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Multiple Approaches to Semantic Issues: Vocabularies, Dictionaries and Ontologies

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A need for collaborative bridging between some of the multiple LTER approaches to semantic work was recognized at the LTER Information Management Meeting in 2005. Our intent in this issue is to summarize ongoing activities and to prompt individual insight and dialogue between LTER Information Management Meeting (2005) working groups working on semantic issues as well as within the Information Management and LTER communities in general. The series of three articles that follows represents interrelated efforts that contribute to information infrastructure building.

1. Improving Data Queries through use of a Controlled Vocabulary
2. Creating Information Infrastructure through Community Dictionary Processes
3. Navigating Semantic Approaches: From Keywords to Ontologies

These articles represent differing temporal scale approaches to community infrastructure development. The Controlled Vocabulary Working Group (article 1) identifies immediate tasks for a series of sub working groups; the Dictionary Working Group (article 2) focuses on a short-term product but a long-term collaborative process; and the Science Environment for Ecological Knowledge (SEEK) Knowledge Representation group (article 3) highlights the long-term nature of their work: "The challenge of leveraging these different approaches is one of navigating different temporal scales of development such that we can clearly envision future linkages and work independently towards a collective goal." This opens up the notion of a work arena where teams focus on a variety of semantic approaches as part of the community knowledge-making that encompasses data collection to knowledge representation - where the aim is not isolated information announcements but rather ongoing loosely coordinated exchanges.

Such integrative efforts provide an opportunity to step back to ask "What does an information system that stretches from field site to community and national centers look like"? The LTER Information Management Committee benefits from the shared experience of the long-term implementation effort with the Ecological Metadata Standard. From this experience, we may learn the value of discussing 'What is a standard and what are its ramifications and timeframes?' in addition to addressing the action-oriented 'How do we implement a standard?'. Analogously we benefit now from asking jointly 'What are the elements of an LTER information infrastructure?' and 'What are the multiple dimensions and timeframes of LTER semantic efforts'? Such inquiries require community discussion in order to provide input on both framing and reframing questions and on creating processes to begin formulating their solutions. Semantic work challenges call for development of an assortment of strategies and collaborative mechanisms - all as part of a coordinated information infrastructure stretching from the immediate to the long-term.