ANNEX A – REQUIREMENTS IN TERMS OF DATA FORMATS, DATA DELIVERY AND FUNCTIONALITIES.

1. Spatial data

Table 1: data formats and delivery methods chosen by the various GeoERA projects to submit spatial data to EGDI. UD: under discussion; i.e., projects are still discussing whether they will use that format, delivery method, projection and/or vocabulary.

*HIKE will produce 3D data, but these are not to be shown in EGDI webGIS portal. The 3D data (or the contact information from where to get them) should just be accessible through the 2D fault geometries for downloading (e.g. as zip file).

**3DGEO-EU will use HIKE's vocabulary, which might be extended with 3DGEO-EU specific terms in a later stage of the project.

R	Requirements		Groundw	ater			Raw	materials				Geo-ene	rgy		
Product typ	es, formats and delivery methods	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	НІКЕ	3DGEO-EU	MUSE	HotLime	GARAH
	Attributes in separate Excel files	х						x							
	Shapefiles	X	X	X	X	UD		x	x	x		X	X	UD	X
	GeoPackages			UD	X					X	Х		X	UD	ļ
	NetCDF			X											Ļ
	WMS			X	X	X	X	X		X				UD	ļ
	WFS				X	x	X	x	x		Х			UD	ļ
	WCS				X		X								ļ
	JSON				UD										L
	Raster graphics			X	Х		UD			x		UD			ļ
	2.5D ESRI Grids (ASCII)			x	x		UD			x		x			Х
	Georeferenced images and ZIP files									x	х				
Data formats	XYZ datasets in Access format			x											
	XYZ datasets in Excel format			x											
	3D Shapefile				UD					x					
	3D voxet models									X		x		UD	UD
	3D - OBJ format				X										L
	2.5D & 3D Gocad ASCII (Tsurf, PLine, VSet, Solid, Voxet, SGrid)										Х*	x		x	UD
	CPS3 ASCII											Х			UD
	VTK ASCII											UD			UD
	3D volumes in DXF format													UD	
	EPSG: 3034	х	Х	X		Х	Х		X	X	X		Х	Х	Х
Projection	EPSG: 3035	X		X						X		X			
-	EPSG: 4326			х	x			х							

R	Requirements		Groundw	ater			Raw	materials				Geo-ene	rgy		
Product typ	es, formats and delivery methods	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	НІКЕ	3DGEO-EU	MUSE	HotLime	GARAH
	EPSG:3857				x										
	EPGS: 5659				x										
	EPSG: 23031											x			
Delivery method (data)	Direct upload into EGDI database	x	x	x	x	x	UD	x		х	х	x	x	x	х
	direct access via web services			x	x	x	х	x	x	UD	UD				UD
Delivery method	Direct editing in MiCKA metadatabase	x	x	x	x		UD	x	x	х	UD	x	x	x	х
(metadata)	harvesting from CSW				x	x	UD				UD				
Pro	ject vocabulary					UD	х	x		x	x	X**	UD	x	UD

2. Documents and other non-spatial data

Table 2: data formats and delivery methods chosen by the various GeoERA projects to submit documents and non-spatial data to EGDI.

*HIKE will provide access to the data in those formats via HIKE Knowledge SharePoint (see HIKE D5.1b for more information).

Re	quirements		Groundw	ater			Raw	materials				Geo-ei	nergy		
Product t deliv	ypes, formats and ery methods	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
	PDF	x	X	X	X	x	X	Х	x	X	Х	X	X	X	Х
	Microsoft Word files										Х*				
	РРТ										Х*				
	JPG, TIF, PNG			X	X	x				X	Х*				
	Excel files (*.xlsx; *.xlsm; *.xls, etc.)		x			x					Х*				
Data	ТХТ				X	x					Х*				
formats	CSV										Х*				
	XML										Х*				
	ODF										Х*				
	Zipped files										Х*				
	3D PDFs							UD							
	DOIs							X		X	Х		X		
	URL links									X	Х				
	URI					x									

Requirements		Groundw	ater			Raw	materials				Geo-e	nergy		
Product types, formats and delivery methods	RESOURCE	VoGERA	HOVER	ТАСТІС	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
Documents linked to spatial data or to a location	х	x	x	x	x	x	x		x	х	x	х	х	UD
Direct upload into EGDI repository	х	x	x	x	x	x	x	x	x	UD	x	x	х	x

3. Functionalities

Table 3: Functionalities required by each project. UD: Under discussion; i.e., projects are still discussing whether they need those functionalities.

Re	quirements		Groundw	ater			Raw ma	aterials				Geo-ene	rgy		
Fu	inctionality	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
	Search based on			x	x	x	x	x	x				x		
	location			~	^	X	^	~	~				Λ		
	Search Documents		X	X	X	Х	Х	X	X	X	X	X		X	
	Searching for maps	Х		X											
	Interface to upload														
	and thematize	x	x	x	x			x	x	x	x		х	x	x
	Shapefiles and														
	GeoPackages														
	Interface to														
	knowledge base										x				
	documents														
	Wob page with all														
	services	x	X	X	X	х	Х	X	x	x	x		Х		X
	Overview panel	x	x	x	x	х	х	x	x			X			x
2D, 2.5D,	Legend with tree														
documents	view/hierarchical	x	x	x	x							x	Х		
	on/off switching														
	Export map	X		Х	X	Х	Х	x	х	x		X	Х		X
	Download data														
	with or without	X	х	X	X	Х	Х	x	x	X	X	X	Х	Х	X
	access control														
	Identify + follow	x		x	x	х	x	x	x	x	x		х	x	x
	link														
	Specific projection	X								X					
	Handling Time			x						x					
	component														
	Uispiay a graph														
	with time series				X										
	Multiscaling			v	v					v v	v	v	v		
	Transparency			N V							^	^	^ 		
	mansparency			_ ∧	^					∧			^		

Requirements		Groundw	ater			Raw m	aterials				Geo-ene	ergy		
Functionality	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
Create virtual logs from table data or 2.5D layers	x													
Create virtual cross section 2.5D layers from a user defined geometry	x										x			
Creation of statistical diagram, rose diagrams, histograms			x					x		x				
Metadata compatible with other EU inventories				UD	x	x								
Create simple queries and filters from the webGIS interface	x		x		x	x	x	x	x	x		х	x	x
An upload system for the static data						х			x	x		х		
From getfeatureinfo creation of an automatic report querying a selection of layers.			x		x	x	x	x				x	x	
Visualization of reports in HTML						x								
Measurement tool			ļ			X				<u> </u>			<u> </u>	
Interactive GIS maps with online calculator						x								

Requirements		Groundw	ater			Raw ma	aterials				Geo-ene	ergy		
Functionality	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
A common legend should be applied to all datasets based on attributes given in the fault attribute tables. The default colouring of subsurface faults will correspond to the colour coding of the International Chronostratigraphic Chart v2018/08.										x				
Functionality to show statistical data of the yearbook in EGDI								х						
Visualizing the data according to UNFC classification								UD						
Annotation and explanatory notes referring to web data layers shown via pop-up windows.												х		
Linkage to Semantics/Project Vocabulary (link from the map to the project vocabulary and vice versa). Customizing classification and legend to certain purpose. For example, show proven faults in solid lines, assumed faults in					X	X	x		x	x	x	X	x	UD
dashed lines and/or a certain depth as line thickness.														

Re	equirements		Groundw	ater			Raw ma	aterials				Geo-ene	ergy		
F	unctionality	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
	Predefined views with predefined classifications (time slices)										x				
	Handling and displaying 3D models			x	x			UD		x		x		x	x
	Transparency of 3D models			x						x		x			
	Virtual borehole			X				UD				X	Х	Х	
	Virtual cross section				x			UD				x		x	
	Virtual (horizontal) slice											x		x	
3D	In 3D viewer: "getfeatureinfo" tool that displays information on each layer when the users click on them.													x	
	Handling and displaying uncertainty Visualization of data with scalar uncertainty, using 2D colour maps.									x		x x			
	Visualization of different representations of an object (e.g., a surface) showing different realizations; for example, the mean surface and additional 90% and 95% confidence envelopes as transparent surfaces.											X			
	Storing data with uncertainty in 3D database											x			

Requirements		Groundw	ater			Raw m	aterials				Geo-ene	ergy		
Functionality	RESOURCE	VoGERA	HOVER	TACTIC	EuroLithos	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
Compass											X			
Colour / Alpha mapping functions to render attributes											x			
Glyphs for data representation											x			
Visualization of different models at the same time											x			
Possibility to display objects											x			
Grid lines											X			
Exploded views of detailed part of 3D model											x		x	
Show camera direction											x			

4. Functionalities too complex to be created within GeoERA timeframe

Table 4: Functionalities that will not be available at EGDI.

	Requirements		Groun	dwater			Raw	materials				Geo-energ	у		
	Functionality	RESOURCE	VoGERA	HOVER	TACTIC	EURILITHOS	FRAME	MINDeSEA	Mintell4EU	GeoConnect3d	HIKE	3DGEO-EU	MUSE	HotLime	GARAH
	API to extend											x			
	the viewer														
	Fly through											v			
	(recordable)											^			
	Steering camera														
20	via geocoded											X			
50	locations														
	SQL query														
	directly to the									x					
	database														
	Predefined											v			
	viewpoints											~			