# Filtering with misspecification in the Lorenz-63 System

$$\frac{dx}{dt} = \sigma(y-x), \quad \frac{dy}{dt} = x(\rho-z)-y, \quad \frac{dz}{dt} = xy - \beta z$$
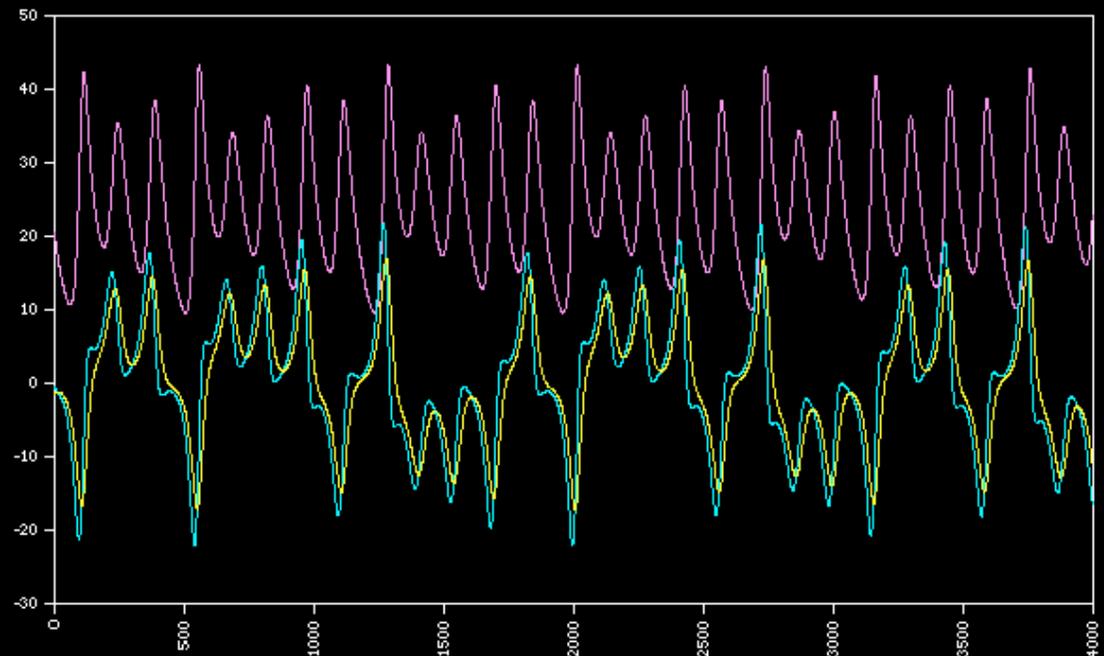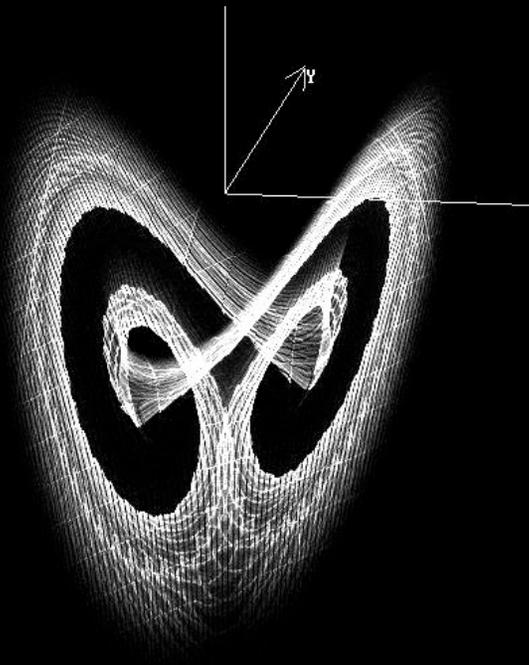
Steps to check misspecification of filter

1) Simulate Lorenz system with several different parameters and noise

2) Fit a filter (possibly several with different settings) to the data

3) Compare the fit to the system as well as forecasting performance at difference forecasting lengths

4) Repeat for various training lengths

5) Repeat process many times and average

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