

2nd International E-Conference on

GEOLOGICAL AND ENVIRONMENTAL SUSTAINABILITY

July 29-30, 2021 | Webinar

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DAY 1 | **KEYNOTE SPEAKERS**

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Dr. Otilia Manta

Romanian Academy, Center for Financial and Monetary Research; “Victor Slăvescu”;
Bucharest, Romania.

Societal sustainability in the context of current climate change

We are currently witnessing several initiatives in support of climate policy, such as the European Green Agreement. However, from a scientific point of view, researchers are trying to address these challenges and identify solutions to better understand climate change and its impact on society. Sustainability involves taking action now to enable a future in which the environment and living conditions are protected and improved. In this paper we aim to inventory the risks of climate change, but especially to present tools and mechanisms for optimizing human, material, financial and information resources at the level of local communities, respectively methods of applicability of sustainability models.

Keywords: climate change, sustainability, resources, societal development

Biography:

Dr. Otilia MANTA is the 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 NGO's - more than 20 years experienced in financial and banking consulting and EU project management, scientific research in the multidisciplinary field, international reviewer.

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Dr. Ray Leonard

President of Anglo Eurasia LLC

Climate Change and the Energy Transition 2021-2030: A Reality Check

In 2020, several factors converged to cause the greatest shift in energy use in half of a century. However, despite reductions in greenhouse gas (GHG) emissions, solar minimum, and La Nina ocean current, 2020 tied 2016 as the warmest year in recent recorded history. The coming decade is a narrowing window to avoid climatic tipping points. Fossil fuels continue to provide >80% of all energy use and contribute 80% of CO₂ emissions and a third of anthropogenic methane emissions, the major causes of climate change. Despite pledged reductions of CO₂ emissions by 2030 from 2005 levels of 50% from the EU and the USA in the coming decade, their decreasing worldwide share means that, this will only offset the rising emissions during this period of the rest of the world, principally Asia, resulting in global CO₂ emissions plateauing at the current level. By the end of the decade, temperatures will have breached 1.5 degrees above pre-industrial level. The continuing exponential growth in renewables will be stressed by limitations in availability of key minerals. Considering all factors, including the continuing increase in energy use by developing and newly industrialized countries to improve living standards four policies are needed to be implemented on a global basis in this decade to reduce the possibility of occurrence of the many potential climate tipping point scenarios: (1) carbon pricing (2) carbon capture (use) and sequestration, (3) natural gas as the transition fossil fuel and (4) focus on methane emission identification and reduction.

Biography:

Dr. 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 Geo-science 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 Hyper-dynamics, 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)

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Dr. Dave White

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. http://cctruth.org/residence_time.pdf

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.

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Biography:

Dr. Dave White 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. Acta Scientific agriculture Journal editor

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Dr. Herbert Huppert

Professor, Institute of Theoretical Geophysics, King's College Cambridge, CB2 1ST, UK

Defending lives and housing against lava flows: theory, experiments and field observations

The consequences of lava flowing downhill around and over different topographies and interacting with human-made constructions is modelled by considering the flow of a Newtonian fluid. Small obstacles can be overtopped by the flow, but topography of sufficient height will deflect the flow around it and form dry regions in the wake. Both numerical solutions, analytic representations and the results of laboratory experiments will be discussed. We will provide numerous pictures of flow patterns and evaluate the force they exert. The experimental results, focusing on flows past circular cylinders, are in good agreement with our numerical evaluations. Flows over depressions, which act to concentrate the flow, will also be presented, along with topographies that feature both elevations and depressions.

Biography:

Dr. Herbert Huppert was born and received his early education in Sydney, Australia. He graduated in Applied Mathematics from Sydney University with first class Honours, a University medal and the Baker Travelling Fellowship in 1964. He then completed a Ph.D. at the University of California, San Diego, and came as an ICI Post-doctoral Fellow to the University of Cambridge in 1968 for what was meant to be a one-year sojourn. He has not yet left! He has published widely using fluid-mechanical principles in applications to the Earth sciences: in meteorology, oceanography and geology. He was elected a Fellow of the Royal Society in 1987. In 2005 he was the only non-American recipient of a prize from the US National Academy, being awarded the Arthur L. Day Prize Lectureship for contributions to the Earth sciences; and the first Australian to win this prize. He has been elected a Fellow of both the American Geophysical Union and the American Physical Society. He was awarded the Murchison Medal of the Geological Society of London in 2007 and will be giving the Bakerian Prize Lecture of The Royal Society in 2011.

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DAY 1 | **SPEAKER PRESENTATIONS**

AVM inhibits NETs release via negatively regulating the PI3K-ERK pathway and reducing respiratory burst in carp**Dr. Shufang Zheng and Dr. Shiwen Xu**

Northeast Agricultural University /, Harbin, China

Excessive residual avermectin (AVM) in the environment can have toxic effects on non-target organisms. AVM can exert immunotoxicity by inducing genomic demethylation, but its effect on neutrophil extracellular traps (NETs) release in carp is unclear. In this study, carp neutrophils were pretreated with 5 µg/L AVM or 4 µM DNA demethylation inhibitor (aurintricarboxylic acid, ATA), alone or in combination, and then treated with 4 µM phorbol 12-myristate 13-acetate (PMA) to stimulate NETs release. The results showed that exposure of carp neutrophils to AVM significantly suppressed NETs release and MPO expression, increased ROS production, and dramatically reduced PMA-induced cellular respiratory burst. In addition, AVM could bind to the MBD2 molecule, markedly upregulate MBD2 expression to cause demethylation, and clearly activate PTEN expression, thereby inhibiting the expression of PI3K, AKT, Raf, MEK, and ERK. However, these effects were alleviated by ATA. In conclusion, our study showed that AVM could inhibit NETs release in carp by inducing demethylation of PTEN to negatively regulate NETs synthesis pathways and reducing respiratory burst level. Our findings clarify the mechanism of AVM immunotoxicity to fish and are of great significance for efforts to protect the ecological environment and human health.

Keywords: avermectin, neutrophil extracellular traps, PTEN demethylation, PI3K-ERK pathway, respiratory burst

Biography:

Dr. Shufang Zheng is currently working toward the Ph.D. degree in Clinical veterinary medicine. Her research interests include environmental toxicology, animal nutritional and metabolic diseases and poisoning diseases.

Polymer flooding with time-varying injectivity comparing with plugging impact on the reservoir**Dr. Mahamat Tahir Abdramane Mahamat Zene¹, Dr. Ruizhong Jiang²**

China University of Petroleum (East China) Qingdao, 266580, Shandong Province, China

Polymers are mainly applied for mobility control also for sweep efficiency. Polymer flooding is vastly approached on many fields nationwide. However, the effects of polymer flooding on the reservoir are not well known. Some of the main affecting parameters such; mechanical degradation, solid phase concentration, debris, injectivity loss, and plugging. Polymer entanglement throughout polymer injectivity dropped scraps in the reservoir, polymer rheology, mechanical degradation, and permeability reduction are the foremost altered factors. Based on the outcomes we can say that the major parameters that are originating impact on the reservoir production are the presence of solid phase concentration with the frequency factors who are clogging and in return generating permeability reduction, production decrease in function time. Future work should focus more on finding a way to treat the dropped scraps, solid phase concentration which is foremost affecting factors through time-varying polymer injectivity and polymer plugging issue on the reservoir production rate. The understanding and amelioration of mechanical impacts on the reservoir will help the production rate to rise.

Keywords: Solid phase concentration, polymer plug issue, injectivity loss, mechanical degradation

Biography:

Dr. Mahamat Tahir Abdramane Mahamat Zene is a Ph.D. student at the China University of Petroleum (East China) in the Department of Petroleum Engineering. He has extensive expertise in reservoir modeling and simulation. He has over 5 publications which are also cited in some publications. His research interests lie in Reservoir modeling and characterization, Reservoir Numerical Simulation, Water-flooding, Polymer flooding.

Impact of Geogenic Contamination on Quality of Water in Industrial areas of Sirgitti in Bilaspur District in Chhattisgarh**Dr. Renu Nayar**

D.P. Vipra College Bilaspur (CG) India

Due to unacceptable drainage system, improper septic tanks and solid waste disposal, contamination of ground water by organic chemicals and micro-organisms and contamination due to inorganic chemicals from seepage of effluents from industries and the drinking water of Industrial part of Sirgitti is affected by pollutants. A survey of literature shows that there is no systematic study of quality of ground drinking water in Sirgitti and its surrounding industrial areas. Hence it is proposed to investigate the quality of ground water in Sirgitti and its surrounding industrial areas. For this purpose, various sampling stations have been selected which are having hand pumps. From these hand pumps, water samples collected every two months for a period of one years. Spectrophotometric work performed using spectrophotometer for analysis of nitrate, phosphate and fluoride etc. Removal of arsenic, iron and manganese from groundwater by oxidation-coagulation-adsorption at optimized pH. In the present work we used three-step treatment process i.e mild alkaline pH-conditioning by sodium bicarbonate, oxidation of Arsenite and ferrous ions by potassium permanganate itself precipitating as insoluble MnO₂ under the pH condition; and coagulation by FeCl₃ has been used for removal of Arsenic, Iron ions and Manganese ions from water. Removals of arsenic concentrations in situ from approximately reduce 10 to 5 $\mu\text{g/l}$, while iron and manganese levels were also reduced but this oxidation is a slow process. A regular monitoring of these handpumps will help in taking long-term precautions, which will be helpful in protecting human health in the study area.

Keyword-Industrial part, Solid waste disposal, contamination. oxidation-coagulation-adsorption**Biography:**

Dr. Renu Nayar obtained her Ph.D. degree in chemistry with a focus on water pollution. She is Presently working as Assistant Professor in Department of Chemistry, D.P. Vipra College Bilaspur (CG) India. She has 17 years teaching experience both at the postgraduate and undergraduate level. Her research interests are in the area of Water Pollution, Adsorption, and Material Science. She has published one patent and more than 30 research papers published in peer reviewed and Scopus indexing journals. she has written 04 books as author/editors. She has done two minor projects allotted by UGC and by state planning commission in Chhattisgarh.

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MODELLING OF GREENHOUSE GAS EMISSION RISK FROM FOREST FIRES FOR AN ACTIVE FOREST FIRE PREVENTION AND CLIMATE CHANGE MITIGATION

Dr. Tuhin Ghosh

School of Oceanographic Studies, Jadavpur University, Kolkata 700032, India

More than half of the global poor population lives in the low elevation coastal areas, in the deltas chosen for the available resources. Immense ecosystem services (ES) in delta regions are in support to huge populations. In the Anthropocene, increasing exposure to climatic stresses led to degradation of ES, with adverse impact on the local economy and livelihood.

Indian Sundarban Delta (ISD) is part of the entire Mangrove Ecosystem of the Ganges-Brahmaputra-Meghna (GBM) delta, formed by huge sediment discharge of those three rivers, on the north of the Bay of Bengal. The ISD was declared as the World Heritage Site by UNESCO, Biosphere Reserve by Government of India, and recently as Ramsar Site (no. 2370).

The delta population is dependent on the traditional practices with available ecosystem goods which regulates their wellbeing: provide food, housing, income, etc. The changing climate parameters are putting stress on their life and livelihood. In exceptional cases their indigenous coping practices help in overcoming this kind of adverse condition. But, mostly, they are unsuccessful and in search of further opportunities to overcome the stress. While people are losing income for degraded ecosystem services and trying to cope, lack of job opportunities and alternate skills provoke them to migrate from their origin. This complex interlinkage is rarely addressed in the global climate assessment reports.

Biography:

Dr. Tuhin Ghosh, faculty member of School of Oceanographic Studies, Jadavpur University has research interests in coastal geomorphology, disaster management, ICZM, socio-ecological research along with climate change impacts and possible adaptation strategies. Engaged in research since 1994, Tuhin has a number of publications and books to his name. Currently Dr. Ghosh is the Indian Lead of two international projects working in both the Indian and Bangladesh Sundarban and Mahanadi deltas in Odisha.

3D Hydrodynamic Modelling Enhances the Design of Tendaho Dam Spillway**Dr. Getnet Kebede Demeke**

Team Leader/ Lead Resident Engineer/Project Manager and Hydraulic Engineer.

Hydraulic structures are often complex and in many cases their designs require attention so that the flow behavior around hydraulic structures and their influence on the environment can be predicted accurately. Currently, more efficient computational fluid dynamics (CFD) codes can solve the Navier-Stokes equations in three-dimensions and free surface computation in a significantly improved manner. CFD has evolved into a powerful tool in simulating fluid flows. In addition, CFD with their advantages of lower cost and greater flexibility can reasonably predict the mean characteristics of flows such as velocity distributions, pressure distributions, and water surface profiles of complex problems in hydraulic engineering. In Ethiopia, Tendaho Dam Spillway was constructed recently, and one flood passed over the spillway. Although the flood was below the designed capacity, there was an overflow due to superelevation at the bend. Therefore, design of complex hydraulic structures using the state- of- art of 3D hydrodynamic modelling enhances the safety of the structures. 3D hydrodynamic modelling was used to verify the safety of the spillway using designed data and the result showed that the constructed hydraulic section is not safe unless it is modified.

Keywords: velocity distributions; water surface profiles; computational fluid dynamics (CFD); 3D numerical models; spillway and superelevation.

Biography:

Dr. Getnet Kebede Demeke

Team Leader/ Lead Resident Engineer/Project Manager and Hydraulic Engineer for: Lead Resident Engineer for Construction Supervision of more than thirteen erosion control and Storm Water Drainage Projects. Team Leader and Hydraulic Engineer for Design of drainage system of different towns and flood control structures. Project Manager and Hydraulic Engineer for Feasibility Study and Design of Small, Medium and Large-Scale Irrigation Schemes with surface system and pressurized system such as sprinkler, drip etc. Hydraulic Engineer for Design of Diversion Weirs, Pumps, Canals, Drains Ponds or Night Storages. Project Manager for Design and construction supervision of Dams over 70 m dam height and over 42,000 ha. Has experience in Ethiopia, Nigeria, Malawi, and Rwanda He has more than 29 years of experience, and worked at different water resource projects like study, design, construction supervision of Irrigation, drainage, water supply, dams, and flood control projects. He has designed several projects and currently some of them are under operation.

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Modelling of greenhouse gas emission risk from forest fires for an active forest fire prevention and climate change mitigation

Dr. Victoria Lerma-Arca^{*1}, Edgar Lorenzo-Saez¹, Raúl Quilez-Moraga², David Vinué-Visús¹, Celia Yagüe-Hurtado³, Rebeca Aleix-Amurrio³, Jose Vicente Oliver-Villanueva¹, Francisco Rego⁴, Inês Duarte⁴, Ricardo Ruiz-Peinado⁵, Eduardo López-Senespleda⁵, Eugenia Gimeno-García⁶, Ester Carbó⁶, Stéphanie Jalabert⁷, Philippe Chéry⁷, Patricia Cruz⁸, Telma Guerreiro⁸, Álvaro Escrig del Valle⁹, Jose Domingo Martínez⁹.

¹Institute of Information and Communication Technologies (ITACA), Universitat Politècnica de València (UPV) Camino de Vera s/n 46022 València (Spain)

International commitments and efforts to fight against climate change do not use to take in consideration strong decision making regarding to support practices for conservation of forest carbon stocks in vegetation and soils, active prevention of wildfires or ecosystem carbon restoration measures.

While Mediterranean basin is foreseen to be highly affected by climate change impacts and extensive and severe forest fires are expected to be more frequent, forests are expanding due to the agriculture abandonment and depopulation. In this context, carbon sequestration is an environmental service that is foreseen to be paid by from polluting sectors in the near future according to the European Climate Law, that will be implemented at national and regional level following climate neutrality goal set up in the European Green Deal, and that can activate rural bioeconomy by investing in voluntary carbon markets based on fire prevention silviculture.

The objective of Interreg SUDOE REMAS project is to include Greenhouse Gas (GHG) emission risk management consideration in strategical and tactical decision making in accordance with the recognition of the need to enhance the EU's carbon sink through a more ambitious LULUCF regulation.

For this, an innovative GHG emission risk model has been developed for the first time. In this risk model, the hazard is the probability of a fire occurrence and the and the ecosystem damage is represented by the value at risk, carbon stock, and the emission vulnerability, calculated from ecosystem landscape and climatic conditions at regional level. This model, that has been applied to four regions (Algarve in Portugal, Les Landes in France and Guadalajara and Valencian region in Spain), allows to prioritise fire prevention measures and preventive silviculture in a region to maximize the reduction on GHG emission risks. Results show which areas have a major risk of emitting and how preventive measures can reduce the GHG emission risk after forest fires.

The REMAS project is funded by the Interreg Sudoe Programme and the European Regional Development Fund.

Keywords: Greenhouse gas emissions, forest fires, prevention, carbon stocks, emission risk model

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Biography:

Dr. Victoria Lerma Arce is a Ph.D. Forestry Engineer from the Polytechnic University of Valencia (2015) specialized in planning, management, use and valorisation of lignocellulosic, agricultural and forestry biomass. Master in Renewable Energies (2006) and postgraduate (DEA) in the study of the evolution of the landscape (2008). Researcher at the ITACA-UPV Institute (Institute of Applications of Information Technologies and Advanced Communications), ICTvsCC Research Group (ICTs against Climate Change) (2017). Responsible for the management of European Projects of AIDIMA, Technological Institute of Wood and Furniture, Paterna (2008-2017). Researcher in 5 European projects and coordinator of two LIFE + projects. Researcher in 3 regional projects. Head of the Internationalization Area. Representative of the forestry and furniture sector at the FTP European Forest Technology Platform in Brussels (Belgium, 2008-2010). Member of the Management Group and secretary of the Innovation Task Force of the FTP. Research fellow of the Department of Rural Engineering of the UPV (2006-2008) and of the Department of Applied Economics of the University of Valencia (2005).

Paraquat causes CIK cell apoptosis and programmed necrosis in a dose-dependent manner through oxidative stress/NF-κB pathway**Dr. Shi Xu, Dr. Xu Shiwen**

Northeast Agricultural University, Harbin, China

Paraquat (PQ) is widely used as a quick-acting herbicide. The abuse of PQ causes water pollution and fishery losses, but the toxicity mechanism of PQ to fish kidney cells (CIK) has not been reported yet. In this experiment, it was found through inverted microscope observation that PQ exposure can significantly change the morphology of CIK cells, and exposure to high concentrations for 48 hours basically lost cell morphology. Through the detection of CAT, SOD and MDA kits, it is found that PQ exposure affects the homeostasis and balance of the antioxidant system of CIK cells. Through RT-PCR and Western bolt methods, it was found that PQ promoted the expression of pro-inflammatory factors (MyD88, NF-κB, TNF-α) in CIK cells. Through cell flow cytometry, it was found that PQ exposure caused CIK cells to undergo dose-dependent apoptosis and programmed necrosis. The expression of Bcl-2, Cyt-c, Bax, MLKL, RIPK1 and RIPK3 increased, and the expression of p53 decreased. In summary, we found that PQ exposure induces apoptosis and programmed necrosis of CIK in a dose-dependent manner through the oxidative stress/NF-κB pathway. This experiment provides theoretical support for the safe use of pesticides and protection of the ecosystem and has certain reference value for the safety risk assessment of PQ and the safety protection of animals and humans.

Keywords: Paraquat; CIK; Oxidative stress/NF-κB; Apoptosis; Programmed necrosis;**Biography:**

Female, 24, born on July 20, 1997, graduated from Northeast Agricultural University with a bachelor's degree. Now studying in Clinical Veterinary Medicine, School of Animal Medicine, Northeast Agricultural University, and supervisor is Professor Xu Shiwen

Conducting Geospatial Research in Contemporary Times: Unraveling Inherent Challenges and Bottlenecks.**Dr. Anthony Kwabena Sarfo**

Spaceplan Research and Geospatial Technologies Kumasi- Ghana

The openness and accessibility of geospatial data are indispensable for recent and prevailing geospatial research. In the face of unavailable, unreliable, inaccessible geospatial data especially in sub-Saharan Africa, the conduct of geospatial research is deemed as costly and time-consuming.

With cognizance to improved technologies and availability of spatial and nonspatial data (Big data), there is increasing development of contemporary technologies including artificial intelligence, machine learning among other emerging forms, and advancement in technology, tools, and equipment. These are relevant in managing and understanding patterns in data available. There is the development of various systems and workflows that are stand-alone, inconsistent, and “unknown”. Owing to this, there is a global concern to the definition of what is appropriate in geospatial research as well as reproducibility and replicability of research works due to unpublished, inconsistent, or undocumented methodologies

It is therefore recommended that there should be education and training on the importance of replicability and reproducibility of geospatial research. This will enhance understanding of the need to track, document, and share workflows and analyses used for geospatial research among current researchers and upcoming researchers. This notwithstanding, there should be more research and engagements for global consensus on replicability and reproducibility and what is expected of researchers. Thus, the format of the documentation, part or whole publication of geospatial workflows, how and where they should be published to enhance understanding identification and availability of shared information.

Keywords: Geospatial, Research, big data, workflows, artificial intelligence

1. Anthony Kwabena Sarfo
2. Director, Spaceplan Research and Geospatial Technologies
3. Anthony holds a master’s certificate in the field of planning (MPHIL Planning) and has certificates in geospatial and environmental analyses and is experienced in drone piloting and image processing. He is a geospatial researcher and believes that geospatial technologies are able to contribute to solutions towards eliminating societal challenges. these are evident with publications made by him in peer-reviewed journals.
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5. Oral Presentation

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Biography:

Dr. Anthony holds a master's certificate in the field of planning (MPHIL Planning) and has certificates in geospatial and environmental analyses and is experienced in drone piloting and image processing. He is a geospatial researcher and believes that geospatial technologies are able to contribute to solutions towards eliminating societal challenges. these are evident with publications made by him in peer-reviewed journals.

PROBLEMATIC GROUNDWATER CONTAMINANTS: IMPACT OF SURFACE AND GROUND WATER QUALITY ON THE ENVIRONMENT IN EBOCHA-OBRIKOM OIL AND GAS PRODUCING AREA OF RIVERS STATE, NIGERIA.**Dr. Morufu Olalekan Raimi¹; Clinton Ifeanyichukwu Ezekwe²; Olawale Henry Sawyerr³**¹Department of Community Medicine, Faculty of Clinical Sciences, College of Health Sciences, Niger Delta University, Wilberforce Island, Amassoma, Bayelsa State. Nigeria.

This study presents the impact of surface and ground water quality on the environment in Ebocha-Obrikom oil and gas producing area of Rivers State, Nigeria. Specifically, the study examined the relationship between the physico-chemical parameters, determine the quality of surface and ground water in the study area as compared with national and international standards for drinking water, assess the quality of borehole and well water in the study area, and determine the relationship between gas flaring sites and physico-chemical parameters. This study adopted both field and laboratory experimental analysis of physical and chemical parameters. The water samples were analysed for Physico-chemical parameters using standard procedures. Physico-chemical parameters analysed for were pH, DO, BOD, TDs, Conductivity, Turbidity, Salinity, Total Hardness, Total Alkalinity, Temperature; cations and anions and TPH, Iron, Copper, Chromium, Manganese, Nickel, Lead and Zinc. The results show that ground water contained high amounts of turbidity (21.5NTU, 23.00NTU and 19.0NTU in the borehole water and well water), iron (5.3mg/l in the ground water and 6.98mg/l in the borehole water), biological oxygen demand (3.80mg/l in the surface water) and pH of all water samples were acidic in the study area. These results show that ground waters including borehole; well waters and surface water of the study area had acquired reasonable levels of pollution. Apart from these specific cases, other values were found to be lower or above and corresponded to the approved maximum permissible level (i.e., maximum permissible limits for drinking water set by NAFDAC and WHO). Pearson correlation coefficient also indicated that there was a significant correlation among the studied physico-chemical parameters in both surface and ground water. The ground waters therefore, were more impacted upon by chemical parameters than surface water. This study, recommends further actions to be taken to minimize the risk associated with drinking groundwater, while looking for alternative water resources to be seriously considered, community participation should be encouraged while taken precautionary measures to avoid any health problems by implementing appropriate measures. There is need for the continuous monitoring of water quality in the oil producing areas to protect man and the environment. Also, there is need for bio-physico-chemical assessment extension to other new areas of the Niger Delta region of Nigeria.

Keywords: Hydrogeochemistry, Health risk assessment, Public health. Gas Producing Area, Nigeria.

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Biography:

Dr. Morufu Olalekan Raimi has taught classes at the Niger Delta University (department of community medicine), University of Maiduguri (department of geography), University of Uyo (center for wetlands and waste management studies) and Kwara State University (department of environmental health). Raimi Morufu Olalekan is the author or co-author of more than 100 scientific publications and expert papers in American, European and Asian journal to his credit, 20 research projects under way including cumulative impact assessment of air quality and assessment of digital debris management in health Institutions in South-South, Nigeria. He has served as a key note speaker in many International and Local Conferences and has attended a number of certified educational seminars, participants of numerous symposiums in Nigeria and abroad. His H index is 9, i10 - index is 9, had 337 Google citations, <https://scholar.google.com/citations?user=nRBW82AAAAAJ&hl=en>, SSRN citation 124, crossref citation 10 and download 1320, <https://ssrn.com/author=2891311>. San. Raimi Morufu Olalekan has successfully supervised more than (5) Master degrees candidates, two (2) doctorate degrees and currently supervising a number of Master and Doctorate degree candidates. His work on ground water pollution in the Niger Delta amongst others is opening new path of scientific knowledge and research in pollution control management and related fields. He is a reviewer and an editorial board member to many Scientific Journals viz: American Journal of Environmental Sciences, American Public Health Association (APHA), Plos One, Heliyon, Earth Science & Environment Research Journal (OMSP International), Science Publishing Group, etc..

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POSTER PRESENTATIONS

Mechanisms of the relationship between the mobility of artificial radionuclides and the mineral and geochemical properties of the Yenisei River sediments**Dr. Bondareva Lydia**

Federal Scientific Centre of Hygiene named after F.F. Erisman, Mytisch, Russia

Radionuclides are associated with bottom sediments. The mechanisms of the radionuclide fixation in the mineral phase of the soil may be different: reversible physical absorption, chemisorption (reversible and irreversible), introduction into the crystal lattice of the minerals or exchange for the cations located on the surface of the mineral particle. The purpose of this study was to determine the mechanisms of the relationship between the mobility of artificial radionuclides and the mineral and geochemical properties of the Yenisei River sediments. Sediments were collected in the area immediately affected of zone by the Mining and Chemical Combine (Rosatom) operation, and samples of their uppermost layers (0-10 cm) were used in the study. The ground sample was pressed into tablets with diameter 6 mm, mass 30 mg and subjected to synchrotron radiation X-ray fluorescence analysis (SXRF). The silicate composition of sediment samples was determined using a VRA-20R X-ray phase analyzer. The morphology and material composition of total sediment particles, the sand fraction, and heavy minerals of the sand fraction were examined using the electron scanning microscope TM-1000 (Hitachi, Japan). The identified correlations can indicate that under different conditions, radionuclides can be converted from the potentially mobile form to the immobile one. The content of artificial radionuclides in the surface layers of the study area varied in wide ranges: ^{137}Cs – 318-1800 Bq/kg, ^{60}Co – 87-720 Bq/kg, ^{152}Eu – 12-287 Bq/kg and ^{241}Am – 6-76 Bq/kg. There was a sequence of migration of radionuclides investigated in the surface layer of sediments that were collected in the near zone of influence of the MCC: $^{241}\text{Am} \approx ^{152}\text{Eu} > ^{60}\text{Co} > ^{137}\text{Cs}$. Radionuclide species have been found to be directly related to sediment structure and composition.

Keywords: geochemical properties, sediments, radionuclides, correlation, the Yenisei River

Biography:

Dr. Lydia Bondareva is 56 years old. She was educated at the Lomonosov's Moscow State University. She has a Ph.D. degree in analytical chemistry and an associate professor. Currently works as a leading researcher at the Federal Scientific Center for Hygiene of Rospotrebnadzor. Dr. Lydia Bondareva is a specialist in the field of the environment, studying the effects of anthropogenic pollution of various natures on the health of the population. She is the author of over 150 scientific articles and monographs.

Otolith chemistry reveal that coastal lagoons are not the only suitable habitats with a nursery role for *Sparus aurata*

Dr. Sanja Matic-Skoko, Dario Vrdoljak^{a*}, Melita Peharda^a, Hana Uvanović^a, Krešimir Markulin^a, Regina Mertz-Kraus^b

Senior researcher, Laboratory of Ichtiology and coastal fisheries, Institute of Oceanography and Fisheries, Split, Croatia.

Knowledge regarding the significance of coastal habitats colonized by juveniles, and identification of nurseries are very important for the maintenance of adult stocks. This study was conducted to determine if otolith chemistry can differentiate between coastal lagoons and shallow coves and if it can effectively re-assign *Sparus aurata* specimens to the nearest nurseries. Specimens were collected in 2018 at fifteen sites within three nursery areas along the eastern Adriatic coast. LA-ICP-MS was used to quantify the concentrations of chemical elements in the otolith region corresponding to the juvenile nursery stage. The element to Ca ratios of individuals from different sites differed significantly among nurseries. CAP analyses was employed to test the reassignment of specimens back to nursery areas. Using a suite of trace elements (Sr, Mg, Zn, Ba and Pb), *S. aurata* specimens were allocated to the nurseries in which they were caught with moderate success (41%). Higher discrimination rate was obtained for shallow cove than for coastal lagoons. A separate CAP analysis explained 94% of element variance, with 100% discrimination for Sr:Ca, Mg:Ca and Pb:Ca. The lowest success of Ba as a discriminant reduced re-allocation to shallow coves. The overall success of re-allocation highlighted that much of the coastal marine waters have a lower salinity than expected, representing a diverse mosaic of environments with different physio-chemical characteristics, making them similar to coastal lagoons. These results suggest that a number of shallow coves with continuous, submarine, freshwater springs along the eastern Adriatic coast could significantly contribute to the *S. aurata* recruitment process, expanding attention from the protection of individual nurseries towards a strong need to protect a wider part of the coast for this purpose.

Keywords: otolith, fingerprints, nursery, *Sparus aurata*, Mediterranean Sea

Biography:

Prof. Sanja Matić Skoko, PhD is senior researcher at Institute of Oceanography and Fisheries, Split, Croatia. Her work scope is Fish Biology and Ecology, Fisheries management and Conservation, Sclerochronology and etc. As author or co-author, published more than 70 scientific papers (<http://scholar.google.hr/citations?user=RCm864YAAAAJ&hl=hr>). She personally attends on 29 international conferences with 5 invited oral presentations. Reviewed more than 100 manuscripts for leading peer-review journals in fields of Marine and Freshwater Biology and Fisheries. She is associate editor for Acta Ichthyologica and Piscatoria, Marine Biology Research and Acta Adriatica. Leader of a number of national and international projects.

NOTE:



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