

Report of the School “Operational Space Weather Fundamentals”

The school *Operational Space Weather Fundamentals* was held at the Luigi Zordan Congress Center of the University of L’Aquila (Italy) from May 12 to 17, 2024. It was directed by D. Di Mauro (Istituto Nazionale di Geofisica e Vulcanologia, Italy), S. Lepidi (Istituto Nazionale di Geofisica e Vulcanologia, Italy), M. Messerotti (Istituto Nazionale di AstroFisica, Italy), and T. Skov (Millersville University, USA).

The course consisted of seven 90-minute lectures, five 60-minute lectures (including questions and discussions), and more than eight hours of laboratory activities, delivered by 16 leading scientists in the field (nine from European institutions and seven from U.S. institutions). It provided an overview of the current knowledge in the multifaceted field of space weather, covering solar-heliospheric, magnetospheric, and ionospheric weather, with a specialized focus on operations and forecasting. By establishing links from research to operations (R2O) and from operations to research (O2R), and by highlighting the effects of space weather on technological systems and society, the curriculum aimed to stimulate the involvement of next-generation researchers in this rapidly growing discipline. Lectures on phenomenology were complemented by laboratory activities and applications, with the direct and active participation of the attendees. Another practical aspect was covered in the "career section," which illustrated the skills desirable for employment in space weather research and surveillance centers, as well as strategies for effective education and communication.

All lessons will also be available on the school’s website: <https://www.astrogeofisica.it/oswf>.



The course was attended by 50 students selected based on their curriculum: 24 were from Italy, 9 from UK, 5 from the US, 2 from Austria and Kazakhstan, 1 from Belgium, Colombia, Poland, Chile, Germany, France, Lithuania, Cech Republic. 21 of them were PhD students. The Course took place in a friendly atmosphere, offering continuous opportunities for close interactions among students and lecturers, including during social events. Coffee breaks were provided by the school organization, along three cultural events designed to foster team building among participants by exploring the area from a social, architectural, and historical perspective.

The E-SWAN contribution enabled two students, who demonstrated a valid need for financial support and had strong academic records, to participate in the school at a reduced fee. Considering the success of this first edition, the co-directors, together with the organizers, are contemplating the possibility of organizing a new school in a couple of years, incorporating updates on the topics covered.

