EarthServer

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Outline

- What is EarthServer?
- What does it do?
- How is it relevant to ASK?
- Where is it going?
Background

- 3 year FP7 project, started September 2011
- Aims to deliver ‘big’ (20Tb/service partner) coverage data using web services (based on OGC WCS & WCPS standards)
- A coverage is a special kind of geographic feature, with the distinguishing characteristics that other features have one particular value associated (such as a road number, which remains constant over all the road's extent) whereas a coverage typically conveys different values at different locations.
- Coverages include grids, TINs, point clouds etc – although at present project software is limited to grids
- These services can then be used by client applications
- BGS’s role in the project is to use the technology developed by other partners to deliver geoscience data
Data loaded

- Remote sensed data
  - Landsat 7 – 6 band (Blue, Green, Red, NIR 1, NIR 2, MIR)
  - Aerial photography – 3 band false colour (NIR, green, blue)

- DTM/DSM
  - Ordnance Survey of Great Britain OpenData UK DTM - 50m resolution
  - EMODNET Seabed DTM
  - Pan-Government Agreement (PGA) UK DSM – 2m

- Superficial deposit thickness data

- 3D models
  - 35 surfaces for superficial deposits in Glasgow
  - Voxel model of Glasgow lithology
User interface clients

- Services are currently accessed through client portals developed for the project.
- There is one for external use, with publicly available services, and another for internal BGS use which contains additional restricted access data.
- The services can be incorporated into other portals/applications (eg ASK) as required.
External EarthServer portal

This is the Geology Lighthouse Service of the EU FP7 EarthServer project. It is run by the British Geological Survey (BGS) (part of the Natural Environment Research Council NERC). The EarthServer project is developing capabilities for access to, and ad-hoc processing of, large Earth science data sets using Open Geospatial Consortium (OGC) standard web service interfaces for coverage data. To find out more about the involvement of the British Geological Survey see the "BGS and EarthServer Background" page.

Service portal

Use the service portal to browse, manipulate, visualise and compare remote sensing imagery and elevation data in 2D and 3D.

Geological model viewer

View geological model gridded surfaces in 3D.

Learn about EarthServer technology

Find out about the WCS and WCPS service interface standards used by EarthServer and tour some examples that illustrate their processing capabilities.
Glasgow 3D model (1)

- Each superficial deposit unit delivered as two surfaces – upper and lower
- Can be viewed using a 3D web client developed by Fraunhofer (another project partner) who are specialists in visualisation software
- Nothing needs to be downloaded
- Works in most modern browsers (Chrome, FireFox etc), but not currently IE
Glasgow 3D model (2)

- Can navigate around model, zoom etc
- Individual surfaces can be turned on/off
- Individual surfaces can have transparency altered
- Vertical exaggeration can be changed
Glasgow 3D model (3)
Glasgow 3D model (4)
Describing model surfaces with GeoSciML

- Investigating the use of GeoSciML in describing 3D model coverages (GeoSciML is an international standard for delivering geoscience information)
- Objective is to enable queries against both the coverage and the GeoSciML such as ‘get all geological units of predominantly sand lithology within 25m of the surface’
- Aim is to develop simply user-friendly query interface to models
What next?

- Add the ‘extended’ Glasgow surfaces
- Add Voxel models
- Enhanced depth/thickness querying of 3D model
- Simple property selection of voxel models
- Extend 3D client:
  - Enhanced navigation
  - Separation of units
  - Display area between surfaces as volumes
  - Investigate use of BGS borehole and cross-section application to use EarthServer
  - Voxel visualisation (with slicing etc)
  - Extend to IE
- Integrate services more closely into domain specific user interfaces
- Handling of TINs is being investigated, which will allow more complex models to be delivered
Have a look at the service:

http://earthserver.bgs.ac.uk/home.html

I would be very interested in your feedback:

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