

## **It is possible now!**

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TO: Spatial Data Users – especially surveyors

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RE: Interjecting the voice of surveying into the spatial data discussion

This item is written in response to a thread on “surveyorconnect” discussing parcel maps based on map projections - <http://surveyorconnect.com/index.php?mode=thread&id=194068>.

This is an interesting thread and discussion that needs to take place at many levels. With regard to involvement of the surveying profession, two extremes are “we can do it for ourselves” by getting involved and making a difference or “we can do it to ourselves” by sitting back and letting others determine the design and implementation of the “spatial data infrastructure” that forms the foundation of almost everything we do.

Each map projection and/or datum can be justified for the reasons it was implemented. Many dedicated professionals have developed models and tools for specific applications and uses.

Without being critical of vendors, they have developed tools that consumers, customers, and surveyors can (and do) buy in order to enhance productivity and to support services to society. But, understand, the vendors will develop and sell what is marketable, not necessarily what is the best tool for the job.

The point is that we (surveyors) need to become better informed (education) as to what we can do with solid geometry and a true 3-D model instead of being forced to buy and use what the vendors tell us will solve our problems.

Consider the following “big picture” items:

1. Map projections were an excellent invention. Why? A map projection supports portrayal of the curved earth on a flat map. A map projection is strictly a 2-D mathematical model but we work with 3-D spatial data.
2. Maps/pictures are analog objects that help us form an image in our mind of our environment and surroundings. A model is that which connects abstract with reality.
3. Most modern measurement tools (EDM, photogrammetric mapping, GPS (GNSS), remote sensing, Lidar, laser scanning) are built using digital (not analog) technology.

4. Digital Computers facilitate manipulation of digital spatial data (the digital revolution).
5. The spatial data models that we (surveyors and other spatial data disciplines) use should accommodate 3-D digital spatial data and modern data management practices. The recommended solution is the global spatial data model (GSDM) – [www.globalcogo.com](http://www.globalcogo.com).
6. Pertinent references include but are not limited to:
  - a. The original definition of the global spatial data model (GSDM)  
<http://www.globalcogo.com/gsdmdefn.pdf>
  - b. The GSDM as applied to the Southeastern Wisconsin Region  
[http://www.sewrpc.org/SEWRPCFiles/Publications/ppr/definition\\_three-dimensional\\_spatial\\_data\\_model\\_for\\_wi.pdf](http://www.sewrpc.org/SEWRPCFiles/Publications/ppr/definition_three-dimensional_spatial_data_model_for_wi.pdf)
  - c. A philosophical view of how we use 3-D digital spatial data – note that this paper won 1<sup>st</sup> prize for the entire conference!  
<http://www.globalcogo.com/setepaper.pdf>
  - d. A traditional transformation project in contrast to using the GSDM:  
<http://www.sewrpc.org/SEWRPCFiles/Publications/TechRep/tr-049-bidirectional-transformation-of-survey-control-data.pdf>
  - e. The Foreword of the book, “The 3-D Global Spatial Data Model.”  
<http://www.globalcogo.com/foreword.pdf>
  - f. The Preface in the book, “The 3-D Global Spatial Data Model”  
<http://www.globalcogo.com/preface.pdf>
  - g. The “Future of Surveying” written for the Western Federation of Professional Surveyors (WestFed) <http://www.globalcogo.com/WestFed.pdf>
  - h. A contrast of the GSDM with the Low Distortion Projection model:  
<http://www.globalcogo.com/LDPvsGSDM.pdf>
  - i. A summary of the challenge facing all spatial data users/disciplines:  
<http://www.globalcogo.com/challenge.pdf>