EURO GLOBAL CLIMATE CHANGE CONFERENCE

magnus
Group *Share, Receive & Grow !*

SEPTEMBER 19-20

VIRTUAL EVENT

Contact us:
Ph: +1 (702) 988-2320
Email: climate@magnusconference.com
Website: https://magnusconferences.com/climate-change/

BOOK OF
ABSTRACTS

EURO GLOBAL CLIMATE CHANGE CONFERENCE

19-20 SEPT

INDEX

Contents

ABOUT MAGNUS GROUP

Magnus Group (MG) is initiated to meet a need and to pursue collective goals of the scientific community specifically focusing in the field of Sciences, Engineering and technology to endorse exchanging of the ideas & knowledge which facilitate the collaboration between the scientists, academicians and researchers of same field or interdisciplinary research. Magnus group is proficient in organizing conferences, meetings, seminars and workshops with the ingenious and peerless speakers throughout the world providing you and your organization with broad range of networking opportunities to globalize your research and create your own identity. Our conference and workshops can be well titled as 'ocean of knowledge' where you can sail your boat and pick the pearls, leading the way for innovative research and strategies empowering the strength by overwhelming the complications associated with in the respective fields.

Participation from 90 different countries and 1090 different Universities have contributed to the success of our conferences. Our first International Conference was organized on Oncology and Radiology (ICOR) in Dubai, UAE. Our conferences usually run for 2-3 days completely covering Keynote & Oral sessions along with workshops and poster presentations. Our organization runs promptly with dedicated and proficient employees' managing different conferences throughout the world, without compromising service and quality.

ABOUT EGCCC 2022

Magnus Group welcomes you to our Online Event entitled "Euro Global Climate Change Conference" EGCCC 2022 scheduled on September 19-20, 2022. with the theme "Mitigating climatic changes to redefine a common sustainable future" EGCCC 2022 is an international platform that amalgamates world renowned experts of both academics and industries within the discipline of Climate Change from all over of the world. This event brings together all the climate change experts and climate engineering scientists to exchange and innovates new theories and practices of Climate Change.

The two-day colloquium is designed to foster collaboration and innovation, with Climate change and Technology poster presentations, interactive panel discussions, and visionary keynotes sessions. We are confident that our conference will provide you with an incredible chance to explore new horizons in your field and we hope to see you at our upcoming EGCCC 2023 conference during September 21-23, 2023.
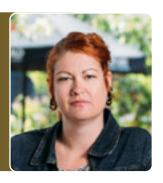
KEYNOTE FORUM

DAY 01

EURO GLOBAL CLIMATE CHANGE CONFERENCE

19-20 SEPT

Jillian Huntley

Griffith Centre for Social and Cultural Research and Australian Research Centre for Human Evolution Brisbane, Queensland, Australia

Salt in the wound: Rock art degradation and climate change in the Australasian Monsoon Domain

To date research, planning, mitigation strategies, and adaptation policies regarding the effects of climate change on cultural heritage have focused on primary impacts like inundation from sea level rise. Drawing on work in Island Southeast Asia and Northern Australia, I will discuss multiscalar, secondary impacts and the unique challenges faced managing accelerating rock art degradation in the most climatically dynamic region on Earth – the Australasian Monsoon Domain. Using salt weathering/haloclasty as an example, I will discuss the mechanisms of art loss at panel, site, and regional scales. I will illustrate the complex issues faced, highlighting social justice inequities for communities with cultural responsibilities for their heritage. I argue that while interagency cooperation and strategic planning are vital for local governance, even the best interventions will have limited outcomes without serious, urgent reduction in global carbon emissions to net zero as soon as possible

Audience Take Away:
- This presentation highlights the complex, compound impacts of climate change on cultural heritage sites. It draws on recent field observations in the context of recent IPCC reporting to foreground accelerating rock art degradation in the Tropics
- This presentation will be of particular interest to those engaged in the management and preservation of cultural heritage in government, the museum sector and for cultural groups who hold custodial responsibilities. Here I advocate for a coordinated, strategic management approach across the region and call for more resourcing to help on the ground conservation programs
- In raising awareness of the challenges faced for long term preservation of cultural heritage it is hoped that better mitigation and management strategies can be designed at local levels, fostering regional and global initiatives

Biography:
Dr Jillian Huntley specializes in the physicochemical characterization of ochres (mineral pigments), rock art and shelter/cave environments. She uses cutting-edge methods to investigate how past peoples interacted with each other, and their landscapes. Jillian has made a significant contribution to climate change sustainability and adaptation research agendas in the Equatorial Tropics through her work on the effects of climate change on the Pleistocene rock art of Sulawesi (published in *Scientific Reports*). She is one of the experts currently overseeing the design and implementation of the Murujuga Rock Art Monitoring Program (2020-2024) for the Western Australian government

Vladimir G. Chigrinov[1,2]

[1]Department of Theoretical Physics, Moscow Region State University, 141014 Mytishi, Russia

[2]Laboratory of Molecular Electronics, South Ural State University, Chelyabinsk, 454080, Russia

Liquid crystal photoaligned by azodye nano layers: physics and applications in photonics

Photoalignment and photopatterning has been proposed and studied for a long time [1]. Light is responsible for the delivery of energy as well as phase and polarization information to materials systems. It was shown that photoalignment liquid crystals by azodye nanolayers could provide high quality alignment of molecules in a liquid crystal (LC) cell. Over the past years, a lot of improvements and variations of the photoalignment and photopatterning technology has been made for photonics applications. In particular, the application of this technology to active optical elements in optical signal processing and communications is currently a hot topic in photonics research [2]. Sensors of external electric field, pressure and water and air velocity based on liquid crystal photonics devices can be very helpful for the indicators of the climate change. We will demonstrate a physical model of photoalignment and photopatterning based on rotational diffusion in solid azodye nanolayers. We will also highlight the new applications of photoalignment and photopatterning in display and photonics such as: (i) fast high resolution LC display devices, such as field sequential color ferroelectric LCD; (ii) LC sensors; (iii) LC lenses; (iv) LC E-paper devices, including electrically and optically rewritable LC E-paper; (v) photo induced semiconductor quantum rods alignment for new LC display applications; (vi)100% polarizers based on photoalignment; (vii) LC smart windows based on photopatterned diffraction structures; (vii) LC antenna elements with a voltage controllable frequency

Biography:

Professor Vladimir G. Chigrinov is Professor of Hong Kong University of Science and Technology since 1999. He is an Expert in Flat Panel Technology in Russia, recognized by the World Technology Evaluation Centre, 1994, and SID Fellow since 2008. He is an author of 6 books, 31 reviews and book chapters, about 317 journal papers, more than 668 Conference presentations, and 121 patents and patent applications including 36 US patents in the field of liquid crystals since 1974. He got Excellent Research Award of HKUST School of Engineering in 2012. He obtained Gold Medal and The Best Award in the Invention & Innovation Awards 2014 held at the Malaysia Technology Expo (MTE) 2014, which was hosted in Kuala Lumpur, Malaysia, on 20-22 Feb 2014. He is a Member of EUAcademy of Sciences (EUAS) since July 2017. He got A Slottow Owaki Prize of SID in 2018 He is 2019 Distinguished Fellow of IETI (International Engineering and Technology Institute). Since 2018 he works as Professor in the School of Physics and Optoelectronics Engineering in Foshan University, Foshan, China. 2020-2024 Vice President of Fellow of Institute of Data Science and Artificial Intelligence (IDSAI) Since 2021 distinguished Fellow of Institute of Data Science and Artificial Intelligence

Gareth B. Neighbour

School of Engineering & Innovation, The Open University, Walton Hall, Kents Hill, Milton Keynes MK7 6AA, UK

The Remarkable Story of Carbon

The story of Carbon is a remarkable one. The elemental form of Carbon has a broad repertory of extraordinary physical, mechanical, and chemical properties, and despite being very abundant, and for many magical, it is often simply 'taken for granted'. Yet. it has supported metal clusters which perform feats of catalysis, first-wall lined fusion reactors, provided electrodes in large scale steel arc furnaces, enabled lithium-ion battery technology, provided structural support and moderated neutrons in fission reactors, protected F1 racing drivers, enabled exceptional 'cutting' tools, enabled high performance inks, optimized the performance of rubber products… the list is endless. Most will be familiar with the carbon cycle, but few with the story of solid carbons, and in particular graphite, and the role it plays in the story of climate change from perhaps the negative influence of industrial applications in the early 20th Century to the positive and mitigating applications in the modern day such as electric vehicles and nuclear technology. This paper will present a view of the 'Carbon World' with a summary of the story from 1564 and the use of plumbago through to the creation of artificial graphites and their use in industry to the resurgence of natural graphite as a critical mineral in modern markets and how this relates to the new applications in carbon nanomaterials. The study of Carbon materials presents a paradox of being both the culprit in terms of, for example, carbon particulate matter, soot, in automotive and aerospace exhausts and in the extreme Black carbon from emissions which pays a crucial role as a contributor in climate change. On the contrary, also the hero in terms, for example, of using carbon dots or graphene in applications related to the environment and CO2 capture. Underlying the story is the role of key reactions such as the "water-gas shift" reaction which has been pivotal in leveraging applications especially in the context of carbon capture. New carbon materials are being deployed at a bewildering rate and the supply chain provide an incredibly lucrative market in helping mitigate climate change. The paper will appreciate the key contributions in the remarkable story of Carbon including Lavoisier, Acheson, Franklin, Fermi, Swan, Libby, Wigner, Kroto, etc. and demonstrate the complex and compelling history of solid carbon in relation to a common sustainable future

Audience Take Away:
- Appreciation of the versatile and broad repertoire of carbon materials
- Understand which carbon materials have contributed to climate change and those that have mitigated climate change
- Contextualize the underlying science and how it may relate to the audiences' own areas of work and offer possible new parameters they might wish to consider

Biography:
Gareth joined the Open University in 2019 is currently Head of School. Previous roles include Professor/Head of School of Engineering and the Built Environment at BCU, Professor/Head of Mechanical Engineering and Mathematical Sciences at Oxford Brookes and Deputy Dean of Science at University of Hull. To date, he has provided independent research and advice to the nuclear and other heavy industries including EDF Energy, the regulator and also the IAEA and has a substantial research income to date. He is currently the Senior Editor of the high impact journal, Carbon (Elsevier) and a past Chair of the British Carbon Group

Nevenka R. Elezovic

University of Belgrade Institute for Multidisciplinary Research- Centre of Excellence for Green Technologies, Serbia

Carbon free supported noble metal nanostructures for green energy production- challenges and perspectives

The contemporary industrial processes, as well as transportation vehicles power are based on fossil fuels usage. Intensive fossil fuel application leads to the growing environment pollution, causing the "greenhouse effect". During the 20th century the CO_2 concentration increased about 20%, being the main reason for average temperature increase on Earth. This fact has already caused undesirable climate changes, connected to animal and plants biodiversity disorder, Sea level rise, melting Arctic Sea ice layers, extreme nature disasters. United Nations has recognized environment pollution effects and global actions to prevent it have already been taken. From Stockholm conference held in 1972 and Kyoto in 1997 um to Paris Climate Agreement 2015 United Nations announced several declarations to stabilize gas emission and decrease greenhouse effect. European Union has established main targets until 2050, in the frame of Climate and Energy Package, to increase alternative power sources usage and save environment for future generations.Thus, the further development of water electrolysis and fuel cells catalysts (the subject of this work), as environmental friendly, green technologies are extremely desirable, to contribute to the environment protection and sustainable development. Hydrogen – high efficiency and environmental friendly fuel, produced by water electrolysis is used in low temperature fuel cells, while oxidative agent is oxygen from air. In this work novel nanostructured materials with noble metal nanoparticles (Pt and Pd) deposited onto carbon free- titanium-oxide based supports have been investigated as the catalysts for fuel cells, promising alternative power sources. Several ceramic supports were prepared – non-stoichiometric oxides -Ebonex, Nb or Ru doped titanium oxide nanoparticles, as well as titanium oxide nanotubes supports. Physical-chemical and electrochemical characterization of these novel materials confirmed higher efficiency and long term stability to decrease the costs and increase life time of fuel cells acceptable for commercial application

Audience Take Away:

- The audience will learn about state of the art in renewable, environmental friendly hydrogen energy production and application, as well as progress is being made beyond state of the art
- The consciousness and alert will be arisen: what to do and how, to make our planet sustainable and leave better environment for the future generations
- The audience will learn about scientific efforts and directions to change the existing fossil fuel based energy world causing undesirable climate changes, to future environmental friendly power sources
- Finally, some environmental friendly energy solutions, that we have been working in for years, will be given and future research directions to clean energy world

Biography:

Dr Nevenka R. Elezovic completed her PhD in 2005, from University of Belgrade. She is currently Research Professor at the Institute for Multidisciplinary Research, University of Belgrade. Her research interests include: Nanostructured materials and alloys for low temperature fuel cells and water electrolysis application - green energy production. Since 2013 she is served as representative of Serbia and member of the European board in European Academy of Surface Technology,http://www.east-site.net.

Marte Gutierrez

Civil and Environmental Engineering, Colorado School of Mines, Golden, CO 80101, USA

Geo-Sequestration of CO_2

The majority of anthropogenic CO_2 released in the atmosphere comes from the use of fossil fuels that are extracted from deep underground reservoirs. So, it is natural to consider capturing and bringing CO_2 as the by-product of burning fossil fuels back where they came from - in deep geo-sequestration reservoirs, particularly existing or abandoned oil and gas fields, and saline aquifers. This is the essence of CO_2 Geo-Sequestration (or CO_2 GS). The presentation will give a complete overview of the scientific and engineering background, and the current state of CO_2 Geo-Sequestration, and the challenges it poses. The need for CO_2 GS is highlighted, and the key concepts and technology, and the risks behind it are discussed. Suitable CO_2 GS reservoirs in North America and Europe, including ongoing research and field test sites, will be identified. The presentation also covers improving the economics of CO_2 GS by finding usage for the CO_2 such in Enhanced Oil Recovery (EOR). The presenter's research efforts in a) computer simulation, b) risk assessment, and c) MVA (measurement, verification, and accounting) as applied to CO_2 GS are reviewed

Audience Take Away:
- Audience will learn about the fundamentals of CO2 GS
- The presentation will provide participants with enhanced knowledge that will be helpful in finding opportunities for employment, research, and training in the fast-growing and evolving field of CO_2 GS

Biography:

Dr. Marte Gutierrez is the James R. Paden Distinguished Professor of Civil and Environmental Engineering at Colorado School of Mines. He has held visiting professorships in China, Chile, France, Japan, Norway, South Korea, and UAE. He has published more than 350 publications. He is a member of the Editorial Board of six International Journals and is the recipient of the Geotechnical Research Medal from UK's Institute of Civil Engineers, and the Rock Mechanics Research Award and the Applied Rock Mechanics Research Award both from the American Rock Mechanics Association. Dr. Gutierrez's main research interests are in Geomechanics, and Energy and Environmental Sustainability

SPEAKERS

DAY 01

EURO GLOBAL CLIMATE
CHANGE CONFERENCE

19-20 SEPT

From Carbon Neutral to Climate Neutral: Dynamic Life Cycle Assessment for Wood-based Panels Produced in China

Jiaxin Chen[1*], Michael T. Ter-Mikaelian[1], Hongqiang Yang[1], Shanshan Wang[1], Annie Levasseur[2]

[1]Ontario Forest Research Institute, Ministry of Northern Development, Mines, Natural Resources and Forestry, 1235 Queen Street E., Sault Ste. Marie, ON P6A 2E5, Canada

[2]Department of Construction Engineering, École de technologie supérieure, 1100 rue Notre-Dame Ouest, Montréal, QC, H3C 1K3, Canada

The forestry sector (managed forests and wood products produced from harvesting these forests) is crucial in supporting climate change mitigation, where the mitigation potential is assessed by combining forest carbon analysis and wood product life cycle assessment (LCA). Static LCA (sLCA) is the approach commonly used in national forestry mitigation models worldwide. Static greenhouse gas (GHG) effects are calculated as a running total of emissions and removals, which are often used to imply climate effects. And carbon neutrality, a state when the GHG effects equal zero, is used to imply neutral climate effects. However, until carbon neutrality is achieved, the increased emissions contribute to climate warming. Dynamic LCA (dLCA) is an improved method to estimate climate effects by considering the atmospheric dynamics and heat trapping capacity of different GHGs. Climate neutrality is a state when the warming effects caused by increased emissions are fully compensated by warming reduction contributed by removals. We applied dLCA and sLCA to China-made wood-based panels produced from 1990 to 2018 by harvesting poplar plantations. Our results suggested that, compared to dLCA results, static GHG effects largely underestimated climate warming effects or overestimated mitigation contributions. And decades or longer was required to achieve climate neutrality following carbon neutrality, if achievable. So, within a given timeframe, a forestry mitigation activity can achieve carbon neutrality but increase climate warming, hindering the goal of limiting global temperature rise that was set in the 2015 Paris Agreement. Thus, to assess climate warming effects, using dLCA in addition to GHG effects is essential for forestry mitigation analysis

Audience Take Away:

- sLCA has been the most common approach for forestry mitigation assessment, in which a simple running total of carbon emissions and removals is calculated and is often used to indicate the climate effects without calculating the latter
- dLCA is developed to estimate climate effects by considering the atmospheric dynamics and heat trapping capacity of different GHG, providing accurate mitigation analysis
- Compared to dLCA, using sLCA can result in largely overestimated GHG mitigation benefits, as shown by the assessment for China-made wood-based panels
- Within a given timeframe, a forestry mitigation activity can achieve carbon neutrality but increase climate warming, since the increased emissions before carbon neutrality cause climate warming that requires time to offset
- Thus, using dLCA in addition to GHG effects is essential to assess forestry mitigation

Biography:
Dr. Jiaxin Chen studied at the Huazhong University of Science and Technology, China and graduated as a research student in 1987. He then Joined the Central South University as a lecturer until 1996, when he worked at Aalborg University as a visiting scholar. In 1998, he went to Leeds Beckett University, Great Britain, and received his PhD in 2001. In 2002, he worked as a postdoctoral researcher at the Lakehead University, Ontario, Canada. He joined the Ontario Forest Research Institute as a research scientist since 2003, working in the area of forest carbon modelling, wood product life cycle assessment, and forestry mitigation analysis. He has published more than 50 research articles in SCI journals

Environmental Health Monitoring, Characterization and Geoinformatics

Astrid M. Calderas[1*], Patrick De Feo[2], Mark Witten[3], Arturo Medina[4]

[1]Econciencia y Salud A.C. Mexicali, Baja California, Mexico

[2]Flight Pattern Kids, Bagaces, Costa Rica

[3]University of Arizona, Tucson, Arizona, United States

[4]Arturo Medina, Georgia Tech, Atlanta, Georgia, United States

As global air quality standards remain unmet, the necessity for low-cost air quality monitoring tools to measure different contaminants such as Radiometer PI 9501 to measure different types of radiation, Purple Air to measure Particulate Matter of different sizes, and others such as handheld Temptop to measure Particulate Matter, Formaldehydes and Volatile Organic Compounds is escalating in response to poor and unregulated air quality conditions in environmentally and socioeconomically disadvantaged communities worldwide. When operated and analyzed incorrectly, these tools lead us away from finding a solution to lowering air pollution levels. Instead of aiding the understanding of a community's health and environmental standing, these resources cover unresolved issues in a "safety blanket." Using various data sets gathered from multiple tools in combination with aircraft take-off and landing data, vehicle traffic counts, meteorological analysis, characterization assays including; air top 2", soil, tree cores, lichen, vegetables, geospatial analysis, and family health history surveys aided by in-vivo (hair, urine, blood, bone, deciduous teeth, adult teeth) samples, DNA sequencing, microbiome DNA sequencing and nuclear DNA sequencing analysis, we present a comprehensive study, providing quality data for environmentally impacted communities

Audience Take Away:
- The benefit of the study is that air quality monitoring becomes more effective as chemical characterization is carried on along with health history information on environmentally impacted communities
- DNA impacted by specific contaminants in different zones are identified as well certain diseases
- The process for cause, effect, source, litigation will be learned
- The tools to not only document but to mitigate through litigation

Biography:
He is the Director of Econciencia y Salud A.C. & Flight Pattern Kids FPK-Environmental Health Citizen Science Investigations. Director of A3B Environmental Science and Engineering. He is the Cofounder of Mexico's first community air quality network Aire-Baja-California. Community Steering Member and Scientist for California's first community air quality network IVAN. Founder of the environmental health fair and children/youth environmental health binational art competition. Collaborator at Centenario Park in the implementation of a community garden. Imperial-Mexicali Air Quality Task Force Member

Net Zero Transition in Power/Energy Sector

Huilian Liao

Department of Engineering & Maths, Sheffield Hallam University, Sheffield, UK

Energy sector around the world is going through ambitious transition to Net Zero by 2050, driven by the threat of global warming and climate changes. However, this sector still falls well behind what is required to bring the global energy-related CO_2 emission to the net zero target. There are multiple pathways/routes to reach Net Zero depending on policy imperatives, low carbon technology development on the energy chain (from energy supply to the end users), and the level of stakeholders' engagements etc. I will present these different pathways from economic, technical and environmental perspectives, addressing their challenges and the strategic roadmap in order to achieve net zero target

Audience Take Away:
- The low carbon technologies used in power/energy sector to facilitate net zero
- Pathways to Net Zero Transition in Power/Energy Sector
- The gap between the research and industry in terms of technology and methodologies
- The barrier and challenges of net zero transition in Power/Energy Sector

Biography:
Dr. Huilian Liao is currently a senior lecturer in Electrical Engineering at Sheffield Hallam University (SHU), researching on innovative methodologies/tools to help the transition of power systems towards net zero. She received her PhD degree in 2011 at the University of Liverpool. After one year of lectureship at School of Electric Power, South China University of Technology, she joined the Electrical Energy and Power Systems Group at The University of Manchester as Research Associate. She has published 48 research articles with over 500 citations

The Nexus of Crises: The Art of Decolonising Climate, Species and Culture

David Haley

Independent Artist / Researcher -UK

Given the nexus of climate, species and cultural crises, we humans need to think and act well beyond mitigation. Merely softening ecological (social and environmental) collapse is not an option, given present climatic catastrophes and those predicted by the IPCC's most recent report (2021). Indeed, nothing less than a, very unlikely, Copernican-scale paradigm shift will overt the transformative state of our planet. We must, therefore, imagine how we and enough biodiversity may survive beyond the current extinction event to the next geological period; as the potential for life emerged from each previous planetary extinction. This presentation will consider the nexus of crises, or perfect storm, as a time of immense danger and potential opportunity. The opportunity is the need to think differently. The 20th Century offered complexity, systems thinking and transdisciplinarity as ways to think beyond the previous five hundred years of science-dominated, epistemological thinking, but it did not seek to change the cultural paradigm of Colonialism that accompanied it. Indeed, since climate change became public knowledge, at the 1992 Rio Earth Summit, culture was not considered as a factor of the Three Pillars - Social, Economy, Environment. This presentation will place Culture as the lintel that connects the columns and the seventeen SDGs. We will learn the importance of culture to the survival and evolutionary development of all living beings, and how this vital factor has been manipulated, controlled and oppressed socially, economically and environmentally from the Age of Enlightenment to today. In addition to the Civil Rights of gender, ethnicity and colour, contemporary decolonisation offers the opportunity to rethink culture within our whole education and academic structures. Valuing ontological heuristics, the processes of 'storying' provide possible ways to reimagine our existential existence, offering potential patterns of cultural community, through which we may learn to adapt beyond engineered resilience to ecological resilience. In other words, how to critically recover from on-going climate disasters, regenerate biodiversity and become 'global citizens, otherwise'. Moving through the difficult issues of colonialism can engender, fear, guilt, inadequacy, vulnerability and other emotions that even with well-meaning, prevent us from challenging our acquired normative thinking. Culture represents all our belief systems that determine how we live with each other and other than humans to survive. We must, therefore, break through the barrier of Keynesian and neo-Darwinian 'Sustainable Development'. Such a vision was glimpsed through the research project, Generous Domains: Globals Citizen Perspectives for Environmental Sciences with Valeria Vargas at Manchester Metropolitan University (2021). Potentially, this presentation touches all disciplines, includes all disciplines and may emancipate all disciplines towards 'capable futures'

Biography:

Ecological artist, researcher and eco-pedagogue, David Haley, publishes, exhibits and works internationally with ecosystems and their inhabitants, using images, poetic texts, walking and sculptural installations to generate dialogues that question climate, species and cultural crises for 'capable futures'. David is a Visiting Professor at Zhongyuan University of Technology; Guest Professor at Sichuan Fine Art Institute and Universidad Iberoamericana; Vice Chair of the CIWEM Art & Environment Network; Mentor/Advisor (founder) of Futures' Venture Foundation; a Trustee of Chrysalis Arts Development and Art Gene; a member of the ecoart network, UK Urban Ecology Forum and Ramsar Cultural Network

The expert integrated support system for coastal mixed urban – industrial – critical infrastructure monitoring using combined technologies – the EPIPELAGIC project

Vasiliki Charalampopoulou[1*], Christos Kontopoulos[1], Dimitra Kitsiou[2], Nikos Grammalidis[3], Anastasia Patera[2], Zoe Pataki[2], Anastasios Tzepkenlis[3], Zhenhong Li[4], Peng Li[4], Li Guangxue[4], Qiao Lulu[4], Ding Dong[4]

[1]Geosystems-Hellas S.A., Athens, Greece

[2]Department of Marine Sciences, University of Marine Sciences, Mytilene, Lesvos, Greece

[3]Center for Research & Technology Hellas,Thessaloniki, Greece

[4]Institute of Estuarine and Coastal Zone, College of Marine Geosciences, Ocean University of China, Qingdao, China

Today's Remote sensing data and technologies offer the capability to effectively monitor diverse and challenging environments around the world such as coastal river and riparian zones. Coastal riparian zones and river deltas usually demonstrate extreme coastline changes in terms of water extent to inland territories through flood Coastal, marine and riverine ecosystems benefit society in several ways, providing a range of 'ecosystem services' and acting as a buffer between the sea and the land. Conservation and appropriate management of these ecosystems can reduce the risk of coastal flooding, erosion, degradation and subsidence. Nowadays, coastal areas are exposed to multiple hazards of increasing severity, such as coastal floods, erosion, subsidence due to a combination of physical, social and economic factors, including climate change and urbanization. In order to cope with these challenges, new remote sensing monitoring solutions are required that are based on knowledge extraction and state of the art machine learning and Artificial Intelligence solutions that provide insights into the related physical mechanisms and allow the creation of innovative Decision Support Tools for managing authorities. EPIPELAGIC project focuses on coastal and riverine areas monitoring using EU and Chinese space assets, while addressing RIS3 priority for "Centers of excellence for environmental studies-Environment & Sustainable Growth because of the Climate Change" between Greece and China. The main objective is to contribute to "mitigation and adaptation to climate change and natural disasters" by providing methodologies and tools by utilizing Earth Observation and in-situ real time auxiliary data. EPIPELAGIC project, introduces an innovative Decision Support System (DSS) that is based on state of the art approaches for knowledge extraction and change detection is proposed. It uses processes for collecting and analysing data from various heterogeneous sources (satellite, in situ and other auxiliary data) for monitoring land cover and use changes; erosion; coastline changes as well as land deformations. Experimental results using different datasets will be provided to assess the performance of the proposed system, which is implemented within the EPIPELAGIC bilateral Greece-China project and will be applied in two Areas of Interest, namely Thermaic Gulf in Thessaloniki, Greece. This scientific work is performed in the framework of the EPIPELAGIC project "ExPert Integrated suPport systEm for coastaL mixed urbAn – industrial – critical infrastructure monitorinG usIng Combined technologies", co-financed by Greece and the European Union (EPAnEK 2014-2020 Operational Programme)

Audience Take Away:

- Use of the downstream space sector and Artificial intelligence (ML/DL) as the state of the art and focus to the transition from research to operations, integrate local communities whose decisions must be made based on evidence to ensure nature- and climate-positive action
- Use of the downstream space sector capabilities of satellites synergistic observations and Artificial intelligence (ML/DL) to ensure the 4D monitoring and Decision Support Systems
- Yes, EPIPELAGIC aims at demonstrating the capabilities of satellites synergistic observations analysis to evaluate suitable indicators

- EPIPELAGIC integrated monitoring solutions provide valuable knowledge, methodologies and state of the art techniques for investigating the related physical mechanisms and offer an innovative Decision Support Tool to serve the society. The coastal flooding, erosion, degradation, subsidence and coastline change due to climate change have a social and bio-environmental impact

Biography:

Betty is GEOSYSTEMS HELLAS S.A. [GSH] President & CEO and a shareholder. Nowadays, [GSH] is a Greek SME with a German minority shareholder who was fully acquired from OHB SE on February 2022, so [GSH] is a "sister company" to OHB SE. Betty is a geologist, with a specialization on remote sensing, photogrammetry and GIS applications. In 1992, she graduated from the National and Kapodistrian University of Athens and since then, she has been working on research projects in the area of photogrammetry, remote sensing, earth observation and geoinformatics. She is actively enrolled in projects by H2020, ESA, GSRT and bi-National and in several commercial ones with a dynamic participation to the downstream space sector. As CEO and President, she has established methodologies and formulated strategies, gaining many distributions and collaborations. She has also established several international collaborations, being involved in working groups of EARSC, GEO, FIG, UNESCO, OGC, ESA, NASA, ISA etc. Currently is the EARSC representative in the Members of the Post-2025 Working Group. Have several collaborations with national and international universities, local governments and industries. In 2012, she established the company's R & D division and had Successful R & D projects under her supervision, with transferability to many industries and countries. She is also responsible for the distribution of roles and responsibilities in the company.

Eco- Square| Bioclimatic Investigation of Public Square

Kontesa Laoumzi[1]*, Lydia Galani[2], Alcestis Rodi[2]
[1]University of Patras, Patras, Greece
[2]University of Patras, Athens, Greece

The square as a gathering place symbolizes the center of public life. Over time, the planning and design of the public square was highly associated with the need of its existence. However, in recent years, it has been strongly observed that public space is neglected. During the pandemic, the effects of evacuation were felt, highlighting the importance of the outdoor space as the only way out of confinement. Crowded enclosed spaces were deserted and people returned to the closest open public space. The driver soon became a pedestrian. The squares regained uses that had been suspended for years and at that point, they appeared to be unable to meet contemporary needs, as well as, ignored by the state. This present study aims to identify, analyze and benchmark the typology of public squares. It focuses on their morphology and use and due to the great climate change it is examined whether they meet the specifications for the thermal and visual comfort of the visitor. During the attempt to evaluate these factors digital tools were used from the online software of Andrew Marsh. The content is the result of personal recording of public squares, through the design of two dimensional and three-dimensional imaging models. The selection of the squares to be studied is based on Rob Krier's spatial analysis (Kier R., Urban Space, 6th edition 1991). Case study selection includes 26 European public squares from his classification by form in various types. As a study area of a certain square, the present research defines the area surrounded by the street lines of the neighboring building blocks, which can be also explained as the distance a pedestrian can cover in a five-minute walk around the center of each public square. First, the geomorphological characteristics and the climate of each region are examined (macro-climate, meso-climate). The research was focused on microclimatic conditions of every public square such as the emission of solar radiation and wind speed. Another factor to be studied is the vegetation rate and quality of the square and its impact. Moreover, shading and sky occlusion data is being calculated on the surface of each square, to scrutinize the visual comfort of the visitor in relation to the surrounding building blocks. Thermal comfort is also being strongly affected by the percentage of the thermal conductivity and albedo of the materials used for urban floors and facades of the buildings. The implications of uncontrolled urban development and lack of integrated energy resource management on the climate have been recorded since 1831. As a result, the Urban Heat Island effect occurred in most European cities. The climatic conditions along with the lack of versatility have already led to a reduction in the number of visitors. Sustainability is the only solution to the high impact of climate change

Nature based solutions for creating climate resilient cities of tomorrow

Tanja Totzer[1*], Marianne Bugelmayer-Blaschek[1], Johann Züger[1]
[1]Center for Energy, AIT Austrian Institute of Technology GmbH, City, Vienna, Austria

Cities are particularly affected by climate change due to their sealed surfaces, building structure and density. Climate simulation for Austrian cities show that the number of days during heat waves will almost double by the end of the century. The same applies to tropical nights, which is particularly stressful for the human body. Rising temperatures directly and indirectly impact health and increase the vulnerability of society. This affects all populations, but especially those who are more exposed to heat or more physiologically or socio-economically vulnerable. Climate resilience promises to be an effective means for helping cities to deal with future uncertainties and unexpected impacts. By transforming the city into a system which is able to absorb disturbances, adapt, recover, self-organize and learn, the range for coping with future climate changes is widened. Nature-based solutions hold the potential to increase climate resilience in cities as plants and water balance the urban microclimate. Shading and evapotranspiration act like a natural air conditioner and unsealed surfaces can retain extreme precipitation events and relieve the sewage system. The positive effects of nature-based solutions (NBS) on the urban climate could be proved in climate simulations for the City of Vienna, where COSMO-CLM runs with and without NBS were calculated. The evaluation of large-scale impacts of greening proves the positive effect of green and unsealed surfaces with respect to heat storage and lower night-time temperatures. Although NBS show many positive micro-climatic effects, the analysis of the societal implications of urban adaptation to climate change such as gentrification processes is still in its infancy. Therefore, it is necessary to study how a transition to a climate resilient society can be facilitated without neglecting questions of social equality and climate justice. First insights of the SENSUS project, which addresses exactly this issue, will be presented in this paper

Audience Take Away:
- The presentation will explain what climate resilience means for cities and how it helps to combat climate change
- New climate model results will be presented that provide simulation-based information on the positive effects of nature-based solutions (NBS) for cities
- Finally, in order to look at the topic of NBS in a multi-layered way, a discourse will be started on the societal implications of greening a city and potential gentrification effects

Biography:
Dr. Tanja Tötzer is Senior Expert Advisor at the AIT Austrian Institute of Technology GmbH and thematic coordinator of the "Climate Resilient Urban Pathways" group at the Center for Energy. She studied Landscape Planning at the University of Natural Resources and Applied Life Sciences, Vienna, where she received her master (1998) and PhD degrees (2006). Dr. Tötzer has many years of experience in the field of climate-resilient development of cities and regions as well as in participatory planning processes. Her current projects focus on climate modelling and the impact of nature-based solutions to combat climate change in cities

Mass Timber: A global solution for low carbon infrastructure; how planning, design and construction should adapt to include mass timber to meet global net zero objectives

Patrick Crabbe

Bird Constriction, Canada

A practical, industry perspective, to help governments and industry understand how to implement mass timber

Audience Take Away:

- This will help the audience because this is practical, experienced knowledge. This is what the research industry needs to hear to understand the market impact of their work and if it supports critical mass timber market innovations. Planning considerations includes
- Mass timber overview, Design considerations, Construction considerations, Recommendations to advance mass timber adoption globally
- Suggested areas of research, Mass timber is a critical low carbon infrastructure option that national governments need to include in the path to net zero

Biography:

Patrick Crabbe is the Director of Mass Timber at Bird Construction. Bird Construction is a publicly traded, commercial and industrial conglomerate, recognized as a top 3 General Contractor (GC) in Canada. Bird is the first GC in North America to dedicated full time expertise and a national centre of excellence specific to mass timber. Personally, growing up within the sawmill and wood manufacturing sector, Patrick brings unparalleled expertise that is demonstrated through his $1 Billion worth of construction value experience and commitment to numerous agencies that are advocating for the use and benefits of mass timber as a sustainable and economical solution. In his role, Patrick supports 18 districts across Canada with a focus on providing constructability input during the design and pre-construction and construction phases, as well as educating project teams, clients, and the public. He is an active member of the Carbon Pricing Leadership Coalition (led by the World Bank) and a trusted advisor to Infrastructure British Columbia and the Canadian Wood Council

Climate Change - The future we need: Not impossible, but difficult

Maria Gabriela Meirelles

Department of Sciences of Physics, Chemistry and Engineering/University of the Azores, Ponta Delgada, SãoMiguel, Azores, Portugal

The 20th century was fertile in the advancement of knowledge of the Earth System, in particular the atmosphere, and the simulation of its behavior through models. A climate model consists of a representation of complex and heterogeneous subsystems, with a large temporal scale, which are the constituents of the Climate Systemor Earth System. The results of the forecasts of several climate models indicates to an increase in the global average temperature of 3 to 4° for the year 2100, in relation to the pre-industrial values, considering the Scenario ofRepresentative Trajectories of Concentrations RCP 6.0. En-ROADS is a simulation model that explores how to plan the global energy and climate challenges through political, technological, and societal changes. Allows to create scenarios that focus on how changes in taxes, subsidies, economic growth, energy efficiency, technological innovation, carbon pricing, fuel mix, and other factors will change global carbon emissions and temperature. For each simulation performed, the En-ROADS application calculates the results of ~14,000 equations, with a time interval of ~45 days, over 110 years, from 1990 to 2100, in 60 milliseconds. Considering current data on energy supply (coal, oil, natural gas, bioenergy, renewables, nuclear, new zero-carbon, carbon price), transport (energy efficiency, electrification), buildings and industry (energy efficiency, electrification), growth (population, economic growth), land and industry emissions (deforestation, methane and others) and carbon removal (afforestation, technological), the En-Roads simulator predicts a temperature rise of 3.6° around 2100. The Paris Agreement aims to achieve the decarbonisation of world economies and sets the objective of limiting the increase in global average temperature to 2°C by 2100, compared to pre-industrial levels, and continuing efforts to limit the temperature increase to 1.5°C, recognizing that this will significantly reduce the risks and impacts of climate change. Considering in 2100 a world population of around 11.8 billion people, a growth of the world economy of around 2.5%per year and introducing public policies in terms of energy supply, transport, buildings and industry and of land use, the simulator predicts a warming of 1.5°C by 2100, taking the pre-industrial era as a reference. For such a scenario to be feasible, the energy supply will have to be made using renewable alternatives. To discourage the use of fossil fuels,the price of carbon in 2100 should be around 250$/ton CO_2. Taking the year 2021 as a reference, there must be a 50% reduction in the use of oil and 85% in the use of coal, while energy efficiency in transport should grow by 4.9%/year, so that by 2100 all vehicles were electric. In buildings and industry, energy efficiency should grow by 5%/year and electrification by 100%. Regarding greenhouse gas emissions from the ground, it is necessary to reduce deforestation by 10%/year and reduce CH4 emissions by 60%. In industry, the emission of fluorinated gases will have to bereduced by 60% by the end of the century. In this simulation, the removal of existing carbon in the atmosphere was also taken into account through afforestation (planting 98% of the land reserved for this use) and the removal of 30% using technologies for this purpose. This is one of several possible simulations, which show us a way to go in order to performed the Paris Agreement.

Audience Take Away:

- Through the simulation of scenarios using the En-Roads simulation model
- Participate in political, technological and social decisions about global challenges
- Allow each citizen to rethink their lifestyle
- Yes, they can create scenarios and obtain future climate projections, using the En-Roads simulation mode

Biography:

Maria Gabriela Meirelles has a Diploma in Physics from the State University of Rio de Janeiro, Brasil in 1992, a Geophysics Master in the field of Meteorology from University of Lisbon (Faculty of Sciences), Portugal in 1997 and got her PhD in Physics from the Azores University (UAC), Portugal in 2009, in the field of Geophysical Sciences. Her teaching activities include topics on meteorology/atmosphere/climatology, general physics, physics for biology and geophysics, among others, for under graduate and master studies. She has participated in several scientific conferences and she has published several research articles

Impact of Climate Change on public health: What lifestyle moves can we adopt to curb climate change

Martha Chadyiwa

Department of Environmental Health, University of Johannesburg, Doornfontein Campus, Johannesburg, South Africa

Climate action is the 13th sustainable development goal which runs concurrently with the 3rd goal being good health and wellbeing. In a sense that if we address issues pertaining climate change like a domino effect, we would be equally providing good health and wellbeing. According to WHO, climate change is the single biggest health threat facing humanity and we as healthcare professional are already responding to the health harms caused by this unfolding crisis. This presentation will highlight what South Africa has experienced which could be as a result of climate change. The impacts of the floods and droughts in Kwazulu Natal of South Africa will be presented. Recommendation on lifestyle changes that can be adopted will be given. These changes will be suggested based on the feasibility to implement in a developing country like South Africa

Audience Take Away:
- SDG goals awareness
- Climate change awareness and solutions to the problem
- Adopt lifestyle changes that are easy to implement
- Include the SDG into modules curriculum
- Learn some of the life skills to curb climate change

Biography:

Martha is a registered EHP with the Health Professions Council of South Africa. She is a holder of a Bachelor of Science Degree in Environmental Health. She also have an MBA in Environmental and Energy Management from Twente University. She completed an Honors in Leadership at the University of Johannesburg. She is currently registered for a PhD in Public Health at Witwatersrand University focusing on Occupational Health injuries. She was involved in the creation and content development on the online Master of Public Health at the University of Johannesburg. Currently she is an Online Facilitator on the Master of Public Health at the University of Johannesburg. She has been an Adjunct lecturer at the Witwatersrand University and MANCOSA for more than three years. She has published papers on occupational and environmental health in internationally accredited journals. She has supervised more than 16 Masters Students to completion in her career. Her niche area of research is occupational and environmental health. She also involved with research that is focusing on how artificial intelligence is impacting occupational and environmental health. She was recently recognized as one of the top fifty influential women in Science, Technology, Engineering, and Mathematics (STEM) in South Africa for her contribution in the subject matter

Eco- Square| Bioclimatic Investigation of Public Square

Kontesa Laoumzi[1], Lydia Galani[2*], Alcestis Rodi[2]
[1]University of Patras, Patras, Greece
[2]University of Patras, Athens, Greece

The square as a gathering public space represents the center of community life. However, in recent years it has been strongly observed that public space has been neglected. During the pandemic, the impact of self-isolation and social distancing highlighted the importance of existence and proximity of the outdoors space as the only way out of confinement. At the same time, time inequalities emerged in the existence and access to squares and green spaces in many areas.

The present research aims to identify, analyze and comparatively evaluate the typology of squares. The content is the result of personal recording of public squares through the design of two-dimensional and three-dimensional imaging models. The selection of the squares to be studied is based on the typology of Rob Krier. (Krier R., *Urban Space*, 6th edition 1991). As a study area of each square, the present research defines the area surrounded by the street lines of the neighboring building blocks. It focuses on their morphology and use and due to the great climate change, it is examined whether they meet the specifications for the thermal and visual comfort of the visitor.

Impacts of climate change on the occurrence of Leishmaniasis and COVID-19 in Brazil

Elizabeth Ferreira Rangel[1*], Margarete Martins dos Santos Afonso[1], Simone Miranda da Costa[1], Marco Aurelio Pereira Horta[1], Jessica Milena Moura Neves[1], Bruno Moreira de Carvalho[2]

[1]Laboratorio Interdisciplinar de Vigilância Entomológica em Diptera e Hemiptera, Instituto Oswaldo Cruz, FIOCRUZ, Rio de Janeiro, Rio de Janeiro, Brasil

[2]Barcelona Institute for Global Health, ISGlobal, Barcelona, Espanha

Brazil is particularly vulnerable to the increase in the incidence of vector-borne diseases, in the context of global climate change. It is estimated that such events may impact geographic distribution, population density, seasonality, prevalence of infection and parasite load of vectors. In Brazil, the ecoepidemiology of leishmaniasis is extremely complex, considering that different species of vectors, parasites and hosts participate in the transmission cycles, in restricted ecological niches. According to the World Health Organization (2010, 2011) the policies of surveillance/control actions for neglected diseases must be aligned with agendas committed to the assessment of climate and environmental changes. It is known that climatic conditions can play a crucial role in driving epidemics caused by respiratory viruses. Although there is still no consensus on whether the circulation of SARS-CoV-2 is effectively associated with environmental factors and climatic parameters, it is a gap to be filled. For now it is impossible to predict if new epidemic waves of Covid-19 will occur seasonally or will remain in transmission throughout the year, like other respiratory viruses. We evaluate the impact of climate change, in face of the spatial distribution of leishmaniasis vectors (Lutzomyia flaviscutellata, L. whitmani, L. intermedia, L. neivai, L. wellcomei, L. complexa, L. umbratilis, L. migonei, L. longipalpis and L. cruzi) and the expansion in Brazil. The control of visceral (AVL) and cutaneous leishmaniasis (ACL) has been a major challenge for the Ministry of Health. The goals of reducing the lethality of AVL and the incidence of ATL have not advanced and the scenario that we have today is the expansion and increase in the number of human cases. The actions currently recommended, when the outbreak is already installed, have been ineffective. Therefore, it is necessary to think about alternative planning proposals in the short and medium term, identifying areas vulnerable to the occurrence of these diseases, working with surveillance as a tool that promotes health. Projections of vector distribution, associated with socioeconomic variables and incidence of leishmaniasis, will serve as a basis for calculating vulnerability indexes by municipality. The results disaggregated and analyzed per municipality are important products to subsidize the Brazilian National Leishmaniasis Control Program in the planning of surveillance and control actions. In addition, the information may support the adaptation measures and integrate the National Plan for Adaptation to Climate Change. Predicting regions of occurrence of vectors is a complex exercise that the technicians of the leishmaniasis surveillance and control programs face, in the design of a more effective intervention planning. In view of the complexity and challenge posed by the control of these diseases in Brazil, the indication of future risk scenarios for epidemic outbreaks, can optimize costs and facilitate the planning of well-targeted actions with a focus on permanent monitoring and surveillance in areas of environmental impacts. Evaluate the possible relationship between climate and climate change with the dispersion of Covid-19 cases through a literature review based on previously published data. Now, to Covid19 we will perform a meta-analysis, being a statistical analysis that combines the results of the multple scientific studies

Audience Take Away:

- We believe that the questions are interconnected and so we have chosen to provide a general comment. The impacts of climate change are already a reality that are affecting biodiversity, human health and the economy. When it comes to public health, government spending on diagnosis, treatment, and control is considerable

- Outbreaks of leishmaniasis are occurring in urban areas, due to the adaptation of vectors to new habitats, which has hampered the success of control actions. Regarding COVID-19, we know that viruses in general have a natural habitat in the forests, and we are witnessing the devastation of the Amazon Forest, which leads us to think that there may be a migration of SarsCov-2 to other environments through its hosts

- It is still unclear whether the impacts of climate change may influence the disease, however studies suggest a seasonality in times of low temperatures

- Studies that can predict future scenarios suitable for the occurrence of different diseases will certainly help health authorities in planning prevention and health promotion, preserving biodiversity and reducing impacts on the economy

Biography:

Training : Biologist. Currently: Researcher in Public Health at Instituto Oswaldo Cruz, Fundação Oswaldo Cruz; Coordinator of the National and International/Regional Reference Laboratory (PAHO/WHO) in Entomological Surveillance, Taxonomy and Ecology of Leishmaniasis Vectors, at Instituto Oswaldo Cruz, since 2004; Consultant for the Department of Surveillance and Health, Ministry of Health, for the National Leishmaniasis Program; Member of the Expert Committee of the Leishmaniasis Control Program, of the Pan American Health Organization; Member of the WHO Expert Advisory Panel on Parasitic Diseases (Leishmaniasis); Coordinator of the Health sub-component of the INCT Climatic Changes; Coordinator of the Fiocruz Reference Network in Leishmaniasis; Vice-Director of the Reference Laboratory and Biological Collection (2020 until now)

Climate Change and its Impacts on Water Resources System

Aijaz Panhwar[1*], Aftab Kandhro[2], Ateeq Rehman Memon[3]
[1]PCSIR laboratories Complex, Karachi, Sindh, Pakistan
[2]M. A. Kazi Institute of Chemistry, University of Sindh, Jamshoro, Sindh, Pakistan
[3]Pakistan National Accreditation Council, Islamabad, Pakistan

Too many individuals still mistakenly think that climate change is only a problem for the environment. It poses an all-pervasive menace, the threat to health, agriculture production; increasing surface air temperature and affecting different fields of life. It has becomes one of the most important issues in our life. It has detrimental consequences on the economy, nature, and other living things. The major sectors affected by the climate change are drinking and utility water, agriculture and industrial sectors. Water and climate change are intertwined. Scientists believe that the disruption of the water cycle and the decline in water quality are the two most significant effects of climate change. The water cycle keeps the amount of water resources in the world constant, but because climate change affects where and when those resources are available, managing those resources' quantity and quality will be challenging. Understanding how climate change will affect drinking water sources, sanitation, and the production of food and energy is very important because daily life and plans are set up in relation to hydrologic systems. On account of global warming, significant negative effects on water supplies are anticipated. The quantity of greenhouse gas emissions and the sensitivity of our planet determine how much change we can expect in the next 10 years. The 20th century was observed hottest century for 14 centuries. The average surface temperature of the globe warmed by 0.7 $^{\circ}$C over the previous 125 years as a result of CO_2 and other greenhouse gases, according to a 2006 measurement. It is without a doubt caused by human activity. The effects of climate change are widely felt around the world. Snow and ice melt, sea levels rise, and weather patterns change as a result of global warming. Despite of huge food production it is not enough to have sufficient to meet demand globally. Climate change indicators such as increase in temperature, sudden weather change (e.g. flood, drought, and storm) and increasing solar radiation result in changes in physicochemical parameters in water. For example, oxygen density in water decreases by 10% for each 3°C temperature increase. There are impacts of climate change on water resources at basin scale comprise the following. Flooding, Drought, Hydro electrical power, Agriculture, Snow mass River flow, Groundwater use and quality, Water stress in deltas, Habitat; not these but also further effects of climate change such as, Rise in Sea level, Retreating Mountain Glaciers, Temperature, Rainfall Importance, Monsoon, Climate and Deserts, Variance in Climate, Effect on Water Resources. It is very important to evaluate the climate change impacts on sea level, rainfall pattern, Land use pattern, Food & Agriculture, and to formulate the policies to reduce the losses and of climate changes

Audience Take Away:

- Reasons and Impacts of climate change
- Climate change and water resources
- Impacts of climate change on food security
- Judiciously use of water
- Quality of water

Biography:
Aijaz Panhwar studied Agricultural Engineering at Sindh Agriculture University Tandojam and post graduation as ME in 2013, and Ph. D scholar in Environmental Sciences. After graduation, he joined the research organization Pakistan Council of Scientific & Industrial Research (PCSIR) in 2002. After 07 years obtained the post of Senior Researcher and performed as Director and Project Director. He also obtained qualified assessor in 03 different ISO standards ISO/IEC-17020, 17025, and 17065. He has conducted many audits of ISO/IEC-17025 accredited testing laboratories. Currently he is working as senior engineer and Associate Quality Manager. He has published more than 35 research articles

KEYNOTE FORUM
DAY 02

EURO GLOBAL CLIMATE CHANGE CONFERENCE

19-20 SEPT

Amy Cutter-Mackenzie-Knowles[1]*, David Rousell[2]

[1]Faculty of Education, Southern Cross University, Australia
[2]School of Education, RMIT, Australia

Climate Child: New Imaginaries in a Posthuman World

Children are growing up in increasingly precarious times, as rates of anthropogenic climate change, loss of biodiversity, human overpopulation, ubiquitous computation, and biotechnological interventions continue to advance and proliferate with alarming frequency. New theoretical, methodological and pedagogical approaches are needed that are responsive to the rapidly changing conditions of the Anthropocene epoch, a time in which humanity has become a geophysical force that is fundamentally altering the Earth's ecological systems (Steffen et al, 2015). The convergence of social, technological, and natural systems has produced what many scholars of childhood now describe as a "posthuman" condition, in which both the biological and cultural figurations of the "child" are being drastically reconfigured and destabilised under conditions of climatic, political, and ecological instability. How are children's climate change imaginaries shifting in response to the rapidly changing conditions of life in the Anthropocene? How might children themselves contribute to this re-imagining of climate change futures, in ways that open up new climate imaginaries and potentials for future co-existence? This keynote address responds directly to these questions by drawing upon an international research program, entitled Climate Change + Me involving 150+ youth co-researchers

Biography:
Amy Cutter-Mackenzie-Knowles is a Professor of Sustainability, Environment and Education at Southern Cross University. She is the Executive Dean of the Faculty of Education, as well as the Research Leader of the 'Sustainability, Environment and the Arts in Education' (SEAE) Research Cluster. Amy's research centres on climate change, childhoodnature, posthuman philosophy, and child-framed research methodologies. She is particularly focussed on the pivot points between environmental education, science, philosophy, and the Arts. She has led over 40 national/international research projects and published more than 150 publications. Amy has been recognised for both her teaching and research excellence in environmental education, including an Australian Teaching Excellence Award (OLT) and an Australian Association for Environmental Education Fellowship (Life Achievement Award) for her outstanding contribution to environmental education research

Harry D. Kambezidis[1,2]

[1]National Observatory of Athens/Emeritus Researcher, Athens, Attica, Greece

[2]University of West Attica/Research Associate, Athens, Attica, Greece

Clear-sky climatology of Greece

A new methodology for classifying sky conditions at any location on Earth in overcast, intermediate and clear has been published (Kambezidis et al., Appl. Sci. 2021). This methodology is applied in the present study in order to identify clear-sky conditions at 33 sites in Greece. Clear-sky conditions are synonymous to sunshine duration because of the criterion of the direct-normal solar radiation to exceed 120 Wm^{-2} (World Meteorological Organisation-WMO) applies to both parameters. The methodology is based on the diffuse fraction, k_d, defined as the ratio of diffuse to global solar radiation, and being equal or less than 0.26. The data used is solar radiation (global, diffuse, direct) as ingredient of the typical meteorological years (TMY) derived for the sites. The analysis of the 33 data bases aims at finding the hours when the direct-normal solar radiation exceeded 120 Wm^{-2} (WMO directive) and providing a map of Greece showing the distribution of those hours at annual and seasonal basis. Such an analysis is done for the first time in Greece

Audience Take Away:
- The audience will learn about a new methodology in classifying the status of the sky
- The new methodology may be applied in other relative works
- The audience will learn about the climatology of Greece in terms of clear-sky conditions

Biography:
Dr. Kambezidis has B.Sc.-Physics (Aristotle University of Thessaloniki, Greece, 1974), B.Eng.-Electrical Engineering (University of Patras, Greece, 1985), M.Sc.-, M.Phil.-Microwave Communications Engineering (Leeds University, UK, 1976, 1979), Ph.D.-Atmospheric Physics (National & Kapodistrian University of Athens, Greece, 1988), and Post Doc.-Atmospheric Remote Sensing (DLR, Germany, 1992). Dr. Kambezidis joined National Observatory of Athens (NOA) in 1981 as Assistant, was retired in 2019, and is now Emeritus Researcher of NOA. Dr. Kambezidis has 168 publications in international journals, 159 in international conferences/symposia, 5 monographs, and 13 book chapters. He has been PI/Participator and Evaluator in many research programmes and Reviewer in 101 journals

Brian Caulfield

Department of Civil, Structural and Environmental Engineering, Trinity College Dublin, Dublin 2, Ireland

Decreasing our transport emissions by 50% by 2030

Many countries around the world are striving towards reducing their transport emissions by up to and beyond 50% by the year 2030. To achieve this mammoth task governments and policymakers across the globe are being tasked with a significant issue in how to do this reduction in the most cost efficient and urgent way possible. This presentation will examine some of the common trends across the globe in achieving this goal of decarbonisation and transport, it will examine how many governments are struggling to achieve goals of higher numbers of electric vehicles and also the shift towards more sustainable modes of transport. The presentation will focus upon the Irish government's current policy objectives to achieve these emissions targets and how practical and realistic these targets and their possible successful. The talk will also draw on many recent international examples of how decarbonization in this sector is pressing ahead and what other countries can learn from them.

Audience Take Away:
- The presentation will contain some real-life case studies of decarbonisation of transport from across the globe
- The research will look at practical solutions as well as examine the main barriers to achieving decarbonization of transport
- It is also expected that the presentation should encourage debate and sharing of ideas from other delegates at the conference

Biography:
Dr Brian Caulfield is an Associate Professor and Head of Discipline in the Department of Civil, Structural and Environmental Engineering, Trinity College Dublin. He has been active in transport research for over 10 years and to date has attracted €4.2m in research funding from both National and EU funding sources. His research focuses upon the optimisation of transportation networks with the goal of reducing emissions and meeting our climate change targets. He has published 80 peer-reviewed journal papers on the topic of transportation and is an Editor of Transport Policy (Impact-factor: 4.674) and a Senior Editor of Renewable and Sustainable Energy Reviews (Impact-factor: 14.982)

Virendra Goswami

IIT and Environment & Peace Foundation, India

Application of Remote Sensing to study Tropical Cyclones/Hurricane Energetic to develop Tropical Cyclone/Hurricane Forecasting Models (TCFM/HFM) through Morphological and Dynamical Properties of Meso-Scale Convective Systems.

The present Tropical Cyclones/Hurricane Weather Research and Forecast (TCFM/HWRF) system is capable to forecast the inner core structure of the Tropical Cyclones/Hurricanes out to 5 days. Hence, efforts are to be made to test, evaluate, and improve predictions of Hurricane's track(motion), intensity, speed, and inner core Structure, beyond 5 days ,through the study of Hurricane energetic in correlation with dynamical fluid motions and physical features (e.g. radiative transfer, chemistry, cloud processes), of meso-scale NH-SH Convective systems in order to develop a unique Tropical Cyclone/Hurricane Forecast Models (TCFM/HFM), acting as an Operational real-time forecast guidance for all global tropical cyclones/hurricanes across the Atlantic, Asia Pacific, North Indian Ocean and Southern Hemisphere ocean basins. The key to this new prediction system (TCFM/HFM) would be the development of a very fine (1deg–1deg) grid nests moving with individual storms within the global model, having a coupling capability for these nests in space & time mode. (TCFM/HFM) would be coupled to Atlantic, and North Indian Ocean basins Storms, so that its grid filter gets updated whenever, there are active cyclonic storms in these basins. Next, the high-resolution Satellite imageries of the two Super Cyclonic Storms (SCS) over the Atlantic& North Indian Oceanic basins occurred during May- October 2020 would be examined with emphasis on the large scale kinematic and thermodynamic behavior of these two SCS name Laura'(Atlantic,26Aug'20,240Kmph,937hPa) Amphan'(BOB,17May'20,240Kmph,920hPa) & other selected mesoscale Convective Systems, e.g. intense Cloud Clusters Thunderstorms, Depression, by making use of Aircraft, Doppler Weather Radar and conventional data over the selected domain in order to study mathematical and computational aspects of weather and climate through spatial structure of Cloud field incorporating the Tropical Cyclones/Hurricane Weather Research Forecast Models (HWRF). Based on Suchman, Martin & Sikdar (1977), Cloud Cluster studies, and of Goswami. V.K et.al. (1990); wherein, the two plausible Models of Monsoon Depression have been postulated in terms of Cluster Coalescence Theory and Giant Cluster Theory along with technique described for inferring vertical mass circulations within and around the monsoon depression in tropical regions by making use of satellite imageries, be employed to study the said two SCS over Atlantic & North Indian oceanic basins during the Storm-Cycle (May-Oct)'20 to develop (TCFM/HFM). Next, the Thermodynamic structure of these Hurricanes be studied by computation of deep convective mass transport inside the Cloud Cluster by means of Cloud Tracer Analysis (WINDCO measurements) using McIDAS. The Tele-connection of SH features e.g. Depressions, Cyclonic Storms, Equatorial Trough & movement of ITCZ with the identical features of NH, governing the storms activity over the region would also be studied

Biography:

Dr. Virendra Kumar Goswami, Ph.D. Indian Institute of Technology (IIT), Kharagpur, MS from the University of Wisconsin, USA. Post Doctorate Fellow (PDF) at the University of Illinois, Chicago, USA. 'Visiting Scientist' to United Nations Industrial Development Organization (UNIDO), ICTP, Italy. Expert Panelist International Civil Aviation Organization (ICAO), Canada and the United Nations. Founder President 'Environment & Peace Foundation'& Wing Commander (Retd.) with more than 550 hours of flying as a supernumerary Aircrew. Dr. Virendra Goswami worked at Space Science Engineering Centre, NASA NOAA (National Oceanic Atmospheric Administration) at the University of Wisconsin, USA. Former Vice-Chancellor: Sangam & Sunrise Universities. Had been, Director General of Management Institutes & Director of Engineering Institutes as well as Vice-President Havells India Ltd. Special Invitee by the World Meteorological Organization (WMO) of the United Nations, Geneva in 2001. Expert Panelist of Association of Indian Universities (AIU) & Ph. D & M. Tech Examiner at Centre of Energy Studies at IIT Delhi. More than 44 years of teaching, research and administrative experience at Home and Abroad. Also, Prof. Emeritus, Member: American Geophysical Union) SCB, AMS & IMS.

Azzeddine Oudjehane

SAIT – Southern Alberta Institute of Technology , Canada

The path to a climate resilient and carbon neutral built environment

Can the built environment and construction sector achieve climate resilience and net zero GHGemissions by 2050? That is the 2-fold question that this presentation will attempt to address. As environmental impacts and climate change regulations get implemented, all sectors of the economy will need to comply with restrictions on pollutants and impacts to the environment. The built environment uses up to 36%of the global energy and according to the UNEP Report 2020, the construction sector hit record high before the low-Carbon pandemic. Those emissionswere primarily from operating buildings. Overall, the global built environment accounts for 40% of all GHG emissions when adding: 1.29% operation emissions induced during Operation and Maintenance of buildings,facilities and infrastructure, 2.11% embodied emissions induced during the processing of building materials andconstruction. The UNEP report also states that global net human-caused emissions of carbon dioxide (CO_2)would need to fall by about 45% from 2010 levels by 2030 in order to reach "net zero" around 2050. In 2020, during the COVID 19 pandemic global GHG emissions have dropped significantly by 6.4% (2.3 billion tones). However, given that the global construction market will grow $8 Trillion by 2030 and add over 2.4 trillion square feet (250 million m2) of new building floor area to accommodate a world population at 10 billion by 2050, the path to achieving a carbon zero built environment requiresthe implementation of two strategies: one to capture carbon and a second to reduce carbon emissions. Hence, the following learning objectives are expected:

(i)Reviewing the trends in the built environment sector post and pre-pandemic

(ii)Defining climate resilience in the built environment

(iii)Reviewing the Zero Carbon building framework

(iv)Identifying the path towards a carbon neutral or negative built environment by 2050

Biography:

Dr. Azzeddine Oudjehane an Instructor from the BSc CPM at SAIT. Azzeddine joined SAIT in 2012, to teach in the Bachelor of Science in Construction Project Management program and develop applied andscholarly research opportunities that meet the needs of Alberta's construction industry. With over 30 years of experience leading multi-disciplinary projects in R&D, business innovation andmarket development he has worked with various stakeholders from Academia, Government and Industry. Azzeddine holds graduate degrees in both Applied Science and Business Administration. Azzeddine strives through teaching excellence to train the next generation of construction project managers in Alberta and Canada, while developing scholarly applied research that meets the needs ofthe Alberta industries Since joining SAIT, he was nominated to SAITSA's Teaching Excellence Award in 2014, 2019 and 2020. Alongside his academic position Azzeddine currently served as the Vice Chair for the Chapter LeadershipBoard of Directors of the Alberta Chapter of the Canada Green Building Council CaGBC between 2014 and 2020 . Azzeddine currently serves as the Treasure and Secretary for the Board of Directors of Value Analysis Canada. With over 100 publications and presentations at international conferences, Dr. Oudjehane serves in various journal review committees and has chaired sessions at conferences. His applied research work and interests include: Integration of AI and Unmanned Systems in Construction management; Sustainable mass timber design and construction; an emphasis on zero carbon resilient and sustainablebuilt environment. He is currently leading a multi-disciplinary curriculum development framework for atraining program on sustainable mass timber construction management

Subhas Chandra Mukhopadhyay

Macquarie University, Australia

IoT Enabled Smart Sensors for Home, City and Environmental Monitoring

The advancement of sensing technologies, embedded systems, wireless communication technologies, nano-materials, and miniaturization makes it possible to develop IoT enabled smart sensing systems. IoT enabled sensors empowers the vision of a Smart City to become a reality. IoT enabled sensors provides real time environmental data which will provide full awareness of weather/climate and can be used to take any strategic/corrective actions to address issues. This seminar will discuss fabrication and developmental works on IoT enabled sensors at Macquarie University based on MEMS as well as flexible materials for home, health and environmental monitoring. The success of the Commonwealth funded (Govt. of Australia) Smart city project and New South Wales Government Funded Water project will be shared

Audience Take Away:
- Design and development of low-cost sensors development
- Application of sensors for smart city applications
- Sensors to address environmental monitoring
- Sensors to address missing water towards water sustainability
- Sensors for climate change

Biography:
Subhas is working as a Professor of Mechanical/Electronics Engineering, Macquarie University, Australia and is the Discipline Leader of the Mechatronics Engineering Degree Programme. His fields of interest include Smart Sensors and sensing technology, wireless sensors and network (WSN), Internet of Things (IoT), Mechatronics etc. He has published over 450 papers in different international journals and conference proceedings, written ten books and sixty two book chapters and edited eighteen conference proceedings. He has delivered 412 presentations including keynote, invited, tutorial and special lectures. He is a Fellow of IEEE (USA), a Fellow of IET (UK), a Fellow of IETE (India). He is a Distinguished Lecturer of the IEEE Sensors Council from 2017 to 2022. He chairs the IEEE Sensors Council NSW chapter

SPEAKERS

DAY 02

EURO GLOBAL CLIMATE
CHANGE CONFERENCE

19-20 SEPT

Is Global Stock take the DNA of Climate Change Action ? The helix of Mitigation, Adaptation and its Implementation

Prachi Ugle Pimpalkhute

Eco Endeavourers Network, European Wide Initiative, India

If climate change action is the solution then by now, we would have got all the answers for the myths andscience behind it. The very dogma entwined at the base is what we have not hold yet, so that's the reason for the problem. Climate change does not have a reason, it just happens, its a natural phenomenon -as dayand season fluctuates, so does the climate, change is the very virtue of development and progress. Then why is it that climate change is receiving the negative notion? Do think climate should remain static? If it does not change then its a problem. Then why is it that we have climate change action , adaptation and mitigation. As we are building blocks of genome and have a DNA specifying our identity, each having a sequence. The climate change too has a sequence and is made of or arises from the very perpetual carbon cycle. Stocktake with carbon cycle backing is the central dogma of climate change and we are impacting this very perpetual cycle. Stocktake is a core mechanism essential to fulfilling long-term goals on mitigation, adaptation, and finance. It was created to review collective efforts and increase climate action, support, and international cooperation. Elaboration is critical if the GST (Global Stocktake) is to fulfil the four key functions-pace-setting, driving ambition, holding countries accountable, and sending implementation information to reach the Paris Agreement. The kaya identity and IPAT equation are taken for explaining the emission reductions. The Kaya identity is an identity stating that the total emission level of the greenhouse gas carbon dioxide can be expressed as the product of four factors: human population, GDP per capita, energy intensity (per unit of GDP), and intensity (emissions per unit of energy consumed). The Kaya identity developed by Yoichi Kaya. Also included is IPAT $I = P \times A \times T$: The IPAT expression equateshuman impact on the environment (I) to the product of three factors: population (P), affluence (A) and technology (T). It is similar in form to the Kaya identity which applies specifically to emissions of the greenhouse gas carbon dioxide. Analyzing the relationship between the individual Kaya identity factors and their respective subcomponents is necessary to identify the real and relevant drivers of CO_2 emissions.Global stockrate is an umbrella data and advocacy with a review for framing up targets. This statement falls under the purview of Ratchet Mechanism which under the umbrella Article 4, makes countries to oblige for countries to revise their emission targets called Nationally Determined Contributions (NDCs).

Policy sequencing is what defines the Ratchet and per degree commitment target evolution and implementation. The paper aims to apply practical solution to Climate change action via global stocktake and kaya identity specifically, so as to devise better strategies and policies

Audience Take Away:

- As the paper presentation aims to orient with practical solutions in mitigation and adaptation, stakeholders will be able to apply, upgrade, upskill and implement, they get to implement the actions while learning
- Since the paper allows developing core competencies, the learnings and outcomes shall beable align to 1.5^0 per degree commitment
- Yes, they as part of knowledge sharing and transfer workout, can expand the paperoutcomes to their study or implementation focal point
- Yes it provides practical solutions for better ease of facilitation and implementation, and it shall allow cobenefitting as outcome.
- Stock take and ratchet mechanism shall gets its due recognition in climate changemitigation and adaptation strategies

Biography:

Post-Doctorate in Climate Science and PhD in Environmental Science, Expertise in TCFDs, NAMAs, NDCs, Climate Change Adaptation and Mitigation and Sustainability Reporting, Renewables, Act 4 SDGs, MRVs, REDD+, ecosystem services, nature base solutions, Science based targets, integrated reporting, capacity building and outreach. I have about 14 years of experience in the domain of climate change, sustainability and renewables and have worked with varied national and international organizations of repute. Currentlyas a Founder to Eco Endeavourers Network I work on climate change, sustainability and energy issues, doing capacity building and online programmes, boot camps, deep dives, and events including Briefers, handouts, papers and concept notes workable notings and written material for circulation and communication to varied stakeholders

Influence of wastes of taro leaf, sugar beet and saw dust on physiochemical parameters of produced vermicompost

Nabil S. A. Mustafa[1*], Yasser Thabet A. Moustafa[2], Mohamad F. El-Dahshouri[3], M. A. Hassoub[3]Sameh Mohamed Mohamed EL-Sawy Ghonim[4], Raghda Zuhair[5], Lixin Zhang[6]

[1]Pomology Department, Agricultural and Biology Research Institute, National Research Centre, Cairo, 12622, Egypt

[2]Central Lab for Aquaculture Research, Agricultural Research Centre (ARC), Egypt

[3]Fertilization Technology Department, Agricultural and Biology Research Institute, National Research Centre, Cairo, 12622, Egypt

[4]Vegetable Research Department, Agricultural and Biology Research Institute, National Research Centre, Cairo, 12622, Egypt

[5]Zoology Department, Faculty of Science, Tanta University. Egypt

[6]College of Life Sciences, Northwest A&F University, Yangling 712100, Shaanxi, China

Climatic changes and its negative impacts may is represented one of big global challenges and eliminate soil and water availability time by time. Thereby, adding organic fertilizers (i.e vermicompost) as soil amelioration may consider one of effective approaches in order to recover soil degradation and enhance water retention in soil. Through vermicomposting, agro-wastes are converted into vermicompost that rich in humus, growth promoters (i.e. amino acids, growth hormones) and nutrients. Current work was carried out during 2019-2020 to investigate impact of different agro-wastes types i.e. Taro leaf (TF), Saw Dust (SD) and Sugar Beet (SB) on vermicompost quality. Obtained results indicated that these agro-wastes resulted in varying of physiochemical parameters and vermicompost content of amino acids and growth promoters. Whereas, adding SD to Cow dung during vermicomposting resulted in raising Organic matter and N content. Meanwhile, adding SD to FS resulted in increment in C:N ratio and P content in vermicompost. Besides, adding TL to cow dung during vermicomposting led to increment in amino acids. In addition, adding SB to cow dung during vermicomposting resulted in raising ABA and GA3 content. Moreover, these different agro-wastes resulted in varying microbial activity and the highest activities produced when TL adding to FS during vermicomposting. Finally, these different agro-wastes led to differing in antimicrobial activity in produced vermicompost. From these resulted, research team concluded that there is a great potential to produce vermicompost with specific quality that may play a crucial role in combat climatic changes particularly reinforce tolerant plant to drought stress

Audience Take Away:

- Raising audience's awareness about the importance of recycling agro-wastes in order recovering soil degradation and increasing its water retention is very considered these days under circumstances of climatic changes (global warming, increasing temperature, soil salinization....), shortage in water supply for agricultural uses, arable soil and finally fast grows of world population

- Moreover, importance of conversion of agro-wastes into vermicompost that plays crucial role in in reinforce soil fertility, soil beneficial microbial activity, validity of nutrient in root zoon for long time, anti-pathogen and decreasing demand on mineral fertilizers and pesticides thereby decreasing pollution sources (soil and ground water)

- Eco-friendly disposal of agro wastes instead of non-economic traditional ways

- Finally, there is a great potential to produce vermicompost with specific quality (nutrient, has, amino acids and hormones) according for crops requirement and their stages development

Biography:

Prof. Nabil Sabet A. Mustafa, studied agricultural science at Alexandria University, Faculty of Agriculture, MS in 2001, I joined to National Research Centre (NRC), Egypt in 2004, as I finished my PhD in 2008 titled "(Effect of salinity and certain treatments on salt tolerance aspects of some citrus rootstocks)" at Alexandria University, Faculty of Agriculture. In 2009, I received post doctor grant in CIRAD, in San Giuliano to start a short training program, France. I obtained Associate professor at Pomology Dept., NRC in 2013 as Professor in 2018- till now. I published about 52 research articles in an international Journal, 29 articles of them in SCOPUS Journals

Critical Infrastructure Vulnerability to Climate Change: A Geospatial Analysis

Efthymia Koliokosta

Department of Transport, Trade and Shipping, University of the Aegean, Chios, Greece

All infrastructure are prone to climate extremes, especially those connected to flooding from extreme precipitation, sea level rise and storm surges. Critical Infrastructure, (CI) are vital to promote economic growth and ensure national security and public health, especially during and after disasters, pandemics and other crisis. Due to their important role for the smooth operation of modern societies, governments often invest high amounts to improve their functionality, durability and sustainability ignoring, however, to build or increase resilience towards climate extremes. Recent flooding disasters due to extreme precipitation (eg. Germany, Netherlands and Belgium in July 2021) have proven that even developed countries are unprotected to large floods and that there is not adequate adaptation towards extreme weather events. Although huge progress has been done regarding flooding management with the development of flood projection maps, in practice they are very complicated and are often outdated and inaccurate. So, there is an urgent need for less complicated approaches for vulnerability assessment to flooding events from climate extremes, which could be commonly used by all stakeholders and decision makers. Geospatial data could contribute to the definition of "vulnerability zones" for each climate hazard. The elevation and the distance from water masses, which could generate flooding events after climate extremes, are key elements in geospatial analysis of vulnerability to climate hazards. More specifically, when assessing CI vulnerability to sea level rise and storm surges, two factors should be taken into account: (i) the distance from the shoreline and (b) the elevation from the sea level. Similarly, the vulnerability assessment to extreme precipitation requires primarily (i) the distance from water masses, such as rivers and/or lakes, and then (ii) the elevation of the assets in relation to the elevation of the water masses. Despite adaptation measures may reduce significantly the level of vulnerability, there is lack of evidence regarding the CI and thus it should not be used in the vulnerability assessment procedure, as it could give inaccurate results. A retrospective analysis of past extreme climatic events has concluded that elements that lay at a distance varying between 1- 3km and elevations up to 3m, are very exposed to sea level rise and storm surges. For the low-laying regions, all infrastructure built in the zone of approximately 15km from the coastline and elevation 3m are also considered very vulnerable. Similarly, CI built close to rivers/lakes at distances smaller than 1km, face extreme vulnerability to flooding from river/lake overflow, due to extreme precipitation. Riverine flooding is more extensive at sharp "U" of the rivers and inundation may extent to approximately 3km-4km, when the land elevation is lower or close to the river elevation. Riverine flooding is very often enhanced by Creeks or smaller streams that are connected to the main river and may cause inundation deeper than 3m. Despite the several flooding projection maps, they are inadequate in accurate vulnerability assessment, so the need for mapping the vulnerability through the development of "vulnerability zones" based on specific geospatial metrics, could contribute to more efficient flooding management. Knowing a-priori the "vulnerability zone" each asset lays in, could facilitate decision making for existing and future infrastructure and contribute to the prioritization of the needs for adaptation and resilience financing and investment

Audience Take Away:

- The suggested approach for vulnerability assessment can be used by all stakeholders, designers and engineers as well as decision makers, who are involved in flooding risk management of existing and future critical infrastructure
- This approach could contribute to the development of a commonly used methodology of risk assessment towards climate change extreme occurrences, as it is less complicated and very easy to understand
- This research could provide a practical solution in mitigating the impacts of extreme flooding events not only on critical infrastructure, but also on all properties and people of the vulnerable regions
- This research could help the decision makers with respect to the selection of the most resilient location for the construction of future critical infrastructure

Biography:

Efthymia Koliokosta is a PhD student at the University of the Aegean. She holds a BSc in International Economics and Finance from Athens University of Economics and Business (AUEB), a MSc in Crisis Management, Emergencies and Mass Disasters (with Honors), with research interest in "Evaluation Models of Environmental Crisis"(masters dissertation degree:10/10) from University of Athens and a MSc in European Studies, focused to Environmental Policies (AUEB). She is currently a graduate student at the University of West Attika on Tourism Management and Hospitality. Her research interests focus on climate change risk assessment, critical infrastructures and tourism

Heat recovery in air compressors

Selman cagman[1*], Ertan Aksoz[2], Furkan Arslan[2], Selman cagman[2], Umit Unver[3]

[1]Kocaeli Universitesi Teknoloji Fakultesi Enerji Sistemleri Muhendisligi Bolumu Kocaeli, Turkiye
[2]Yalova Universitesi, Enerji Sistemleri Muhendisligi, Yalova, Turkiye
[3]Yalova Universitesi, Makine Muhendisligi, Yalova, Turkiye

Compressed air systems are widely used in industry. Compressed air is usually produced by a compressor driven by an electric motor. Large part of the energy is converted to waste heat and its recovery prevents losses to a large extent in compressed air production. In this paper, a literature review about compressed air systems is given. In the paper, the system principle, structure and types of compressors are introduced, how the compressors can be operated more efficiently and savings opportunities are mentioned. Savings opportunities are explained with calculation methods. Compressor selection criteria are explained and advantages and disadvantages of compressor types are listed. This study, which aims to point out the compressor-induced energy losses in the industry by choosing the right compressor and calculating the savings opportunities, also includes methods that can be applied regarding energy efficiency. In the study, it is mentioned how the waste heat in the compressors will be converted into useful heat.

Keywords: Compressed air systems, energy efficiency, energy efficiency in industry, compressor, energy efficiency in compressors.

COP27 From Commitments to Action

Ahmad T. Tawfik

CEO of Scientific Management LTD, United Arab Emirates

Each region of the world faces unique vulnerabilities to climate change and has unique opportunities to mitigate its effects and build resilience in the 21st century. Many countries have agreed to take action to combat climate change by ratifying the Paris Agreement. Indeed, without climate action, decades of sustainable development are jeopardized, making this a "make or break" moment in history. since COP26 in Glasgow, where Parties agreed to develop a work Programme to accelerate emissions cuts in this critical decade before 2030, with the goal of keeping global average temperature rise below 1.5 degrees Celsius. We must turn the Glasgow outcome into action and begin implementing it. In terms of climate finance, developed countries must deliver on the commitments they have made. The UN negotiations are based on consensus, and reaching an agreement will necessitate the inclusion and active participation of all stakeholders. It is also critical to align global financial flows with the Paris goals in order to ensure that the scale of financial support matches what is needed to help solve the existential challenges posed by the climate crisis. Many other countries agree, and the EU reiterates that this issue must be addressed at COP 27. The EU welcomed the progress made over the ten days and urged Parties to continue to build consensus on the various issues before reconvening in Sharm el-Sheikh in November for the UN Climate Conference (COP27). The importance of climate finance adequacy and predictability is critical to meeting the goals of the Paris Agreement; to that end, there is a need for increased transparency of finance flows and facilitated access to meet the needs of developing countries, particularly Africa, LDCs, and SIDS. Existing commitments and pledges, announced from Copenhagen and Cancun, through Paris and all the way to Glasgow, require follow up in order to provide clarity as to where we are and what more needs to be done. Progress on delivery of the annual USD 100 billion will build more trust between developed and developing countries, showing that actual commitments are being fulfilled. Governments, the private sector and civil society need to work, in tandem, to transform the way in which we interact with our planet. We must introduce new solutions and innovations that help alleviate the adverse impacts of climate change. We also need to replicate and rapidly upscale all other climate-friendly solutions towards implementation in developing countries

Audience Take Away:

- Climate change is not only about managing risks but also about capturing new opportunities and empowering the private sector to engage broadly
- Markets around the world are changing quickly, favoring lower carbon goods and moving towards greener and more resilient development paths
- Enabling the transition toward a low carbon climate-resilient economy will require actions to support an increased role of the private sector
- The private sector has an important role to play in a financial, innovation, and providing a climate friendly goods and services

Biography:

Dr. Ahmad T. Tawfik author for three books (Future Readiness, Scientific Diplomacy, and Science and innovation for sustainable development), he has diverse experiences in chemistry, environmental control and treatment. He has worked in Egyptian Environmental Affairs Agency since 2000 as an environmental researcher and has several papers in environmental treatment and green chemistry. Ahmad has established environmental system management for different organization to implement, monitor and control the environment in Egypt and UAE. Dr Ahmad has received many appreciation awards from the Egyptian minister and UAE ministers

Ideal and real precedents of the 15-minute city

Alcestis P. Rodi
Department of Architecture, University of Patras, Patras, Greece

Time-related urban modules based on walking distances and access to frequent destinations — 5-minute for 400m, 10-minute for 800m, etc.-- emerge as urban design and planning concepts that will heal the environmental and social impacts of the automobile age. To reduce greenhouse emissions and mitigate climate crisis as well as to strengthen community connections and promote local identity and economy, Paris pilots the '15-minute city' concept, Barcelona plans to super-size its car-free 'superblock' and cities in Australia and UK pursue the '20-minute neighbourhood', a strategic city planning for walkable environments and complete communities that originated in Portland, OR. Furthermore, Sweden pursues on a national scale a smaller, hyper-local module, the 'One-minute city' All these promising strategies that will decisively contribute to the transition towards climate-resilient cities focus on city performance and pay little or no attention to city form. The Covid-19 pandemic has already offered a 'performance preview' of living in urban models with shorter or fewer commutes, more free time and 'greener' neighbourhoods. Therefore, what will an 'x-minute city' look like? What will the urban form be when most community services can be reached within the certain time span on foot, on bike, by public transport? Still, most of the ideas and principles underpinning x-minute city concepts are not new. An examination of both ideal and real city plans derived from the past reveals the hidden origins and the underlying persistence of the 5-,10-,15-minute city along with their varied aspects. The presentation discusses the findings from historic paradigms where city modules are functions of walking time, ranging from Polybius's Roman military camp descriptions to Oglethorpe's Savannah plan, from Filarete's Sforzinda to Scamozzi's Palmanova, from Hebrard's World Centre of Communication to his Thessaloniki Reconstruction plan and from Howard's Garden City to Milton Keynes. Alluding to the European Commission's New European Bauhaus initiative to help deliver the Green Deal, the presentation looks back to elaborate city planning paradigms, so as to advocate the matching of sustainability and planning with design and aesthetics of urban form in the pursuit of an innovative framework towards the green transformation

Audience Take Away:

- The possibility to discover, understand and enhance new urban design concepts through a multi-faceted examination of historic paradigms
- The need to integrate sustainability and planning with design and aesthetics of urban form in contemporary city concepts
- The imperative of recognizing, assessing and redeveloping existing urban areas as time-related urban modules

Biography:
Dr. Alcestis Rodi (Dipl.Arch., NTUA; MAUD, Harvard ; PhD, TUDelft) is associate professor at the Department of Architecture, University of Patras, Greece. She practiced architecture and urban design in USA and Greece and was advisor to the Vice President of the Greek Government (2010-12). She introduced the concept of 'Bricolage Urbanism' (2015) and co-authored *Modern Architectures in History: Greece*, also being editor and contributor to several collective volumes. Her design work and academic articles have been published and awarded internationally. Her current research focuses on urban morphology and contemporary urban concepts. In 2018-9 she was a Visiting Scholar at MIT

Climate change influence carbon cycle – study on wetlands in poland

Katarzyna Dabrowska–Zielinska[1*], Radoslaw Gurdak[1], Patryk Grzybowski[1], Maciej Bartold[1], Marcin Kluczek[1]
Institute of Geodesy and Cartography, Poland

The Polish climatologists from over a dozen scientific centers conducted comprehensive research on the climate which has changed from the end of the 18th century. Researchers looked at changes in air temperature and precipitation, but also time trends of other climate elements as sunshine, wind, snow cover, circulation and biometeorological indicators. The question has to be posed what we, the scientists working with the nature may do. What new research should be associated with climate change. This new research is connected to prevent discharge of water, increase infiltration and give the natural possibilities to diminish impact of climate dynamics on carbon exchange between vegetation and the atmosphere. The gross primary production is strongly connected to carbon sequestation. The change of albedo caused by drought, changes of roughness, changes of evapotranspiration influence carbon cycle. The drought suppresses evapotranspiration and increases sensible heat what influence increase in air temperature and decrease of soil moisture. These changes lead to land-atmosphere exchanges of carbon and water. It could lead to the disturbances in wetlands leading to the changes of peat soils and emission of carbon. Degradation of peatlands is a growing source of anthropogenic greenhouse gas (GHG) emissions. Climate changes induce decrease of precipitation and growth of air temperature that has the potential to influence the exchange of the gases between the surface and atmosphere and lowers the soil moisture, that results in release of CO_2 to the atmosphere. Peatlands on the one hand sequester the "greenhouse" gas from the atmosphere, while on the other hand they emit in large quantities both CO_2 and methane CH_4. According to the International Union for Conservation of Nature (IUCN), the peatlands are a major source of greenhouse gas emissions annually releasing almost 6% of global anthropogenic CO_2 emissions. Peatland restoration can therefore bring significant reductions of GHG emissions. Biebrza wetlands in Poland has been the study area of modelling the carbon exchange in different climatic conditions. This study will conclude the indications to mitigate the influence of climate and increase the gross primary production to increase carbon sequestration

Biography:
Professor Katarzyna Dabrowska - Zielinska –Head of Remote Sensing Centre in the Institute of Geodesy and Cartography in Poland. She received PhD degree from the Australian National University in Canberra. She was awarded the Fulbright grant in USDA and has been working on modelling vegetation conditions. Her main research interests are related to the use of information derived from optical and microwave sensors of satellites for water and energy balance for the areas of agriculture and wetlands. She is developing models for drought detection and modelling its influence on crop and other vegetation. She woks on yield forecasting, crop growth assessment, environmental monitoring, detection of water deficit and its impact on yield reduction, natural hazards and wetlands management. She is strongly involved in modelling the CO2 flux for different areas using the satellite data.

Diurnal variation of bacterial and fungal flora in ambient air in a tropical setting , in Settle plate method

Sayan Bhattacharyya[1*], Atul Raj[1], Amit Banik[1]

[1]Microbiology, All India Institute of Hygiene and Public Heath (AIIH&PH), Kolkata

Airborne bacteria and fungi exist as bioaerosols, which can cause a range of infectious diseases, allergic and toxic reactions. There can be temperature-specific variation in aerial microbial flora, which is important to know. There is also seasonal variation in microbial flora of air. Fungi in inner ambient air is more in summer and lesser in winter. Different types of fungi or bacteria need different amounts of moisture to reproduce and grow. The majority need a relative humidity (RH) of 60 % or more, though some can survive and multiply in even 20 % RH. Thus, decreasing temperature and moisture, creates a less hospitable environment for microorganisms to grow.These are pertinent because it can calculate the best time of the day to venture out. Generally, fungi are found more in outer air than indoor air, while for bacteria it is reverse. Materials and methods: We analyzed data from other studies in this context and also did a small study regarding diurnal variation in bacteria and fungi in air of outdoor and indoor or closed space air by settle plate method in our campus. We used Egg yolk agar, Mueller Hinton agar and Sabouraud's Dextrose agar (SDA) plates for this. Results: According to other studies and also seconded by us, the bacterial count as well as variety was more in daytime and less in afternoons. Bacillus spp. was found more in outer air in noon time than afternoon. Staphylococci could be found all throughout the day. The diurnal variation of fungi like yeasts and molds are found to be less, however. Conclusion: Mesophilic bacteria and fungi show optimal growth at temperatures of 25-40°C. On the other hand, when temperatures reach below 18°C/64°F, microorganism growth decreases. Possibly factors like ambient temperature and humidity also have a decisive role to play in aerial flora due to variation in concentration of suspended aerosols. Temperature, moisture and UV radiation are 3 things which are very important from public health viewpoint and also open up newer vistas of research

Audience Take Away:

- The audience will get to know new vistas in settle plate method
- They will know new aspects like variations of aerial microbial flora with respect to temperature and humidity
- They will know new aspects like variations of aerial microbial flora with respect to indivifualo bacterial and fungal genera
- The audience will know of its importance in public health as well as daily life
- The good time to venture out with less risk of getting exposed to airborne bacteria and fungi can be found out
- All other benefits: New information about academics related to this method and sir microbiology in general, can be known

Biography:

He did MBBS from: Medical College, Calcutta, 2005, and MD (Microbiology) from: PGIMER, Chandigarh, 2008 and Presently working as: Associate Professor, Department of Microbiology, All India Institute of Hygiene and Public Health (AIIH&PH), Kolkata with ORCID ID : 0000-0001-7741-0866. He published 79 articles. He is a Life member at IAMM, SIHAM(ISMM), IIMAR, Indian Immunology Society. He got 1st prize, English essay competition on "One health and Rabies", by Pashudhan Praharee, 2021 and Second prize, oral category in STMIDI TROPICON, 2018, Kolkata. He is the examiner and scrutinizer of university exams.

Innovating to Net Zero with Smart Energy Systems

Michael Short

Centre for Sustainable Engineering, Teesside University, Middlesbrough, TS1 3BA, UK

Digitalisation, decentralisation and decarbonisation are transforming approaches to the design and operation of industrial, business, and social systems across the globe. In this context, smart grids are electrical grids that include a variety of interoperable communication and control devices to optimally facilitate the production, distribution, and consumption of electricity. They are seen as key enablers in the decarbonisation of both industry and society, and along with renewable energy will power the smart and connected industries, businesses, and citizens of the future net zero digital economy. This talk will first outline innovative and disruptive smart systems for energy control and management developed within the context of the IDEAS, DR-BoB, InteGRIDy, REACT and VICPorts funded research and innovation projects. The talk will then focus on the development and deployment of system architectures for data-driven energy asset modelling and for distributed optimal (or near-optimal) control of energy assets in real-time within the context of a rolling-horizon optimization framework. The talk will also describe details of implementation within a Fog computing framework and will present simulation and practical results for algorithms tailored to dispatch of Combined Heat and Power (CHP) plant, domestic smart appliances, wind turbines, HVAC loads and cargo handling equipment. Finally, it will outline some of the open issues and challenges in smart energy systems and opportunities for further research and innovation

Audience Take Away:

- Examples of research and practical implementation of Smart Energy Systems in the context of funded research and innovation projects
- Areas of future research and innovation around Smart Energy Systems

Biography:

Michael Short is a professor of control engineering and systems informatics at Teesside University in the UK and leads the multidisciplinary Centre for Sustainable Engineering. He holds a BEng degree in electronic and electrical engineering (1999, Sunderland) and a PhD degree in real-time robot control (2003, Sunderland). Michael's research interests encompass aspects of applied control engineering and systems informatics applied to smart energy systems and robotics. He has authored over 160 reviewed publications in international conferences and journals, has received over 1400 citations and has won six best paper awards. He currently has an h-index of 22 and an i-10 index of 40. He has supervised six PhD completions and is investigator on numerous completed and ongoing funded research projects. He is an associate editor for the International Journal of Energies, a full member of the IET and a fellow of the HEA

What policies do homeowners prefer for building decarbonization and why? An exploration of climate policy support in Canada

Ekaterina Rhodes[1*], Meghan Corbett[1], Severin Odland[2], Aaron Pardy[3]

[1]School of Public Administration, University of Victoria, PO Box 1700 STN CSC, Victoria, BC, V8W 2Y2,Canada
[2]Department of Psychology, University of Victoria, PO Box 1700 STN CSC, Victoria, BC, V8W 2Y2, Canada
[3]School of Resource and Environmental Management, Simon Fraser University, 8888 University Dr.,Burnaby, BC, V5A 1S6, Canada

Residential buildings account for 17% of global greenhouse gas (GHG) emissions. While many governments have implemented or promised to implement policies to reduce building GHG emissions, it remains unclear whether these polices receive widespread public support and why. Understanding levels and characteristics of public support is important to ensure the policies' long-lasting impacts on GHG emissions. Further, most existing policy support studies tend to focus on economy-wide or transportation- specific climate policies and/or examine predictors of policy support using aggregate policy indices overlooking the unique characteristics associated with different policy types. Our study overcomes these gaps. Using a comprehensive set of attitudinal and contextual variables from Stern's Attitude-Behaviour- Context framework, we collect survey data from a representative sample of Canadian homeowners (n= 3,804) to explore (1) levels of homeowner support for specific types of home decarbonization policy in Canada and by Canadian region, (2) individual characteristics associated with support for specific policy types, and (3) heterogeneity across respondents based on patterns of policy support. Results indicate that the majority of homeowners (64-82%) support voluntary policies such as subsidies and loan programs for low-carbon heating technology, while compulsory policies (e.g., carbon taxes, renewable natural gas mandates, building emission regulations) receive less support (38–49%). Characteristics associated with consistent support for most home decarbonization policies fall into five categories: altruistic values, climate concern, trust in scientists, positive perceptions of heat pumps, and higher education. Other characteristics are associated with specific policy types. For example, renewable natural gas mandates are the only home decarbonization policy supported by those who live in rural areas and trust the fossil fuel industry, making it a good candidate for compulsory policy implementation in resource-dependent remote regions typically opposed to climate policy. Further, cluster analysis suggests that respondents fall into three groups based on patterns of policy support: those supportive of all home decarbonization policies representing 43% of respondents, those supportive of voluntary policies only (37%), and those opposed to all home decarbonization policies (20%). The most notable observation is that homeowners supportive of all policy types are relatively younger and more likely to be female than those who support voluntary policy only. Based on this analysis, we offer recommendations for designing climate policies to accelerate emissions reductions in residential buildings

Audience Take Away:

- Voluntary policies (i.e., subsidies, loans and education) receive higher support than compulsory policies (i.e., carbon taxes and regulations), yet more compulsory policies are needed to effectively reduce emissions in existing residential buildings and other sectors. Our study helps inform the communication and implementation of compulsory policy types, as well as enhance the effectiveness of existing voluntary policies

- The exploration of climate policy support must consider a compressive set of 'internal' attitudinal and 'external' contextual drivers of policy support, to design targeted policy proposals that have highchances of long-term implementation

- While support for most policies can be explained via a few consistent characteristics (i.e., altruistic values, climate concern, trust in scientists, positive perceptions of heat pumps, and higher education), unique characteristics associated with support for specific policy types should be addressed in climate policy design and communication

Biography:

Dr. Katya Rhodes is an Assistant Professor at the University of Victoria and a President of the Canadian Society for Ecological Economics. Dr. Rhodes investigates the topics of effective and acceptable climate policy design using survey tools and energy-economy modeling. She is a recipient of prestigious grants fromCanada's Social Sciences and Humanities Research Council and the Swedish Research Council. Dr. Rhodes has published in high-impact journals and presented at 50+ public events. Prior to joining the academia, Dr.Rhodes worked in the British Columbia Climate Action Secretariat leading emissions modelling and economic analyses for the provincial CleanBC plan

Non-destructive characterization and selective material recoveryfor sustainable resource utilization

Akira Otsuki[1,2,3]

[1]Facultad de Ingenieria y Ciencias, Universidad Adolfo Ibanez, Diagonal Las Torres 2640, Penalolen,Santiago 7941169, Chile

[2]Waste Science & Technology, Lulea University of Technology, SE 971 87 Lulea, Sweden

[3]Neutron Beam Technology Team, RIKEN Center for Advanced Photonics, RIKEN, Wako, Saitama 351-0198, Japan

Within the context of non-destructive characterization and selective material recovery for sustainable resource utilization, big picture including global trend and targets will be first summarized. Then, challenges associatedwith selective recovery of complex materials for their sustainable utilization will be discussed in three main areas. Theyare: characterization, selective liberation/dispersion, and selective separation. Not only the importance of each area butalso the synergistic combination of three of them will be highlighted. This talk will help the audience select and designappropriate comminution/liberation and separation methods and evaluate liberation and separation results, leading to minimize the carbon footprint and sustainable resource utilization

Biography:

Dr. Otsuki received his PhD in Geosystem Engineering from The University of Tokyo (JP) in 2007. After postdocs, a lecturer and an associate professor in Japan, Australia and France, he is currently working as a professor in UniversidadAdolfo Ibáñez in Chile. Dr. Otsuki also works as a guest professor in non-destructive characterization and selective material recovery at Lulea University of Technology (SE), and a visiting researcher in Neutron Beam Technology Teamat RIKEN (JP). He is a member of several academic societies, including Int. Waste Working Group. He has been actingas journal editors and also organizing journal special issues relevant to non-destructive characterization/testing and selective material recovery, including the ones given below. Dr. Otsuki's research is specialized in the area of characterization and processing of complex materials which include colloids, waste materials, and natural ores. He hasextensive exchange programs with different research and academic institutions around the world and is performing world class collaborative research in characterization and processing

Participants List

Ahmad T Tawfik CEO of Scientific Management Ltd, United Arab Emirates	**42**
Aijaz Panhwar Pakistan Council of Scientific & Industrial Research (PCSIR), Pakistan	**27**
Akira Otsuki Universidad Adolfo Ibanez, Chile	**48**
Alcestis Rodi University of Patras, Greece	**43**
Amy Cutter Mackenzie Knowles Southern Cross University, Australia	**29**
Astrid M Calderas FPK Environmental Health Investigations, United States	**14**
Azzeddine Oudjehane Southern Alberta Institute of Technology, Canada	**33**
Brian Caulfield Trinity College Dublin, Ireland	**31**
Contesa Laoumzi Patras School of Architecture, Greece	**19**
David Haley Individual Artist and Researcher, United Kingdom	**16**
Efthymia Koliokosta University of the Aegean, Greece	**39**
Ekaterina Rhodes University of Victoria, Canada	**47**
Elizabeth Ferreira Rangel Instituto Oswaldo Cruz, FIOCRUZ, Brazil	**26**
Gareth B Neighbour School of Engineering & Innovation The Open University, United Kingdom	**9**

Harry D Kambezidis National Observatory of Athens, Greece	**30**
Huilian Liao Sheffield Hallam University, United Kingdom	**15**
Jiaxin Chen Ontario Forest Research Institute, Canada	**13**
Jillian Huntley GCSCR and ARCHE, Griffith University, Australia	**7**
Katarzyna Dabrowska Zielinska Institute of Geodesy and Cartography, Poland	**44**
Lydia Galani Patras School of Architecture, Greece	**24**
Maria Gabriela Meirelles University of the Azores, Portugal	**22**
Marte Gutierrez Colorado School of Mines, United States	**11**
Martha Chadyiwa University of Johannesburg, South Africa	**23**
Michael Short Teesside University, United Kingdom	**46**
Nabil Sabet A Mustafa National Research Centre, Egypt	**38**
Nevenka Elezovic University of Belgrade, Serbia	**10**
Patrick Crabbe Bird Construction, Canada	**21**
Prachi Ugle Pimpalkhute Eco Endeavourers Network, European Wide Initiative, India	**36**
Sayan Bhattacharyya AIIH&PH, Kolkata, India	**45**

Selman Cagman Kocaeli University, Turkey	**41**
Subhas Chandra Mukhopadhyay Macquarie University, Australia	**34**
Totzer Tanja AIT Austrian Institute of Technology, Austria	**20**
Vasiliki Charalampopoulou Geosystems Hellas S.A. President & CEO, Greece	**17**
Virendra Goswami IIT & Environment & Peace Foundation, India	**32**
Vladimir Chigrinov Hong Kong University of Science and Technology, Hong Kong	**8**

We wish to meet you again at our upcoming conference

2nd Edition of
Euro Global Climate Change Conference
September 21-23, 2023 | Valencia, Spain
https://magnusconferences.com/climate-change/

Questions? Contact

+1 (702) 988-2320 or Inquires:
climate@magnusconference.com

For Registration:

https://magnusconferences.com/climate-change/register