Making Progress: Integrated Water Level Observation Network in Alaska

Alaska Ocean Observing System, May 22-23, 2018
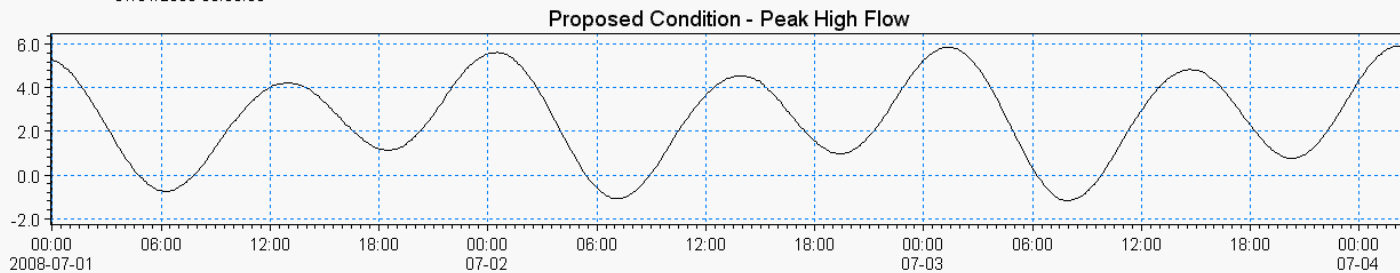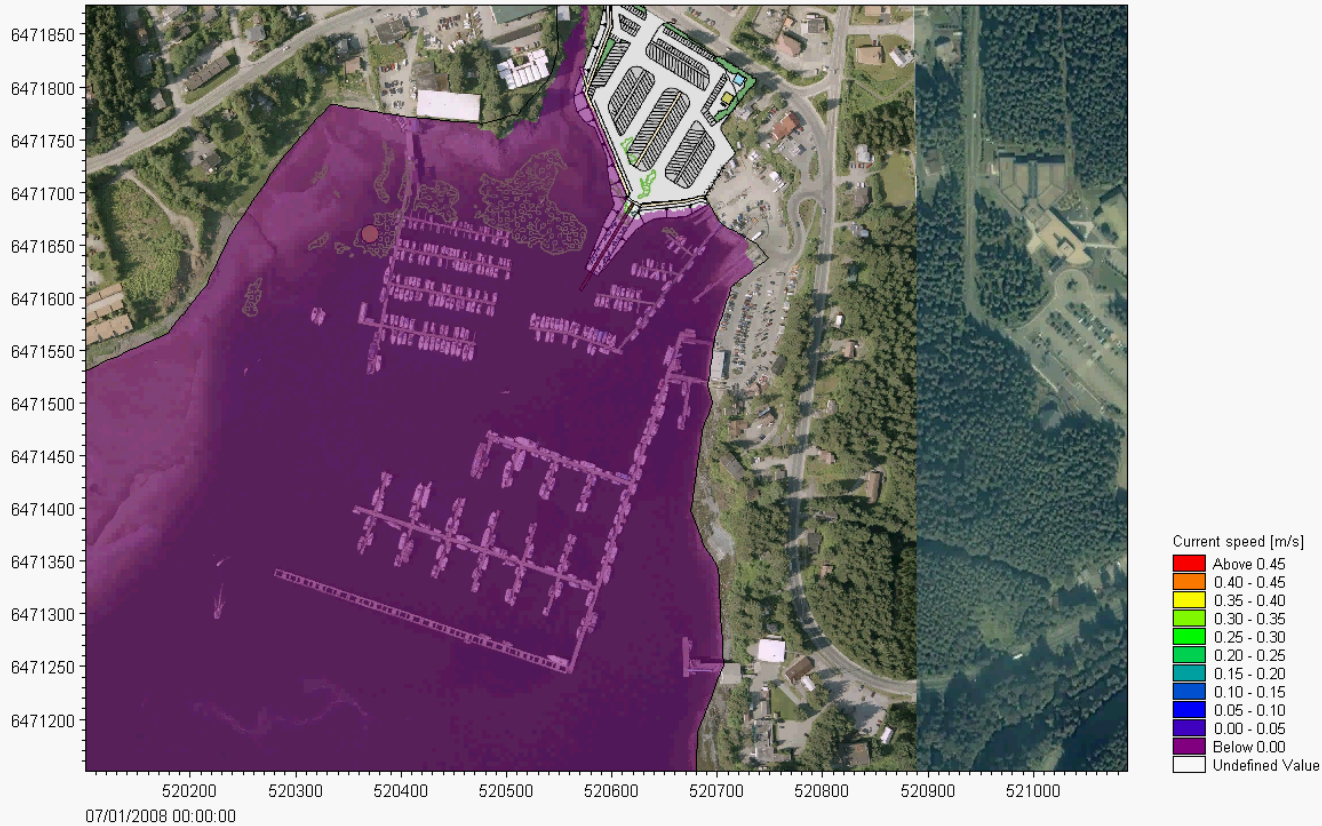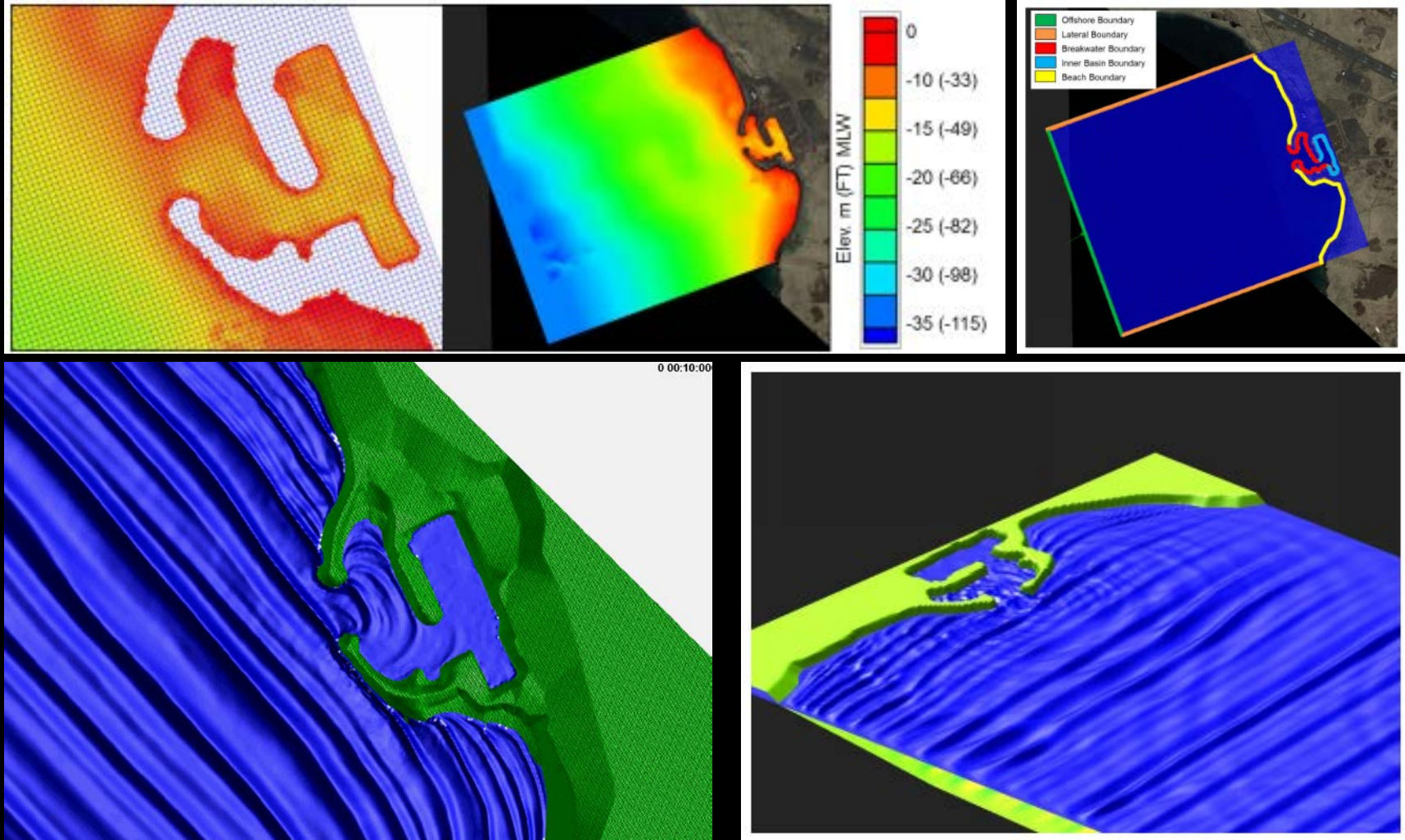
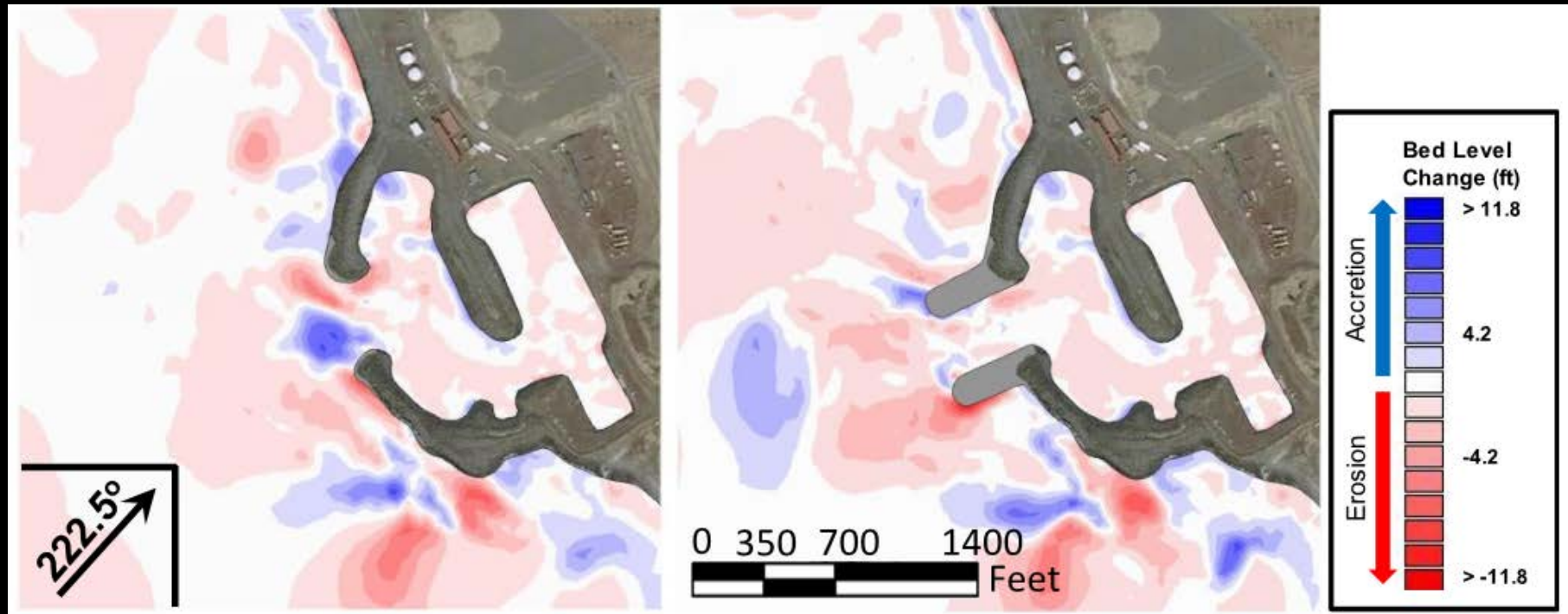**HDR**

01 **Typical Uses**

Numerical Modeling: Circulation/hydrodynamic Modeling

Numerical Modeling: Wave Modeling

Numerical Modeling: Sediment Transport

Existing Harbor

Harbor with Breakwater Extensions

Other uses

- Basis of Design
    - Determining typical and design waves
    - Determining typical currents
    - Determining overtopping rates and runnup
    - Determining erosion/scour potential
    - Determining storm surge potential/coastal flooding
- Design Features
    - Armor stone size
    - Harbor configurations
    - Habitat restoration
    - Environmental documents
    - Structure geometry
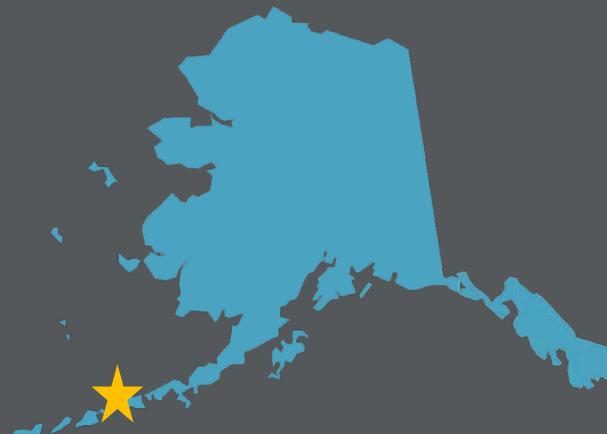   - Dock design/location/orientation
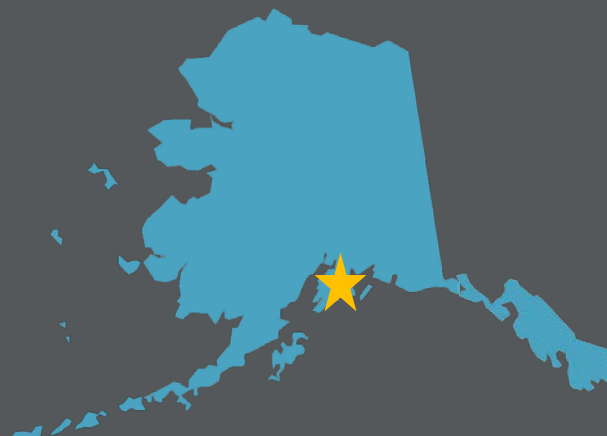
02 **Example Projects**

Harbor Improvements
St. George, AK

Breakwater Design
Nelson Lagoon, AK

Kodiak Runway Extension
Kodiak, AK

Seward 75-90
Anchorage, AK

03 Products Used

Products Typically Used

- Tidal Datums (MHHW, MLLW, MSL, EWL, etc.)
  - Especially nice if tied to NAVD88 or NGVD29
- Water Level Data Time Series
  - 6 Min
  - High/Low
  - Monthly
- Predicted Water Levels
- Predicted Current Speeds
- Predicted sea-level change

- NOAA Tides and Currents
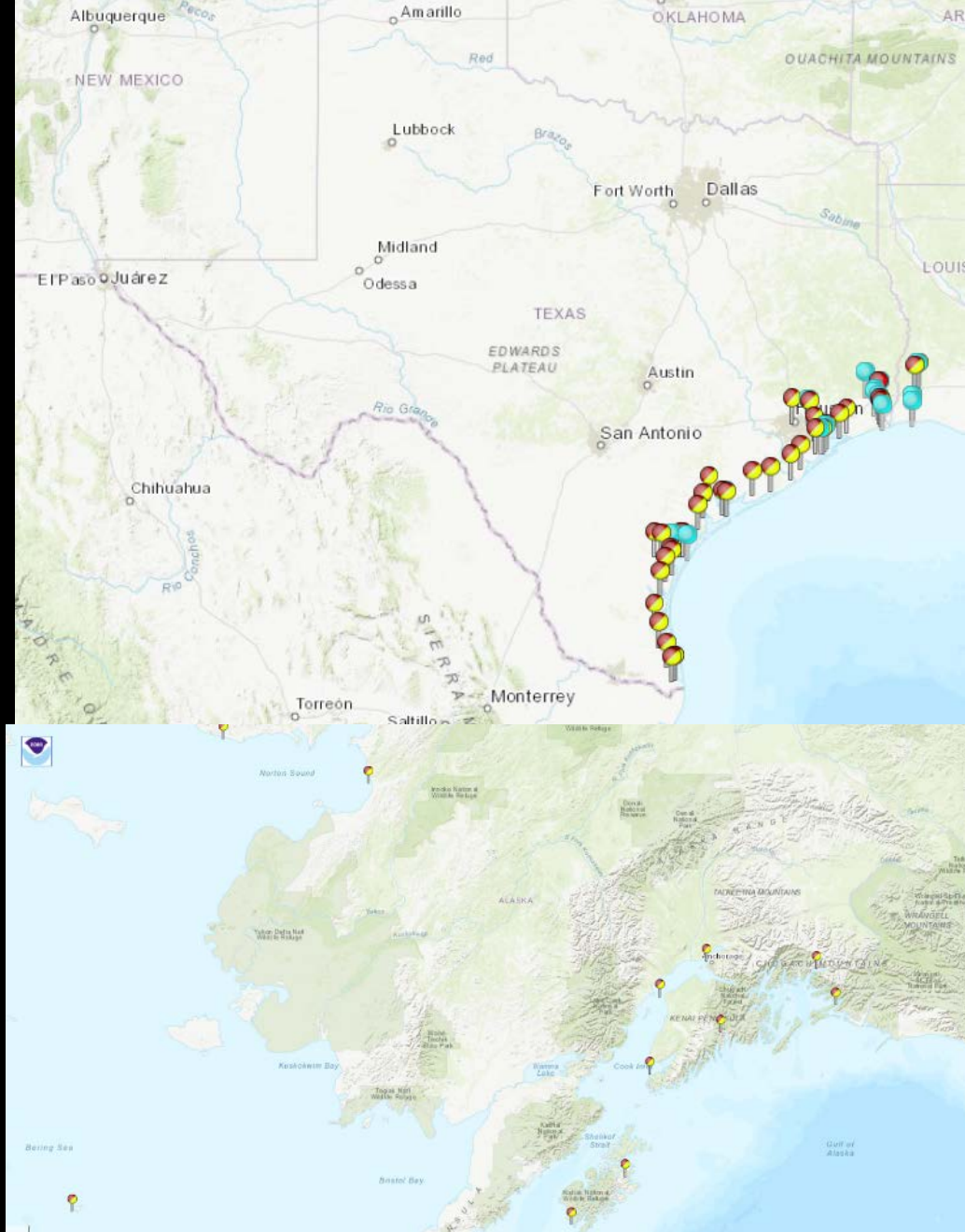- USACE/NOAA Sea-Level Trends

04 **Geographic Gaps**

Geographic Gaps

- Significant data gaps in AK compared to lower 48

- Need data at project location or nearby location with similar attributes

- Suggest short-term water level data acquisition to establish tidal datums at existing coastal communities.

Questions

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