1116-86-315 **Till Wagner** and **Ian Eisenman***, 9500 Gilman Dr, La Jolla, CA 92093-0230. *How climate model complexity influences the sea ice stability.*

Two types of idealized climate models find bifurcations and associated instabilities during the retreat of sea ice under global warming: (i) latitudinally-varying annual-mean diffusive energy balance models (EBMs) and (ii) seasonally-varying single-column models (SCMs). Comprehensive global climate models, however, typically find no such instabilities. To bridge this gap, we develop an idealized model that includes both latitudinal and seasonal variations. The model reduces to a standard EBM or SCM as limiting cases in the parameter regime. We find that the stability of the sea ice cover vastly increases with the inclusion of spatial communication via meridional heat transport or a seasonal cycle in solar forcing, being most stable when both are included. This implies that the sea ice cover may be substantially more stable than has been suggested in previous idealized modeling studies. (Received August 24, 2015)