UNIVERSITY OF HAWAII SEA LEVEL CENTER

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Abstract

The University of Hawaii Sea Level Center (UHSLC) collects, processes, and distributes tide gauge data from around the world in support of CLIVAR, GLOSS, GCOS, GODAE and other climate research activities. The measurements are used for the evaluation of numerical models, joint analyses with satellite altimeter datasets, the calibration of altimeter data, the production of oceanographic products, and research on interannual to decadal climate fluctuations. Also, in support of satellite altimeter calibration and validation and for absolute sea level rise monitoring, the UHSLC and the Pacific GPS Facility maintain continuous GPS systems at 7 tide gauge stations. The UHSLC priority for FY2005 is to bring to operational status the tide gauge stations identified as GCOS sites.

The Global Sea Level Network

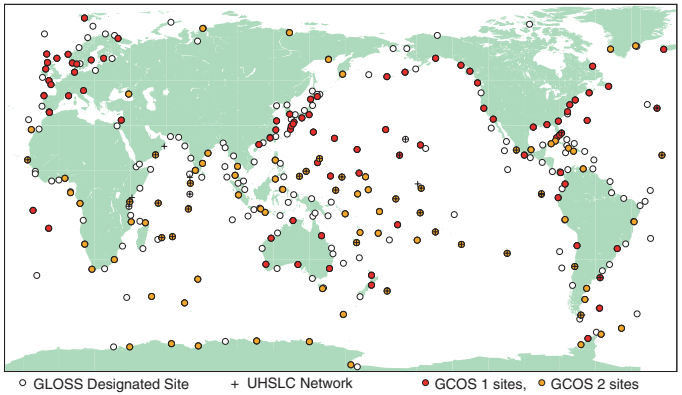
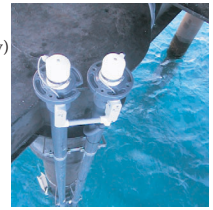


Fig 1. Location of UHSLC operated tide gauge stations in the GLOSS and GCOS networks.

Status FY2004

- 38 Tide Gauge Stations in Operation (30 at GCOS sites)
- 144 GLOSS/CLIVAR Fast Delivery Stations (1 Month Latency)
- 7 CGPS at Tide Gauge Stations



Priorities for FY2005

- Station Upgrades (radar/acoustic sensors)
- Increase number of GCOS sites reporting in near-real time
- Increase number of GPS@TG stations in the GCOS network

Data and Products

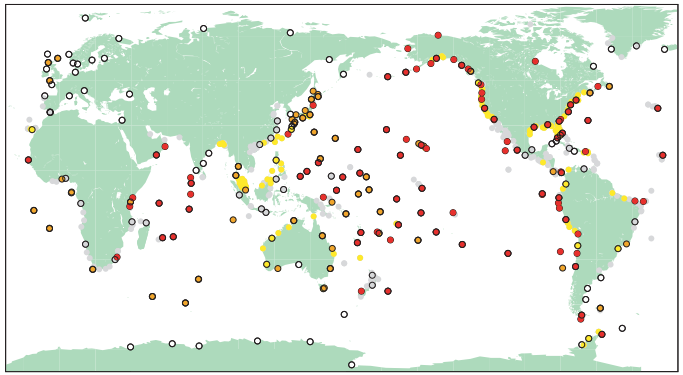


Fig 2. UHSLC data holdings and data latency times (1 Day latency data base is still under development).

Monthly Maps

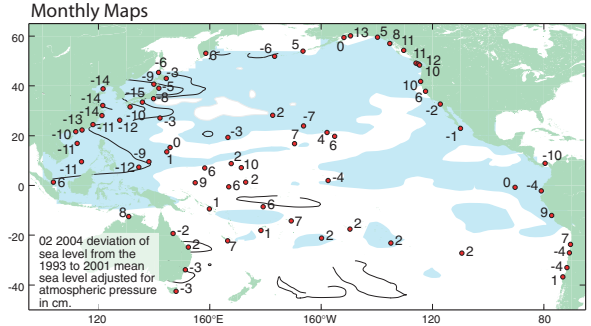


Fig 3. Monthly sea level deviations for the Pacific are provided as a JCOMM product. Volume changes and geostrophic current indices are also available.

Trend Analyses

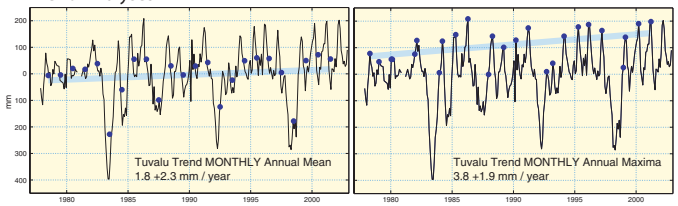


Fig 4. Trends in mean and extreme sea levels are estimated at UHSLC sites.

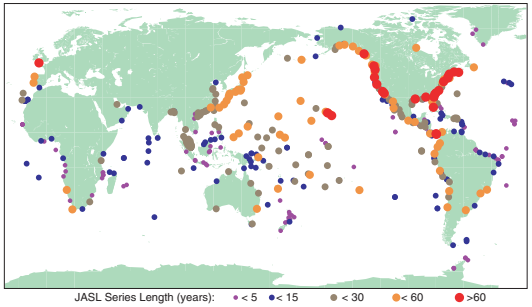


Fig 5. Record lengths for hourly tide gauge data in the Joint Archive for Sea Level, maintained by the UHSLC and NODC.

Research Areas

Pacific Decadal Variations

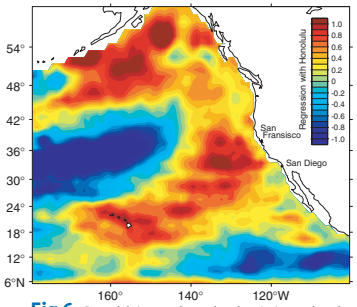
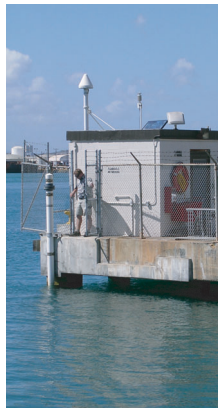


Fig 6. Decadal time scale sea level variations related to Honolulu sea level (Firing et al., 2004).



Extreme Events

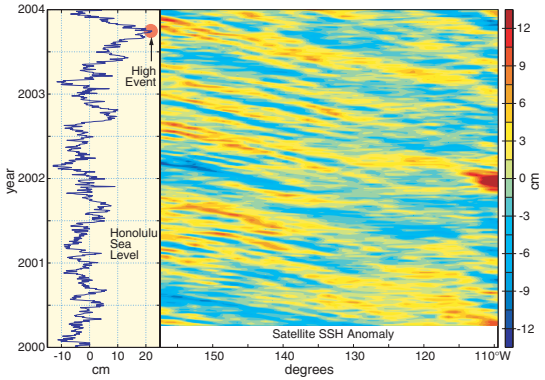


Fig 7. The highest recorded sea level at Honolulu, Hawaii was associated with anomalies that propagate from the east.

Sea Level Trends - Pacific Islands

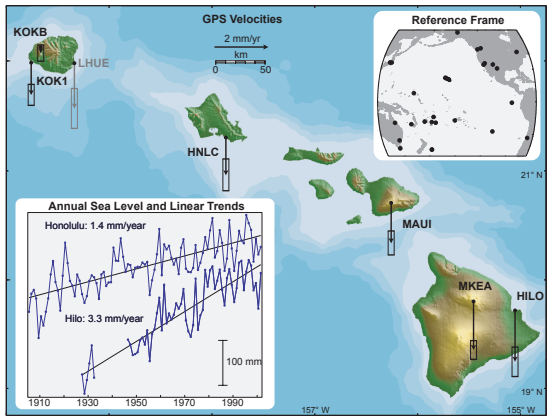


Fig 8. Continuous GPS is being used to analyze variable sea level rates at the Hawaiian islands (Caccamise et al., 2004).

References:

Caccamise, D. J., M. A. Merrifield, M. Bevis, J. Foster, Y. L. Firing, M. S. Schenewerk, F. W. Taylor, D. A. Thomas, Sea level rise at Hawaii: GPS Estimates of Differential Land Motion, submitted to Nature, 2004.

Firing, Y. L., M. A. Merrifield, T. A. Schroeder, and B. Qiu, Interdecadal Sea Level Fluctuations at Hawaii, submitted to J. Phys. Oceanogr., 2004.

Acknowledgments:

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