

# ISO Geodetic Registry

<i>Item class</i>	VerticalCRS	
<i>Name</i>	<b>EVRF2019mean - NHt</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	766	
<i>Alias</i>	European Vertical Reference Frame 2019	
<i>Alias</i>	EVRF2019mean	
<i>Information source</i>	<i>Title</i>	EVRF2019
	<i>Author</i>	Bundesamt fuer Kartographie und Geodäsie
	<i>Publisher</i>	Bundesamt fuer Kartographie und Geodäsie
	<i>Revision date</i>	2020-09-07
	<i>Other citation details</i>	Website. <a href="https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html">https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html</a> (accessed 2020-11-30)
<i>Information source</i>	<i>Title</i>	Conventions for the Definition and Realization of a European Vertical Reference System (EVRS) - EVRS Conventions 2007
	<i>Author</i>	J. Ihde, J. Mäkinen, M. Sacher
	<i>Publisher</i>	International Association of Geodesy Subcommission 1.3a EUREF
	<i>Revision date</i>	2019-01-11
	<i>Other citation details</i>	<a href="https://evrs.bkg.bund.de/SharedDocs/Downloads/EVRS/EN/Publications/EVRFConventions2007.pdf">https://evrs.bkg.bund.de/SharedDocs/Downloads/EVRS/EN/Publications/EVRFConventions2007.pdf</a> (accessed 2020-11-30)
<i>Data source</i>	ISO Geodetic Registry	
<i>Remarks</i>	European Vertical Reference Frame 2019 in mean tide system. See EVRF2019-NHt for zero-tide realization of EVRF2019 consistent with EVRS conventions.	
<i>Scope</i>	Spatial referencing and oceanographic applications	
<i>Datum</i>	European Vertical Reference Frame 2019 mean tide	
<i>Coordinate System</i>	Vertical CS. Axis: height (H). Orientation: up. UoM: m.	

## Extent

<i>Description</i>	<b>Europe - onshore - Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France - mainland, Germany, Gibraltar, Hungary, Italy - mainland, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia - west of approximately 60 deg E, San Marino, Slovakia, Slovenia, Spain - mainland, Sweden, Switzerland, Ukraine, United Kingdom - Great Britain mainland, Vatican City State.</b>	
<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	-9.56
	<i>North-bound latitude</i>	77.07
	<i>East-bound longitude</i>	69.16
	<i>South-bound latitude</i>	35.95

# ISO Geodetic Registry

<i>Item class</i>	VerticalDatum										
<i>Name</i>	<b>European Vertical Reference Frame 2019 mean tide</b>										
<i>Item status</i>	VALID										
<i>Identifier</i>	764										
<i>Alias</i>	EVRF2019mean										
<i>Information source</i>	<table> <tr> <td><i>Title</i></td><td>EVRF2019</td></tr> <tr> <td><i>Author</i></td><td>Bundesamt fuer Kartographie und Geodaesie</td></tr> <tr> <td><i>Publisher</i></td><td>Bundesamt fuer Kartographie und Geodaesie</td></tr> <tr> <td><i>Revision date</i></td><td>2020-09-07</td></tr> <tr> <td><i>Other citation details</i></td><td>Website. <a href="https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html">https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html</a> (accessed 2020-11-30)</td></tr> </table>	<i>Title</i>	EVRF2019	<i>Author</i>	Bundesamt fuer Kartographie und Geodaesie	<i>Publisher</i>	Bundesamt fuer Kartographie und Geodaesie	<i>Revision date</i>	2020-09-07	<i>Other citation details</i>	Website. <a href="https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html">https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html</a> (accessed 2020-11-30)
<i>Title</i>	EVRF2019										
<i>Author</i>	Bundesamt fuer Kartographie und Geodaesie										
<i>Publisher</i>	Bundesamt fuer Kartographie und Geodaesie										
<i>Revision date</i>	2020-09-07										
<i>Other citation details</i>	Website. <a href="https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html">https://evrs.bkg.bund.de/Subsites/EVRS/EN/EVRF2019/evrf2019.html</a> (accessed 2020-11-30)										
<i>Data source</i>	ISO Geodetic Registry										
<i>Remarks</i>	EVRF2019 is realized by an adjustment of geopotential numbers of the Unified European Levelling Network in the mean tide system, followed by computation of Normal heights, referenced to GRS80 ellipsoid. Measurements of BY, CH, DK, EE, FI, LT, LV, NO, RU, SE were reduced to epoch 2000 using the velocity model NKG2016LU for Nordic countries and a set of velocities for Switzerland, provided by Swisstopo. See EVRF2019 for zero-tide realization of EVRF2019 consistent with EVRS conventions.										
<i>Anchor definition</i>	Height at Normal Amsterdams Peil (NAP) is zero, realised by least squares fit to 12 datum points of EVRF2007 solution, transformed to mean tide by $C_{\text{mean}} = C_{\text{zero}} + 0.28841 \cdot \sin^2(\phi) + 0.00195 \cdot \sin^4(\phi) - 0.09722 - 0.08432$ [kgal·m]. The constant 0.08432 kgal·m is used to force the mean-tide height to equal the zero-tide height at the EVRF2000 origin in Amsterdam.										
<i>Release date</i>	2020-09										
<i>Coordinate Reference Epoch</i>	2000.0										
<i>Scope</i>	Spatial referencing and oceanographic applications										

## Extent

<i>Description</i>	<b>Europe - onshore - Andorra, Austria, Belarus, Belgium, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France - mainland, Germany, Gibraltar, Hungary, Italy - mainland, Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, North Macedonia, Norway, Poland, Portugal, Romania, Russia - west of approximately 60 deg E, San Marino, Slovakia, Slovenia, Spain - mainland, Sweden, Switzerland, Ukraine, United Kingdom - Great Britain mainland, Vatican City State.</b>	
<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	-9.56
	<i>North-bound latitude</i>	77.07
	<i>East-bound longitude</i>	69.16

*South-bound latitude*

35.95

# ISO Geodetic Registry

<i>Item class</i>	VerticalCS	
<i>Name</i>	<b>Vertical CS. Axis: height (H). Orientation: up. UoM: m.</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	42	
<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 vertical coordinate reference systems.	

## Axes

<i>Item class</i>	CoordinateSystemAxis	
<i>Name</i>	<b>Gravity-related height</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	35	
<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 a 1D vertical coordinate system.	
<i>Abbreviation</i>	H	
<i>Direction</i>	up	
<i>Unit</i>	metre	