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## Augmenting West Antarctic Weather and Climate Observations with an Expanded and Updated Ice Core Array

### Content

Antarctic weather and climate observations are inherently limited in time and space, presenting challenges for fully understanding observed variability and ongoing or emerging trends. In West Antarctica, where ice mass loss due to ice-ocean-atmosphere interactions is focused, a spatial array of decades- to centuries-long ice core records augments observations from Byrd Station (1957 - present) and automated weather stations. However, this ice core array is limited to inland regions above 1000 m elevation and is now out of date, having largely been collected in the late 1990s. This inland ice core network can easily be updated by returning to sites and recovering no more than 15 m of ice. The network can be expanded to low-elevation coastal regions near changing ice shelves by recovering on order 100 meter / 200+ year-long ice cores from ice rises, ideal areas of grounded ice punctuating the Pacific coastline of West Antarctica. Preliminary constraints on coastal snow accumulation over recent decades can be gained from analysis of high-frequency radar collected by NASA Operation IceBridge, and also inform selection of future coastal ice core sites which can provide records of temperature, wind, sea ice, and other environmental factors.

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