

EUREF 2008 Symposium

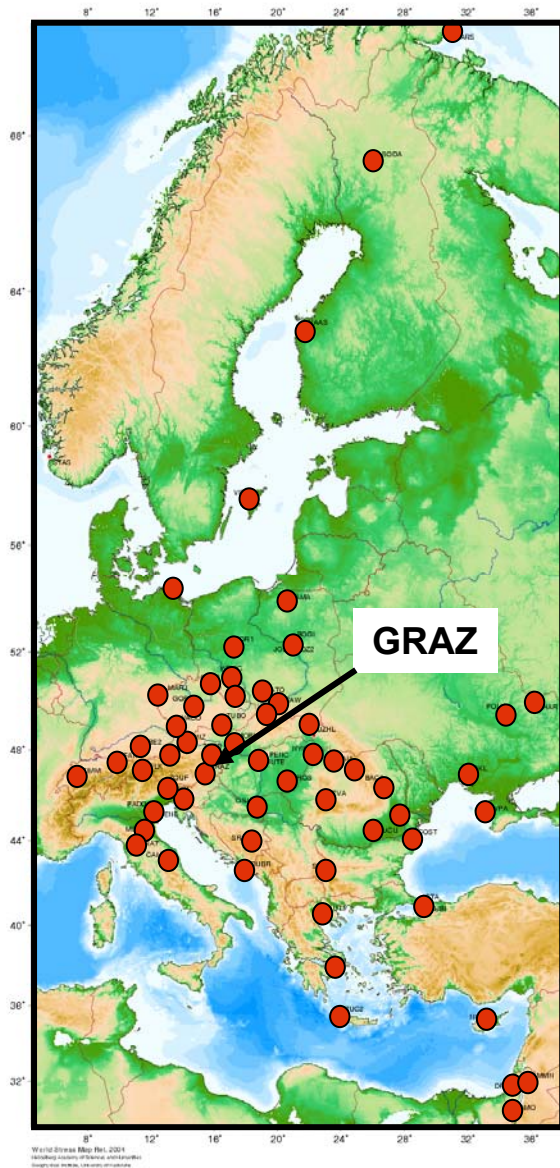
National Report of Austria

by

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Diethard Ruess, Zahn Ernst, Titz Helmut

Brussels, Belgium

June 18th to June 21st, 2008



EPN-related Activities*)

Subset of EPN (70 stations) computed on a Weekly base

GNSS RINEX Data center hosted
Hourly and daily data and products for about 400 stations: 40% EPN
85% public

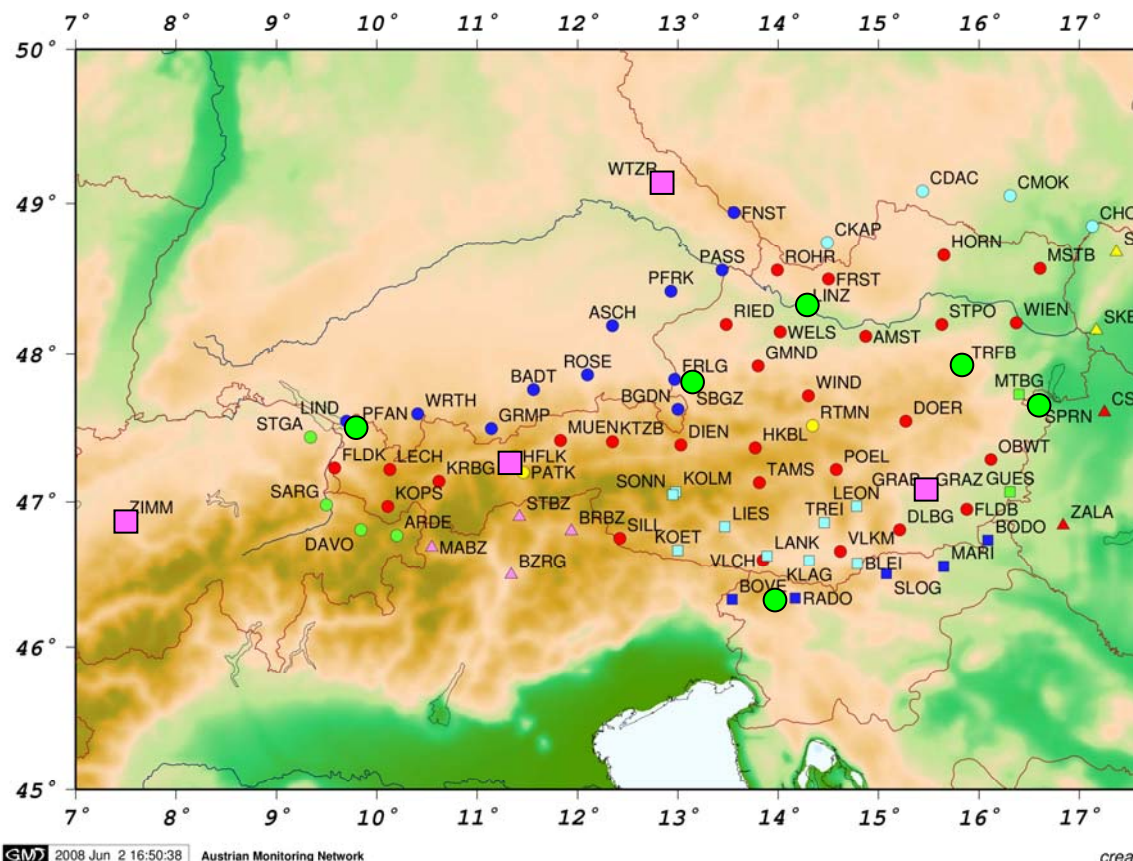
Data Flow Coordinator from BEV/OLG

Antenna Calibration: new combinations of antennas and radomes:
BEVA, GRAZ → BEVA, OLGA, PFAN

Change of Coordinate Reference Point
HFLK → HFL2, PFAN → PFA2, SBGZ → SBG2,
TRFB → TRF2

*) Cooperation between Federal Office of Metrology and Surveying/BEV and Observatory Graz Lustbühel/OLG

AMON – Austrian Monitoring Network



Weekly Computation

85 Stations, EPN rules

Multi year solution in ITRF2005

Coordinate reference for Austria:

ETRS89-2002.5

Time series in ITRF2000:

offsets of all stations estimated-
similar EPN

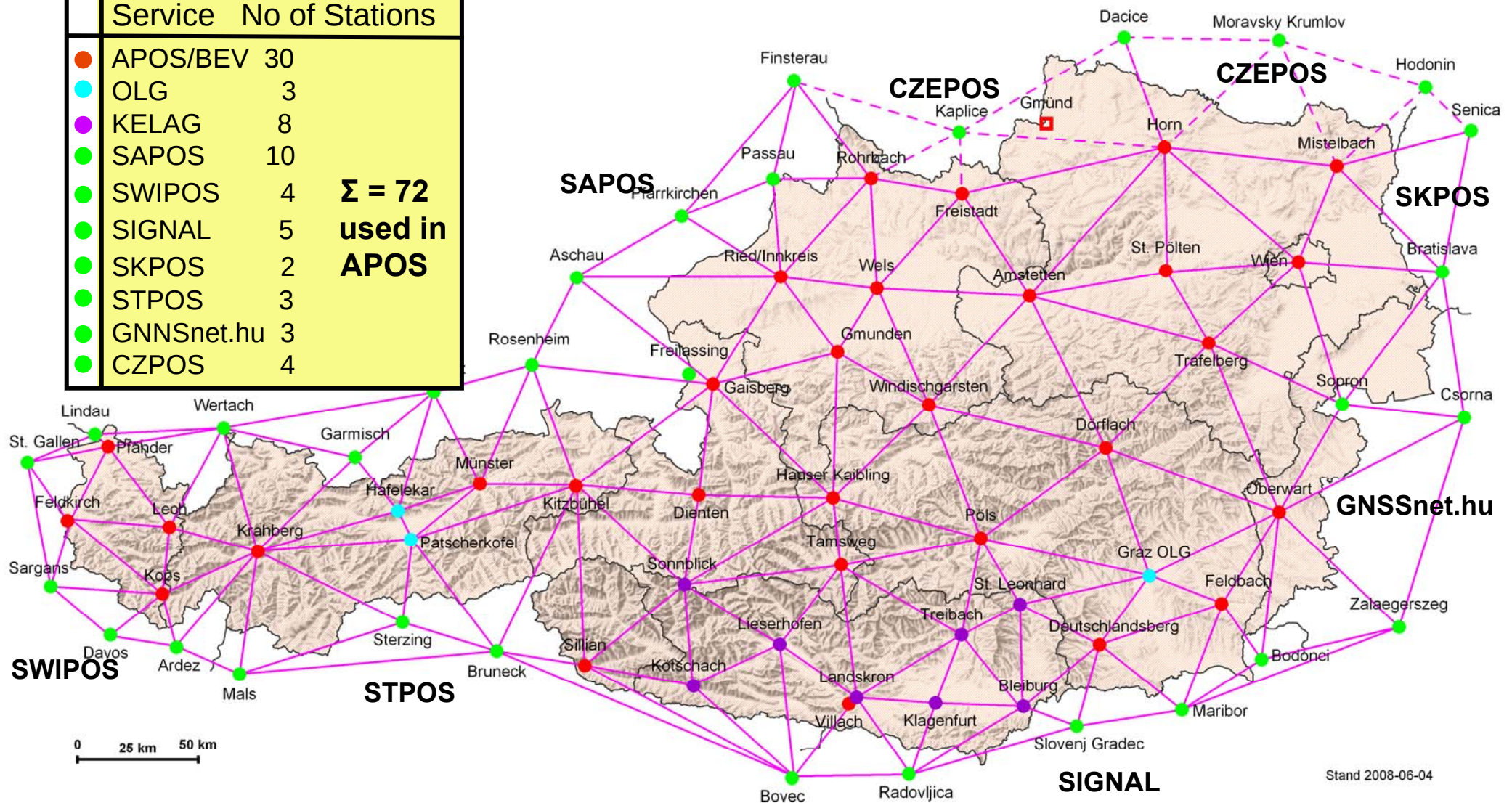
Velocity estimation:

0 to 1,5 mm/y horizontal

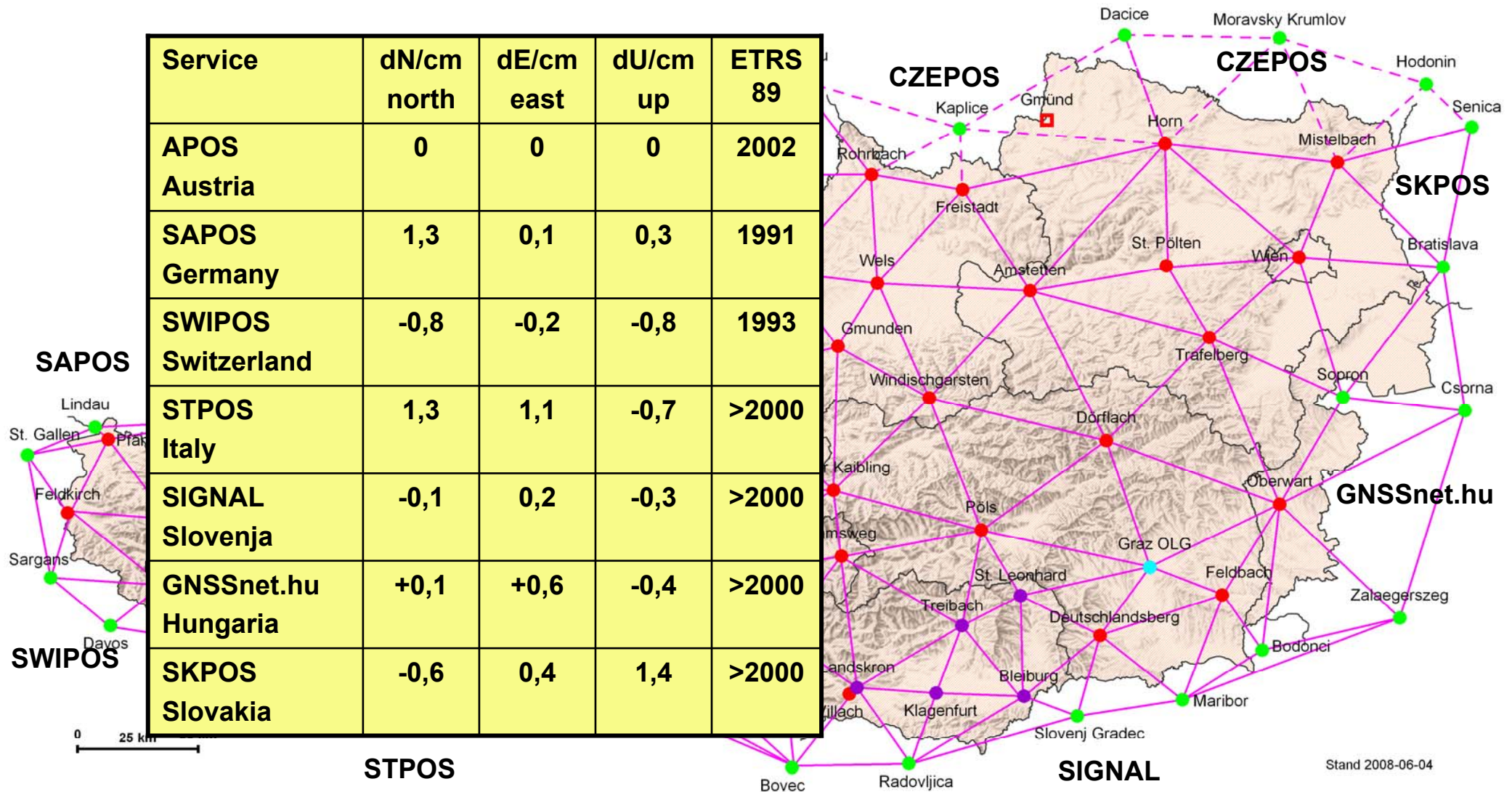
Some outliers up to 5 mm/y (local
instability)

● EPN-Station ■ IGS-Station

	Service	No of Stations	
●	APOS/BEV	30	
●	OLG	3	
●	KELAG	8	
●	SAPOS	10	
●	SWIPOS	4	$\Sigma = 72$ used in APOS
●	SIGNAL	5	
●	SKPOS	2	
●	STPOS	3	
●	GNNSnet.hu	3	
●	CZPOS	4	



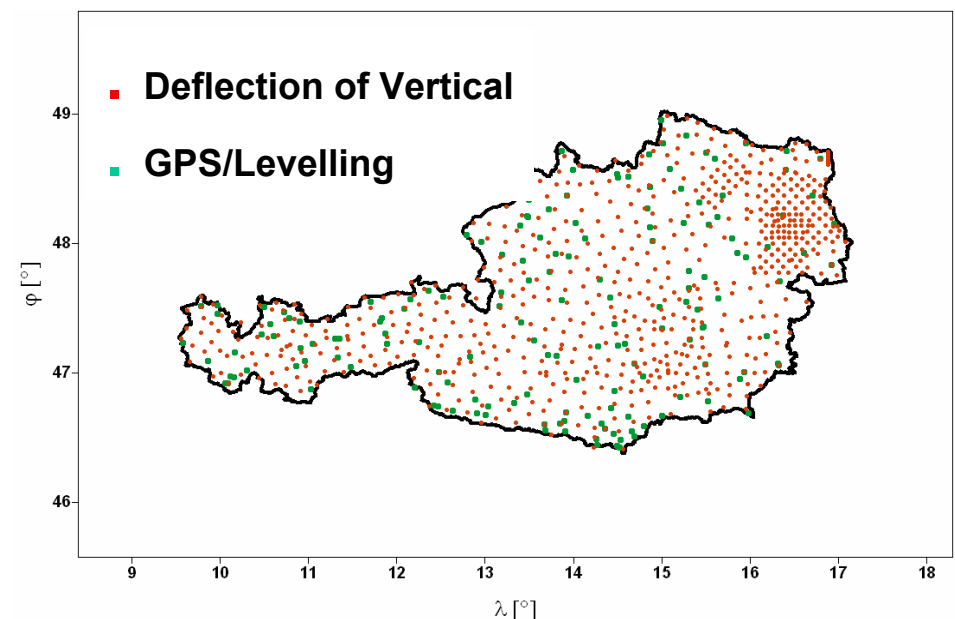
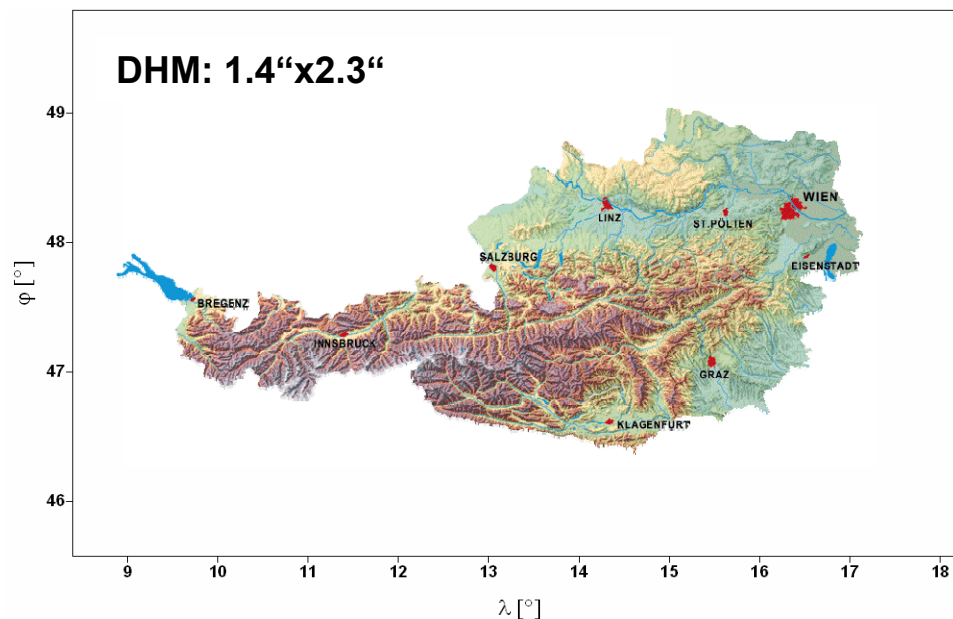
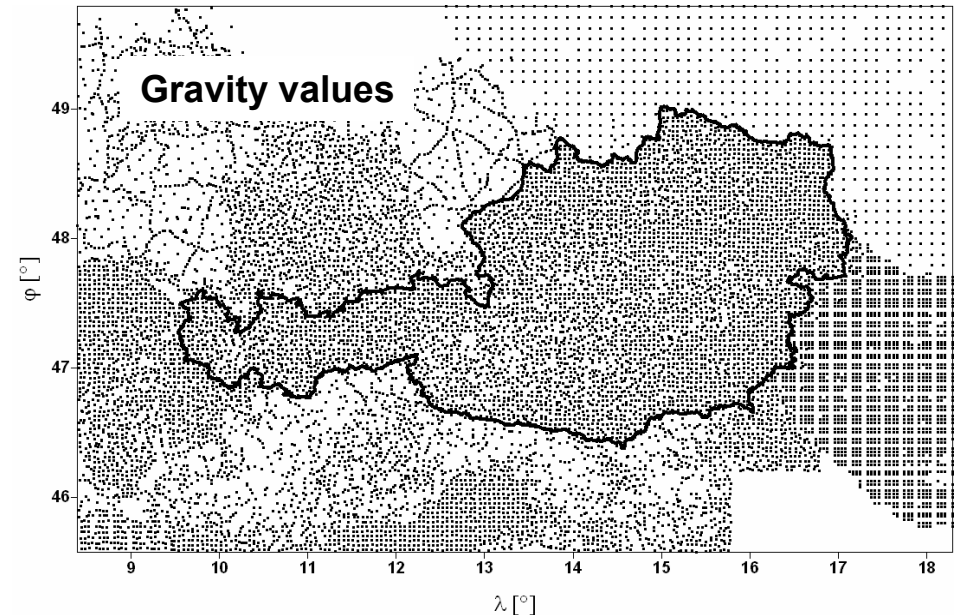
APOS: Differences of Co-ordinates (cm) for mutual Reference Stations near the border derived from the national ETRS89 solution



Combination of global gravity and terrestrial data

- Global Gravity model: GRACE EIGEN-GL04S
- Terrestrial data:
- DHM: BEV, Swisstopo, SRTM: 1.4"x2.3"
- Gravity-values: 122.000 irregular distributed grid 4x4 km -> 14.001 points
- Deflection of Vertical: 672
- Collocat. points: GPS/levelling -> 161 points

Cooperation between BEV and TU/Graz/INAS



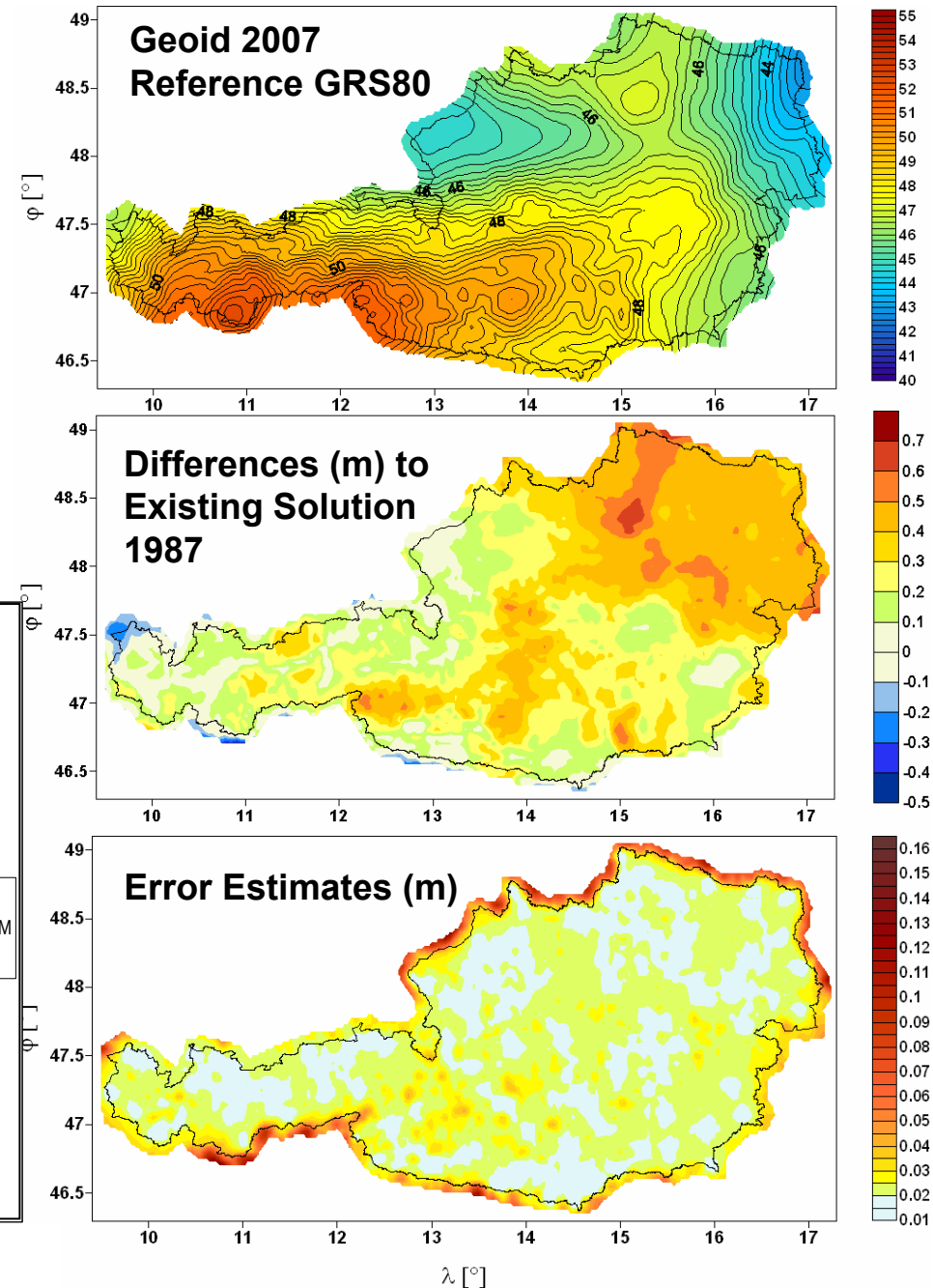
Austrian Geoid 2007

Results

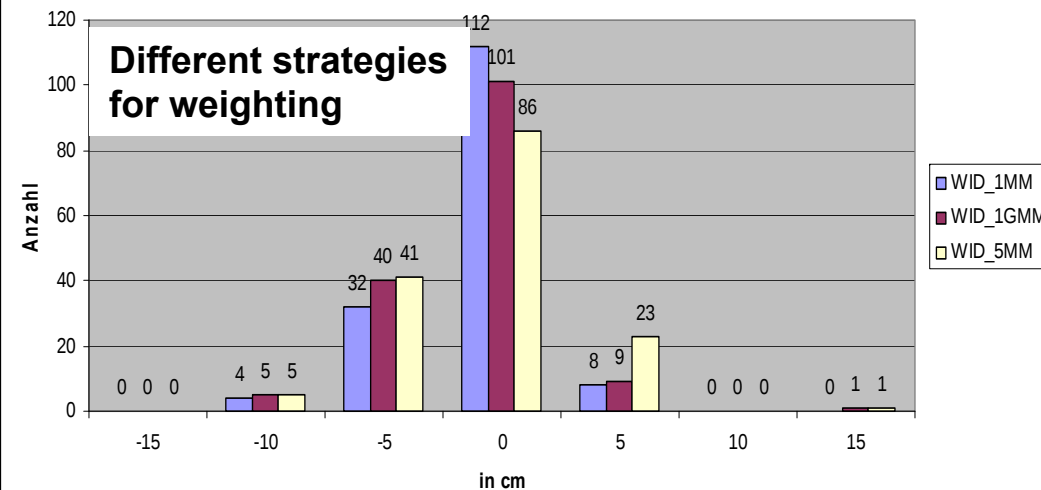
Input	Differences		
Accuracy for collocat. Points	min cm	max cm	σ_N cm
1mm	-3,6	2,4	0,6
5mm	-10,7	8,0	2,3
1mm(indiv.)	-13,6	9,6	1,8

Next steps

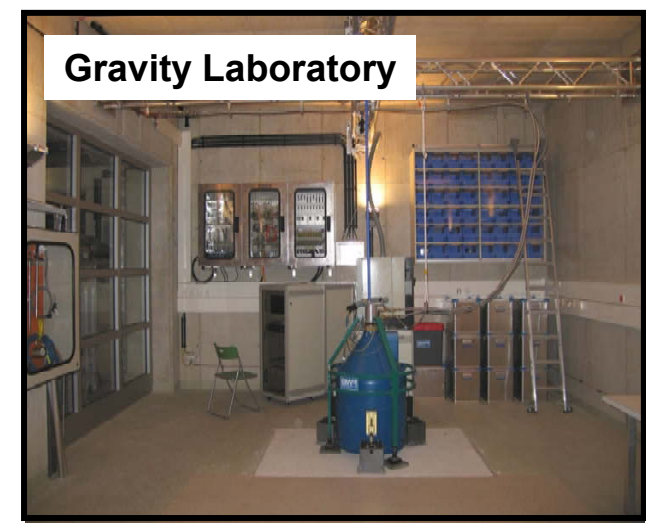
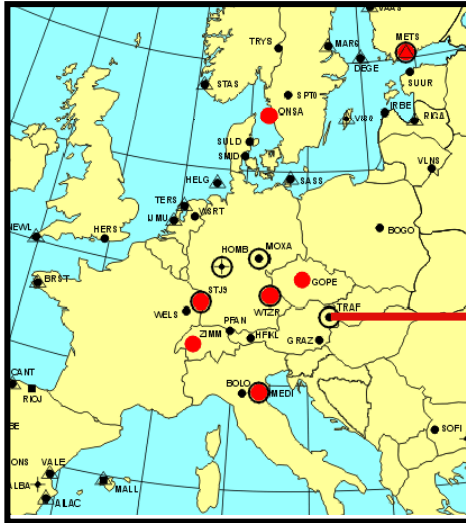
Comparison with European Geoid
Improved and denser GPS/levelling data-set



Widersprüche in den Kollokationspunkten der
Geoidlösungen 1mm, 1mm gew. und 5mm



ECGN Stations in Austria



ECGN – 3 Stations in AUSTRIA

Graz/OLG
Pfänder
Trafelberg

Progress 2007

GWR tidal gravimeter transferred Vienna → Trafelberg

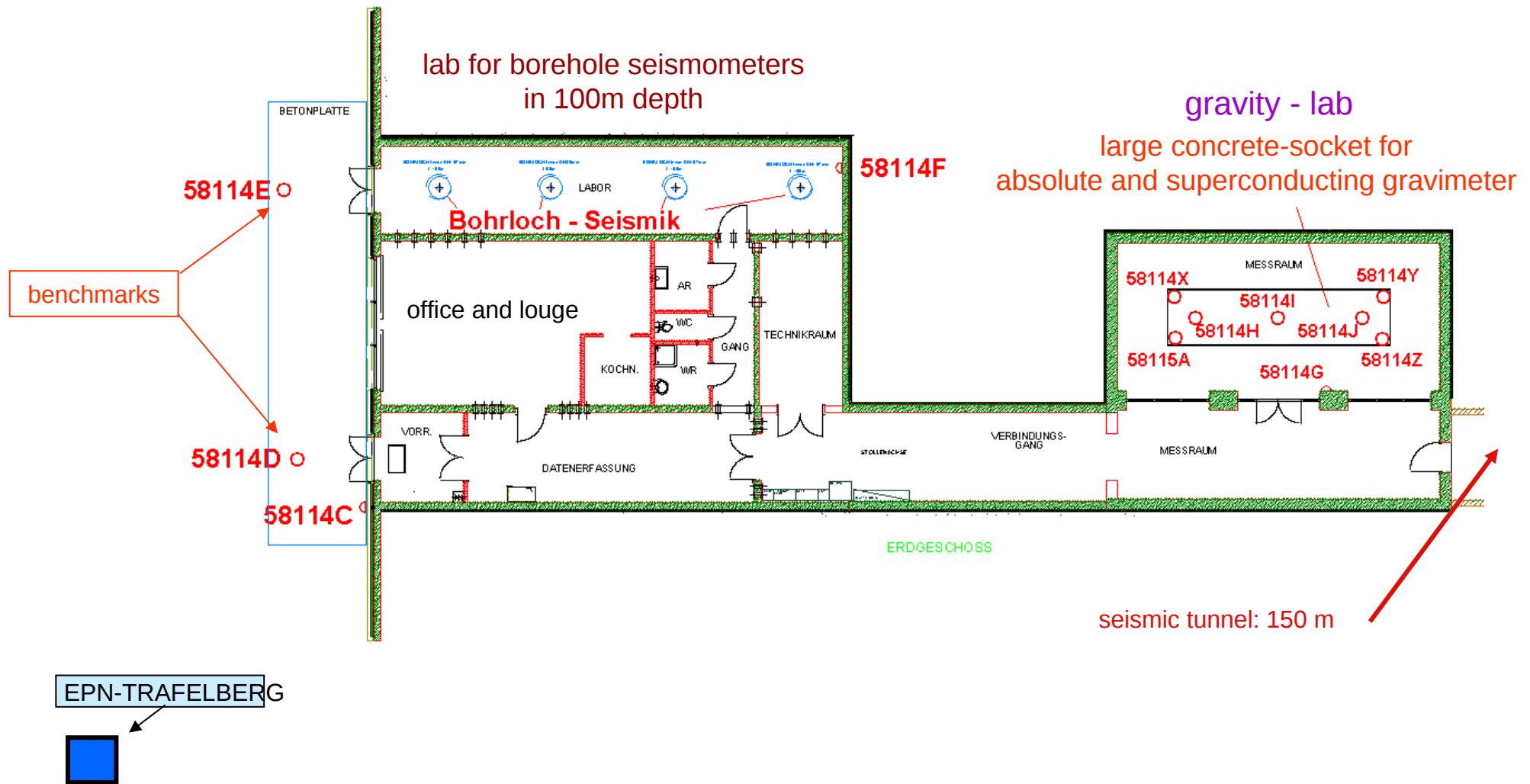
Absolute Gravity Measurements:
Graz, Pfänder Trafelberg

Walferdange: Participation of BEV at the Absolute
Gravity Comparison Campaign

Conrad - Observatorium - Austria



geophysical observatory [central institute of meteorology and geodynamics]



TRAFELBERG - Conrad Observatorium - seismometer tunnel

