

Jeff Kirchberg

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During my internship experience I worked in the Landscape Analysis Lab on the Digital Domain project. The mission of the Landscape Analysis Lab is to advance the scientific understanding of our environment through the application of geospatial science and technologies. The main goals of the Digital Domain project are to document and describe the natural, cultural, historical, economic, and other aspects of the Sewanee community and to make this information available to the public. As part of the Digital Domain project, I explored how these data can be adequately stored and organized so that they are easily accessed for faculty, staff, and students without GIS training. Prior to my involvement in the Digital Domain project, students and faculty in the Landscape Analysis Lab (LAL) had developed a geospatial database that includes infrastructure data such as roads, trails, buildings, elevation, land cover, bedrock, soils, lakes, and ponds. It also includes recreational data such as trails, caves, and climbing areas, as well as domain boundaries. Much of these data were in need of additional attributes, organization, metadata, georeferencing, and editing before being made visible by non-GIS users. For example, the LAL has excellent soils data from the US Dept. of Agriculture, but most of the descriptive attributes are coded values, which required someone to write out what each code means. A few layers, such as trails and streams were saved in multiple copies, created at different times by different people. These data required consolidating, editing, and in some cases, being merged or even deleted.

During the internship, I prepared the Digital Domain project for access for the University community. My project consisted of 3 goals: To update and organize existing data, to create

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missing data, and to test methods of access of the data. To complete these goals, I would familiarize myself with the data, edit and create spatial data, learn new GIS tools as needed, test free software such as ArcExplorer, GoogleEarth, and Google Maps for accessing the data, and clean existing databases. Cleaning the databases included working with individual layers to geo-referencing data, adding attributes, creating and updating metadata, creating hyperlinks (linking spatial data to photographs, websites, and other documents), and examining the overall structure of the database to organize data in a logical manner so that it is as easy as possible to access.

Throughout the summer I mainly focused on the tasks of familiarizing myself with the data already present, assessing the stage at which the data is in, what editing to the data as needed, packaging the data into a format which can then be shared with Sewanee community, and finally experimenting with which medium would be best for displaying the data. Having to sort through files and organize data made me appreciate well labeled and organized collections of data. Assessing the relative completeness and usefulness of data was at first difficult but soon became easier. A large portion of my work dealt with adding, deleting, and editing data. There were several duplicate files and other partially redundant data which needed to be deleted. Some layers such as trails needed to be ground truthed or combined with other existing layers. Still others, such as roads layers, just need more data entered in the attribute table to make them more complete. Finally I compiled a set of base data that is now ready to be made available to the Sewanee community.

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Another one of my tasks was to help create a GIS exercise for the Sewanee Environmental Institute summer program for high school students. The goal of this project was to introduce GIS to the students in a fun and interactive way. The activity consisted of a short introduction to the fundamentals of GIS and then geocaching. My duty was to make a map of Sewanee displaying the location of geocaches. The students then used these maps to navigate their way around Sewanee and find a geocache. This project was my first real experience in map making for a practical purpose.

Overall, the work I have done has set a base foundation of data for the Sewanee community to utilize and extend upon. The data that I have prepared and compiled is organized into categories and ready to be accessed. The only step of my goal that was not completed was making data accessible. I will be working through the school year to put the data on a server so that the data may finally be accessed. Over time I hope that the data will be updated and added to according to demands for needed information and that any needed changes in the current data will be made.

This internship has heavily affected my career choices for the future. Having had experience in GIS and its many practical applications, I plan on pursuing a higher education in spatial analysis and considering GIS as a possible career. In my planned field of ecology and biodiversity, GIS is a highly used and highly practical application used by many professionals. By having the ability to spatially analyze a study site, one gains the vantage point to observe trends and patterns which may lead to a greater understanding of natural phenomenon. Having

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been trained in GIS, I am now a stronger and more competitive applicant for grad school in addition to being more prepared for a career in GIS.