

Proceedings of

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Webinar

ISBN: 978-1-8382915-7-0

Organizing Chair



Dr. Otilia MANTA,

Romanian Academy- CFMR and Romanian
American University, Romania

Moderator



Mr. Surendra, India

Moderator, International Scientific Coordinator,
United Research Forum

CONTENTS

Sl.No	Name	Title of Talks	Page No
1	Dr. Ray Leonard	Climate Change, Covid-19 and Their Effect on Energy's Future	5
2	Dr. David (Dave) White	Discovery: Reduction in photosynthesis correlation to carbon dioxide increase.	6-7
3	Dr. Marc A. Rosen	Sustainable Engineering: A Central Driver for Sustainability	8
4	Dr. D.Rajan	Evaluating the diurnal variability of NCMRWF model precipitation	9
5	Dr. Claire Atkins-Davis	Analyzing the Role of Vessel-Based Tourism on Masking on Antarctic Humpback Whales: A Petition for Management Solutions for Underwater Noise and Regulation of Antarctic Tourism	11
6	Miss. Ayat-allah Bouramdane	Comparing the integration of Concentrated Solar Power with Thermal Energy Storage to Utility-scale Photovoltaic with battery storage in the Moroccan Renewable Energy Mix: Design, Dispatch and Optimal Mix analysis	12-13
7	Mr. Amans Ntakarutimana	The value of monitoring data in a process community education implementation and evaluation	14
8	Mr. David Esteban Carchi Maurat	Iron based nanomaterials for cadmium (II) immobilization in water and soil.	15
9	Mr. Anthony Kwabena Sarfo	Flood Discourse in Ghana: Identification of Naturally Susceptible Urban Areas in Greater Accra Metropolitan Area, Ghana	16
10	Dr. Fabrizio Ambrosino	Continuous radon monitoring during seven years (2011-2017) of volcanic unrest at Campi Flegrei caldera (Southern Italy)	17
11	Dr. Luis Campos Saavedra	The Economy of the Common Good at the community level	18-19
12	Prof.dr. Otilia MANTA	The concept of cosmo-bio-economy and models of collaborative sustainable development	21
13	Dr. Mostafa Yuness Abdelfatah Mostafa	Effects of different types of Fertilizers on the Radioactivity in farm soil in Iraq	22



International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

KEYNOTE SPEAKERS

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

**Dr. Ray Leonard**

Anglo Eurasia LLC

Climate Change, Covid-19 and Their Effect on Energy's Future

Fossil fuels have led to a profound increase in world living standards but resulting emissions of CO₂ and methane into the atmosphere are a primary factor in climate change. Despite technology advances and recognition of the problem, the prior decade (2010-2019) was a missed opportunity with an insignificant drop in fossil fuel use as a percentage of the total energy mix, increased emissions of greenhouse gases (GHG) and accelerating climate change. The impact of the Covid-19 pandemic of 2020 has resulted in a significant decrease in world economic activity, which in turn has led to a major, if temporary, decrease in greenhouse gas emissions, particularly CO₂. It also led to a significant shift in the sources of energy, with major decrease in the highest GHG emitting fossil fuels (coal and oil) and increase in the use of renewable energy sources. However, the other significant shift has been in economic activity, measured in the greater loss of GDP in the EU and USA compared to South and East Asia, areas that are more dependent on high GHG emitting fossil fuels, particularly coal. The challenge of the coming decade will be to confront the narrowing window to avoid catastrophic climate change through measures such as: (a) world-wide carbon tax (b) natural gas as a transition fuel replacing coal in power generation (c) utilization of carbon capture use and sequestration (CCUS) on a mass scale and (4) hydrogen as a transportation fuel.

Biography:

Ray Leonard is President of Anglo Eurasia LLC, a consulting firm for the Energy and Power Industry. He has a Bachelor's Degree (Honors) in Geoscience from the University of Arizona and M. A. in Geology from University of Texas-Austin. He held executive positions with Amoco, YUKOS, MOL, the Kuwait Energy Company and was Chief Executive Officer of Hyperdynamics, a NYSE-listed oil exploration company. He is active publishing and presenting on world oil and gas reserves and climate change, presenting at forums such as Council on Foreign Relations (1994/2014), the 26th World Gas Conference (2015) and the World Economic Forum at Davos (2019/20).

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar



Dr. David (Dave) White

Chemical Engineer with Climate Change Truth Inc.

Discovery: Reduction in photosynthesis correlation to carbon dioxide increase

Carbon dioxide emissions correlate to 363 ppm and are not the cause of the Atmospheric CO₂ rise since 1957. The correct cause is deforestation of the Amazon Rain-Forest (0.99 by Pearson's regression). Since 1950, the Amazon Rain forest has been deforested. An average of 12 million hectare per year. This deforestation causes a minimum of 30% of the biomass burned. The burning of the biomass is adding billion of tons of carbon dioxide to the atmosphere. The carbon dioxide has overwhelmed the rain forest and caused massive decay. The rain forest has now become an oxygen sink and carbon dioxide producer. Now emitting 10 billion tons of CO₂ annually. Also losing its ability to produce oxygen. To solve these issues the deforestation and burning needs to stop. Then after 10 years, the burning can continue 10% a year for 10 years. This will heal the amazon and bring down atmospheric carbon dioxide quickly by increasing photosynthesis consumption to 100 billion tons annually. Stop non-sustainable deforestation like the Indian and Amazon rain forests. Please native trees and shrubs all over the world. The residence time of atmospheric CO₂ is 150 years. This is why there exists no signature to any recession or other lowering of CO₂ emissions.

Keywords: carbon dioxide increase, carbon dioxide scavenging, Climate Change, rain-forest
Significance Statement: Atmospheric CO₂ has two possible issues. CO₂ emissions are one. We have worked on that and have been flat at 36 billion tons annually since 2014. However the atmospheric CO₂ concentration and residence time are still increasing. The atmospheric tank model is just like a kitchen sink. When the water rises and stays in longer, we know we have a plugged drain. That drain is photosynthesis.

Conclusion: We can never bring down Atmospheric carbon dioxide by working on emissions alone. We need to put even more effort into increased photosynthesis. This will reduce atmospheric carbon dioxide to 330 ppm by year 2031 to 2040.

Recent Publications

1. IJESD 2018 Vol.9(4): 106-109 ISSN:2010-0264 doi: 10.18178/ijesd.2018.9.4.1082
 Discovery of reduction in photosynthesis correlation to carbon dioxide increase.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Biography:

Dave Is a Chemical Engineer with Masters studies in Statistics, currently working on Climate Change. He has 30 years' experience since graduation in 1984. Promoting responsibility to environment and health of all species. Dave White graduated in Chemical Engineering in 1984. During the time at Oregon State University Dave worked on a cross flow counter current scrubber for coal fired power plants. Additionally took masters level classes on statistics. Then he moved to Hillsboro with his wife and worked in Semiconductors. In 2007 Dave along with Dr. Tom Wallow produced a paper on ARF double patterning for semiconductors. This multi-patterning scheme is widely used in today's semiconductor manufacturing plants. In 2011 Dave started a consulting business for Semiconductors. In 2017 Dave Started Climate Change Truth Research Inc. Dave is seeking the truth about climate change. His research interests are evaporation from the ocean, rain forest destruction effects and diffusion of CO₂ through the atmosphere.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

**Dr. Marc A. Rosen**

Faculty of Engineering and Applied Science, University of Ontario Institute of Technology,
Oshawa, Ontario, Canada

Sustainable Engineering: A Central Driver for Sustainability

Sustainability is a critically important goal for human activity and development. Sustainability in the area of engineering, in particular, is of great importance to any plans and efforts for overall sustainability. This is due to many factors, including 1) the pervasiveness of engineering activities in societies, 2) their importance in economic development and living standards, and 3) the significant impacts that engineering processes and systems have had, and continue to have, on the environment. But sustainable engineering is extremely complex and challenging. Many factors that need to be considered and appropriately addressed in moving towards engineering sustainability are examined in this presentation. These include appropriate selection of resources bearing in mind sustainability criteria; the use of sustainable engineering processes, enhancement of the efficiency of engineering processes and resource use, and a holistic adoption of environmental stewardship in engineering activities. In addition, other key sustainability measures are addressed, such as economics, equity, land use, lifestyle, sociopolitical factors and population. Conclusions are provided related both to pathways for engineering sustainability and to the broader ultimate objective of sustainability.

Keywords: Sustainability, Sustainable Engineering, environment

Biography:

Marc A. Rosen is a Professor at the University of Ontario Institute of Technology in Oshawa, Canada, where he served as founding Dean of the Faculty of Engineering and Applied Science. Dr. Rosen was President of the Engineering Institute of Canada. He is a registered Professional Engineer in Ontario, and serves as Editor-in-Chief of several journals and Director of Oshawa Power and Utilities Corporation. With over 60 research grants and contracts and 600 publications, Dr. Rosen is an active teacher and researcher in sustainable energy, environmental impact, and energy technology (including renewable energy and efficiency improvement). Much of his research has been carried out for industry, and he has written numerous books. Dr. Rosen has worked for such organizations as Imatra Power Company in Finland, Argonne National Laboratory near Chicago, and the Institute for Hydrogen Systems near Toronto. Dr. Rosen has received numerous awards and honors.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

**Dr. D.Rajan**

NCMRWF, Ministry of Earth Sciences, Sector-62, Noida, UP

Evaluating the diurnal variability of NCMRWF model precipitation

In meteorology and climatology the spatial and temporal variability of precipitation is important. Atmospheric model-based precipitation presents an alternative to in situ-based datasets. At NCMRWF Unified Model (NCUM) is being used for generating weather forecasts routinely. The NCUM system is upgraded periodically to adapt new scientific developments for improving the numerical weather predictions. Uniqueness of the unified model is its seamless modeling approach. It is important that none of the years since 1901 experienced excess/deficit rainfall during all the four months except 1972. Monsoon rainfall alternates between phases with copious rainfall and quiescent phases. The monsoon 2019 began with a massive deficit, but July and August have experiences wettest India since in the past 25 years. Indian summer monsoon is modulated by diurnal fluctuations. Diurnal variation of rain-rate, frequency of rain, and maximum rain occurrence is presented here. Over tropical region maximum rainfall over land and Bay of Bengal regions is seen during the late-afternoon and early-morning period, respectively.

The predicted diurnal cycle of precipitation peaks too early and the amplitude is too strong over Indian land region and tropical ocean region. The hour of max precipitation computed from model forecasts amounts indicates the early release of convective instability. The frequency of model precipitation in the model forecasts increases from west to east as seen in the observations. The characteristics features of composite of wet/dry conditions occurred during monsoon 2015~2019 are studied.

Biography:

Dr. D Rajan, is a Scientist 'F', his Present Affiliation: NCMRWF, Ministry of Earth Sciences, Noida. Professional Training: Meteorologist- II, Pune 1990 Batch No: 8, He completed his Post-Graduation: M.Sc. (Applied Sciences) 1986, Madurai Kamaraj University, Madurai, Tamil Nadu Doctoral Degree: Ph.D. (Atmospheric Science- Monsoon Studies) 2001 University of Delhi, Delhi. He is also a Post-Doctoral Fellow: PDF JSPS (Monsoon Diagnostics Studies) 2005 University of Tokyo, Tokyo, Japan. Senior Post Doctoral Fellow: JSPS Invitation Fellowship 2011, University of Tokyo, Tokyo, Japan. He received IMD Biennial Mausam Award during 2017. His Publication in peer reviewed journals national/international: 30 (approx.)



International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

SPEAKER PRESENTATIONS

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Analyzing the Role of Vessel-Based Tourism on Masking on Antarctic Humpback Whales: A Petition for Management Solutions for Underwater Noise and Regulation of Antarctic Tourism

Dr.Claire Atkins-Davis

Duke University Marine Lab, Beaufort NC, USA

Antarctica has been an iconic representation of the last true wilderness, terrestrial and marine. However, the enticing nature of this pristine wilderness may unfortunately become a culprit for its demise. Increasing interest in Antarctic tourism has intensified vessel activity in and around the Western Antarctic Peninsula, a critically vulnerable habitat for many polar species. Antarctica was designated as a “natural reserve to promote peace and science” by the Antarctic Treaty establishing a legal framework for environmental protection. This legal framework implemented regulations and management to protect this vulnerable ecosystem, which are being inadequately incorporated and enforced by the tourism industry. Due to this influx of vessel-based tourism, underwater noise must be incorporated into the threats mitigated and managed through an eco-system-based management approach. Anthropogenic noise has become ubiquitous throughout the world’s oceans, elevating the acoustic energy and creating noise characteristically different than natural sound sources. Strategies to combat issues with ocean noise call for the characterization of acoustic habitats to quantify changes in the quality of the habitats and properly assess their impacts. Marine animals have capitalized on the physics of the ocean as they have evolved the use of sound as a primary sensory modality. Marine animals use sound to forage, find mates, communicate, navigate, and avoid predators. Vessels emit sound frequencies that overlap with frequency bands used by animals, leading to potential masking of vital acoustic cues and loss of communication space. Disrupting these behaviors with anthropogenic noise has been shown to cause significant impacts.

Biography:

Prof.dr. Claire Atkins-Davis is a Experienced Researcher skilled in Habitat Mapping and Monitoring, Remote Sensing, Marine Mammal Behavioral Ecology, Ocean Acoustics, Project Planning and Restoration, Data Analysis, Data Wrangling and Visualization, Geographical Information Systems and Unmanned Aerial System Operations.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Comparing the integration of Concentrated Solar Power with Thermal Energy Storage to Utility-scale Photovoltaic with battery storage in the Moroccan Renewable Energy Mix: Design, Dispatch and Optimal Mix analysis

Miss. Ayat-allah Bouramdane

LMD/IPSL, Ecole Polytechnique, IP Paris, Sorbonne Université, ENS, PSL Université, Sorbonne Université, CNRS, 91120

When combined with cheap Thermal Energy Storage (TES), Concentrated Solar Power (CSP) can shift electricity over time even when the sun is not shining. However, the capital cost of CSP is relatively high with a small market. Conversely, the cost of utility-scale Photovoltaic (PV) systems have dropped significantly in the last decade, resulting in large market adoption from distributed to centralized locations. But, to mitigate the intermittency of PV production and the system's ramping requirements, battery energy storage system (BESS) is essential. However, the current battery costs are uneconomical to utilize as a grid-scale storage. Moreover, in order to increase the operating hours of both solar technologies, one has to increase both storage capacity and CSP solar field (SM) or PV module size because the additional CSP SF and PV modules are needed to charge the storage. This increase the investment costs although the Levelized Cost of Electricity (LCOE) tends to be lowered by the higher generation. These differences between solar technologies in terms of cost, mean production and variability must be accounted when designing an optimal prospective power supply system based on renewable energies (RE). Particularly, the utilization of CSP and PV with different thermal storage or batteries technologies is widely suggested within the Moroccan strategy that aims at deploying 20% of its electrical capacity from solar energy by 2030. However, the share between PV and CSP and the amount of storage associated is still to be found. This study discuss objectively scenarios for the PV/PV-battery/CSP/CSP-TES share in the electricity mix. To do so, we use climate data, for the four Moroccan electrical zones, to simulate hourly capacity factors of wind; capacity factors of PV without battery storage or with increasing the amount of PV modules relative to a fixed amount of inverter capacity – as measured by the Inverter Loading Ratio (ILR); capacity factors of CSP without TES or with increasing the size of the CSP SF compared to the electricity-generating turbine – as measured by the Solar Multiple (SM); and load curves adjusted to observations. We optimize the electricity mix and analyze mixes along Pareto fronts using a recommissioning approach in which the total cost of a mix is constrained to be lower than that of the actual 2018 Moroccan mix. This Mean-Variance portfolio (MVP) approach – implemented in the E4clim modeling platform – is adopted with the objective of maximizing the RE penetration and minimizing the imbalances between RE production and consumption – used as proxy for the system's adequacy risk. We perform some RLDC-diagnostics to take into account the specific timing of the fluctuation, which is not measured by the variance-based risk. This modeling approach with first results has been presented [1] where the battery model was not implemented. Moreover, no constraints on the TES volume or the maximum charge / discharge power were applied. Since the bias correction is bringing the means of the CFs for different SMs to a similar value, we assumed that CSP cost is the same for different SMs to

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

only discuss the change of the variance associated with the change of the SM. We evaluated the impact of rental cost and CSP storage duration on the optimal mixes together with the role of time-space complementarity in reducing the adequacy risk [1]. This study, now, presents a comparative analysis of the response of the Moroccan RE mix to the integration of CSP with TES to the integration of PV with battery, taking into account constraints on storage and the cost related to energy and power capacity of both technologies.

Keywords: renewable energy, concentrating solar power, photovoltaics, storage, electricity mix, Morocco.

Reference

1. Bouramdane, A.-A.; Tantet, A.; Drobinski, P. Adequacy of Renewable Energy Mixes with Concentrated Solar Power and Photovoltaic in Morocco: Impact of Thermal Storage and Cost. *Energies* 2020, 13, 5087.

Biography:

Ayat-allah Bouramdane completed her Engineer's degree in Energy at the School of Energy Engineering of the International University of Rabat (UIR), in 2017, in Morocco, with thesis on the implementation of different structure of hybrid systems in different regions of Morocco at the Green Energy Park platform of the Research Institute for Solar Energy and New Energies (IRESEN). In 2016, Ayat-allah had the opportunity to participate in an exchange program where she spent six months at the European School of Materials Engineering (EEIGM) and National School of Electricity and Mechanics (ENSEM) of the University of Lorraine in Nancy, France. Then, in 2018, Ayat-allah completed her master in Energy & Environment: Science Technology & Management «STEEM » at Ecole Polytechnique in Palaiseau (Paris), France, with a thesis on the operation of photovoltaic power plants: Data processing & analysis, modeling and faults diagnosis at GeePs - Group of electrical engineering – Paris of CentraleSupélec. These experiences inspired Ayat-allah to contribute to a transition towards a greener future. Ayat-allah is currently PhD student at the Laboratory of Dynamic Meteorology of Ecole Polytechnique (Palaiseau, France). Her research interests lie in the fields of renewable energies and climate change.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

The value of monitoring data in a process community education implementation and evaluation

Mr. Amans Ntakarutimana

Researcher at University of Rwanda, Kigali, Rwanda

Which gap in evaluation of community education interventions? The Community Health Club (CHC) intervention implemented between 2013-2015 in Rusizi district, Rwanda, was designed to consist of 20 health education sessions held weekly over 6 months. Targeted households were expected to improve their knowledge, attitude and practice in order to reduce Water Sanitation and Hygiene (WASH) related disease and malnutrition. The effect of the intervention in terms of uptake of the practice and its health effect at village level was measured one year later using a cluster-Randomised Controlled Trial (cRCT), but surprisingly found little significant effect on household WASH and nutrition practices with minimal prevention of diarrhoea and stunting. Monitoring data which had been collected throughout the intervention had accurately captured the process of the intervention and the degree to which the intervention matched the protocol was analysed through a process evaluation. This process evaluation revealed a low coverage, with a mean of only 51% of households within intervention villages and only 10% of those households reached being trained properly with lower adoption rate. The designers of the CHC intervention recommend at least 80% of intervention adoption at intervention villages for health effect. As this was not achieved, the cRCT could not accurately measure the effectiveness of the Community Health Club model on health. By neglecting to account for key elements of the intervention delivery and support system, the results of the evaluation using a cRCT cannot therefore be considered to be reliable. The value of monitoring data resides in ensuring effective implementation and / or making difference between the effectiveness of the intervention and the implementation during evaluation.

Biography:

Mr. Amans Ntakarutimana is a researcher at the School of Health Sciences, University of Rwanda, and he is a PhD Candidate in Public Health at Walden University (MN, USA). He has a Specialised Masters in Environmental sanitation engineering from International Institute of Water and Environmental Engineering (Burkina Faso) and a Bachelor degree in Earth Sciences from University of Burundi (Burundi). He has 19 years of teaching, community outreach activities with 14 year experience of Environmental Health Project Management in Rwanda and Democratic Republic of Congo (DRC). All publications and various training courses attended and provided focus on controlling hygiene related diseases through improved community water supply sanitation and hygiene practices.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Iron based nanomaterials for cadmium (II) immobilization in water and soil

Mr. David Esteban Carchi Maurat

MSc Program in Nanotechnology, Universidad de las Fuerzas Armadas ESPE, Sangolquí, Ecuador. Centro de Nanociencia y Nanotecnología (CENCINAT), Universidad de las Fuerzas Armadas ESPE, Sangolquí, Ecuador

Cadmium in natural soils and water is correlated with a potential consumer's toxicity. Decreasing its bioavailability in agricultural soils and in contaminated water using nanomaterials has been found meaningful. In this study, iron-iron sulfide nanoparticles (Fe-FeS NPs) and sulfide modified Fe_3O_4 nanoparticles (Fe_3O_4 -sulfide NPs) were synthesized by chemical precipitation method, in free-oxygen solutions. Sizes of 10-20nm for the Fe_3O_4 -sulfide NPs and 40-80nm for Fe-FeS NPs were measured by transmission electron microscopy. X-ray diffraction and Energy-dispersive X-ray spectroscopy were used to characterize the chemical composition of the NPs. In addition, we demonstrate the effects of these nanoparticles as immobilizer agents of cadmium contained in water and in soil. The removal of Cd from aqueous solutions by the nanoparticles was investigated in batch conditions at $20 \pm 2^\circ\text{C}$. Also, it was evaluated the reduction of cadmium bioavailability in different agricultural soils from Ecuador coastal region in fixed-bed columns. The removal capacity of these NPs was 98% and 95%, for Fe_3O_4 -sulfide NPs and Fe-FeS NPs, respectively using a 20ppm Cd ion solution at pH 5. Five soils cadmium phases were investigated using Fe_3O_4 -sulfide NPs and after the treatment, cadmium content on the bioavailable phases showed a decrease of 68%. Hence, the as-prepared nanoparticles showed that effectively reduce the bioavailability of cadmium in different types of water and samples of agricultural soil.

Keywords: Cadmium removal, Iron nanoparticle, sulfide modified nanoparticle, nanomaterial's.

Biography:

Mr. David Esteban Carchi Maurat is a Student of MSc Program in Nanotechnology/Centro de Nanociencia y Nanotecnología/ Universidad de las Fuerzas Armadas ESPE. David Carchi Maurat obtained his degree of Chemical Engineer at the University of Cuenca in 2014. Work experience in research at private industry and teaching chemistry in public school. He is currently a student of the Master's degree program in Nanotechnology at the Universidad de Fuerzas Armadas ESPE and conducts his research in "Synthesis of nanomaterials for application as agents of immobilization of cadmium in agricultural soils" in the Center of Nanoscience and Nanotechnology CENCINAT. He also collaborates in the synthesis of silver, polymeric and other metallic nanoparticles with different purposes using chemical precursors and plant extracts.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Flood Discourse in Ghana: Identification of Naturally Susceptible Urban Areas in Greater Accra Metropolitan Area, Ghana

Mr. Anthony Kwabena Sarfo

Kwame Nkrumah University of Science and Technology, Ghana

The importance of flood studies has heightened in contemporary studies. This has come about with the increasing urbanization and increasing anthropogenic factors to flooding. Additionally, rain patterns have changed especially in climate-affected regions mostly in west Saharan Africa. However, studies on flooding in urban areas have focused on anthropogenic factors to flooding. A very important factor that has not received much attention is the natural and topographical contribution to flooding. This study argues that, aside from anthropogenic factors, most flood-hit areas are naturally susceptible to flooding which can be identified by remote sensing and Geographical information systems and mitigated. Thus, their geographical location induces the incidence of floods in such urban towns. Using the Digital Elevation Model (DEM) of the NASA Shuttle Radar Topographic Mission (SRTM), ArcGIS, google earth pro and existing literature, 15% of urban settlement in the Greater Accra Metropolitan Area are susceptible to flooding, and others falling to the varying extent of susceptibility. It is recommended that there should be the use of advanced geospatial technologies in flood studies in contemporary times to make cities resilient and safe.

Keywords: Flooding, Susceptibility, Geographic Information System, Remote Sensing, Flood risk

Biography:

Mr. Anthony Kwabena Sarfo is a Teaching and Research Assistant, KNUST. He is a member of the network of excellence in land governance in Africa. He is currently a Mphil Planning student with a research focus on sustainable land use planning in intermediate urban areas in Ghana. His research interest is in the application of geospatial technologies in planning, flooding, and sustainable urban areas.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Continuous radon monitoring during seven years (2011-2017) of volcanic unrest at Campi Flegrei caldera (Southern Italy)

Dr. Fabrizio Ambrosino

University of Campania "Luigi Vanvitelli", Caserta, Italy. National Institute for Nuclear Physics (INFN), National Institute of Geophysics and Volcanology

This is a seven-year study (1/7/2011-31/12/2017) of radon monitoring at two sites of Campi Flegrei caldera (Naples, Southern Italy) that in the last 70 years experienced repeated phases of volcanic unrest. The sites are equipped with devices for radon detection, based on the spectrometry analysis of the α -particles of radon daughters. A hybrid method, as combination of three known methods, is applied for the identification of residuals (anomalies) and trends of the time series of Radon. The results are compared with the following indicators of current caldera unrest: the tremor caused by the major fumarolic vent registered by a seismic station; the cumulative of background seismicity; the maximum vertical deformation acquired by GPS networks during the current phase of uplift; the temperature-pressure of the hydrothermal system estimated based on gas geo-indicators. The comparisons show strong correlation among independent signals and suggest that the extension of the area affected by current Campi Flegrei crisis is larger than the area of seismicity and of intense hydrothermal activity from which the radon stations are 1–4 km away. Hydrothermal alterations, induced by increase of the temperature-pressure of the caldera system, affect significantly the radon emanation power. These results represent an absolute novelty in the study of a such calderic area and mark a significant step forward in the use and interpretation of the radon signal.

Keywords: radon, CO₂, fumarolic tremor, seismicity, time series analysis, volcanic unrest

Biography:

Dr. Fabrizio Ambrosino is a Post-Doc Researcher at Department of Mathematics and Physics - University of Campania "Luigi Vanvitelli" - Caserta, Italy. Master Degree in Mathematics, curriculum Informatics, Second University of studies of Naples S.U.N. European Ph.D. in Mathematics, Physics and Applications – Applied Physics field – at University of Campania "Luigi Vanvitelli", joint with University of Salerno (Fisciano) and Czech Technical University in Prague (CVUT). He is a Member of National Institute of Nuclear Physics (INFN), Naples branch.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

The Economy of the Common Good at the community level

Dr. Luis Campos Saavedra

University of Sevilla, Sevilla, Spain

La Economía del Bien Común (EBC) se presenta como un modelo para la economía, de modo que sus procedimientos -en particular la Matriz y el Balance del Bien Común- han de dar cuenta del amplio conjunto de las prácticas económicas. Desde el principio, este movimiento social ha comenzado a utilizar la Matriz del Bien Común en su versión para empresas (Felber, 2010) para, posteriormente, adaptarse a la actividad municipal (Gómez-Álvarez, Morales y Rodríguez, 2017), abarcando así los desarrollos de la economía privada y pública. Ostrom (1990) ha demostrado que el mercado y el Estado no agotan las modalidades de la economía, antes bien, las comunidades poseen un potencial específico e insustituible que se conoce como gobernanza de los bienes comunes, dando forma a una tercera categoría económica. ¿Qué implicaciones tiene adaptar la Matriz del Bien Común como instrumento para medir la contribución económica al bien común de las comunidades? ¿Qué bienes “universalmente exigibles” para la gestión comunal se incluyen en la matriz adaptada? ¿Cómo se relacionan los valores fundacionales de la EBC con tales bienes, de manera que éstos puedan distribuirse por el interior de la matriz? ¿Qué transiciones pueden ayudar a generar una gestión de base comunitaria en las comunidades menos familiarizadas con los bienes comunes? A partir de la implementación experimental del modelo de las Comunidades del Bien Común en Beneixama, Alicante, España, aportamos una primera adaptación de la matriz EBC al ámbito comunitario, junto con las escalas de monitorización a modo de manual de aplicación de la matriz, proceso y producto que contribuye a la autogestión, participación y empoderamiento comunitarios en beneficio de la transformación socio-ecológica de la economía.

The Economy for the Common Good (ECG) is presented as a whole model for economy, so that its procedures –in particular, the Matrix and the Balance for the Common Good– have to account for the broad set of economic practices. From the beginning, this social movement has begun to use the Common Good Matrix in its version for companies (Felber, 2010) to later adapt to municipal activity (Gómez-Álvarez, Morales and Rodríguez, 2017), thus encompassing the developments of private and public economy. Ostrom (1990) has shown that the market and the State do not exhaust the modalities of the economy, rather, communities possess a specific and irreplaceable potential that is known as *governance of the commons*, giving shape to a third economic category. What are the implications of adapting the Common Good Matrix as an instrument to measure communities’ economic contribution to the common good? What “universally demandable” assets for communal management are included in the adapted matrix? How are the founding values of the ECG related to such assets, so that they can be distributed within the matrix? Which transitions can help to generate community-based management in communities less familiar with the commons? From the experimental implementation of the model of the Communities for the Common Good in Beneixama, Alicante, Spain, we provide a first adaptation of the ECG matrix to the community environment, together with the monitoring scales as an application manual of the matrix, process and a product that contributes to community self-management, participation and

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

empowerment for the benefit of the socio-ecological transformation of the economy.

Palabras Clave: Economía del Bien Común, bienes comunes, desarrollo comunitario, Balance del Bien Común.

Keywords: Economy for the Common Good, commons, community development, Common Good Balance.

Biography:

Dr. Luis Campos Saavedra is a PhD Researcher / Economía Aplicada II. Graduated in Social & Cultural Anthropology, PhD researcher on "Democratic Goods", as a design for governing a number of Ostrom's commons. Conferences in Spanish and colombian universities: Sevilla, Málaga, Jaén, Antioquia, EAFIT, Santiago de Cali and others on "Communities for the Common Good", entities promoted in fieldwork and professional work for community development from the procedures and tools given by Felber's Economy for the Common Good.



International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

POSTER PRESENTATIONS

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

The concept of cosmo-bio-economy and models of collaborative sustainable development

Prof.dr. Otilia MANTA

Centre for Financial and Monetary Research-“Victor Slăvescu”, Romanian Academy, Bucharest, Romania
-American University, Bucharest, Romania

Currently, we are increasingly witnessing the discoveries of NASA researchers who are focused on identifying solutions to ensure life in the cosmos through orbiting cosmic settlements, respectively resources for the capacity of over 10,000 personnel and sizing to 3 trillion people.

From our point of view life on these cosmic settlements is real. The functioning of the concept of cosmo-bio-economy is testable from our point of view, respectively by ensuring the collaborative economic activities to and from the Earth (an example being the economic transactions with energy and the cosmic tourism). Moreover, for these cosmic settlements, energy resources can be provided that can directly and complementarily contribute to the depletable resources on Earth, and can even be a direct contribution to saving life on Earth.

This work is based on NASA research results, and within it we develop the concept of cosmo-bio-economy and economic models of collaborative development of life from the economic, social, ecological, managerial, and cultural and security point of cosmic settlements.

From a financial point of view, the activities on the cosmic settlement will be based on the concept of the functioning of the Time Banks (as it currently works on Earth).

Therefore, the paper is an empirical research of the development of new concepts such as cosmo-bio-economy, collaborative economics, time bank, as well as to provide integrated models for the life of a cosmic orbit.

Keywords: cosmo-bio-economy, collaborative economics, time bank. JEL CODE: O16, O36, P47

Biography:

Prof. Otilia MANTA is a Doctor of Economics, Scientific Researcher of the Romanian Academy, Associate Professor - International Financial Relations, macroeconomics and entrepreneurship, Evaluation Expert and Rapporteur for EU Projects, Expert in investment projects, capacity building, sustainable development at local and global level, founder of companies and NGOs - more than 20 years experienced in financial and banking consulting and EU project management, scientific research in the multidisciplinary field, international reviewer.

International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

December 14-15, 2020 | Virtual Webinar

Effects of different types of Fertilizers on the Radioactivity in farm soil in Iraq

Dr. Mostafa Yuness Abdelfatah Mostafa

Mustansiriyah University, College of Sciences, Physics Department, Faculty of Science, Minia University, Minia, Egypt. Ural Federal University, Mira St.19, 620002 Yekaterinburg, Russia.

In the present work. The effect of different types of fertilize on the natural activity content of soil was studied. Gamma spectroscopy Reagent NaI (TI) is used to estimate the activity concentration of the soil before (one reference sample not fertilized) and after fertilization process (five samples were fertilized during the entire planting period). Five common types of fertilizers, used in the Iraqi farms, were separately added to each plant (NPK, DAP, Urea, and Organic).

Based on the specific activities measurements, the radiation hazard parameters (Radium equivalent activity (Ra_{eq}), absorbed dose Rate (D_y), out annual effective dose equivalent (AEDE), External and internal hazard index (H_{in} , H_{ex}), gamma and alpha indexes (I_y , I_a), annual gonadal dose equivalent (AGDE), and excess lifetime cancer risk (ELCR) are estimated. The effect of fertilizers is clear from one type to another. The activity of U-238 was increased at least ten times more than the pure case for soil sample. The maximum effect is observed in soil sample fertilized with DPA (Supper phosphate P_2O_5 from Lebanon). The results of the radiation hazard parameters are less than the recommended limits. Also, it is recommended to avoid using the supper phosphate P_2O_5 (DAP) composite, and if this necessary it must be under radiological control.

Keywords: NPK, DAP, Urea, Organic fertilize, NaI(TI) detector, soil radioactivity

Biography:

Dr. Mostafa Yuness Abdelfatah Mostafa is a Lecturer PhD at Physics Department, Faculty of Science, Minia University, Minia, Egypt; Post-Doc at experimental Physics Department, FTI, Ural Federal University, Mira St.19, 620002 Yekaterinburg, Russia. BSc in physics from Minia University Egypt Dec 2005-Apr 2010 demonstrator in physics department minia university Egypt -(May 2007-Jan 2010) MSc in physics (STUDY ON RADON AND RADON PROGENY IN INDOOR AIR) April 2010 Assistant Lecture in physics department minia university Egypt -Sep2013 PhD student in experimental physics department Ural Federal University - Yekaterinburg - Russia (primary standard source of radon) -Dec19 awarded PhD in physics and mathematics)

NOTE:



Venue: Dubai, UAE

See you at Upcoming 2021

International Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

October 11-12, 2021 | Dubai, UAE

Secure your seat today at

<https://manchestergeology.com/>

Secure your seat today at

Email: contact@environmentalresearchforum.com | Mobile/Whatsapp: +44-744-880-8243/ +44-786-728-7612