International Standard

ISO 8616

Specification of monitoring technology for karst critical zones

First edition
2026-04

Reference number
ISO 8616:2026(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 319, *Karst*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The karst critical zones on earth stand out with their distinct structures and marked features due to their typical ground morphology, geological structure, and special physical, chemical, and biological processes. These characteristics contribute to prominent problems of various types. Current research on critical zones has not yet extended to karst areas.

This document aims to inform the monitoring of karst critical zones and the development of data-sharing standards through the classification of karst critical zones and construction of a world-level monitoring station network for karst critical zones. Based on previous geological surveys and monitoring achievements, Chinese national standard GB/T 43216-2023 was published.

Specification of monitoring technology for karst critical zones

1 Scope

This document specifies requirements and provides guidance for the construction of monitoring stations of karst critical zones, the monitoring of processes (specific processes), the monitoring data collection and processing, and sharing and service of monitoring information.

This document applies to karst critical zones of different types—differing in lithology, altitude, and climatic zones, and proper monitoring adjustment is allowed for different types.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
critical zone
zones where different spheres interact, which expand from the forest canopy and soil to aquifers

Note 1 to entry: The different surfaces spheres that can interact include the lithosphere, pedosphere, biosphere, hydrosphere, and atmosphere.

Note 2 to entry: The weathering crust stands as a major critical zone, where weathering and pedogenesis of rocks make a great difference in the control of surface habitats, transformation of landforms of the earth, and maintenance of living resources through critical physical, chemical, and biological processes.

3.2
karst critical zone
critical zones (3.1) in karst areas share distinct structures and marked features (large thickness, strong heterogeneity, and extensive and diverse fauna and flora) due to the geological structure and special physical, chemical, and biological processes, and confront resource and environment problems

3.3
node station
holistic monitoring site covering all monitoring indicators in different *karst critical zones* (3.2)

3.4
backbone station
representative site for systematic monitoring with the characteristic index included in Annex B

3.5
mapping, monitoring and modelling system
3M system
critical zone (3.2) research following the technical route of mapping, monitoring and modelling (3M)