

of very low frequency long term ocean ambient noise from CTBTO sites.

Long term ocean acoustic noise data from CTBTO sites at Wake Is., Ascension Is. and Diego Garcia, spanning periods of up to 15 years, have been analyzed through an effort sponsored by the US Office of Naval Research. Data were Fourier Transformed in 10-sec segments to provide noise spectra with a resolution of 0.1 Hz. Low-frequency spectrum level time series data were then examined for two purposes: (1) to identify long term statistical trends that might signal changes in climate, and (2) to identify natural or man-induced processes that drive observed fluctuations in noise spectral level. Noise levels at frequencies from 1 to 5 Hz appear relatively free of noise from shipping and marine life, and noise fluctuations in this band tend to be driven by natural processes such as wind, seismic activity and lunar and solar positions. Investigation of the statistical properties of the noise at very low frequencies, coupled with detailed modeling of low-frequency acoustic propagation, has resulted in confidence that the noise due to specific forcing functions, wind for example, can be isolated thereby allowing interpretation of the time change of oceanic sea noise. Propagation at these frequencies can be impacted by conversion to seismic/infrasound energy.

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