

The **Copernicus for Cultural Heritage Summer School Workshops** will provide three workshops that will take place over the summer in Limassol, Cyprus organized by the Cyprus University of Technology, in Rome, Italy by ISPRA and in Munich, Germany by DLR. Each workshop will be designed for local participants, including local/regional experts, archaeologists and decision makers, government agencies, local authorities, private companies, industry, academia, researchers and graduate and doctorate level students, in order to provide in-depth training on how to use Copernicus data for cultural heritage. The workshops will be taught by up to four invited experts in the field of Cultural Heritage and Earth observation who will provide knowledge transfer and capacity building on how Copernicus data can be used for cultural heritage.

The workshops will highlight the various initiatives and research projects, operational services, etc., which are based on Copernicus data (and contributing mission) and stress the value of their use and the opportunities offered from Copernicus towards public services. The data and information offered by the Copernicus programme can contribute to tangible and natural cultural heritage preservation and management. The free and open data and information delivered by the Copernicus programme represents a valuable resource for Cultural Heritage monitoring and preservation at European and global level. Examples of useful EO-based products include archaeological sites monitoring and identification, monitoring of the destruction or looting of sites, ground motion detection, hazard and risk assessment maps, natural subsidence, urban sprawl monitoring, climate change indicators, air pollution monitoring, coastline monitoring (erosion), bathymetry, etc.

The workshops will include lectures and presentations as well as in-situ activities that utilize easy-to-use, web-based, remote-sensing software. The workshop will include visits to cultural heritage sites and laboratory exercises in order to develop the necessary knowledge and skills for using Copernicus data for cultural heritage applications. The lecture material and relevant case studies will be developed by experts in the field of Cultural Heritage and Earth observation. As well, various case studies of how Copernicus data has been used for cultural heritage applications will be discussed, in order to facilitate knowledge transfer. Each partner will travel and participate in the workshops in order to provide case studies and applications at the national level.

ATTENDANCE IS FREE OF CHARGE AND LIMITED IN NUMBER OF PARTICIPANTS ON A FIRST COME FIRST SERVED BASIS. ATTENDEES ARE RESPONSIBLE FOR THEIR OWN TRAVEL AND ACCOMMODATION ARRANGEMENTS AND PAYMENT

ACTION PROMOTED BY



UNDER THE AUSPICIUS



SUMMER SCHOOL WORKSHOP

**ACTION 2020-2-21:
COPERNICUS
FOR CULTURAL HERITAGE**

13-16.06.2023

PARCO REGIONALE DELL'APPIA ANTICA
Ex Cartiera Latina - Via Appia Antica, 42

TECHNICAL AND SCIENTIFIC SECRETARY:

D. SPIZZICHINO (ISPRA)

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ORGANIZATION:

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FIRST DAY 13 June Tuesday

MORNING SESSION

Chairman: D. SPIZZICHINO (ISPRA)

- 9:15 WELCOME COFFEE
- 9:30 REGISTRATION
- 10:00 **TOWARDS THE COPERNICUS EUROPEAN THEMATIC HUB ON CULTURAL HERITAGE**
- 10:10 *Action and school presentation* - D. Spizzichino, ISPRA
- 10:30 *Copernicus Program and User Forum*
A. Taramelli, National Copernicus User Forum delegate
- 10:50 *The Action on Cultural Heritage Technical Group*
N. Bonora, ISPRA
- 11:10 *Cultural Heritage for Earth Observation in Cyprus*
K. Themistocleus, CUT
- 11:30 *Copernicus for CH: cases of study and perspectives from German* - G. Schreier e D. Cerra, DLR
- 11:50 *Copernicus User Uptake Actions in Greece*
D. Tsoutsou, PRAXI Network/FORTH
- 12:10 *Remote sensing for risk assessment and emergency management near cultural heritage sites*
S. Alatza, M. Papakonstantinou, NOA
- 12:25 *Copernicus Relay and the Italian network* - S. Geraldini, ISPRA
- 12:40 *Copernicus Academy and the Italian network*
M. Castellani, ISPRA
B. De Bernardinis, Copernicus Academy

13:00 LIGHT LUNCH AND NETWORKING

AFTERNOON SESSION

Chairman: D. SPIZZICHINO (ISPRA)

- 14:00 *Copernicus Climate Change Service and Copernicus Atmosphere Monitoring Services (C3S & CAMS): from data to actionable information to protect and safeguard the world's cultural and natural heritage sites*
C. Cagnazzo, ECMWF
- 14:20 *An ESA Earth Observation perspective on Trends, Challenges and Future Prospects in Cultural Heritage*
J. Patruno, ESA Esrin
- 14:40 *The role of the EU Soil Observatory in developing data, knowledge, indicators for science and policy*
P. Panagos, JRC - Land Services
- 15:00 *Copernicus SEA in the fight against Archaeological Crimes*
M. Tamame, R. Onori, Satcen
- 15:20 *Geotechnical engineering for the preservation of cultural heritage and the possible aid of Earth Observation data* - A. Flora, AGI TC301
- 15:40 *Disaster Risk Management for Cultural Heritage: key principles and the importance of good data*
G. Boccardi, ICOMOS

SECOND DAY 14 June Wednesday

MORNING SESSION - ICOMOS - IFCORP: NATURAL HAZARD AND CH MONITORING AND PROTECTION

Chairman: D. SPIZZICHINO (ISPRA)

- 9:30 WELCOME COFFEE
- 10:00 *Copernicus and the Global cultural policy*
E. Sciacchitano, MIC
- 10:20 *Cultural Heritage concepts evolution in the last decades*
M.T. Jaquinta, ICOMOS
- 10:40 *Natural Hazards and Cultural Heritage*
C. Margottini, ICOMOS UNESCO chair - IAEG
- 11:00 *Innovative monitoring approaches in complex archaeological sites*
L. Petti, ICOMOS UNISA
- 11:20 *Exploring the potential of Copernicus Services for the documentation and preservation of Cultural Heritage*
G. Tucci, ICOMOS UNIFI
- 11:40 *From the knowledge to the preservation of architectural surfaces. What future perspectives?*
E. Zendri, ICOMOS Università Ca' Foscari Venezia
- 12:00 Question, answer and Technical Survey

13:00 LIGHT LUNCH AND NETWORKING

AFTERNOON SESSION - CLIMATE CHANGE EFFECTS ON CH

Chairman: F. FERRIGNO (ISPRA)

- 14:00 *Climate change Global and European prospective and Forecasting* - B. Gozzini, CNR LAMMA
- 14:20 *Future climate in the Mediterranean Sea: a focus on sea-level change* - G. Sannino, ENEA C.R. Casaccia
- 14:40 *Il C3S a supporto dei servizi e dei prodotti idro-meteorologici e climatici nazionali*
S. Mariani, ISPRA
- 15:00 *EO-driven modelling and mapping of CH at flood risk*
F. Nardi, WARREDOC UNISTRAPG
- 15:20 *Risk mapping tool for cultural heritage protection in a changing climate*
A. Sardella, CNR ISAC
- 15:40 *Satellite SAR Interferometry and ground-based monitoring systems for CH protection from ground instabilities* - V. Tofani, UNESCO chair

THIRD DAY 15 June Thursday

MORNING SESSION: OPTICAL DATA, PRODUCT AND SERVICES

Chairman: A. TORNATO (ISPRA)

- 9:30 WELCOME COFFEE
- 10:00 *AI meets EO: Developments and Perspectives in the Analysis and Preservation of Cultural Heritage through Satellite Imagery* - A. Traviglia, G. Poggi, ITT
- 10:20 *Application of air pollutant data for Cultural Heritage preservation* - R. Gaddi, ISPRA
- 10:40 *Sentinel-based approaches to cultural heritage: towards an operational use* - N. Masini, CNR
- 11:00 *Multi-sensor, multi-scale, multitemporal approaches for investigations and degradation assessment in cultural and natural heritage contexts*
R. La Saponara, CNR
- 11:20 *3D digitisation of cultural heritage using remote sensing*
K. Themistocleus, CUT

- 11:40 *Coastal dynamics and CH* - G. Leoni e F. D'ascola, ISPRA
- 12:00 *Vegetation cover for mapping NCH: the Càn Giò Biosphere Reserve, VietNam - UNESCO*
E. Valentini, CNR ISP IUSS - A. Nguyen Xuan, ISPRA
- 12:20 *Waves and Sea level monitoring and climate change projections for CH* - A. Bruschi, ISPRA
- 12:40 Question and answer

13:00 LIGHT LUNCH AND NETWORKING

AFTERNOON SESSION: SATELLITE RADAR DATA, PRODUCT AND SERVICES FOR THE MONITORING OF CH

Chairman: L. GUERRIERI (ISPRA)

- 14:00 *SAR change detection and InSAR techniques for study and conservation of cultural heritage, with a focus on ASI's COSMO-SkyMed constellation*
D. Tapete, ASI
- 14:20 *Combining satellite and ground-based radar data for the characterization of high-rise historical buildings*
P. Mazzanti, A. Brunetti, Sapienza & Nhazca
- 14:40 *Ground motion and CH*
F. Menniti, G. Leoni, D. Spizzichino, ISPRA
- 15:00 *IdroGEO and EGMS for CH*
A. Trigila e C. Iadanza, ISPRA
- 15:20 *Short hands-on session using Google Earth Engine for CH applications* - D. Cerra, DLR

FOURTH DAY 16 June Friday

MORNING SESSION - MONITORING AND MANAGEMENT OF CH THE ITALIAN EXPERIENCES AND PERSPECTIVE

Chairman: G. LEONI (ISPRA)

- 9:30 WELCOME COFFEE
- 10:00 *La prevenzione per la salvaguardia del Patrimonio culturale. Il Piano straordinario di monitoraggio dei beni immobili*
M. Mercalli, MIC Consulente DG Sicurezza
- 10:20 *ICR and DG Sicurezza (MIC): VIR and Risk map for CH*
C. Cacace, MIC - M. E. Corrado, ICR
- 10:40 *SyPEAH: System for Protection and Education to Archeological Heritage* - I. della GiovaMPaola, PAC (TBC)
- 11:00 F. Pagano e M. Salvatori, PACF
- 11:20 T. D'Angelo, Parco Archeologico di PAESTUM e VELIA
- 11:40 G. Zuchtriegel, Parco Archeologico di POMPEI
- 12:00 S. Quilici, Parco dell'Appia Antica
- 12:20 *Critical issues in monitoring linear monumental complexes (Urban Walls and Aqueducts)*
M. Marcelli, Sovrintendenza Capitolina ai Beni Culturali
- 12:40 M. Eichberg, F. Cerroni, B. Casocavallo
Soprintendenza ABAP - Prov. VT ed Etruria Meridionale
- 13:00 LIGHT LUNCH AND NETWORKING
- 15:30 FIELD TRIP: PARCO ARCHEOLOGICO APPIA ANTICA
- 18:00 END OF SCHOOL CEREMONY