

# ISO Geodetic Registry

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | GeodeticCRS  |   |
| <i>Name</i>               | <b>NAD83(CSRs) v8 - LatLonEHt</b>  |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 992  |   |
| <i>Alias</i>              | North American Datum 1983 v8   |   |
| <i>Alias</i>              | Canadian Spatial Reference System 1998   |   |
| <i>Alias</i>              | NAD83  |   |
| <i>Alias</i>              | NAD83(CSRs)  |   |
| <i>Alias</i>              | NAD83v8  |   |
| <i>Alias</i>              | NAD83(CSRs)v8  |   |
| <i>Alias</i>              | NAD83(CSRs98)  |   |
| <i>Alias</i>              | CSRS98   |   |
| <i>Alias</i>              | Canadian Spatial Reference System  |   |
| <i>Alias</i>              | CSRS   |   |
| <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>   | 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>Scope</i>              | Spatial referencing  |   |
| <i>Datum</i>              | North American Datum of 1983 (CSRS) version 8  |   |
| <i>Coordinate System</i>  | Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre. |   |

## Extent

|                                |  |         |
|--------------------------------|--|---------|
| <i>Description</i>             | <b>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.</b> |         |
| <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   |

# ISO Geodetic Registry

|                                   |  |   |
|-----------------------------------|--|---|
| <i>Item class</i>                 | GeodeticDatum  |   |
| <i>Name</i>                       | <b>North American Datum of 1983 (CSRS) version 8</b>   |   |
| <i>Item status</i>                | VALID  |   |
| <i>Identifier</i>                 | 991  |   |
| <i>Alias</i>                      | North American Datum 1983 v8   |   |
| <i>Alias</i>                      | Canadian Spatial Reference System 1998   |   |
| <i>Alias</i>                      | NAD83  |   |
| <i>Alias</i>                      | NAD83(CSRS)  |   |
| <i>Alias</i>                      | NAD83v8  |   |
| <i>Alias</i>                      | NAD83(CSRS)v8  |   |
| <i>Alias</i>                      | NAD83(CSRS98)  |   |
| <i>Alias</i>                      | CSRS98   |   |
| <i>Alias</i>                      | Canadian Spatial Reference System  |   |
| <i>Alias</i>                      | CSRS   |   |
| <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>   | 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>                    | Adopted by the Canadian federal government for Canada. Replaces NAD83(CSRS) v7.  |   |
| <i>Anchor definition</i>          | Realization of the North American Datum of 1983 for the Canadian Spatial Reference System, referred to as CSRS98 or CSRS. The frame is defined by a time-dependent seven parameter transformation of ITRF2020 3D geocentric Cartesian coordinates and velocities for Canadian and bordering US and Greenland areas at reference epoch 2010.0. The frame is kept aligned to North America at other epochs using the NNR-NUVEL-1A estimate of three Cartesian rotation rates of change representing the tectonic plate motion of North America. The origin, scale and orientation of the frame are nominally defined to be that for the BIH Terrestrial System 1984 (BTS84). |   |
| <i>Release date</i>               | 2022-11-27   |   |
| <i>Coordinate Reference Epoch</i> | 2010.0   |   |
| <i>Scope</i>                      | Spatial referencing  |   |
| <i>Ellipsoid</i>                  | GRS 1980   |   |
| <i>Prime Meridian</i>             | Greenwich  |   |

## Extent

|                                |  |         |  |
|--------------------------------|--|---------|--|
| <i>Description</i>             | <b>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.</b> |         |  |
| <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   |  |

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|                             |  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
|-----------------------------|--|--------------|--------------------------------|---------------|-----------|------------------|--------------------------------------|-------------------------|---------|----------------------------|---------------------|-----------------------------|------------------|-------------|---------|
| <i>Item class</i>           | Ellipsoid  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Name</i>                 | <b>GRS 1980</b>  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Item status</i>          | VALID  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Identifier</i>           | 27   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | GRS1980  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | IAG GRS80  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | International 1979   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Alias</i>                | GRS80  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>Geodetic Reference System 1980</td></tr> <tr> <td><i>Author</i></td><td>H. Moritz</td></tr> <tr> <td><i>Publisher</i></td><td>Springer International Publishing</td></tr> <tr> <td><i>Publication date</i></td><td>2003-03</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Journal of Geodesy</td></tr> <tr> <td><i>Issue identification</i></td><td>Volume 74, No. 1</td></tr> <tr> <td><i>Page</i></td><td>128–162</td></tr> </table>  | <i>Title</i> | Geodetic Reference System 1980 | <i>Author</i> | H. Moritz | <i>Publisher</i> | Springer International Publishing    | <i>Publication date</i> | 2003-03 | <i>Series/Journal name</i> | Journal of Geodesy  | <i>Issue identification</i> | Volume 74, No. 1 | <i>Page</i> | 128–162 |
| <i>Title</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Author</i>               | H. Moritz  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publisher</i>            | Springer International Publishing  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publication date</i>     | 2003-03  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Series/Journal name</i>  | Journal of Geodesy   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Issue identification</i> | Volume 74, No. 1   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Page</i>                 | 128–162  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>Geodetic Reference System 1980</td></tr> <tr> <td><i>Author</i></td><td>H. Moritz</td></tr> <tr> <td><i>Publisher</i></td><td>International Association of Geodesy</td></tr> <tr> <td><i>Publication date</i></td><td>1984</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Bulletin Geodesique</td></tr> <tr> <td><i>Issue identification</i></td><td>Volume 58, No. 3</td></tr> <tr> <td><i>Page</i></td><td>395-405</td></tr> </table> | <i>Title</i> | Geodetic Reference System 1980 | <i>Author</i> | H. Moritz | <i>Publisher</i> | International Association of Geodesy | <i>Publication date</i> | 1984    | <i>Series/Journal name</i> | Bulletin Geodesique | <i>Issue identification</i> | Volume 58, No. 3 | <i>Page</i> | 395-405 |
| <i>Title</i>                | Geodetic Reference System 1980   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Author</i>               | H. Moritz  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publisher</i>            | International Association of Geodesy   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Publication date</i>     | 1984   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Series/Journal name</i>  | Bulletin Geodesique  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Issue identification</i> | Volume 58, No. 3   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Page</i>                 | 395-405  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Data source</i>          | ISO Geodetic Registry  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Remarks</i>              | Adopted by IUGG 1979 Canberra. Inverse flattening is derived from geocentric gravitational constant $GM = 3986005e8 \text{ m}^3/\text{s}^2$ , dynamic form factor $J_2 = 108263e-8$ and Earth's angular velocity = $7292115e-11 \text{ rad/s}$ .   |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Semi-major axis</i>      | 6378137.0 m  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
| <i>Inverse flattening</i>   | 298.257222101 m  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |

# ISO Geodetic Registry

|                            |                               |   |
|----------------------------|-------------------------------|---|
| <i>Item class</i>          | PrimeMeridian                 |   |
| <i>Name</i>                | <b>Greenwich</b>              |   |
| <i>Item status</i>         | VALID                         |   |
| <i>Identifier</i>          | 25                            |   |
| <i>Alias</i>               | Zero meridian                 |   |
| <i>Information source</i>  | <i>Title</i>                  | Why the Greenwich meridian moved                                |
|                            | <i>Author</i>                 | S. Malys, J.H. Seago, N.K. Pavlis, P.K. Seidelmann, G.H. Kaplan |
|                            | <i>Publisher</i>              | Springer International Publishing                               |
|                            | <i>Publication date</i>       | 2015-12   |
|                            | <i>Series/Journal name</i>    | Journal of Geodesy  |
|                            | <i>Issue identification</i>   | Volume 89, No. 12   |
|                            | <i>Page</i>                   | 1263–1272   |
| <i>Information source</i>  | <i>Title</i>                  | IERS Conventions (2010)   |
|                            | <i>Author</i>                 | G. Petit, B.J. Luzum (eds)                                      |
|                            | <i>Publisher</i>              | Verlag des Bundesamts für Kartographie und Geodäsie             |
|                            | <i>Publication date</i>       | 2010  |
|                            | <i>Edition date</i>           |   |
|                            | <i>Series/Journal name</i>    | IERS Technical Notes  |
|                            | <i>Issue identification</i>   | 36.0  |
| <i>Data source</i>         | <i>Other citation details</i> | ISSN: 1019-4568   |
|                            | ISO Geodetic Registry         |   |
| <i>Greenwich longitude</i> | 0.0 °                         |   |

# ISO Geodetic Registry

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | EllipsoidalCS  |   |
| <i>Name</i>               | <b>Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre.</b>  |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 46   |   |
| <i>Information source</i> | <i>Title</i>   | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>  | 2007-07-01  |
|                           | <i>Edition</i>   | Second Edition  |
|                           | <i>Series/Journal name</i>   | International Standard  |
|                           | <i>Issue identification</i>  | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry  |   |
| <i>Remarks</i>            | Used in geographic 3D coordinate reference systems. Horizontal coordinates referenced to this CS are in degrees. Any degree representation (e.g. DMSH, decimal, etc.) may be used but that used must be declared for the user. |   |

## Axes

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | CoordinateSystemAxis  |   |
| <i>Name</i>               | <b>Geodetic latitude</b>  |   |
| <i>Item status</i>        | VALID   |   |
| <i>Identifier</i>         | 38  |   |
| <i>Information source</i> | <i>Title</i>  | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>   | 2007-07-01  |
|                           | <i>Edition</i>  | Second Edition  |
|                           | <i>Series/Journal name</i>  | International Standard  |
|                           | <i>Issue identification</i>   | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry   |   |
| <i>Remarks</i>            | Used in geographic 2D and geographic 3D coordinate reference systems. |   |
| <i>Abbreviation</i>       | Lat   |   |
| <i>Direction</i>          | north   |   |
| <i>Unit</i>               | degree (supplier to define representation)                            |   |

  

|                           |                           |   |
|---------------------------|---------------------------|---|
| <i>Item class</i>         | CoordinateSystemAxis      |   |
| <i>Name</i>               | <b>Geodetic longitude</b> |   |
| <i>Item status</i>        | VALID                     |   |
| <i>Identifier</i>         | 34                        |   |
| <i>Information source</i> | <i>Title</i>              | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>             | International Organization for Standardization (ISO)                    |

|                     |   |  |
|---------------------|---|--|
|                     | <i>Publisher</i>  | International Organization for Standardization (ISO) |
|                     | <i>Publication date</i>   | 2007-07-01   |
|                     | <i>Edition</i>  | Second Edition                                       |
|                     | <i>Series/Journal name</i>  | International Standard                               |
|                     | <i>Issue identification</i>   | ISO 19111:2007                                       |
| <i>Data source</i>  | ISO Geodetic Registry   |  |
| <i>Remarks</i>      | Used in geographic 2D and geographic 3D coordinate reference systems. |  |
| <i>Abbreviation</i> | Lon   |  |
| <i>Direction</i>    | east  |  |
| <i>Unit</i>         | degree (supplier to define representation)                            |  |

  

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | CoordinateSystemAxis   |   |
| <i>Name</i>               | <b>Ellipsoidal height</b>  |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 36   |   |
| <i>Information source</i> | <i>Title</i>   | ISO 19111 Geographical information - Spatial referencing by coordinates |
|                           | <i>Author</i>  | International Organization for Standardization (ISO)                    |
|                           | <i>Publisher</i>   | International Organization for Standardization (ISO)                    |
|                           | <i>Publication date</i>  | 2007-07-01  |
|                           | <i>Edition</i>   | Second Edition  |
|                           | <i>Series/Journal name</i>   | International Standard  |
|                           | <i>Issue identification</i>  | ISO 19111:2007  |
| <i>Data source</i>        | ISO Geodetic Registry  |   |
| <i>Remarks</i>            | Used only as part of an ellipsoidal 3D coordinate system in a geographic 3D coordinate reference system, never on its own. |   |
| <i>Abbreviation</i>       | h  |   |
| <i>Direction</i>          | up   |   |
| <i>Unit</i>               | metre  |   |