

# Data Description

## 1. General Description

The vocabulary on lithotectonic units is part of the GBA Thesaurus developed by the Geological Survey of Austria ([resource.geolba.ac.at](http://resource.geolba.ac.at)) – now part of GeoSphere Austria – and serves the semantic representation of geoscientific knowledge. It is a controlled, bilingual (German/English) vocabulary, which has been continuously developed since 2010. Its foundation is based on terms derived from texts, data, and map publications of the Geological Survey of Austria, and are systematically compiled, structured, and made digitally accessible.

The topic Lithotectonic Units currently includes concept schemes for a formal classification of lithotectonic units, as well as for lithotectonic units used in some maps and publications by GeoSphere Austria. The focus is therefore on the Eastern Alps and surrounding regions. The description and hierarchical organization of lithotectonic units in Austria is subject to ongoing revision and expansion. At present, only hierarchy levels up to the nappe systems are consolidated, and the related content is only partially available in English.

The vocabulary supports the attribution and standardization of geoscientific data and plays a central role in harmonization efforts in the context of the European INSPIRE directive. It also actively contributes to the implementation of the FAIR data principles (Findable, Accessible, Interoperable, Reusable).

The vocabulary is provided as an RDF/XML file. The included terms are modeled as SKOS concepts with persistent URIs and classified based on generic terms. Quality assurance and validation of the vocabulary are carried out in accordance with relevant international standards such as SKOS, RDFS, and DCMI.

## 2. Detail Information

	Details
Vocabulary Name	<a href="#">Lithotectonic Units</a>
Base URI	<a href="http://resource.geolba.ac.at/tectonicunit/">http://resource.geolba.ac.at/tectonicunit/</a>
Number of SKOS Concepts	373
Publication File Created	18.11.2024
Development Period	2010 - 2022
skos:mappingRelation	- <a href="https://www.dbpedia.org/">https://www.dbpedia.org/</a>
SPARQL Endpoint	Dedicated <a href="#">SPARQL API</a> for querying the Lithotectonic Units vocabulary

## 2.1. Content Details

Hierarchy Structure	<ul style="list-style-type: none"><li>○ Thematic Area → Concept Scheme → Top Concept → (Concept)</li><li>○ Polyhierarchical relationships are possible.</li></ul>
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Fig. 1 Knowledge Management Software – Backend Visualization of the Top 3 Hierarchy Levels. Since the defined primary language of the backend is German, the backend visualization is only available in German.

Structured into 3 concept schemes:

- **Informal and Obsolete Units**
  - Terms from tectonic and geological map publications that, for various reasons, do not conform to the formal classification scheme, or historical terms representing regional subdivisions or groupings of different lithotectonic units.
- **Classification of Lithotectonic Units**
  - A formal, hierarchical classification scheme for lithotectonic units. This structure is similar to the formal ranks of lithostratigraphy but is based on structural or deformational characteristics, mutual relationships, origin, or historical development.
- **Lithotectonic Units in Austria**
  - Hierarchically organized named entities of lithotectonic units, with a focus on the Eastern Alpine region and its surrounding areas.

### 3. Maintenance and Further Development

	Details
<b>Responsibility</b>	Editorial team of the GeoSphere Austria Thesaurus: <ul style="list-style-type: none"><li>• Technical coordination: <a href="#">Schiegl M.</a> und <a href="#">Linsberger Ch.</a></li><li>• Content editing: <a href="#">Hörfarter Ch.</a></li><li>• Contact: <a href="#">Thesaurus Feedback</a></li></ul>
<b>Lifecycle Information</b>	At the time of publication, the vocabulary was in draft status with respect to its scientific and content development.
<b>Update Frequency</b>	On an as-needed basis
<b>Planned Changes</b>	Migration of base URIs due to the organizational transition from the Geological Survey of Austria to GeoSphere Austria, extension of the vocabulary for harmonization according to the INSPIRE Directive, structural optimizations, and enhanced documentation of content and relationships.

### 4. Series Information for the GBA Thesaurus

This publication of the GBA Thesaurus SKOS/RDF vocabulary documents an interim status of the content and technical development and serves to secure the current working state during the organizational transition from the Geological Survey of Austria to GeoSphere Austria. The vocabulary is under ongoing revision and may still contain inconsistencies. Future versions will be published under new GeoSphere-compliant URIs; existing URIs will be permanently redirected.

	Details
<b>Title</b>	<a href="#">GBA Thesaurus</a> – Controlled Vocabularies of the Geological Survey of Austria
<b>Thematic Area</b>	Geosciences
<b>Content Basis</b>	Concepts from text, data, and map publications of the Geological Survey of Austria (since 01.01.2023 GeoSphere Austria)
<b>Background</b>	Based on the legal obligation to implement the European INSPIRE Directive, with the aim of creating a common European geodata infrastructure.

<b>Vocabulary Modules in the Series</b>	<p>The GBA Thesaurus vocabulary system is divided into 8 thematic modules (projects), each of which may contain multiple Concept Schemes:</p> <ul style="list-style-type: none"> <li>• Geologic Units</li> <li>• Lithology</li> <li>• Geologic Structures</li> <li>• Geologic Time Scale</li> <li>• Lithotectonic Units</li> <li>• Minerals</li> <li>• Mineral Resources</li> <li>• Bibliographic references</li> </ul>
<b>Purpose of Use</b>	<ul style="list-style-type: none"> <li>- INSPIRE-compliant data provision</li> <li>- Harmonization of geoscientific data</li> <li>- Semantic knowledge representation</li> <li>- Attribution of geological data</li> <li>- Implementation of the FAIR data principles</li> </ul>
<b>Creator</b>	GeoSphere Austria (before 01.01.2023 Geological Survey of Austria)
<b>Resource Language</b>	German/English
<b>Format</b>	RDF/XML
<b>Standard</b>	SKOS, SPARQL, RDF,DCMI
<b>Basic Ontology</b>	<a href="#">SKOS</a> W3C Standard
<b>Modeling</b>	<ul style="list-style-type: none"> <li>- (Poly-)hierarchical structure based on SKOS principles (broader, narrower, related)</li> <li>- Handling of synonyms with skos:altLabel.</li> </ul>
<b>Specific Relations and Attributes</b>	<ul style="list-style-type: none"> <li>- The relation dcterms:references is used to link a GBA Thesaurus concept to a bibliographic resource.</li> <li>- Specific attributes for more detailed concept descriptions and visualization (e.g., FOAF depiction, GBA status).</li> </ul>
<b>Terms of Usage</b>	Attribution 4.0 International ( <a href="#">CC BY 4.0</a> )
<b>Interoperability</b>	<p>Linking to external data sources and standards:</p> <ul style="list-style-type: none"> <li>- <a href="#">INSPIRE</a></li> <li>- <a href="#">CGI-GeoSciML</a></li> <li>- <a href="#">DBpedia</a></li> <li>- <a href="#">BGS Rock classification</a></li> <li>- <a href="#">Mindat.org</a></li> </ul>

<b>Software and Validation</b>	<ul style="list-style-type: none"> <li>- PoolParty Semantic Suite by Semantic Web Company (since 2024 GRAPHWISE)</li> <li>- Version 8.1.8 - Revision 45873</li> </ul>
<b>Character Encoding</b>	UTF-8
<b>Used Prefixes</b> (vann:preferredNamespacePrefix)	<pre> mlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#" xmlns:rdfs="http://www.w3.org/2000/01/rdf-schema#" xmlns:skos="http://www.w3.org/2004/02/skos/core#" xmlns:skosxl="http://www.w3.org/2008/05/skos-xl#" xmlns:owl="http://www.w3.org/2002/07/owl#" xmlns:dc="http://purl.org/dc/elements/1.1/" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:csw="http://semantic-web.at/ontologies/csw.owl#" xmlns:ctag="http://commontag.org/ns#" xmlns:xsd="http://www.w3.org/2001/XMLSchema#" xmlns:foaf="http://xmlns.com/foaf/0.1/" xmlns:cyc="http://sw.cyc.com/concept/" xmlns:cycAnnot="http://sw.cyc.com/CycAnnotations_v1#" xmlns:dbpedia="http://dbpedia.org/resource/"&gt; </pre>
<b>Lifecycle Information</b>	<ul style="list-style-type: none"> <li>• The development of the GBA Thesaurus began in 2010.</li> <li>• The first RDF publication released in 2025.</li> <li>• The vocabulary is continuously maintained and further developed within GeoSphere Austria.</li> </ul>
<b>Contact</b>	<p>Technical Coordination: <a href="#">Schiegl M. und Linsberger Ch.</a>  Content Editing: <a href="#">Hörfarter Ch.</a>  General: <a href="#">Thesaurus Feedback</a></p>
<b>Walkthrough Video</b>	<a href="https://www.youtube.com/playlist?list=PLfshul-4XQW9H-k-Q98eRI5LHfUPGbtc">https://www.youtube.com/playlist?list=PLfshul-4XQW9H-k-Q98eRI5LHfUPGbtc</a>

## 5. List of Abbreviations

abbreviations	term/description	link
BGS	British Geological Survey	<a href="https://www.bgs.ac.uk">https://www.bgs.ac.uk</a>
CGI-GeoSciML	Commission for the Management and Application of Geoscience Information – GeoSciML standard	<a href="https://cgi-iugs.org/project/geosciml/">https://cgi-iugs.org/project/geosciml/</a>
DBPedia	Crowdsourced community effort to extract structured content from Wikipedia	<a href="https://wiki.dbpedia.org/">https://wiki.dbpedia.org/</a>
DCMI	Dublin Core Metadata Initiative	<a href="https://www.dublincore.org/">https://www.dublincore.org/</a>

FOAF	Friend of a Friend	<a href="http://xmlns.com/foaf/spec/">http://xmlns.com/foaf/spec/</a>
GBA	Geologische Bundesanstalt (Austria)	<a href="https://www.geologie.ac.at/">https://www.geologie.ac.at/</a>
INSPIRE	Infrastructure for Spatial Information in the European Community (EU-Richtlinie)	<a href="https://inspire.ec.europa.eu/">https://inspire.ec.europa.eu/</a>
RDF	Resource Description Framework	<a href="https://www.w3.org/RDF/">https://www.w3.org/RDF/</a>
RDFS	RDF Schema	<a href="https://www.w3.org/TR/rdf-schema/">https://www.w3.org/TR/rdf-schema/</a>
SKOS	Simple Knowledge Organization System	<a href="https://www.w3.org/2004/02/skos/">https://www.w3.org/2004/02/skos/</a>
SPARQL	SPARQL Protocol and RDF Query Language	<a href="https://www.w3.org/TR/sparql11-overview/">https://www.w3.org/TR/sparql11-overview/</a>
URI	Uniform Resource Identifier	<a href="https://datatracker.ietf.org/doc/html/rfc3986">https://datatracker.ietf.org/doc/html/rfc3986</a>
UTF-8	Unicode Transformation Format – 8-bit	<a href="https://www.unicode.org/faq/utf_bom.html#UTF-8">https://www.unicode.org/faq/utf_bom.html#UTF-8</a>
W3C	World Wide Web Consortium	<a href="https://www.w3.org/">https://www.w3.org/</a>
XML	Extensible Markup Language	<a href="https://www.w3.org/XML/">https://www.w3.org/XML/</a>

## 6. Supplementary Resources and Further Links (as of July 2025)

- *Map publications, as well as datasets from the Geological Map Series of the Republic of Austria 1:50,000, Provincial Map Series 1:200,000, and the Geological Overview Map of Austria 1:500,000.* – <https://tethys.at/>
- *Explanatory notes to the map series 1:50,000, 1:200,000, monographs, and conference proceedings of the Geological Survey of Austria* – <https://bibliothek.geosphere.at/>
- *World Wide Web Consortium (W3C) Simple Knowledge Organisation System (SKOS)* – <https://www.w3.org/2004/02/skos/>