

# Developments and Directions

The first NPS GIS Users' Workshop in Luray, Virginia, in October (*Park Science*, Vol. 9, No. 3, Spring 1989) provided us in the Geographic Information Systems Division with valuable feedback on the direction of the Service's GIS program. One of the chief messages delivered was the need for integrated software, ease of usability, and hardware uniformity and independence. Additional discussions with many of you since then have confirmed this message and caused us to make several decisions that will significantly affect the Park Service GIS program over the next few years.

### SAGIS and GRASS

We have decided to move away from SAGIS and to adopt GRASS as the sole GIS software used and supported by the GIS Division. Accordingly, we have entered into an agreement with the U.S. Army Corps of Engineers, the developers of the GRASS family of GIS software, to enhance GRASS to include certain vector capabilities now present in SAGIS. This work will take one to two years.

We are discontinuing the development of SAGIS and moving toward a single software system that possesses the capabilities now present only in the combination of the two systems. *We will continue to support SAGIS, including training, for as long as Park Service users require*, but all development work, except for meeting several immediate commitments, will cease.

Among numerous reasons for this decision are: our inability to develop and support two quite dissimilar software systems; the inefficiency and inconvenience of using two software systems with different file systems; elimination of the different hardware requirements for SAGIS and GRASS; the capability, through GRASS, to take advantage of contemporary hardware (specifically, the bit-mapped (UNIX) workstation) and software (e.g., X-Windows); the need for significant improvements in SAGIS's user interface and documentation; and the presence of image processing and raster-display capabilities not present in SAGIS.

If users need the vector editing, analytical, and pen plotting capabilities of SAGIS, they may continue to use it, in conjunction with GRASS, until GRASS possesses the needed capabilities (one to two years). Note to Opus Systems users: GRASS 2.0 is up and running on the Opus boards; we anticipate putting GRASS 3.0 on them by this fall.

### GRASS Training

We encourage users to take GRASS training at their

earliest convenience. The GIS Division will not, at least initially, offer such training, which must be procured from private vendors.

### SAGIS Training

We will give SAGIS training, *only if users indicate a need. In the absence of an expression of interest, we will not schedule any more SAGIS training.*

### SAGIS Menu

Peter Strong has developed a menu interface for SAGIS. It allows users to access SAGIS modules and perform certain operations entirely from a series of menus. It is running on the Opus Systems and Sun hardware; users may request the software, if they like. The menu system could also be installed on Mass-comp systems. Please let Peter Strong (303-969-2871, FTS-327-2871) know of your interest.

### SAGIS Documentation

New documentation for SAGIS's display module (CALPLOT) is available. Please advise if you want a copy.

### NPS GIS Users' Workshop

Many of you have asked about the next Servicewide GIS workshop. We intend to skip 1989 in favor of holding the gathering in conjunction with an international conference on the use of GIS technology in parks and protected areas. Baltimore, in November of 1990, is scheduled as the place and time of the event. I will be the program chairman. Please plan accordingly.

### GIS Coordinators' Meeting

Several GIS coordinators have suggested meeting to discuss the Servicewide GIS program. This meeting would be in lieu of a FY'89 Servicewide workshop. Please contact Phil Wondra to establish a time and place for the meeting.

### GIS Peripherals Contracts

The DOI GIS peripherals contracts, which allow you to purchase a UNIX workstation, digitizing tablet, pen plotter, and ink jet plotter, are still in place. ***New procedures make it possible for you to purchase these items through your procurement officer in the park or Region, without going through WASO.***

### Digitizing and Scanning Contracts

The NPS has two contracts in place for digitizing and scanning, respectively, of maps. The contracts also have provisions for performing data transfer and building textual data bases. Call me for details.

**Harvey Fleet, Chief**

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The winter 1989 Information Crossfile contained a reference to an article on artificial intelligence (AI) and, particularly, intelligent geographic information systems (IGIS). On a recommendation from our editor I sought out and read the article. Here is my reaction:

IGISs differ from conventional GISs in two important ways. They contain information about the relations among the various elements, or layers, or themes, in the GIS data base, *and* they contain information about how to use this information to solve various kinds of (resource) problems. Conventional GISs, by contrast, contain information only about the internal properties of the data they contain, such as their location, status, ownership, condition, importance, and so forth. Human (expert) operators must understand both the relation among the data themes and how to use the system.

IGISs would appear to have wonderful promise for enhancing the utility of GIS technology to park management. One can easily fantasize about a resource manager sitting down at the keyboard (or microphone!) and typing in (or speaking) some simple, plain English questions or commands, like "Derive a gypsy moth hazard rating map" (as in Shenandoah), or "Generate a fire behavior model and show me all resources-at-risk" (as in Yosemite or Yellowstone), or "Generate a model of geomorphological change" (as in Gulf Islands or Cape Cod), or "Create a landscape restoration model" (as in Saratoga). The system would go out and find the right data elements, interact them correctly with another (according to built-in rules), and generate appropriate output. Viola! Instant, effortless results!

**Sadly, reality intervenes.** One must crawl before one can walk, let alone run. We are struggling mightily with our first steps — to establish credible, accurate data bases, to install useful — and usable — hardware and software, and to find people to dedicate to operating the technology. We have much work to do before we can devote our energies to building AI rules into our systems. Perhaps one not-too-distant day, after these prerequisites have been met, we will have software to custom-tailor IGIS's to individual parks. In this scenario, each park would go through a fairly detailed (one-time) installation procedure building specific rules that apply to its own unique situations.

There is no doubt that expert systems can certainly help users. They will never, however, replace the need for onsite systems administrators responsible for the care and feeding of the hardware, software, and data bases. They will also never be substitutes for knowledgeable and skilled resource managers, who understand resources and the relationships among them, and who know how to ask the right questions.