ISO Geodetic Registry

Item class Transformation

Name ITRF2014 to KSA-GRF17 [GASGI v1]

Item statusVALIDIdentifier781

Information source Title Technical Summary for Saudi Arabia National

Spatial Reference System (SANSRS).

Author General Directorate of Geodesy

Publisher General Directorate of Geodesy, General

Authority for Survey and Geospatial Information,

Kingdom of Saudi Arabia

Publication date 2019-06 Revision date 2021-02

Other citation details https://www.gasgi.gov.sa/En/Products/

Products_v1/Geodesy/Documents/

Technical_Summary_for_SANSRS_v1.1.pdf

(accessed 2021-06-07)

Data source ISO Geodetic Registry

Remarks 3D Cartesian rotation rates representing the Arabian tectonic plate

Euler pole rotation as derived from 41 KSA-GRF stations.

Operation version GASGI v1

Scope Spatial referencing

Operation accuracy 0.001 m

Source CRS ITRF2014 - XYZ
Target CRS KSA-GRF17 - XYZ

Operation method Time-Dependent Position Vector Transformation (geocentric Cartesian

domain)

Extent

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

Operation parameter values

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

Rate of change of scale difference Time reference 0.0 parts per billion per year 2017.0 year

ISO Geodetic Registry

Item class OperationMethod

Name Time-Dependent Position Vector

Transformation (geocentric Cartesian domain)

Item status VALID Identifier 82

Alias Time-Dependent 7-Parameter Transformation

Alias 14-Parameter Transformation

Alias Time-Dependent Position Vector Transformation

Data source ISO Geodetic Registry

Remarks 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.

Formula Geomatics Guidance Note No 7, part 2: Coordinate Conversions and

Transformations including Formulas

Operation parameters

X-axis translation

Y-axis translation

Z-axis translation

X-axis rotation

Y-axis rotation

Z-axis rotation

Scale difference

Rate of change of X-axis translation

Rate of change of Y-axis translation

Rate of change of Z-axis translation

Rate of change of X-axis rotation

Rate of change of Y-axis rotation

Rate of change of Z-axis rotation

Rate of change of scale difference

Time reference