Special Issue

Nonlinearities, Turbulence and Chaos in Space and Earth Systems

Message from the Guest Editors

The aim of this Special Issue is to collect recent studies on dynamics of turbulent fluids and plasmas, chaos, and general nonlinear properties of Space and Earth systems. It is well known that the majority of terrestrial and space (magneto)fluids involve nonlinear dynamics in the exchanges of energy bringing to a turbulent behavior, multifractal scalings, and chaos. In these systems, either homogeneous or inhomogeneous, nonlinearities can dramatically modify the properties of the system under examination and strongly influence the transport dynamics, dissipation properties, and other characteristics of the medium. Such dynamics is of fundamental importance for explaining the evolution of solar and stellar magnetofluids, sustaining of the stellar and planetary magnetic fields (dynamo effect), the fluid–structure interactions in rivers and oceans, floods, and phenomena relevant for atmospheric and ocean physics. This Special Issue aims to gather original research, review, and state-of-the-art articles focused on turbulent and nonlinear phenomena using theoretical, experimental, and numerical approaches.

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Deadline for manuscript submissions

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About the Journal

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

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