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## **“INSPIRE”, “GBA-Thesaurus” and “DataViewer” at the Geological Survey of Austria – an approach to deal with lithostratigraphic issues**

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The accumulation of geoscientific data in earth sciences has grown enormously over the last decades, since new methods and technologies for investigation and analysis have evolved. The increase of spatial geodata and the growing demand for interoperability due to interdisciplinary usage needs a sophisticated knowledge management. An important step towards facing that challenge is the INSPIRE directive of the European Union (INfrastructure for SPatial InfoRmation in Europe, 2007) with the aim to create a standardized spatial geodata infrastructure for the European Union. Especially geology became a crucial theme in the world of geospatial data within INSPIRE. It can be considered as basis for further geoscientific topics e.g. mineral resources as we can see in Annex II of the directive. The INSPIRE directive was integrated into Austrian law in 2010 (Geodaten Infrastrukturgesetz – GeoDIG). Therefore, we are legally bound to structure and harmonize our public digital spatial geodata according to a given standard. Concerning our management of geoscientific data, this was also an opportunity for us to use the INSPIRE core model of “Geology” (INSPIRE Data Specification on Geology – Technical Guidelines, 2013) as basic structure to rely on. However, as the data world is computerized and the World Wide Web is now the main platform to share data in a transnational way, it is essential to structure and define the concepts of data as well as their relations (controlled vocabulary) and provide them in a machine readable way (e.g. SKOS-RDF). The Thesaurus of the Geological Survey of Austria – the “GBA-Thesaurus” – represents our controlled vocabulary and fulfills this functional requirement. For the domain experts within the Geological Survey, the GBA-Thesaurus provides a source of consistent index terms that spans a comprehensive range of our activities in mapping and research. These concepts can be used to refine or clarify labels and definitions. Moreover, it’s possible to adopt classification models such as proposed in the North American Stratigraphic Code (NACSN, 2005). The GBA-Thesaurus also supports internet search based on a SKOS ontology thesaurus management, as well as on semantic web technologies (Linked Data). Furthermore, it allows to develop applications and modules showing our georeferenced geological data, based on mapping and research, connected with all that information – e.g. a lithostratigraphic unit – which is structured and provided through the GBA-Thesaurus. In combination with the “DataViewer” module (beta version) it is possible to select and filter geological features according to lithostratigraphic units, their related lithology content or chronostratigraphic correlation. This facilitates reprocessing lithostratigraphic issues concerning classification, terminology such as homonyms, synonyms, errata, obsolete labels and concept definition, respectively. The presentation will demonstrate practical examples that point out the huge potential by using these new technologies. After all, it is increasingly important to improve a transnational communication to achieve common overall objectives within the geoscientific community.

### **References**

- European Parliament, 2007: Directive 2007/2/EC of The European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE). Official Journal of the European Union.
- INSPIRE Thematic Working Group Geology, 2013: D2.8.II.4 INSPIRE Data Specification on Geology – Technical Guidelines. European Commission Joint Research Centre.
- NACSN – North American Commission on Stratigraphic Nomenclature, 2005: North American Stratigraphic Code. AAPG Bulletin, 89, 11, 1547-1591.