



UNIVERSITÀ
DEGLI STUDI
DELL'AQUILA

ISTITUTO NAZIONALE
DI GEOFISICA E VULCANOLOGIA



INAF
ISTITUTO NAZIONALE
DI ASTROFISICA



DSFC
Dipartimento
di Scienze Fisiche
e Chimiche



e-SWAN
EUROPEAN SPACE WEATHER
AND SPACE CLIMATE ASSOCIATION



IUGG
Union Géodésique et Géophysique Internationale



CONSORZIO
AREA DI RICERCA IN
ASTROGEOFISICA



IAGA



SWICO
Space Weather Italian Community



SCOSTEP
Scientific Committee on Solar-Terrestrial Physics



ESA



ISEE
Institute for
Space-Earth Environmental Research



NAGOYA
UNIVERSITY

SCHOOL ON

CROSS-SCALE COUPLING OF HELIOPHYSICS SYSTEMS

12-16 MAY 2025 L'AQUILA - ITALY

Foto: Palazzo Ardinghelli (L'Aquila)



INTERCONNECTION BETWEEN THE SUN SYSTEMS AND SOLAR WIND

L. Bellot Rubio (Instituto de Astrofísica de Andalucía, Spain)

“Mesoscale transport and evolution of solar magnetic flux”

N. Viall (NASA - GSFC, USA)

“Open questions in the connections between different layers of the solar atmosphere”

M. Janvier (TBC) (ESTEC - ESA, The Netherlands)

“The links among the Sun systems: flares, CMEs, and solar winds”

SOLAR WIND INTERACTION WITH EARTH'S MAGNETOSPHERE AND DAYSIDE DYNAMICS

M. Palmroth (University of Helsinki, Finland)

“Challenges in fluid, hybrid, and kinetic simulation of Heliophysics phenomena”

H. Hietala (Queen Mary University of London, UK)

“Transient ion foreshock and magnetosheath phenomena”

C. Forsyth (University College London, UK) (TBC)

“Cross-Scale Couplings in the Solar Wind-Magnetosphere Interactions”

SOLAR WIND: FORMATION, PROPAGATION, AND PROPERTIES

L. Matteini (TBC) (Imperial College London, UK)

“Multiscale nature of the solar wind” (TBC)

S. Yardley (Northumbria University, UK)

“Highly structured solar wind: multi-source connectivity”

S. Di Matteo (CUA / NASA - GSFC, USA)

“Solar wind mesoscale structures: properties and geo-effectiveness”

DYNAMICS OF THE ACTIVE MAGNETOSPHERE

M. Gkioulidou (JHU/APL, USA)

“Mesoscale structures and processes during geomagnetic storms”

I. Daglis (University of Athens, Greece)

“Cross-scale processes in radiation belt dynamics”

M. Grandin (Finnish Meteorological Institute, Finland)

“Mesoscale processes in magnetosphere-ionosphere coupling” (TBC)

COMMUNITY BUILDING AND NETWORKING

M. Romoli (Università degli Studi di Firenze, Italy)

“Overview of remote sensing instruments”

S. Livi (Southwest Research Institute, USA)

“Overview of in situ instruments”

The School is primarily supported by:

Università degli Studi dell'Aquila, Department of Physical and Chemical Sciences (UNIVAQ), Istituto Nazionale di Geofisica e Vulcanologia (INGV), Consorzio Area di Ricerca in Astrogeofisica, Space Weather Italian Community (SWICO), Fondazione Carispaq, Istituto Nazionale di Astrofisica (INAF), European Space Weather and Space Climate Association (E-SWAN), European Space Agency (ESA), International Union of Geodesy and Geophysics (IUGG), International Association of Geomagnetism and Aeronomy (IAGA), Scientific Committee on Solar-Terrestrial Physics (SCOSTEP), Institute for Space-Earth Environmental Research (ISEE).

School Secretariat: info@astrogeofisica.it

Board of Directors:

Ioannis Daglis (University of Athens, Greece) iadaglis@phys.uoa.gr

Simone Di Matteo (CUA / NASA - GSFC, USA) dimatteo@cua.edu

Marco Romoli (Università degli Studi di Firenze, Italy) marco.romoli@unifi.it

Local Organizing Committee:

Giulia D'Angelo (Università degli Studi dell'Aquila, Italy)

Anna Rita Leone (School Secretariat)

Stefania Lepidi (Istituto Nazionale di Geofisica e Vulcanologia, L'Aquila)

Mirko Piersanti (Università degli Studi dell'Aquila, Italy)

SCHOOL RATIONALE

The school will serve as a comprehensive introduction to the emerging need to understand the inter-connectivity of heliophysics systems mediated through cross-scale processes. The lectures will cover the main heliophysics regions discussing the corresponding macro (system size) scales, micro (kinetic) scales, and the mesoscale processes mediating cross-scale coupling, as well as discuss the interconnection between the different systems. This course aims at providing an overview of cutting-edge fundamental research of “system of systems” phenomena in heliophysics in terms of observations and modeling capabilities. A particular section will be dedicated to highlighting the current coordination and networking efforts among the international community on this topic. This school is addressed to graduate students, young scientists as well as undergraduates in heliophysics, space plasma physics, planetary sciences, or related fields. Early-career stage professionals are invited to apply as well.

GENERAL INFORMATION

The School will be held in L'Aquila, Italy, at the Università degli Studi dell'Aquila.

Applications, including a brief curriculum vitae, are due before 16 March, 2025.

See the website <https://www.astrogeofisica.it/cchs/> for details.

Applications will be evaluated by the Board of Directors of the School, after which all applicants will be notified by e-mail.

The registration fee of 1000 Euros includes board and lodging in shared double rooms at nearby hotels and B&Bs. Some financial support will be available for a limited number of students on request. The payment conditions will be communicated via email to applicants who receive positive evaluation.

School Secretariat c/o Dipartimento di Scienze Fisiche e Chimiche, Università degli Studi dell'Aquila (Italy). **e-mail: info@astrogeofisica.it**

Website: <https://www.astrogeofisica.it/cchs>