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The effects of the internal waves on the statistic characteristics of the sound fields in the 2001 ASIAEX South China Sea ExperimentLixin Wu^a, Jun Wang^b, Shaoqiang Wang^b, James Lynch^c and Timothy Duda^d^aNational Laboratory of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, NO.21, Bei-Si-huan-Xi Road, 100080 Beijing, China^bNational Lab. of Acoustics, Institute of Acoustics, Chinese Academy of Sciences, NO.21, Bei-Si-huan-Xi Road, 100080 Beijing, China^cWoods Hole Oceanographic Institution, 98 Water Street, Bigelow 203A, MS-11, Woods Hole, MA 02543, USA^dWoods Hole Oceanographic Institution, 98 Water Street, Bigelow 107, MS-12, Woods Hole, MA 02543, USA

Internal waves are one of primary sources of ocean variations in shallow water. The temporal-spatial stability of sound channel may be degraded by the activities of internal waves. We present analyses of statistic characteristics observed in acoustic signals transmitted by two 400Hz sources moored as part of ASIAEX 2001 South China Sea (SCS) experiment. One source was 31.3 km offshore from the receiving array, and the other was 20.6 km alongshore from the array. Time series of signal intensity measured at individual phones of a 16-element vertical line array and a 32-element horizontal line array. temporal-spatial correlations were observed from 2 May to 17 May 2001. The temporal-spatial decorrelation scales are closely related to internal wave properties. The largest internal wave, especially solitary wave packets, are the principal contributors to reduction of the temporal-spatial decorrelation scales. We also present elementary analyses of higher-order statistics (HOS), such as bispectrum, bicoherency coefficients, etc.