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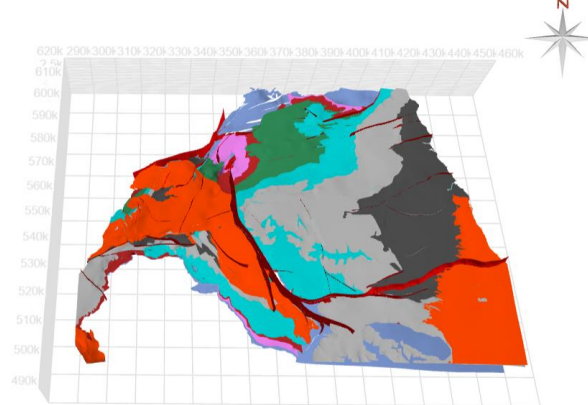
Geo3D Geological Model Viewer – expanding its reach



British
Geological
Survey



Polish Geological Institute –
National Research Institute



Northumberland and Solway
Basin 1:250 000 geological model

Model info

LAYERS

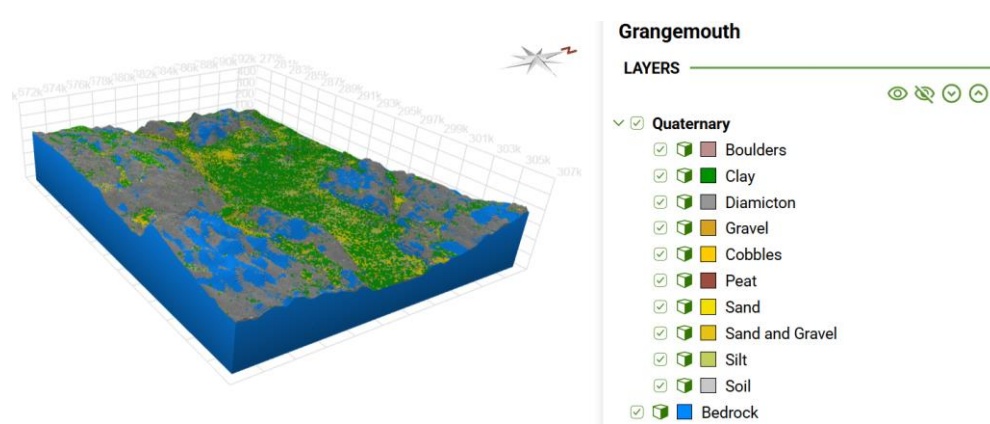
- ☒ 01 Base Permo-Trias
- ☒ 02 Base Coal Measures
- ☒ 03 Base Stainmore Group
- ☒ 04 Base Alston Group
- ☒ 05 Base Upper Border Group
- ☒ 06 Base Middle Border Group
- ☒ 07 Base Lower Border Group
- ☒ 08 Top Caledonian Basement
- ☒ Faults

Background to Geo3D Model Viewer

- Visualisation of 3D geological models is limited only by imagination, technology, resources
- Many (!!) different packages and mechanisms have appeared over the last 20 years of model building. We all have different ways of doing similar things
- Providing a single point of contact for geological models has been an aspiration – e.g. One Geology, EGD
- PGI have spent almost 10 years perfecting a model viewer which breaks down many of the barriers

Background to Geo3D Model Viewer

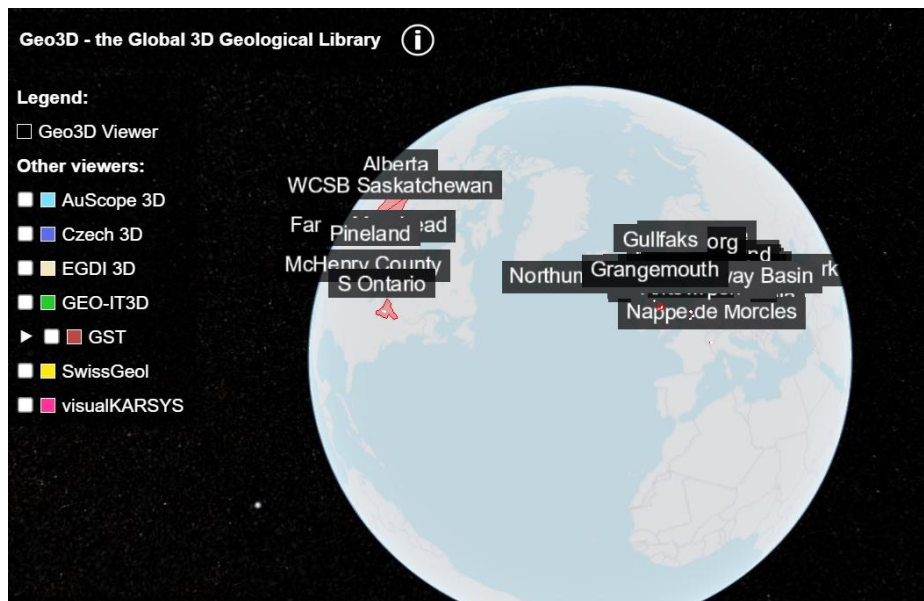
- Originally developed at University of Silesia in 2007. Success was limited because of number/content of geological models. Faded away after 5 years
- Revived with new spirit at Polish Geological Institute in 2015
- Focused on simple user interface and intuitive features
- Since then both features and content have improved year by year
- With new technology of WebGL obtained maximum flexibility and power of web visualisation
- Streaming data from EGDI 3D database
- Functionality intentionally designed for touchscreens of mobile devices.
- Using feedback from many stakeholders the user interface has been evolving significantly



Progress

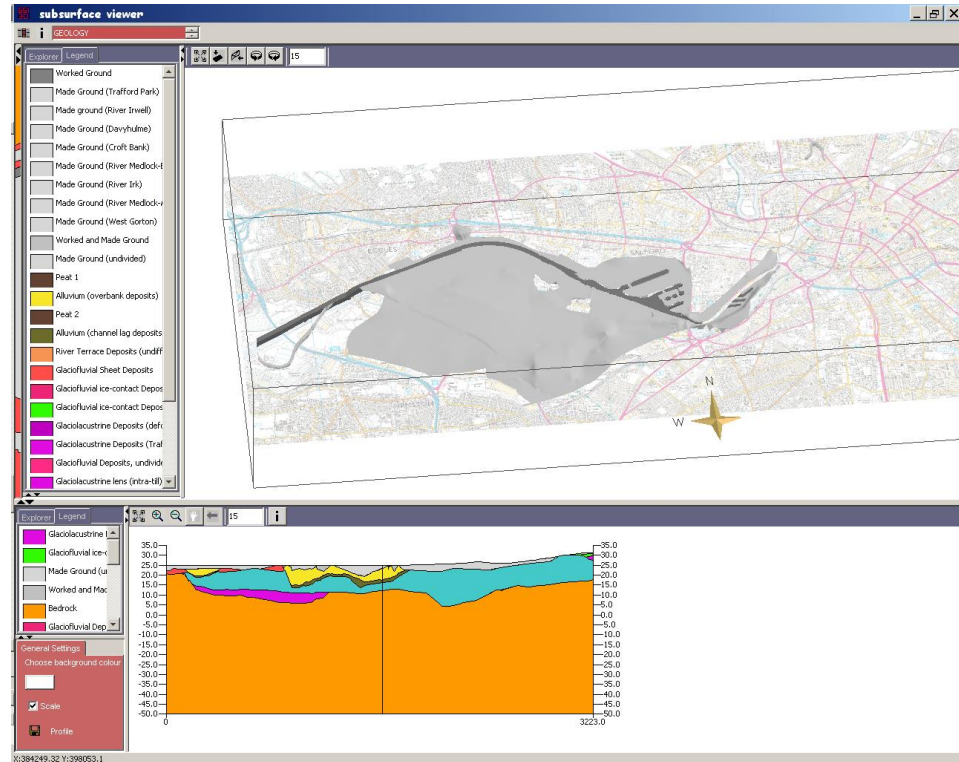
- Geo3D recognized internationally with models from Canada, Slovenia, Sweden and the Netherlands published
- Established strong position of free web service
- Openness is key for new cooperations in order to share 3D geological models online
- The need to streamline publishing process independently of PGI
- BGS pushed hard and collaboratively invented together the idea of Geo3D Builder – a web app to load model data and build the appealing 3D model scene

Yesterday it became the 3D Geological Global Library



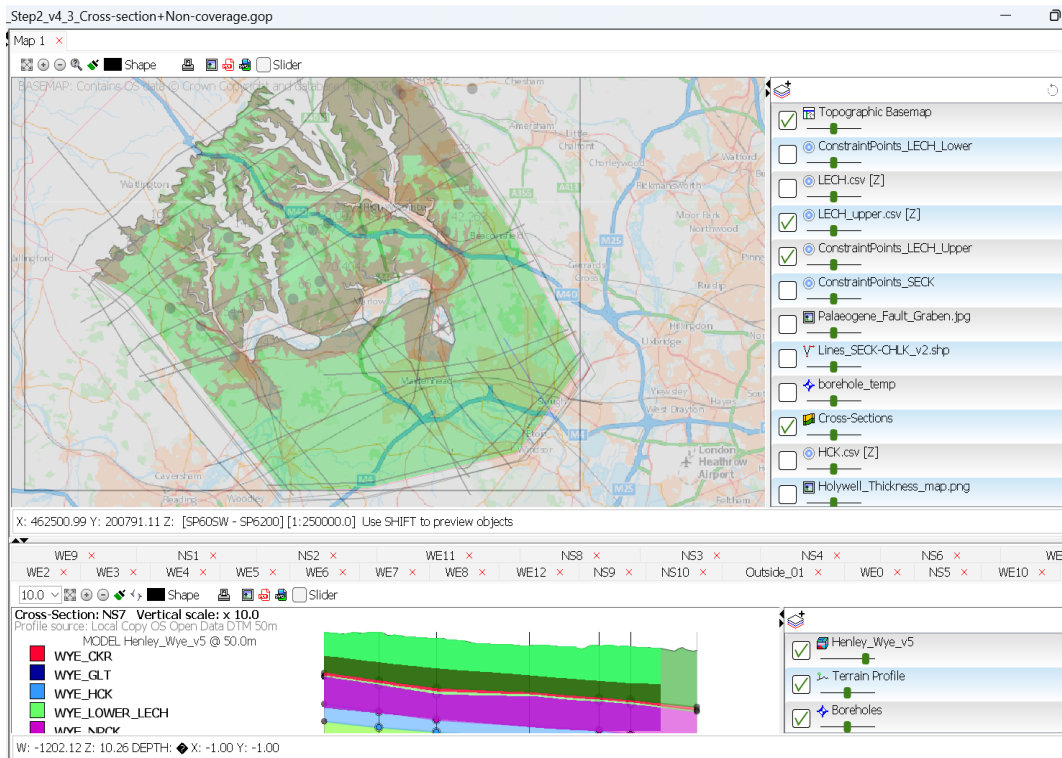
BGS input

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- Groundhog – has lighter software load, integrated viewer

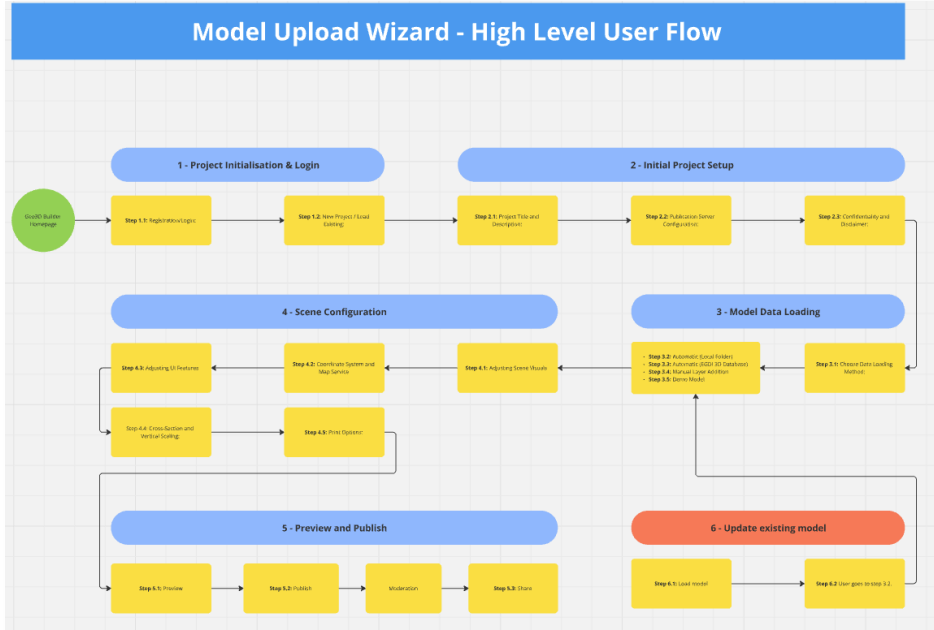


BGS input

- BGS has developed many different viewer options – each has benefits/limitations
- LithoframeViewer – early viewer software developed alongside GSI3D
- Groundhog – has lighter software load, integrated viewer
- GeoVisionary – more powerful, purpose-built visualisation
- BGS sees the value in having PGI Viewer technology available to everyone



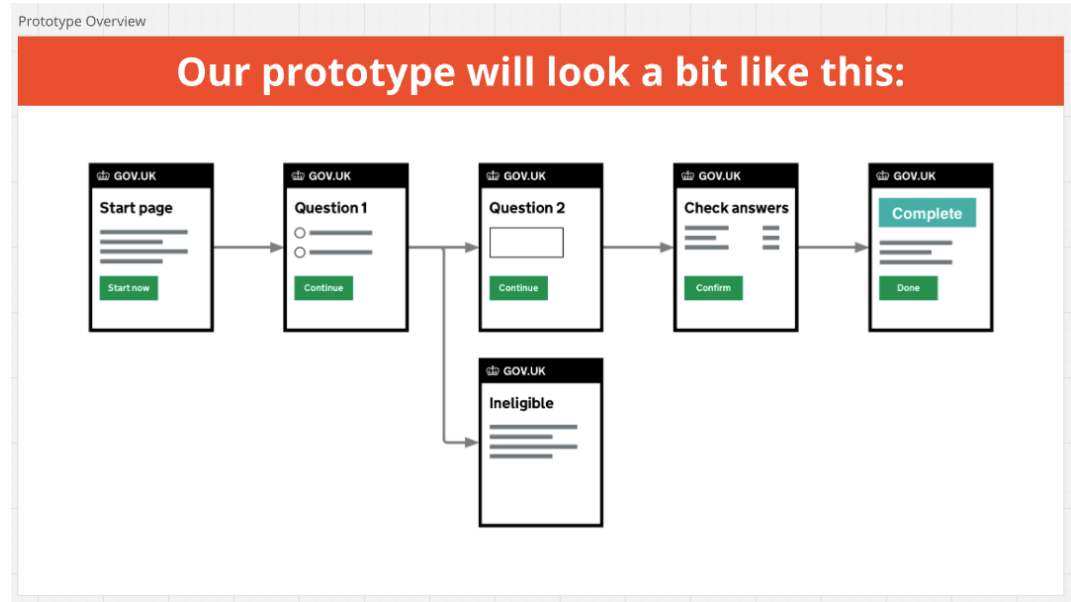
What have BGS done



- BGS has a UX (user experience) team
- The user perspective is often a difficult angle to view things from once you are the designer/ developer.
- It often seems obvious to you because you are absorbed in the technology.
- The UX team provided a unique insight to the Geo3D Builder process

Builder App

- UX team analyse the flow of information, user requirements and user personas
- Develop prototype layouts to enable the user journey to be understood
- Criteria are used to help upload and design the model view



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- Lots of criteria currently – which are important, which can be defaulted, which can go into a second stage of development

The screenshot displays the 'Geo3D Builder Web App' interface. At the top, there are four tabs: 'Settings', 'Compose' (which is highlighted in green), 'Configure', and 'JSON preview'. Below the tabs, the 'Project Information' section contains three input fields: 'Title' with the value 'My model', 'Description' with the value 'test', and 'Language' with the value 'en'. The 'Layers' section follows, listing two layers. 'Layer 1' has a 'Layer Type' dropdown set to 'Model', 'Layer ID' set to '1', 'Label' set to 'Quaternary', and a 'Color' swatch showing yellow. It also has an 'Is Volumeless' checkbox (unchecked), a 'File name' input field with 'Q.ctm', and an 'Autoload' checkbox (checked). 'Layer 2' has a 'Layer Type' dropdown set to 'Model', 'Layer ID' set to '2', 'Label' set to 'Neogene', and a 'Color' swatch showing orange. It also has an 'Is Volumeless' checkbox (unchecked), a 'File name' input field with 'Ng.ctm', and an 'Autoload' checkbox (checked). At the bottom of the form, there are three buttons: 'Add Layer', 'Select Folder' (labeled 'Create layers from model files in local folder:'), and 'Get layers' (labeled 'Import layers from EGD 3D database from project number:'). There is also an 'Update project.json' button at the very bottom.

Builder App

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Geo3D Builder Web App

Settings Compose **Configure** JSON preview

Configure Settings

Global Settings

Near Plane:

Far Plane:

CRS: EPSG:2180 ▾

Antialiasing: ☐

Constant Camera Target Distance: ☐

Shading Type: Matt ▾

Ambient Light:

Z-Shading:

Min X:

Min Y:

Min Z:

Max X:

Max Y:

Max Z:

Features

Rose: ☐

Tooltips: ☐

Coordinates: ☐

Info Picker: ☐

Camera Views: ☐

Scale Z: ☐

Scale Z Min:

Scale Z Max:

Scale Z Default:

Scale Z Step:

Background Color: ☐

Default Color:

Builder App...so far

Geo3D Builder

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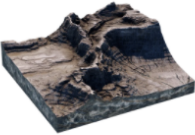
Model Upload Wizard > Home

Model Upload Wizard

Prepare to Share Your Geo3D Model

Welcome to the Geo3D Builder! This tool guides you through creating and publishing your interactive 3D geological model. To upload and share your model, you'll follow these simple steps:

- 1. **Choose Storage Location:** Configure storage options.
- 2. **Upload 3D model:** Add your 3D model data and any supporting layers.
- 3. **Configure:** Adjust the scene's appearance, coordinate system, and user interface.
- 4. **Preview:** Review the project.json configuration file that powers your 3D scene. This preview will also display the working scene within Geo3D, served directly from your sandbox storage.
- 5. **Save and Publish:** Save your configuration. Use Preview to see how it looks. When ready click publish.



Your model will be reviewed before final publication.

Click start and follow the steps on the next page to upload your model.

Start

Builder App...so far

Geo3D Builder

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[Geo3D Builder](#) > [Urban geology in Nottingham](#) > Set Up Storage

Model Upload Wizard: Upload 3D model

Add layers manually

Layer 1

Layer TypeIDLabelColorFile Name

Model4Layer NameLayer Name XYZ

☐ Autoload☐ Is VolumelessRemove

Layer 2

Layer TypeIDLabelColorFile Name

Model4Layer NameLayer Name XYZ

☐ Autoload☐ Is VolumelessRemove

Return

Add new layer

Update project json

Builder App...so far

Geo3D Builder

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Model Upload Wizard: Configure the viewer

Configure Settings

Choose how you want your model to be displayed ?

You can change your preference later.

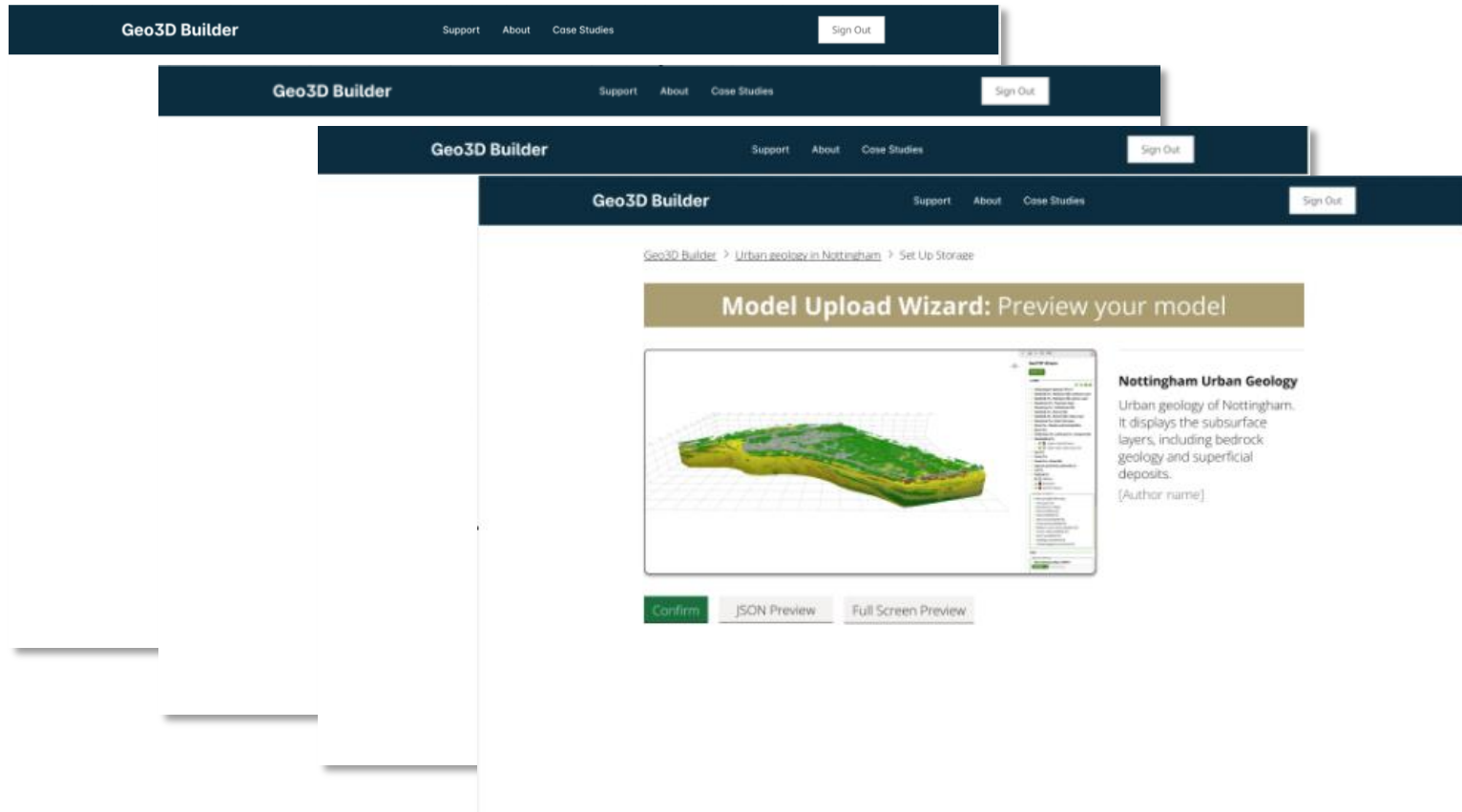
☒ Use default configuration

☐ Use advanced configuration

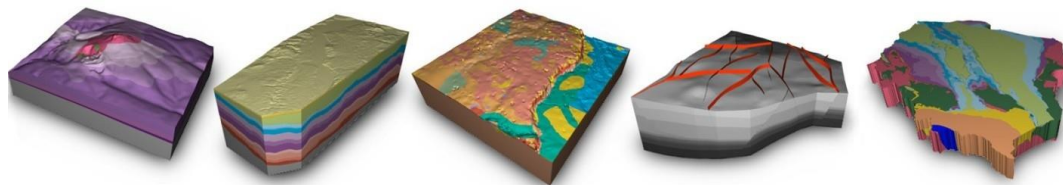
Default configuration: This option automatically sets up your model with a standard, user-friendly view. It applies pre-configured settings for camera positioning, lighting, and basic interaction, providing a quick and easy way to get started without needing to adjust individual settings. This is the best choice for most users.

[Return](#) [Save](#)

Builder App...so far



Summary



Geo3D.pgi.gov.pl

- Builder App provides easy and simple upload of 3D model data to the PGI's Geo3D Viewer
- Guides the user through the process
- Geo3D Viewer then acts as a web service for 3D models stored locally or in the cloud
- All models are listed in the Global Library collecting all on-line models. Now almost 110+ models including some made in BGS
- Provides a unique platform for BGS to develop our model delivery strategy
- Removes/reduces barriers to model visualisation such as stakeholder delivery requirements, technological experience, organisational capability