REPRESENTATION OF GEOGRAPHIC POINT LOCATIONS FOR INFORMATION INTERCHANGE

CATEGORY: DATA STANDARDS AND GUIDELINES
SUBCATEGORY: REPRESENTATIONS AND CODES; EARTH SCIENCE SERIES.
Foreword

This Federal Information Processing Standard Publication issued by the National Bureau of Standards is promulgated under the provisions of Public Law 89-306 (Brooks Act) and under Part 6 of Title 15 Code of Federal Regulations. These legislative and executive mandates have given the Secretary of Commerce important responsibilities for improving the utilization and management of computers and automatic data processing in the Federal Government. To carry out the Secretary's responsibilities, the NBS, through its Institute for Computer Sciences and Technology, provides leadership, technical guidance, and coordination of Government efforts in the development of standards, guidelines and documents in these areas.

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Abstract

This standard specifies a uniform format for representing geographic point location data in digital form for purposes of information interchange among data systems. This standard applies only to the three coordinate systems most widely used in the United States to define the position of a point that may be on, above, or below the Earth's surface. These systems include: Latitude and Longitude, Universal Transverse Mercator (UTM), and State Plane Coordinate Systems: all three are mathematically interconvertible and are officially recognized by many mapping and surveying agencies of the Federal and State governments.

Key words: Coordinate system, elevation, Federal Information Processing Standards Publication, geographic point location, latitude, Latitude and Longitude, longitude, mapping, State Plane Coordinate System, surveying, Universal Transverse Mercator (UTM).

CODEN: FIPPAT

For sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161.
Representation of Geographic Point Locations for Information Interchange


1. Name of Standard. Representation of Geographic Point Locations for Information Interchange.


3. Explanation. This standard establishes uniform formats for geographic point location data through the adoption of ANSI X3.61-1986, a standard approved by the American National Standards Institute. Geographic point location refers to the use of a coordinate system to define the position of a point that may be on, above, or below the Earth's surface. It provides a means for representing these data in digital form for the purpose of interchanging information among data systems and for improving clarity and accuracy of interpersonal, technical communications.

4. Approving Authority. Secretary of Commerce.


Inquiries concerning the technical content of this standard should be addressed to: U.S. Geological Survey, National Mapping Division, National Center 516, Reston, VA 22092. The Geological Survey has assumed the leadership in developing and maintaining earth-science data element and representation standards under the terms of a Memorandum of Understanding signed in February 1980 by the National Bureau of Standards of the Department of Commerce and the Geological Survey, a bureau of the Department of the Interior.

The Maintenance Agency is responsible for the content of the standard and will provide the National Bureau of Standards with information on adopted changes. Change notices to this FIPS PUB will be issued by the National Bureau of Standards. Users who wish to receive such notices should complete the Change Request Form included in this FIPS PUB and return it to the address indicated.

6. Cross Index.
   a. ANSI X3.61-1986, Representation of Geographic Point Locations for Information Interchange (revision of ANSI X3.61-1978).
   b. FIPS PUB 70, Representation of Geographic Point Locations for Information Interchange, October 24, 1980 (the previous edition of this standard).

7. Objectives. The objectives of this standard are to improve the utilization of data resources of the Federal Government and avoid unnecessary duplications and incompatibilities in the collection, processing and dissemination of data.

8. Applicability. This Federal general data element and representation standard is made available for data interchange among executive departments and independent agencies, and for Federal data interchange with the non-Federal sector including industry, State, local, and other governments, and the public at large.
This standard applies only to uniquely identified locations, and not to a series of coordinates, at small intervals, such as linear map features, terrain profiles, or elevation models.

This standard does not apply to the inclusion, in text, of single values of latitude or longitude, or to applications covered by non-conforming international agreements established under the aegis of the World Meteorological Organization or the North Atlantic Treaty Organization. This standard excludes geographic coordinate systems and vertical control datums utilized by the U.S. Department of Defense in military applications.

9. **Implementation Schedule.** This standard becomes effective April 15, 1987. Use by Federal agencies is encouraged when such use contributes to operational benefits, efficiency, or economy.

10. **Specifications.** This standard adopts ANSI X3.61-1986, Representation of Geographic Point Locations for Information Interchange (revision of ANSI X3.61-1978), approved by the American National Standards Institute, Inc.

11. **Where to Obtain Copies.** Copies of this publication are available for sale by the National Technical Information Service (NTIS), U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the American National Standards Institute.) When ordering, please refer to Federal Information Processing Standards Publication 70-1 (FIPS PUB 70-1), and title. Copies of other FIPS PUBS are also available from NTIS. Payment may be made by check, money order, or deposit account.
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