ISO Geodetic Registry

Item class	Transformation	
Name	**ITRF90 to ETRF90 [EUREF v1]**	
Item status	VALID	
Identifier	650	
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
	Publication date	2018-06-28
	Series/Journal name	IERS Technical Note
	Issue identification	1.0
Information source	*Title*	Memo : Specifications for reference frame fixing in the analysis of a EUREF GPS campaign (version 8)
	Author	C. Boucher, Z. Altamimi
	Publisher	Institute National de l'Information Geographique et Forestiere (IGN), Laboratoire de Recherche en Geodesie (LAREG)
	Publication date	2011-05-18
	Edition date	
Data source	ISO Geodetic Registry	
Remarks	Method A. Accuracy of transformation is given at the reference epoch for the transformation parameters (1989.0); actual accuracy then depends on the epoch at which the transformation parameters are applied (refer to Citation for accuracies of velocities of the parameters).	
Operation version	EUREF v1	
Scope	Spatial referencing	
Operation accuracy	0.0 m	
Source CRS	ITRF90 - XYZ	
Target CRS	ETRF90 - XYZ	
Operation method	Time-Dependent Position Vector Transformation (geocentric Cartesian domain)	

Extent

Description	**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
	East-bound longitude	39.65
	South-bound latitude	32.88

Operation parameter values

Time reference	1989.0 year
Rate of change of scale difference	0.0 parts per billion per year
Rate of change of Z-axis rotation	-0.71 milliarc-second per year
Rate of change of Y-axis rotation	0.57 milliarc-second per year
Rate of change of X-axis rotation	0.11 milliarc-second per year
Rate of change of Z-axis translation	0.0 millimetre per year
Rate of change of Y-axis translation	0.0 millimetre per year
Rate of change of X-axis translation	0.0 millimetre per year
Scale difference	0.0 parts per billion
Z-axis rotation	0.0 milliarc-second
Y-axis rotation	0.0 milliarc-second
X-axis rotation	0.0 milliarc-second
Z-axis translation	-23.0 millimetre
Y-axis translation	28.0 millimetre
X-axis translation	19.0 millimetre

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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