

A Proposal for a National Spatial Data Infrastructure Standards Project

PROJECT TITLE:

Development of a Federal Geographic Data Committee (FGDC) Spatial Reference Model Standard

DATE: March 24, 1997

TYPE OF STANDARD:

The proposed standard is classified as a **Data Content Standard**, which provides semantic definitions of a set of objects, according to the FGDC Standards Reference Model.

SUBMITTING ORGANIZATION: Subcommittee for Base Cartographic Data (SBCD), FGDC

POINT OF CONTACT:

Julie Binder Maitra
U.S. Geological Survey
National Mapping Division
511 National Center
Reston, Virginia 20192

E-mail: jbinder@usgs.gov
Phone: (703) 648-4627
Fax: (703) 648-4722

OBJECTIVES:

- To develop a unified Spatial Reference Model Standard to describe spatial reference systems for the National Spatial Data Infrastructure (NSDI).
- To provide a mechanism to locate points on the Earth in a coordinate system and to convert between coordinate systems.
- To minimize redundancy in effort in developing spatial reference models, ensure consistency in application of spatial reference models, and facilitate sharing and interoperability of spatial data.

SCOPE:

This Standard will define ellipsoids, datums, coordinate systems, and units of measurement and model the relationships among these constructs. It will provide a mechanism to locate points on the Earth in a given coordinate system and to convert values between coordinate systems.

The working draft will cover only horizontal datums and coordinate systems and vertical datums and coordinate systems. The working draft will cover only national datums - the North American Datum of 1927 (NAD 27), the North American Datum of 1983 (NAD 83), the National Geodetic Vertical Datum of 1929 (NGVD 29), and the North American Vertical Datum of 1988 (NAVD 88). The model should be also able to ingest any map projection based on the national datums. The model should be expandable to include other datums and coordinate systems.

The model may affect FGDC-endorsed standards such as the Spatial Data Transfer Standard (SDTS) and Content Standards for Digital Geospatial Metadata. Revisions to FGDC-endorsed standards will be handled through separate FGDC standards projects and are outside the scope of this standards project.

JUSTIFICATION/BENEFITS:

As stated in Executive Order 12906, "Coordinating Geographic Data Acquisition and Access: the National Spatial Data

Infrastructure,” dated April 13, 1994, the FGDC will coordinate the Federal Government’s development of the NSDI. Executive Order 12906 is intended to strengthen and enhance the general policies of Office of Management and Budget (OMB) Circular No. A-16, “Coordination of Surveying, Mapping, and Related Spatial Data Activities.” The proposed standard supports the development of the NSDI by providing a unified spatial referencing model to facilitate sharing and interoperability of spatial data.

The proposed standard complies with the policy in OMB Circular No. A-119, “Federal Participation in the Development and Use of Voluntary Standards” to coordinate participation in voluntary standards bodies and take advantage of related standards being developed by other organizations.

The SBCD is the appropriate FGDC subcommittee or working group to lead this standards project, in view of rescoping its charter to focus on integration of geospatial data sets.

DEVELOPMENT APPROACH:

The SBCD will form a standards development team for this project. The standards development team will review and evaluate voluntary standards (refer to RELATED STANDARDS) to meet the policy in OMB Circular No. A-119.

While the SBCD will lead this FGDC standards project, it will coordinate with the Federal Geodetic Control Subcommittee (FGCS), as the FGCS exercises government wide leadership in coordinating planning and execution of geodetic control surveys. SBCD coordination with the FGCS will be done through the FGDC standards process.

RELATED STANDARDS:

FGDC Standards

The proposed standard may result in rewrites to sections of the Spatial Data Transfer Standard (SDTS) on Spatial Registration and Spatial Reference. It may also result in a major revision of Section 4, Spatial Reference Information, of Content Standards for Digital Geospatial Metadata. Revisions to FGDC-endorsed standards will be handled through separate FGDC standards projects.

The proposed standard relates to the draft Geospatial Positioning Accuracy Standard and its parts because it provides the underpinnings for relating positional accuracy to georeferenced locations. However, it is expected that the proposed standard will *not* result in major rewrites of the Geospatial Positioning Accuracy Standard.

Voluntary Standards

Related and existing voluntary standards are the Epicentre data model developed by the Petrotechnical Open Software Corporation (POSC) and the prEN 287011 draft standard, Geographic information - Referencing - Position, developed by the European Committee for Standardization (CEN-French acronym). These standards will be reviewed and evaluated to determine if they can be adapted for incorporation into an FGDC standard.

DEVELOPMENT AND COMPLETION SCHEDULE:

A working draft will be produced for review (Refer to Step 4, Produce Working Draft, of the FGDC Standards Reference Model) six months after the FGDC Standards Working Group registers this proposal as an FGDC approved standards project.

RESOURCES REQUIRED:

The SBCD will provide resources to prepare the working draft and resources to adjudicate comments from the public review.

POTENTIAL PARTICIPANTS:

The lead organization for this project is the SBCD; consequently, the primary participants are the members of the SBCD.

The public review and comment period will include an aggressive program of outreach to ensure a broad level of participation from the geospatial data community. Particular emphasis will be given to involving the American Society for Photogrammetry and Remote Sensing (ASPRS), the American Congress on Surveying and Mapping (ACSM), the Urban and Regional Information Systems Association (URISA), National Imagery and Mapping Agency (NIMA), the Open GIS Consortium (OGIS), ANSI X3LI, and ISO TC 211.

TARGET AUTHORIZATION BODY:

The FGDC Steering Committee is the target authorization body for this standard.