

Supplementary Presentation 4 Evaluation method

To evaluate the experimental results, we use the relative predictive error, which is computed at each time step t via Eq. 1:

$$\text{Predictive error} = \|\mathbf{F}_t - \hat{\mathbf{F}}_t\|_2 / \|\mathbf{F}_t\|_2 \quad (1)$$

where \mathbf{F}_t represents true state, $\hat{\mathbf{F}}_t$ represents predictive state. In EKATP model and KAE model (Azencot et al. 2020), we average the errors over 30 different initial observations, where the shaded areas represent the ± 1 standard deviations.

P.S. Our code is available at <https://github.com/suranl/EKATP>

Reference:

Azencot, O., N. B. Erichson, V. Lin and M. Mahoney (2020). Forecasting sequential data using consistent Koopman autoencoders. International Conference on Machine Learning.