Ocean Observing:

The National Water Level Observation Network (NWLON): evolution, operation and societal applications

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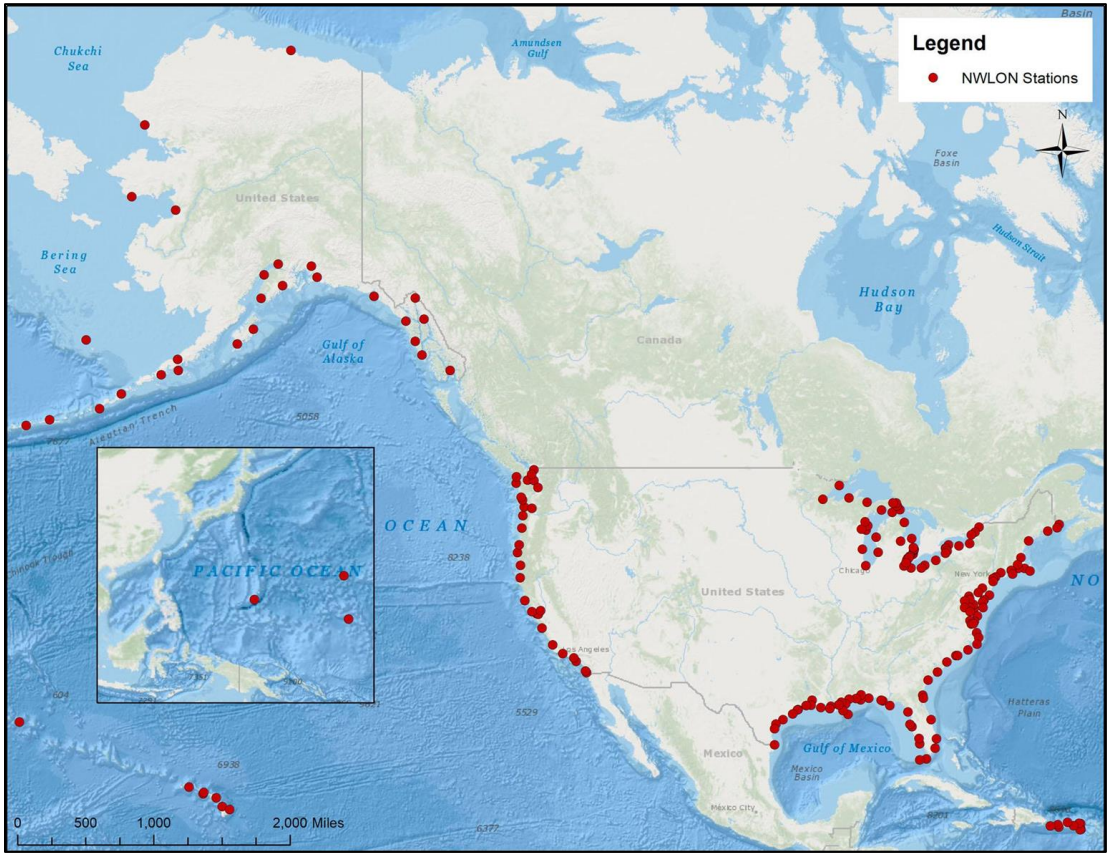
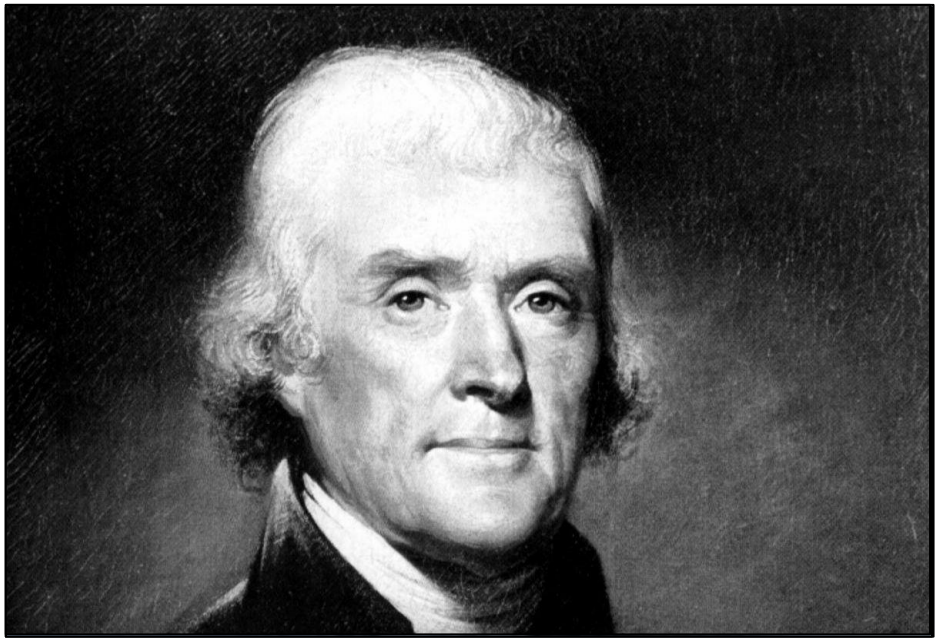
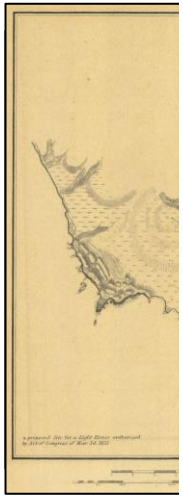
United Nations Open-ended Informal Consultative Process on Oceans and the Law of the Sea
Twenty-Second meeting: 6 – 10 June 2022

What is NWLON?



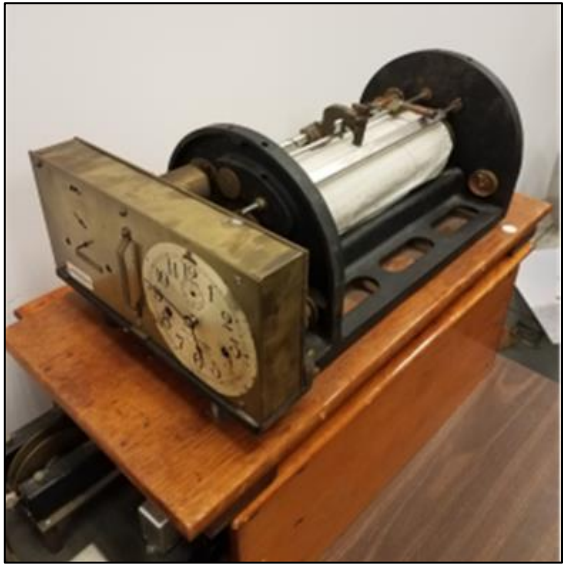
Beginnings

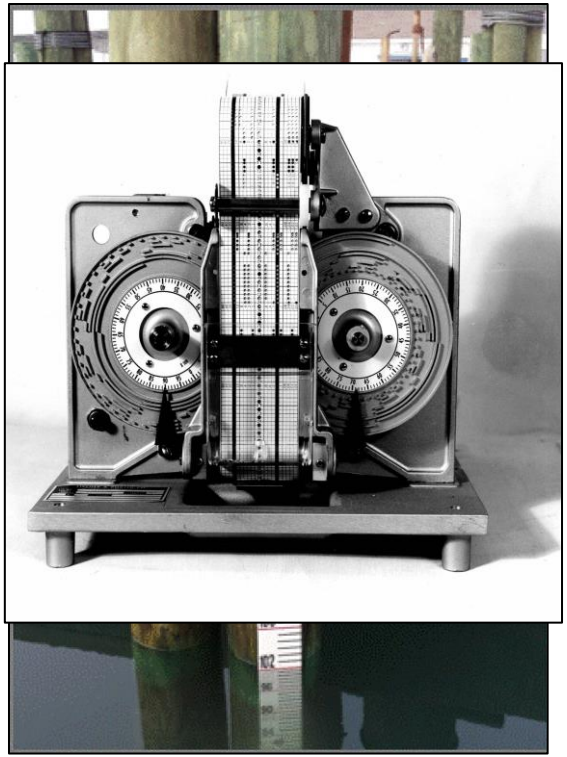


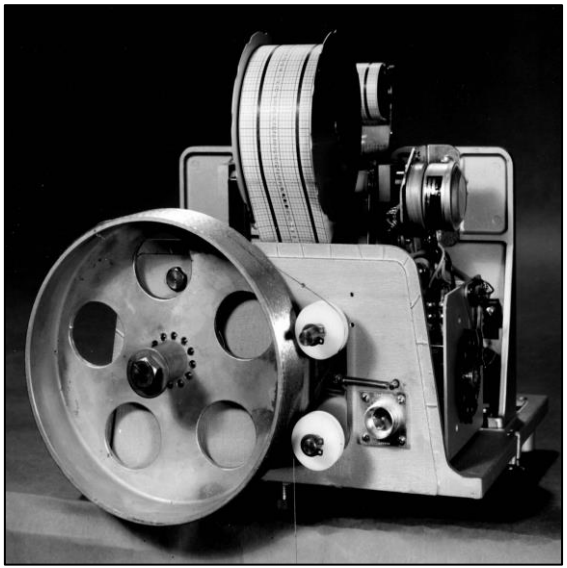


Centuries of Evolution in 2 Minutes

1840s – 1940s

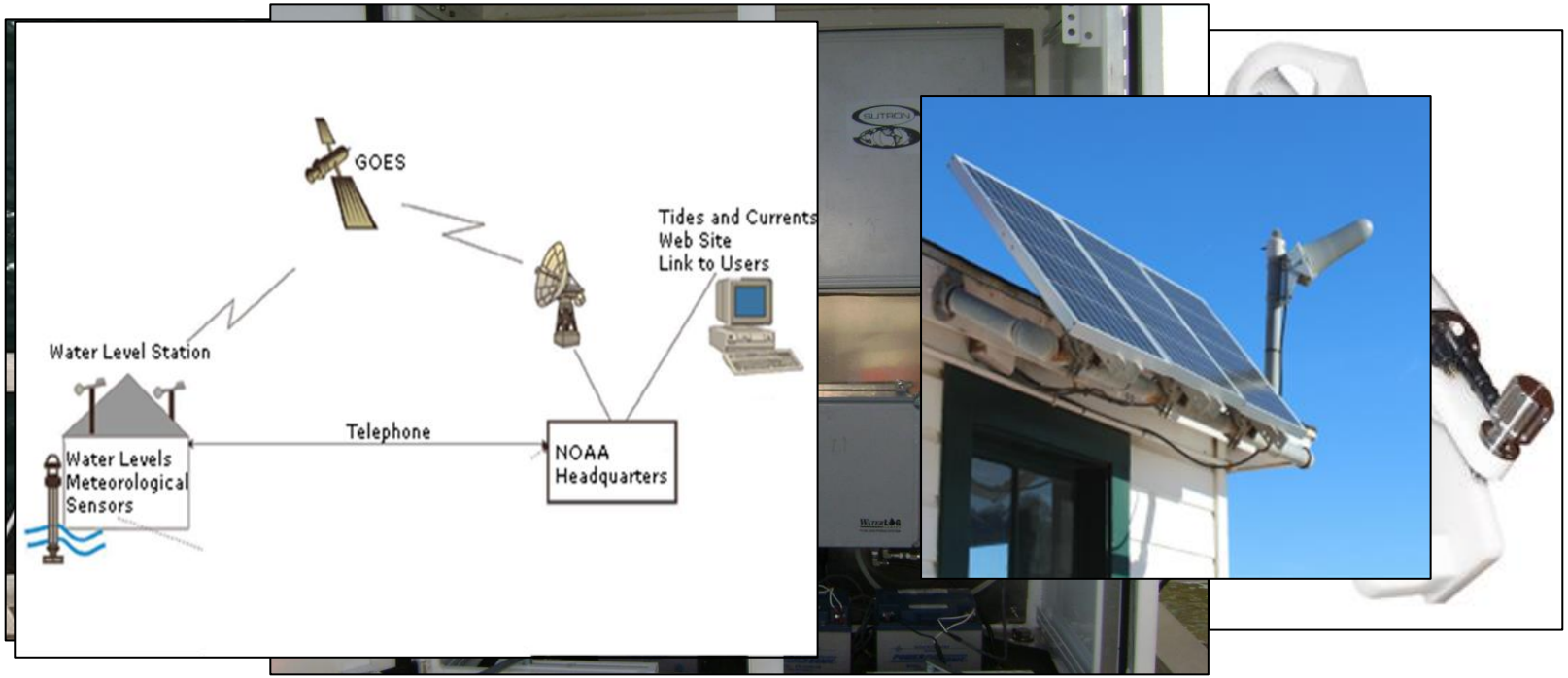




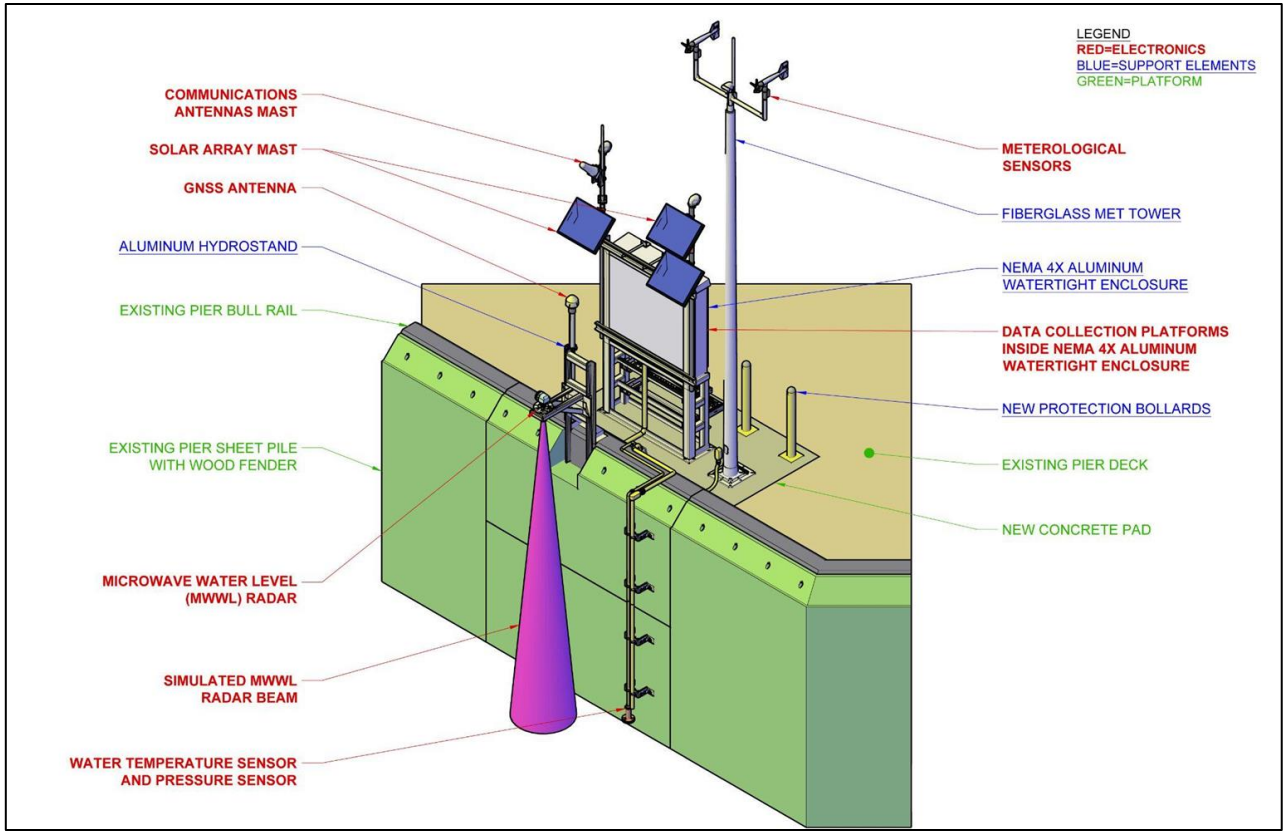


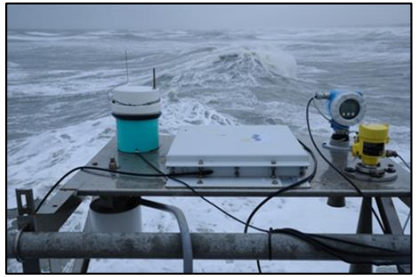
Centuries of Evolution in 2 Minutes

1980s → **present day**

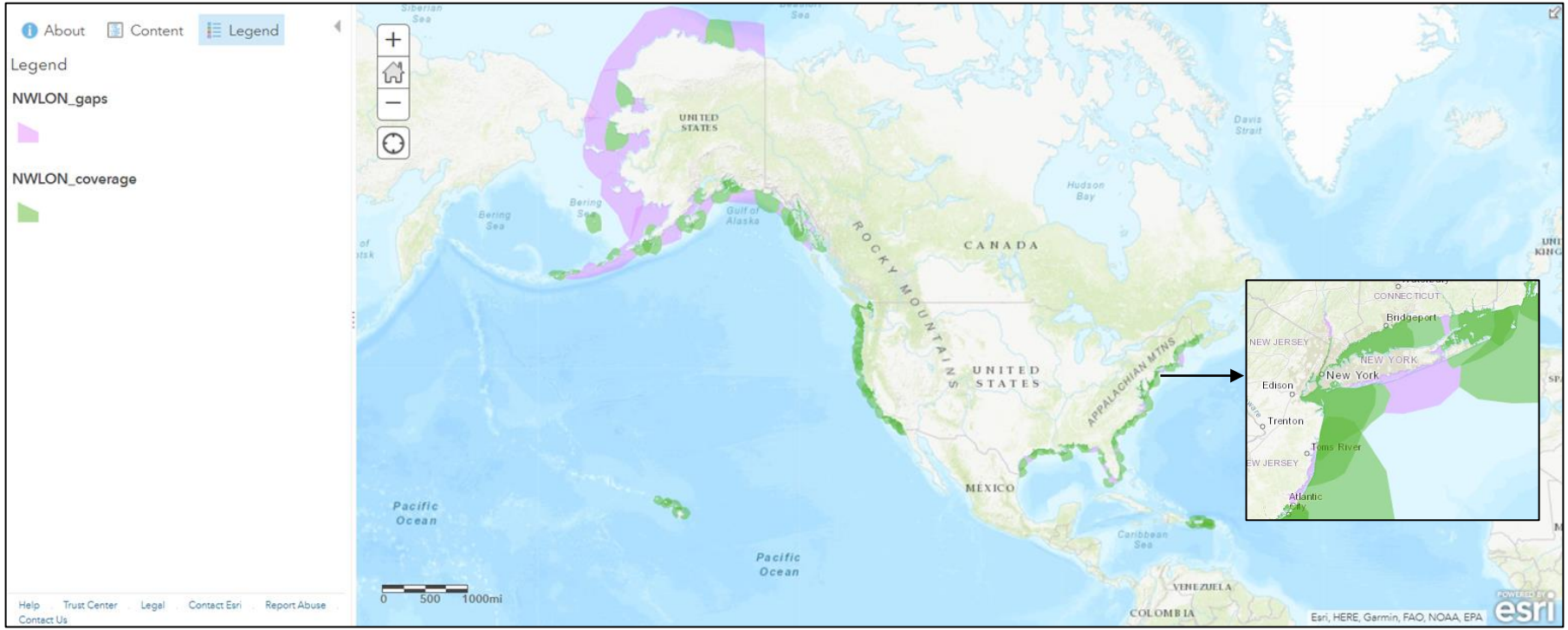


Typical NWLON Station Design

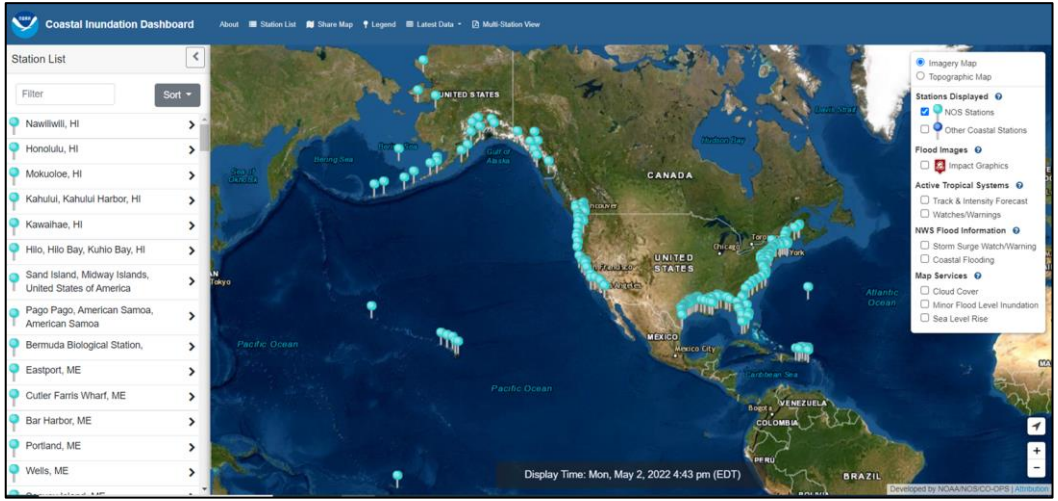


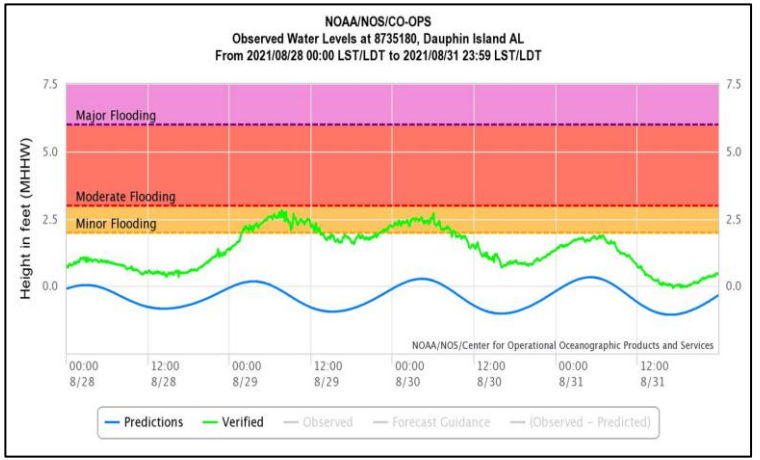


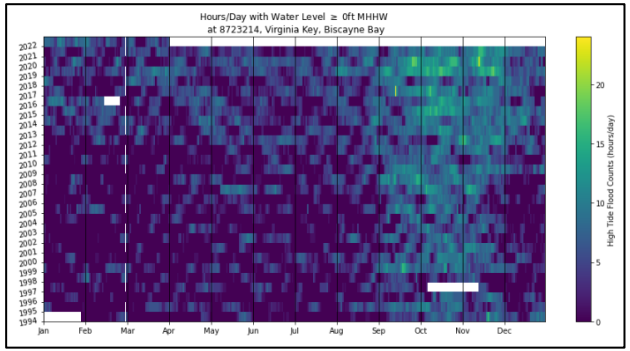
NWLON Network Design/Gaps

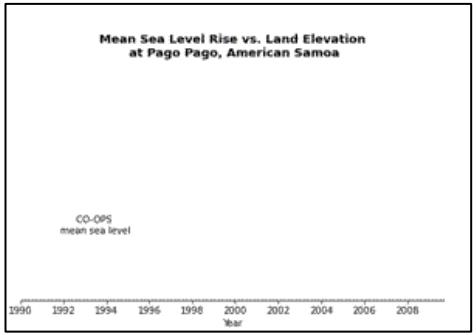


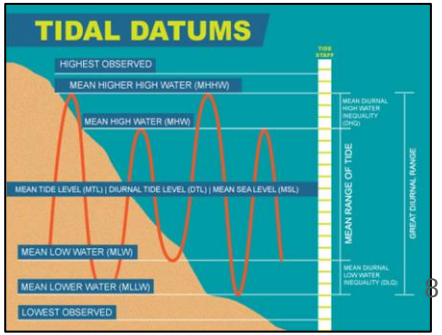
Importance of Products that Communicate



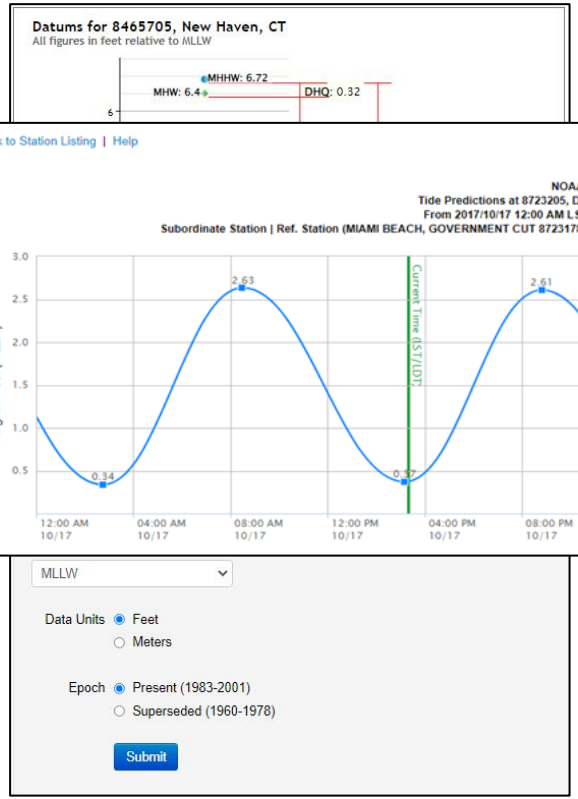


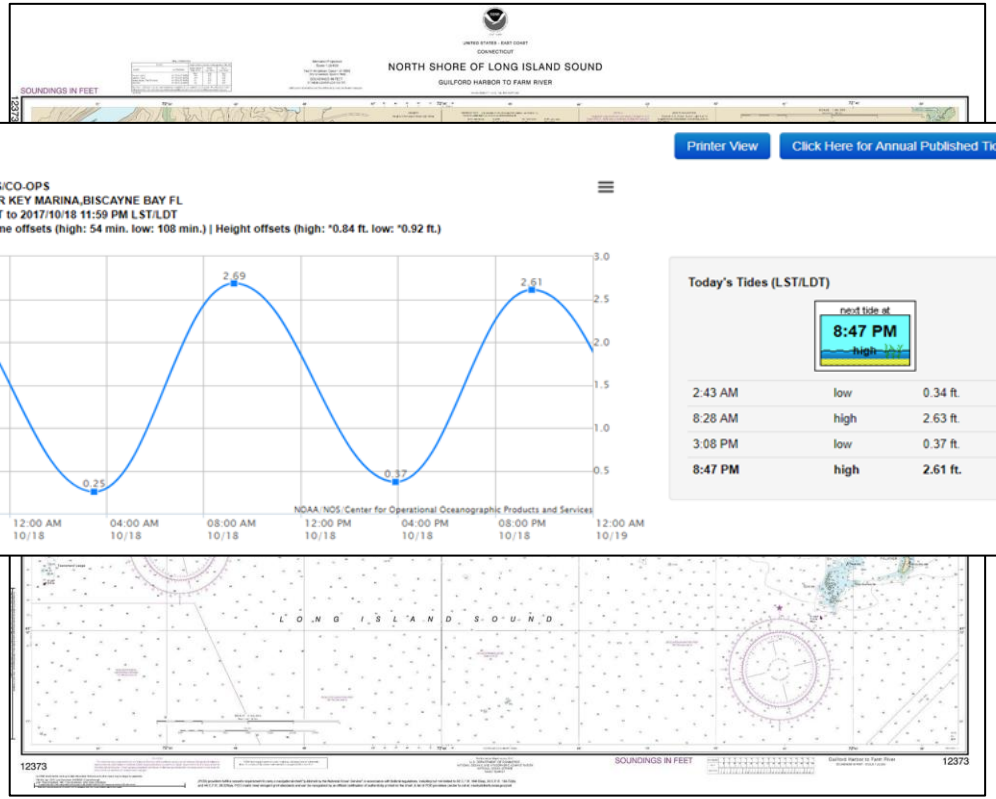




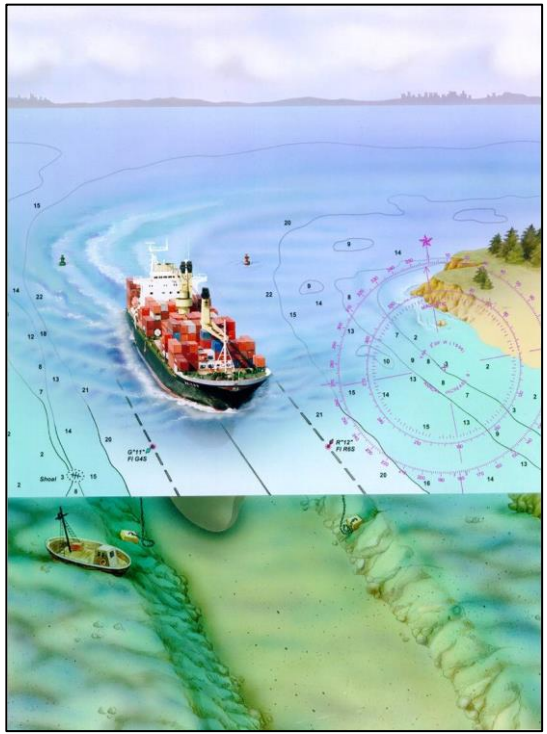


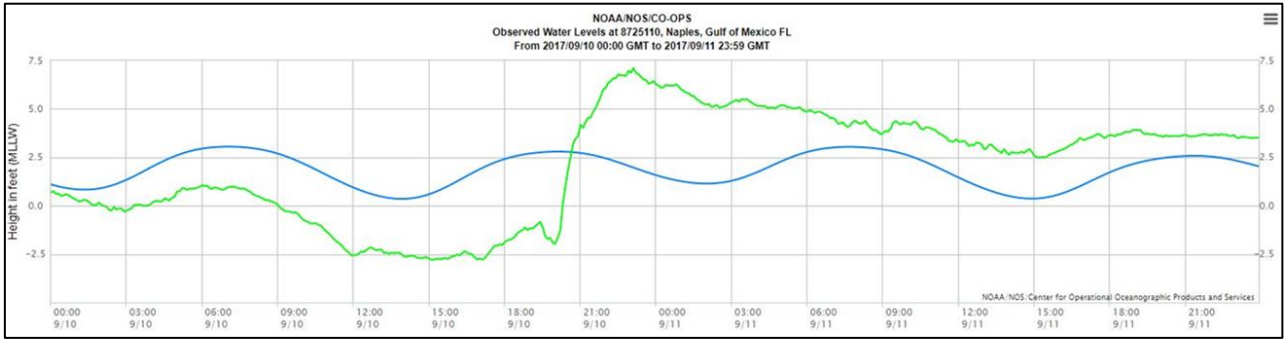
Maritime Commerce, Non Real-Time



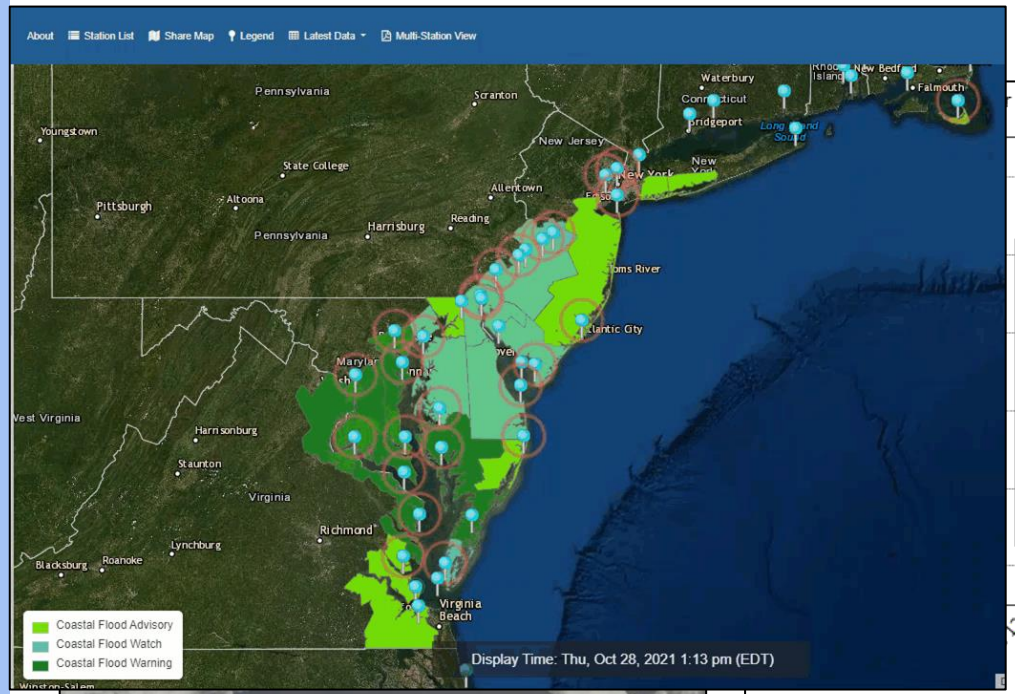


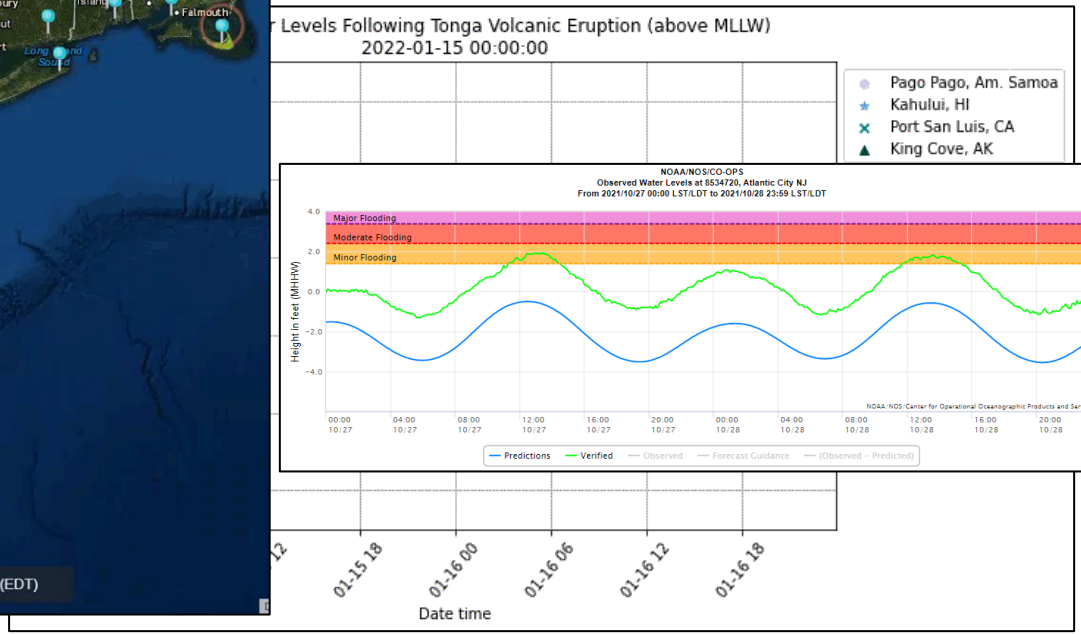
Maritime Commerce, Real-Time



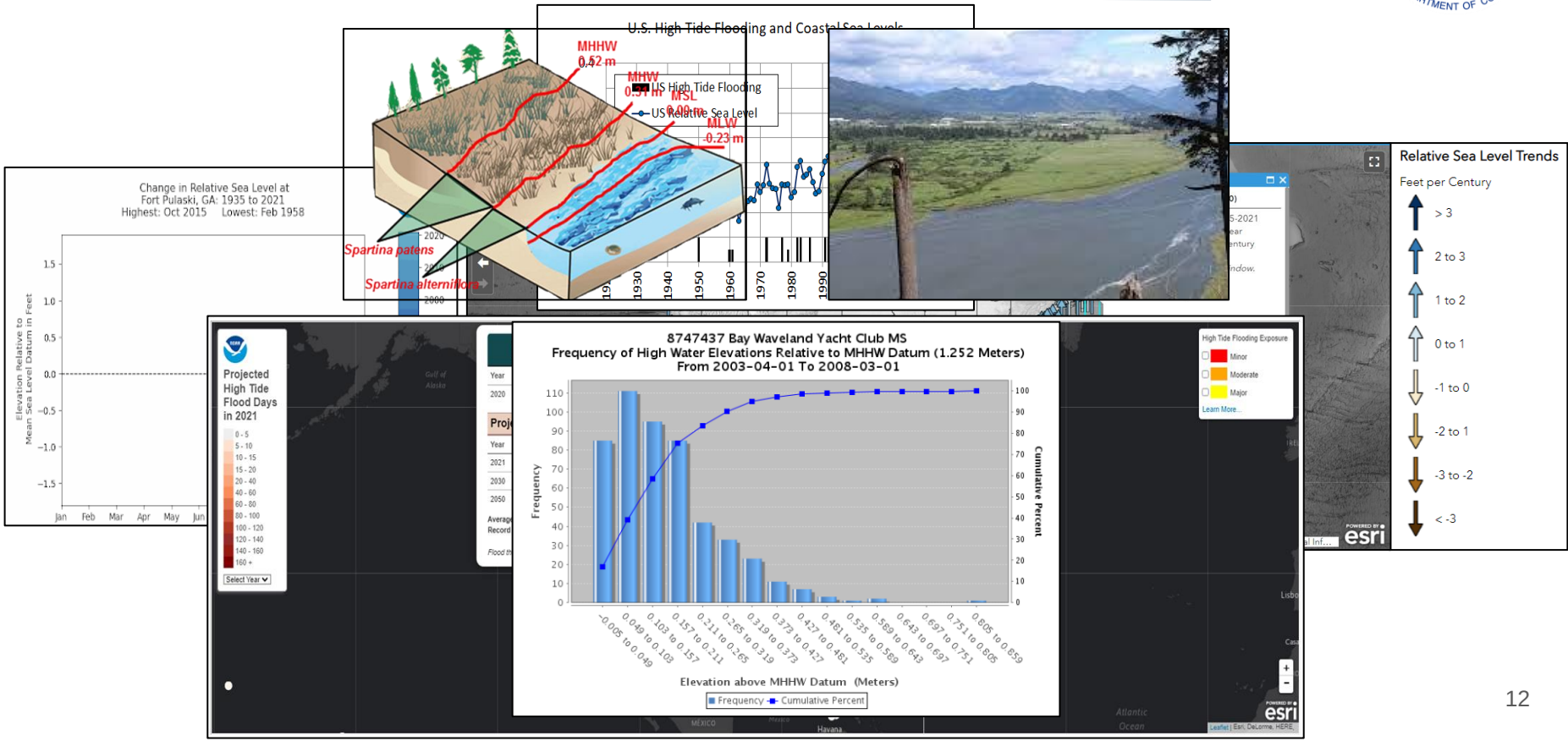


Resilience, Real-Time





Resilience, Non Real-Time



Summary - Top 3 Thoughts

1. Understand and document the observing system requirements.
2. Build the observing system to fill priority location gaps and use technology to minimize data series gaps.
3. Interact with users to ensure products are conveying the information needed for the societal application.

For more information, visit ***tidesandcurrents.noaa.gov***

NWLON Data Gaps

Data Stages: **Raw** (no quality control) > **Preliminary** (automated QC) > **Verified** (full QC)

Data is attributed as **Observed** vs **Filled**

Gaps

- Small gaps (minutes to 4 hours) – linear fit or least squares method. Backup sensor used for “noisy” data.
- Medium gaps (4 hours to 3 days) – Backup sensor then nearby stations then predicted data.
- Large gaps (> 3 days) – unfilled unless good match with nearby station, up to 5 days.