



**Geographic information—Spatial
referencing by coordinates**

Part 2: Extension for parametric values

STANDARDS
Australia



AS ISO 19111.2:2018

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Curtin University of Technology
Department of Defence (Australian Government)
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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee IT-004, Geographical Information/Geomatics.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to specify the conceptual schema for the description of spatial referencing using parametric values or functions. It applies the schema of AS ISO 19111 to combine a position referenced by coordinates with a parametric value to form a spatio-parametric coordinate reference system (CRS). The spatio-parametric CRS can optionally be extended to include time.

This Standard is identical with, and has been reproduced from, ISO 19111-2:2008, *Geographic information—Spatial referencing by coordinates—Part 2: Extension for parametric values*.

As this document has been reproduced from an International Standard, the following applies:

- (a) In the source text 'this part of ISO 19111' should read 'this Australian Standard'.
- (b) A full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms 'normative' and 'informative' are used in Standards to define the application of the appendices or annexes to which they apply. A 'normative' appendix or annex is an integral part of a Standard, whereas an 'informative' appendix or annex is only for information and guidance.

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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

ISO 19111-2 was prepared by Technical Committee ISO/TC 211, *Geographic information/Geomatics*.

ISO 19111 consists of the following parts, under the general title *Geographic information — Spatial referencing by coordinates*:

- *Geographic information — Spatial referencing by coordinates*
- *Part 2: Extension for parametric values*

Introduction

ISO 19111 describes the elements necessary to fully define various types of reference systems used for spatial referencing by coordinates. In ISO 19111, a coordinate is one of n scalar values that define the position of a point. ISO 19111 allows for coordinates which are angular, such as latitude and longitude, or linear, such as easting and northing. It also describes the concept of a compound coordinate reference system, which uses at least two independent coordinate reference systems to describe a three-dimensional spatial position.

Scientific communities, especially those concerned with the environmental sciences, frequently express spatial position partially in terms of a parameter or function. Within these communities, this parameter or function is treated as a coordinate. Its relationship with a spatial dimension will usually be non-linear. Examples are widespread, but latitude, longitude and pressure is a commonly encountered example.

This part of ISO 19111 defines a parametric coordinate reference system using the concepts of ISO 19111. The provisions of ISO 19111 are then used to include a parametric coordinate reference system as part of a compound coordinate reference system. Optionally, time can also be included as an additional axis or as axes.

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Geographic information—Spatial referencing by coordinates

Part 2: Extension for parametric values

1 Scope

This part of ISO 19111 specifies the conceptual schema for the description of spatial referencing using parametric values or functions. It applies the schema of ISO 19111 to combine a position referenced by coordinates with a parametric value to form a spatio-parametric coordinate reference system (CRS). The spatio-parametric CRS can optionally be extended to include time.

The intended users of this part of ISO 19111 are producers and users of environmental information.

Parameters which are attributes of spatial locations or features, but which are not involved in their spatial referencing, are not addressed by this part of ISO 19111.

2 Conformance requirements

Any CRS for which conformance to this part of ISO 19111 is claimed shall be in accordance with [Annex A](#).

3 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the cited edition applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19111:2007, *Geographic information — Spatial referencing by coordinates*

4 Terms and definitions

For the purposes of this document, the terms and definitions of ISO 19111 and the following apply.

4.1

parametric coordinate system

one-dimensional coordinate system where the axis units are parameter values which are not inherently spatial

4.2

parametric coordinate reference system

coordinate reference system based on a parametric datum

4.3

parametric datum

datum describing the relationship of a parametric coordinate system to an object

Note 1 to entry: The object is normally the Earth.

4.4

spatio-parametric coordinate reference system

compound coordinate reference system in which one constituent coordinate reference system is a parametric coordinate reference system and one is a spatial coordinate reference system

Note 1 to entry: Normally the spatial component is “horizontal” and the parametric component is “vertical”.