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# THE 2009 SOUTHERN FORESTRY AND NATURAL RESOURCES GIS CONFERENCE

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Abstract. This is the introduction to, and overview of, the Special Section of papers from the 2009 Southern Forestry and Natural Resources GIS Conference (SOFOR GIS). The conference was held for the seventh time in Athens, Georgia, on December 7-9, 2009.

**Keywords:** Symposium Proceedings, SOFOR GIS, Geographic Information Systems, Spatial Information Technologies

## 1 Background

In 1995, during an informal coffee break, Greg Arthaud (a former faculty member at the University of Georgia, and now with the USDA Forest Service) and Bill Hubbard (the Southern Region Extension Forester) discussed the burgeoning use of geographic information systems (GIS) and the potential to host a regional conference at the University of Georgia. At the onset, the conference was known as the Southern Forestry GIS Conference, and the intent of the conference was to bring together analysts, educators, and managers from around the South to discuss current trends, advances, and research in spatial information system technology. The conference was, and continues to be known informally as the SOFOR GIS conference. Along with the Warnell School of Forestry and Natural Resources at the University of Georgia, the Southern Region Extension Forester's Office and the Georgia Center for Continuing Education were the initial sponsors. People associated with The FORS Institute, USDA Forest Service, Mississippi State University, Virginia Tech, Stephen F. Austin State University, and Clemson University have since played a vital role in the development of the conference series.

In general, a SOFOR GIS conference is held about once every 18 to 24 months. The first three conferences were held in 1996, 1998, and 2000. A planned fourth conference did not materialize in 2001 due to political and social circumstances affecting the entire country. The conference series was reinvigorated in 2004 with the collaboration of the Southern Region Extension Forester's office, the Georgia Center for Continuing Education, and three faculty members of Warnell School of Forestry and Natural Resources at the University of Georgia (Pete Bettinger, Michael Wimberly, and Jason Drake). The conference was also re-named the Southern Forestry and Natural Resources GIS Conference at this time to reflect the broader range of papers being submitted. The first (1996) through fourth (2004) conferences were held in Athens, Georgia. The conference then went on the road, with the fifth conference (2006) being held in Asheville, North Carolina, and the sixth conference (2008) in Orlando, Florida. The seventh Southern Forestry and Natural Resources GIS Conference returned to Athens, Georgia in December of 2009. Although a peer-edited proceedings has been produced for each conference, for the first time, three papers from the seventh conference are peer-reviewed, and included in this special section of the *International Journal of Mathematical and Computational Forestry & Natural-Resource Sciences*.

As with most conferences, the topics vary based on the submissions of the potential presenters. The program for each of the last four conferences has generally been developed through a process involving an open call for papers. During the seven-conference series, topics have included: remote sensing and new technologies, custom interface tools and software, forest management and operations applications, forest inventory methods, forest and vegetation classification, land use and landscape planning, fish and wildlife research and management, aquatic systems research and management, GPS and mobile computing tools, urban forestry, environmental evaluations, and others. Three keynote speak-

ers were featured at the first conference in 1996. They included Roy Welch (University of Georgia), Jim Smith (then with Canal Forest Resources, now with The Nature Conservancy), and Ray Johnston (USDA Forest Service). Beginning with the fourth Southern Forestry and Natural Resources GIS Conference, keynote speakers were again featured. In 2004, Virginia Dale (Oak Ridge National Laboratory) discussed land use changes at different scales (a second-order catchment, a third-order watershed, an entire ownership, and a five-county region), and Jim Brenner (Florida Division of Forestry) discussed wildfire and its relationship to GIS. In 2006, John Scrivani (Virginia Department of Forestry) discussed issues related to the implementation and use of an enterprise GIS system for a state forestry agency. In 2008, David Evans (Mississippi State University) discussed the use of LIDAR in natural resource assessments, and Gil Pontius (Clark University) discussed blunders and breakthroughs in accuracy assessments. In 2009 Robert Weih (University of Arkansas-Monticello) provided a discussion of the evolution of geospatial technologies, from pixels to polygons to information.

Although much of the conference planning activity over the years has involved people working directly for the University of Georgia, beginning with the fifth (2006) conference assistance was sought from others. The conference planning committee has therefore included the following people over the seven-conference series:

- Greg Arthaud (formerly with the University of Georgia, now with the USDA Forest Service)
- Pete Bettinger (University of Georgia)
- Jason Drake (formerly with the University of Georgia, now with the USDA Forest Service)
- SongLin Fei (University of Kentucky)
- Jeffrey Hepinstall-Cymerman (University of Georgia)
- Bill Hubbard (Southern Region Extension Forester)
- I-Kuai Hung (Stephen F. Austin State University)
- Ben Jackson (University of Georgia)
- John Kushla (Mississippi State University)
- Thom Litts (Georgia Department of Natural Resources)
- Tripp Lowe (University of Georgia)
- Krista Merry (University of Georgia)
- Nate Nibbelink (University of Georgia)
- Steve Prisley (Virginia Tech)
- Bo Song (Clemson University)
- Helen Whiffen (formerly with the University of Georgia, now with the U.S. Geological Survey)
- Michael Wimberly (formerly with the University of Georgia, now with South Dakota State University)
- Luke Worsham (University of Georgia)

## 2 Contents of the Special Section

This special section of the *International Journal of Mathematical and Computational Forestry & Natural-Resource Sciences* contains three papers from the seventh conference in the series. Donald Lipscomb and Robert Baldwin (Lipscomb and Baldwin 2010) described the geoprocessing challenges that they encountered in calculating the mean Human Footprint™ for state and federally administrated "protected areas" of Canada, Mexico, and the Continental United States. They discussed the lessons learned with various automated processes designed to honor the integrity of data, and described a method that they developed to successfully address the associated problems. Pete Bettinger and SongLin Fei (Bettinger and Fei 2010) described a year-long study of GPS receiver performance in three different forest types in north Georgia (USA). Although significant differences in horizontal position accuracy among the three forest types were found, there was no significant relationship between observed horizontal positional accuracy and environmental variables (air temperature, relative humidity, atmospheric pressure, and solar wind speed) as hypothesized. Finally, in a study of Texas forests, John Chapman, I-Kuai Hung, and Jeff Tippen (Chapman et al. 2010) assessed the accuracy of LIDAR-derived estimates of forest characteristics against traditional timber sampling results, and found low correlations between LIDAR-measured and field-measured tree density and tree crown radius data. For tree heights, the correlation was high between the two methods, however LIDAR-derived tree heights were generally greater than the associated field-measured tree heights. Each of these papers underwent peer review, and although they are each quite different in nature, they represent the diversity of presentations provided at the conference. The full proceedings of the seventh Southern Forestry and Natural Resources GIS Conference will be made available through the conference website (http://soforgis.net).

In summary, the SOFOR GIS conferences have served the purpose of bringing together GIS users, developers, researchers, and practitioners for a variety of reasons. Obviously, the conferences have been useful from

a continuing education perspective. Through post-conference evaluations, many conference participants suggested that they learned a great deal, and that they planned to implement new practices into their work processes. The conferences have also served as an excellent opportunity to increase the amount of interaction between those interested in past, present, and future GIS applications and science. Finally, through the peer-edited proceedings that have resulted from papers submitted for presentation via oral or poster sessions, these conferences have served the purpose of creating an archived record of the growth and development of this fascinating field of science.

## Acknowledgement

Dr. Nate Nibbelink acted as the 2009 SOFOR GIS Conference Chair, and Ms. Krista Merry was the Proceedings Editor. The Georgia Center for Continuing Education once again hosted the conference. Sponsors included Orbis Inc., ESRI, Silvics Solutions, the James W. Sewall Company, and the A2 (Remote Sensing and Geospatial Applications) and E2 (Land Use Planning, Organization, and Management) working groups of the Society of American Foresters. In addition to these sponsors, we would like to express our appreciation to the presenters and attendees of the conference for their support.

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