

GPS, Geodesy and the Ghost in the Machine: A Workshop for Surveyors and GIS Professionals

Presented by Michael Dennis and Sponsored by Oregon GPS User's Group

Positions determined using GPS and GNSS equipment are determined using complex algorithms that are often hidden within proprietary software ,aka, "the ghost in the machine". Users unfamiliar with the computational process can unwittingly generate positional errors ranging from centimeters to kilometers. This workshop seeks to shed light on the GPS black box by 1) Explaining the main geodetic principles and terminology behind GPS; 2) Reducing blind reliance on GPS and GIS software; and 3) Providing practical information and tools for the GPS user. Topics include geodetic and vertical datums, map projections, ground coordinate systems, the geoid and gravity, accuracy assessment, GIS and survey data compatibility, and documentation (metadata). National Geodetic Survey (NGS) products and services are used along with numerous examples of positioning errors to illustrate the peril of neglecting geodetic principles, with particular emphasis on the situation in Oregon. A workbook is provided that includes step-by-step GPS and geodetic computations.

Michael L. Dennis, RLS, PE, is a geodesist at the National Geodetic Survey (NGS) where his duties include analysis of geometric and vertical datums; evaluation of data processing and survey network adjustment procedures; development and promotion of standards and guidelines; integration of NGS products and services with GIS; and public outreach. Mr. Dennis managed the recently completed National Adjustment of the 2011 project which was a re-adjustment of 79,677 passive marks which were constrained to 1195 CORS across the U.S. The results of that adjustment are reflected in NGS datasheets with a new realization of NAD 83(2011)epoch2010.00. Michael was also instrumental in helping ODOT define the low distortion projections used for the Oregon Coordinate Reference System.

- When: Thursday March 21, 2013 7:30am-4:30pm**
- Check-in: 7:30-8:30 AM (preregistration only—No registration at the door)**
- Where: NW Eola Viticulture Center of Chemeketa C.C.
215 Doaks Ferry Rd., Salem, OR 97304**

First come, first served for up to 165 registrants. Cost is \$65 and includes lunch. Attendees will be emailed handout materials prior to the workshop to be printed prior to attendance. No materials will be provided at the workshop.

Questions: johnminor@stuntzner.com or neathamer@gmail.com

Send one registration per person to: Cael Neathamer P.O. Box 1674 Medford, OR 97501

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Name: _____

Address: _____

Phone: _____ Email _____