Chapter 65

The Digital Geography Lab at Salem State University:
The Evolution of One of the Oldest Educational Digital Geospatial Labs

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ABSTRACT

Established in 1983, the Digital Geography Lab (DGL) at Salem State University (SSU) is one of the oldest higher-education digital spatial labs. This paper details the evolution of the DGL as well as its current status as one of the best computer labs at Salem State University. This paper describes the changing technology of the DGL over the past 28 years. The DGL not only provides SSU students with cutting edge geospatial technology, but it is a research lab for faculty and is extensively used in community outreach programs. The DGL is being used more and more by other departments such as Geology, Criminal Justice, Computer Science and Inter-disciplinary Studies which reflects the expansion of the geo-spatial sciences beyond geography. The success of the DGL lies in part with the University's management of the facility where major decisions are made in consultation with the Department and DGL staff. The configuration and technology of the DGL has changed considerably through the years, reflecting the transformations in technology and educational philosophies, but the core mission of the DGL has not, which is to serve the students, faculty and the local community with cutting edge geospatial technology.

INTRODUCTION

Located on the third floor of Meier Hall is one of Salem State University's most outstanding technology resources – the Digital Geography Laboratory (DGL) (Figure 1). The DGL is one of the oldest geo-spatial university labs in the United States. It was officially established in 1983 and a few years later in 1986 it was proclaimed a Center of Educational Excellence by then Massachusetts Governor Dukakis (RSSG, 2003). As a Center of

Figure 1. Frederick A. Meier Arts and Sciences Hall, Salem State University, Salem, Massachusetts

Educational Excellence it received special government funding for its development of geo-spatial computing technology for the education of Salem State students. Salem State University has also continued to support the lab financially and has allowed the policy and configuration decisions to be made unilaterally by the geography department. This hands-off policy has allowed the lab to grow and service its students with the primary goals of geo-computing and geographic education.

The DGL is an exceptional resource for education and research at Salem State University (SSU). All geography majors, minors, and students who are enrolled in geography courses, are provided accounts in the DGL. In addition, most geography classes require students to perform certain labs and exercises which are only available through the software provided by the DGL. For example, Introduction to Geography students map the distribution of different ethnic groups across the United States, analyze population growth in India and run development scenarios for urban growth in Colorado. Remote sensing students download satellite data from NASA to analyze deforestation, global vegetation change and brush fires in Australia as well as the melting of glaciers on Mount Kilimanjaro.

In addition to undergraduate students in the College of Arts and Sciences, the DGL services students in the Master of Geo-Information Sciences (GIS) program. Salem State University's Master of Geo-Information Sciences is also one of the oldest in the country with the first graduate students arriving in 1993. Some DGL related projects undertaken by masters students include: archeological mapping, GPS accuracy assessment (global positioning systems), GPS for nature reserve mapping, remote sensing for bird migration, remote sensing for wind power development, and environmental justice analysis of power generation in Massachusetts.

Our graduates use their geo-spatial technical expertise to secure positions in a variety of government, higher-education, not-for-profit and private sector jobs throughout Massachusetts and beyond. Federal government agencies where our alumni work include the FBI, Secret Service, National Geospatial-Intelligence Agency, NASA and the Census Bureau. Private companies include ESRI, Tactician, Applied Geographics, Trimble, and Pictometry. For a more extensive list of our alumni's employment please visit our DGL Alumni (2011) web page at dgl.salemstate.edu/alumni.shtml.

In addition to class-related work, the DGL provides state-of-the-art facilities for researchers at Salem State University. Faculty, graduate students and undergraduates all use the DGL for their research needs. Research by faculty encompasses a wide breadth of areas from estimating floral intensity using high resolution aerial imagery, to demographic analysis of voter participation. Other research includes emergency response mapping, sea-level rise mapping, transportation modeling and land cover change. (Luna, 2010, 2008a, 2008b; Ratner, 2009a, 2009b, 2008, 2007a, 2007b; Young, 2011a, 2011b, 2004; Young & Harris, 2005). Each year geography faculty and students attend regional and national conferences where they present their research. In the past both undergraduate and master's students have won national research competitions held by the Association of

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