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PEOPLE'S REPUBLIC OF CHINA**

**GB/T 47327.1-2026**

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**Measurement and service of Earth Orientation Parameters  
(EOP) - Part 1: Measurement**

地球定向参数（EOP）测量与服务 第1部分：测量

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## Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. This document is Part 1 of GB/T 47327 "Earth Orientation Parameters (EOP) Measurement and Services". GB/T 47327 has been published. The following section.

2. Products and Services Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying

patents. This document was proposed by the Equipment Development Department of the Central Military Commission. This document is under the jurisdiction of the National BeiDou Satellite Navigation Standardization Technical Committee (SAC/TC544). This document was drafted by: National Time Service Center of the Chinese Academy of Sciences, Shanghai Astronomical Observatory of the Chinese Academy of Sciences, China Satellite Navigation Engineering Center, and Xi'an... Surveying and Mapping Institute, and Unit 96901 of the Chinese People's Liberation Army. The main drafters of this document are. Zhang Shougang, Yang Haiyan, Wang Xiaoya, Yang Xuhai, Sun Zhongmiao, Jiao Wenhai, Liu Ying, Yao Dang, Ma Langming, and Liu Jia. Wu Yuanwei, Yin Dongshan, Wang Xiao, Yang Ying, Shi Lei, Zeng Anmin, Li Yabo, Gao Shuaihe, Wei Pei, Song Junling, Nan Kai, Li Weichao, Xie Zhenfei.

Earth orientation parameters describe the Earth's rotational motion and include Universal Time, polar motion, precession, and nutation. Universal Time is related to the Earth's rotation angle. A linear relationship is often found, and another parameter usually corresponds to it. the change in day length, which reflects the Earth's rotational angular velocity. Earth's orientation parameters are spatiotemporal... A crucial component of the reference system, used to achieve interoperability between the International Earth Reference System and the Geocentric Celestial Reference System when determining the orbits of satellites/space targets. Conversion. Earth orientation parameters are indispensable in fields such as satellite navigation, deep space exploration, long-range weapons, geodesy, astronomical measurement, and timing services. The lack of data provides crucial support for the implementation of major tasks and technological development in these fields. This is due to the influence of the solid Earth, ocean, atmosphere, etc. Due to the influence of large-mass motion, the Earth's rotation is not uniform, and the Earth's orientation parameters change in real time, requiring long-term measurement. Earth orientation parameters measurement techniques include Very Long Baseline Interferometry (VLBI), Global Navigation Satellite System (GNSS), and satellite laser. Range finding (SLR), digital zenith telescope (DZT), etc. Different technologies contribute significantly to the determination of different parameters; VLBI is crucial for the world. The contribution of time measurement is significant; GNSS makes a significant contribution to the measurement of polar motion and diurnal variation; the calculated values of precession and nutation given by theoretical models are... The corrections from VLBI measurements are summed to obtain the optimal result. Therefore, multi-technology joint network observations and data fusion are usually employed to obtain the optimal result. Ball orientation parameters. GB/T 47327 "Measurement and Service of Earth Orientation Parameters (EOP)" is proposed to consist of two parts.

1.Measurement. The purpose is to clarify the technical requirements for measuring Earth orientation parameters, primarily for Earth orientation parameter measurement. Work.

2.Products and Services. This section aims to specify the quality and service requirements for georientation parameter products, primarily used for georientation... To provide

parameter services and applications. Earth Orientation Parameters (EOP) Measurement and Services Part

## 1 Scope

GB/T 47327.1-2026 is the Chinese national standard covering measuring the Earth's orientation - VLBI, satellite laser ranging and GNSS combined to track polar motion and the length of day, quantities that change by metres and milliseconds and that every precise positioning system has to be corrected for. Part 1 of the series, first edition, in force since 1 July 2026, with Part 2 on the products and service. It was issued on 31 March 2026 and has been in force since 1 July 2026, as a first edition. This page is published from the official record of the 2026 edition; the clause text of a standard this recent is not yet in circulation, and the figures, limits and tables it contains are those of the document itself, delivered in full with the English translation.

This document specifies the requirements for stations/observation stations used for georientation parameter measurements, measurement procedures and requirements, and the format and quality requirements for observation data. Local connection measurement requirements and basic data processing requirements. This document applies to the design, construction, data acquisition, operation, maintenance, and data processing of stations/observation sites that provide observational data for determining Earth orientation parameters. Processing and other tasks.

## 2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 15314 Precision Engineering Measurement Specification

GB/T 17159-2009 Terminology for Geodesy

GB/T 28588-2012 Technical Specification for Continuously Operating Reference Station Network of Global Navigation Satellite System

GB/T 39267-2020 BeiDou Satellite Navigation Terminology

GB/T 39396.1-2020 Global Continuous Monitoring and Evaluation System (iGMAS) Quality Requirements Part

## 3 Terms and Definitions

The terms and definitions defined in GB/T 17159-2009 and GB/T 39267-2020, as well as

the following terms and definitions, apply to this document.

3.1 The parameter for pointing in Earth space used for coordinate transformation between the International Earth Reference System and the Geocentric Celestial Reference System.

Note. This includes Universal Time, Polar Motion, Precession, and Nutation. [Source: GB/T 39267-2020, 2.2.3, with modifications]

### **3.2 Universal Time (UT) A timescale based on the Earth's rotation. Note**

1. The world time obtained directly from observing the apparent diurnal motion of stars/radio sources is denoted as UT0; the world time obtained by correcting UT0 for polar motion is denoted as... UT1 is usually expressed as UT1-UTC.

Note 2: UT1 is linearly related to the Earth's rotation angle, see IAU2000 resolutions. [Source: GB/T 39267-2020, 2.2.11, with modifications]

3.3 The time system resulting from the coordination of International Atomic Time with Universal Time (UT1).