

## The LTER Technology Committee Vision

The vision of the LTER Technology Committee is to promote the development and implementation of new and emerging technologies across the LTER Network. The Committee evaluates current and new technology applications to support and advance LTER Network research and science. The focus of the committee is towards synthesis of LTER science.

The purpose of the LTER Technology Committee is to provide leadership on applications of technology within the LTER Network. The Committee considers current and new technologies and attempts to define new measurement needs where no applicable technology exists.

Recommendations are made by consensus of members of the Committee. The Technology Committee works closely with other standing committees such as the Climate and Information Management Committees for specific application of related technologies. These recommendations are proposed to the Executive Committee and LTER Coordinating Committee for consideration and action.

The Technology Committee discusses new issues surrounding information technology, especially in regard to advanced computing, acquisition and processing of new remote sensing data, and new methods for acquiring LTER site measurements. The Committee also discusses potential funding opportunities to achieve these objectives.

The Technology Committee suggests that the original definition of the LTER site Minimum Standard Installation (MSI) should be viewed in light of the rapid pace of technological change. The "server" component should be considered within the context of current multiple processor systems, online archival storage capable of storing historical data as well as digital still and motion video, Geographic Information System (GIS) and remote sensing imagery. Software components should include current database technologies for data search and retrieval. GIS and related components should include remote sensing tools for advanced image processing related to high spatial ( $< 1\text{m}$ ) and high spectral resolution ( $>200$  waveband) data as well as advance visualization and modeling tools. Video conferencing, and general data communication technologies (whiteboard and presentation software) should be more widely used across the LTER Network for conferencing and remote meeting access. Network connections at field sites and home institutions should include uses, where applicable, of wireless technology, T1 or better bandwidth speeds including current implementations of Internet-2 technology. LTER should also make better use of high performance computer installations those with developing collaborations with the San Diego Supercomputer center for large-scale data storage, modeling and visualization.

The committee recommends that the LTER Network should take advantage of the vast array of remote sensing technology related to the NASA/EOS "TERRA"-platform launch and other new remote sensing data sources including Landsat 7 ETM+ data. The committee has recommended that the LTER Network should coordinate efforts with NASA to fulfill recommendations of previous committees for Landsat data acquisition of all LTER sites on at least an annual basis.

The committee also recommends that the LTER Network should apply tools for the automation of site measurements wherever possible. The LTER Network should make more use of portable computer technology for field notes, real-time data communications and data logging systems with automated data transmission packages using spread-spectrum wireless, or other technologies for communication and transmission of data. Field measurements should include automated camera systems and small-package GPS systems for animal observation and tracking. Standardized genetic mapping tools for species identification, with long-term sample preservations and storage, should be implemented across the LTER Network