

Australian/New Zealand Standard™

**Geographic information—Temporal
schema**



AS/NZS ISO 19108:2003

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee IT-004, Geographical Information. It was approved on behalf of the Council of Standards Australia on 7 March 2003 and on behalf of the Council of Standards New Zealand on 18 March 2003.

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ANZLIC —the Spatial Information Council
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Association of Crown Research Institutes New Zealand
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Australian/New Zealand Standard™

Geographic information—Temporal schema

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PREFACE

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

This Standard incorporates Amendment No. 1 (October 2008). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.

A1 | This Standard is identical with and has been reproduced from ISO 19108:2002, *Geographic information—Temporal schema*, and its corrigendum, ISO 19108:2002/Cor.1:2006, one of the ISO 19100 series of Standards on geographical information.

The objective of this Standard is to provide users of the ISO 19100 series of Standards with concepts for describing temporal characteristics of geographic information so that they can be abstracted from the real world in a uniform way.

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<i>Reference to International Standard</i>		<i>Australian or Australian/New Zealand Standard</i>	
ISO		AS	
31	Quantities and units	2900	Quantities, units, and symbols
31-1	Part 1: Space and time	2900.1	Part 1: Quantities and units of space and time
1000	SI units and recommendations for the use of their multiples and of certain other units	ISO 1000	The international system of units (SI) and its application
		AS/NZS	
8601	Data elements and interchange formats—Information interchange — Representation of dates and times	3802	Data elements and interchange formats—Information interchange — Representation of dates and times
11404	Information technology— Programming languages, their environments and system software interfaces—Language-independent data types		
19103	Geographic information— Conceptual schema language		
19109	Geographic information—Rules for application schema		
19110	Geographic information— Methodology for feature cataloguing		
19115	Geographic information—Metadata		

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

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INTRODUCTION

This International Standard defines the standard concepts needed to describe the temporal characteristics of geographic information as they are abstracted from the real world. Temporal characteristics of geographic information include feature attributes, feature operations, feature associations, and metadata elements that take a value in the temporal domain.

The widespread application of computers and geographic information systems has led to the increased analysis of geospatial data within multiple disciplines. Geographic information is not confined to a three-dimensional spatial domain. Many geographic information systems require data with temporal characteristics. A standardized conceptual schema for temporal characteristics will increase the ability of geographic information to be used for certain types of applications such as simulations and predictive modelling.

As a fundamental physical reality, time is of interest to the whole range of scientific and technical disciplines. Many of the concepts described in this International Standard are applicable outside of the field of geographic information. ISO/TC 211 does not intend to develop independent standards for the description of time, but the technical committee believes that it is necessary to standardize the way to describe the temporal characteristics of geographic data sets and features. Geographic information system and software developers and users of geographic information will use this schema to provide consistently understandable temporal data structures.

Historically, temporal characteristics of features have been treated as thematic feature attributes. For example, a feature "Building" may have an attribute "date of construction". However, there is increasing interest in describing the behaviour of features as a function of time. This can be supported to a limited extent when time is treated independently of space. For example, the path followed by a moving object can be represented as a set of features called "way point", each of which is represented as a point and has an attribute that provides the time at which the object was at that spatial position. Behaviour in time may be described more easily if the temporal dimension is combined with the spatial dimensions, so that a feature can be represented as a spatiotemporal object. For example, the path of a moving object could be represented as a curve described by coordinates in x , y and t . This International Standard has been prepared in order to standardize the use of time in feature attributes. Although it does not describe feature geometry in terms of a combination of spatial and temporal coordinates, it has been written to establish a basis for doing so in a future standard within the ISO 19100 series.

AUSTRALIAN/NEW ZEALAND STANDARD

Geographic information — Temporal schema

1 Scope

This International Standard defines concepts for describing temporal characteristics of geographic information. It depends upon existing information technology standards for the interchange of temporal information. It provides a basis for defining temporal feature attributes, feature operations, and feature associations, and for defining the temporal aspects of metadata about geographic information. Since this International Standard is concerned with the temporal characteristics of geographic information as they are abstracted from the real world, it emphasizes valid time rather than transaction time.

2 Conformance

2.1 Conformance classes and requirements

This International Standard defines five conformance classes, which depend upon the nature of the test item.

2.2 Application schemas for data transfer

To conform to this International Standard, an application schema for data transfer shall satisfy the requirements of A.1 of the Abstract Test Suite in annex A.

2.3 Application schemas for data with operations

To conform to this International Standard, an application schema that supports operations on data shall satisfy the requirements of A.2 of the Abstract Test Suite in annex A.

2.4 Feature catalogues

To conform to this International Standard, a feature catalogue shall satisfy the requirements of A.3 of the Abstract Test Suite in annex A.

2.5 Metadata element specifications

To conform to this International Standard, a metadata specification shall satisfy the requirements of A.4 of the Abstract Test Suite in annex A.

2.6 Metadata for data sets

To conform to this International Standard, metadata for a data set shall satisfy the requirements of A.5 of the Abstract Test Suite in annex A.

3 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these