

# ISO Geodetic Registry

<i>Item class</i>	Transformation	
<i>Name</i>	<b>NAD83(CSRS) v4 to CGVD2013(CGG2013a) epoch 2002 [v1]</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	973	
<i>Information source</i>	<i>Title</i>	Height Transformation version 2.0 (HTv2.0), Epochs 2002.0 and 2010.0
	<i>Author</i>	M. Veronneau
	<i>Publisher</i>	Geodetic Survey Division, Natural Resources Canada, Government of Canada
	<i>Publication date</i>	2019
	<i>Series/Journal name</i>	Internal Report
<i>Information source</i>	<i>Title</i>	GPS-H
	<i>Author</i>	Canadian Geodetic Survey
	<i>Publisher</i>	Geodetic Survey Division, Natural Resources Canada, Government of Canada
	<i>Revision date</i>	2021-03-15
	<i>Other citation details</i>	Website: <a href="https://webapp.geod.nrcan.gc.ca/geod/tools-outils/gpsh.php">https://webapp.geod.nrcan.gc.ca/geod/tools-outils/gpsh.php</a>
<i>Information source</i>	<i>Title</i>	Geoid Models
	<i>Author</i>	Canadian Geodetic Survey
	<i>Publisher</i>	Geodetic Survey Division, Natural Resources Canada, Government of Canada
	<i>Revision date</i>	2021-12-07
	<i>Other citation details</i>	Website: <a href="https://webapp.geod.nrcan.gc.ca/geod/data-donnees/geoid.php?locale=en">https://webapp.geod.nrcan.gc.ca/geod/data-donnees/geoid.php?locale=en</a> (accessed 2022-01-21).
<i>Information source</i>	<i>Title</i>	Referencing and Time Tagging Heights in Canada
	<i>Author</i>	M. Veronneau
	<i>Publisher</i>	Geodetic Survey Division, Natural Resources Canada, Government of Canada
	<i>Publication date</i>	2018
	<i>Series/Journal name</i>	Internal Report
<i>Data source</i>	ISO Geodetic Registry	
<i>Remarks</i>	Grid transformation from NAD83(CSRS) v4 ellipsoidal heights at epoch 2002.0 to CGVD2013(CGG2013a) orthometric heights at epoch 2002.0 using the CGG2013a geoid model upon which CGVD2013(CGG2013a) is defined. Bi-linear interpolation of the grid file will give results agreeing to within 1cm 99.97% of the time.	
<i>Operation version</i>	v1	
<i>Scope</i>	Spatial referencing.	
<i>Operation accuracy</i>	0.05 m	
<i>Source CRS</i>	NAD83(CSRS) v4 - LatLonEHt	
<i>Target CRS</i>	CGVD2013(CGG2013a) epoch 2002 - OHt	
<i>Operation method</i>	Geographic3D to Gravity Related Height (Canada)	

## Extent

<i>Description</i>	<b>Canada - onshore and offshore - Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Ontario,</b>
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**Prince Edward Island, Quebec, Saskatchewan,  
Yukon.**

<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	-141.01
	<i>North-bound latitude</i>	90.0
	<i>East-bound longitude</i>	-47.74
	<i>South-bound latitude</i>	40.04

Operation parameter values

<i>Geoid (height correction) model file</i>	CGG2013an83.byn
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<i>Item class</i>	OperationMethod
<i>Name</i>	<b>Geographic3D to Gravity Related Height (Canada)</b>
<i>Item status</i>	VALID
<i>Identifier</i>	89
<i>Data source</i>	ISO Geodetic Registry
<i>Remarks</i>	For consistency with earlier geoid models in Canada, reference software for CGG2013 and CGG2013a uses bi-quadratic interpolation over nine grid nodes. The bi-linear interpolation is sufficient for most uses as the newer models have a higher spatial resolution. See information source for file format documentation.
<i>Formula</i>	The GPS Height Transformation (v2.0): An Ellipsoidal-CGVD28 Height Transformation for Use With GPS in Canada

## Operation parameters

<i>Geoid (height correction) model file</i>
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