

# ISO Geodetic Registry

|                             |  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
|-----------------------------|--|--------------|---|---------------|--------------------------|-------------------------|--|----------------------------|--|----------------------------|-----------|-----------------------------|------------------|-------------|---------|
| <i>Item class</i>           | GeodeticDatum  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Name</i>                 | <b>North American Datum of 1983 (CSRS96)<br/>version 1</b>   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Item status</i>          | VALID  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Identifier</i>           | 148  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | NAD83(CSRS)v1  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | CSRS96   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | NAD83  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | Canadian Spatial Reference System 1996   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | North American Datum 1983 v1   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | NAD83(CSRS96)  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | Canadian Spatial Reference System  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | CSRS   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Alias</i>                | NAD83v1  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>The Evolution of NAD83 in Canada</td></tr> <tr> <td><i>Author</i></td><td>M. Craymer</td></tr> <tr> <td><i>Publisher</i></td><td>Canadian Institute of Geomatics</td></tr> <tr> <td><i>Publication date</i></td><td>2006</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Geomatica</td></tr> <tr> <td><i>Issue identification</i></td><td>Volume 60, No. 2</td></tr> <tr> <td><i>Page</i></td><td>151-164</td></tr> </table>   | <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>Issue identification</i> | Volume 60, No. 2 | <i>Page</i> | 151-164 |
| <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>Issue identification</i> | Volume 60, No. 2   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Page</i>                 | 151-164  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>Modern Geodetic Reference Frames for Precise Satellite Positioning and Navigation</td></tr> <tr> <td><i>Author</i></td><td>J. Kouba, J. Popelar</td></tr> <tr> <td><i>Publication date</i></td><td>1994-09-02</td></tr> <tr> <td><i>Series/Journal name</i></td><td>Proceedings on the International Symposium on Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada, August 30 - September 2, 1994</td></tr> <tr> <td><i>Page</i></td><td>79-86</td></tr> </table> | <i>Title</i> | Modern Geodetic Reference Frames for Precise Satellite Positioning and Navigation | <i>Author</i> | J. Kouba, J. Popelar     | <i>Publication date</i> | 1994-09-02   | <i>Series/Journal name</i> | Proceedings on the International Symposium on Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada, August 30 - September 2, 1994 | <i>Page</i>                | 79-86     |                             |                  |             |         |
| <i>Title</i>                | Modern Geodetic Reference Frames for Precise Satellite Positioning and Navigation  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Author</i>               | J. Kouba, J. Popelar   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Publication date</i>     | 1994-09-02   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Series/Journal name</i>  | Proceedings on the International Symposium on Kinematic Systems in Geodesy, Geomatics and Navigation, Banff, Canada, August 30 - September 2, 1994   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Page</i>                 | 79-86  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Information source</i>   | <table> <tr> <td><i>Title</i></td><td>The Canadian Spatial Reference System (CSRS)</td></tr> <tr> <td><i>Author</i></td><td>Canadian Geodetic Survey</td></tr> <tr> <td><i>Publisher</i></td><td>Canadian Geodetic Survey, Surveyor General Branch, Earth Sciences Sector, Natural Resources Canada, Government of Canada</td></tr> <tr> <td><i>Publication date</i></td><td>2016-08-30</td></tr> </table>   | <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>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   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
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| <i>Title</i>                | The Evolution of NAD83 in Canada: Addendum   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
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| <i>Issue identification</i> | Volume 60, No. 4   |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Page</i>                 | 433.0  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Data source</i>          | ISO Geodetic Registry  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Remarks</i>              | Adopted by the Canadian federal government for use in Canada. Replaces NAD83(Original). Replaced by NAD83(CSRS) v2.  |              |   |               |                          |                         |  |                            |  |                            |           |                             |                  |             |         |
| <i>Anchor definition</i>    | Realization of the North American Datum of 1983 and the first version of the Canadian Spatial Reference System, referred to as CSRS96. The frame is defined by a seven parameter transformation of ITRF92 3D geocentric Cartesian coordinates for Canadian stations at reference epoch 1988.0. This solution is associated with only a diagonal covariance matrix for the defining coordinates. 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>   | 1996-01-01          |
| <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  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
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| <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 fur Kartographie und Geodasie             |
|                            | <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 °                         |   |