

The Warnell Continuing Education Program

Daniel B. Warnell School of Forestry and Natural Resources

GPS for Beginners

July 7—8, 2009

Instructor: Pete Bettinger, Ph.D.

at the Warnell School, room 1-201 (the computer lab)



WARNELL
SCHOOL OF FORESTRY AND NATURAL RESOURCES
THE UNIVERSITY OF GEORGIA

Purpose and Objectives

The Global Positioning System (GPS) is an important tool for natural resource managers. Wildlife biologists use GPS to document the location of nests, survey points, and other critical habitats. Foresters use GPS to delineate treatment areas and develop standard geographic information systems (GIS) databases for roads and other management-related infrastructure. Fisheries biologists and hydrologists use GPS to map stream systems. Recreation resource managers use GPS to map trails systems. A variety of professional use GPS in conjunction with wildfire monitoring and suppression activities. All natural resource managers, along with the general public, use GPS to navigate. While most people think of GPS in terms of the receivers that they use, GPS is actually a system of satellites, receivers, control stations, base stations, and software for navigation and mapping the earth's features. This two-day course:

- Introduces the basic features of the Global Positioning System
- Discusses sources of error and techniques for assessing data quality
- Provides experience with GPS mission planning, GPS data collection, and post-processing GPS data

Upon completion of this course, you should be able to:

- Understand the basic components of GPS
- Be able to understand many of the common terms associated with GPS (e.g., PDOP)
- Think critically about GPS error sources and data quality
- Understand how to plan and conduct a data collection project with a mapping-grade GPS receiver

Who Should Attend?

Natural resource management professionals and realtors who have little or no background with the Global Positioning System (GPS), yet have an interest in learning about the basics of GPS and experiencing data collection procedures, post-processing procedures, and accuracy assessment methodology. Upper-level managers who need to communicate GPS-related requests with field personnel may find the course useful as well. Realtors who are involved in the valuation of rural land and timber should also attend.

Format

This course provides lecture material, computer-based exercises, and field data collection exercises to provide an overview of GPS and experience in various phases of GPS use in natural resource management. The material will be presented in a logical manner, from a description of GPS, to the equipment involved, to field data collection procedures. These all occur on Day 1. On Day 2, data collected in the field will be transferred to a computer, differentially corrected, and displayed in a geographic information system. Accuracy will be assessed. Handouts will be provided to summarize the material presented.

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Instructor

Pete Bettinger is an associate professor in the Warnell School of Forestry and Natural Resources. He has more than 20 years of operating, teaching and research experience in forestry and natural resources, including roles with the U.S. Forest Service, several forest product companies, and Oregon State University. Bettinger has taught several courses on forest measurements, forest planning, and harvest scheduling, as well as GIS applications in natural resources management. In 2008, Oxford University Press published his book *Geographic Information Systems: Applications in Forestry and Natural Resource Management*. Bettinger earned BS and MS degrees from Virginia Tech, and a PhD from Oregon State University.

Registration Fee

The fee for this course is \$325, which includes lunch, refreshment breaks, and instructional materials. There is a \$50 discount for fees paid and postmarked by June 16, 2009. We accept credit cards and personal or company checks for payment. A preregistration form must be accompanied by a check to guarantee your place in the course. **Limited seating is available.**

Continuing Education Credits

- 10 Continuing Forestry Education (CFE) Hours—Category 1
- Continuing Logger Education Hours (CLE) – applied for.

Register online at:

www.conted.warnell.uga.edu/courses/GPS

Full Attendance is Mandatory to Receive Credit.

Course Itinerary

Tuesday, July 7, 2009

Time	Event
8:00 a.m.	Registration
8:30	Introductions and Course Overview
8:45	Introduction to the Global Positioning System GPS Terminology Sources of Error in GPS-Collected Data
10:00	Break
10:15	GPS Accuracy in Forested Conditions Differential Correction, WAAS, Real-time Data Correction GPS Mission Planning
Noon	Lunch
1:00 p.m.	Whitehall Forest GPS Data Collection Exercise
5:00	Adjourn

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Course Itinerary Continued

Wednesday, July 8, 2009

Time	Event
8:00 a.m.	Unanswered Questions from Day 1
8:15	Data Transfer from GPS Receiver to Personal Computer Differential Correction Data Display and Correction in Pathfinder Office
10:00	Break
10:15	Discussion of the Relative Accuracy of GPS-Collected Data from Day 1 Calculation of Root Mean Squared Error (RMSE) for Data Collection on Day 1 GPS receivers available today
Noon	Adjourn

Registration Form

Name - please print _____

Preferred name for badge _____

Birth-date (for credit hour records) _____

☐ Business mailing address or ☐ Home address (please check one)

City _____

State _____

Zip _____

County, if Georgia _____

Home phone _____

Work phone _____

Fax _____

Email address _____
Education _____

☐ Please send me e-mails about other Warnell Continuing programs.

Position _____

Organization/employer _____

By registering for this event I agree to comply with all event and lodging cancellation policies.

GPS for Beginners

July 7 - 8, 2009

Early Registration by June 16, 2009.....\$275.00

Regular registration:.....\$325.00

Enclosed is a check # _____

(payable to Warnell School of Forestry and Natural Resources)

Your registration will not be processed until payment is received.

Cancellations:

Notice must be received by 5:00 p.m. June 23, 2009 to receive a refund.

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Parking and Directions

A visitor parking deck is located just north of the Georgia Center. Current rates are \$.50 for the first 30 minutes, \$2 for the first hour, \$2 for each additional hour, and a maximum of \$8 for each 24-hour period parked.

For a map and directions go to:

http://www.warnell.uga.edu/h/aboutWSFR/directions/index_html

Special Needs

If you require special services or dietary considerations, contact Reena Berwal at 706-542-7602 or e-mail her at rberwal@warnell.uga.edu prior to June 30, 2009.

Mail payment to :

Attn: Reena Berwal

Warnell School of Forestry & Natural Resources

The University of Georgia

Athens, Georgia 30602