



EUREF Regional Densification of ITRF2005

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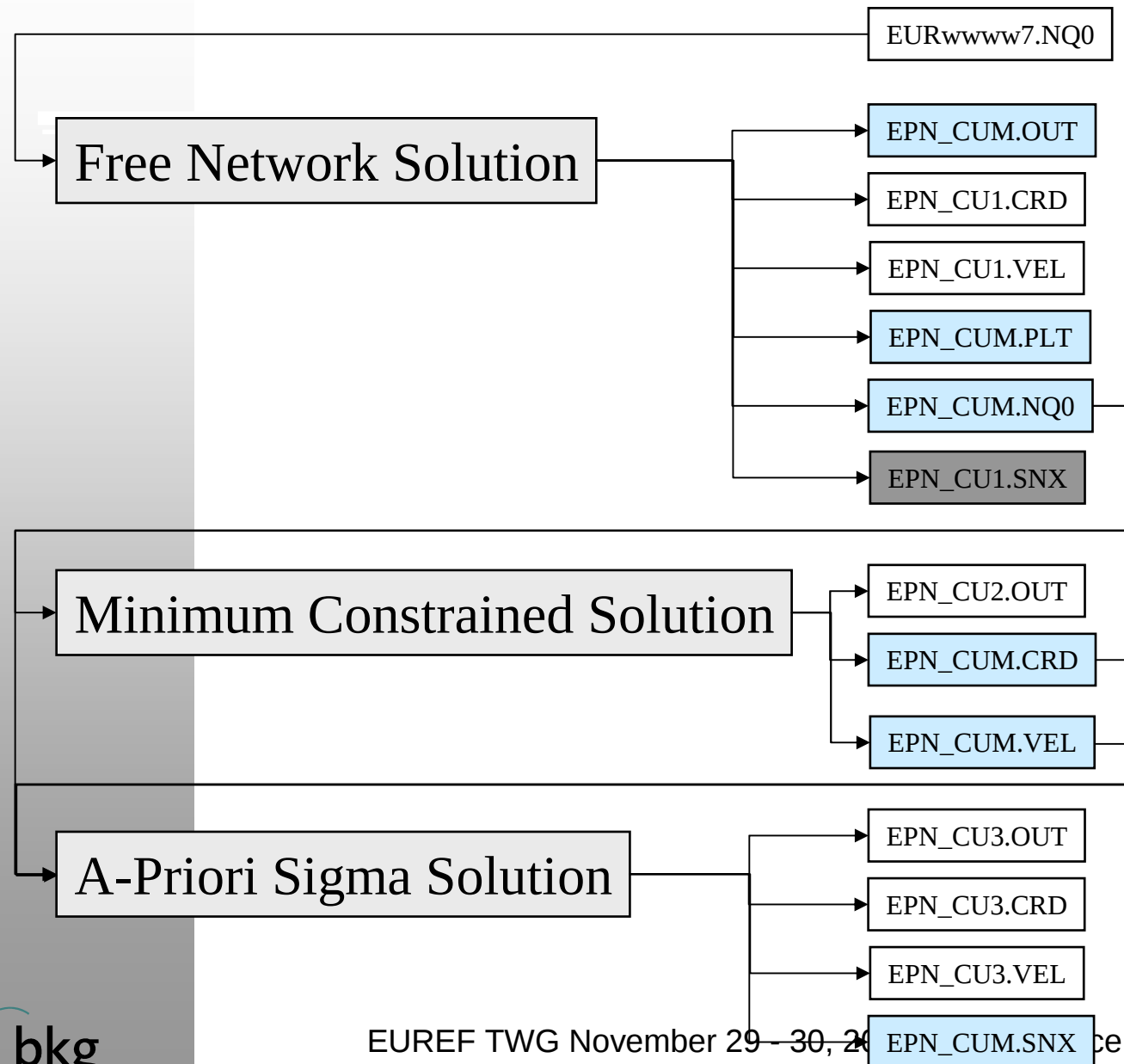
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Introduction

- Cumulative solution of EPN weekly results to realise a European densification of ITRF2005
- Processing now finished and product files *online* available
- Draft report document distributed among TWG members

EPN Multiyear Solution Strategy



- ALL_ITRF2005_060920.snrx (*IGS offsets*)
- outliers.snrx (*IGS outliers*)
- EPN_offsets.snrx (*EPN SP offsets*)
- EPN_outliers.snrx (*EPN outliers*)
- ITRF2005_GPS.SSC (*coordinates and velocities*)

Priority Offsets:

1. ITRF2005
2. EPN SP Time Series
3. EPN Multiyear Solution

Priority Outlier Definition:

1. EPN Multiyear Solution
2. EPN SP Time Series

Priority Coordinates/Vel.:

1. ITRF2005 (Flag I)
2. EPN Weekly (Flag E)

Many, many ...
manual editing

EPNC.STA
EURF05.CRD
EURF05.VEL

Contributing NEQ-Files

- Weekly SINEX files converted to NEQs (mandatory to start with 1 solution per week)
- Weeks 860 to 1355 result to 496 contributing files

Rejection Criteria

ADDNEQ2 4: Comparison of Individual Solutions

NOTIFICATION OF POSSIBLE OUTLIERS

Maximum tolerated residual	North	10	millimeters
	East	10	millimeters
	Up	20	millimeters
Maximum tolerated root-mean-square error	North	10	millimeters
	East	10	millimeters
	Up	20	millimeters
Minimum number of solutions for each station		2	

Reference Station Selection

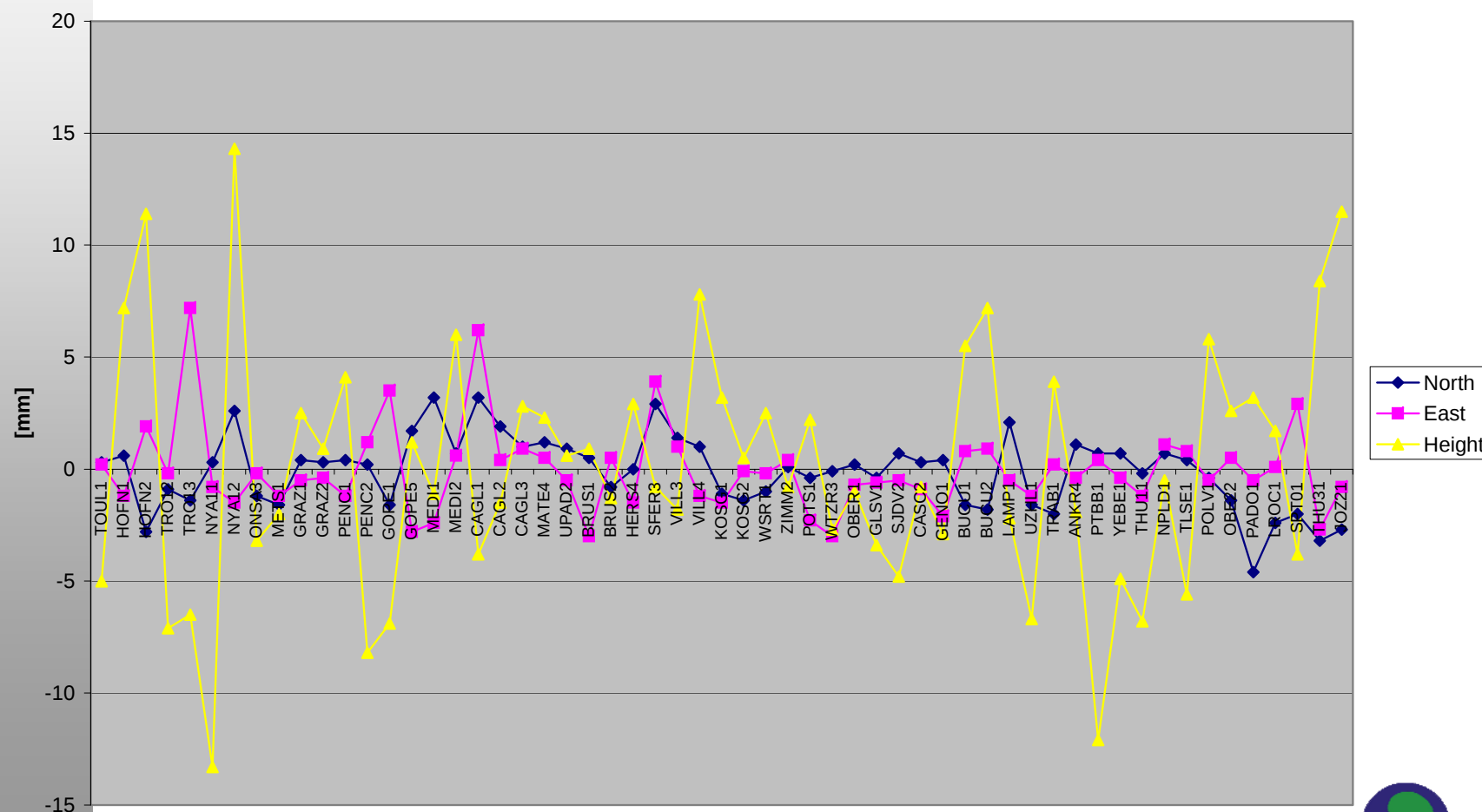
- Initially all ITRF2005 sites of EPN have been considered as references site
- Exclusion of stations from reference list after residual screening
- Finally 44 stations with 57 solution numbers selected for definition of minimum constraint conditions

Reference Sites



Residuals of Final Reference Stations

Free Network vs. ITRF2005

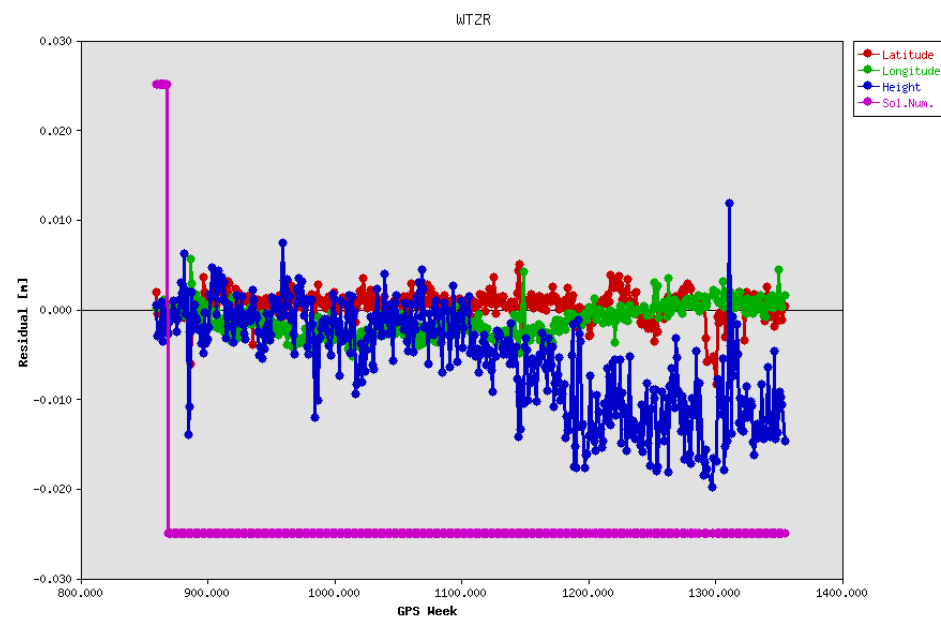
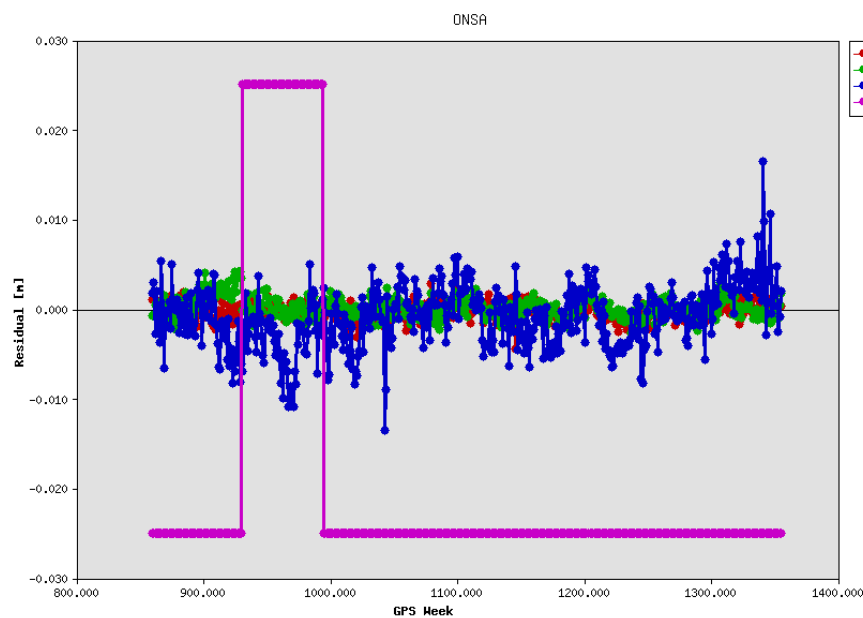


EUREF TWG November 29 - 30, 2007, Paris, France

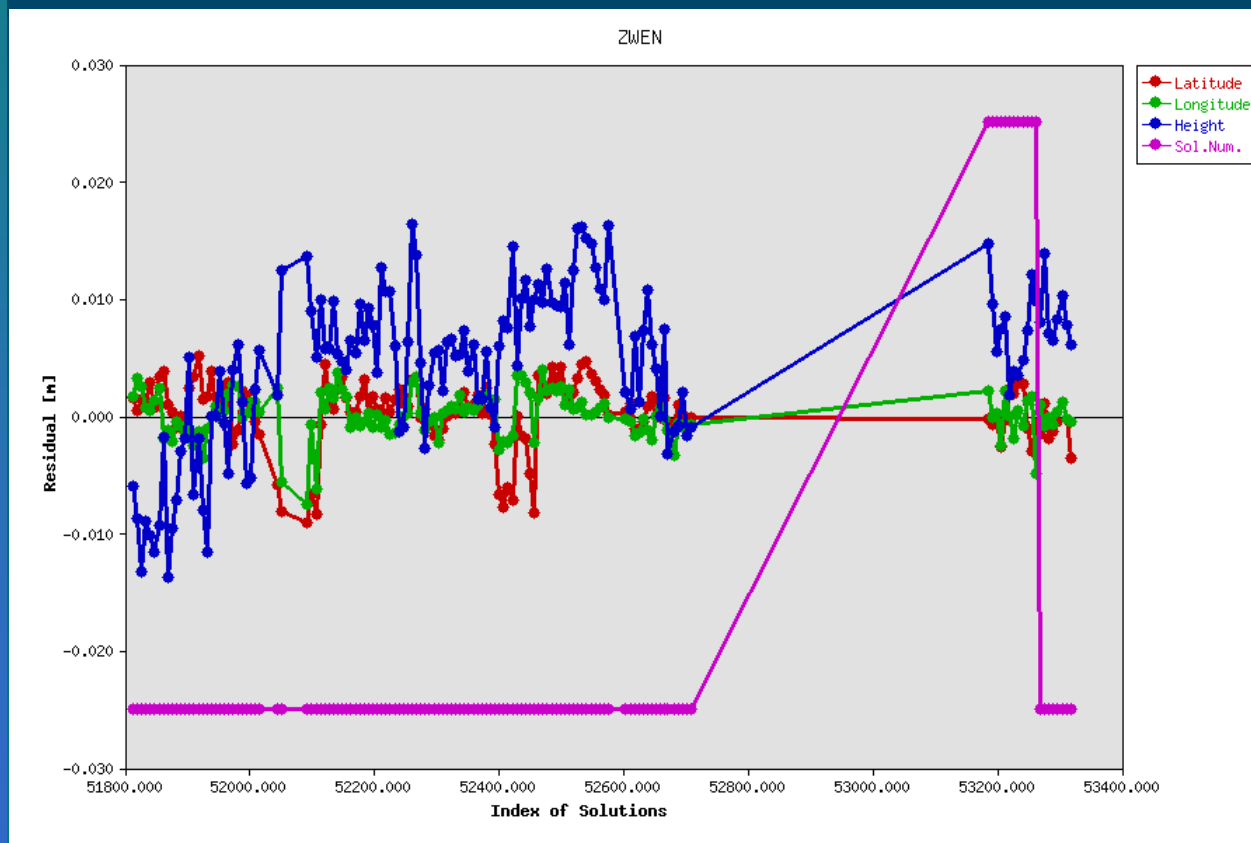
Processing Runtime

Total Time:	20:00 mm:ss
Free network solution from weekly NEQs:	07:47 mm:ss
Minimum constrained solution from combined NEQ:	01:53 mm:ss
Full Constrained solution from combined NEQ:	09:36 mm:ss

Coordinate Time Series Example



ZWEN (Figure 9 in Draft Report)



ZWEN

Converted from ITRF2005_IGS-TRF.SNX (= ITF05.SNX)

ITF05.CRD

73	ZWEN	12330M001A	2886325.4712	2155998.4337	5245816.1559	I
261	ZWEN	12330M001B	2886325.4761	2155998.4393	5245816.1567	I
456	ZWEN	12330M001C	2886325.4729	2155998.4515	5245816.1689	I
468	ZWEN	12330M001	2886325.4791	2155998.4420	5245816.1527	I

ITRF2005 GENERATED FROM ITRF2005_GPS.SSC

08-OCT-06 15:00

EURF05.CRD

135	ZWEN112330M001	2886325.471	2155998.434	5245816.156	I
135	ZWEN212330M001	2886325.4766	2155998.4356	5245816.1561	E
135	ZWEN312330M001	2886325.476	2155998.439	5245816.157	I
135	ZWEN412330M001	2886325.473	2155998.452	5245816.169	I
135	ZWEN512330M001	2886325.479	2155998.442	5245816.153	I

CUMULATIVE SOLUTION OF EPN WEEKLY COMBINED SOLUTIONS - MCC

04-OCT-07 05:59

EPN_CUM.CRD_fin

135	ZWEN112330M001	2886325.4710	2155998.4340	5245816.1560	
135	ZWEN212330M001	2886325.4766	2155998.4356	5245816.1561	
135	ZWEN312330M001	2886325.4778	2155998.4372	5245816.1475	A
135	ZWEN412330M001	2886325.4182	2155998.1389	5245816.3395	A
135	ZWEN512330M001	2886325.5357	2155998.4558	5245816.5186	A

ITF05.VEL

73	ZWEN	12330M001A	-0.0227	0.0109	0.0049	I
261	ZWEN	12330M001B	-0.0227	0.0109	0.0049	I
456	ZWEN	12330M001C	-0.0227	0.0109	0.0049	I
468	ZWEN	12330M001	-0.0227	0.0109	0.0049	I

EURF05.VEL

135	ZWEN112330M001	-.0227	0.0109	0.0049	EURA
135	ZWEN212330M001	-.0227	0.0109	0.0049	EURA
135	ZWEN312330M001	-.0227	0.0109	0.0049	EURA
135	ZWEN412330M001	-.0227	0.0109	0.0049	EURA
135	ZWEN512330M001	-.0227	0.0109	0.0049	EURA

EPN_CUM.VEL_fin

135	ZWEN112330M001	-0.0227	0.0109	0.0049	EURA
135	ZWEN212330M001	-0.0227	0.0109	0.0049	EURA
135	ZWEN312330M001	-0.0211	0.0111	0.0049	A
135	ZWEN412330M001	-0.0089	0.0790	-0.0349	A
135	ZWEN512330M001	-0.0338	0.0072	-0.0744	A

Next Steps

- Product files available at <ftp://igs.bkg.bund.de/MISC/ITRF/ITRF2005/>
- More comparisons?
- Announcement?

Thank you