

# Evaluation and Upgrading of Storm Surge Models

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## Storm Surge Models Selected for Evaluation

- SLOSH - Sea, Lake, and Overland Surges for Hurricanes (NHC)
  - Specialized for storm surge simulation
  - Currently used by NHC and FEMA
- ADCIRC – Advanced Three-Dimensional Circulation Model for Shelves, Coasts, and Estuary (US Army Corps of Engineers)
  - Finite element model
- HRSM – Three Dimensional High Resolution Storm Surge Model (IHC & VIMS)
  - 3-D finite difference model
- UnTRIM (Unstructured Tidal Residual Intertidal and Mudflat model (Casulli, Trento

## Evaluation Procedures

- Evaluate Model theory and computational algorithm
  - Model domain representation
  - Computation efficiency
  - Model Resolution
  - Overland flow prediction
  - Tide and wave setup Effect
  - Potential for continuing development (real time and high resolution etc.)
- Head to Head Comparison for Selected Areas
  - Andrew (1992), Betsy (1965), Donna (1960)

## Model Domain Representation

- SLOSH uses polar grid
- ADCIRC uses triangular grid
- HRSM uses curvilinear-orthogonal grid
- UnTRIM uses unstructured grid (triangular and quadrilateral)