



Stratigraphy.net – a perspective on networking stratigraphic information

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Stratigraphy is a core discipline of the geological sciences. Understanding the order in which units of rock were emplaced is the key to understanding the geological history of an area of interest. A common task for earth scientists is the search for stratigraphic background information on a certain rock unit, e.g. its age and properties and its position within the hierarchy of stratigraphic units.

Since stratigraphy is an interdisciplinary approach to geology, a knowledge base which is capable to link a wide variety of detail data of any of these disciplines is needed to encounter the needs of modern geosciences. For example, detailed information on taxonomy and systematic biology are required for a sufficient understanding of biostratigraphic units. Often enough the scarcity of available data requires a multi-proxy approach to produce robust and detailed information on the stratigraphic position of the unit studied. In addition, our stratigraphic knowledge evolves, new standard curves are published and dates are being revised. This requires that current stratigraphic information is available and that old interpretations can be matched to modern stratigraphies.

Dedicated databases provide a lot of this information, but to combine all this information, database interoperability is the task ahead. Emerging grid technologies and new web technologies offer new perspectives on networking stratigraphic information. Instead of creating one-on-one database interoperability, these emerging technologies offer ways to create standard interfaces and data exchange protocols. Standard protocols and interfaces in geospatial data infrastructures (GSDI) could serve as an example on how stratigraphic information could be networked and how their sources could be made interoperable.

The key GSDI components are map servers, presenting a selection of geospatial objects as a map, and feature servers, which allow to access data and information contained within a geospatial object. It is not important, how these components are built, but that they use the same protocol to request and deliver data, thus making them interoperable. The scope of the available metadata is described by standard metadata formats, such as ISO 19115.

The challenge ahead is, that GSDI only exist for two-dimensional objects on the earth's surface. Similar services, interfaces and protocols for three-dimensional geobjects still need to be developed. Similar to ISO 19115, which provided a blue print for geospatial metadata, exchanging stratigraphic information requires a set of metadata descriptors. The data models of databases such as Stratigraphy.net, WDC-MARE or SedDB could be used as a basis to develop descriptors for objects relevant to geological information systems.

This talk will look at two ways of linking Stratigraphy.Net, World Data Center MARE and the Ocean Drilling Stratigraphic Network to give an example of database interoperability and networking of stratigraphic data: (1) linking the present systems, and (2) using GSDI-like components.