

# ISO Geodetic Registry

<i>Item class</i>	Transformation	
<i>Name</i>	<b>ITRF2020 to NAD83(CSRS) v8 [v1]</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	995	
<i>Information source</i>	<i>Title</i>	The Canadian Spatial Reference System (CSRS)
	<i>Author</i>	Canadian Geodetic Survey
	<i>Publisher</i>	Canadian Geodetic Survey, Surveyor General Branch, Lands and Minerals Sector, Natural Resources Canada, Government of Canada
	<i>Revision date</i>	2021-04-09
	<i>Other citation details</i>	Web page: <a href="http://www.nrcan.gc.ca/earth-sciences/geomatics/geodetic-reference-systems/9052">http://www.nrcan.gc.ca/earth-sciences/geomatics/geodetic-reference-systems/9052</a> (accessed 2023-06-04)
<i>Information source</i>	<i>Title</i>	Coordinate Transformations
	<i>Author</i>	Canadian Geodetic Survey
	<i>Publisher</i>	Canadian Geodetic Survey, Surveyor General Branch, Lands and Minerals Sector, Natural Resources Canada, Government of Canada
	<i>Revision date</i>	2022-04-29
	<i>Other citation details</i>	Web page: <a href="https://webapp.csrscs-nrcan-nrcan.gc.ca/geod/data-donnees/transformations.php">https://webapp.csrscs-nrcan-nrcan.gc.ca/geod/data-donnees/transformations.php</a> (accessed 2023-06-04)
<i>Information source</i>	<i>Title</i>	transformations_2010_EN.zip
	<i>Author</i>	Canadian Geodetic Survey
	<i>Publisher</i>	Canadian Geodetic Survey, Surveyor General Branch, Lands and Minerals Sector, Natural Resources Canada, Government of Canada
	<i>Revision date</i>	2022-10-07
	<i>Other citation details</i>	Transformation parameters file: <a href="https://webapp.csrscs-nrcan-nrcan.gc.ca/geod/process/download-helper.php?file_id=NAD83toITRF_EN">https://webapp.csrscs-nrcan-nrcan.gc.ca/geod/process/download-helper.php?file_id=NAD83toITRF_EN</a> (accessed 2023-06-04)
<i>Information source</i>	<i>Title</i>	National & International Reference Frames
	<i>Author</i>	M. Craymer
	<i>Publisher</i>	Canadian Geodetic Survey, Surveyor General Branch, Lands and Minerals Sector, Natural Resources Canada, Government of Canada
	<i>Publication date</i>	2023-05-10
	<i>Series/Journal name</i>	Presentation to Canadian Geodetic Reference Systems Committee Meeting, Ottawa, May 10-12, 2023
<i>Data source</i>	ISO Geodetic Registry	
<i>Remarks</i>	Transformation defines NAD83(CSRS) v8 and is treated as errorless.	
<i>Operation version</i>	v1	
<i>Scope</i>	Spatial referencing	
<i>Operation accuracy</i>	0.0 m	
<i>Source CRS</i>	ITRF2020 - XYZ	
<i>Target CRS</i>	NAD83(CSRS) v8 - XYZ	
<i>Operation method</i>	Time-Dependent Position Vector Transformation (geocentric Cartesian domain)	

## Extent

<i>Description</i>	<b>Canada - onshore and offshore - Alberta, British Columbia, Manitoba, New Brunswick,</b>
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**Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Ontario, 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>X-axis translation</i>	1.0039 metre
<i>Y-axis translation</i>	-1.90961 metre
<i>Z-axis translation</i>	-0.54117 metre
<i>X-axis rotation</i>	-26.78138 milliarc-second
<i>Y-axis rotation</i>	0.42027 milliarc-second
<i>Z-axis rotation</i>	-10.93206 milliarc-second
<i>Scale difference</i>	-0.05109 parts per billion
<i>Rate of change of X-axis translation</i>	7.9E-4 metre per year
<i>Rate of change of Y-axis translation</i>	-7.0E-4 metre per year
<i>Rate of change of Z-axis translation</i>	-0.00124 metre per year
<i>Rate of change of X-axis rotation</i>	-0.06667 milliarc-second per year
<i>Rate of change of Y-axis rotation</i>	0.75744 milliarc-second per year
<i>Rate of change of Z-axis rotation</i>	0.05133 milliarc-second per year
<i>Rate of change of scale difference</i>	-0.07201 parts per billion per year
<i>Time reference</i>	2010.0 year

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<i>Item class</i>	OperationMethod
<i>Name</i>	<b>Time-Dependent Position Vector Transformation (geocentric Cartesian domain)</b>
<i>Item status</i>	VALID
<i>Identifier</i>	82
<i>Alias</i>	Time-Dependent 7-Parameter Transformation
<i>Alias</i>	14-Parameter Transformation
<i>Alias</i>	Time-Dependent Position Vector Transformation
<i>Data source</i>	ISO Geodetic Registry
<i>Remarks</i>	Note the analogy with the rotation for the Time-dependent Coordinate Frame Transformation but beware of the differences! The Position Vector Transformation convention is used by IAG.
<i>Formula</i>	Geomatics Guidance Note No 7, part 2: Coordinate Conversions and Transformations including Formulas

## Operation parameters

<i>X-axis translation</i>
<i>Y-axis translation</i>
<i>Z-axis translation</i>
<i>X-axis rotation</i>
<i>Y-axis rotation</i>
<i>Z-axis rotation</i>
<i>Scale difference</i>
<i>Rate of change of X-axis translation</i>
<i>Rate of change of Y-axis translation</i>
<i>Rate of change of Z-axis translation</i>
<i>Rate of change of X-axis rotation</i>
<i>Rate of change of Y-axis rotation</i>
<i>Rate of change of Z-axis rotation</i>
<i>Rate of change of scale difference</i>
<i>Time reference</i>