Why the GSDM?

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I. The digital revolution is driving many changes. . .

    A. Disruptive Innovation:
        1. Is felt by many.
        2. Is embraced by some.
        3. Needs to be handled appropriately.
    B. A geospatial digital twin is becoming quite popular:
        1. Can be used with latitude/longitude/elevation – **Pseudo 3-D.**
        2. Can be used with latitude/longitude/ellipsoid height – **true 3-D.**
        3. Huge consequences associated with each practice. . .
            a. Pseudo 3-D: Surveying/mapping/construction
            b. True 3-D: Engineering (some), autonomous vehicle navigation.
        4. Each geospatial data deliverable should state – is it true or pseudo 3-D.
    C. Spatial data accuracy:
        1. Can be as critical as location.
        2. Location is enhanced if accuracy is known – with respect to what?
            a. Global (Network) accuracy.
            b. Local (Relative) accuracy.
        3. Depends on decisions made by user.
            a. What is "held" as controlling when computing location?
            b. Quality of measurements (expressed in covariance matrix).
        4. Basis of decision making. . .
            a. Did it move? Is it good enough?
            b. Hypothesis testing becomes essential.

II. The 3-D Global Spatial Data Model (GSDM):

    A. Has already been defined - www.globalcogo.com/gsdmdefn.pdf
    B. Is compatible with ITRF/WGS84 and subsequent realizations.
    C. All equations (simple by comparison) are in the public domain.
    D. Includes both. . .
        1. Functional model - solid geometry equations valid worldwide.
        2. Stochastic model equations handle. . .
            a. Global (Network) accuracy and
            b. Local (Relative) accuracy.
    E. Satisfies technical requirements of. . .
        1. Surveying/engineering professions.
        2. GIS applications
        3. Mobile applications including high-definition maps.