Japan Geoscience Union Meeting 2010
(May 23-28 2010 at Makuhari, Chiba, Japan)

MGI018-01 Room: 304 Time: May 23 15:30-15:40

Three dimensional subsurface modeling and the strategy of the standardization

Ryoichi Kouda[1*]

[1]National Institute of Advanced Industria

Geographic information system has achieved to popularize two and three dimensional surface modeling by computer processing through the international standard like OGC and GeoSciML models together with free and open source software(FOSS) like GRASS-GIS and so on. The key factor of the popularization is based on the accessible maps of digital geology and substantial database systems. Three dimensional modeling is considered easily to be realized because of the popularization of finite element simulation models in geoscience, though the three dimensional subsurface modeling is not so easy to be popularized except in the expensive software system of petroleum and mining or independent tools. The reason of the difficulty can be described by the underdevelopment of FOSS framework for three dimensional subsurface modeling, unpopularrized subsurface database of rock and fluid properties like permeability, chemical reaction tables, and underdevelopment of three dimensional subsurface metadata which is essentila to standardization. In order to popularize and to standardize the three dimensional subsurface modeling, a strategy can be proposed as follows; to realize the international interoperability of the three dimensional subsurface metadata, and to serve subsurface database systems adopted to metadata, then to open testbeds that are sample source data of representative subsurface database to encourage to develop FOSS based modeling. A developed software tool in free base will be described.

Keywords: three dimensional subsurface modeling, permeability, database,
three dimensional subsurface metadata, free and open source software, standard