

infrasonic ocean ambient noise

The ability of the International Monitoring System (IMS) infrasound network to detect atmospheric explosions and events of interest strongly depends on station specific ambient noise which includes both incoherent wind noise and real coherent infrasonic waves. To characterize the coherent ambient noise, a broadband array processing was performed with IMS continuous waveform archive from 2007 to 2016 using the Progressive Multi-Channel Correlation algorithm (PMCC). The processing parameters include a new implementation of adaptive frequency dependent window length and a logarithmic band spacing. Such configuration allows to better discriminate between interfering signals with improved accuracy in the wave parameters estimations. Multi-year comparisons between the observed and modeled directional microbarom amplitude variations at several IMS stations using two-dimensional wave energy spectrum ocean wave products are performed to build of a reference database of infrasound oceanic sources. The expected benefits of such studies concern the use of multi-year complementary data to finely characterize coupling mechanisms at the ocean-atmosphere interface. In return, a better knowledge of the source of the ambient ocean noise opens new perspectives by providing additional integrated constraints on the dynamics of the middle atmosphere and its disturbances where data coverage is sparse.

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