Space
It Up! Days

Firenze, 26–28 January 2026

Programme
AND OVERVIEW

Overview

Location: Campus Novoli – Via delle Pandette, 32, Firenze, 50127, Italy
Date: 26-28 January 2026
Host: University of Florence

SCIENTIFIC COMMITTEE & SIU! MANAGERS

Event coordinators
Prof. Roberto Battiston
Prof. Francesco Topputo
Dr.a Maria Cristina Lupi

Organisers
Prof. Giovanni Pratesi (Chair)
Dr.a Annarita Franza (Member)
Prof. Marco Petrolo (Hub)
Dr. Mirco Bartolomei (Hub)
Dr.a Rebecca Masia (Hub)
Dr.a Marianna Valente (Hub)

Spoke 1 – Enabling Technologies
Prof. Francesco Topputo (Spoke Leader) - PoliMi
Prof.a Maria Vittoria Salvetti (Co-Leader) - UniPi
Prof.a Caterina Ciminelli (Co-Leader) - PoliBa

Spoke 2 – Digital Twin & Mission Design
Prof. Fabrizio Piergentili (Spoke Leader) - UniRoma1
Prof. Marco Petrolo (Co-Leader) – PoliTo
Prof. Michele Ruta (Co-Leader) – PoliBa

Spoke 3 – EO Imaging & Sensors
Prof. Alfredo Renga (Spoke Leader) - UniNa
Dr.a Valentina Raimondi (Co-Leader) - CNR

Spoke 4 – Next-Gen Particle & Field Detectors
Dr. Luca Latronico (Spoke Leader) - INFN
Prof. Ivan De Mitri (Co-Leader) - GSSI

Spoke 5 – Planetary Protection & Multi - Hazard
Prof. Roberto Battiston (Spoke Leader) - UniTN
Prof.a Maria Fabrizia Buongiorno (Co-Leader) - INGV

Spoke 6 – Space Weather & Infrastructure Protection
Dr. Silvano Fineschi (Spoke Leader) - INAF
Prof. Sergio Servidio (Co-Leader) - UniCal

Spoke 7 – Space for Sustainable Development
Dr. Domenico Cimini (Spoke Leader) - CNR
Prof. Andrea Taramelli (Co-Leader) - IUSS

Spoke 8 – Robotic & Human Exploration
Prof. Erasmo Carrera (Spoke Leader) & Prof. Alfonso Pagani
(Deputy) - PoliTo
Prof. Paolo Tortora (Co-Leader) - UniBo
Dr.a Francesca Esposito - (Co-Leader, INAF)

Spoke 9 – Space Habitats & Life Sciences
Prof. Giampaolo Piotto (Spoke Leader) - UniPd
Prof. Giovanni Pratesi (Co-Leader) - UniFi

ASI PROGRAM MANAGER FOR THE SPACE IT UP! PROGRAM:

Dr.a Cristina Baldetti

AIMS

The aim of the Space it Up! Days is to showcase project activities and preliminary results and to promote collaboration between research institutions and industry.
The event also seeks to strengthen institutional synergies and enhance the international positioning of Italian space technologies and sciences by outlining future scientific and strategic directions.

USEFUL LINKS

Event page

Space It Up! Project overview

Project page on the ASI website

LinedIn

Instagram

Day 1 | 26 January

9:00–9:30

Registration
& Opening of the Poster Area

9:30–10:00

Welcome & Institutional Greetings
- Prof.a Alessandra Petrucci (Rector, UniFi)
- Dr. Mario Cosmo (Science & Research Director, ASI)
- Prof. Massimo Miscusi (Director, MUR)
- Prof. Giovanni Pratesi (Local Organizing Committee, UniFi)

10:00–10:30

Setting the Framework
- SIU! Days: Objectives & Method | Prof. R. Battiston, Prof. F. Topputo (SOC/CSD, SIU!)
- The SIU! Project: The Hub | Prof. E. Carrera (President, SIU!)

10:30–11:00

Coffee break, networking, media corner

11:00–12:00

Panel: SIU!, National Research and Industry - Part 1

Dr. M. Cosmo (ASI), Prof. R. Ragazzoni (INAF), Ing. M. Comparini (Leonardo), Dr. M. F. Buongiorno (INGV), Prof.a M. C. Zanetti (PoliTo), Prof. M. Bizzarri (COMINT), Prof. E. Ciaramella (SSSA),
Moderator: M. C. Lupi (Leonardo)

12:00–14:30

Lunch & poster session

14:30–15:30

Panel: SIU!, National Research and Industry – Part 2

Dr.a B. Negri (ASI), Dr. M. Lerario (e-Geos), Dr. M. Miscusi (MUR), Dr. W. Pecorella (TAS-I), Ing. C. Caparraro (ALTEC), Prof. F. Gargano (INFN)
Moderator: Dr. V. Romano (INGV)

15:30–16:00

Coffee break, networking, media corner

16:00–17:30

The 9 SIU! Spokes | Spoke L/CL

20:00

Social Dinner – Novoli Area

Day 2 | 27 January

8:30–9:00

Registration

9:00–10:30

Parallel sessions / M Block-1
- M1: Enabling Platforms & Digital Twins for EO, SWE and Exploration Missions | Spokes 1–2, L/CL
- M2: Multi-Point EO & DSAR/MIMO for Climate, Emergencies and Multi-Hazard | Spokes 3–5, L/CL
- M3: Lunar & Martian Exploration: ISRU, Swarm Robotics, EDL, Habitats | Spokes 8–9, L/CL

10:30–11:00

Coffee break, networking

11:00–12:45

Parallel sessions / M Block-2
- M1: Enabling Platforms & Digital Twins for EO, SWE and Exploration Missions | Spokes 1–2, L/CL
- M2: Multi-Point EO & DSAR/MIMO for Climate, Emergencies and Multi-Hazard | Spokes 3–5, L/CL
- M3: Lunar & Martian Exploration: ISRU, Swarm Robotics, EDL, Habitats | Spokes 8–9, L/CL

12:45–15:00

Lunch & poster session

15:00–16:30

Parallel sessions / P Block-1
- P1: Space Weather End-to-End: Missions, Sensors, Models and Operations | Spoke 4-6, L/CL
- P2: Space Life Sciences: Agriculture, Torpor, Biodetection, Life Support | Spoke 8-9, L/CL
- P3: Downstream Services Space Economy and Law | Spoke 5-7

16:30–17:00

Coffee break, networking

17:00–18:45

Parallel sessions / P Block-2
- P1: Space Weather End-to-End: Missions, Sensors, Models and Operations | Spoke 4-6, L/CL
- P2: Space Life Sciences: Agriculture, Torpor, Biodetection, Life Support | Spoke 8-9, L/CL
- P3: Downstream Services Space Economy and Law | Spoke 5-7, L/CL

Day 2 – M1 Session Details

Session M1: Enabling Platforms & Digital Twins for EO, SWE and Exploration Missions | Spoke 1, 2 | F. Topputo, F. Piergentili

9:00–9:20

Opening keynote: Future and emerging technologies in the space sector | M. Di Clemente (ASI)

9:20–10:30

Block 1: Enabling Technologies

- **Enabling technologies for VLEO missions**
- Progress on air-breathing propulsion activities | Paganucci (UniPi)
- Integrated Aerodynamic Fin Characterization and Adaptive Sliding Mode Control for Attitude Stabilization in VLEO | Bertuccio (PoliTo) & Cannavale (UniNa)
- **Advanced materials, monitoring, and damage detection**
- Material Driven CubeSat Solutions for enhanced Performance in Very Low Earth Orbit | A. Rizzo (ENEA)
- Simplified Defect Modeling and Fatigue Damage Detection in Lattice Structures | Levati & Cappa (PoliMi)
- MAC and DPR-Based Embedded Optical Fiber Shape Sensing for Thin Flexible Space Membranes Using Modal Shapes Superposition | Sala & Aceti (PoliMi)
- **Enabling GNC technologies for future missions**
- Algorithmic developments and laboratory testbeds for experimental verification of GNC technologies | Modenini (UniBo), Fasano (UniNa), Colombo (PoliMi)
- GNSS-like navigation in space exploration | Palmerini (UniRoma1)

10:30–11:00

Coffee break, networking

11:00–12:15

Block 2: Numerical modelling and digital twins

- **Numerical modelling and simulation**
- Hypersonic Aerothermodynamics: Modelling, Simulation and Validation | Pascazio (PoliBa)
- Multifidelity Modeling of Space Systems using Structural Theories and Machine Learning | Petrolo (PoliTo)
- **Space missions' digital twins**
- STAR: A Space mission Twin for Architecture Representation | Pasquali (UniRoma1)
- LLM-Based Rag tool for spacecraft preliminary design process | De Marco (TAS-I)
- **Planetary & rovers digital twins**
- Engineering a Lunar Pressurized Rover Through Modeling and Simulation | Ciminelli (PoliBa)
- Lunar Rover Navigation Module, Ostrogovich (TPZ)
- **Multi-hazard digital twins, on-board applications**
- Multi-hazard rapid mapping and modelling | Boccardo (Polito) & Bianchini (Unifi)
- Exploring FPG-AI framework for on-board hardware acceleration of Deep Neural Networks| Fanucci (UniPi)

12:15–12:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Spoke 1 L & CL ; Spoke 2 L & CL
- Recommendations | A. Fedele (ASI Representative Spoke 1); E. Cavazzuti (ASI Representative Spoke 2)

Day 2 — M2 Session Details

Session M2: Multi-Point EO & DSAR/MIMO for Climate, Emergency and Multi-Hazard | Spoke 5, 3 | R. Battiston, A. Renga

9:00–9:20

Opening keynote: EO for operational services: the IRIDE implementation | G. Costa (ESA)

9:20–10:30

Block 1: DSAR / MIMO

- Digital Beamforming | A. Monti-Guarnieri (POLIMI)
- Additive & Advanced Manufacturing Technologies for DSAR Antennas | O. Peverini (CNR, IIEIT)

Block 2: Multipoint EO for climate and risks management

- Optical compressive sensing for Earth Observation | V. Raimondi (CNR, IFAC)
- Free-form optics multispectral camera for CubeSat | G. Naletto (UNIPD)
- Mini satellites and microsat missions with tir sensors to monitor volcanoes and fires: state of the art and gap analysis | M. Lavagna (PoliMI)

10:30–11:00

Coffee break, networking

11:00–12:15

Block 2: Multipoint EO for climate and risks management

- Probing the Ionosphere from Space The Topside Sounder | L. Perrone (INGV)
- High precision gravimetry | W. J. Weber (UniTn)
- Spaceborne Signals of Opportunity: a New Paradigm in Monitoring Geohazards and Planetary Protection | F. Giannetti (UniPi)

Block 3: AI and Edge Processing

- InSAR Observations of Recent Volcanic Unrest in the East African Rift | C. Pagli (UniFi)
- Non imaging EM earthquake observation | D. Recchiuti (UniTn)
- AI at the Edge: Enabling Intelligent Earth Observation Constellations | P. Thind (GSSI+/IUSS, ESA ESRIN, Argotec SRL)
- How Artificial Intelligence and Earth Observation Satellites and re-shaping volcano monitoring | C. Corradino (INGV)
- Artificial intelligence techniques for the analysis of multitemporal and multimodal data | L. Bruzzone (UniTn)

12:15–12:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Spoke 5 L & CL ; Spoke 3 L & CL
- Recommendations | G. P. Blasone (ASI Representative Spoke 3) ; A. Bigazzi (ASI Representative Spoke 5)

Day 2 – M3 Session Details

Session M3: LUNAR & MARTIAN EXPLORATION: ISRU, Robotics, Habitat, Technologies | Spoke 8, 9 | P. Tortora, G. Piotto

9:00–9:20

Opening keynote - Moon to Mars: from robotic to human exploration | F. Esposito (INAF)

9:20–10:30

Block 1: Space Robotics & Surface Ops | A. Pagani (PoliTo)

- Lunar Ants | V. Lippiello (UniNa)
- Distributed autonomy, positioning, and navigation | G. Notarstefano (UniBo)
- Lunar Pressurized Rover | A. Merlo (TASI)
- Drones for surface operations (& mining technologies) | G. Colombatti (UniPd)

Block 2: ISRU & Surface Science | G. Piotto (UniPd)

- The exploration of Planetary Subsurfaces, from Geologic Mapping to Three-Dimensional Models | A. Frigeri (INAF)
- Meteorites: Moon, Mars, asteroids and simulant materials | G. Pratesi (UniFi)

10:30–11:00

Coffee break, networking

11:00–12:15

Block 2: ISRU & Surface Science

- Regolith ➜ O_2, water, raw materials | M. Lavagna (PoliMi)
- 3D printing, geopolimers | S. Laurenzi (UniRoma1)
- Simulation chambers and dust dynamics | C. Porto (INAF)

Block 3: Habitat & AG | P. Tortora (UniBo)

- EDL, Artificial Gravity module (tethered systems) | C. Bettanini (UniPd)
- Habitat and deployable/inflatable structures | E. Zappino (PoliTo)
- Magnetic shielding | M. Fracasso (PoliTo)
- Materials and smart composites| S. Laurenzi (UniRoma1)

12:15–12:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Moderator: P. Tortora (UniBo); Panelists: E. Suetta (Leonardo), A. Paccagnella (UniPd), F. Ravera (CNR – ICMATE), M. Massironi (UniPd)
- Recommendations | S. Piccirillo (ASI Representative Spoke 8) ; M. Bellucci (ASI Representative Spoke 9)

Day 2 – P1 Session Details

Session P1: SPACE WEATHER END-TO-END: Missions, Sensors, Models, and Operations | Spoke 4, 6 | L. Latronico, S. Fineschi

15:00–15:20

Opening keynote - Space Weather Across Borders: Italy's Role and Future Perspectives | C. Plainaki (INAF-IAPS)

15:20–16:30

Block 1: Enabling Science for SWE & Forecasting/nowcasting Tools

- Solar & Heliospheric Models & Data Analysis | P. Romano (INAF-OACT)
- Simulations & Virtual Spacecraft Validation| S. Servidio (UniCal)
- Forecasting/Nowcasting Space Weather Tools | M. Laurenza (INAF-IAPS); L. Alfonsi (INGV)
- Space Weather Effects on Technological Systems | D. Sabbagh (INGV)

Block 2: Instrumentation and Sensors for Space Weather

- Innovative Coronagraphs for Space Weather Missions | F. Landini (INAF-OATO)

16:30–17:00

Coffee break, networking

17:00–18:15

Block 2: Instrumentation and Sensors for Space Weather

- Particle Detectors & Silicon Photon Multipliers | C. Sgro (INFN)
- Atomic clock/Time-reference | S. Micalizio (INRIM)

Block 3: Innovative Space

- SELENE – CubeSat Lunar Space Weather Mission | S. Fineschi (INAF-OATO)
- Payload Trade-Off Methodology| F. Berrilli (UniRoma2)

18:15–18:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Spoke 4 L & CL ; Spoke 6 L & CL
- Recommendations | D. Perrone (ASI Representative Spoke 6) ; L. Di Fino (ASI Representative Spoke 4)

Day 2 — P2 Session Details

Session P2: SPACE LIFE SCIENCES: Agricolture, Torpor, Biodetection, Life-Support | Spoke 8, 9 | P. Tortora, G. Piotto

15:00–15:20

Opening keynote - Biology as a technology for deep space | G. Piotto (UniPd)

15:20–16:30

Block 1: Space Agriculture & Synthetic Biology | M. Zago (UniRoma2)

- Vegetable Ideotypes for Fresh Food Production and Astronaut Diet | A. Desiderio (ENEA)
- Plant Cultivation for Bioregenerative Life Support Systems Based on the Use of In-Situ Planetary Resources | S. De Pascale (UniNa)
- Analog environments | M. Pondrelli (UniCh)
- Soilless system for fresh food production for a balanced astronaut diet | N. Grasso (PoliTo)

Block 2: Biomarker & Human Factors| A. Catizone

- Individual and Crew's Human Factors Measurement | G. Borghini (UniRoma1)
- Psychological and physiological effects, including HDBR | M. Narici (UniPd)

16:30–17:00

Coffee break, networking

17:00–18:15

Block 2: Biomarker & Human Factors | A. Catizone

- Multisensory Integration and Countermeasures for Space Exploration | M. Zago (UniRoma2)
- Torpor for radioprotection | M. Cerri (UniBo)
- Lab-on-chip and sensors for space biology | M. Mirasoli (UniBo)

Block 3: Closed-loop Life Support | G. Palmerini (UniRoma1)

- Bioprinting | B. Colosimo (PoliMi)
- Molecular basis of space adaptation | M. Bizzarri (UniRoma1)
- Health monitoring and countermeasures for space adaption | P. Maffettone (UniNa)
- Radiation effects and monitoring sensors for closed-loop systems | B. Fraboni (UniBo)

18:15–18:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Moderator: M. Bizzarri (UniRoma1); Panelists: N. Salza (Space Factory), B. Fraboni (UniBo), L. Baldini (UniPi INFN), A. Angrilli (UniPd)
- Recommendations | S. Piccirillo (ASI Representative Spoke 8) ; M. Bellucci (ASI Representative Spoke 9)

Day 2 — P3 Session Details

**Session P3: DOWNSTREAM SERVICES, SPACE ECONOMY AND LAW |
Spoke 5, 7 | S. Scollo, D. Cimini**

15:00–15:20

Opening keynote - The new institutional resilience service for Copernicus and Civil Security | A. Taramelli (IUSS)

15:20–16:30

Block 1: Multi-Hazard Intelligence

- Geomagnetic storms and the ionosphere–thermosphere: toward integrated early warning under top-down and bottom-up forcings | G. Cianchini (INGV)
- Space Weather: a SiU perspective by Spoke 2 | C. Fasciano (PoliBA)
- Analysis of volcanic eruptions using remote sensing systems| S. Scollo (INGV)
- Ionospheric LAIC coupling | F. Lepreti (UniCAL)
- Hazard hydro-meteo | G. Panegrossi (CNR)

Block 2: Climate & Sustainability Services

- Coastal wetland land cover classification for vulnerability assessment perspectives | A. Troccoli (GSSI+/IUSS)
- Zero Emission Society | M. Brovelli (PoliMI), G. Bitelli (UniBo)
- Requirements and dedicated technology for upstream platforms | M. Eugeni (UniRoma1)

16:30–17:00

Coffee break, networking, media corner

17:00–18:15

Block 2: Climate & Sustainability Services

- Next-gen sensors for environmental and infrastructural monitoring | A. Renga (UniNa)
- CALVAL activities for next generation sensors and platforms | D. Cimini (CNR)

Block 3: Space Economy & Policy

- Business model & Space Economy transition | A. Natalicchio, A. Messeni Petruzzelli (PoliBa)
- European Entrepreneurial Ecosystem for the New Space Economy | E. D'Amico, F. Caviggioli, G. Scellato (PoliTo)
- Legal and economic impact of Earth Observation services for agri-food security from extreme events | D. Conzato, C. Caporali (GSSI)
- Framing the micro-foundations of Product-Service strategies in advancing EO solutions | V. Zancan, P. Trucco (PoliMi)

18:15–18:45

Wrap-up and summary for "Florence Recommendations"
- Session conclusion | Spoke 5 L & CL ; Spoke 7 L & CL
- Recommendations | A. Bigazzi (ASI Representative Spoke 5); M. L. Battagliere (ASI Representative Spoke 7)

Day 3 | 28 January

8:30–9:00	Registration
9:00–9:30	Setting the Framework, Summary of Days 1 and 2
9:30–10:30	Summary of Sessions M1, M2 and M3	Chairs of the sessions M
10:30–11:00	Coffee break, networking
11:00–12:00	Summary of Sessions P1, P2 and P3	Chairs of the sessions P
12:00–12:30	Florence recommendations and way forward
12:30–14:00	Lunch