# ISO Geodetic Registry

Name ITRF2014 to KSA-GRF17 [GASGI v1]

Transformation

Item statusVALIDIdentifier781

Item class

Information source Title Technical Summary for Saudi Arabia National

Spatial Reference System (SANSRS).

Author General Directorate of Geodesy

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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