**Explanation of variables in USGS Data Series 602 (May 2011)**
***Observations of Wave Runup, Setup, and Swash on Natural Beaches***
**By Hilary F. Stockdon[1] and Rob A. Holman[2]**
[1]U.S. Geological Survey, St. Petersburg Coastal and Marine Science Center
[2]Oregon State University, College of Oceanic and Atmospheric Sciences

Each experiment-specific file (*.runup.Stockdon2006.txt) contains:

**date** (yymmdd)

**time** (hhmm, GMT) – No times were available for Terschelling data.

**2% runup** (m) – calculated as the 2-percent exceedance value of discrete runup maxima

**setup** (m) – time average of water-level time series, relative to still-water level

**total swash** (m) – significant swash excursion, calculated from the power spectra density (psd) of the continuous water-level time series as 4*sqrt(∑psd(f)*df). This is equivalent to $4\sigma$, where $\sigma$ is the standard deviation of the time series.

**incident swash** (m) – calculated from the psd but limited to frequencies greater than 0.05 Hz

**infragravity swash** (m) – calculated from the psd but limited to frequencies less than 0.05 Hz

**significant wave height** (m) – wave height from local wave gages (see below) and subsequently reverse-shoaled to deep water using linear wave theory

**peak wave period** (s) – local wave period

**foreshore beach slope** (radians) – estimated from surveyed beach elevations in area of the foreshore defined by setup +/- $2\sigma$ .

Details can be found in: Stockdon, H.F., Holman, R.A., Howd, P.A., and Sallenger, A.H., 2006, Empirical parameterization of setup, swash, and runup: Coastal Engineering, v. 53, no. 7, p. 573-588.

Gage number and water depth for local wave heights that were reverse-shoaled to deep water.

| Site (experiments) | Wave gage | Water depth(meters) |
|---|---|---|
| Duck, NC (Duck82, Delilah, Duck94, SandyDuck) | FRF 630 | 18 |
| Scripps Beach, CA (Uswash) | see Holland and others (1995) | 7 |
| San Onofre, CA | CDIP 04501* | 10 |
| Gleneden, OR | CDIP35 | 11 |
| Terschelling, NL | see Ruessink and others (1998) | 15 |
| Agate Beach, OR | CDIP37 | 64 |

* No longer operational.