ISO Geodetic Registry

Item class	Transformation	
Name	**ITRF93 to NAD83(CSRS96) v1 [v1]**	
Item status	VALID	
Identifier	564	
Information source	*Title*	The Canadian Spatial Reference System (CSRS)
	Author	Canadian Geodetic Survey
	Publisher	Canadian Geodetic Survey, Surveyor General Branch, Earth Sciences Sector, Natural Resources Canada, Government of Canada
	Publication date	2016-08-30
Information source	*Title*	Modern Geodetic Reference Frames for Precise Satellite Positioning and Navigation
	Author	J. Kouba, J. Popelar
	Publication date	1994-09-02
	Series/Journal name	Proceedings on the International Symposium on Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada, August 30 - September 2, 1994
	Page	79-86
Information source	*Title*	The Evolution of NAD83 in Canada
	Author	M. Craymer
	Publisher	Canadian Institute of Geomatics
	Publication date	2006
	Series/Journal name	Geomatica
	Issue identification	Volume 60, No. 2
	Page	151-164
Data source	ISO Geodetic Registry	
Remarks	Transformation defines NAD83(CSRS96)v1 and is treated as errorless.	
Operation version	v1	
Scope	Spatial referencing	
Operation accuracy	0.0 m	
Source CRS	ITRF93 - XYZ	
Target CRS	NAD83(CSRS96) v1 - XYZ	
Operation method	Time-Dependent Position Vector Transformation (geocentric Cartesian domain)	

Extent

Description	**Canada - onshore and offshore - Alberta, British Columbia, Manitoba, New Brunswick, Newfoundland and Labrador, Northwest Territories, Nova Scotia, Nunavut, Ontario, Prince Edward Island, Quebec, Saskatchewan, Yukon.**	
Geographic Bounding Box	*West-bound longitude*	-141.01
	North-bound latitude	90.0
	East-bound longitude	-47.74
	South-bound latitude	40.04

Operation parameter values

Time reference	1988.0 year
Rate of change of scale difference	0.11 parts per billion per year
Rate of change of Z-axis rotation	-0.008 milliarc-second per year
Rate of change of Y-axis rotation	0.962 milliarc-second per year
Rate of change of X-axis rotation	0.078 milliarc-second per year
Rate of change of Z-axis translation	-8.0E-4 metre per year
Rate of change of Y-axis translation	4.0E-4 metre per year
Rate of change of X-axis translation	0.0023 metre per year
Scale difference	4.1 parts per billion
Z-axis rotation	-9.87 milliarc-second
Y-axis rotation	-16.22 milliarc-second
X-axis rotation	-27.09 milliarc-second
Z-axis translation	-0.534 metre
Y-axis translation	-1.979 metre
X-axis translation	0.94 metre

ISO Geodetic Registry

Item class	OperationMethod
Name	**Time-Dependent Position Vector Transformation (geocentric Cartesian domain)**
Item status	VALID
Identifier	82
Alias	Time-Dependent 7-Parameter Transformation
Alias	14-Parameter Transformation
Alias	Time-Dependent Position Vector Transformation
Data source	ISO Geodetic Registry
Remarks	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.
Formula	Geomatics Guidance Note No 7, part 2: Coordinate Conversions and Transformations including Formulas

Operation parameters

X-axis translation
Y-axis translation
Z-axis translation
X-axis rotation
Y-axis rotation
Z-axis rotation
Scale difference
Rate of change of X-axis translation
Rate of change of Y-axis translation
Rate of change of Z-axis translation
Rate of change of X-axis rotation
Rate of change of Y-axis rotation
Rate of change of Z-axis rotation
Rate of change of scale difference
Time reference