

climatology of ocean ambient noise using the IMS infrasound network

The ability of the International Monitoring System (IMS) global infrasound network to detect atmospheric explosions and events of interest strongly depends on station specific ambient noise signatures which include both incoherent wind noise and coherent infrasonic waves. Understanding the detectability of coherent noise in the frequency range of explosions is important for successfully applying infrasound as a verification technique. To characterize the ambient noise, broadband array processing has been performed on continuous IMS recordings since 2005 using a standardized fractional octave band schemas. Ocean wave interactions contribute to the atmospheric coherent ambient noise field. For the source term modelling, the operational ocean wave interaction model distributed by Ifremer has been updated to characterize coupling mechanisms at the ocean-atmosphere interface. The observed and modeled directional microbarom amplitudes at several IMS stations worldwide distributed are compared, accounting for both frequency dependent source and propagation effects. This study aims to build a global reference database to provide an improved knowledge-base on ambient ocean noise sources. In return, it opens new perspectives for enhancing the characterization of explosive atmospheric events as well as for providing additional constraints on middle atmosphere dynamics and disturbances in sparsely covered regions.

Primary author: LE PICHON, Alexis (CEA/CENTRE Ile-de-France)

Presenter: LE PICHON, Alexis (CEA/CENTRE Ile-de-France)

Track Classification: Data Processing and Station Performance