

Advancing Storm Surge Modeling: **DRAFT** Short-Term Plan

HFIP Annual Meeting
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Outline

1

Initiatives, Drivers, Coordination;
Considerations

2

DRAFT Short-Term Goals and Objectives, Plan

3

Summary

1. Initiatives/Drivers, Coordination; Considerations

Initiatives / Drivers:

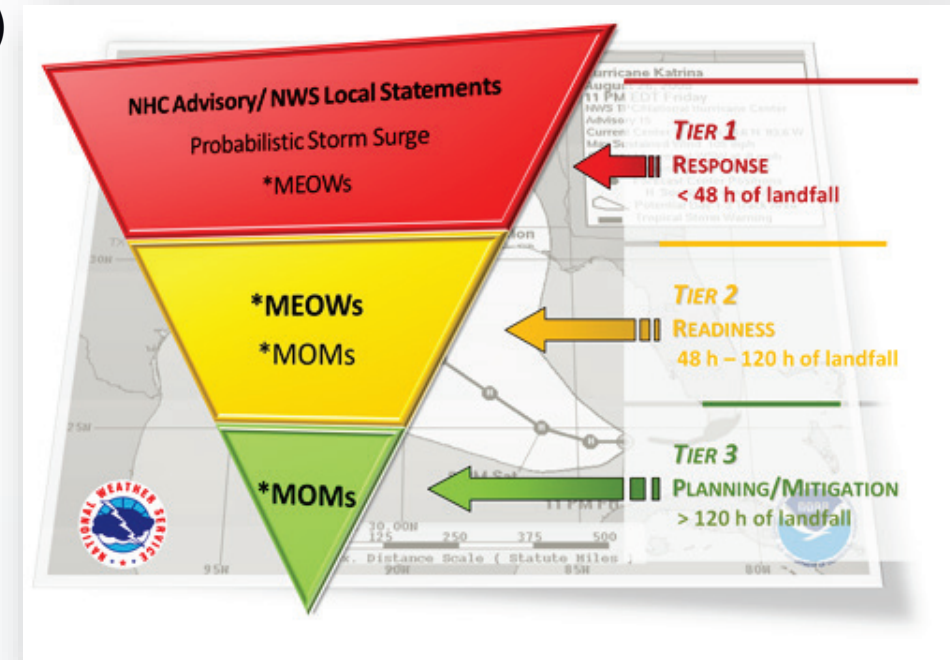
- Support **response and readiness** via **operational forecasts/warnings** (HFIP; Weather Act; STI Storm Surge Modeling Program)
- Support **planning / mitigation** (e.g. FEMA evacuations)
- Support **landfall response / recovery; post-storm assessments** (COASTAL Act)

Coordination Underway:

- NOAA Storm Surge Roadmap -> Total Water Initiative; CARDS requirements
- Intra-NWS Coordination (OSTI, NHC, CPHC, MDL, EMC, AFS, OWP, Regions)
- Inter-NOAA LO Coordination (e.g. NWS, NOS, OAR, NESDIS)
- Inter-Agency Coordination (e.g. NOAA, USACE, USGS, DHC, WG-DIAP)

Considerations:

- Budget uncertainty
- Total Water Initiative
- NOAA Unified Modeling
- Findings from post-storm assessments (e.g. Irene, Sandy, Matthew)
- Findings from social science studies to improve risk communication (i.e. modeling / technology to support products/services)
- Timing of documented/approved NWS requirements with modeling solutions

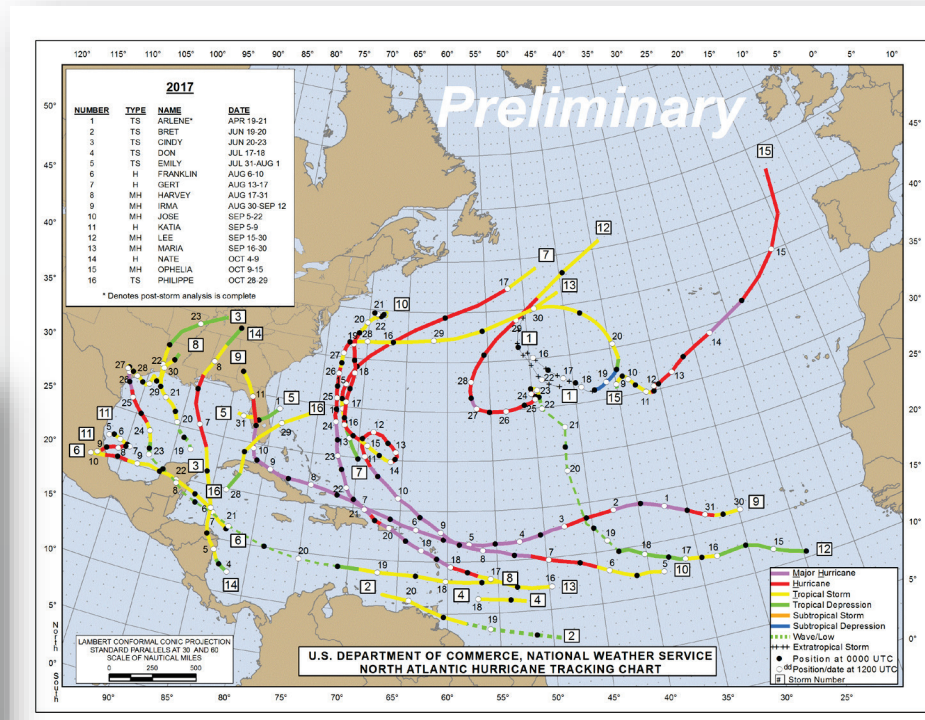
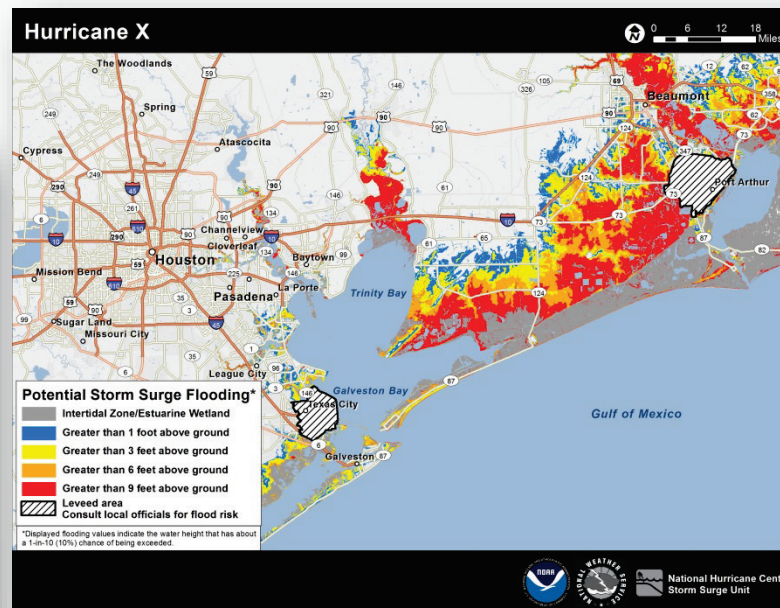


Note: These plans are not all-inclusive, are still under development (awaiting feedback and additional consideration) and therefore are considered DRAFT.

2. Short-Term Goals and Objectives, Plan

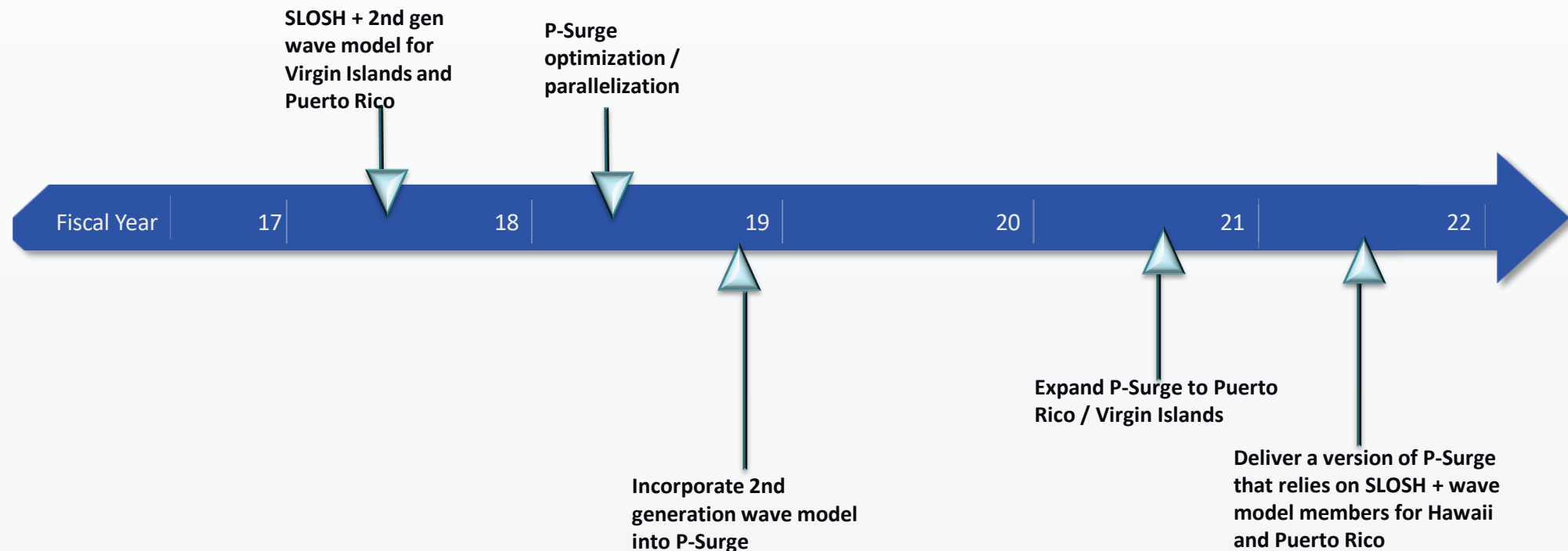
Goal 1: Consistency in tropical products and services in NWS areas of responsibility (OCONUS)

- Objective 1.1: Tropical Storm Surge Guidance for Puerto Rico and the U.S. Virgin Islands
- Objective 1.2: Tropical Storm Surge Guidance for the Pacific
- Objective 1.3: Tropical Storm Surge Guidance for S. California
- Objective 1.4: Model guidance to support evacuation planning



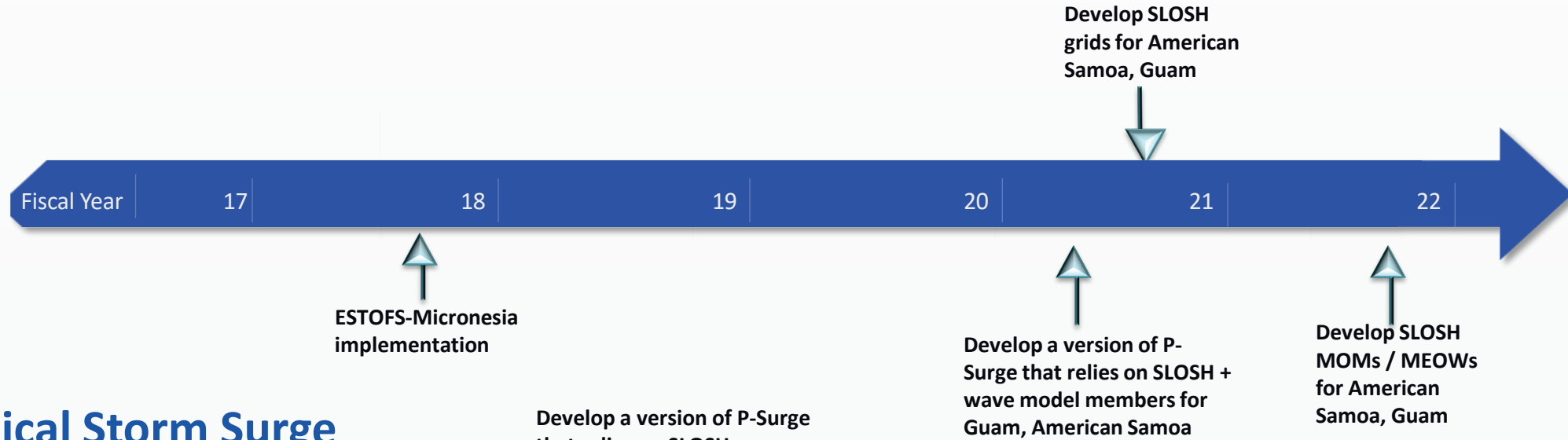
2. Short-Term Goals and Objectives, Plan (cont'd)

Objective 1.1: Tropical Storm Surge Guidance for Puerto Rico and the U.S. Virgin Islands

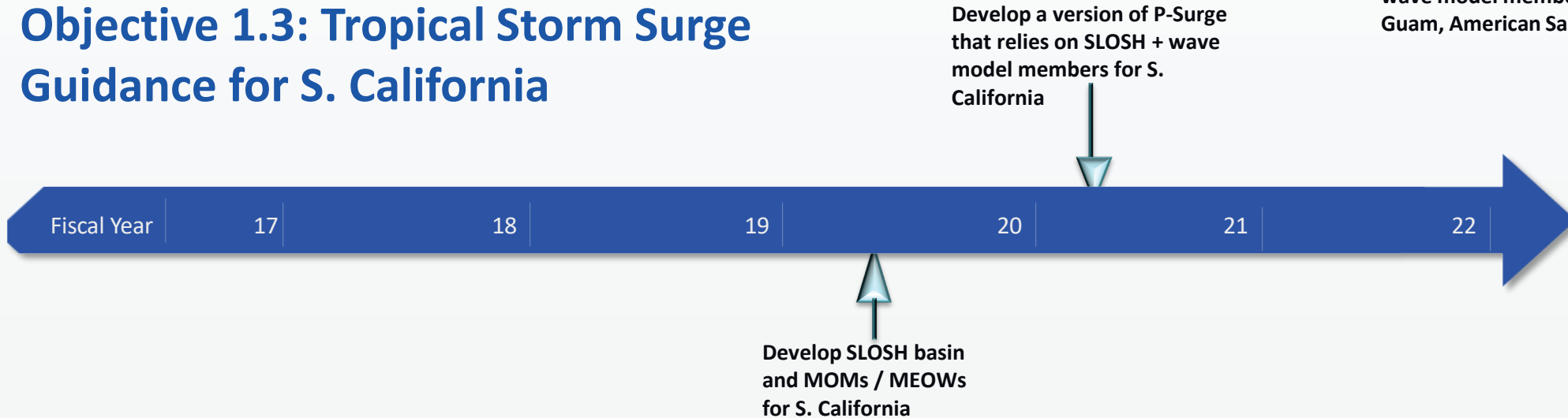


2. Short-Term Goals and Objectives, Plan (cont'd)

Objective 1.2: Tropical Storm Surge Guidance for the Pacific



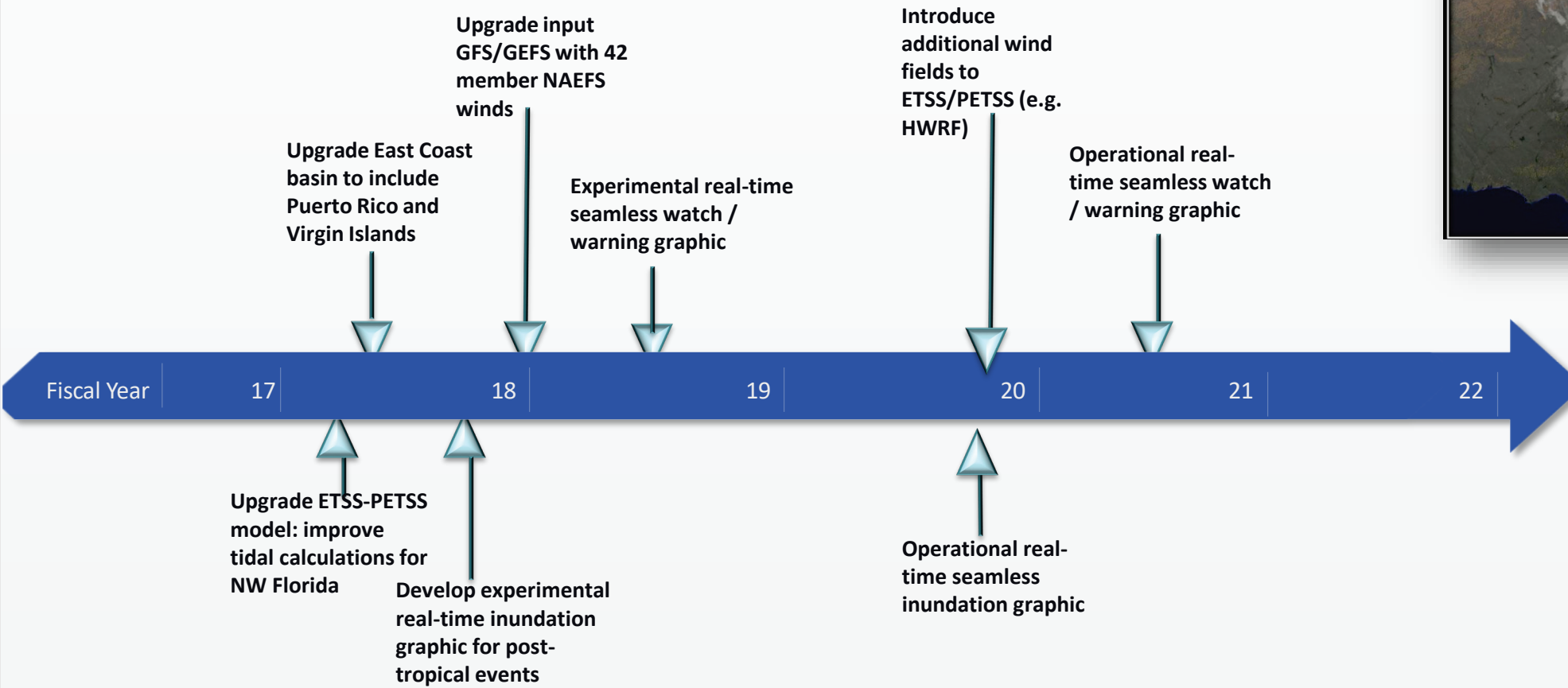
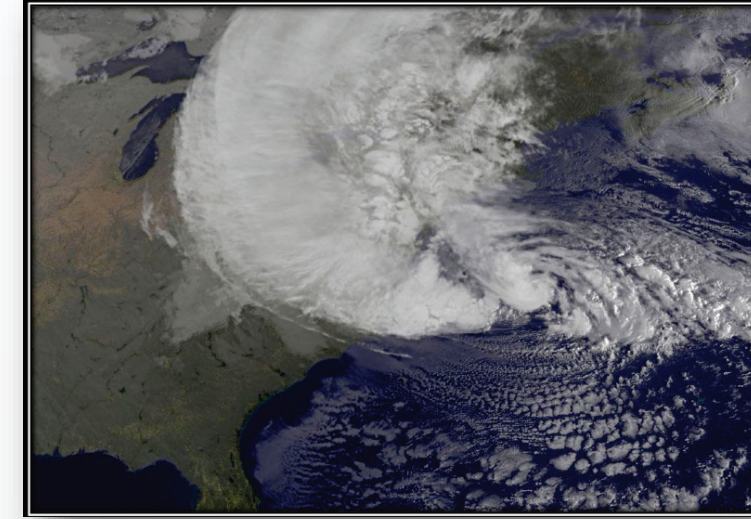
Objective 1.3: Tropical Storm Surge Guidance for S. California



2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 2: Guidance for seamless inundation products

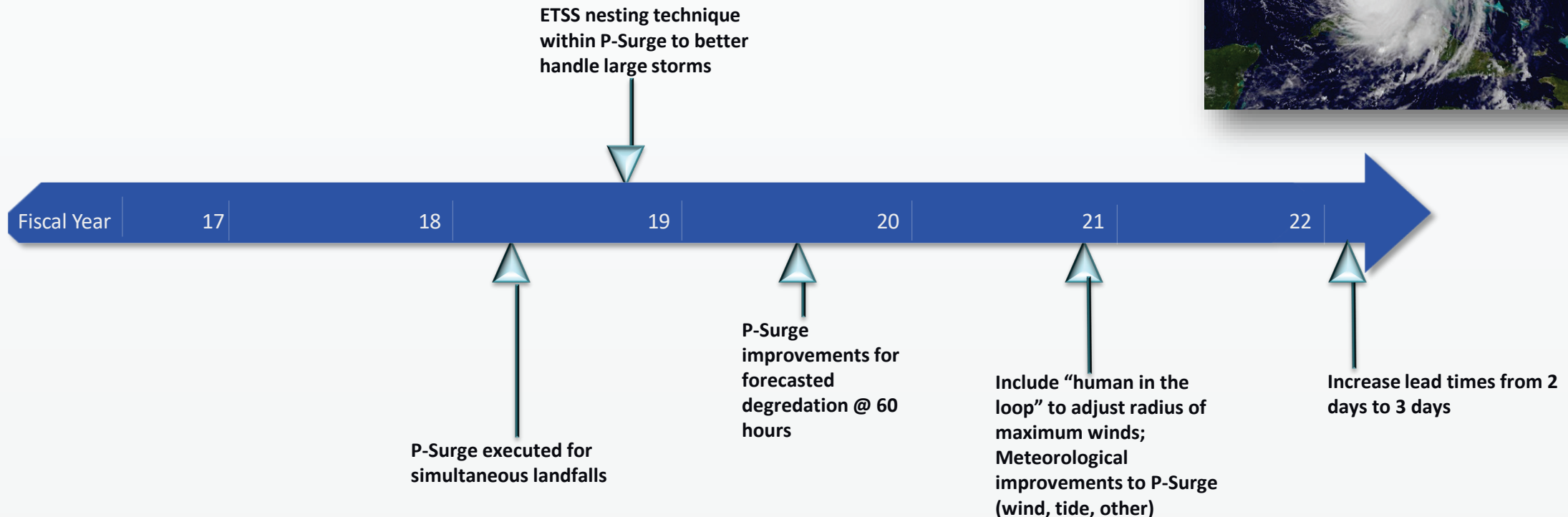
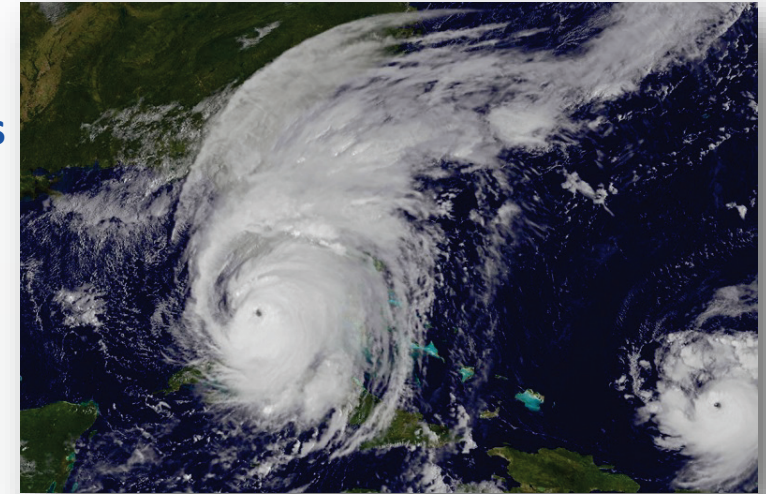
Objective 2.1: Guidance to produce seamless tropical / post-tropical products and services



2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 3: Operational tropical storm surge model improvements to allow for simulation of multiple, large tropical cyclones; longer lead times

- Objective 3.1: P-Surge upgrades to support multiple, large storms; longer lead-times

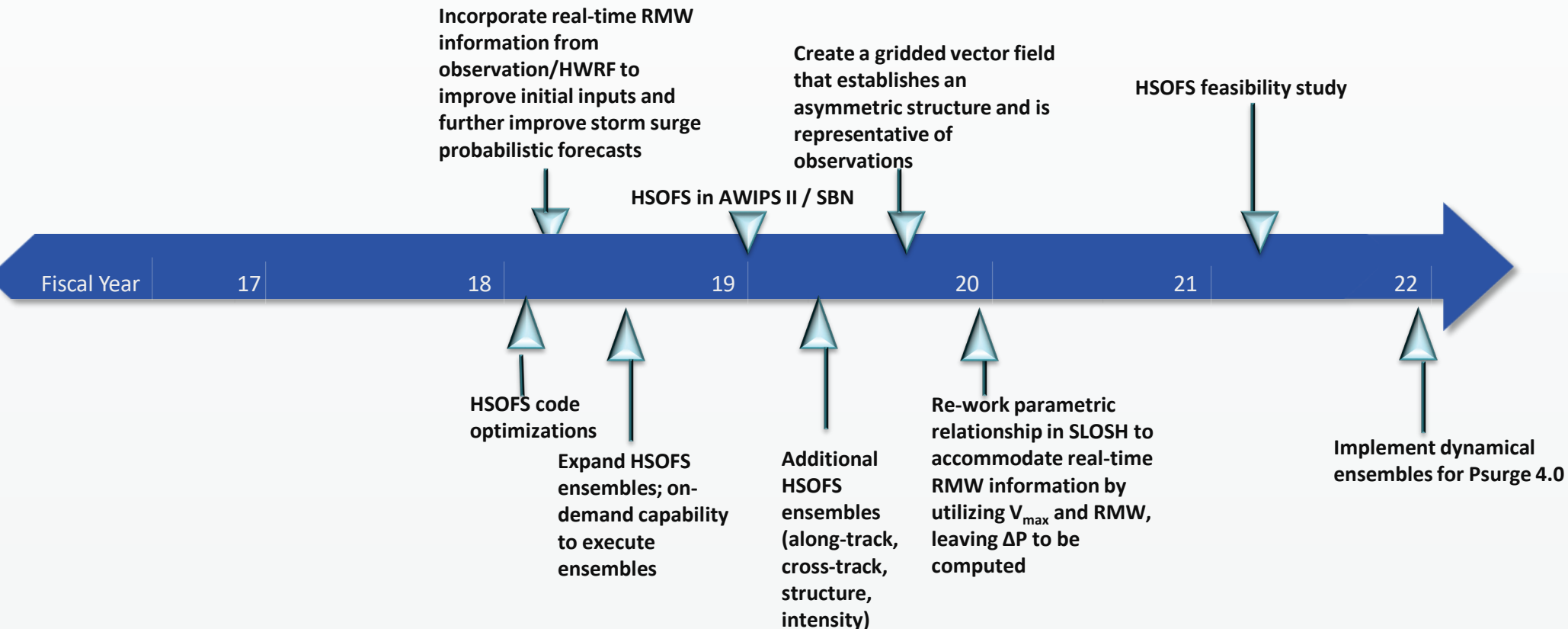


2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 4: Adopt a dynamical ensemble approach

- Objective 7.1: Improve model initial conditions to accurately represent meteorological state in P-Surge
- Objective 7.2: Adopt a dynamical ensemble approach for P-Surge
- Objective 7.3: Expand HSOFS ensembles

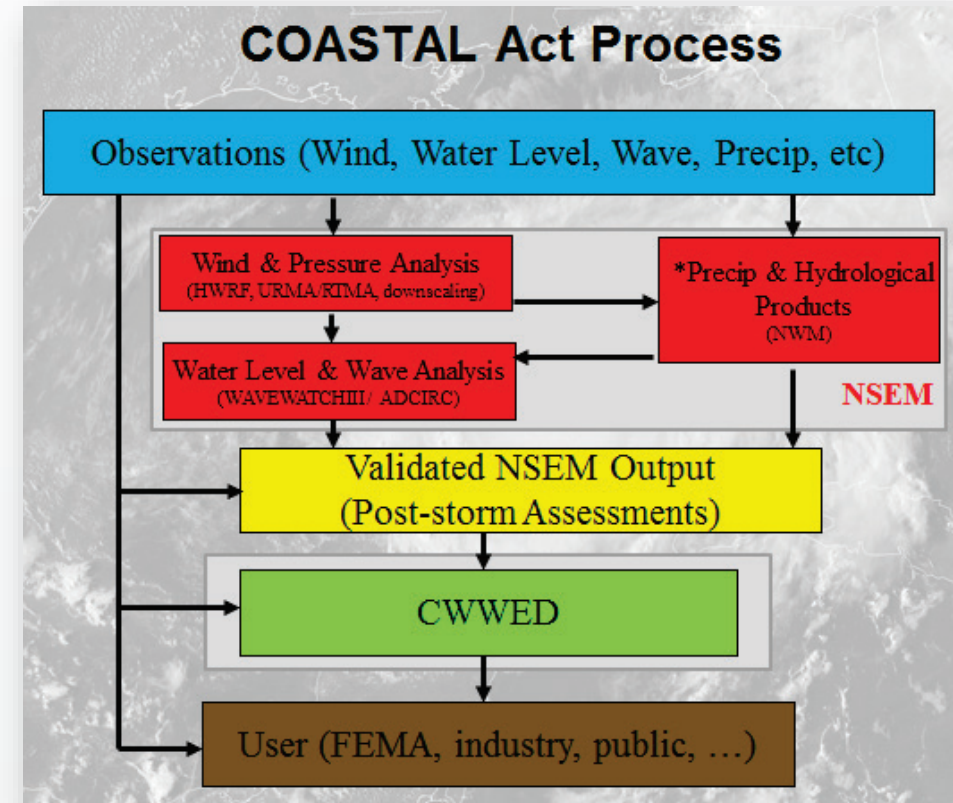
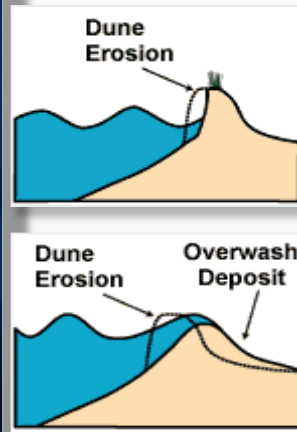
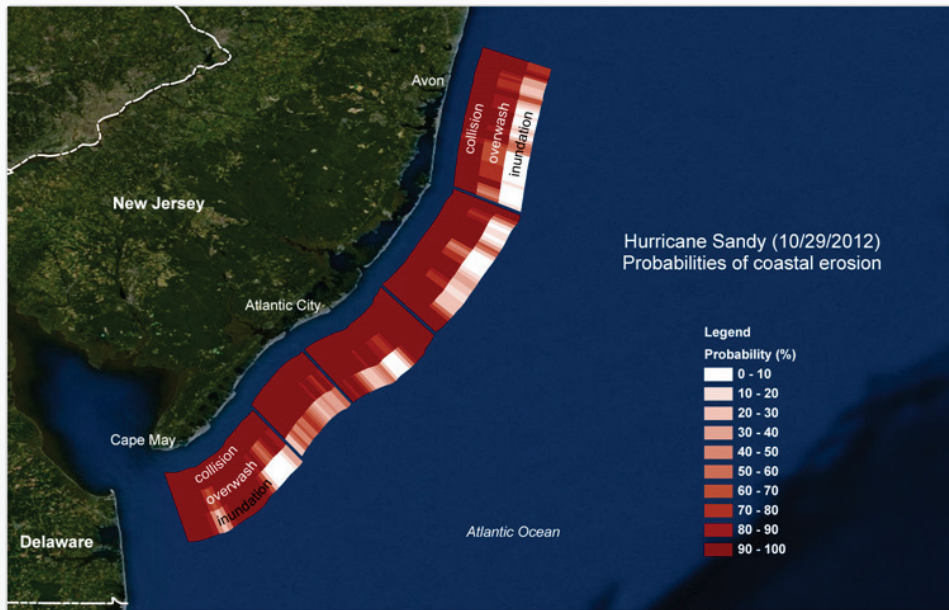
Goal 5: Account for asymmetries in wind forcings within storm surge model



2. Short-Term Goals and Objectives, Plan (cont'd)

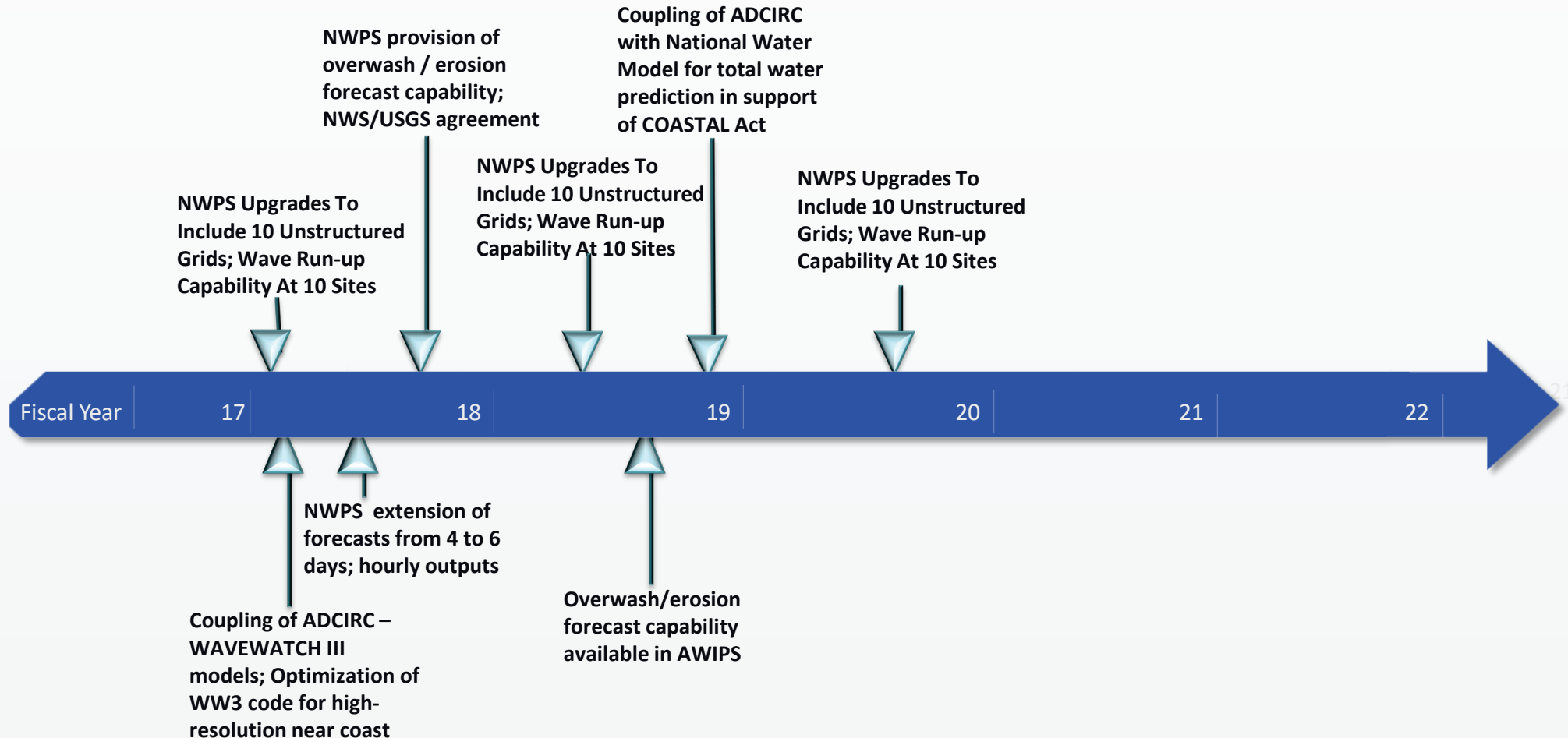
Goal 6: Total water guidance for coastal / inland inundation forecasts

- Objective 6.1: Improved wave predictions at high resolutions, with wave run-up forecasts
- Objective 6.2: Coupling of wave and storm surge models
- Objective 6.3: Coupling of storm surge and freshwater models



2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 6: Total water guidance for coastal / inland inundation forecasts

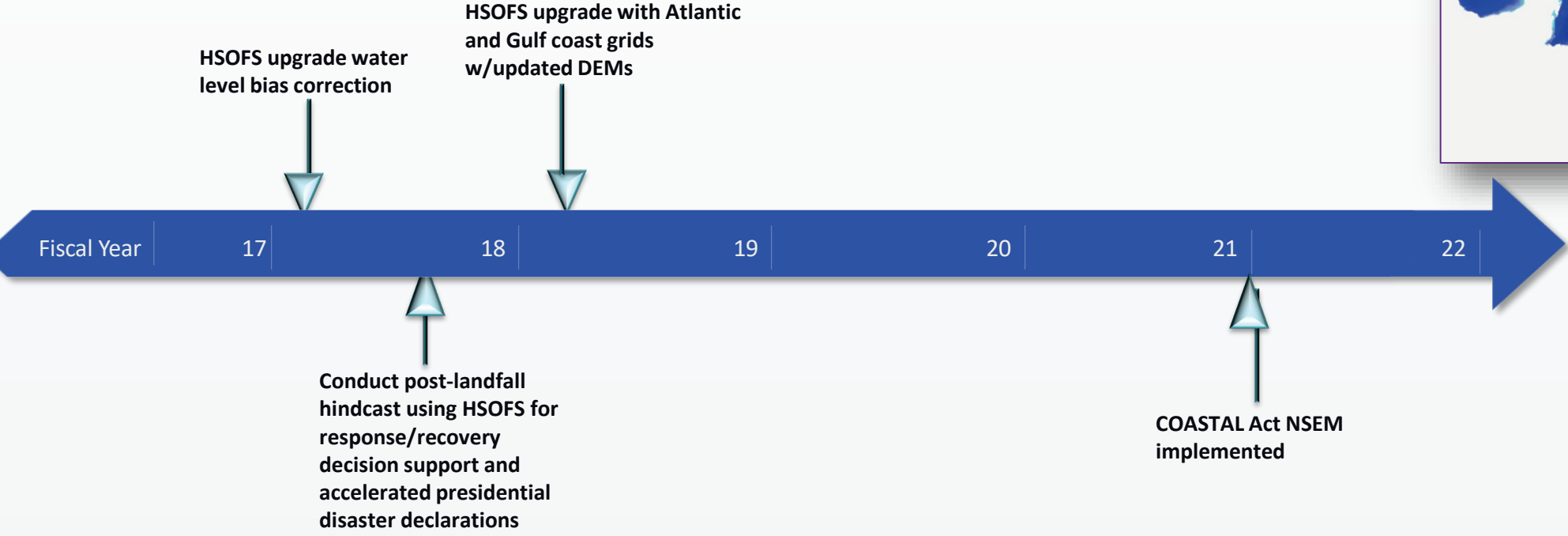
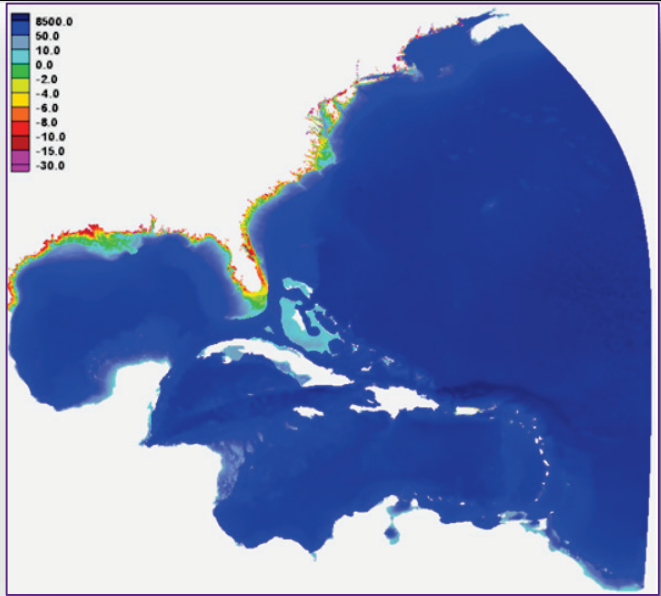


2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 7: Post-landfall; response/recovery guidance

Objective 7.1: Conduct post-landfall hindcast for response/recovery decision support and accelerated presidential disaster declaration

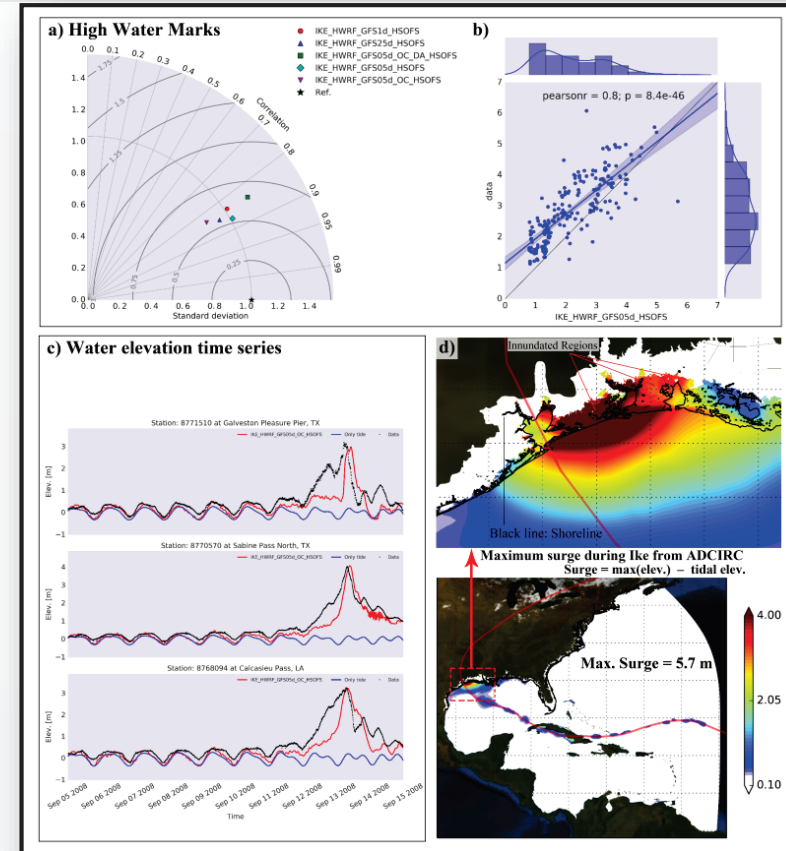
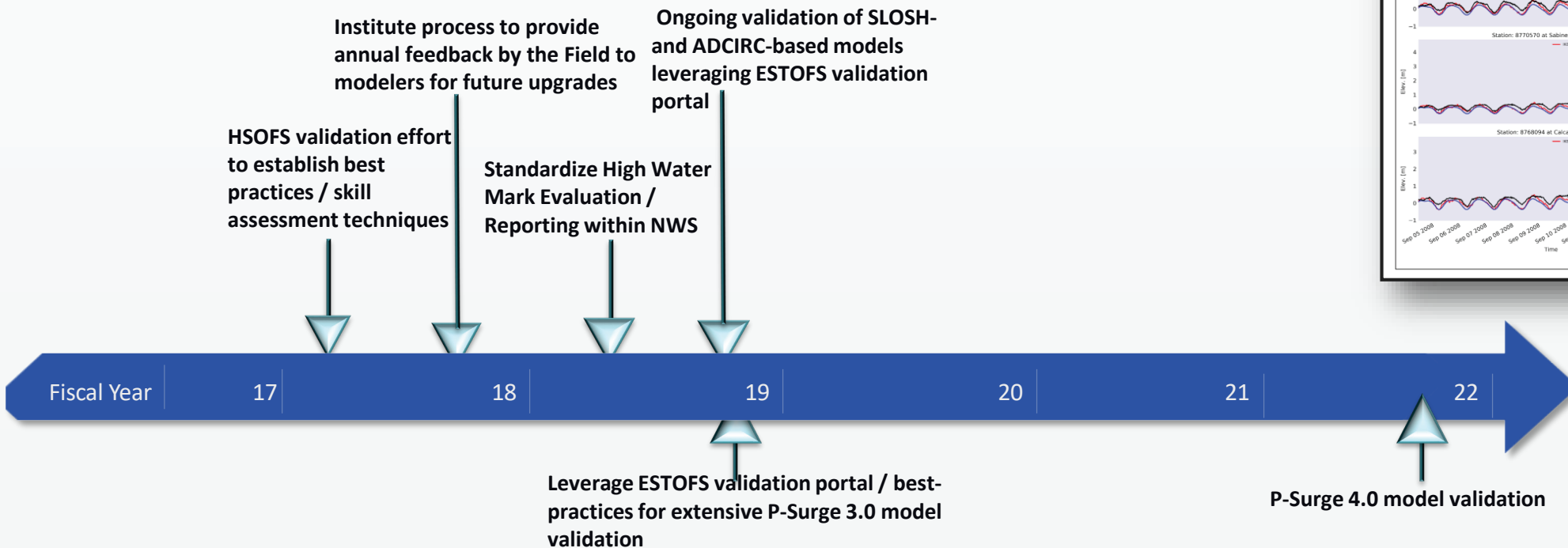
Objective 7.2: Implement COASTAL Act NSEM



2. Short-Term Goals and Objectives, Plan (cont'd)

Goal 8: Improved storm surge model validation

- Objective 8.1: Annual feedback from the field to storm surge modeling community
- Objective 8.2: Ongoing validation studies for ADCIRC- and SLOSH-based storm surge models
- Objective 8.3: Standardization of High Water Marks



3. Summary

Goal 1: Consistency in tropical products and services in NWS areas of responsibility (OCONUS)

Goal 2: Guidance for seamless inundation products

Goal 3: Operational tropical storm surge model improvements to allow for simulation of multiple, large tropical cyclones; longer lead times

Goal 4: Adopt a dynamical ensemble approach

Goal 5: Account for asymmetries in wind forcings within storm surge model

Goal 6: Total water guidance for coastal / inland inundation forecasts

Goal 7: Post-landfall; response/recovery guidance

Goal 8: Improved storm surge model validation

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Questions

