

## [Digital Crust - A 4-D Exploratory Environment for Earth Science Research and Learning](#) [1]

Submitted by sbristol on Wed, 2014-06-25 13:41 **Event:** [Summer Meeting 2014](#) [2]

### **Abstract:**

The Digital Crust is an EarthCube Building Block project to produce an online workspace where the geosciences community can contribute data and knowledge, visualize, explore, synthesize and test multiple hypotheses across space-time and themes, and derive 4D data product from multiple data. We will leverage existing Building Blocks (e.g. web-based service) and technologies (e.g., 4D visualization) to implement a web- based integration and exploration environment for sharing data, knowledge, and ideas. We will demonstrate the concept with a Digital Crust resource with its content focused on the Earth's upper crust, which interacts with the atmosphere above and the hydrosphere within, supports terrestrial life on Earth, holds our water, mineral, and energy resources, and is the principle archive of the history of our planet. We will develop aspects of the Digital Crust platform with 3 demonstration projects achievable within 2 years: (1) 4D data exploration to test hypotheses, (2) user data/model uploading, and (3) deriving quantitative gridded product (here, 3D crustal permeability) to support continent scale crustal fluid and geochemical flux simulations. We will produce and release open source software for a stand- alone-workspace building block that can be used in other contexts.

Our poster presented at the ESIP Summer Meeting 2014 shares the basic ideas and high-level overview of the Digital Crust concept. We are particularly seeking new opportunities for engagement with the earth science community on framework data for inclusion in the early prototype and specific regional data integration challenges for collaboration on integrating new local knowledge with framework data layers to improve models and other analyses.

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