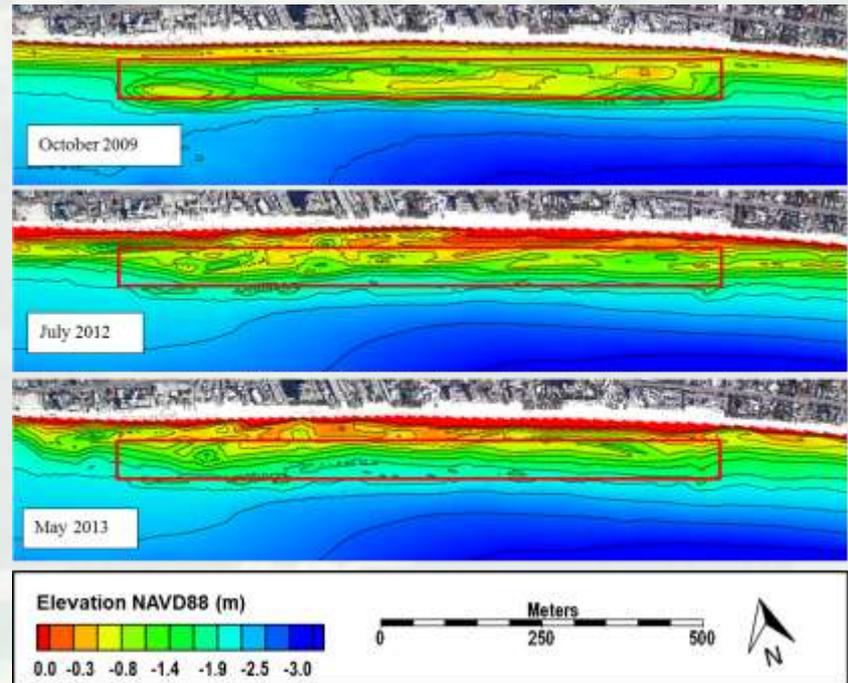


Coastal Modeling System

Katherine E. Brutsché

- Tool description: The Coastal Modeling System is an integrated 2D numerical modeling system for simulating waves, current, water level, sediment transport, and morphology change at coastal inlets and entrances.
- Tool Input
 - ▶ Waves
 - ▶ Tides
 - ▶ Bathymetry
 - ▶ Grain size
- Tool Output
 - ▶ Currents
 - ▶ Waves
 - ▶ Water Levels
 - ▶ Morphology/Sed Transport
- How does the tool help the Districts?

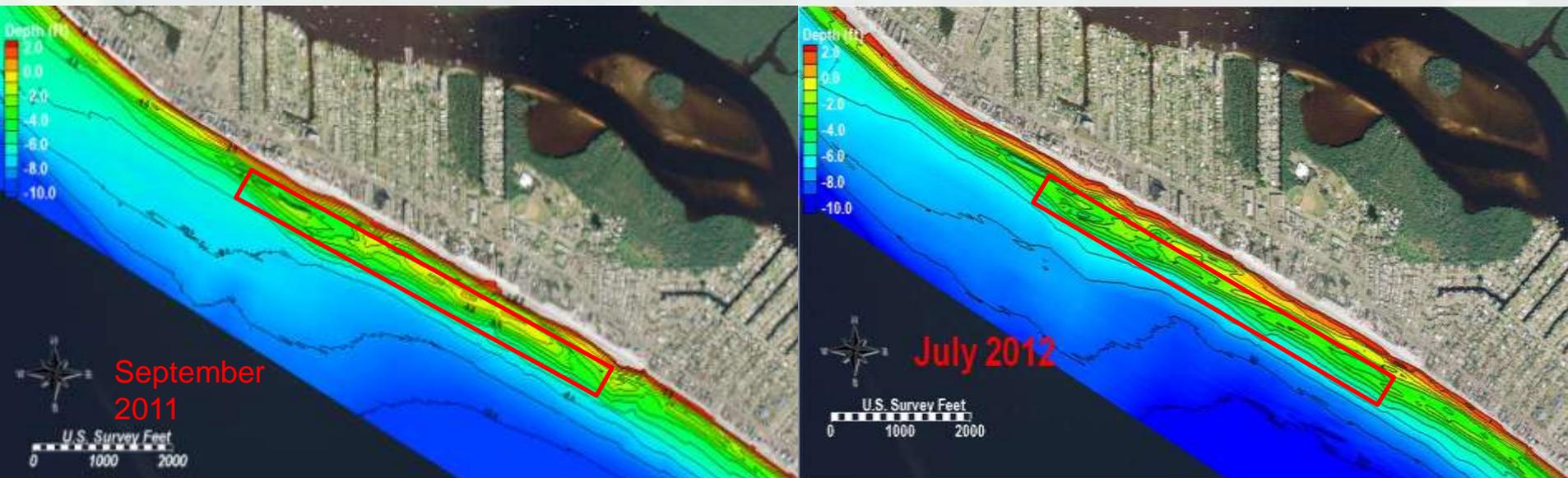


- ▶ Gives an idea of waves and currents at the placement site
- ▶ Limited computation of sed transport & morphology change

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Coastal Modeling System

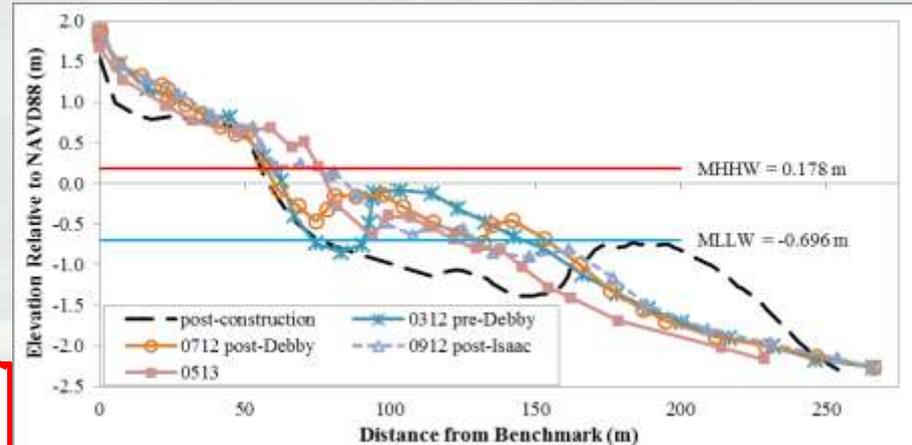
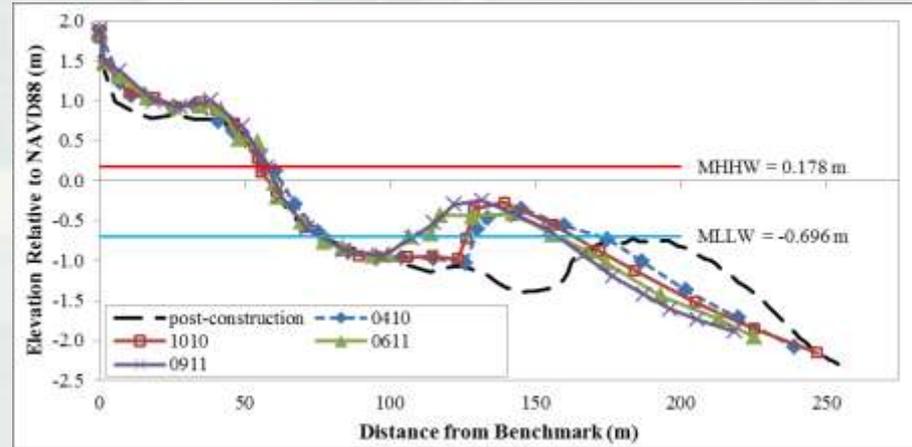
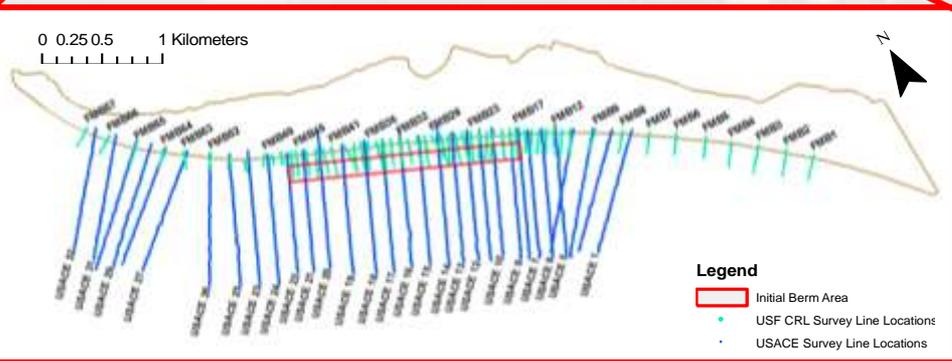
- Status of the tool or model
 - ▶ Operational and developmental versions available (CIRP website)
- If a model, has it been approved or certified?
 - ▶ Certified and CoP preferred model
- Where has tool been applied?
 - ▶ For general use, all over the world
 - ▶ For nearshore berms, Fort Myers Beach



Coastal Modeling System

Example Application at Fort Myers Beach:

- ▶ Nearshore berm placed in 2009
- ▶ Material dredged from nearby Matanzas Pass/Bowditch Point
- ▶ Monitored by USF/USACE until 2013

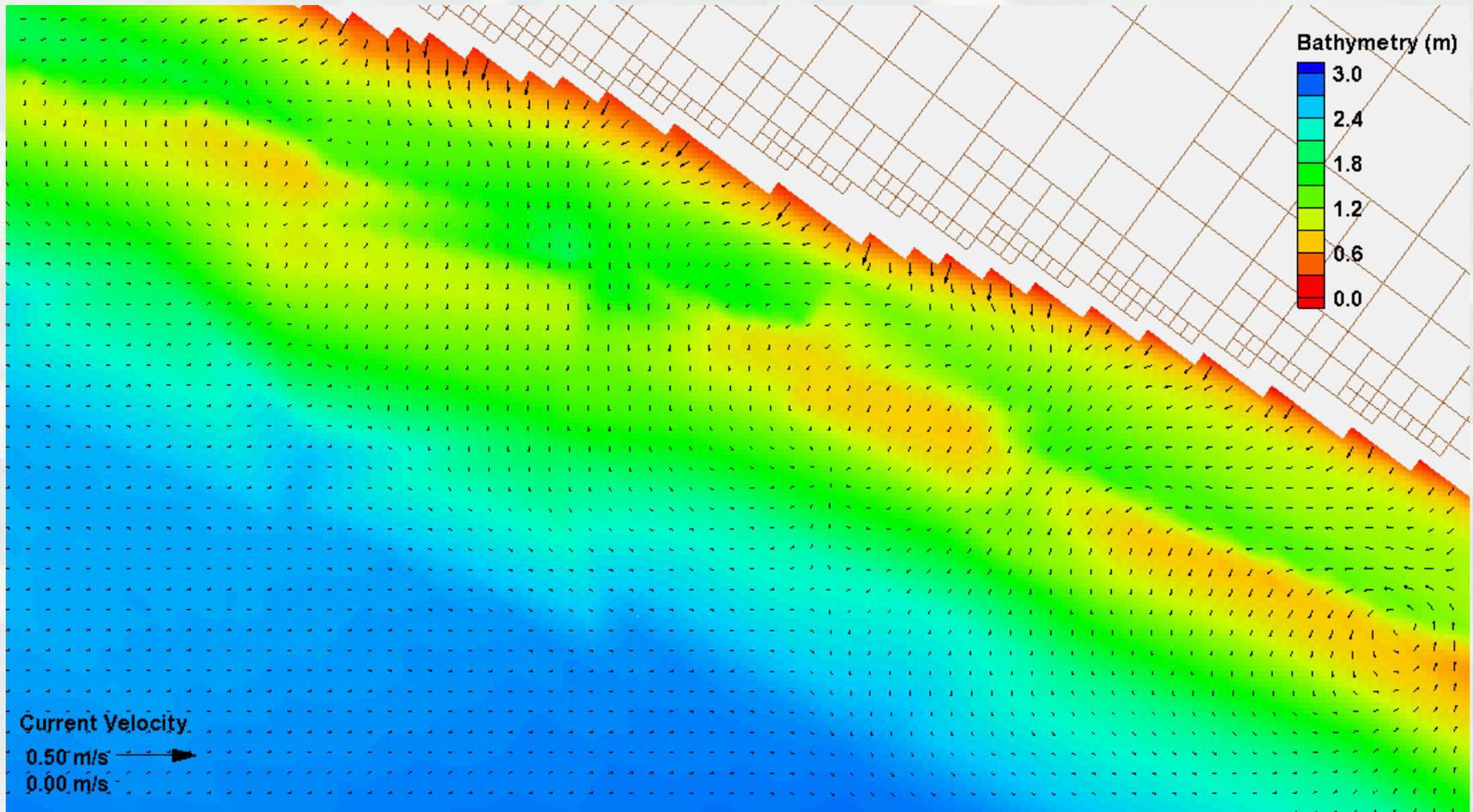


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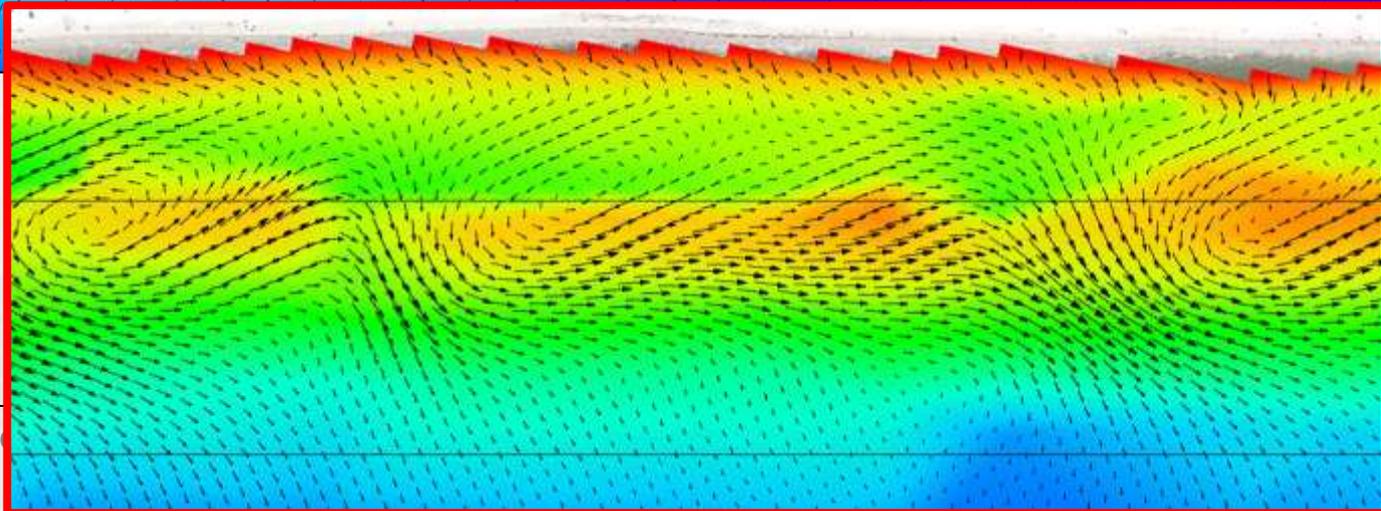
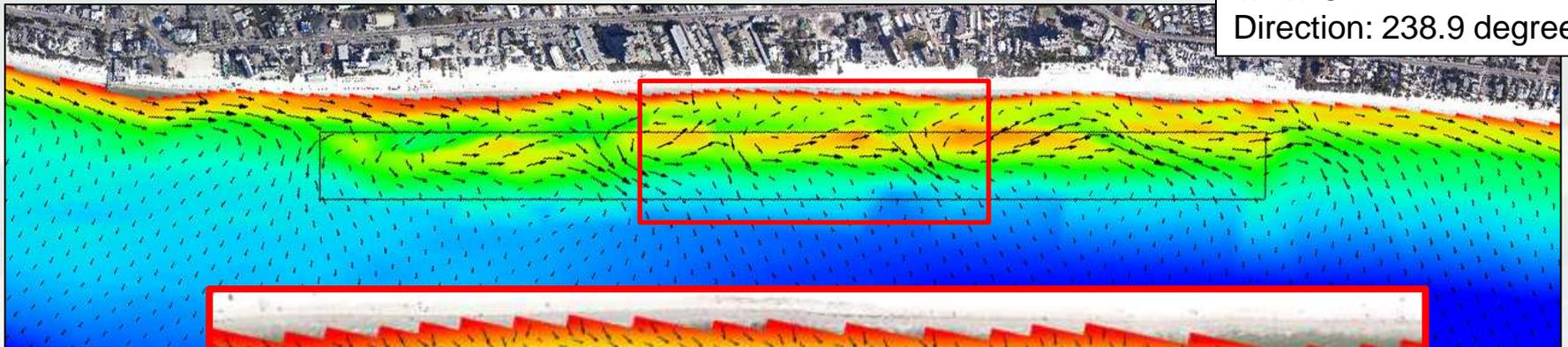
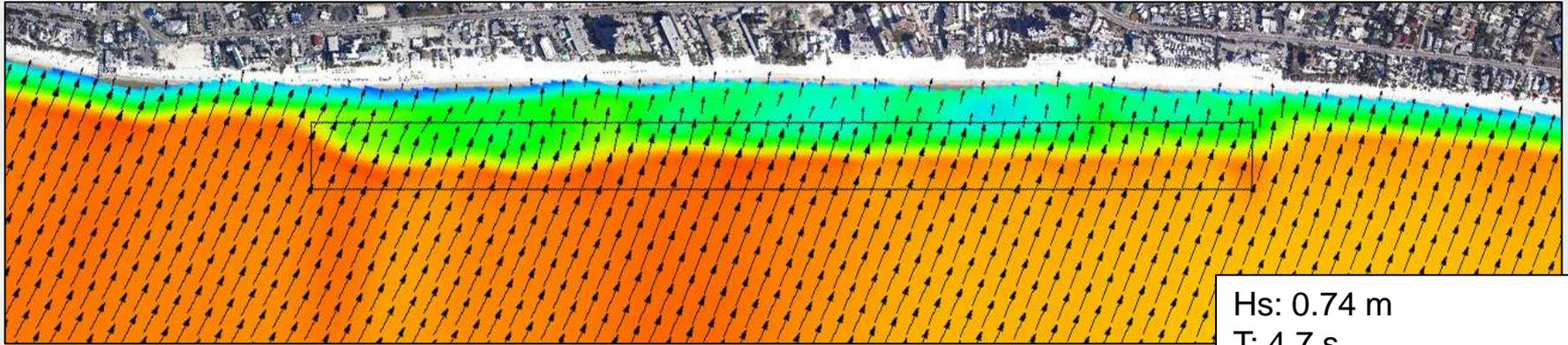
Coastal Modeling System

- Example Application at Fort Myers Beach:



Coastal Modeling System

- Example Application at Fort Myers Beach:



Coastal Modeling System

- Output wave dissipation over the berm as well as flow around the berm
- Qualitative visualization tool of nearshore berm migration
 - ▶ Cross-shore sediment transport is a 3D process, CMS is a 2D tool
 - ▶ Working on embedding C2SHORE within the CMS code to add better calculations for cross-shore sediment transport
- Provides sediment suspension via the Ursell Parameter
- Will be used at Vilano Beach
 - ▶ Run Vilano beach to see where gaps are in model research because we will have validation data
- Also looking for any other sites where you will have monitoring data

