



2nd International Conference on
Natural Hazards and Disaster Management
July 26-27, 2018 Melbourne, Australia

e-Posters

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Dynamics of hemorheological parameters and their dependence on the helio geophysical environment in the modeled hypo-geomagnetic space as a prognostic model of bio-tropic consequences of global geomagnetic deprivation**Evgeniya Sevostyanova**

Russian Academy of Medical Sciences, Russia

According to geophysicists, the induction of the Geomagnetic Field (GMF) annually weakens, on average, by 40-70 nTl, which determines new risks in interactions of a man with the helio geophysical environment. Predictive studies in the simulated conditions of GMF weakening are of priority importance for the development of geo-ecological safety systems. In a changing cosmo-ecological environment, a dynamic prognostic assessment of the homeostatic systems of an organism and above all, the circulatory system, whose functioning is largely provided by the optimal state of its hemorheological components, becomes especially important. The aim of the study was to investigate the dependence of the rheological and hemostatic parameters of human blood on helio geophysical factors (0, 24, 48 hours before their satellite registration) under conditions of a simulated weakening of the geomagnetic field. To weaken the GMF (more than 500 times), a hypo-geomagnetic installation (GGMU) was used. Hemorheological parameters (blood viscosity, platelet aggregation, clotting time, bleeding time, prothrombin index) were determined in 180 patients with Arterial Hypertension (AH) and 60 healthy persons after 30 minutes incubation of blood samples under background conditions and in GGMU. Direct correlation dependences of hemorheological parameters from the indices of solar activity, indicating a decrease in fluidity and an increase in blood coagulation with an increase in solar activity, predominantly expressed in patients with AH were found. Short-term geomagnetic screening of blood samples led to a weakening of the correlation dependencies of these parameters on the indices of solar activity in patients with AH, while in healthy people an outstripping direct significant dependence of blood viscosity on the proton component of cosmic rays, yet before their streams have reach the satellite registration zone near the Earth, was revealed. The study confirms the important role of GMF in maintaining human electromagnetic homeostasis and indicates the possibility of predicting some evolutionary consequences of the continuing geomagnetic deprivation of the biosphere and humanity as a global natural event for living matter on Earth.

Biography

Evgeniya Sevostyanova has completed her graduation from State Medical Institute. She is a Senior Scientist of International SRI of Cosmo-planetary Anthropoecology and SRI of Experimental and Clinical Medicine. She is a co-author of 5 monographs and more than 98 publications in reputed journals. She also serves as a Scientific Editor and Reviewer. Her scientific interests are human ecology, climatic pathology and internal medicine.

luck.nsk@rambler.ru

Notes:

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Application a stress related gene as a possible biosphere prognostic indicator of extreme heliogeophysical events and an efficiency marker of water-based protection remedies**Danil Serdyukov**Siberian Branch of Russian Academy of Sciences, Russia
Novosibirsk State University, Russia

The aim of the investigation was an assessment of a biotrophic influence of the laser hologram treated potable water (under the simulated reduced geomagnetic field; patents RF no: 2239860 and 2342149) on the activity of gene Dps in *Escherichia coli* cells with a genosensor-based method. Gene Dps as a possible indicator of the stress induction by certain heliogeophysical factors was examined. It is known that the Dps gene and the corresponding protein are involved in different cell processes associated with a stress and adaptive reactions. Dps protein interacts with cell DNA and takes part in its stabilization, protects bacterial cells from high concentrations of copper and iron ions via different mechanisms, and from active oxygen species by its deactivation; moreover, this protein can function as a transcription factor and regulates a gene expression directly. The genosensor is the *Escherichia coli* cells containing the artificial plasmid construction that produces a green fluorescent protein quantitatively under a promoter activation of the Dps gene, was used in the investigation. In this case, the fluorescence intensity of the cell genosensor served as a marker of stress in the biological system. The model stress inductor in the study was hydrogen peroxide that is a well-known factor of an oxidative stress. The possibility of investigated gene Dps to serve as a marker of the cell changes associated with the influence of the water-holographic mediums had been estimated by measure of the fluorescence intensity in the experiments with the model stress inductor. The effect of laser hologram treated water on induction process and development dynamics of the stress response of *Escherichia coli* had been determined. Additionally, it had been shown whether the water had advancing stress-protection properties before and during the changes of heliogeophysical activity.

Biography

Danil Serdyukov is a Molecular Biologist and has received his Post-graduation degree from the Department of Natural Sciences of Novosibirsk National Research State University. He is a Scientific Worker of Institute of Laser Physics and a Researcher of International Scientific Research Institute of Cosmoplanetary Anthropoecology named after Academician V P Kaznacheev. His scientific interests are effects of an external electromagnetic radiation on living matter, an ultra-weak photon emission from cells, non-thermal genetic effects of artificial millimeter and sub millimeter waves.

eclips08.10.14@rambler.ru

Notes:

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Fibromyalgia and chronic pain alert system using ShonaBondhu to handle flash flood

Nova Ahmed

North South University, Bangladesh

Flash flood is a common natural disaster of Bangladesh where flood water suddenly rises in low land areas. It causes damage of crops and livestock requiring real time water level prediction. The current water level monitoring is manual where a measuring gauge is used for water level detection. There are existing solution approaches for flood detection using technology. However, the challenges of sensor installation require internet connectivity and infrastructure support which is not available in all the flood affected areas. There is a requirement of a solution approach that is low cost and can consider the infrastructure limitations. The current research proposes real time water level measurement using ultrasonic water level measurement containing a mobile based server that minimizes the installation cost and utilizes the cellular network coverage across the country for connectivity and communication. The mobile phone-based server continuously collects water level information from sensors installed near the river banks and once the water level rises above the danger level, alert messages are generated and disseminated to pre-defined phones and systems. The system has been tested in laboratories as well as along the river banks in Dhaka, Bangladesh. The current system shows more than 99% of accuracy in real time water level detection and alert generation.

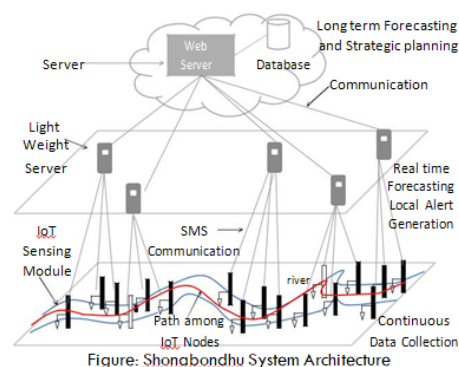


Figure: Shonabondhu System Architecture

Recent Publications:

1. Ahmed N, Ghosh S, Hassan R A, Galib S I, Azad A K and Syrus M A (2017) A gradient sensing middleware to handle flash flood. *Computers and Electrical Engineering*; 62: 44-52.

Biography

Nova Ahmed is an Associate Professor at North South University. She has obtained her PhD from Georgia Institute of Technology, USA and returned to Bangladesh to serve her country. Her current research revolves around local problems of the country using sensing, technology and human centered computing.

nova.ahmed@northsouth.edu

Notes:



2nd International Conference on
Natural Hazards and Disaster Management
July 26-27, 2018 Melbourne, Australia

Accepted Abstracts

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Optimization condition of solid waste vegetable oil industry modification in Arsenite and Arsenate removal and its prediction using artificial neural network**Afsoon Moatari-Kazerouni**
Rhodes University, South Africa

Arsenic usually is built up in the body through drinking water and food contaminated with arsenic and causes increased risks of cancer in the skin, lungs, liver, kidney and bladder. This study is the laboratory scale that investigates the influence of pH, contact time and $\text{Fe}^{2+}/\text{H}_2\text{O}_2$ on modification of solid waste vegetable oil industry in arsenic removal were investigated. An artificial neural network model for arsenic removal during adsorption process under experimental conditions was derived and validated. It was observed that the arsenic removal efficiency was influenced by two of these parameters. $\text{Fe}^{2+}/\text{H}_2\text{O}_2$ is an important factor that affects both As(III) and As(V) removal ($P < 0.01$). pH is another factor that affects significantly the As(V) and As(III) removal ($P < 0.05$). It was observed that the maximum As(III) removal by the modified solid waste vegetable oil industry was obtained at pH 2, $\text{Fe}^{2+}/\text{H}_2\text{O}_2 = 0.04$ and 30 minutes of contact time (81%) whereas, the maximum As(V) removal was obtained under the conditions of pH 5, $\text{Fe}^{2+}/\text{H}_2\text{O}_2 = 0.04$ and 30 minutes of contact time (75%). The efficiency of Arsenic removal of the ANN model was compared with experimental value; error was small and within acceptable range. This study shows that Fenton is an effective method for modification of solid waste vegetable oil industry in removal of As(III) and As(V) from aqueous solution. The simulative results showed that the application of ANN to Arsenic removal is feasible and has the high efficiency and precision.

a.kazerouni@ru.ac.za

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Identification of feed plant community of Javan rhino (*Rhinoceros sondaicus* Desmarest 1822) in Ujung Kulon National Park**Arini Dwi Fikri Hanim, Abdul Baits Dehana Padma Swastika, Heisi Nurvidea Pertama Putri, Muhammad Irham, Nalia Yustika Indani, Nur Wicaksana Putra and Fiki Nurlaila**

Bogor Agriculture University, Indonesia

Javan rhino has a very narrow geographical distribution, only in Ujung Kulon National Park. These animals depend on food as a limiting factor of population growth and now a day's very little research examines the kind and quantity of feed Javan Rhinos in this area. In addition, dominance of sugar palm (*Arenga obtusifolia*) also has many negative impacts on the feed plant continuation. This study aims to explore the information through the identification of the feed contained communities around its puddles and trails. Data is collected in Cidaon which is region part of the island Peucang, resort Karang Ranjang and resort Cibunar. The method used was a systematic plot squared which was applied on those three places. Total puddles are 8 puddles (8 communities) with food plants are successfully recorded as many as 96 kinds of species consisting of 86 species which are known and 10 unknown species. Species richness in puddle 7 (K7) and 8 (K8) are the highest than others, respectively 43 and 48 kinds of species. Puddle 2 (K2) has lowest species richness, only 27 kinds of species. Food plant bangban (*Donax canniformis*) has the highest value of relative abundance, which amounted to 23.82% and the lowest relative abundance of 1.25% for feed plant ipis kulit (*Decaspermum fruticosum*). Community proximity value was indicated by the first and second puddles, amounting to 136.897. The other puddles indicate farthest proximity value by fifth and seventh puddle, amounting to 313.752. Based on data result, the feed plant communities still vary (heterogeneous) in each puddle but still very few in numbers. It needs to be monitored through continued research and strategic moves every year either by the national parks and other parties. Especially since the invasion of sugar palm plant which annually reaching other plants growing space and Javan rhino feed plants is no exception.

arinidwi9@gmail.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

People's experience of climate change impacts and community led adaptation in drought prone northern Bangladesh

Edris Alam and Assaduzzaman Sarkar
University of Chittagong, Bangladesh

Bangladesh is one of the worst affected countries of climate change in the world. Bangladeshi communities' climate change experiences were mainly evidenced from the perspective of tropical cyclones and floods, leaving a conspicuous lack of grounded research in drought prone northern Bangladesh. This research has attempted to identify local level climate change perceptions, symptoms and effects of climate change as well as community led adaptation strategies with drought events in Nilphamari district of northern Bangladesh. Both qualitative and quantitative data were used for this research. Primary data were collected through questionnaire surveys, in-depth interviews, Focus Group Discussions (FGDs) and case studies. Data were analyzed by using MS Excel and SPSS software version 21.0. To evaluate the change, likert-type response anchors were used and it was calculated through weightage methods. The findings suggested that most of the local communities do not have a clear idea about climate change, but they perceived it by experiencing extreme drought events. Through interviewing with 188 local residents who live with continuous droughts, the research suggests that temperature was increased, rainfall was decreased, the intensity of drought was increased and the occurrence of monsoon flood was decreased. The local communities experienced recurrent flash floods in recent decades. Approximately, 68% of respondents opined that cold waves have increased. Most of the respondents (86%) perceived that drought was the most occurring hazard in Nilphamari district. Drought was associated with the losses of agricultural production, aquaculture and fish production as well as the shortage of drinking water and losses of fruit producing trees. The local communities have undertaken both short term and long-term adaptation strategies to survive in drought condition.

edrisalam@yahoo.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Deployment of hydrometeorological detection and warning system in Cisarua, West Java, Indonesia**Iwan G Tejakusuma, E Hanggari Sittadewi and Riski Fitriani**

Badan Pengkajian Dan Penerapan Technology, Indonesia

An important option to reduce the risk of hydrometeorological disaster in Cisarua, Nyalindung village, West Java is by applying hydrometeorology detection and early warning instrumentations. This area is threatened by landslides and debris flow flash floods while agricultural drought may occur in the dry season. Debris flow flash flood flows right into the village during the disaster of 2013 but the relocation of the affected residents is not an acceptable option. Early detection and warning instrumentations is designed to fit with the hazard conditions and setting of the disaster-threatened areas. Instrumentation is designed to be simple and cheap but reliable. This instrumentation uses a wireless sensor network system consisting of one coordinator, one router and three end devices with radio wave telecommunication and equipped with sensors. Coordinator serves as a monitoring and data center while router as intermediary data transmission from end device to coordinator, as well as monitoring the weather conditions and give warning through the siren. End device serves as a detector of landslide and debris flow flash flood hazards as well as agricultural drought hazards. To detect landslides, slope inclination sensors is used and placed on the first end device on a potentially landslide prone area. The ground vibration sensor is placed at the second end device on the river's edge in the upstream to detect the flow of debris flows flash floods. To monitor agricultural drought, soil moisture sensor is placed on the third end device on the agricultural land. Weather conditions are monitored by rainfall, temperature and humidity sensors, wind speed and direction sensors as well as air pressure sensor which are mounted on the router and placed on the location of residence at risk.

iwan.tejakusuma@gmail.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

The distribution and origin of paleo-dammed lakes in the upper Jinsha River, SE Tibetan Plateau**Jian Chen**

China University of Geosciences, China

Numerous studies have indicated that natural processes can form different types of natural lakes, including landslide-dammed lakes (usually formed by collapses, landslides, or debris flows jointly damming rivers), glacier-ice lakes, moraine lakes and volcanic lakes. In the Zhongzan-Batang segment of the upper Jinsha River in the southeast of the Tibetan Plateau, there are eight old landslide dams, with nearby associations of relict landslides, lacustrine sediments and fluvial sediments. Associations of this kind provide key evidence for identifying the lacustrine sediments as landslide-dammed lake deposits. The ¹⁴C ages of 12 samples and the OSL ages of 9 samples showed that the landslide-dammed lake deposits formed during a period of about 122 AD-1100 AD, corresponding to the time of the late Donghan Dynasty to the middle of the Song Dynasty. Landslides that formed the landslide-dammed lake deposits are inferred to be due to earthquakes triggered by active faults.

jianchen@cugb.edu.cn

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Designing a learning table and game cards for preschoolers which can teach them Disaster Risk Reduction (DRR) behavior before and during an earthquake**Mehrnoosh Mirzaei**

University of Tehran, Iran

Children are among the most vulnerable people at the occurrence of natural disasters like an earthquake; many of the management or measures considered for during and before the earthquake are not suitable or efficient for this age group. On the other hand, education and training for mitigation dangers of an earthquake and learning the main concept of it and matters like safe places and prevention of earthquake are not easily perceivable due to their age. Getting close to children via their own world and with games is the best training method in this matter. In this study, the author has tried to consider the child as an active element before and during the earthquake, who has the ability to learn Disaster Risk Reduction (DRR) technics, all with the training provided, before the earthquake by adults. The focused of this research is on learning risk reduction behavior in children as an independent factor. The information has been gathered from library, observance and drawings of 10 children aged 5 with subject of their conceptual definition of earthquake along with 20 questionnaires filled by preschoolers and interviewing them and the design of the suitable educational game, appropriate for the need of this age group has been done with theory of design with help of the user and with priority of children's learning needs and the final result is a package of a game which is comprised of a learning table and matching cards with sign marks for safe and unsafe places which introduce the safe behaviors and safe locations before and during the earthquake. These educational games can be used both in group concept in kindergartens and on an individual basis at home and which can help in earthquake risk reduction.

mirzaeiabcd@alumni.ut.ac.ir

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Configuring allocated mangroves as a coastal protection strategy for adaptation to climate change and sea level rise: A case study in Kien Giang, VietnamNguyen Tan Phong¹ and Huynh Van Tien²¹Ton Duc Thang University, Vietnam²Can Tho University, Vietnam

Allocation of coastal mangrove areas at the ratio of 30:70 for protection and livelihood improvement, despite being an adopted management practice in Kien Giang has been limited success due to a low level of local participation and improper technical guidance on the configuration of allocated areas. Meanwhile, a 500 meter continuous mangrove green belt has been strategically planned for adaptation to climate change and sea level rise. Private coastal lands have been intensively used for agriculture and aquaculture. The study was undertaken using mixed methods with the Kien Giang communities' involvement in developing technical guidelines for the current 30 (use)/70 (protection) allocation policy that aims to establish a continuous mangrove belt and protect local livelihoods. Local awareness of the severity of the local issues has been improved. Seventy percent (70%) of active and abandoned ponds was proposed to be restored for protection using ecologically appropriate mangrove regeneration methods with 30%, close to a sea dyke system, being used for aquaculture purposes. Configuration of private coastal lands was proposed to be undertaken at a ratio of 70 (use)/30 (protection), with 70%, close to a sea dyke system, to be used for agriculture purposes and 30% for mangrove restoration for protection. The majority of the Kien Giang coastal communities were committed to testing the proposed configuration. The proposed configuration, if properly undertaken, would be a technical reference regarding mangrove and livelihood protection in Kien Giang Province, the lower Mekong Delta region and Vietnam.

nguyentanphong@tdt.edu.vn

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Natural hazards: Natural, man-made and imagined disasters

Nils Axel Morner

Paleogeophysics and Geodynamics Institute, Sweden

Life on planet Earth is constantly being threatened by different types of disastrous events; some are natural, some are man-made and some are just imagined. Some threats increase with our population growth and condensation to mega-cities. Plagues and famines have killed hundreds of millions of people through time. Progress in medicine and health care has fortunately changed the situation drastically in recent years. Some building constructions dams for water and nuclear power plants for electricity have emerged as new sources of man-made disasters. There are also several proposed disastrous processes, which, in fact, are merely imagined and products of super-effective lobbying campaigns. Among the natural disasters, giant solar flares have emerged as a new threat of gigantic effects on human life on planet Earth. Nuclear power remains at an infant stage and poses deep threats. The ten probably worse types of disastrous events are listed in figure. The building up of adequate warning systems seems central for the preparation of future natural disasters. This is urgent with respect to the possibility of giant solar flare events. Focusing on imagined threat steals the limelight from real problems and must be abandoned; the sooner, the better. Wars are, of course, terrible human failures with extensive human, cultural and environmental costs.

morner@pog.nu

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Examining disaster preparedness of hospitals in Matara district, Sri Lanka

Nimali

University of Tsukuba, Japan

Natural and anthropogenic disasters are increasing globally and affecting many people. As hospitals are essential infrastructures in responding to disasters, they are expected to remain functional during and in the immediate aftermath of disasters. Sri Lanka, a small island nation, has experienced several natural disasters such as tsunami of 2004, exposing inadequate disaster preparedness in many local hospitals. However, very limited research has been conducted in Sri Lanka about disaster safe hospitals. This study examines the safe hospital concept in the world and in Sri Lanka to identify the gaps in local hospital preparedness. When tsunami of 2004 affected Sri Lanka, Matara was one of the devastated areas of the country and it remains vulnerable to natural disasters. The methodology adopted in this study was extensive reviews of literatures concerning safe hospital preparedness and field visit experience to five hospitals in Matara district, Sri Lanka. The result shows challenging areas in hospital preparedness. Lack of awareness, expertise and funding are some of the drawbacks identified in improving hospital safety. Most of the aspects of preparedness were found to be inadequate such as human recourse, communication, safety, security, transportation, critical supplies and psychosocial support. Health authorities should pay much attention towards capacity building of health personnel and hospitals in Sri Lanka.

nimalimk@yahoo.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Why evacuate when they do? Household behavior pre and post-watch and warning announcements during hurricane eventsPraveen Maghelal¹, Sudha Arlikatti² and Walter Gillis Peacock³¹Khalifa University, UAE²Rabdan Academy, UAE³Texas A&M University, USA

The spate of high intensity Atlantic hurricanes-Harvey, Irma and Maria, that made landfall in the United States in 2017, refocused attention on the importance of hurricane warnings and associated decisions to evacuate. Evidence suggests that the timing of evacuation decisions and actual evacuation vary and are influenced by various behavioral, awareness and household characteristics. It is important to understand the influence of these factors on the household's decision to evacuate and to actual evacuation, especially in relation to the timing of the official announcements of watch and warning. This study, therefore, empirically investigates the relationship of the social cues, source of information, access to channels, warning messages and household characteristics on pre-evacuation decision processes and both decisions to evacuate and actual evacuation. The Protective Action Decision Model framework was used to guide the data collection of Hurricane Rita (2005) evacuees from the coastal counties of Texas USA and to investigate if the characteristics of evacuees vary with the pre-watch, post-watch/pre-warning and post warning announcements. Multivariate regression was used to predict the probability to evacuate in one of these three time-periods using the evacuee responses for both; decisions to evacuate and actual evacuation. Preliminary investigation reveals that several households (e.g. licensed drivers), perception (e.g. risk of reaching destination safely) and behavioral variables (e.g., evacuating in multiple groups) influence the odds that a household would evacuate in post-warning and post-watch period in comparison to the pre-watch period. Recommendations to reduce delays and congestion from last minute evacuations and ensure the safety of not only the coastal residential populations but also emergency management personnel responding to their needs are offered. Recommendations are made to reduce delays and encourage earlier evacuation.

pmaghelal@masdar.ac.ae

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Managing fragile landscape: Interface analysis of natural-anthropogenic situationPrem Prasad Paudel¹, Bimala Devi Devkota² and Anu Adhikari³¹Ministry of Forests and Soil Conservation, Nepal²Nepal Academy of Science and Technology, Nepal³International Union for Conservation of Nature, Nepal

Along the north south (about 150 to 250 km) and east west (800 km) transect, Nepal Himalaya comprises three distinct landscape (High Himalaya, mid-mountain and Siwalik) and are characterized with peculiar features. In this study, the major hazardous elements and underlying causes are examined. The study mainly concentrates to: (1) What are the major hazards causing damages to life and properties; (2) What are the direct and underlying causes; (3) What are major mitigation plans implementing by government, non-government agencies. In mid-mountain, soil erosion (both mass movement and surface erosion) are prominent while in Siwalik landslide and flooding and inundation are prominent (annually 300 people are dying) with annual of about 12.9% of total development expenditure. Similarly, Siwalik area is very young mountain fragile landscape with structurally weak, characterized with massive erosion (900-20000 ton/km²/yr.), heavy deforestation (1.2 percent/year), unconsolidated geological composition (gravel, sandy, schist, phyllite dominated) and located at high precipitation zone too (2500 to 3500 mm/yr.). There is high drainage density with sudden topographic break in a short range of distance. River bed gradient is frequently changing with distinct avulsion, bed widening (changed from 100 m to 1 km). In addition, mid-mountain region, Rural Road construction is rapid through cutting the unstable hilly slopes. An estimated average of 500 m³/km/yr of debris and up to 2000 m³/km sediment are generated, which is 10 times greater than those expected under natural conditions. In steep slope (>30 degree) farming system is common with low productivity. The above mentioned multi-hazards are directly linked with the livelihood of the people. The government and non-government sectors are joining hands together with structural and non-structural measures. The ecosystem-based disaster risk reduction, soil bioengineering, farming system improvement, adoption of climate change adaptive/mitigative approaches are major efforts.

paudelpp98@gmail.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

New active control algorithm based on uniform deformations

Reza Karami Mohammadi and H Ghamari

K. N. Toosi University of Technology, Iran

Along the north south (about 150 to 250 km) and east west (800 km) transect, Nepal Himalaya comprises three distinct landscape (High Himalaya, mid-mountain and Siwalik) and are characterized with peculiar features. In this study, the major hazardous elements and underlying causes are examined. The study mainly concentrates to: (1) What are the major hazards causing damages to life and properties; (2) What are the direct and underlying causes; (3) What are major mitigation plans implementing by government, non-government agencies. In mid-mountain, soil erosion (both mass movement and surface erosion) are prominent while in Siwalik landslide and flooding and inundation are prominent (annually 300 people are dying) with annual of about 12.9% of total development expenditure. Similarly, Siwalik area is very young mountain fragile landscape with structurally weak, characterized with massive erosion (900-20000 ton/km²/yr.), heavy deforestation (1.2 percent/year), unconsolidated geological composition (gravel, sandy, schist, phyllite dominated) and located at high precipitation zone too (2500 to 3500 mm/yr.). There is high drainage density with sudden topographic break in a short range of distance. River bed gradient is frequently changing with distinct avulsion, bed widening (changed from 100 m to 1 km). In addition, mid-mountain region, Rural Road construction is rapid through cutting the unstable hilly slopes. An estimated average of 500 m³/km/yr of debris and up to 2000 m³/km sediment are generated, which is 10 times greater than those expected under natural conditions. In steep slope (>30 degree) farming system is common with low productivity. The above mentioned multi-hazards are directly linked with the livelihood of the people. The government and non-government sectors are joining hands together with structural and non-structural measures. The ecosystem-based disaster risk reduction, soil bioengineering, farming system improvement, adoption of climate change adaptive/mitigative approaches are major efforts.

rkarami@kntu.ac.ir

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Provincial disaster risk reduction and management planning: A disaster management strategy

Rowee Joy S Decena

Compostela Valley State College, Philippines

Natural disasters and climate change are amongst the greatest threats to development. Although natural disasters have always presented risks, climate change increases those risks and compounded it by adding a greater level of uncertainty. On December 4, 2012; 4:45 AM; Typhoon Pablo (Bopha) traversed Compostela Valley affecting 249 barangays and 140,552 families in the province. The typhoon partially damaged 41,630 and totally damaged 28,747 houses leaving the people in evacuation shelters and other non-permanent settlements. Further, the total costs of damages for infrastructure, livelihood, social and settlements amounted to Php 27,459,000,000. This hydrological disaster resulted to the loss of lives, homes and livelihood and it opened an avenue for national leaders, local government units and non-government organizations to give importance to disaster preparedness and resilience as an integral part of governance. This experience also paved the way for the creation of a Provincial Disaster Risk Reduction and Management Plan (PDRRMP) that envisions a united, empowered, responsive, disaster-resilient and climate change adaptive Comvalenyos. This study evaluates Provincial Disaster Risk Reduction and Management Plan and other activities to mainstream Disaster Risk Reduction and Management in Compostela Valley Province, Philippines. Results show that the primary goal of disaster risk reduction and management plan is to reduce vulnerabilities and exposures of communities through capability building and enhancing capacities of institutions in preparing for and responding to disasters. Local governments and communities participate actively in DRRM activities thus; implementation of PDRRM Plan is efficient and effective except for some challenges such as insufficiency of funds and personnel, the lack of technical experts to assist in the implementation and the weak monitoring and evaluation of DRRM programs and projects.

roweejoydecena@gmail.com, rj_subong@yahoo.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Coordinated effects of lead toxicity and nutrient deprivation on growth, oxidative status and elemental composition of primed and non-primed rice seedlings**Saddam Hussain**

University of Agriculture, Pakistan

A factorial growth chamber experiment was carried out to unravel the coordinated effects of Pb stress (1 mM PbCl₂) and different nutrient management regimes (Sufficient nutrient supply, nitrogen (N) deprivation, phosphorus (P) deprivation and potassium (K) deprivation) on morphological growth, Reactive Oxygen Species (ROS), antioxidants and nutrient status in primed and non-primed rice seedlings. Seeding was primed with distilled water (hydropriming; HP), 60 μM selenium (chemical priming; Se) or 100 mg L⁻¹ salicylic acid (hormonal priming; SA). Results indicated that Pb toxicity did not affect the root growth, but severely reduced the shoot growth (length and biomass) of rice in N- or P-deprived seedlings. Rice seedlings grown with sufficient supply of nutrients (All Nut) or K-deprivation showed no growth reduction under Pb toxicity. Exposure of Pb stress triggered the production of ROS (H₂O₂, O₂•⁻, OH⁻) and lipid peroxidation rate under all the nutrient management regimes particularly under N- or P-deprivation. Moreover, the shoot accumulations of macronutrients (particularly P) were also restricted under Pb toxicity. Seed priming treatments (particularly Se and SA) were found to be significant in alleviating the undesirable effects of Pb stress on rice growth. The primed rice seedlings showed minimal oxidative damage caused by excessive generation of ROS under Pb stress and/or nutrient deprivation. Seed priming strengthened the anti-oxidative defense system of rice seedlings by regulating the activities/levels of superoxide dismutase, catalase, peroxidase and glutathione in rice leaves. Moreover, better accumulation of essential nutrients in primed rice seedlings prevented the excess uptake and translocation of Pb, as evident by the lowered shoot accumulation of Pb. In short, these results suggested the protective role of seed priming against the adversities caused by Pb toxicity and nutrient deprivation in rice seedlings.

sadamhussainuaf@gmail.com

2nd International Conference on

NATURAL HAZARDS AND DISASTER MANAGEMENT

July 26-27, 2018 Melbourne, Australia

Sustainable management of ecosystem and control of natural secondary disaster in soil and water loss regions**Zhongsheng Guo**

National Science Fund of China, China

Statement of the Problem: High-yield and high-benefit plantation forest can effectively conserve soil and water loss and improve ecological environment. But currently, soil desiccation, a natural secondary disaster, often occurs and sometime changes into severe desiccation, which causes soil degradation, vegetation decline and death, which does not benefit ecosystem sustainable management and soil and water conservation in the soil and water loss regions.

Methodology & Theoretical Orientation: The changes of soil water, soil water supply or soil water consumption in the soil profile with plant growth and planting density was investigated at the same condition. The relationship between soil water and plant growth and the relationship between soil water supply or soil water consumption and plant density was analyzed.

Findings: SWRULP is the soil water storage in the Maximum Infiltration Depth (MID) in which the soil water content in every soil layers equal to wilting coefficient which changes with soil depth. SWCCV is the maximum plant population quantity or plant density of the indicator species in a plant community when the Soil Water Supply (SWS) is equal to Soil Water Consumption (SWC) in the root zone in a least death day of indicated plant. Indicator plant is the constructive species for natural vegetation or the principal or purpose species of trees or grasses for plantation. SWCCV changes with plant community, site condition and climate change, such as temperature, wind and rainfall.

Conclusion & Significance: Regulating the relationship between plant growth and soil water at the appropriate time on SWCCV enable ecosystem sustainable management and control of natural secondary disaster in the soil and water loss regions.

zhongshengguo@sohu.com