GPS Test Site

University of Georgia
Warnell School of Forest Resources

Overview

In 2005, a GPS test site was installed on the University of Georgia Whitehall Forest, approximately 4 miles from the main campus in Athens, GA. Twenty-seven points, referenced by brass survey caps mounted on rebar and surrounded by approximately 12 inches of cement, were placed in the ground. Twenty-six of these points are in a predominately hardwood forest on north and east slopes, and one is in an older pine stand. Three additional points are located in open fields and were the subject of four hours of data collection with survey-grade GPS receivers. These three points were used to tie the twenty-seven forested points to a control network. The final coordinates of the points have a horizontal positional precision of approximately 1.5 cm. We have also added (in 2008) ten more points (for a total of 40 points), nine of which are in an older pine stand, and one is located in a young pine stand. Personnel from the USDA Forest Service, Southern Region, surveyed the points within the hardwood stand. Thomas Hurley (EMC Engineering Services, Inc.), Junior Tunnell (Street Smarts), and Doug Luepke surveyed the points in the pine stands.

Objectives

Research: We have a plan to assess the accuracy of current GPS receivers based on field, weather, canopy, and topographic conditions. In addition, we are evaluating a few choke-ring antennas (manufactured as well as home-made) to assess the effect of multi-path in forested conditions. We currently have a Ph.D. graduate student working on this project, as well as two undergraduate students.

Teaching: We are integrating the use of mapping-grade and recreation-grade GPS receivers into our forest measurements and spatial technologies courses. We have developed exercises to allow students to evaluate the accuracy of a wide range of GPS receivers in a typical work environment.

Extension: We have developed a GPS continuing education course, and use the GPS test site as a basis for field exercises related to this course. We also plan to develop the capability (via an Internet site or a downloadable program) to allow others (outside of the university and not associated with the continuing education course) to compute the accuracy of their GPS receivers in conjunction with data collected at the GPS test site. We envision a situation where people can bring their own GPS receivers to the test site, collect data, then compute horizontal accuracy of their receivers from their home or office.

Contact Information

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