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PISM, a Parallel Ice Sheet Model (stable0.3 release)

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The PISM project provides an open source, well-documented, completely-parallel, high-resolution ice sheet model. It has these features: (1) a hierarchy of available stress balances, including shallow ice and shelf approximations, a hybrid of these, and a (planned) higher-order scheme, (2) verification and validation tools, (3) a polythermal, enthalpy-based conservation of energy scheme, (4) inversion of surface velocities (planned), and (5) extensible coupling to atmospheric and ocean circulation and climate models.

This year's stable release demonstrates the ability of PISM to model the whole Greenland ice sheet at uniform 2 km resolution, running on more than 200 processors using PETSc/MPI. The result is close approximation to present-day surface velocity measurements. Our poster shows preliminary results from the SeaRISE assessment of sea level rise, the application of PISM to the polythermal glacier Storglaciaren, and the application to the whole Antarctic ice sheet at high resolution. It also gives a quick reference "cheat sheet" for users of PISM.

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