

Geographic Information Technologies and Future Geography

In one of my earlier presidential columns I wrote about the new millennium, a new generation of students involved with the emergence of cyber-geography and Internet geography, that are creating new geographies using information from a multitude of sources and across a variety of media. In this, my next to last column as AAG President, I would like to expand on this theme in the context of geographic information technologies (GIT), particularly as they relate to global positioning systems (GPS), geographic information science (GIScience), and remote sensing.

These three areas of GIT have been of particular interest to me in my own research, specifically addressing the uses of GIT for analyzing questions associated with rural areas. From my view, these rapidly evolving approaches for spatial analysis are of growing importance to an increasing number of geographers in our discipline. As many have pointed out, GITs are more than just tools or techniques, they have matured to the point where they have their own body of knowledge and theoretical constructs that make them a science in their own right, especially as they relate to remote sensing and GIScience. That is not to say they don't have value as technical spatial approaches to analysis of geographic areas, or that they don't still have geography and our approaches to problem solving at their core.

A general survey of research published in a broad range of journals shows many researchers utilizing various dimensions of geographic information technologies as part of their methodology in such geography specialty areas as political geography, economic geography and regional modeling, soils geography, geomorphology, water resources analysis, urban geography, and agricultural and rural geography.

At the same time, GIT advances are occurring at record pace as witnessed in various dimensions of our daily lives. The

invention of real-time, interactive, and mobile GPS/GIS technologies, for example, has created new real-time geographic analysis and real-time geography. Such developments have led to significant advances in the ways spatial information is collected, mapped, and used within the discipline of geography. They are now

at the heart of a vast array of real-time interactive mobile computing, geolocation applications and asset management, and wireless geographic services. As Doug Richardson wrote in a chapter of the recent book *Geographical Dimensions of Terrorism* (2003, p. 118), "the integration of data intensive, dynamic geographic location, and timing technologies (e.g. GPS) on a real time and interactive basis with the previously static worlds of traditional GIS, has moved the science forward." The dynamic modeling and management capabilities of these new interactive systems have created far reaching opportunities for geographic sciences from academia to government to business geography.

Within my own interests linking remote sensing and GIScience, there are new sensors, new applications, new challenges in data integration, and new outreach opportunities. In new sensors alone, there have been substantial increases in the resolution of commercial satellites. Satellites such as IKONOS, which produce high quality digital data, challenge us to ask new questions about our ability to map and analyze geographic areas, and to integrate associated findings (at much higher data volumes) into geographic information systems with new abilities to model landscape dynamics. In addition, ease of access to image data and processing worldwide is making great



Nellis

opportunities for extending our analysis to new areas.

Yet some see geographers using these new developments as "techies" who are missing some "pure" geography based on more traditional approaches to geographic analysis. In my opinion, nothing could be further from the truth. Those embracing GIT, and through this developing new science linked to geo-

graphic information systems, GPS, and remote sensing, have helped us move spatial sciences forward in new and exciting ways. Such GIT efforts have also allowed us to address the geographic problems of academia, business, and government, and have given some of our academic departments new and dynamic visibility on campus. Some of these academic efforts have focused on applications of GIScience, or more broadly GIT, to serve their university community, and in some cases their region or state. We at West Virginia University, for example, have been able to leverage our expertise in GIScience to create a State GIS Technical Center, and through this, enhance the base funding for our efforts to provide important spatial data services to state agencies. This has further stimulated investments by the university to strengthen the broad range of GIScience within geography, and allowed the department to develop certain strengths in community based GIS, the use of GIScience in virtual worlds, and the use of GIT to understand the dynamics of change in rural environments. There are many similar opportunities for geography units nationally to seize opportunities associated with their leading role in information processing through GIT, and compliment the mission of their college, university, or business, as it relates to use of spatial information.

Continued on page 4

The New Orleans 99th AAG Annual Meeting Abstracts book (424 pages) is now available at half price to AAG members. Get your copy while they last for only \$10.00, shipping included. Prepaid orders should be sent to:

Publications Fulfillment
 Association of American Geographers
 1710 Sixteenth Street NW
 Washington, DC 20009

or faxed to 202-234-2744. Contact Oscar Larson at olarson@aag.org or 202-234-1450 for additional information.



Continued from page 2

Centennial Campaign. Your pledge will help ensure that the AAG and geography will continue to provide opportunities for professional development, growth, and leadership, and that geography will be well-positioned for the future. We have all benefited from our careers in geography, and from the support of the AAG in helping to sustain the institutions and viability of the discipline. It is important that we now pass on this gift so that future generations of geographers share the same benefits and traditions of support that we have enjoyed.

So join with us in celebrating the AAG's Centennial, and helping to ensure that geography remains a vital force in meeting the challenges of our nation, our youth, and our world during the next century. Thank you for making a difference by being a geographer, and for making a difference for geography's future by joining us in supporting the AAG's Advancing Geography Centennial Fund. ■

Doug Richardson
drichardson@aag.org

To make a pledge to the Advancing Geography Centennial Fund, mail or fax the pledge form on the following page to the AAG.

Continued from page 1

with authors during the review process. Institutional support for the new Editor (especially some time released from teaching) is desirable, but not mandatory. The AAG will provide a modest stipend to be used for expenses and honorarium at the Editor's discretion.

The section Editor will work in coordination with the Managing Editor, located at the Meridian Place AAG office in Washington DC. The Managing Editor bears primary responsibility for the logistics of processing manuscripts and book reviews, and for assembling and coordinating the publication of each issue of the journal in collaboration with the Editors and the journal's publisher. Editor candidates, therefore, should share the AAG Council's vision of

an accessible, decentralized, and collaborative *Annals* editorship.

A letter of application that addresses both qualifications and a vision for the Nature and Society section should be accompanied by a complete curriculum vitae. Nominations should be submitted no later than 15 May 2003, and applications no later than 1 July 2003. Send applications or letters of nomination to: Chair, AAG Publications Committee, AAG Meridian Place Office, 1710 Sixteenth Street NW, Washington, DC 20009-3198. Nominations and applications (in Word or WordPerfect format) may be submitted electronically to annals@aag.org. ■

Continued from page 3

Geographers must embrace future opportunities in spatial information sciences as it relates to GIT or others will fill this void in ways that may minimize the spatial science and analysis core of these approaches, and negatively impact what some view as the traditional base of our discipline and our relative position within the university community. As we look to the future, I believe we must: (1) take advantage of pervasive computing to further our discipline and analytical

approaches, (2) play a more active role in information management at all levels and related geographic policy, and (3) foster inter-disciplinary research using GIT that keeps geography and spatial science at its core. Through such efforts, I believe GIT, and indeed geography, will only increase in importance in all dimensions of our future world. ■

M. Duane Nellis, President
dnellis@wvu.edu