THE ROLE OF COUPLING IN INTERACTING TIPPING ELEMENTS

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Sudden and abrupt changes known as tipping points have been identified in many fields of science. Slow changes in an external forcing can force the system past a critical threshold, corresponding to the start of self-perpetuating positive feedbacks that cause tipping. Systems may be coupled such that if an upstream system tips, this may cause tipping of a downstream system, commonly referred to as a tipping cascade. Here we study the conditions for the propagation of tipping in an accelerating cascade, where the timescale of the downstream system is faster than that of the upstream system. Specifically, we consider how the type of coupling affects the dynamics of the coupled system.