

INCITS Secretariat/ITI
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A PROPOSAL FOR INCITS FAST-TRACK PROCESSING GeoSpatial Coordinate Measurement Representation

1. Source of the Proposed Standard

- 1.1 Title: **GeoSpatial Coordinate Measurement Representation**
- 1.2 Date Submitted: 3 March 2006 – 2006-03-03
- 1.3 Proposer(s): GeoQwest International, Inc.
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2. Description of the Proposed Standard

- 2.1 Type: Fast Track
- 2.2 Type of Document: Standard Document
- 2.3 Definitions of Concepts and Special Terms
Geospace: pertaining to the geographic location and temporal characteristics of natural or constructed features and boundaries on, above, or below the earth's surface; esp. referring to data that is geographic and temporal and therefore *geospatial* in nature.
- 2.4 Expected Relationship to Approved Reference Models, Frameworks, Architectures.
INCITS/ISO 19112-2003 Geographic information – Spatial Reference by Geographic Identifiers
- 2.5 Recommended INCITS Technical Committee:
L1
- 2.6 Anticipated Frequency and Duration of Meetings:
Unknown
- 2.7 Target Date for Initial Public Review (Milestone 4)
April – May 2006
- 2.8 Estimated Useful Life of Standard or Technical Report
Based on existing geographic coordinate standards, the estimated useful life is at least thirty (30) years and probably fifty (50) years; however, because of the highly dynamic nature of this technology, revisions and/or amendments may be periodically proposed.

3. Business Case for Developing the Proposed Standard or Technical Report

3.1 Description:

The Proposed Standard specifies the way in which a single all-numeric geospatial coordinate measurement representation is used to identify a single point of location and time in geospace.

Part one of the Proposed Standard specifies the geographic coordinate and time conversion process to identify the individual all-numeric geospatial attributes to identify a single point location and time in geospace.

Part one of the Proposed Standard specifies:

- Conversion of longitude in degree, minutes and seconds format (DMS) or decimal equivalent format into a single all-numeric representation.
- Conversion of latitudes in degree, minutes and seconds format (DMS) or decimal equivalent format into a single all-numeric representation.
- Conversion of altitude in kilometers into a single all-numeric representation.
- Conversion of date into a single all-numeric representation.
- Conversion of local temporal reference into a single all-numeric representation.
- Conversion of global temporal reference in Universal Coordinated Time format (UTC) into a single all-numeric representation.

Part two of the Proposed Standard specifies combining operations of the individual all-numeric geographic and temporal attributes into a single all-numeric geospatial coordinate to identify a single point of location and time in geospace.

Part three of the Proposed Standard specifies layout and the methods for representation of basic geospatial coordinate measurements and additional geospatial measurements that can be included in a modular format to include:

- Longitude
- Latitude
- Altitude
- Date
- Local Time
- Global Time in UTC derived format

3.2. Existing Practice and the Need for a Standard:

Existing Practice

Single point location identification is used in all geographic information systems. Currently the representation used to identify an exact single point of location is provided by the identification of longitude, latitude and altitude in an alphanumeric data format. This data format requires that individual geographic attributes be stored separately for geospatial analysis. This complicates referential integrity when a single data point is based on three geographic attributes.

Additionally, in all geospatial analytics, time is also a critical attribute of data that should be referenced to an exact single point of location. Current representations of date and time have various format for use. On global applications, the global time reference is also critical. These date and time formats require that individual attributes be stored separately for geospatial analytics. This complicates referential integrity when time and date are needed for an exact single point of location.

Need for a Standard

Eliminating the problem of inadequate referential integrity in the representation of a geographic location and time requires the development of a single geospatial measurement representation. This measurement representation must capture all the required geographic location attributes and the time of a single point of location. Additionally, the global temporal reference of the single point of location should be included to ensure global time referential integrity. The Proposed Standard implements a method of geospatial representation that incorporates geographic attributes, date, time, and global time into a single, all-numeric, geospatial measurement representation.

Expected Stability

The expected stability of the proposed document with respect to both current and potential technological advances is expected to be stable.

3.3. Implementation Impacts of the Proposed Standard

3.3.1 Developmental Cost None

3.3.2 Impact on Existing or Potential Markets:

There are *no* negative impacts on existing markets envisioned as a result of the Proposed Standard. Indeed, significant positive impacts are expected. This Proposed

Standard will eliminate problems of geographic and time referential integrity for identification of a single point of location needed for geospatial analytics.

The Sponsors believe that all parties involved with providing and using geographic and geospatial information would be interested parties. This encompasses a very large range of business type and related applications, systems, and solutions.

3.3.3 Costs and Methods for Conformity Assessment:

The existing measurement representations are used in the development of the Proposed Standard to ensure for backward compatibility with existing geographic coordinate and time representations. As a result, the Proposed Standard conforms to existing methods under ANSI standards.

3.3.4 Return on Investment None

3.4 Legal Considerations

3.4.1 Patent Assertions:

The Proposer currently hold US Patent Number 6,681,231 and PCT Patent Application Number US03/34136 for this method of geospatial coordinate measurement representation. The Proposer, as the patent holder, hereby declares that in accordance with ANSI Patent Policy a license will be made available to applicants under reasonable terms and conditions that are demonstrably free of any unfair discrimination.

3.4.2 Dissemination of the Standard or Technical Report:

The Sponsors will provide the INCITS Secretariat with a PDF file of the Proposed Standard for dissemination to the committee and for public review. The Sponsors retain patent rights. If the Proposed Standard is approved as an American National Standard, the Proposer will license the patent rights in accordance with INCITS and ANSI patent licensing policies.

4. Related Standards Activities

4.1 Existing Standards:

INCITS 30:1998 [R2003] *Representation of Calendar Date and Ordinal Date for Information Interchange*

INCITS 310:1998 [R2003] *Information technology - Representation of Time for Information Interchange*

INCITS 61:1986 [R2002] *Geographic Point Locations for Information Interchange, Representation of* (formally – ANSI x.361-1986 (R1997))

4.2 Related Standards Activity:

INCITS 320:1998 [R2003] *Information technology - Spatial Data Transfer*

INCITS 353:2004 *Information technology - Spatial Data Standard for Facilities, Infrastructure, and Environment (SDSFIE)*

INCITS 19188-2005 [2006] *Geographic Information – Encoding*

4.3 Recommendations for Close Liaison:

INCITS T20 Real Time Locating Systems Group TAG may be appropriate for Close Liaison

5. Unit of Measurement used in the Standard:

Other – Geospatial Coordinate Measurement

— End of Proposed Project —