

Handling Heterogenous Data to Link Earth Observation with Socio-Benefit Applications

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With the improvement of observation technologies and earth science studies, a large amount of and various kind of earth observation data including remote sensing data, satellite images as well as model simulation data is now globally being produced by many experts and researchers. The size of earth observation data is quite huge even if it is compared with other data in the current big data era.

In these days, such earth observation data is an indispensable resource in order to enhance science researches in the fields of agriculture, hydrology, meteorology, biodiversity, or oceanography. Besides, it is required to deal with real issues such as climate change, typhoon, flood, drought, tsunami, poor harvest, pest damage, and ecosystem destruction. Accordingly, the earth observation data has the characteristics not only as big data but also as diverse data from the viewpoint of data uses.

When we consider the suitable usages for earth observation data with the premise to applying for such wide varieties, it is important to manage vocabularies related earth observation community. The vocabularies are useful for basic functions such as data definition, description, classification and retrieval as well as for extent functions such as recommending or interest matching application with data and users across the interdisciplinary domains. In this sense, we are currently developing dictionaries, arranged vocabularies and ontologies by gathering the existing glossaries or information given through discussions with earth scientists and experts in GEO (Group on Earth Observation) and DIAS (Data Integration and Analysis System).

Currently, our developed ontology and vocabulary related systems are used in GEOSS which is an international system for earth observation data and DIAS which is a Japanese data integration and analysis system handling big data including not only earth observation data but also social and economic data. Then in our presentation, we introduce our trials and developing systems through such activities.

Keywords: Earth Observation Data, data discovery, ontology, data fusion