Ressources naturelles   Natural Resources
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National Topographic Data Base
Edition 3.1

Simplified User's Guide

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Canada

NTDB Themes

Themes are groupings of NTDB entities. The NTDB has 112 entities, such as roads, contours, waterbodies.

The themes in the NTDB are:

AD	Designated areas (camp, cemetery, zoo…)
CH	Roads (limited-use road, ford…)
CO	Manmade features (built-up area, building, wind-operated device…)
FO	Relief and landform (cave entrance, esker…)
GE	General (NTS division, discontinuity point)
HD	Hydrography (permanent snow and ice, waterbody…)
HP	Hypsography (contour, elevation point)
TO	Toponymy (toponym)
RE	Power network (valve, pipeline, transmission line…)
RF	Rail network (railway)
RR	Road network (road, highway exit, ferry route)
SS	Water saturated soils (wetland, tundra pond…)
VE	Vegetation (cut line, peat cutting, vegetation)

Data Resolution in the NTDB

The NTDB is divided into two resolution classes corresponding to topographic maps at the 1:50 000 and the 1:250 000 scales, respectively. South of 68° of latitude an NTDB file at the 1:50 000 scale covers approximately 28 by 38 km (1064 km²). A file at the 1:250 000 scale covers 16 times more area, that is, approximately 112 by 152 km (17 024 km²) south of 68° of latitude.

NTS Divisions

NTDB data sets correspond to the maps in the National Topographic System (NTS) at the 1:50 000 and 1:250 000 scales.

	1:50 000	1:250 000
Latitude	Latitude by longitude	Latitude by longitude
North of 80°	15' by 2°	1° by 8°
From 68° to 80°	15' by 1°	1° by 4°
South of 68°	15' by 30'	1° by 2°

Several Features of NTDB Data

> The North American Datum of 1983 (NAD83) is used as the reference system for the planimetric coordinates (X,Y) of NTDB entities.

> The coordinates are projected on the Universal Transverse Mercator (UTM) grid, which is based on the GRS80 reference ellipsoid.

> Elevations are expressed in reference to mean sea level (Canadian Vertical Geodetic Datum).

> The measuring unit for X and Y coordinates is the metre (integer value).

The accuracy of data is given as the difference between its geometric position in the data set and the real ground position of the corresponding topographical feature. The NTDB aims at attaining three classes of accuracy:

- urban area (cities and towns with more than 5000 inhabitants and an urban built-up area of at least 2.25 km^2) with a planimetric accuracy of 10 metres;
- rural area (inhabited part of the territory with low population density and in which there is economic activity) with a planimetric accuracy of 25 metres;
- isolated area (uninhabited part of the territory) with a planimetric accuracy of 125 metres.

Edge-matching of Data Sets

The NTDB ensures the continuity of entities in adjacent data sets provided that certain criteria and position tolerances are met. For example, a road through a number of data sets is joined at the data set neatlines if the predetermined criteria are met. If the contours in adjacent data sets are given in different measuring systems (metric or imperial), there is no continuity between the contours.

Geometric Representation of Data

The NTDB supports three types of geometric representation:
- point;
- line;
- surface.

Data Structure

NTDB data are "clean," which means that they are free of spatial inconsistencies such as overshoots, undershoots, and area misclosures.

Data Format

Users can order data in a variety of formats that can be directly imported into different systems (CAD or GIS). The following formats are available:

- DXF (*Drawing Exchange Format* (Autocad));
- MID/MIF (MapInfo);
- CCOGIF (*Canadian Council on Geomatics Interchange Format*);
- SHAPE (ArcView).

Metadata or Ancillary Data

Each NTDB file is accompanied by a metadata file with the extension ".met". Metadata are information about the data in the data set.

Example:
- data accuracy
- origin
- data source
- data validation date
- NTS number
- edition/version

The metadata file is an ASCII file that can be read or printed.

Importing Data into Your Software

Most programs have an "import" command that allows you to specify the type of data that you want to bring into your system.

What You Get according to the Format Ordered

CCOGIF :	a single file	NTS.ASC	31G01.ASC
	or		
	1 file per theme	NTS"theme".ASC	31G01hp.ASC
	theme = always two-letter code		
DXF :	1 file per theme	NTS"theme".DXF	31G01hp.DXF
MID/MIF :	2 files per entity		
	1 geometry file	NTS"group".MIF	31G01ba.MIF
	1 attribute file	NTS"group".MID	31G01ba.MID
	group = always two-character code		

SHAPE : 3 files per entity "short_name_entity""geometry"."ext"
where "geometry" = p (point), l (line) or a (area)
"ext" = SHP, SHX or DBF
1 geometry file :
"short_name_entity""geometry".SHP dam**p**.shp
1 attribute file :
"short_name_entity""geometry".DBF dam**p**.dbf
1 index file :
"short_name_entity""geometry".SHX dam**p**.shx

Useful References

GEOMATICS CANADA This document is based on version 3 of *Standards and Specifications of the National Topographic Data Base, Edition 3.1, May 1997.*

CTIS Web site – http://www.ctis.nrcan.gc.ca