

地中レーダーを用いた南極沿岸部のフィロン層の観測

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Features of firm stratification in the coastal region of Antarctica detected from ground penetrating radar (GPR).

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The Japanese Swedish Antarctic Expedition 2007-2008, JASE, is a joint contribution to the International Polar Year. The tracked-vehicles-based expedition made use of two start points, the Japanese Syowa Station and the Swedish Wasa station in East Antarctica. The start took place in November 2007, aiming at a meeting point on the Polar Plateau. We carried out ground-based radar sounding of firm using a ground penetrating radar along a ~1800-km-long traverse route connecting a coastal site S16 (69°02'S; 40°03'E; 591 m), Dome Fuji (77°19'S; 39°42'E; 3810 m) and the JASE Meeting point (75°53'S; 25°50'E; 3661 m). We employed a GSSI-SIR3000 control unit and a 270MHz shield antenna (Model 5104). In the coastal region (<2000 m in elevation), we found that the isochronous layers were often traceable over long distances of hundreds of km. The coastal isochronous layers have significant undulations. We found that the bedrock topography create the surface undulations, which affect the spatial variations in surface mass balance (SMB), causing the undulations.