Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

HTT033-P01 Room:Convention Hall Time:May 25 16:15-18:45

The application of affine transformation in annaysis of cognitive maps

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Application of Earth scientific information by the Google Earth

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The earth scientific information i.e. the spatial information in the earth scientific field is able to visualize by a GIS application. The Google Earth is a GIS application provided by Google, with versatile and high performance visualization and manipulation capability for geographic information. The Earth scientific information also have a geographic information scheme, so the Google Earth has some potential to support the education and research field of the Earth science.

In this report, estimated the horizontal distribution of the Distortion Index, DI,(Liebau, 1980) and indicated the result to the Google Earth, then the research field was northwest of Okayama city, Okayama prefecture, Japan. As the way to estimate, used Kriging and IDW of the spatial interpolation by the R-Language. In the process, the most careful point was to use the data of the same datum and projection.

The merit of the Google Earth is the 3-dimensional representation of the information, so be able to consider comparing with terrain etc and support to understanding the specification of the data for the Earth scientific research and education field.

Keywords: Earth scientific information, GIS, Google Earth, Kriging, R-Language

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Integration and visualization of some Earth scientific information and DEM

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DGEM, a Digital Geological Elevation Model, was developed using the digital geological map and the JPGIS DEM data with some GIS application and the R-Language. In the model, the information of the geological map was combined with the DEM by their coordinates. The integration of those two digital map was performed by the R-Language, so the model can be used by some useful presentation library of the language, such as the RGL, or by some geographical calculation libraries. Moreover, the DGEM will be used by the spatial statistical libraries of the R-Language to investigate some geological spatial distributed specifications.

Keywords: Digital geological map, DEM, JPGIS, QuantumGIS, R-language

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Past water level of Lake Ogura, Kyoto Prefecture, reconstructed from the form and deposits of a lacustrine delta

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Lake Ogura had served as a flood retarding basin in Southern Kyoto City until 1941. Borehole data (KG-NET, 2010) revealed a coarsening-upward delta succession, indicating that the Uji River flowed directly into the lake before ca. 400 years ago. Two stages of the lake water level were inferred by detailed analysis of the form and deposits of the Uji River delta. The lake level was at T.P. 12.0?13.0 m in elevation according to the altitude of the delta topset deposits. This altitude approximately corresponds to the lake level of 400 years ago (Stage II). The lake level in the earlier period (Stage I) was T.P.13.2?13.5 m in elevation. Along the southern edge of Lake Ogura, cliff lines corresponding to lakeside locations at Stages I and II can be recognized. The extent of the lake at the two stages was estimated using the altitudes of the cliff lines and GIS.

Keywords: lacustrine delta, water level of Lake, Lake Ogura, the Uji River, borehole data