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

HGG01-01 会場:102A 時間:5 月 23 日 16:15-16:30

庄内川 2011 年洪水と地形
Land form and 2011 flodd of the Shonai River Basin

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都市河川である庄内川の中下流地域の地形分類図を作成したところ、自然堤防＋デルタの特色ある地形であることが分かった。1950 年代以降の土地利用変化をメッシュマップで示したところ、名古屋市北部から春日井市の市域において農業地域から都市的な土地利用へと大きく変容しており、庄内川河畔の低湿地への都市化は顕著である。現在、指定されている避難所などは地形からみて浸水可能性の高い地域に設定されている建物もあり、2011 年洪水時には避難所として適切ではなかったことが指摘されている。地盤条件としての地形分類図と人間活動の総和としての土地利用変化図を用いて洪水脆弱性手法手法を提案する。

キーワード: 庄内川, 洪水, 地形, 土地利用
Keywords: the Shonai River, flood, geomorphology, land use

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Monitoring snow cover of Northern Himachal Himalaya, India using geoinformatics
Monitoring snow cover of Northern Himachal Himalaya, India using geoinformatics

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Seasonal snow cover is a vital natural resource in the Himalaya. Snow cover monitoring provides an indicator of climate variability and is a prerequisite to estimates of freshwater storage. It is difficult to obtain snow cover information on repetitive basis using ground conventional techniques from vast snow covered areas of Northern Himachal Himalaya, which is at high altitude, rugged and inaccessible. Satellite remote sensing has proven useful tool for real-time, year-round and large spatial coverage for monitoring and process studies over vast, rugged and remote areas. This task is ideally accomplished from space-borne satellite imagery. The paper aims to present detailed inventory of snow cover and change in snow cover area from 1989 to 2011 of Northern Himachal Himalaya. The study primarily uses Landsat TM mosaic (30 m spatial resolution) acquired from Global Land Cover Facility (GLCF) and Earth Explorer website for the month September-October when the seasonal snow cover is minimal. The Survey of India toposheet of 1:250000 scale and SRTM DEM of 90 m spatial resolution has been used for reference purpose. Normalised Difference Snow Index (NDSI) has been used to calculate the areal coverage of snow. The analysis of the NDSI result depicts an overall decrease in snow cover in all the three district of Northern Himachal Himalaya with varying magnitude. In Chamba district around 16 per cent snow area has been deglaciated from 1989 to 2011. In Lahaul and Spiti district total snow cover area during the year 1989 used to be 4,414 sq km which has come down to only 2,085 sq km. The total loss is around 17 per cent while the total loss in snow area in Kinnaur district is 36 per cent which is around 2,271 sq km area during the same period. Further, the classification analysis and the management of the database in the GIS with the final presentation of the results in a good visual layout, were performed by using software ERDAS Imagine 9.3 and Arc GIS 10.

キーワード: Snow cover, Monitoring,, Normalised Difference Snow Index, Himachal Pradesh, Himalaya, India
Keywords: Snow cover, Monitoring,, Normalised Difference Snow Index, Himachal Pradesh, Himalaya, India

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サイクロン”ナルギス”の自然災害アセスメント
Natural Hazards Assessment on the Tropical Cyclones Nargis in Myanmar

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Myanmar is situated in the western part of the South-East Asia, bordering the Bay of Bengal and the Andaman Sea with its 2400 km long coast line. It is potentially rich with marine natural resources and also potentially threatened by the waves, cyclones and associated weather and which is often inundated by river floods and coastal areas exposed to stormy weather. Myanmar occasionally experiences storms, earthquakes, floods, landslides and forest fires. Among them, cyclones are the most destructive natural disaster. The occurrences of disasters have surged in Myanmar from 2006 to 2011. Year 2006 was the noticeable year when environmental changes and natural disasters happened in Myanmar. Tropical cyclones, formed over the Bay of Bengal in Pre-monsoon Period (April and May), and Post-monsoon Period (October and November), are the most destructive and cause huge socio-economic losses. The purpose of this study is to analysis the estimated flood area is affected by Nargis Cyclone in the study area and its effects on land cover, population, settlement pattern and some social problems. This present study focuses on environmental investigations based on Satellite data UNOSAT (22th May 2008) Aerial Photo, Landsat TM and ETM,Quick Bird (Google Earth), Moderate Resolution Imaging Spectroradiometer (MODIS), DEM ASTER-2 using GIS and remote sensing technologies. Then flooding area and hazards zone are analyzed and calculated depending on the questioner results.

キーワード: 自然災害, ミャンマー, 台風, 台風「ナルギス」, 洪水
Keywords: Natural hazards, Myanmar, tropical cyclones, Cyclone Nargis, floods

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Identification of Paddy Field Distribution and Rice Cropping Pattern for Rice Production Forecasting in West Java
Identification of Paddy Field Distribution and Rice Cropping Pattern for Rice Production Forecasting in West Java

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There is a growing demand for rice with increase in population in Indonesia. Rice is still the major staple food in Indonesia, therefore the task of increasing rice production continues to engage the attention of national planner. West Java Province is one of the main centers of the national rice production area. But now the province also has been developed as a center of the industrial area and urban agglomeration along with the pressures of population and rapid economic growth. Consequently rice fields in West Java province have been experiencing a constant pressure of rapid land conversion. On the other hand, changes in rainfall patterns, changes of irrigation systems and farmers institutions have changed the cropping pattern towards a more complex pattern. Efforts to maintain food security is becoming increasingly complicated and projections a more accurate rice production system should be developed in line with the high rate of national population growth and rice consumption. This research was conducted as an effort to develop a more accurate method in identifying the distribution and rice cropping pattern to estimate the national rice production. This study was conducted to test a new method in the province of West Java by using MODIS satellite image data in the period of 2002-2011.

キーワード: Paddy field distribution, Rice cropping pattern, MODIS satellite image, Rice Production Forecasting
Keywords: Paddy field distribution, Rice cropping pattern, MODIS satellite image, Rice Production Forecasting

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The Great East Japan Disaster, Future Earth, and Global Land Project
The Great East Japan Disaster, Future Earth, and Global Land Project

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The bitter lessons of the Great East Japan Disaster may help consolidation and implementation of Future Earth, or a platform for sustainability science initiated by ICSU, ISSC (International Social Science Council), and Belmont Forum. Due to the increasing frequency and magnitude of disasters and environmental problems related with land use worldwide, GLP (Global Land Project) has a special duty to work with Future Earth closely for the improvement of monitoring systems and of information/research network, and for the betterment of understanding in the problems related with land use/cover and their changes. The paper discusses the roles GLP-Japan can, and should, play for the increment of sustainability of the world which Future Earth aims at.

キーワード: GLP, Future Earth, sustainability, land use, Great East Japan Disaster, LUCC
Keywords: GLP, Future Earth, sustainability, land use, Great East Japan Disaster, LUCC