

## Study to Understand the Antarctic Ice Shelf/Ice Sheet Instability

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We conduct the future projection runs under the idealized and RCP scenarios using ISSM in David Glacier, East Antarctica. Uncovering the subglacial ridge near the grounding line in BedMachine simulation reduces a mass discharge compared to the Bedmap2 simulation. Model implementing new bed geometry is improved with reduced misfit of ice velocity on whole domain. Using snowfalls from CMIP5 CGCMs as SMB forcings of ISSM, the future projections upto 2100/2300 show that negative sea level contribution of regional Antarctic ice sheet changes from multi-model ensemble mean because snowfalls increase with time for all scenarios in most models in this region.