# The DataViewer module –
a new perspective on spatial data

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What is the DataViewer module?

The DataViewer module is a part of GBA (Geological Survey of Austria) Thesaurus. Established to select and filter geological features.

Those features are harmonized according to the Core Model on Geology (INSPIRE) and coded (assigned) with URIs of Thesaurus concepts. Therefore, every term in the Thesaurus which is already used for harmonizing geologic features is depictable by the DataViewer as well as the linked information referred to the data model.
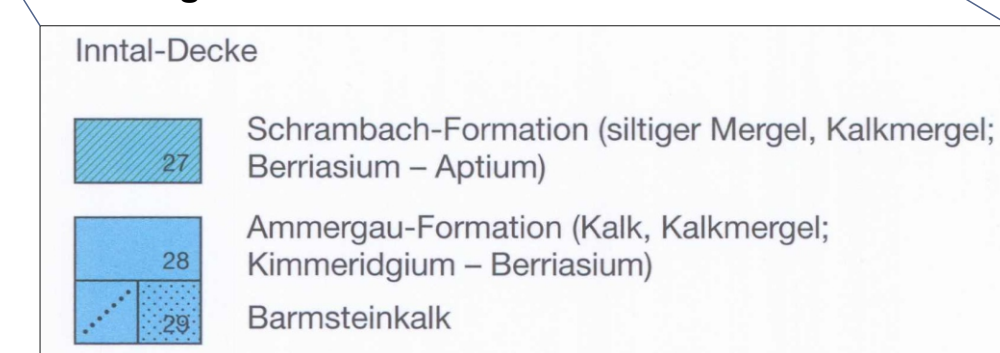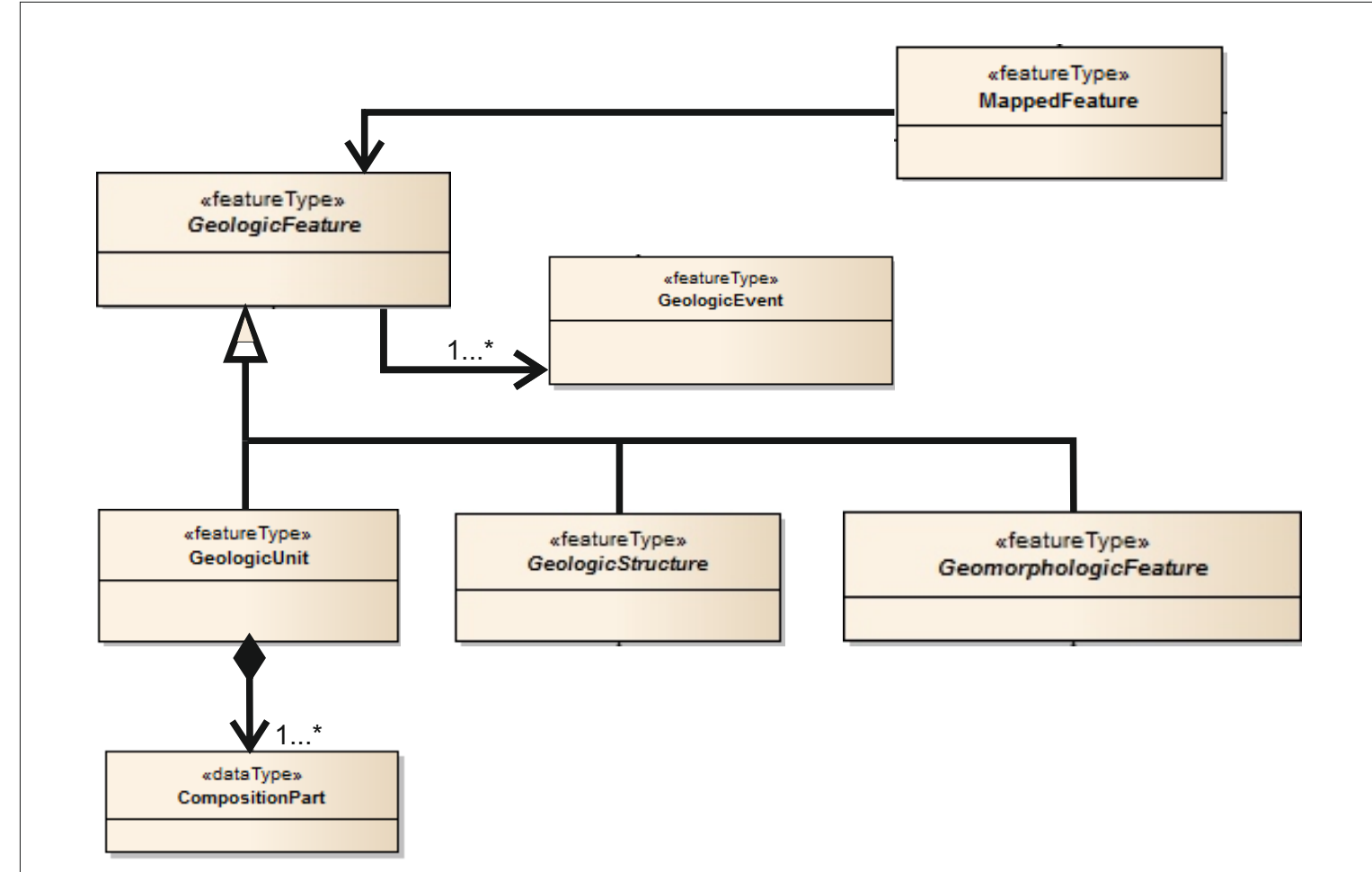
STRUCTURE the data....
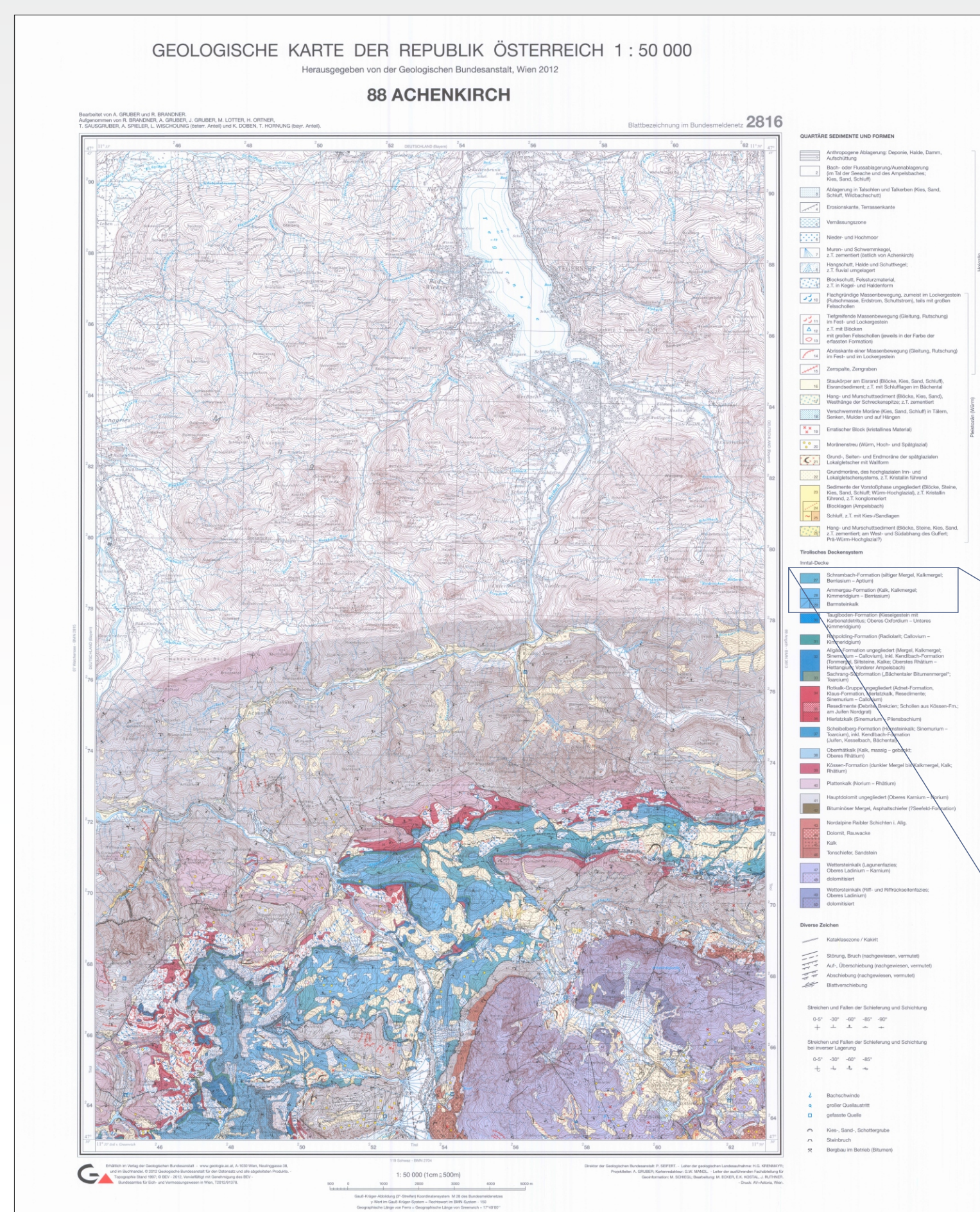
Basic map information

The basic geoscientific information of a geological map is visualized by geometry objects (polygons, lines, points) and a related legend. This basic information now has to be structured in a technically and semantically way to enable a sustainable data management.
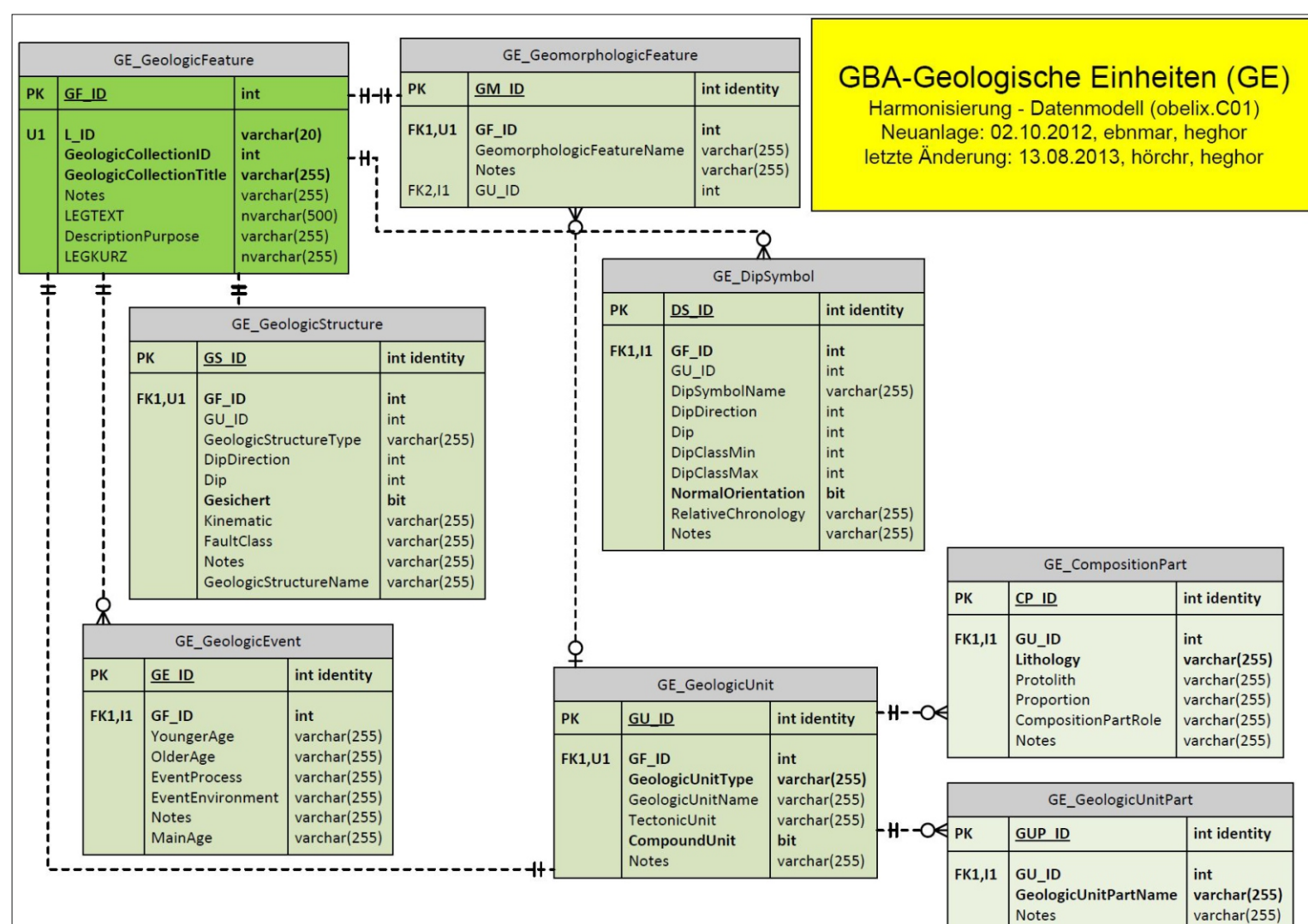

Conceptual datamodel

The INSPIRE Core Datamodel on Geology is used for the exchange and classification of spatial objects from data sets. It is related to the INSPIRE spatial data theme Geology and defined in an application schema.

The datamodel is the precondition to support compatibility and interoperability of data.

Screen shot of the GBA relational database model for geology

Relational database model

The structure of the conceptual model has been adopted and implemented within the database structure of the Geological Survey of Austria.

This GBA internal relational database model is extensible also for further topics or more detailed information.

Controlled vocabulary

To attribute and code the data we use concepts (label and URI) of the GBA-Thesaurus as well as concepts from the provided INSPIRE codelists.

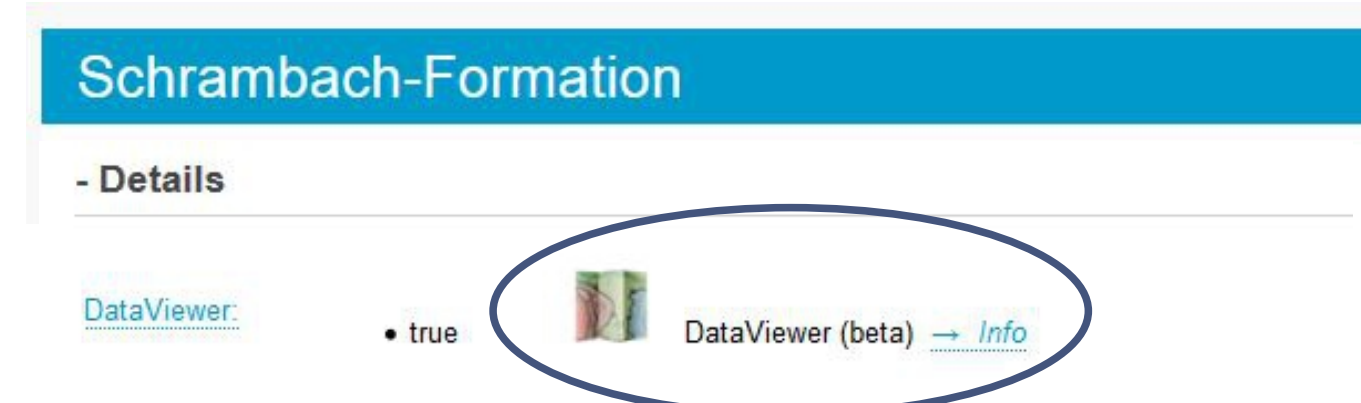**GBA-Thesaurus - see poster presentation No. 129, Vicky Haider et al.**

Final structured information (table view)

EV_MainAge	EV_Younger	EV_Older	EV_EventProcess	EV_EventEnvironment	GU_GeologicUnitTyp
Kreide	Aptium	Berriasium	sedimentary process	marine setting	lithostratigraphic unit
Mesozoikum	Berriasium	Kimmeridgium	sedimentary process	bathyal setting	lithostratigraphic unit

GU_GeologicUnitName	GU_TectonicUnit	LI01_Lithology	LI01_Proportion	LI01_CompositonPartF	LI02_Litholog	LI02_Propor	LI02_Comp
Schrambach-Formation	Inntal-Decke	Mergel	most abundant	part of	Kalkmergel	present	part of
Ammergau-Formation	Inntal-Decke	Kalkstein (Kalk)	most abundant	part of	Kalkmergel	present	part of

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....for DATAVIEWER visualization

Where to find the DataViewer within the GBA-Thesaurus

Structured data now allow building external applications like the DataViewer which evolves from the GBA-Thesaurus (**see poster presentation No. 129, Vicky Haider et al.**).

The purpose of the DataViewer tool is to provide geologists a possibility to explore the database, to understand the advantages of a sophisticated structured database and to move from the display of geological maps towards a view of geological data.

DataViewer screen shot showing the distribution of the Schrambach Formation (map sheet Gk50 88 Achenkirch) and the tectonic pattern of upright and overturned limbs referring to folds in the foot- and hangingwall of the Achental Thrust (see this convention Poster Area D, Nr. 55 - Mandl G., Brandner R. & Gruber A., 2016).
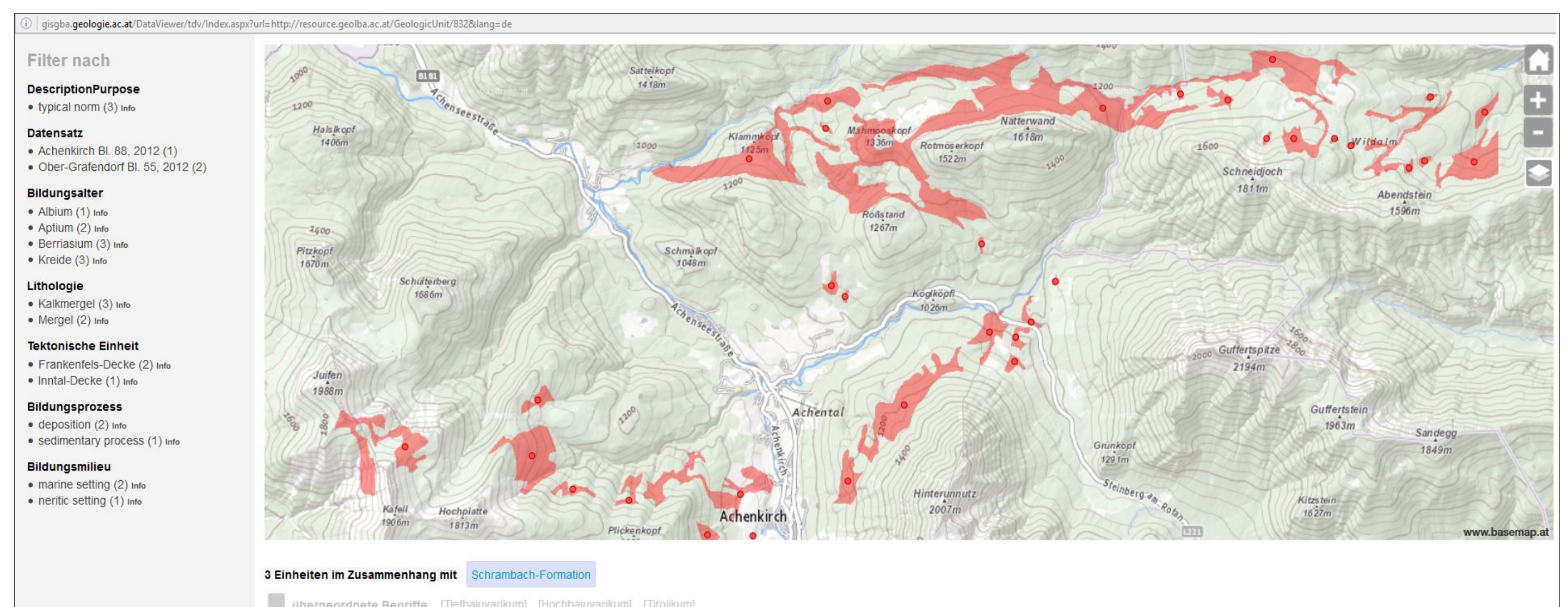
DataViewer screen shot showing the distribution of the Schrambach Formation within map sheet Gk50 88 Achenkirch, with additional layer of geology scale 50.000. The points are ID-points showing the basic legend information.
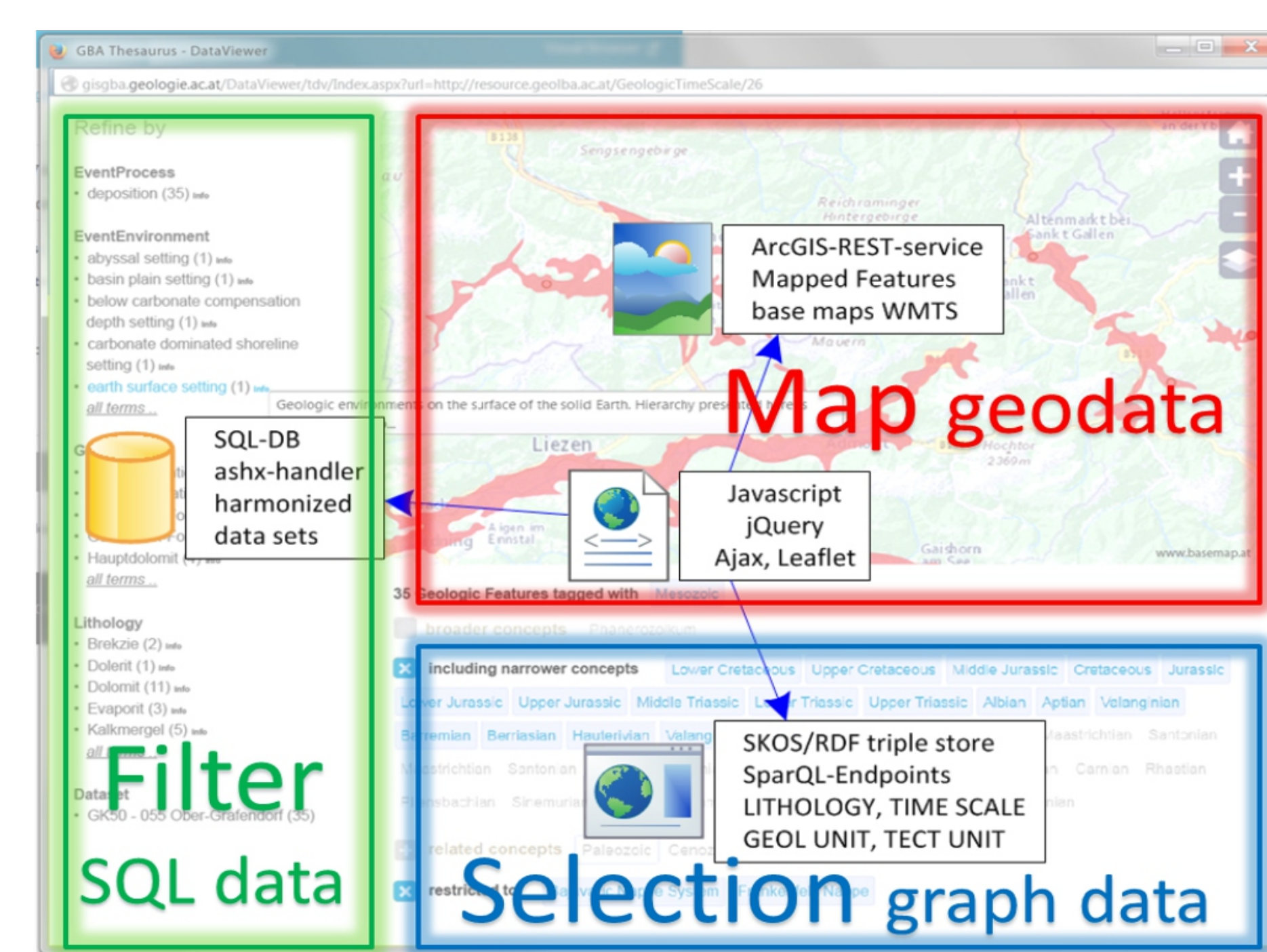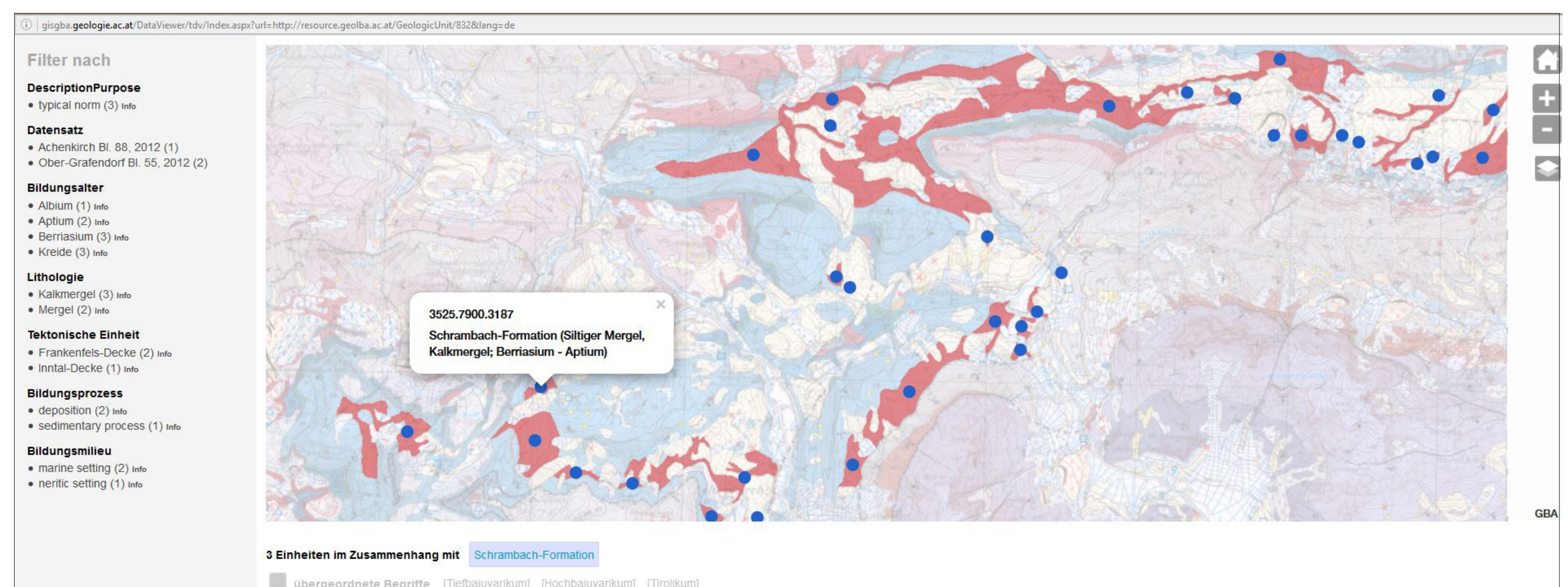
DataViewer - technical structure

Technically, the DataViewer module consists of:

- a map image shown via ArcGIS web services and an attached leaflet to show the geometry

- a concept area with semantic data from Thesaurus queries using SPARQL endpoint

- a filter bar with SQL queries directly from the relational data base using an ashx handler.

Summary: Usability of the DataViewer module

Select and filter
to analyze geological features according to harmonization processes.

Quality controlling
to get a live feedback on content-related impacts due to modelling.

Scientific research
to compile and rework geoscientific information and usage for interpretation and homogenization especially in a cross-bordering way.

Additional references: INSPIRE Thematic Working Group Geology (2013): D2.8.II.4 INSPIRE Data Specification on Geology – Draft Technical Guidelines