

Development and Implementation of the Global Earth Information System (GEIS)

¹IWAO, YUSHIRO, ¹WANG, LIN, ²KAWASOE, KOICHI and ¹SAITO, AKINORI Department of Civil Engineering, Saga University, Japan; ²SG Consultant Co. Ltd., Japan.

Geological inputs for environmental planning can be greatly enhanced by using database management software and modern computer hardware. A new database system named Global Earth Information System (GEIS) is developed to demonstrate engineering geological and environmental applications.

GEIS is defined as information system that can be used to input, store, analyse, manipulate, retrieve and output geologically attributed data so to assist in decision making process for planning and management of geological environment. It includes hardware, software, users, ground and geological data. Its basic concept is aimed to treat all of the data in the same rank on multidimensional space (x, y, z)-time (t) axes. GEIS gives user a power to integrate information, visualise scenarios, create maps, solve complicated problems, produce reasonable ideas and generate clever solutions.

Original data is aimed to treat data in same rank on the multidimensional space. Any other kinds of data, such as boring data, geotechnical data, geological data, hydrological data and time-series data can be supplemented on multidimensional space. The combination of the intentioned data can be displayed as a mutual relation figure or time-series chart. Secondary data are induced from the original data. In addition, some kinds of data combination are also possible for analysing natural disasters, landslide, debris flow, groundwater level, rainfall, slope stability, land subsidence and earthquake ground motion. The GEIS is written in simple visual basic language and runs on Window 95 or higher version program.