EPN Reprocessing

Finalization of EPN Repro 1 (?)

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Project Development

Date	Items
October 2008	LAC-Workshop in Frankfurt initiated a plan for the EPN working group on “reprocessing”.
February 2009	Charter for the working group on reprocessing has been developed and has been accepted by the TWG.
June 2009	First schedule for the reprocessing has been developed.
May 2010	***Pilot Processing*** initiated.
November 2010	Pilot Processing has been completed. ***Benchmark test*** established and Start up for ***EPN-Repro1*** (LAC-Workshop).
Spring 2011	Submission of the Benchmark solutions!
March 31, 2011	Deadline for submission of the remaining solutions
June, 2011	First combination by Heinz (weekly) and Ambrus (Multi-Year) completed; presented on Symposium (without GIPSY)
Autumn, 2011	Submission of additional solutions (EPN Repro1, Benchmark) Weekly combination by Heinz, Multi-Year by Ambrus, **+GIPSY**

Contributions within EPN REPRO1

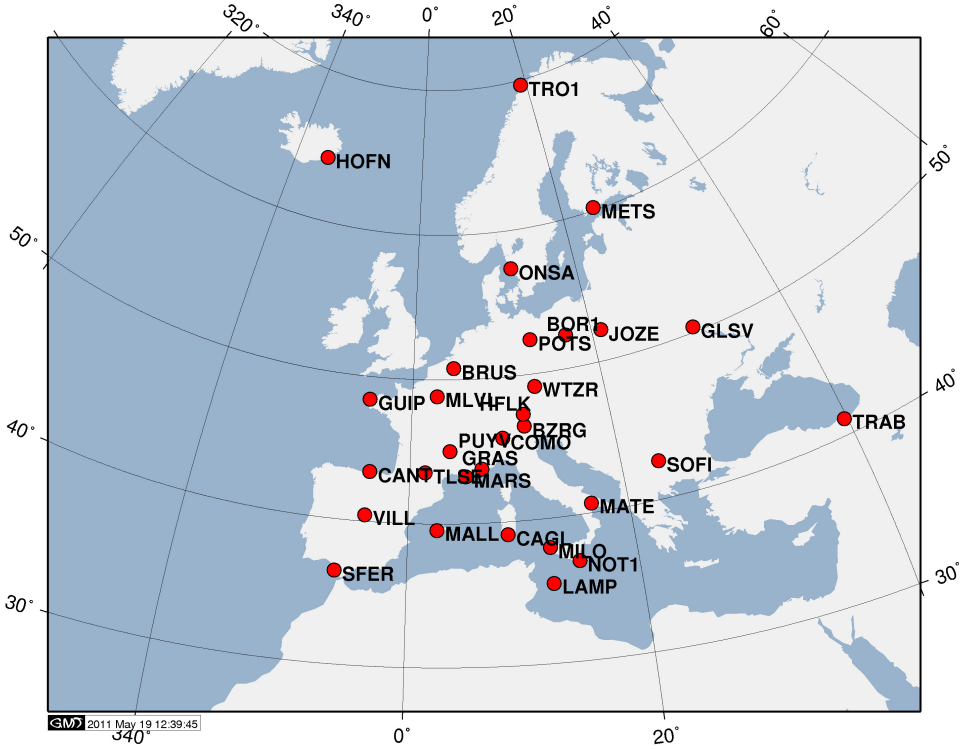
(GPSWEEK: 834-1408)

LAC	BERNESE	GAMIT	GIPSY	Products Used
ASI (1304-)	-	-	as_	JPL repro.
BEK	be0	-	-	PDR05
DEO	-	-	de0	JPL repro.
GOP	go0	-	-	IGS repro1
IGE	ig0	-	-	IGS repro1
IGN	in0	-	-	IGS repro1?
LPT	lp0	-	-	CODE regular
MUT	mu0	mu_	-	IGS repro1/ " "
NKG	nk0	-	-	IGS repro1
OLG	ol0	-	-	IGS repro1
ROB	ro0	-	-	CODE reprocessed
SGO	sg0	-	-	IGS final
SUT	su0	-	-	IGS repro1
UPA	up0	-	-	PDR05
WUT	wu0	-	-	IGS repro1

Software: EPN-Repro1

Software	BERNESE 5.0	GAMIT 10.35	GIPSY 5.0
GPS	Fix	Fix	PPP-Float/ Net Fix
GLONASS	Float	-	-
Global Mapping Function	-	Yes	Yes
Vienna Mapping Function	-	Yes	Yes
2nd Order Ionosphere	-	Yes	Yes

Benchmark Test



- Select a network of 30 sites.
- Identify a set of identical data (GPSWEEK 1381).
- Apply the same PCV model.
- Any reprocessed product is permitted.
- Use the available software to your best knowledge.

Best case: The results are identical!

Expectation: Differences have to be explained by

- Different strategies, models
- Impact by the software and the operator

Benchmark: Weekly Combination

LAC	SW	RMS [mm]	X [mm]	Y [mm]	Z [mm]	X" [*1000]	Y" [*1000]	Z" [*1000]	Scale [ppb]
1	GP	2.6	-2.1	-9.8	-8.6	0.2	0.2	-0.1	1.2
2	B	0.6	2.8	-2.0	-2.3	0.0	0.1	-0.1	0.0
3	B	0.8	1.3	5.4	-2.4	-0.1	0.1	0.1	0.0
4	B	0.4	0.4	3.0	-0.5	-0.1	0.0	0.1	0.0
5	B	0.4	-0.6	3.5	0.7	-0.1	0.0	0.1	-0.1
6	B	0.4	-1.4	2.3	1.0	0.0	-0.1	0.1	0.0
7	GA	1.4	-2.6	1.7	-6.9	0.0	0.1	0.1	1.1
8	B	0.4	0.2	1.5	0.0	0.0	0.0	0.0	-0.1
9	B	0.4	-0.1	4.7	-0.2	-0.1	0.0	0.1	-0.1
10	B	0.8	-2.5	-0.1	1.9	0.0	-0.1	0.0	0.0
11	B	1.0	-1.6	-6.3	2.8	0.2	-0.1	-0.1	0.0
12	B	0.6	2.5	-0.7	-4.4	0.0	0.1	-0.1	0.3
13	B	0.4	-1.5	1.9	1.7	0.0	-0.1	0.0	-0.1

B: Bernese
GA: GAMIT
GP: GIPSY

TWG – Chişinău,Moldavia:

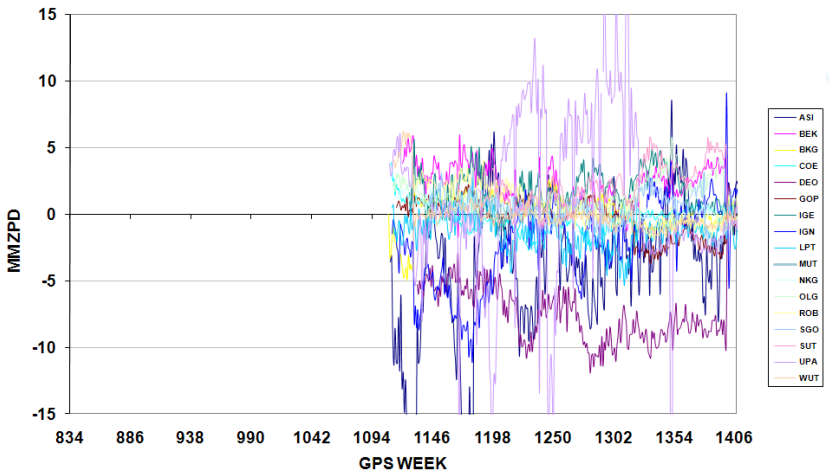
-> Test CATREF on the benchmark solutions

EPN-Repro1 – Troposphere

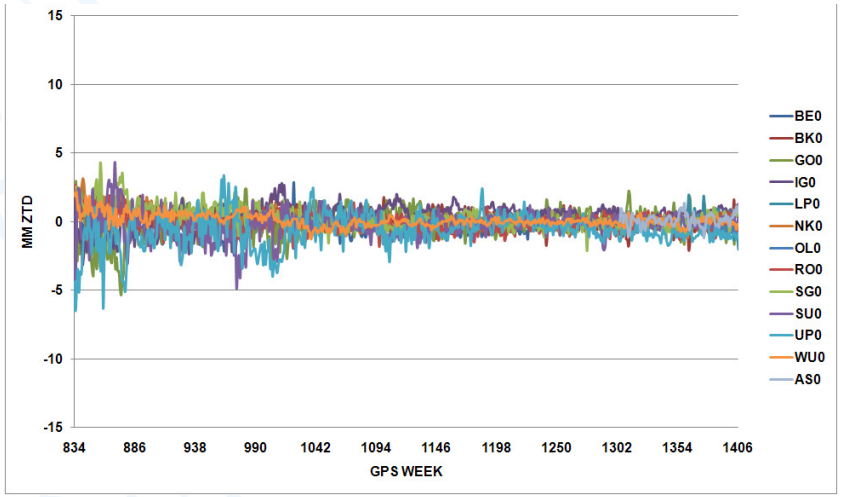
(W.Söhne/BKG)

Bias:

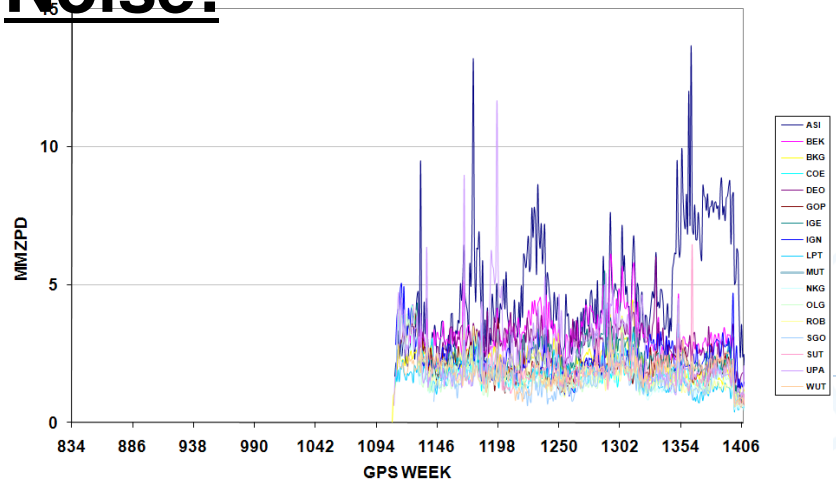
Operational

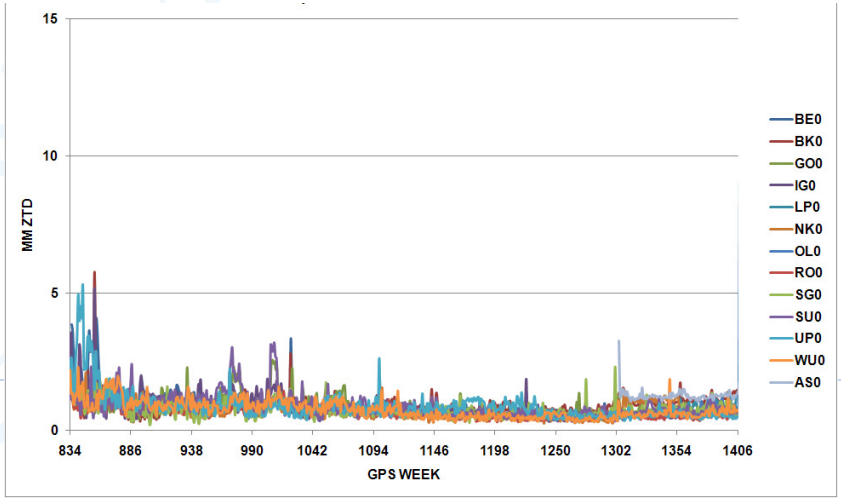


Reprocessed



Noise:





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The next Steps

(Requires the acceptance by the TWG)

- Make the EPN-Repro1 solutions available!
  - Access via BKG server
- Include the EPN-Repro1 contribution into the *Time Series Analysis*
- Acknowledge the contributions by the different LACs!

The Future: EPN-Repro2?

Pros:

- **Now!** ITRF2008/IGS08 reference frame
- Improved orbit modeling, implementation of new IERS conventions
- Higher order correction terms for the ionosphere and atmospheric loading effects might be included
  - CODE is expecting to finish their reprocessing activities (1994-2011) for the ITRF2008/IGS08 by the end of 2011.
  - JPL has supplied their users with orbits and clocks in the IGS08
  - LACs have gained experienceto quickly reprocess the available data

Cons:

- BERNESE 5.2 is required for the re-analysis of the EPN.
- The effort for the LACs! What is there profit?