Application of GLIMMER-CISM to Pine Island Glacier

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We use a three-dimensional, first-order stress model to simulate the flow of Pine Island Glacier, West Antarctica. Observed, ice-surface velocities are used to tune the basal traction field used in the model. Several different traction-slip laws are employed including linear viscous and plastic ones. The resultant flow model is then used to simulate the effects of various ice shelf thinning and ground-line retreat scenarios. Although, the majority of the experiments to be reported use a fixed grounding line location, we conduct some initial experiments where small changes in grounding line location are allowed to occur and feedback into the geometry of the ice stream and, therefore, its flow dynamics.