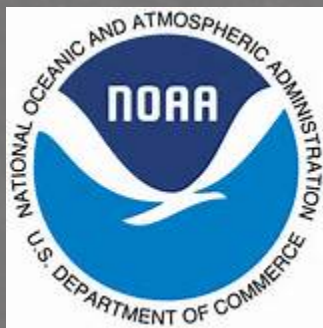


COASTAL DATA EXCHANGE

LOCALIZED SLR/INUNDATION EXTREMES SCENARIOS

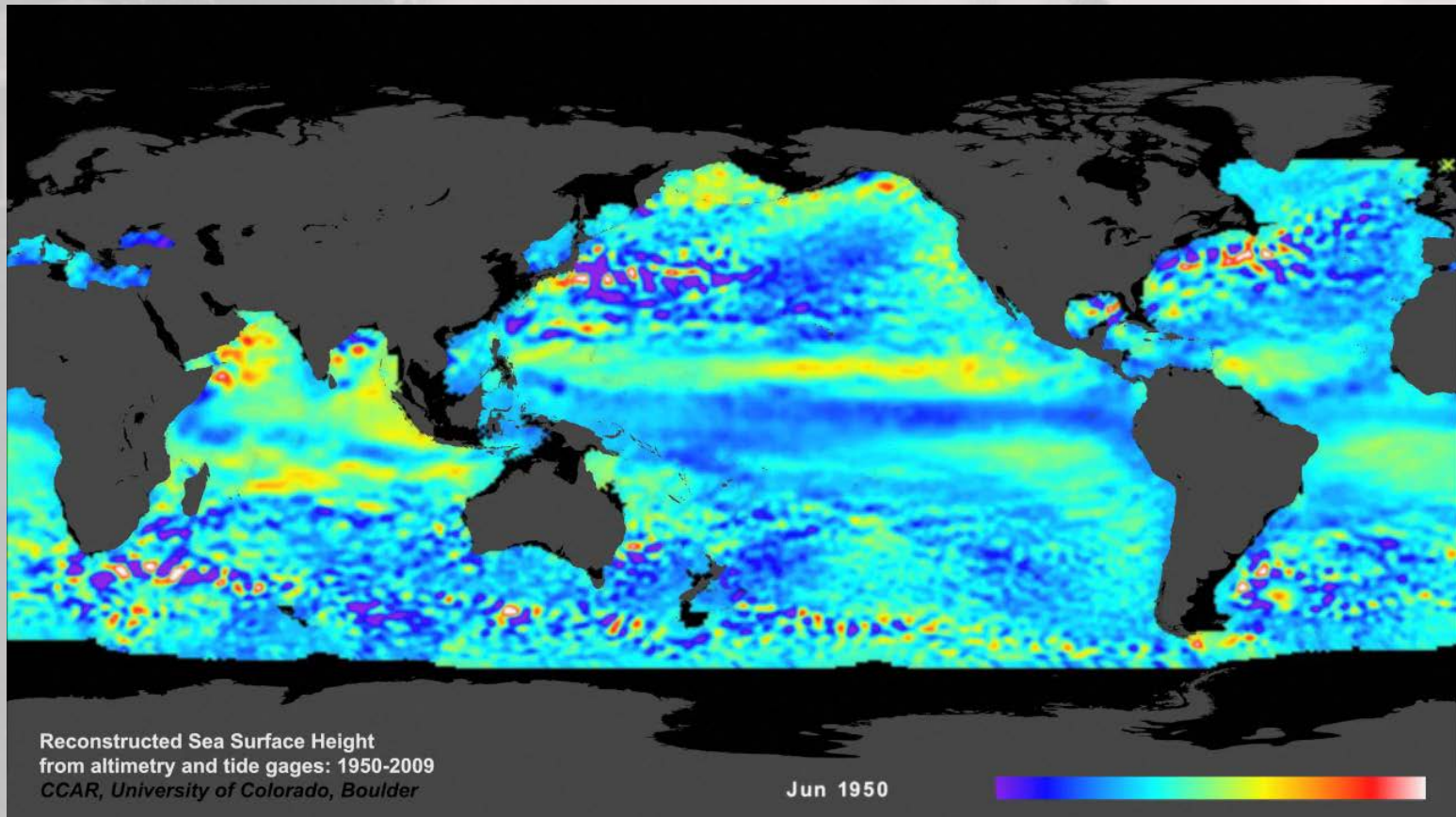


John J. Marra

Regional Climate Services Director

NOAA NCDC

Sea Surface Height through Time and Space



Rationale

- There is a growing **demand for accurate information** that can be used to **evaluate the potential vulnerability** of facilities and infrastructure, as well species and ecosystems, to **SLR/coastal inundation under a changing climate**. Such information supports decision-making ranging from area-wide vulnerability assessment related to climate adaptation planning and disaster risk reduction to site-specific analysis related to design and maintenance.
- **Of particular interest is the practical application of extreme value analysis** to inform decision and policy making that takes into account
 - sea level and storminess-related variability as well as trends; and
 - differences that exist from location to location in terms of the relative importance of various contributors to extremes.



Hindcast Diagnosis

Analysis of Location Parameter

P = perigean cycle

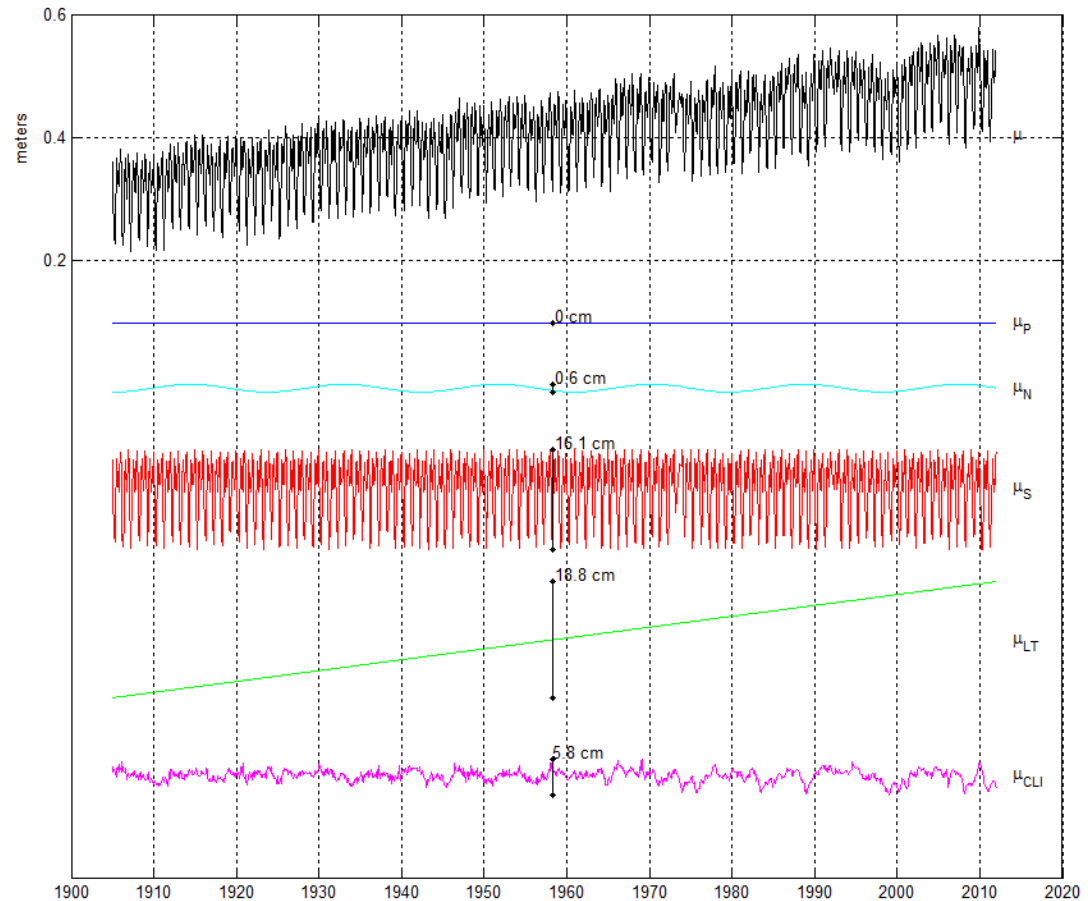
N = nodal cycle

S = seasonality

LT = long-term trend

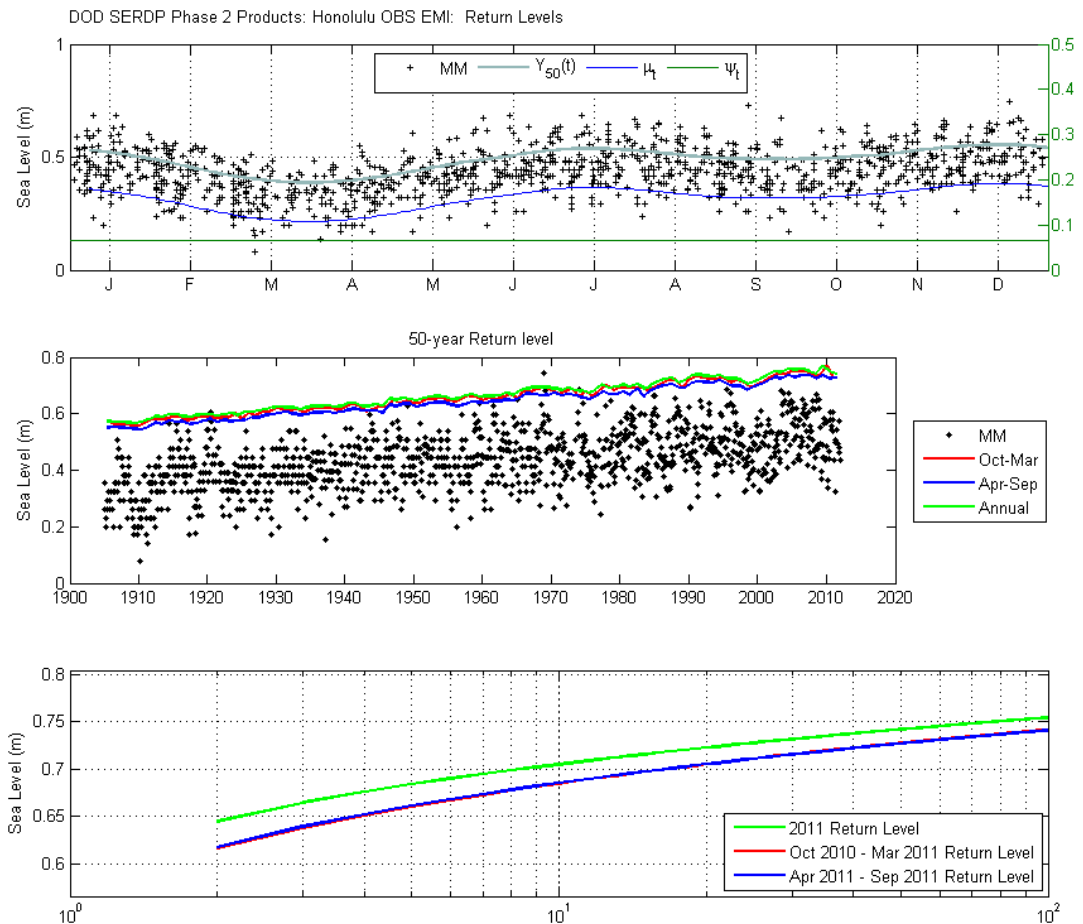
CLI = climate index

DOD SERDP Phase 2 Products: Honolulu OBS EMI: μ Breakdown



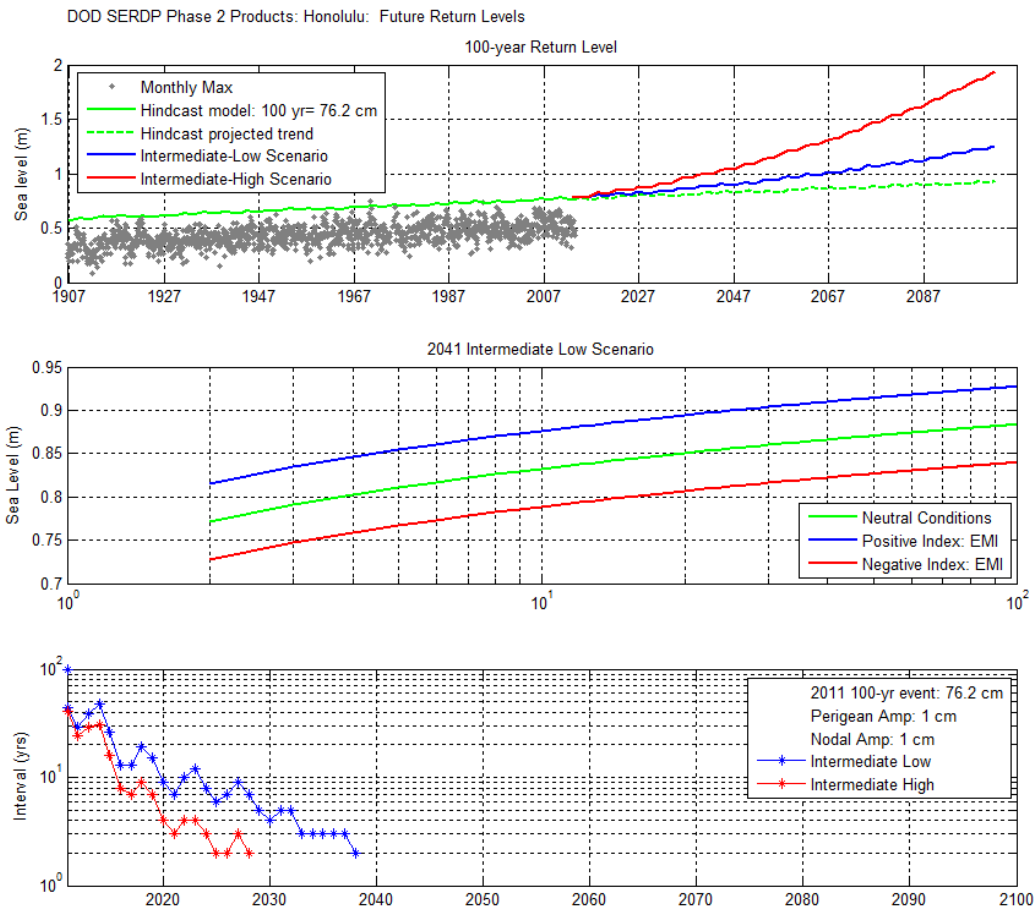
Hindcast Products - Honolulu

- Seasonal 50-yr Return Level with location & scale parameters contributions
- Summer, Winter and Annualized 50-yr Return Level with Tide and Trend contributors
- Return Level Interval Curves for year 2011 by season respective to tidal and trend value contributions



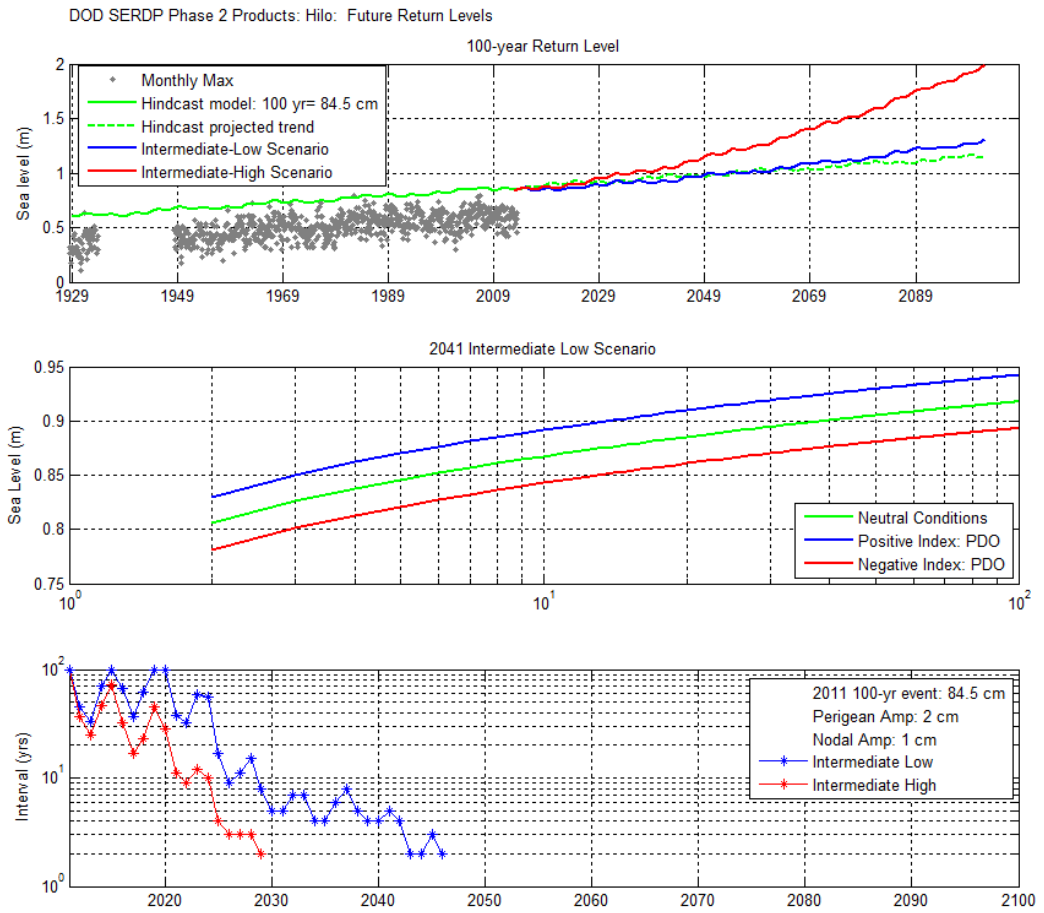
Forecast Products - Honolulu

- 100-yr Return Level with Tidal contribution, SLR Scenarios (~Int. Low), and Hindcast location and scale trends
- 2041 Return Level Interval Curves at warm, neutral and cool EMI conditions
- “Decay curve” of year 2011 100-yr Return Level (fixed elevation) as a function of tide/SLR scenario/hindcast contributors (top figure)



Forecast Products - Hilo

- 100-yr Return Level with Tidal contribution, SLR Scenarios (~Int. Low), and Hindcast location and scale trends
- 2041 Return Level Interval Curves at warm, neutral and cool EMI conditions
- “Decay curve” of year 2011 100-yr Return Level (fixed elevation) as a function of tide/SLR scenario/hindcast contributors (top figure)



Discussion

- Places information in a risk-based context
- Includes patterns as well as trends
- Currently only for Still Water Level and for site-specific application
- Plan is to extend this to Total Water Level and for area-wide application



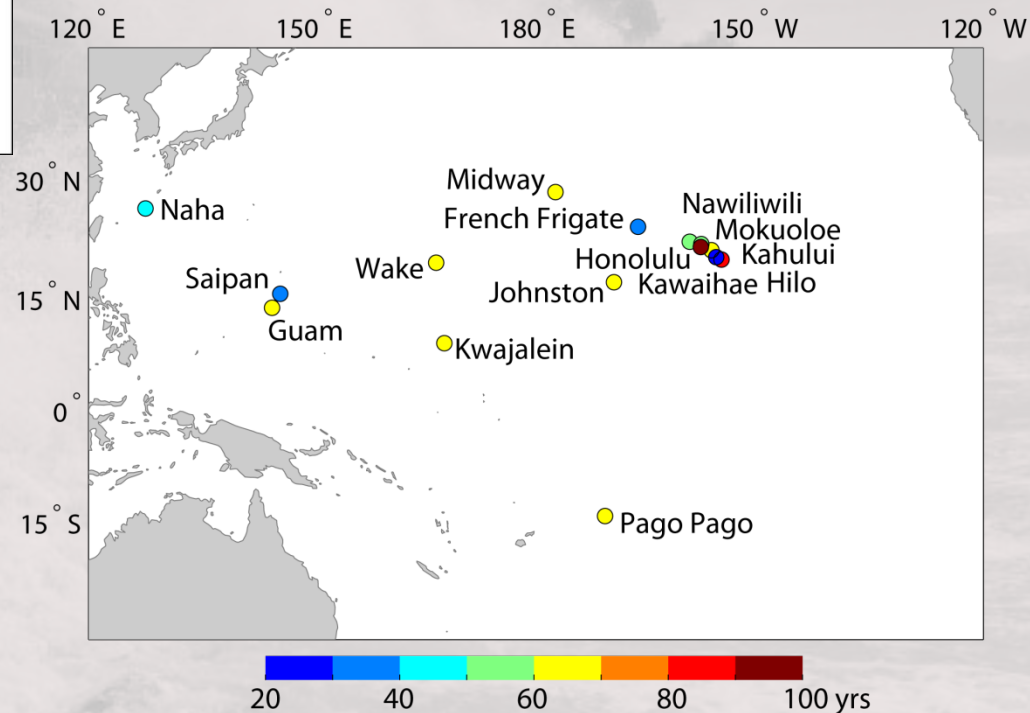
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<http://www.pacificcis.org/>

NEW Probabilistic [estimates of extreme still water levels](#) under a changing climate for specific locations in the Pacific Islands.



<http://www.noaclimatepacis.org/slr/phase2.php>

