

DESIGNSAFE-CI

A NATURAL HAZARDS
ENGINEERING COMMUNITY

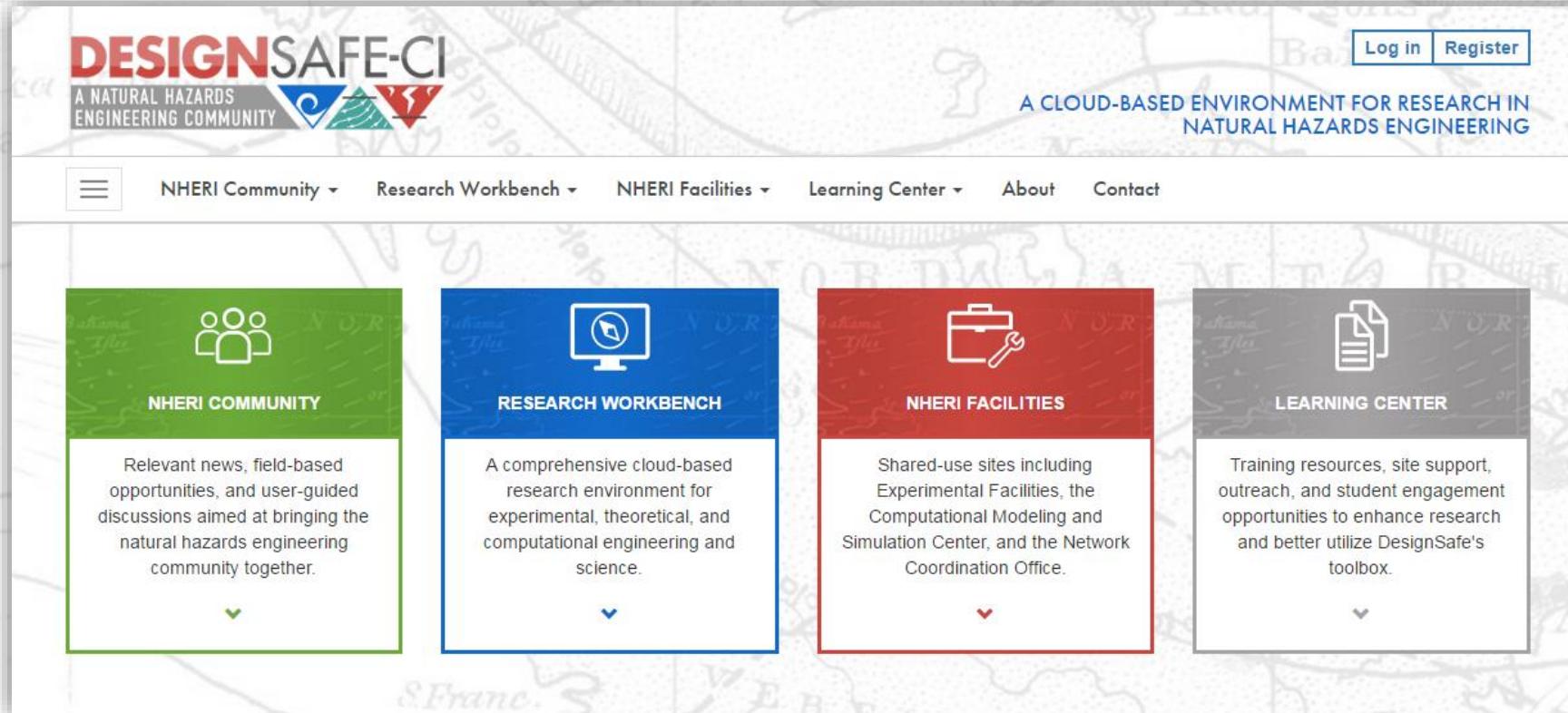


Updates to Experimental Facilities May 2016

Meeting Goals

- Summarize currently available DesignSafe functionalities
- Summarize Data Curation activities and plans for development of end-to-end data management tools
- Identify action items for assistance to EFs regarding data upload for current projects, training and testing duration curation tools, etc.
 - How can we help you with your upcoming site visits?

DesignSafe Release 1: March 2016



The image shows the homepage of the DesignSafe-CI website. The header features the "DESIGNSAFE-CI" logo with "A NATURAL HAZARDS ENGINEERING COMMUNITY" and a stylized "V" and "W" graphic. To the right are "Log in" and "Register" buttons. Below the header, a banner reads "A CLOUD-BASED ENVIRONMENT FOR RESEARCH IN NATURAL HAZARDS ENGINEERING". The main navigation menu includes "NHERI Community", "Research Workbench", "NHERI Facilities", "Learning Center", "About", and "Contact". The page is divided into four main sections: "NHERI COMMUNITY" (green box), "RESEARCH WORKBENCH" (blue box), "NHERI FACILITIES" (red box), and "LEARNING CENTER" (grey box). Each section contains a brief description and a downward-pointing arrow.

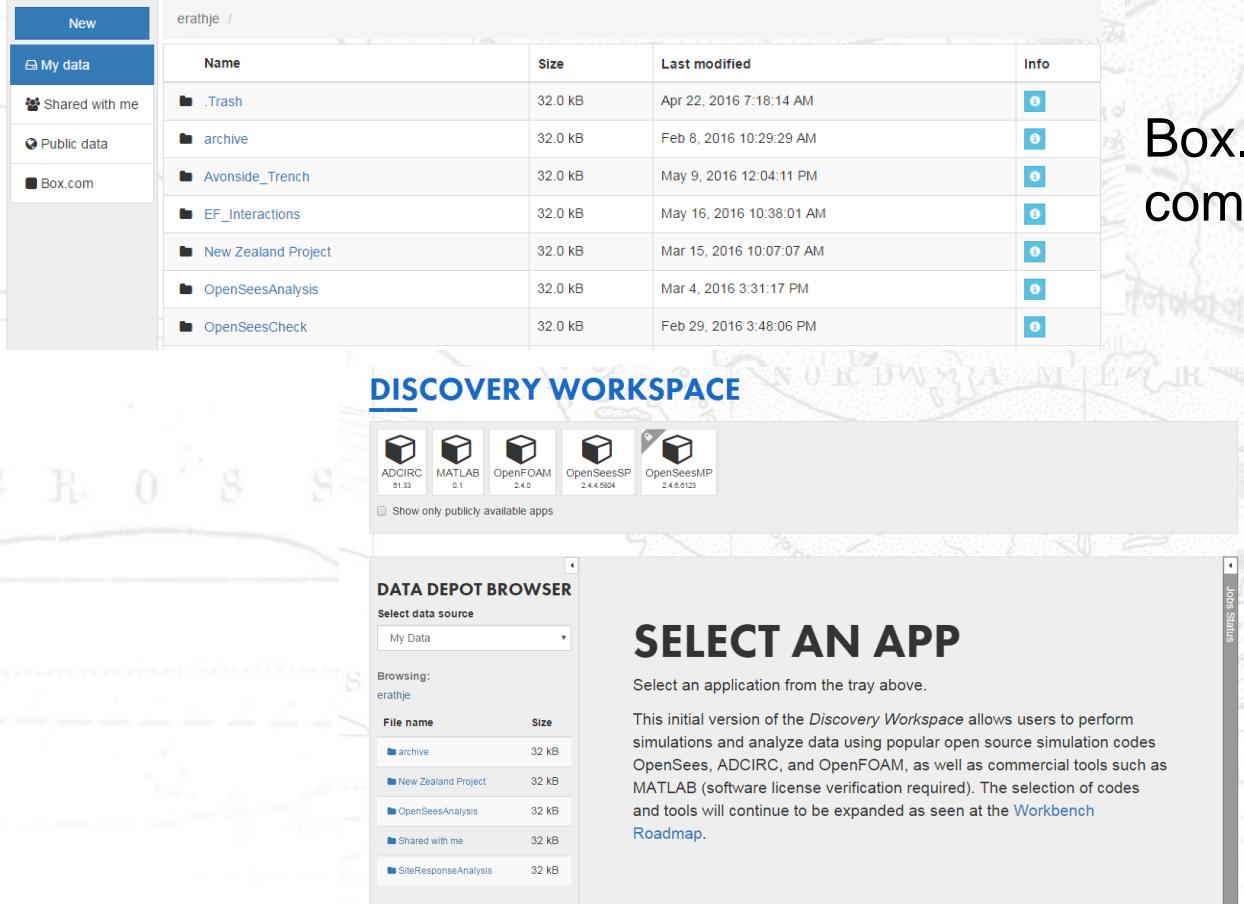
- NHERI COMMUNITY**
Relevant news, field-based opportunities, and user-guided discussions aimed at bringing the natural hazards engineering community together.
- RESEARCH WORKBENCH**
A comprehensive cloud-based research environment for experimental, theoretical, and computational engineering and science.
- NHERI FACILITIES**
Shared-use sites including Experimental Facilities, the Computational Modeling and Simulation Center, and the Network Coordination Office.
- LEARNING CENTER**
Training resources, site support, outreach, and student engagement opportunities to enhance research and better utilize DesignSafe's toolbox.

DesignSafe Research Workbench

- Data Depot
 - Data upload and sharing, file/folder management
 - Box integration is coming very soon for bulk upload
 - Data Depot includes NEES project data
- Discovery Workspace
 - OpenSees, ADCIRC, OpenFOAM, Matlab available
 - Jupyter notebook available soon (40+ languages supported including Python, R, and Matlab emulator)
- Developer's Portal
 - Information on data upload, file management via CLI and APIs

Login to *DesignSafe* and try it out!

DATA DEPOT BROWSER BETA



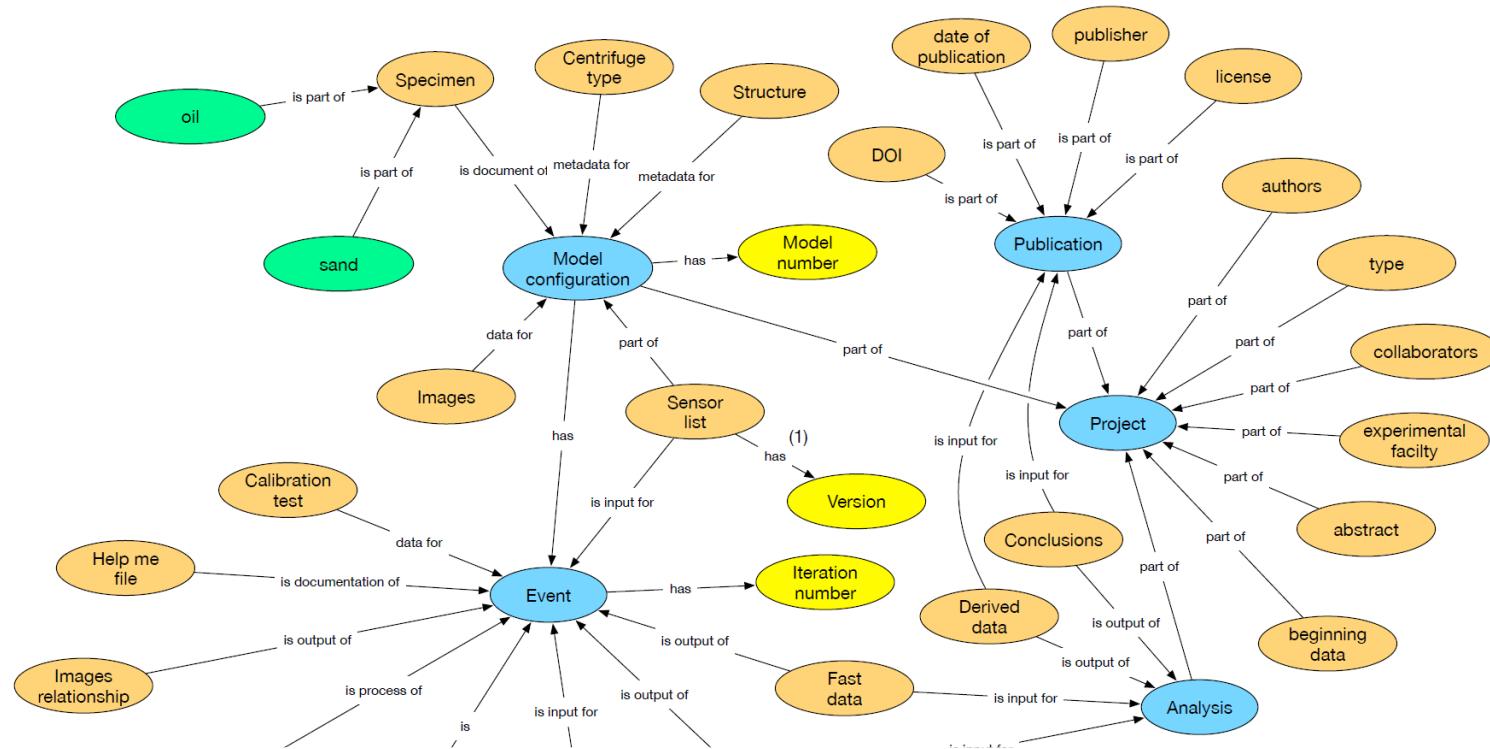
The screenshot shows the Data Depot Browser interface. On the left, a sidebar menu includes 'New', 'My data' (selected), 'Shared with me', 'Public data', and 'Box.com'. The main area displays a list of files under 'My data' with columns for Name, Size, Last modified, and Info. The list includes '.Trash', 'archive', 'Avonside_Trench', 'EF_Interactions', 'New Zealand Project', 'OpenSeesAnalysis', and 'OpenSeesCheck', all 32.0 kB and modified on different dates. Below this is the 'DISCOVERY WORKSPACE' section, which shows icons for ADCIRC, MATLAB, OpenFOAM, OpenSeesSP, and OpenSeesMP, along with a checkbox for 'Show only publicly available apps'. At the bottom is the 'DATA DEPOT BROWSER' interface, featuring a 'Select data source' dropdown set to 'My Data', a 'Browsing' section for 'erathje', and a list of files: 'archive' (32 kB), 'New Zealand Project' (32 kB), 'OpenSeesAnalysis' (32 kB), 'Shared with me' (32 kB), and 'SiteResponseAnalysis' (32 kB). A text box in the bottom right of the browser interface says: 'SELECT AN APP' and 'Select an application from the tray above.' It also notes: 'This initial version of the Discovery Workspace allows users to perform simulations and analyze data using popular open source simulation codes OpenSees, ADCIRC, and OpenFOAM, as well as commercial tools such as MATLAB (software license verification required). The selection of codes and tools will continue to be expanded as seen at the [Workbench Roadmap](#)'.

Box.com integration
coming by June 6!

Jupyter notebooks
coming soon!

DesignSafe Data Curation

- Developing EF-specific data models and vocabularies



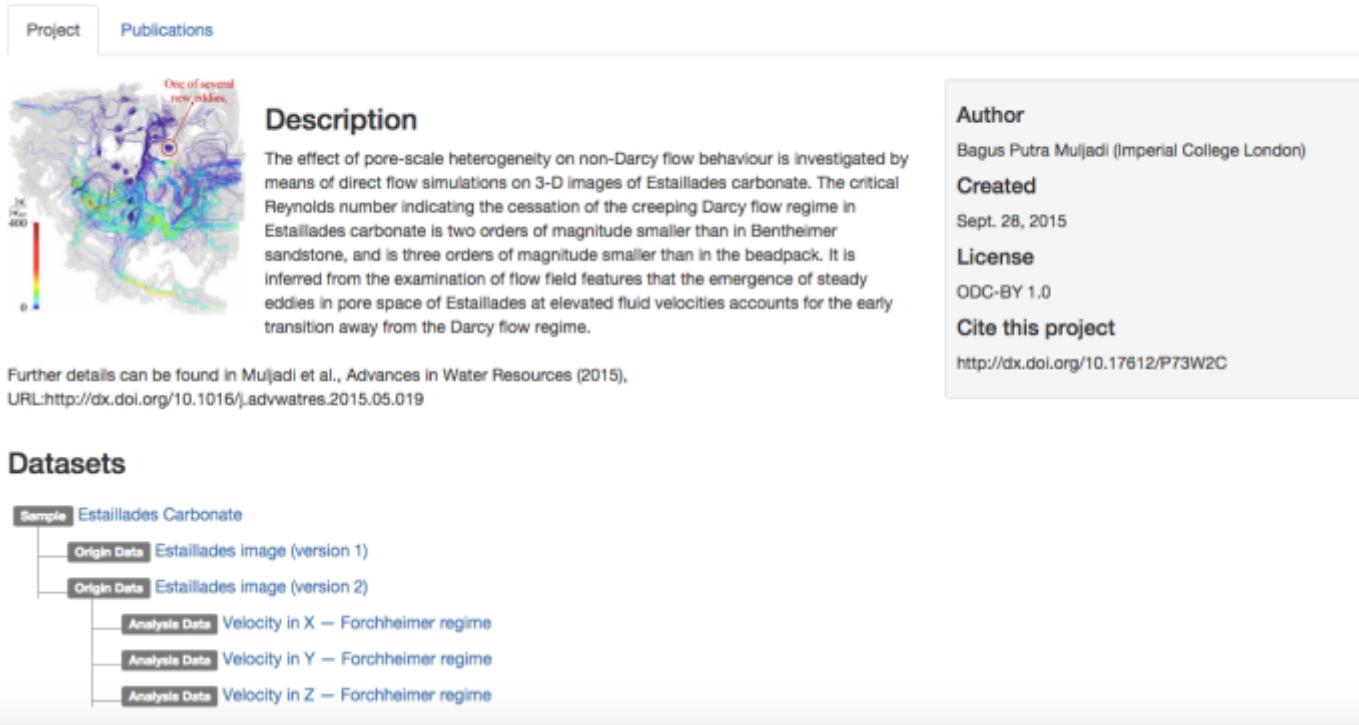
DesignSafe Data Curation

- Developing end-to-end data management infrastructure
 - Project creation
 - Linking to specific EF (allows EF to access the project)
 - Automatic population of metadata tags/tagging of files
 - Sharing with collaborators
 - Final publication of dataset and assignment of DOIs

Enhanced View of Published Data

Digital Rocks Portal
<https://pep-dev.tacc.utexas.edu>

Estailles Carbonate



Current Activities with EFs

- Developed Data Management Guidelines for ENH proposals
- Managing EF websites associated with DesignSafe
- Helping Lehigh upload data to TACC file system
- Helping Florida and Texas develop visualizations of data
- Working with UC Davis and National Instruments to interface NI tools with DesignSafe

Things Open for Business

- **Cybersecurity** - The Cooperative Agreements have a security “audit” deliverable in them – at this point this is mostly a conversation and a review of docs you send to NSF. We’ve done this with one EF, and are happy to work with you at any time for yours.
- **Data Upload** – Data can be brought in via Box, via scripts in our API, manually, or a variety of other methods. If you need to bring in data of any type – into the workspace, local backups, scratch data, schedule some time to talk with us and let’s get started!
- **Visualization** – This is largely custom development, but we are happy to take a crack at your data and begin building then integrating visualizations – in progress at two sites.

Things Open for Business (2)

- **Computation access** - We are providing direct access to large scale computing resources for those who need them. If you need accounts, or tools installed or configured, please contact us about that.
- **Tool Integration**– Running a bit of a backlog now, but we are starting to add large numbers of new tools to the Discovery Workspace – if you have needs, please get these requests in, and we will get to them ASAP (probably several weeks right now, will catch up in the summer).
- **Finalize Required Elements of Schemas** – Sometime late in the year, we will turn on some mandatory checks. If there are elements of metadata projects using your facility ***must*** provide, please coordinate with Maria!

Proposed Action Items with EFs

- Identify an experiment taking place soon that you will use as an initial trial with DesignSafe
 - Data upload and sharing via Data Depot
- Provide feedback on EF-specific data models/ vocabularies to Maria Esteva
- Translate a processing script to Jupyter so processing can take place in the cloud
 - Scott Brandenberg doing this for UC Davis
- Identify visualization needs for your data