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2008 LNO Annual Report to the Executive Board

Long Term Ecological Research Network

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Annual Report of the Long Term Ecological Research Network Office (2007-2008)

Introduction

This report summarizes activities and accomplishments of the LTER Network Office (LNO) during the period March 1, 2007 until February 28, 2008. Along with the survey of sites administered by the Executive Board, this document will be used to facilitate the annual review of LNO performance.

Major Findings

Executive Summary

Organization of the activities of LTER Network Office (LNO) has evolved over time to more closely match the changing needs of the LTER Network. The 2003 LNO Scope of Work, described in the Cooperative Agreement, comprises ten core task areas (see Research and Education Activities above). During the course of strategic planning by LNO and the LTER Network, we have reorganized LNO tasks into four groups of closely related activities: Synthesis, Cyberinfrastructure, Core Services, and Outreach/External Relations. This revised configuration reflects more closely the new research and education goals of the LTER Network as defined in the The Decadal Plan for LTER, and emphasizes the important supporting function that LNO activities play in facilitating Network research and education.

The present report covers LNO accomplishments during the fifth year of the Cooperative Agreement, from March 1, 2007 until February 29, 2008. We organize the findings described in this Executive Summary around our new task structure, and we intend to follow this new organization in the renewal proposal that will be submitted to the National Science Foundation (NSF) at the end of March, 2008. Seventeen of our most significant accomplishments are discussed first, followed by a separate section with detailed specific accomplishments under our four categories of activities.

Synthesis

The Decadal Plan for Synthesis - The major accomplishment of the LTER Network during 2007-2008 was the completion of two key planning documents, Integrated Science for Society (ISSE) and the Environment and the Decadal Plan for LTER (<http://www.lternet.edu/decadalplan>). Together, these documents lay out strategies for an integrated science program for the LTER Network and the scientific community in general. LNO personnel made significant contributions to all aspects of the LTER planning activity, contributing intellectually to the various planning elements (Research, Education, Governance, and Cyberinfrastructure) and participating in writing the planning documents (James Brunt, John Vande Castle, Mark Servilla, and Bob Waide).

Working Groups - The LNO provided \$75,000 to support LTER synthesis activities. The EcoTrends editorial committee received \$10,000 for a meeting to complete work on the book “Our Changing World: An Atlas of Long-Term Trends in Ecological Systems.” At the request of the LTER Executive Board, \$65,000 was provided for continued development and implementation of the LTER Decadal Plan.

Science Council - The second meeting of the LTER Science Council (formed as part of the restructuring of LTER governance) took place in May 2007 in Portland, OR. The LNO provided funds for this meeting, during which three working groups focused on primary production, biogeochemistry, and discovery through synthesis. In addition, a workshop on one aspect of the ISSE framework, ecosystem services, was organized by Chapin, Kinzig, and Carpenter at the Portland meeting. Two manuscripts emerged from this workshop, one on biofuels and one focused on synergies and tradeoffs in ecosystem services. LNO also provided support for this workshop.

Remote Sensing Data for LTER Sites - John Vande Castle was named associate director for the Center for Rapid Environmental Assessment and Terrain Evaluation (CREATE) at the University of New Mexico (UNM), which provided half of his salary for this position. In his new role, John was able to integrate activities of the Center with LTER. One major activity with CREATE was to program scripts and schedule processing for automated data acquisition for all LTER sites within the reception coverage of the Center for MODIS data from NASA’s Aqua and Terra satellites. Standard data products have been acquired and archived for 22 of the 26 LTER sites. The system is now nearly operational, and data are available through a link on the LTER remote sensing/GIS web page at: <http://www.lternet.edu/technology/ltergis/> or directly on the CREATE website at: <http://create.hpc.unm.edu/create/lter.php>.

Network Research and Education – The Science Environment for Ecological Knowledge (SEEK) project continued to advance development of software under the Kepler Workflow System. Key successes included the development of code that facilitates the automatic transformation of a conceptual workflow to an executable workflow, code that extended GIS capabilities for exploring ecoregion-based biodiversity data, and code that enhances ontologies, conceptual actors and workflows for ontology-driven composition and validation of scientific grid workflows (see Contributions to other Disciplines).

Cyberinfrastructure

Information Management - Cyberinfrastructure Strategic Plan completion – A major milestone was reached this fall with the final submission of the LTER Network Cyberinfrastructure strategic plan as part of the Decadal Plan for LTER. LNO Associate Directors Brunt and Vande Castle played a major role in the facilitation, development, and writing of the Cyberinfrastructure strategic plan and in subsequent efforts to provide initial cost estimates and implementation strategies for the plan.

Network Information System - Metadata Standardization Milestone – The LTER network information system reached an important milestone with regard to standardized

data documentation this summer with the addition of metadata contributions from the two newest LTER sites, Moorea Coral Reef (MCR) and the California Current Ecosystem (CCE). All LTER sites are now contributing metadata standardized in Ecological Metadata Language (EML) to the LTER Network Data Catalog. The LTER Data catalog hosts over 15,500 EML documents searchable at <http://metacat.lternet.edu>. LNO staff contributions, particularly the one-on-one efforts of Inigo San Gil, have made reaching this milestone possible.

Network Information System – EcoTrends Data Delivery Portal – Major advances have been made this year in the design and development of the Network Information System. With NISAC approval and additional funding from NSF, the NIS development team has spent the year on the development of the EcoTrends data delivery system. Work on this system advances and demonstrates the efficacy of several major components of the PASTA architecture (Figure 1). LNO instituted a formal usability review process of the website and administered it to the EcoTrends editorial committee in December 2007. Final adjustments to the website will be made through early 2008.

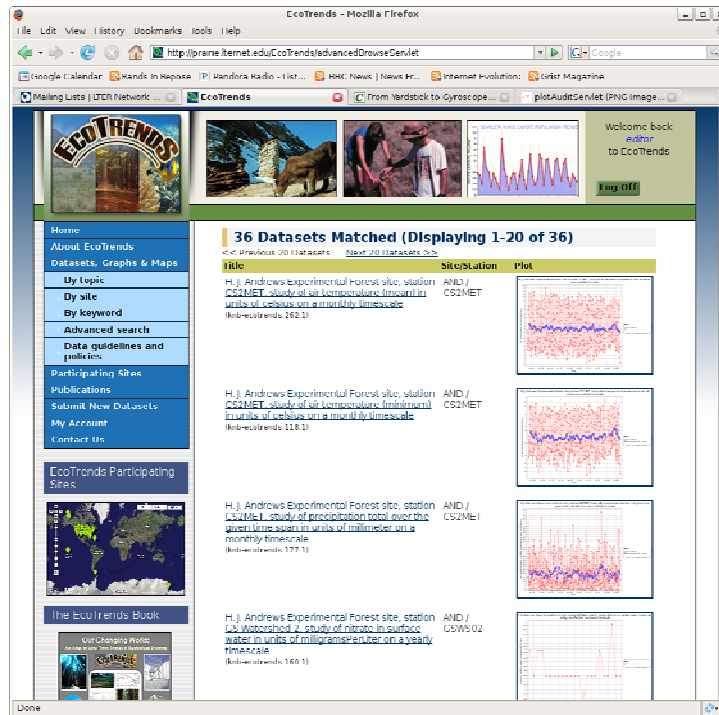


Figure 1 – EcoTrends Data Delivery Web Portal

Network Information System – Data Access Server RFC and prototype - The LTER NIS development team has identified and prototyped a general model for a Network-wide LTER Data Access Policy implementation strategy called the Data Access Server (DAS). The DAS model uses a NIS service that would perform all necessary policy actions, including the pass-through of LTER site data, on behalf of the site. The pass-through process relies on the use of a "proxy" URL in site metadata that point to the DAS, which is hosted by the LNO, instead of the site. The purpose of the DAS is to validate the user credentials, thus confirming their compliance with LTER Data Access Policy, before

allowing access to any site data. The proxy URL has the additional advantage of being persistent in the event that site URLs change. The NIS development team has deployed a minimal proof-of-concept **DAS** that utilizes data made available for the EcoTrends Project **prototype web** application for demonstrating the use of a proxy URL in place of a data URL. While there are advantages and disadvantages, the DAS model is a method for sites to easily take advantage of the LTER Data Access Policy. The LTER NIS Development Team has solicited comments and suggestions for improving this model, and anticipates working closely with beta-sites to evaluate and test the DAS model. A fully functioning DAS implementation is expected sometime during 2009.

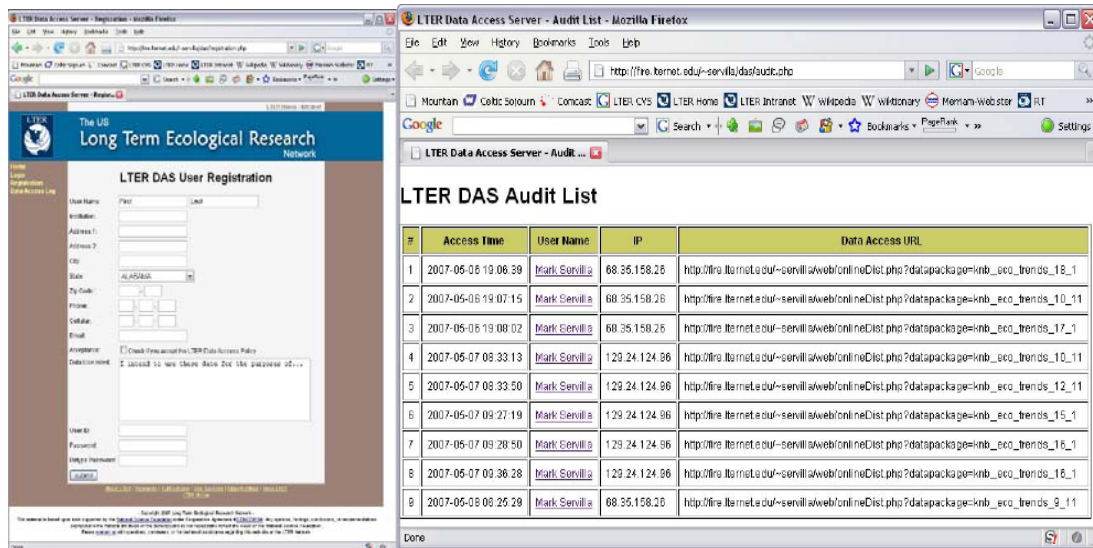


Figure 2 – DAS prototype registration form and audit results page

Basic Cyberinfrastructure Support - New Servers add new capability and security - LNO staff replaced 6 aging servers (7-10 years old) with new multi-processor servers. These servers provide basic support for email, web, database, metacat, archive, authentication and communication, local user directories, and backups. These replacements have allowed us to implement new, more rigorous security policies. These include the use of virus and spam scanners for all LTERnet.edu email communication, restrictive IP filtering for all servers, extensive logging and monitoring capabilities, and the ability to provide greater user flexibility and access to basic services. In addition, the server room and its environmental system are now supported by an emergency backup generator to help us maintain uninterrupted access to LTERnet services.



Figure 3 – New LTERnet System Administrator Dez Wyman

Basic Cyberinfrastructure Support - PVX site license speeds VTC adoption – To speed the adoption of video teleconferencing (VTC) technology within the Network, LNO purchased a 50 seat license for Polycom PVX software and distributed two software licenses and cameras to each of the LTER sites. This hardware and software implementation at the sites moves the LTER Network closer to having VTC capability available to all investigators for use in LTER research efforts. Currently, regular meetings of the Executive Board, the Information Management Steering Committee, and the CI team are being held via VTC. A test of a 13 simultaneous site meeting was held in January 2008.

Core Services

Meeting Support – Staff of the LNO facilitated 32 meetings, working groups and trainings involving 384 individuals. These meetings focused on research, education, administration, and planning for the LTER Network. In particular, the LNO supported the LTER Planning Grant by providing logistical assistance for a wide variety of planning grant activities, including meetings of the Science Task Force, the Science Task Force Advisory Committee, Governance, Education, and CI teams, LTER site representatives, and research working groups for each of the Planning Grant research themes.

Persistent Record of LTER Activities - Revision of LNO web page and archive – In response to suggestions from the annual survey of LTER sites, we revised the LNO web page to provide additional functionality and clarity with regard to services provided by the Network Office. In addition, LNO staff reviewed and standardized documents on the

LTER intranet site and upgraded the search capability of the document archive (<http://intranet.lternet.edu/modules.php?op=modload&name=UpDownload&file=index>).

Preparation of Proposals – LNO renewal – The LNO prepared for the submission of a proposal in March, 2008, to renew the Cooperative Agreement between NSF and the University of New Mexico. LNO staff developed an outline of continuing activities for the proposal and identified elements of the Decadal Plan that required new funding. Logic models were developed for each proposed activity, which identified resources needed and allowed estimation of costs. The LNO worked closely with the Chair and the Executive Board, as well as the Information Management Committee, to insure that the activities proposed address the priorities of the Network.

External Relations/Outreach

Outreach - Developing distributed scientific communities – Deana Pennington received a National Science Foundation CI-Team grant for a 1 year demonstration project late in 2006, and received a grant for a full scale implementation project late in 2007. The project, titled CI-Team: Advancing Cyberinfrastructure-Based Science through Education, Training, and Mentoring of Science Communities, develops a process for mobilizing a group of distributed, interdisciplinary scientists into a community of practice that is able to effectively embed technology-enhanced approaches into their work, and investigates methods for enabling collaborative research design. The project uses a combination of activities informed by creative thinking and problem-solving theory, social science, and organizational learning theory. All activities integrate research with education through problem-based, experiential learning by a community of practice in the context of real problem solving. The project is being conducted with a group of scientists engaged in forecasting the impact of climate, population, and land cover/land use change on plant distributions in the American Southwest, and investigating human and environmental consequences of those changes. The proposed project will partner the scientists with technology and cyberinfrastructure specialists and make use of our best understanding of community learning and innovation theory to collectively discover effective ways to overcome the technical, social, and cognitive barriers to cross-disciplinary collaboration.

External relations – Developing new partnerships – William Michener collaborated with community partners on three major information technology proposal efforts aimed at 1) enhancing the interoperability of data collected and archived by LTER (INTEROP), 2) enhancing data preservation and use across a broad array of biological and environmental research networks (DATANET), and 3) enhancing communications and networking at approximately one-third of the LTER sites, as well as several additional field stations and international research sites (CI STARRED). These proposal efforts advance LTER Cyberinfrastructure involvement and engage LTER scientists in new research and education efforts.

Outreach – Understanding social networking within LTER – James Brunt and Bob Waide participated in a LNO-funded working group led by Robert Christian to examine changes

over time in the strength of social networking within the LTER Network. Social relationships were estimated using data on joint authorship from the LTER Bibliography, which is managed by the LNO. Results from the study show a strong increase in interactions among LTER sites over time (Figure 4). Analysis of the results of this study is underway to provide additional insight for future LTER cooperative projects.

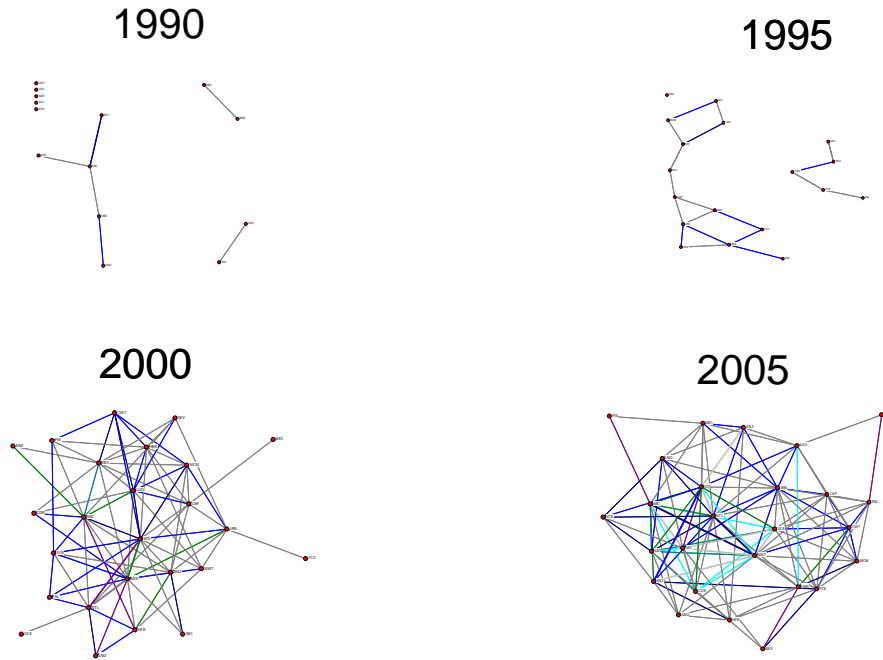


Figure 4. Changes in social networking in LTER over time (Christian et al. in prep)

Detailed Accomplishments

LNO activities are designed to provide services to the LTER Network, LTER sites and scientists, the scientific community, and the National Science Foundation. Many of these activities are of benefit to more than one of these constituencies. Most of the LNO's efforts address network priorities as established by LTER governing bodies and embodied in the LTER bylaws, planning documents, and committee recommendations. Service to LTER sites takes a variety of forms including support for travel, meeting coordination, technical advice, support of communications and database systems, and response to requests from individual investigators. The LNO shares publicly-funded information and discoveries from LTER research with the broader scientific community, policy makers, and the public. In addition, LNO staff members often contribute to community-wide initiatives involving education, research planning, and the development of emerging networks. On occasion, the LNO receives requests for information or assistance from NSF. The following section provides information on specific accomplishments of the LNO in each of the four core task areas.

Synthesis

John Vande Castle continued to work with USGS/Reston contacts for the operational acquisition of high resolution reconnaissance data for LTER sites. Very high spatial resolution data is now required on an on-going basis for all LTER sites. These data are now being operationally archived through the USGS and can be accessed by LTER researchers with proper security clearance. It is presumed that all these data will be available on a declassified basis in the near future, or within 20 years according to current US regulations. A dedicated LTER web page exists to describe these data and provide information on how the data can be accessed.

Bob Waide completed his collaboration in a NASA-funded project to conduct LIDAR overflights of selected LTER and non-LTER sites. This project used data from several LTER sites to develop techniques for surveying biodiversity using forest structure measures derived from LIDAR data.

Bob Waide attended the first meeting of the LTER Science Council and participated in discussions about future Network projects.

Cyberinfrastructure

Network Information System - Metadata/Data Catalog – The LTER Data Catalog software tools continue to be refined and fine-tuned. The Metacat (the underlying Data Catalog database for metadata and data) has been upgraded from version 1.6 to 1.7; version 1.8 is now under evaluation with deployment expected in early 2008. The Data Catalog “Browse” tool is now available as part of the production Data Catalog and allows for fast and easy browsing of all indexed documents. The Data Catalog “Advanced Query” interface will receive a new face lift by replacing the current Java applet map tool with the Google Map API that is used within the EcoTrends web site portal. The LTER Data Catalog has reached a milestone in August 2007 with all 26 LTER site contributing metadata to the catalog. Data Catalog statistics as of November 2007 are as follows: 28,610 total documents (up from 27,740), 15,576 Ecological Metadata Language (EML) documents (including EML 2.0.0 and EML 2.0.1), 9,653 binary, and 3,381 other. Of the EML documents, LTER sites have contributed approximately 6,090 (39%).

Basic Cyberinfrastructure Support – John Vande Castle prepared a revised LTER Cyberinfrastructure survey based on feedback from the LTER NISAC committee and results from an information management workshop at the 2006 LTER All Scientists meeting. The survey was based on the 2005 CI survey which was prepared and funded within the LTER CI Planning grant activities. The survey was completed by the information managers at all 26 LTER sites. The compiled information is available on the LTER Technology website at <http://www.lternet.edu/technology/>. Summary information was also made available for use by the LTER NISAC and IM committees as well as the Executive Board and Science Council. Although the survey was originally designed to be “anonymous”, with no information linked to any one site, John polled the LTER IM community and all thought the individual site CI information would be valuable, so this information was also linked to the main LTER Technology page.

Information Management – LNO staff have created and populated a new website for the LNO to address needs of the community, the network, the executive board, and advisory team and review teams that contribute to the operation of the LNO by providing concise service descriptions, forms, procedures, and contact information for LNO services. The site is expected to be complete early in 2008 (<http://lno.lternet.edu>).

Information Management - LNO information management staff continue to edit/proofread and contribute to newsletters and online Network News, make updates to Network News Portal as needed between editions of the biannual newsletter, update the document archive, post opportunities for jobs/students/grad students/undergrad, edit committee web pages and mailing lists as required to reflect new members and governance structures, facilitate story and site features as required, change passwords, edit database entries for personnel, site characteristics, bibliography, and others as requested, upload and manage images in image gallery, create new pages and virtual web servers as needed for new projects and LTER sites, and edit main web pages to reflect changes in publications and program content.

Technical Support – Inigo San Gil provided on-site and remote assistance to individual LTER sites to transform the sites' metadata to the EML network standard. He made available most of the LTER metadata in a common standard portable format. This effort, a result of a continued major partnership with the National Biological Information Infrastructure (NBII), is now in its 4th year and provides technical support and tool development for metadata use and interoperability.

Core Cyberinfrastructure Support - LNO hired Florence Wyman (System Administrator replacing Greg Shore who retired) and James Williams (Systems Analyst I replacing David Farris who made a career change) in 2007 to manage LNO networking, computing, and collaboration infrastructure (see next).

Technical Support - James Brunt (LNO Associate Director), Marshall White, Florence Wyman, and James Williams manage LNO infrastructure, applications, and information and provide 24/7 access to LTER sites requesting assistance via the LNO request tracking system. LNO staff responded to and resolved 335 outside requests through this system between November '06 and November '07 – of these were 107 unique individuals making requests. This is a change from 307 requests from 190 individuals in the previous year. Fewer individuals made more requests indicating that some individuals are taking full advantage of the service while others may be bypassing it.

Technical Support - James Brunt (LNO Associate Director) worked with NSF Fastlane technicians to develop a method of uploading publications in bulk for annual reports into Fastlane. He subsequently modified LTER all-site bibliography to produce and accommodate the new XML based upload format.

Information Management - Inigo San Gil is collaborating on an effort for the design of a metadata input tool in support of the EML. This collaboration includes the Central Arizona Phoenix LTER site, the USGS National Biological Information Infrastructure,

and the Oak Ridge National Laboratory DAAC. It is anticipated that this tool will be available for beta testing in early 2008.

Information Management - Metadata Crosswalks – San Gil improved the existing metadata crosswalk between the EML and the Biological data profile (BDP); BDP is the federal government metadata standard. He also finished the stylesheet for crosswalk from BDP to EML, although because of content coverage mismatch issues, a wrapping script (now under development) would be necessary to produce valid EML. He improved the existing ESRI to EML crosswalk, made the LTER metadata available to the NBII metadata clearinghouse, and made the NBII metadata entry tools available to the LTER community.

Core Cyberinfrastructure - LNO staff continued support and development work on the Ecoinformatics Training and Usability Testing Lab including adding new dedicated server installations and ergonomic modifications. This one-of-a-kind laboratory continues to draw praise for its design and ease of use. The lab was used for 7 training and other sessions in 2007 including remote sensing training for the NSF Ecology of Infectious Diseases PI's.

Technical Support - Mark Servilla (Lead Scientist for LTER NIS) has deployed and supports a content management web site for coordinating collaboration on a project that is focusing on “Shared Cyberinfrastructure”, which is being fostered by NSF's Division of Biological Infrastructure.

Technical Support - Duane Costa provided Metacat/Harvester specific support during 2007 to following LTER sites: AND, BNZ, CCE, CWT, HBR, KBS, MCM, MCR, NTL, PAL, PIE, SEV, and SGS.

Core Services

We administered funds from the NSF under our Cooperative Agreement as well as funds contributed by the University of New Mexico as cost-sharing for the Cooperative Agreement. Marjorie McConnell, our Senior Program Manager, instituted mechanisms to track expenditures for multiple accounts in real time. She supervised Doug Swearingen who tracked and assigned expenditures and prepared reports for Senior Staff. She supervised George Garcia and Celina Gomez, who facilitated the meetings, working groups and trainings. Marjorie McConnell also tracked reporting requirements and assured that all reports were submitted to appropriate agencies in a timely manner.

During the present year, the following separate grant accounts were managed: 1) the Science Environment for Ecological Knowledge (NSF), 2) National Biological Information Infrastructure (USGS), 3) the NEON Design Consortium (AIBS/NSF), 4) a CI-TEAM demonstration project (NSF), 5) a sub-contract from a joint project with the University of Maryland (NASA), and 6) LTER Network Strategic Planning Activity.

We created and reconciled sub-accounts for 16 LTER cross-site working groups.

We organized meetings and maintained communications for two significant grants addressing global IT infrastructure (SEEK and RCN).

LNO prepared or edited reports and minutes from Coordinating Committee/Science Council, Executive Committee/Board, Information Management (IM) Committee, and IM Executive Committee/Network Information System Advisory Committee meetings, teleconferences, and video conferences and posted these reports on the appropriate LTER web page.

Senior LNO staff facilitated cross-site research activities involving LTER and non-LTER investigators by serving as intermediaries between sites and investigators and by providing letters of support for proposals for work at LTER sites.

Marjorie McConnell attended the annual Western Section Society of Research Administrators meeting. There she was presented with an Award of Appreciation for outstanding achievement and contribution to SRA for 15 years of volunteer service. She continues to serve on the annual meeting coordinating committee.

Doug Swearingen, Fiscal Technician, successfully completed the Management Accounting course within UNM's Anderson School of Management, and he is enrolled in Microeconomics and Financial Accounting courses for Spring 2008.

Doug Swearingen successfully created travel spreadsheets to assure correct placement of all travel costs associated with workshops.

George Garcia, Supervisor of Admin Support, recognized the need for updating forms for meeting coordination. He also implemented procedures to improve the efficiencies of meeting logistics for timely execution of workshops and participant travel.

George Garcia ensures smooth operation of the LNO office and he maintains positive liaison interactions between the Network Office and the LTER sites with respect to coordinating meeting logistics: hotel, airfare, and ground transportation.

Celina Gomez, Administrative Assistant II, successfully completed her Bachelor's degree in Biology.

Celina Gomez created electronic templates for vendor invoicing and general invitation letters for foreign participants. In addition, she maintains the internal trip sheet as the key to all meeting information.

All Core Staff members are actively involved in the creation of an electronic training manual for LNO administrative services. This electronic manual will be incorporated into the Critical Procedures Manual that Assistant Director James Brunt is supervising

Outreach/External Relations

We continued to coordinate interactions between the LTER Network and NSF, the U.S. Geological Survey, the U.S. Department of Agriculture, the National Biological Information Infrastructure (NBII), NCEAS, NesCENT, other agencies, and other national and international networks. Specific activities included the organization of NSF participation in LTER meetings, conference calls, and videoconferences, and the development of community-based proposals.

External relations – Developing new partnerships – William Michener collaborated with Dr. Jan Poley of the American Distance Education Consortium and others in writing an NSF proposal that focused on enhancing communications and networking at approximately one-third of the LTER sites, as well as several additional field stations and international research sites (CI STARRED: CyberInfrastructure: Strategic Technology Applications for Remote Research and Educational Development; \$ 6,406,512).

External relations – Developing new partnerships – William Michener led a collaborative effort that resulted in submission of an NSF proposal entitled “INTEROP: Creation of a Virtual Data Center for the Biodiversity, Ecological and Environmental Sciences” which focused on enhancing the interoperability of data collected and archived by LTER, NBII, NASA, NCEAS, NESCent, and other research networks and centers (\$749,408).

External relations – Developing new partnerships – William Michener coordinated a collaborative effort that led to the submission of a DataNet proposal to NSF for enhancing data preservation and use across a broad array of biological and environmental research networks (\$20,000,000).

The partnership between LTER and NBII has allowed Inigo San Gil to carry out the following activities:

- Visiting 17 of the 26 LTER sites to provide direct metadata and data management assistance;
- Assisting all 26 LTER sites with respect to developing their metadata management systems;
- Exposing the wealth of LTER data through the NBII clearinghouse (6,655 metadata documents from datasets belonging to LTER are now hosted in the NBII and ORNL clearinghouses. Over half of the metadata records contain information that enables automated retrieval and synthesis of associated data. A smaller percentage of the records offer discovery level information about the datasets.)
- Achieving interoperability between EML (the LTER metadata standard) and the USGS Biological Data Profile (NBII metadata standard). Documents expressed in EML are now ported to the BDP standard and vice versa using applications developed at the LNO.
- Participating in the new ISO standard working groups for the Biological Data Profile, issuing a number of recommendations for the new international standard that enhance compatibility with LTER metadata.

- Developing an editor/metadata entry tool that enhances the process of metadata creation and storage. The beta release is set for the end of the 2007 year. The website for the project is <http://intranet.lternet.edu/im/project/MetadataEditor>.
- Establishing close ties and sharing information with other information management groups via active participation in the 2006 USGS information managers meeting and the 2006 Organization of Fisheries and Wildlife Information Managers Meeting.
- Developing a synthesis architecture whose first instance has been partially deployed for the Trends project
- Enrichment of the existing metadata and setting protocols to assure quality and control of data and metadata

Outreach - The annual LTER mini-symposium took place in March 2007 at the NSF in Arlington, VA, in conjunction with the meetings of the LTER Executive Board and the National Advisory Board. Seven speakers provided examples of LTER socioecological science relevant to the new ISSE plan. The 2008 mini-symposium will take place on February 28, 2008. The LNO provided support for both 2007 and 2008 mini-symposia and associated meetings.

Outreach – Communicating LTER accomplishments – The LNO Public Information Officer, McOwiti Thomas, continued annual activities designed to inform members of the LTER Network, affiliated networks and centers, agencies, the broader scientific community, and the public about the accomplishments of LTER sites and scientists. Communication about LTER takes a variety of formats, including:

- Network Newsletters – Solicited articles, edited, laid out, and published the Spring 2007 and Fall 2007 Network Newsletter. Each issue printed 2500 copies, distributed directly to about 1900 subscribers, with another 250 disseminated through the LTER PIs and others through LNO.
- Video - Worked with both the producer and the printers to finalize the production of the LTER network video (<http://www.lternet.edu/ltervideo/>), including designing and laying out of cover and DVD disc artwork.
- LNO publications - Designed and laid out the cover for the LTER Decadal Science Plan, which was then published as an LNO publication.
- News releases - Assisted by Executive Director, the chair of LTER Science Council, and the principal investigator of the Planning Grant, drafted, edited, and disseminated a news release about the LTER Decadal Science Plan through EurekAlert!, the online science news source of the AAAS; also coordinated with the UNM Public Affairs office to issue the release through other sources.
- LTER online news portal - Posted and updated submitted material, including ASM reports, NSF/LTER presentations, and other publications, on the intranet publications database and multimedia archive.
- Joint communication ventures - Coordinated with Samantha Katz (Director of Education & Outreach at the American Institute of Biological Sciences) to engage LTER scientists to give information and act as consultants for the International Polar Year. The Public Information Officer worked to identify

LTER as a center of excellence and LTER scientists as sources of excellent and reliable scientific information on LTER areas of expertise, particularly on environmental and climate change issues, and related subjects.

- Archive of LTER documents - Converted historical hard copy print materials/publications to PDF, and added them to the publications archive.
- LTER presence at national scientific meetings - Developed and distributed informative material on LTER at the 2007 annual meeting of the Ecological Society of America; oversaw the LTER booth and, among other things, interacted with visitors.
- LNO strategic plan - Continued the development of a plan for LNO and LTER communication activities by identifying possible participants for a workshop on an LTER Strategic Plan for Communication.
- Handled public and media inquiries regarding LTER activities, including the publicity arising out of news releases and stories regarding the change in LTER leadership and governance structure, the NSF/LTER Mini-symposium and the LTER Decadal Science Plan.
- Site brochures – Patricia Spratt completed the design and development of a set of LTER site brochures working with site representatives.
- Collaboration with NSF media outlets - Worked with NSF and its partner LiveScience by suggesting LTER scientists and stories for distribution on the LiveScience web page.

Other Activities

The Executive Director participated in the activities of the Executive Committee/Board, the Coordinating Committee, the Science Council, and the Science Task Force for the Planning Grant.

The Executive and Associate Directors participated in the activities of the NIS Advisory Committee, the Information Management Committee, the Information Management Executive Committee, the International Committee, and the Technology Committee.

The Executive and Associate Directors served on the governance and cyberinfrastructure working groups for the LTER planning project.

We added material to the existing intranet and LTERnet pages as necessary to support the NSF Mini-symposium, meetings of the Executive and Coordinating Committees, the meeting of the LTER National Advisory Board, various LTER Committees pages, and the LTER Planning Project.

Bob Waide visited three LTER sites (Coweeta, Georgia Coastal Ecosystems, Moorea Coral Reef) to assess needs of sites and scientists and provide information on LNO activities.

The LNO hosted the co-chairs of the LTER Information Management Committee in Albuquerque to discuss present and future needs of that group. The outcomes from that discussion will be used to determine the amount of support from LNO required to facilitate IM activities.

We produced separate annual reports to the LTER Coordinating Committee, and the University of New Mexico.

We prepared for and were exposed to reviews from the LTER Executive Committee and the University of New Mexico.