

ACOUSTICS2008/1748
Low-frequency acoustic signature of hurricane Ernesto

James Traer^a, Peter Gerstoft^a, Laura Brooks^a, William Hodgkiss^b and David Knobles^c

^aMarine Physical Laboratory, Scripps Institute of Oceanography, 8602 La Jolla Shores Drive, La Jolla, CA 92093-0238, USA

^bScripps Institution of Oceanography, University of California, San Diego, La Jolla, CA 92093-0225, USA

^cApplied Research Laboratories, UT at Austin, P. O. Box 8029, Austin, TX 78713, USA

The ambient noise level variations produced by Hurricane Ernesto were observed by the SWAMI32, SWAMI52 and SHARK arrays as the storm passed over the SW06 shallow water site. Microseism signals were detected in the water column near 0.1 Hz and were tracked with a beamformer over a period of several days observing variations that were very closely linked to measured surface waves. 5-75 Hz beamforming showed a sound-field dominated by local surface-noise punctuated by brief surges of noise from distant sources. Beamforming and time-domain cross-correlations showed that changes in acoustic environment on the time-scale of hours occurred at all three arrays with good correlation in time and directionality suggesting the storm induced noise-field is homogeneous over many kilometers.