

# Tools and Resources for Data Curation

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UC Curation Center / California Digital Library

Summer Institute

June 2014



Berkeley Initiative for Transparency in the Social Sciences

# Agenda

- Who we are
- Data curation, publication, and sharing
- Tools to help you
  - DMPTool 
  - DataUp 
  - Dash 
  - WAS 
- Summary
- Discussion

# Who we are



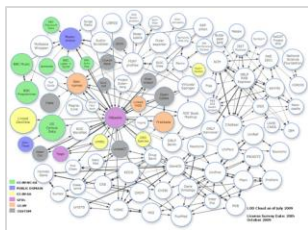
*“To support the University of California community’s pursuit of scholarship and ... public service mission”*

## Research & Scholarship Lifecycle



# Data curation, publication, and sharing

- Increasingly, a requirement for funding and publication
- Transparency  $\leftrightarrow$  trust
- Reduce needless duplication of effort
- Leverage prior investments
- Expand the reach of your research, and get credit for it
- Good for science, good for scientists



[www.flickr.com/photos/\\_after8\\_/4052028795](http://www.flickr.com/photos/_after8_/4052028795)





[berkeley.edu/teach](http://berkeley.edu/teach)



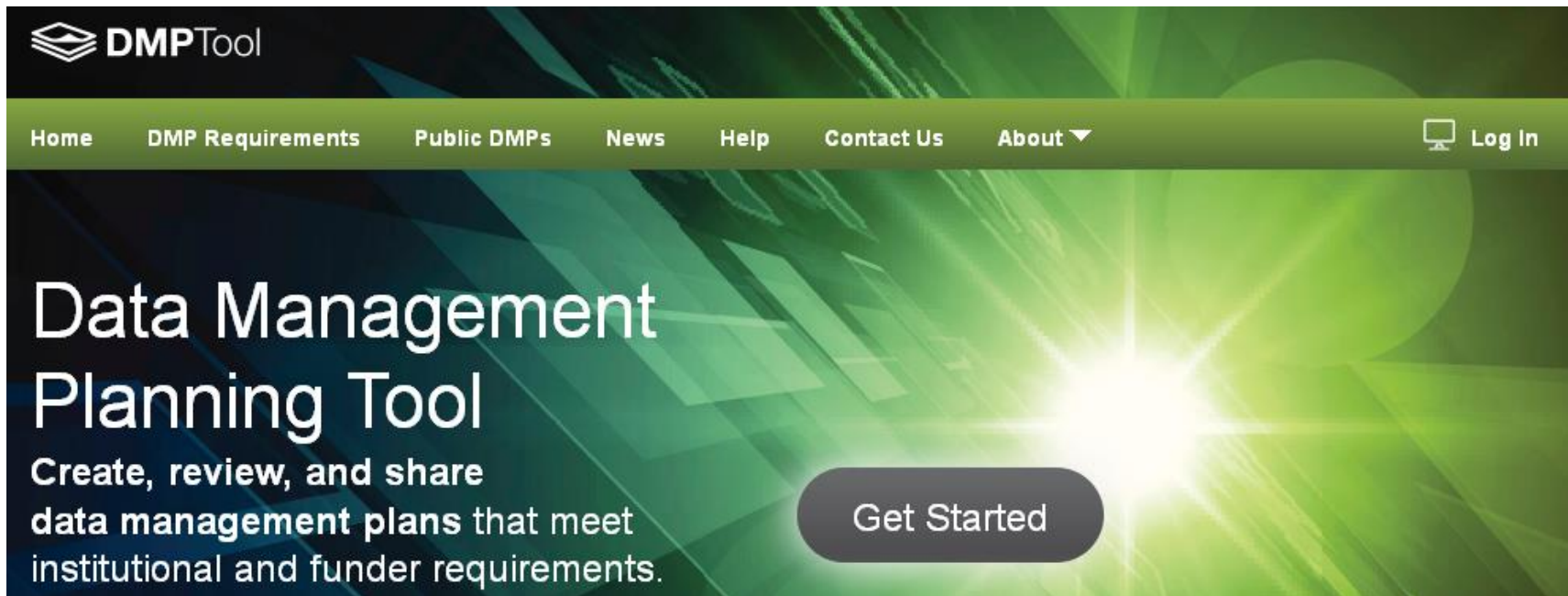
[www.flickr.com/photos/infocux/8450190120](http://www.flickr.com/photos/infocux/8450190120)

# Data curation, publication, and sharing

- Create/acquire a dataset in a form that is inherently preservable and (re)usable
- Describe the dataset in scientifically-meaningful ways
- Give the dataset a unique identifier for persistent citation
- License the dataset under CC0  or CC-BY 
- Deposit the dataset in a (non-commercial) repository where it will receive pro-active curation management
- Expose the dataset for harvesting by abstracting/indexing services and search engines

# DMPTool

- *“Fulfill institutional and funder mandates”*



Build your Data Management Plan

June 2014

*[dmptool.org](http://dmptool.org)*

*[blog.dmptool.org](http://blog.dmptool.org)*

*[github.com/CDLUC3/dmptool/wiki](https://github.com/CDLUC3/dmptool/wiki)*

BITSS Summer Institute

# DMPTool

- Free and open for all
- Hosted by CDL, with code released as open source
- Supports data management requirements for NSF, NIH, NEH, NOAA, IMLS, and other federal agencies and private funders
- New version released on May 29
- Developed by a partnership of universities, museums, and researchers, with support from Sloan Foundation and IMLS



Build your Data Management Plan

*[dmptool.org](http://dmptool.org)*

*[blog.dmptool.org](http://blog.dmptool.org)*

*[github.com/CDLUC3/dmptool/wiki](https://github.com/CDLUC3/dmptool/wiki)*

# DMPTool

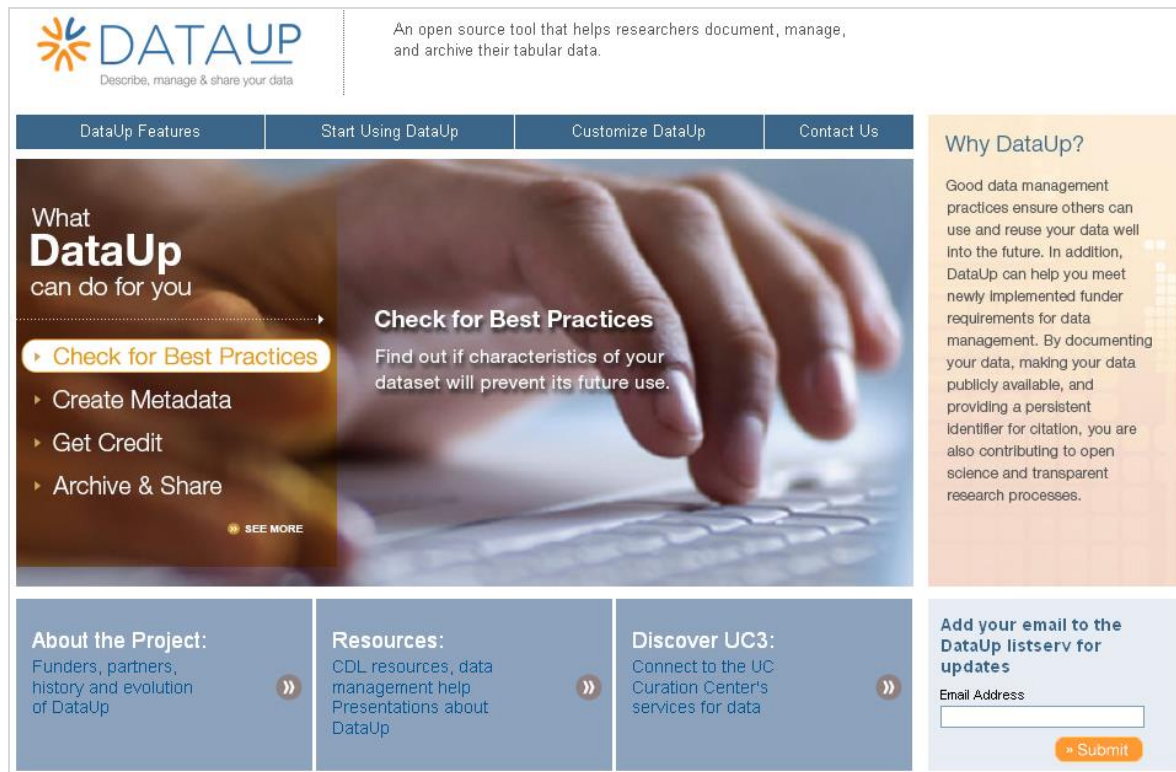
- In addition to fulfilling external requirements, the DMPTool provides:
  - Framework to plan for management of research data
  - Comprehensive list of issues involved with data management best practices
  - Information about local resources and services: repositories, workshops, consultation services, etc.
  - Community of stakeholders: researchers, lab managers, IT specialists, archivists, grant administrators, funding agencies





# DataUp

- “Curation for tabular datasets”



The screenshot shows the DataUp website homepage. At the top left is the DataUp logo with the tagline "Describe, manage & share your data". To the right of the logo is a description: "An open source tool that helps researchers document, manage, and archive their tabular data." Below this is a navigation bar with four links: "DataUp Features", "Start Using DataUp", "Customize DataUp", and "Contact Us". The main content area features a large image of a hand typing on a keyboard. Overlaid on the left side of this image is a box titled "What DataUp can do for you" with a list of features: "Check for Best Practices", "Create Metadata", "Get Credit", and "Archive & Share". A "SEE MORE" link is at the bottom of this list. To the right of the image is a section titled "Check for Best Practices" with the text "Find out if characteristics of your dataset will prevent its future use." Further right is a section titled "Why DataUp?" with a paragraph explaining the benefits of good data management practices. At the bottom of the page are three columns: "About the Project:" (linking to funders, partners, history, and evolution), "Resources:" (linking to CDL resources, data management help, and presentations), and "Discover UC3:" (linking to the UC Curation Center's services). On the far right is a sign-up form titled "Add your email to the DataUp listserv for updates" with an "Email Address" input field and a "Submit" button.



*dataup.org*  
*dataup.cdlib.org*

# DataUp

- Excel is often the database of choice for research

The screenshot shows the DataUp web interface. At the top, there's an orange header with the DataUp logo and a user greeting 'Welcome, Stephen Abrams | Sign Out'. Below the header, the 'My Files' section is visible, with tabs for 'View All', 'File Name', 'Post', 'Download', and 'Delete'. A file upload area shows 'Add a New File' and 'Drag & Drop Files Here'. Two files are listed: 'AllFTLD\_IDs.csv.xlsx' and 'Temp\_samples.xlsx', both from 'Test Repository'. A detailed view of 'AllFTLD\_IDs.csv' is shown below, with the following information:

| File Name        | Repository Name   |
|------------------|---|
| AllFTLD_IDs.csv  | Test Repository   |
| File Extension   | Identifier  |
| xlsx             | ark:/99999/fk4xs86qw  |
| File Size        | Citation  |
| 14.72 KB         | Abrams, Stephen(2014): AllFTLD_IDs.csv. . Abrams, Stephen. ark:/99999/fk4xs86qw |
| Published Date   | Status  |
| 3/5/2014 22:20:2 | Posted  |

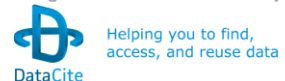
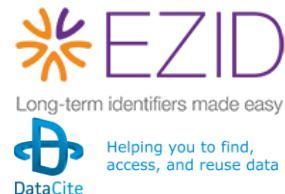


*dataup.org*  
*dataup.cdlib.org*

# DataUp

- Drag-and-drop data upload
- Opportunity to add descriptive metadata
- Assignment of persistent identifier / generation of persistent citation
- Best practices check
- Packaging and submission to ONEShare repository

*Performed automatically*

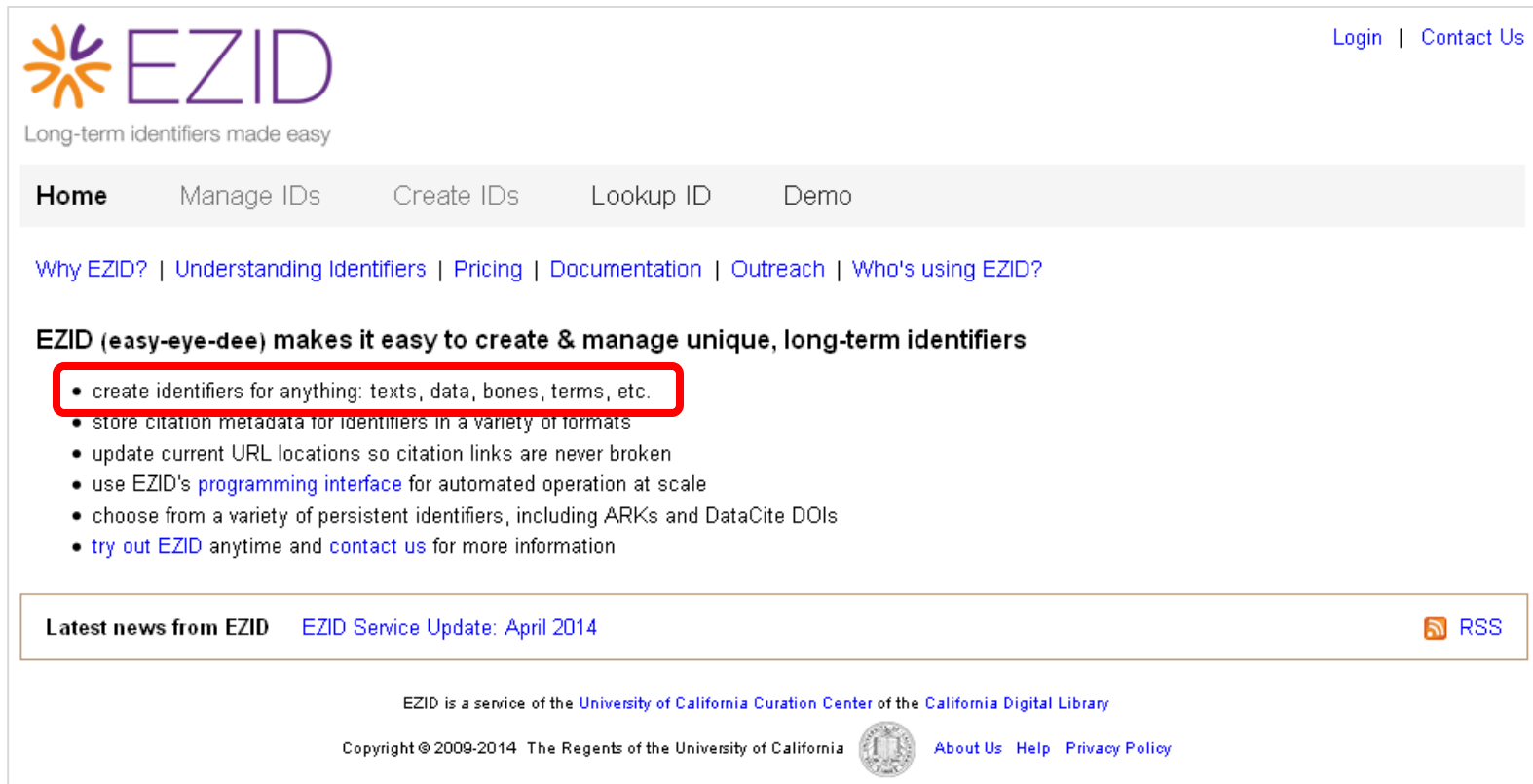


*dataup.org*

*dataup.cdlib.org*

# EZID

- “Long-term identifiers made easy”



The screenshot shows the EZID website homepage. At the top left is the EZID logo with the tagline "Long-term identifiers made easy". At the top right are links for "Login" and "Contact Us". Below the logo is a navigation bar with links: "Home", "Manage IDs", "Create IDs", "Lookup ID", and "Demo". Underneath the navigation bar is a list of links: "Why EZID?", "Understanding Identifiers", "Pricing", "Documentation", "Outreach", and "Who's using EZID?". The main heading reads "EZID (easy-eye-dee) makes it easy to create & manage unique, long-term identifiers". Below this heading is a bulleted list of features, with the first item "create identifiers for anything: texts, data, bones, terms, etc." highlighted by a red rectangle. The list continues with: "store citation metadata for identifiers in a variety of formats", "update current URL locations so citation links are never broken", "use EZID's programming interface for automated operation at scale", "choose from a variety of persistent identifiers, including ARKs and DataCite DOIs", and "try out EZID anytime and contact us for more information". At the bottom of the main content area is a section titled "Latest news from EZID" with a link to "EZID Service Update: April 2014" and an RSS feed icon. The footer contains the text "EZID is a service of the University of California Curation Center of the California Digital Library", the copyright notice "Copyright © 2009-2014 The Regents of the University of California", a seal of the University of California, and links for "About Us", "Help", and "Privacy Policy".

Long-term identifiers made easy

Home Manage IDs Create IDs Lookup ID Demo


[Why EZID?](#) | [Understanding Identifiers](#) | [Pricing](#) | [Documentation](#) | [Outreach](#) | [Who's using EZID?](#)

**EZID (easy-eye-dee) makes it easy to create & manage unique, long-term identifiers**

- create identifiers for anything: texts, data, bones, terms, etc.
- store citation metadata for identifiers in a variety of formats
- update current URL locations so citation links are never broken
- use EZID's [programming interface](#) for automated operation at scale
- choose from a variety of persistent identifiers, including ARKs and DataCite DOIs
- [try out EZID](#) anytime and [contact us](#) for more information

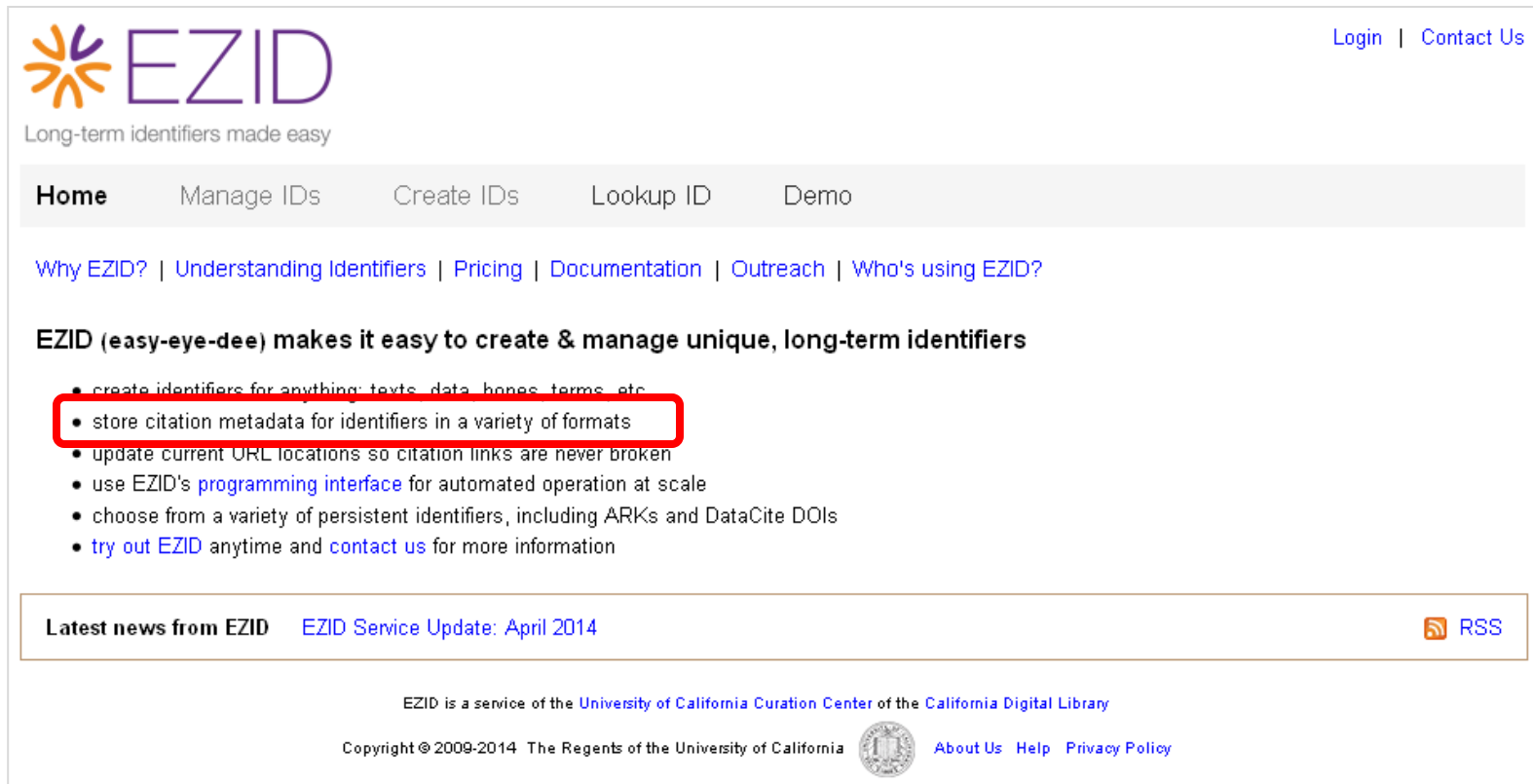
Latest news from EZID [EZID Service Update: April 2014](#) [RSS](#)

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Long-term identifiers made easy

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**EZID (easy-eye-dee) makes it easy to create & manage unique, long-term identifiers**

- create identifiers for anything: texts, data, images, terms, etc.
- store citation metadata for identifiers in a variety of formats
- update current URL locations so citation links are never broken
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Long-term identifiers made easy

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[Why EZID?](#) | [Understanding Identifiers](#) | [Pricing](#) | [Documents](#)

**EZID (easy-eye-dee) makes it easy to create & manage**

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# EZID

- “Long-term identifiers made easy”

Long-term identifiers made easy

Home Manage IDs Create IDs Lookup ID Demo

Why EZID? | Understanding

**EZID (easy-eye-dee) metadata**

- create identifiers for any
- store citation metadata
- update current URL location
- use EZID's [programming API](#)
- choose from a variety of
- [try out EZID](#) anytime at

**Latest news from EZID**

**OLAC Record**  
oai:cla.berkeley.edu:Bloomfield.003

**Metadata**

|                           |  |
|---------------------------|--|
| Title:                    | [Eastern Ojibwa notebook #14]  |
| Contributor (researcher): | Bloomfield, Leonard  |
| Date:                     | [undated]  |
| Description:              | Digital images of index to McGregor field notebook #14 and some morphological paragraphs. Original dated 1940 or 1941 according to Nichols' index #14)   |
| Format:                   | 56 digital images  |
| Identifier:               | Bloomfield.003.001   |
| Identifier (URI):         | <a href="http://cla.berkeley.edu/items/147">http://cla.berkeley.edu/items/147</a>  |
| Is Format Of (URI):       | <a href="http://dx.doi.org/doi:10.7297/X2BV7DJ2">http://dx.doi.org/doi:10.7297/X2BV7DJ2</a>  |
| Rights:                   | Items catalogued in the California Language Archive are the physical property of their respective physical repositories. Intellectual rights, including copyright, belong to item creators or their legal heirs and assigns. |
| Rights Holder:            | Survey of California and Other Indian Languages  |
| Subject:                  | Eastern Ojibwa language  |
| Subject (ISO639):         | <a href="#">ojg</a>  |
| Type (DCMI):              | <a href="#">Text</a>   |

*DOI for persistent citation and bi-directional linking between publications and underlying data*

# EZID

- “Long-term identifiers made easy”

The screenshot displays the EZID website interface. At the top, the EZID logo is accompanied by the tagline "Long-term identifiers made easy" and links for "Login" and "Contact Us". A navigation bar includes "Home", "Manage IDs", "Create IDs", "Lookup ID", and "Demo".

On the left, a sidebar titled "Why EZID?" and "Understanding EZID (easy-eye-dee) metadata" lists several bullet points: "create identifiers for any object", "store citation metadata", "update current URL location", "use EZID's programming interface", "choose from a variety of identifiers", and "try out EZID anytime anywhere". Below this is a section for "Latest news from EZID".

The main content area shows the "Merritt" collection page. It features a "Collection home" link and a "Change collection" dropdown. The object being viewed is identified by the URL "Object: ark:/b7297/x2bv7dj2". A breadcrumb trail reads: "Merritt > Collection: UC Berkeley Linguistics Dept California Language Archive > Object: ark:/b7297/x2bv7dj2".

The object details for "Bloomfield, Leonard. [Eastern Ojibwa notebook #14] (undated)" are listed as follows:

- permanent link: <http://n2t.net/ark:/b7297/x2bv7dj2>
- primary identifier: ark:/b7297/x2bv7dj2
- title: [Eastern Ojibwa notebook #14]
- creator: Bloomfield, Leonard
- date: undated
- local id: Bloomfield.003.001
- last modified: 2013-06-29 06:25 PM UTC
- created: 2013-06-29 06:21 PM UTC
- total size (all versions): 3.1 GB
- total versions: 2

A "Download object" button is located at the bottom of the details section.


On the right side of the object page, there is an "Object Lookup" section with a search input field and a "Go" button. Below this is the "Current Version" section, which lists "Version 2: 2013-06-29 06:22 PM UTC" and provides links to four specific file versions: "Bloomfield.003.001.0001.tif", "Bloomfield.003.001.0002.tif", "Bloomfield.003.001.0003.tif", and "Bloomfield.003.001.0004.tif". A link for "53 more files" is also present. The "Prior Versions" section at the bottom right shows "Version 1: 2013-06-29 06:21 PM UTC".

At the bottom left of the slide, the EZID logo and tagline are repeated, along with the date "June 2014".



# Merritt

- “*Preservation and access*”



Merritt is a new cost-effective repository service from the University of California Curation Center. The UC community manage, archive, and share its valuable digital content. Use Merritt to preserve digital assets, share your research with others or meet the data sharing and requirements of a grant-funded project.

Merritt is built upon a Micro-Services approach to digital curation based on devolving curation of independent, but interoperable, services that embody curation values and strategies. Since services are small and self-contained, they are collectively easier to develop, deploy, maintain. This design approach is detailed in the [UC3 Curation Foundations](#) paper.

**Learn more about Merritt:**

- [Handout: Merritt Uses and FAQ](#)
- [Merritt User Guide](#)

**Need a Merritt Account?**

Fill out the [Contact UC3 form](#) or email [uc3@ucop.edu](mailto:uc3@ucop.edu).

Merritt is a service of the University of California Curation Center  
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[Privacy policy](#) | [Image credits](#)

- *No prescriptive requirements on content genre, type, format, structure, or metadata*
- *Strong versioning maintains complete change history*
- *Restricted or public access – under your control*
- *Enforceable data use agreements (DUAs)*
- *Storage replication to UCLA and UCSD, with ongoing auditing*
- *Integration with EZID and DataONE*
- *Proactive preservation analysis, planning, and intervention*



# DataONE

- “Data observation network for Earth”

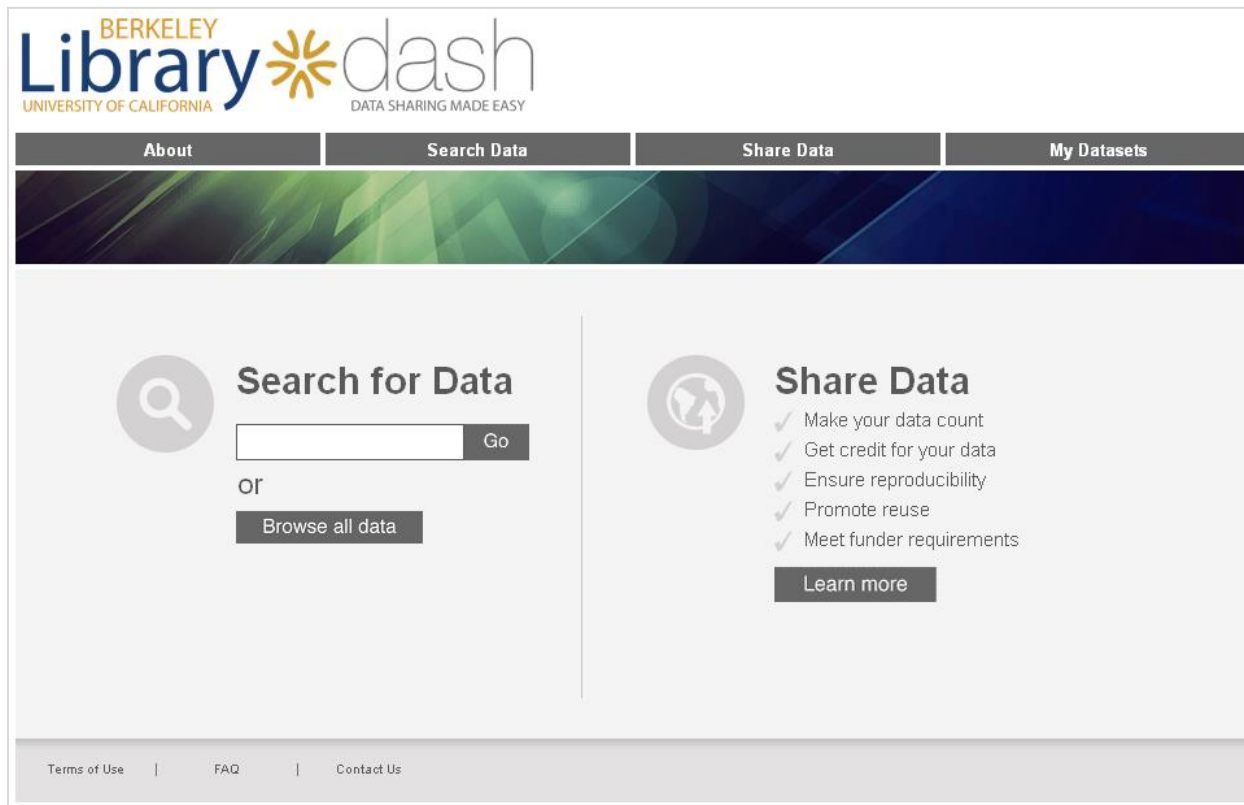
The screenshot shows the DataONE website interface. At the top is the DataONE logo and navigation links: About, Participate, Resources, Education, Data. Below this is the ONEmercury logo and a search bar. The search bar contains the text "source water". To the right of the search bar are links for "Results: Page 10" and a "SEARCH" button. Below the search bar are links for "Show/Hide Advanced Options", "Clear All", and "Help". The interface is divided into two main sections: "Fielded Search" and "Geographic Search". The "Fielded Search" section has three input fields for "Full Text" and "OR" operators. The "Geographic Search" section features a map of the world with various countries labeled. To the right of the map are options for "List Areas in:" (USA, WORLD), "Search Area:" (overlaps, encloses), and "North", "West", "East", "South" directions. At the bottom right of the map is a "Help | clear" link.

- Cyberinfrastructure
  - Distributed grid of member and coordinating nodes
  - Aggregated discovery
  - Investigator’s toolkit
- Community



# Dash

- “*Data sharing made easy*”



*[datashare.ucsf.edu](https://datashare.ucsf.edu)*

# Dash

- Preservation repositories are complex systems
- Far too often, their interfaces are complicated and meant only for IT professionals and archivists
- Dash provides a set of user-friendly screens to step through the process:
  - *Select/upload files associated with a dataset*
  - *Augment with descriptive metadata*
  - *Review that the dataset meets requirements and is ready*
  - *Submit to the Merritt preservation repository with optionally replication to DataONE*



*[datashare.ucsf.edu](http://datashare.ucsf.edu)*


# Dash

- Upload dataset files

The screenshot shows the Dash web interface. At the top, the University of California logo and the Dash logo (with the tagline 'DATA SHARING MADE EASY') are on the left. On the right, it says 'Logged in as Perry.Willett-ucop.edu@ucop.edu' with a 'Logout' button. Below this is a navigation bar with four tabs: 'About', 'Search Data', 'Share Data', and 'My Datasets'. Under 'Share Data', there are four steps: 'STEP ONE: Prepare', 'STEP TWO: Describe', 'STEP THREE: Upload' (which is highlighted), and 'STEP FOUR: Review & Submit'. The main content area is titled 'Upload your datasets to Dash'. It features a large dashed box with the text 'Drag & Drop files here' and a file icon. Below this is a green button that says '+ Add files...'. To the right of the upload area is an 'Upload FAQ' section with a list of bullet points: 'Be sure you have read the terms of the Dash Data Use Agreement', 'Ensure that all data relating to human subjects has been properly de-identified', 'Ensure data files are the most up-to-date and complete versions', 'Dash accepts all file formats.', and 'Generally speaking, the data files you upload into Dash should fall into one of the following types: text, spreadsheet (csv, tab-...)'. At the bottom left of the screenshot, there is a 'Go Back' button.

# Dash

- Add descriptive information


UNIVERSITY OF CALIFORNIA  dash  
DATA SHARING MADE EASY


Logged in as *Perry.Willett-ucop.edu@ucop.edu* » Logout


| About             | Search Data        | Share Data         | My Datasets                |
|-------------------|--------------------|--------------------|----------------------------|
| STEP ONE: Prepare | STEP TWO: Describe | STEP THREE: Upload | STEP FOUR: Review & Submit |


## Describe your dataset

\* Required Field


\* Dataset Title  Wind in Cuerda del Pozo. February 2012

\* Institution  UC Berkeley ▼

\* Data Type  Presentation ▼


\* Data Creator(s)  Lastname, Firstname + Additional Creator

Aguilar, Fernando delete

Keywords  Keyword + Additional Keyword

# Dash

- Review the dataset

UNIVERSITY OF CALIFORNIA  **dash**  
DATA SHARING MADE EASY

Logged in as *Perry.Willett-ucop.edu@ucop.edu* » Logout

| About | Search Data | Share Data | My Datasets |
|-------|-------------|------------|-------------|
|-------|-------------|------------|-------------|

STEP ONE:  
**Prepare**

STEP TWO:  
**Describe**

STEP THREE:  
**Upload**

STEP FOUR:  
**Review & Submit**

## Review before submitting to Dash

### Metadata

**Dataset Title:** Wind in Cuerda del Pozo. February 2012

**Institution:** University of California, Berkeley

**Publication Year:** 2014

**Data Type:** Presentation

**Data Creator:** Aguilar, Fernando

**Keywords:** Spain | Wind

**Citation(s):** [Show Citations](#)

**Abstract:** [Show Abstract](#)

**Methods:** [Show Methods](#)

# Dash

- Submit to a repository

Record contains all recommended fields

[Go Back](#)  
[Edit Description](#)

**Uploaded Files**  
Record must include at least one file

[Upload  
More Files](#)

**Ready to go?**

[Submit to Dash](#)

[Terms of Use](#) | [FAQ](#) | [Contact Us](#)



Dash is a service of the University of California Digital Library.  
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Dash is a collaborative project between the UC  
Libraries and the UC Curation Center.



*[datashare.ucsf.edu](https://datashare.ucsf.edu)*



# Dash

- Search/browse and discovery

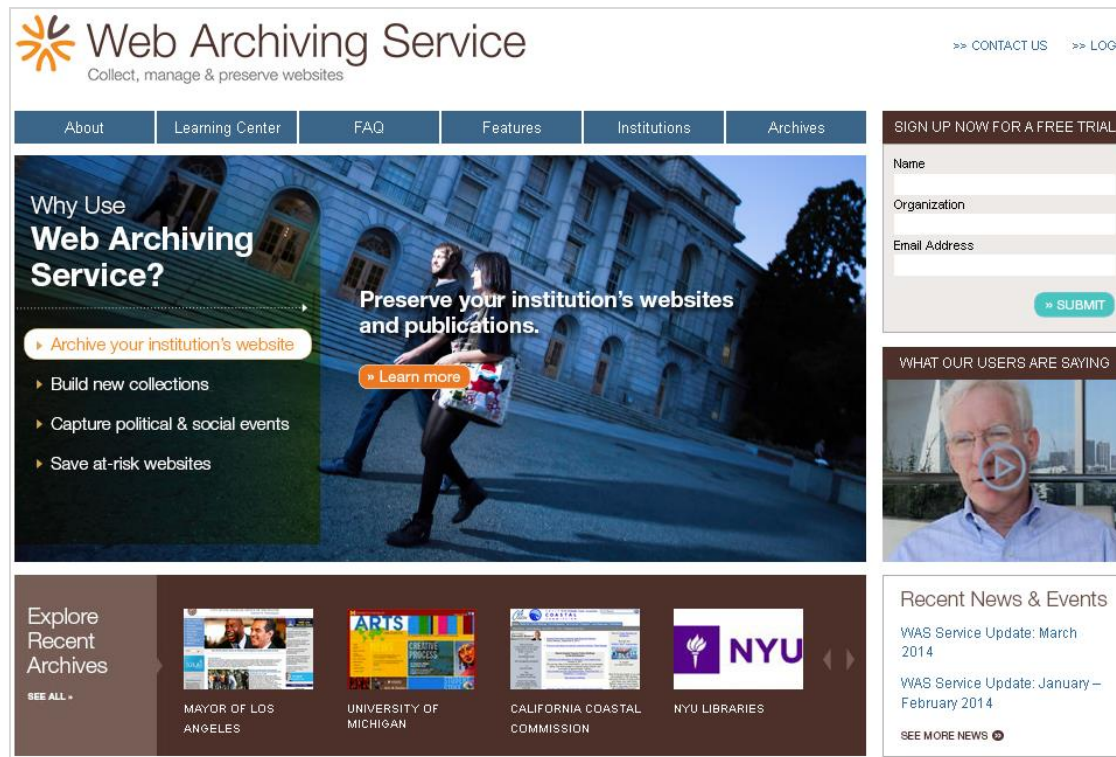
The screenshot shows the DASH website interface. At the top, the University of California logo is next to the 'dash' logo, with the tagline 'DATA SHARING MADE EASY'. Below this is a navigation bar with four tabs: 'About', 'Search Data', 'Share Data', and 'My Datasets'. The main content area is titled 'Select a Dataset...'. On the left, there are filters for 'Campus' (UC Berkeley (8), UC Los Angeles (2), UC San Francisco (2)), 'Author' (Willett, Perry (2), Aguilar, Fernando (1), Banerjee, Utpal (1), Beylkin, Gregory (1), Bloom, Joshua S. (1), Butler, Nathaniel R. (1)), and 'Keyword' (Amino acid sensing (1)). On the right, there is a search bar with the text 'Search datasets...' and a 'Go!' button. Below the search bar, there is a 'Sorted by:' dropdown menu set to 'title' and another 'Go!' button. The main content area displays three dataset entries: 1. 'Phylogenomic inference of protein molecular function: supplementary data' by Sölander, Kimmen at UC Berkeley, with a 'Show abstract' link. 2. 'DMPTool usage' by Willett, Perry | Willett, Perry at UC Berkeley, with a 'Show abstract' link. 3. 'Approximating a wavefunction as an unconstrained sum of Slater determinants: dataset' by Beylkin, Gregory | Mohlenkamp, Martin J. | Pérez, Fernando at UC Berkeley.



*[datashare.ucsf.edu](https://datashare.ucsf.edu)*

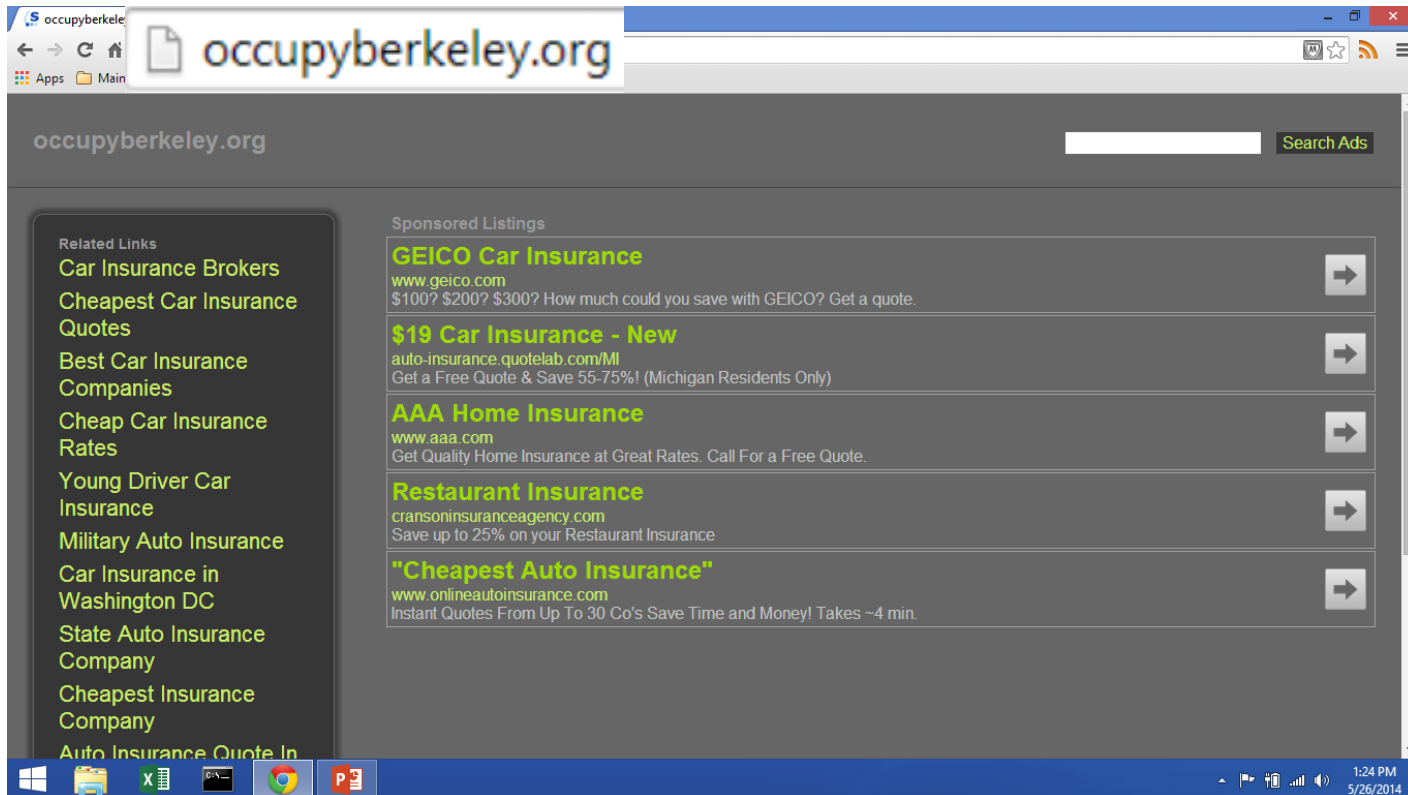
# WAS

- “*Capture and preserve the web*”



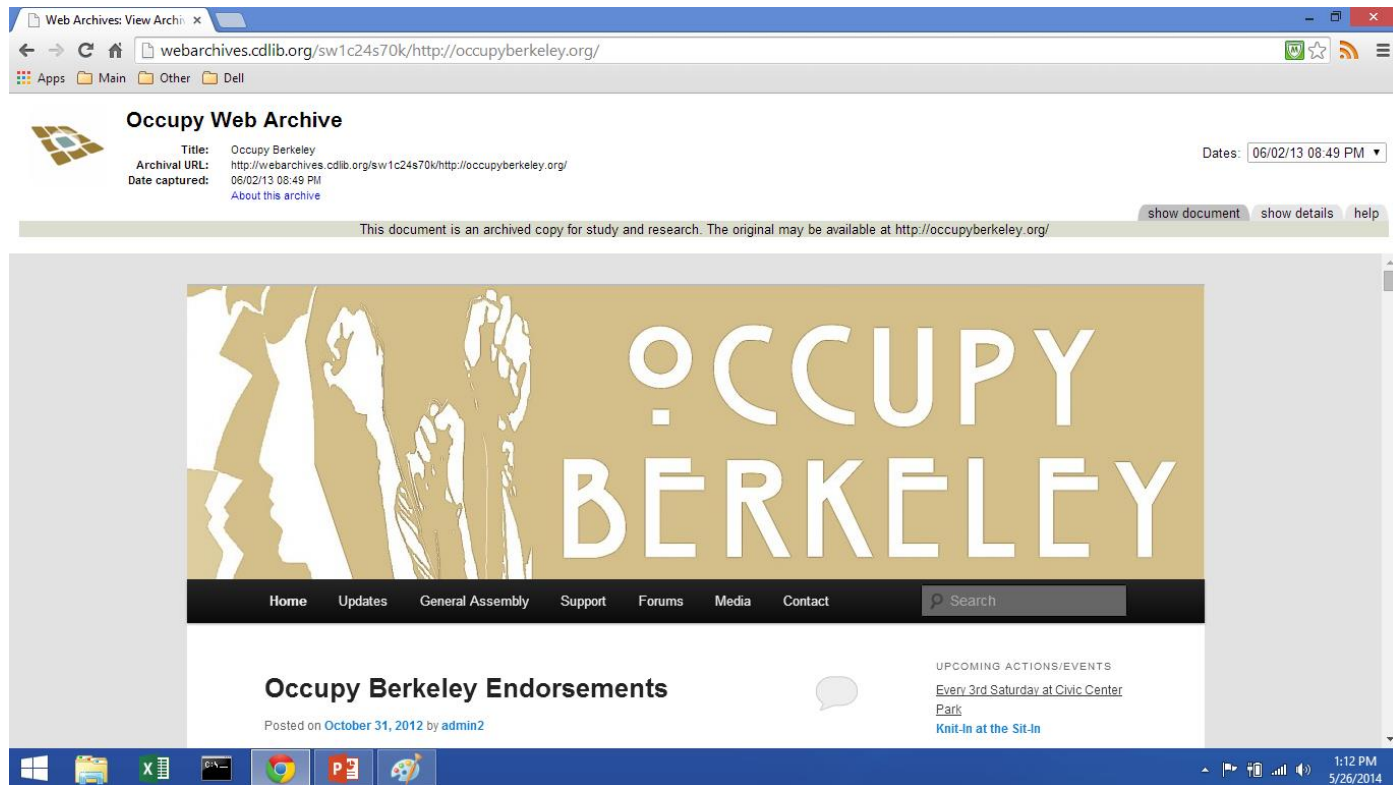
# WAS

- The web is a volatile environment



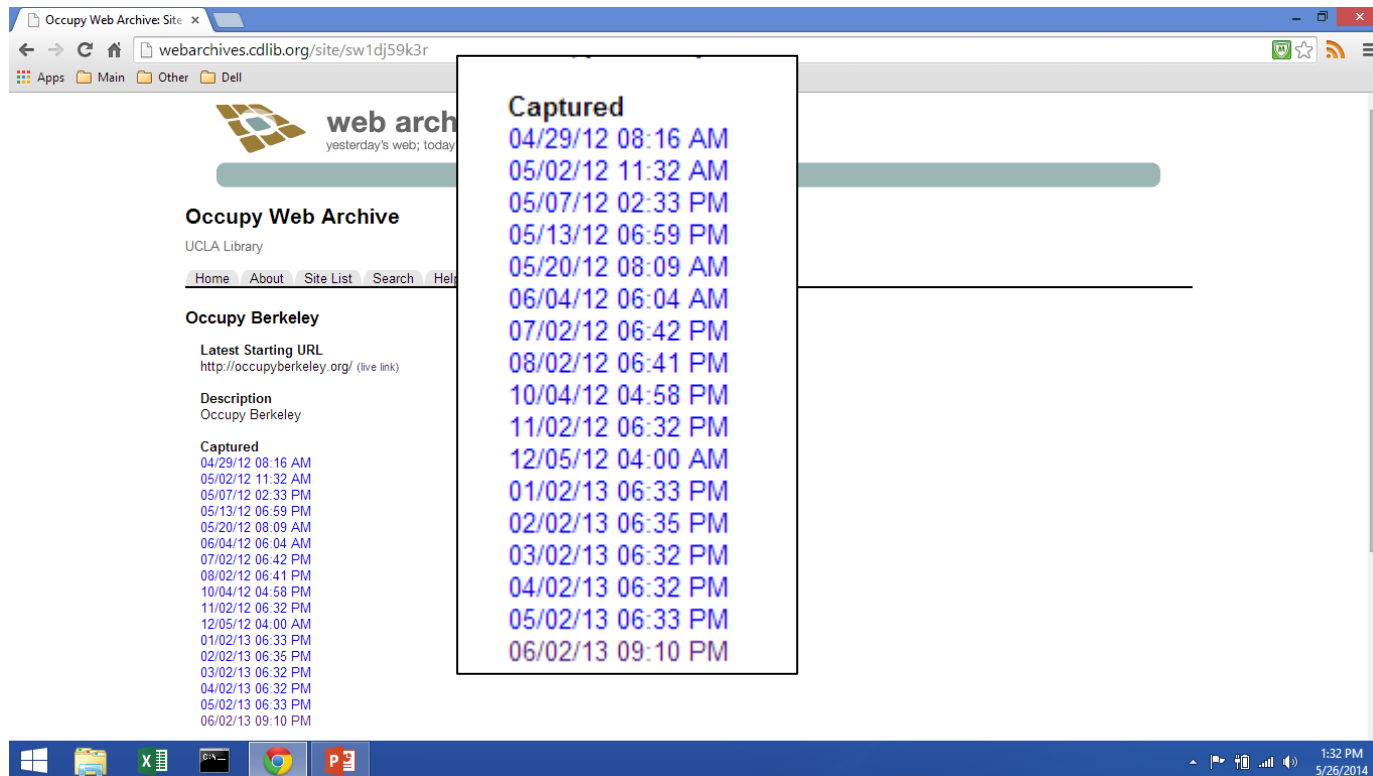
# WAS

- WAS captures and preserves important web content



# WAS

- WAS captures the web over time



# WAS

- WAS provides curators with tools to capture the free web:
  - Schedule web crawls on regular or customized basis
  - Focus on website itself or include linked sites
  - Brief 1-hour or full 36-hour crawls
  - Analyze results with a range of reports
  - Search across captured websites
  - Keep archive restricted, or provide public access
  - Fee-based service

# WAS

- WAS includes archives based on events:
  - 2003 California recall election
  - 2007 Southern California wildfires
- Thematic archives:
  - Grateful Dead archives
  - US Labor unions and organizations
  - California political blogs
- Comprehensive archives of web-domains:
  - Emory University
  - University of Michigan



Web Archiving Service  
Collect, manage & preserve websites

*[was.cdlib.org](http://was.cdlib.org)*

*[webarchives.cdlib.org](http://webarchives.cdlib.org)*

# Service takeaways

- DMPTool *Create data management plans required by funders or journals using campus resources*
- DataUp *Curation services tailored for tabular datasets*
- Dash *Simplified interfaces for repository submission and discovery*
- EZID / Merritt *Core infrastructural services generally hidden beneath simple intuitive interfaces*
- WAS *Curation services tailored for web-published content and data*








# Summary

- Good data management practice is critical to the success of the academic enterprise and scholarly advancement
- Management solutions should be integrated into existing research systems and workflows
- The UC Libraries are a natural partner for data management advice and solutions
- UC3 offers a comprehensive roster of innovative and intuitive curation services applicable across the data and scholarly lifecycle



# For more information

- UC Curation Center [www.cdlib.org/uc3](http://www.cdlib.org/uc3)  
[datapub.cdlib.org](http://datapub.cdlib.org)  
[uc3@ucop.edu](mailto:uc3@ucop.edu)
- DMPTool [dmptool.org](http://dmptool.org)
- DataUp/ONEShare [dataup.org](http://dataup.org)
- Dash [datashare.ucsf.edu](http://datashare.ucsf.edu)
  - EZID [ezid.cdlib.org](http://ezid.cdlib.org)
  - Merritt [merritt.cdlib.org](http://merritt.cdlib.org)
  - DataONE [dataone.org](http://dataone.org)
- WAS [was.cdlib.org](http://was.cdlib.org)