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May 2016

Los Alamos National Laboratory

RESEARCH LIBRARY

Year in Review 2015

RESEARCH
LIBRARY

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MESSAGE FROM THE LIBRARY DIRECTOR

Research Library Director
Dee Magnoni

The Los Alamos Research Library is committed to advancing discovery and security science. We do this by hiring highly talented personnel and delivering outstanding service, while regularly evaluating industry business models. Lab outreach and stakeholder input is critical for our decision making and planning. A Library Advisory Board made up of scientists, engineers, and business-process representatives provides guidance on initiatives, staffing and space considerations, and future directions.

In 2015 the Research Library launched new products, advanced several initiatives, and worked to provide extensive digital collections in support of Lab information needs. Library staff members integrated federal open access mandates into Lab procedures and mapped researchers' workflow through the scholarly communication process. Data management and data sharing are central Lab themes, and the Library took a leadership role in defining the conversation and drafting next steps. Both open access and data sharing have an impact on review and release; thus RASSTI, the Lab's tool for review and release, was revised and updated.

Collecting, curating, preserving, and providing access to institutional scientific content is a core goal of the Library. The LA Authors database and the Los Alamos Published Research (LAPR) system are tools that index and provide access to institutional content. LA Authors in the Red serves the classified community, and additional tools and services for this community are under development. Other tools highlighted in this report include LDRD Connexion, the Electronic Public Reading Room (EPRR), and Los Alamos Research Online (LARO), the new public-facing institutional repository that highlights Laboratory research and publications.

The Library provides digital access to published scientific content through licensing agreements and content on demand. Maintaining collections that reflect Lab research priorities within budget constraints is critical; staff members regularly seek community feedback and stay abreast of changing needs. Librarians provide further support to research through mediated searches, online and in-person instruction, New Hire Orientation, and visits to groups.

Understanding the impact of Los Alamos research is an important Lab goal. In addition to primary and secondary content tools, the Library provides services through citation support, ORCiD implementation, and Kudos, an emerging institutional service. Library staff members work across the Lab to partner on impact initiatives, from individual scientific productivity and capability reviews to DOE, national, and international measures.

In addition to impact partnerships, the Research Library works with the Science Resource Office (SRO) to deliver a quality space for discovery and collaboration, with research divisions to develop specialized tools and resources, and with technology interests to advance researcher needs such as sync and share technology. Across the DOE complex, Library staff members advance digital collections agreements, compare review-and-release initiatives, and facilitate institutional knowledge discussions. In 2015 the Library hosted the DOE STIP meeting and the Federally Funded Research & Development Centers (FFRDC) Research Center Information Managers' (RCIM) fall meeting.

The Los Alamos Research Library benefits from the unique inclusion of the Digital Library Research and Prototyping Team. This group of researchers, led by Herbert Van de Sompel, explores various aspects of scholarly communication in the digital age, with a main focus on information infrastructure, information interoperability, and long-term persistence of the scholarly record. In 2015, advances were made on the Memento and Hiberlink projects, and Dr. Van de Sompel's research was recognized with a 2015 Fellows Prize.

Looking ahead, the Los Alamos Research Library will continue to develop and augment its tools and services. The 2016 calendar year will include a strategic planning initiative that will further align the Library's purpose with the Lab mission and vision. To maximize efficiencies and impact, Library services will be mapped to parallel initiatives across the Lab and DOE, creating further partnerships within Los Alamos and across the complex. Outreach services are being refreshed, and a new set of options for group visits will be configured. Now and into the future, the Research Library strives to deliver outstanding high-impact and timely services to the Los Alamos community. We are grateful for the ongoing support and feedback of our customers, and we look forward to our role in solving national security challenges through scientific excellence.

Dee Magnoni

Research Library Director

MAKING AN IMPACT

Los Alamos Research Online

Los Alamos is committed to accelerating scientific discovery, fueling innovation, and encouraging collaboration. The Research Library supports this goal by helping to disseminate the fruits of Lab research and scholarship as widely as possible. On October 1, 2015, the Library released a new public-facing institutional repository, Los Alamos Research Online (LARO).

The creation of LARO was driven by the February 2013 memorandum of the United States White House Office of Science and Technology Policy (OSTP) titled “Increasing Access to the Results of Federally Funded Scientific Research.” The LANL Public Access policy, incorporated into PD1022 on June 10, 2015, brings the Laboratory into compliance with the OSTP memorandum and related requirements from DOE’s Office of Scientific and Technical Information (OSTI).

LARO includes records for Lab-authored journal articles and conference proceedings papers from 2006 to the present. These reference records are pulled in from multiple sources and include author keywords, OSTI subject areas, open-access indicators, and published citations. Full-text links connect to the most widely accessible versions of the content, including documents in preprint archives, authors’ final accepted manuscripts, and publishers’ versions. LARO also enables social media sharing: tweet or share results about your latest work!

Time Travel Portal (<http://timetravel.mementoweb.org>)

The Research Library Prototyping Team invented the Memento protocol, which allows Internet users to find and view versions of web pages that existed at some time in the past. This protocol is succinctly described as “Time Travel for the Web.” This project was significantly expanded into the Time Travel portal, the design and development of which took about a year from conception to release. Work included a fundamental redesign of the Memento Aggregator, the introduction of several RESTful APIs, and transfer of the Memento infrastructure from LANL’s network to the Amazon cloud, as well as work on the portal itself. The Time Travel portal now operates as an official service of the Research Library.

A major motivation for the development of the new portal was to lower the barrier for experiencing the web time travel capabilities offered by the Memento protocol (<https://tools.ietf.org/rfc/rfc7089.txt>). While the Memento extension for Chrome (<https://bit.ly/memento-for-chrome>) remains the optimal way to experience cross-system time travel, the portal makes the power of Memento accessible without the installation of a browser extension.

Development of the Time Travel portal was also strongly motivated by the desire to lower the barrier for developing Memento-related functionality. To that end, several RESTful APIs (<http://timetravel.mementoweb.org/guide/api/>) were introduced that make developing Memento-based services easier, especially at the browser side.

The Digital Repository

The Research Library is annually accessed by users from around the world. Permalink URLs allow an end user entry into the Research Library’s repository (aDORe) on a record basis. The metadata of the record drives what services the permalink offers. These can include delivering the full text, vendor record, marc record, RIS format, or BibTeX format. These URLs never change. Software and hardware will change, but the permalink URL will remain active for the life of the Research Library. The most heavily used service of the permalink is the full text service.

BROAD SUPPORT FOR RESEARCH

Citation Support for Researchers

The Research Library regularly fields requests for lists of the publications of different individuals, groups, or projects. These requests may be to satisfy a DOE requirement, to illustrate productivity, or to augment a promotion package or the nomination package for an award. In some cases, such as the bibliographies periodically compiled for the ASC (Advanced Simulation and Computing) program, new publications are identified either by a funding acknowledgement in the paper or by the cost code entered in RASSTI. These bibliographies are then included in a cross-Lab publication about the program. For promotion packages, the Library may provide either a bibliography for a researcher's full career or a recent portion of the bibliography. The package often includes citation counts and h-index information. For nomination packages, a full bibliography is gathered, and citation counts are pulled from multiple sources (Web of Science, Scopus, Google Scholar). Any of these reports can be customized per requestor requirements.

ORCiD

An advantage of the Library Metrics process, now called LAPR, is that credit gets assigned to authors by their Z number. This enables easy differentiation between authors with the same last and first names or the same last name and first initial. ORCiD, the Open Researcher and Contributor ID, serves this same function but on a global scale. In addition to claiming authorship, ORCiD provides additional functionality. Researchers can link to their datasets; authors can (or may even be required to) use their ORCiD in their manuscript submissions and can track professional honors; and reviewers can use their ID in the review workflow, thus documenting this important professional activity. As a workflow tool, the ORCiD will be incorporated into RASSTI. To help Lab researchers create their ORCiD profile, the Research Library has customized the ORCiD API to supply an initial load from the LAPR system (for those who wish to opt in to this service). Additionally, the Library will provide regular updates from LAPR.

LA in the Red, LDRD Connexion, EPRR, BRD

Part of the Research Library’s mission is to deliver agile, responsive knowledge services, connecting people with information, technology, and resources. This plus the “collect, curate, preserve, and provide access to institutional scientific content” focus area has resulted in several high-visibility projects. The flexibility of the Library’s repository and user interface facilitates the ingestion of different datasets.

LA in the Red enables staff working in classified areas to access LA Authors via the red network, facilitating research. This database was released in December 2013 and provides all the features of LA Authors. LA in the Red is updated to include new features and content as they are added to LA Authors.

LDRD Connexion is a collaboration between the Library and the LDRD office. This dataset allows all Laboratory staff to view funded LDRD proposals and track the status of these proposals. The Library also has a long-term relationship with the environment divisions, supporting those divisions by managing the Electronic Public Reading Room (EPRR). This effort started in 2011 and continues today. The Research Library facilitates public access to environmental documents in a timely fashion.

The Biosurveillance Resource Directory (BRD) is a current collaboration with researchers from A-1, the Information Systems and Modeling group, who had a dataset that needed to be made accessible to the world. The Library was able to use its data knowledge and mapping tools, as well as its repository and end-user platform, to give the world timely access to BRD. This effort resulted in public accolades for the researchers and continued funding.

EPRR Downloads

June 2014–December 2015

There are several related efforts in development. One such effort is focused on Laboratory geothermal reports spanning the last 30 years. Another effort is focused on creating a public interface for a specific researcher's output throughout his scientific career. The Library has the necessary tools and skills to facilitate such efforts.

Robust Links (<http://robustlinks.mementoweb.org>)

The Hiberlink project, a collaboration with the University of Edinburgh, investigated reference rot in scholarly journal articles. Reference rot is the combination of link rot (links stop working, resulting in a 404 error message) and content drift (the information at the end of a link changes over time). The project scientifically assessed the extent of content drift by extracting all links to web-at-large resources in scholarly articles, published between 1997 and 2012, from three corpora: PubMed Central, arXiv.org, and a significant Elsevier sample. Findings were published in PLOS ONE¹ and received significant attention, including in articles in *The New Yorker*,² *Nature*,³ and the Dutch newspaper *Trouw*.⁴ But the Research Library Prototyping Team also proposed a pragmatic solution to reference rot, a solution that consists of decorating links⁵ with temporal and archival information. Combined with the Memento infrastructure, these decorated links can be turned into Robust Links,⁶ which remain relevant even when the original links rot or when the information at the end of the links changes over time.

STRATEGIC INVESTMENTS

Digital Collections

The Research Library provides access to the largest and broadest collection of digital information resources in the DOE. The Library manages its digital collection of journals, books, databases, standards, patents, and various research tools through strategic sourcing and careful curation of resources. The Library's extensive multidisciplinary digital collection is the foundation of research at LANL.

Digital information resources in science, technology, and medicine (STM) make up the bulk of the Research Library's collection and are the most expensive resources on the market. The cost of acquiring these resources increases 5%–6% annually, constantly challenging the Library to find new ways of mitigating high costs while continuing to provide access to existing collections and add new content to meet the demands of the growing and changing mission of the Lab.

In FY13–FY15, the Library led a coalition of DOE libraries in creating several multi-DOE-participant consortial agreements with publishers and other information providers. Consortial agreements with the three largest information providers in the global STM market allowed the Library to limit the cost increases for these information resources to 4% annually. Cost savings are returned to the collections budget in a consistent endeavor to meet ongoing demand for access to new resources.

The Research Library works tirelessly to meet the information needs of the Laboratory. Challenges in collection funding persist. The digital scholarly information world is churning with responses to public access mandates from governments worldwide, the increase in publications from developing nations, and the shifting balance in global research outputs. Meeting these challenges, the Library continually strives to provide seamless access to high-quality content that is crucial for research.

¹ <http://dx.doi.org/10.1371/journal.pone.0115253>

² <http://www.newyorker.com/magazine/2015/01/26/cobweb>

³ <http://dx.doi.org/10.1038/521111a>

⁴ <http://www.trouw.nl/tr/nl/4324/Nieuws/article/detail/4160687/2015/10/10/Vijf-oplossingen-tegen-veranderde-bestandsformaten-en-rottende-bits.dhtml>

⁵ <http://robustlinks.mementoweb.org/spec/>

⁶ <http://robustlinks.mementoweb.org/>

CUSTOMER SERVICE

The Research Library is constantly working to meet and exceed the needs of its customers. The Customer Engagement Team is a multi-integrated staff of reference librarians and technical report experts who engage in daily one-on-one interactions and activities with the Lab researcher base. They offer assistance in the use of Library services that go beyond the location of books and journals. These services include helping with in-depth searching of current information within subject-specific research areas as well as training in the use of current research tools.

The Research Library's web presence extends to journal websites (where Library subscription access is automatically recognized via IP) and databases such as Web of Knowledge and Primo (where LinkSeeker buttons connect to Library online resources and request forms). Since November 2012 the Library has offered an embedded Primo search box on its internal website homepage, allowing for quick searches. In April 2013 the Library rolled out its new external website. In 2014 the Library ran a one-year trial chat reference service. And this past year the Library implemented LibGuides for new and improved subject pages.

The Research Library also fulfills customer requests on demand. Articles from our print journal collection are scanned and emailed to customers each day. The Reports Team handles dozens of report requests each week. Many of these reports are scanned and made available online for quicker and more direct access in the future. The Research Library offers a Document Delivery service for articles that are not in our collections and supplies hundreds of Interlibrary Loan books to Lab researchers each year.

In the fall of 2014, librarians from the Research Library began providing introductory sessions at the New Hire Orientations, in collaboration with the Laboratory's Human Resource Division. To date, the Research Library has presented at over 50 New Hire Orientations, serving approximately 1,100 new Lab staff members, postdocs, and undergraduate and graduate students. Research Library staff members are available to give training on any of the Library's resources and services at group meetings, in one-on-one sessions in researchers' offices, and in all situations in between.

TOOLS FOR RESEARCH

The Research Library's Institutional Content (IC) Team manages important tools to provide end-user access to the Library's print and electronic collections. We use the following systems from vendor Ex Libris, customized to suit Laboratory needs.

Aleph is the Library's online catalog, with records for print and electronic collections of books, reports, journals, and more. Updates occur daily. Batch loads regularly process new electronic book holdings. Aleph also handles circulation processes for loans, holds, and renewals.

SFX is the Library's link resolver. This product keeps track of our journal subscriptions and provides the connection between a citation and the full text. This tool is used in all of the Library's databases and external databases, as are search tools such as Google Scholar. SFX also connects to the Library's document request service.

Primo is the Library's discovery system. Primo searches hundreds of millions of scholarly resources with a single search, covering both library collections and external databases. This system communicates with Aleph to display real-time catalog holdings and employs SFX to link end users to full text content.

RASSTI (Review and Approval System for Scientific and Technical Information) was developed by the Research Library to handle the review and approval of LANL scientific and technical documents for public release. The online system has replaced paper forms and documents, facilitated approvals, and enabled the collection of all documents into a permanent repository and search system for the Laboratory.

RASSTI Version 1 was rolled out in March 2011 and handled only Los Alamos Unlimited Release (LA-UR) documents that fit under the Designated Unclassified Subject Area (DUSA) categories. RASSTI Version 2, rolled out in March 2012, accommodated the review of all LA-UR publications and handled revisions. The process of getting derivative classifier, responsible line manager, and SAFE-1 reviews leading to the LA-UR is tracked through this system, and the electronic document is deposited with the Library's LA Authors database. Version 2 later introduced RASSTIsafe (July 2013), a read-only application (a window to a virtual machine) for viewing PDFs via a Remote Desktop session. This enhancement eliminated hand delivery of paper copies to derivative classifiers and streamlined the workflow.

In May 2014 Version 3 expanded RASSTI to include the review of Controlled Unclassified Information (CUI) for an unclassified Los Alamos Controlled Publication (LA-CP) number, including automatic generation of appropriate cover sheets. Two modifications have recently been released. On March 18, 2015, a workflow was added to facilitate the uploading of accepted manuscripts for journal articles. This is in response to the Laboratory's new public access policy. On October 21, 2015, a corrective action DUSA workflow change was rolled out.

RASSTI facilitates the uploading of documents to OSTI, allowing the Lab to meet the requirements of DOE Order 241.1b for distribution of scientific and technical information.

RASSTI has enabled the Research Library to build ties with the classification group (SAFE-IP) and with many authors at the Laboratory. RASSTI has developed into an essential Laboratory application.

Enhancements that are being studied include a standardized journal list, standardized external collaboration list, and the collection of finer grained funding data. All of these enhancements are focused on facilitating data entry by the author, balanced with required effort.

LAPR (Los Alamos Published Research) is a shared administrative module. With the Laboratory contract change in 2006, a request was made by the Science and Technology Base Program Office (STB, now the Science Resource Office, SRO) for the Library to provide data on papers published by Laboratory authors. On a quarterly schedule, data would be sent to STB/SRO to be incorporated into metrics supplied to management/sponsorship. When STB/SRO updated or added to this data, the result was two sets of data that were out of sync. A decision was made to develop a shared tool for linking additional data to and querying the core dataset. A number of referring MySQL tables store additional data needed by both the Library and STB/SRO. The shared module, which has been in use since FY15, has made the entire process easier, faster, and more accurate. Both the Library and SRO participated in the development and testing of the module. A Spot Award was given to all participants for the effort.

The Research Library continues to investigate new ways of supporting institutional metrics for the Laboratory, including exploring use cases for tracking alternative metrics (or altmetrics). Altmetrics is a relatively new method of measuring the impact and influence of a scholarly article based on activity on the Internet and social media platforms. Stay tuned for more information!

STAFF NOTABLES

In 2015 Research Library staff accomplished the following:

- Attended 19 conferences
- Delivered 15 presentations
- Published four journal articles
- Presented dozens of training sessions
- Served on 19 boards, working groups, etc.
- Gave two radio interviews

Recognition/Awards

Dee Magnoni, Library Director, was elected President-Elect of the Special Libraries Association (SLA).

Herbert Van de Sompel, head of the Research Library Prototyping Team, was awarded a 2015 Fellows Prize for Outstanding Research.

Josh Finnell was the recipient of the 2015 FORCE11 + Digital Library Federation Cross-Pollinator Fellowship.

Herbert Van de Sompel (right), pictured with Alan Bishop, Principal Associate Director for Science, Technology, and Engineering, Los Alamos National Laboratory.

Conference Presentations

- OCLC Workshop on the Evolving Scholarly Record, Evanston, IL, March 23, 2015. “A Perspective on Archiving the Evolving Scholarly Record” Herbert Van de Sompel.
- OSTI STIP meeting April 20–23, 2015, Santa Fe, NM. Presentations on LANL’s implementation of public access by Frances Knudson, Dee Magnoni, Heidi Uphoff and Matthew Hopkins; “Long Term Persistence of the Web-Based Scholarly Record,” Herbert Van de Sompel.
- IIPC General Assembly 2015, Stanford University, Palo Alto, CA, April 28, 2015, “Memento Time Travel,” Herbert Van de Sompel.
- ELUNA Annual Conference, May 5–8, Minneapolis, MN. “Technical Reports in Primo,” Kathy Varjabedian.
- DANS, The Hague, The Netherlands, May 19, 2015. “Results from the Hiberlink Project,” Herbert Van de Sompel.
- OAI9, Workshop on Innovations in Scholarly Communication, Geneva, Switzerland, June 17, 2015. “Memento: Uniform and Robust Access to Resource Versions,” tutorial, Herbert Van de Sompel.
- Webinar for ICSU World Data System, July 22, 2015. “Web-Centric Solutions for Web-Based Scholarship,” Herbert Van de Sompel.
- TPD L 2015: 19th International Conference on Theory and Practice of Digital Libraries, Poznan, Poland, September 14–18, 2015. Herbert Van de Sompel.
- Internet Librarian, October 26–28, 2015, Monterey, CA. Dee Magnoni.
- New Mexico Library Association, October 22, 2015, Albuquerque, NM. “Implementing Public Access to Scientific Research” Michelle Mittrach; “Public Access at Los Alamos National Laboratory,” Frances Knudson.
- Coalition for Networked Information, December 2015, Washington, DC. Dee Magnoni

Journal Articles

- K. Crowston, A. Specht, C. Hoover, K. M. Chudoba, and M. B. Watson-Manheim. Perceived Discontinuities and Continuities in Transdisciplinary Scientific Working Groups. *Science of the Total Environment*, Vol. 534, 159–172, November 15, 2015.
- D. Magnoni. Leveraging Open and Public Access Content from Government-Funded Research, *Online Searcher*, Vol. 39(4), 10–16, Jul/Aug 2015.
- H. Van de Sompel. Reminiscing about 15 Years of Interoperability Efforts, *D-Lib Magazine*, Vol. 21(11/12), November–December 2015.
- H. Van de Sompel and S. Davis. From a System of Journals to a Web of Objects. *Serials Librarian*, Vol. 68, 51–63, 2015.

Boards, Associations, and Committees

- ALSOS Digital Library for Nuclear Issues, advisor/content reviewer (Michelle Mittrach)
- American Institute of Physics, Library Advisory Board (Carol Hoover)
- arXiv, Advisory Board and Fundraising for Special Projects Subcommittee (Carol Hoover)
- ASTM, Committee on Publications, vice chair (Dee Magnoni)
- DataONE, NSF DataNet Program, Usability & Assessments Working Group (Carol Hoover)
- ELUNA, Primo Product Working Group and Knowledge Base Advisory Board (Kathy Varjabedian)
- Highwire Press, Library Advisory Council (Carol Hoover)
- LANL Student Symposium, judge (Michelle Mittrach)
- LANL WSST Committee, PADSTE representative (Helen Boorman)
- McGraw-Hill, STEM Publishing Library Advisory Board (Dee Magnoni)
- National Science Communication Institute, board member (Dee Magnoni)
- New Mexico Library Foundation, chair (Carol Hoover)
- NISO, Altmetrics Working Group (Susan Heckethorn)
- OSTI STIP officer for LANL (Frances Knudson)
- Scopus Usability Study, advisor (Michelle Mittrach)
- Special Libraries Association, president-elect (Dee Magnoni)
- SPIE Librarian Advisory Panel (Carol Hoover)
- Sponsoring Consortium for Open Access Publishing in Particle Physics (SCOAP3) Governing Council (Carol Hoover)
- World Scientific Publishing Company, Library Advisory Committee (Carol Hoover)

LOOKING AHEAD

Altmetrics

Metrics are sought by managers to illustrate expertise and productivity. The Research Library provides publication metrics (bibliometrics) upon request and/or for capability reviews. These metrics provide insight into scholarly output (number of publications), impact in the form of citations, and the influence of individual researchers, as seen by their h-index and other factors. While these data are good for the open literature, they are not helpful for the classified arena. The time necessary to move from submission to publication to citation can be significant. Bibliometrics are looked upon as a lagging indicator.

The Library is poised to add Altmetrics to the services we provide. These alternative metrics use “mentions” in social media to judge a paper’s impact. The number of tweets, FaceBook likes, and readers adding links to Mendeley, etc., is captured. This provides a more immediate view of response to research underway at the Laboratory.

RASSTI in the Red

Efforts to port RASSTI to the red to incorporate the review of classified LA-CPs will move to the planning stages. The current process for reviewing classified documents has been semi-automated but lacks the full process cycle that RASSTI can provide. With the capabilities of RASSTI, it will be possible to upload classified documents directly to appropriate databases. This will mirror the current connection between RASSTI and LA Authors. This also provides more support for the classified researchers.

New Repository

aDORe and the oplet software have served the Library well. aDORe, Version 1, was rolled out in mid-2007. aDORe currently has 466,558 active records and manages 191,364 full-content resources. Unique items (332,741) are made accessible to end users via a front-end product called an oplet. The first oplet rolled out was LA Authors in 2008. We currently manage six oplets—Los Alamos Research Online, LA Authors, LDRD Connexion, EPRR, BRD, and LA in the Red. The IC Team has started work on replacing these important infrastructure pieces with a more modern, community-based repository platform: hydra/fedora.

Data

In August 2014 a Data Working Group (DWG) was formed at Los Alamos to enable data management and sharing at the Lab. Six subgroups were also formed, which later merged into four core groups. Key initiatives included the creation of personas and a data survey for researchers. The Research Library Director chaired the group, and Lab-wide stakeholders were included.

As the group approached its one-year point, the decision was made to shift the DWG to an advisory role. The goals of the DWG would move forward through the work of the subgroups. There was also recognition of the need for external engagement in the form of dialogue, education, and review. To this end, two data experts from Purdue University were invited to visit the Lab to share their experiences, listen to DWG leader report-outs, and engage in conversations with researchers, librarians, and leadership. The result was a day and a half of talks, the creation of a full report, and the drafting of potential next steps.

Data management and sharing make up a complex initiative that must address policy, services, and tools. The next three years will see Lab-wide initiatives, as well as DOE-wide partnerships. The Library, working with Lab leadership, will create an executive committee of five to six decision makers, who will lead Lab data policy and decisions. The DWG will be retired in its current format, while members will remain available for consultations and discrete projects. Personnel in relevant groups will be tapped to

create services and tools, conduct surveys, and spearhead training. The Library launched a data team in December 2015 to accomplish many of these goals.

The Long View

Economic, policy, and technology challenges will continue to change the way basic science and scholarly research are performed. Research libraries worldwide are engaged in conversations and projects to evaluate future services and tools that will support and advance the needs of their constituents.

Los Alamos Research Library staff members are actively engaged in these conversations, while also working across the Lab and the DOE complex to maximize current and emerging workflows.

As an organization, we remain committed to developing our staff and working with our Lab partners to advance discovery and security science. We thank Los Alamos leadership and researchers for their strong support over the years. As new challenges arise, we will work together to find solutions.

Celebration!

On the 100th anniversary of Nicholas Metropolis's birth, June 11, 2015, the Library hosted a session by Jim Gubernatis (T-4) on the Metropolis Algorithm.* We were honored by the participation of many Metropolis peers. The Bradbury Museum created a special display for the event.

* Nicholas Metropolis, Arianna W. Rosenbluth, Marshall N. Rosenbluth, Augusta H. Teller, and Edward Teller. "Equation of State Calculations by Fast Computing Machines," *Journal of Chemical Physics*, 21, 1087–1092 (1953). [DOI:10.1063/1.1699114](https://doi.org/10.1063/1.1699114)

Reference Rot

Reference rot is a combination of link rot (links stop working and result in a 404 error message) and content drift (the information at the end of a link changes over time). The below figures are taken from <http://dx.doi.org/10.1371/journal.pone.0115253>, a study on reference rot published by staff of the Research Library's Prototyping Team. The figures illustrate the state of links from three major scientific corpora—arXiv, Elsevier, and PubMed Central (PMC)—to Web at-large resources published on top-level Web domains (org, edu, com, gov, uk, and de) between 1997 and 2012.

Each domain is represented by a distinct color, and the width of the bands is proportional to the number of active links.

By mid-2014 the number of still-operational links has changed, as indicated by the noticeable shrinking of the colored portion of each band. The portion of each band that is now grey indicates dead links.

Visiting archived versions of linked resources: The colored portion of each band indicates links for which an archived snapshot of the linked resource exists, created around the time of publication of the referencing paper. The grey portion indicates links for which no such snapshot exists.