ISO Geodetic Registry

Item class Transformation

Name ITRF90 to ETRF2014 [EUREF v1]

Item status VALID
Identifier 759

Information source Title EUREF Technical Note 1: Relationship and

Transformation between the International and the

European Terrestrial Reference Systems

Author Z. Altamimi

Publisher Institut National de l'Information Géographique et

Forestière (IGN), France

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Series/Journal name EUREF Technical Notes

Other citation details http://etrs89.ensg.ign.fr/pub/EUREF-TN-1.pdf

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Information source Title Guidelines for EUREF Densifications

Author C. Bruyninx, Z. Altamimi, A. Caporali, A.

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Publisher IAG sub-commission for the European Reference

Frame - EUREF

Revision date 2018-03-09

Other citation details http://www.epncb.oma.be/

_documentation/guidelines/

Guidelines_for_EUREF_Densifications.pdf

(accessed 2020-20-14)

Data source ISO Geodetic Registry

Remarks Accuracy of transformation is given at the reference epoch for the

transformation parameters (2010.0); actual accuracy then depends on the epoch at which the transformation parameters are applied (refer to

Citation for accuracies of velocities of the para

Operation version EUREF v1

Scope Spatial referencing

Operation accuracy 0.0 m

Source CRS ITRF90 - XYZ
Target CRS ETRF2014 - XYZ

Operation method Time-Dependent Position Vector Transformation (geocentric Cartesian

domain)

Extent

Europe - onshore and offshore: Albania,
Andorra, Austria, Belgium, Bosnia and
Herzegovina, Bulgaria, Croatia, Cyprus,
Czech Republic, Denmark, Estonia, Faroe
Islands, Finland, France, Germany, Gibraltar,
Greece, Hungary, Ireland, Italy, Latvia,
Liechtenstein, Lithuania, Luxembourg,
Macedonia, Malta, Monaco, Montenegro,
Netherlands, Norway including Svalbard and
Jan Mayen, Poland, Portugal, Romania, San
Marino, Serbia, Slovakia, Slovenia, Spain,

Sweden, Switzerland, United Kingdom (UK) including Channel Islands and Isle of Man, Vatican City State.

Geographic Bounding Box West-bound longitude -16.1 North-bound latitude 84.17

North-bound latitude 84.17
East-bound longitude 39.65
South-bound latitude 32.88

Operation parameter values

Time reference	2010.0 year
Rate of change of scale difference	-0.12 parts per billion per year
Rate of change of Z-axis rotation	-0.79 milliarc-second per year
Rate of change of Y-axis rotation	0.531 milliarc-second per year
Rate of change of X-axis rotation	0.085 milliarc-second per year
Rate of change of Z-axis translation	3.3 millimetre per year
Rate of change of Y-axis translation	0.5 millimetre per year
Rate of change of X-axis translation	-0.1 millimetre per year
Scale difference	-4.79 parts per billion
Z-axis rotation	-16.43 milliarc-second
Y-axis rotation	11.151 milliarc-second
X-axis rotation	1.785 milliarc-second
Z-axis translation	92.8 millimetre
Y-axis translation	-11.5 millimetre
X-axis translation	-25.4 millimetre

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Item class OperationMethod

Name Time-Dependent Position Vector

Transformation (geocentric Cartesian domain)

Item statusVALIDIdentifier82

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.

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

Transformations including Formulas

Operation parameters

X-axis translation

Formula

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