

# ISO Geodetic Registry

<i>Item class</i>	Transformation	
<i>Name</i>	<b>WGS 84 (G1762) to WGS 84 (G2139) [1]</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	800	
<i>Information source</i>	<i>Title</i>	Recent Update to WGS 84 Reference Frame and NGA Transition to IGS ANTEX
	<i>Author</i>	Office of Geomatics / GNSS Division, National Geospatial-Intelligence Agency
	<i>Publisher</i>	National Geospatial-Intelligence Agency
	<i>Publication date</i>	2021
	<i>Series/Journal name</i>	Public Release
	<i>Issue identification</i>	21-520
	<i>Other citation details</i>	<a href="https://earth-info.nga.mil/php/download.php?file=(U)WGS%2084(G2139).pdf">https://earth-info.nga.mil/php/download.php?file=(U)WGS%2084(G2139).pdf</a> (accessed 2021-09-24)
<i>Information source</i>	<i>Title</i>	Personal communication
	<i>Author</i>	Robert Wong
	<i>Publisher</i>	National Geospatial-Intelligence Agency
	<i>Publication date</i>	2021-10-25
	<i>Series/Journal name</i>	ISGR Control Body Meeting
<i>Issue identification</i>	2021-10-25	
<i>Data source</i>	ISO Geodetic Registry	
<i>Remarks</i>	Transformation between WGS 84 ephemerides, derived at epoch 2016.0.	
<i>Operation version</i>	1.0	
<i>Scope</i>	Spatial referencing and GPS satellite navigation.	
<i>Operation accuracy</i>	0.01 m	
<i>Source CRS</i>	WGS 84 (G1762) - XYZ	
<i>Target CRS</i>	WGS 84 (G2139) - XYZ	
<i>Operation method</i>	Coordinate Frame Transformation (geocentric Cartesian domain)	

## Extent

<i>Description</i>	<b>World</b>	
<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	-180.0
	<i>North-bound latitude</i>	90.0
	<i>East-bound longitude</i>	180.0
	<i>South-bound latitude</i>	-90.0

## Operation parameter values

<i>X-axis translation</i>	0.0058 metre
<i>Y-axis translation</i>	-0.0064 metre
<i>Z-axis translation</i>	0.007 metre
<i>X-axis rotation</i>	0.08 milliarc-second
<i>Y-axis rotation</i>	0.04 milliarc-second
<i>Z-axis rotation</i>	0.12 milliarc-second
<i>Scale difference</i>	-4.4 parts per billion

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<i>Item class</i>	OperationMethod
<i>Name</i>	<b>Coordinate Frame Transformation (geocentric Cartesian domain)</b>
<i>Item status</i>	VALID
<i>Identifier</i>	74
<i>Alias</i>	Coordinate Frame Transformation
<i>Alias</i>	7-Parameter Transformation
<i>Alias</i>	Bursa-Wolf Transformation
<i>Data source</i>	ISO Geodetic Registry
<i>Remarks</i>	This method is a specific case of the Molodensky-Badekas (CF) method in which the evaluation point is at the geocentre with coordinate values of zero. Note the analogy with the Position Vector transformation method but beware of the differences!
<i>Formula</i>	Geomatics Guidance Note No 7, part 2: Coordinate Conversions and Transformations including Formulas

## Operation parameters

<i>X-axis translation</i>
<i>Y-axis translation</i>
<i>Z-axis translation</i>
<i>X-axis rotation</i>
<i>Y-axis rotation</i>
<i>Z-axis rotation</i>
<i>Scale difference</i>