

## Radar characterization of the basal interface across the grounding zone of an ice-rise promontory in East Antarctica

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Radar power returned from the basal interface along a 42 km long profile over an ice-rise promontory and the adjacent Roi Baudouin ice shelf, Dronning Maud Land, East Antarctica, is analyzed to infer spatial variations in basal reflectivity and hence the basal environment. Extracting basal reflectivity from basal returned power requires an englacial attenuation model. We estimate attenuation in two ways: (1) using a temperature-dependent model with input from thermomechanical ice-flow models; and (2) using a radar method that linearly approximates the geometrically corrected returned power with ice thickness. The two methods give different results. We argue that attenuation calculated using a modeled temperature profile is more robust than the widely used radar method, especially in locations where depth-averaged attenuation varies spatially or where the patterns of basal reflectivity correlate with the patterns of the ice thickness.

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