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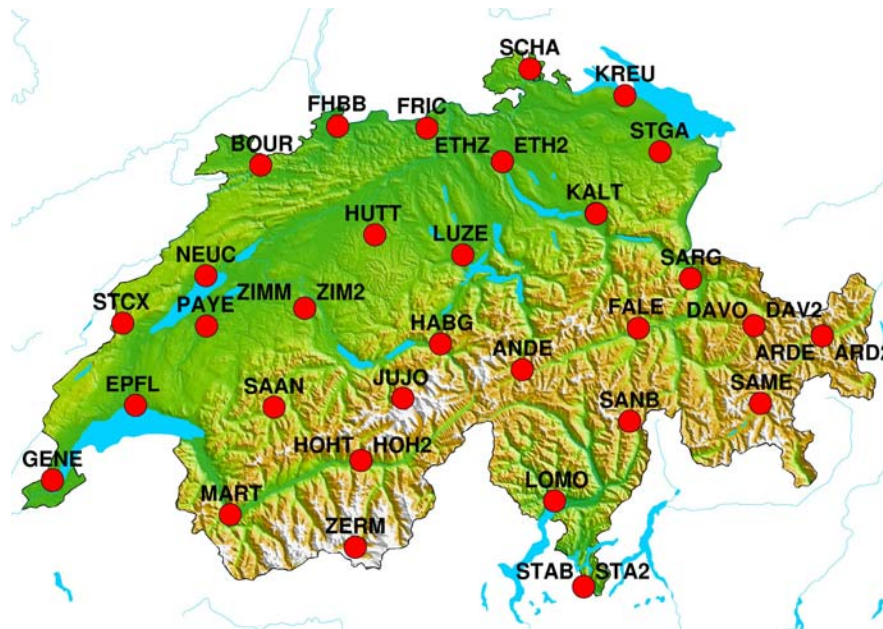
National Report of Switzerland

E. Brockmann, D. Ineichen, M. Kistler, U. Marti,
A. Schlatter, B. Vogel, A. Wiget, U. Wild



GPS -> GNSS in AGNES network

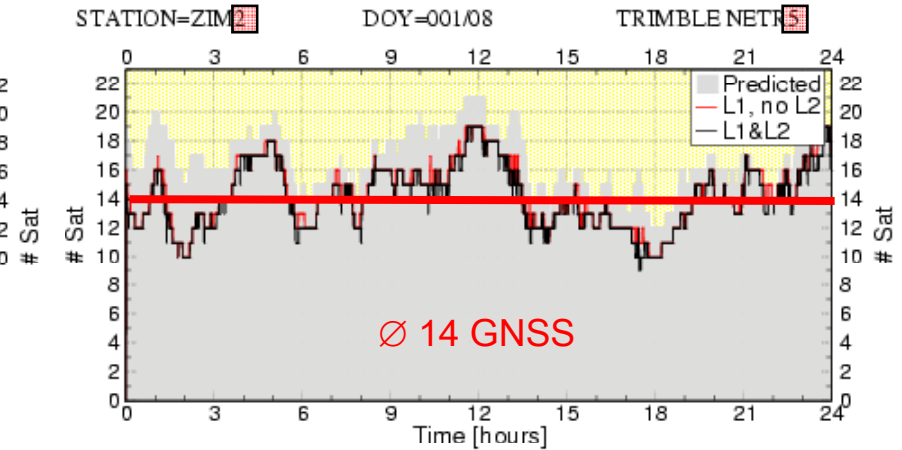
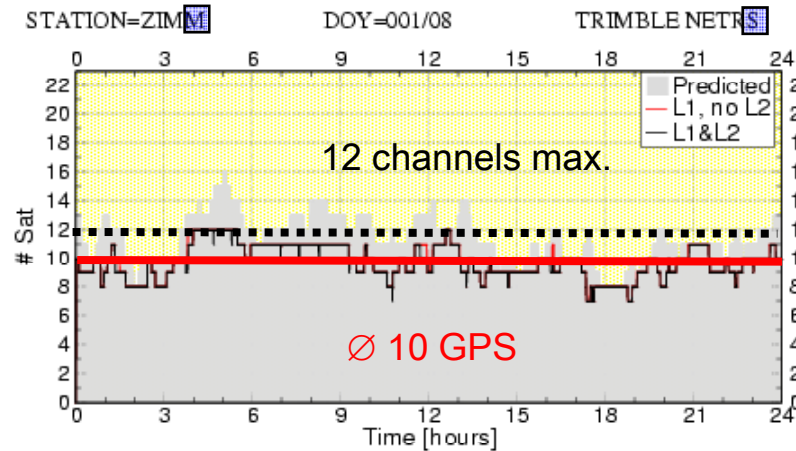
- Project started Mid 2006: customers interest
- 10 double stations as compromise between real-time applications (higher availability of the positioning service swipos under difficult environment) and the aspects of reference frame maintenance (continuity of time series)



ARDE
(BOUR)
DAVO
ETHZ
FRIC
HOHT
MART
(SAAN)
STAB
ZIMM



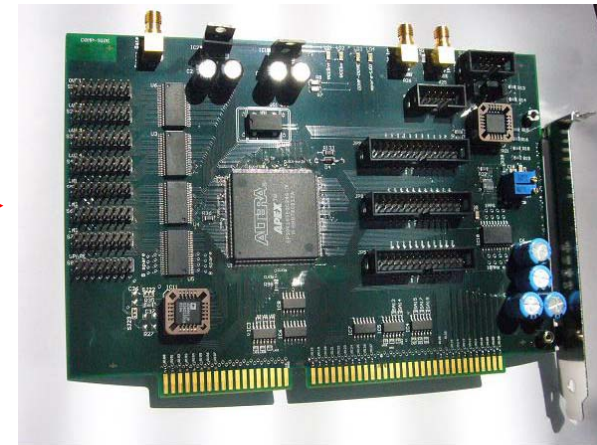
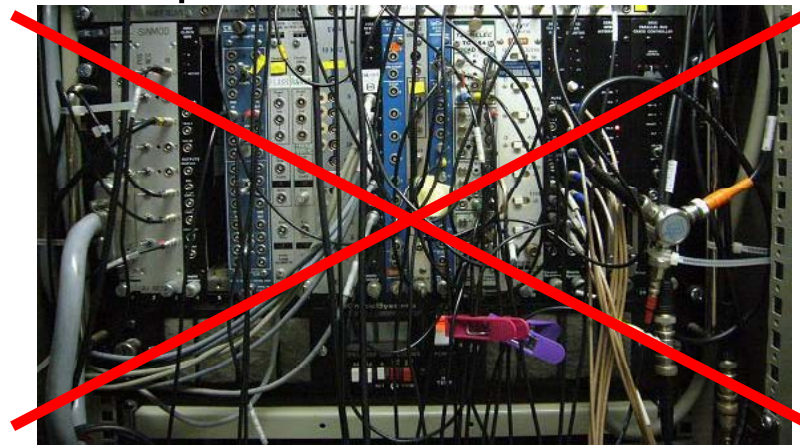
Zimmerwald: ZIMM (GPS) – ZIM2 (GNSS)





Zimmerwald: new Laser system

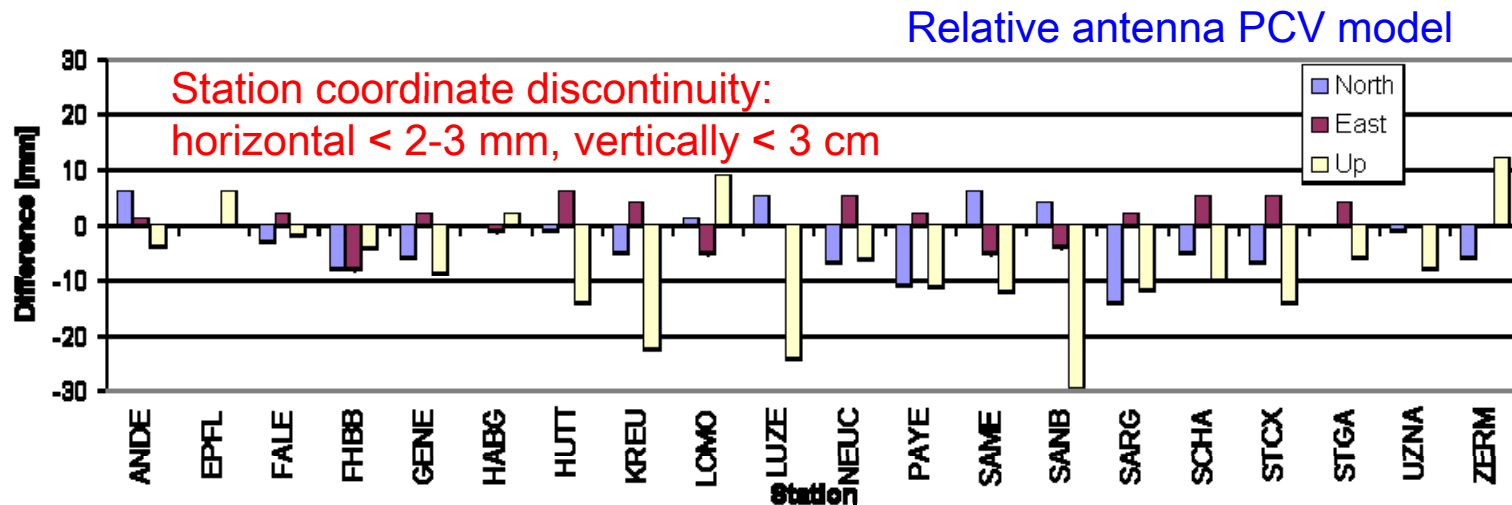
- Improved precision (30 ps puls length)
- Laser type (Nd:YAG-Laser with wavelengths of 1064 and 532 nm) compatible with most of other SLR stations
- Higher repetition rate (100 Hz)
- Several software and hardware components changed and improved
- Operational again after 2-3 month shutdown with most of the problems solved





Activities AGNES 2007

- Nov. 06 – Oct. 07: GNSS-analyses changes **BSW 5.0+**
 - **CODE GNSS orbits**
 - Baseline optimization
 - Preprocessing bugs eliminated and GNSS ambiguity resolution
- 14. June (PAYE) – 2. July (GENE): 20 stations upgraded





























































































- ## network monitoring

Control point “Viewer”

[illegible]

Available plots by site					
Station	Network/Info	Coordinate repeatability	Meteo	7 days 1h-Monitor	3 days 30s-Monitor
ARTU	Other				
ANDE	Ages				
ARD2	Ages				
ARDE	Ages				
AUTN	Other				
BOR1	Other				
BOUR	Ages				
BRST	Other				
BRU3	Other				
BSCN	Other				
BZRG	Other				
CAGL	Other				
CHTL	Other				
DAV2	Ages				
DAVO	Ages				
DOUR	Other				
EGLT	Other				
EPFL	Ages				
ENTZ	Other				
ERDE	Other				
ETH2	Ages				
ETHZ	Ages				



Control Point Data Service (CPDS)

- Administration of reference points horizontally (20'000 ~ 100 %) and vertically (< 50%) on national and cantonal level
- Central database and graphical interface (distributed maintenance) + GIS-web-Viewer for public users

The screenshot displays the FPDS (CHUser) software interface on the left and a PDF report titled 'CH0300001186_11868000_verif.pdf' on the right.

FPDS (CHUser) Interface:

- Arbeitsbereich:** LK1186_LV03
- Mutation:** CH_MUT40
- Status:** verifiziert
- Qualität:** kontrolliert
- Buttons:** Importieren, Arbeitsbereich, Mutation, Adresse, Verwalten, Export, Werkzeuge, Administration
- Navigation:** Messungen, Versicherung, Rückversicherung, Nachführung, Bilder, Administratives
- Form Fields:**
 - Punktnummer*: 11868000
 - NBIdent*: CH0300001186
 - Zuständig*: CH
 - Punktname*: ZIMM (Zimmerwald)
 - Ordnung*: EUREF.EUREF
 - Koordinaten*: 2602030.740 E, 1191775.030 N, 906.55000 h_ell
 - Genauigkeit*: 0.50 cm
 - Zuverlässigkeit*: ja
 - Stabilität*: stabil
 - LageGen*: 1.00 cm
 - LageZuv*: ja
 - HoeheGen*: 1.00 cm
 - HoeheZuv*: ja
 - Herkunft*: GPS
 - Akten: Archiv swisstopo
 - Bemerkung:

PDF Report (CH0300001186_11868000_verif.pdf):

- Station Information:** Y = 602 030.680, X = 191 775.030, H = 907.104, LK 1186, 800 0
- Geostation Zimmerwald:** 1:1'000 scale map showing the station location and surrounding area.
- Einmessung exz. Zeichen:** Station 11868000, Y = 602 062.24, X = 191 792.87, H = 897.844
- Table of Measurements:**

Station	Y	X	H	dx
11868227	212.006			
Kappenbolzen B	258.611		-0.069 m	
11868000	267.256		+9.260 m	
11868001	267.278		+0.071 m	
Bolzen A	271.210		+0.270 m	
GPS 97	280.153		+6.802 m	
GPS 87	282.618		+7.218 m	

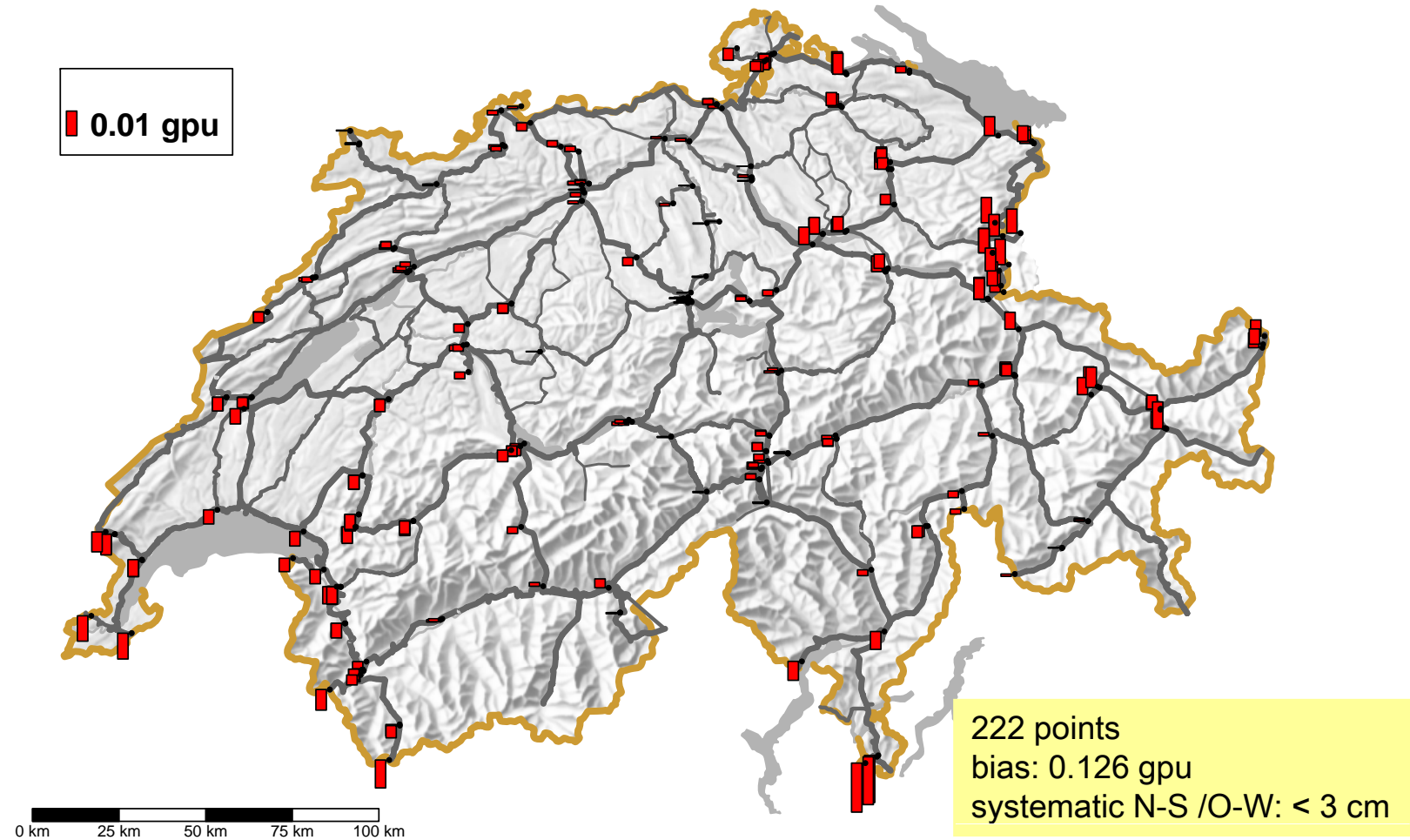
- Identität mit IGS-DMES-Nummer:** 14001M004
- Eigentümer:** Kanton Bern
- Table of Operations:**

Kt	Bezirk	Gemeinde	Kreis	Parz.	Anm. im GB
BE	Schönenberg	Wald (BE)		596	1995

- Erstellung:** 31.10.1988
- Operat. Name:** EUREF/LV95-Hauptpunkt/AGNES-Permanenzstation ZIMM (Zimmerwald)
- Sektion:**



geopotential heights LHN95 and EVRF07





Geographic information law

- Geographic information law + 10 ordinances, coming into force 1.7.2008
- includes catalogue of 150 geobasis data (reference frames and data of the reference networks)
- Transition phase for LV95: 2016 for geobasis data regulated by federal law; 2020 for all geobasis data
- Regulation of fees: marginal costs for personal use; ordinance on fees for commercial use in development
- compatible with the INSPIRE directive of the EU