

## **INTRODUCTION TO NONAUTONOMOUS SYSTEMS**

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I will introduce some concepts used to understand the behaviour of nonautonomous dynamical systems, such as differential equations with time dependent forcing. These have a parameter that changes with time in a deterministic but not necessarily recurrent or stationary manner. Focussing especially on systems that are asymptotically autonomous, the asymptotic dynamics can be connected in nontrivial ways to the nonautonomous dynamics and nonautonomous instabilities (tipping points) may appear through various mechanisms, including breakdown of an adiabatic approximation. I will discuss the relevance for modelling some of the process interactions underlying climate tipping points.