

# OneGeology Europe

12. Juli 2011

**Chris Schubert**

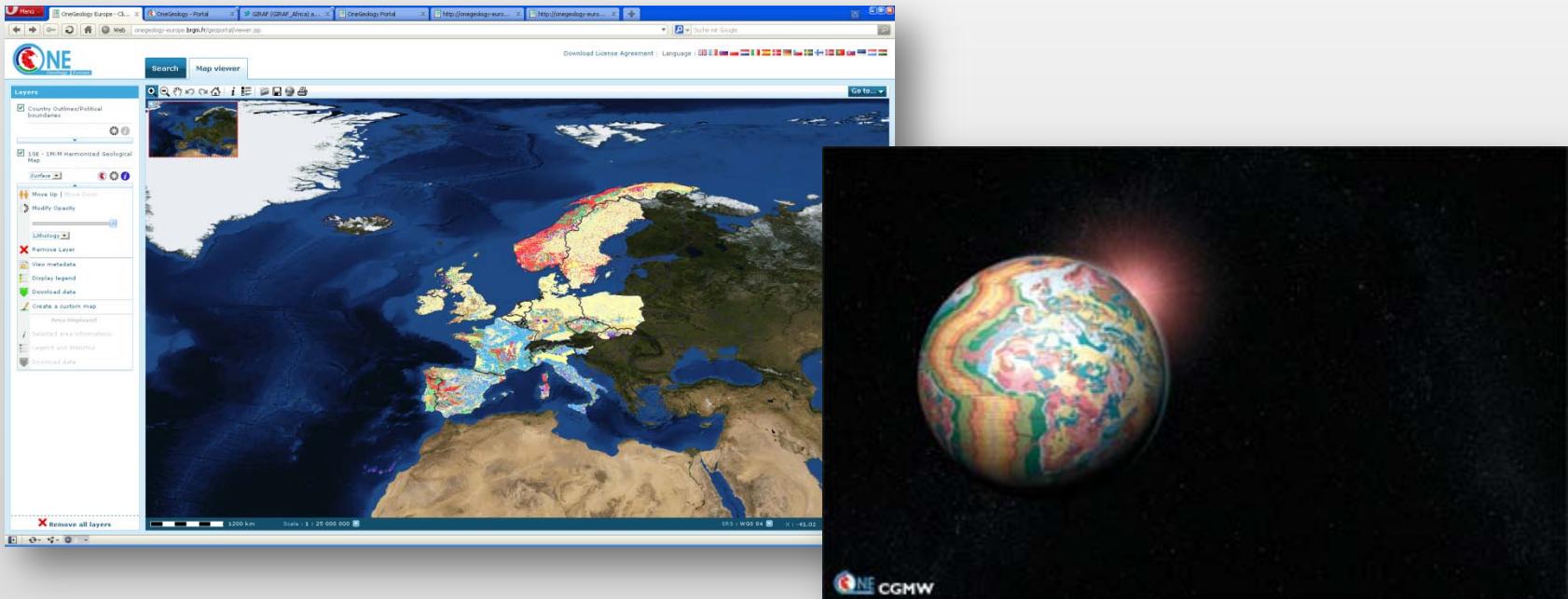
**Geological Information Systems and Maps**

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# OneGeology Europe

- Projektlaufzeit 2008 – 2010, Cofinanzierung im Rahmen von eContentPlus der Europäischen Kommission (EC)
- hervorgegangen aus der globalen Initiative **OneGEOLOGY**
- Zusammenarbeit mit den europäischen geologischen Diensten
- wesentlicher Beitrag (Geologie) für die INSPIRE Richtlinie,

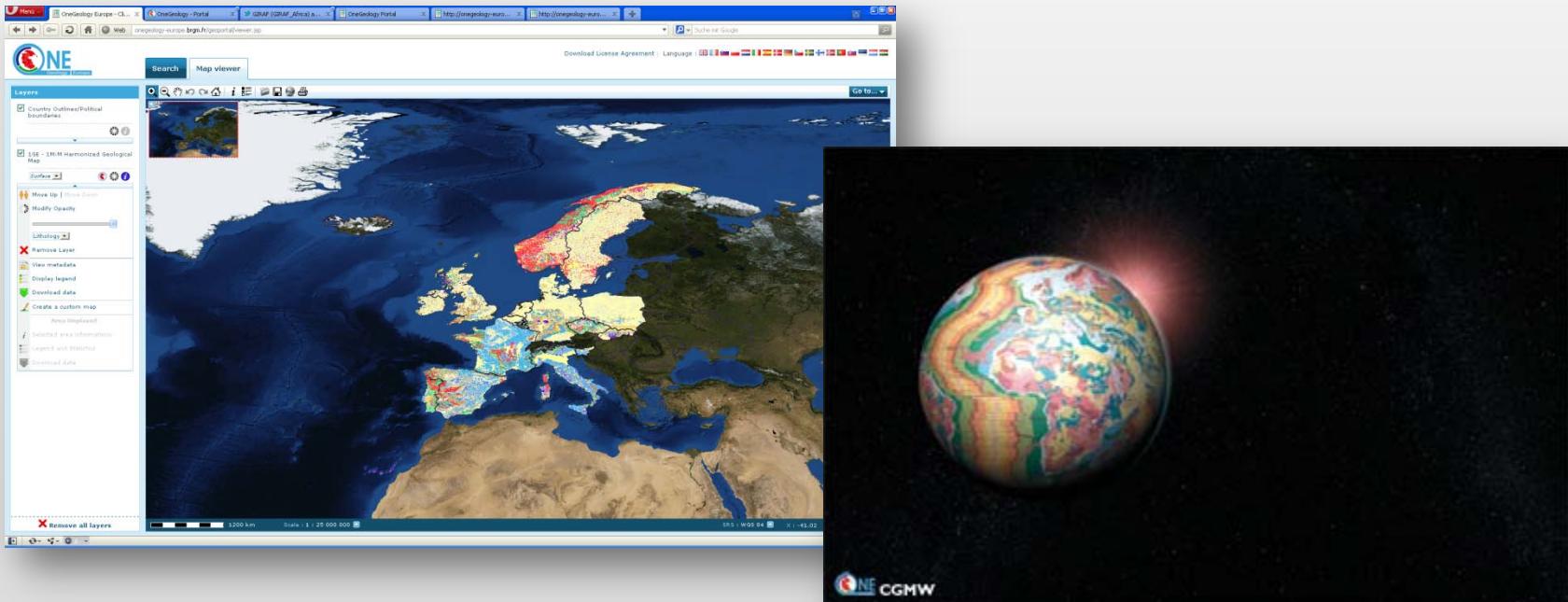


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# OneGeology Europe



- Entwicklung von Systemen (Web Dienste) zum Austausch geologischer Informationen
- Harmonisiert, Multilingual, syntaktisch und semantisch Interoperabel
- BGR leitete das Arbeitspaket -**Generic Specification for Spatial Geological Data in Europe** - für die interoperable Bereitstellung und Harmonisierung geologischer Daten



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# 1GE-Datenspezifikation

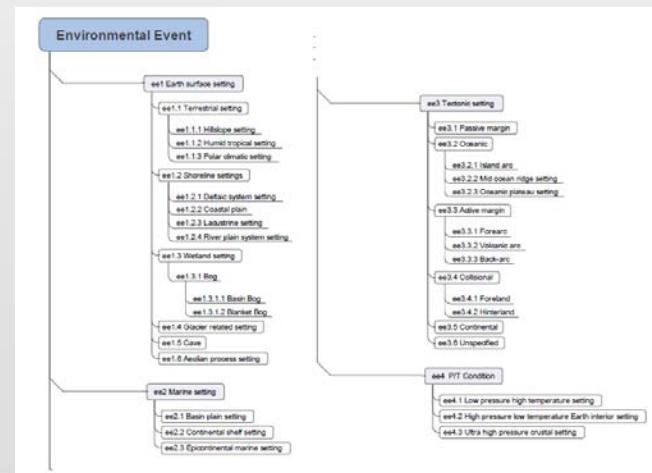


- Erstellen des Vokabular
  - + Einfache Listen, Anforderungen der Partner
  - + Bestehendes CGI Vokabular (Commission for Geoscience Information (IUGS Commission) mit Blick auf die 1GE Anforderungen validieren [Inhalt, Definitionen, Hierarchie, 14 FeatureTypes]
  - + Extraktion [Multihierarchie zu Monohierachische Strukturen (Lithology)]
  - + Rückmeldung an die CGI

Table 5-4: The OneGeology-Europe volcanic rock specification

OneGeology-Europe ID	OneGeology-Europe Term	1G-E Subtype of	Term Definition	Reference	urn:cgi:classifierScheme:CGI:SimpleLithology
v	Volcanic rock	Igneous rock	Aphanitic or porphyritic igneous rock composed of greater than 10 percent groundmass, in which most of the crystals cannot be distinguished with the unaided eye; grain size is typically less than 1mm. Igneous rocks with 'exotic' composition are excluded from this concept.	Gillespie & Styles 1999; LeMaitre et al. 2002	fine_grained_igneous_rock
v1	Fragmental igneous rock	Volcanic rock	Igneous rock in which greater than 75 percent of the rock consists of fragments produced as a result of igneous rock-forming processes. Includes pyroclastic rocks, autobreccia associated with lava flows and intrusive breccias. Excludes deposits reworked by epiclastic processes.	CGI/GeoSciML 200811	fragmental_igneous_rock
v1.1	Tuffite	Fragmental igneous rock	A term used in the pyroclastic classification for rocks consisting of mixtures of pyroclasts and epiclasts.	LeMaitre et al. 2002, p. 152	proposed amendments to GeoSciML
v1.2	Pyroclastic material	Fragmental igneous rock	Fragmental igneous material that consists of more than 75 percent of particles formed by disruption as a direct result of volcanic action.	CGI/GeoSciML 200811	pyroclastic_material
v1.2.1	Ash tuff, lapillistone, and lapilli tuff	Pyroclastic material	Pyroclastic rock in which less than 25 percent of rock by volume are more than 64 mm in longest diameter. Includes tuff, lapilli tuff, and lapillistone.	CGI/GeoSciML 200811	ash_tuff_lapillistone_and_lapilli_tuff
v1.3	Pyroclastic rock	Fragmental igneous rock	Fragmental igneous rock that consists of greater than 75 percent fragments produced as a direct result of eruption or extrusion of magma from within the earth onto its surface. Includes autobreccia associated with lava flows and excludes deposits reworked by epiclastic processes.	CGI/GeoSciML 200811	pyroclastic_rock
v1.3.1	Tuff	Pyroclastic rock	Now defined in the pyroclastic classification as a pyroclastic rock in which ash > 75%. The term is synonymous with ash tuff	Le Maitre et al. 2002, p. 152	proposed amendments to GeoSciML

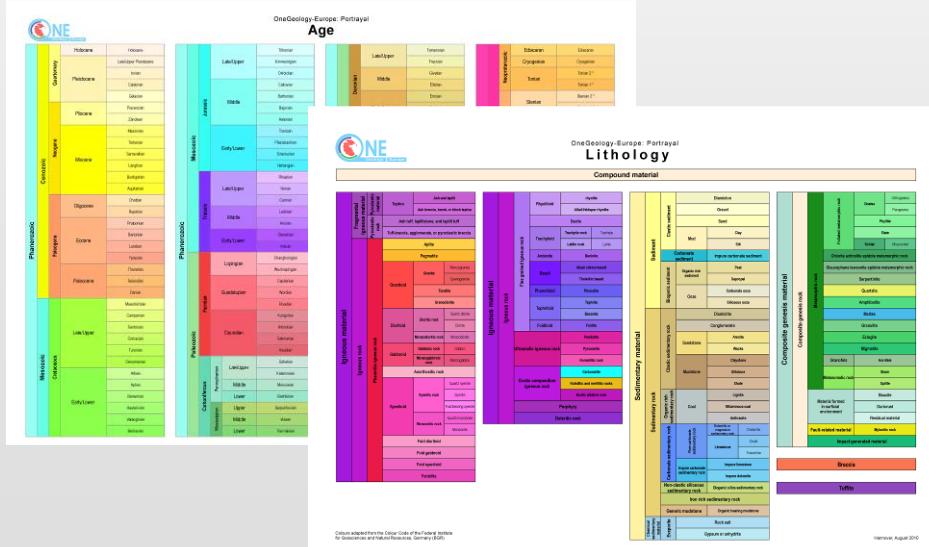
Table 5-16: The OneGeology-Europe structure types (mainly after CGI/GeoSciML.) Sketches modified after ISO 7107			
OneGeology-Europe ID	Term	Definition	In GeoSciML <a href="http://www.geogrid.csiro.au/usage/GeoSciML/GeoSciMLักษะ/vocabulary_200911.htm">http://www.geogrid.csiro.au/usage/GeoSciML/GeoSciMLักษะ/vocabulary_200911.htm</a>
f	Fault	A discrete surface or zone of discrete surfaces separating two blocks which one moves past the other (fault strata geom). Neumann et al. (2005), p. 230	
f1	Strike-slip Fault	The net slip of the fault (slip vector) is parallel to the strike of the fault.	3.1 FaultMovementSense2008 f1.xls
f1.1	left/lateral	Left-lateral separation sense; in plan view, the side opposite the observer appears displaced to the left.	02 FaultMovementType200811.xls
f1.2	right/lateral	Right-lateral separation sense; in plan view, the side opposite the observer appears displaced to the right.	01 FaultMovementType200811.xls



# 1GE-Datenspezifikation



- Methodisches Reglement
  - + Gemeinsames Modell (GeoSciML)
  - + Gemeinsames Vokabular und Definitionen
  - + Einheitliche Darstellung (portrayal rules)
- Erarbeitet durch ein internationales Team unter Federführung der BGR

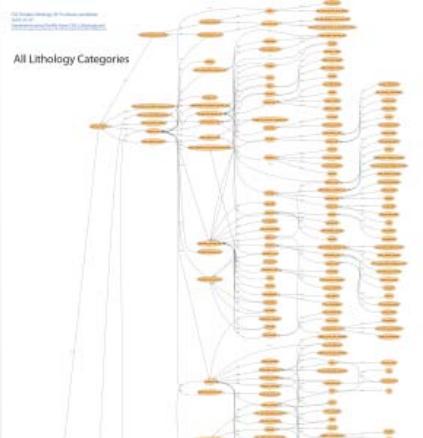


OneGeology-Europe WPS Data Portrayal 1GE\_ContactType and 1GE\_FaultType

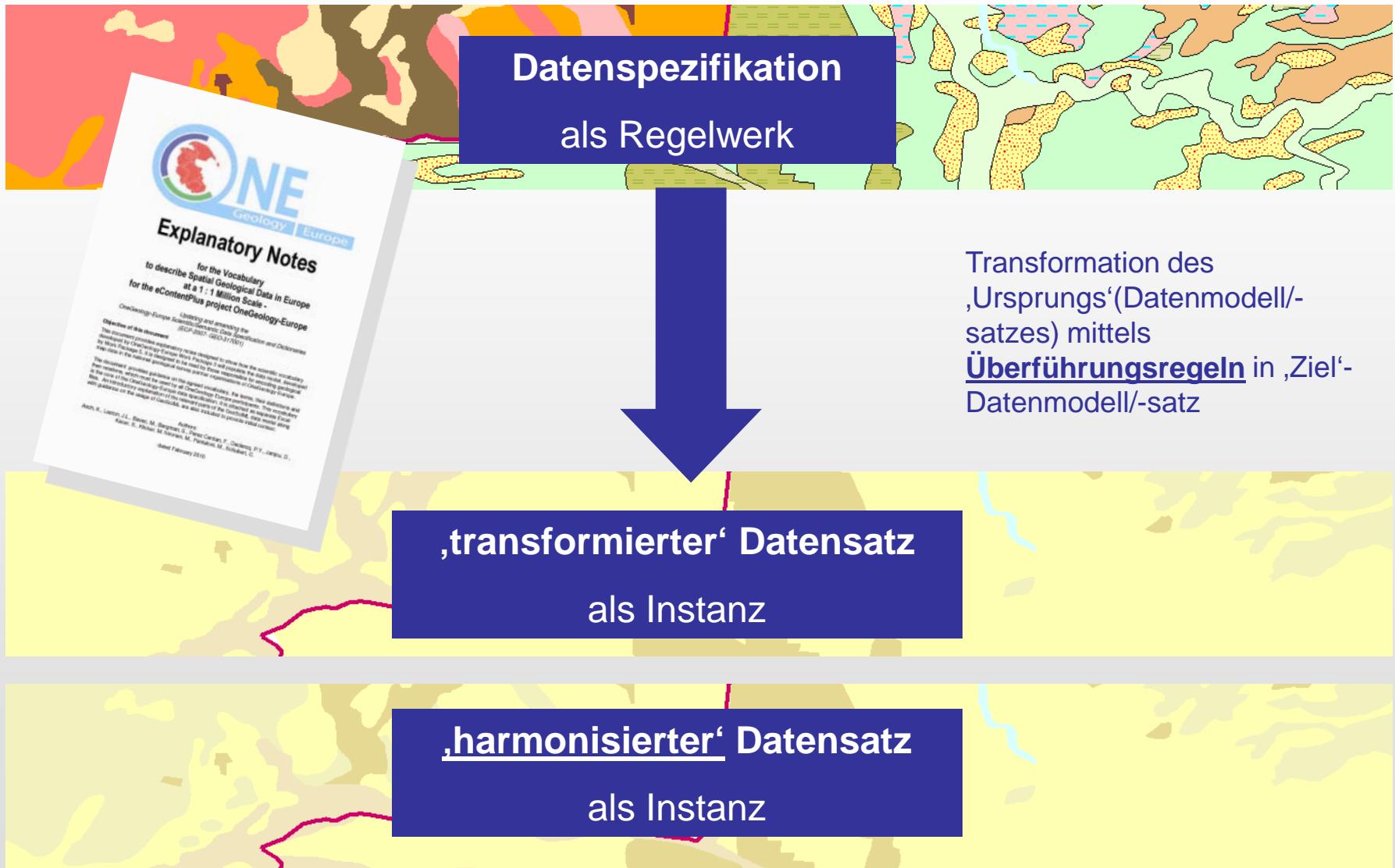
## OneGeology-Europe - Portrayal of Contacts and Structure/Fault Types

### OneGeology-Europe: Contact Types and their Portrayal Rules

OneGeology-EuropeID	OneGeology Term (from GeoSciML)	Draw annotation	Symbol [w = line width in pixel]	R	G	B
ct1	contact		w 1 px	195	195	195
ct1.1	lithogenic contact		w 1 px	195	195	195
ct1.1.1	volcanic subterrane zone boundary	Dashed line on the inside of the structure (for categories: The lines should be drawn so that the ticks are to the right in the drawing direction)	w 2 px	0	0	0
ct1.1.2	impact structure boundary	Ticks on the inside of the structure (for categories: The lines should be drawn so that the ticks are to the right in the drawing direction)	w 2 px	0	0	0
ct1.2	glacial stationary line		w 2 px	27	229	224

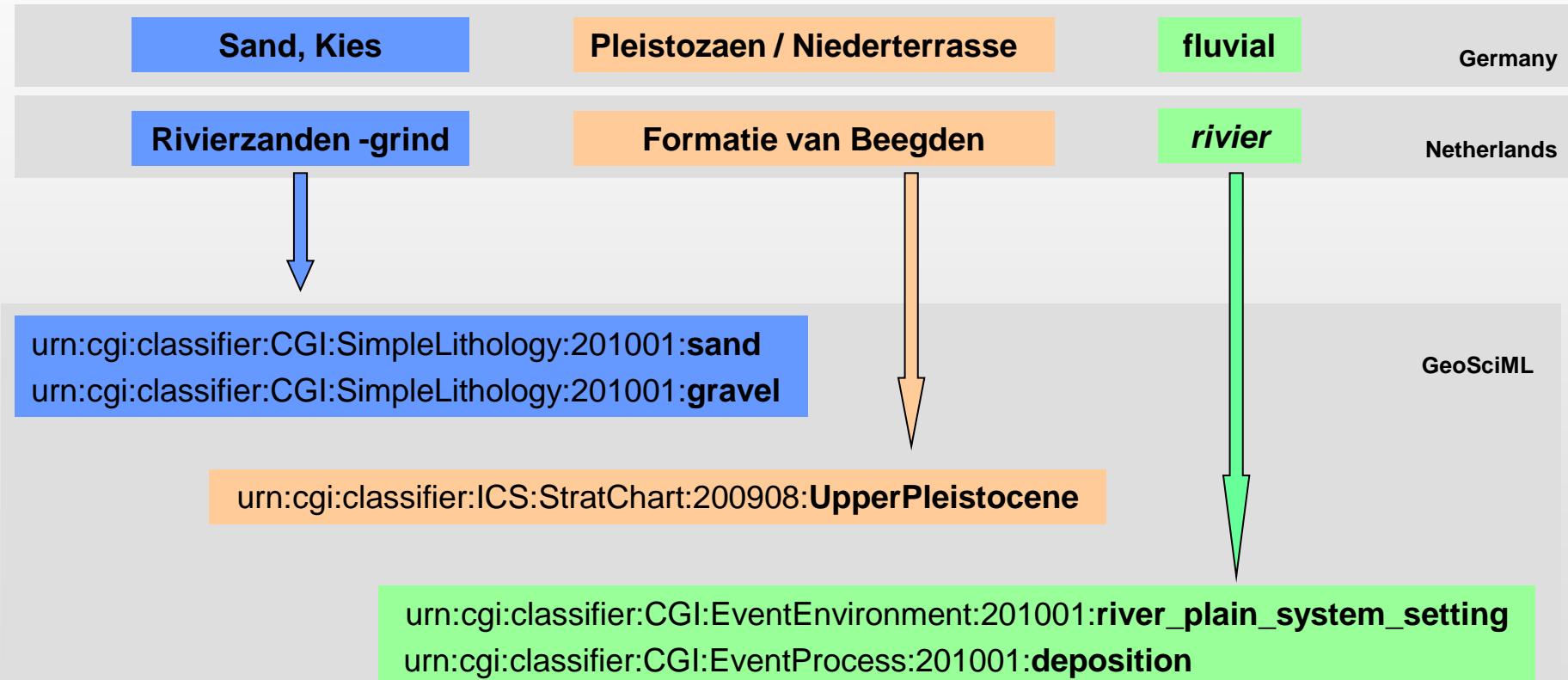


# 1GE Mapping / Harmonisierung



# 1GE- Mapping

## Mapping Prozess für die Lithologie, des Alters und Genese





**1. Ursprungsinformationen aus Geol. Karte Deutschland 1 : 1 Mio (vorhanden) „Schluff, Ton, Feinsand“**

GK1000 GeoSciML\_Vocab - [Map DE : Formular]

Datei Bearbeiten Ansicht Einfügen Format Datensätze Extras Fenster ?

vocabulary  
DE\_Lithology\_201001

DE\_Lithology\_201001

- compound\_material
- igneous\_material
- sedimentary\_material
  - clastic\_sediment
    - diamicton
    - gravel
    - sand
    - mud
    - clay
    - silt
    - organic\_sediment
    - biogenic\_sediment
      - organic\_sediment
      - peat
      - propel
    - carbonate\_ooze
    - siliceous\_ooze
    - clay\_rock
    - dimentary\_rock
    - imentary\_rock
    - clastic\_sedimentary\_rock
    - material
  - chemical\_sediment
  - composite\_geological\_breccia

2. Selektion des passenden Begriffs aus dem 1GE Vocabular:  
hier Lithology:  
„Silt, clay, sand“

Datensatz: 14 von 279 Formularansicht

CHRIS Schubert, BGR, 12/07/2011

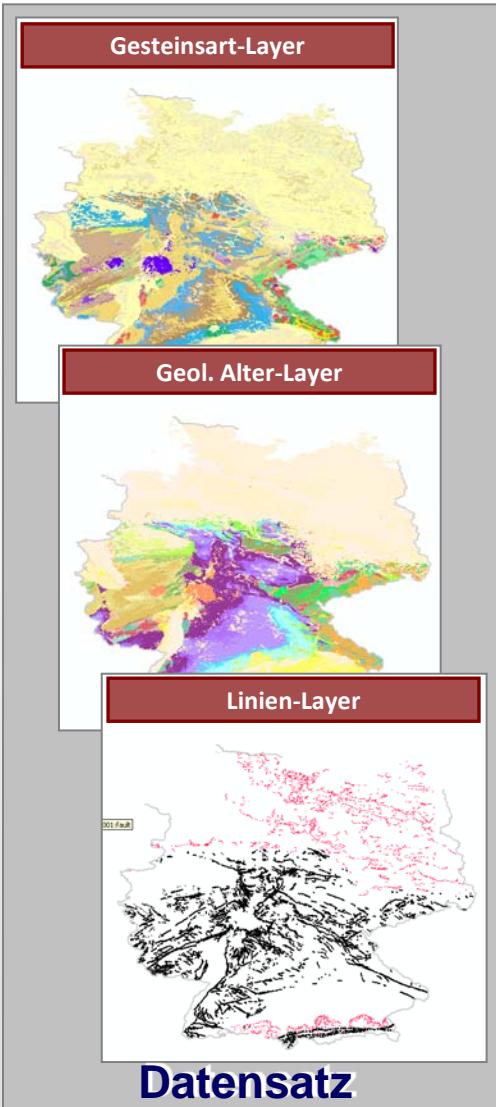
OneGeology-Europe - <http://onegeology-europe.org>

ID: OneGeology: 18  
GEO: 85  
Erläuterung: Quartär, Weichselkaltzeit  
DE\_EXPLANATION: Pleistozän, Saaleum-Weichsellum, Niederterrasse  
DE\_AGE\_ICOS: Pleistozän  
DE\_AGE\_DETAIL: Niederterrasse  
DE\_PET: Sand, Kies  
DE\_GEN: fluviatil

Lithology	urn_litho_1: ;jr:CGI:SimpleLithology:201001:sand	urn_gupr_1: ;unspecified_part_role	Proportion Term
	urn_litho_2: ;jr:CGI:SimpleLithology:201001:gravel	urn_gupr_2: ;unspecified_part_role	urn_prtrm_1: ;m:201001:predominant
	urn_litho_3:	urn_gupr_3:	urn_prtrm_2: ;m:201001:subordinate
	urn_litho_4:	urn_gupr_4:	urn_prtrm_3:
	urn_litho_5:	urn_gupr_5:	urn_prtrm_4:
Stratigraphy	urn_strati_1: ;jer:ICS:StratChart:200908:Ionian	urn_ftobs: ;d:201001:data_from_single	
	urn_strati_2:	Mapped Feature Obs. Method	
	urn_strati_3:	urn_mfomt: ;fed:FeatureObservationMethod:201001:com	
urn_genesis_1:		Geol. Unit type	urn_gutype: ;ssifier:CGI:GeologicUnitType:200811:lithologic_unit
urn_genesis_2:		Geol. Unit Morphology	urn_gumrph:
urn_genesis_3:		Metam. Facies	urn_metfac:
Event Environment	urn_eevenv: ;1:river_plain_system_setting	Metam. Grade	urn_metgrd:
Event Process	urn_evproc: ;01001:mechanical_deposition	Organic Events	urn_orev_1:
Contact Type	urn_cntype:		urn_orev_2:
Fault type			

**Eingabemaske zur Zuordnung der Geologie-Einheiten der GK1000 nach OneGeology-Europe Vokabular**

**3. Eintrag in das passende Pflichtfeldes der OneGeology-Europe Geologie-Beschreibung (hier: Lithology)**



## Konfiguration von Web Services [WMS, WFS]

```
MAIL
NAME "ORACLE-BEIJING-PE"
STATUS "OK"
SUBSYSTEM "FileServer"
SHAREPATH "\FileServer\Oralib\Ora81\BIN\"
SIZE 600 600
IMAGICKCOLOR 255 255 255
BIN

OUTUTTYPE
NAME prop
DRIVER "ODBC/PDF"
FORMAT "PDF"
IMAGICKTYPE "PS"
EXTENSION ".psg"
FORMATOPTION "INTERLACE=ON"

END.

EXTENT 5.9506 46.6791 51.1536 55.6403
UNITS 64

PROJECTION
"inst=epsg:4326"
END #end projection.

FONTSFT "C:\Windows\Fonts\fonte.list"
DESSIZ OFF

WEB
HEADER "f1://www/service/OneKey"
FOOTER "f1://www/service/OneKey"
TITLEFILE "f1://www/service/OneKey"
IMAGICK "f1://www/service/OneKey"
IMAGICKTYPE "PS"
IMAGICKCOLOR "#00000000"
IMAGICK "f1://www/service/OneKey"
LOG "f1://www/service/OneKey"
METADATA
"onekey_extname" "JPG"
"onekey_title" "JPG file"
"onekey_abstract" "The
"onekey_keywords" "The
"onekey_collegetextsource" "The
"onekey_service_unilink" "The
"onekey_fees" "None
"onekey_restriction" "None
"onekey_recurrenceinterval" "None
"onekey_contenttype" "image/jpeg"
```

## **WMS (Web Map Service) – map file Konfiguration**

-> wfs WFS (Web Feature Service) "3.org/2001/XMLSchema-instance"  
xsi:schemaLocation="http://www.opengis.net/wfs http://schemas.opengis.net/wfs/1.1.0/wfs.xsd  
http://www.opengis.net/gml http://schemas.opengis.net/gml/3.2.1/gml.xsd http://www.opengis.net/def/crs/epsg/0/4326  
**getfeature: Angabe der feature types, Rückgabe in gml (gml)**  
http://www.geoserver.com/wfs?request=GetFeature&version=1.1.0&service=WFS&version=1.1.0&typename=gml:Point&featureType=gml:Point&outputFormat=gml&crs=EPSG:4326&filter=(gml:Point[gml:PointID='1'])&maxFeatures=1&startIndex=1&count=1&returnGeometry=true&geometryName=gml:Point

```
http://schemas.opengis.net/om/1.0/0.omxsd http://www.opengis.net/sampling/1.0
http://schemas.opengis.net/sampling/1.0/0.sampling.xsd" xmlns:gml="http://www.opengis.net/gml"
xmlns:wfs="http://www.opengis.net/wfs" xmlns:gmls="urn:cgi:xmllns:CGI:GeoSciML:2.0"
xmlns:gmls21="urn:cgi:xmllns:CGI:GeoSciML:2.1" xmlns:sae="http://www.opengis.net/sampling/1.0"
xmlns:oms="http://www.opengis.net/om/1.0/oms" cgu="urn:cgi:xmllns:CGI:Utilities:1.0"
xmlns:xlink="http://www.w3.org/1999/xlink">
```

The diagram illustrates the XML structure of a geological feature. A yellow box highlights the entire XML code. A red circle specifically highlights the name element under the gml:featureMember node. An arrow points from the word 'Attribut' to the highlighted 'name' element.

```
<gml:featureMember>
  <gml:MappedFeature gml:id="8">
    <gml:observationMethod>
      + <gml:CGI_TermValue>
    </gml:observationMethod>
    + <gml:positionalAccuracy>
    <gml:samplingFrame xlink:href="urn:cgi:feature:ce000000000000000000000000000000">
    <gml:specification>
      - <gml:GeologicUnit gml:id="8">
        <gml:name>Pleistocene</gml:name>
        <gml:geologicUnitType>
          <xlink:href="urn:cgi:classifier:CGI:GeologicUnitType:200811:lithologic_unit"></xlink:href>
        </gml:geologicUnitType>
      + <gml:observationMethod>
      + <gml:purpose>typicalNorm</gml:purpose>
      + <gml:preferredAge>
      - <gml:composition>
        - <gml:CompositionPart>
```

### Attribut „Pleistocene“

Attribut „sand“

/www.cgi-logicUnitPartRole:20081:unspecified\_part\_role</gsml:role>

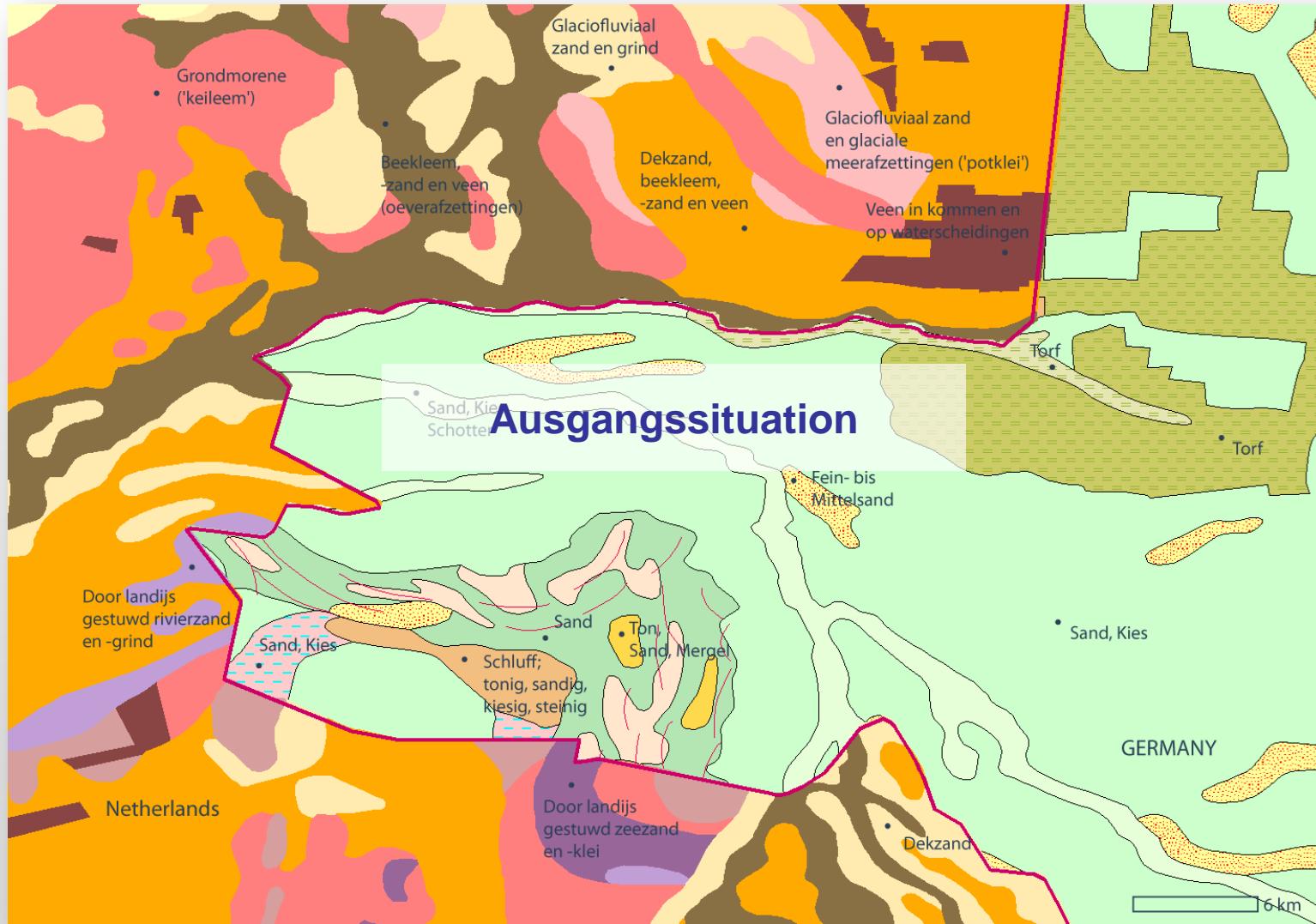
```
<gsml:value codeSpace="http://www.cgi-  
iugs.org/uri">urn:cgi:classifier:CGI:ProportionTerm:201001:predominant</gsml:value>  
</gsml:CGI_TermValue>  
<gsml:proportion>  
  <gsml:CompositionPart>  
    <il:composition>  
      <il:composition>  
        <il:CompositionPart>  
          <il:GroupingPart>
```

### Attribut „gravel“

```
urn:cgi-classifier:CGI:SimpleLithology:01001:gravel" />
```

# 1GE - Harmonisierungsprozess

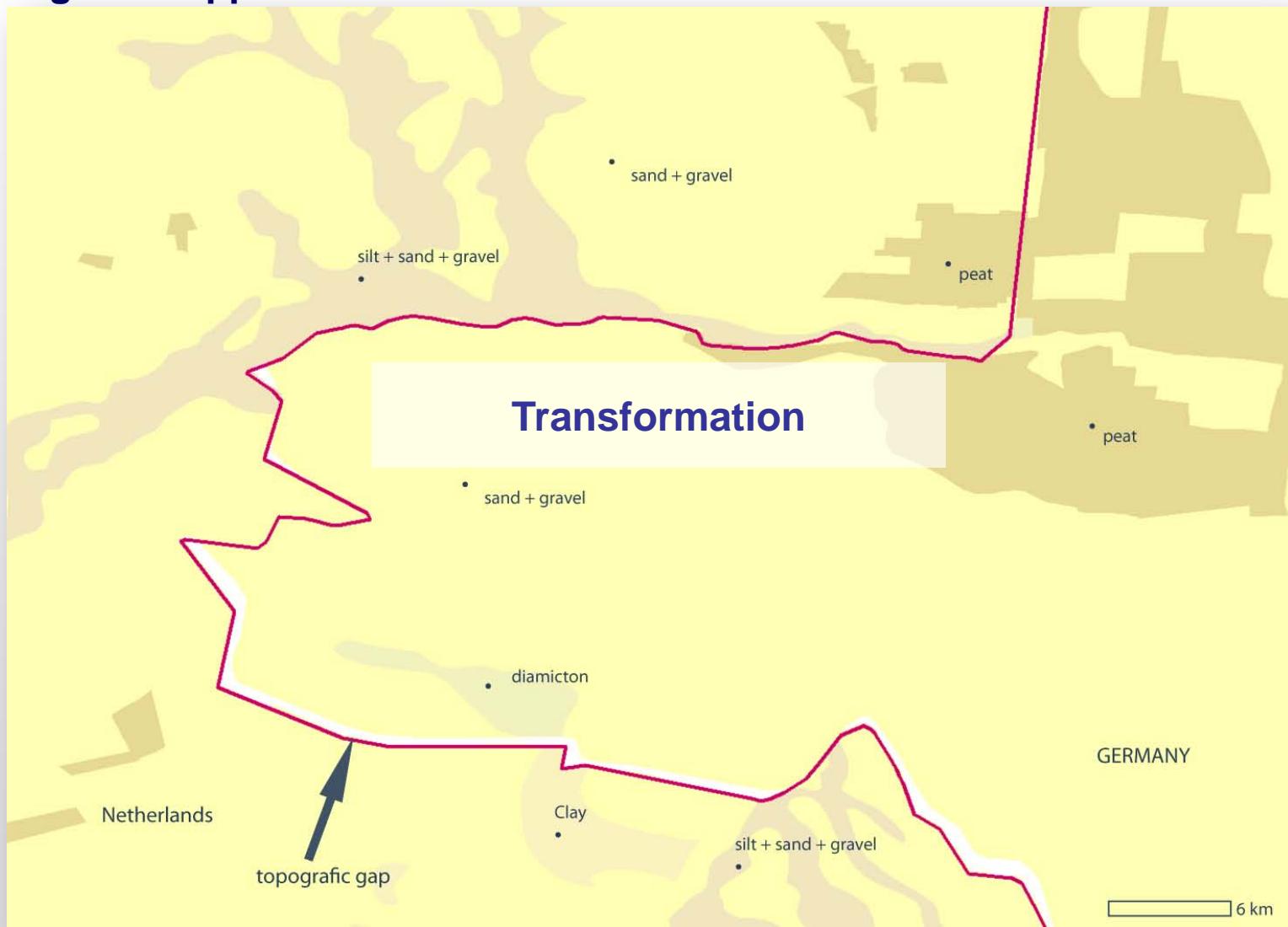
Region: Meppen/Ems



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# 1GE - Harmonisierungsprozess

Region: Meppen/Ems



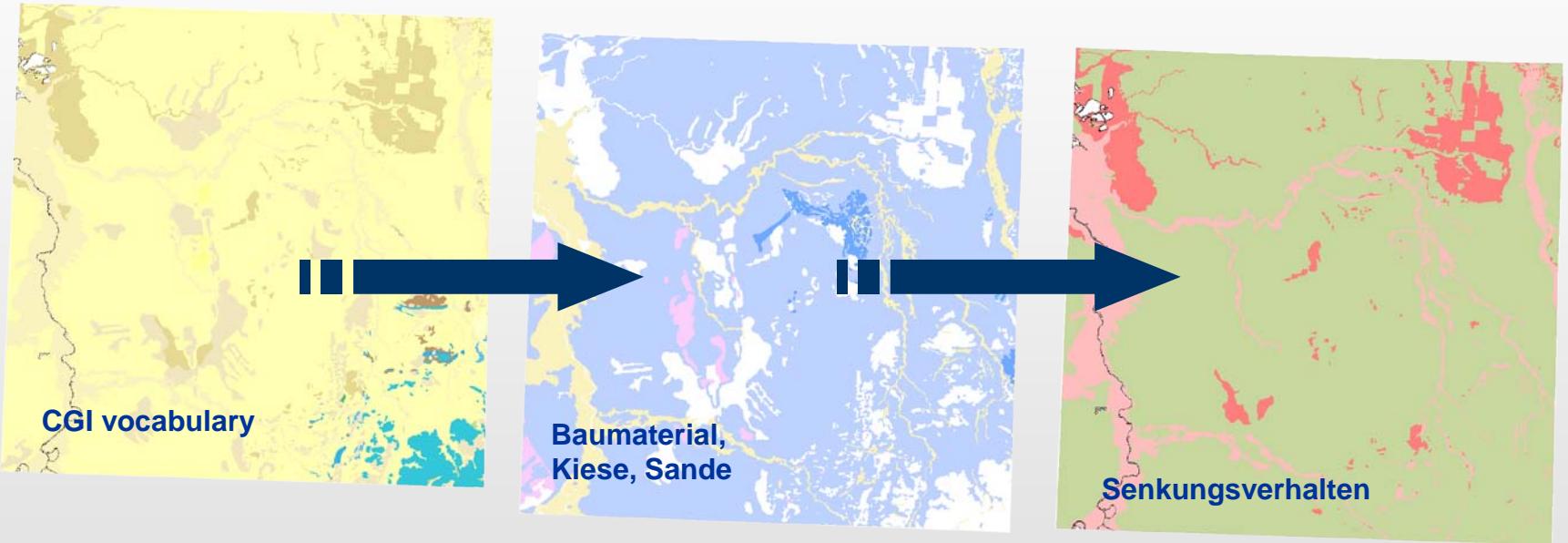
# 1GE - Harmonisierungsprozess

Region: Meppen/Ems



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# 1GE - UseCases



Lingen/Ems 1:200.000; Germany/Netherlands

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<http://www.onegeology.org/>  
<http://www.onegeology-europe.org/>  
<http://onegeology-europe.brgm.fr/geoportal/viewer.jsp>