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WIND-WAVE-CURRENT TANK RESEARCH FACILITY
USAGE AND STATUS

by

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This summary is to provide information as to: (a) research activities, and (b) facilities status of the wind-wave-current tank research facility located at the GSFC/WFF.

Research Activities:

Our intention is simply to identify research activities so details of particular topics may be obtained from the investigators participating in each activity.

(1) Wave-Turbulence Interaction: N.E. Huang, S.R. Long, and D. Fry [David Taylor Modelling Basin (DTMB)]. New study for which investigatory experiments were conducted to test new turbulence generator and laser-Doppler anemometry measurement capability. Preprocessing of data was conducted on-site, and post-processing is being conducted at DTMB.

(2) Velocity Structure Below Waves: J. Papadimitrakakis (National Research Center), N.E. Huang and S.R. Long. A continuing study of water velocity in the near surface region, below surface waves; laboratory preparation complete.

(3) Short-Wave Modification by Long-Waves: J. Chu and O.M. Phillips (both from The Johns Hopkins University), N.E. Huang, and S.R. Long. A new study to investigate the effects of a packet of long waves on local wind generated wave field.

Experiments were conducted, and data are being analyzed at WFF.

(4) Wind-Wave Generation Time Scale: S.R. Long and N.E. Huang. Ongoing research to determine time scales involved with local generation of wind waves as a function of initial surface conditions being either a calm water surface or paddle generated background waves. Experiments were conducted, and data are being analyzed at the WFF.

(5) Wave-Current Interaction: N.E. Huang, S.R. Long, and R. Lai (David Taylor Modeling Basin). Ongoing investigation for which experiments were conducted to examine the strong interaction between currents and surface waves. Experiments have been conducted, and data have been analyzed at the WFF.

(6) Rain Effects on Microwave Scattering from the Sea-Surface: L. F. Bliven, G. Norcross (Computer Science Corporation) and J.-P. Giovanangeli [Institut de Mechanique and Statistique de la Turbulence (IMST)]. New investigation to measure and model modification of microwave signal from sea surface due to rainfall effects. Experiments and data analyses were conducted/scheduled for both the WFF and the IMST.

(7) Gas Exchange Rates versus Scatterometer Power: R. Wannikohf (Lamont-Doherty Geophysical Observatory), D. Glover (Woods Hole Oceanographic Institute) and L.F. Bliven. New investigation to derive empirical relationships between gas exchange rates and sea-surface scattered, radar-power levels. Experiment design was agreed upon.