Document for Operation

Digital Topographic Map

Data Product Specifications
Standard Document Style

February 2022

Infrastructure Management Department

Japan International Cooperation Agency

Digital Topographic Map

Data Product Specifications Standard Document Style

Revision history

Outline	Release date	Creation organization
Enactment	February 28, 2022	Japan International Cooperation Agency

— This standard document style is constructed using 1:2,500 Scale Digital Topographic Map as an example, but the basic idea is the same for other scales map.

— When creating data product specifications, use the standard document style shown on the following next pages.

— In the title of the cover page (next page) of the data product specifications, enter "**Title**" in "**1. Overview**".

— At the bottom of the cover page (next page) of the data product specifications, enter the "**name**" of "**Responsible party**" in "**1. Overview**".

— "**Normative Reference**" (next page of the cover page) states that it complies with ISO 19131:2007 Geographic information – Data product specifications.

Data Product Specifications
of
1:2,500 Scale Digital Topographic Map

Month Year

Name of Survey Department, Country
JICA Project Team

Normative Reference

The following referenced documents are the standards to which this data product specification complies.

— ISO 19131:2007, Geographic information – Data product specifications

Contents

Appendix

1. Overview

1.1. Information about the creation of the data product specification

Title	Data Product Specification of 1:2,500 Scale Digital Topographic Map (Draft)	
Responsible party	Name	Name of Survey Department, Country
	Representative	****
	Phone	xxx-xxx-xxxx
	E-mail	xxxx@xxxx.xx
	Reference date	yyyy-mm-dd

1.2. Terms and definitions

Terms	Description
application	manipulation and processing of data in support of user requirements
application schema	conceptual schema for data required by one or more applications
conceptual model	model that defines concepts of a universe of discourse
conceptual schema	formal description of a conceptual model
coverage	feature that acts as a function to return values from its range for any direct position within its spatial, temporal, or spatiotemporal domain
data product	dataset or dataset series that conforms to a data product specification
data product specification	detailed description of a dataset or dataset series together with additional information that will enable it to be created, supplied to, and used by another party
dataset	identifiable collection of data
dataset series	collection of datasets sharing the same product specification
domain	well-defined set
feature	abstraction of real-world phenomena
feature association	relationship that links instances of one feature type with instances of the same or a different feature type
feature attribute	characteristic of a feature
geographic data	data with implicit or explicit reference to a location relative to the Earth
metadata	data about data
model	abstraction of some aspects of reality
portrayal	presentation of information to humans
quality	totality of characteristics of a product that bear on its ability to satisfy stated and implied needs
universe of discourse	view of the real or hypothetical world that includes everything of interest

*The above is quoted from ISO 19131:2007.

1.3. Abbreviations

Abbreviation	Full name
GC	Gregorian Calendar
GNSS	Global Navigation Satellite System
GSD	Ground Sampling Distance
GSI	Geospatial Information Authority of Japan
JST	Japan Standard Time
UML	Unified Modeling Language
UTC	Coordinated Universal Time

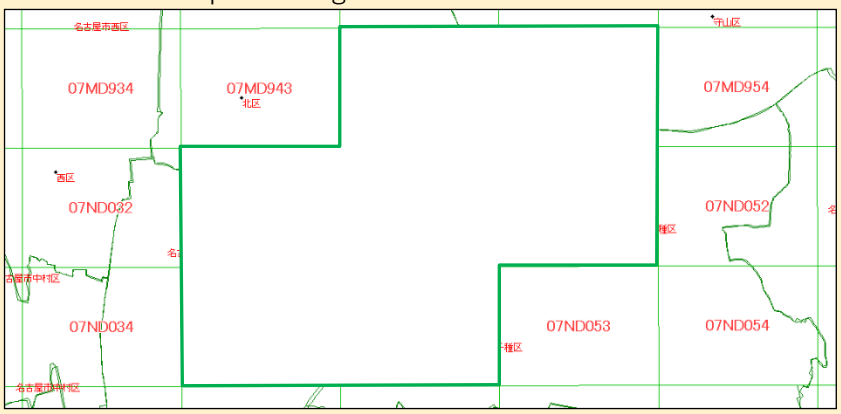
1.4. The name and any acronyms of the data product

The name of the data product	1:2,500 Scale Digital Topographic Map
Acronyms of the data product	DM2500

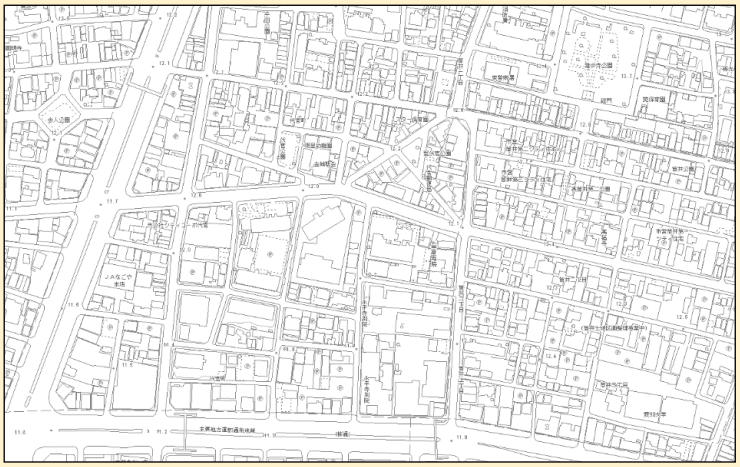
1.5. An informal description of the data product

Informal description of the data product	
The content of the dataset	1:2,500 Scale Digital Topographic Map
The extent (both spatial and temporal) of the data	Topographic Map of xxx Ward, xxx City, as of 2015.
The specific purpose for which the data shall be or has been collected	Base map for City Planning and Construction.
The data sources and data production processes	Aerial Photogrammetry using aerial photographs taken in 2015.
The maintenance of the data	Approximately once every five years.

Informal description of the data product (other information)
The spatial range of this data product is the range filled in purple color in the figure below, and the data file that records this data product is divided into seven map sheet units of 1:2,500 scale (07MD944, 07MD953, 07ND041, 07ND042, 07ND043, 07ND044, 07ND051) that cover the spatial range.



This data product converts general features (road, river, building, etc.) into data, and the portrayal example is as follows.



2. Specification scopes

Specification Scopes (a description of its scope)
Dataset of 1:2,500 Scale Digital Topographic Map for xxx city planning (The scope of this specification is the entire dataset)

3. Data product identification

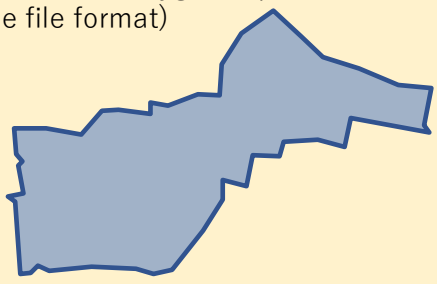
Title		1:2,500 Scale Digital Topographic Map	
Abstract		1:2,500 Digital Topographic Map of xxx Ward of xxx City according to the Operating Specifications of Public Survey.	
Date		20211228	
Topic category		Topographic map	
Geographic description	Geographic bounding box	Reference system	JGD2011/ (B, L)
		West bound longitude	E:136.907171
		East bound longitude	E:136.965843
		South bound latitude	N:35.169322
		North bound latitude	N:35.199475

*The reference system should be consistent with the definition of section 5.1. Spatial reference system (Horizontal).

Other options: (Instead of line "Geographic description" above, it may be defined by one of the following)

Geographic description	Geographic bounding box (Coordinate*)	Reference system	JGD2011/7(X, Y)
		West bound coordinate	-23628.915 m
		East bound coordinate	-18293.105 m
		South bound coordinate	-92124.783 m
		North bound coordinate	-88792.132 m

*The reference system should be consistent with the definition of section 5.1. Spatial reference system (Horizontal).

Geographic description	Geographic bounding polygon (Coordinate*)	Reference system	JGD2011/7(X, Y)
		Xxx_City_xxx_Ward_Polygon.shp (ESRI shape file format) 	

*The reference system should be consistent with the definition of section 5.1. Spatial reference system (Horizontal).

Geographic description	Geographic identifier	xxx Ward, xxx City, xxx Prefecture

4. Data content and structure

Narrative description	Is described by the application schema and feature catalogue of 1:2,500 Scale Digital Topographic Map.

4.1. Application schema

Application schema citation (See the document on the right)	Title	Appendix 1 Application Schema of 1:2,500 Scale Digital Topographic Map (draft)	
	Date	Date	20211228
		Revision	December 2021

4.2. Feature catalogue

Feature catalogue citation (See the document on the right)	Title	Appendix 2 Feature Catalogue of 1:2,500 Scale Digital Topographic Map (draft)	
	Date	Date	20211228
		Revision	December 2021

5. Reference systems

5.1. Spatial reference system (Horizontal)

Spatial reference system (Horizontal)			
Horizontal reference system	Reference system identifier	JGD2011 / 7 (X, Y) (EPSG: 6675)	
	Projection	Conformal Projection (Gauss-Kru¨ger Projection)	
	Ellipsoid	GRS80	
	Datum	Japanese Geodetic Datum 2011	
	Ellipsoid parameters	Semi major axis	6378137
		Axis units	meter
		Denominator of flattening ratio	298.257222101
	Projection parameters	Longitude of central meridian	137.166667
		Latitude of projection origin	36.0000000
		False easting	0
		False northing	0
		False easting northing units	meter
		Scale factor at projection origin	0.9999

The description of the following transformation parameters is optional.

Horizontal reference system	Transformation (To WGS84)	Method	7 parameters (Position Vector Rotation)
		X-axis translation	-0.293
		Y-axis translation	766.95
		Z-axis translation	87.713
		X-axis rotation	-0.195704
		Y-axis rotation	-1.695068
		Z-axis rotation	-3.473016
		Scale difference	-0.039338
		Translation units	meter
		Rotation units	arc second
		Scale units	parts per million

*The description sample of Transformation (To WGS84) item is fictitious.

Example of other spatial reference system (Horizontal):

Spatial reference system (Horizontal)			
Horizontal reference system	Reference system identifier	UTM Zone 53N (EPSG: 6690)	
	Projection	Conformal Projection (Universal Transverse Mercator Projection)	
	Ellipsoid	WGS84	
	Datum	WGS84	
	Ellipsoid parameters	Semi major axis	6378137
		Axis units	meter
		Denominator of flattening ratio	298.257223563
	Projection parameters	Longitude of central meridian	E 135.0
		Latitude of projection origin	N 0.0
		False easting	500,000.0
		False northing	0.0
		False easting northing units	meter
		Scale factor at projection origin	0.9996

5.2. Spatial reference system (Vertical)

Spatial reference system (Vertical)		
Vertical reference system		Mean Sea Level of Tokyo Bay (T.P.: Tokyo Peil) *Peil stands for datum level or gauge in Dutch.
Geoid model	Name	GSIGEO2011(Ver.2.1)
	Explanation	GNSS/leveling geoid undulations at 971 sites by the Least-Squares Collection method.

Example of another geoid model:

Geoid model	Name	EGM2008 (Earth Gravitational Models 2008)
	Explanation	It is the successor to EGM96 and EGM84, and supplied by National Geospatial-Intelligence Agency (NGA) EGM development team. EGM2008 has a cell size of one minute and defines the difference between the ellipsoidal height of WGS84 and the Mean Sea Level (MSL). It is a 10801-by-21600 matrix grid containing 4-byte IEEE floats.

5.3. Temporal reference system

Temporal reference system	
Calendar	GC (Gregorian Calendar)
Clock	JST (Japan Standard Time)

6. Data quality

Data quality citation (See the document on the right)	Title	Appendix 3 Data Quality of 1:2,500 Scale Digital Topographic Map (Draft)	
	Date	Date	20211228
		Revision	December 2021

7. Data capture

Data capture information	Title	Operating Specifications of Public Survey (Rules for Operating Specifications)	
	Date	Date	20200331
		Revision	Partial revision
Data capture statement			
Aerial Photogrammetry using aerial photographs with 20cm GSD taken in 2015. Acquisition of features related to geospatial data products based on these data product specifications shall be acquired in accordance with the Operating Specifications of Public Survey (Rules for Operating Specifications).			

Example of another data capture information:

Data capture information	Title	Work Specifications for National Base Mapping	
	Date	Date	20220228
		Revision	Enactment
Data capture statement			
Aerial Photogrammetry using aerial photographs with 20cm GSD taken in 2015. Acquisition of features related to geospatial data products based on these data product specifications shall be acquired in accordance with the Work Specifications for National Base Mapping.			

8. Data maintenance

Maintenance and update frequency
The data product will be updated by conducting the survey again approximately once every five years.

9. Portrayal

Portrayal catalogue citation (See the document on the right)	Title	Appendix 4 Portrayal Catalogue of 1:2,500 Scale Digital Topographic Map (draft)	
	Date	Date	20211228
		Revision	December 2021

10. Data product delivery

Delivery medium	Units of delivery	Tiles
	Medium name	Online via web site
	Other delivery information	web site address: http://www.xxxxx.xx/
Delivery format	Format name	DWG
	Version	AutoCAD 2010 2011 2012
	Language	English
	Encoding	UTF-8

11. Additional information

Additional information
This data product has been reviewed and registered with the GSI as the following public survey results. Registration number: HxxExxxx Survey period: From 2015-07-24 To 2016-03-15

12. Metadata

Metadata information
Metadata for geospatial data products based on this data product specifications is created based on ISO 19115 metadata.