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## **INTERNATIONAL SUMMER SCHOOL ENVIRONMENT - MATERIAL interaction**

Period: 6<sup>th</sup> - 9<sup>th</sup> July, 2022

Venue: GATTOPARDO PARK HOTEL, - 98055 Lipari - Aeolian Islands - Italy

Deadline for application: 31<sup>th</sup> May 2022

Information and application forms: [www.cieffeerre.it/ENVIMAT2022](http://www.cieffeerre.it/ENVIMAT2022)

Facebook: [www.facebook.com/EnviMat/](https://www.facebook.com/EnviMat/)

Email: [a.sardella@isac.cnr.it](mailto:a.sardella@isac.cnr.it)

The International Summer School ENVIMAT - ENVIRONMENT MATERIAL interaction is organized by CNR-ISAC and University of Calabria since 2014.

Every year the school is held in different countries, hosted by different Universities and Research Institutions, and counts about 30 participants; among them scientists and researchers, teaching staff from other universities, professionals, policy and decision makers, students from different fields, cultural heritage managers and curators etc.

### **ENVIMAT 2022 focuses on "Preventive conservation of coastal archaeological sites and cultural landscapes in the Mediterranean Basin".**

Talks are dedicated to the impact of pollution and climate change, risk assessment and management on coastal archaeological remains, monumental complexes and cultural landscapes, with a main focus on measures of protection to natural and anthropogenic risks (floods, sea level rise, fires and air pollution). Strategies of preparedness, in response to emergency and recovery are also discussed.

During the last two years the school has been made online jointing ENVIMAT with the Cultural Property Protection Summer School of the University for Continuing Education Krems.

The school is designed to provide an informal and interactive environment between students and lecturers and will also include a guided tour at the Archaeological Regional Museum of Lipari and a boat trip to admire the agricultural terraces typical of the Aeolian Islands landscape.

### **ENVIMAT 2022 functions as Multiplier Event of the ERASMUS+ Project CHePiCC online "Cultural Heritage Protection in Climate Change online"**

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## PROGRAM

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### 6<sup>th</sup> of July (Wednesday)

09:00 – 09:30 Welcome and Introduction to the course

**Session I:**  
**International Cooperation for safeguarding Cultural and Natural Heritage at risk**

09:30 – 10:20 Risk assessment and sustainable protection of Cultural Heritage in changing environment (Interreg Central Europe projects ProteCH+2save&STRENCH and the Erasmus+ CHePiCC online)  
(A. Bonazza, CNR-ISAC, Italy)

10:20 – 10:50 Sustainable COnservation and REstoration of built cultural heritage, the H2020 SCORE Project (B. Menendez Villar, University of Cergy, France)

10:50 – 11:50 Protecting and disseminating the Underwater Cultural Heritage in the Mediterranean Basin: technologies and best practices in the BLUEMED PLUS and TECTONIC Projects (F. Bruno, UNICAL-DIMEG, Italy)

11:50 – 12:15 Coffee break

12:15 – 13:00 Virtual diving to discover the underwater cultural heritage (F. Bruno, UNICAL-DIMEG, Italy)

13:00 – 15:00 Guided tour at the Regional Museum of Lipari "Luigi Bernabò Brea"  
Welcome from the Director of the Museum, Rosario Vilardo  
Guided tour with the Archaeologist Maria Clara Martinelli

### 7<sup>th</sup> of July (Thursday)

**Session II:**  
**Natural and man-made hazards on cultural heritage in a changing environment**

09:00 – 09:50 Historical and future extreme climatic events in Europe and Latin America (B. Quesada, Universidad del Rosario, Colombia).

09:50 – 10:40 Cultural heritage at risk due to the impact of extreme climate: the role of the satellite observations. (E. Cattani, CNR-ISAC, Italy)

10:40 – 11:30 The "Risk Mapping Tool for Cultural Heritage Protection"  
(A. Sardella, CNR-ISAC, Italy).

11:30 – 12:00 Coffee break.

12:00 – 12:50 Coastal Erosion. Implications on the protection of the archaeological sites (E. Nicotra, UNICAL-DiBEST, Italy).

12:50 – 13:40 Volcanic Risk on coastal cultural landscapes and archaeological sites  
(*E. Nicotra, UNICAL-DiBEST, Italy*).

13:40 – 14:30 The Time and Place Project for the volcanic Island: La Palma (Canary Island). Risk of Volcanic landscape transformations: La Palma and the new perspective for living. (*J. M. Palerm Salazar, ULPCG, Gran Canaria, Spain*)

## **8th of June (Friday)**

### **Session III: Environment - Material interaction**

09:00 – 09:50 Building materials for cultural heritage: characterization, damage and protection in subaerial and underwater environment (*S. Ruffolo, UNICAL-DiBEST, Italy*)

09:50 – 10:40 Salt crystallization effects on building materials in urban and rural environment of coastal areas (*B. Menendez Villar, University of Cergy, France*)

10:40 – 11:30 Life Cycle Approach as an Innovative Methodology for the Recovery and Restoration of the Cultural Heritage (*A. M. Ferrari, UNIMORE, Italy*)

11:30 – 12:00 *Coffee break*

12:00 – 12:50 Atmosphere monitoring and potential climate impact in a Central Mediterranean Coastal Site (*C. R. Calidonna, CNR-ISAC, Italy*)

12:50 – 13:40 Pollution and climate change impact on cultural heritage  
(*A. Bonazza, CNR-ISAC, Italy*)

### **Session IV: Preparing the excursion**

13:40 – 14:30 The Aeolian Terraced Landscape (*A. Sardella, CNR-ISAC, Italy*)

## **9th of July (Saturday)**

Aeolian islands landscape: the agricultural terraces of Filicudi and Alicudi, excursion on boat.

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## LECTURERS

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**Alessandra Bonazza**, CNR-ISAC, Bologna, Italy

Senior researcher at the Institute of Atmospheric Climate and Sciences of the National Research Council of Italy, where she is responsible for the Research Unit "Impact on Environment, Cultural Heritage and Health". Professor of Environmental Impact on Materials, Deterioration and Ageing at the University of Bologna. Expert in climate change and pollution impact on cultural heritage, risk assessment and vulnerability analysis, she recently coordinated the Interreg Central Europe Projects ProteCHt2save and STRENCH and has been member of the "Copernicus Cultural Heritage Task Force".



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**Fabio Bruno**, UNICAL-DIMEG, Rende, Cosenza, Italy

Associate Professor at the Department of Mechanical, Energy and Management Engineering (DIMEG), University of Calabria (UNICAL). He is cofounder of 2 spin-off companies: 3D Research s.r.l. and Tech4Sea s.r.l. His research interests focus on new technologies for the documentation, preservation and enhancement of underwater cultural and natural heritage. He had/has leading roles in various European projects including: INTERREG MED – BLUEMED and BLUEMED PLUS, H2020 – IMARECULTURE, EASME/EMFF Lab4Dive and DiveSafe; EASME MeDryDive; Creative Europe – CREAMARE; MSCA-RISE TECTONIC.



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**Claudia Roberta Calidonna**, CNR-ISAC, Lamezia Terme, Italy

Researcher at CNR-ISAC since 2009. She is the PI of the GAW Regional Station of Lamezia Terme in which several climatic variables monitoring are active since 2014. Her research topics regards experimental activities related to climatic variable observation and their impact on environment and related risks ranging from hydrological, coastal and fire connected with complex natural phenomena modelling. She was PI, and WP leader, of several national and regional projects including: PON SIGIEC, PON I-AMICA high training network, PON ICOS, and international bilateral exchange projects.



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**Elsa Cattani**, CNR-ISAC, Bologna, Italy

Full-time researcher at the CNR-ISAC since 2007. Her research fields include satellite remote sensing of clouds and precipitation, blended IR-MW techniques for the precipitation estimation, and radiative transfer models in the VIS-NIR-IR for cloudy scenarios. She worked in several ESA and EC funded projects, e.g., the EC-project GLOWASIS and the FP7 project earth2Observe. She has a long-time expertise in data handling and remote sensing algorithms and her main current research is focused on the climatology of precipitation over Africa and the Mediterranean Basin.



**Anna Maria Ferrari**, *UNIMORE, Reggio Emilia, Italy*

Full Professor of Chemistry and Life Cycle Assessment at the Department of Sciences and Methods for Engineering, University of Modena and Reggio Emilia (UNIMORE). Her research activity is focused on LCA and LCC methodologies. She has published more than 120 papers in peer reviewed journals and acted in the coordination/management of 8 R&D projects (H-index=32 (Scopus)). Member of the Italian LCA network, UNEP/SETAC, Italian Chemical Society – Environmental Chemistry and Cultural Heritage Division, Italian Institute of Science and Technology of Materials.



**Beatriz Menendez Villar**, *University of Cergy, Paris, France*

Assistant professor in Geosciences and Environment Sciences at CY Cergy Paris university. She is the director of a vocational bachelor in preservation and valorisation of Built Cultural Heritage and of the University Diploma "Construction and cultural heritage professions". Her research interests are centred on Stone durability. She is interested in climate change effects and minimization of environmental footprint of BCH conservation material, in salt weathering and in underground storage and stability.



**Benjamin Quesada**, *Universidad del Rosario, Bogotá, Colombia*

Climatologist, associate professor and co-creator of the Earth System Sciences Program of the Faculty of Natural Sciences at Universidad del Rosario, with a Master's and PhD in climate sciences from the Institut Pierre Simon Laplace (IPSL) in France and a post-doctorate in vegetation-atmosphere interactions from the Karlsruhe Institute for Technology in Germany. His research focuses mainly on: climate change, climate extremes, impacts of land use change on climate, water and carbon cycling. He is also co-author of the IPCC International Report on Climate Change and Land and the Global Assessment Report of the Intergovernmental Platform on Biodiversity and Ecosystem Services IPBES.



**Eugenio Nicotra**, *UNICAL-DiBEST, Rende, Cosenza, Italy*

Researcher in Volcanology at the University of Calabria. His main field of interest regards the magma dynamics and timescales acting within a volcano feeding system prior, during and after an eruptive event with particular reference to the architecture of the plumbing system and to the eruption trigger mechanisms. EN received a prize from SIMP for the best PhD Thesis in 2010 and the "Angelo Bianchi" Prize in 2013 for its scientific activity. EN held and organized several national scientific conferences and is co-author of more of 25 papers on international scientific journals.



**Juan Manuel Palerm Salaza**, *Universidad de Las Palmas de Gran Canaria, Gran Canaria, Spain*

Professor of Architectural Projects at the School of Architecture of the University of Las Palmas de Gran Canaria. President of UNISCAPE (European Network of Universities for the Study and Research of Landscape - European Landscape Convention). Director of the II and III Biennial of Architecture, Art and Landscape of the Canary Islands, as well as the Landscape Observatory of the Canary Islands. Founder and Director of the Architecture Studio "Palerm & Tabares de Nava, arquitectos". Director of the Research Group of the ULPGC Architecture, Heritage and Landscape. Member and Patron of the CICOP.



**Silvio Ruffolo**, *UNICAL-DiBEST, Rende, Cosenza, Italy*

His research is aimed at the synthesis and characterization of innovative products for the restoration of cultural heritage, mainly stone materials. He deals with the use of nanostructure materials for coatings and consolidating agents. His expertise includes integrated diagnostic analysis of cultural heritage materials by using physical, chemical and mineralogical methods. His scientific teamwork activity is reported in 100 scientific papers on international peer reviewed journals. He participated to several national and international funded research projects.



**Alessandro Sardella**, *CNR-ISAC, Bologna Italy; UNIFE, Ferrara, Italy*

Geologist with experience in the field of environmental characterization of contaminated sites, environmental monitoring for the preservation of the built heritage and cultural landscapes in urban and remote areas, planning and implementing field investigations, client and project management. He's currently involved in the research unit "Impacts on Environment, Cultural Heritage and Human Health" at CNR-ISAC of Bologna and Lamezia Terme dedicated to the protection of cultural heritage against extreme climate events and anthropogenic hazard and he's started a PhD at the University of Ferrara in 2020.





## ORGANIZING INSTITUTION

National Research Council - Institute of Atmospheric Sciences and Climate (CNR – ISAC), Bologna, Italy

University of Calabria – Department of Biology, Ecology and Earth Sciences, Rende, Cosenza, Italy



## CO-ORGANIZING INSTITUTIONS

University for Continuing Education Krems, Krems, Austria



## PROJECTS HOSTED

ERASMUS Strategic Partnership Project CHePiCC online "Cultural Heritage Protection in Climate Change online"

EC H2020-MSCA-RISE-2019 "Technological Consortium TO develop sustainability of underwater Cultural Heritage"

[\(https://www.tectonicproject.eu/\)](https://www.tectonicproject.eu/)

EC H2020-MSCA-RISE-2020 "Sustainable COnservation and REstoration of built cultural heritage"

<http://score-project.net/en>

Interreg Central Europe Project "STRENGTHening resilience of Cultural Heritage at risk in a changing environment through proactive transnational cooperation"

<https://www.interreg-central.eu/Content.Node/STRENCH.html>



## SCIENTIFIC AND TECHNICAL SECRETARIAT

Alessandra Bonazza (CNR - ISAC, Bologna)  
Mariafrancesca De Pino (CNR - ISAC, Lamezia Terme)  
Mauro La Russa (UNICAL – DiBEST, Cosenza)  
Fernanda Prestileo (CNR - ISAC, Roma)  
Michela Ricca (UNICAL – DiBEST, Cosenza)  
Silvio Ruffolo (UNICAL – DiBEST, Cosenza)  
Alessandro Sardella (CNR - ISAC, Bologna)

## PATRONAGES



**Università  
degli Studi  
di Ferrara**