

DataONE

Bill Michener

University of New Mexico

EUDAT 2nd Conference

Rome, Italy

October 29, 2013



UNM

COLLEGE of UNIVERSITY LIBRARIES
& LEARNING SCIENCES

The Economist

The euro crisis, continued
Attacking the Fed
What's up with North Korea
Germany's model Mittel-management
Saving Fiat from Italy

How to live with climate change

SCIENCE

The Economist

Barack Obama v Business
How to fix the euro
Great managers: born, not made?
Cleaning up sport
North Korea: thanks Dad

The world's lungs
Forests, and how to save them
A 14-PAGE SPECIAL REPORT

SEPTEMBER 14, 1997

TIME

Torching the Amazon
Can the rain forest be saved?

HUD: Silent Sam Speaks

BusinessWeek

GLOBAL WARMING
Why Business Is Taking It So Seriously
BY JOHN CAREY (P. 60)

APRIL 12, 2009

Obama's Working Class
Why More Women Are Choosing C-Sections
Can Richard Branson Save the Airline Industry?

TIME

SPECIAL ENVIRONMENT ISSUE

How to Win The War On Global Warming
BY BRIAN WALSH

The Economist

Silvio Berlusconi, your time is up
Iran throws down the gauntlet
Sovereign risk after Dubai
Has Obama got Afghanistan right?
Our books of the year

Stopping climate change
A 14-PAGE SPECIAL REPORT

APRIL 2, 2009

TIME

SPECIAL DOUBLE ISSUE

The Global Warming Survival Guide
51 Things You Can Do to Make a Difference

Living with Cancer
Beyond Baghdad: Where The Enemy Has Its Own Surge
The Sopranos' Last Song: What Exit Will Tony Take?

The Economist

Brazil as the next oil giant
God help Italy
London's funny but sad election
The return of Disney
Cancer's link to stem cells

The silent tsunami
The food crisis and how to solve it

Dr. Bush's Rx for Health Care

TIME

VANISHING OZONE
THE DANGER MOVES CLOSER TO HOME

SEPTEMBER 11, 2009

China's Me Generation
For young elites, it's more good times than democracy

Swinging Singles
One-armed gaiters hit it big

Yep, He's Gay
Why Rowling's excited fans

TIME

Special Report
Why California Is Burning

AUGUST 1, 2009

TIME

Our Filthy Seas

Khomenei's Surprising Offer

The Economist

East Asia's economies, five years on
Why Arab countries have failed

CO₂AL
Environmental enemy No. 1

THE GLOBAL ENVIRONMENT
STARTS AFTER PAGE 50

JULY 26, 2009

TIME

HOW TO SAVE THE EARTH

The hot and wild weather is a sign of things to come. But fresh ideas and new technology can cool us down and make this a **GREEN CENTURY**

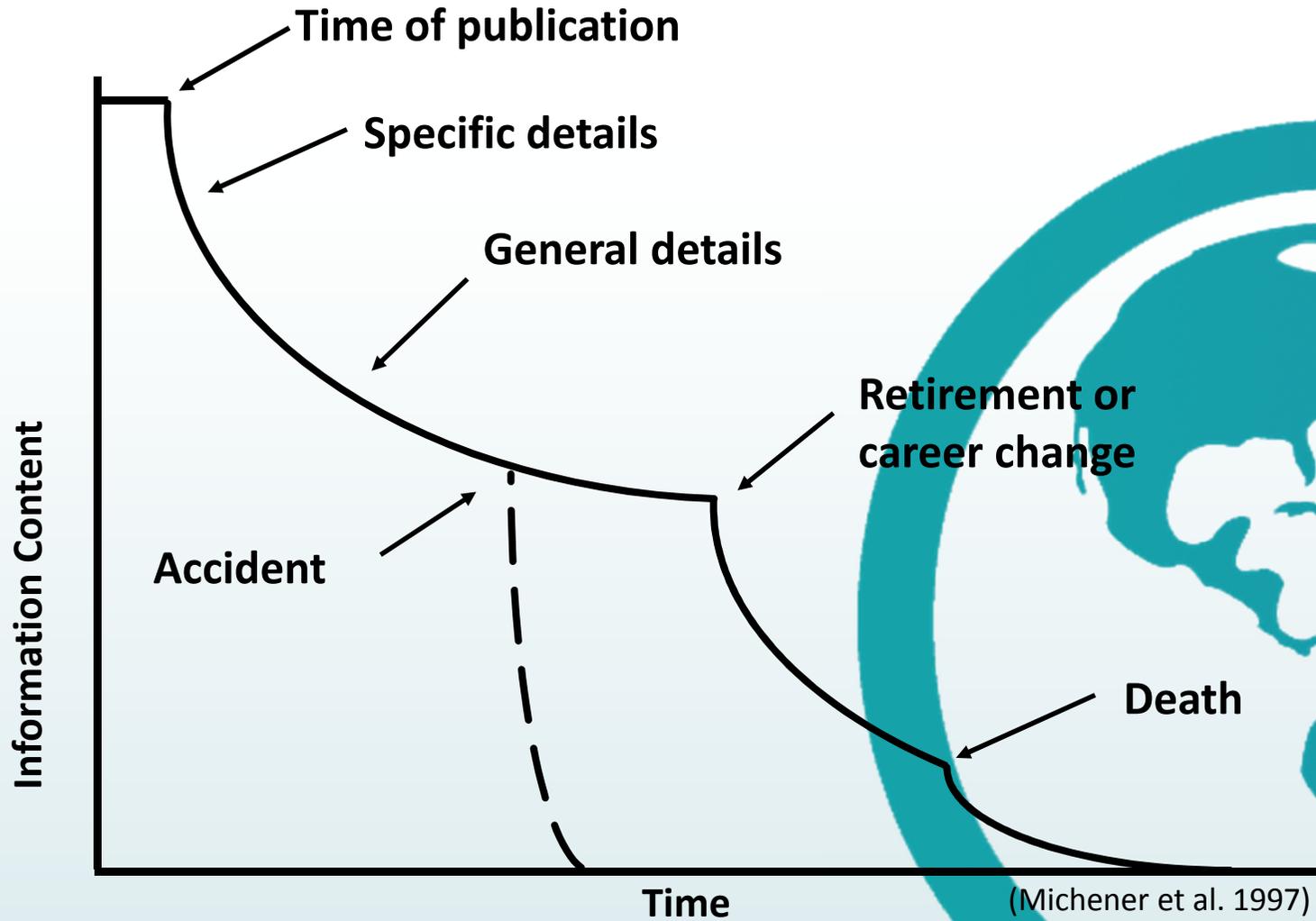
13 June 2009 \$10

Science

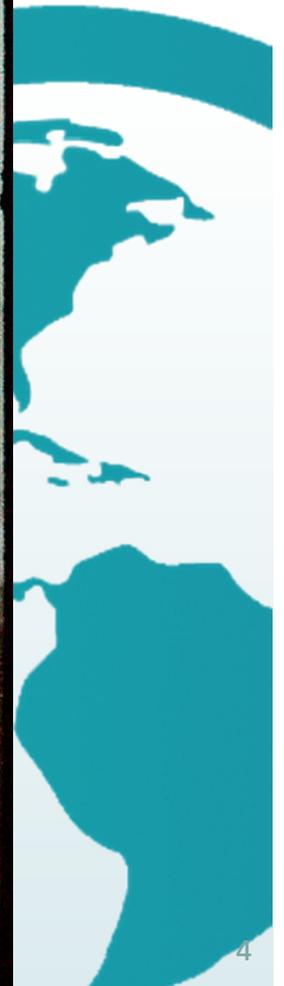
FORESTS IN FLUX

AAAS

Data undergo entropy,



data are difficult to discover,



and data are difficult to manage!

OPEN ACCESS Freely available online



Data Sharing by Scientists: Practices and Perceptions

Carol Tenopir^{1*}, Suzie Allard¹, Kimberly Douglass¹, Arsev Umur Aydinoglu¹, Lei Wu¹, Eleanor Read², Maribeth Manoff², Mike Frame³

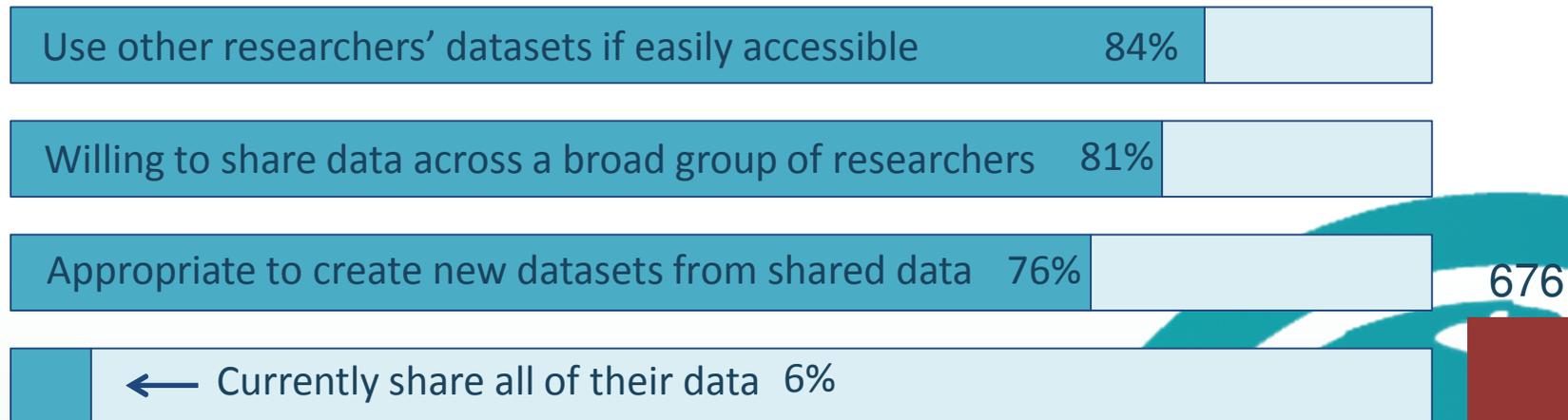
¹ School of Information Sciences, University of Tennessee, Knoxville, Tennessee, United States of America, ² University of Tennessee Libraries, University of Tennessee, Knoxville, Tennessee, United States of America, ³ Center for Biological Informatics, United States Geological Survey, Oak Ridge, Tennessee, United States of America

Abstract

Background: Scientific research in the 21st century is more data intensive and collaborative than in the past. It is important to study the data practices of researchers – data accessibility, discovery, re-use, preservation and, particularly, data sharing. Data sharing is a valuable part of the scientific method allowing for verification of results and extending research from prior results.

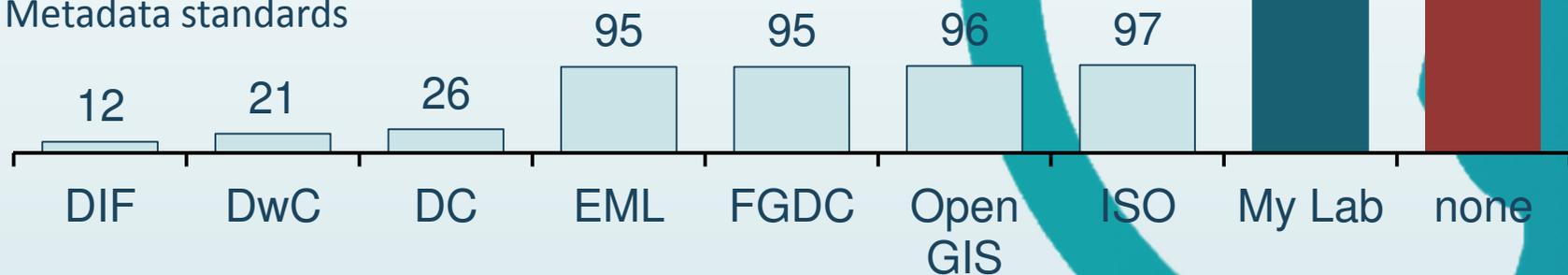
Methodology/Principal Findings: A total of 1329 scientists participated in this survey exploring current data sharing practices and perceptions of the barriers and enablers of data sharing. Scientists do not make their data electronically available to others for various reasons, including insufficient time and lack of funding. Most respondents are satisfied with their current processes for the initial and short-term parts of the data or research lifecycle (collecting their research data; searching for, describing or cataloging, analyzing, and short-term storage of their data) but are not satisfied with long-term data preservation. Many organizations do not provide support to their researchers for data management both in the short-

Scientists want to share data



but don't know how to and, if they do, want to get proper credit for doing so.

Metadata standards





Technology

DataONE Cyberinfrastructure: A network of data repositories allowing integrated search and discovery of biological, environmental and Earth science data



1

Member Nodes: A diverse array of institutions, data centers and repositories that form the basis of the network.

Coordinating Nodes: Provide network-wide services to enhance interoperability of the Member Nodes.

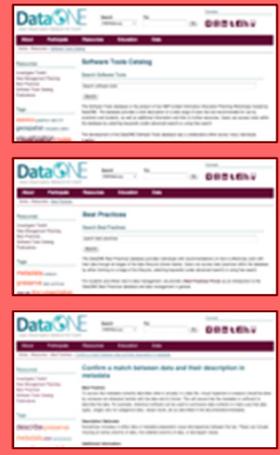
Education

An established program of workshops and suite of online education resources designed for individual learning and instruction of others

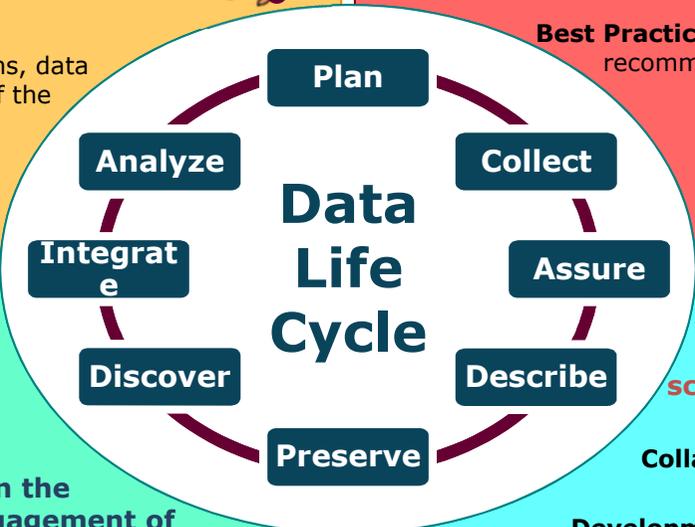
Education Modules that cover the data life cycle and can be downloaded for individual or group instruction.

Best Practices Database provides recommendations for effective data management.

Software Database enables scientists to discover tools that support all stages of the data life cycle.



3



Data Life Cycle



Integration of stakeholder interests in the development of DataONE through engagement of relevant science, library, data and policy communities

Working Group Model built to gain expertise for development of activities and projects.

DataONE Users Group: A self-organizing community provides guidance to DataONE and benefits from shared experiences.

Usability testing and demonstrations at society and other meetings.

Community

4

Investigator Toolkit: Access to customized tools that are familiar to scientists and that can support them in all aspects of the data life cycle

Collaborative approach to enhance functionality of tools currently used by scientists.

Development of new tools designed to facilitate good data management practice across all stages of the data life cycle.

Integration of existing tools into the DataONE framework.



Tools

2

Technology



Technology

Three major components for a flexible, scalable, sustainable network

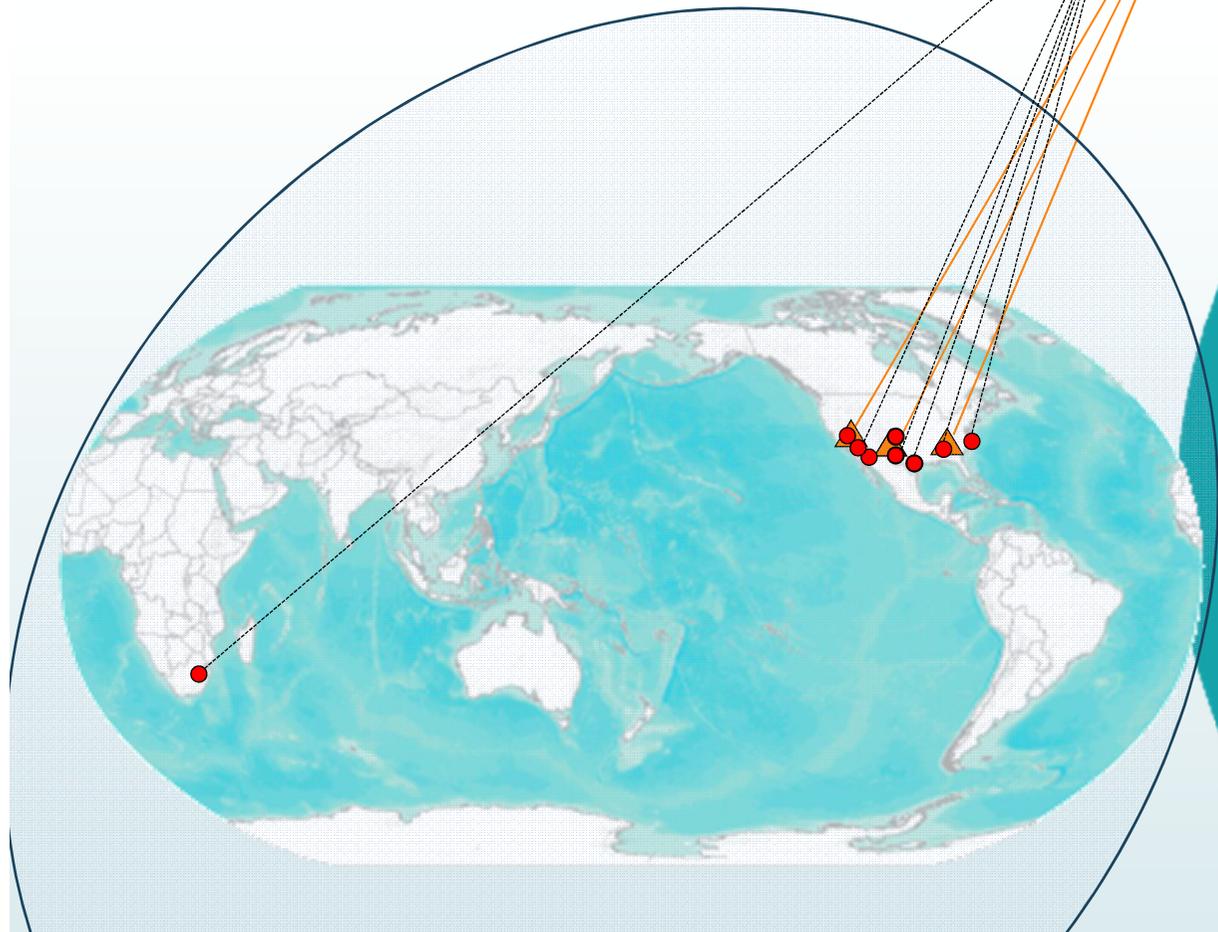
Coordinating Nodes

- retain complete metadata catalog
- indexing for search
- network-wide services
- ensure content availability (preservation)
- replication services



Technology

Three major components for a flexible, scalable, sustainable network



Coordinating Nodes

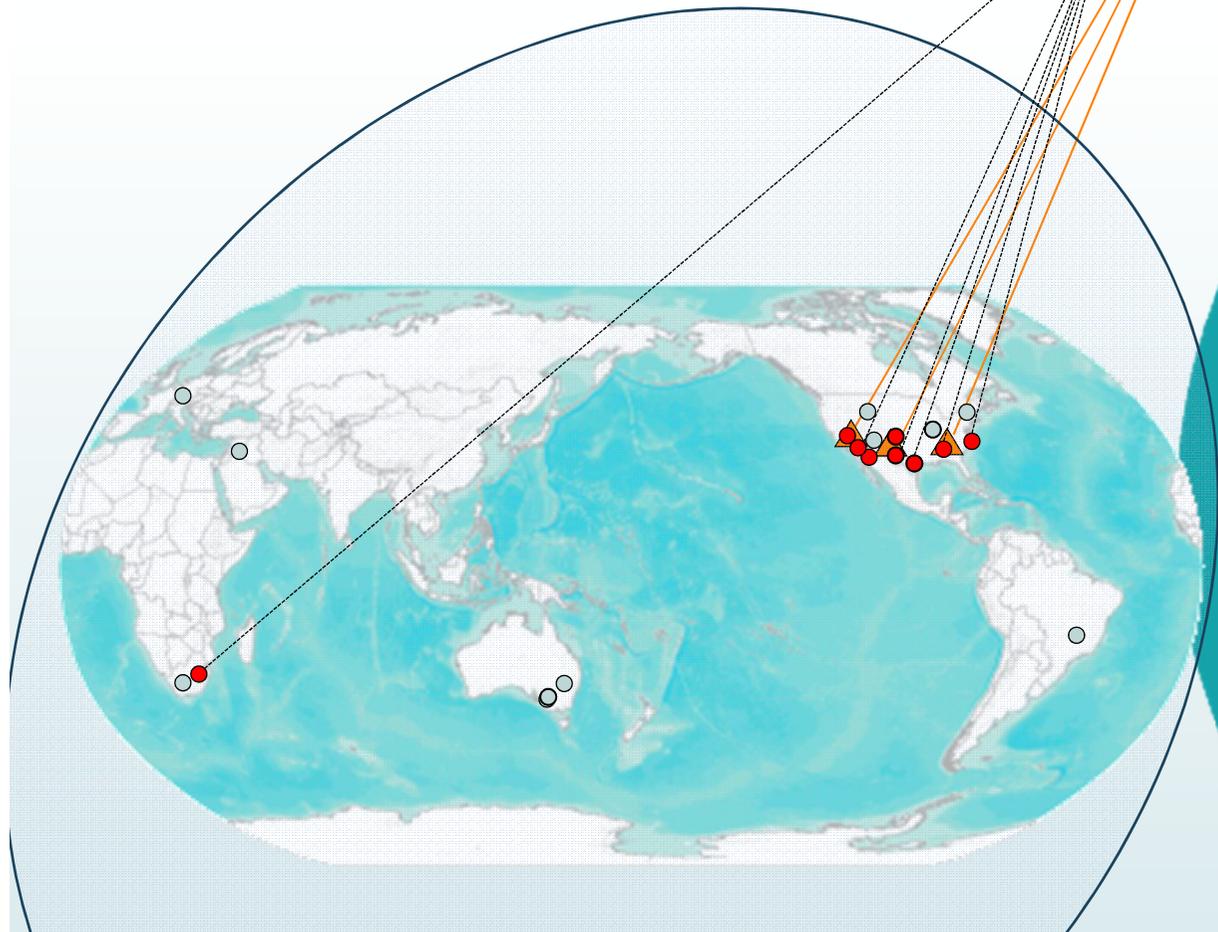
Member Nodes

- diverse institutions
- serve local community
- provide resources for managing their data
- retain copies of data



Technology

Three major components for a flexible, scalable, sustainable network



Coordinating Nodes

Member Nodes

- diverse institutions
- serve local community
- provide resources for managing their data
- retain copies of data

 The **Cornell** Lab 

 **UC3** Merritt

   **PISCO**

 **USGS**  **esa**  **KNB**

 **ONE Share**

Technology

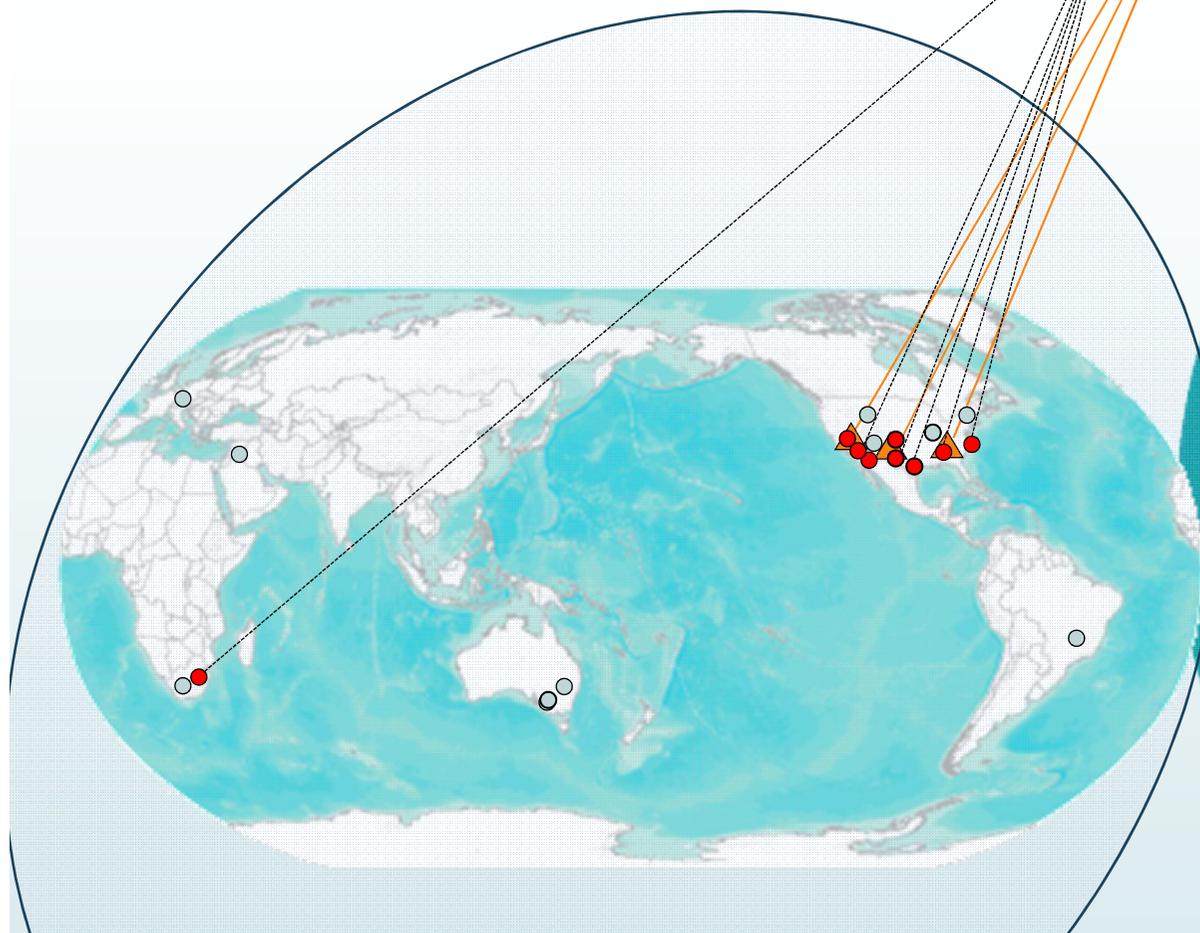
Three major components for a flexible, scalable, sustainable network

Coordinating Nodes

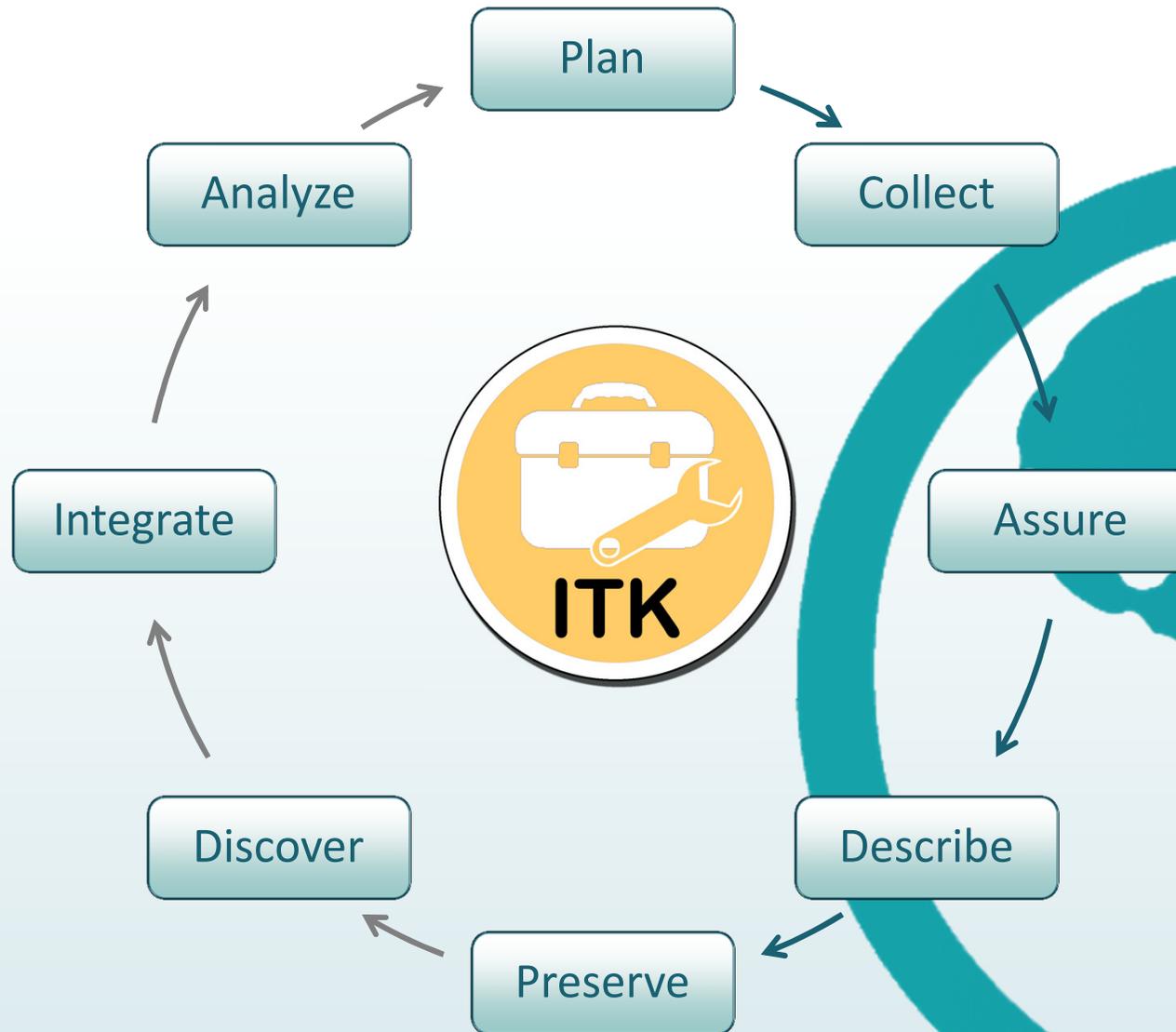
Member Nodes

Investigator Toolkit

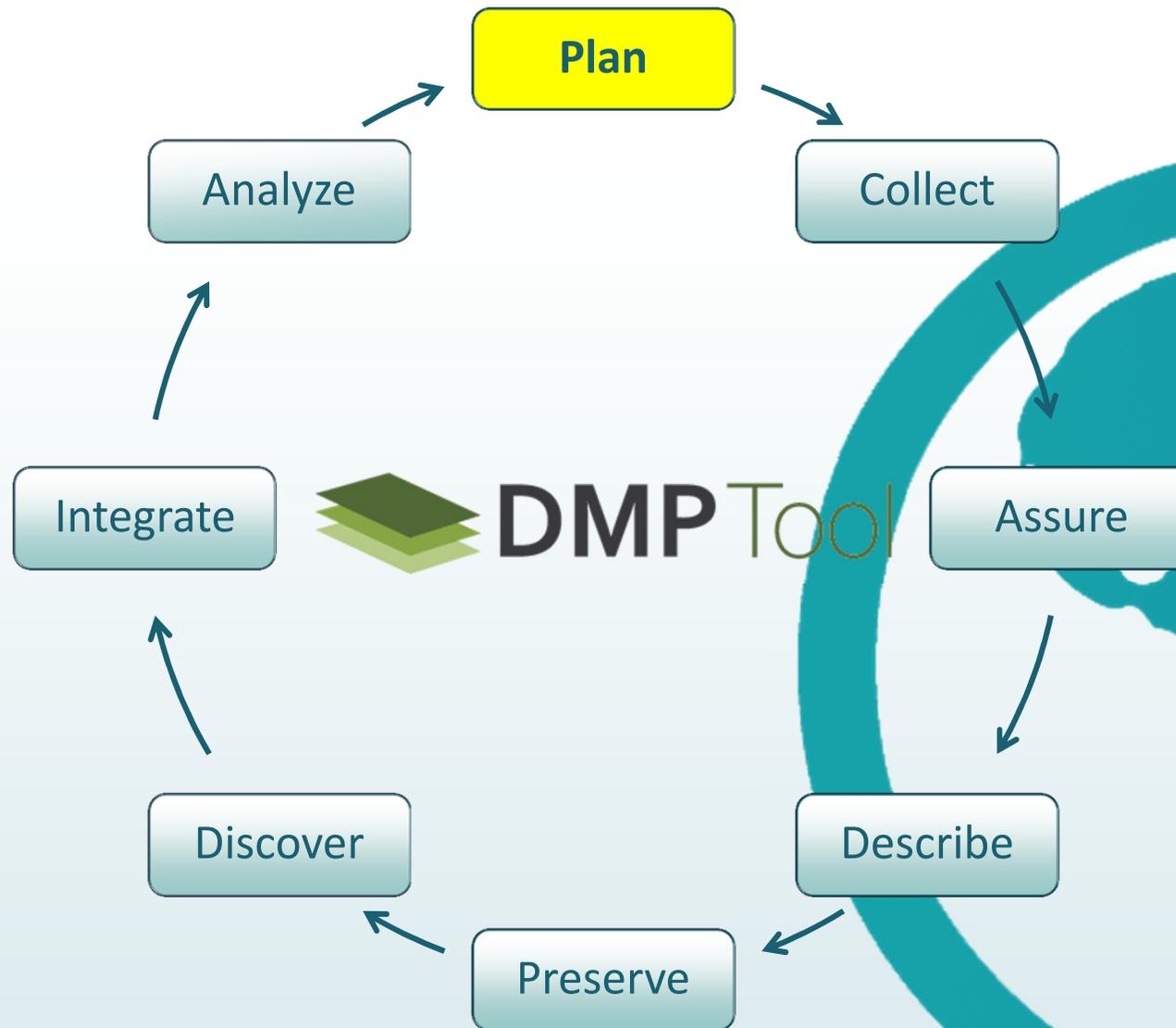
>> command line interface



Tools



Tools



DMPTool

Guidance and Resources for your Data Management Plan

Help us improve the DMPTool:

[Take our survey!](#)

Home About DMP Tool DMP News My Plans Funder Requirements Help



The DMP Tool allows you to: 1 2 3 4

[Get Started!](#)

Data Management Plan: Sample Plan Created at the DataONE Best Practices Workshop - Santa Fe NM 7/2011
Atmospheric CO2 Concentrations, Mauna Loa Observatory, Hawaii, 2011-2013

1. Types of data produced

An example of Mauna Loa Observatory data collected continuously from an intake located 340 meters, a central tower which has been located at various locations. These data files will contain continuously measured CO2 concentrations, reference standards, reference standards, dry mole fraction, and density. The sample files located in computer operations were used to monitor the influence of source effects associated with wind direction. In addition to the CO2 data, we will record weather data (wind speed and direction, temperature, humidity, precipitation, and cloud cover). Site conditions at Mauna Loa Observatory will also be noted and recorded. The final dataset will consist of 5-minute, 15-minute, hourly, daily, and monthly average atmospheric concentration of

[See a plan created with the DMP Tool](#)

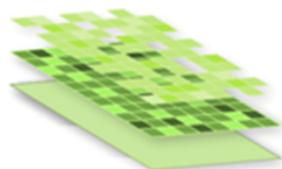
Recent DMP News

[Take our user survey](#)

[Webinar on data management plans, Jan 11 and Jan 19](#)

[DMPTool at the Coalition for Networked Information Fall Membership meeting](#)

[More news >](#)



Progress

Sections marked with a check are complete. You can navigate to a section and edit at any time.

NSF-GEN: Generic

Cover page

- ✔ 1. [Types of data produced](#)
- ✔ 2. [Data and metadata standards](#)
- ✔ 3. [Policies for access and sharing](#)
- ✔ 4. [Policies for re-use, redistribution](#)
- ✔ 5. **[Plans for archiving & preservation](#)**

Plans for archiving data, samples, and other research products, and for preservation of access to them.

Suggested answer text; copy and paste as needed:

As advised by University of Virginia Library staff members, I plan on depositing my research data in the UVA institutional repository – Libra. I will submit the necessary metadata and other resources to make my data accessible for future users. In accordance with the University of Virginia policy RES-002, "Policy: Laboratory Notebook and Recordkeeping," the data will be preserved for a minimum of five years upon completion of the project. However the current preservation plan for Libra will be to preserve the data indefinitely. The Libra backup plan provides for data redundancy including off-site storage.

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Resources

University of Virginia

[UVa Scientific Data Consulting Group](#)

[Archiving & Sharing Data Guidance](#)

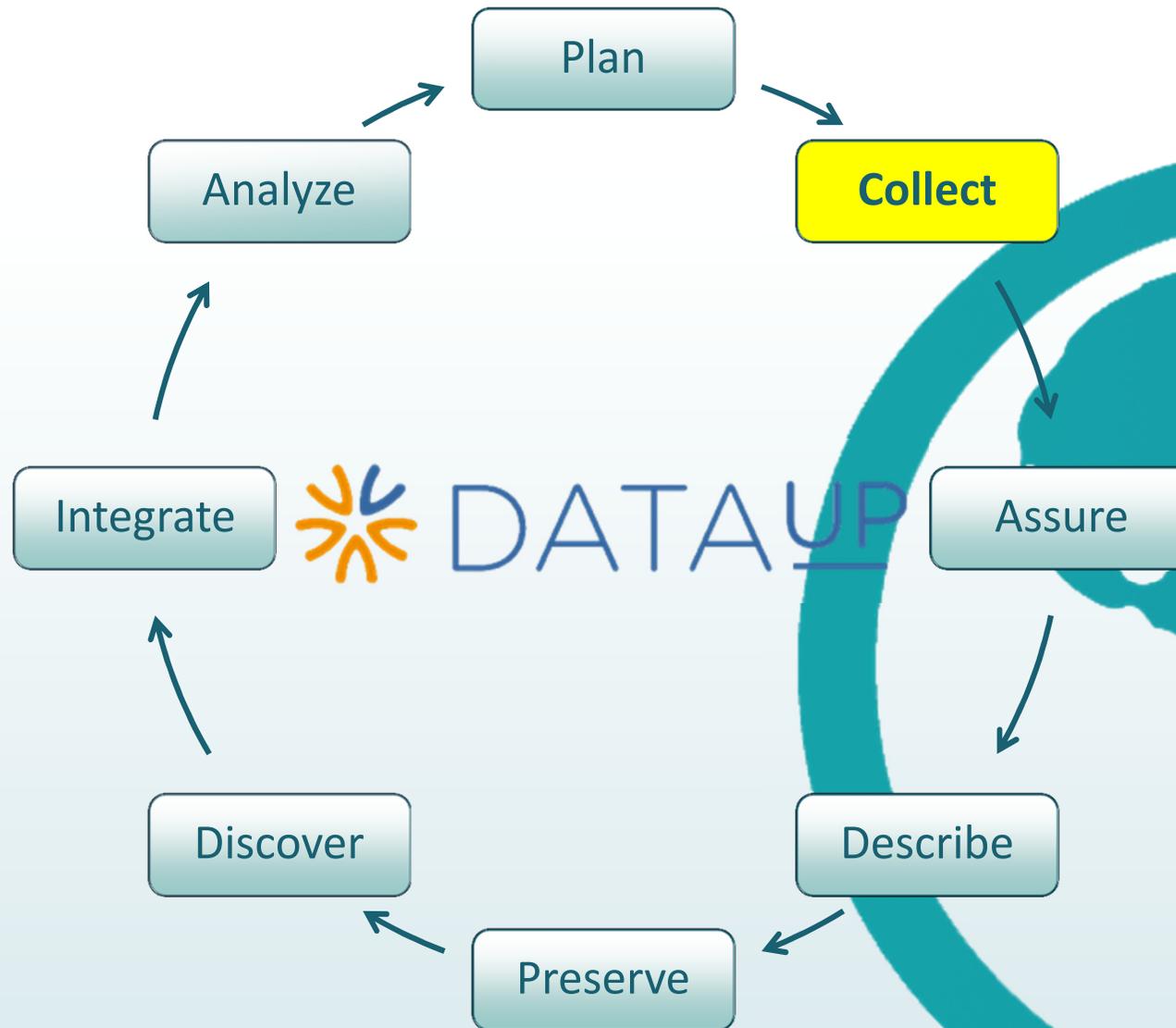
[UVa Policy RES-002: "Laboratory Notebook and Recordkeeping"](#)

General

[NSF Data Sharing Policy](#)

[NSF Data Management Plan Requirements](#)

Tools



	A	B	C	D	E	F	G	H	I
	amount foot	SATLS_R1	SATLS_R2	SATLS_R3	SATLS_R4				
12	23-Oct	30	180	850	750	650			
13	28-Oct	25	400	780	550	400			
14	27-Oct	25		500	1000				
15	29-Oct	35	300	750	350	200	450		200
16	31-Oct	30	340	800	300	300	1450		700
17	2-Nov	25	292	1550	660	300	1000		520
18	4-Nov	25	340	440	200+	260	1850		700
19	6-Nov	30	-	400	-	250	550		750
20	8-Nov	30	-	300	-	280	300		400
21	10-Nov	30	-100	180	-100	80	450	1450	350
22	12-Nov	35	<50	60	<50	100	300	800	550
23	14-Nov	30	<10	100	<50	20	200	600	550
24	16-Nov	35	<10	30	<30	0	140	2200	450
25	18-Nov	30	0	0	<20	0	125	400	150
26	20-Nov	25	0	0	<20	40	150	280	250
27	Nov	25			<10	0	120	10	50
28	Nov	25			<5	0	50	30	0
29	Nov	25			<5	0	<50	0	0
30	Nov	25			<10	0	125	150	150
31	Dec	25			0	0	<25	0	0
32	Dec	25			<10	0			
33	Dec	25			0	0	<10	0	0



DATAUP
Discover, Manage & Share Your Data

An open source tool helping researchers document, manage, and archive their tabular data. DataUp operates with the scientist's workflow and integrates with Microsoft Excel.

Looking for the DataUp blog? [Click to DataUp!](#)

See what DataUp can do for you:

- Check for Best Practices
- Create Metadata
- Get Credit for Data
- Archive Data

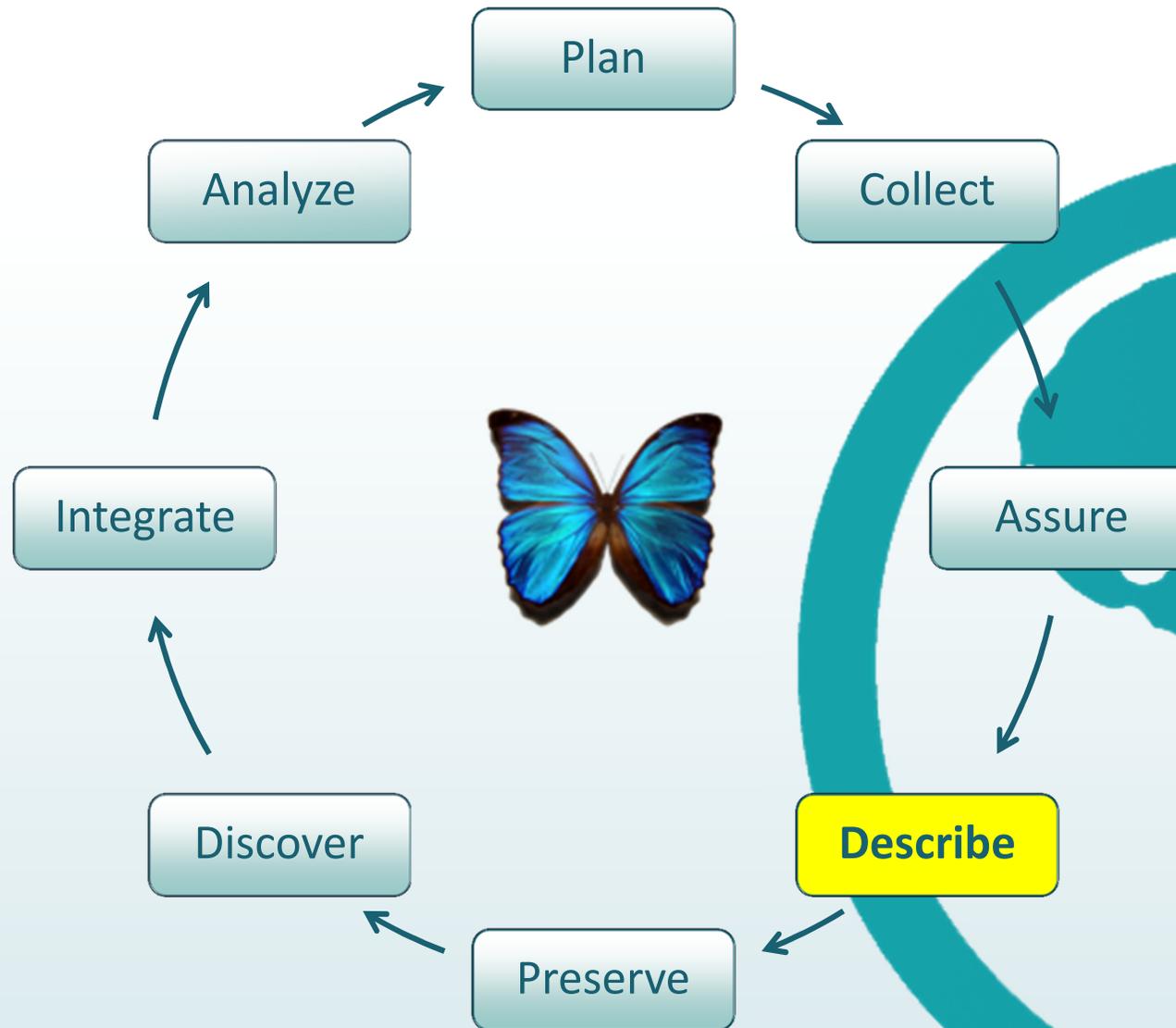
About the Project | Resources | News & Events | Discover UCI

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ONE Share

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
1	Treatment	Treeburn	Replicate	TimeStep	N1	N2	N3	N4	C1	C2																
2	SATLS	S	S	1	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
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4	SATLS	S	S	3	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
5	SATLS	S	S	4	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
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7	SATLS	S	S	6	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
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26	SATLS	S	S	25	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
27	SATLS	S	S	26	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
28	SATLS	S	S	27	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00	0.000+00
29	SATLS	S	S	28	0.000+00	0.000+00	0.000+00	0.000+00																		

Tools





The Knowledge Network for Biocomplexity

[Home](#) [Data](#) [People](#) [Informatics](#) [Biocomplexity](#) [Education](#) [Software](#)

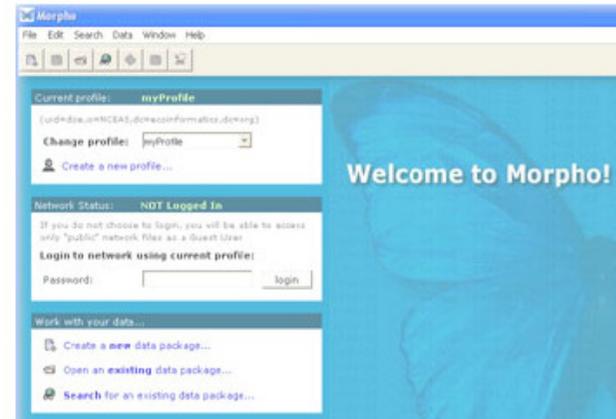
Morpho Data Management Software

Morpho allows you to create and manage your data, and to share it with others. It was created to provide an easy-to-use, cross-platform application for accessing and manipulating metadata and data (both locally and on the network).

Morpho allows ecologists to create metadata, (i.e. describe their data in a standardized format), and create a catalog of data & metadata upon which to query, edit and view data collections. In addition, It also provides the means to access network servers, in order to query, view and retrieve all relevant, public ecological data! Check the [Morpho User Guide](#) for details.

The basic operations that can be carried out using Morpho are:

- Create and Edit Metadata
- Search and Query Metadata Collections
- View Data and Data Collections
- Verify/Edit Data
- Provide Access Control
- Share Data via the KNB



Download Morpho

Download the Morpho data management application. Easy-to-use installers are available for various platforms. For windows and mac versions, users need to double click the installers. For linux version, users need to run "java -jar morpho-version-linux.jar".

To run Morpho, you must have Java 1.6 or later installed on your computer.



- Read the [README](#) for a change log

Download a Morpho installer:

[Windows](#) :: [Linux](#) :: [Mac OSX](#)

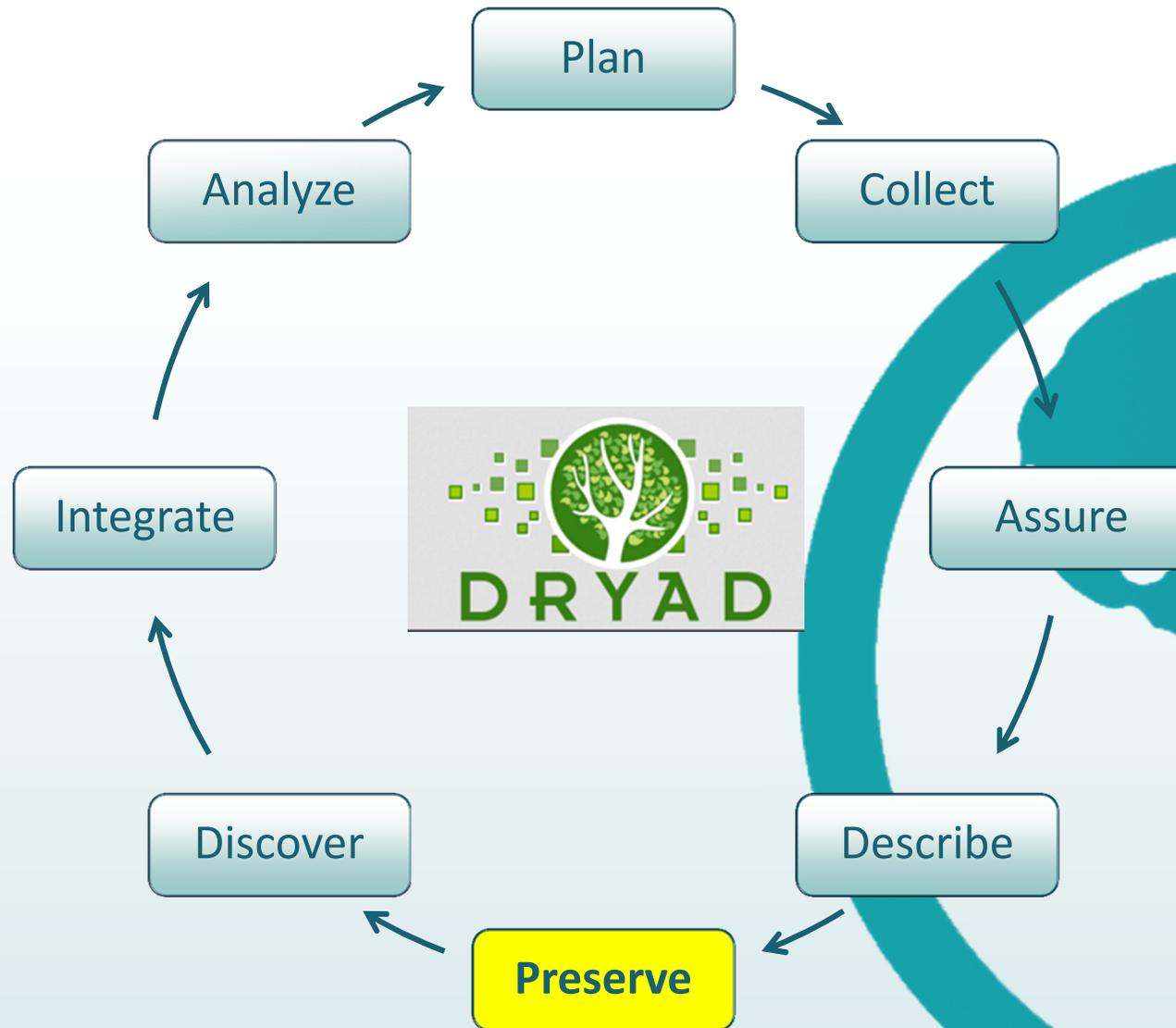
Note: If the Morpho Uninstaller can't remove Morpho installed in C:\Program Files on Windows Vista, you may have to use one of the following two ways to uninstall Morpho.

1. Temporarily disable User Account Control(UAC) on Vista, then run the Morpho Uninstaller program. In this case, everything will be removed. Here is the [link](#) telling you how to turn UAC on or off.

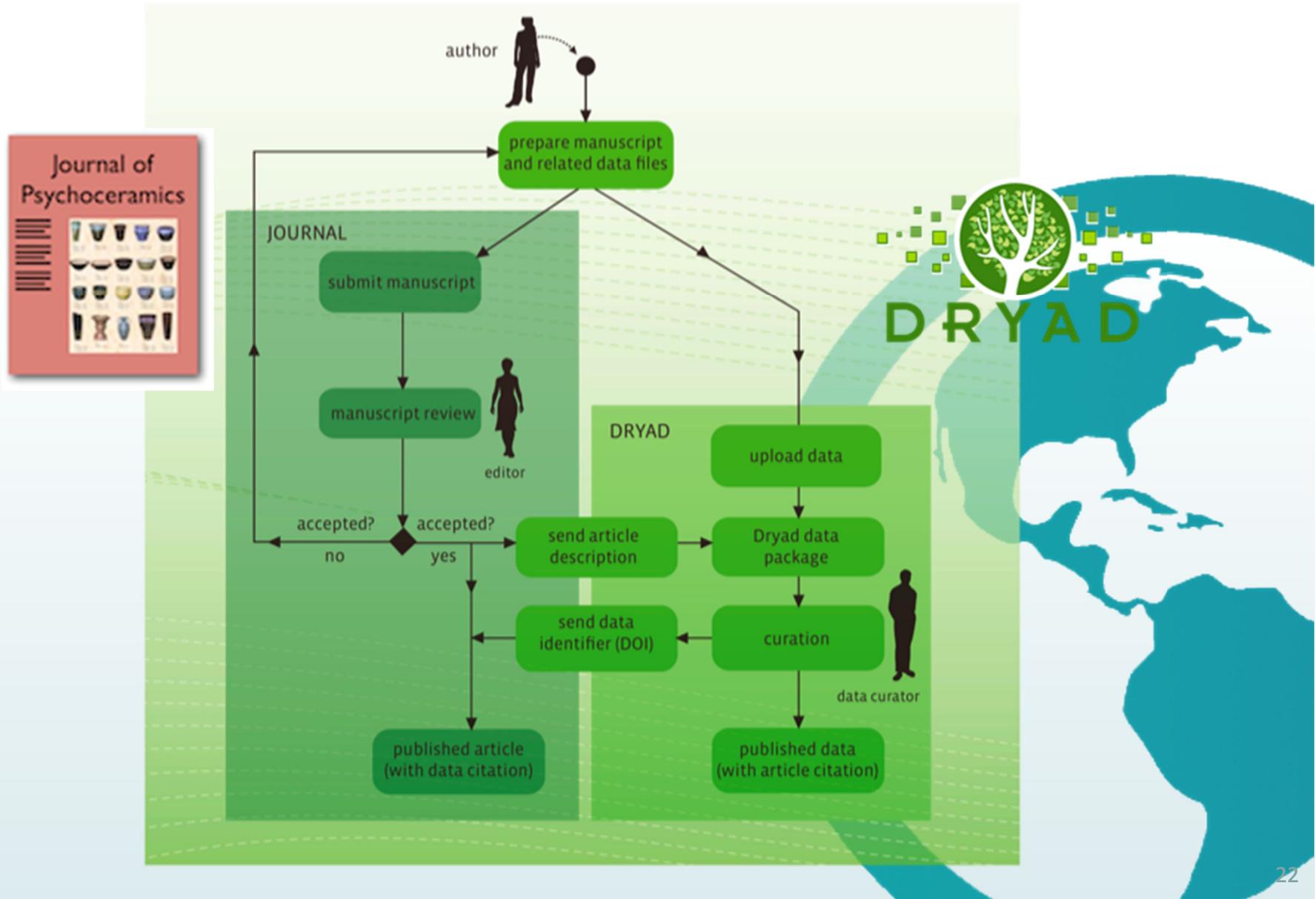
2. Manually remove the Morpho item from the Vista Start Menu and delete the Morpho installation directory in C:\Program Files.

Older Versions

Tools



Dryad repository for journal data



Promoting data citations via Dryad

Article

Wu D, Wu M, Halpern A, Rusch DB, Yooseph S, Frazier M, Venter JC, Eisen JA (2011) Stalking the fourth domain in metagenomic data: searching for, discovering, and interpreting novel, deep branches in phylogenetic trees of phylogenetic marker genes. PLoS ONE 6(3): e18011.

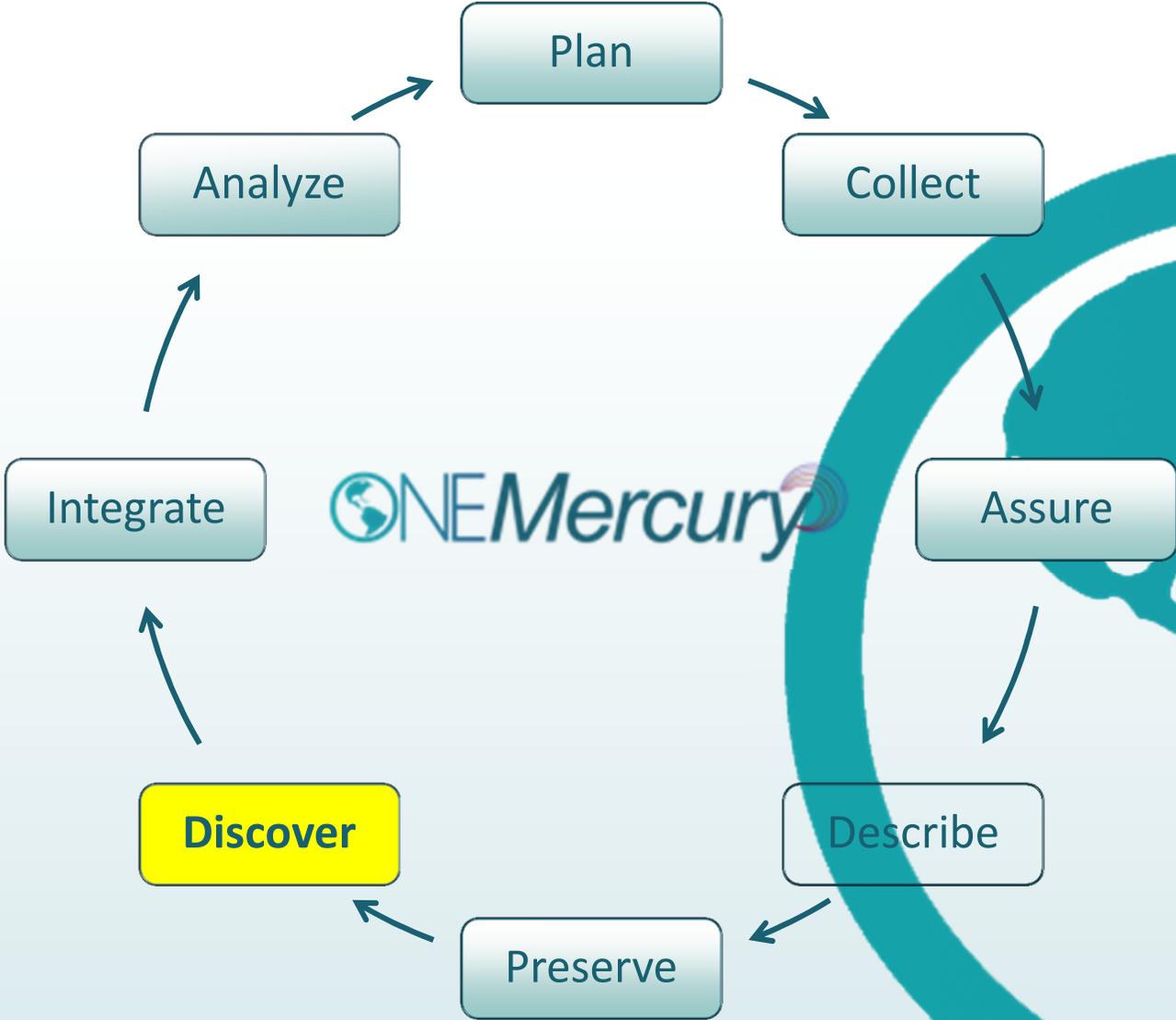
[doi:10.1371/journal.pone.0018011](https://doi.org/10.1371/journal.pone.0018011)

Dryad data package

Wu D, Wu M, Halpern A, Rusch DB, Yooseph S, Frazier M, Venter JC, Eisen JA (2011) Data from: Stalking the fourth domain in metagenomic data: searching for, discovering, and interpreting novel, deep branches in phylogenetic trees of phylogenetic marker genes. Dryad Digital Repository.

[doi:10.5061/dryad.8384](https://doi.org/10.5061/dryad.8384)

Data life cycle



Search For: soil organic carbon

Hint: boolean operators and phrases are allowed. ex: precipitation or (rain and "moisture content")

Results/Page

10

SEARCH

Only results with data.

Show/Hide Advanced Options

Help

Fielded Search

FullText OR
FullText OR
FullText

Help | clear

Date Search

Collection Date during thru
 Publication Date thru
 Either thru

Help | clear

Geographic Search



List Areas in:

USA WORLD

Select from list

Search Area:

on/line on/disk

North

West East

South

Help | clear

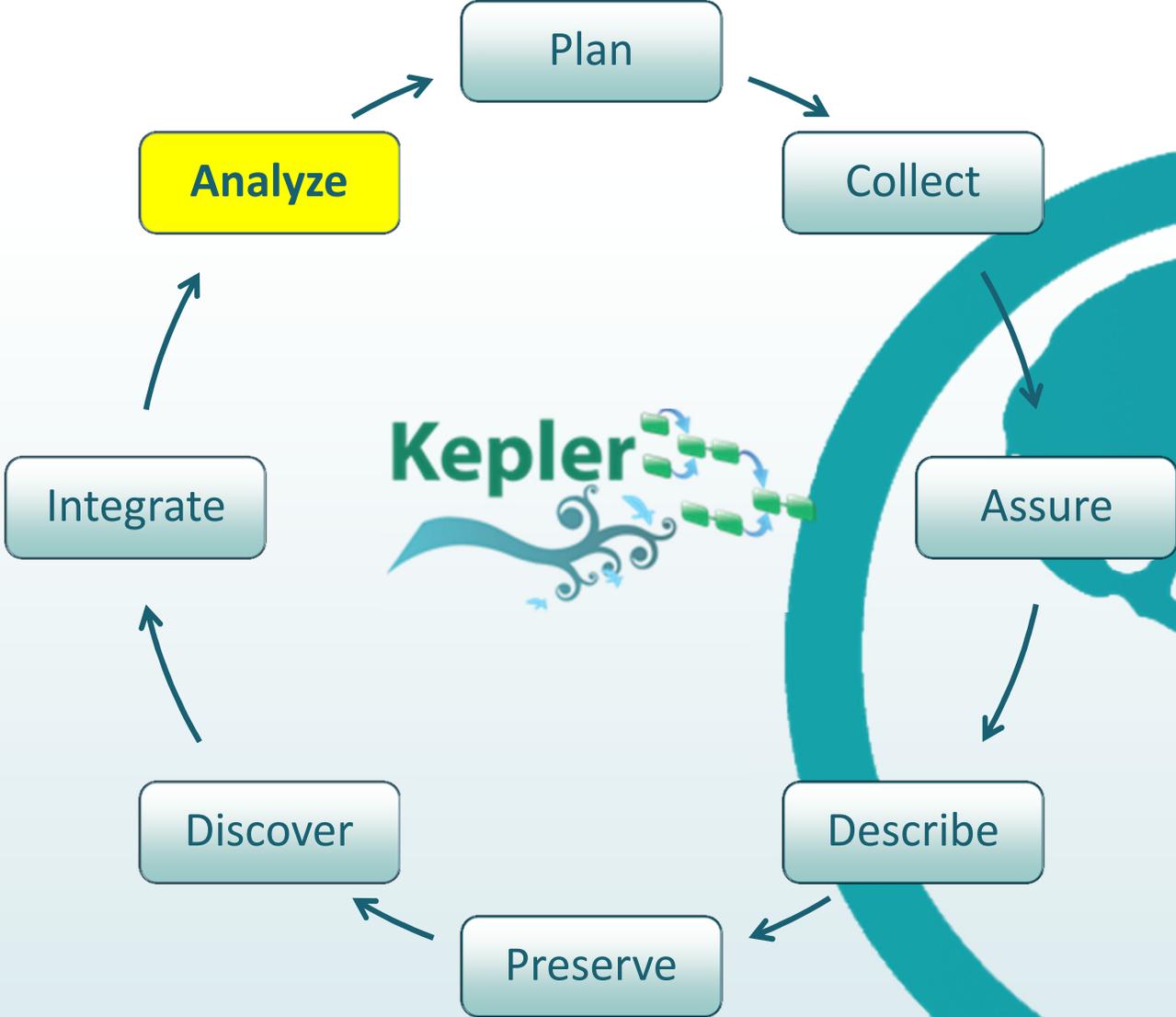
Member Nodes

- All
- SANParks Data Repository
- PISCO MN
- LTER Network Member Node
- ORNL DAAC
- USGS Core Sciences Clearinghouse

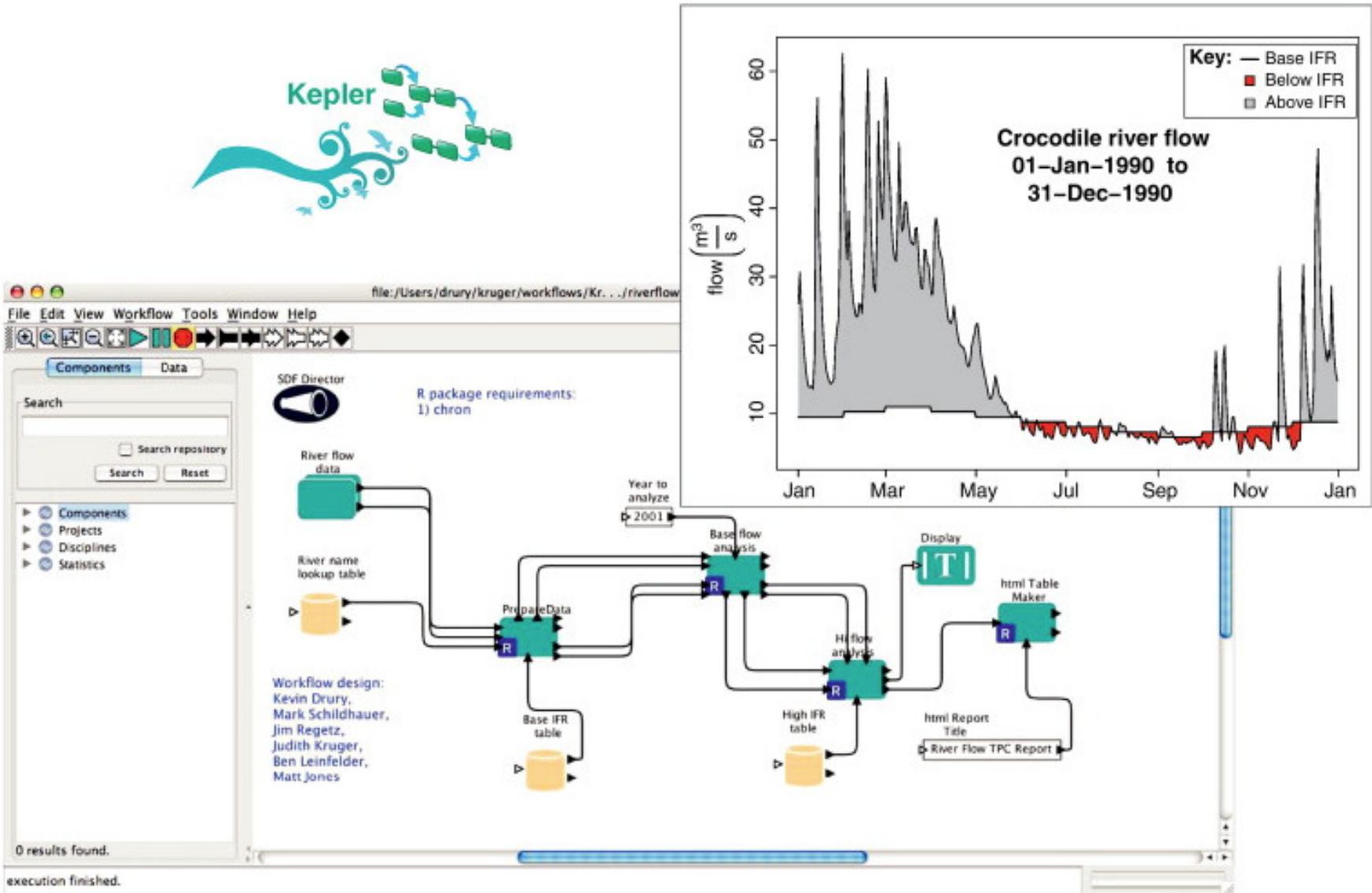
Selected Query (Not Editable)

SEARCH

Data life cycle



Kepler Scientific Workflow



Education

About

Participate

Resources

Education

Data

Training Activities

Education Modules

Graduate Courses

1. Why data management
2. Data sharing
3. Data Management planning
4. Data entry and manipulation
5. Data quality control and assurance
6. Data protection and backups
7. Metadata
8. How to write good quality metadata
9. Data citation
10. Analysis and workflows



Education

The screenshot shows the top of the DataONE website. On the left is the DataONE logo with the tagline "Data Observation Network for Earth". To the right is a search bar with a dropdown menu set to "ONEMercury" and a "Go" button. Further right are social media icons for YouTube, LinkedIn, Twitter, Facebook, RSS, and GitHub. Below this is a dark blue navigation bar with the following links: About, Participate, Resources, Education, and Data. Below the navigation bar is a breadcrumb trail: Home » Resources » [Software Tools Catalog](#).

This sidebar is for the "Software Tools Catalog" page. It has a "Resources" section with links to Investigator Toolkit, Data Management Planning, Best Practices, Software Tools Catalog, and Publications. Below that is a "Tags" section with links for statistics, graphics, web 2.0, geospatial, metadata, edit, visualization, mode, metadata, map, analyze, database, and G.

This screenshot shows the "Best Practices" page on the DataONE website. The header and navigation menu are identical to the first screenshot. The breadcrumb trail is: Home » Resources » [Best Practices](#). The page has a "Resources" sidebar with links to Investigator Toolkit, Data Management Planning, Best Practices, Software Tools Catalog, and Publications. The main content area is titled "Best Practices" and includes a "Search Best Practices" section with a search input field containing "search best practices" and a "Search" button. Below the search section are three paragraphs of text: 1) "The DataONE Best Practices database provides individuals with recommendations on how to effectively work with their data through all stages of the data lifecycle (shown below). Users can access best practices within the database by either clicking on a stage of the lifecycle, selecting keywords (under advanced search) or using free search." 2) "For students and others new to data management, we provide a **Best Practices Primer** as an introduction to the DataONE Best Practices database and data management in general." 3) "The development of the DataONE Best Practices database was a collaborative effort across many individuals ([credits](#))." Below the text is a "Tags" section with links for metadata, analyze, preserve, data, archives, assure, documentation, describe, format, and provenance.

Community



Community

DataONE
Data Observation Network for Earth

Search For Connect

Home » Participate » Member Nodes » Benefits of becoming a Member Node

How to become a Member Node

Planning → Developing → Testing → Operating

The path to establishing a Member Node (MN) is divided into 4 phases, each having a set of activities to complete before moving on to the next phase. The Development phase is the most variable between organizations in terms of time and effort required, and depends on the chosen **deployment route**. Those using an existing Member Node software stack, for example, will mostly be involved in the relatively simple hardware and software configuration activities, while those choosing custom development will be involved in probably several development-testing iterations.

Below is an overview of the four phases. The **detailed deployment process** with technical information is available for those ready to begin planning their deployment.

Planning

determine feasibility → join DataONE → scope the implementation → plan the implementation

By joining DataONE, you will be reaching a wider audience for the data you host, and will potentially need to adjust how it is presented to match the expectations of DataONE end users. In the planning phase, you will determine the best approach for implementation given your starting point.

Community

https://coffeehouse.dataone.org

Coffeehouse

A collection of data blog posts from around the web

Add your blog About

Preserving.exe Report: Toward a National Strategy for Preserving Software

by Trevor Owens • October 21, 2013

Increasingly runs on software. From operating streetlights and financial markets, to producing music and film, to conducting research and scholarship in the sciences and the humanities, software shapes and structures our lives. Software is simultaneously a

https://ask.dataone.org/questions/

DataONE

Search...

Follow Coffeehouse on Twitter

tags people & groups badges

Hi there! Please sign in help

ALL UNANSWERED search or ask your question

ASK YOUR QUESTION

27 questions

Sort by » by date by activity by answers by votes RSS

Contributors

How do I develop a Java-based Member Node software implementation?

membernode API

no votes 1 answer 11 views
Aug 26 '13 Jones - DataONE

How can we access javadocs for the different released versions of the DataONE API?

java API versions

no votes 2 answers 19 views
Aug 26 '13 Jones - DataONE

What causes the Coordinating Node to show a different number of data and metadata objects than a Member Node?

membernode identifier cn

no votes 1 answer 12 views
Jul 17 '13 Jones - DataONE

What are Working Groups and how can I get involved with one?

participate

no votes 1 answer 15 views
Jul 7 '13 diebauer

What other external jar files need to be included when using DataONE libclient within environments like Matlab?

jar libclient Matlab

1 vote 1 answer 31 views
Jun 13 '13 mrah



- membernode x 11
- access x 4
- account x 3
- contribute x 3
- data_management x 3
- login x 3
- participate x 3
- API x 2
- identifier x 2

DataONE NEWS

Message from the DataONE Project Director

Let's start by announcing that on July 22, 2013, DataONE was officially launched. In the weeks and months following, we will be releasing a series of reports, including a progress report, a strategic plan, and a series of white papers. These reports will be available on the DataONE website and will provide a comprehensive overview of the project's progress and future plans. We are excited to have you as a member of the DataONE community and look forward to your input and feedback.

DataONE NEWS

Reflecting on 2012 and agents of change

As we reflect on the past year, it is clear that 2012 was a year of significant change and growth for DataONE. We have seen the emergence of new technologies and the development of new standards. We have also seen the growth of our community and the increasing number of users who are using our services. This growth is a testament to the hard work and dedication of our members and staff. As we look ahead to 2013, we are excited about the opportunities that lie ahead and the challenges that we will face. We are committed to providing the best possible services to our members and to advancing the state of the art in data management and sharing.

DataONE NEWS

Sustaining Domain Repositories for Digital Data: A Call for Change

The Digital Data Alliance (DDA) is a coalition of organizations that are committed to the preservation and sharing of digital data. We believe that digital data is a valuable asset and that it should be preserved for future generations. We are calling for a change in the way that digital data is managed and shared. We believe that there should be a national strategy for the preservation and sharing of digital data. We are committed to working with our partners to develop and implement this strategy. We are also committed to providing the best possible services to our members and to advancing the state of the art in data management and sharing.

DataONE NEWS

A Brave New World for Research

The Digital Data Alliance (DDA) is a coalition of organizations that are committed to the preservation and sharing of digital data. We believe that digital data is a valuable asset and that it should be preserved for future generations. We are calling for a change in the way that digital data is managed and shared. We believe that there should be a national strategy for the preservation and sharing of digital data. We are committed to working with our partners to develop and implement this strategy. We are also committed to providing the best possible services to our members and to advancing the state of the art in data management and sharing.

ric: 15.2 ward-pact: 15.2 altme: even: 10.0 rks: 10.0 ALL

DataONE future activities

DSPACE

OPeNDAP

Fedora Commons™

CSW 2.0.1

OGC

i-R-O-D-S

OPEN ARCHIVES



Morpho

R

Kepler

DATAUP

ONE Mercury

VT

Java

ONE Drive

python

SciPy.org

DMP Tool

MathWorks

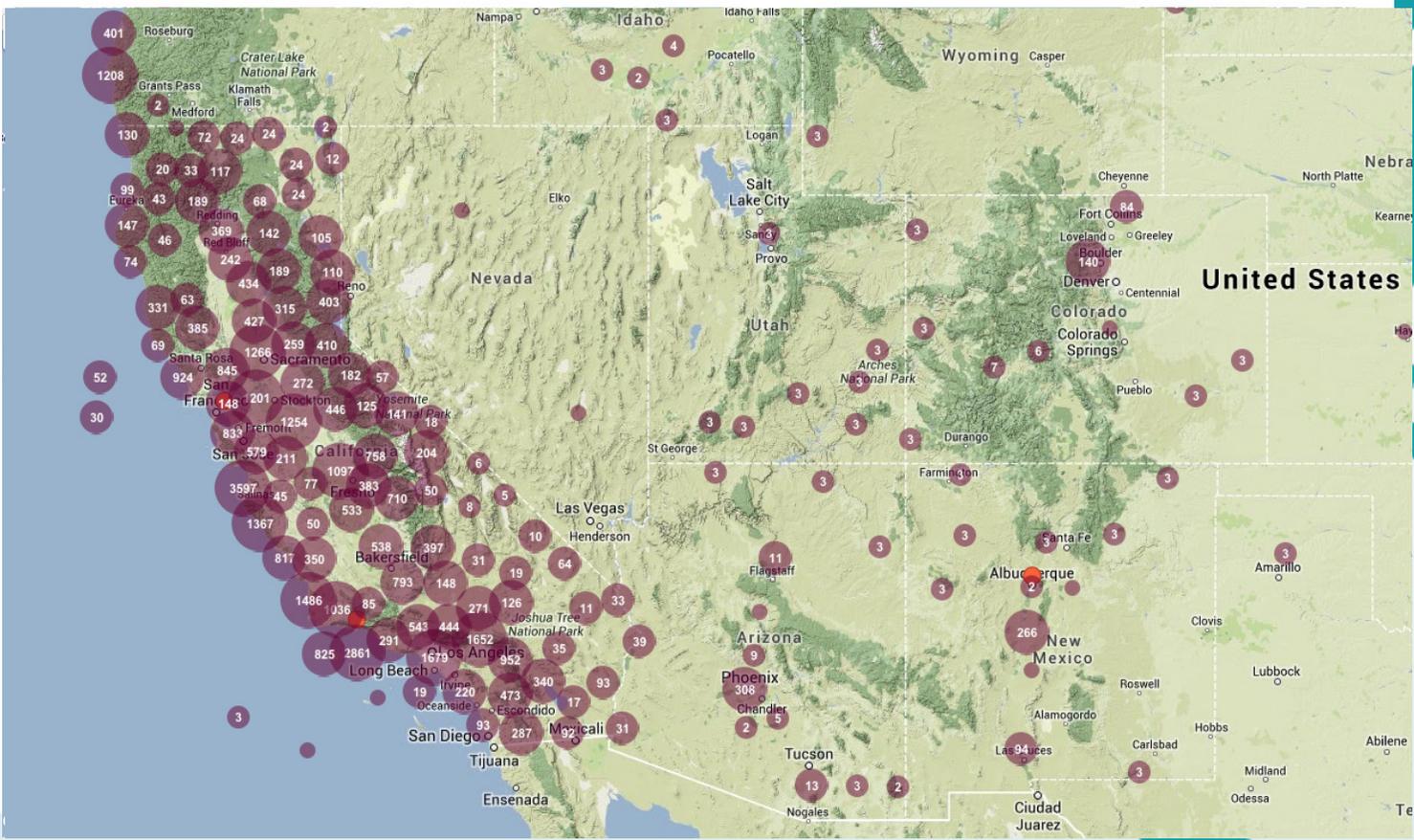
Dashboard

Summary of Data Repositories



Total Files Over Time Show Uploads Downloads

Data Distribution ³



DataONE.org

