

# ISO Geodetic Registry

|                           |  |   |
|---------------------------|--|---|
| <i>Item class</i>         | GeodeticCRS  |   |
| <i>Name</i>               | <b>NAD 83 (FBN) - LatLon</b>   |   |
| <i>Item status</i>        | VALID  |   |
| <i>Identifier</i>         | 262  |   |
| <i>Alias</i>              | North American Datum of 1983 (FBN)   |   |
| <i>Information source</i> | <i>Title</i>   | Notice to Adopt Standard Method for Horizontal Datum Transformation   |
|                           | <i>Author</i>  | US Government   |
|                           | <i>Publisher</i>   | Office of Federal Register, NARA  |
|                           | <i>Publication date</i>  | 1990-08-10  |
|                           | <i>Edition date</i>  | 1990-08-10  |
|                           | <i>Series/Journal name</i>   | Federal Register Notice   |
|                           | <i>Issue identification</i>  | Volume 55, No. 155, Document: 00-18809  |
|                           | <i>Page</i>  | 32681.0   |
|                           | <i>Other citation details</i>  | Mandates use of NADCON for official transformations between datums  |
|                           | <i>Title</i>   | NADCON 5.0: Geometric Transformation Tool for points in the National Spatial Reference System                               |
| <i>Information source</i> | <i>Author</i>  | D. Smith, A. Bilich   |
|                           | <i>Publisher</i>   | NOAA's National Geodetic Survey   |
|                           | <i>Publication date</i>  | 2017-03-27  |
|                           | <i>Edition date</i>  | 2017-03-27  |
|                           | <i>Series/Journal name</i>   | NGS Technical Report  |
|                           | <i>Other citation details</i>  | Replaces version 4.2 and all earlier. Provides gridding algorithm, datum transformations, and extents of covnversion grids. |
| <i>Data source</i>        | ISO Geodetic Registry  |   |
| <i>Scope</i>              | Spatial referencing  |   |
| <i>Datum</i>              | North American Datum of 1983 (Federal Base Network)                                  |   |
| <i>Coordinate System</i>  | Ellipsoidal 2D CS. Axes: latitude, longitude. Orientations: north, east. UoM: degree |   |

## Extent

|                                |  |        |
|--------------------------------|--|--------|
| <i>Description</i>             | <b>United States and Territories - onshore and offshore: American Samoa. Guam. Northern Mariana Islands. Puerto Rico. United States (USA) - CONUS (California, Connecticut, Florida, Idaho, Maine, Massachusetts, Montana, Nevada, New Hampshire, New Jersey, New York, North Carolina, Oregon, Rhode Island, South Carolina, Tennessee, Vermont, Washington, Wisconsin). Virgin Islands (US).</b> |        |
| <i>Geographic Bounding Box</i> | <i>West-bound longitude</i>  | 144.58 |
|                                | <i>North-bound latitude</i>  | 49.38  |
|                                | <i>East-bound longitude</i>  | -64.51 |
|                                | <i>South-bound latitude</i>  | -17.56 |

# ISO Geodetic Registry

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | GeodeticDatum   |   |
| <i>Name</i>               | <b>North American Datum of 1983 (Federal Base Network)</b>  |   |
| <i>Item status</i>        | VALID   |   |
| <i>Identifier</i>         | 176   |   |
| <i>Alias</i>              | NAD83(FBN)  |   |
| <i>Information source</i> | <i>Title</i>  | Notice to Adopt Standard Method for Horizontal Datum Transformation   |
|                           | <i>Author</i>   | US Government   |
|                           | <i>Publisher</i>  | Office of Federal Register, NARA  |
|                           | <i>Publication date</i>   | 1990-08-10  |
|                           | <i>Edition date</i>   | 1990-08-10  |
|                           | <i>Series/Journal name</i>  | Federal Register Notice   |
|                           | <i>Issue identification</i>   | Volume 55, No. 155, Document: 00-18809  |
|                           | <i>Page</i>   | 32681.0   |
|                           | <i>Other citation details</i>   | Mandates use of NADCON for official transformations between datums  |
|                           | <i>Title</i>  | NADCON 5.0: Geometric Transformation Tool for points in the National Spatial Reference System                               |
| <i>Information source</i> | <i>Author</i>   | D. Smith, A. Bilich   |
|                           | <i>Publisher</i>  | NOAA's National Geodetic Survey   |
|                           | <i>Publication date</i>   | 2017-03-27  |
|                           | <i>Edition date</i>   | 2017-03-27  |
|                           | <i>Series/Journal name</i>  | NGS Technical Report  |
|                           | <i>Other citation details</i>   | Replaces version 4.2 and all earlier. Provides gridding algorithm, datum transformations, and extents of covnversion grids. |
| <i>Data source</i>        | ISO Geodetic Registry   |   |
| <i>Remarks</i>            | Replaces NAD83 (HARN) in 19 states as wellas outlying territories. See Geographic extents for list. Adopted at different times in the 18 affected states, but adopted in 2002 for outlying territories. Replaced by NAD83 (2007).   |   |
| <i>Anchor definition</i>  | This a realization of NAD83. This datum is closely intertwined with NAD83 (HARN). HARN's were realized first as latitude and longitude only realizations in statewide adjustments. A subsequent campaign adjusted newer GPS coordinates to derive updated latitude, longitude and ellipsoid height. If the latitude and longitude values were within 2 cm, the ellipsoid height was added as a third coordinate only. If the latitude or longitude differed by more than 2 cm, then all three coordinates were replaced and the resulting statewide realization was called an FBN. This occurred in 18 states as defined by the geographic extent. A null transformation was used for the remaining state HARN's. |   |
| <i>Scope</i>              | Spatial referencing   |   |
| <i>Ellipsoid</i>          | GRS 1980  |   |
| <i>Prime Meridian</i>     | Greenwich   |   |

## Extent

|                    |  |
|--------------------|--|
| <i>Description</i> | <b>United States and Territories - onshore and offshore: American Samoa. Guam. Northern Mariana Islands. Puerto Rico. United States (USA) - CONUS (California, Connecticut, Florida, Idaho, Maine, Massachusetts, Montana,</b> |
|--------------------|--|

**Nevada, New Hampshire, New Jersey,  
New York, North Carolina, Oregon, Rhode  
Island, South Carolina, Tennessee, Vermont,  
Washington, Wisconsin). Virgin Islands (US).**

*Geographic Bounding Box*

*West-bound longitude*

144.58

*North-bound latitude*

49.38

*East-bound longitude*

-64.51

*South-bound latitude*

-17.56

# ISO Geodetic Registry

|                             |  |              |                                |               |           |                  |                                      |                         |         |                            |                     |                             |                  |             |         |
|-----------------------------|--|--------------|--------------------------------|---------------|-----------|------------------|--------------------------------------|-------------------------|---------|----------------------------|---------------------|-----------------------------|------------------|-------------|---------|
| <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>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>Information source</i>  | <i>Publication date</i>       | 2010  |
|                            | <i>Edition date</i>           |   |
|                            | <i>Series/Journal name</i>    | IERS Technical Notes  |
|                            | <i>Issue identification</i>   | 36.0  |
|                            | <i>Other citation details</i> | ISSN: 1019-4568   |
| <i>Data source</i>         | ISO Geodetic Registry         |   |
| <i>Greenwich longitude</i> | 0.0 °                         |   |

# ISO Geodetic Registry

|                           |   |   |
|---------------------------|---|---|
| <i>Item class</i>         | EllipsoidalCS   |   |
| <i>Name</i>               | <b>Ellipsoidal 2D CS. Axes: latitude, longitude. Orientations: north, east. UoM: degree</b>   |   |
| <i>Item status</i>        | VALID   |   |
| <i>Identifier</i>         | 43  |   |
| <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 coordinate reference systems. 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 by the supplier of data. |   |

## 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)                            |  |