

EUVN DENSIFICATION ACTION: PREPARED FOR CLOSING

EUVN_DA WORKING GROUP:

***KENYERES, A. - SACHER, M.
IHDE, J. - DENKER, H. - MARTI, U.***

EUREF2007 SYMPOSIUM, 6-9 JUNE, LONDON

OUTLINE

- **HISTORICAL OVERVIEW**

- **ACTUAL STATUS**

EUVN_DA WEB PAGES

- **PREPARED FOR CLOSING**

DATA POLICY

EUVN_DA HISTORY

EUVN_DA: DENSIFICATION ACTION OF EUVN

**= = A CONTINENTAL HOMOGENOUS GPS/LEVELING
NETWORK AND DATABASE**

SELECTION FROM THE NATIONAL NETWORKS !

**→ REALIZATION OF AN ACCURATE HEIGHT REFERENCE
SURFACE (FITTED GEOID)**

INITIATED IN 2003 – PLANNED COMPLETION IN 2006

DELAY DUE TO THE SLOW SPEED UP

PRODUCTS OF EUVN_DA

EUREF PRODUCT

**HIGH QUALITY, HOMOGENOUS, CONTINENTAL SET
OF REFERENCE GPS/LEVELING POINTS**

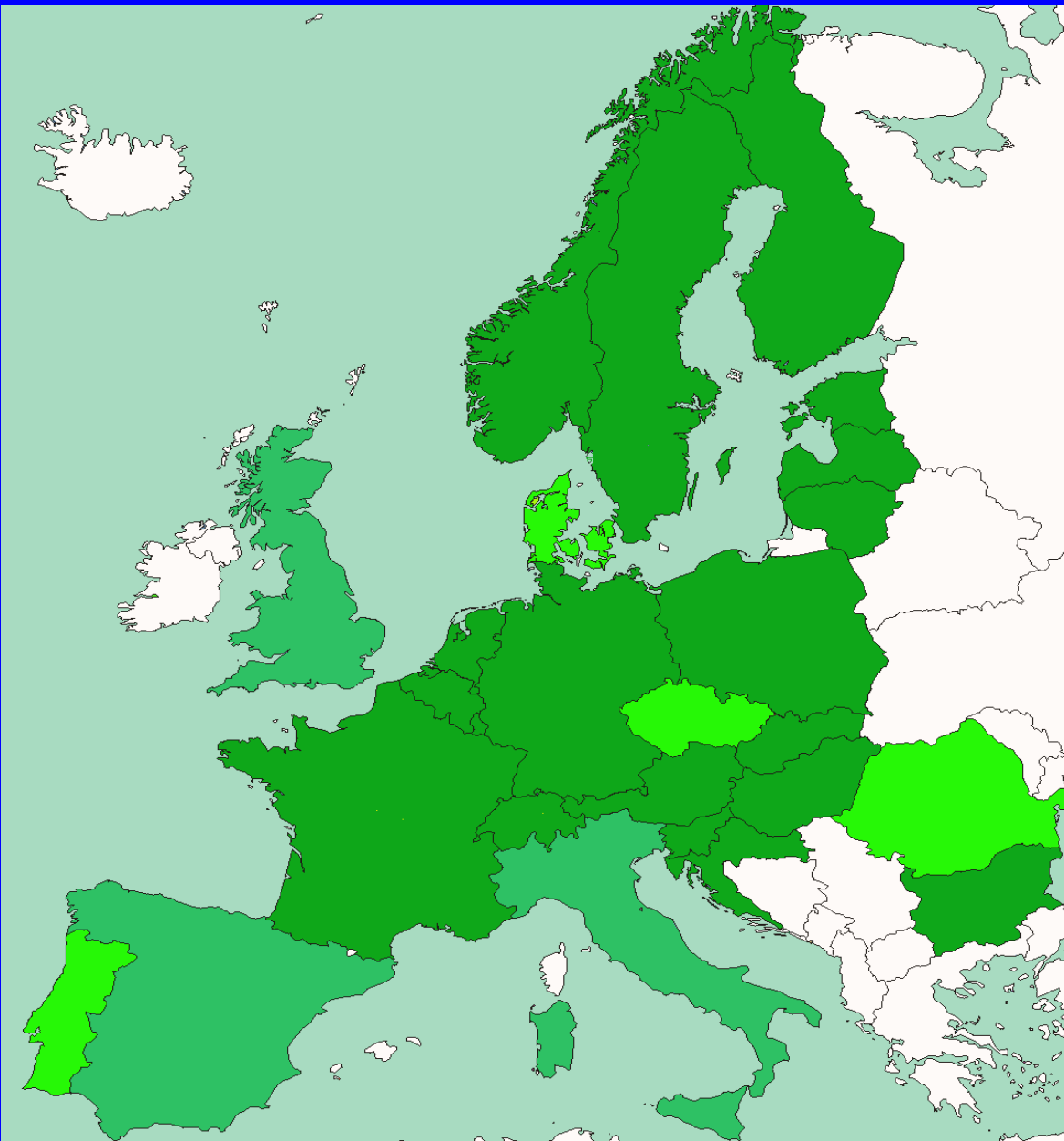
**WHEN ALL COUNTRIES AGREE WILL BE FREELY
AVAILABLE**

EGGP/EUREF PRODUCT

**ACCURATE CONTINENTAL HEIGHT REFERENCE
SURFACE FOR THE PRACTICE**

DEVELOPMENT IS IN PROGRESS

PARTICIPATION – JUNE 2007



**DATA SUBMITTED AND
CHECKED**



**DATA UNDER PREPAR-
ATION**



**SHORTER GPS
OBSERVATION SESSIONS
BUT DENSER NETWORK**

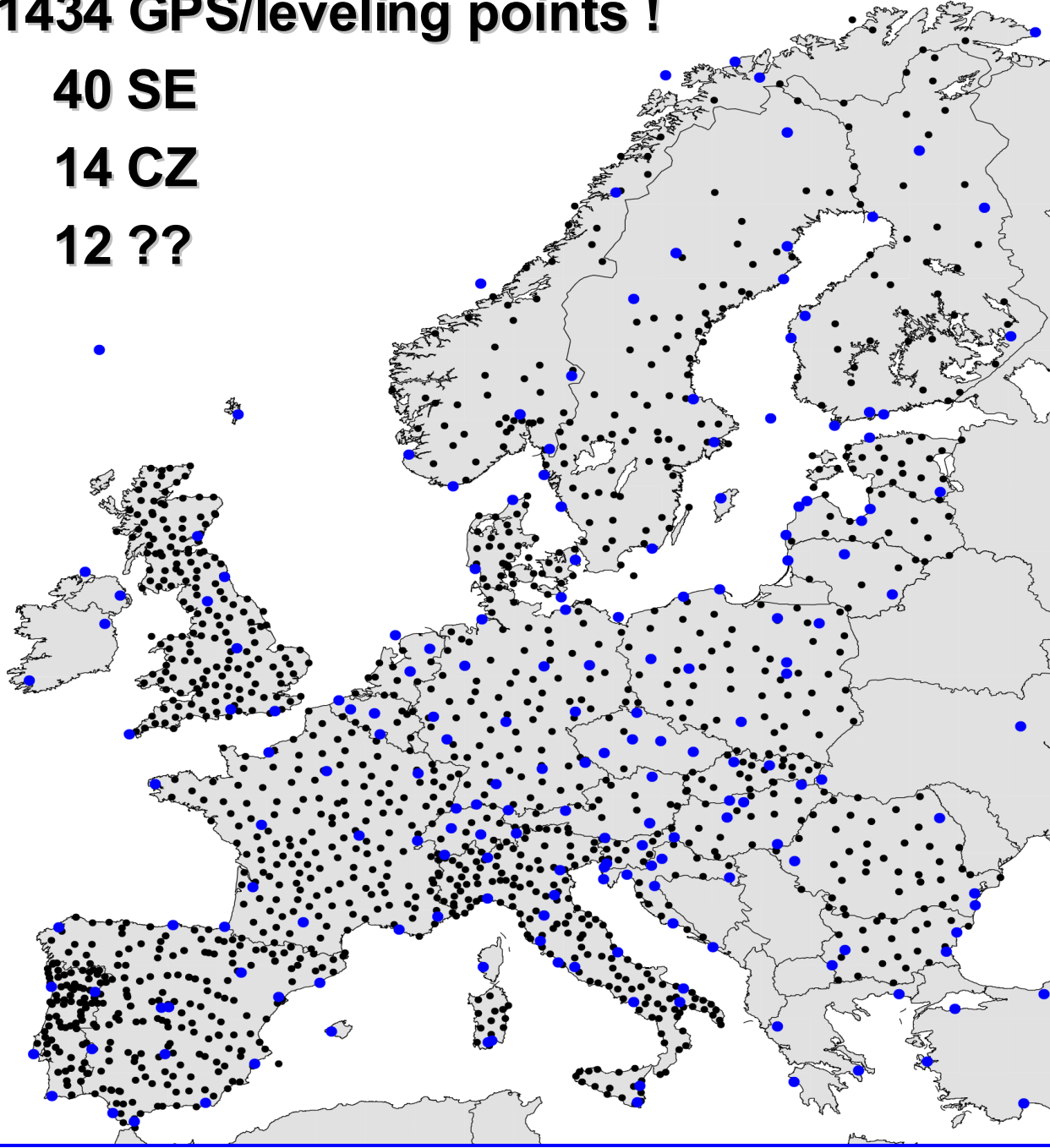
EUVN_DA POINT DISTRIBUTION

1434 GPS/leveling points !

40 SE

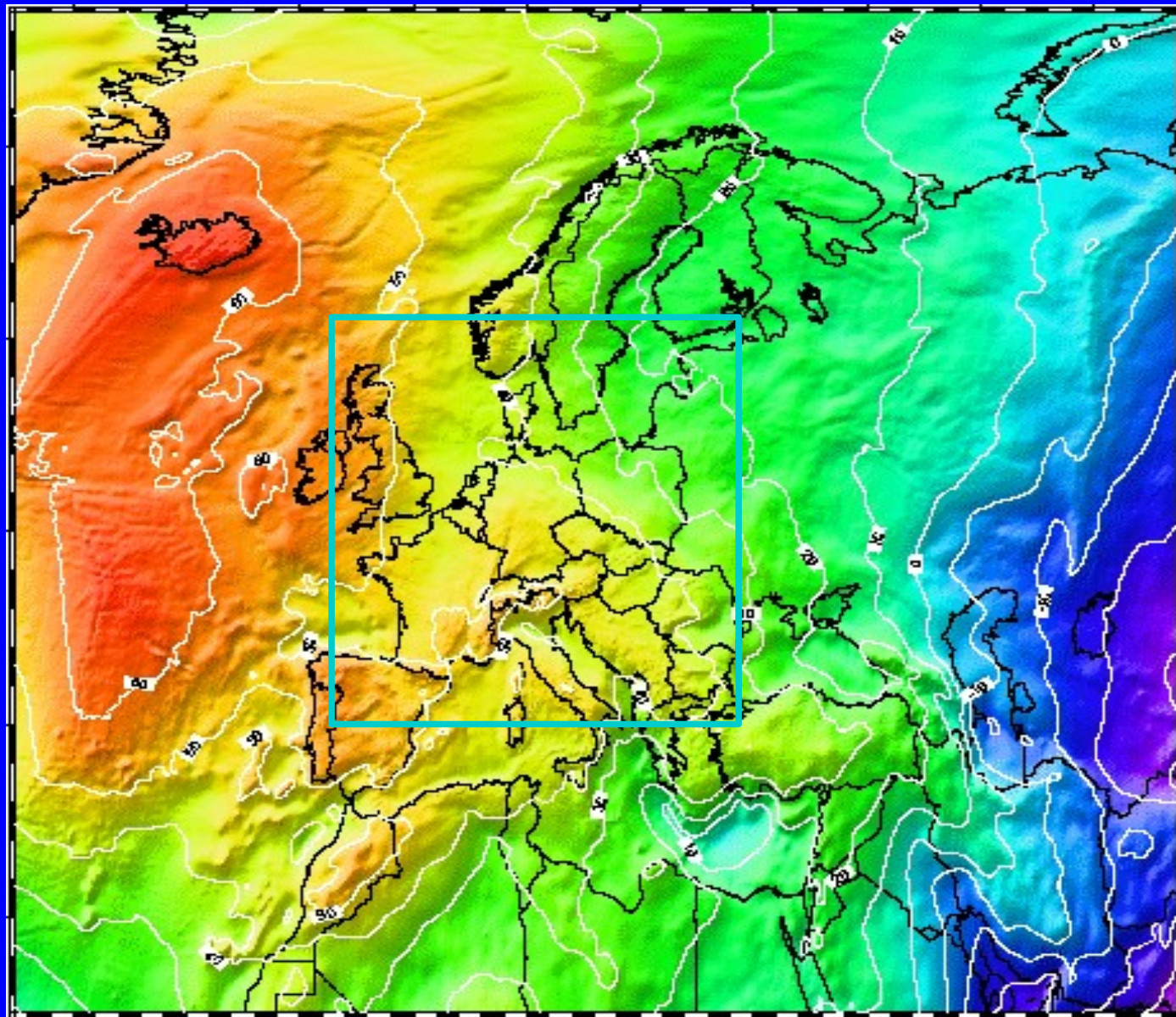
14 CZ

12 ??



THE EUROPEAN GEOID

(H.DENKER – IFE, HANNOVER)



EGG97 – OFFICIAL

EGG03 – TEST

EGG06 – TEST

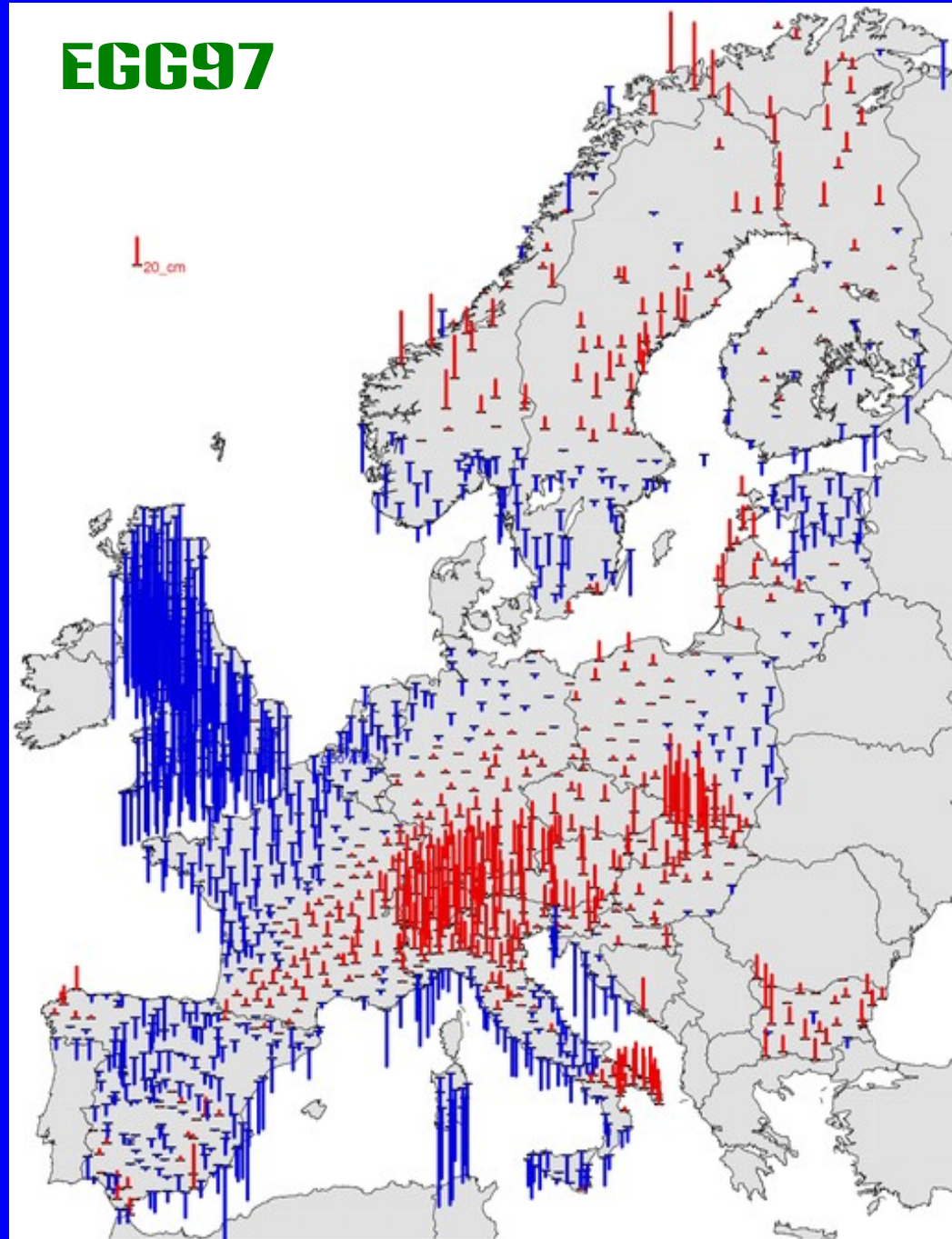
EGG07 – OFFICIAL

STATISTICS OF THE COMPARISONS WITH EGGYY

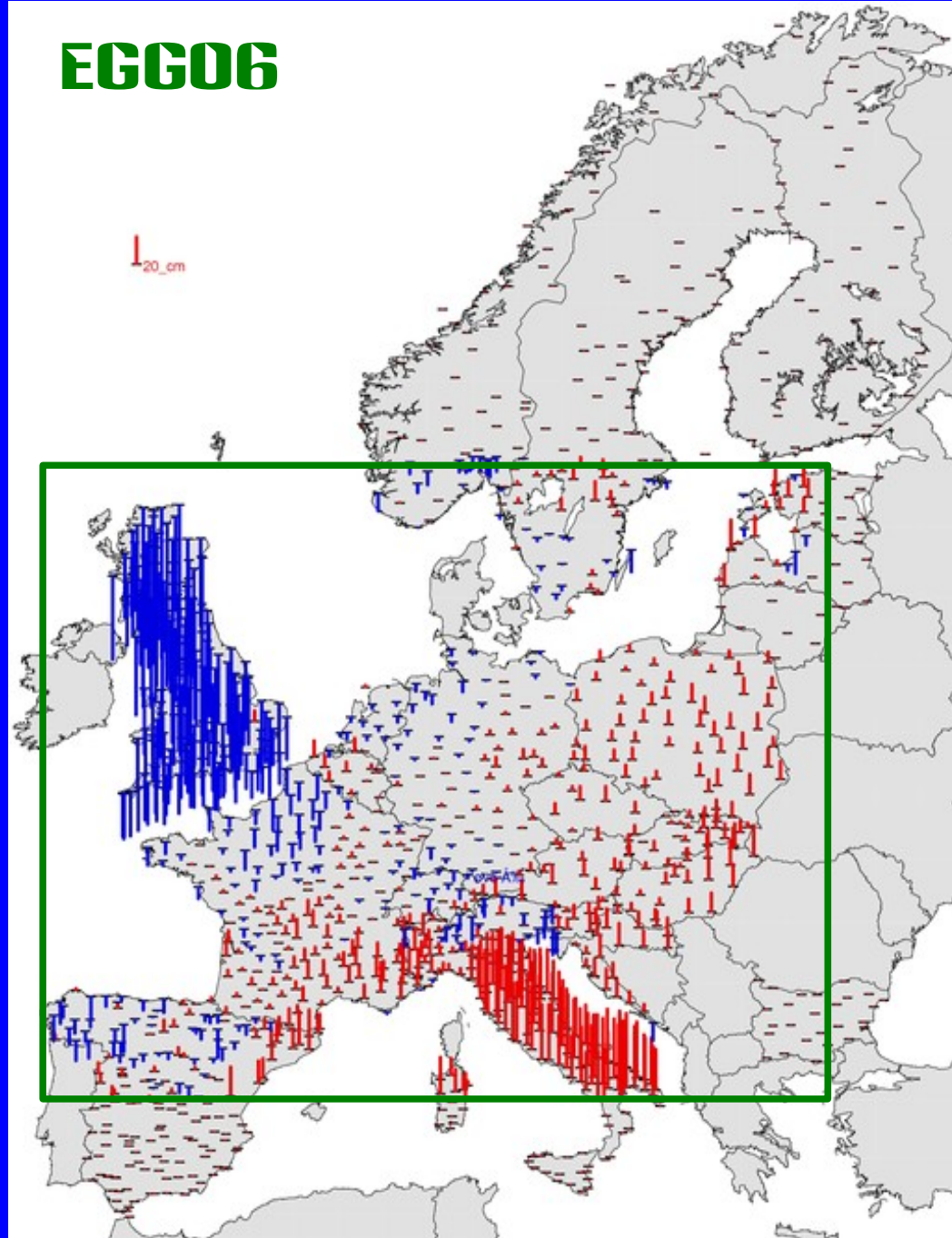
		RMS [cm]		MAX-MIN range	
	# of pts	EGG97	EGG03C2	EGG97	EGG03C2
Austria	17	11	6	33	21
Croatia	20	20	15	80	56
France	180	12	8	70	50
Germany	75	10	4	46	15
Great Br.	189	15	10	100	105
Hungary	20	9	5	40	20
Netherland	15	6	4	20	11
Norway	63	17	11	81	59
Poland	62	9	4	44	15
Slovakia	28	17	13	57	49
Slovenia	12	13	10	45	35
Spain	177	10	10	69	53
Sweden	84	12	6	54	38
Switzerland	20	10	6	31	23

EUVN_DA EGGYY COMPARISON

EGG97



EGG06



EUVN_DA WEB PAGES

CRS.BKG.BUND.DE/EVRS/DRAFT_EUVNDA.HTML

USES THE CRS LAYOUT

- GENERAL DESCRIPTION**
- COUNTRY SPECIFIC PAGES**
 - ONLY METADATA AND A MAP OF SITE DISTRIBUTION**
- COMPARISONS WITH THE EGG QUASIGEOID SOLUTIONS**

EUVN_DA MAIN PAGE



**European Vertical Reference System
(EVRS)**



EUVN Densification Action (EUVN_DA)

Introduction

[EUVN to EUVN DA](#)
[Project target](#)
[Related EUREF resolutions](#)
[Call for participation \(issued in 2003\)](#)

Data submission

[EUVN DA data requirements](#)
[EUVN DA datasheet](#)
[Overview of proposed / submitted data](#)

Data analysis

[Consistency check](#)
[Statistics of the geoid comparisons](#)
[Map of EUVN DA - EGG97 differences](#)
[Map of EUVN DA - EGG03 differences](#)
[Map of EUVN DA - EGG06 differences](#)

Product

[Product description](#)

Supporting Institutions and persons

[EVRS](#) | [UELN](#) | [EUVN](#) | [EUVN DA](#) | [EVS](#) | [Data Center](#) | [EUVN Results](#) | [Height Datum Relations](#)
[Resolutions](#) | [GRS80](#) | [Bibliography](#) | [Papers](#) | [Links](#)

E-Mail: evrs@bkg.bund.de

Last update 07.05.2007
© by BKG 2000-2007

EUVN_DA CLICKABLE MAP



**European Vertical Reference System
(EUVRS)**



EUVN_DA contributing countries

To get EUVN_DA details of the country select a dot in the map
or get the summary table ([EUVN_DA_countries.pdf, 40 kByte](#))



EUVN_DA COUNTRY PAGE



**European Vertical Reference System
(EVRS)**



EUVN_DA country details: **Great Britain**

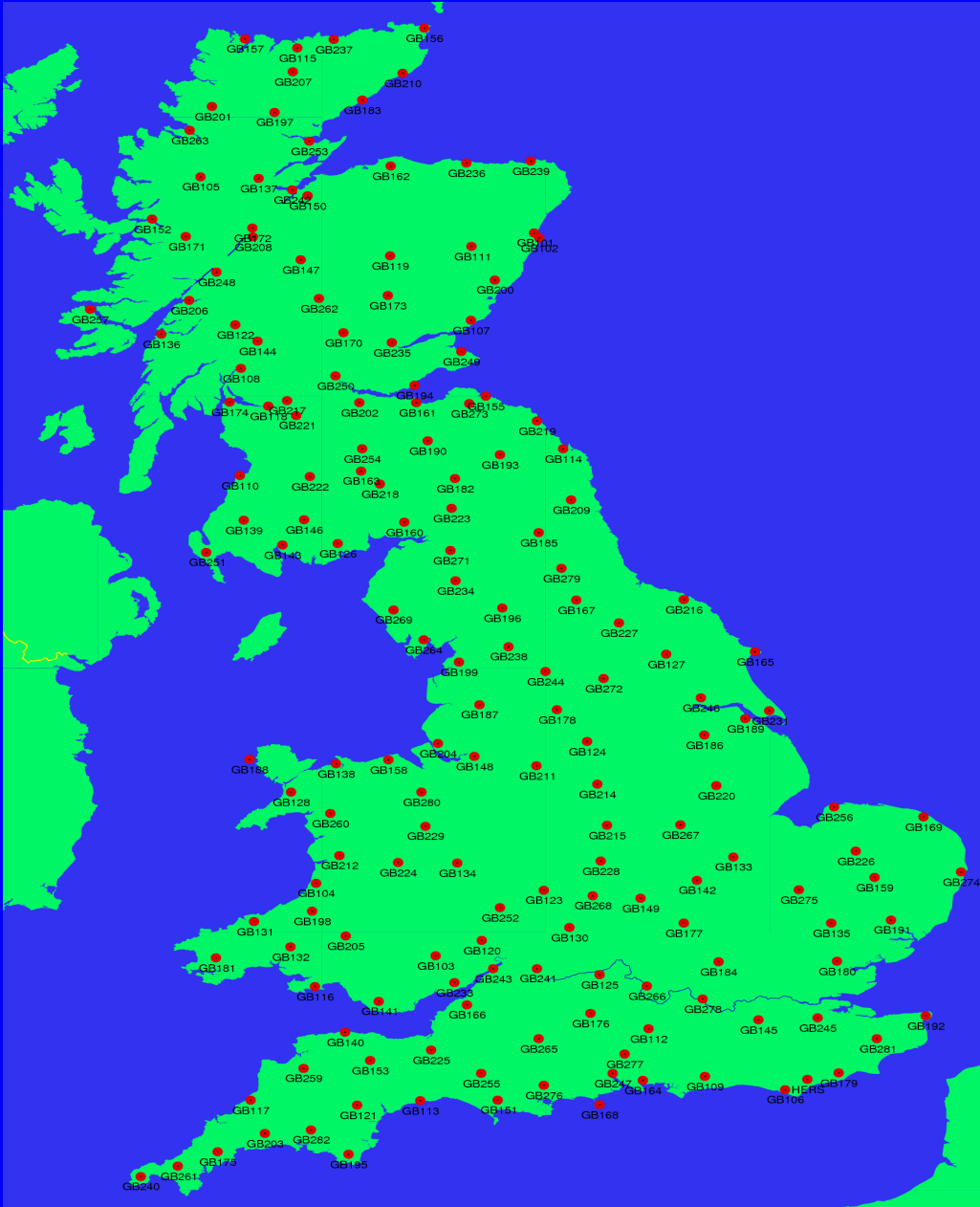
Country:	Great Britain	Last update:	04-Aug-06
Data provider:	OS	Contact person:	C. Fane
Number of points:	10+182	Map of points	Map of Great Britain (Link in a new window)
GPS data details:			
Campaign date:	1999.0	Elevation cut-off [deg]:	15
Session length [h]:	8	Processing software:	GAS
Levelling information:			
Height system:	orthometric	Related to tide gauge:	Newlyn
heights converted to EVRS2000 by:		transformation	

[EVRS](#) | [UELN](#) | [EUVN](#) | [EUVN DA](#) | [EVS](#) | [Data Center](#) | [EUVN Results](#) | [Height Datum Relations](#)
[Resolutions](#) | [GRS80](#) | [Bibliography](#) | [Papers](#) | [Links](#)

E-Mail: evrs@bkg.bund.de

Last update of site frame: 11.05.2007
© by BKG 2000-2007

EUVN DA COUNTRY PAGE



TASKS AND SCHEDULE BY THE END OF 2007

- **NEW DATA AND UPGRADES (CZ, PT, RO + SE ...)**
- **DATA VALIDATION PER COUNTRY BEING FINISHED**
 - **LEVELLING INFORMATION CONSISTENCY (UELN DC)**
 - **COMPARISON WITH EGG SOLUTIONS (FOMI SGO, IFE)**
- **INCLUSION OF EUVN_DA BENCHMARKS INTO THE UELN ADJUSTMENTS (UELN DC)**
- **DRAFT REPORT (BASED ON THE AVAILABLE DATA)**
- **WHEN EGG07 IS AVAILABLE:**
 - EUVN_DA – EGG07 COMBINATION (EVRS)**
 - EUROPEAN HEIGHT REFERENCE SURFACE**

DATA AVAILABILITY

EUVN_DA CIRCULAR LETTER MAY 2007:

DATA POLICY SURVEY: 13/25 RESPONSE

11 AGREED TO PUBLISH, 2 NOT YET DECIDED

PROPOSAL

- **THE DATA PROVIDERS ARE NOT PRESSED TO OPEN THEIR EUVN_DA DATA**
- **THE 1ST VERSION OF THE EUVN_DA DATABASE WILL BE FINALIZED AND 'FREEZED' AT THE END OF 2007**
- **REPORT AND PUBLICATION PREPARED**
- **THE EGG07/EUVN_DA COMBINED HEIGHT REFERENCE SURFACE CREATED AND PUBLISHED**
- **AFTER AGREEMENT WITH THE DATA OWNERS THE EUVN_DA DATABASE WILL BE OPENED**

SUMMARY

- THE MISSION OF EUVN_DA WILL BE COMPLETED SUCCESSFULLY BY THE END OF 2007
- 25 COUNTRIES; ~ 1500 GPS/LEVELING POINTS
- WEB PAGES CREATED
- SIGNIFICANT IMPROVEMENT IN THE EGG – EUVN_DA COMPARISONS (EGG97 → EGG06)
(EGG07 NOT YET AVAILABLE!)
- THE ACCURATE HEIGHT REFERENCE SURFACE WILL BE CREATED IN COOPERATION WITH EGGP
- DATA POLICY: AFTER PUBLICATION OF RESULTS THE DATABASE MAY BE FREELY AVAILABLE FOR RESEARCH PURPOSES
- ACKNOWLEDGEMENT OF THE DATA PROVIDERS

SPECIAL THANKS TO THE DATA PROVIDERS

• AUSTRIA	N.HOGGERL	BEV
• BELGIUM	P.VOET	NGI
• BULGARIA	I. GEORGIEV	BAS
• CROATIA	B.BARISIC	HGI
• CZECH REP.	J.REZNICEK	CVUT
• DENMARK	K.ENGESAGER	SC
• ESTONIA	K.KOLLO	MAA AMET
• FINLAND	M.OLLIKAINEN	FGI
• FRANCE	F.&H.DUGUENNE	IGN
• GERMANY	M.SACHER	BKG
• GREAT BRITAIN	C.FANE	OS
• HUNGARY	G.VIRAG	FOMI
• ITALY	M.PIEROZZI	IGM

SPECIAL THANKS TO THE DATA PROVIDERS

• LATVIA	J.KAMINSKIS	LGIA
• LITHUANIA	E.PARSEULINAS	VTU
• NETHERLAND	A.KOSTERS	RWS
• NORWAY	O.VESTOL	SK
• POLAND	W.GRASZKA	GUGIK
• PORTUGAL	H.KOL	IGEO
• ROMANIA	T.RUS	ANCPI
• SLOVAKIA	K.LEITMANOVA	GKU
• SLOVENIA	K.MEDVED	SMA
• SPAIN	R.QUIROS DONATE	IGN
• SWEDEN	M.LILJE	LM
• SWITZERLAND	U.MARTI	SWISSTOPO