Japan Geoscience Union Meeting 2013
(May 19-24 2013 at Makuhari, Chiba, Japan)

HSC04-01 会場:102A 時間:5 月 23 日 14:15-14:30

Future Earth, Great East Japan Disaster, and IHDP-Japan
Future Earth, Great East Japan Disaster, and IHDP-Japan

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Global environmental research is currently undergoing major re-structuring under the framework of Future Earth, or a platform for sustainability science initiated by ICSU, ISSC (International Social Science Council), and Belmont Forum. IHDP-Japan is uniquely positioned to implement Future Earth in a broader interdisciplinary perspective incorporating the various lessons of the Great East Japan Disaster. The paper discusses the roles IHDP-Japan can, and should, play for the increment of sustainability of the world which Future Earth aims at.

キーワード: IHDP, ICSU, Future Earth, 持続可能性科学, 東日本大震災, 地球環境変化の人間的側面研究計画
Keywords: IHDP, ICSU, Future Earth, sustainability science, Great East Japan Disaster, International Human Dimensions Programme

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HSC04-02 会場:102A 時間:5 月 23 日 14:30-14:45

Relationship Between Precipitation and Carbon Dioxide (CO2) Over Indian Sub-Continent

Relationship Between Precipitation and Carbon Dioxide (CO2) Over Indian Sub-Continent

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The association between carbon dioxide and rainfall is investigated over the Indian region. The study is performed on fine scale (2 degree,2.5 degree) grid map for the period of 9 years from 2003 to 2011. Carbon dioxide data from Atmospheric infrared Sounder (AIRS) and rainfall data from Tropical Rainfall Measuring Mission (TRMM) are used in this study. Data are mapped for both carbon dioxide and rainfall across all the months/ seasons of the study period. The concentration of carbon dioxide is found to be highly variable spatially as well as seasonally. It varies from ˜3.68,10-4 (July-August, 2003) to ˜4,10-4 (January-February,2009) over land and which is larger than over oceans. It is observed that in the winter months (November to February) the concentration is relatively higher, while during the monsoon season the concentration is low. It seems to be the wash out effect of rainfall over carbon dioxide. Over the oceans the Carbon Dioxide concentration show the slight seasonal changes and the range is less as compared to the land. The rainfall varies from no rainfall to 102 cm/month (July,2007), on average monthly basis.

The correlation coefficient (Rxy) between Carbon Dioxide and rainfall is calculated during all the months from 2003 to 2011, and the values have been mapped and shown using MATLAB. The correlation coefficient is highly variable during different months over the study region, with a wide range. The computed minimum value was in January (-.8859) and the maximum value in the month of August (+.8863). The computed correlation coefficients show positive values for the summer months of the sub-continent over land with rise in values of correlation from the month of April, reaching uniformly high value in August over 9 years, and then the coefficient decreases as the autumn sets in. However, over the oceans the fluctuations are not high with the change in seasons. It is discerned that the percentage increase in rainfall is not in direct proportion to the increased carbon dioxide concentration i.e. the relationship is not linear. Moreover, the increased rainfall in response to increasing carbon dioxide concentration in a region is limited which may be attributed to certain regional parameters such as topography of the area, vegetation and emissions of carbon dioxide due to various anthropogenic activities. The study would be extended in future by taking large area and other parameters into account.

キーワード: Carbon dioxide concentration, rainfall, correlation coefficient, TRMM, AIRS, India
Keywords: Carbon dioxide concentration, rainfall, correlation coefficient, TRMM, AIRS, India

Japan Geoscience Union Meeting 2013
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HSC04-03 会場:102A 時間:5 月 23 日 14:45-15:00

Impact of Liberalized Border Trade on Rural Households and Their Land Use: The Case of Laos-China Border Area
Impact of Liberalized Border Trade on Rural Households and Their Land Use: The Case of Laos-China Border Area

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In Asia trade liberalization has been rapidly going-on. At the macro-level, liberalized trade should enhance efficiency and promote economic growth. However, it is relatively unknown what kind of impacts the liberalization has on rural households and their land use in remote, border area. In order to answer these questions, this paper utilized household data collected by household survey conducted in Laos-China border area in 2010. The sample size is 120 households in Louang Namtha Province, Laos and 120 households in Xishuangbanna autonomous prefecture, Yunnan, China.

In Laos, rubber planted area of sample households is increasing since 2005. Due to the increasing rubber plantation on upland, forest and fallow land are decreasing. In the Lao study site, rice is grown in lowland, and hence there is no conflict in land use between rubber and rice. However, rice producing area is decreasing slightly since 2005 probably due to labor allocation. In Yunnan, land for staple food crops (rice and maize) is decreasing while that for rubber is increasing in recent years. Farmers now purchase rice including rice imported from Laos. Most of the paddy fields are now leased out to banana growers.

Thus, the border trader between Laos and Yunnan has impacts on agriculture and land use of both sides. In Laos, farmers export rice to Yunnan. In Yunnan, farmers grow rubber on upland and rent-out lowland to banana growers. This is a more efficient resource allocation compared with the situation before the trade liberalization, and households on both sides seem to have become better off. However, concerns are the reduction of biodiversity due to rubber plantation on Lao side and a threat to food security caused by the specialization on Yunnan side.

キーワード: Land use, Trade liberalization, Laos, Yunnan, Border trade, Market integration
Keywords: Land use, Trade liberalization, Laos, Yunnan, Border trade, Market integration

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HSC04-04 会場:102A 時間:5 月 23 日 15:00-15:15

中国蘭州市における都市開発と土地利用変化における意味
Urban development and its implication on land use change of Lanzhou City, China

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シルクロードの歴史的都市である蘭州市は黄河流域にあり，甘粛省の省都であるとともに，中国内陸地域の最も西にある大都市である。蘭州市の土地利用は内陸地域の中心都市としての発展を目指す国家的政策のもとで，工業や住宅開発を通して変化してきた。

人口は計画経済に入って増加した。三線建設という国家政策のもとで，石油化学や重工業が設立された。1978 年の改革開放政策導入以後，重化学工業都市としての性格は総合的中心都市へと変化した。1990 年代以降市街地東部の低位河岸段丘上でスプロール的都市化が進展した。また，古い市街地再開発を目的として新しい住宅開発が行われている。中心部では商業住宅として高層建築が作られている。中心部から高速道路で 1 時間の距離のところに新しい都市開発が進行している。これは蘭州新区と言い，その広さは 40 平方キロメートルに及ぶ。

キーワード: 地域開発, 地形条件, 内陸地域
Keywords: regional development, topographical condition, inland area

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HSC04-05 会場:102A 時間:5 月 23 日 15:15-15:30

守られる森林と放置される森林周辺部―ナガラホレ国立公園（インド）の事例―
Protected Forest and its periphery - a Case of Nagarahole National Park, Karnataka, India -

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In India, we can divided the trend of forest into two periods, the period of deforestation until the 1980s and the period of well forest protection, i.e. Joint Forest Management, since the 1990s. As a result, we can see the institutional development and a lot of effort in various areas, and the rate of forest has been improved from 10% level to 20.6% (2001). As for the forest and its periphery as forest region, the former has been under strict control as a national park, and the latter has neglected and left the chaotic region consisting of miscellaneous residents. In this presentation, I would like to investigate the possibility of governance in the region spread in a donut shape, with understanding the both region as a forest ”region”.

キーワード: インド, 森林, 森林地域, カルナータカ
Keywords: India, Forest, Forest region, Karnataka

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Recent Flood Disaster in Jabodetabek Region: A question toward resilience Megapolitan

Recent Flood Disaster in Jabodetabek Region: A question toward resilience Megapolitan

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Various environmental deterioration in Indonesia has increased the potential for anthropogenic disaster hazards in different regions. Floods in urbanized area such Jakarta City has impact a huge economic loss. Jakarta City and its surroundings (Megapolitan Jabodetabek) is the nation's largest urban agglomeration where more than 11 percent of the population and more than 26% of the national GDP is located. Flood in the city of Jakarta is an annual phenomenon with repeated each year and mainly occurred at the peak rainy season (between the months of December to January). Current flood disaster in Jakarta (January and February 2013) is considered a 5-year flood cycle. Various indications show that an increase in flood potential flood hazard in the region. This Increasing on the frequency flooding hazard raises the question whether the increased frequency of flooding is a result of climate change or by the deterioration of the local environmental conditions that cause the decrease in regional resiliency. This study examines the facts of climate change locally (especially changes in precipitation) as well as a variety of local environmental changes especially due to land use/cover changes that impact of the environmental carrying capacity for over the last 20 years.

キーワード: Flood disaster, Jabodetabek, recilience megapolitan, climate change, land use/cover change
Keywords: Flood disaster, Jabodetabek, recilience megapolitan, climate change, land use/cover change