Japan Geoscience Union Meeting 2012
(May 20-25 2012 at Makuhari, Chiba, Japan)
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MGI33-P14 Room:Convention Hall Time:May 22 17:15-18:30

Evaluation of uncertainty using Evidential Support Logic, case study of the research on estimation of uplift rate

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Various uncertainties exist in the data using in the research of geomorphology and geology. When the development process of the geological environment is restored using the data with these uncertainties, the result of the model or simulation inevitably includes uncertainties derived from the uncertainties of data. Especially, in the geological environment model dealing with chronological change of the site (Site Evolution Model) which consists from various kinds of data, the quality assessment/control in each data is important.

In this study, the factors of the uncertainties occured in the process of data acquisition for the estimation of uplift rate, which is one of the data for drawing the topographic evolution, are analyzed by using Evidential Support Logic (ESL). The result of this study is assumed to be used as a tool for extracting the factor of uncertainties in the planning of the investigation, and for controlling the quality of results in the implementatin of the investigation.