

# L+T Data Processing and its Special Features

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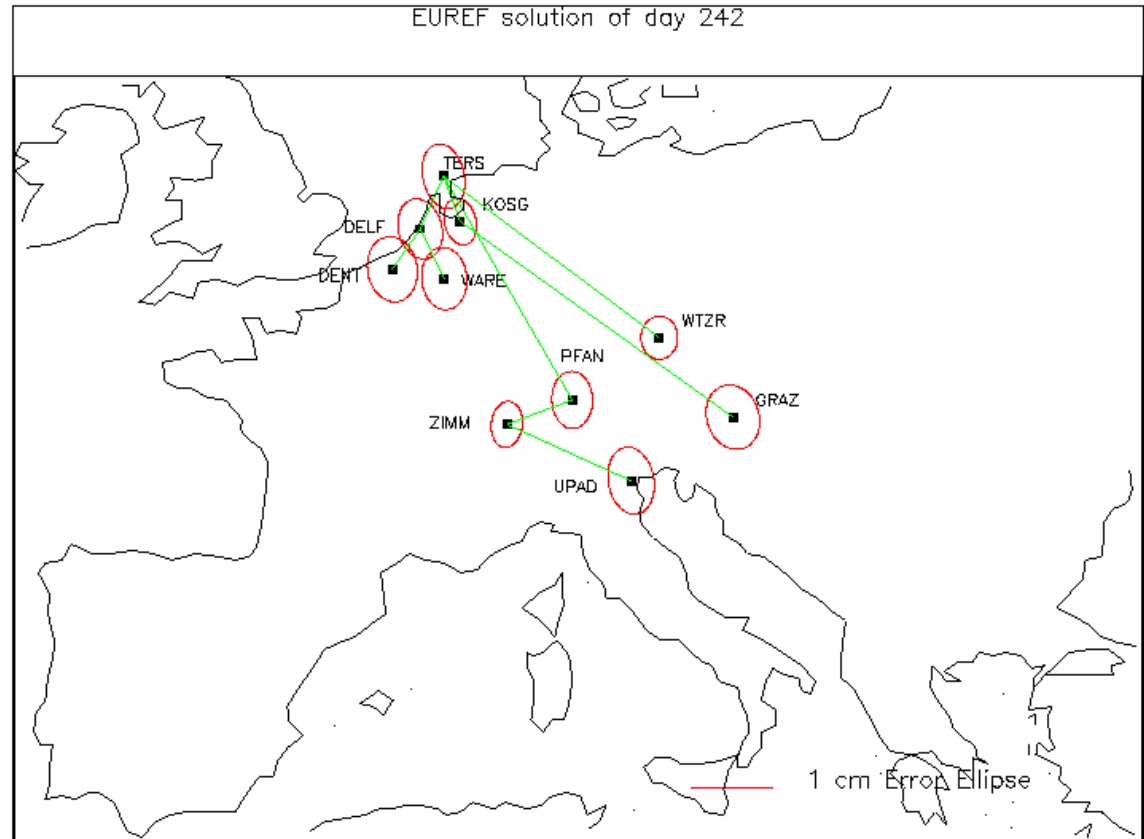
# Contents

- „Normal“ data processing
  - BPE setup
  - fully automated data processing
- „Special features“
  - input data used
  - processing options for best possible densification



# Processing Overview

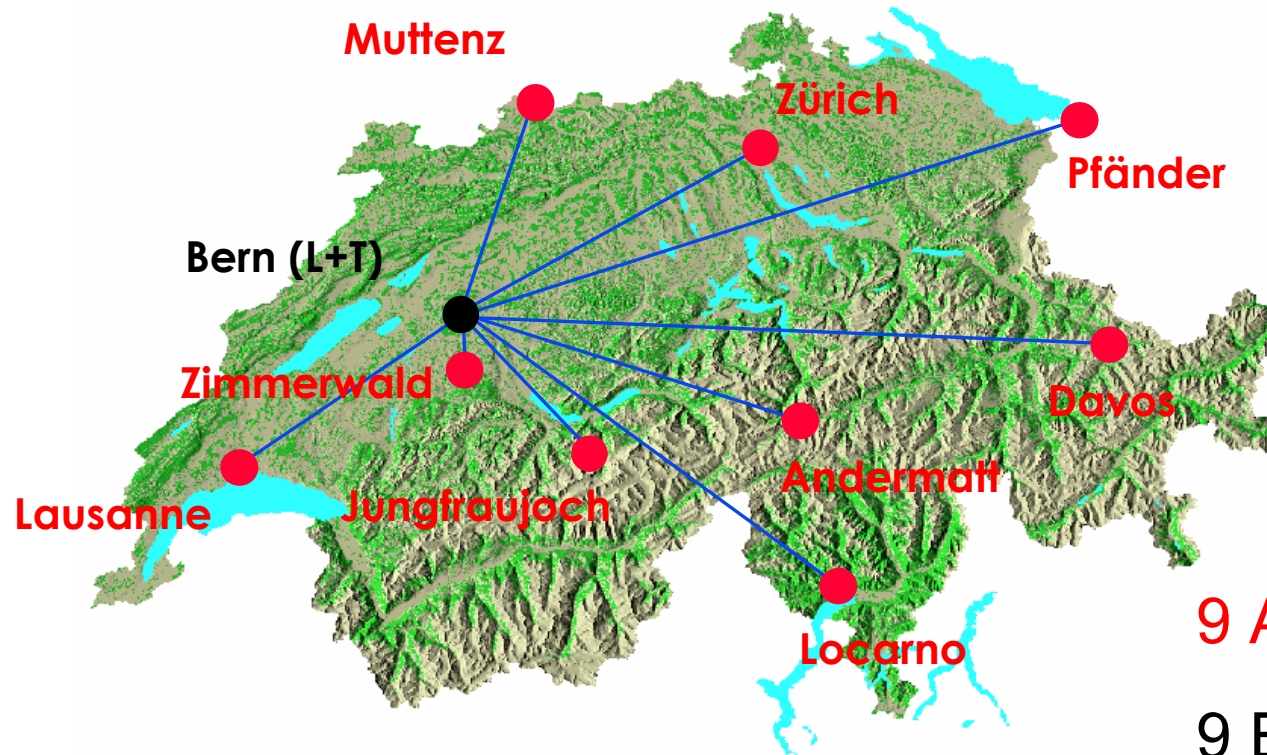
- 12 sites
- 7 days delay
- since Nov. 1996



GRAS, DOUR, EIJS missing



# Automated GPS Network Switzerland („AGNES“)



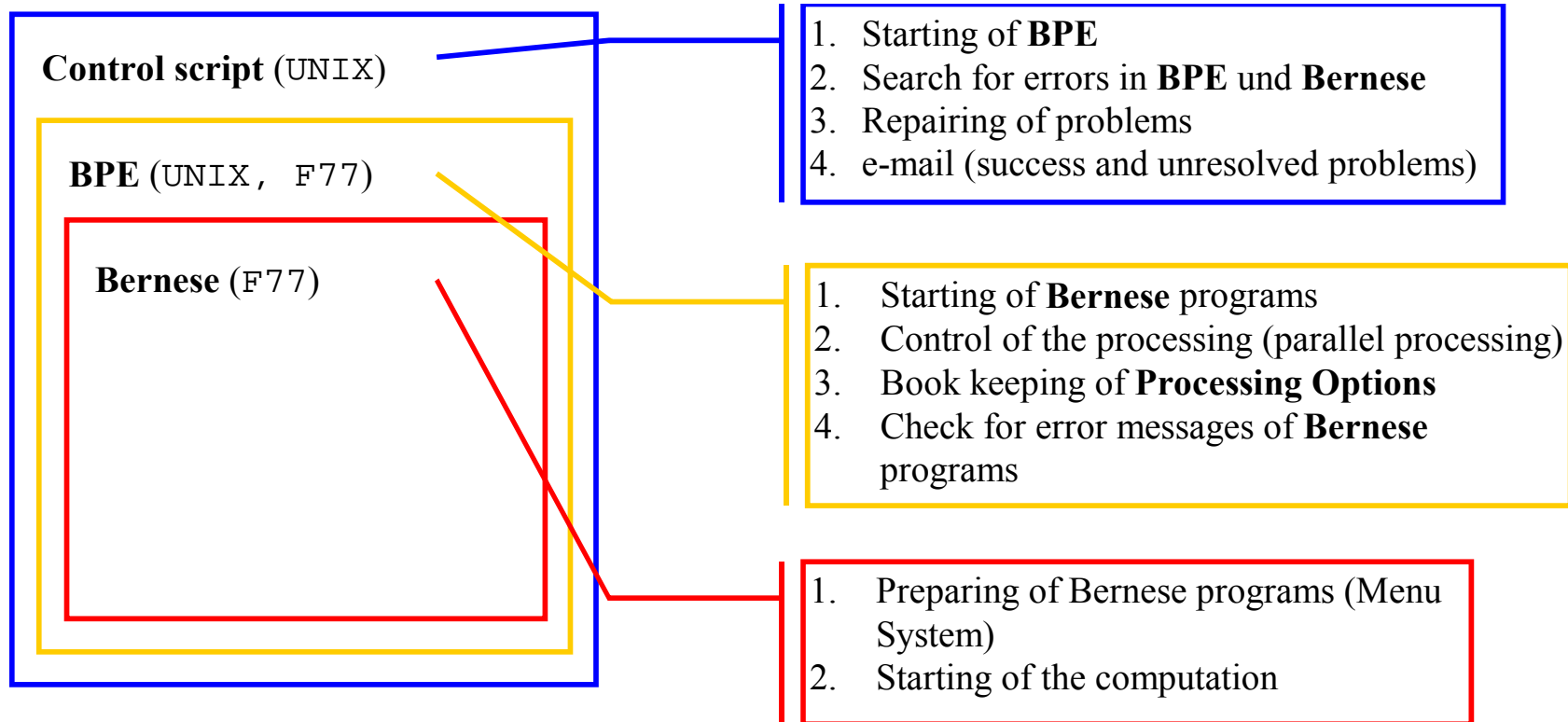
9 AGNES Sites

9 EUREF Sites

additionally



# BPE Processing



# Automated Processing

- Automated start with a delay of 7 days
- Automated check for ftp failures (main error source)
- Automated weekly submission to BKG (Sunday morning at 7 am)
- Automated storage to a tar file on a weekly basis
- Automated long term storage to tapes (all ten weeks)

**No manual interaction at all for the regular data processing**



# Processing Control

Start: (optional „EUREF 242 8“ to start 8 consecutive days)

EUREF 242

E-mail:

Day: 99239 WEEK: 10245 Rms: 1.5 fil.: 11 obs.: 24924 par.: 267 Miss: EIJS

Protocol:

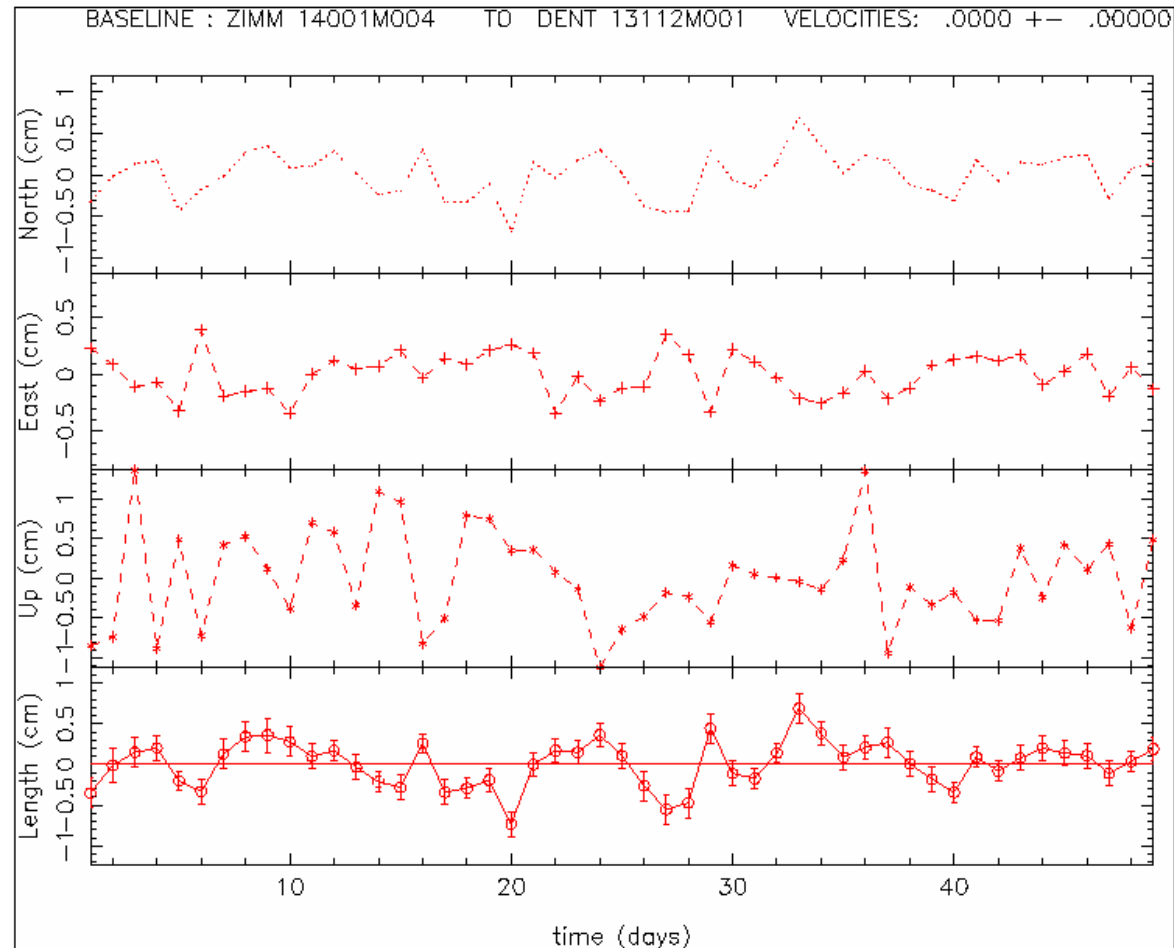
Status und results of programs, RMS values, # fixed ambiguities,  
# outliers, # cycle slips, archive listing, success of the FTP upload, repeatabilities



# Processing Control (Cont.)

Repeatability  
of all sites for  
the last 50  
days

**Daily** solutions  
and **weekly**  
solutions



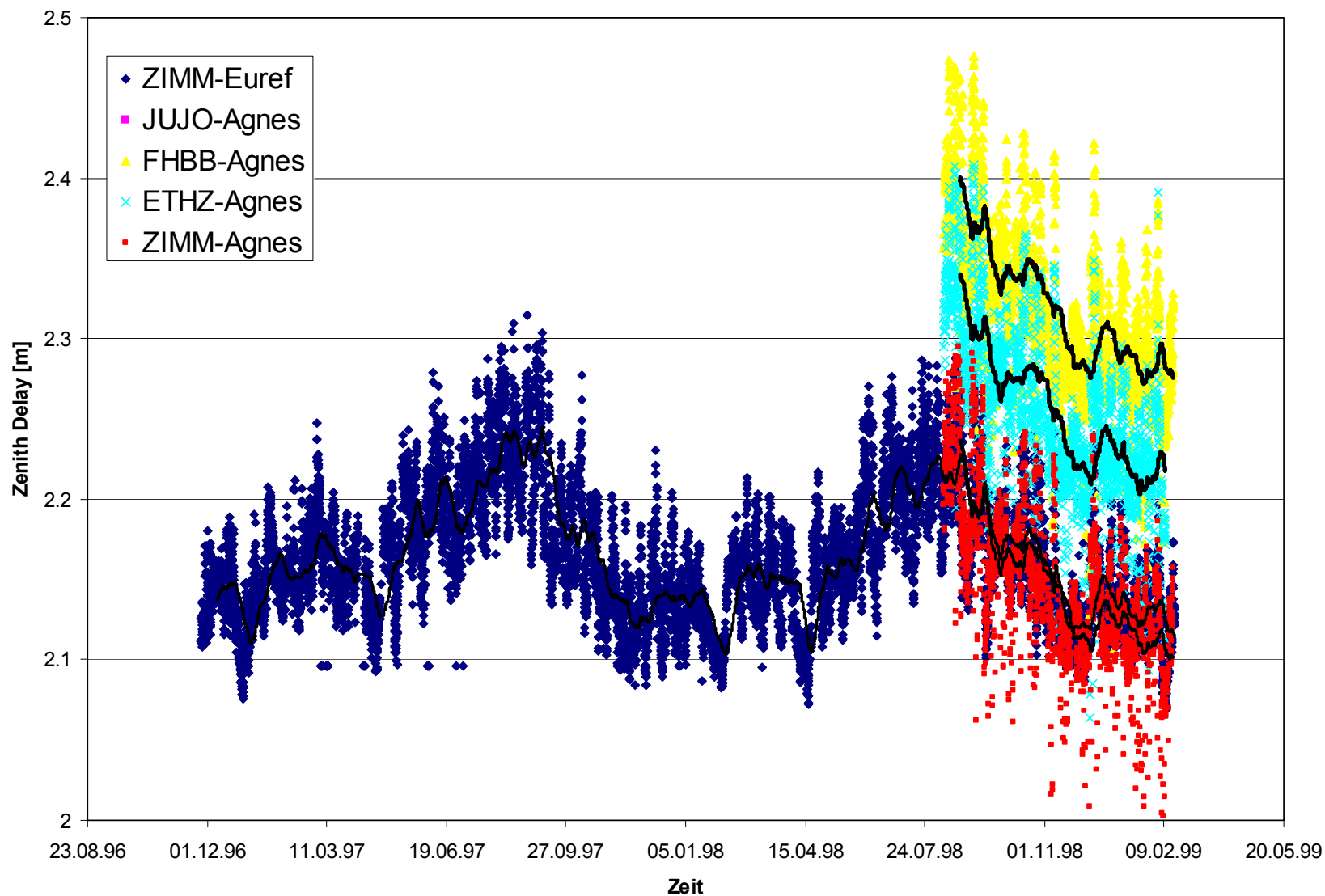


# „Special Features“

- Input data: CODE „X3“ orbits and ERPs with a delay of 1 week (5 days CODE + 2 days for troubles,...)
- X3 TRP files for anchor sites to re-establish same reference system (important the smaller the network): avoid **absolute trop. zenith delay errors causing a network scale error**
- Global Ionosphere model to improve ambiguity resolution statistics (not yet activated)



# Troposphere estimation



# Combination Week 1022

## Summary Files

## Combination File

Center	7-days repeatability				Combination			
	dn [mm]	de [mm]	du [mm]	vert. / horiz.	dn [mm]	de [mm]	du [mm]	vert. / horiz.
ASI					1.7	2.5	2.8	1.3
BEK					1	1.4	5.8	4.8
BKG	2	2	6	2.6	0.6	1.0	1.0	2.5
COE	2	2	5	2.8	0.9	0.7	2.1	2.6
GOP	2	3	5	2.0	0.4	0.4	2.2	5.5
IGN	2	3	5	2.0	0.5	0.8	4.4	6.8
LPT	2	1	5	3.3	0.4	0.4	3.0	7.5
NKG	2	3	6	2.4	0.4	0.5	1.9	4.2
OLG	3	2	7	2.8	0.5	0.3	3.1	7.8
ROB	2	2	7	3.5	0.5	0.8	3.0	4.6
UPA	3	2	7	2.8	0.5	0.3	5.4	13.5
WUT	2	3	8	3.2	0.8	0.7	2.5	3.3
Mean	2.2	2.3	6.0	2.7	0.6	0.6	3.0	5.2
RMS	0.4	0.6	1.1	0.5	0.2	0.2	1.1	3.1

## Modeling differences:

- Troposphere estimation
- Observation cut-off / weighting



# Input Products

Input Product	Source „IGS“	Source „COD“
Orbits	IGS; 2-3 weeks delay	X3; 1 week delay
ERP	IGS; 2-3 weeks delay	X3; 1 week delay
<b>Troposphere</b>	<b>IGS; 2-3(?) weeks delay</b>	<b>X3; 1 week delay</b>
Ionosphere	IGS; ?	COD; 1 week delay

Importance



Advant/Disadvant	Source „IGS“	Source „COD“
Verification	☺ Proofed	☹ „unverified“ externally
Fastness	☹ slow	☺ quick
Compatibility with processing tool	☹ Slightly worse (not exactly the same models)	☺ With the same software best possible with CODE global products (exactly the same models)
Densification	☹ Best, if <b>all centers</b> are using same input products and same models	☹ Best, if <b>all centers</b> are using same input products and same models

Troposphere estimation, obseravtion weighting / cut-off



# Conclusion

- IGS and CODE products (orbits and ERPs) are well suited for densification purposes.
- Troposphere: do we need guidelines within EUREF (usage of troposphere products, troposphere estimation, weighting/cut-off of observables) ?

