

Annual Report of Expert Group Geodesy (ExGG) of EuroGeographics

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ExGG continue the work of Working Group VIII – Geodesy of CERCO.

Within the last years geodetic related topics comes of common interest for the geo-information community: Spatial Reference Workshop, and the European Map Projection Workshop organized by MEGRIN 1999 and 2000, in collaboration with the Joint Research Centre (JRC) of the EC.

2003: decision of of the European Commission to relate their own geographical data to ETRS89. Open is the decision of EC for a common Vertical European Reference System.

1. Terms of Reference, Work Plan

ToR and WP are agreed in October 2004 with EG.

The objectives of the ExG-G in its field of activities are to

- coordinate the cooperation between EG and EUREF in the field of Geodesy
- specify and adopt solutions of EUREF for applications in EG projects
- prepare and support the use of new geodetic technologies and products
- define products, prepare guidelines, standards and validation procedures
- promote EUREF products especially the adoption of the reference systems defined by EUREF (ETRS89 and EVRS) in the European countries and European-wide organizations involved in georeferencing activities
- advice project groups of EuroGeographics and ESDI groups in geodetic questions and tasks.

Work Plan

The ExGG has four core projects, integrated in the activities defined in the ToR and directly related with geodetic products (data and services):

- (1) Information system for European Coordinate Reference Systems (CRS-EU)**
- (2) Development of a product catalogue geodesy**
- (3) European Vertical Reference System (EVRS) Implementation**
- (4) Real Time GNSS Service**

Members of ExGG:

Zuheir Altamini, France

Elmar Brockmann, Switzerland

Heinz Habrich, Germany

Johannes Ihde, Germany

Ambrus Kenyeres, Hungary

Claude Luzet, France

Jaakko Mäkinen, Finland

Jaroslav Simek, Czechia

Günter Stangl, Austria

Joao AgriaTorres, Portugal

Georg Weber, Germany

Marijan Marjanovic, Croatia

Responsibility

EUREF

CRS-EU, Georail

nom. for INSPIRE, product catalogue,

Chair, CRS-EU, ISO 19111, EVRS

EVRS proceedings, definitions

EuroGeographics Head Office

Gravity, EVRS proceedings, definitions

Secretary

EuroBoundaries

Validation, certification, ISO 19111

NTRIP, EPN densification

Public relation

New members of ExGG:

Responsibility

Dimitros Delikaraoglou, Greece

Edmandas Sleiteris, Lithuania

Maria Ovdii, Moldova

Matej Klobušíak, Slovakia

Yavuz Selim Sengün, Turkey

Lola Bahl, Denmark

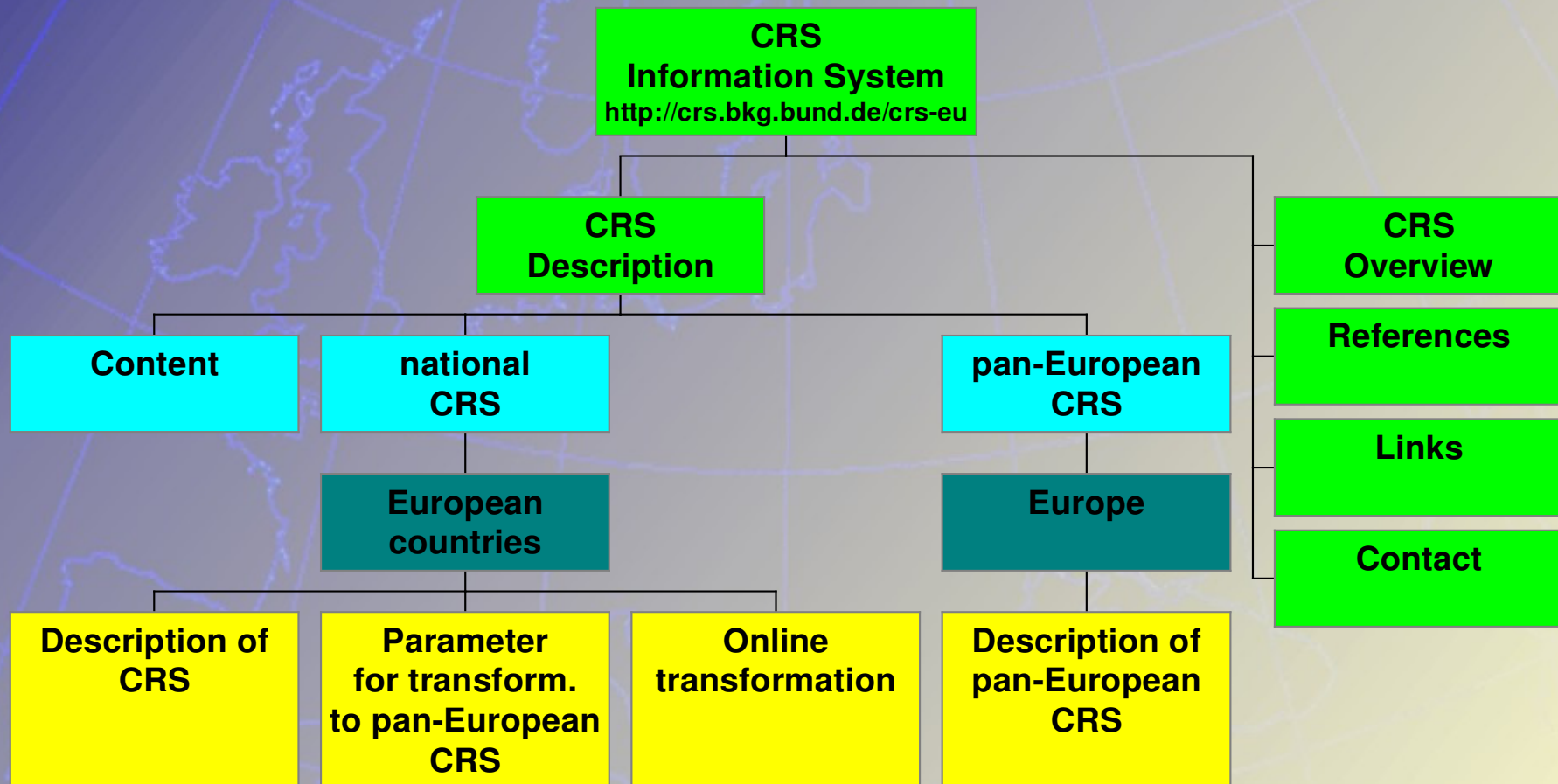
Kazimierz Czarnecki, Poland

Guests

Helmut Hornik

(2) Status of CRS-EU Information System

Structure (ISO 19111)



CRS-EU Improvements since last EUREF symposium 2004

- **new web design version**
- **improved layout and structure for better access to the information**
- **verification data for transformation**
- **starting of realisation of single point online transformation for position**

Verification data (1)

- verification data for transformation in position and height by some fictive points of the transformation area

Position

Poland (PL) - Testdata for Validation of Transformation

fictive points of transformation area

PL_42/58 (DMS)				ETRS89 (DMS)			
Lat		Lon		Lat		Lon	
53 49 36.1200	14 45 58.3200	53 49 34.84	14 45 51.44				
49 33 20.8800	22 23 58.5600	49 33 19.89	22 23 52.44				

Verification data (2)

Height

Poland (PL) - Testdata for Validation of Transformation

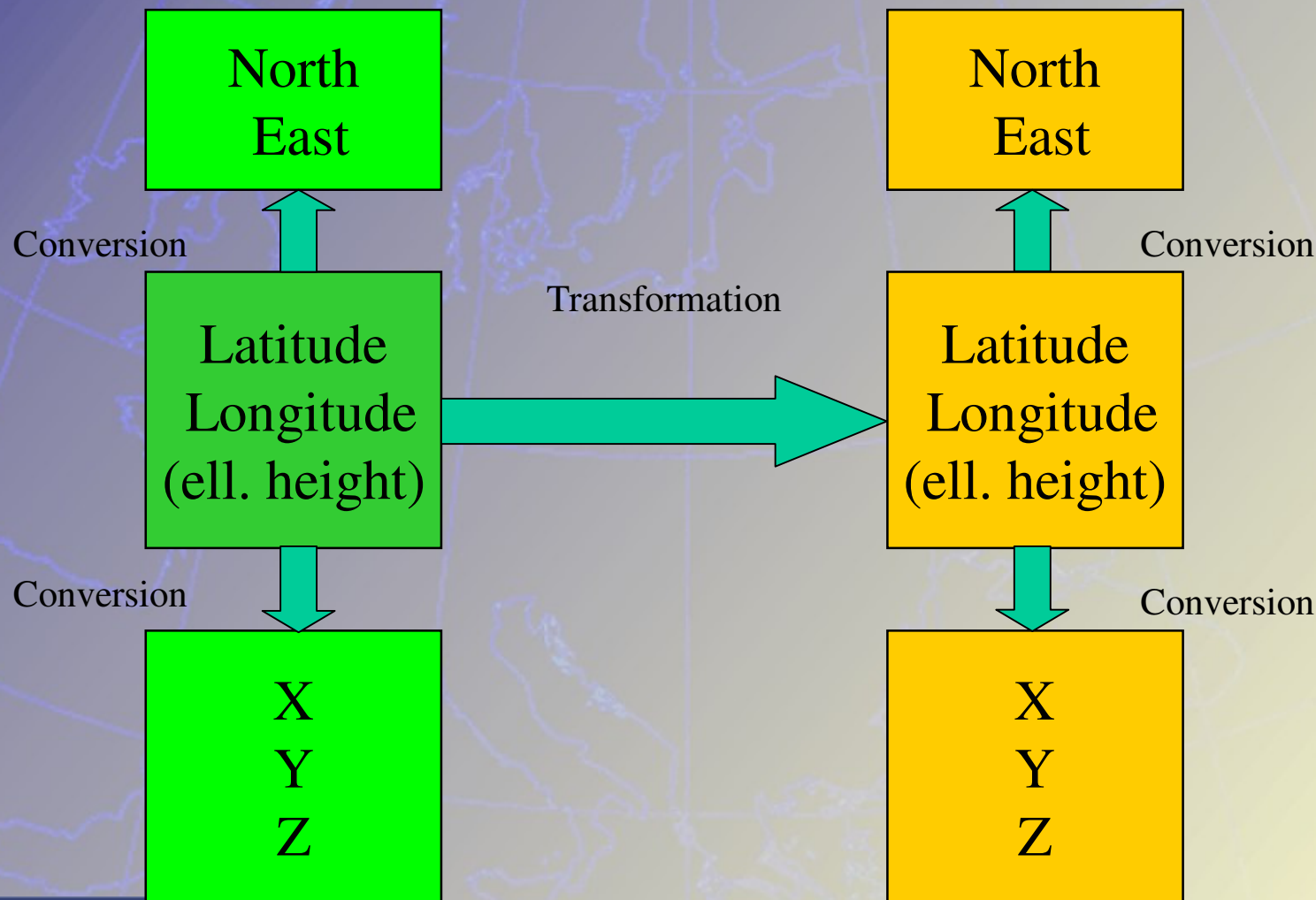
fictive points of transformation area

Coordinates in ETRS89 (DMS)		Heights (m)	
Lat	Lon	PL_KRON / NH	EVRF_AMST / NH
53 12 11	16 02 05	118.456	118.623
53 41 32	22 15 04	150.735	150.904
51 43 34	15 50 01	82.378	82.537
49 58 42	21 17 26	215.629	215.778

Online Transformation - Position

national CRS

ETRS89



National Coordinate Reference Systems (CRS) in Europe

#	Country	ID	Coordinate Reference System (CRS) Identifier	Datum	Projection
1	Albania	AL	AL_ALB87 / AL_TM	ALB87	Transverse Mercator
2	Austria	AT	AT_MGI / AT_TM	MGI	Transverse Mercator
3	Belgium	BE	BE_BD72 / Lamb72	BD72	Lambert Conformal Conic
4	Bulgaria	BG	BG_1942 / GK_3	1942	Transverse Mercator (Gauss-Krüger-System)
		BG	BG_1942 / TM_6	1942	Transverse Mercator
5	Croatia	HR	HR_HDKS / GK_3	HDKS	Transverse Mercator (Gauss-Krüger-System)
6	Cyprus	CY	CY_ED50 / UTM	ED50	Transverse Mercator (UTM)
7	Czech Republic	CZ	CZ_S-JTSK / JTSK_OCC	S-JTSK	Oblique Conformal Conic
8	Denmark	DK	DK_ED50 / UTM	ED50	Transverse Mercator (UTM)
9	Estonia	EE	EE_EST92 / LambEST92	EST92	Lambert Conformal Conic
10	Finland	FI	FI_KKJ / FI_TM	KKJ	Transverse Mercator
11	France	FR	FR_ED50 / EUROLMB	ED50	Lambert Conformal Conic
		FR	FR_NTF / Lamb	NTF	Lambert Conformal Conic
12	Germany	DE	DE_DHDN / GK_3	DHDN	Transverse Mercator (Gauss-Krüger-System)
		DE	DE_RD83 / GK_3	RD83	Transverse Mercator (Gauss-Krüger-System)
		DE	DE_PD83 / GK_3	PD83	Transverse Mercator (Gauss-Krüger-System)
		DE	DE_42/83/ TM_6	42/83	Transverse Mercator
13	Gibraltar	GI	GI_ED50 / UTM	ED50	Transverse Mercator (UTM)
14	Great Britain	GB	GB_OSSN(80) / NG	OSSN(80)	Transverse Mercator
15	Greece	GR	GR_GGRS87 / GR_TM	GGRS89	Transverse Mercator
16	Hungary	HU	HU_HD-72 / EOVI	HD-72	Oblique Conformal Cylindric
17	Iceland	IS	IS_Hj1955 / UTM	Hj1955	Transverse Mercator (UTM)
18	Ireland	IE	IE_Ireland75 / IrishNG	Ireland75	Transverse Mercator
19	Italy	IT	IT_Roma 40 / East	Roma 40	Transverse Mercator
		IT	IT_Roma 40 / West	Roma 40	Transverse Mercator
		IT	IT_ED50 / UTM	ED50	Transverse Mercator (UTM)
20	Latvia	LV	LV...		
21	Lithuania	LT	LT_LKS94 / LT_TM	LKS94	Transverse Mercator

#	Country	ID	Coordinate Reference System (CRS) Identifier	Datum	Projection
22	Luxembourg	LU	LU LUREF / LU Gauss	LUREF	Transverse Mercator
23	Macedonia (FYROM)	MK	MK...		
24	Netherlands	NL	NL RD / DutchST	RD	Oblique Stereographic
25	Northern Ireland	NI	NI Ireland 75 / IrishNG	Ireland 75	Transverse Mercator
26	Norway	NO	NO NGO48 / NGO	NGO	Transverse Mercator
27	Poland	PL	PL EUREF89 / 1992	EUREF89	Transverse Mercator
		PL	PL EUREF89 / 2000	EUREF89	Transverse Mercator
		PL	PL_42/58 / 1965	42/58	Oblique Stereogr. (Zone 1...4) / Transv. Mercator (Zone 5)
28	Portugal	PT	PT Azo / UTM	Azo	Transverse Mercator (UTM)
		PT	PT D73(84) / PT Gauss	D73(84)	Transverse Mercator
		PT	PT D73(89) / PT Gauss	D73(89)	Transverse Mercator
		PT	PT DLx(84) / Bonne	DLx(84)	
		PT	PT DLx(84) / PT Gauss	DLx(84)	Transverse Mercator
		PT	PT DLx(89) / Bonne	DLx(89)	
		PT	PT DLx(89) / PT Gauss	DLx(89)	Transverse Mercator
		PT	PT Mad / UTM	Mad	Transverse Mercator (UTM)
29	Romania	RO	RO S42(84) /	S42(84)	
		RO	RO S42(89) / TM 6	S42(89)	Transverse Mercator
		RO	RO S42(89) / St1970	S42(89)	Oblique Stereographic
30	Russia	RU	RU...		Transverse Mercator
31	Slovak Republic	SK	SK S-JTSK / JTSK OCC	JTSK	Oblique Conformal Conic
32	Slovenia	SI	SI SI / GK 3		Transverse Mercator (Gauss-Krüger-System)
33	Spain	ES	ES ED50 / UTM	ED50	Transverse Mercator (UTM)
34	Sweden	SE	SE RT90 / SE TM	RT90	Transverse Mercator
35	Switzerland	CH	CH CH1903 / CH PROJECTION	1903	Oblique Conformal Cylindric
		CH	CH CH1903+ / CH PROJECTION	1903+	Oblique Conformal Cylindric
36	Turkey	TR	TR ED50 / TR TM	ED50	Transverse Mercator
		TR	TR ED50 / UTM	ED50	Transverse Mercator (UTM)
37	Ukraine	UA	UA...		Transverse Mercator

Status Countries (1)

Status: 26-May-2005

Country	ID	Position			Height	
		CRS-Description	Transf. to ETRS89	Online transf.	CRS-Description	Transf. to EVRF2000
Albania	AL	publis.	no	no	no	no
Austria	AT	publis.	publis.		publis.	publis.
Belgium	BE	publis.	publis.	publis.	publis.	publis.
Bosnia / Hercegovina	BA	no	no	no	exist. data	exist. data
Bulgaria	BG	no	no	no	publis.	publis.
Croatia	HR	publis.	publis.	publis.	exist. data	exist. data
Cyprus	CY	no	no	no	no	no
Czech Republic	CZ	publis.	publis.	publis.	exist. data	exist. data
Denmark	DK	publis.	publis.	publis.	publis.	publis.
Estonia	EE	publis.	publis.	publis.	publis.	publis.
Finland	FI	publis.	publis.	publis.	publis.	publis.
France	FR	publis.	publis.	(publis.)	publis.	publis.
Germany	DE	publis.	publis.	publis.	publis.	publis.
Gibraltar	GI	publis.	publis.	publis.	no	no
Great Britain	GB	publis.	publis.	publis.	publis.	publis.
Greece	GR	publis.	no	no	exist. data	no UELN
Hungary	HU	exist.	exist.	no	publis.	publis.
Iceland	IS	no	no	no	no levelling network	
Ireland	IE	publis.	publis.	publis.	publis.	no UELN
Italy	IT	publis.	publis.		exist. data	exist. data

Status Countries (2)

Country	ID	Position			Height	
		CRS-Description	Transf. to ETRS89	Online transf.	CRS-Description	Transf. to EVRF2000
Latvia	LV	publis.	publis.	publis.	exist. data	exist. data
Lithuania	LT	publis.	publis.	publis.	publis.	publis.
Luxembourg	LU	publis.	publis.	publis.	publis.	no UELN
Macedonia	MK	no	no	no	no	no
Malta	MT	no	no	no	no	no
Netherlands	NL	publis.	publis.		publis.	publis.
Northern Ireland	NI	publis.	publis.	publis.	exist. data	no UELN
Norway	NO	publis.	publis.		publis.	publis.
Poland	PL	publis.	publis.	(publis.)	exist. data	exist. data
Portugal	PT	publis.	publis.		publis.	publis.
Romania	RO	no	no	no	exist. data	exist. data
Russia	RU	no	no	no	exist. data	no UELN
Slovak Republic	SK	publis.	publis.	publis.	publis.	publis.
Slovenia	SI	publis.	publis.	publis.	publis.	publis.
Spain	ES	publis.	publis.	publis.	publis.	publis.
Sweden	SE	publis.	publis.	publis.	publis.	exist. data
Switzerland	CH	publis.	publis.	publis.	publis.	publis.
Turkey	TR	publis.	publis.	publis.	publis.	no UELN
Ukraine	UA	no	no	no	exist. data	no UELN

Web Sites (1)

Web sites of information system and examples

- [CRS-EU – Homepage](#)
- [choice of country for national CRS](#)
- [choice of CRS for one country](#)
- [selection of pan-European CRS](#)

- [example for description of a CRS for position](#)
- [example for description of transformation parameters of a CRS for position](#)

Web Sites (2)

Web sites of information system and examples

- example for description of a CRS for height
- example for description of transformation parameters of a CRS for height
- online transformation

CRS-EU – future

- **step by step completion of information for the countries depending on their response / assistance**
- **step by step realisation of single point online transformation of different CRS for test and verification purposes**

3. Product Catalogue Geodesy

- **To promote the product of EUREF for GIS community**
- **EUREF Symposium 2004: A draft product catalogue scheme was presented:**
 - **Definition of a terminology**
 - **Definition of a structure**
- **Decision at the ExG-G meeting in Prague, Nov. 2004 to establish a website**

Status of the Product Catalogue

- **A prototype has been realized on a website**
 - most recent terminology and product.
 - Link: <http://igs2.ifag.de/euref/>
- **Next implementation steps**
 - All fields of the product table must be filled.
phpMyAdmin tool may be used.
 - Link: <http://igs2.ifag.de/phpMyAdmin>
 - The „Web-Design“ must be improved.

4. European Initiatives and Projects

Georail - presentation,

EuroBoundaries - presentation,

Fehmarnbelt Traffic - future

5. Main Future Topics

Continuation of CRS-EU on-line transformation

Completion of product catalogue geodesy

Completion of 2004 EVRS WS recommendations

Organization of a NTRIP/real-time WS 2005

***Contributions to international projects GEORAIL,
EUROBOUDARIES, INSPIRE***

MANY THANKS TO ALL CONTRIBUTORS!

