

A Digital Atlas of Terranes for the Northern Cordillera

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The framework of the Cordilleran orogen of northwestern North America is commonly depicted as a 'collage' of terranes – crustal blocks containing records of a variety of geodynamic environments including continental fragments, pieces of island arc crust and oceanic crust. The series of maps available here are derived from a GIS compilation of terranes based on the map published by Colpron *et al.* (2007) and Nelson and Colpron (2007), and include modifications from recent regional mapping. These maps are presented in a variety of digital formats including ArcGIS file geodatabase (.gdb), shapefiles (.shp and related files) and Map Packages (.mpk), as well as in a number of graphic formats (Adobe Illustrator CS3, CorelDraw X3, PDF and JPEG). The GIS data include individual terrane layers for British Columbia, Yukon and Alaska, as well as a layer showing selected major Late Cretaceous and Tertiary strike-slip faults. Graphic files derived from the GIS compilation were prepared for the Northern Cordillera (Alaska, Yukon and BC), the Canadian Cordillera (BC and Yukon), Yukon, and British Columbia. These maps are intended for page-size display (~1:5,000,000 and smaller). Polygons are accurate to ~1 km for Yukon and BC, and ~5 km for Alaska. More detailed geological data are available from both BC Geological Survey and Yukon Geological Survey websites. Descriptions of the terranes, their tectonic evolution and metallogeny can be found in Colpron *et al.* (2007), Nelson and Colpron (2007), Colpron and Nelson (2009), and references therein.

The terrane map project is a collaborative effort of the BC Geological Survey and the Yukon Geological Survey.

References:

- Colpron, M., Nelson, J.L. and Murphy, D.C., 2007. Northern Cordilleran terranes and their interactions through time. *GSA Today*, vol. 17, no. 4/5, p. 4-10.
- Colpron, M. and Nelson, J.L., 2009. A Palaeozoic Northwest Passage: incursion of Caledonian, Baltican and Siberian terranes into eastern Panthalassa, and the early evolution of the North American Cordillera. *In: Earth Accretionary Systems in Space and Time*, P.A. Cawood and A. Kröner (eds.), Geological Society of London, Special Publications 318, p. 273-307.
- Nelson, J.L. and Colpron, M., 2007. Tectonics and metallogeny of the Canadian and Alaskan Cordillera, 1.8 Ga to present. *In: Mineral Deposits of Canada: A Synthesis of Major Deposit Types, District Metallogeny, the Evolution of Geological Provinces, and Exploration Methods*, W.D. Goodfellow (ed.), Mineral Deposit Division, Geological Association of Canada, Special Publication 5, p. 755-791.

Recommended citation:

Colpron, M. and Nelson, J.L., 2011. A Digital Atlas of Terranes for the Northern Cordillera. Accessed online from Yukon Geological Survey (www.geology.gov.yk.ca), [DATE].

OR:

Colpron, M. and Nelson, J.L., (2011). A Digital Atlas of Terranes for the Northern Cordillera; *British Columbia Ministry of Energy and Mines*, BCGS GeoFile 2011-11.

Data Organization:

The terrane data are organized in folders by file format. For the graphic files, each folder contains 4 maps for that particular format. For the GIS data, files are zipped as an ArcGIS File Geodatabase and a folder containing 4 shape files. The Shape file folder also contains an ArcGIS layer file for terrane symbology. Finally, a Map Package (.mpk) is offered for each 4 of the derivative maps (the entire Northern Cordillera, the Canadian Cordillera, BC and Yukon). A Map Package is a format specific to ArcGIS 10 that includes all files used to construct the various terrane maps, including the Map Project (.mxd), terrane feature class(es), labeling and symbology, and the DEM hillshade image used to construct these maps. ArcGIS 10 users simply need to double-click the Map Package to recreate the map.

Attributes:

Terrane geodatabases:

Field	Description
Terrane	Terrane abbreviation
T_Name	Full name of terrane
T_Group	Grouping to which terrane belongs
Affinity	Paleogeographic affinity of terrane
Realm	Paleogeographic realm from which terrane originated
Authoragen	Affiliation of the authors (YGS = Yukon Geological Survey; BCGS = BC Geological Survey)
Authors	Authors who created polygon
Date	Date of modification of polygon

Faults:

Field	Description
Name	Name of the fault
Type	Type of fault

Projection information:

Maps of the northern Cordillera, the Canadian Cordillera and British Columbia are in BC Albers projection. The map of Yukon is in Yukon Albers projection.

BC Albers:

Projection: NAD_1983_BC_Environment_Albers
Projection: Albers
False_Easting: 1000000.000000
False_Northing: 0.000000
Central_Meridian: -126.000000
Standard_Parallel_1: 50.000000
Standard_Parallel_2: 58.500000
Latitude_Of_Origin: 45.000000
Linear Unit: Meter (1.000000)

Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.017453292519943295)
Prime Meridian: Greenwich (0.000000000000000000)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.000000000000000000
Semiminor Axis: 6356752.314140356100000000
Inverse Flattening: 298.257222101000020000

Yukon Albers:

Projection: NAD_1983_Yukon_Albers
Projection: Albers
False_Easting: 500000.000000
False_Northing: 500000.000000
Central_Meridian: -132.500000
Standard_Parallel_1: 61.666667
Standard_Parallel_2: 68.000000
Latitude_Of_Origin: 59.000000
Linear Unit: Meter (1.000000)

Geographic Coordinate System: GCS_North_American_1983
Angular Unit: Degree (0.017453292519943295)
Prime Meridian: Greenwich (0.000000000000000000)
Datum: D_North_American_1983
Spheroid: GRS_1980
Semimajor Axis: 6378137.000000000000000000
Semiminor Axis: 6356752.314140356100000000
Inverse Flattening: 298.257222101000020000