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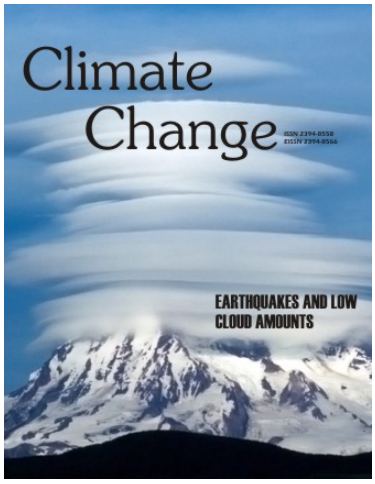
# Climate Change

## About the Cover




During an earthquake the dynamic behavior of inelastic structures is a complicated non-stationary process that is affected by the random characteristics of seismic ground motions. The earthquake records are the time-domain signals in all cases the earthquake waves change in a relatively short period of time. The link between cosmic rays, low cloud amounts and earthquakes as a measure of climate began to occur and becomes a considerable and effervescent research field in last-years. However, we have studied in our previous works on many faces of these links in many cases the most distinguished information is hidden in the frequency spectrum, which provides the energy, associated with a given frequency The conventional Fourier analysis describes the feature of a dynamic process by decomposing the signal into infinitely long sine and cosine series, which loses all time-located information. We focused our study in this time on links between earthquakes and low cloud amounts. The Morlet wavelet transform capability to give a full time–frequency representation of the earthquake record is demonstrated. In this method, the analysis of the original and reconstructed earthquakes time series of the earthquake record, demonstrates the ability of the wavelet transform technique to detect a complex variability of these signals in the time–frequency domain. Various spectral representations resulting from the wavelet transform are discussed and their application for earthquake record is shown. In this paper, an analytical approach for seismic ground motions is developed by applying the Morlet wavelet transform, the well known 11 years cycle is present already found for low cloud amounts signs is present in the revealed Morlet modulations for earthquakes number and magnitude. Other structures are present as well in the present work for earthquakes as in present work for low cloud amounts. Our present Morlet extrapolation for earthquakes number and magnitude predict the presence of low magnitude earthquakes for the year 2015 which was already predicted to contain a maximum for low cloud amounts in our previous work (Ref: Neïla Zarrouk, Raouf Bennaceur. Morlet Predictive Analysis of Earthquakes Modulations. *Climate Change*, 2015, 1(1), 1-10); (Image: www.thelivingmoon.com/43ancients/04images/Earth/Clouds/Lenticular18.jpg).

## ANALYSIS

### Morlet Predictive Analysis of Earthquakes Modulations

Neïla Zarrouk, Raouf Bennaceur

During an earthquake the dynamic behavior of inelastic structures is a complicated non-stationary process that is affected by the random characteristics of seismic ground motions. The earthquake records are the time-domain signals in all cases the earthquake waves change in a relatively short period of time. The link between cosmic rays, low cloud amounts and earthquakes as a measure of climate began to occur and becomes a considerable and effervescent research field in last-years. However, we have studied in our previous works on many faces of these links in many cases the most distinguished information is hidden in the frequency spectrum, which provides the energy, associated with a given frequency The conventional Fourier analysis describes the feature of a dynamic process by decomposing the signal into infinitely long sine and cosine series, which loses all time-located information. We focused our study in this time on links between earthquakes and low cloud amounts. The Morlet wavelet transform capability to give a full time–frequency representation of the earthquake record is demonstrated. In this method, the analysis of the original and reconstructed earthquakes time series of the earthquake record, demonstrates the ability of the wavelet transform technique to detect a complex variability of these signals in the time–frequency domain. Various spectral representations resulting from the wavelet transform are discussed and their application for earthquake record is shown. In this paper, an analytical approach for seismic ground motions is developed by applying the Morlet wavelet transform, the well known 11 years cycle is present already found for low cloud amounts signs is present in the revealed Morlet modulations for earthquakes number and magnitude. Other structures are present as well in the present work for earthquakes as in present work for low cloud amounts. Our present Morlet extrapolation for earthquakes number and magnitude predict the presence of low magnitude earthquakes for the year 2015 which was already predicted to contain a maximum for low cloud amounts in our previous work.

*Climate Change*, 2015, 1(1), 1-10

## ANALYSIS

### Print Media Journalists' Coverage of Agriculture related Climate Change News in Nigeria: Implications for achieving Vision 20:2020

Ayogu CJ, Agwu AE, Enwelu IA

The study investigated print media journalists' coverage of agriculture related climate change news in Nigeria: Implications for achieving Vision 20:2020. The Vision 20:2020 conceptualizes a transformation in agriculture that would ensure food security, the right to sustainable development and adaptation to the climate change challenge. The study was carried out in Nigeria and the population comprises all the national dailies institutions. Four national daily newspapers were purposively selected for the content analysis and questionnaire schedule was administered to 150 randomly selected journalists'. The study revealed that majority (89.4%) of the journalists' sourced climate change information from internet. Majority (275 of 332) of the climate change articles were not agriculture- related. Major constraints to the coverage of climate change news include: lack of training in journalistic skills (M=3.53, S.D= 0.72); and lack of specialization among journalists (M=3.45; S.D= 0.87). Based on the findings the study recommended that there should be constant interaction between people with climate change information, the media and farmers affected by climate change to increase awareness.

*Climate Change*, 2015, 1(1), 11-19

## REVIEW

### The role of Agroforestry system as strategy to adapt and mitigate climate change: A review with examples from Tropical and Temperate regions

Kasahun Kitila Hunde

Agroforestry isan integrated approach to sustainable land use that is aimed to maximize production and productivity of the land. Its environmental benefit is now days highly recognized especially in adapting and mitigating the current global challenge, climate change through biological carbon (C) sequestration. This approach is highly beneficial in efficient utilization of resources such as nutrients, light, and water capture that will result in greater net C sequestration. C-sequestration potential of agroforestry systems are derived by combining information from both above and below ground carbon stock. However, in estimating Cstock of biomass and the extent of soil C storage under varying conditions are very challenging due to the lack of reliable estimates of area under agroforestry. The extent of C sequestered in agroforestry system also varies depending on species composition, type of agroforestry, climate, soil and land management practices. It was estimated that globally the area currentlyunder agroforestry is around 1,023 million ha.

*Climate Change*, 2015, 1(1), 20-25

## RESEARCH

### Impact of climate change on butterfly diversity in Seshachalam bio reserve forest of Southern Andhra Pradesh

Suryanarayana K, Harinath P, Venkata Ramana SP

Climate change is universal phenomenon and it influences the seasonality, abundance of the flying jewels "Butterflies". They are known to be highly sensitive to climate change. Seshachalam bio reserve forest is on the richest biodiversity hot spot in India lies between $13^0$ 38" and $13^0$

55"N latitude and $79^0$ 07" and $79^0$ 24" E longitudes and spread over two districts Chittoor and Kadapa of Southern Andhra Pradesh. Civilisation of this area leads to enormous increasing of pollution; it effects human population as well as animal population. Vegetation in the study area was deciduous forests with patches of most deciduous and evergreen to semi evergreen forests. In the Eastern Ghats of Southern Andhra Pradesh the highest point is Tirumala hills with 1251m height. Recent studies prove that Butterflies react faster than other groups such as birds. Butterflies have relatively short generation times and are ectothermic organisms, meaning that their population dynamics may respond to temperature changes more directly and more rapidly. Even the loss of a single species can have cascading effects because organisms are connected through food webs and other interactions. With a suitable climate and vegetation hill region of Eastern Ghats enriched with high number of butterfly population. Earlier 150 species are available on Eastern Ghats in which 75 species were identified in present study area. The typical climate effected the species life cycle, flight times, mating behaviour, essential interactions and ultimately survival. The change of climate and its influences on butterfly species diversity were studied by using structural equation modelling method and also investigated direct and indirect effects of climate variables, host plant richness, habitat diversity on butterfly species richness across the Seshachalam hills.

*Climate Change*, 2015, 1(1), 26-39

## ANALYSIS

**Role of Sundarbans in Protecting Climate Vulnerable Coastal People of Bangladesh**

Roy TK, Hossain ST

Bangladesh is one of the top 10 nations mostly vulnerable to climate change, where Sundarbans is the world largest mangrove forest. The Sundarbans was declared as a Reserve Forest in 1875 and at present it is occupying an area of around 6,017 sq. km. About 32,400 hectares of the Sundarbans have been declared as three wildlife sanctuaries and came under the UNESCO World Heritage Site in 1997. With an organized array of trees and wildlife variety, the forest itself is a showpiece of natural history that offers subsistence to around 3.5 million coastal people. It also controls economic activities, such as extraction of timber, fishing, collection of honey and tourism. Devastating climatic disasters like Aila of 2009 and Sidr of 2007 have taken around 3,777 lives of coastal area of Bangladesh. Besides, a million of people became homeless and forced to be migrated. The situation could be even worse in absence of the protective roles of the Sundarbans. But the adverse effects of climate change have changed and still changing the overall scenario of the Sundarbans to a great extent. The paper aims to explore the roles of the Sundarbans, its damage scenario and recommendations for conserving the Sundarbans.

*Climate Change*, 2015, 1(1), 40-44

## CLIMATE IMPACTS

***In vitro* Studies on Effect of Chromium on *Lantana camara***

Ashwini A Waoo, Swati Khare, Sujata Ganguly

Environmental pollution is an extremely important issue today, affecting all of us in one way or the other. Due to rapid increase in human population and industrialization, the demand for natural raw materials and source of energy are increasing day by day in developing as well as underdeveloped countries, the industrial effluents are released directly or indirectly into natural water resources, mostly without proper treatment, thus posing a serious threat to the environment.The aim of our research was to identify some interesting accumulators which may associate an important biomass production with an effective absorption and translocation of heavy metals. The present study is focused on the ability of *Lantana camara* to accumulate and tolerate high concentrations of heavy metal Chromium which is associated in polluted areas.

*Climate Change*, 2015, 1(1), 45-48

## CLIMATE IMPACTS

**Climate Change and Its Impact on Medicinal and Aromatic Plants: A review**

Pabitra Aryal

Climate change has become increasingly recognized as one of the greatest challenges to humankind and all other life on Earth. The world is becoming hotter day by day, since the earth's temperature has risen up to 0.74°C and is about to increase from 1.8° C to 4° C by 2100. Though being small country Nepal experiences a wide range of climate varying from the sub-tropical to the alpine type. The status of medicinal and aromatic plants is the important issue in current period for the study of environment and climate change. In recent years the impact of climate change is very high and currently we are observing that some species of plants are not in their original habitat and some are sifting to higher range for survival. Some of the medicinal plants show change in chemical properties in their composition. The most threatening fact is that many species are lost from the earth. In Nepal, approximately 14% of plant species are used as NTFPs. Medicinal plant trade is a blooming business worldwide and the third world countries including Nepal. Climate change is affecting medicinal and aromatic plants around the world and could ultimately lead to losses of some key species in Nepal as well Species endemic to regions and causing plants to migrate into new ranges. The effects of climate change on medicinal plants, in particular, has not been well-studied and is not fully understood. As the situation unfolds, climate change may become a more pressing issue for the herbal community, potentially affecting users, harvesters, and manufacturers of MAP species. So it is very necessary to study on MAP's and its potential and ecological status and in details. The conclusion and outcomes of the study will guide to the steps to be taken to come out from this disastrous issues in near future.

*Climate Change*, 2015, 1(1), 49-53