



Environmental
Systems
Research
Institute

Newsletter

380
New
York
Street

Redlands
California
92373

(714)
793-2853
TWX
910 332 1317

ESRI NEWSLETTER - VOLUME VI
September 1984

This newsletter is the sixth in a series of informal communications between ESRI and the organizations using ESRI software. Its purpose is to update users on recent developments at ESRI including software applications, new software packages, policy changes, and user activities.

CONTENTS

ESRI Current Projects:	
Global Data Base for UN	3
Greenville, South Carolina	4
Illinois Mapped for New State Program	5
Pilot Study in Progress for Tongass National Forest	5
International News	6
Recent ARC/INFO Sales	7
User Conference V - 1985	9
ARC/INFO Mapbook Published	9
New ESRI Software:	
Release of ARC/INFO Rev. 3.0	9
Release of NETWORK, ARC COGO, and LIBRARY	10
New Software Release Status	11
New ESRI Policies:	
ARC Conversion to Fortran 77	12
New Policy on the Release of Source Code	12
ESRI Software Update Policy	13
User Conference IV - 1984	14

New Members of User Group	18
New People at ESRI	19
In Closing	20
Appendix I - Participants at 1984 User Conference	21

ESRI CURRENT PROJECTS

GLOBAL DATA BASE FOR UN

Every year, tens of thousands of square kilometers of productive land are lost to the desertification process. Desertification results in the destruction of the biological potential of the land, deterioration of living conditions, and an increase of desert areas that is often irreversible. To study the desertification process, several UN agencies, including the United Nations Environment Programme (UNEP) and the Food and Agricultural Organization (FAO), contracted ESRI to develop and install an automated geographic information system that could record and analyze data on a global level. The purpose of this project was to identify locations vulnerable to desertification and to analyze factors contributing to soil deterioration. ESRI's ARC/INFO software was chosen to create a data base and produce maps. Two of these maps--one of desertification hazards in Africa and one of soil elements for the world--were presented at the United Nations Conference on Desertification in Nairobi in May.

The UN study consisted of two concurrent phases. The first phase was a worldwide analysis of soil elements used to assess desertification. ESRI developed a global data base comprised of land/water features and the information contained on the FAO Soil Map of the World at a scale of 1:5 million. The data base was used to analyze soil texture, slope, and pedogenic indicators of desertification. ESRI compiled soils data to produce maps of soil elements used in assessing desertification hazards at a scale of 1:10 million.

The second phase of the study consisted of the development of a more detailed data base for the African Continent and the conduct of a six-step analysis of desertification hazard comprised of the following variables: water action, wind action, salinization, soil status, animal population pressure, and human population pressure. The final maps for Africa were produced at the larger scale of 1:5 million.

Copies of the data base have been provided for both UNEP and FAO for ongoing studies of desertification and other major global problems. This data base will become the spatial and data framework for the development of a Global Environmental Monitoring System (GEMS) that will eventually examine other environmental concerns such as deforestation and pest control.

The UN study resulted in the first automated GIS to cover the entire globe with topical data useful for natural resource evaluations. The desertification maps which have been produced are being used as a tool both in efforts to stop the physical processes of desertification and to show how existing economic and social activities harm fragile ecosystems. The project's result is an efficient geographic information system that allows international organizations to accurately catalog, analyze, and monitor environmental hazards.

GREENVILLE, SOUTH CAROLINA

The City of Greenville, South Carolina, is in the process of implementing a computerized GIS to enhance its planning and public service capabilities. In addition, ESRI has developed a traffic safety subsystem for use with the ARC/INFO software. Greenville will integrate ARC/INFO with the ADMINS software (produced by MISTI) already in use for statistical/administrative data. The combination of these systems will allow Greenville to store, transport, and manipulate data much more efficiently than its present manual methods.

Greenville city officials plan to use the system initially as a management tool. All city departments will share the same data information including fire incidents, building safety inspections, business licenses, police records, and census data. This common data base prevents repetition of information from one department to the next and creates a standardized format for information exchange. Once the data base is compiled, ARC/INFO will provide new analytical, mapping, and report-making capabilities for city officials, managers, engineers, planners, and staff in city departments that use geographic information.

ARC/INFO's analysis capabilities will allow Greenville's department managers to aggregate parcel-based information into larger groupings such as neighborhoods or police beats. Decision makers can then evaluate and reorganize their services to allocate city resources to the locations that need them most. A second feature helpful to managers is the mapping capabilities of the software. The GIS quickly and accurately produces geographic information in map form, allowing managers to immediately pinpoint locations of interest. These maps make information from varied sources immediately accessible to decision makers, who can then spend their time debating policy rather than searching for facts. A third capability is the ease with which the user can produce tabular reports. The user selects an area on a map and the computer will publish all corresponding data in report form. For example, if the Chief of Police needs information on a specified police beat, the computer can produce a report including all accident data and calls for service for that area.

The traffic safety system installed for Greenville will be used both for analysis and report making. To analyze the incidence of accidents, the software calculates accident statistics by categorizing each incident according to its proximity to the nearest intersection. The data base includes every incident of moving violations, accidents, driving under the influence, and other traffic data. Police officials can then evaluate accidents by type, accident patterns, and so on. The software also produces the eight monthly reports required by the state on accident statistics. These automated reports save staff time otherwise spent compiling data and preparing forms manually.

Of major interest to Greenville is the ability to develop macros for department activities. ESRI has trained users to design macros as well as

assisting them in the design process. So far, nine macros have been identified to analyze police and fire topics such as fire incidents by type, building safety inspection results, and the relationship between these two factors. ESRI is now working with the city staff to develop these applications and provide macro programming training. The city expects to complete all nine macros and related data bases by January, 1985.

Greenville will continue to add to its data base in coming years by incorporating utility, city facilities, and environmental features into the data bank. ESRI included these plans as part of a data base design and implementation program with the goal of creating a dynamic system that can accommodate future needs and population growth.

ILLINOIS MAPPED FOR NEW STATE PROGRAM

The State of Illinois contracted ESRI in 1983 to design and implement a statewide automated GIS for its Lands Unsuitable for Mining Program. Illinois created the program in response to a 1977 federal government act which allows a person or group to petition to have an area declared as unsuitable for surface coal mining. In order to evaluate these petitions, Illinois chose to develop an automated GIS to manage the large amounts of complex data necessary to determine whether areas meet the criteria to be declared unsuitable.

ESRI conducted a user needs study for the Department of Energy and Natural Resources which identified potential data sources both within and outside the department. Following this study, ESRI designed a data base to meet these needs including system management and hardware and software requirements. ESRI is now developing a data base which involves seven manuscripts of data covering the entire state at a scale of 1:500,000. Once this data base is completed, ESRI will map the major coal areas in greater detail for more precise suitability information.

The computerized GIS will allow Illinois to evaluate citizen petitions on the basis of precise statistics and detailed maps. This new system will promote better evaluation of data related to surface coal mining.

PILOT STUDY IN PROGRESS FOR TONGASS NATIONAL FOREST

ESRI is conducting a natural resource management information study for Tongass National Forest near Juneau, Alaska. Tongass is the largest national forest in the United States, covering over 16,578,000 acres. This great size has led the United States Forest Service to search for an efficient means of managing natural resources data, especially timber related data.

ESRI is currently initiating a pilot study that covers 80,000 acres on the Cleveland Peninsula to demonstrate the preliminary data base design and

begin to develop a functional, dynamic data base. This pilot study will examine approximately sixty variables divided into nine general classifications such as timber and silviculture, physiography and hydrology. The study will generate maps, tabular data, documentation, and procedures for information management.

Following the pilot study, ESRI will develop a final information management system for the entire forest. The final design will include revisions to the preliminary design based on the results of the pilot study. This new information system will aid the U.S. Forest Service in planning and managing forest resource data.

INTERNATIONAL NEWS

ESRI-Munich has undergone several changes in the past few months. The organization is now headed by Joerg Schaller and Michel Sittard. Jeorg has completed his PhD at the University of Munich and has left the university after nine years of teaching and research. Also, ESRI has moved from Munich to the small village of Schoenbichl. Here they have installed a new PRIME computer with ARC/INFO and a variety of peripheral devices for data entry, display, and so on.

ESRI-Munich has sold several copies of ARC/INFO recently, including one to the Agricultural Ministry of Bavaria. They are also performing several projects in Europe and Africa. They are conducting a study of the effects of human activities on high mountain (alpine) ecosystems. Also, they are continuing an agricultural planning study of means of irrigating arid lands in Egypt. Another planning project for the State of Bavaria will be used to update the Bavarian Master Plan. Further, they are working with the International Institute for Applied Systems Analysis (IIASA) in Austria to develop a series of procedures to connect GIS technology with dynamic feedback models. This connection will result in new methods for predicting and creating time series maps. Their specific work for this project involves predicting forest damage from acid rain and other pollutants.

ESRI-Australia is also in a stage of growth and change. Ron Hutchinson is now the Managing Director of the organization and will be overseeing all installations and projects. Recent activities include a booth at the International Cartographer's Association conference (ICA) and at Austro-Cardo in Perth, Australia. They report many visitors and much interest in ARC/INFO. Also, ESRI-Australia has upgraded its office facilities with PRIME computers and ARC/INFO. Will Moreland of ESRI recently spent three weeks at the Perth office installing the new system.

In addition to their own new system, ESRI-Australia will be installing systems for the Tasmanian Forestry Commission and the South Australian Department of Environment and Planning over the next few weeks. See Recent ARC/INFO Sales for more information. ESRI-Australia is currently in the process of conducting a bikeway study for the Perth Bikeplan Commission.

This study will analyze bike traffic to and from schools and in metropolitan areas.

PASCO International, ESRI's distributor in Japan, has also been busy over the past months. They have been working for the Ministry of Agriculture in Japan in a project to digitize land use and soils data. Other recent projects include several urban data bases developed for Japanese cities and prefectures. In addition, PASCO is developing a micro-based interactive graphics system related to ARC/INFO. PASCO has been equally active in systems sales; they recently sold ARC/INFO to the Geologic Survey of Japan.

ESRI's Toronto-based distributor in Canada, the organization of Marshall Macklin Monaghan Ltd. (MMM), has experienced a surge of ARC/INFO sales lately and predict many more in the coming year. Alex Miller directs the GIS projects and sales for the company. MMM has completed a user needs study for the Ministry of Natural Resources and a number of urban data base pilot projects for several cities in the Toronto region.

Because of the growing international interest in ESRI software, new distributorships are being formed in New Zealand, England, Sweden, and Greece.

RECENT ARC/INFO SALES

ESRI-Australia will be installing two new automated geographic information systems (GIS) next month. The Tasmanian Forestry Commission and the South Australia Department of Environment and Planning both selected the ARC/INFO software for their systems. Tasmania will run the software on a PRIME 550 while the SA Department of Environment and Planning will use a DEC VAX.

The Tasmanian Forestry Commission will use its GIS to handle spatial information about forest holdings. Systems applications will include forest inventory, analysis of forest conditions, and automated mapping. The system will allow foresters to mark the age and vegetation type of forest stands, illustrate wildlife habitats and terrain, and display roads and facilities. ESRI-Australia is coordinating the effort to install the system and provide user training in the Commission offices in Hobart, Tasmania.

The South Australian Department of Environment and Planning chose ARC/INFO to improve its land use planning capabilities. They also selected the NETWORK subsystem which, among other applications, allows municipal and regional governments to design, create, and maintain networks such as school districts, vehicle routes, and sewer and water systems. The Department offices are located in the City of Adelaide.

Shell Oil purchased the ARC/INFO software in April to maintain natural resource inventories, lease and ownership data, and plant facilities.

ARC/INFO will run on Shell's DEC VAX and IBM computers to provide a complete software system for managing geographic information. The software permits entry, storage, and display of spatial data and is integrated with a powerful set of analytic tools. Shell will use the software for computer mapping, geographic modeling, and management of company holdings. ESRI recently completed user training at the Bellaire Research Center in Houston.

The United Nations Environment Programme (UNEP) is acquiring ARC/INFO to operate their Global Resource Information Database (GRID). The system will be located at the British Institute of Hydrology and at the UNEP headquarters in Nairobi, Kenya. This facility will be developed in cooperation with NASA and several sponsoring countries. PRIME Computers will be installing a PRIME 2250 in Nairobi and a PRIME 750 in England. The system will house numerous graphic data sets from various national and international organizations and will serve as a base for global monitoring, project work, and training for UNEP member countries.

BellSouth, the branch of Bell Telephone that serves the Southeastern United States, has purchased the ARC/INFO software to manage utility geographic information. BellSouth will operate the system on an Intergraph DEC VAX at its office in Atlanta.

In May, ESRI contracted with the U.S. Department of the Interior's Bureau of Reclamation to provide a computerized GIS with the ARC/INFO software. The Bureau will use the GIS to meet federal legislative requirements for timely examination of farm land eligibility for federal agricultural water service. The GIS will facilitate data collection, storage, and retrieval; permit overlays of land use, soil types, drainage, crops, economic data; and provide calculation of polygon areas and other analyses. ESRI will install the system at the Bureau's Mid-Pacific regional office in Sacramento.

Six universities have recently installed automated geographic information systems in their departments of geography. They include the University of New Mexico; University of California, Riverside; USGS EROS Data Center in Sioux Falls, South Dakota; Birkbeck College in London; ETH in Zurich; and the University of Zurich. These systems will be used in the curriculum for applications such as natural resource studies, environmental hazards analyses, and urban and regional planning.

ESRI has also sold systems to the following organizations: Washoe County, Nevada; Department of Natural Resources Division of Forestry in Minnesota; Environmental Protection Agency in Corvallis, Oregon; Boise Cascade Timber Company in Boise, Idaho; US Fish and Wildlife Service in Alaska; Geological Survey of Japan; and La Fundacion in Venezuela.

USER CONFERENCE V - 1985

The fifth annual User Conference will be held at ESRI in Redlands, California, April 8-12. This year the conference will be held for a full week to accommodate the growing number of user interests and needs. In past years, users have found the conference to be an excellent opportunity to exchange information and ideas. Also, many of the projects now in the development process will be presented at the conference, including new software and new GIS applications. We hope to see you there!

ARC/INFO MAPBOOK PUBLISHED

ESRI has published a book of thirty-eight maps demonstrating the final map products possible using ARC/INFO. Over half of these maps were supplied by users at User Conference IV. These maps display topics as diverse as forest susceptibility to insect damage, land use in floodprone areas, land ownership records, and urban development. Despite the size reduction and color alterations necessary to reproduce the maps in book form, all of the maps and legends retained a high standard of graphic quality. Please notify Karen Wheeler at ESRI if your organization is interested in obtaining a mapbook.

NEW ESRI SOFTWARE

RELEASE OF ARC/INFO REV. 3.0

ARC/INFO Rev. 3.0 will be released in Fall, 1984. Rev. 3.0 includes the following features:

1. INFO Rev. 9.2 is a new complete version of INFO. The package includes software installation instructions, release notes, and two copies of new user documentation.
2. Partial Processing System (PPSYS). This system allows the user to change and reprocess portions of a map coverage without having to reprocess the entire coverage. This allows for more efficient processing and lower CPU requirements for large jobs. The commands affected include EDIT, CLEAN, BUILD, INTERSECT, UNION, IDENTITY, UPDATE, and CLIP.

The amount of processing time saved will correspond directly to the percentage of the area of a coverage which "changes." For example, if 10% of a coverage is changed, then 10% of the normal CPU time will be required for partial processing. Also, if an entered map requires full coverage reprocessing, the system will automatically reprocess the entire coverage as in the past.

3. New Coverage Manipulation Commands. Three new commands will be added to the overlay routines and are made available because of the Partial Processing System. These commands include MAPJOIN, which appends adjoining coverages (similar to APPEND) and cleans along the map boundaries to build one large, joined coverage. MAPSPLIT splits one coverage into several coverages based upon the polygon boundaries in the overlay coverage. The MAPSPLIT command creates one new coverage for each overlay polygon by clipping the coverage with the polygon. The new LIBRARY software will use MAPSPLIT to create coverages within each tile. ERASE, which is the inverse of the CLIP command, is used to erase all features from an input coverage which are within areas (polygons) contained in an erase coverage.
4. New Processing Commands. Several new commands will be released including:
 - a. LABELERRORS for listing polygons with no labels or more than one label.
 - b. MLINEs for matching point features to line features at their nodes (vis-a-vis moving nodes to points as does MNODE with POINT option).
 - c. INFOCOPY to copy INFO files within or between INFO data bases.
5. Use of Pathnames. 3.0 will allow for the use of pathnames for all command arguments which take coverage or file names. Also, INFO data base USER NAMES other than ARC may be specified for commands which operate on INFO files.
6. FORTRAN 77. ARC source code at Rev. 3.0 will be in FORTRAN 77. The current Rev. 2.3 is coded in FORTRAN 66. See page 9 for more details.
7. Tolerance File. This file (TOL) is a new coverage file which will be stored with ARC Rev. 3.0. It is used to track the following five tolerances: the fuzzy, weed, and match tolerances; the dangle distance; and the TIC digitizing RMS error. The default values for commands using these tolerances will be read from the tolerance file. This file will simplify the usage of many ARC commands as well as provide important information about the resolution of each coverage.

RELEASE OF NETWORK, ARC COGO, AND LIBRARY

Three new software packages--NETWORK, ARC COGO, and LIBRARY--are scheduled for release by the end of 1984. These packages work with ARC/INFO to create new capabilities for storing and manipulating geographic information.

The NETWORK software performs four network analysis functions. These include DIME to ARC Data Conversion, Routing, Districting, and Allocation. Routing is the process of determining the shortest route between two or more points in a network, listing instructions to negotiate that route, and displaying the route on a graphics device. Districting is the process of defining zones or large areas using both graphs and tables. The process involves identifying the interior polygons within a zone and generating summary statistics for the zone by totaling specified items from the network coverage PAT. Allocation is used in a number of ways to generate distance or capacity zones around one or more outlets. For example, given a school with a capacity of 700 students, NETWORK will display the surrounding streets this school can support and list the distances from each street to the school. Allocation can also be used to generate connecting link locations for natural resource networks such as streams. These data can be created automatically and saved in the AAT for use in other ARC/INFO applications.

The ARC COGO software is used to enter data using a series of trigonometric and civil engineering functions which employ coordinate geometry. This package includes all of the coordinate geometry functions commonly used in civil engineering including calculation of X,Y coordinates, distance, bearing, azimuth, angles, curve definition and fitting, line intersection, coordinate transformation and other manipulations. ARC COGO is an interactive, command-driven system with a specialized command language closely related to surveying and civil engineering applications.

The LIBRARY software uses a unique spatial tiling system for managing large cartographic data bases with many layers and covering large regions such as a state or country. This system features efficient insertion, storage, query, and extraction of geographic data from a Map Library. LIBRARY partitions and indexes data into rectangular or other shaped regions called tiles. Once the tiles are created, the software creates and maintains a catalog of each layer and splits map sheets into tile-shaped map sheets. Users can extract data from the LIBRARY by specifying a geographic area and a set of layers within the area to be extracted. The system automatically extracts the layers of interest, clips each layer by geographic window, joins or appends the clipped tiles into a full map, handles and corrects map sheet overlap and edgematch, and loads the data into a specified user workspace.

NEW SOFTWARE RELEASE STATUS

<u>Software</u>	<u>Release Date</u>	<u>Cost*</u>
LIBRARY	Late 1984	No Charge**
NETWORK	Late 1984	\$2000**
ARC COGO	Late 1984	\$2000**
ARC/INFO rev. 3.0	Fall	

*In addition to the listed cost, there is an annual maintenance fee of 10% of the list purchase price for each software package. These prices are current through January 1, 1985.

**This is a temporary price for all existing users who have the software update service. This price includes the maintenance fee for the first year. After January 1, the price for all users will be the normal list price. Therefore, users who are interested in these packages should notify ESRI in writing before the end of the year.

NEW ESRI POLICIES

ARC CONVERSION TO FORTRAN 77

The ARC source code on PRIME computers is being converted from FORTRAN 66 to FORTRAN 77 (F77). The F77 version will be released with Rev. 3.0 of ARC/INFO this Fall. This conversion is taking place for three reasons:

1. PRIME has informed us that they will eventually drop their support for the FORTRAN 66 compiler.
2. F77 has many enhanced features which can be used to improve ARC. For example, improved handling of character data can greatly aid many ARC/INFO processing steps.
3. Use of F77 will aid conversion of future ARC/INFO revs. to new computers including the DEC/VAX, Data General MV Series, and IBM computers using VM/CMS operating systems. This will result in more standardized versions of software on each machine and will contribute to enhanced software support on all systems.

Even though ARC/INFO Rev. 3.0 will be written in FORTRAN 77, an F77 compiler will not be required to install and use ARC/INFO. Executable code will continue to be released on tape. An F77 compiler will only be required for users who use various pieces of ARC source code modules to write their own software routines and for users who encounter critical software bugs which must be repaired. These problems will be minimized by vigorous software testing prior to release and by periodic releases of software patches. ESRI will continue to support users who encounter problems which require recompiling or reloading of software.

PRIME users may contact their local PRIME representative to purchase an F77 compiler for their computer.

NEW POLICY ON THE RELEASE OF SOURCE CODE

Beginning with the release of ARC/INFO rev. 3.0, ESRI will only release source code upon a written request from the user. We ask that one person

from each site assume responsibility for maintaining the source code copy. This policy is being implemented solely to protect ESRI from nonproprietary uses. ESRI will still release the source code to any user at no additional cost. Request forms for ARC source code will be included as part of the standard release package with rev. 3.0.

ESRI SOFTWARE UPDATE POLICY

August 1, 1984
PRIME Computer

Subscribers to the ESRI software update service will receive the following services:

1. Software updates including new GIS programs and revisions to existing programs. These updates will normally be provided once each year in April and will include two sets of the appropriate documentation changes. Updates are now designed for PRIME and DEC systems with the following peripherals: Talos 8000 and 9000 series digitizers, Calcomp and Houston Instrument Pen Plotters, Versatec Electrostatic Plotters, Tektronix or Visual 500/550 Graphic CRTs, and PRIME-furnished disk drives, tape drives, and line printers. Updates will soon be designed for IBM and DG systems as well. Each subscriber will be responsible for any required conversion of these updates to the subscriber's system with limited assistance from ESRI.

In special cases of program revision or correction, special updates may be issued during the course of the year. Also, subscribers may, on an individual basis, arrange to receive test versions of new programs which subscribers choose to test or further develop by themselves. ESRI will not provide maintenance service on test versions.

2. Limited telephone consultation on user questions regarding software operation during the hours of 10 A.M. to 12 noon, Pacific Time. The phone number for all user questions is 714/793-8971.
3. Program corrections for system errors reported and determined to be in the system, documentation, or operational procedures.

In order to facilitate the orderly handling of problems which occur in the software:

- a. The subscriber will document any problem which occurs in the software by making a copy file of the program execution.
- b. The subscriber will attempt to replicate the problem before contacting ESRI.

- c. When requested by ESRI, the above mentioned documentation and dataset for testing will be forwarded to ESRI's office for debugging of errors.
- d. ESRI will correct the problem and return the corrections to the subscriber in a clearly documented form as soon as the problem is corrected and tested.

4. Paid registration for two people at the annual ESRI user conference.

Current charges for the update and maintenance service are \$6,200 per year if the service is initiated and maintained continuously after installation or after a "one-time comprehensive update." This includes ARC, LIBRARY, IGL, PLOTSYS, and GRID/TOPO. An additional update fee of \$1000 each will be charged for NETWORK and COGO. Where applicable, there is an additional \$2,000 per year fee for INFO. The fees are due and payable each year, either on the anniversary date of the system installation and acceptance or starting one year after delivery of the comprehensive update package.

USER CONFERENCE IV - 1984

The fourth annual ESRI User Conference for agencies using ESRI GIS software was held April 18-20, 1984, in Redlands, California. Forty-two participants (up from 32 from last year) represented thirty-two user organizations (up from 17 last year). See Appendix I for a list of participants.

The User Conference was first held in 1981 to enable software users to interact both with ESRI and with other users. The three-day intensive conference allows ESRI to discuss the relationship between the direction of company products and services and the needs of the users. Throughout the conference, the emphasis is placed on user input including user presentations of different applications of ARC/INFO and discussions of software needs and formalized intergroup communications.

For those users unable to attend the conference, the agenda can be summarized as follows:

WEDNESDAY - APRIL 18

WELCOME

Jack Dangermond (ESRI) discussed accomplishments over the past year, examined recent trends in GIS technology and services, and emphasized the need for communication both between ESRI and users and among the users themselves.

SOFTWARE DEVELOPMENT PLAN

Scott Morehouse (ESRI) outlined ESRI's software development policy. ESRI is developing a generic "tool kit" of geoprocessing functions by adding new capabilities and software environments to the basic ARC/INFO core.

ARC PLOT

Scott Morehouse (ESRI) discussed two new enhancements to ARC PLOT--interactive label editing, and placement and feature adjustment.

ADAPTATIONS OF ARC PLOT

Earl Nordstrand (Minnesota) discussed adaptations of ARC PLOT for interactive users including automatic map design in a question-answer format and automatic title/legend placement applications for both lines and polygons.

MAP LIBRARY

Peter Aronson (ESRI) discussed the new map library that will allow users to work with larger data structures and save disk space.

NETWORK

Will Moreland (ESRI) discussed the new NETWORK subsystem of ARC/INFO. Network uses the tools of ARC/INFO to manage network systems such as school busing, mass transit, garbage collection, and police dispatch.

THURSDAY - APRIL 19

CENSUS INTEGRATION

Tony Burns (Anchorage) described the cities' need for census information followed by Jon Harrison's (ESRI) discussion of implementation. Census summaries read into files set up in INFO are processed by 9 macros to create both maps and tabular reports.

PARTIAL PROCESSING SYSTEM

Armando Guevara (ESRI) introduced a new system that allows the user to process specific parts of a given map. The user can make changes in a map without having to reprocess the entire map.

COGO

Jim Farnsworth (ESRI) discussed applications of COGO (coordinate geometry)

to incorporate survey data into a data base.

USER SUPPORT

Clint Brown (ESRI) outlined the past, present, and future of user support including the current development of new manuals and new training programs, plus the development of new systems, easier installations, and more comprehensive training.

AN URBAN MODEL

Tadashi Sasagawa (PASCO Ltd.) presented a videotape introducing urban GIS on a personal computer.

AN APPROACH TO URBAN GIS ANALYSIS

Matt Beckstedt (Clark County) discussed applications of GIS in an urban area to study land use in floodprone areas.

GIS IN ASSESSMENT ADMINISTRATION

Bill Pauquette (New York Division of Equalization and Assessment) discussed uses of GIS relative to computer-assisted mass appraisal and property location, and a test use of video disc for assessment purposes in Rochester, New York.

INTEGRATION OF SCS AND USFS INTO ARC/INFO

Gary Smith (University of Vermont) discussed timber management information systems which incorporate acreage, soil type, PNBA, and agricultural factors into a national inventory of forests.

GIS SOFTWARE IN AN EDUCATIONAL SETTING

Prof. Derek Thompson (University of Maryland) explained his plans for using GIS to support research, teaching, and service at the university.

GIS IN NATIONAL WILDLIFE REFUGE PLANNING IN ALASKA

Jim Henderson (Alaska) discussed MASTER applications of GIS to map 770 million acres containing 3-6 largely inaccessible refuges.

NEW GIS PROGRAMS DEVELOPED

Mona Myatt (Southern Calif. Edison) explained four of the two dozen new GIS programs developed for their IBM based PIOS system. These programs include Print Help, Calif. National Diversity Data Base, Squeeze (compresses attribute file), Codechek (combines code find and consist).

DATA BASE DESIGN/IMPLEMENTATION Jack Dangermond (ESRI) discussed topological relationships and outlined how a data base is designed and implemented as a generic process relative to a municipality.

CASE STUDIES Tony Burns (Anchorage) explained the use of Network in Anchorage to reroute school buses and police; Larry Sugarbaker (Washington) discussed natural resource management applications in Washington; and Colin Treworgy (Illinois) explained how GIS was used in the Lands Unsuitable for Mining Project.

FRIDAY - APRIL 20

AUTOMATED REVIEW/COMMENT Chuck Henderson (Henderson and Associates) discussed means to window an area on a map, cut through all data layers, and associate textual comments to key items to create a "human-like" document of impacts.

MODELING Hugh Keegan (ESRI) gave a discussion of generic models including their three uses: describing what is in the field, predicting the results of change, and prescribing solutions via documentation.

GLOBAL ANALYSIS Bill Derrenbacher (ESRI) discussed the challenges involved in processing large amounts of data in global analyses.

GIS AS AN INSTITUTION Paul Tessar (Arizona) led a discussion of different users' development of GIS as an institution. The group stressed the need for long range plans, the need to help each other solve problems, the need for more interfaces to known systems, and the trend of systems to grow beyond GIS.

SOFTWARE NEEDS Earl Nordstrand (Minnesota) led a discussion of user software needs. The topics discussed included:

- Interfaces to other systems
- Electronic mail
- Computer games to familiarize new users to the computer
- Self-training package
- Application training

Abbreviate ARC PLOT commands
Easier change of symbology
Prioritize 1 coverage during overlay
Change max. length of coverage names
Save color plot files
Create book of user names/talents

ARC PLOT MAP COMPETITION

Most Analytic--Clark County
Most Communicative--New Brunswick
Most Attractive--Arizona
Special Award--Colorado

USER BUSINESS

Users discussed:
(1) Formalize electronic mail
(2) Conference format for 1985--Users would like a full week with Day 1 scheduled as a clinic for problems, Days 2-4 scheduled for the conference, and Day 5 planned for detailed discussions determined by the participants. Ted Carrasco (Clark County) and Gene Trobia (Utah) to assist in planning conference.
(3) Discontinue user reps.

NEW MEMBERS OF USER GROUP

This year has marked the greatest gain in the number of new users in the history of ESRI. Sixteen new users have joined the user group with several more anticipated in the next few months.

BellSouth
Atlanta, GA

Birkbeck College
University of London, England

Canadian Forestry Service
Chalk River, Ontario, Canada

EROS Data Center
Sioux Falls, SD

ETH Institute
Zurich, Switzerland

Illinois Natural History Survey
Champaign, IL

J.D. Irving, Ltd.
St. John, New Brunswick, Canada

Lakehead University
Thunder Bay, Ontario, Canada

Marshall Macklin Monaghan
Toronto, Ontario, Canada

New Brunswick Dpt. of Nat. Resources
Fredericton, New Brunswick, Canada

Shell Oil Company
Houston, TX

South Australian Dpt. of Env. & Plng.
Adelaide, Australia

Tasmanian Forestry Commission
Hobart, Australia

University of Maryland
College Park, MD

University of New Mexico
Albuquerque, NM

University of Zurich
Zurich, Switzerland

U.S. Bureau of Reclamation
Sacramento, CA

Washington State Dpt. of Nat. Res.
Olympia, WA

NEW PEOPLE AT ESRI

Clint Brown joined ESRI in 1983 as Manager of Software Support Services. He is responsible for installations, user training, documentation, software updates, and day-to-day client support. Before he came to ESRI, Clint coordinated the development of a GIS for the U.S. Fish and Wildlife Service in Anchorage, Alaska.

S.J. Camarata has joined ESRI as Director of Marketing and Systems Coordination. S.J. directed the sales, marketing, training, and support of GRIDAPPLE, ESRI's Micro-based GIS, while he was Vice-President of Integrated Resource Information Services (IRIS) International, Inc. He directed remote sensing and GIS consulting projects for IRIS including data base development, LANDSAT imagery analysis, and GIS applications.

Armando Guevara came to ESRI after completing his doctorate in Geographic Information Systems in 1983. He is currently developing the Map Library software in addition to modifying some of the ARC/INFO modules and overlay commands. Armando taught computer science courses at the University of the Andes in Venezuela before moving to the United States.

Jeff Hecht joined ESRI this year as Applications Analyst. He demonstrates ARC/INFO data processing, programming, map production, and overall system capabilities to clients. Until this year, Jeff was Software and Product Development Specialist at Measurronics Corporation in Great Falls, Montana, where he was responsible for the research and development of a new product to scan-digitize maps and engineering drawings.

Mark Oliver joined ESRI's programming group after graduating from Rockford College in Rockford, Illinois. He is in charge of converting ARC/INFO for use on a Data General computer. While he was a student, Mark was the College Programmer and Senior Computer Laboratory Assistant.

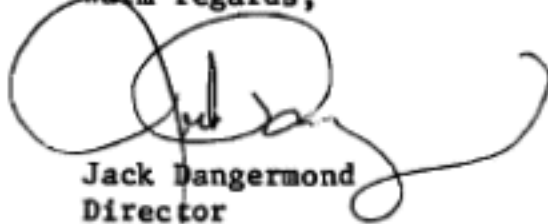
Anthony Lupien will be joining ESRI's programming group this month after completing his masters thesis in Geography at the University of South Carolina. His studies have focused on geographic information systems, remote sensing, and quantitative methods. Prior to his graduate studies, Anthony was a Project Manager for Geographic Data Technology, Inc. in Lyme, New Hampshire.

Suzanne Rohardt will also be joining ESRI this month as part of the software documentation group. She has a masters degree in Geographic Information Systems from the State University of New York at Buffalo.

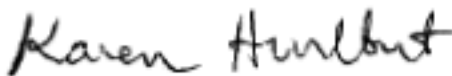
IN CLOSING

As our users grow in number and our projects grow in size, we realize that we are at the forefront of an exciting and expanding new technology. However, our progress depends on the organizations that use our products for more and different applications. This expansion helps to guide ESRI's continued development of GIS capabilities and support of the organizations which use these capabilities. As we look ahead, we will see these goals become reality in the form of new software packages, User Conference V, and several new installations. We thank you for your continued advice and support and wish you the best in the coming year.

Warm regards,

A handwritten signature in black ink, appearing to read 'Jack Dangermond', with a large, looping flourish extending to the right.

Jack Dangermond
Director

A handwritten signature in black ink, appearing to read 'Karen Hurlbut', written in a cursive style.

Karen Hurlbut
Editor

APPENDIX I

Participants at 1984 User Conference

Andrews, Peter Manager GIS New Brunswick Dpt. of Nat. Resources	Beckstedt, Matthew Planner II Clark County, Nevada
Brackley, Allen M. Manager I GIS J.D. Irving, Ltd.	Bradley, Cary Resource Geographer Southern California Edison
Barlow, Rod Programmer/Analyst Shell Oil Company	Brigham, Warren Program Manager, Natural Resources Illinois Natural History Survey
Burns, Tony Research - GIS Supervisor Municipality of Anchorage	Carrasco, Ted Planner II Clark County, Nevada
Castel, Pat Instructor, Computer Science Nova Scotia Land Survey Institute	Denham, Bill Research Economist II Ill. Dpt. of Energy & Nat. Resources
Eggan, Lloyd D.P. Manager Alaska Dpt. of Nat. Resources	Gautsch, Joe Resource Geographer Southern California Edison
Greenlee, Dave Remote Sensing Scientist Geog. App. EROS Data Center	Henderson, James Systems Analyst U.S. Fish and Wildlife Service
Hillenbrandt, George GIS Specialist NY Equalization & Assessment	Hogan, Bob Sr. Systems Analyst County of Orange, CA
Honeycutt, Dale Director of Software Development Woodward-Clyde Consultants	Hutchinson, Ron Managing Director ESRI - Australia
Ikenishi, Noboru Assistant Manager PASCO Ltd.	Isaacs, Ian K. GIS Manager Marshall Macklin Monaghan
Iwamoto, Ichiro PASCO Ltd.	Jenn, Cathy Data Processing Coordinator Utah Dpt. of Natural Resources

Kapron, Joe
Systems Analyst/Programmer
Lakehead University

Maki, Les
Assistant Director LMIC
Minnesota Land Management Info. Cen.

Miller, Alex
Manager, Mapping Services
Marshall Macklin Monaghan Ltd.

Moore, Tom
Systems Analyst
Canadian Forestry Service

Pauquette, Bill
Director, GIS
NY Div. of Equalization & Assessment

Sakashita, Hiroaki
Systems Analyst
PASCO Ltd.

Smith, Dennis
Manager, Computer Sciences
Woodward-Clyde Consultants

Sorenson, Anders
Resource Planner
Clark County, Nevada

Sustek, Bob
System Administrator
Wash. State Dpt. of Nat. Resources

Takeuchi, Haruo
PASCO International

Thompson, Derek
Assoc. Professor of Geography
University of Maryland

Trobia, Eugene
Asst. Systems Manager
Utah AGR

Keck, Diana
Geographic Information Specialist
NJ Dept. of Environmental Protection

McNamee, Duane
Programmer/Analyst
Utah Dpt. of Natural Resources

Miller, Steve
EDP Systems Project Leader
Arizona State Land Dpt.

Nordstrand, Earl
Research Manager
Minn. Land Management Info. Center

Puterski, Bob
Sr. Cartographer
Colo. Dpt. of Local Affairs

Sasagawa, Tadashi
PASCO Ltd.

Smith, Gary S.
Program Coordinator
University of Vermont

Sugarbaker, Larry
Management Information Supervisor
Wash. State Dpt. of Nat. Resources

Suzuki, Shigeo
Assistant Manager
PASCO Ltd.

Tessar, Paul
Director
Arizona State Land Dpt.

Treworgy, Colin
Systems Analyst
Illinois Natural History Survey

ESRI NEWSLETTER - VOLUME VI
October 1984

CORRECTION/SUPPLEMENT

On page 12 of the original September newsletter under NEW ESRI POLICIES, ARC CONVERSION TO FORTRAN 77, item 1 stated "Prime has informed us that they will eventually drop their support for the FORTRAN 66 compiler".

That statement is incorrect.

Prime has made no formal announcement about dropping support for FORTRAN 66. Please do not bug your Prime representative about termination of support for FORTRAN 66.

Items 2 and 3 are correct and are the driving force behind our conversion to FORTRAN 77.

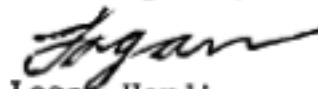
2. F77 has many enhanced features which can be used to improve ARC. For example, improved handling of character data can greatly aid many ARC/INFO processing steps.
3. Use of F77 will aid conversion of future ARC/INFO revs. to new computers including the DEC/VAX, Data General MV Series, and IBM computers using VM/CMS operating systems. This will result in more standardized versions of software on each machine and will contribute to enhanced software support on all systems.

Once again, although ARC 3.0 will be written in FORTRAN 77, an F77 compiler will not be required to install and use ARC/INFO. We are pursuing an extensive testing program with Rev 3.0 to substantially reduce the bugs, etc. which have generated the need for source code in the past.

Please contact S.J. Camarata at our office if you wish to purchase the FORTRAN 77 compiler.

The schedule for release of the Prime Version of ARC/INFO Rev 3.0 has been extended. We will advise you of expected release date (late '84 or early '85) in November. Please see the attached memo describing requirements for Rev 3.0 which includes PRIMOS Rev 19.

Warm regards,



Logan Hardison
Associate Director

NOTE ON MOVING FROM PRIMOS REV 18 TO REV 19

Initial upgrading from Rev 18 will require that Rev 19.1 be installed. Utilities are available at this Rev for required file conversions to move data from PRIMOS Rev 18 to Rev 19. These utilities are not available at Rev 19.3. Refer to Planning and Installation Guide Revision 19.0 (Prime doc. number DOC6426-190P).