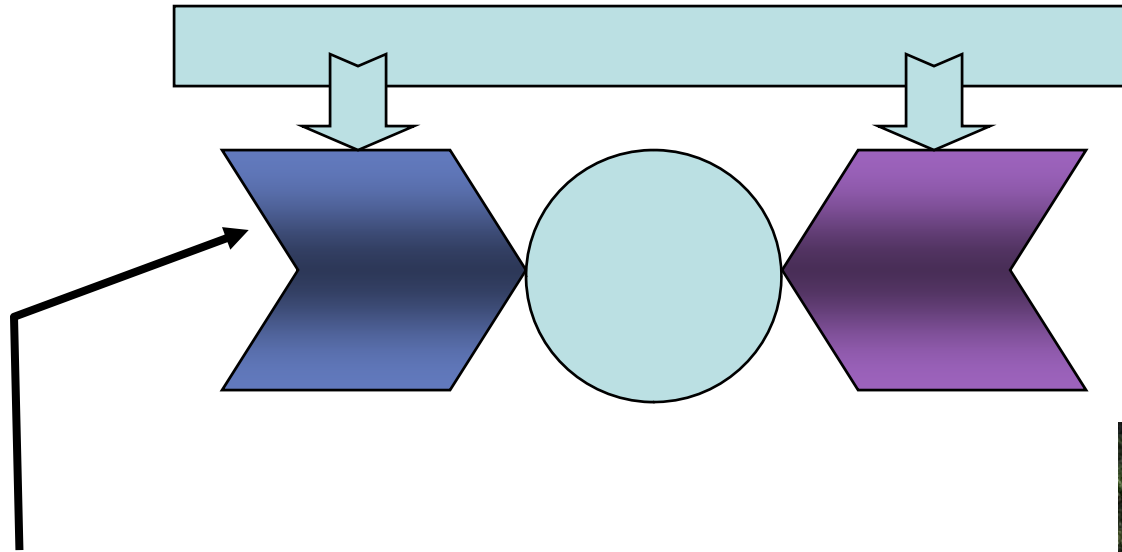
Overview



Storms deliver precipitation



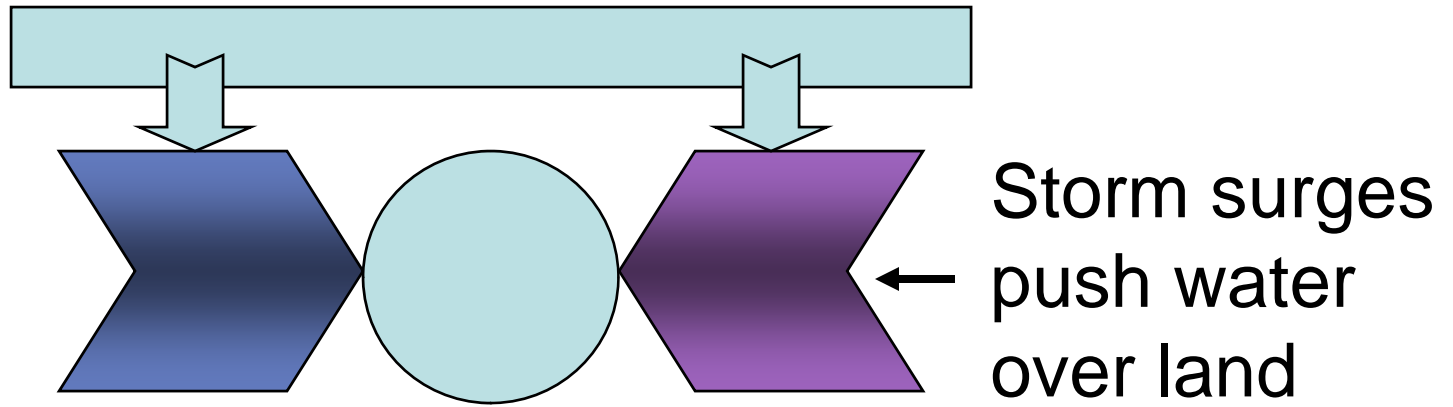
Overview



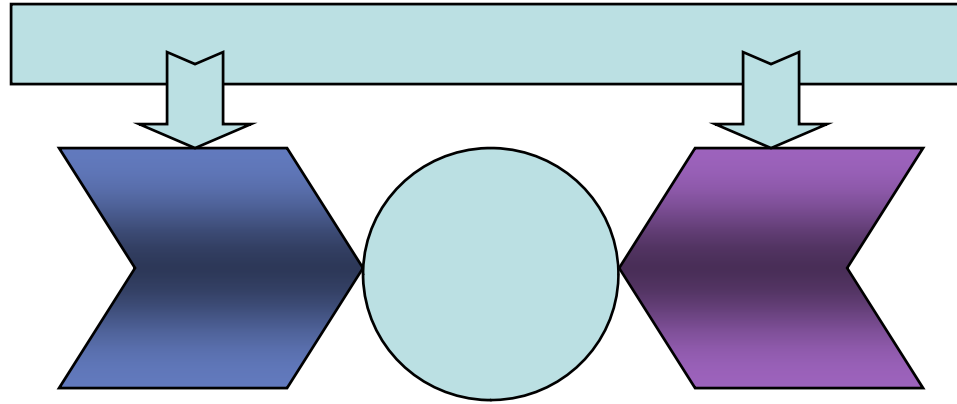
Water moves through the landscape, flooding streams and rivers



Overview



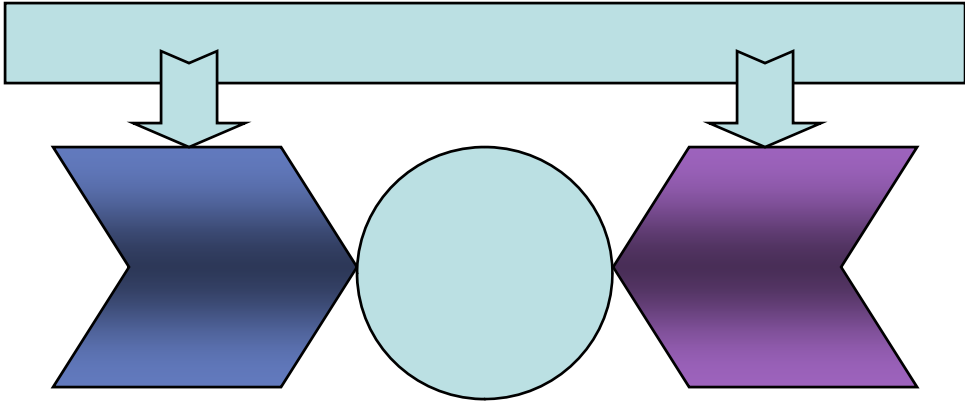
Overview



Flooding results,
causing damage
and disaster



Overview

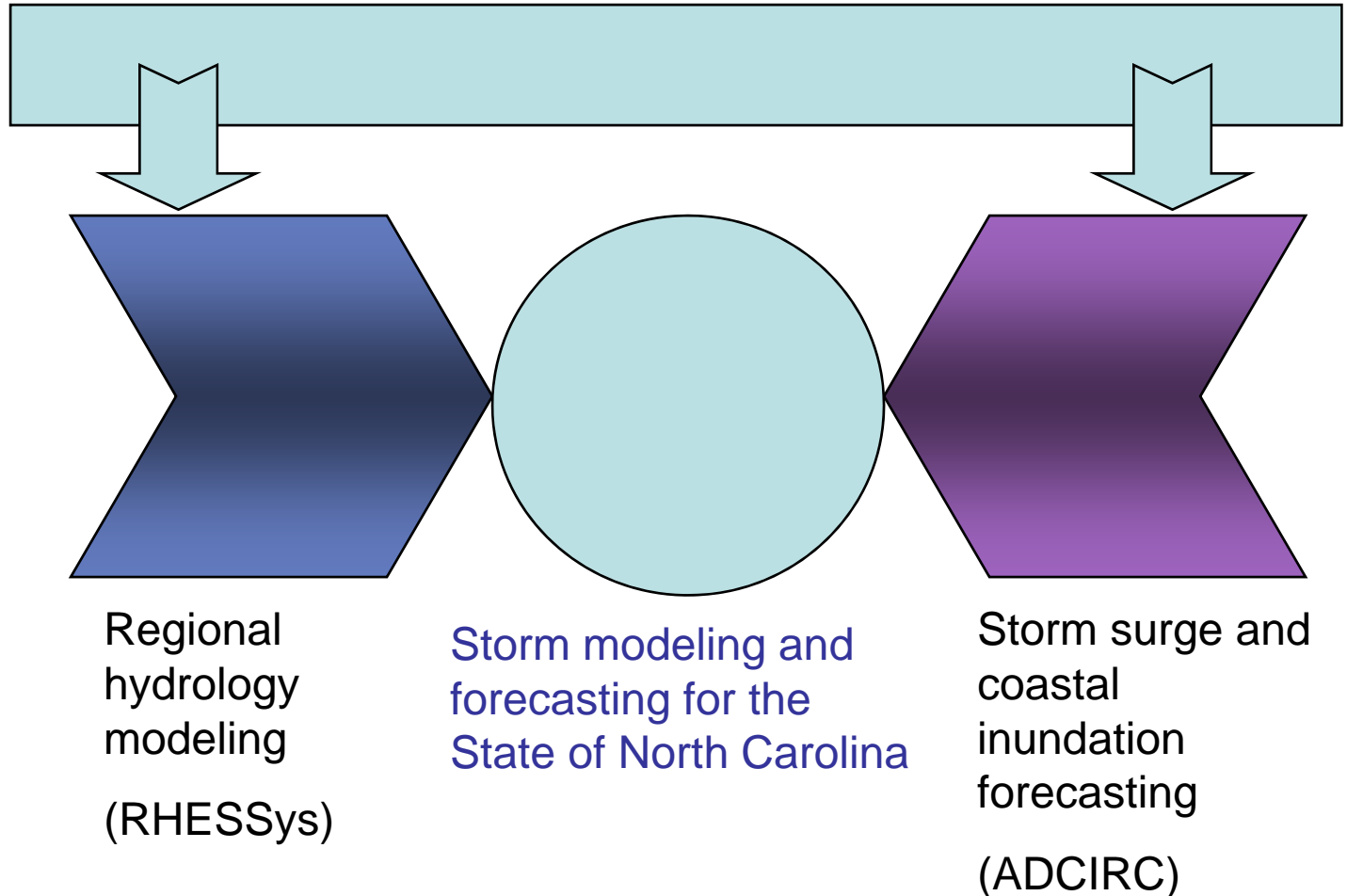


Drought can bring damage, and forest fire hazards as well.



HydroMet Overview

Atmospheric modeling and forecasting (WRF)



HydroMet Overview

HydroMet models have nine times the resolution of National Weather Service forecasts, making it possible to zero in on storm effects in a 4-kilometer radius.

RENCI produces 24-hour HydroMet forecasts using its IBM Blue Gene computing system, Ocracoke.

