

Initial Observations and Inferences from New Field Work on Pine Island Ice Shelf

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A new field program has begun on the ice shelf fed by the Pine Island Glacier, West Antarctica. This glacier is experiencing dramatic thinning, acceleration, and retreat. The spatial pattern of change suggests the cause is related to interaction between the ice shelf underside and warm water from the Southern Ocean. Recent airborne geophysical data, satellite altimetry and optical imagery have been analyzed to both plan the field research and to formulate an initial interpretation of the ocean-ice interaction. Significant new acceleration has been documented and new satellite data identify rapid changes that suggest a highly dynamic and spatially variable sub-shelf environment. Field observations to be conducted in the coming seasons will measure profiles of ice thickness and water cavity depth, and basal melt rates. Automatic weather station and GPS data, along with webcam photographs will be transmitted daily from the ice shelf. Our report will include the most recent conditions from the ice shelf.