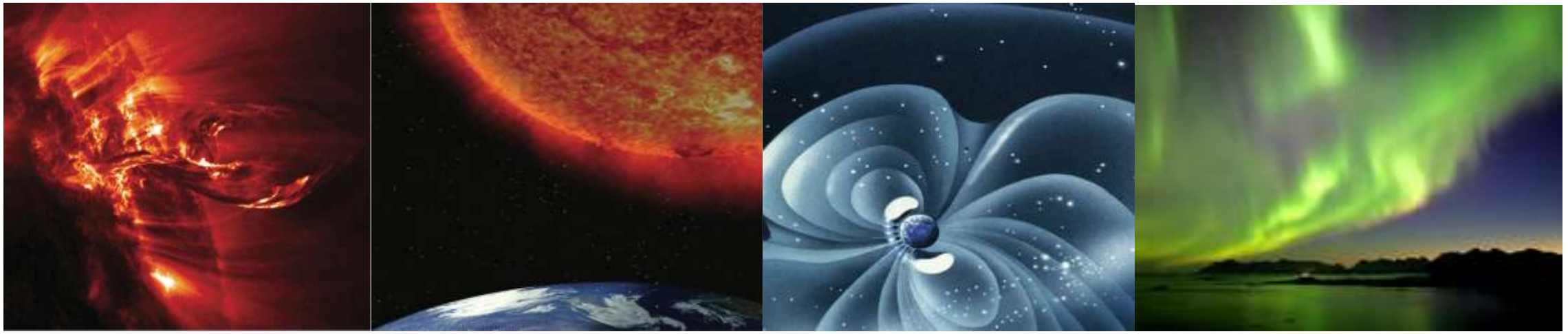
The Space Weather Italian Community organization (SWICo)

U. Villante[1], F. Berrilli[2], M. Casolino[3], G. Consolini[4], S. Lepidi[5], M. Messerotti[6], R. Tozzi[5], F. Zuccarello[7]

[1] Università dell'Aquila
[2] Università di Roma "Tor Vergata"
[3] Istituto Nazionale di Fisica Nucleare
[4] INAF-Istituto di Astrofisica e Planetologia Spaziali
[5] Istituto Nazionale di Geofisica e Vulcanologia
[6] INAF-Osservatorio Astronomico di Trieste
[7] Università di Catania

SWICo
Space Weather Italian Community

http://www.swico.it/



SWICo
Space Weather Italian Community

SWICo "Space Weather Italian Community"

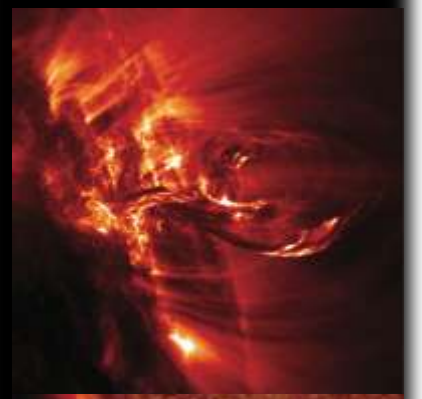
A scientific organization of scientists and professionals established in 2014

Missions of SWICo:

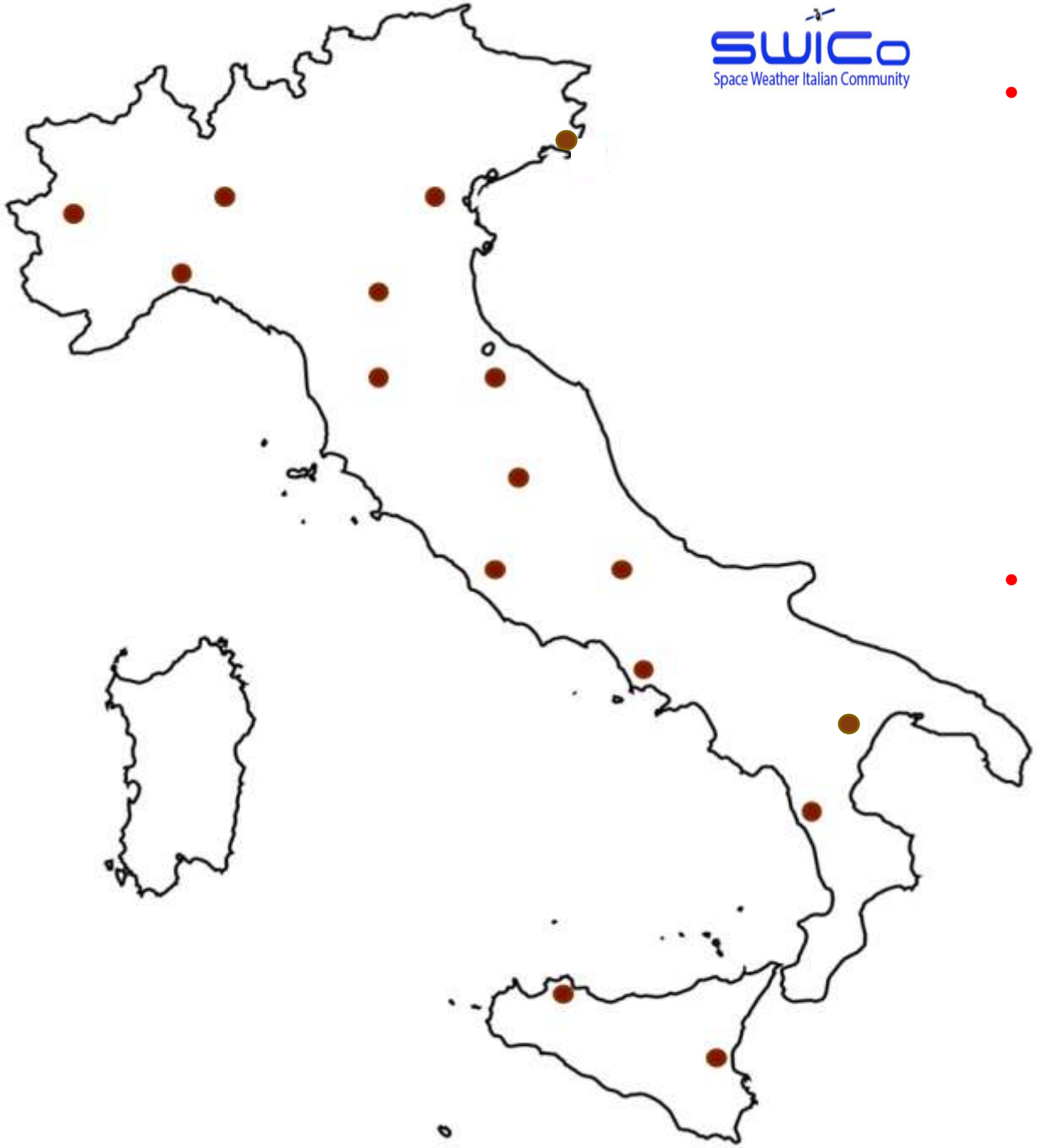
- The development of scientific and technological research in the fields of Space Weather and Space Climate: space physics, cosmic rays, physics of the Sun and the solar wind, physics of the magnetosphere, geomagnetism, physics of the ionosphere and thermosphere, as well as all related fields and applications.
- The educational, specialization and professional qualification activities in related fields.

SWICo aims to promote:

- The scientific collaboration among members and between the related Institutions, as well as between other national and international research and technological Institutions;
- The activation of PhDs courses, advanced training courses, post-graduate and post-doctoral courses;
- The exchange of instrumentation and the development of common general services such as the coordination of observational networks and forecasting studies;
- The transfer of knowledge and technologies to the user community;
- The exchange of scientific information through conferences and meetings.




SWICo
Space Weather Italian Community



- SWICo is presently constituted by almost 130 members working in Research Institutes, Universities, Industries and Services well distributed across the Italian territory (personal afference, from PhD students to retired scientists and professors).

- The scientific activities are developed by Universities and Research Institutes; SWICo aims to promote the coordination, the development of common facilities, services and netwotks, the common participation to national and international programs.

SWICO members are from:

Aeronautica Militare
ALTEC – Aerospace Logistics Technology Engineering Company
ASI – Agenzia Spaziale Italiana
CNR-IFN – Istituto di Fotonica e Nanotecnologie
CNR-ISC – Istituto di Sistemi Complessi
CNR-ISC – Istituto di Sistemi Complessi
CNR-NANOTEC – Istituto di Nanotecnologia
CNR-SPIN – Istituto Superconduttori, Materiali Innovativi e Dispositivi
E-GEOS
ICTP – Abdus Salam International Centre for Theoretical Physics
INAF-IAPS – Istituto di Astrofisica e Planetologia Spaziali
INAF-IASF – Istituto di Astrofisica Spaziale e Fisica Cosmica
INAF-OAA Osservatorio Astrofisico Arcetri
INAF-OACN – Osservatorio Astronomico di Capodimonte
INAF-OACT – Osservatorio Astrofisico di Catania
INAF-OAR – Osservatorio Astronomico di Roma
INAF-OATO – Osservatorio Astrofisico di Torino
INAF-OATS – Osservatorio Astronomico di Trieste
INFN – Istituto Nazionale di Fisica Nucleare
INGV – Istituto Nazionale di Geofisica e Vulcanologia
TELESPAZIO
UNICAL – Università della Calabria
UNICT – Università di Catania
UNIFI – Università di Firenze
UNIGE – Università di Genova
UNINETTUNO- Università Telematica Internazionale
UNIPA – Università di Palermo
UNIPD – Università di Padova
UNITOV – Università di Roma "Tor Vergata"
UNIURB – Università di Urbino
UNIVAQ – Università dell'Aquila

Scientific activities presented in other contributions

SWICO ORGANIGRAM

President (presidente@swico.it):

U. Villante – Dipartimento Scienze Fisiche e Chimiche, Università dell'Aquila

Directive board (cd@swico.it):

F. Berrilli – Dipartimento di Fisica, Università "Tor Vergata".

M. Casolino – Istituto Nazionale di Fisica Nucleare – Sezione Roma "Tor Vergata".

G. Consolini – INAF, Istituto Astrofisica e Planetologia Spaziali

S. Lepidi – Istituto Nazionale di Geofisica e Vulcanologia

M. Messerotti – INAF, Osservatorio Astronomico, Trieste

R. Tozzi – Istituto Nazionale di Geofisica e Vulcanologia

F. Zuccarello – Dipartimento di Fisica e Astronomia, Università di Catania

Short Summary of Activity (2014-2018)

Meetings with the Presidents of ASI, CNR, INAF, INFN, INGV

Website SWICO (http://www.swico.it/)

Page Facebook SWICO

1. “Giornate SWE”, Telespazio (2/7/2014).

2. SWICo cooperated to several national and international programs, such as:
   - ESA: SPACE SITUATIONAL AWARENESS PROGRAMME - List of assets potentially available in Italy.
   - PROTEC-1-2014: Space Weather H2020 - Definition of the Italian role in the Protection of European assets in and from space related to the Space Weather.
   - SPIN IT, Space Innovation in Italy (WP 2016-2017 contribution to H2020), the technological platform dedicated to Space, created to promote innovation and strengthen the Italian presence in international programs of applied research.
   - PNRM–SunriSe: a program coordinated with industries and services for the deployment of a prototype of SW system for an operating service at National level.

SWICo and outreach

Inputs to the
ESA SWWT Steering Board

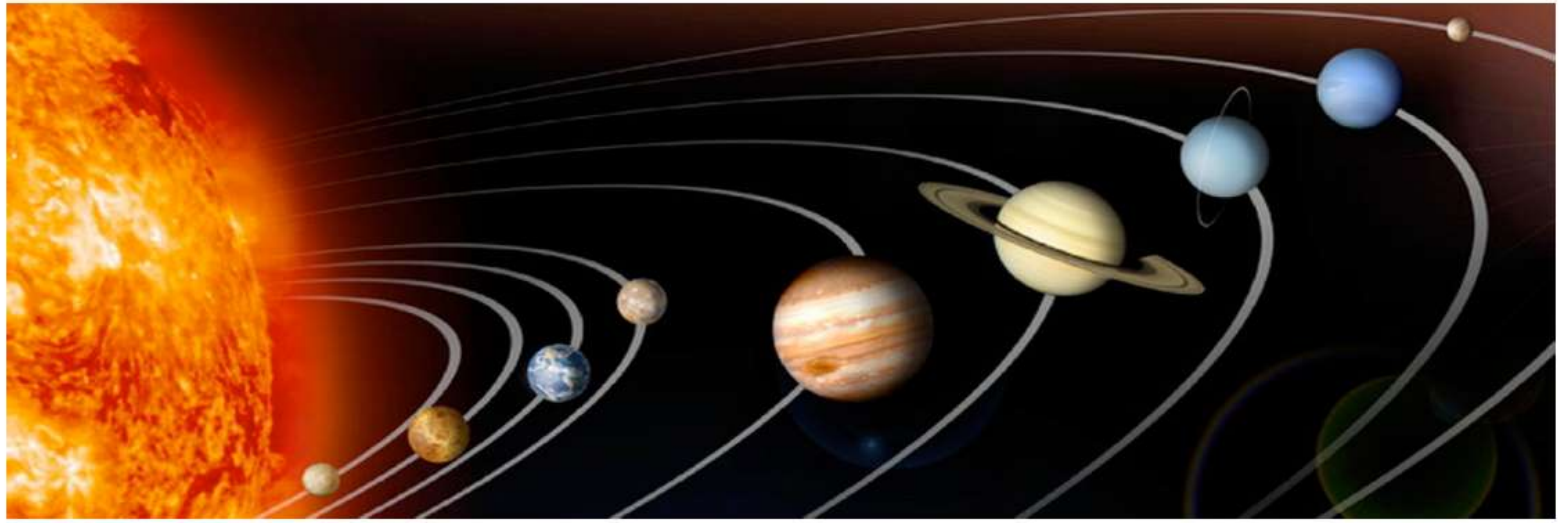
MAURO MESSEROTTI
INAF-Astronomical Observatory of Trieste, ITA
Dept. of Physics, University of Trieste, ITA

SWICO
Space Weather Italian Community

More recent activities
in cooperation with other Institutions

Cooperation with the ASI Space Weather Working Group

Italy's Roadmap towards Space Weather Science



Christina Plainaki and the ASI Space Weather Working Group

Workshop Italy's Roadmap Towards Space Weather Science
ASI HQ, 18 December 2018

The ASI Space Weather Working Group

The ASI SW WG gathers 17 Experts from different National Institutions and Organizations, including ASI, INAF, INFN, INGV, Aeronautica Militare (Air Force), Università degli Studi di Perugia, Università degli Studi di Tor Vergata, Università degli Studi di Trento.

The current composition of the ASI SW WG is the following (in alphabetical order):

1. Antonucci Marco, *Aeronautica Militare Italiana*
2. Bemporad Alessandro , *INAF-OATo*
3. Berrilli Francesco, *UNITOV*
4. Bertucci Bruna, *UNIPG*
5. Castronuovo Marco, *ASI/EOS*
6. De Michelis Paola, *INGV*
7. Giardino Marco, *ASI/SSDC*
8. Iuppa Roberto, *UNITRENTO*
9. Laurenza Monica, *INAF-IAPS*
10. Marcucci Federica, *INAF-IAPS*
11. Messerotti Mauro, *INAF-OATs*
12. Narici Livio, *UNITOV*
13. Negri Barbara, *ASI/EOS*
14. Nozzoli Francesco, *INFN-TIFPA*
15. Orsini Stefano, *INAF-IAPS*
16. Plainaki, Christina, *ASI/URS*, Group Coordinator
17. Romano Vincenzo, *INGV*

asi agenzia spaziale italiana

Unità di Esplorazione e Osservazione dell'Universo

Unità di Ricerca Scientifica

Space Science Data Center

SWICO Space Weather Italian Community

The Italian Space Weather Community (SWICO) is vastly represented within the WG hence contributing at large in the creation of the Roadmap's first version.

Cooperation with IAGA-ITALY

Relevant participation
of the SWICo community to:

Outreach activity

In cooperation with

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

Director: Prof. Umberto Villante

several schools have been organized

CONSORZIO INTERUNIVERSITARIO PER LA FISICA SPAZIALE

UNIVERSITA' DEGLI STUDI DELL'AQUILA

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

1st Solar Orbiter Summer School

"Towards a Deeper Understanding of the Sun and the Heliosphere with Solar Orbiter"

L'Aquila, September 22–25, 2014

Programme and Lecturers

OBSERVING THE SUN AND THE HELIOSPHERE WITH SPACE MISSIONS

L. Colangeli (ESA, Head of the Coordination Office for the Scientific Programme)
Solar Orbiter within the ESA science programme

L. Gholkhberte (NASA, Lead Program Scientist for LWS)
Solar Orbiter within the NASA heliophysics programme

M. Saleté (ASI, Unit for Exploration and Observation of the Universe)
Solar Orbiter within the ASI programme

D. Müller (ESA, Solar Orbiter Project Scientist)
Solar Orbiter Science Overview: Linking the Sun and Inner Heliosphere

SCIENCE FROM IN-SITU INSTRUMENTS

J. Rodriguez-Pacheco / E. Wimmer-Schweingruber (Universidad de Alcalá, Madrid, Spain / University of Kiel, Germany)
EPD: Solar Energetic Particles

T. Horbury (Imperial College, London, UK)
MAG: The Heliospheric Magnetic Field

M. Maksimovic (Observatoire de Paris-Meudon, France)
RPW: Measuring Solar Radio and Plasma Waves

C. Owen / S. Livi / P. Lavraud (UCL-MSSL, UK / SwRI, San Antonio (TX), USA / IRAP-CNRS, Toulouse, France)
SWA: Solar Wind Analyser

R. Bruno (Istituto Astrofisica e Planetologia Spaziali/INAF, Roma, Italy)
Solar Wind: The Legacy of Helios

SCIENCE FROM REMOTE-SENSING INSTRUMENTS

D. Berghmans (Royal Observatory of Belgium, Brussels, Belgium)
The Sun's Corona I: On-Disk Imaging with EUI

P. Antonucci (Osservatorio Astronomico di Torino/INAF, Italy)
The Sun's Corona II: Off-Disk Imaging with METIS

J. C. del Toro Iniesta (Instituto de Astrofísica de Andalucía, Spain)
PHI: Polarimetry and Helioseismology with Solar Orbiter

R. Howard (Naval Research Laboratory, Washington (DC), USA)
SoloHI and the near-Sun Heliosphere

A. Fludra / D. Hassler (RAL, Oxford, UK / SwRI, Boulder(CO), USA)
SPICE: Spectral Imaging of the Solar Corona

S. Krucker (University of Applied Sciences Northwestern Switzerland & UC Berkeley, USA)
STIX: Solar Flares and Particle Acceleration

GENERAL LECTURES

S. Solanki (Max Planck Institute for Solar System Research, Lindau, Germany)
The Sun: General Lecture

P. Hellinger (Astronomical Institute, AS CR ,Prague, Czech Republic)
Space Plasmas: General Lecture

M. Velli (NASA/JPL, Pasadena (CA), USA)
Solar Probe Plus and Solar Orbiter: The Near Future of Solar Physics

BOARD OF DIRECTORS:
Ester Antonucci antonucci@oato.inaf.it
Roberto Bruno roberto.bruno@iaps.inaf.it
Daniel Müller dmueller@rssd.esa.int

THE DIRECTOR OF THE SCHOOL:
Umberto Villante umberto.villante@aquila.infn.it

Solar Orbiter is the first M-class mission that will be launched as part of the ESA Cosmic Vision 2015–2025 and will be dedicated to solar and heliospheric physics. This mission offers a unique opportunity to discover the fundamental links between the magnetised solar atmosphere and the dynamics of the solar wind which, ultimately, is the source of space weather. The purpose of this school is to give to a young audience of graduate students, which ideally represents the next generation of scholars in the physics of the sun and the heliosphere, a complete view of the overall science of the mission to the extent needed, for these future Solar Orbiter scientists, to understand and fully exploit these unique and unprecedented observations.

General Information

The fee of 700 Euro includes board and lodging at the Canadian Hotel in L'Aquila. Applications, including a brief curriculum vitae, are due before JUNE 15 through the website: WWW.CIFS-ISSS.ORG/APPLICATION.ASP

Some financial support will be available for a limited number of students. Applications will be evaluated by the Scientific Committee of the International School of Space Science, who will decide also on the financial support. Successful applicants will be notified by e-mail.

INTERNATIONAL SCHOOL OF SPACE SCIENCE c/o Dipartimento di Scienze Fisiche e Chimiche
Via Vetoio, 67100 L'AQUILA (ITALY) E-mail: ISSC@AQUILA.INFN.IT | Web: WWW.CIFS-ISSS.ORG

The International School of Space Science is supported by:
Consorzio "Area di Ricerca in Astrogeofisica", Fondazione CARISPAQ, Regione Abruzzo, Comune dell'Aquila, INAF, ASI, BSA, Techno System Developments s.r.l., Planetek Italia s.r.l.

G S GRAN SASSO SCIENCE INSTITUTE

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INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

Heliospheric physical processes for understanding Solar–Terrestrial Relations

21–26 September 2015, L'Aquila (Italy)

Programme and Lecturers

THE SUN AND ITS NEAREST ENVIRONMENT

A. Meloe-Jaramillo (Montana State University, Bozeman, MT, USA)
Sources of solar variability

F. Zuccarello (University of Catania, Italy)
Manifestations of solar variability

FROM THE SUN TO THE EARTH

W. Matthaeus (University of Delaware, Newark, USA)
The microphysics of solar wind

G. Zimbardo (University of Calabria, Italy)
Particle transport in the heliosphere

A. Ruffolo (Institut de Recherche en Astrophysique et Planétologie, Toulouse, France)
Heliospheric variability on short and long timescales

G. Paris (ISL–UC, Berkeley, USA)
The solar wind and the Earth's magnetosphere

A SPECIAL OPEN SESSION WILL BE DEDICATED TO ORAL/POSTER CONTRIBUTIONS OF THE STUDENTS

THE INTERACTION WITH EARTH'S ENVIRONMENT

I. Cnossus (British Antarctic Survey, UK)
Response of the Earth's environment to radiative forcing

E. Parks (ISL–University of California, Berkeley, USA)
Response of the Earth's environment to solar wind changes

P. T. Verronen (Finnish Meteorological Institute, Helsinki, Finland)
Response of the Earth's environment to particle forcing

W. T. Ball (PMOD/WRC, Davos, Switzerland)
Impact on climate: role of solar–stratospheric interactions

DATA ANALYSIS AND METHODS

G. Consolini (INAF-Istituto di Astrofisica e Planetologie Spaziali, Roma, Italy)
Time series analysis beyond the classical Fourier approach

T. Dudok de Wit (Laboratoire de Physique et Chimie de l'Environnement et de l'Espace (LPCE) and Univ. of Orleans, Orleans, France)
Forecasting solar activity at Earth

S. Servidio (University of Calabria, Italy)
Simulations for the physics of Sun–Earth system

W. Matthaeus (University of Delaware, Newark, USA)
Turbulence modeling techniques for global simulation of the Sun–Earth system

N. Agueda (Universitat de Barcelona, Spain)
Interplanetary transport simulations to infer SEP release timescales

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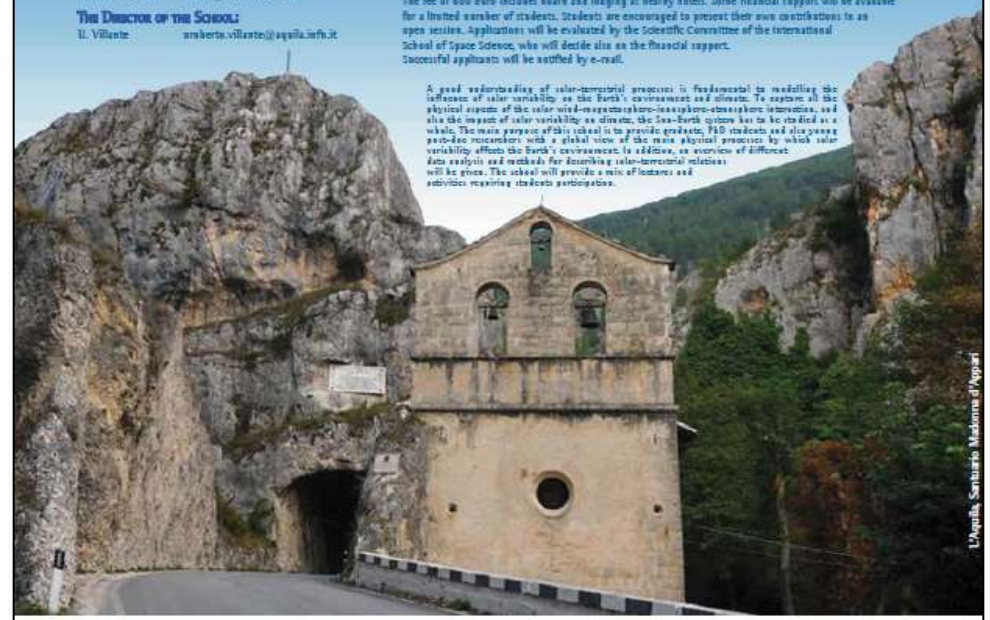
G. Consolini giuseppe.consolini@iaps.inaf.it
T. Dudok de Wit ddwit@cnrs-orleans.fr

THE DIRECTOR OF THE SCHOOL:
U. Villante umberto.villante@aquila.infn.it

General Information

School activities will be held at Gran Sasso Science Institute in L'Aquila. Applications, including a brief curriculum vitae, are due before **May 17th 2015** through the website **www.cifs-isss.org/application.asp**
The fee of 600 Euro includes board and lodging at nearby hotels. Some financial support will be available for a limited number of students. Students are encouraged to present their own contributions to an open session. Applications will be evaluated by the Scientific Committee of the International School of Space Science, who will decide also on the financial support.
Successful applicants will be notified by e-mail.

A good understanding of solar-terrestrial processes is fundamental to modelling the influence of solar variability on the Earth's environment and climate. To capture all the physical aspects of the solar wind-magnetosphere-ionosphere-atmosphere interaction, and also the impact of solar variability on climate, the Sun-Earth system has to be studied as a whole. The main purpose of this school is to provide graduate, PhD students and also young post-doc researchers with a global view of the main physical processes by which solar variability affects the Earth's environment. In addition, an overview of different data analysis and methods for describing solar-terrestrial relations will be given. The school will provide a mix of lectures and activities requiring students participation.



L'Aquila, Santuario Madonna d'Appari

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UNIVERSITA' DEGLI STUDI DELL'AQUILA

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

Ground and space-based instruments for future research in Solar-Terrestrial physics

6–10 June 2016, L'Aquila (Italy)

Programme and Lecturers

SOLAR ACTIVITY EFFECTS ON THE EARTH'S IONOSPHERE AND ATMOSPHERE

L. Tsugutsi (National Observatory of Athens and Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, Greece)
Solar activity effects on the Earth's upper atmosphere: modeling the ionospheric storm time response to different solar wind drivers

L. Alfonsi (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
The ionospheric irregularities: from the measurement to the phenomenon

L. R. Cander (Rutherford Appleton Laboratory, United Kingdom)
Causes, effects and models of ionospheric storms

P. M. Morrison (INAF-Institute for Space Astrophysics and Planetology, Italy)
Circumterrestrial space processes as observed by the Super Dual Auroral Radar Network (SuperDARN)

C. Cagnazzo (CNR-Institute of Atmospheric Sciences and Climate, Italy)
Solar influences on Earth's climate

C. Allocca (Telespazio, Italy)
Space Weather and Ionospheric Services

SOLAR-TERRESTRIAL PHYSICS: DATA ANALYSIS TOOLS

B. del Moro (University of Rome Tor Vergata, Italy)
Spectro-polarimetric Inversion

B. Fiorentzale (University of L'Aquila, Italy)
Digital signal processing

L. Cicala (Abdus Salam International Centre for Theoretical Physics, Italy)
Estimation of TEC by GNSS observations

A SPECIAL OPEN SESSION WILL BE DEDICATED TO ORAL/POSTER CONTRIBUTIONS BY THE STUDENTS

NEXT GENERATION INSTRUMENTS FOR HELIOPHYSICS AND SPACE CLIMATE AND WEATHER

N. Sosa Nevero (Instituto de Astrofisica de Canarias, Spain)
Spectropolarimetry with next generation solar telescopes

L. Bruno (INAF-Institute for Space Astrophysics and Planetology, Italy)
Solar wind: The legacy of Helios and the promises of Solar Orbiter

C. Briand (Observatoire de Paris – LESIA, France)
Sun and heliosphere: what can we learn from the radio?

S. Malaterra (High Altitude Observatory, USA)
Synoptic telescopes and solar cycle

E. Sparvoli (University of Rome Tor Vergata, Italy)
Space storms and astroparticles

S. Jefferies (Georgia State University and Institute for Astronomy, University of Hawaii, USA)
Magnetic optical filters for probing the Sun's interior and atmosphere

P. De Michelis (Istituto Nazionale di Geofisica e Vulcanologia, Italy)
On the geomagnetic field variations: from the measurements to their physical interpretation

N. Murphy (NASA, Jet Propulsion Laboratory, USA)
CubeSat and small satellites for the observation of solar dynamics and space weather

E. Flaveni (Italian Space Agency, Italy)
Sun and Planets future space missions

BOARD OF DIRECTORS:

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C. Scotto	carlo.scotto@ingv.it

THE DIRECTOR OF THE SCHOOL:

U. Villante — umberto.villante@aquila.infn.it

General Information

School activities will be held at Gran Sasso Science Institute in L'Aquila (http://www.gssi.infn.it).
Applications, including a brief curriculum vitae, are due before **March 27, 2016** through the website **www.cfb-iss.org/application.asp**
The fee of 700 Euro includes board and lodging at nearby hotels. Some financial support will be available for a limited number of students. Students are encouraged to present their own contributions in an open session.
Applications will be evaluated by the Scientific Committee of the International School of Space Science, who will decide also on the financial support.
Successful applicants will be notified by e-mail.

SCHOOL RATIONALE

The course is designed for PhD students and young post-doctoral researchers. The school will offer an interactive, hands-on approach to the computational and experimental techniques that will be applied to the next generation of ground- and space-based instruments for solar-terrestrial physics related research. In particular, a mix of experienced scientists and engineers will provide an integrated overview of the experimental techniques that are being applied to the observation and forecasting of Solar Activity, Space Weather, and the conditions in the Earth's magnetosphere and ionosphere: all of which are important components of Space Situational Awareness.

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CONSORZIO INTERUNIVERSITARIO PER LA FISICA SPAZIALE

UNIVERSITA' DEGLI STUDI DELL'AQUILA

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

Cosmic Ray Physics in Space

12–16 June 2017, L'Aquila (Italy)

Programme and Lecturers

GALACTIC AND EXTRAGALACTIC COSMIC RAYS

P. Blasi (INAF/Arcetri Astrophysical Observatory, Italy)
Sources, acceleration and propagation of GCRs

B. Vannuccini (INFN, Firenze, Italy)
Spectrometers for GCRs: past & present

I. De Mitri (University of Salento, Italy)
Calorimeters for GCRs: past & present

P. Maestro (University of Siena, Italy)
Elemental abundances and the origin of GCRs

R. Ulrich (Institute for Nuclear Physics, KIT, Karlsruhe, Germany)
Hadronic interactions and air shower physics

J. Hoerandel (Radboud University Nijmegen, The Netherlands)
CR ground experiments overlapping with space exp: past & future

A. Castellina (INAF, Osservatorio Astrofisico di Torino e INFN, Torino, Italy)
UHECR from the ground and in space

M. Casolino (INFN sezione di Roma Tor Vergata,Italy – Istituto Riken, Japan)
Orbits, spacecraft and space instruments

GAMMA RAYS AND NEUTRINOS

F. Aharonian (DIAS, Dublin, Ireland / MPI for Nuclear Physics, Heidelberg, Germany)
Gamma-ray physics in space

L. Latronico (University of Torino, Italy)
Experiments for gamma-ray detection: past & present

K. Ragan (McGill University, Montreal, Canada)
Future Experiments for gamma-ray detection

P. Desiati (University of Wisconsin, Madison, USA)
Neutrinos in space

A SPECIAL OPEN SESSION WILL BE DEDICATED TO ORAL/POSTER CONTRIBUTIONS FROM THE STUDENTS

COSMIC RAYS IN THE HELIOSPHERE

M. Potgieter (North-West University 2520 Potchefstroom, South Africa)
CGR propagation in the heliosphere

G. de Nolfo (Goddard Space Flight Center, NASA, USA)
Solar activity and Solar Energetic Particles

E. Gomez-Herrero (University of Alcala, Spain)
Review of solar missions

H. Evans (ESTEC, Noordwijk, The Netherlands)
The radiation environment around the Earth

B. Del Moro (University of Roma "Tor Vergata", Italy)
Space Weather and cosmic rays

DARK MATTER AND COSMIC RAYS

M. Cirelli (LPTHE Jussieu, Paris, France)
Search for dark matter with cosmic rays

P. von Doetinchem (University of Hawaii, Honolulu, USA)
Indirect detection of dark matter

BOARD OF DIRECTORS:

M. Boezio	mirko.boezio@ts.infn.it	INFN, Trieste, Italy
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R. Sparvoli	roberta.sparvoli@roma2.infn.it	University of Roma "Tor Vergata", Italy

THE DIRECTOR OF THE SCHOOL:

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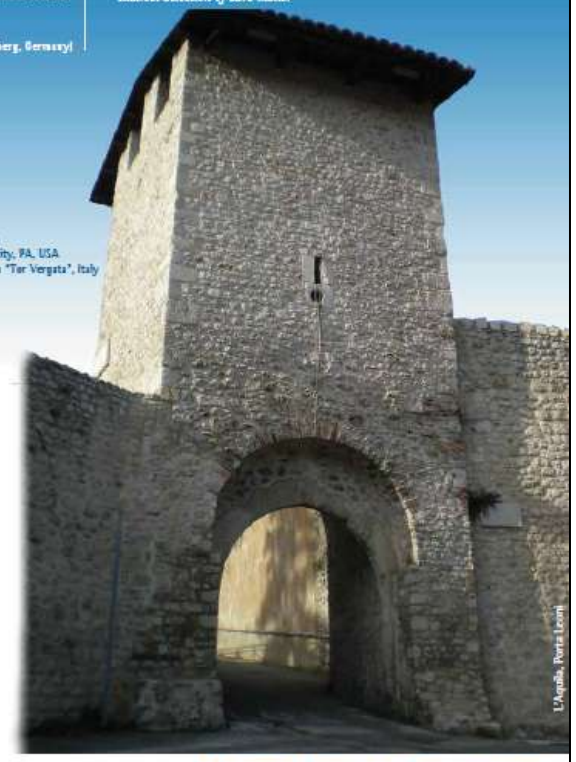
General Information

School activities will be held at Gran Sasso Science Institute in L'Aquila (http://www.gssi.infn.it).
Applications, including a brief curriculum vitae, are due before **March 12, 2017** through the website **www.cfb-iss.org/application.asp**
The fee of **700 Euro** includes board and lodging at nearby hotels. Some financial support will be available for a limited number of students. Students are encouraged to present their own contributions in an open session.
Applications will be evaluated by the Scientific Committee of the International School of Space Science.
Successful applicants will be notified by e-mail.

SCHOOL RATIONALE

The course is designed for PhD students and young post-doctoral researchers. The school will offer an overview of current knowledge of the Physics of Galactic Cosmic Rays as observed with space-borne instruments in a broad sense, thus including charged particles and antiparticles, gamma rays and related topics as neutrinos. The connection with ground-based experiments will be explored. The most important space missions of the past, present and future will be presented. A special emphasis will be given to the indirect search for dark matter.



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Comune dell'Aquila, Università di Roma "Tor Vergata", INFN

CONSORZIO INTERUNIVERSITARIO PER LA FISICA SPAZIALE

UNIVERSITA' DEGLI STUDI DELL'AQUILA

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

Complexity and Turbulence in Space Plasmas

18–22 September 2017, L'Aquila (Italy)

Programme and Lecturers

KINETIC PROCESSES

G. Consolini (INAF–IAPS Roma, Italy)
An introduction to kinetic theories

Y. Voitenko (Royal Belgian Institute for Space Aeronomy, Brussels, Belgium)
Kinetic waves and instabilities

G. Zank (University of Alabama in Huntsville, Huntsville (AL), USA)
Kinetic processes and plasma transport

F. Valentini (University of Calabria, Rende, Italy)
Kinetic plasma simulations

A. Vaivads (Swedish Institute of Space Physics, Uppsala, Sweden)
Kinetic domain observations: from Cluster to MMS and beyond

G. Delmont (LPP, CNRS, Palaiseau, France)
Dissipation and irreversibility in space plasmas

MHD AND KINETIC TURBULENCE

V. Carbone (University of Calabria, Rende, Italy)
Space plasma turbulence: from MHD scales to kinetic domain

W. Matthaeus (University of Delaware, Newark (DE), USA)
Magnetic reconnection: on the role of MHD and kinetic turbulence

L. Sorriso-Valvo (CNR-Nanotec, Rende, Italy)
Turbulence observations in heliospheric space plasmas

COMPLEXITY IN SPACE PLASMAS

T. Chang (Kavli Institute for Astrophysics and Space Research, MIT, Cambridge (MA), USA)
Complexity in space plasmas

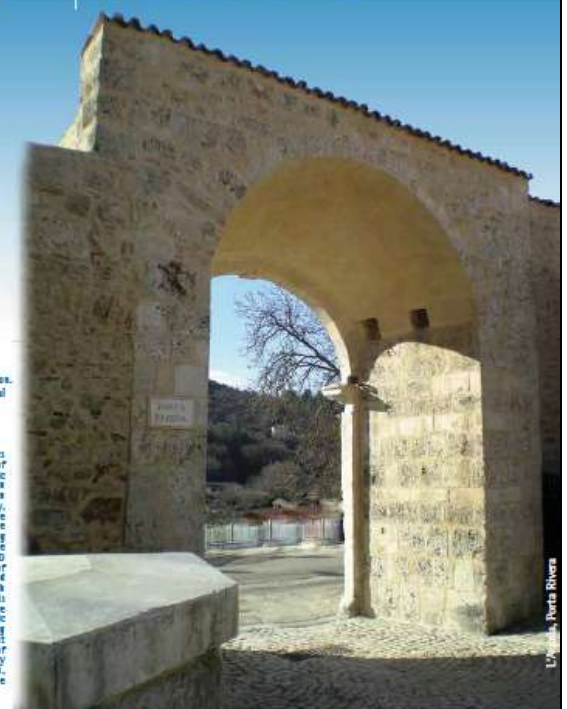
M. Materassi (CNR-ISC, Sesto Fiorentino, Italy)
Stochastic approaches to space plasmas

M. Echim (Royal Belgian Institute for Space Aeronomy, Brussels, Belgium and Institute of Space Science, Magurele, Romania)
Space plasma complexity: approaches and methods

J. Johnson (Dept. Eng. and Computer Sci., Andrews Univ. Berrien Springs (MI), USA)
Entropy and information theory approaches to space plasma complexity

P. Yoon (University of Maryland College Park USA)
Kappa Distributions: role in plasma kinetic processes, dynamics and complexity

A SPECIAL OPEN SESSION WILL BE DEDICATED TO ORAL/POSTER CONTRIBUTIONS FROM THE STUDENTS



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THE DIRECTOR OF THE SCHOOL:

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GENERAL INFORMATION

School activities will be held at Gran Sasso Science Institute in L'Aquila (http://www.gssi.infn.it).
Applications, including a brief curriculum vitae, are due before **June 4th, 2017** through the website **www.cfb-lnss.org/application.asp**
The fee of **700 Euro** includes board and lodging at nearby hotels.
Some financial support will be available for a limited number of students.
Students are encouraged to present their own contributions in an open session.
Applications will be evaluated by the Scientific Committee of the International School of Space Science. Successful applicants will be notified by e-mail.

SCHOOL RATIONALE

The universe is primarily populated by the plasma state and the dynamics of space plasmas is extremely complex entailing the interplay of out-of-equilibrium matter and fields. As a consequence of the intrinsic collective nature of plasma interactions the resulting dynamics is often characterized by "complexity" and "turbulence". Turbulence is an ubiquitous process in astrophysical and space plasma contexts. Recently, significant advances have been made in the characterization of the turbulent and complex features of space plasmas in the magneto-hydrodynamic (MHD) domain. However, a full understanding of fundamental processes, such as plasma heating and turbulent particle acceleration, requires a more involved approach, beyond the MHD description, towards the kinetic domain and/or adopting the language of "matter mechanics" instead of "field theory". The use of a single field theory description, would hide the real complexity of such multi-dimensional and multi-scale systems. Plasma complexity is fundamentally related to the microscopic structure and collective particle dynamics and manifests in the emergence of mesoscopic multi-scale coherent plasma structures. The course is devoted to young researchers and PhD students and will provide an overview of the recent theoretical, numerical and data analysis advances in the description of multi- scale processes in space plasmas, involving dynamical complexity and turbulence. It focus on novel approaches, e.g. kinetic description, stochastic field theory, to the dynamics at the microscopic scales and the coupling with meso- and macroscales.

INTERNATIONAL SCHOOL OF SPACE SCIENCE
c/o Dipartimento di Scienze Fisiche e Chimiche
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THE INTERNATIONAL SCHOOL OF SPACE SCIENCE IS SUPPORTED BY:
Consorzio "Area di Ricerca in Astrogeofisica", Fondazione CARISPAQ, Comune dell'Aquila, Istituto Nazionale di Astrofisica, International Union of Geodesy and Geophysics, European Space Agency

CONSORZIO INTERUNIVERSITARIO PER LA FISICA SPAZIALE

UNIVERSITA' DEGLI STUDI DELL'AQUILA

INTERNATIONAL SCHOOL OF SPACE SCIENCE

L'Aquila – ITALY

THE POLAR UPPER ATMOSPHERE: FROM SCIENCE TO OPERATIONAL ISSUES

17–21 September 2018, L'Aquila (Italy)

EGU Sponsored School

Programme and Lecturers

THE UPPER ATMOSPHERE: OVERVIEW

M. Mendillo (Boston University, USA)
Upper Atmosphere I and II

GROUND BASED MONITORING INFRASTRUCTURES AT POLAR LATITUDES

V. Romano (INGV, Rome, Italy)
Ionosondes and GNSS network

D. Di Mauro (INGV, Rome, Italy)
Geomagnetic network (instruments and data)

M. F. Marcucci (INAF, Rome, Italy)
SuperDARN (instruments and data)

M. Clilverd (BAS, UK)
The Antarctic-Arctic Radiation-belt (Dynamic) Deposition

IONOSPHERIC MODELLING

S. Nava (ICTP, Trieste, Italy)
Ionospheric Modelling I: Neguick model and data assimilation

TBD (INGV, Rome, Italy)
Ionospheric Modelling II: short term forecasting/long term climatology

PERTURBED GEOSPACE AND ITS EFFECTS ON TERRESTRIAL SYSTEMS

A.Wood (Nottingham Trent University, UK)
Overview of Space Weather effects on the ionosphere

D. Del Moro (Tor Vergata University–Rome, Italy)
Coronal Mass Ejection modelling and forecasting

P. Brekke (Norwegian Space Centre, Oslo, Norway)
Space Weather effects on critical operations and activity in the High North

S. V. Veettil (University of Nottingham, UK)
Ionospheric effects on GNSS applications and their mitigation

INTERNATIONAL PROGRAM – SCAR

A. Meloni (INGV, Rome, Italy)
Overview of the SCAR Program

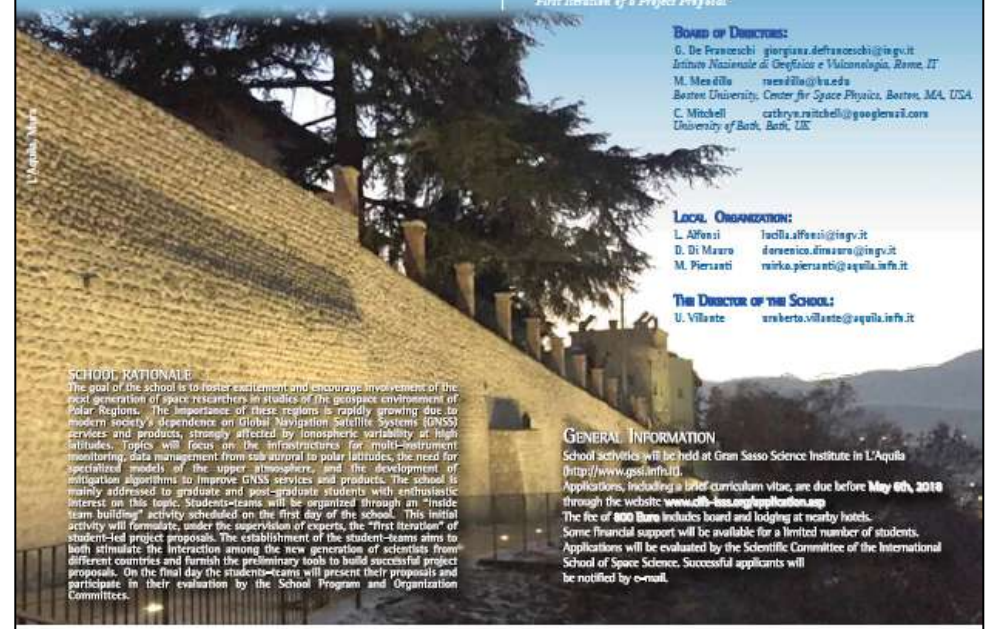
L. Alfonsi (INGV, Rome, Italy)
Overview of the GRAPE/RESOURCE activities within SCAR

TEAM BUILDING

F. La Longa (INGV, Rome, Italy)
Team Building I & II

M. Crescimbene (INGV, Rome, Italy)
Students-Teams (ST) identification

G. De Franceschi (INGV, Rome, Italy)
First Iteration of a Project Proposal



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THE DIRECTOR OF THE SCHOOL:

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SCHOOL RATIONALE

The goal of the school is to foster excitement and encourage involvement of the next generation of space researchers in studies of the geospace environment of Polar Regions. The importance of these regions is rapidly growing due to modern society's dependence on Global Navigation Satellite Systems (GNSS) services and products, strongly affected by ionospheric variability at high latitudes. Topics will focus on the infrastructures for multi-instrument monitoring, data management from sub auroral to polar latitudes, the need for specialized models of the upper atmosphere, and the development of mitigation algorithms to improve GNSS services and products. The school is mainly addressed to graduate and post-graduate students with enthusiastic interest on this topic. Students-teams will be organized through an "inside team building" activity scheduled on the first day of the school. This initial activity will formulate, under the supervision of experts, the "first iteration" of student-led project proposals. The establishment of the student-teams aims to both stimulate the interaction among the new generation of scientists from different countries and furnish the preliminary tools to build successful project proposals. On the final day the students-teams will present their proposals and participate in their evaluation by the School Program and Organization Committees.

GENERAL INFORMATION

School activities will be held at Gran Sasso Science Institute in L'Aquila (http://www.gssi.infn.it).
Applications, including a brief curriculum vitae, are due before **May 6th, 2018** through the website **www.cfb-lnss.org/application.asp**
The fee of **800 Euro** includes board and lodging at nearby hotels.
Some financial support will be available for a limited number of students.
Applications will be evaluated by the Scientific Committee of the International School of Space Science. Successful applicants will be notified by e-mail.

INTERNATIONAL SCHOOL OF SPACE SCIENCE
c/o Dipartimento di Scienze Fisiche e Chimiche
www.cfb-lnss.org – School Secretary: P. Saltini isc@aquila.infn.it

THE INTERNATIONAL SCHOOL OF SPACE SCIENCE IS SUPPORTED BY:
Consorzio "Area di Ricerca in Astrogeofisica", Comune dell'Aquila, EGU, INGV, SCAR, PNRA

In cooperation with

INTERNATIONAL SCHOOL OF SPACE SCIENCE
L'Aquila - ITALY

in the next few years we intend to organize a series of schools specifically dedicated to the Space Weather

In cooperation with

SWICo intends to encourage studies in the field of the space physics

VINCENZO FERRARO **AWARD 2019**
for young scholars in Space Physics

Art. 1 Subject matter and objectives

This Association intends to pay tribute to Prof. Vincenzo C.A. Ferraro, originally from Sorrento peninsula (Campania, Italy), an astrophysicist and pioneer in plasma physics, in order to encourage studies in the field of space physics.

Art. 2 Foundation of the prize

With this in view, the Vincenzo Ferraro Association, represented by President Maddalena Ferraro, establishes for the year 2019 a "Vincenzo Ferraro" Prize to be assigned, after evaluation by a qualified scientific panel, to a young scholar in the physics of space plasmas with particular reference to his/her doctoral thesis.

Art. 3 Participation

Admission to this prize is reserved to students of Italian and foreign universities who have obtained a PhD degree in Physics or equivalent in Italy or abroad after September 1, 2014 with a thesis on topics relevant to the study of space plasmas.

The Ferraro Award ceremony takes place every year in Sorrento (Sept.-Oct.)

SWICo
Space Weather Italian Community

SWICo intends to candidate Italy to host a future European Space Weather Week

Umberto Villante

Da: "Umberto Villante" <umberto.villante@aquila.infn.it>
Data: giovedì 10 gennaio 2019 09:56
A: <Alexi.Glover@esa.int>; <mauro.messerotti@inaf.it>; <ronald.vanderlinden@oma.be>; <jla@ufa.cas.cz>; <mark.gibbs@metoffice.gov.uk>; <rui.pinto@irap.omp.eu>; <Dave.Pitchford@ses.com>; <belchaki@noa.gr>; <bothmer@astro.physik.uni-goettingen.de>; <ecla@bgs.ac.uk>; <peter.beck@seibersdorf-laboratories.at>; <stefaan.poedts@kuleuven.be>
Ce: <Umberto.Villante@aquila.infn.it>
Oggetto: European Space Weather Week

Dear colleagues,

Thank you for contacting the Italian SW Community SWICO (www.swico.it) after our expression of interest letter in hosting a future European Space Weather Week.
With this message we are confirming the interest to host in Italy a future ESWW.
However, only recently the Italian SW community elected the new SWICO President and Board of Directors.
Therefore, there is no technical time to organize the ESWW 2020. We are more confident about the possibility to host ESWW in 2021 or 2022.

I would like to inform you that, as new SWICO President, I will be the future contact person for this subject. I'm replacing Prof. Vincenzo Carbone. Moreover, I inform you that the new SWICO Board of Directors is now composed by: F. Berrilli, M. Casolino, G. Consolini, S. Lepidi, M. Messerotti, R. Tozzi and F. Zuccarello.

I look forward to active engagement about future ESWW.

Yours sincerely,

Prof. Umberto Villante

SWICo
Space Weather Italian Community

SWICo General Assembly
and
1^{st} SWICo Scientific Meeting
will be held in 2020

SWICO
Space Weather Italian Community

Thanks for your attention