

Southern Appalachian Regional Information System SARIS

Progress Report, May 1–June 15, 2000

SARIS node of the National Geospatial Data Clearinghouse

We installed the Federal Geographic Data Committee's Isite catalog server software on a Windows NT server at the UT Systems Development Institute. After resolving some configuration issues, tests with a "work-in-progress" metadata file of the SAA watershed boundary dataset, provided by SAIC, were unsuccessful. A substantial effort was necessary to learn about metadata definitions and to edit the metadata file to stringent specifications. We also discovered some inconsistencies between the original, non-standard SAA metadata and the actual data contained in the watershed ArcInfo coverage.

We finally passed the metadata through the FGDC Metadata Parser (mp) without errors or warnings, successfully completed the local Isite test protocol, and registered **saris-iste.samab.org** with the FGDC. During acceptance testing by the FGDC, our Isite server process died when they attempted a spatial search. They notified us that they suspect a bug in the Isite software. They will be trying to replicate the problem at the EROS Data Center. They reported having experienced some software problems with sites that have a very small number of metadata files (we currently have only one). We will work with SAIC to obtain as many good SAA metadata files as they rush to satisfy the requirements of their "Don't Duck Metadata" grant.

The age and condition of our Isite server hardware--a surplus P5/233 MHz machine made available by SDI for free--is of some concern. We already had to replace a fan that failed after two weeks of operation. On the positive side, the server was recently connected to an uninterruptible power supply.

Wolf Naegeli is now registered as a reviewer of the International Organization for Standardization (ISO) Technical Committee 211 19115 (formally 15046-15) Metadata Standard Committee Draft Version 3. Becoming a reviewer was the only way of obtaining a copy of the confidential document and to gain advance information that may help us design SARIS such that no costly changes will become necessary when the new standard enters into force.

Database and other software

In May, ESRI released ArcIMS 3.0, which will be the heart of the SARIS browser-based mapping applications. Unfortunately, we still have not received our copies. UT Software Distribution has not yet received the master discs and have no expected shipment data. They paint a pessimistic picture as it took almost four month for us to receive ArcInfo 8, which was released in January. Apparently, ESRI ships upgrades to its customers in alphabetical order, and the universities are near the end of the alphabet and paying less than commercial users. We are hopeful, though that we will get ArcIMS within a month, rationalizing that there are far fewer ArcIMS users than ArcInfo users.

After extended negotiations, the database group of the UT Division of Information Infrastructure agreed to provide a limited amount of Oracle tablespace and processing for SARIS development and prototyping through the end of calendar year 2000. Oracle software licenses for the enterprise-level products that we will need for SARIS are very expensive. Until we have some experience with our prototype applications, we will not know what our database performance requirements will be. UT is currently in site-licensing negotiations with Oracle, but it is too early to know to what extent we will be able to take advantage of such a license. Commercial licenses for a heavily-used site offering web-browser based mapping applications could cost as much as \$50,000 per year.

The good news is that Apple just announced a major price reduction of their WebObjects product, which we will use for the knowledge-base and other dynamic interface components of SARIS. After abolishing their performance-based licensing structure, the unlimited high-end enterprise version of WebObjects, which used to cost \$50,000 is now available for a mere \$700.

SARIS spatial data warehouse

The SAA datasets have been available on the SAMAB website as ZIP-compressed ArcInfo coverage export files for http download. Some of these files are extremely large. As our supply of SAA CD-ROM disc sets is exhausted, the need to download such files becomes a daunting problem for users on slow and unreliable modem connections.

We will soon offer a choice of http and ftp for downloads. Most modern ftp clients allow the resumption and completion of partially downloaded files.

We recently completed the conversion of the SAA ArcInfo coverages to shapefiles. Shapefiles tend to be smaller (typically 40% to 60%) than coverages and comprise a smaller number of individual files. The free ArcExplorer application, can directly open shapefiles. This is of great benefit to ArcExplorer users, who often have limited computer skills. They will no longer need to run the coverage file conversion utility before they can use the downloaded files.

We are compressing the shapefiles with StuffIt! SIT-compressed files often are up to 20 percent smaller than ZIP-compressed files, resulting in additional savings of download time. The free StuffIt! Expander for Windows is very user-friendly. All a user needs to do, is drag and drop the downloaded files on the Expander icon to automatically decompress their contents. Presently, no Unix version of StuffIt! Expander is available, but Unix users tend to be on faster network connections, are more likely to use ArcInfo, and adept at file management, so using the old ZIP files should not be much of a disadvantage to them.

We are still waiting for samples of new data sets from EPA that we hope to use in prototyping and demonstrations of SARIS capabilities.

Grant application for focus on exotic invasive pest plants

We applied for an USDA grant of \$40,000 to develop a strong focus area in SARIS on exotic invasive pest plants. This is part of a much larger exotics proposal involving several organizations and universities.

With funding from this grant, we would expand the thematic scope of the SARIS geospatial data collection to include invasive species information such as:

- Regional habitat suitability maps for specific pest species and areas susceptible to heavy invasion
- Animated maps showing the past expansion of the range of invasive plants and diseases
- Time-series projections about likely future range and magnitude of the problems posed by particular species under user-selectable assumptions of "business as usual" or various methods of control.

Other grant activities call for us to:

- Collect and make accessible through SARIS data sets of the past and present distribution of pest species and of the effectiveness of reported control efforts.
- Establish email announcement lists for all who need or want to keep informed about the latest invasive-plant-pest news, research results, upcoming events, planned projects, etc.
- Establish electronic discussion groups to facilitate cooperation and information exchange among researchers and practitioners.
- Organize series of on-line seminars and panel discussions on invasive species and their control with remote participation made possible through integration of streaming media web technologies and audio/video/Internet conferencing.