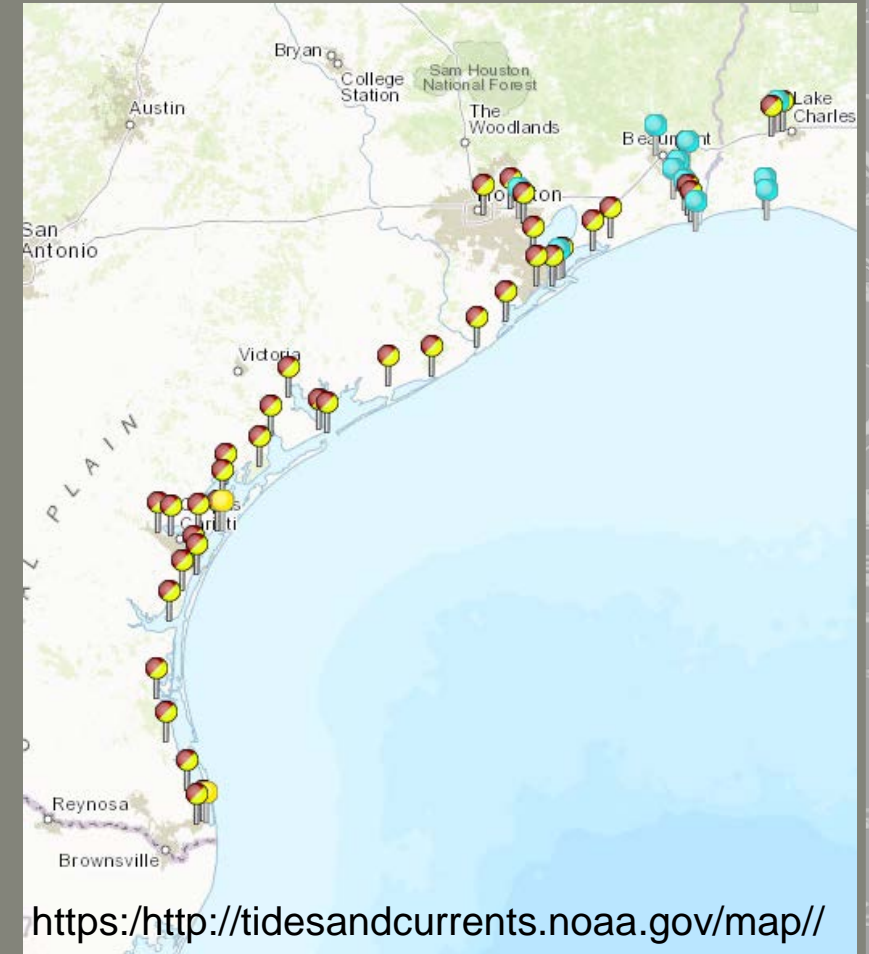# TEXAS COASTAL OCEAN OBSERVATION NETWORK (TCOON)

Coraggio Maglio, PE – USACE, Galveston District H&H Branch Chief

Dr. Paul Hamilton, PhD – USACE (TCOON POC), Galveston District

15 November 2016

https://http://tidesandcurrents.noaa.gov/map//

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NEED FOR AN OBSERVATION NETWORK

Technical Report CHL-97-29
October 1997

**US Army Corps
of Engineers**
Waterways Experiment
Station

Needs Assessment for Water-Level Gauging Along the Texas Coast for the U.S. Army Engineer District, Galveston

by   Nicholas C. Kraus, WES

*Carroll I. Thurlow, Daniel J. Heilman, Anne-Lise Lindquist,
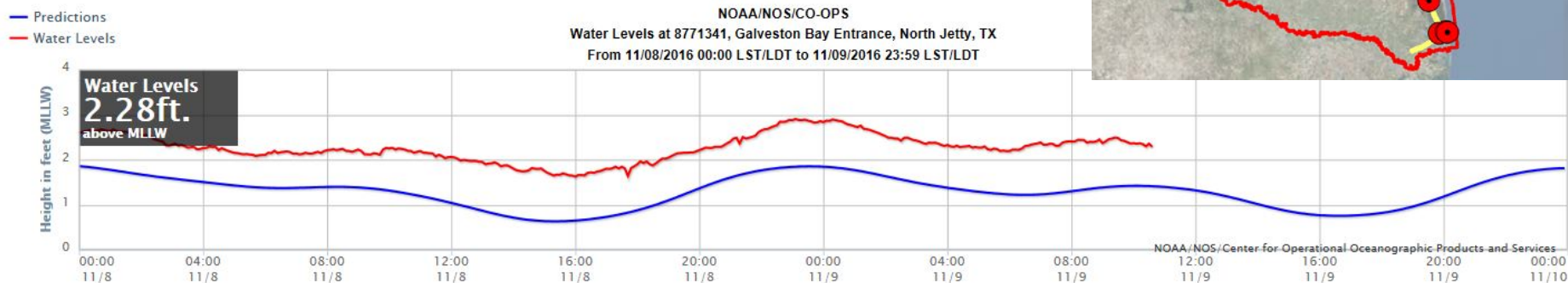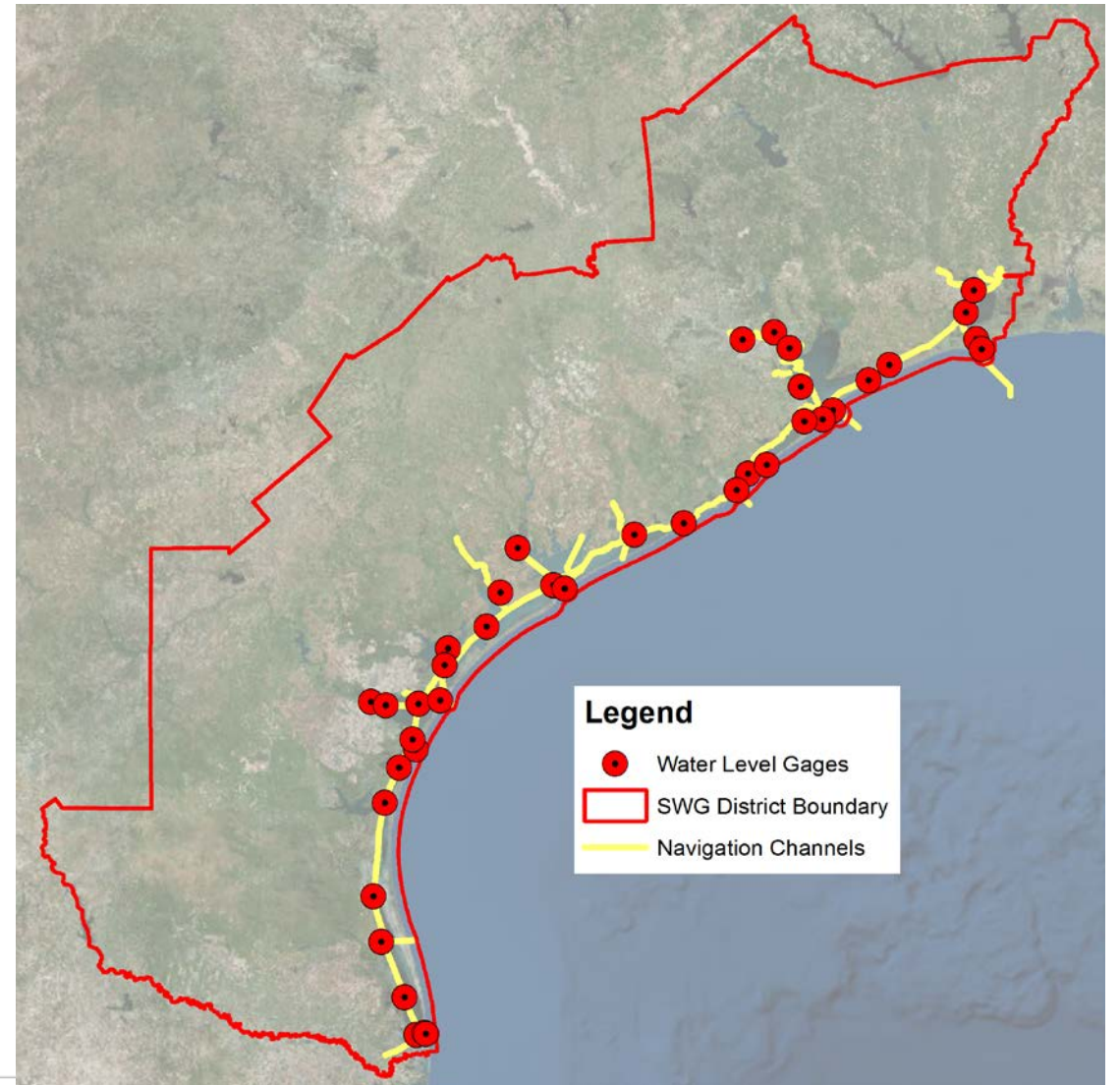Mark W. Earle, Texas A&M University-Corpus Christi*

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TCOON OVERVIEW

- 5-year interagency agreement (USACE/NOAA)
  - Awarded March 2016
- Expansive network throughout Texas
  - 30 stations planned
- Major benefits for user community
  - Reduces transit delays
  - Reduces risk of groundings
  - Improves maintenance of navigable waterways
  - Improves data for coastal studies
- Real-time data available
  - Water level
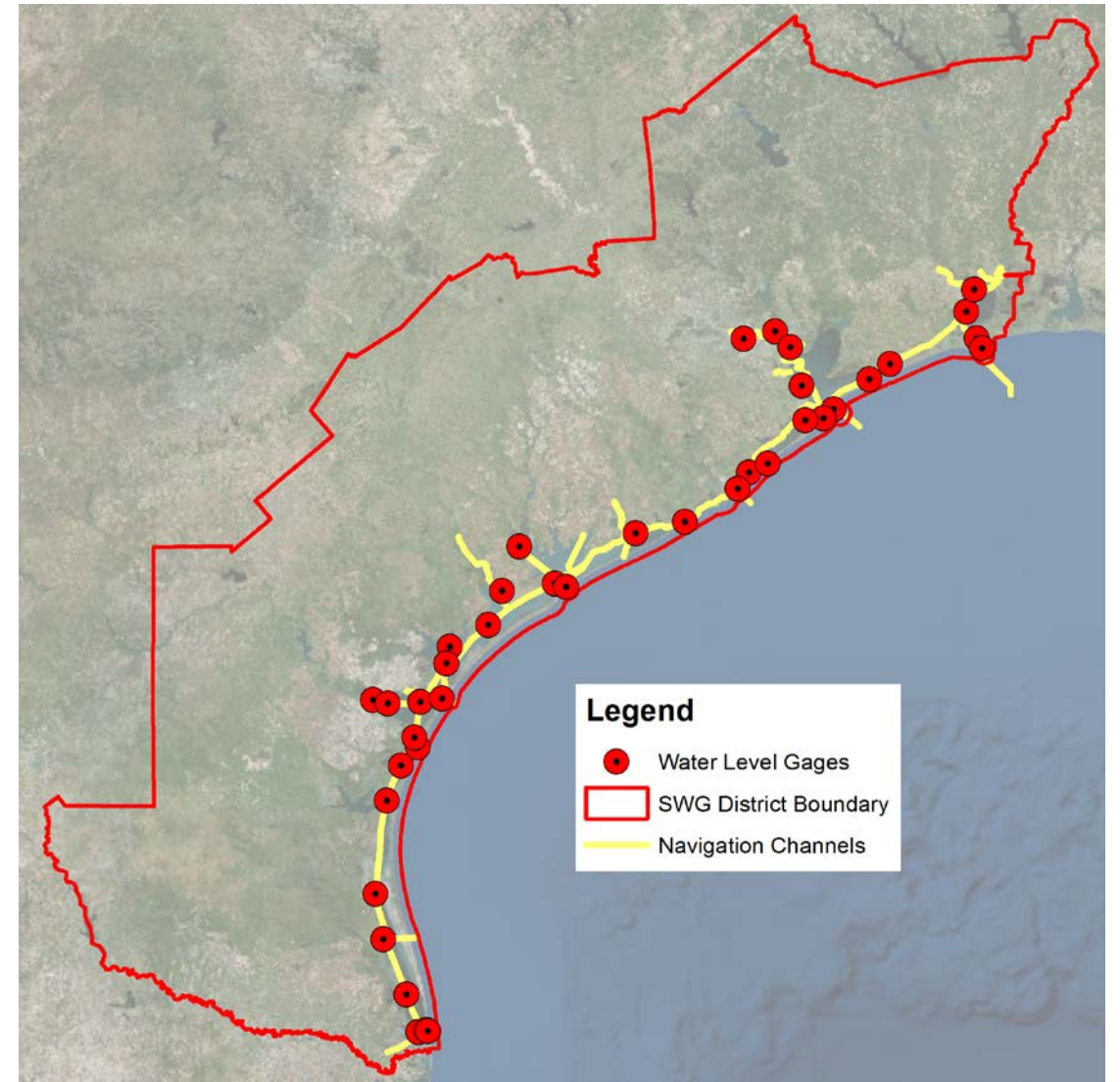 - Wind speed and direction
  - Temp & Pressure

Legend
- ● Water Level Gages
- ▭ SWG District Boundary
- — Navigation Channels

— Predictions
— Water Levels

NOAA/NOS/CO-OPS
Water Levels at 8771341, Galveston Bay Entrance, North Jetty, TX
From 11/08/2016 00:00 LST/LDT to 11/09/2016 23:59 LST/LDT

Water Levels
2.28ft.
above MLLW

NOAA/NOS/Center for Operational Oceanographic Products and Services

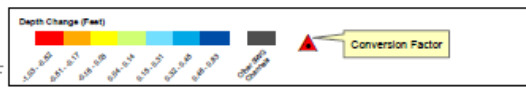US Army Corps of Engineers ®

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TCOON SITE STATUS

- Expansive network throughout Texas – 30 sites
  - 24 operational sites
  - 6 not displaying data currently
    - Copano Bay
    - Seadrift
  - 2 new sentinels - operational 28 Feb 17
    - Port Aransas
    - South Padre Island Brazos Santiago Pass
  - 2 sites need to be relocated – date TBD
    - Port Ingleside
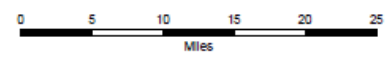   - Realitos Peninsula - shoaled

Legend
- Water Level Gages
- SWG District Boundary
- Navigation Channels

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TCOON DATA IMPORTANCE

- Data allowed USACE to transition to MLLW datum from MLT

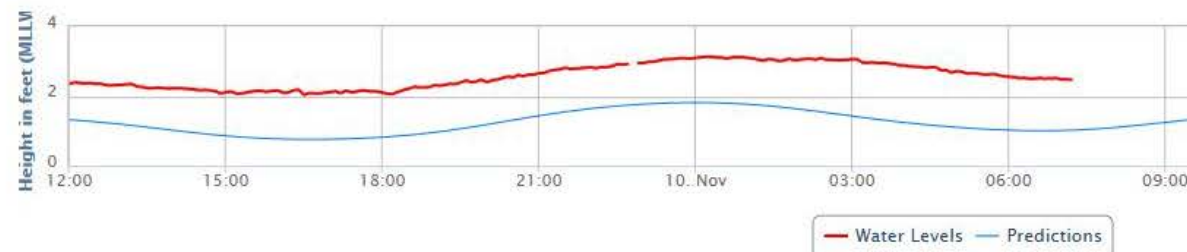# EXAMPLE APPLICATION: MODEL VALIDATION/CALIBRATION
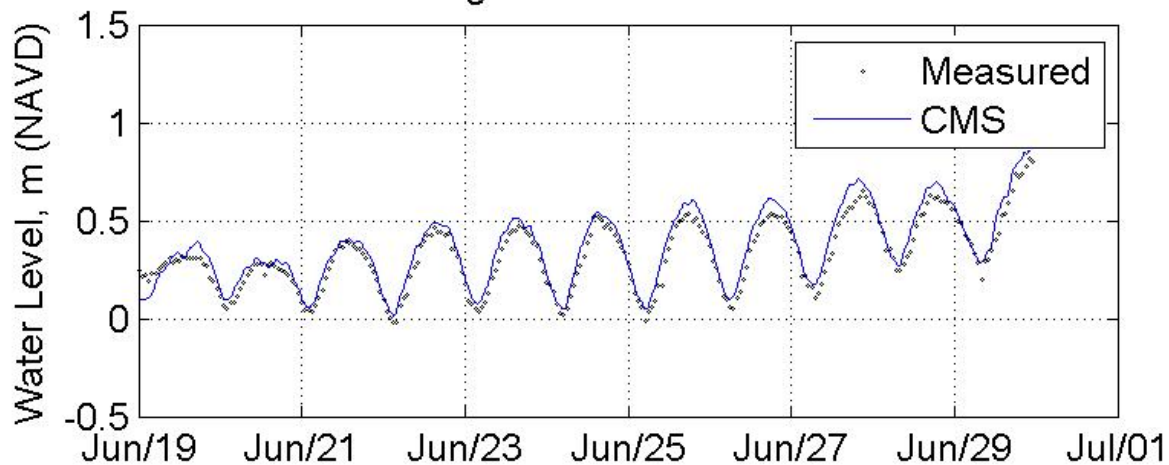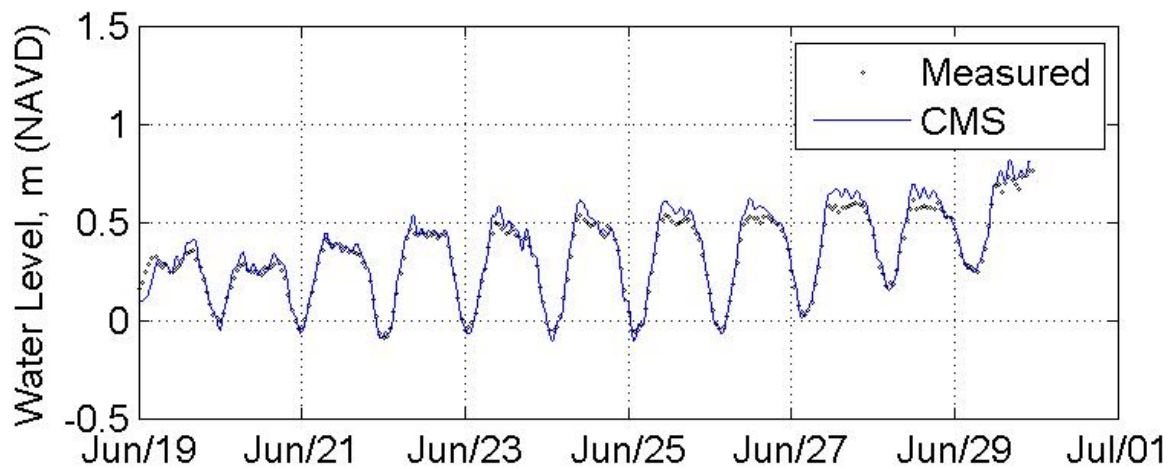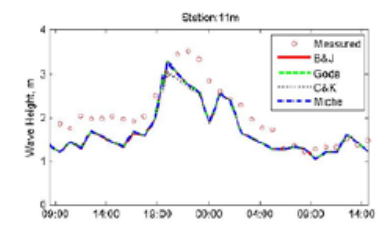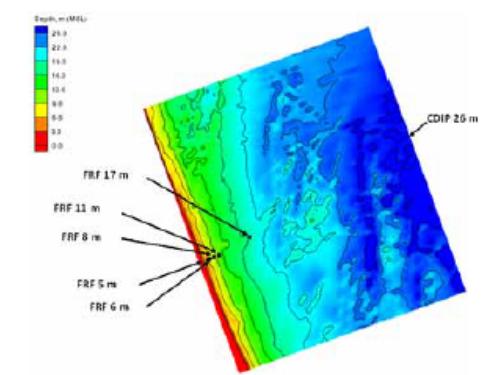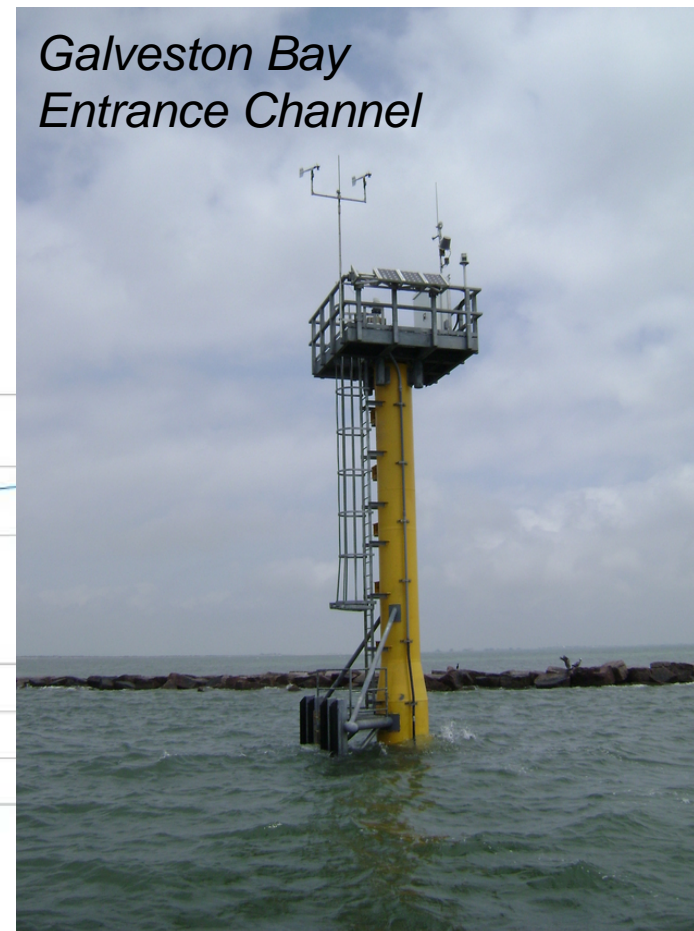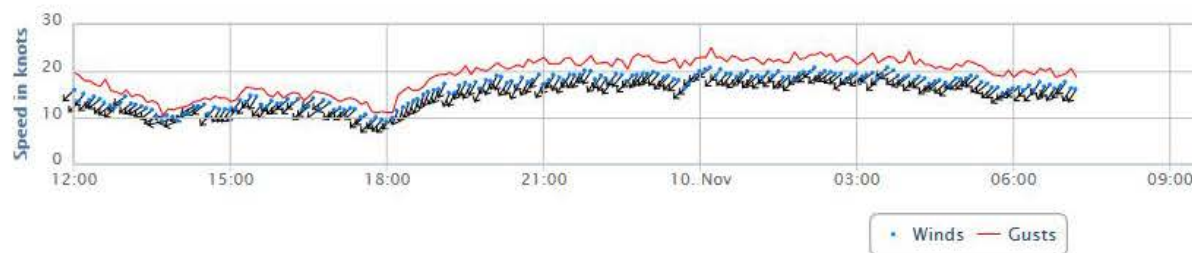
EXAMPLE APPLICATION: REAL-TIME WATER LEVEL AND METEOROLOGICAL DATA

Real-time data available:

- Water level (MLLW)
- Wind (speed, gusts, direction)
- Currents (in some locations)

Galveston Bay Entrance Channel

Water Levels
2.47ft.
above MLLW
as of 11/10/2016 07:12 LST/LDT

Water Levels — Predictions

Winds
16.13kn.
from NNE
as of 11/10/2016 07:12 LST/LDT

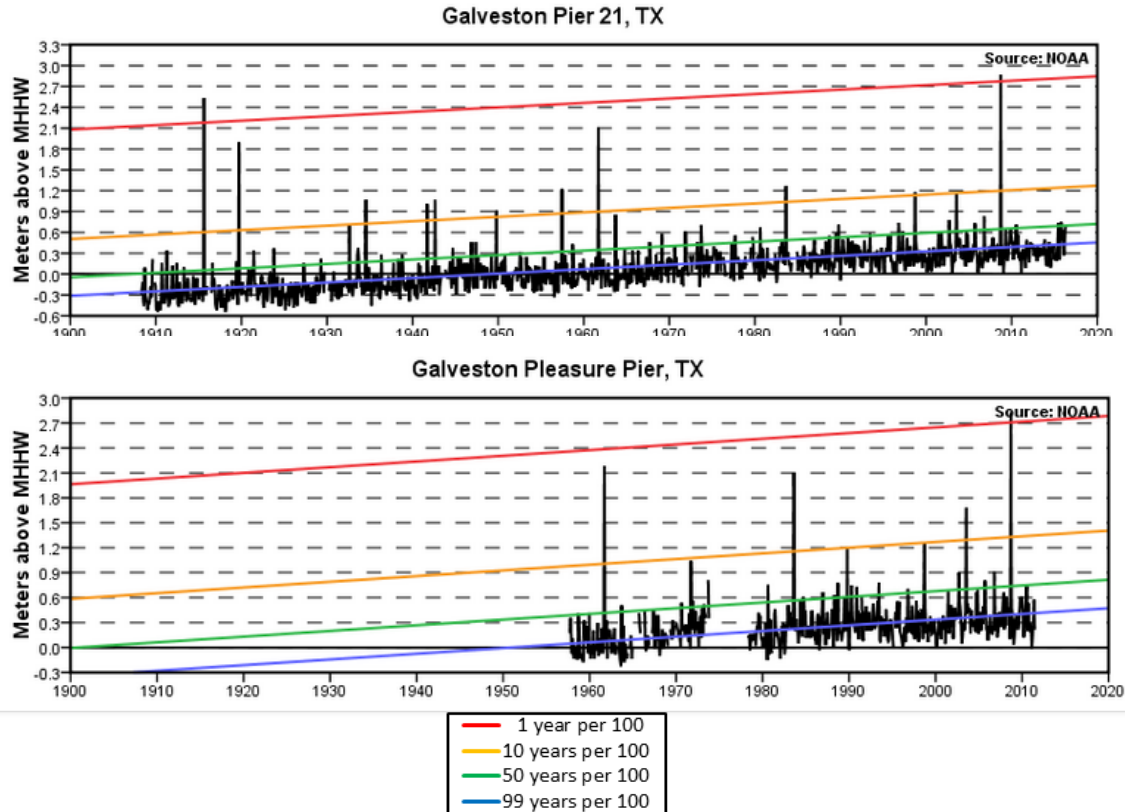· Winds — Gusts

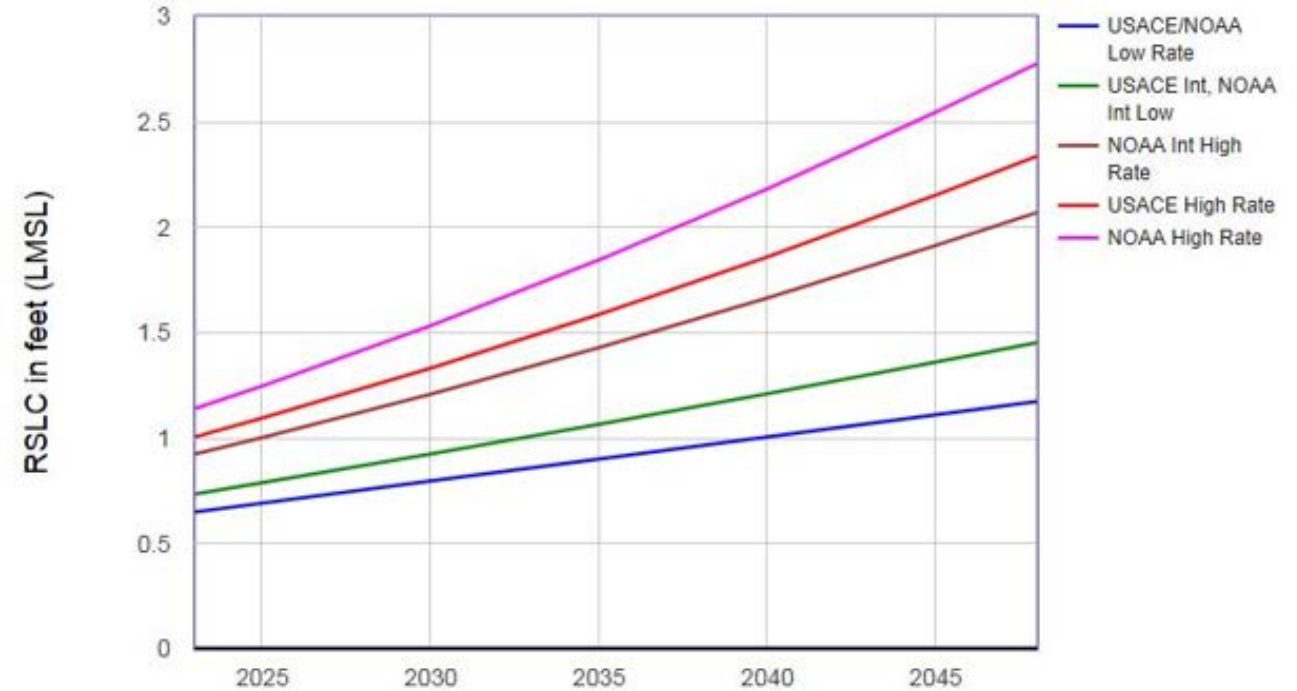US Army Corps
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File Name

EXAMPLE APPLICATION: HISTORICAL DATA WATER LEVEL AND RELATIVE SEA LEVEL RISE

Historical data available:
- Water level
- +100 years at Pier 21