Special Issue

Links between Solar Activity and Atmospheric Circulation

Message from the Guest Editor

The Sun is the ultimate source of energy for the terrestrial atmosphere. Solar activity is a set of non-stationary phenomena and processes in the Sun's atmosphere connected to changes in solar magnetic fields. Studies of the relationship between solar activity and atmospheric processes are of great importance to understand the causes of the Earth's climate variability and to predict its future evolution. Recently, a large number of experimental data have been obtained testifying to the reality of solar–atmospheric links. The possibility of solar contribution to atmospheric processes is currently actively debated. However, the mechanism of solar effects on the atmosphere is likely complicated and can include a set of physical agents, such as cosmic ray flux, visible and ultraviolet solar irradiance, and interplanetary magnetic fields. Moreover, the connection between solar activity and the atmospheric processes likely changes with time: it may weaken and even disappear depending on the time interval. That is why clarification of the physical mechanism of solar influence on atmospheric processes requires further systematic efforts of many researchers.

Guest Editor

Dr. Maxim G. Ogurtsov
Laboratory of Cosmic Ray Physics, Ioffe Physico□Technical Institute of Russian Academy of Sciences, 194021 St. Petersburg, Russia

Deadline for manuscript submissions

closed (30 June 2021)

Atmosphere

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.9

mdpi.com/si/69668

Atmosphere
Editorial Office
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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