



Status and Development of EVRF2007

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EVRF2007

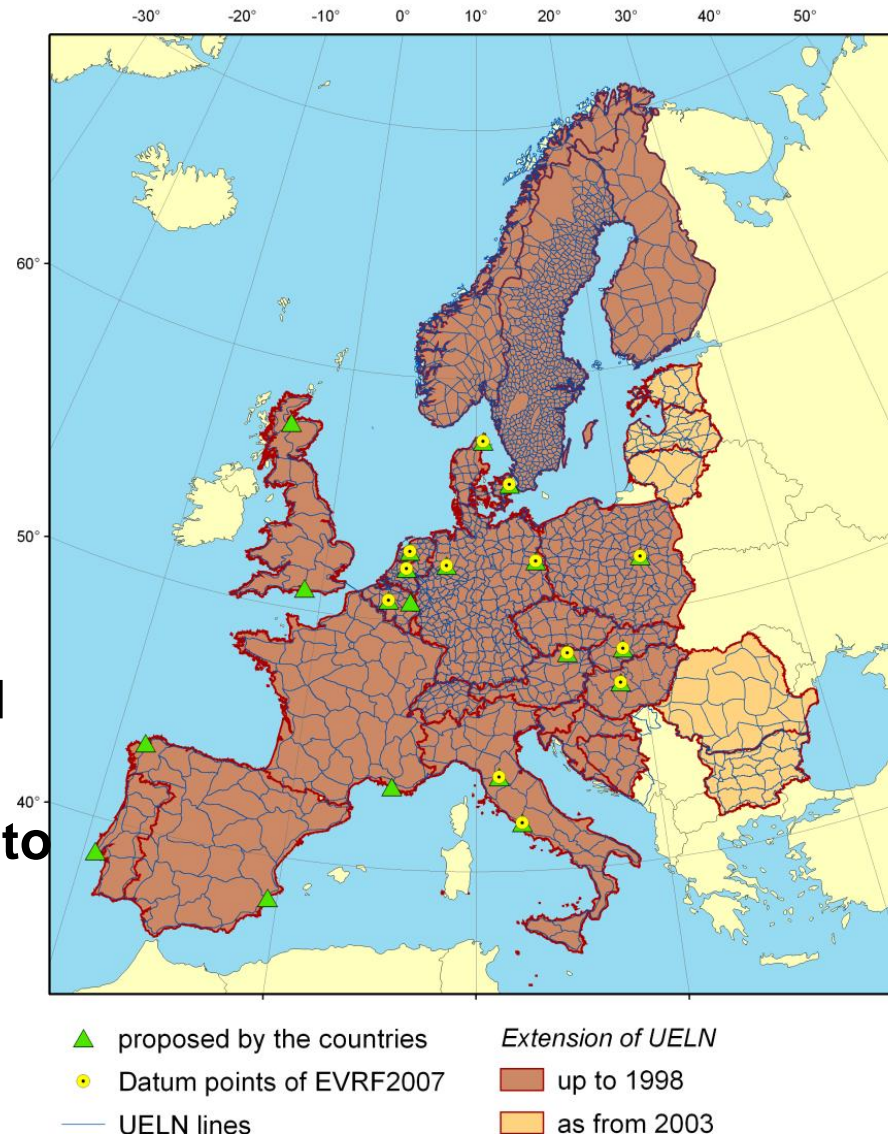
- 27 European countries
- 7939 nodal points
- 10347 measurements
- $s_0(1\text{km})$: 1.11 kgal-mm
- geopotential numbers, normal heights

Datum of EVRF2007

- Several datum points distributed over the stable part of Europe
- 13 points have been used fitting to the level of EVRF2000 by

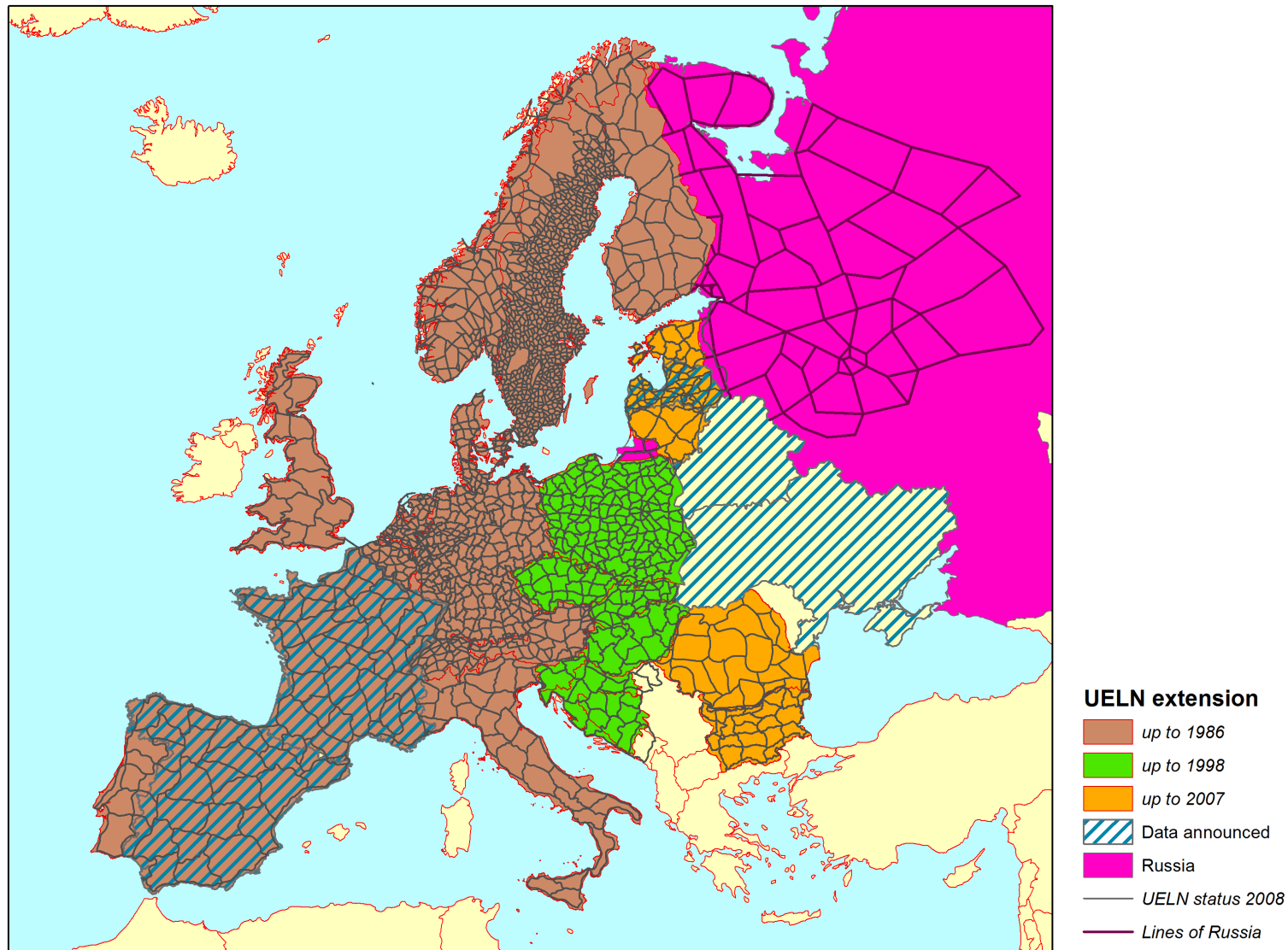
condition equation:

$$\sum_{i=1}^{13} (c_{EVR2000} - c_{EVR2007}) = 0$$





Country	Year	Status	Data available at EVRS data center	Problems, missing data ...
France	2008	information about zero-order leveling network NIREF	no	tilt between IGN69 and NIREF, N-S bias in IGN69 suspected (23 cm), old border connections
Spain	2009	new leveling network was observed 2001-2008	only point data	no measurements available
Russia	2009	European part of 1. O. leveling network provided	yes	border connections incomplete (esp. to Finland)
Ukraine	2009	data preparation in progress	no	
Belarus	2011	data preparation finished	no	border connections have to be found
Latvia	2011	reobservation of 1. O. leveling network will be finished in summer 2011	no	try for border connection to Belarus
Germany	2006-2012	reobservation of German 1.O. leveling network	partial	



1.Order Leveling Network of Russia

- Parameter of the network
 - 109 nodal points
 - 155 observations
 - a-posteriori- s_0 (1 km): 2.03 mm
 - Problem: no uniform epoch (measurements from 1967 – 2006)
- Border connections mainly from the 70th to
 - Estonia (2, 1 already useable, 1 under preparation in Estonia)
 - Latvia (1, useable)
 - Belarus (2 under preparation)
 - Lithuania (2 to Kaliningrad Region, useable)
 - Poland (2 to Kaliningrad Region, useable)
 - possibly some connections can be updated by measurements from new epochs (Poland, Lithuania)

- Border connections to Finland
 - 8 connections have been observed between 1989 and 2006
 - 3 connections already useable
 - Finland was asked to provide data to close the remaining connections
- Previously adjustment of the “Baltic Ring”
 - 13 datum points as in EVRF2007
 - zero tide, uplift model NKG2000LU
 - a-posteriori $s_0 = 1.15$ kgal·mm
 - s_0 (RU) = 2.23 kgal·mm (variance component estimation)
- Height of point Kronstadt
 - Russian system: $H=0.000$ m
 - EVRF2007: 0.231 m (0.197 m in mean tidal system)



- Spain
 - new network was observed between 2001 and 2008
 - up to now only point information (136 nodal points) available at UELN data center, measurements are still missing

- Ukraine
 - decided to participate in UELN project
 - data preparation is in progress (computation of geopotential differences)
 - asked UELN data and computation center to find border connections to neighboring countries
 - some connections were already found in the UELN data base
 - neighboring countries were contacted and agreed to provide the missing data



- Latvia contacted EVRS data center in May 2011
 - reobservation of 1. order leveling network since 2000
 - finishing of the measurements middle of 2011
 - plan to include the new data in the EVRF