

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)

F. FERRIGNO (ISPRA)

ORGANIZATION:

F. DI IORIO (ISPRA) - francesca.diiorio@isprambiente.it

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 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*
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 *C3S&CAMS*, 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 - IICORP: NATURAL HAZARD AND CH MONITORING AND PROTECTION

Chairman: (TBD)

- 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. Sanino, ENEA C.R. Casaccia
14:40 *Il C3S a supporto dei servizi e dei prodotti idro-meteorologici e climatici nazionali*
S. Mariani, ISPRA (TBC)
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. Bonazza, 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 *Multi and hyper spectral image processing for the analysis of CH and landscape*
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 *Multi and Hyper spectral application NCH area*
K. Themistocleus, CUT

- 11:40 *Coastal dynamics and CH* - G. Leoni e F. D'ascola, ISPRA
12:00 *Vegetation cover for mapping NCH: the C n Gi  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. Corrado, ICR
10:40 I. della GiovanPaola, 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 (TBC)
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**