

GEOSCIENCES CENTER 2022 CONFERENCE  
**RAW MATERIALS AND SUSTAINABILITY**

20-21 JUNE, 2022

Cultural Centre “Elvino Pereira”, Mação (June 20<sup>th</sup>) and Polytechnic Institute of Tomar  
(June 21<sup>st</sup>)

**Steering Committee:** Luiz Oosterbeek, Maria Helena Henriques, Mário Quinta Ferreira, Nuno Vaz.

**Secretariat:** Gustavo Gonçalves Garcia, Luiza Friedrich Garcia, Mónica Silva, Opeyemi Adewumi, Rufus Malim, Salomé Custódio, Virginia Lattao, Yasir Shahzad.

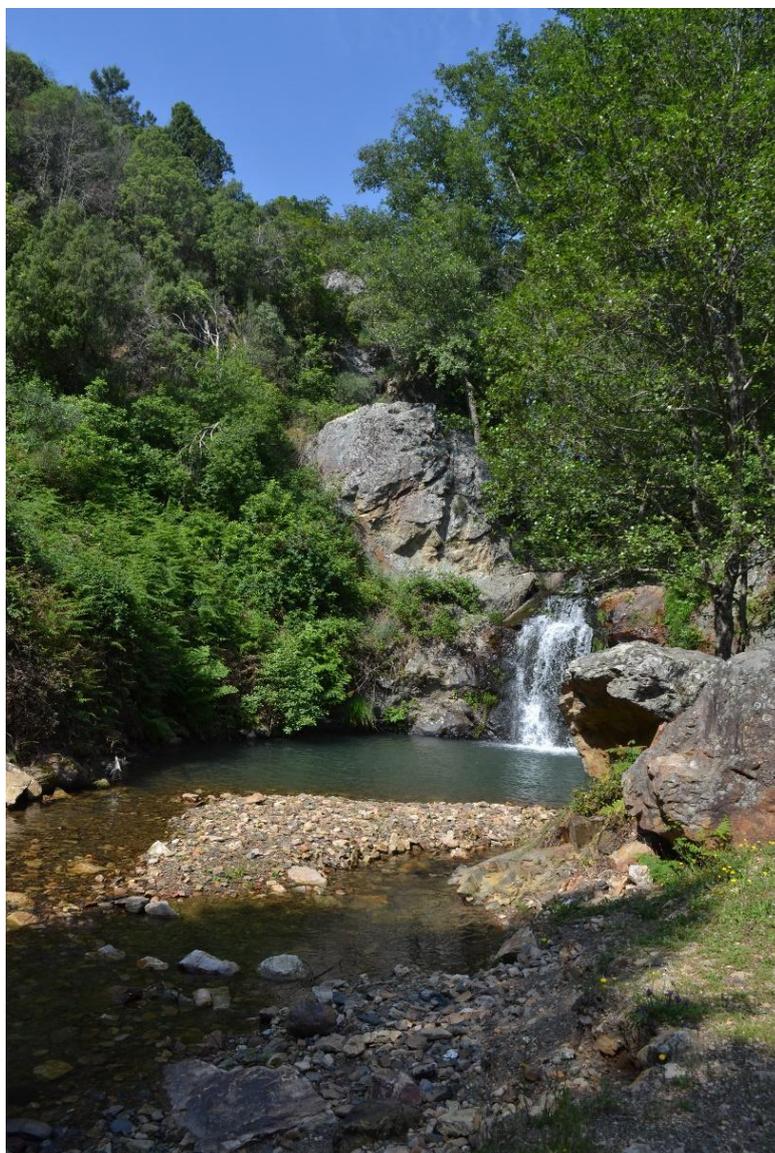
**Scientific Committee:**

Adolfo Silveira (UAL), Artur Sá (UTAD), Erika Robrahn-González (ITM), Pierluigi Rosina (IPT), Rui Pena dos Reis (UC).

**Outline of the conference**

The Conference is aimed at reflecting upon the role of geosciences in contemporary society, particularly focusing the identification, transformation and use of raw materials. It also aims to foster interaction among CGEO members and beyond, namely showcasing collaborative research projects. The Conference is structured through three sessions of open debate, which will be introduced by two keynote speeches each, followed by the discussion and leading to final recommendations.

The sessions will be prepared in advance by video-posters of 3 minutes each, addressing any of the three session's topics, subject to approval by the scientific commission.





## Programme

### June 20<sup>th</sup> (Cultural Centre Elvino Pereira, Mação)

9:30 – Opening addresses

Opening Conference – Rui Pena dos Reis: *CGEO: 47 years of cross-disciplinary research, bridging geosciences and humanities*

10:30 – Coffee-break

11:00 – Session 1: *Geosciences and the 2030 Agenda*

11:00 – KS Nikolaos Zouros (GGN), *UNESCO Global Geoparks and Territorial Sustainable Development*

11:20– KS Silvia Peppoloni (IAPG), *Geosciences to achieve UN SDGs: the need for Geoethics*

11:40 – Debate (Moderator: Luiz Oosterbeek)

13:00 – Lunch<sup>1</sup>

15:00 – Session 2: *Raw materials and logistics.*

15:00 – KS Jaafar Ben Nasr (UnK), *The Importance of cultural Heritage in Mountain Futures: the case of Jebel Ousselat a Semi-Arid Mountainous Landscape of Central Tunisia (Low density territory context)*

15:20– KS Edison Milani (BGS), *The role of unconventional hydrocarbons on the global demands for energy*

15:40 – Debate (Moderator: Helena Henriques)

17:00 – Visit to the Museum of Prehistoric Art of Mação

### June 21<sup>st</sup> (Auditorium Pacheco de Amorim, Campus of the Polytechnic Institute of Tomar)

9:00 – Debate with authors of posters

10:00 – Session 3: *Management of raw materials and circular economy*

10:00 – KS Sébastien Dente (RU, Japan) *Where are raw materials? on the role of Secondary reserves for the circular economy*

10:20 – KS João Duarte (IQGeo and CGeo) *Geotechnologies: Contribution to the Management of Geological Resources and Circular Economy*

10:40 – Debate (Moderator: Mário Quinta Ferreira)

12:00 – Closing session

12:30 – Lunch<sup>2</sup>

14:00 – Study tour<sup>3</sup>: Stop 1. Museological Unit of the Portuguese Centre of Geohistory and Prehistory CPGP (S. Caetano, Golegã). Stop 2. Quaternary terraces of Ribeira da Atalaia (Vila Nova da Barquinha). Stop 3. Nery Delgado Palaeontology Centre (Vales de Cima, Torres Novas).

---

<sup>1</sup> Lunch will be held at Godinho de Mação restaurant (individual payment). In case you want to attend you will need to communicate your intention by June 17 to make your reservation.

<sup>2</sup> Lunch in Tomar will be held at the Refectory of the Polytechnic Institute of Tomar (individual payment). In case you want to attend you will need to communicate your intention by June 17 to make your reservation.

<sup>3</sup> Participants are expected to join the excursion in their own vehicles. In case of doubt or extra needs, please contact the organization.

## Keynote Speakers



**Nikolaos K. Zouros** is Professor in Physical Geography, Geomorphology, Geotectonics and Geodynamics at the Department of Geography at the Aegean University. Elected Vice President of the Board of Trustees of the University of the Aegean (2012 - 2017). He is Director at the Natural History Museum of the Lesvos Petrified Forest since its foundation in 1995 with main duties regarding protection, research and promotion of the Petrified Forest of Lesvos, a National Natural Monument. He is the Coordinator of the Lesvos Island UNESCO Global Geopark.

Nickolas Zouros is one of the founders of the European Geoparks Network in 2000 and elected Coordinator since 2003. He organized several international conferences, meetings and workshops on Geoparks. Since 2004, he works closely with UNESCO to promote and develop the Geoparks concept in Europe but, increasingly, in other parts of the world as a member of the Global Geoparks Bureau. He has evaluated Geoparks in many countries. He is President of the Global Geoparks Network Executive Board (since 2014).

He was coordinator and researcher in a series of research projects on seismic hazard in the Aegean islands and on neotectonic studies in Greece and abroad. He is author of more than 100 scientific articles in international journals and conference proceedings.

Many of his publications focus on geoparks, earthquake geology, neotectonics and geohazard awareness raising. He is author of 20 books on Geoparks, Geo-conservation and Geo-tourism. He is the editor of the European Geoparks magazine and co-editor of the European Geoparks book.

He is a member of the Central Council of Antiquities in the Greek Ministry of Culture and the Seismotectonic Commission of the Earthquake Planning and Protection Organization (EPPO) of Greece.



**Silvia Peppoloni**, PhD geologist, researcher at the Italian Institute of Geophysics and Volcanology, her scientific activity concerns natural risks and hazards, and social geosciences. She is an international leader of geoethics, fully involved in the base research on philosophy of geosciences, focusing on ethical, social and cultural implications of geoscience knowledge, research and practice, and on key concepts for society such as sustainability, prevention, adaptation and geo-education. Professor at the University of Rome "Sapienza" and Viterbo "Tuscia" (2008-2011), she is founding member and Secretary General of the International Association for Promoting Geoethics, Director of the School on Geoethics and Natural Issues, Councillor of the International Union of Geological Sciences, Chair of the Ethical Advisory Board of the Integrated Carbon Observation System, Councillor of the Geological Society of Italy, member of the Standing Committee for Gender Equality in Science of the International Science Council. Involved with different roles in several European projects, she is Editor in Chief of the SpringerBrief in Geoethics and of the Journal of Geoethics and Social Geosciences. Contributor of Italian newspapers and magazines, author of books on Earth Sciences intended for the general public, in 2017 she has been awarded with the Italian Prize for Naturalistic Literature.



**Jaafar Ben Nasr** is a Lecturer in Prehistoric Archaeology at the University of Kairouan (Department of Archaeology, Faculty of Arts and Humanities). His scientific interests are mainly rock art, prehistoric archaeology and ethnoarchaeology. He has carried out extensive fieldwork in central and southern Tunisia. He has also organized and published several symposia in archaeology. His publications focus on rock art and prehistoric archaeology in Tunisia.



**Edison José Milani**, 66, is Geologist (1977) with a Master degree in Structural Geology (1985) and a Doctor of Sciences degree in Stratigraphy (1997). He worked in Exploration and R&D projects for Petrobras in the period 1978-2016, having occupied some managerial positions as well. In 2007 he was awarded the Orville Derby Gold Medal by the Brazilian Geological Society, in recognition of his contribution to the geological knowledge of Brazilian territory. Since October-2021 he has been with the Brazilian Geological Survey, leading the Sedimentary Basins Division.



**Sébastien Dente** is an associate professor at Ritsumeikan University (Japan) where he has been working since 2013. He studies material flows from resource extraction through waste disposals by applying the tools of environmental system analysis (Material flow analysis, life cycle analysis, input - output analysis, stock modeling, etc.). His focus is on the development of a comprehensive system thinking to help the society achieve the objectives of circular economy and sustainability. Sébastien Dente got his PhD by investigating the application of functional economy principles to transportation and logistic system with the collaboration of the University of Technology of Troyes (France) and Delft University of Technology (Netherlands). He is also an engineer specialized in industrial Ecology who graduated from Ecole Centrale de Nantes (France) and Norwegian University of Science and Technology (Norway).



**João Duarte** completed his PhD in Geological and Mining Engineering (Geotechnologies) in 2018, a Master's in Geological and Mining Engineering in 2010 and a Degree in Geology at the University of Coimbra. He is a Researcher at (a) University of Coimbra Geosciences Center, Senior Technician at (b) IQGeo-Services, Lda. and Research Assistant (career) at the Geosciences Center of the University of Coimbra. He has published 2 articles in specialized journals and co-supervised 3 Master's dissertations. He works in the area of Natural Sciences with an emphasis on Earth and Environmental Sciences, Geology, Engineering Sciences and Technologies and other Engineering Sciences and Technologies.

## Video posters

### CGEO Cluster: Fossil Energy and Sustainable Development

#### Members video posters:

- O Museu de Minérios do Rio Grande do Norte como ponte no ensino e divulgação da Geodiversidade do Geoparque Seridó/RN/BR

*Anna Paula Lima Costa, Maria Helena Paiva Henriques & Marcos Antônio Leite do Nascimento*

- Geological heritage characterization of the Côa Valley Archeological Park, Portugal using mobile applications and online GIS platforms

*Emmaline M. Rosado-González, José Manuel Martinho Lourenço, Nuno Monteiro Vaz, Carlos Meireles & Artur Abreu Sá*

- Methodology for classifying coquina reservoirs

*Gustavo Gonçalves Garcia, Antônio Jorge Vasconcellos Garcia, Maria Helena Henriques & Rui Pena dos Reis*

- Plant biodiversity before and after late Paleozoic climate change in Iberia as a template for biodiversity and adaptation of plant ecosystems during future change and its implications for the natural heritage conservation and sustainable science

*Pedro Correia*

- Make Portuguese Paleozoic Paleontology famous again: let's bring back to life the classical collections and arise the lithostratigraphy of forgotten areas while solving trilobite systematics

*Sofia Raquel Cardoso Pereira*

#### PhD Students video posters:

- Devonian Trilobites of Portugal

*Catarina Caprichoso Carvalho, Sofia Raquel Cardoso Pereira & David John Holloway*

- Valuing the Cabo Mondego natural heritage: environmental impact assessment and sustainable recovery proposals

*Fernando Heck Michels, Joana Ribeiro & Maria Helena Paiva Henriques*

- Geological Heritage of São Tomé and Príncipe

*Keynesménio Neto & Maria Helena Henriques*

- Paleontology and stratigraphy of the Marianian Stage (Cambrian Series 2) of the Ossa-Morena Zone, SW Iberia

*Luis Collantes, Sofia Raquel Cardoso Pereira & Eduardo Mayoral*

- Teaching science throughout basic education: sustainable development and practical activities about soils

*Patrícia João, Ana V. Rodrigues & Maria Helena Henriques*

- Geological heritage of the Atlantic Geopark Project for sustainable development – an integrated approach of the natural and cultural values of the territory

*Salomé Cruz Marques Custódio, Maria Helena Henriques, Artur Agostinho Abreu Sá & Emmaline Montserrat Rosado-González*

- Comparative Worldwide Study of Sub-Basalt Basins with Focus on Geophysics Integrated Interpretation of West India and Pakistan Offshore Features

*Yasir Shahzad, Rui Pena dos Reis*

#### **Master students video posters:**

- Significant underrepresentation of women in the geoscientific community

*Luiza Friedrich Garcia & Maria Helena Henriques*

#### **CGEO Cluster: Geotechnology**

#### **Members video posters:**

- Granite petrogenesis and geomorphology on the Northeastern Portugal

*Maria Elisa Preto Gomes*

- Assessment of Slope Stability using Geomechanical Classifications

*Pedro Santarém Andrade, Mário Quinta Ferreira & Mónica Pratas Silva*

- Mineralogy, geochemistry and geochronology of granites from Santa Comba de Rossas area, Northern Portugal

*Rui José dos Santos Teixeira*

#### **PhD Students video posters:**

- Preliminary Result of Geochemical Stream Sediment Sampling in the Atauro island, Timor-Leste

*Job Brites dos Santos, João António Mendes Serra Pratas, Nelson Edgar Viegas Rodrigues & José Manuel Martins Azevedo*

- The Contribution of Geology for Sustainable Rehabilitations based on Natural Engineering and Geology Engineering

*Mónica Pratas Silva, Mário Quinta Ferreira & Pedro Santarém Andrade*

- The Ultramafic Complex of Western Timor-Leste and Its Mineral Resources Potential – Geological Mapping, Mineral Exploration and Prevision of Sustainable Exploration

Victor Aleluia de Sousa Vicente, João António Mendes Serra Pratas, Nelson Edgar Viegas Rodrigues & Maria Manuela da Vinha Guerreiro da Silva

## CGEO Cluster: Quaternary, Human Adaptations and Territory Management

### Members video posters:

- Algar da Água

Alexandra Figueiredo

- Anchieta

Alexandra Figueiredo

- Gruta do Bacelinho curto

Alexandra Figueiredo

- Matrices Líticas para la Metalurgia Muisca

Carlos Augusto Rodríguez Martínez

- Contract 1940P - CONSTRUCTION OF BENEDITA'S BUSINESS LOCATION AREA - Empreitada 1940P – CONSTRUÇÃO DA ÁREA DE LOCALIZAÇÃO EMPRESARIAL DA BENEDITA – ALEB'21

Cristiana Duarte Ferreira

- Ongoing research on rock art from Monte do Côto de Sabroso, Guimarães, Northwestern of Portugal

Daniela Dolores Faria Cardoso

- Heritage Stones in built heritage. Characterisation and decay

David Martín Freire-Lista

- Cultural heritage management for peace through tourism

Fabio Carbone

- Late prehistoric ceramic Drums: An archaeoacoustic perspective

Fernando Coimbra

- Archaeological research in the Roman site of Vale do Junco (Ortiga, Mação)

Fernando Coimbra

- Iron Management and metallurgy during Iron age and Roman periods in the territory of Mação

Fernando Coimbra & Hugo Gomes

- The First Art: Conservation, documentation and management of earliest manifestations of rock art in the southwestern Iberian Peninsula: The Escoural and Maltravieso caves

*Hipólito Collado, Sara Garcês, Nelson A. Almeida, Hugo Gomes, Virginia Lattao, Pierluigi Rosina, Carlos Carpetudo, George Nash & Luiz Oosterbeek*

- Emergency Geoarchaeology in an urban context

*Hugo Gomes, Cristiana Ferreira, Pierluigi Rosina & Virginia Lattao*

- Prehistory of the Gobnangou massif (south-eastern Burkina Faso): determination of the dynamics of occupation through the techno-morphological study of lithic artefacts from Maadaga rock shelter

*Lassané Toubga*

- LODET-CULT: CULTURAL INTEGRATED LANDSCAPE MANAGEMENT OF LOW-DENSITY TERRITORIES. Diversity, Convergence, Innovation, Sharing

*Luiz Oosterbeek, Hipólito Collado, Erika Robrahn-González, Ingelore Scheunemann, Francisca Ferreira Michelin, André Soares, Maria Medianeira Padoin, Hamilton Jair Fernandes, Judite Nascimento & Daniela de Matos*

- Fôlego/Breath – Ice and Fire

*Luiz Oosterbeek, Steven Hartman, Porvarður Árnason, Inês Câmara, Rita Guerreiro & Anabela Borralheiro Pereira*

- AMIGO (Líbano)

*Luiz Oosterbeek & Alejandro Delgado*

- EHC; WHR; season croisée; HAS

*Luiz Oosterbeek*

- UNESCO Chair

*Luiz Oosterbeek*

- Museu e Núcleo Ortiga

*Luiz Oosterbeek, Anabela Borralheiro Pereira, Isabel Afonso & Sandra Alexandre*

- Iberian Museum of Archaeology and Art

*Luiz Oosterbeek & Davide Delfino*

- Humanities and Cultural Integrated Landscape Management

*Luiz Oosterbeek, Alexandra Figueiredo, Fernando Coimbra, Francisca Ferreira Michelin, George Nash, Hipólito Collado, Ingelore Scheunemann, Laurent Caron, Luís Mota Figueira, Luís Santos, Pierluigi Rosina, Rita Ferreira Anastácio, Rosa Nico, Sara Garcês & Silvério Figueiredo*

- Geosciences and the Education for sustainability  
*Luiz Oosterbeek, Hugo Gomes, Opeyemi Adewumi, Pedro Cura, Pierluigi Rosina & Sara Garcês*
- Experimental archaeology  
*Luiz Oosterbeek, Pedro Cura & Telmo Pereira*
- Social cartography as a tool for heritage preservation in the face of climate change  
*Luana Campos*
- MSCA-RISE-HIGHLANDS.3  
*Luis Filipe Neves Carreira dos Santos*
- Studying ecosustainable management and environmental impact in the technological era of plastic  
*Maria Nicoli, Corinne Sabine Corbau, Elena Marrocchino & Carmela Vaccaro*
- The TURARQ project  
*Sara Garcês, Anicia Trindade, Douglas Cardoso, Eduardo Ferraz, Gonçalo Brás, Hugo Gomes & Luiz Oosterbeek*
- The Ornithopods of the Lower Cretaceous of the Papo-Seco Formation and its Iberian and European Context. Paleoenvironmental and paleogeographic implications  
*Silvério Domingues Figueiredo*
- Lithic raw material management during Megalithic construction across the Late Prehistory in Central Portugal  
*Telmo Pereira, Mário Quinta Ferreira, Opeyemi Adewumi & Luiz Oosterbeek*

#### PhD Students video posters:

- Goarchaeological investigations in Southwestern Angola: macro and micro-scale approaches to the middle and late Pleistocene occupation of Leba Cave  
*Daniela Filipa Mirote de Matos*
- Microstratigraphy of Holocene Deposits Associated with Human Occupations at the Dawn of Agropastoralism in the Middle Tagus Basin, Portugal  
*Opeyemi L. Adewumi, Luiz Miquel Oosterbeek, Mário Quinta Ferreira, & Josep Vallverdú*
- Paleoenvironmental reconstruction of Quaternary in the Iberian Peninsula through a geoarchaeological analysis  
*Virginia Lattao*

#### Master students video posters:

- Zooarchaeology and Taphonomy of Late Pleistocene/Early Holocene Macromammals in Central Portugal: The Case of Abrigo da Buraca da Moira

*Alexandre Filipe Silva Paya*

- The experimental archaeology in the analysis of the technological production of painted rock Art

*Arturo Salvador Canseco Nava*

- Archaeological site on the Sever river

*Chloé-Célya Chulem-Chaya*

- Smart Social Territories: game-changing technologies for social

*Erika Marion Robrahn-González*

- Symbolic use of schist outcrops: the Ocreza engravings (Mação, Portugal)

*Dyonisio Danelatos*

- Demographic profiling of the individuals from Gruta do Morgado Superior

*Hewy Alejandro Delgado Ortega*

- PRÉ-HISTÓRIA, EDUCAÇÃO E INTEGRAÇÃO SOCIAL: Uma análise sobre a importância do tema Pré-História para a comunidade do Médio Tejo - Portugal, e da criação do Parque Arqueosocial Andakatu, em Mação, como instrumento educacional de integração social e partilha dos saberes tradicionais

*Rodrigo de Melo Santos*