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Geographic information - Observations, measurements and samples (ISO 19156:2023)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 07/23

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EUROPEAN STANDARD

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EUROPÄISCHE NORM

# EN ISO 19156

May 2023

ICS 35.240.70

Supersedes EN ISO 19156:2013

English Version

# Geographic information - Observations, measurements and samples (ISO 19156:2023)

Information géographique - Observations, mesures et échantillons (ISO 19156:2023)

Geoinformation - Erdbeobachtung und Erdmessung (ISO 19156:2023)

This European Standard was approved by CEN on 22 August 2022.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**



Ref. No. EN ISO 19156:2023 E

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# European foreword

This document (EN ISO 19156:2023) has been prepared by Technical Committee ISO/TC 211 "Geographic information/Geomatics" in collaboration with Technical Committee CEN/TC 287 “Geographic Information” the secretariat of which is held by BSI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2023, and conflicting national standards shall be withdrawn at the latest by November 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 19156:2013.

Any feedback and questions on this document should be directed to the users’ national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

# Endorsement notice

The text of ISO 19156:2023 has been approved by CEN as EN ISO 19156:2023 without any modification.

INTERNATIONAL STANDARD

**ISO 19156**

Second edition
2023-04

# Geographic information — Observations, measurements and samples

*Information géographique — Observations, mesures et échantillons*

Reference number
ISO 19156:2023(E)

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# Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 287, *Geographic Information,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement), and in collaboration with the Open Geospatial Consortium (OGC).

This second edition cancels and replaces the first edition (ISO 19156:2011), which has been technically revised.

The main changes are as follows:

— the UML model and the requirements/conformance class structure has been completely redesigned to address the contemporary modelling and observation data provision use cases;

— the fundamental Observation model has remained largely the same as in ISO 19156:2011, but certain carefully designed improvements and clarifications for the intended use have been included;

— the Sample model has been refined: given the integral nature of the Sample model, is has been decided to include that term in the name of the document;

— Annex C has been added listing the changes between ISO 19156:2011 and this document.

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

This document arises from work originally undertaken through the Open Geospatial Consortium's Sensor Web Enablement (SWE) activity. A set of interfaces and protocols was standardized through which applications and services are able to access sensors of all types, and observations generated by them, over the Web.

A new generation of geospatial standards is now emerging, based on general Web standards, architecture and current practice, as described in W3C Spatial Data on the Web Best Practices.[31] This includes several new standards for describing and publishing sensors and observations, such as the OGC SensorThings API[22] and the W3C/OGC Semantic Sensor Network Ontology.[28] This second edition of ISO 19156 (now named "Observations, Measurements and Samples", or abbreviated to "OMS") is informed by these recent developments. The focus of revising ISO 19156:2011 is aimed at enabling the publication of observation data as part of the Web of data, while also supporting other means of data exchange.

The content presented in this document is derived from the previous edition published by Open Geospatial Consortium as OGC 10-004r3, and also ISO 19156:2011. A technical note describing the changes in comparison to ISO 19156:2011 is provided in Annex C.

The name and contact information of the maintenance agency for this document can be found at www.iso.org/maintenance_agencies.

INTERNATIONAL STANDARD ISO 19156:2023(E)

# Geographic information — Observations, measurements and samples

## 1 Scope

This document defines a conceptual schema for observations, for features involved in the observation process, and for features involved in sampling when making observations. These provide models for the exchange of information describing observation acts and their results, both within and between different scientific and technical communities.

Observations commonly involve sampling of an ultimate feature-of-interest. This document defines a common set of sample types according to their spatial, material (for ex situ observations) or statistical nature. The schema includes relationships between sample features (sub-sampling, derived samples).

This document concerns only externally visible interfaces and places no restriction on the underlying implementations other than what is needed to satisfy the interface specifications in the actual situation.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19103, *Geographic information — Conceptual schema language*

ISO 19107, *Geographic information — Spatial schema*

ISO 19108, *Geographic information — Temporal schema*