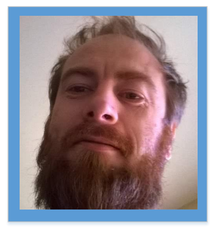
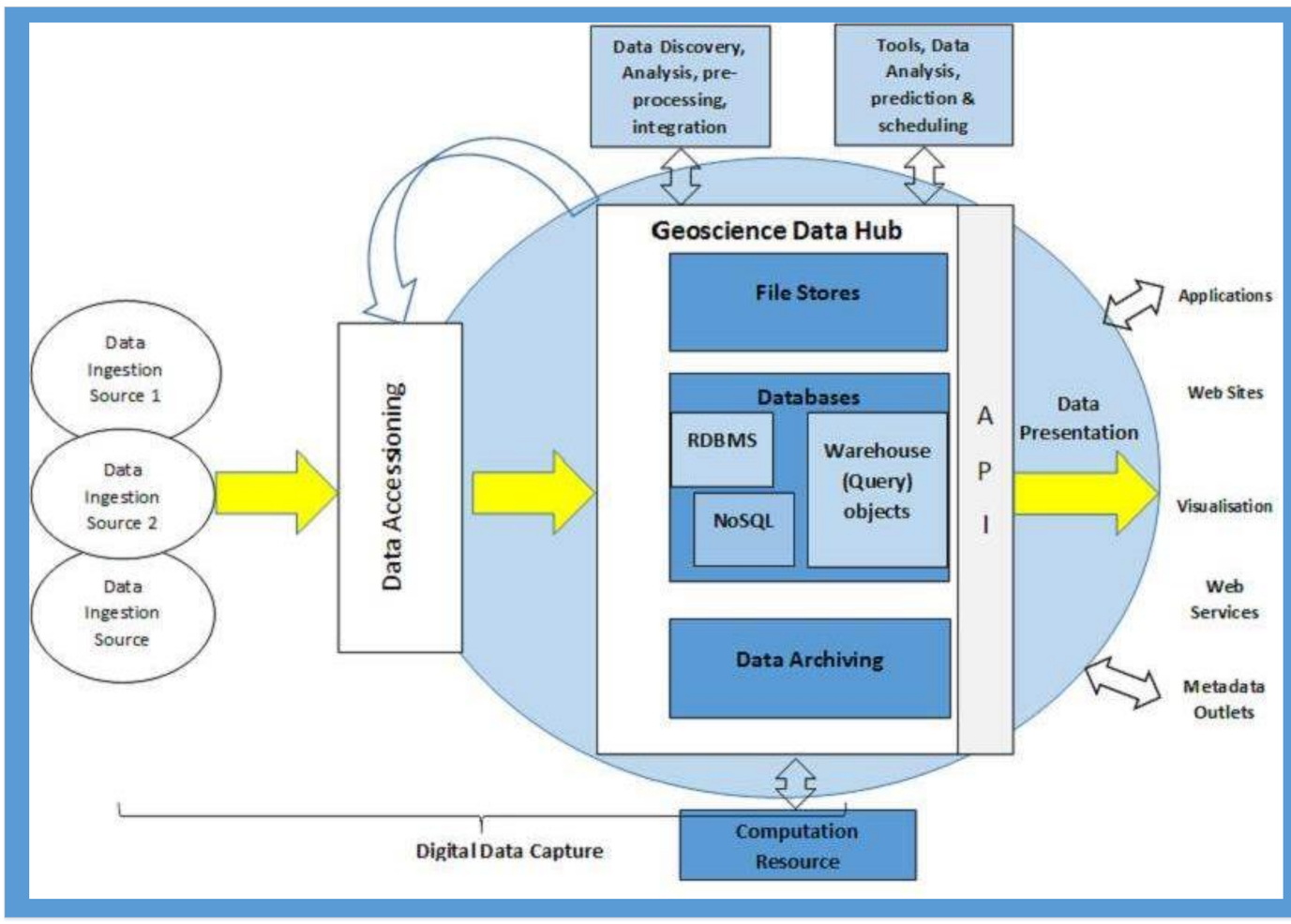
Why share data and what methodologies can help?

M. NAYEMBIL and C. WATSON

Data Science Department – British Geological Survey, UK,
mln@bgs.ac.uk and cats@bgs.ac.uk



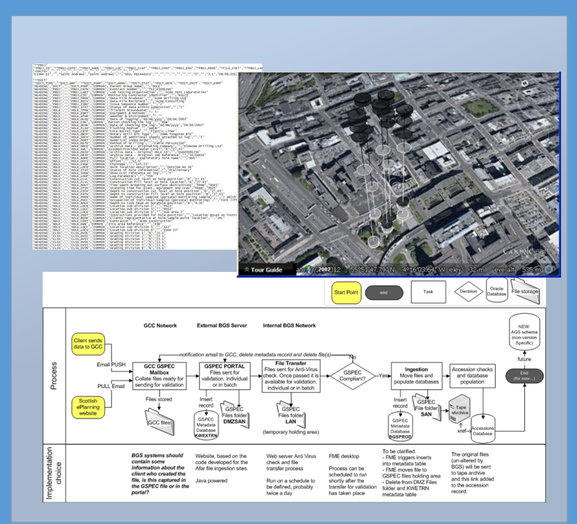
Harmonised data driven research is key to delivering sustainable management of subsurface resources. The use of interoperable standards, data exchange formats and open data models leads to increased data sharing and knowledge exchange.



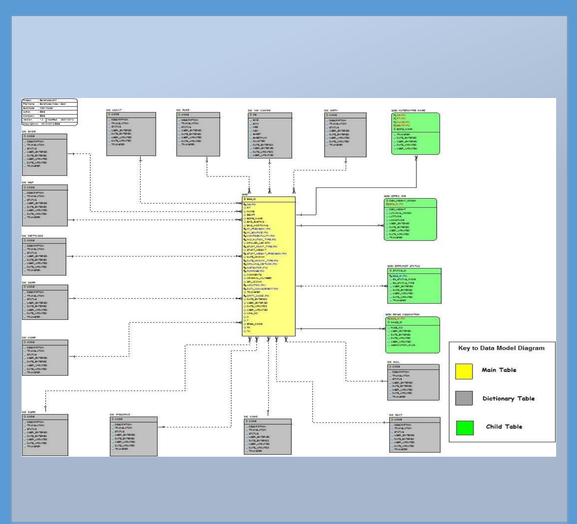
DATA HUB

BGS High level multi-tiered data architecture and dataflow referred to as the Geoscience Data Hub (GDH). The GDH has several component parts to include: relational database systems both proprietary and open source (Oracle, MS SQL Server, MySQL, PostgreSQL), NoSQL databases – MongoDB and a file store on a corporate Storage Area Network – SAN that holds open or propriety file formats. The hub also includes an integrated geoscientific data model for a majority of BGS's digital data that are appropriate to database management technology.

Examples of methodologies and technologies used to manage geoscience hub data



DIGITAL INGESTION PROCESS: AGS
The AGS data exchange format is integral to BGS digital data ingestion. It's the format used to ingest data from external data custodians such as Glasgow City Council for our 3D modelling work provide a web service to provide data access to the community.

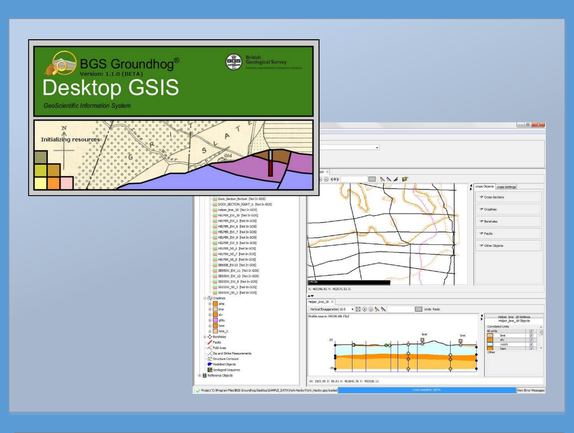


CORPORATE DATA MODELS: BGS Borehole Index
Data Model of the core BGS Borehole Index (contains 1.3 million borehole records)

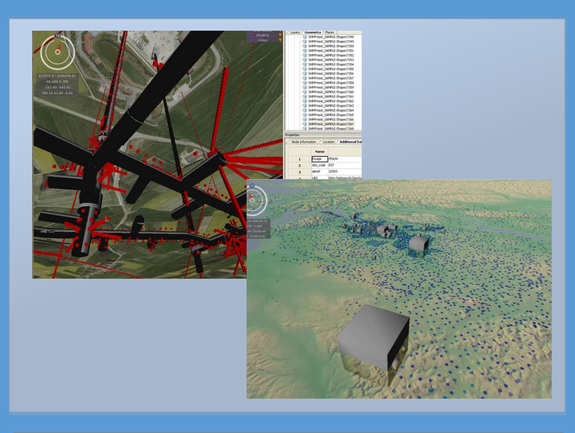
PUBLIC SHARING OF DATA MODELS
www.EarthDataModels.org is an online library for high level geoscience and environmental data models

QUERY LAYERS AND APIs
Propbase and SensorNet architecture. Optimised query layers and Application Programming Interfaces (APIs) that expose data from many sources in generic and consistent web accessible formats

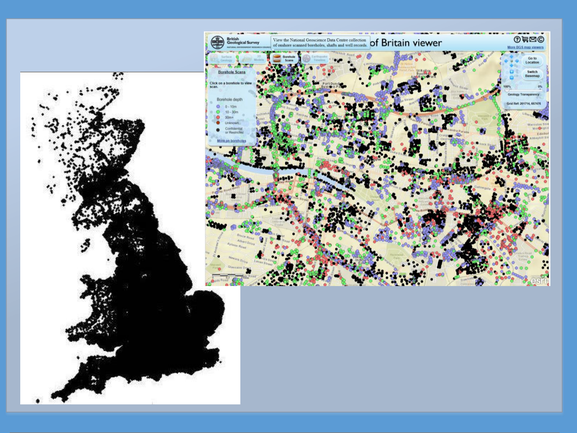
Results



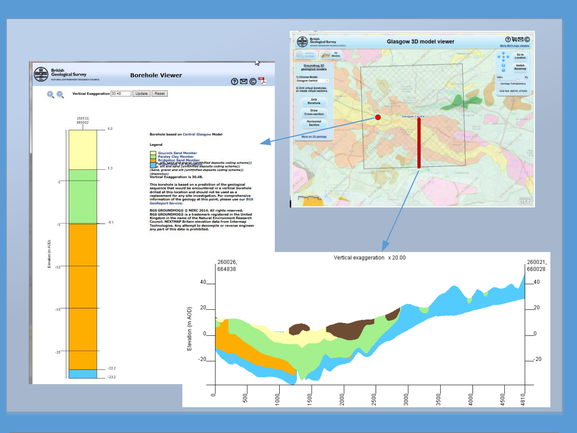
Groundhog Desktop workbench tool for accessing and manipulating geoscience data hub data, including 3D modelled objects



GeoVisionary 3D and 4D immersive visualisation software has been designed to support a wide range of geoscience data formats and the BGS are adding new data hun integration functionality.



WebGIS: Spatial representation of borehole locations held in BGS's core borehole database, demonstrating the data coverage as the borehole locations closely maps out the map of the UK.



Virtual Borehole Viewer provides convenient web access to BGS 3D models allowing users to produce synthetic boreholes and cross sections in areas of interest.

IAMG 2015: Freiberg, Germany: Presentation number. F0215

Tuesday September 8th Session: 71.Communicating Digital Geomodels – Methodologies and Challenges