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Global Infrasound from Nonlinear Ocean Wave Interactions

Infrasonic microbarom signals are attributed to the nonlinear resonant interaction of ocean surface waves. IMS stations around the globe routinely detect these microbaroms with a dominant frequency of ~0.2 Hz from regions of marine storminess and in the wake of tropical storms. We have produced the predicted global microbarom source field for 2000-2010 from the WAVEWATCH III spectral wave model. The Climate Forecast System Reanalysis (CFSR) provides a continuous global wind dataset created by state-of-the-art numerical model and assimilation technique to construct a homogenous dataset in time and space at 0.5° resolution. The CFSR incorporates the numerous observed data into their product creating the most accurate and extensive dataset for forcing the wave model. The predicted microbarom field over Earth was used in conjunction with infrasonic observations to test long-range propagation algorithms and atmospheric specifications. Comparisons between predicted and observed global microbarom fields will be presented.

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