



**British  
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Geoscience for our changing Earth

# CCS Data Hub workshop

## UK CCS RC Nottingham Biannual meeting

### 4<sup>th</sup> September 2013

Maxine Akhurst,  
British Geological Survey



Data Champion

# What is CCS Data Hub?



- UK National CCS database
  - Integrated data archive
  - Data management system
  - Retrieval and dissemination of CCS data
- NERC National Geoscience Data Centre (NGDC)
  - Centre for earth sciences data and information
  - Registered 'place of deposit' (Public Records Act 1958)
  - Responsible for stewardship, maintenance and dissemination of UK national CCS datasets



# Why do we need to know?



Use of the archive by CCS projects:

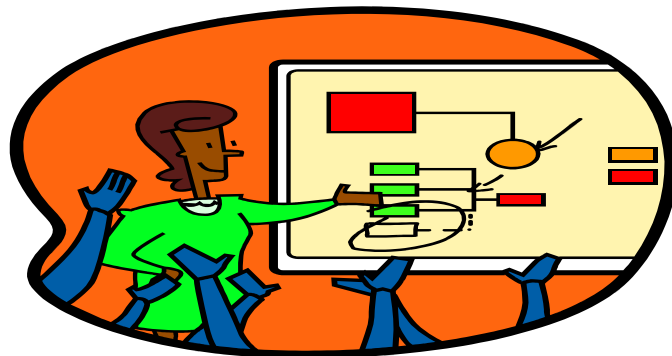
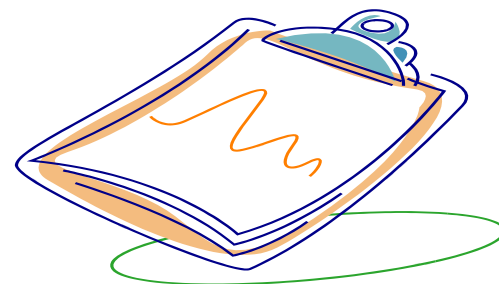
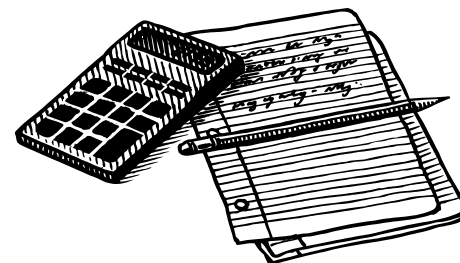
- Will enable you to formally cite your data set for publication (Digital Object Number, DOI)
- Required by projects with UK CCS RC funding
- Will be required by projects with EPSRC funding



# What will be lodged in the archive?

Examples of CCS project output:

- data files
- reports
- papers
- images
- educational materials



# Who will have access and how?



Two part system:

- Internal secure area accessed by you (UK CCS researchers)
- External area open to stakeholders
  - Public web-based portal
  - Dissemination of data and research findings
  - Controlled access to some information, e.g. by registration and password
    - Free-of-charge access for non-commercial users
    - Licensed access for business users



# What about confidential data?



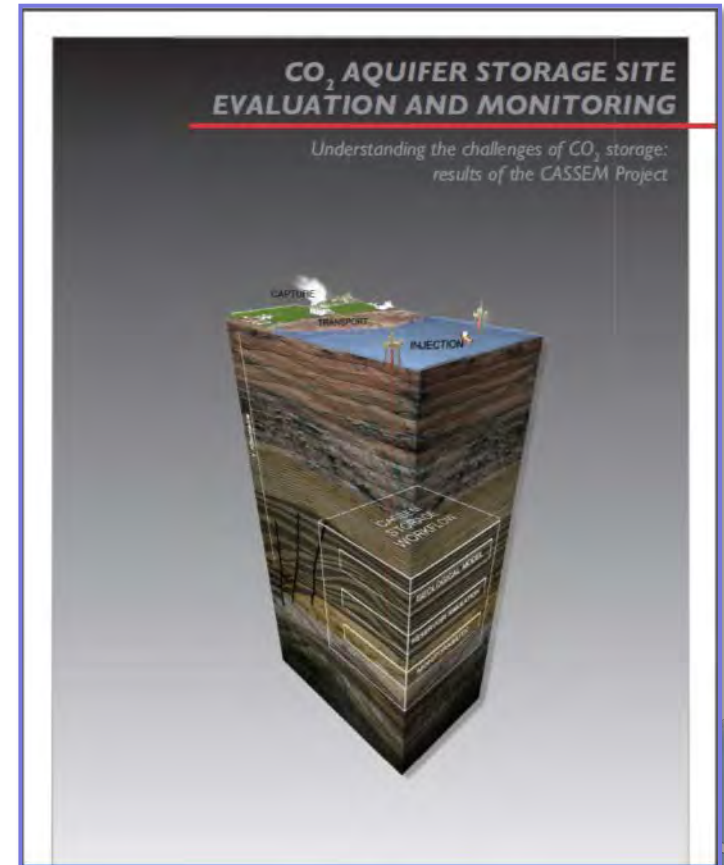
Projects with confidential data e.g. provided by industry participants

- Subject to the IPR terms of the project, any confidentiality or non-disclosure agreements, on project-by-project basis
- Agree with project participants what might be made:
  - Accessible to CCS researchers on the internal area e.g. derived results with input data neither visible nor can be 'back-engineered'
  - Accessible on the external area e.g. published papers
  - Discuss and agree from the outset and during the project



# CASSEM industry research project

- **CO<sub>2</sub> Aquifer Storage Site Evaluation and Monitoring project**
- EPSRC, TSB and industry funding
- 5 industry project partners
- Agreement made during project lifetime
- Selected items agreed to be made publicly available
  - Published book
  - Illustrations
  - Published peer-reviewed paper



# www.bgs.ac.uk/ukccs

UK Carbon Capture and Storage database - Windows Internet Explorer

http://www.bgs.ac.uk/ukccs


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UK Carbon Capture and Storage database

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**UKCCS**  
RESEARCH CENTRE

The UKCCSRC is supported by the EPSRC as part of the RCUK Energy Programme

home search projects people keywords

## UK Carbon Capture and Storage database

### About the UKCCS database

The UK CCS RC Data Centre is the UK National CCS database for archiving, management, retrieval and dissemination of CCS data from the UK. In the first instance RC UK-funded CCS research projects will be archived, but it is hoped that other, non-RCUK project datasets might be incorporated as well. Data collections, reports, published papers, maps, models, images, software and educational materials are lodged in the archive to make the data, models, and knowledge about CCS research and its outcomes more accessible and for accelerated exploitation by users.

The UK CCS RC Data Centre is funded by UK CCS RC and hosted within the National Geoscience Data Centre (Earth Science Academic Archive) at the British Geological Survey, a recognised UK research council Environmental Data Centre.

### Search projects and datasets

Search for projects





# Agreed access to project outputs

A screenshot of a Windows Internet Explorer browser window displaying the UKCCS project page. The browser's address bar shows the URL "http://www.bgs.ac.uk/ukccs/dataset.cfm?ID=15289705". The page header includes the UKCCS Research Centre logo and the text "The UKCCSRC is supported by the EPSRC as part of the RCUK Energy Programme". Below the header is a navigation menu with links for "home", "search", "projects", "people", and "keywords". The main content area features a red banner with the text "UKCCS project 19289705" and a blue banner with the text "CO2 Aquifer Storage Site Evaluation and Monitoring (CASSEM)". The main text describes the project's goals and findings, including the development of a costing model and the use of citizen panels. The page also lists authors, keywords, and principal investigators.

**UKCCS project 19289705**  
**CO2 Aquifer Storage Site Evaluation and Monitoring (CASSEM)**

**CO2 Aquifer Storage Site Evaluation and Monitoring (CASSEM)**  
Carbon Capture and Storage (CCS) is a crucial technology to enable the decarbonisation of fossil fuel electricity generation. The UK has considerable potential for geological storage of CO2 under the North Sea and extensive offshore industry experience that could be applied. While initial storage is likely to be undertaken in depleted oil and gas fields, much larger saline aquifer formations are estimated to have sufficient capacity to securely contain 100 years of current UK fossil fuel power plant CO2 emissions. The CO2 Aquifer Storage Site Evaluation and Monitoring (CASSEM) project brings together the experience and different working practices of utilities, offshore operators, engineering contractors, and academic researchers to build collective understanding and develop expertise. CASSEM produced both new scientific knowledge and detailed insight into the CCS industry, developing best-value methods for the evaluation of saline aquifer formations for CO2 storage. Alongside work to assess the storage potential of two saline aquifer formations in close proximity to large coal power plant, CASSEM applied a novel Features, Events and Processes method to explore perceptions of risk in the work undertaken. This identified areas of industry and research community uncertainty and unfamiliarity to enable targeted investment of resource to reduce overall project risk. An openly accessible and flexible full chain (CO2 capture, transport and storage) costing model was developed allowing the CCS community to assess and explore overall costs. CASSEM's work also included the first use of citizen panels in the regions investigated for storage to assess public perception and educate the general public about CCS.

*Author(s) :*  
Lawrence,DJD; Haszeldine, Professor R S; Mander, Dr SL; Todd, Professor A;

*Keywords :*  
Carbon,Economics,Fossil fuels

*Principal Investigators :*  
**Lawrence,DJD**  
Survey geologist  
British Geological Survey

**Haszeldine, Professor R S**



# CASSEM industry project outputs



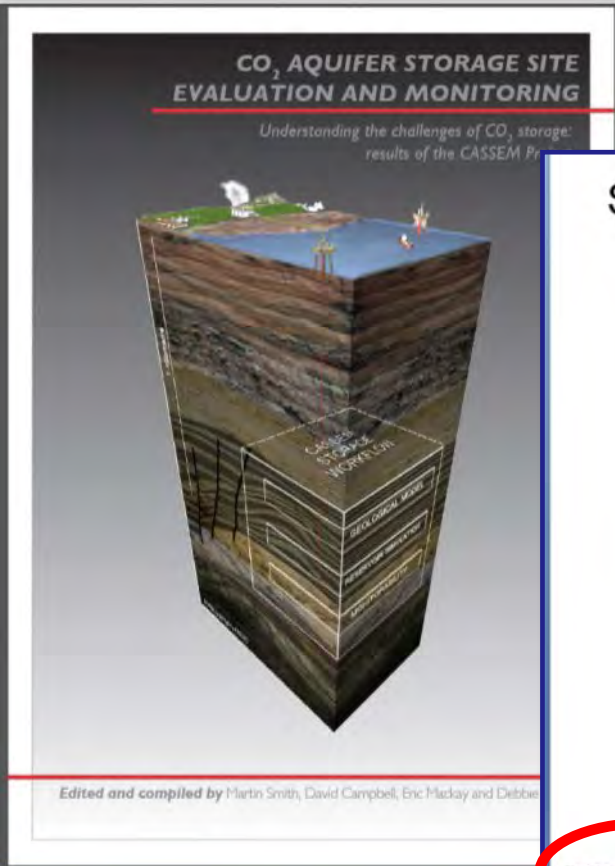
210212 GeoFrameworkPaper\_positives\_21acceptchanges\_editcomments

**New insights from 3D geological models at analogue CO<sub>2</sub> storage sites in Lincolnshire and eastern Scotland, UK.**

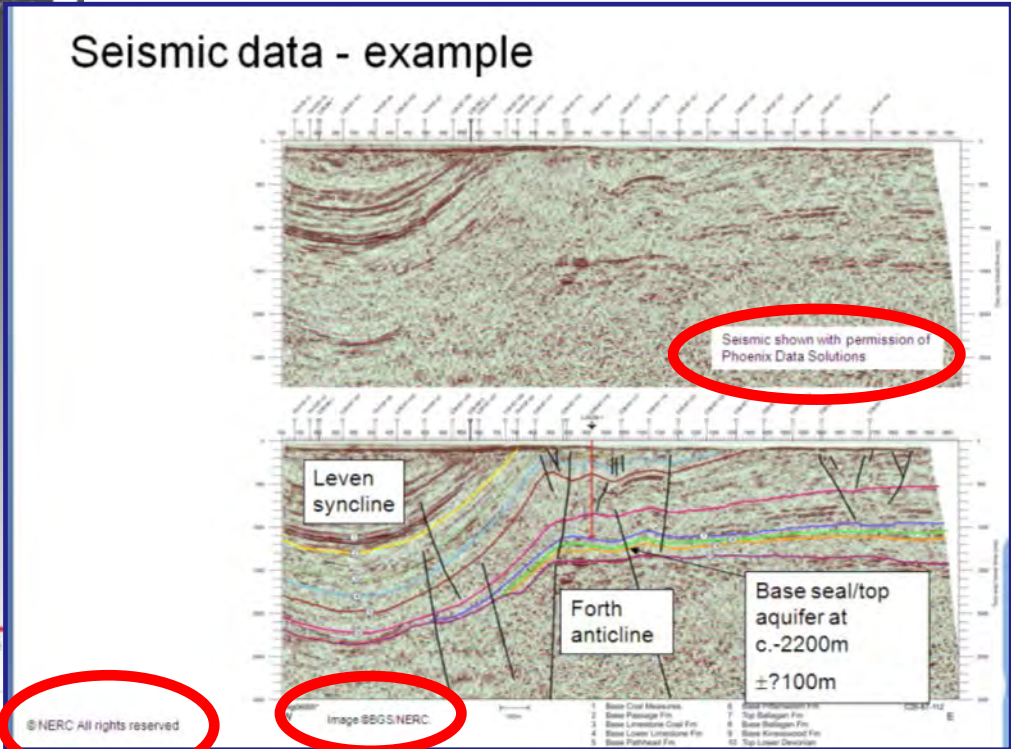
Alison Monaghan<sup>1</sup>\*, Jonathan Ford<sup>2</sup>, Antoni Miodowski<sup>2</sup>, David McIntroy<sup>3</sup>, Timothy Pharaoh<sup>4</sup>, Jeremy Rushton<sup>5</sup>, Mike Browne<sup>1</sup>, Anthony Cooper<sup>2</sup>, Andrew Huber<sup>2</sup> and Bruce Napier<sup>2</sup>

<sup>1</sup> British Geological Survey  
<sup>2</sup> British Geological Survey  
<sup>3</sup> Corresponding author  
 (Approx. 15,600 words)

**SUMMARY:** Subsurface contrasting analogue geological models illustrates the geological knowledge to gently dipping Permian-Devonian-Carboniferous Lincolnshire model to Sandstone and Rottingdale paleogeography, such and the identification average 2D porosity groups, and the Zechstein for aquifer and seal unit understood diagenetic eastern Scotland has



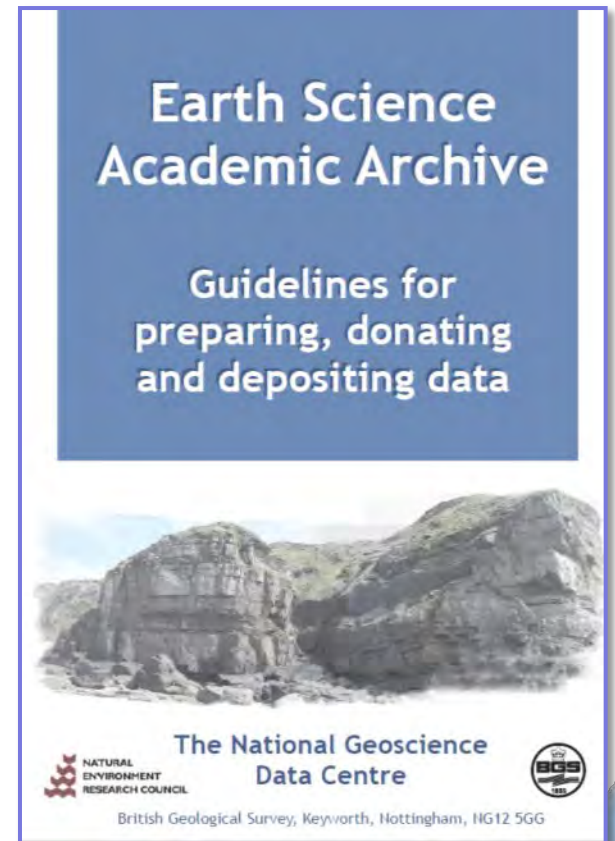
Appropriate copyright, permissions and acknowledgments



# What do we need to do?



- Data archiving is not an 'end of project' activity
- Data management activities throughout the lifetime of the project
- Collection of metadata (information about your data sets) is collected together with you
- Data Centre staff will come and help you identify and present your project data metadata
- Preparation of metadata is mostly easily achieved during project progress
- Identify data of long-term interest as it is created



# You are not alone



- UK CCS Data Hub staff at BGS are here to help you
  - Data Champion, Maxine Akhurst [mca@bgs.ac.uk](mailto:mca@bgs.ac.uk)
  - Data Manager, Rod Bowie [rcb@bgs.ac.uk](mailto:rcb@bgs.ac.uk)
- Online Earth Science Academic Archive documentation

## ESAA documentation

- [Guidelines for depositors](#) 528 KB pdf
- [Guidelines for preparing, donating and depositing data](#) 1.1MB pdf
- [Data management questionnaire](#) 100KB word .doc
- [Data, materials and documentation transfer form](#) 120KB word .doc
- [Data management plan](#) 180KB pdf
- [The principles of good data management](#) 550KB pdf
- [Quick check list](#) 95KB word .doc



# Earth Science Academic Archive



<http://www.bgs.ac.uk/services/ngdc/esaa/home.html>

A screenshot of the Earth Science Academic Archive website. The page features a navigation menu at the top with links for 'Home', 'Our data', 'Our research', 'Our services', 'Our people', 'Discovering geology', 'News &amp; Events', and 'Hosted sites'. The main content area is titled 'Earth Science Academic Archive' and includes a description of the archive, a list of responsibilities, and examples of data types submitted. A sidebar on the left contains a 'Our data' section with a list of products, including 'National Geoscience Data Centre'. A 'Downloads' section on the right lists various documents for download, such as 'Guidelines for depositors' and 'Data management questionnaire'. The page also includes a search bar and a footer with the BGS logo and the year 1835.



# Thank you for your attention



- Any questions?

