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Infragravity waves forced by surface wind waves in the central North Pacific Ocean

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Recent studies have suggested that infragravity long-waves forced by surface wind waves could generate significant pressure fluctuations on the seafloor for the frequency band 3-15 mHz (periods of about 70-330 s), and thus excite micro-seismic oscillations in the infragravity frequency band at almost every seismically quiet site in the world [Webb, 1998; Tanimoto, 2005]. The central North Pacific Ocean (98 deg. E - 112 deg. W, 67 deg. N - 47 deg. S) is one of the most active regions where this mechanism is believed to be predominant particularly in stormy winter [Rhie and Romanowicz, 2004]. A barotropic version of ROMS for theoretically derived infragravity wave generation terms [McWilliams et al., 2004] has been developed, and realistic simulations are being made of the forced infragravity waves due to the primary wind-wave field and seafloor pressure response in the Pacific for prediction of the seismic detection of the Earth's "hum". The experiments require wavenumber spectral data to evaluate the wave-averaged forcing terms. We have exploited reanalyzed spectral data provided by ECMWF and UCAR on a 1.5 degree geographical grid.