



# EUREF National Report of Germany 2009

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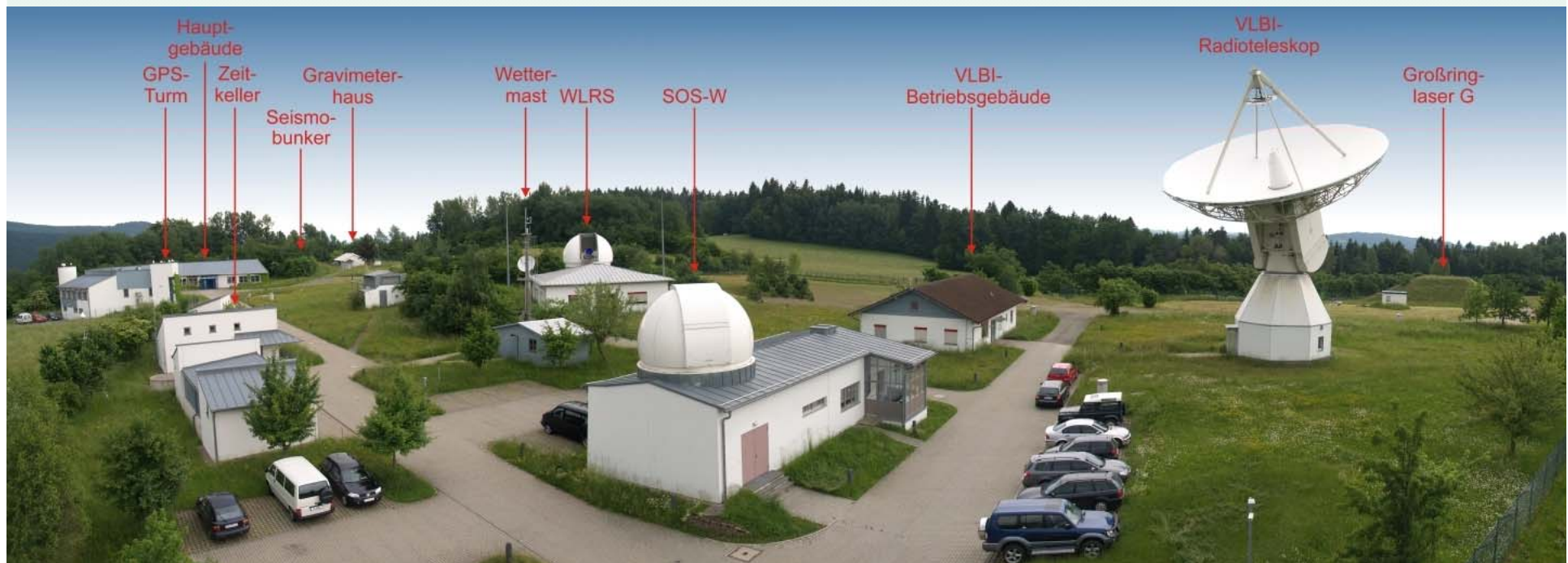
*(Working Committee of the Surveying Authorities of the States of the Federal  
Republic of Germany)*

**EUREF Symposium 2009**

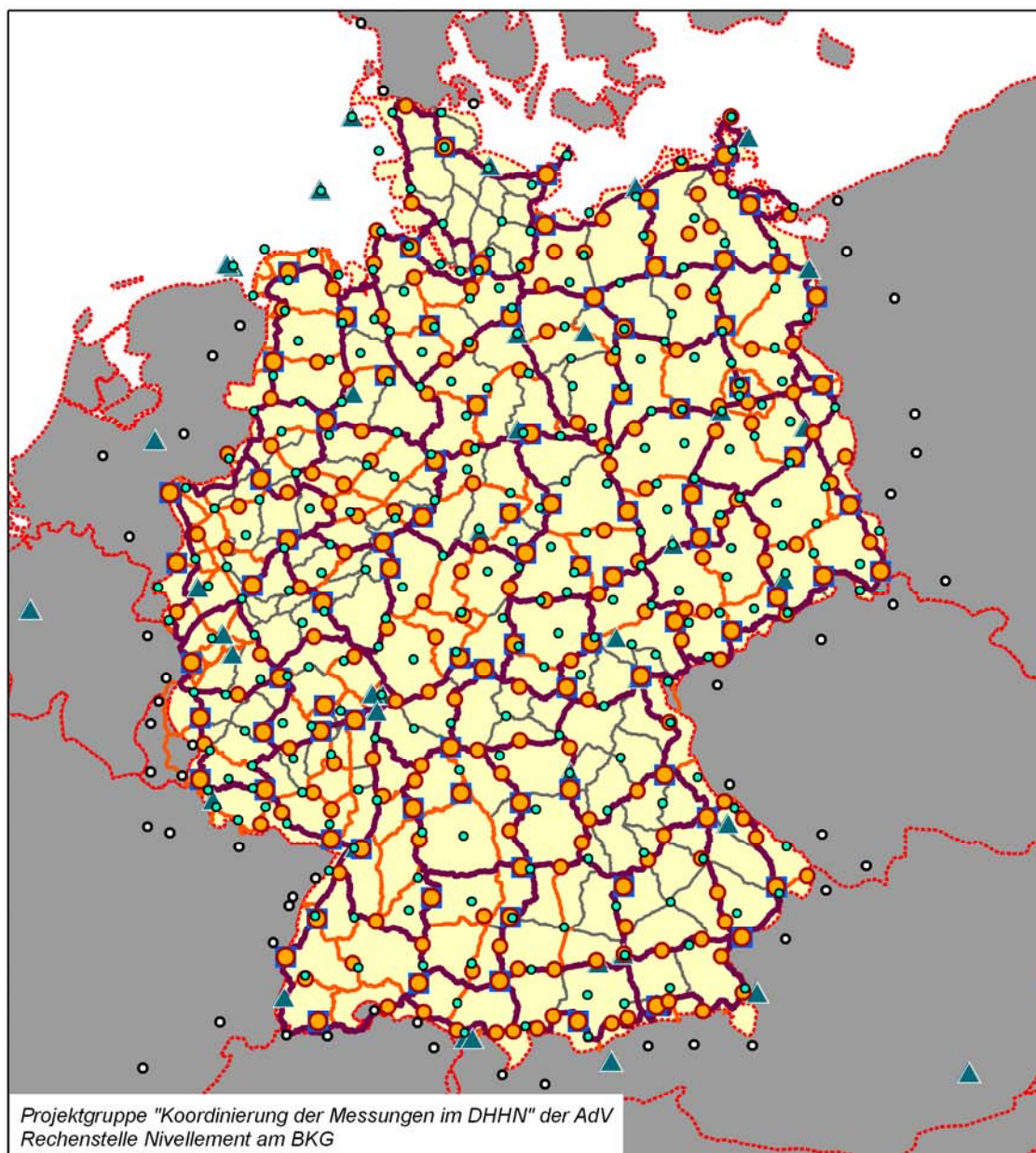
**Florence, May 27 - 29**

## Linkage to Global Reference Systems

- The Geodetic Observatory Wettzell of the BKG is a principal cornerstone for the service of the International Association for Geodesy (IAG) and therefore also for the global, European and German reference systems for position, height and gravity.
- Together with the Forschungseinrichtung Satellitengeodäsie (Satellite Geodesy Research Facility) of the Technical University München, this observatory has operated for more than 30 years.



# From the Sea to the Alps: the GNSS campaign in the DHHN 2006--2011











## German 1st Order Leveling Network

Releveling 2006 - 2011  
 GNSS campaign 2x24h  
 May/June 2008

Absolut Gravity 2009 - 2011

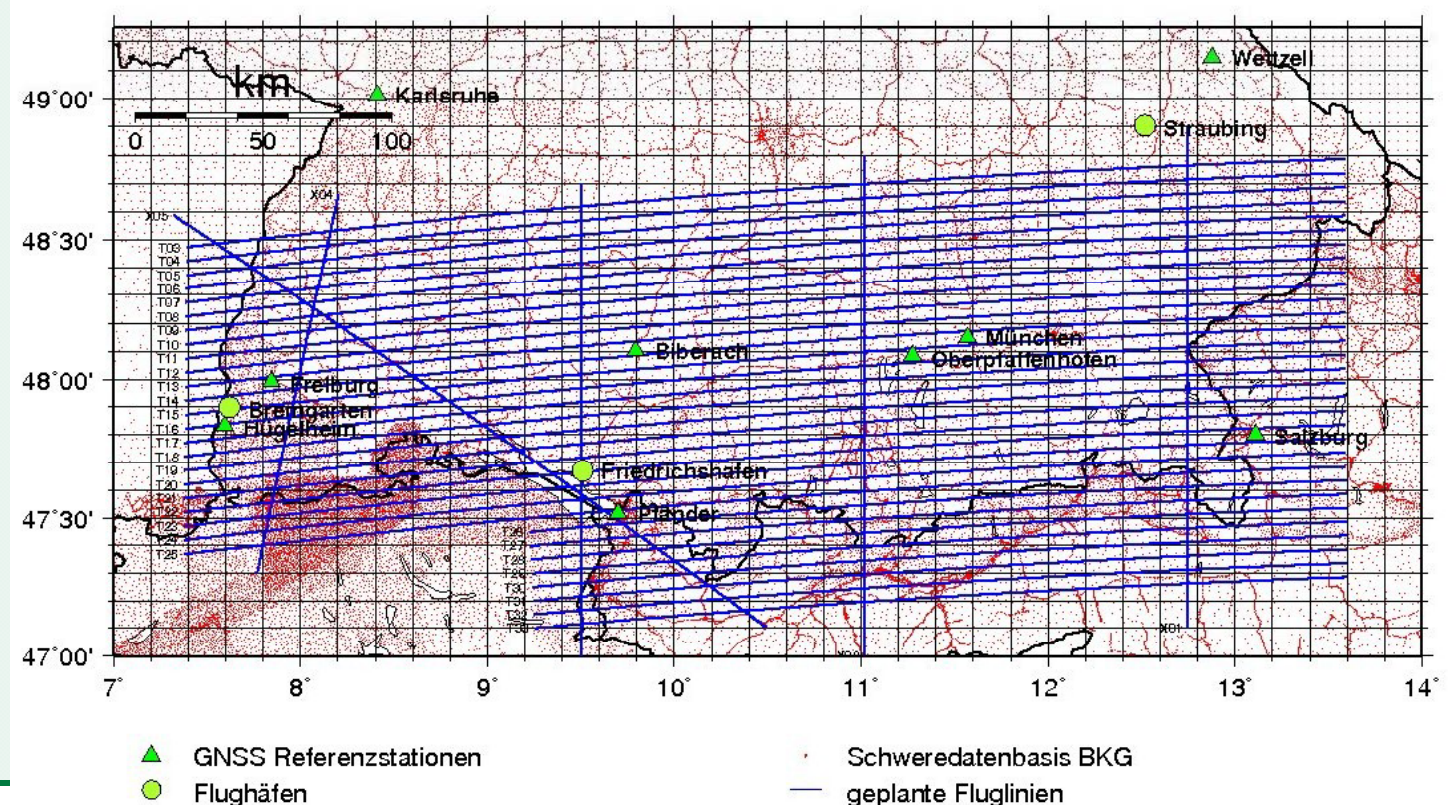
Stand September 2008

	GNSS-Station	250
	GNSS+Absolutschwere	100
	SAPOS-Station	250
	Station benachbarter Positionierungsdienste	
	IGS/EPN/GREF-Station	
	Pflichtlinien	
	optionale Linien	
	restliche Linien des DHHN92	



# Gravity Field Modelling

- The german quasigeoid model GCG05 extended including the region of southern Baltic and North Sea by the aerogravimetric data.
- The basic data for the quasigeoid modelling will further be improved in 2008 by aerogravimetric flights in the North Sea region and in southern Germany
- The results shall help to close existing data gaps
- Accuracy 1 to 5 cm



## Comparison of scientific coordinates of the EPN stations with the national official ETRF coordinates

**Germany accepted ETRS89 as national reference frame.**

**Original realization that has been adopted is based on measurements in 1991/1993.**

**Later performed measurements showed a systematic discrepancy to the original realization, considered by applying an additional 7-Parameter Helmert transformation.**

**A total number of 5 sites have been identified to be part of the EPN and the German national reference frame in common.**

### Differences between EPN and Official National Coordinates in Millimeters

Number	Site	North	East	Height
702	KLOP 14214M002	-8.1	-4.9	-11.9
704	KARL 14216M001	-9.8	-6.1	0.7
709	HOBU 14202M003	-6.7	-6.8	9.9
717	HELG 14264M001	-6.5	0.1	5.5
720	BORK 14268M001	-6.9	-6.1	8.1

**RMS / COMPONENT            8.6      6.0      9.2**

**RMS OF TRANSFORMATION :    7.2 MM**