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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 12409-1990

Replacing GB 12409-1990

**Geographic grid
(English Translation)**

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Foreword

This standard replaces GB 12409-1990 "Geographic grid." the revision of the reference US FGDC-STD-011-2001 United States National Grid and British British national grid reference system standards.

This standard compared with GB 12409-1990 main modifications are as follows.

- According to GB/T 1.1-2000 specification of the original standard format.
- Supplement and adjust the terms and their definitions.
- Supplement and adjust the design principles.
- Increasing the positioning reference.
- Grid system of latitude and longitude coordinates of the classification has been simplified from the original seven to five basic level, removed one of the $10^{\circ} \times 10^{\circ}$, $5^{\circ} \times 5^{\circ}$

°, 2° x 2° and 30' x 30', 15' x 15', 6' x 6' grid; increase of 10' x 10', 1' x 1', 10" x 10" and 1" x 1" grid.

--- Modify the latitude and longitude coordinates of the grid encoding.

--- Increasing the latitude and longitude coordinates of the grid extension rules.

--- On the Cartesian coordinate grid classification has been simplified from the original nine to six. Remove them 500m x 500m, 250m x 250m, 50m x 50m, 25m x 25m, 5m x 5m and 2.5m x 2.5m grid; increased 100km x 100km, 10000m x 10000m and 1m x 1m grid.

--- Modify the Cartesian coordinate grid encoding.

--- Increasing the Cartesian coordinate grid expansion rules.

--- Removed to scale topographic map sheet series range as a grid cell grid system.

--- Increase the informative Appendix A "Application Examples." Including vector data or grid data into a standard grid data shows Exemplary embodiments and to generate a standard grid data.

This standard was proposed by the State Bureau of Surveying and Mapping.

This standard by the National Standardization Technical Committee on Geographical Information.

This standard was drafted. National Geomatics Center of China, Beijing Shanhai Jingwei Information Technology Co., Ministry of Water Resources Information Center, Chinese Academy of Surveying and Mapping, Institute of Geographic Sciences and Natural Resources Research, the National Development and Reform Commission of Macroeconomic Research Institute, built Let Comprehensive Survey Research and Design Institute.

Introduction

Geographical grid is a scientific, concise reference positioning system is existing measurement reference system, administrative divisions and other specialized fixed frame of reference Supplementary bit systems. Geographical grid applications, not only can improve the efficiency of the spatial distribution of information integration, data accuracy and can reduce losses and capital Source consumption. In recent years, GIS technology is widely popular application, the use of a grid in the form of natural, social and economic information should be organized Examples of use are not uncommon. In order to meet the development of science and technology, support sharing of geographic data, meet the application requirements, to facilitate multi-source, multi-scale of geospatial information integration and application analysis, scientific, practical and consistent geospatial positioning grid.

Geographical grid using latitude and longitude coordinates of the grid (in warp and weft mesh grid division) and Gauss - Kruger projection Cartesian coordinate grid (in kilometers network Divided grid) combination, these two types of grid interconnection having a more rigorous mathematical relationship can be interchangeable. Gauss - Kruger projection plane Cartesian coordinate system is the coordinate system of scale topographic map series used, can enjoy using this coordinate system already large base Surveying and mapping results, but also has broad application base.

Geographical grid

1 Scope

This standard specifies the classification and coding methods geographic grid, grid visualization of data as the content is not specified in this standard.

This standard applies to the spatial distribution of identification and geo-spatial location of the natural, social and economic information for all types of information integration mention to the grid for the spatial reference unit.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB 22021-2008 National Geodetic Survey basic technical requirements

3 Terms and Definitions

The following terms and definitions apply to this standard.

Network consists of two or more groups consisting of set of curves, curve curve set by an algorithm intersect.

Note: The set of curves to divide space into grid cells. [ISO 19123:2005] 3.2 the basic unit of a grid system-level grid.

According to certain mathematical rules for dividing the earth's surface to form a grid.

A certain latitude and longitude on the Earth's surface is divided intervals to form a grid.

The Earth's surface area by the laws of mathematics projected onto the plane, according to a certain pitch and the vertical and horizontal coordinates unified coordinate origin of surface area Dividing constituted grid.

According to certain rules, giving the process a unique identification code of grid cells.

4.1 Science

Geographical grid were established in the latitude and longitude coordinates and the Cartesian coordinate grid grid online two grid with a more rigorous mathematical relationship can be mutually Conversion.