Data management plan for: Heterogeneity of Rock and Hydraulic Properties across the Crystalline Basement - Reservoir Interface – Implications for Injection Induced Seismicity in the Midcontinent Region

A Data management plan created using the DMPTool

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Last modified: May 19, 2017

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1. Project and Contact Information

What is the name of the project?

Funding Opportunity Title:2018 Earthquake Hazards External Grants Program
CFDA Number(s):15.807 -- Earthquake Hazards Program Assistance

What is the name of the USGS Center/Program that oversees the project?

U. S. Geological Survey National Earthquake Hazards Reduction Program
Margaret Eastman Contract Specialist Phone 703-648-7366

Summary description of the project.

Fundamental research to examine the contact between sedimentary rocks and crystalline rocks of the subsurface of the midcontinent of the U. S. This work explores the hydroglogic and mechanical nature of the contact for study of induced seismicity. This seismicity is thought to be caused by injection of large volumes of waste fluids from oil and gas production.

What is the project start date?

10/01/2017

What is the project's expected end date?

12/31/2018

Are there additional information available?

no

Who is the main point of contact for the project and its data?

Dr. Kelly Bradbury, Kelly.bradbury@usu.edu, 435-797-1273
Dr. James P. Evans, james.evans@usu.edu, 435-797-1273
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Are there collaborating/funding agencies and organizations?

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2. Plan and Acquire

How will the data be acquired?

Newly collected data sets. Data will consist of field data, rock core, and permeability data. Field data will be acquired using standard field methods, with sampling of rocks. Outcrop descriptions of contacts at scales of 1:100-1:1000, and sampling, will be recorded with GPS and samples will be recorded in the IEDA database.

If acquiring existing datasets, include more information.

Existing 'data' is in the form of rock core, and any documents from previous projects. This includes well descriptions, logs, and any publically available files related to the core.

If collecting new data, include more information.

Samples of core will be collected from established core labs, and all samples will be acquired with permissions and documentations that each lab requires. Field sites will be accessed via public land sites.

What is the estimated volume of the data collected, transformed, and/or generated?

Estimate 30 core samples, each 3 to 6 cm diamente, and 10-20 cm long. Approximately 50 hand samples from the field will be approximately 1000 cm3 in size (1-2 kg each).

Permeability data will consist of 10-30 lab tests, no more than 1 GB of data.

Will the data be static or frequently updated?

static

Are the appropriate equipment and staff resources accounted for in the budget?

Data management will be modest - curation of field samples, core samples, and rock data. Field data also, approximately 30-40 person hours.

3. Describe/Metadata and Manage Quality

How many new datasets will be created?

Permeability of rock core samples

Outcrop description of contacts at 4-6 sites
Whole-rock mineralogy and chemistry of rock samples

What are the data types and formats, in which the data will be maintained?

excel and .csv data sets, and maps in .png format

Briefly describe the data processing steps or provide the scientific workflow.

Field site description and sample collection. Core samples will be collected from labs. Rock characterization will include X-ray diffraction analyses, whole rock chemistry, and optical petrography studies. Selected samples will be tested at the Uni. Oslo lab.

How will the metadata for each dataset be created?

Metadata will be collected and curated by Dr. Bradbury. These will be standard spreasheet data sets.

Which metadata standard will be used to describe each dataset?

FGDC-CSDGM

What procedures will be used for ensuring data quality (QA/QC)?

Whole rock chemistry will be performed by a commercial lab that follows mining company exploration protocols Quality Management System that meets, as a minimum requirement, ISO 9001 and ISO/IEC 17025.

4. Backup/Secure and Preserve

Where will the data be stored in the short-term?

Utah State University Department of Geology computers with daily and weeking external harddrive backups.

What will be the approach for routine backup of the data?

We use Time Machine backups that do hourly, daily, and weekly backups to two external drives.

Describe any potential access restrictions.

Access is password restricted on all laboratory computers, and all Utah State computers are registered on the USU system, behind a firewall. All logins require a valid USU ID.

What will be the final format of the data product?

Excel and csv files, GPS registered figures, and outcrop sample locations all on standard formats and programs.

Where will the data and metadata be preserved in the long-term?

Our data sets are stored in the USU digital commons system. These are backups are in two permanent data repositories that will be linked via standard urls.

https://works.bepress.com/james_evans/

If costs are associated with long-term storage, how will they be provided for?

No costs incurred for storage.

5. Publish and Share

How will the data be shared and made available to the public?

We present results a national geologic and geophysical meetings, and publish inpeer reviewed publications. Data sets are made publically available via digital commons.

Will there be access or use restrictions on the data?

No access restrictions.

How can someone overcome any access restrictions?

no.

Identify any anticipated publications or electronic outlets resulting from the data.

Reviewed journal articles in journals such as Geophysical Research Letters, Geofluids, Geological Society of America publications.

Where will metadata be stored to enable data discovery by the public?

https://works.bepress.com/james_evans/

How and where will you obtain a digital object identifier (DOI) for the data?

https://works.bepress.com/james_evans/