

# ISO Geodetic Registry

<i>Item class</i>	GeodeticCRS	
<i>Name</i>	<b>NAD 83 (HARN) - LatLonEHt</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	351	
<i>Alias</i>	North American Datum of 1983 (HARN)	
<i>Information source</i>	<i>Title</i>	NADCON 5.0: Geometric Transformation Tool for points in the National Spatial Reference System
	<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>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>Information source</i>	<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>Data source</i>	ISO Geodetic Registry	
<i>Scope</i>	Spatial referencing	
<i>Datum</i>	North American Datum of 1983 (High Accuracy Regional Network)	
<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>United States and Territories - onshore and offshore: American Samoa. United States (USA) – Alaska, CONUS (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming), Hawaii. Virgin Islands (US).</b>
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<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	144.58
	<i>North-bound latitude</i>	74.71
	<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 (High Accuracy Regional Network)</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	119	
<i>Alias</i>	NAD83(HARN)	
<i>Alias</i>	NAD83(HPGN)	
<i>Alias</i>	NAD83	
<i>Alias</i>	NAD83 (High Precision Geodetic Network)	
<i>Alias</i>	Guam Geodetic Network 1993	
<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
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	<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 (1986). It was replaced by the NAD83 (FBN) in CONUS, American Samoa, Guam, and CNMI (Rota, Tinian, and Saipan). It was replaced by a corrected NAD83 (HARN) in Puerto Rico and the U.S. Virgin Islands.	
<i>Anchor definition</i>	A realization of NAD83. The original state-wide HARN's were realized from an adjustment of data observed in the NAD83 (1986) reference frame to develop a set of passive geodetic control values. This was accomplished at various times in the early 1990's through 1997. The original HARN's were latitude and longitude only. A subsequent realization from GPS observations was made to develop new latitude, longitude, and ellipsoid heights. If the latitude and longitudes were less than 2 cm different, then the original values were retained and the ellipsoid heights simply added as a third coordinate. If the latitude or longitude changed by more than 2 cm, then all three coordinates were updated. This latter case forms the basis for the Federal Base Network (FBN), which is treated separately from the 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. United States (USA) – Alaska, CONUS (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Mississippi, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, South Dakota, Tennessee, Texas, Utah, Vermont, Virginia, Washington, West Virginia, Wisconsin, Wyoming), Hawaii. Virgin Islands (US).</b>								
<i>Geographic Bounding Box</i>	<table> <tr> <td><i>West-bound longitude</i></td><td>144.58</td></tr> <tr> <td><i>North-bound latitude</i></td><td>74.71</td></tr> <tr> <td><i>East-bound longitude</i></td><td>-64.51</td></tr> <tr> <td><i>South-bound latitude</i></td><td>-17.56</td></tr> </table>	<i>West-bound longitude</i>	144.58	<i>North-bound latitude</i>	74.71	<i>East-bound longitude</i>	-64.51	<i>South-bound latitude</i>	-17.56
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<i>East-bound longitude</i>	-64.51								
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# 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														
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<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
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<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	