1125-37-231 **Kaitlin Hill*** (k-hill@u.northwestern.edu), 2145 Sheridan Rd M426, Evanston, IL 60208, and **Mary Silber**. *Characterizations of hysteresis in conceptual Arctic sea ice models.* Preliminary report.

As observations show Arctic sea ice extent decreasing with increased greenhouse gases, there is strong interest in whether there could be a bifurcation associated with the loss of Arctic sea ice, and whether there is significant hysteresis associated with that bifurcation. One challenge in answering this question is that the bifurcation behavior of certain Arctic sea ice models has been shown to be sensitive to how important physical processes, such as ice-albedo feedback, heat transport, and seasonal forcing are parameterized. We analyze a seasonally-varying model in the limit as a smoothing parameter associated with ice-albedo feedback tends to zero, and a minimal model which incorporates both spatial and seasonal variations. In the first model, we demonstrate that certain qualitative bifurcation behavior of the smooth system can have counterparts in the limit we consider, and we use this link to provide an alternative perspective on how physical processes in the model affect bifurcation behavior. In the second study, we explore how the parameterizations of several terms in a model, such as the ice-albedo feedback explored in the previous study, can affect the hysteresis behavior observed when the diffusion rate and the magnitude of the seasonal forcing vary. (Received August 15, 2016)