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HGG001-P01

会場:コンベンションホール

時間:5月26日 14:00-16:30

Indigenous Ecological Knowledge and conservation in traditional agricultural landscape of Satoyama in Japan and Hani Ter Indigenous Ecological Knowledge and conservation in traditional agricultural landscape of Satoyama in Japan and Hani Ter

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Abstract: Indigenous ecological knowledge (IEK) can contribute to the management of local ecosystems and landscapes. Cultural landscapes are produced by, and reflected, the long-term interaction in indigenous societies of humans and nature. Taking the traditional agricultural landscape of Satoyama in Japan and Hani Terrace in Southwest China as case study, this paper summarize the IEK of the indigenous peoples in Japan and southwest China, including the management of water, forest, and soil resource, the vertical landscape pattern and resource-circulating system. The paper also stresses the challenges and threats facing the Hani IEK and cultural landscape of rice terraces, and discusses the potential integration of the IEK and cultural landscape conservation.

キーワード: Indigenous ecological knowledge, Conservation, Traditional agricultural landscapes, Rice Terraces
Keywords: Indigenous ecological knowledge, Conservation, Traditional agricultural landscapes, Rice Terraces

HGG001-P02

会場:コンベンションホール

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ミャンマー・イラワジデルタにおける地表面環境と浅層地下水 Relationship between land surface condition and shallow groundwater in the Irrawaddy River delta, Myanmar

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Groundwater is widely used as a water resource in the Irrawaddy River delta. But, Groundwater has some chemical problem in part of the area. To use safety groundwater for health, it is important to make clear the actual conditions of physical and chemical characteristics of groundwater in this delta. Besides, Irrawaddy River delta is one of the most riskiest area by the flood and high waves through cyclone or monsoon. Especially, change of land surface condition by any disaster affect to the physical and chemical characteristics of shallow groundwater. So, it is necessary to make clear the actual condition of effect of land surface conditions to the shallow groundwater, to secure a good aquifer for sustainable shallow groundwater resource supply.

The purposes of this study are to analyze the physical and chemical characteristics of shallow groundwater quality related to geomorphology, geology and land use. Water samples are collected at 36 measurement points of river and groundwater in the dry season (January, 2010) and wet season (September, 2010), and analyzed dissolved major ions and oxygen and hydro-stable isotope compositions.

There are some groundwater flow systems and these water qualities are different in each area. Also, shallow groundwater quality composition showed Na-Cl-HCO³ type at central delta. This type is not similar to Irrawaddy River water which showed Ca-HCO³ type. According to the relation deuterium and d-excess, it is estimated that recharge area of shallow groundwater is Pegu and Alakan mountains or Irrawaddy River water. At the central delta, Shallow groundwater is mixed by both waters. These showed that Irrawaddy River water is recharge to the portion of shallow groundwater, but chemical characteristics is not affected to the shallow groundwater. So, chemical characteristics of shallow groundwater are closely related to geomorphological, geological and land use conditions. Land use is crops, paddy field and residential area in the delta, so it is possible that this water quality type is effect by any human activities. At the shallow depth of western area and the 10 to 40 m depth of central area, groundwater quality composition is similar to Irrawaddy River water. Seasonal change of groundwater qualities is different in each area.

It was summarized that shallow groundwater quality is affected by land surface conditions which is different in each area.

Keywords: Irrawaddy River delta, shallow groundwater, land surface condition, human activity, water quality

HGG001-P03

会場:コンベンションホール

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イラワジ川中下流の河川環境変動

Environmental change of the middle and lower reaches of the Ayayawady river

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中部ミャンマーのイラワジ川の本川河道における蛇行プロセスを外邦図を用いて、マンダレーから河口部まで、1940年代での状況を復元した。また、比較対象の時代を60年後のと2000年として、ETM画像を用いて、同様の箇所を用いて蛇行特性を復元した。これら二つの蛇行についての変動を屈曲度を指標にして求めた。さらに、衛星画像を用いて地形分類図を作成し、地形単位ごとの屈曲度インデックスを比較してみたところ、本川の河道を11のセグメントに分けることができた。この研究では外邦図と2000年撮影の衛星画像を用いて約60年間の期間でイラワジ川のマンダレー盆地からイラワジデルタ先端部までの河川蛇行度の変動を計測してみた。その結果、河口部と盆地での変化率は低いものの、狭窄部において変化率が高くことわかった。2000年代では屈曲度が下がり直線化に向かっていることが明確になった。また、河川屈曲は地形とよい相関が表れた。

キーワード: イラワジ川, 蛇行, 環境変動

Keywords: Ayayawady river, meandering, environmental change

HGG001-P04

会場:コンベンションホール

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Characterizing temporal vegetation dynamics of land use: Case of agricultural lands in Java Island, Indonesia Characterizing temporal vegetation dynamics of land use: Case of agricultural lands in Java Island, Indonesia

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Monitoring land surfaces continuously allows characterization of temporal vegetation dynamics. Considering seasonal vegetation dynamics in multi-year series data leads to a broader view of land surface information. In tropical regions, e.g. Java Island, a paddy field might undergo a sequence of covers through the year, such as: (1) paddy-bareland-secondary crops-bareland, (2) paddy-bareland-inundated-paddy-bareland-secondary crops, and (3) paddy-bareland-secondary crops-bareland-inundated-paddy, where the sequence is repeated year after year following the seasons.

Characterization of vegetation dynamics has often been made by using vegetation index values, either the normalized difference vegetation index (NDVI) or enhanced vegetation index (EVI). The temporal dynamics of those index values are useful for distinguishing land surface conditions by differentiating among vegetation types and their distributions. We characterized the temporal vegetation dynamics of long-term land use by using multi temporal MODIS EVI 16-day composite data from 2001 to 2007.

The temporal pattern analysis was able to provide information of the planting, heading and harvesting dates of the lands; and also identified the change in dynamic agricultural system, such as cropping system changed from triple cropping system to double cropping system, also delaying of seedling stage while the rain season start changed, and others phenomena; however, the mixed pixel issue is quite problematic when using MODIS data.

The results explained that the seasons, it was the most of important factor which affected the change of dynamics agricultural system. The long-term dry season or extreme season by global climate changed caused many agricultural lands become un-planting as well the planting time was postponed. In some areas, even if the irrigation infrastructure exists locally in these areas, if irrigated water is limited, double or triple cropping may not possible in a given year. However, there are many aspects that impact the agricultural system, such as social capital, farmer welfare, irrigated water, and the price of crops.

Characterizing of temporal vegetation dynamics patterns would provide sufficient, significant and useful information of regarding the patterns of land use; consequently it should be possible to consider the actual subtle of inter-annual land use change as well as overall land use.

キーワード: temporal vegetation dynamics, land use, agricultural land, MODIS, Java Island, Indonesia

Keywords: temporal vegetation dynamics, land use, agricultural land, MODIS, Java Island, Indonesia