

AN ICE STRENGTH IMPLICIT SUCCESSIVE CORRECTION SCHEME FOR THE VISCOUS-PLASTIC SEA ICE MODEL

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In traditional numerical simulations with the viscous-plastic sea ice model, under conditions of high compressive stress, a non-convergent solution is found. This can be attributed to unresolved ice strength velocity coupling. A successive correction scheme, to guarantee a fully coupled solution, is introduced. Continuity is recast in terms of ice strength, and is then solved in an iterative loop together with the momentum equation. Improvements to the solution are demonstrated with simple test cases and a full twenty year simulation of Arctic sea ice.