ASI Workshop "Present & future of thermal applications based on Earth Observation data"

Agenzia Spaziale Italiana / Italian Space Agency (ASI)
Via del Politecnico snc, Rome, Italy
Auditorium

13 – 14 May 2026

Day 1 – 13 May 2026 – "Earth Observation, urban heat islands and thermal comfort in cities: the experience of the Italy-Vietnam LCZ-UHI-GEO cooperation and beyond"

Title	Speaker	CEST	ICT
Participants registration		09:00 – 09:30	14:00 – 14:30
Welcome and Workshop objectives	Simona Zoffoli Italian Space Agency (ASI)	09:30 – 09:45	14:30 – 14:45
Session #1 "Italy-Vietnam LCZ-UHI-GEO project" Chair: Deodato Tapete ASI			
The executive programme for scientific and technological cooperation between Italy and Vietnam	Marco Abbiati, Science and Technology Counsellor, Embassy of Italy in Hanoi, Ministry of Foreign Affairs and International Cooperation (MAECI)	09:45 – 10:00	14:45 – 15:00
LCZ-UHI-GEO project from the Italian side	Maria Antonia Brovelli Politecnico di Milano (POLIMI)	10:00 – 10:15	15:00 – 15:15
VNSC's activities and the project LCZ-UHI-GEO between VNSC-POLIMI-ASI	Lam Dao Nguyen Ho Chi Minh City Space Technology Application Center (STAC), Vietnam National Space Center (VNSC)	10:15 – 10:30	15:15 – 15:30
ASI's contribution to the LCZ-UHI-GEO project	Patrizia Sacco ASI	10:30 – 10:45	15:30 – 15:45
LCZ methodology and air temperature analysis in Rome and Milan	Matej Žgela POLIMI	10:45 – 11:00	15:45 – 16:00
The relationship of Local Climate Zone and Land Surface Temperature in the case of Vietnam LC	Pham Thi Mai Thy VNSC-STAC, Ho Chi Minh City	11:00 – 11:15	16:00 – 16:15
Q&A		11:15 – 11:30	16:15 – 16:30

Session #2 "State of the art of research in Vietnam on urban heat islands and thermal comfort" Chairs: Pham Thi Mai Thy and Maria Antonia Brovelli VNSC-STAC, Ho Chi Minh City and POLIMI			
Title	**Speaker**	**CEST**	**ICT**
Impact of Green Space Decline on Land Surface Temperature in Hanoi using MODIS data	Quang Truong Xuan, Vietnam National University	11:30 – 11:45	16:30 – 16:45
Urban Golf Courses in Hanoi: Land Cover Change and Surface Temperature Impacts from Remote Sensing	Anh Nguyen Kim VNSC-STAC, Hanoi	11:45 – 12:00	16:45 – 17:00
Leveraging Open Satellite Data for Low-Barrier Monitoring of Urban Green Space in Rapidly Urbanizing Cities	Leon Scheiber Climate Service Center Germany (GERICS), Helmholtz-Zentrum Hereon	12:00 – 12:15	17:00 – 17:15
Q&A		12:15 – 12:30	17:15 – 17:30

Poster session Hall in front of ASI's canteen **<u>Both Day 1 and Day 2 posters are allowed to present</u>**	**CET** 12:30 – 13:30	**ICT** 17:30 – 18:30
Bridging Surface Urban Heat Islands and Predictive Modelling of Land Surface Temperature	Jean Pascal Iannacone CGI Italia	
Thermal Analysis for Resilient Transport Infrastructure: A Downscaling Approach Using Satellite Data and UAV	Valerio Gagliardi Università Roma Tre	
Mapping and Monitoring of Urban Heat Islands in Piedmont (M2UHIP)	Giorgio Roberto Pelassa e Enrico Suozzi Regione Piemonte	
High-Resolution Surface Temperature Mapping for Urban Heat Risk	Anna Lisa Labaar S[&]T	
Sensitivity study of the 4.8 µm channel to CO2 emissions from high temperature sources	Vito Romaniello INGV	
Improving Thermal Infrared LST Products Through NDVI-Based Downscaling for Earth Observation Applications	Malvina Silvestri INGV	
Combining optical and thermal data for cryosphere monitoring in the Alps	Biagio Di Mauro CNR-ISP	
A Semi-Supervised Approach to Classifying Proxy Thermal-States Using Satellite-Derived Time Series at Vulcano (2016–2024)	Francesco Spina INGV	
From satellite data to decision support: the MIRIFICUS Project and WebGIS platform for Surface Urban Heat Island monitoring	Marina Funaro ISPRA	

Lunch	**CET**	**ICT**
	13:30 – 14:30	18:30 – 19:30

Session #3 "State of the art of research in Italy and beyond" Chairs: Deodato Tapete and Patrizia Sacco ASI			
Title	**Speaker**	**CEST**	**ICT**
HEATWISE Advanced Urban Materials and Climate Zone Products for Urban Resilience Exploiting Hyperspectral and Thermal Data	Paolo Gamba University of Pavia	14:30 – 14:45	19:30 – 19:45
Local Climate Zone Mapping by Integrating Hyperspectral and Multispectral Data with a Spectral–Spatial Fusion Network	Silvia Liberata Ullo University of Sannio	14:45 – 15:00	19:45 – 20:00
Urban Heat Island Spatialization in an Alpine Valley: A Heatwave Case Study in Grenoble, France	Paolo De Piano Latitudo40	15:00 – 15:15	20:00 – 20:15
Urban Heat Island and thermal comfort assessment with geomatics techniques and Earth Observation data: the Space It Up! project	Maria Brovelli POLIMI	15:15 – 15:30	20:15 – 20:30
Urban Heat Island monitoring using multi-sensor high-resolution thermal infrared satellite imagery	Mattia Pecci National Institute of Geophysics and Volcanology (INGV)	15:30 – 15:45	20:30 – 20:45
Daily urban air temperature mapping from satellite LST for heat-related stress assessment	Daniele Settembre University of Rome "Tor Vergata"	15:45 – 16:00	20:45 – 21:00
High-resolution reconstruction of urban air temperature from geostationary satellite LST using machine learning: application to UHI analysis in Rome	Andrea Cecilia Institute of Atmospheric Sciences and Climate (ISAC), National Research Council (CNR) of Italy	16:00 – 16:15	21:00 – 21:15
Using Satellite Data to Identify "Unhealthy Islands" in the Rome Metropolitan Area	Davide De Santis University of Rome "Tor Vergata"	16:15 – 16:30	21:15 – 21:30
Scale Dependence of Tree Canopy Cooling and Imperviousness Effects in Rome from Mobile Air Temperature Observations (TRAMS)	Lorenzo Marinelli ISAC, CNR	16:30 – 16:45	21:30 – 21:45
A methodological approach for microclimatic analysis and assessment from the macroscale to proximity open spaces	Ilaria Montella Roma Tre University	16:45 – 17:00	21:45 – 22:00

Land Surface Temperature Downscaling for High-Resolution Urban Heat Monitoring	Simone Lolli Institute of Methodologies for Environmental Analysis (IMAA), CNR	17:00 – 17:15	22:00 – 22:15
From satellite data to decision support: the MIRIFICUS WebGIS platform for Surface Urban Heat Island monitoring	Marina Funaro Italian Institute for Environmental Protection and Research (ISPRA)	17:15 – 17:30	22:15 – 22:30
SMARTY – Integration of Satellite Data and Operational Information to Support the Resilience of Metropolitan Cities	Francesca Fratarcangeli e Edoardo Zoppi e-GEOS	17:30 – 17:45	22:30 – 22:45

Conclusive discussion & remarks	**CET**	**ICT**
	17:45 – 18:00	22:45 – 23:00

Day 2 – 14 May 2026 – "Algorithms and applications for Earth Observation in the thermal infrared"

Title	Speaker	CEST
Participants registration		09:00 – 09:30
Welcome and Workshop objectives	Simona Zoffoli ASI	09:30 – 09:45
Overview of scientific activities using EO thermal data	Fabrizia Buongiorno INGV	09:45 – 10:00
Session #1 "THERESA project" Chair: Sara Venafra ASI		
The THERESA Project: Advanced Algorithms for VNIR–TIR Data in the Context of the SBG-TIR Mission	Malvina Silvestri INGV	10:00 – 10:15
Analysis of methodologies for SBG-TIR L1 and L2 products retrievals (geometric and atmospheric correction, land surface temperature and emissivity estimation, cloud/shadow/snow/land-sea mask)	Giovanni Laneve SIA-SAPIENZA	10:15 – 10:30
Use of SBG-TIR data for applications related to vegetation	Roberto Colombo UNIMIB	10:30 – 10:45
Fire and volcanic applications	Vito Romaniello INGV	10:45 – 11:00
Thermal remote sensing for topsoil characterization and raw material analysis	Stefano Pignatti CNR-IMAA	11:00 – 11:15
COFFEE BREAK + **Continuation of the poster session** Hall in front of ASI's canteen **<u>Both Day 1 and Day 2 posters are allowed to present</u>**		11:15 – 11:45
Enhanced Detection of Volcanic Thermal Anomalies Using Normalized Thermal Indices	Gaetana Ganci INGV	11:45 – 12:00
Volcanic Ash and SO2 Retrievals	Lorenzo Guerrieri INGV	12:00 – 12:15
A cloud mask approach for thermal missions	Karthick Dharmarajan SIA-SAPIENZA	12:15 – 12:30
Estimation of Leaf Area Index and Vegetation Fractional Cover using SCOPE simulated data and Sentinel-2 images	Luca Tuzzi UNIMIB	12:30 – 12:45

Predicting Soil Organic Carbon with LWIR Spectral Data: From Laboratory and Airborne Imagery to Simulated Future Thermal Missions.	Francesco Rossi CNR-IMAA	12:45 – 13:00
Surface Mineral Mapping Using LWIR airborne data in view of the future thermal missions	Saham Mirzaei CNR-IMAA	13:00 – 13:15

Final slot for the poster session Hall in front of ASI's canteen **<u>Both Day 1 and Day 2 posters are allowed to present</u>**	**CEST**
	13:15 – 13:30

Lunch	**CEST**
	13:30 – 14:30

Session #2 "EO Thermal Algorithms and Applications" Chairs: Sara Venafra and Giorgio Antonio Licciardi		
Title	**Speaker**	**CEST**
Assessing the contribution of ECOSTRESS-derived TIR products to LCZ mapping in view of the future thermal missions	Alberto Vavassori POLIMI	14:30 – 14:45
MASTER Level-3 Products: Algorithms and Applications for Future TIR Satellite Missions	Federico Rabuffi INGV	14:45 – 15:00
Advanced Thermal Mapping Products in Urban and Periurban Areas	Paolo Gamba UNIPV	15:00 – 15:15
High-Resolution Thermal Infrared Imaging for Small Satellites and Small-Series Production in Benevento	Marco Esposito COSINE ITALIA	15:15 – 15:30
The smallsat VULCAIN mission for EO scientific products in VIS\TIR	Michèle Lavagna POLIMI	15:30 – 15:45
High Resolution Sea Surface Temperature monitoring in coastal areas: state of the art and proposed advances from the ASTRO research proposal	Daniele Ciani CNR-ISMAR	15:45 – 16:00
Thermal remote sensing for monitoring mountain environment	Claudia Notarnicola EURAC	16:00 – 16:15
Leveraging the thermal missions for Advanced Crop Stress Monitoring: Indices based on Physical TIR Modeling	Guido Masiello UNIBAS	16:15 – 16:30

Exploiting σ radiative transfer capabilities for advanced thermal infrared products	Tiziano Maestri UNIBO	16:30 – 16:45
Towards a Geostationary Thermal System for Operational Support of the Italian National Fire Corps	Francesco Biasci CNVVF	16:45 – 17:00

	CET
Conclusive discussion & remarks	17:00 – 17:15