

## Preface

# Solar, heliospheric and external geophysical effects on the Earth's environment: scientific and educational initiatives

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This special issue is devoted to scientific and educational issues concerning “Solar, heliospheric and external geophysical effects on the Earth’s environment”. Traditionally there has been a divide between scientific papers and those papers dedicated to educational aspects regarding a scientific subject. As a consequence, papers are in general published in journals dedicated to one or the other type – “scientific or educational”. The aim of this special issue is to show that scientific and educational papers can complement each other well when published together, offering the reader an interdisciplinary approach to the subject matter being covered.

The papers collected in this special issue are based both on presentations given at the EGU06 session ST5.8 “Solar, heliospheric and external geophysical effects on ecosystems”, as well as on work performed under the umbrella of the four-year Coupling of Atmospheric Layers (CAL) research training network project. CAL was funded by the European Commission within the Marie Curie Actions to study unanswered questions relating to transient luminous events (TLEs), such as sprites, and their effects on the atmosphere. More specifically, CAL concerned thunderstorms, electrical and space radiation effects in the stratosphere, mesosphere and lower thermosphere. The research was also aimed at studying the relation of TLEs to various aspects of the atmospheric system, and thus the Earth’s climate. CAL consisted of ten scientific work-packages as well as one dedicated to the CAL training program and one to the CAL outreach program.

The editorial team listed below would like to thank “Advances in Geosciences” for agreeing to publish this special issue. We thank all the authors of the papers submitted for their motivation and enthusiasm. Finally, special thanks go to the manuscript reviewers for their precious time and important feed-back, the result being very successful papers which, we trust, will interest the community.

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This special issue is dedicated to the CAL project which ended on 31 October 2006, where not only science was emphasized, but so also were training and outreach activities.

**N. B. Crosby and M. J. Rycroft**

*Special Volume Editors*

### Outline

- Crosby, N. B. and Rycroft, M. J.: Solar, heliospheric and external geophysical effects on the Earth’s environment: Scientific and educational initiatives [Editorial introduction to special volume]
- Chanrion, O., Crosby, N. B., Arnone, E., Boberg, F., Van der Velde, O., Odzimek, A., Mika, A., Enell, C.-F., Berg, P., Ignaccolo, M., Steiner, R., Laursen, S., and Neubert, T.: The EuroSprite2005 Observational Campaign: an example of training and outreach opportunities for CAL young scientists
- Bennett, A. J. and Harrison, R. G.: A simple atmospheric electrical instrument for educational use
- Harrison, R. G. and Bennett, A. G.: Multi-station synthesis of early twentieth century surface atmospheric electricity measurements for upper tropospheric properties
- Arnone, E., Berg, P., Arnold, N. F., Christiansen, B., and Thejll, P.: Impact of regional stratopause ozone perturbations on global climate compared to equivalent uniformly distributed forcing
- Kovaltsov, G. A. and Usoskin, I. G.: Regional cosmic ray induced ionization and geomagnetic field changes
- Kasatkina, E. A., Shumilov, O. I., and Krapiec, M.: On periodicities in long term climatic variations near 68° N, 30° E