

EAGE

CONFERENCE & EXHIBITION

NEAR SURFACE GEOSCIENCE'21

29 AUGUST - 2 SEPTEMBER 2021 | BORDEAUX, FRANCE

27th

European Meeting of
Environmental and
Engineering Geophysics

1st

Conference on Hydrogeophysics
Contribution to Exploration and Management
of Groundwater, Land-Use and Natural Hazards
under a Changing Climate

2nd

Conference on Geophysics
for Infrastructure Planning,
Monitoring and BIM

FIRST ANNOUNCEMENT

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WELCOME TO THE NEAR SURFACE GEOSCIENCE CONFERENCE & EXHIBITION 2021

27th

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Environmental and
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Conference on Hydrogeophysics
Contribution to Exploration and Management of
Groundwater, Land-Use and Natural
Hazards under a Changing Climate

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for Infrastructure Planning,
Monitoring and BIM

About the event

For this year's Near Surface Geoscience Conference & Exhibition, the 27th European Meeting of Environmental and Engineering Geophysics will be accompanied by two conferences, the 1st Conference on Hydrogeophysics. Contribution to Exploration and Management of Groundwater, Land-Use and Natural Hazards under a Changing Climate and the 2nd Conference on Geophysics for Infrastructure Planning, Monitoring and BIM. Through this innovative combination, NSG2021 will:

- Provide insight into emerging geophysical techniques and discuss the state-of-the-art in characterizing the shallow subsurface;
- Offer three world class technical programmes in the near surface field for the price of one;
- Bring together the most innovative companies working in the near surface industry in our exhibition;
- Offer incredible networking opportunities through our much-anticipated social programme, including our **Welcome Reception** in the Exhibition, and **Conference Evening** at a delightful local venue that combines culture, entertainment and local gastronomy.

FACTS

VENUE

BORDEAUX CONGRESS CENTRE
BORDEAUX, FRANCE

EXPECTED ATTENDANCE

350-450

EXPECTED EXHIBITORS

35

IMPORTANT DATES

Call for Extended Abstracts Open	October 2020
Deadline Early Booth Booking	1 March 2021
Registration Open	1 April 2021
Deadline for Extended Abstract Submission	15 April 2021
Event Dates	29 August - 2 September 2021
Exhibition Dates	30 August - 1 September 2021

Welcome Word



On behalf of the EAGE Near Surface Geoscience Division, I cordially invite you to attend the Near Surface Geoscience Conference & Exhibition 2021 to be held in Bordeaux, France, from 29 August to 2 September 2021.

We are pleased to announce that this year's event will be hosted for the first time in Bordeaux, where we'll introduce the 1st Conference on Hydrogeophysics alongside the 27th European Meeting of Environmental and Engineering Geophysics, and the 2nd Conference on Geophysics for Infrastructure Planning, Monitoring and BIM. Without a doubt the main conference and the two parallel meetings cover topics that are of societal relevance for the whole world and our near-surface geoscience community.

Bordeaux is a hub for non-destructive testing (NDT) in France and French companies are on the forefront of developing complex infrastructures such as high-speed trains, underground facilities as well as bridges, airports and shipping ports. This is therefore a great opportunity to welcome newcomers to the event, particularly to the Infrastructure Planning, Monitoring and BIM conference.

Water and natural resources in a rapidly changing climate and their implications to build a resilience society are not hidden from NGOs and governmental bodies. The

introduction of the Hydrogeophysics parallel conference aims to connect the science with the public sectors and governmental entities.

The local advisory committee and division members have now worked more than a year to make sure a carefully selected programme with numerous highlights will make the event not only fruitful but also memorable for you. I personally welcome our exhibitors bringing their newest achievements in technology, services and equipment along with the technical talks.

A rapid-fire presentation event on innovation with mingling possibilities will be organized to present top-notch ideas from various sectors connected to the conferences. Students and young professionals will have a chance to network, meet industry representatives and interact with their own peers. The local advisory committee has planned great networking opportunities for you so make sure you do not miss Bordeaux.

Join us and discover both the city and how the near-surface geosciences have advanced, meet your colleagues, expand your network and enjoy the great atmosphere our event will offer you; it will be unforgettable! I look forward to seeing and welcoming you in Bordeaux NSG2021!

Alireza Malehmir

Near Surface Geoscience Division Chair

NEAR SURFACE GEOSCIENCE 2021 OVERVIEW*

SUNDAY 29 AUGUST	MONDAY 30 AUGUST	TUESDAY 31 AUGUST	WEDNESDAY 1 SEPTEMBER	THURSDAY 2 SEPTEMBER
REGISTRATION				
Registration	Registration	Registration	Registration	
PROGRAMME				
Workshop 1 Electrical Resistivity Tomography: Pitfalls and ARTifact removal from lab to field scale applications (ERT-PARTI)	Exhibition	Exhibition	Exhibition	Field Trip 1 Geology and Bordeaux Wines (AOC Saint-Emilion)
Workshop 2 Electrical Properties of Clay Rocks: Challenges and opportunities	Technical Programme	Technical Programme	Technical Programme	Field Trip 2 Dune of Pyla, Arcachon Lagoon
Workshop 3 Seismic Interferometry: Imaging and monitoring from Near-Surface to Civil Engineering applications		Field Demonstrations		Field Trip 3 The Myth of Lascaux
SOCIAL PROGRAMME				
	Welcome Reception	Conference Evening		

*May be subject to changes

Times and details will be posted on the website in due course at www.NSG2021.org.



Exhibition and Sponsoring

Near Surface Geoscience 2021 will include an exhibition that will enable you to network with key international companies from the Near Surface Geoscience industry. Here you will be able to witness the latest developments, newest technologies, and innovative services. Besides the exhibition, Near Surface Geoscience 2021 will offer a wide variety of sponsoring opportunities. As a sponsor, you will have dedicated exposure at the event.

Field Demonstrations

EAGE offers exhibitors the opportunity to showcase their products live at the conference venue. For more information about this increasingly-popular event, please contact the exhibition team.

If you are interested in participating at this event as an exhibitor or sponsor, please refer to the event website or contact us at exhibition@eage.org.

Venue

The Bordeaux Congress Centre, with its contemporary architecture focusing on light, is located in the heart of the Lac district in Bordeaux.

The Congress Centre is surrounded by many hotels and has a good connection with the city centre and the airport by public transport, bus as well as tram.



About Bordeaux

Visitors will get the pleasure to discover more than 360 buildings which are registered with the French Historical Monuments records, in the Pey Berland, Port de la Lune neighbourhoods, the Esplanade des Quinconces, the Grand Théâtre and CAPC contemporary art museum. The historic part of the city, Port of the Moon, is on the UNESCO World Heritage List, described as "an outstanding urban and architectural ensemble" of the 18th century.

Saint-Emilion and the Bassin d'Arcachon make for a very attractive surrounding area.

Bordeaux is a gourmet city, at the crossroads of all South Western France specialities and at the heart of the worlds largest wine growing region with very well known names: Margaux, Saint-Emilion, Sauternes, Pessac-Léognan.

With this excellent international reputation, built over many decades, Bordeaux is also decidedly looking towards the future and is dedicated to innovation, trying to obtain the French status of "metropole européenne".

Social Media

Connect with EAGE! You can find us on LinkedIn, Facebook, and Twitter where you will be able to find all updates on the three conferences! Feel free to add comments, like, share or tag our posts, and don't forget to follow us!

Contact

For more information or enquiries please visit the event website www.NSG2021.org or contact the EAGE Europe Office at registration@eage.org.

Welcome by the Local Advisory Committee

We are honoured to welcome you to the Near Surface Geoscience Conference and Exhibition 2021 in Bordeaux, France. Under the auspices of the European Association of Geoscientists and Engineers, three conferences will take place in parallel: the 26th European Meeting of Environment and Engineering Geophysics, the 1st Conference on Hydrogeophysics and the 2nd Conference on Geophysics for Infrastructure Planning, Monitoring and BIM.

France has a long history with geophysics, as the homeland of great scientists such as René Descartes, Pierre Bouguer, the Schlumberger brothers and Louis Cagniard who brought significant insights to geophysics. Geophysicists are now present all around the country in numerous laboratories. The University of Bordeaux, established 1445, is one of the oldest in Europe. The faculty of Earth sciences originally grew on the work of geologists and paleontologists from the late 1830's, such as Giacinto di Collegno and F. Daguin. For 60 years, research domains such as archaeology, prehistoric sciences, oceanography and petroleum engineering have been expanding at the University. Within the last 50 years, engineering geology and geophysics also emerged as an active research area in Bordeaux.

The city of Bordeaux is certainly a good choice, since it's been ranked the world's best city on the Lonely Planet's Best in Travel 2017 list. Bordeaux is in the south-west of France, along the Garonne River close to the Atlantic Ocean. The city is an ancient and growing town that faces the challenge of staying in harmony with both culture heritage and natural resources sustainability. It is an inhabited historic city, with an outstanding urban and architectural ensemble, created in the age of Antiquity and expanded in the Enlightenment. Bordeaux, thanks to its Port of the Moon, is listed as a UNESCO world heritage city.

Capital of the Nouvelle Aquitaine, the city of Bordeaux is associated with famous vineyards, gastronomy, long sand beaches, and prehistoric sites offering you the opportunity to benefit from studios moments and sightseeing. Weather conditions in September are very pleasant. The LAC has selected special field trips as wine and geology,

coastal processes, Lascaux site and research workshops to widen your knowledge spectrum.

We expect a large participation of scientists from universities and industries all focused on networking opportunities and cross-fertilization between geology, geophysics, hydrology, geotechnics, civil engineering, natural hazards, raw materials, energy science. Key academic and industrial actors located nearby will attract others for fruitful discussions and collaborations. The area as a breeding ground will offer the opportunity to exhibitors, speakers and visitors to display and exchange their latest products, research and discoveries. Field method demonstrations will also take place. The young geoscientists' generation, represented by students, will close the gap between classical and emergent key issues along with all disruptive situations such as climate change.

In addition to the technical sessions and exhibitions, an amazing social program will be organized, including a gala dinner, that will offer you a taste of south-western France. We hope that attending the Near Surface Geoscience Conference and Exhibition 2021 will stay in your memory for decades.

We are looking forward to welcoming you in 2021 in Bordeaux!

Local Advisory Committee

Colette Sirieix (Chair)	University of Bordeaux I2M
Vincent Allègre	University of Bordeaux I2M
Konstantinos Chalikakis	Avignon University
Philippe Cosenza	University of Poitiers IC2MP
François Demontoux	University of Bordeaux IMS
Olivier Douez	BRGM Nouvelle-Aquitaine Bordeaux
Jérôme Gouin	Pôle Avenia
Delphine Lacanette	University of Bordeaux I2M
Olivier Le Roux	Bordeaux INP
Antoine Marache	University of Bordeaux I2M
Mehdi Sbartai	University of Bordeaux I2M
Myriam Schmutz	Bordeaux INP
Catherine Truffert	IRIS Instruments
Cécile Verdet	University of Bordeaux I2M

Welcome by Scientific Committee

We cordially invite you to attend the EAGE Near Surface Geoscience Conference and Exhibition 2021, to be held in Bordeaux, France from 29 August to 2 September 2021. We are delighted to hold this conference in France, for the first time in the beautiful city of Bordeaux, after Paris in 2012. The technical program will cover traditional topics such as Shallow Marine, Modeling & Inversion, Measurements while Drilling, Mining and Post-Mining, CO2 Storage, Cultural Heritage, Hot Zones and Polar investigation and, Geo- and Anthropogenic hazards. A large panel of state of the art geophysical methods will be presented along with Seismic, Electrical Resistivity and Induced Polarization, Electro-Magnetic, Magnetic, Magneto-Telluric, Ground Penetrating Radar, Gravimetry. This will be the opportunity to focus on emerging issues, such as Nearshore Processes and Coastal Evolution, Climate Change Impacts, and technologies such as Muons, UAV, and Machine Learning.

Selected workshops will take place on Sunday 29 August, prior to the conference, as well as field excursions surrounding Bordeaux. We particularly encourage students to participate, as the combined presence of academia and the private sector will span extensive future opportunities.

The Scientific Committee invites you to submit an extended abstract and participate actively in this leading event. We guarantee our dedication and readiness to make the Near Surface Geoscience Conference & Exhibition 2021 a great success.

Scientific Committee

Colette Sirieix (Chair)	University of Bordeaux I2M
Catherine Truffert (Co-Chair)	IRIS Instruments
Vincent Allègre	University of Bordeaux I2M
Adnand Bitri	BRGM
Albert Casas	University of Barcelona
Philippe Cosenza	University of Poitiers IC2MP
Stéphane Garambois	University of Grenoble Alpes & CNRS / ISTerre / UMR 5275
Jean François Girard	University of Strasbourg / IPGS / EOST
Jean François Lataste	University of Bordeaux I2M
Donatiene Leparoux	University of Gustave Eiffel
Alexis Mainault	CNRS / Sorbonne University - UMR 7619 METIS
Gianfranco Morelli	Geostudi Astier srl
Marina Rosas Carbajal	IPGP
Nadia Sénéchal	University of Bordeaux / UMR CNRS EPOC / OASU



Over the last three decades, hydrogeophysics has emerged as an important sub-discipline in hydrogeology and ecohydrology. It involves investigations of the structure and processes of the subsurface environment, at different spatiotemporal scales, by identifying key properties and state variables related to water flow and solute transport.

The first EAGE Conference on Hydrogeophysics, in Bordeaux, 2021, will bring together geoscientists from academia, research institutes, industry, service and engineering companies to present and discuss the latest state-of-the-art in research and advances on Hydrogeophysics.

The objective is to provide a comprehensive overview of the state of hydrogeophysical research (tools and theoretical advances) for investigating dynamic processes in subsurface settings regarding various environmental issues such as water resources management, remediation, natural and anthropogenic hazards as well shallow geothermal energy. It will allow identification of challenges and ways forward within an integrated cross disciplinary Framework.

The technical programme of this first EAGE Conference on Hydrogeophysics will cover the widest range of topics on geophysics (e.g. airborne/satellite, surface based and

logging) applied in all types of hydrosystems of the Critical Zone (e.g. fractured, karstified and porous aquifers, volcanic and complex aquifers, island aquifers, wetlands, saltwater intrusion, permafrost) and at different temporal (from seasonal to high frequency monitoring) and spatial scales (from sample to the catchment scale).

Scientific Committee

Konstantinos Chalikakis (Chair)	Avignon University
Max Halkjær (Co-Chair)	Ramboll Group
George Apostolopoulos	National Technical University of Athens
Esther Bloem	Norwegian Institute of Bioeconomy Research
Anders Vest Christiansen	Aarhus University
Nathalie Dörflinger	Danone Waters
Adrián Flores-Orozco	Technical University of Wien
Thomas Günther	Leibniz Institute for Applied Geophysics
Olivier Kaufmann	University of Mons
Patrick Lachassagne	University of Montpellier
Frédéric Nguyen	University of Liege
Myriam Schmutz	Bordeaux INP
Lee Slater	Rutgers University Newark
Panos Tsourlos	Aristotle University of Thessaloniki
Ute Wollschläger	Helmholtz Centre for Environmental Research



After a successful first conference on Geophysics for Infrastructure Planning, Monitoring and BIM in 2019, we are pleased to announce that the second conference will be held from 29 August to 2 September 2021 in the French city of Bordeaux, within the framework of the wider scientific and technical event: EAGE Near Surface Geoscience Conference & Exhibition 2021.

This conference will provide an attractive forum where researchers and professionals can share geophysical innovation and technologies aimed at providing solutions for the challenges of the infrastructure life cycle. Geophysics and Non-Destructive Testing (NDT) can play an essential role prior, during and after the construction of engineered structures and for their long-term monitoring, evaluation and maintenance. We look forward to a fruitful exchange among academia, research institutions, governmental organisations, industry and end-users, because effective and useful communication among each other is essential.

We encourage contributions in the form of oral or poster presentations on the application of geophysics and NDT in the broad construction and maintenance sectors (e.g. tunnels, bridges, roads, runways, railroads, etc.), for water retaining/supply and power supply infrastructures as well as detection and localisation of underground objects and buried utilities. We will also cover the ever-increasing need of improving the way geophysical results are integrated with other design information used by geotechnical and civil engineers, planners and asset owners. Therefore, we will focus on assessment of infrastructure using parameters derived from Geophysics, NDT and monitoring, as well as on data visualisation and registration in Building Information Modelling (BIM) and Geographic Information Systems (GIS). We intend to provide a unique platform for communication alignment across Geophysics, Civil Engineering, town planners and policy makers. Finally, special interest will be given to applications of new and emerging geophysical technologies to infrastructure such as airborne, satellite, UAV, fiber optics, digital sensors among others, as well as data processing using artificial intelligence (e.g. data driven, machine learning, data fusion, etc.).



Scientific Committee

Beatriz Benjumea (Chair)	Spanish Geological Survey (IGME)
Arre Verweerd (Co-Chair)	AECOM
Xavier Dérobert	University Gustave Eiffel
Thomas Dickmann	Amberg Technologies - Switzerland
Shane Donohue	University College Dublin
Charlotte Krawczyk	GFZ-Postdam
Alireza Malehmir	Uppsala University
Ernst Niederleithinger	BAM - Federal Institute for Materials Research and Testing
Andreas Pfaffhuber	EMerald Geomodelling
Robert Sturk	Skanska Sweden
Koya Suto	Terra Australis Geophysics Pty. Ltd.
Mehdi Sbartai	University of Bordeaux I2M
Léon olde Scholtenhuis	University of Twente
Valentina Socco	Politecnico di Torino
Mats Svensson	Tyréns AB

LIST OF TOPICS

27th

European Meeting of Environmental and Engineering Geophysics

1. Airborne Geophysics and UAV Measurements
2. Geohazard (e.g. landslides, cavities) and Anthropogenic Hazard Studies (e.g. pollution characterization, UXO)
3. Critical Zone (e.g. mining, process alteration)
4. Geothermal Energy, Underground Storage (e.g. heat, CO₂)
5. Measurement while Drilling, Logging (for Mineral Exploration, Geotechnics, Groundwater and Environmental Geophysics)
6. Geophysics for Cultural Heritage
7. Modelling, Inversion, and Data processing
8. Geophysics 3D
9. New Technologies, New Instrumentation and Innovative Research Trends for Earth Science
10. Geophysics for Agriculture
11. Geophysics for Hot Zones (e.g. volcanoes, hot spots)
12. Polars, Alpines Regions & Permafrost Investigation
13. Geophysics for Mining, Post-mining, Biogeophysics and Mineral Exploration
14. Shallow Marine and Modelling
15. Data Analysis, Artificial Intelligence / Machine Learning / Data Fusion / Big Data
16. Coastal Geophysics and Evolution, Nearshore Investigations and Modelling
17. Monitoring and Characterization of the Subsurface
18. Laboratory Measurements, Rock Physics, Upscaling
19. Special Session : Advanced geophysical imaging of plant-soil interactions



Conference on Hydrogeophysics

Contribution to Exploration and Management of Groundwater,
Land-Use and Natural Hazards under a Changing Climate

1. Characterization and Monitoring (water content and flux) of the Critical Zone Interfaces:
 - a. Soil – Plant – Atmosphere
 - b. Unsaturated – Saturated Zones
 - c. Groundwater – Surface Water
 - d. Freshwater – Saltwater
 - e. Cryosphere Interfaces
2. Groundwater Resources and Recharge under a Changing Climate
3. Characterization and Monitoring of Natural and Anthropogenic Hazards
4. Environmental Characterization and Remediation:
 - a. Biogeophysical Signals at Contaminated Sites
 - b. Remediation Monitoring and Assessment
5. Land-use, Forestry and Agricultural Geophysics
6. Shallow Geothermal Energy
7. Advances in Methods from Monitoring, Modeling to Processes:
 - a. Spatio-temporal Monitoring (time lapse approaches)
 - b. Petrophysics in Support of Hydrogeological Process Characterization
 - c. Reactive Transport: From pore scales to field scales processes
 - d. Data Integration, Inverse Methods and Machine Learning
8. Special Session: Hydrogeophysical observatories (highly instrumented sites) and cross disciplinary national and international networks
9. Special Session: Novel sensors and systems for hydrogeophysics



Conference on Geophysics for Infrastructure Planning, Monitoring and BIM

1. Geophysics and NDT for Construction and Maintenance of Tunnels and Bridges
2. Geophysics and NDT for Construction and Maintenance of Roads, Runways and Railroads
3. Geophysics and NDT for Water Retaining / Supply Infrastructure (embankment dams, levees, pipelines)
4. Geophysics and NDT for Power Supply Infrastructures Evaluation
5. Assessment of Infrastructure Using Parameters Derived from Geophysics and NDT
6. Detection and Localization of Underground Objects and Buried Utilities
7. Assessment and Monitoring of Infrastructure that is Affected by Hazards
8. Applications of New and Emerging Geophysical Technologies to Infrastructure: Airborne, satellite, UAV, fiber optics, digital sensors, DAS.
9. Data Analysis, AI, Data Fusion, Big Data Analysis in Infrastructure Planning and Assessment
10. Data Visualization and Registration in Building Information Modelling and Geographic Information Systems
11. BIM Case Studies and Showcasing Applications
12. Geophysics, Engineering, and Construction Modeling and Communication Alignment (e.g. expressing uncertainties, developing common data visualizations / standards etc.)

CALL FOR ABSTRACTS

SUBMIT YOUR EXTENDED ABSTRACTS AT

WWW.NSG2021.ORG

BEFORE 15 APRIL 2021!

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