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Code of practice for earth's surface carbon verification

地表碳核查技术规程

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Foreword

This document was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 17 March 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

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This document was drafted by. Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing Forestry University, National Satellite Meteorological Center of China Meteorological Administration

Center, Resource Information Institute of Chinese Academy of Forestry, Information Center of Ministry of Ecology and Environment, Ecological Protection and Restoration of Chinese Academy of Forestry

Institute of Agricultural Resources and Agricultural Regional Planning, Chinese Academy of Agricultural Sciences, Southwest University, Jiangxi Agricultural University, China National Institute of Standardization, China Survey

Academy of Mapping Science, Wuhan University, Nanjing University, China University of Mining and Technology, Shanghai Shengtuo Remote Sensing Engineering Technology Co., Ltd., China Inner Mongolia Forest

Industrial Group Co., Ltd., Beijing Shanhai Foundation Information Technology Co., Ltd., Inner Mongolia Normal University, Shandong University of Science and Technology.

The main drafters of this document. Yue Tianxiang, Wang Zong, Wang Yifu, Zhang Xingying, Wang Shupeng, Chen Yongfu, Huang Mingxiang, Cui Lijuan, Zhang Manyin,

Xin Xiaoping, Shao Changliang, Zhou Wei, Zhao Xiaomin, Huang Hongsheng, Fu Qiang, Xu Shenghua, Hu Xiangyun, Zhou Yinkang, Zhang Shaoliang, Ma Heping, Yu Tao, Cao Yanrong,

Du Zhengping, Fan Zemeng, Shi Wenjiao, Zhao Na, Wang Feng, Zhao Yapeng, Bao Zhengyi, Liu Yu.

Introduction

The issuing organization of this document draws attention to the fact that when declaring compliance with this document, it may involve 6.3 and 7.3 related to surface theory and optimization control.

The use of patents related to the theoretical surface modeling method (patent number. ZL201110021504.8).

The issuing authority of this document has no position regarding the veracity, validity and scope of this patent.

The patent holder has committed to the issuing authority of this document that he is willing to cooperate with any applicant on reasonable and non-discriminatory terms and conditions

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Get in contact with.

Name of patent holder. Yue Tianxiang, Du Zhengping, Song Dunjiang

Address. Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, No. 11, Datun Road, Chaoyang District, Beijing

Please note that in addition to the above patents, some content of this document may still involve patents. The issuer of this document is not responsible for identifying patents responsibility.

Surface Carbon Verification Technical Regulations

1 Scope

GB/T 42419-2023 covers the technical procedure for verifying carbon at the earth's surface. It lays out the overall process and its requirements, what is taken as the object of the check and how the verification result is expressed, then the observation and simulation of carbon storage in terrestrial ecosystems from surface data and from remote sensing data, and then the ground and remote sensing observation used for atmospheric XCO₂. Appendix A gives an input data format example for HASM and other methods, Appendix B deals with extracting attribute information from carbon satellites, and Appendix C with the atmospheric chemical transport model and the pressure weighting function. The document applies to verification of living carbon in terrestrial plants and of atmospheric XCO₂ using ground observation data and remote sensing imagery. Carbon accounting only means anything if two teams measuring the same forest or the same air column arrive at comparable answers, and ground plots, satellite retrievals and model output each carry their own conventions; without a written procedure fixing what is checked, which data are combined and how the result is reported, a verification cannot be audited or repeated. The introduction records that 6.3 and 7.3 involve a patented surface modelling method. Written for the institutes and consultancies that perform carbon verification and for the authorities receiving their results.

This document specifies the overall process and requirements for surface carbon verification, terrestrial ecosystem carbon storage observation and simulation, and atmospheric XCO₂ data observation.

The corresponding verification methods are described.

This document is applicable to the living carbon verification of terrestrial plants and atmospheric XCO₂ carbon verification using ground observation data and remote sensing image data.

It is suitable for carbon verification of soil, ocean and artificial ecosystems. Estimation of

terrestrial ecosystem biomass, carbon storage, and XCO₂, etc. can be used for reference.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

this document.

GB/T 17798 Geospatial Data Interchange Format

GB/T 19710 Geographic Information Metadata

GB/T 19710.2 Geographic Information Metadata Part 2. Image and Grid Data Extension

GB/T 30115 Product specification for vegetation index of satellite remote sensing images

LY/T 1752 Technical Specifications for Desert Ecosystem Positioning and Observation

LY/T 1952 Long-term positioning observation method of forest ecosystem

LY/T 2898 Technical Specifications for Positioning and Observation of Wetland Ecosystem

NY/T 1233 Grassland Resources and Ecological Monitoring Technical Regulations

QX/T 159 Specifications for Atmospheric Spectral Observation with Ground-Based Fourier Transform Hyperspectrometer

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

Based on the terrestrial ecosystem and ground XCO₂ data observation specifications and data processing specifications such as remote sensing factors, using the corresponding model system

System, the process of verifying the actual carbon storage in the region.

3.2

The total amount of carbon contained in existing plants in different ecosystems.

3.3