Special Issue

Efficient Formulation and Implementation of Data Assimilation Methods

Message from the Guest Editors

Dear Colleague Data Assimilation is the process by which imperfect numerical forecasts are adjusted according to real, noisy observations. In general, two families of methods are well-known in the data assimilation context: variational- and ensemble-based methods. In variational methods, the posterior mode of the error distribution is sought while moments of the underlying error distributions are estimated when ensemble methods are utilized. In practice, the number of model runs is limited to a few and therefore, the moments and modes of high-dimensional probability distributions involved during the assimilation can be difficult. In recent years, the scientific community has centered its efforts on providing assimilation schemes wherein, information brought by ensemble members and optimization features of variational methods are exploited in order to reduce the impact of sampling errors over innovations and to provide efficient and practical implementations of robust data assimilation methods.

Guest Editors

Dr. Adrian Sandu

Dr. Elias D. Niño-Ruiz

Dr. Haiyan Cheng

Deadline for manuscript submissions

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Atmosphere
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
atmosphere@mdpi.com

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Message from the Editor-in-Chief

Continued developments in instrumentation and modeling have driven atmospheric science to become increasingly more complex with a deeper understanding of concepts, mechanisms, and interactions. This is the field that innovation built and it has led to a better appreciation for the complexity with atmosphere. Human life is intertwined in this complexity as we strive to better understand our atmosphere. Climate change is constantly stretching the limits of our thinking and forcing new ideas and concepts to be played out. Welcome to the Anthropocene!

Editor-in-Chief

Dr. Daniele Contini
Institute of Atmospheric Sciences and Climate (ISAC), National Research Council (CNR), Str. Prv. Lecce-Monteroni km 1.2, 73100 Lecce, Italy

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