



US Army Corps
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Flood & Coastal Storm Damage Reduction R&D Program

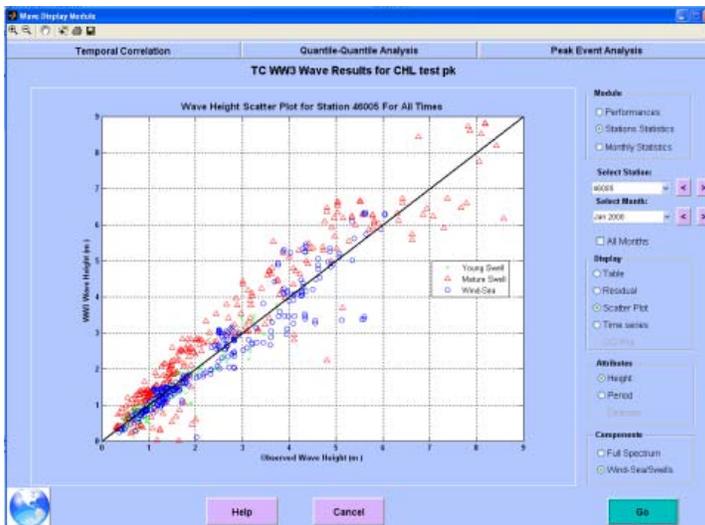
Interactive Model Evaluation and Diagnostics System (IMEDS)

Description

The Interactive Model Evaluation and Diagnostics System (IMEDS) is a custom GUI-driven toolbox for assessing coastal process model performance using a variety of error metrics. IMEDS statistically reduces millions of model estimates to a meaningful measure of prediction skill, retaining a sufficient level of detail to identify model strengths and deficiencies.

Benefits

IMEDS provides a robust, standardized approach to validating model performance. It allows various models to be evaluated with identical metrics and can synthesize model performance. IMEDS uses observation station data sets as ground truth and can read in most popular data formats (NODC, NOS, etc). The observation data are decomposed into a series of components, such as wind-sea, young swell, and mature swell for wave spectrum data. These are further broken down into specific data attributes, such as the height, period, and direction of each wave component. IMEDS computes the errors associated with each attribute as well as providing skill scores that span attributes, stations, and months.



Status

IMEDS will presently evaluate wind and wave model predictions. A storm surge module is currently under development.

Distribution Source(s)

Contact Jeffrey L. Hanson, Ph.D.: Jeffrey.L.Hanson@usace.army.mil

Available Documentation

Technical manuals, specs, users manuals, on-line tutorials, and other "How To" documentation.

IMEDS User Guide ([PDF download](#))
IMEDS User Guide ([html](#))

Hanson, J.L., B. Tracy, H. Tolman, and R. Scott. 2009. Pacific hindcast performance of three numerical wave models, *J. Atmos. Oceanic Technol.*, 26, pp.1614-1633.

Available Training As IMEDS is a new tool, a formalized training program does not yet exist.

Available Support Support center, commercial vendor, etc.
Email support by Jeffrey.L.Hanson@usace.army.mil

Application IMEDS users include the U.S. Army Engineer Research and Development Center (ERDC), USACE Wilmington and Philadelphia Districts, National Oceanic and Atmospheric Administration (NOAA) National Centers for Environmental Prediction (NCEP), and Oceanweather Inc. IMEDS has been used by the USACE Wave Information Studies (WIS) program to select an optimum wave model for use in a Pacific 30-year hindcast. IMEDS technology is currently being used by the NOAA Integrated Ocean Observing System (IOOS) program for automated real-time model assessments and is being enhanced by the Federal Emergency Management Agency (FEMA) for storm surge model validations in the Flood Insurance Rate Program.

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Additional information can be found at: <http://www.frf.usace.army.mil/morphos/>.

Partners ERDC, NOAA, FEMA, University of North Carolina