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SeaRISE: Final Course Set

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SeaRISE (Sea-level Response to Ice Sheet Evolution) is a coordinated community modeling effort initiated in 2008 whose goal is to provide quantitative, upper bound estimates of ice sheet contributions to sea level for the 21st and 22nd century as input to the IPCC Fifth Assessment Report. To date, nearly a dozen models have been used to run a set of experiments designed to quantify the more extreme climate scenarios. Considerable effort has gone into standardizing the data sets used by all models for initialization and experiment runs. All models quantify their calculated ice sheet responses relative to a control run of the same model generated by holding modern climate fixed in the future. This "normalization" process will help minimize unrealistic aspects of any single model and attempt to further isolate the impact of the difference in forcing between the experiment and the control runs.

Recent collection of bed elevations in deep troughs of some of Greenland's most active outlet glaciers has warranted revisions of some of the earlier model experiments. Community discussion of meaningful experiments with realistic timetables has led SeaRISE to construct a final suite of sensitivity experiments. Ice sheet sensitivity to changes in basal lubrication, surface mass balance and basal melt along the underside of floating margins are all being addressed. This sampling strategy will be presented along with examples of previous experiment output. It is clear that different models, purporting to capture the same basic ice dynamics produce different results even though the input data are similar. This model variability will have to be addressed when projections of future ice sheet behavior are examined.