Item class	GeodeticCRS
Name	**ETRF91 - LatLonEHt**
Item status	VALID
Identifier	371
Alias	European Terrestrial Reference Frame 1991
Information source	*Title* ETRS89 realization: Current status, ETRF2005 and Future Development
	Author Z. Altamimi
	Publication date 2008-06-17
	Edition date
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
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
Data source	ISO Geodetic Registry
Scope	Spatial referencing
Datum	European Terrestrial Reference Frame 1991
Coordinate System	Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre.

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

Item class	GeodeticDatum	
Name	**European Terrestrial Reference Frame 1991**	
Item status	VALID	
Identifier	157	
Alias	ETRF91	
Information source	*Title*	ETRS89 realization: Current status, ETRF2005 and Future Development
	Author	Z. Altamimi
	Publication date	2008-06-17
	Edition date	
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	The ETRF91 reference frame is a realization of the ETRS89 reference system.	
Anchor definition	Coincides with ITRF91 in orientation and scale at epoch 1989.0 realigned to ITRF89 at epoch 1989.0 using 3 translations and is fixed to the stable part of the Eurasian tectonic plate through 3 rotation rates derived from the AM02 geophysical model, representing the Eurasian plate's angular velocity about its Euler pole.	
Coordinate Reference Epoch	1989.0	
Scope	Spatial referencing	
Ellipsoid	GRS 1980	
Prime Meridian	Greenwich	

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

ISO Geodetic Registry

Item class	Ellipsoid
Name	**GRS 1980**
Item status	VALID
Identifier	27
Alias	Geodetic Reference System 1980
Alias	GRS1980
Alias	IAG GRS80
Alias	International 1979
Alias	GRS80
Information source	Title Geodetic Reference System 1980 Author H. Moritz Publisher Springer International Publishing Publication date 2003-03 Series/Journal name Journal of Geodesy Issue identification Volume 74, No. 1 Page 128–162
Information source	Title Geodetic Reference System 1980 Author H. Moritz Publisher International Association of Geodesy Publication date 1984 Series/Journal name Bulletin Geodesique Issue identification Volume 58, No. 3 Page 395-405
Data source	ISO Geodetic Registry
Remarks	Adopted by IUGG 1979 Canberra. Inverse flattening is derived from geocentric gravitational constant GM = 3986005e8 m*m*m/s/s, dynamic form factor J2 = 108263e-8 and Earth's angular velocity = 7292115e-11 rad/s.
Semi-major axis	6378137.0 m
Inverse flattening	298.257222101 m

ISO Geodetic Registry

Item class	PrimeMeridian	
Name	**Greenwich**	
Item status	VALID	
Identifier	25	
Alias	Zero meridian	
Information source	*Title*	Why the Greenwich meridian moved
	Author	S. Malys, J.H. Seago, N.K. Pavlis, P.K. Seidelmann, G.H. Kaplan
	Publisher	Springer International Publishing
	Publication date	2015-12
	Series/Journal name	Journal of Geodesy
	Issue identification	Volume 89, No. 12
	Page	1263–1272
Information source	*Title*	IERS Conventions (2010)
	Author	G. Petit, B.J. Luzum (eds)
	Publisher	Verlag des Bundesamts fur Kartographie und Geodasie
	Publication date	2010
	Edition date	
	Series/Journal name	IERS Technical Notes
	Issue identification	36.0
	Other citation details	ISSN: 1019-4568
Data source	ISO Geodetic Registry	
Greenwich longitude	0.0 °	

Item class	EllipsoidalCS
Name	**Ellipsoidal 3D CS. Axes: latitude, longitude, ellipsoidal height. Orientations: north, east, up. UoM: degree, degree, metre.**
Item status	VALID
Identifier	46

Information source	Title	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)
	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007

Data source	ISO Geodetic Registry
Remarks	Used in geographic 3D coordinate reference systems. Horizontal coordinates referenced to this CS are in degrees. Any degree representation (e.g. DMSH, decimal, etc.) may be used but that used must be declared for the user.

Axes

Item class	CoordinateSystemAxis
Name	**Geodetic latitude**
Item status	VALID
Identifier	38

Information source	Title	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)
	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007

Data source	ISO Geodetic Registry
Remarks	Used in geographic 2D and geographic 3D coordinate reference systems.
Abbreviation	Lat
Direction	north
Unit	degree (supplier to define representation)

Item class	CoordinateSystemAxis
Name	**Geodetic longitude**
Item status	VALID
Identifier	34

Information source	Title	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)

	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007
Data source	ISO Geodetic Registry	
Remarks	Used in geographic 2D and geographic 3D coordinate reference systems.	
Abbreviation	Lon	
Direction	east	
Unit	degree (supplier to define representation)	

Item class	CoordinateSystemAxis	
Name	**Ellipsoidal height**	
Item status	VALID	
Identifier	36	
Information source	*Title*	ISO 19111 Geographical information - Spatial referencing by coordinates
	Author	International Organization for Standardization (ISO)
	Publisher	International Organization for Standardization (ISO)
	Publication date	2007-07-01
	Edition	Second Edition
	Series/Journal name	International Standard
	Issue identification	ISO 19111:2007
Data source	ISO Geodetic Registry	
Remarks	Used only as part of an ellipsoidal 3D coordinate system in a geographic 3D coordinate reference system, never on its own.	
Abbreviation	h	
Direction	up	
Unit	metre	