

ACSM and Geomatics Education

Earl F. Burkholder
New Mexico State University

1. Where have we been?
2. Where do we stand?
3. Where should we go?

- I. In the early 1980's ACSM hired an Education Director.
 - A. Why? How was it justified?
 - B. What did the Education Director do?
 - C. What successes came out of that effort?

- II. In the early 1990's ACSM Education Committee developed an Education. Committee Report
 - A. Why was it written?
 - B. What does it say?
 - C. What part of the report was used or can be used?

- III. In recent past, surveying has evolved from analog to digital and from 2-D to 3-D.
 - A. Very briefly summarize changes in technology.
 - B. What concepts have changed?
 - C. How are concepts applied differently?
 - D. What are the most important tools being used today?

- IV. What are the challenges for the future?
 - A. For the profession?
 - B. For surveying education?
 - C. What about accreditation?

- V. What should ACSM do?

- VI. What should Geomatics Educators do?

- VII. Action items.

Geomatics and the Global Spatial Data Model (GSDM)

This workshop is a 1/2 day version of the 2-day seminar described at web site www.zianet.com/globalcogo/ and will build on concepts of geodesy, surveying, and photogrammetry (geomatics) to show how spatial data (for GIS, engineering, or surveying and mapping applications) can be referenced in a common 3-dimensional data base whether the data are collected with GPS, by traditional total-station surveying, or by photogrammetric mapping operations. Attributes of the Global Spatial Data Model (GSDM) will be described and spatial data accuracy as defined by the GSDM will be considered. The session will close with a discussion about implications for collecting, manipulating, storing and using 3-D spatial information.

I. Background Concepts

- A. Geodesy & Coordinate Systems
- B. Measurements, Observations & Spatial Data

II. Convergence of Technologies

- A. Geodesy, State Plane Coordinates & Leveling
- B. GPS, Total Stations, & Photogrammetric Mapping
- C. Computational Models
- D. Transition: Analog to Digital

III. Umbrella Concept - The Global Spatial Data Model (GSDM)

- A. The Functional Model - Geometrical Relationships
- B. The Stochastic Model - Standard Deviation & Positional Tolerance
- C. Implementation, Applications, Questions, and Discussion

Instructor: Earl F. Burkholder, PS, PE - Department of Surveying Engineering
New Mexico State University, Las Cruces, New Mexico 88003

This workshop is designed as a follow-up to the paper on "Geomatics Education and the Global Spatial Data Model (GSDM)" presented at the XVII Surveying Teachers' Conference at Purdue University in 1999. The goal for the workshop will be to begin with fundamental geometrical relationships related to spatial data. Following a discussion of coordinate systems, measurements, and a bit of geodesy, attention will be focused on the convergence of technologies which lead to digital 3-D data collection, manipulation and storage. Finally, the overall concepts will be brought together under the umbrella of the Global Spatial Data Model (GSDM). The goal will be to show how rectangular 3-D computations can be handled much easier than using the traditional latitude/longitude/height model. Prototype software will be available gratis for those who want it.

Contacts: Earl F. Burkholder
New Mexico State University
Tel: (505) 646-5375
email: eburkhol@nmsu.edu

Prof. Charles D. Ghilani
Penn State University - Wilkes-Barre
Tel: (570) 675-9127
cdg3@psu.edu

2001: A Spatial Odyssey

Tentative Conference Schedule

Sunday, July 15, 2001

- 1:00 – 4:00 Geomatics Panel: Definition and Core Curriculum/Meeting at East Mountain Inn.
6:00 – 9:00 Pocono Downs: Dinner and harness racing (Optional and on your own—transportation from the East Mountain Inn will be provided.)

Monday, July 16, 2001

- 8:30 – 8:40 Welcoming address
8:40 – 9:10 Keynote address – Congressman Paul E. Kanjorski
9:25 – 12:00 Paper presentations (20 minutes each)
12:00 – 1:00 Lunch (on-site)
1:00 – 8:00 Bus trip to Ricketts Glenn State Park—22 waterfalls, dress for hiking

Tuesday, July 17, 2001

- 8:30 – 11:00 Paper presentations (20 minutes each)
11:00 – 2:00 Lunch, tour of campus, and meet with vendors
2:00 – 5:30 Paper presentations (20 minutes each)
6:30 – 10:00 Steamtown National Historical Site and Dinner sponsored by the Pennsylvania Society of Land Surveyors and the College of Engineering.

Wednesday, July 18, 2001

- 8:30 – 12:00 Paper presentations (20 minutes each)
12:00 – 1:00 Lunch
1:00 – 4:00 Paper presentations (20 minutes each)
4:00 – 5:00 Business meeting: Selection of 2005 Conference site
6:00 – 10:00 Banquet (East Mountain Inn)

Thursday, July 19, 2001

- 8:00 – 12:00 Workshop 1: Building Internet Pages by Barbara Brazon
Workshop 2: The Global Spatial Data Model by Earl Burkholder
12:00 – 1:00 Lunch
1:00 – 5:00 Workshop 3: The Next Generation of GIS by Mike Weir
Workshop 4: Web Design & Legal Issues by Barbara Brazon