LTER DATABITS - Fall 1989
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 Fall 1989 Data Management Newsletter of Long-term Ecological Research

This is the premier issue of an LTER-wide version of DATABITS. Its purpose
is to disseminate information relevant to data manangement between data
managers and PI's within the LTER network. DATABITS can only be as
successful as members of the LTER community make it. If you come across a
tidbit of news, a good software package or a hardware hint that might be of
some general interest, please send a paragraph or two to the editor for
inclusion in the next DATABITS.

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From the Sites

BNZ--Not much news from Bonanza Creek right now. It is still snowing!! We
are waiting anxiously for our SUN 4. A search for funding for our Data
Manager position is in the works. I want to thank the people at the Andrews
for helpful hints in organizing our catalog database and the Konza Prairie
folks for sending information on their database structure. Happy Halloween
-- Phyllis Adams, Bonanza Creek LTER

KNZ--The Konza prairie LTER data management went through some very
important changes during the past year. The first and probably the most
important was the installation of the hardware and software for the MSI.
This included 1) Sun 4/110 (with 600 Mb disk storage and 8 mm tape backup
2) ARC/INFO (one copy on the SUN and three others on PC's) 3) Large Format
Pen Plotter 4) new additions to our ERDAS image processor (video digitizer,
ARC/INFO live link) 5) Novell Netware for our LAN (running on a Zenith
386/25 with UPS, 8 mm tape backup) and 6) Postscript Printer.

We have the LAN up and running. However, we have been waiting for some time
for our physical people to run cables throughout our building. This will
allow us to connect the rest of our investigators on the LAN and more
important connect our SUN to the campus wide ethernet that will give us
(finally) a direct internet connection. On our LAN, we have our archived
LTER data base with an online data documentation. Plans are in the works to
develop an interface that will write the necessary SAS input statements for
each variable that an investigator selects from the documentation.

The most important item we added to the data management scheme at Konza,
was a FULL TIME COMPUTER PROGRAMMER AND SYSTEM TYPE PERSON. Cornell J.
Kinkderknecht has worked with the Konza LTER for the past 4 years as a
student worker. We were very fortunate to convince him (and our research
staff!) that he would be a valuable addition to our efforts. Cornell will
allow Briggs to have more time to dedicate to building the GIS database for
Konza. -- John Briggs, Konza Prairie LTER

JOR--The Jornada site recently received a new SUN 4/110 system. We are now
in the process of getting the system up and running for data management and
GIS uses. All personnel at the Jornada, including the data manager, have
devoted much of the past month and a half to plant production sampling in
the field. Therefore, not much to report on concerning new developments
relative to data management. -- David Lightfoot, Jornada LTER

Remote Sensing/GIS Demonstration

During the Spring 1989 semester, 11 graduate students, participating in the
Environmental Monitoring Practicum (IES 765/766) at the University of

Wisconsin-Madison, developed a remote sensing/geographic information system (RS/GIS) database and demonstrated its utility in the context of several North Temperate Lakes (NTL) LTER research initiatives. The students were directed by Dr. Tom Lillesand and several other Environmental Remote Sensing Center (ERSC) staff. During the course of the Practicum, the students evaluated the hardware and software components of the NTL/LTER PC based RS/GIS workstation built on a 25 MHz, 80386 microcomputer equipped with ERDAS, pcARC/INFO. The students, after consulting various NTL-LTER researchers including J. Magnuson, T. Kratz, and B. Benson, initiated six research projects: 1) a temporal analysis of long term vegetation change, 2) correlation between both pre-settlement and current vegetation and soils, 3) analysis of chemical and physical groundwater parameters 4) modeling of lake level change, 5) error analysis of digitized data layers, and 6) lake spatial variability based on satellite image analysis.

Experience gained in developing the NTL-LTER RS/GIS database has led to the following general conclusions about the adoption and integration of RS/GIS technologies in the context of long-term and large-scale ecological research.

1. The merger and synergism of RS and GIS technologies in a microcomputer environment provides a spatial-analytic tool with utility far exceeding that of either technology used independently.

2. Persons establishing similar RS/GIS systems should anticipate several technical and institutional challenges associated with database development.

   a. A diversity of software is required to fully exploit the utility of a RS/GIS system.

   b. Investments in hardware and software for such systems appear to be small relative to efforts required over the long term for data input, editing, and maintenance.

   c. Database developers and users must recognize the effects that spatial and attribute errors will have on the reliability of output products.

   d. The institutional structure in which RS/GIS technology is to be implemented must be committed philosophically and technically for the proper growth and maintenance of the RS/GIS system.

A paper discussing many of the issues presented by the Practicum entitled, "Incorporating Remote Sensing and GIS Technology in Long-Term and Large-Scale Ecological Research" by T. M. Lillesand, M. D. MacKenzie, J. R. Vande Castle, and J. J Magnuson will be presented at GIS/LIS '89 this November. Reprints of the paper can be obtained by writing the Environmental Remote Sensing Center, University of Wisconsin-Madison, 1225 West Dayton Street, Madison, Wisconsin 53706.-- Mark D. MacKenzie, North Temperate Lakes LTER

LTER Bulletin Board Moved

The machine running the bulletin board, geococcyx, has been move into another building on another subnet. Its new address is:
geococcyx.CFNR.ColoState.EDU
129.82.105.29
If you have any problems accessing it, please let me know.

-- Tom Kirchner, Central Plains LTER