

Characteristic atmosphere and ocean interaction in the coastal and marine environment inferred from infrasound at Terra Nova Bay, Antarctica - observation and initial data -

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Characteristic features of infrasound waves observed in the Antarctic reveal physical interaction involving surface environments around the continent and Southern Ocean. In December 2015, an infrasound array (100 m spacing) by three sensors (Chaparral Physics Model 25, with a detectable frequency range of 0.1-200 Hz), together with a broadband barometer (Digiquartz Nano-Resolution Model 6000-16B Barometer, with a detectable frequency range of 0-22 Hz) were installed at Jang Bogo Staion, Terra Nova Bay, Antarctica by the Korea Arctic and Antarctic Research Program (KAARP). The initial data recorded by the broadband barometer contain characteristic signals originated by surrounding environment, including local noises such as katabatic winds. Clear oceanic signals (microbaroms) are continuously recorded as the background noises with predominant frequency around 0.2 s at the austral summer on December. Variations in their frequency context and amplitude strength in Power Spectral Density had been affected by an evolution of sea-ice surrounding the Terra Nova Bay. Microbaroms measurement is a useful tool for characterizing ocean wave climate, complementing other oceanographic, cryospheric and geophysical data in the Antarctic. Continuous infrasound observations in Terra Nova Bay attain a new proxy for monitoring environmental changes such as the global warming, involving cryosphere dynamics, as well as the volcanic eruptions in Northern Victoria Land, Antarctica.