Title: Synthetic Aperture Radar Auto Focusing Motion Compensation using Pulse Pair Processing for Ice Sounding

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Abstract:
An autofocusing motion compensation algorithm for ice sounding using synthetic aperture radar is developed. The algorithm extracts the necessary data by examining pulse pairs from a strong internal layer to find a phase difference. This phase difference gets converted to a velocity and integrated into a range correction. The range correction then is applied to the data and since the data is now in-phase, more coherent integrations can be performed. This algorithm was found to improve the signal to noise ratio for both simulated and real data cases.