

ISO Geodetic Registry

<i>Item class</i>	GeodeticCRS	
<i>Name</i>	NAD 83 (2011) Epoch 2010 - XYZ	
<i>Item status</i>	VALID	
<i>Identifier</i>	252	
<i>Alias</i>	NAD83(2011)	
<i>Alias</i>	North American Datum of 1983 (2011)	
<i>Information source</i>	<i>Title</i>	Publication of North American Datum of 1983 (2011) Epoch 2010.00, North American Datum of 1983 (PA2011) Epoch 2010.00 and North American Datum of 1983 (MA2011) Epoch 2010.00
	<i>Author</i>	US Government
	<i>Publisher</i>	Office of Federal Register, NARA
	<i>Publication date</i>	2013-08-08
	<i>Edition date</i>	2013-08-08
	<i>Series/Journal name</i>	Federal Register Notice
	<i>Issue identification</i>	Volume 78, No. 153, Document: 2013–19167, Citation: 78 FR 48421
	<i>Page</i>	48421-48422
	<i>Title</i>	CORS Coordinates
	<i>Author</i>	National Geodetic Survey
<i>Information source</i>	<i>Publisher</i>	National Oceanic and Atmospheric Administration (NOAA) National Geodetic Survey (NGS)
	<i>Revision date</i>	2017-05-16
	<i>Series/Journal name</i>	NGS Online listing of transformation parameters
	<i>Other citation details</i>	webpage
	<i>Title</i>	Introducing HTDP 3.1 to transform coordinates across time and spatial reference frames
<i>Information source</i>	<i>Author</i>	C. Pearson, R.A. Snay
	<i>Publisher</i>	Springer-Verlag
	<i>Publication date</i>	2013-01-01
	<i>Edition date</i>	2013-01-01
	<i>Series/Journal name</i>	GPS Solutions
	<i>Issue identification</i>	Volume 17, No. 1
	<i>Page</i>	1-15
	<i>Other citation details</i>	NAD83 (2011), NAD83 (MA11), NAD83 (PA11) transformation from IGB08
<i>Data source</i>	ISO Geodetic Registry	
<i>Scope</i>	Spatial referencing	
<i>Datum</i>	North American Datum of 1983 (2011) Epoch 2010	
<i>Coordinate System</i>	Geocentric 3D right-handed Cartesian CS. Axes: Geocentric X,Y,Z. Orientation: Z to North Pole, [X and Y in the equatorial plane, X at Prime Meridian X in the equatorial plane at the Prime Meridian]. UoM: m.	

Extent

<i>Description</i>	United States and Territories - onshore and offshore: Puerto Rico. United States (USA) - Alaska, CONUS (Alabama, Arizona, Arkansas, California, Colorado, Connecticut, Delaware, Florida, Georgia, Idaho, Illinois, Indiana, Iowa, Kansas, Kentucky, Louisiana,
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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). Virgin Islands (US).

Geographic Bounding Box

<i>West-bound longitude</i>	167.65
<i>North-bound latitude</i>	74.71
<i>East-bound longitude</i>	-63.88
<i>South-bound latitude</i>	14.92

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<i>Item class</i>	GeodeticDatum	
<i>Name</i>	North American Datum of 1983 (2011) Epoch 2010	
<i>Item status</i>	VALID	
<i>Identifier</i>	126	
<i>Alias</i>	NAD83(2011)	
<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>Information source</i>	
<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>Information source</i>	<i>Title</i>	CORS Coordinates
	<i>Author</i>	National Geodetic Survey
	<i>Publisher</i>	National Oceanic and Atmospheric Administration (NOAA) National Geodetic Survey (NGS)
	<i>Revision date</i>	2017-05-16
	<i>Series/Journal name</i>	NGS Online listing of transformation parameters
<i>Information source</i>	<i>Other citation details</i>	webpage
	<i>Title</i>	Publication of North American Datum of 1983 (2011) Epoch 2010.00, North American Datum of 1983 (PA2011) Epoch 2010.00 and North American Datum of 1983 (MA2011) Epoch 2010.00
	<i>Author</i>	US Government
	<i>Publisher</i>	Office of Federal Register, NARA
	<i>Publication date</i>	2013-08-08
	<i>Edition date</i>	2013-08-08
	<i>Series/Journal name</i>	Federal Register Notice
	<i>Issue identification</i>	Volume 78, No. 153, Document: 2013–19167, Citation: 78 FR 48421
	<i>Page</i>	48421-48422
	<i>Data source</i>	ISO Geodetic Registry
	<i>Remarks</i>	Replaces NAD83(CORS96) Epoch 2002.0 for control determined in an active reference frame and NAD83 (2007) for passive control.
	<i>Anchor definition</i>	Realization of NAD83. The frame is defined by a time-dependent seven parameter transformation of ITRF2008 3D geocentric Cartesian coordinates and velocities for the Conterminous United States (CONUS), including Alaska, Puerto Rico and the U.S. Virgin Islands 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). This also is a realization of passive control constrained to the values at the CORS. NAD83(2011) serves as a connection between passive network transformed by grids and active frames defined by time-dependent transformations.
<i>Release date</i>	2013
<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>	United States and Territories - onshore and offshore: Puerto Rico. 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). Virgin Islands (US).	
<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	167.65
	<i>North-bound latitude</i>	74.71
	<i>East-bound longitude</i>	-63.88
	<i>South-bound latitude</i>	14.92

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<i>Item class</i>	Ellipsoid														
<i>Name</i>	GRS 1980														
<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>	Greenwich	
<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 °	

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Item class	CartesianCS	
Name	Geocentric 3D right-handed Cartesian CS. Axes: Geocentric X,Y,Z. Orientation: Z to North Pole, [X and Y in the equatorial plane, X at Prime Meridian X in the equatorial plane at the Prime Meridian]. UoM: m.	
Item status	VALID	
Identifier	45	
Alias	Earth centred, earth fixed, right-handed 3D coordinate system, consisting of 3 orthogonal axes with X and Y axes in the equatorial plane, positive Z-axis parallel to mean earth rotation axis and pointing towards North Pole. UoM: m.	
Alias	ECEF	
Information source	Title	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)
	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007
Data source	ISO Geodetic Registry	
Remarks	Used in geocentric coordinate reference systems.	

Axes

Item class	CoordinateSystemAxis	
Name	Geocentric X	
Item status	VALID	
Identifier	33	
Information source	Title	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)
	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007
Data source	ISO Geodetic Registry	
Abbreviation	X	
Direction	Geocentre > equator/0°E	
Unit	metre	

Item class	CoordinateSystemAxis	
Name	Geocentric Y	
Item status	VALID	
Identifier	37	

<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>Abbreviation</i>	Y	
<i>Direction</i>	Geocentre > equator/90°E	
<i>Unit</i>	metre	

<i>Item class</i>	CoordinateSystemAxis	
<i>Name</i>	Geocentric Z	
<i>Item status</i>	VALID	
<i>Identifier</i>	39	
<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>Abbreviation</i>	Z	
<i>Direction</i>	Geocentre > north pole	
<i>Unit</i>	metre	