ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Data Assimilation for Nonlinear Dynamical Systems

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ABSTRACT

Data assimilation serves multiple purposes, including estimating the optimal state of a model and the initial state of a system for predicting its future state. This technique combines prior information from numerical model simulations with observed data to produce the most accurate description of a dynamical system and its uncertainty. While already being widely used in numerical weather forecasting, data assimilation is increasingly employed in various aspects of climate, atmospheric, marine, and environmental modeling. Data assimilation methods are designed to achieve the best possible use of a never sufficient amount of data, and to attain an efficient data-model fusion, in a short period of time. By evaluating the nonlinear dynamical model with ensemble filters, we assess the accuracy and reliability of the model predictions, and identify any areas where improvements may be needed. This can help to ensure that the model is robust. However, achieving this objective presents a formidable computational challenge, making data assimilation an example of a big-data problem.

We hope to see you there!