

# ISO Geodetic Registry

<i>Item class</i>	Transformation	
<i>Name</i>	<b>ITRF2014 to KSA-GRF17 [GASGI v1]</b>	
<i>Item status</i>	VALID	
<i>Identifier</i>	781	
<i>Information source</i>	<i>Title</i>	Technical Summary for Saudi Arabia National Spatial Reference System (SANSRS).
	<i>Author</i>	General Directorate of Geodesy
	<i>Publisher</i>	General Directorate of Geodesy, General Authority for Survey and Geospatial Information, Kingdom of Saudi Arabia
	<i>Publication date</i>	2019-06
	<i>Revision date</i>	2021-02
	<i>Other citation details</i>	<a href="https://www.gasgi.gov.sa/En/Products/Products_v1/Geodesy/Documents/Technical_Summary_for_SANSRS_v1.1.pdf">https://www.gasgi.gov.sa/En/Products/Products_v1/Geodesy/Documents/Technical_Summary_for_SANSRS_v1.1.pdf</a> (accessed 2021-06-07)
<i>Data source</i>	ISO Geodetic Registry	
<i>Remarks</i>	3D Cartesian rotation rates representing the Arabian tectonic plate Euler pole rotation as derived from 41 KSA-GRF stations.	
<i>Operation version</i>	GASGI v1	
<i>Scope</i>	Spatial referencing	
<i>Operation accuracy</i>	0.001 m	
<i>Source CRS</i>	ITRF2014 - XYZ	
<i>Target CRS</i>	KSA-GRF17 - XYZ	
<i>Operation method</i>	Time-Dependent Position Vector Transformation (geocentric Cartesian domain)	

## Extent

<i>Description</i>	<b>Saudi Arabia - onshore and offshore.</b>	
<i>Geographic Bounding Box</i>	<i>West-bound longitude</i>	34.44
	<i>North-bound latitude</i>	32.16
	<i>East-bound longitude</i>	55.67
	<i>South-bound latitude</i>	16.29

## Operation parameter values

<i>X-axis translation</i>	0.0 millimetre
<i>Y-axis translation</i>	0.0 millimetre
<i>Z-axis translation</i>	0.0 millimetre
<i>X-axis rotation</i>	0.0 milliarc-second
<i>Y-axis rotation</i>	0.0 milliarc-second
<i>Z-axis rotation</i>	0.0 milliarc-second
<i>Scale difference</i>	0.0 parts per billion
<i>Rate of change of X-axis translation</i>	0.0 millimetre per year
<i>Rate of change of Y-axis translation</i>	0.0 millimetre per year
<i>Rate of change of Z-axis translation</i>	0.0 millimetre per year
<i>Rate of change of X-axis rotation</i>	-1.199 milliarc-second per year
<i>Rate of change of Y-axis rotation</i>	0.107 milliarc-second per year
<i>Rate of change of Z-axis rotation</i>	-1.468 milliarc-second per year

<i>Rate of change of scale difference</i>	0.0 parts per billion per year
<i>Time reference</i>	2017.0 year

# ISO Geodetic Registry

<i>Item class</i>	OperationMethod
<i>Name</i>	<b>Time-Dependent Position Vector Transformation (geocentric Cartesian domain)</b>
<i>Item status</i>	VALID
<i>Identifier</i>	82
<i>Alias</i>	Time-Dependent 7-Parameter Transformation
<i>Alias</i>	14-Parameter Transformation
<i>Alias</i>	Time-Dependent Position Vector Transformation
<i>Data source</i>	ISO Geodetic Registry
<i>Remarks</i>	Note the analogy with the rotation for the Time-dependent Coordinate Frame Transformation but beware of the differences! The Position Vector Transformation convention is used by IAG.
<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>
<i>Rate of change of X-axis translation</i>
<i>Rate of change of Y-axis translation</i>
<i>Rate of change of Z-axis translation</i>
<i>Rate of change of X-axis rotation</i>
<i>Rate of change of Y-axis rotation</i>
<i>Rate of change of Z-axis rotation</i>
<i>Rate of change of scale difference</i>
<i>Time reference</i>