

HJ

INDUSTRY STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

HJ 1166-2021

National Ecological Status Survey and Evaluation Technical Specifications-Ecosystem Remote Sensing Interpretation and Field Verification

全国生态状况调查评估技术规范——生态系统遥感解译与野外核查
(English Translation)

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1 Scope of application

This standard specifies the general principles, technical process, remote sensing interpretation and field inspection of ecosystem remote sensing interpretation and field inspection, and ecosystem Type interpretation results and other requirements.

This standard is applicable to remote sensing interpretation and field verification of terrestrial ecosystems in the national and provincial administrative regions. Other geographic regions can refer to this standard.

implement.

2 Normative references

This standard refers to the following documents or clauses thereof. For dated references, only the dated version applies to this standard.

For undated references, the latest edition (including all amendments) applies to this standard.

HJ 1176 National Ecological Status Survey and Evaluation Technical Specifications--Data Quality Control and Integration DD.2013-12 Technical Regulations for Multispectral Remote Sensing Data Processing GDPJ 06 Technical Regulations on Sample Data for Remote Sensing Image Interpretation GDPJ 11 Technical Regulations for Geographical National

Census Field Survey TD/T 1055 Technical Regulations for the Third National Land Survey

3 Terms and Definitions

The following terms and definitions apply to this standard.

remote sensing interpretation of ecosystem According to the interpretation signs of the ecosystem, the type, area, distribution, structure, etc. of the ecosystem are qualitatively and quantitatively extracted from the remote sensing images.

information about the process.

type of ecosystem

In a certain space in nature, a type of ecosystem composed of organisms and the environment, this standard mainly includes forests, shrubs, grasslands, Wetlands, farmland, towns, deserts and other ecosystem types.

interpretation mark

Image features that can directly or indirectly reflect and discriminate ground object information, including shape, size, shadow, tone, color, texture, image Direct signs such as case, location and layout and indirect signs such as water system, landform and vegetation.

human-computer interaction Combining automatic computer classification and recognition with visual interpretation, in the process of extracting classification information from remote sensing images, on the one hand, it plays an important role as an interpreter.

It is a remote sensing image interpretation method that can take advantage of computer processing image information and the experience of the operator.

a) Remote sensing data. collect and obtain multi-source remote sensing image data of the area to be interpreted, and the national scale is better than 30 m.

b) Ground survey data. Obtain field survey samples and ground collection data, etc.

c) Other auxiliary data. collect other auxiliary information and related materials such as physical geography, topography, social economy and so on in the region.

6.1.2 Data Preprocessing

By performing radiometric correction, geometric precision correction, atmospheric correction, image registration, image fusion, band synthesis, A series of processing such as image enhancement, stitching and cropping forms image data suitable for interpretation, and the specific basis for remote sensing data quality control the relevant requirements of HJ 1176 are implemented, and the preprocessing method can be implemented with reference to the relevant requirements of DD.2013-12 and TD/T 1055.

6.2 Establish a classification system

The classification is established according to the requirements of interpretation integrity and the number of complex features depicted, the description depth and details of the state of the elements, etc.

This standard mainly adopts the national two-level classification system, which is divided into 8 grades I and 24 grades II. Please refer to the appendix for the specific index system.

A in Table A.1.

6.3 Establishing Interpretation Flags

Interpretation marks are image features that can directly or indirectly reflect and discriminate ground object information, mainly including shape, size, shadow, tone, Direct signs such as color, texture, pattern, location, layout, etc. and indirect signs such as water system, landform, vegetation, etc., for interpretation of signs, please refer to GDPJ 06 the relevant requirements are implemented to form the interpretation target feature table, see Table B.1 in Appendix B for details.

6.4.1 Information Source Preparation

6.4.1.1

According to prior knowledge, select, analyze, compare, reason and judge the characteristics of various objects on the image, and then classify them according to the system adjusts the feature categories.

6.4.1.2

Describe various relationships on the image, including.

- a) point, line and surface relationship on the image;
- b) The distribution relationship of the spectral curves of various types of ground objects in different coordinate systems;
- c) The relationship between different geographical elements, such as the relationship between water systems, topography, and surface cover;
- d) Changes and connections of various ground objects in time and space.

6.4.1.3

From a systematic geoscience point of view, explain and comprehensively analyze the attributes, categories and relationships on the image, and get regular knowledge and and valuable conclusions.

6.4.2 Image Interpretation System

Related software and hardware systems for processing remote sensing images.

6.4.3 Interactive environment

Visualization environment using remote sensing and geographic information systems.

6.4.4 Interactive mode

An interpretation method combining bottom-up control and top-down control is adopted.

6.4.5 Interpretation of human-computer interaction

6.4.5.1

Combine the visual interpretation and processing process to improve the automatic classification system.

6.4.5.2

Integrate multi-source reference data, such as information between remote sensing information or between remote sensing and non-remote sensing information, to form a new set of spatial information.

information, a new composite image.

6.4.5.3

Use reference data and automatic classification system to perform automatic interpretation of remote sensing images, and finally perform visual interpretation and adjustment.

7.1.1 Determining the verification area

The verification area is determined according to basic geographical features such as verification objectives, regional climatic conditions, physical geography, and landforms.

7.1.2 Choosing a sampling method

The sampling method is selected according to the structure of the ecosystem, the characteristics of the landscape pattern, and the geographic complexity of the verification area. Serving Ecosystem Types There are three main sampling methods for ground inspection.

a) Simple random sampling is to randomly select n samples from N points in the population, and each sample has an equal probability of being selected.

in areas with fewer populations;

b) Systematic sampling is to draw samples from the population according to a certain