

## 南極東ドロニングモードランドの地震探査で記録された 雪氷圏変動に関連した特徴的な波群記録

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## Characteristic Signals Associated with Cryosphere Dynamics by Seismic Exploration in Eastern Dronning Maud Land, Antarctica

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Characteristic seismic waveforms from various natural sources (teleseismic, local ice-quakes and unknown X-phases) are obtained by the deep seismic exploration in 2002 austral summer, at Eastern Dronning Maud Land, East Antarctica. Interesting features of the seismic wave propagation around Antarctica are significantly demonstrated. Anomalous behavior of the waves characterized by the focusing/defocusing effects is possibly caused by a valley structure beneath the stations located at the middle of the seismic profile. Several characteristics were identified by detailed spectra analyses. A difference of the response generated from the valley structure might exist for different kinds of incident waves: i.e. P-wave incidence on the valley results in a ‘frequency gap’ while on the other hand, S-wave incidence produces both the ‘gap’ and the ‘peak’ with a sufficient delay of the arrival-time. Although the origin of X-phases is not accurately identified, the most plausible candidates are an intra-plate earthquake or a large ice-quake (glacial earthquake) in the Antarctic. Maybe the pre-cursor vibration of the break-off process at the Larsen B Ice Shelf could be the most plausible candidate to cause the X-phases.