



# **Transformation parameters between national height systems and EVRF2007**

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presented by Wolfgang Söhne



- **54th TWG in Lisbon:**
  - **ML: no acceptance procedure by EUREF TWG for national height realizations due to lack of available data**
  - **Jl: majority of countries computed transformation parameters for the national height systems**
  - **JT: proceeding of INSPIRE urges EUREF to put the European reference systems on the upcoming symposiums' agenda**
  - **Jl: will present an updated list of transformation parameters and an overview on the national situation (→ AI)**

## ■ Information system for European Coordinate Reference Systems

# CRS<sub>EU</sub>

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## Coordinate Reference Systems in Europe

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### Information and Service System for European Coordinate Reference Systems

This Information and Service System for European Coordinate Reference Systems was established to support the users of spatial information in Europe.

It is a common project of:

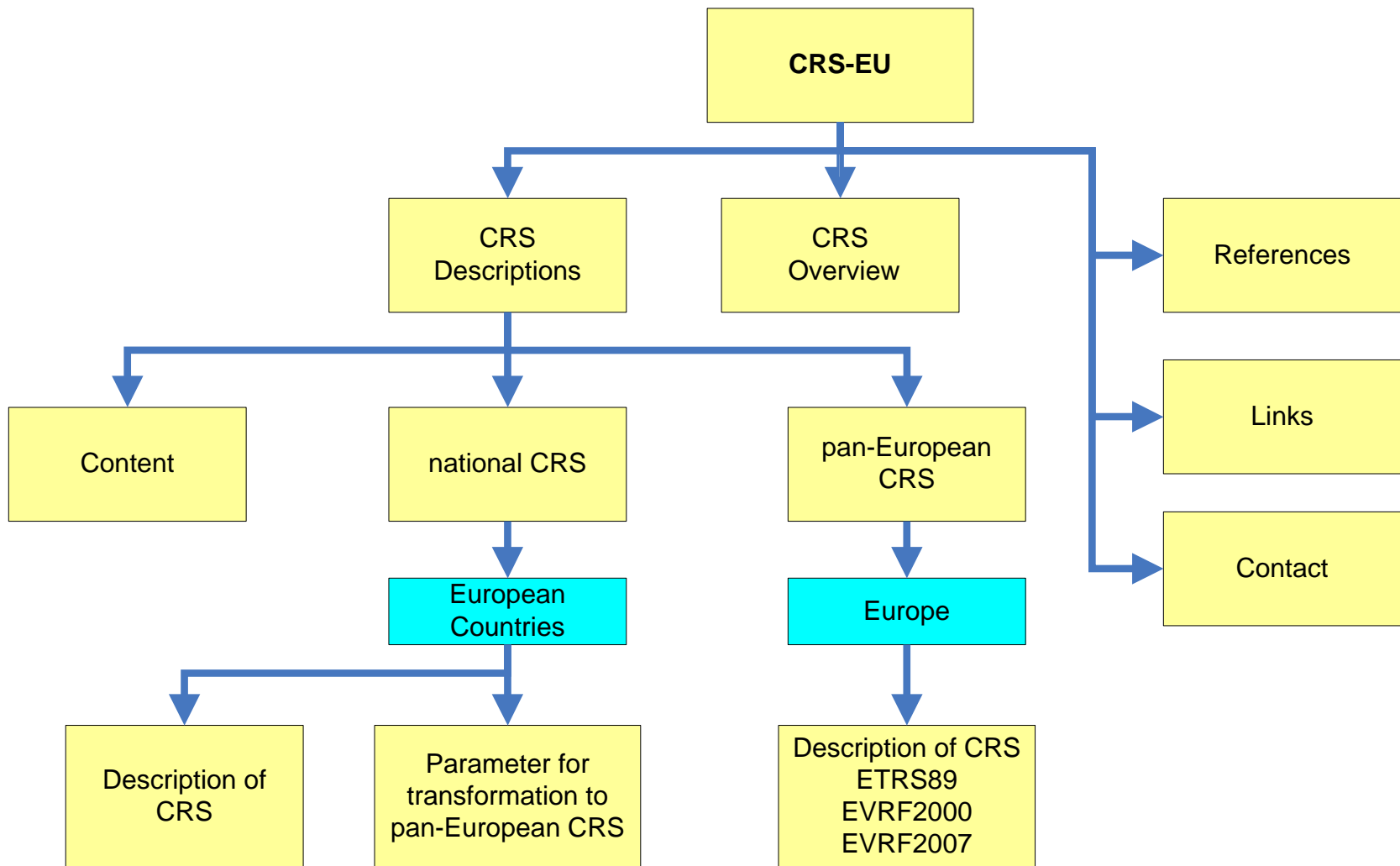
Bundesamt für Kartographie und Geodäsie (Federal Agency for Cartography and Geodesy), Germany

EuroGeographics as the central-hub for Europe's Geographic Information (GI) developments  
- a unique and diverse network working of all concerned with European GI, National Mapping and Cadastral Agencies (NMCAs), the European Commission and others

EUREF (European Reference Frame) as Sub-Commission of IAG's (International Association of Geodesy) Commission X on Global and Regional Geodetic Networks with the main task to established and maintenance of the European Reference Frames



- Common project of EUREF / EuroGeographics / BKG
- Address [www.crs-geo.eu](http://www.crs-geo.eu)
- Information
  - was provided by the National Mapping Agencies (NMA)
  - or prepared / compiled by BKG and agreed with NMAs
  - always unified and prepared regarding ISO-Standard 19111





- Description of pan-European CRS
  - EVRF2007
    - e.g. EVRF2007\_AMST / NH [as PDF](#)
  - transformation parameters from national CRS of height to EVRF2007 for 26 countries
    - e.g. DE\_AMST / NH to EVRF2007 [as PDF](#)
  - nevertheless, transformation parameters to EVRF2000 are still included
  - description of national CRS (height) were added for 7 countries
- Possibility of online-transformation of single points for heights



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### Description of national Coordinate Reference Systems (CRS) of European Countries

#### Contains

- descriptions of Coordinate Reference Systems
- transformation parameters to pan-European CRS [ETRS89](#), [EVRF2000](#) and [EVRF2007](#)
- verification data for transformation
- online-transformation of single points for position and height from national CRS of a country to pan-European [ETRS89](#), [EVRF2000](#) and [EVRF2007](#) for test and verification purposes

To get the information select a country in the list or click on the corresponding red dot in the map

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Austria  
Belgium  
Bosnia / Herceg.  
Bulgaria  
Croatia  
Cyprus  
Czech Republic  
Denmark  
Estonia  
Finland  
France  
Germany  
Gibraltar  
Great Britain  
Greece  
Hungary  
Iceland  
Ireland  
Italy



Latvia  
Lithuania  
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### Coordinate Reference Systems of Germany - DE

CRS Identifier	CRS Annotation	Select		
		Descr. of CRS	Descr. of Transf.	Online Transf.
Position				
DE_DHDN / GK_3	Datum DHDN with Gauss-Krüger-System (also known as Rauenberg or Potsdam Datum)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
DE_ETRS89 / UTM	Datum ETRS89 with UTM Projection	<a href="#">☐</a>	<a href="#">☐</a>	
DE_ETRS89 / UTM_BB	Datum ETRS89 in UTM projection with special modification for federal state Brandenburg	<a href="#">☐</a>	<a href="#">☐</a>	
DE_PD/83 / GK_3	Datum PD/83 with Gauss-Krüger-System (realisation of Postdam Datum for federal state Thüringen)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
DE_RD/83 / GK_3	Datum RD/83 with Gauss-Krüger-System (realisation of Rauenberg Datum for federal state Sachsen)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
DE_42/83 / GK_3	Datum 42/83 with Gauss-Krüger-System	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
Height				
DE_AMST / NH	normal heights referred to tide gauge Amsterdam (also known as DHHN92)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
DE_AMST / NOH	normal-orthometric heights referred to tide gauge Amsterdam (also known as DHHN85)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>
DE_KRON / NH	normal heights referred to tide gauge Kronstadt (also known as SNN76)	<a href="#">☐</a>	<a href="#">☐</a>	<a href="#">☐</a>

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Selection of transformation version for CRS: DE\_AMST / NH

Transformation	Selection
DE_AMST / NH to EVRF2000	<input type="checkbox"/>
DE_AMST / NH to EVRF2007	<input type="checkbox"/>

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# CRS-EU Onlinetransformation Heights

## Online transformation

DE\_AMST / NH to EVRF2007

### Source

national height

DE\_AMST / NH [m]   
(DHHN92 EPSG code: 5783)

### ETRS89 position of point

Latitude [DMS]     
Longitude [DMS]     
Longitude wrt Greenwich and positive to East

### Target

pan-European height

EVRF2007 [m]  RMS of transf. [m]

Compute

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#### News

##### Austria

- update of CRS description for AT\_MGI / AT\_TM
- adding two CRS for position due requirements of INSPIRE: AT\_MGI / Austria GK and AT\_ETRS89 / Austria Lambert

01-Feb-2011

##### Croatia

- replace the CRS for military purposes HR\_HTRS96 / UTM with HR\_WGS84 / UTM to be in agreement with some specifications

02-Nov-2010

##### Slovak Republic

- update of web address for NMA of Slovakia.

02-Nov-2010

##### Onlinetransformation for height realised

The user have now the possibility to transform national gravity-related heights to pan-European CRS EVRF2000 or EVRF2007 for single-points. After input of a gravity-related height and the position of point in ellipsoidal coordinates the height in pan-European height CRS will compute, if the parameter are available and published. In the result fields also an information about the accuracy of transformation will be shown (RMS from computation of transformation parameters).

27-Sep-2010

##### Croatia

- Update of CRS HR\_HDKS / HR\_TM (correction Lat of Datum anchor point, drop one zone - only zone 5 and 6)
- Addition in field "Operation method remarks" of transformation HR\_HDKS to ETRS89 regarding signs in official parameters
- Publish of new Coordinate Reference Systems HR\_HTRS96 / HTRS96\_TM and HR\_HTRS96 / UTM, which are the realisations of ETRS89 in Croatia

02-Sep-2010



- In April 2010 TWG sent letters to NMAs with
  - calculated transformation parameters to EVRF2007
  - draft of description of national vertical reference system in the case of implementation of a new CRS in the respective country
  - ask for verifying the data, supplement missing data and details
  - ask for agreement to publish the information in CRS-EU
- 27 countries were contacted, about half of them replied
- Only verified information have been released in CRS-EU (see the table)



# Status of the information in CRS-EU (height)

Country	CRS-Description	CRS-Description (new)	Transformation to EVRF2000	Transformation to EVRF2007
Austria	released		released	existing
Belgium	released		released	released
Bosnia / Hercegovina	existing		existing	existing
Bulgaria	released		released	released
Switzerland	released		released	released
Czech Republic	released		released	released
Germany	released		released	released
Denmark	released		released	existing
Estonia	released		released	released
Spain	released		released	existing
Finland	released	existing	released	existing
France	released		released	existing
Great Britain	released		released	existing
Croatia	released	released	released	released
Hungary	released		released	existing
Italy	released		released	released
Lithuania	released		released	released
Latvia	released		released	released
Netherlands	released	existing	released	existing
Norway	released	existing	released	existing
Poland	existing	existing	existing	existing
Portugal	released		released	existing
Romania	released		released	released
Russia	existing		<i>EVRF2000 not available</i>	<i>EVRFxx will be available future</i>
Sweden	released	released	released	released
Slovenia			released	existing
Slovak Republic	released	released	released	released
Turkey	released		<i>EVRF2000 not available</i>	<i>EVRFxx will be available future</i>
Ukraine	existing		<i>EVRF2000 not available</i>	<i>EVRFxx will be available future</i>

existing: parameter estimated but not to be published