



Advances on Space Weather activities in ITALY

(not exhaustive)

ISWI Italian Coordinators:

Yenca Migoya-Orué (ICTP)

Vincenzo Romano (INGV)

Thanks to:

ICTP (Trieste): Y. Migoya-Orué, B. Nava; **INAF (Catania):** P. Romano, S.L. Guglielmino, L. Contarino, P. Costa; **INGV (Roma):** V. Romano, E. Pica, C. Marcocci, C. Scotto, D. Sabbagh, L. Perrone, M. Pezzopane, A. Pignalberi, L. Spogli, C. Cesaroni, L. Alfonsi, D. Di Mauro, S. Lepidi, P. Bagiacchi; **UNICT (Catania):** F. Zuccarello, M. Korsos; **UNIGE (Genova):** M. Piana, A.M. Massone, S. Guastavino, F. Benvenuto; **UNIVAQ (L'Aquila):** M. Piersanti, E. Pietropaolo, P. Francia, M. De Lauretis, G.D'Angelo, A. Cicone; **UNIPA (Palermo):** F. Reale, P. Pagano



City	Institutions
Trento	Università di Trento, INFN
Trieste	ICTP
Torino	INAF
Genova	Università di Genova
Bologna	INAF
L'Aquila	Università dell'Aquila, INGV
Roma	INGV, INAF, Università di Tor Vergata, ASI, Italian Air Force
Perugia	Università di Perugia
Cosenza	Università della Calabria
Catania	Università di Catania, INAF
Palermo	Università di Palermo
Cagliari	INAF

ASI: Agenzia Spaziale Italiana
ICTP: International Centre for Theoretical Physics
INAF: Istituto Nazionale di Astrofisica
INFN: Istituto Nazionale di Fisica Nucleare
INGV: Istituto Nazionale di Geofisica e Vulcanologia



Italy

Italian Coordinated Activities and projects



- **SWICo- Space Weather Italian COmmunity**

SWICo continues its activity with the goal to promote and coordinate the Italian community on SWx

- **Italian Air Force - INAF and INGV agreement**

The agreement for the realization of the Italian SWx operative capacity is going on with the inclusion of ASI

- **CAESAR- Comprehensive spAce wEather Studies for the ASPIS prototype Realization**

The project for the population of the SWx Scientific Database ASI-ASPIS is going on

- **URSI Italy**

SWx objects are promoted in the framework of the Radio Science Italian community. URSI WIRS (Women in RS)

- **ARCTIC and ANTARCTIC National programs**

SWx and ST physics continue to be part of the two Italian polar programs with several approved projects

- **PNRR- Italian funding program for NextGenerationEU**

Projects to develop science and infrastructure in the space sector, including SWx (“PEOS” and “Space it up”).
Doctoral program

- **NORISK- New Observatory for Real-time Ionospheric Sounding over Kenya**

An ASHNGV project that built a new ionospheric observatory in Kenya including training and capacity building



Italy

Ongoing International projects



Acronym/funding	Extended title	Italian participants	International participants	link
T-FORS (EU)	Travelling Ionospheric Disturbances Forecasting System	INGV	NOA (GR), OE (E), RMI (B), BGD (BU), IAP-P (CZ), IAP-L (D), GFP (D), FI (H), ONERA (F)	https://t-fors.eu/
PITHIA-NRF (EU)	Plasmasphere Ionosphere Thermosphere Integrated Research Environment and Access services: a Network of Research Facilities	INGV, SET	OA (GR), EISCAT (S), EGI (NL), UT3 (F), DLR (G), OE (E) JFWCONSULT (F), UOULU (FIN) BIRA-IASB (B), KU Leuven (B), SRC PAS (PL), ROB (B), UOW (UK), NWO-I (NL), CNES (F), IRM/KMI (B), BGD (BU), UPC (E), UTWENTE (NL), CNRS (F)	https://pithia-nrf.eu/
Swarm-VIP-Dynamic (ESA)	Swarm-Variability of Ionospheric Plasma-Dynamic	INGV	UiO (NO), UoB (UK), IAP-CAS (CZ), DLR (DE), KNMI (NL)	
PECASUS (ICAO)	Partnership for Excellence in Civil Aviation Space weather User Services	INGV	FMI (FIN), MetOffice (UK), DLR (D), SRC-PAS (PL), SL (A), KNMI (NL), STCE (B), FU (CY)	https://pecasus.eu/
SWESNET (ESA)	Space Weather Service Network	INAF, INGV	52 groups from 45 legal entities and 17 countries.	https://swe.ssa.esa.int/swesnet-project
MoNEWIC (ESA)	Monitoring Network for Evil Waterform and Ionospheric Characterization	ICTP	DLR (G), UPC (E), NLR (NL), AIRBUS (G), IEEA (FR)	
SWATNet (EU)	Space Weather Awareness Training Network	UNITOV	UH, UTU (FIN), UC (E), USFD (UK), USPF (HU), ELTE, UMCS (PL), KU Leuven (B), AA, UoI(GR)	https://swatnet.eu
AMIC (ESA)	Low Cost Ionospheric Monitoring and Observable Characterization: Proof of Concept	ICTP	ROKUBUN S.L. (E)	
ARCAFF (EU)	Active Region Classification and Flare Forecasting	UNIGE	DIAS (Ireland), Westminster University (UK), SZTAKI (HU)	https://arcaff.eu/
DLProp (ESA)	Deep Learning for Screening Propagation Data	ICTP, INGV	JR (Austria), ROK (E), FFI (Norway).	



Italy

Capacity Building and Outreach



2023 Activities

Italian organiser	Place	Date	Title
CIFS-ISSS-INAF	L'Aquila (Italy)	April 2023	Frontend research at low radio frequency Radio astronomy: Science and technical challenges
ICTP	Trieste (Italy)	May/June 2023	ICTP-SCOSTEP-ISWI School and Workshop on the Predictability of the Solar-Terrestrial Coupling - PRESTO
MSSW @UNIGE	Genova (Italy)	May 2023	MIDA Space Weather Week
INGV	Rome (Italy)	May 2023	1st Training School of the PITHIA-NRF project
UNIVAQ-INGV	Rome (Italy)	May 2023	Capacity Building Workshop on Radio Sciences techniques for Space Weather during the MaSAG23 School
INGV - ICTP - ASI	Malindi (Kenya)	October 2023	Eastern African Capacity Building Workshop on Space Weather and Low Latitude Ionosphere

2024 Planned Activities

Italian organiser	Place	Date	Title
INAF - INGV -UNIVAQ	L'Aquila (Italy)	May 2024	Operational Space Weather Fundamentals
INAF	Turin (Italy)	Sept 2024	17th European Solar Physics Meeting (ESPM-17)
ICTP - INGV	Trieste (Italy)	Oct 2024	African Capacity Building Workshop on Space Weather and Ionospheric Research



THANK YOU!

yenca@ictp.it

vincenzo.romano@ingv.it

Thanks to:

ICTP (Trieste): Y. Migoya-Orué, B. Nava; **INAF (Catania):** P. Romano, S.L. Guglielmino, L. Contarino, P. Costa; **INGV (Roma):** V. Romano, E. Pica, C. Marcocci, C. Scotto, D. Sabbagh, L. Perrone, M. Pezzopane, A. Pignalberi, L. Spogli, C. Cesaroni, L. Alfonsi, D. Di Mauro, S. Lepidi, P. Bagiacchi; **UNICT (Catania):** F. Zuccarello, M. Korsos; **UNIGE (Genova):** M. Piana, A.M. Massone, S. Guastavino, F. Benvenuto; **UNIVAQ (L'Aquila):** M. Piersanti, E. Pietropaolo, P. Francia, M. De Lauretis, G.D'Angelo, A. Cicone; **UNIPA (Palermo):** F. Reale, P. Pagano