

Review Criteria for LTER Information Management Systems

Version 1.0 12 April 2005

INTRODUCTION

This document was created by the LTER Information Managers Committee, vetted by the LTER Network Information System Advisory Committee, and approved by the LTER Coordinating Committee on 6 April 2005. The document is intended to serve as a reference for formal reviews of LTER sites as well as for informal self-assessment and planning.

The Information Management System at an LTER site encompasses hardware, software, and people to store and deliver scientific information (data and metadata, where data may include both tabular and spatial representations). The goal of an Information Management System is to support site and network science by (1) facilitating access to data and metadata by LTER scientists, the scientific community, and the public, and (2) by ensuring the integrity, security, and usability of those data and metadata for future generations.

The review criteria below focus on functionality rather than specific implementation. A successful Information Management System is created and maintained through the coordinated efforts of the Information Manager, other information technology staff, field and laboratory technicians, researchers, and site management. The Information Management System should be evaluated as an integral part of the overall LTER program at a site.

LTER sites are expected to meet criteria designated as *shall*, and to either meet or show measurable progress toward criteria designated as *should*. Reviewers should realize that the bar has been set high in this document to encourage excellence. Sites are not expected to score perfectly in all areas but should demonstrate steady progress toward network goals as outlined and prioritized below.

REVIEW CRITERIA

A. Information Management System design and implementation

1. Scope

- a. Data and metadata shall be made available online as specified and prioritized in the LTER Network Data Access Policy [1].
- b. Sites shall have a procedure for making data stored offline (e.g., large GIS, remote sensing, or modeling datasets) accessible to the scientific community.
- c. The Information Management System shall include an up-to-date list of publications supported by the site LTER program.

- d. Inclusion of catalogs of non-electronic materials managed in support of LTER research (samples, specimens, documents, photographs, etc) is encouraged.
- 2. Design
 - a. The Information Management System should conform to current best practices for critical design features such as data and metadata encoding, short-term backup, long-term media and format migration, system administration, security, scalability, and query capability.
 - b. Site data and metadata shall be backed up regularly and copies stored offsite to protect against disaster.
 - c. Sensitive data (such as personal information or location of endangered species) shall be protected against misappropriation and misuse.
 - d. Innovations in design or methods, especially where suitable for use by other sites, are encouraged.
- 3. Web page
 - a. Data, metadata, and publication list shall be well organized, readily located, and easily accessed from the site web page.
 - b. Site web page should conform to LTER Network recommendations [2].
 - c. Innovations in web page design and Information Management System interface, especially where suitable for use by other sites, are encouraged.
- 4. Documentation
 - a. Information Management System architecture, procedures, and protocols shall be clearly documented and documentation shall be sufficient to maintain continuity if there is a turnover of personnel.
 - b. The Information Management System shall include an up-to-date list of current and completed LTER-related research projects.
 - c. Site shall have a management plan for the Information Management System indicating how critical tasks are accomplished by site personnel.
- 5. Review
 - a. Site management shall conduct an annual internal review of the site Information Management System.
 - b. Site shall demonstrate measurable progress toward addressing recommendations from previous internal and external reviews.

B. Information Management System support for site, network, and community science

- 1. Integration with site science
 - a. All stages of project development from initial project design to final archiving of data and metadata should be integrated into the Information Management System.
 - b. Researchers should be able to make effective use of the site Information Management System.
- 2. Policies
 - a. Site data release, access, and use policies shall comply with LTER Network policies [1].
 - b. Site policies shall be clearly stated on the site web page.

3. Metadata
 - a. Metadata shall be of sufficient quality and completeness to ensure long-term (> 20 years) usability of data [3].
 - b. Metadata shall be EML-compliant at level 2 (discovery) [4]. Metadata should be EML-compliant at level 5 (integration) [4]. Site EML shall comply with LTER best practices [4].
4. Data
 - a. Data integrity shall be protected by appropriate quality control procedures.
 - b. Data access should be tracked in accordance with the LTER Network Data Access Policy [1].
5. Contribution to LTER Network and community activities
 - a. Site shall have consistent representation at the annual LTER Information Managers Committee meeting.
 - b. Site shall contribute relevant data and metadata to Network Information System modules approved by the LTER Coordinating Committee (ClimDB, SiteDB, etc).
 - c. Participation by the Information Manager in other LTER activities such as committees, workshops, and tool development; in community activities such as review teams, panels, and collaborations with informatics partners; and in related research activities such as developing proposals and publications, is encouraged.

REFERENCES

[1] LTER Network Data Access Policy & LTER Network Data Use Agreement. See LTER Intranet (<http://intranet.lternet.edu>) for current versions.

[2] Recommendations of the Information Managers Committee will be available on the LTER Intranet (<http://intranet.lternet.edu>) by fall 2005.

[3] Michener, W. K., J. W. Brunt, J. J. Helly, T. B. Kirchner, and S. G. Stafford. 1997. Nongeospatial metadata for the ecological sciences. *Ecological Applications* 7:330-342.

[4] EML Best Practices for LTER Sites. See LTER Intranet (<http://intranet.lternet.edu>) for current version.