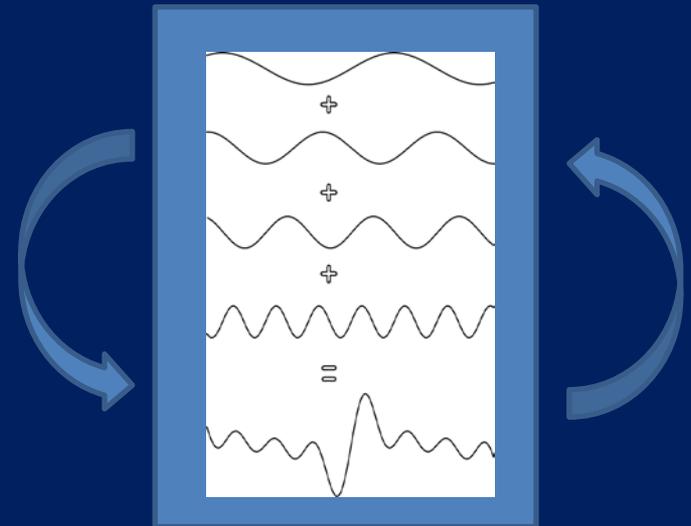


Pressure Sensors*



- Atmospheric
- Tides
- Surge
- Waves



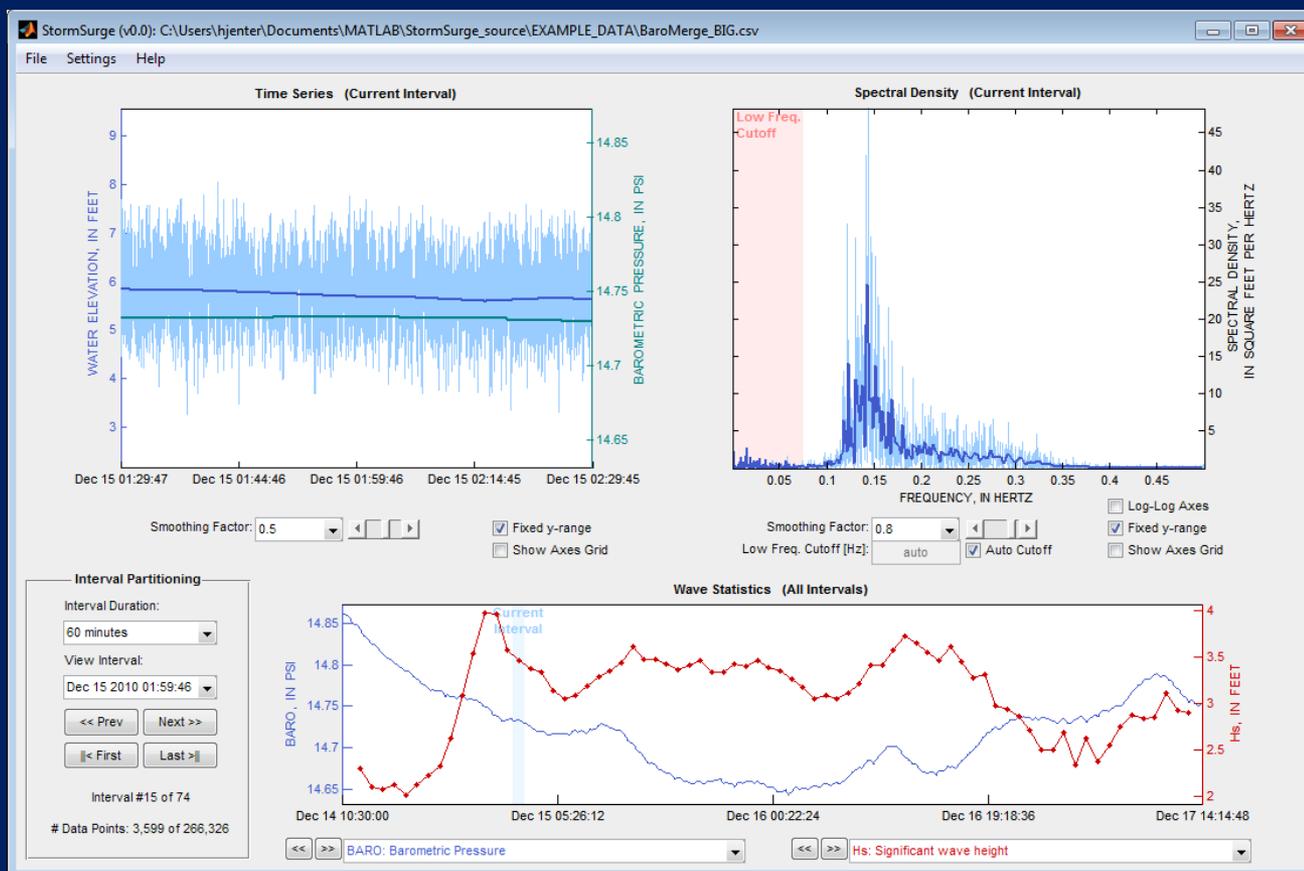
* Use of specific product names is for information purposes and does not imply endorsement by the USGS.

Data Processing

- Manufacturer-supplied software typically creates a CSV file
- CSV file is uploaded from the field along with relevant METADATA
- METADATA emphasizes compatibility with standards for USGS databases and broader standards for inter-institutional data exchange
- Python scripts are being written for:
 - Writing CSV data to CF- & ACDD-compliant netCDF files using NOAA NODC “orthogonal timeSeries” feature-type template
 - Preliminary QA/QC of pressure data based primarily on IOOS QARTOD standards
 - Conversion of pressure to water-level data
 - Separation of surge, wave and, when the timeseries is sufficiently long, tide data
 - Surge, wave and tide analysis
- Raw data and analysis products are distributed via the USGS Mapper websites.

Data Analyses

- MATLAB-based utility developed by Mike Lee, Sam Rendon, Joe Vrabel and Jeremy White, USGS TX Water Science Center



Deployment

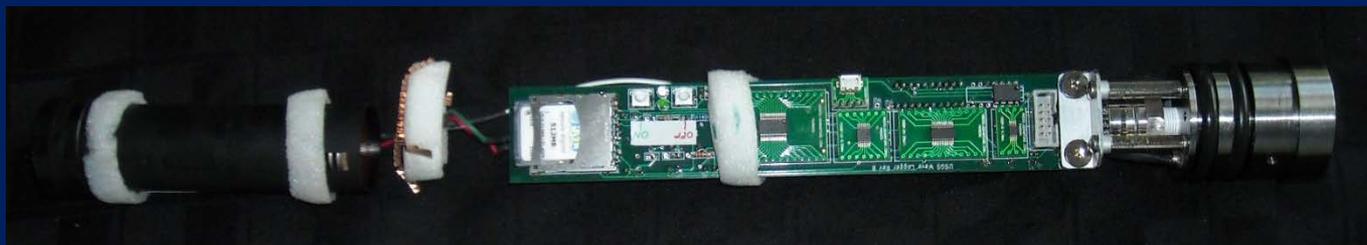


- Standard USGS crest-stage gage housing
- 2"-diameter aluminum pipe, custom length
- Open at the bottom
- Vented near the bottom
- Locked cap at the top
- Instrument deployed on pinned rod inside housing with transducer very near the open bottom
- Bottom of housing ≤ 18 " from sea bed
- Housing may be pre-installed or installed at instrument deployment (fouling, vandalism, ease of install etc...)
- Pre-surveyed reference point
- Beach & wetland housings will differ

USGS Prototype Sensor

- Collects temperature (at the transducer) and pressure
- 1.75"-diameter, 15" long, 3 lbs
- Stainless steel housing
- Inexpensive (≈\$500)
- Testing different depth ranges (Seeking 2cm accuracy @ full scale, all temperatures)
- Data stored on SD card
- Powered by 2 standard C-cell batteries (Clock uses coin-style battery)
- 33 days of sampling @ 4 Hz continuous (at least at room temperature)
- Configurable using HyperTerminal and micro-USB cable
- Self-diagnosing with LED indicator lights
- Instantaneous or delayed sampling start
- Data overwrite protection
- Currently testing benchtop, HIF and Stevens Institute of Technology wave tank
- Electronics are working superbly. Pressure transducers are tricky.

Here's what it looks like



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