

1163-37-884

Katherine J. Meyer*, kjmeyer@carleton.edu. *Bridging between continuous and discrete disturbances in ecological models*. Preliminary report.

To incorporate repeated disturbances into a differential equation (DE) model of ecological processes, one might embed the disturbance continuously in the DE or resolve the disturbance discretely using a flow-kick framework or impulsive DE. For example, do harvests from a logistic population appear continuously as $x' = x(1 - x) - h(x)$ or do individual harvests periodically kick the state x as it flows according to $x' = x(1 - x)$? Are fires always smoldering in a model savannah, or do they burn at discrete timepoints? In this talk we'll examine the dynamic implications of such modeling choices. We'll position continuous disturbances as limits of repeated, discrete ones, and discuss how the dynamics of a continuous disturbance model do and don't predict those of a flow-kick model. (Received September 13, 2020)