



# Digital Object Identifiers (DOI) usage and adoption in U. S. Geological Survey

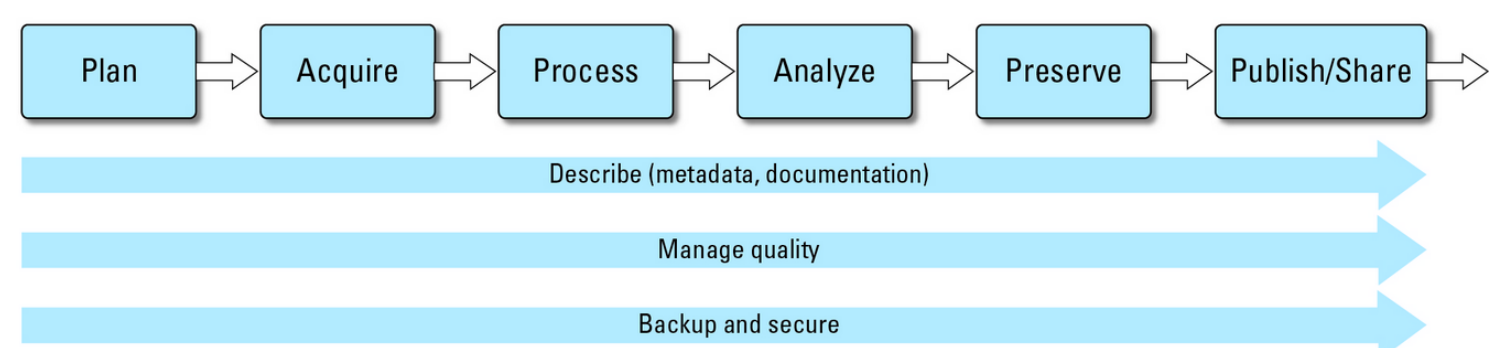
## Background

Addressing grand environmental science challenges requires unprecedented access to easily understood data that cross the breadth of temporal, spatial, and thematic scales. From a scientist's perspective, the big challenges lie in discovering the relevant data, dealing with extreme data heterogeneity, large data volumes, and converting data to information and knowledge. Historical linkages between derived products, such as publications and associated datasets, have not existed in the earth science community.

The US Geological Survey's (USGS) Core Science Analytics and Synthesis (CSAS), in collaboration with Department of Energy's Oak Ridge National Laboratory (ORNL) Mercury Consortium (funded by NASA, USGS and DOE), established a Digital Object Identifier (DOI) service for USGS data, metadata, and other media. This service is offered in partnership through the University of California Digital Library EZID service.

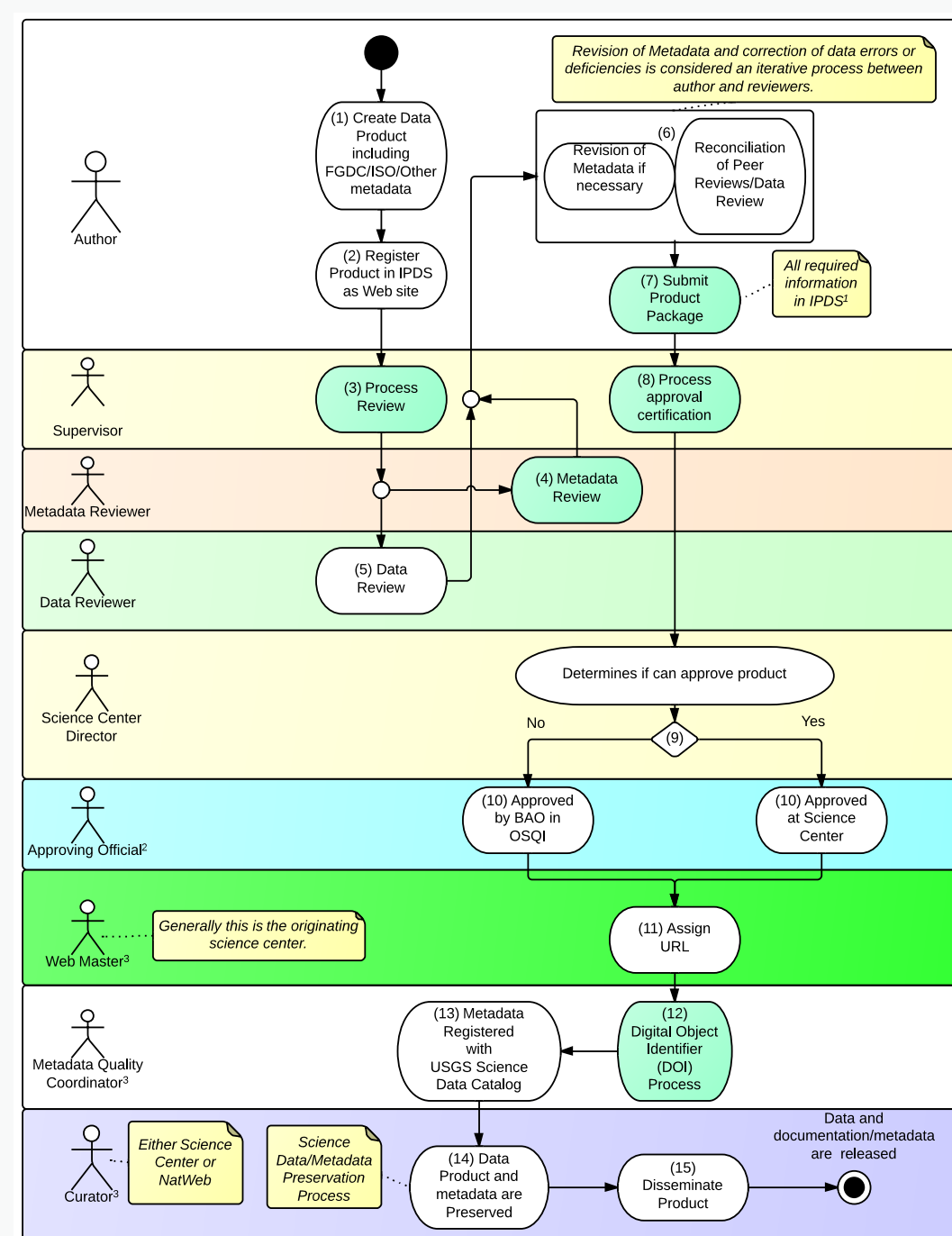
USGS scientists, data managers, and other professionals can generate globally unique, persistent and resolvable identifiers for any kind of digital objects. Additional efforts to assign DOIs to historical data and publications are also underway. New policies will require DOIs in metadata records such that the data used in the research can be better identified. USGS is using DOI identifiers to cite data in journal articles, web-accessible datasets, and other media for distribution, integration, and in support of improved data management practices.

## USGS Data Lifecycle



*Policy*

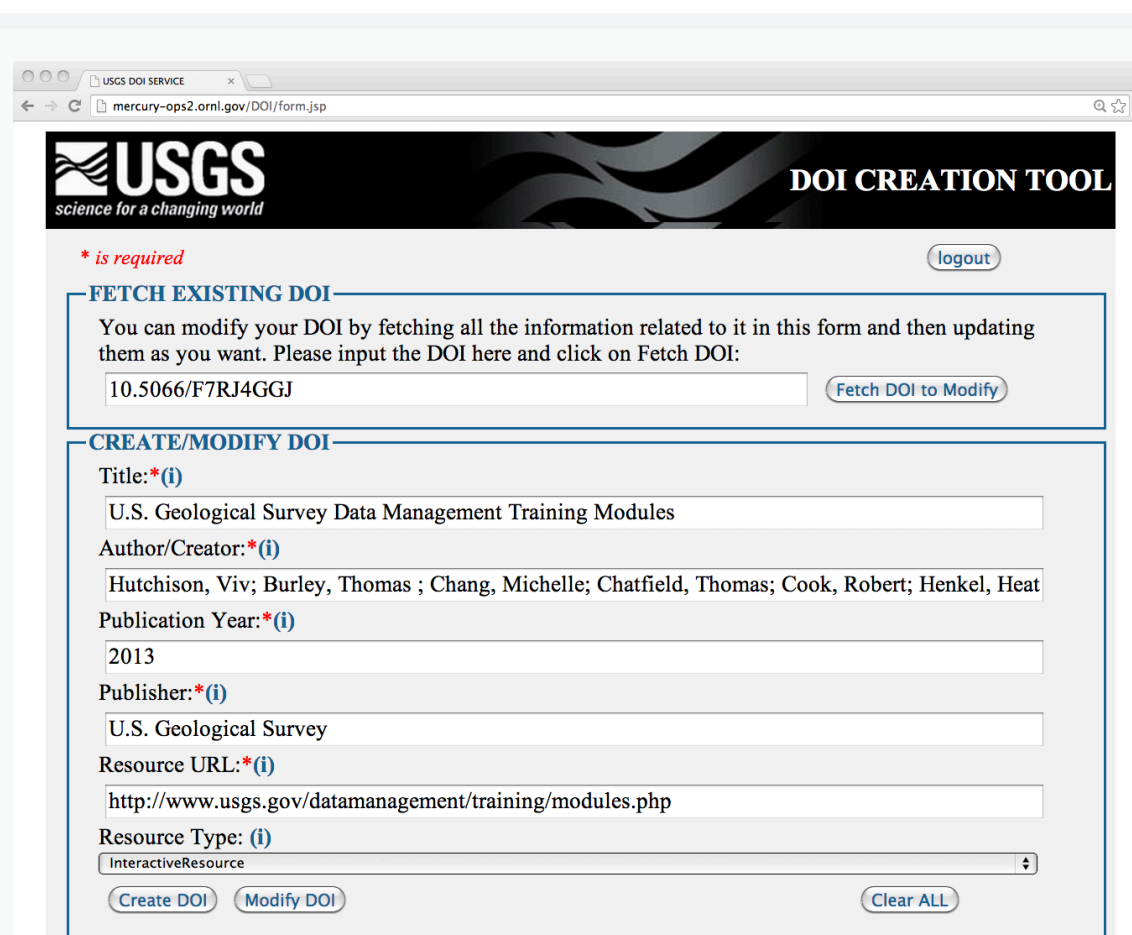
## Release Data via Web at Science Center: October 28, 2013



1. IPDS is the Bureau Information Product Data System. Refer to URL: <http://internal.usgs.gov/publishing/ipds.html>  
2. Under FSP, approval of non-interpretive information products is delegated to the Science Center Director.  
3. These three roles may be delegated to the same person or different individuals at the discretion of the Science Center Director.

Updated policies include a DOI Requirement

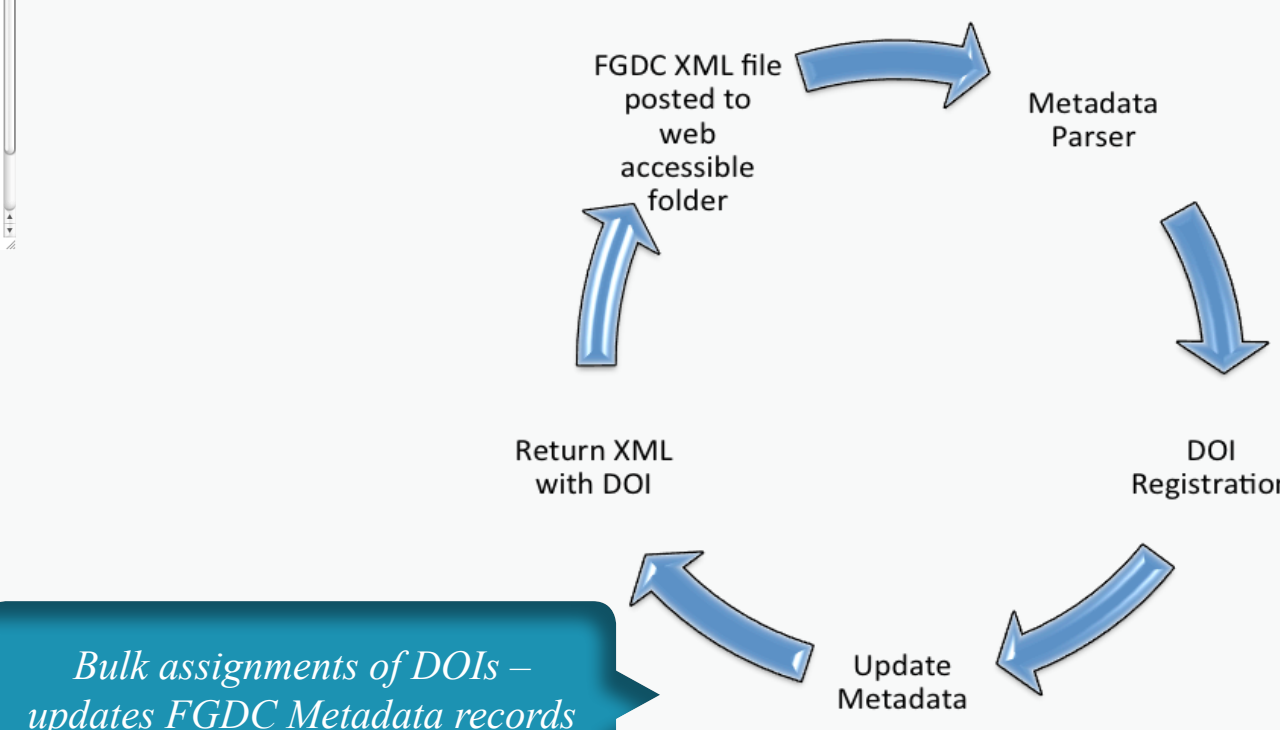
Create and update individual DOIs with the DOI Creation Tool



The screenshot shows the 'DOI CREATION TOOL' interface. It has a 'FETCH EXISTING DOI' section with a text input for the DOI number (10.5066/F7RJ4GGJ) and a 'Fetch DOI to Modify' button. Below that is a 'CREATE/MODIFY DOI' section with fields for Title, Author/Creator, Publication Year, Publisher, Resource URL, and Resource Type. There are 'Create DOI' and 'Modify DOI' buttons at the bottom.

## Digital Object Identifier (DOI)

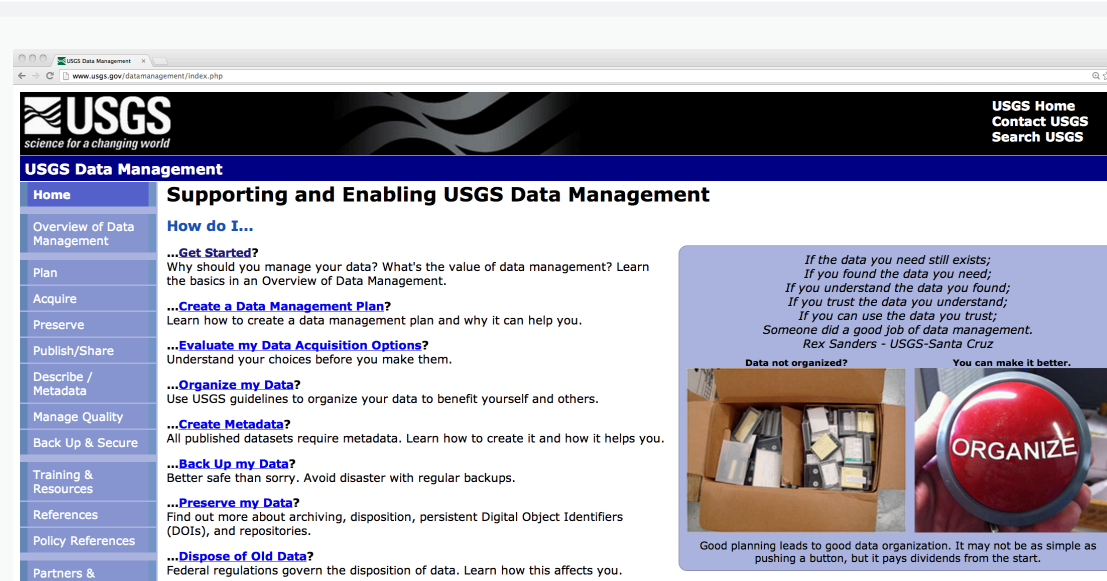
A DOI is one type of unique, persistent identifier that is permanently assigned to a specific electronic resource. When a DOI is assigned, the electronic object receives a unique sequence of alphanumeric characters that remain tied to that object, no matter how many times the object moves to different servers or property rights owners. A DOI supports scientific integrity in that it provides access to the data, workflow, or software version used in a research project from which results can be reproduced.



Bulk assignments of DOIs – updates FGDC Metadata records

## Education/Outreach

Data Management Website provides useful information for all aspects of Science Data Lifecycle

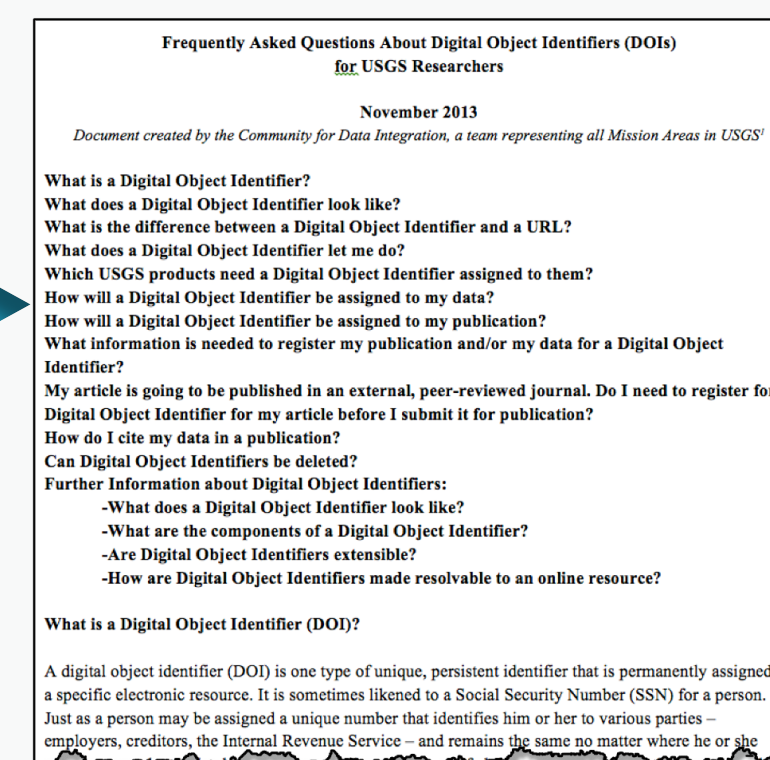


Community developed FAQ document informs producers of science data products about use of DOIs

Outreach efforts promote importance of DOIs for data citation



Hutchison, Viv; Burley, Thomas ; Chang, Michelle; Chatfield, Thomas; Cook, Robert; Henkel, Heather; Strasser, Carly; Zolly, Lisa; (0000): USGS Data Management Training Modules; 2013. <http://dx.doi.org/10.5066/F7RJ4GGJ>

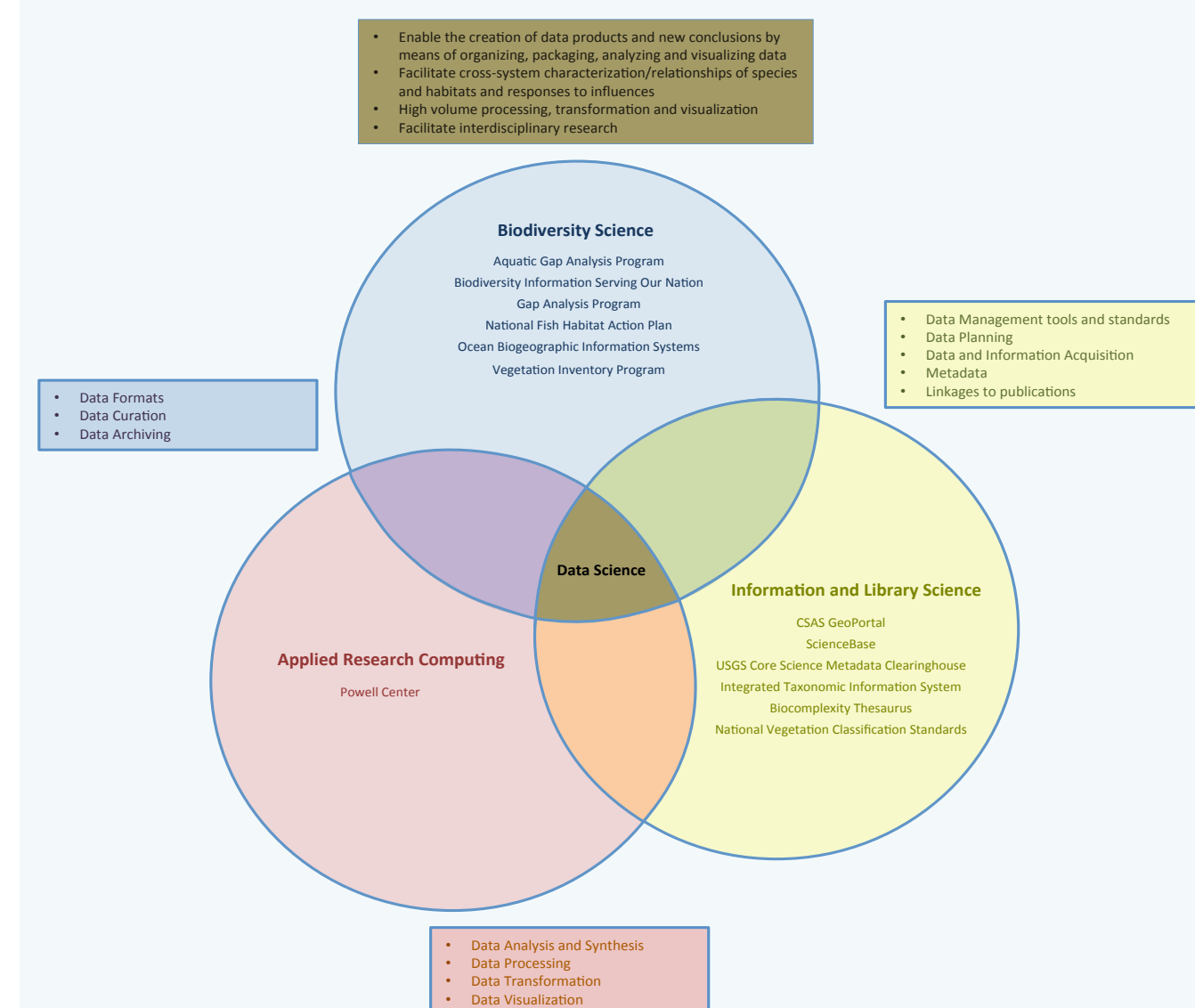


## Who We Are

CSAS combines fundamental and applied research, and integrates scientific data with information analysis and synthesis. We do this by conducting biological occurrence data acquisition, biological taxonomic analysis and interpretation, performing computational analytics, and informational synthesis.

The USGS Science Strategy emphasizes applied Earth systems information research with a focus on data integration and new methods of investigation. CSAS works closely with other mission areas to leverage expertise and apply it to the computing and information needs of science research projects. To help respond to complex and sometimes perplexing science questions, CSAS collaborates with other USGS Mission Areas, and partners with institutions, programmers, modelers, application developers, and others.

## How We Accomplish Our Mission



## Collaborators and Partners



## For more information contact:

Mike Frame  
Core Science Analytics and Synthesis  
U.S. Geological Survey  
Email: [mike\\_frame@usgs.gov](mailto:mike_frame@usgs.gov)  
Office: (865) 576-3605

## USGS CSAS DOI Team:

Mike Frame  
Jean Freney  
Viv Hutchison  
Lisa Zolly

## ORNL Development Team:

Giri Palanisamy  
Biva Shrestha  
Ranjeet Devarakonda