

Semantic Web approach for better data integration and data mining at the GFZ Potsdam ISDC

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ABSTRACT

The Semantic Web approach is a promising idea for a better integration of geoscience data, information and knowledge. The Information System and Data Center (ISDC) of the Georesearch Center Potsdam, which manages more than 300 different geosciences data product types, 22 million data products with an added volume of app. 14 Terabytes now is introducing different ideas of the Semantic Web approach. The new ISDC metadata model contains metadata classes, such as project, platform, instrument, product type and data product. The ISDC conceptual model shows the properties and relations of the different metadata classes for one specific product type as well as inter-domain relations between different instances of one class. Ontology Web Language (OWL) documents, derived from the conceptual model and the definition and usage of controlled vocabularies are the basis for Semantic Web applications like e.g. the context based integration of data and information or the enhanced data retrieval using reasoning techniques, which really add value to the data, the information system and of course to the users.

This paper illustrates the ISDC ideas for the usage of the Semantic Web approach and first results related to conceptual models, OWL metadata documents and reasoning applications.