International Session (Oral) | Symbol H (Human Geosciences) | H-TT Technology & Techniques

[H-TT07_28AM2]GIS

Convener:*Takashi Oguchi(Center for Spatial Information Science, The University of Tokyo), Yuji Murayama(Graduate School of Life and Environmental Sciences), Ryosuke Shibasaki(Center for Spatial Information Science, the University of Tokyo), Shin Yoshikawa(Faculty of Engineering, Osaka Institute of Technology), Chair:Takashi Oguchi(Center for Spatial Information Science, The University of Tokyo)
Mon. Apr 28, 2014 11:00 AM - 12:45 PM 422 (4F)
This session discusses various methods which acquire, store, analyze and visualize spatial data, and presents the outcomes of empirical studies using GIS. The session also deals with applications of digital data and GIS to various fields. All presentations and discussion of this session are made in English.

12:30 PM - 12:45 PM

[HTT07-P01_PG]Spatial analysis of archaeological sites and landforms in Kayseri, central Turkey using multiscale topographic data

3-min talk in an oral session

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Keywords:geoarchaeology, landform classification, digital elevation models, structure from motion

Human habitat and cultural activities had been significantly influenced by natural environments including landforms in the prehistoric periods. Assessment of such relationships between palaeoenvironment and artificial remains is therefore crucial in understanding the historic development. Here we examine the nature-human interactive system in the ancient period of Kayseri region, central Anatolia Highland in Turkey, in terms of spatial analysis of the distribution of landforms and archaeological settlements, targeting mainly the period from B.C. 3000 to A.D.100. We perform geospatial analyses based on several topographic data including topographic maps, satellite-based remote sensing (10 m DEM derived from PRISM sensor images on ALOS), ground-based laser rangefinder measurement with global navigation satellite system (LRF + GNSS) and ground-based structure from motion multi-view stereo photogrammetry (SfM-MVS). The topographic data at different levels of scales provides both regional- and local-scale views of landform conditions, landform classifications, and detailed characteristics of settlements. Certain effects of gradual and sudden changes in palaeoenvironment on human activities are detected, and potential of natural disasters in the study area is also discussed.