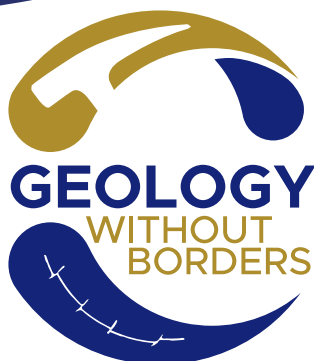




Trieste 14-16 settembre 2021

ABSTRACT BOOK

a cura della Società Geologica Italiana



90° Congresso della Società Geologica Italiana

PRESIDENTS OF THE CONGRESS

Angelo Camerlenghi e Francesco Princivale

SCIENTIFIC COMMITTEE

Miloš Bavec, Lorenzo Bonini, Marco Brandano, Martina Busetti, Domenico Calcaterra, Alessandro Caporali, Chiara D'Ambrogi, Daniela Di Bucci, Agata di Stefano, Elisabetta Erba, Guido Giordano, Michele Marroni, Silvana Martin, Maurizio Mazzuchelli, Carmelo Monaco, Alberto Montanari, Gian Andrea Pini, Claudia Piromallo, Alina Polonia, Giovanni Pratesi, Luisa Sabato, Mauro Soldati.

ORGANISING COMMITTEE

Erika Barison, Lorenzo Bonini, Martina Busetti, Andrea Caburlotto, Bernardo Carmina, Dario Civile, Florence Colleoni, Carlo Corradini, Federico Da Col, Michela Dal Cin, Laura De Santis, Federica Donda, Paolo Giurco, Giulia Innamorati, Renata Giulia Lucchi, Fabio Massimo Petti, Francesca Petrera, Giorgia Pinna, Michele Rebesco, Umberta Tinivella, Luca Zini, Alessandro Zuccari.

ABSTRACT BOOK EDITORS

Bernardo Carmina, Giulia Innamorati, Fabio Massimo Petti, Alessandro Zuccari.

COVER IMAGE:

Miramare Castle in Trieste (Italy) with mountains in background (Photo 7915319 © Jackallxxx | Dreamstime.com).

Papers, data, figures, maps and any other material published are covered by the copyright own by the Società Geologica Italiana.

DISCLAIMER: *The Società Geologica Italiana, the Editors are not responsible for the ideas, opinions, and contents of the papers published; the authors of each paper are responsible for the ideas opinions and contents published.*

La Società Geologica Italiana, i curatori scientifici non sono responsabili delle opinioni espresse e delle affermazioni pubblicate negli articoli: l'autore/i è/sono il/i solo/i responsabile/i.



A STRATEGY OF TRANSFORMATION

Eni's vision for the future lies in decarbonisation. Energy production plays a key role, requiring great responsibility and attention to climate protection. We have an opportunity to prove that transformation is possible, above all in the energy sector. On a daily basis, Eni is proving its commitment with projects that include increasing the installed capacity of renewable energy, supplying zero emission products, biorefineries to promote sustainable mobility, CO₂ capture and storage and much more. All to reach a destination that has never been closer, on a journey we will make together [...]



Read more on
eni.com



Illumina il limite della scoperta

La tecnologia che trasforma la tua scienza

Neoma Multicollector ICP-MS

Proprio quando pensavi che non si potesse fare, il nuovo Thermo Scientific™ Neoma™ Multicollector ICP-MS alza l'asticella. Basandosi sulla forza della nostra tecnologia multicollector, questa nuova generazione di strumenti offre tutti i vantaggi dell'analisi dei rapporti isotopici ad alta precisione, ma senza limitazioni. È ora possibile avere informazioni anche dai campioni più piccoli, con una sensibilità impareggiabile, basso rumore di fondo e flessibilità nel passare rapidamente da un'applicazione all'altra. Aggiungi anche i vantaggi del risparmio di tempo con nuovo software e avrai tutto ciò che ti serve per una produttività alle stelle.

Scopri di più su thermofisher.com/neoma

Oppure contattaci: isotopeanalysis-italy@thermofisher.com



Products and consumables for your laboratory

Nanovision S.r.l. is responsible for the **technical assistance** of the entire line of **Hitachi Electron Microscopes** and is the authorized dealer of the **tabletop and compact Hitachi SEM** in Italy.

Our **catalog** includes accessories related to the world of Electron Microscopy, instrumentation for **samples preparation** and a wide range of **consumables** thanks to our partnership with:

HITACHI
Inspire the Next

Wide array of advanced electron microscopes, including SEM & VP-SEM, FE-SEM, TEM, STEM and Tabletop Microscopes.

TED PELLA, INC.
Microscopy Products for Science and Industry

Microscope products for science and industry such as conductive adhesives, pin stub specimen mounts, pin mount grippers, storage box, calibration specimen for SEM, TEM, AFM and optical microscopes and a lot more for your lab!

quantifoil

Quantifoil® offers special grids for many applications. More than 20 different geometries made of carbon, gold, SiO₂ or plastic on standard mesh or finder grids in different materials available.

Kurt J. Lesker
Company

Leading global provider of high-quality vacuum equipment such as chambers, flanges, fittings, pumps, fluids, valves, traps... They also offer a huge catalogue of deposition material such as pellet, sputtering target and evaporation sources.

NanoMEGAS
Advanced Tools for electron diffraction

Advanced imaging and diffraction tools for Transmission Electron Microscopy.

OXFORD
INSTRUMENTS

Microanalysis systems for electron microscopes (SEM and TEM) and ion-beam systems (FIB).

DEBEN

Motion control and specimen cooling for microscopy application.

point electronic

Software for scanning electron microscopy (SEM and TEM) and related microanalysis application.

SPICER CONSULTING

Magnetic field cancelling systems to protect sensitive equipment in the world's leading laboratories.

Contact us for any enquiry

nanovisio@nanovision.it – www.nanovision.it

S21.
Holocene climate

CONVENERS AND CHAIRPERSONS

Eleonora Regattieri (CNR IGG)

Fabrizio Lirer (CNR ISMAR)

Leonardo Tamborrino (MARUM)

A speleothem-based reconstruction of the Late Quaternary climate-environmental-human nexus in the Kurdistan Region of Iraq

Forti L.^{*1-2}, Regattieri E.², Shen C.C.³, Hsun Ming H.³, Isola I.⁴, Morandi Bonacossi D.⁵, Conati Barbaro C.⁶, Koliński R.⁷, Boschi C.² & Zerboni A.¹

¹ Dipartimento di Scienze della Terra “Ardito Desio”, Università degli Studi di Milano. ² Istituto di Geoscienze e Georisorse, Consiglio Nazionale delle Ricerche, Pisa. ³ High-Precision Mass Spectrometry and Environment Change Laboratory (HISPEC), Department of Geosciences, National Taiwan University, Taipei, Taiwan ROC. ⁴ Istituto Nazionale di Geofisica e Vulcanologia, Pisa. ⁵ Dipartimento di Studi Umanistici e del Patrimonio Culturale, Università degli Studi di Udine. ⁶ Dipartimento di Scienze dell’Antichità, Università di Roma La Sapienza. ⁷ Faculty of Archaeology, Adam Mickiewicz University, Poznań, Poland

Corresponding author e-mail: luca.forti@unimi.it

Keywords: speleothems, Ancient Mesopotamia, Paleoclimatic reconstruction, Holocene.

During the late Quaternary, the Kurdistan Region of Iraq (north-eastern part of ancient Mesopotamia) was the scenario of several fundamental cultural events including the dispersal of *Homo* to Eurasia, the origin of agriculture and adoption of domesticates, the beginning of urbanization, and the formation of the first state entities. The role played by climate and environmental changes on these cultural processes was highly debated, but local, continuous, and well-dated paleoclimatic records are still missing. In this contribution, we present the preliminary results of a palaeoclimatological and paleoenvironmental investigation in this area, which aims to reconstruct a detailed framework of the relationship between global climatic changes, regional environmental and hydrological responses, and human adaptation during the Late Quaternary, with a special look to the Holocene. Speleothems were collected along the eastern slopes of northern Zagros from the Hassārok Cave, near Shaqlawa township, in the northern Kurdistan Region of Iraq. Preliminary geochemical and geochronological results provide information on Holocene climatic variability in the region. Environmental and paleoclimatic data have been compared with archaeological information to infer and quantify the effects of climatic changes (if any) on human exploitation of natural resources, settlement dynamic and major shift in subsistence strategies and land use.

SPONSOR

PLATINUM PLUS



GOLD



SILVER



BRONZE



PATROCINI

