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Countries participating in TOSCA

BE BU CR CZ DE
FI FR DE GR HU
IS IT NO RO RU
SP CH UK

How to join TOSCA

There is no limit to the number of participants in a COST action such as TOSCA. Most of the funding is devoted to networking activities and to short-term scientific missions. You are welcome to get involved: please contact the action chair, see below.

Contact

For more information, please contact

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Towards a more complete assessment of the impact of solar variability on the Earth's climate

COST Action ES1005

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TOSCA in a nutshell

TOSCA is a European **COST** action linking scientists working on the influence of the Sun on the Earth's climate. This is a multidisciplinary topic of considerable scientific and societal importance. However, the mechanisms that link solar activity and climate change are not yet fully understood. TOSCA's aim is to shed more light on the mechanisms involved.

TOSCA offers expertise in the science and the modeling of solar radiative forcing, inter-planetary perturbations, impact of energetic particles and lower atmospheric layers.

This action is funded by **COST** (*Cooperation in Science and Technology*), which is an intergovernmental framework allowing the coordination of nationally-funded research on a European level.

Only an international network of scientists from multiple disciplines can address such a complex and hotly debated issue. The TOSCA action in particular aims at assessing the contributions of solar variability to the Earth's climate by bringing together a range of disciplines such as solar physicists, space scientists, atmospheric scientists, climate modellers and paleo-climatologists. The action started in June 2011 and will run until May 2015.

The Sun as a variable star influences the Earth in many different ways.

Understanding the influence of the Sun on the Earth's climate requires knowledge of solar variability, Sun-Earth interactions, and the response of the Earth's climate system.

Many timescales
Solar storms affect the Earth on short timescales from minutes to days. Longer-term variations of solar radiation and magnetic field affect the Earth's environment on scales from years to hundreds of years.

Many mechanisms
These variations modify the electrical and magnetic environment of the Earth, influence the chemistry in different atmospheric layers, and change their physical characteristics, eventually affecting climate. Some of these mechanisms are well-quantified, but most are still poorly understood.

Many effects
Solar radiation reaching the surface is being extensively studied. But even the smallest changes in the Sun-Earth connection can potentially affect the fragile balance of our climate system.

TOSCA integrates knowledge across a large number of disciplines from solar physics to atmospheric sciences.

TOSCA is a European action that brings together scientists from different communities.

We address a scientific challenge: understanding the complex interplay of mechanisms by which the Sun affects the Earth's climate.