

ISO Geodetic Registry

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|---------------------------|---|--|
| <i>Item class</i> | Transformation | |
| <i>Name</i> | ITRF2000 to NAD83(CSRS) v4 [v1] | |
| <i>Item status</i> | VALID | |
| <i>Identifier</i> | 721 | |
| <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, Earth Sciences Sector, Natural Resources Canada, Government of Canada |
| | <i>Publication date</i> | 2016-08-30 |
| <i>Information source</i> | <i>Title</i> | The Evolution of NAD83 in Canada |
| | <i>Author</i> | M. Craymer |
| | <i>Publisher</i> | Canadian Institute of Geomatics |
| | <i>Publication date</i> | 2006 |
| | <i>Series/Journal name</i> | Geomatica |
| <i>Information source</i> | <i>Issue identification</i> | Volume 60, No. 2 |
| | <i>Page</i> | 151-164 |
| | <i>Title</i> | Transforming positions and velocities between the International Terrestrial Reference Frame of 2000 and the North American Datum of 1983 |
| | <i>Author</i> | T. Soler, R.A. Snay |
| | <i>Publisher</i> | American Society of Civil Engineers |
| <i>Information source</i> | <i>Publication date</i> | 2004-05 |
| | <i>Series/Journal name</i> | Journal of Surveying Engineering |
| | <i>Issue identification</i> | Volume 130, No. 2 |
| | <i>Page</i> | 49-55 |
| | <i>Title</i> | Transforming positions and velocities between the International Terrestrial Reference Frame of 2000 and the North American Datum of 1983 |
| <i>Data source</i> | ISO Geodetic Registry | |
| <i>Remarks</i> | Transformation defines NAD83(CSRS)v4 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> | ITRF2000 - XYZ | |
| <i>Target CRS</i> | NAD83(CSRS) v4 - XYZ | |
| <i>Operation method</i> | Time-Dependent Position Vector Transformation (geocentric Cartesian domain) | |

Extent

| | | |
|--------------------------------|--|---------|
| <i>Description</i> | 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. | |
| <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> | 0.9956 metre |
| <i>Y-axis translation</i> | -1.9013 metre |
| <i>Z-axis translation</i> | -0.5214 metre |
| <i>X-axis rotation</i> | -25.915 milliarc-second |
| <i>Y-axis rotation</i> | -9.426 milliarc-second |
| <i>Z-axis rotation</i> | -11.599 milliarc-second |
| <i>Scale difference</i> | 0.615 parts per billion |
| <i>Rate of change of X-axis translation</i> | 7.0E-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> | 5.0E-4 metre per year |
| <i>Rate of change of X-axis rotation</i> | -0.067 milliarc-second per year |
| <i>Rate of change of Y-axis rotation</i> | 0.757 milliarc-second per year |
| <i>Rate of change of Z-axis rotation</i> | 0.051 milliarc-second per year |
| <i>Rate of change of scale difference</i> | -0.182 parts per billion per year |
| <i>Time reference</i> | 1997.0 year |

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| <i>Item class</i> | OperationMethod |
| <i>Name</i> | Time-Dependent Position Vector Transformation (geocentric Cartesian domain) |
| <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> |