

EUPOS COMBINATION CENTRE

- ECC -

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MOTIVATION

- **HOMOGENIZATION OF NATIONAL PERMANENT GNSS NETWORKS AND SOLUTIONS**
- **IMPROVED REFERENCE TO ETRS89**
- **LONG TERM SITE MONITORING**
- **PREPARARATION FOR SCIENTIFIC STUDIES
(DO NOT GET LOST VALUABLE INFORMATION!)**
 - **TIME SERIES ANALYSIS (FILTERING, OFFSETS, SEASONAL EFFECTS ...)**
 - **VELOCITY MODELING**
 - ...

INPUT EXPECTED

WEEKLY/DAILY NATIONAL SINEX SOLUTIONS

- BERNESE ANALYSIS, EPN STRATEGY
- MINIMUM CONSTRAINED SOLUTIONS
- INCLUDE EPN STATIONS (AT LEAST 5)
- DOMES NUMBERS SHOULD BE ADDED
- RELIABILITY OF NETWORK OPERATORS AND ANALYSTS (KEEP EYES ON EPN!)

THE ANALYSIS

- **TOOL: CATREF** (used for the generation of the ITRF and EPN solutions)
- **Time series combination**
- **STRATEGY:**
 - **input SINEX check** from each single analysis centre,
 - **Combination:** EPN + all national solutions on the weekly level (>200 EPN + >>200 ECC)
 - **Datum:** latest class A EPN cumulative solution

ECC PRODUCTS

- Cumulative solutions per national network (primary check)
- Combined weekly ECC SINEX solutions
- ECC long term cumulative SINEX solution
 - Coordinate (and later velocity) estimates in ETRS89
 - Time series plots for monitoring
 - EPN / ECC comparisons

ECC combined SINEX

(1) WEEKLY BASIS (later daily ?)

- **SAME REFERENCE FRAME as the actual EPN cumulative solution!!!**

(2) LONG TERM CUMULATIVE ECC SINEX:

- **COMPARISON of national realizations and the 'official' ETRS89 realization**
- **ETRS89 maintenance (dense velocity field)**
- **Station monitoring**
- **Scientific studies (time series analysis)**

ECC TEST - w1538-1564

2009/JUL-DEC

- **Participants: ASG, EST, GKU, LAT, SGO**
promises from CZ, LT, RO and SI
- **Development of all facilities, strategy and software tools**

Based on the tools developed for the EPN

✓ DONE

- **Feasibility test**

✓ PASSED

ECC sites as of today



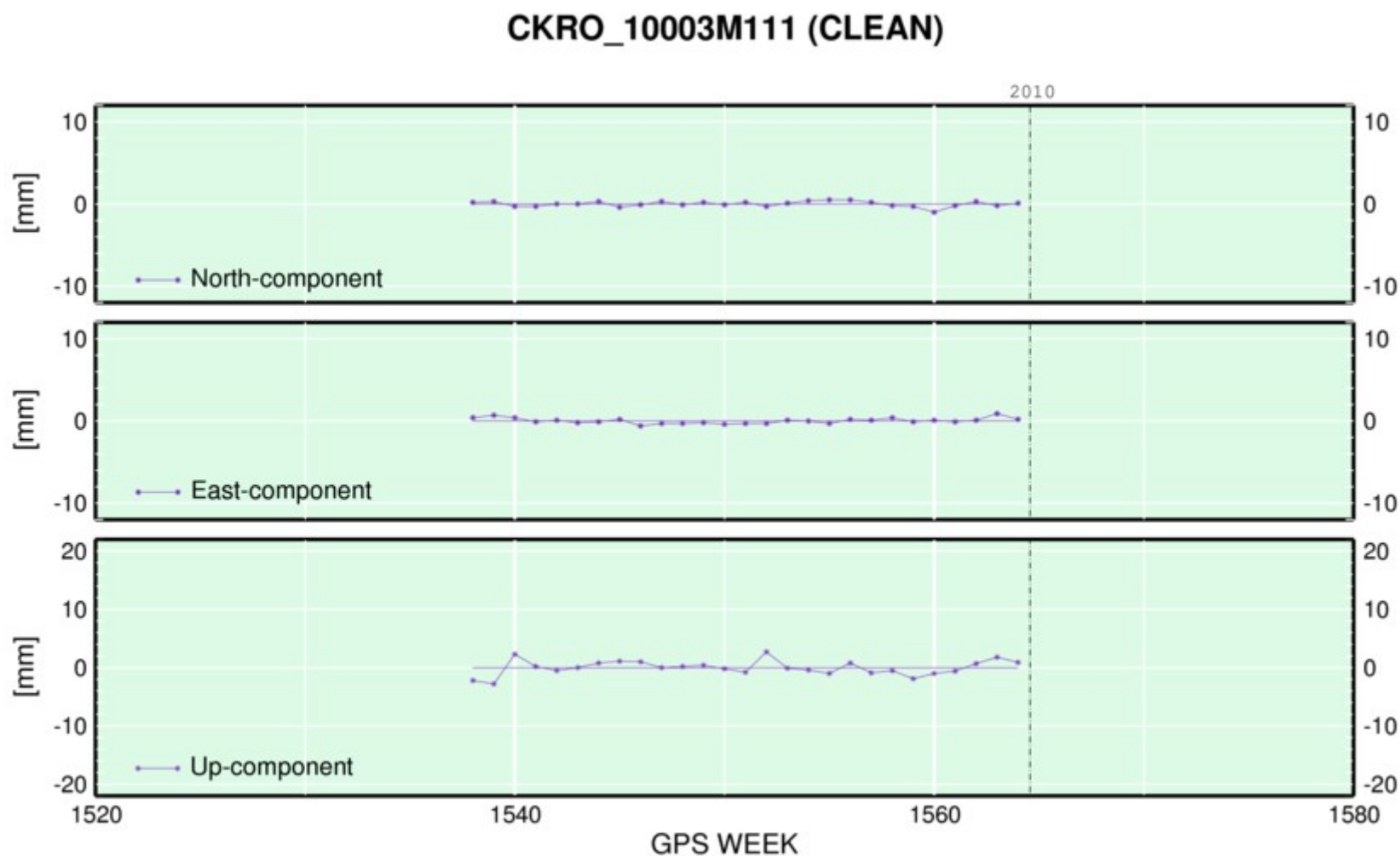
1ST EXPERIENCES

- As expected DOMES numbering should be solved (temporary virtual DOMES numbers)
- Careful site name handling expected
- Use of solution numbers at equipment change

ALL IN ALL:

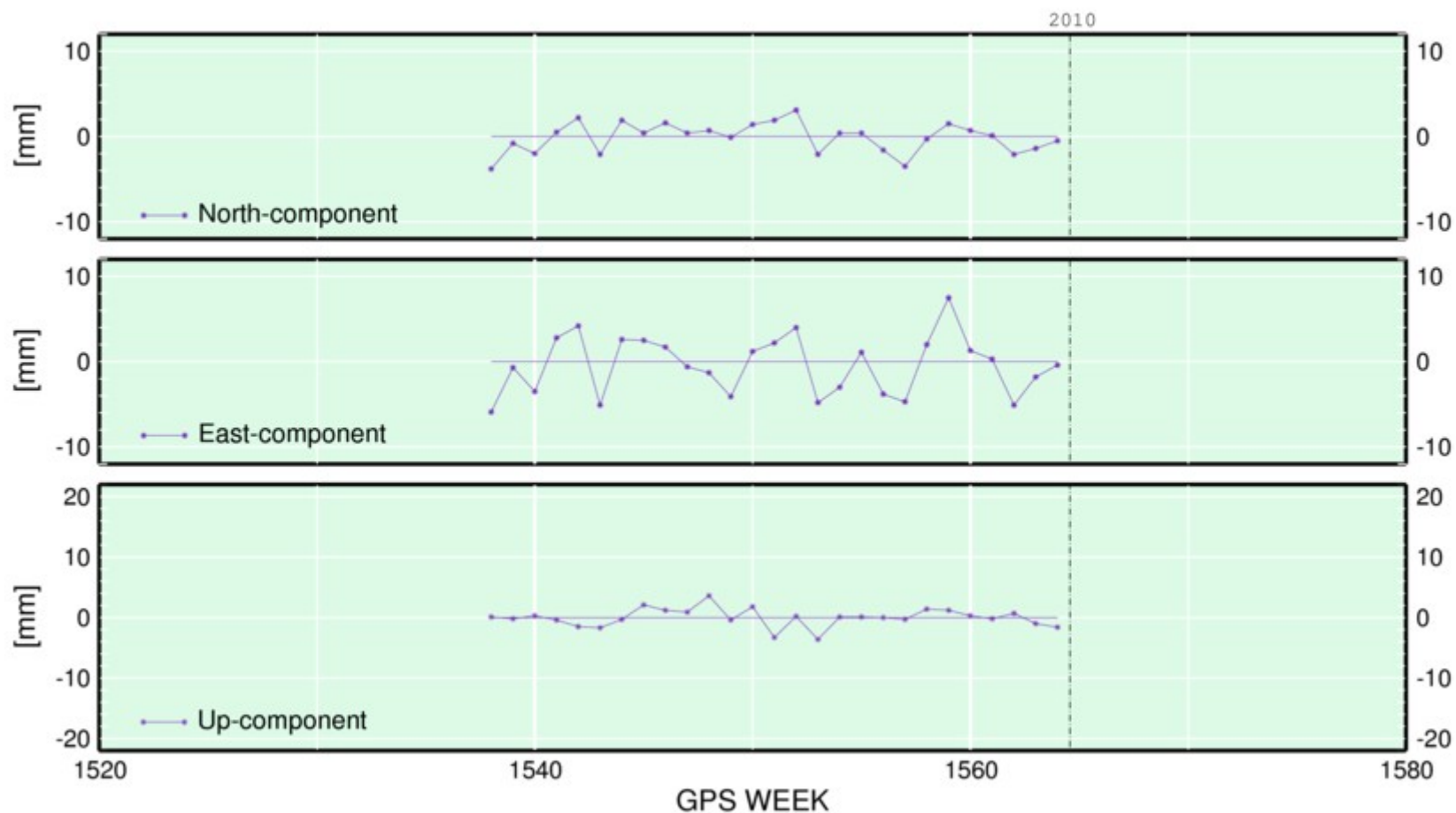
- High quality inputs were provided
- Good chance to have an EPN-compatible network (overlapping sites!)
- BUT: keep the long term reliability!

EXAMPLES: A GOOD/NORMAL SITE



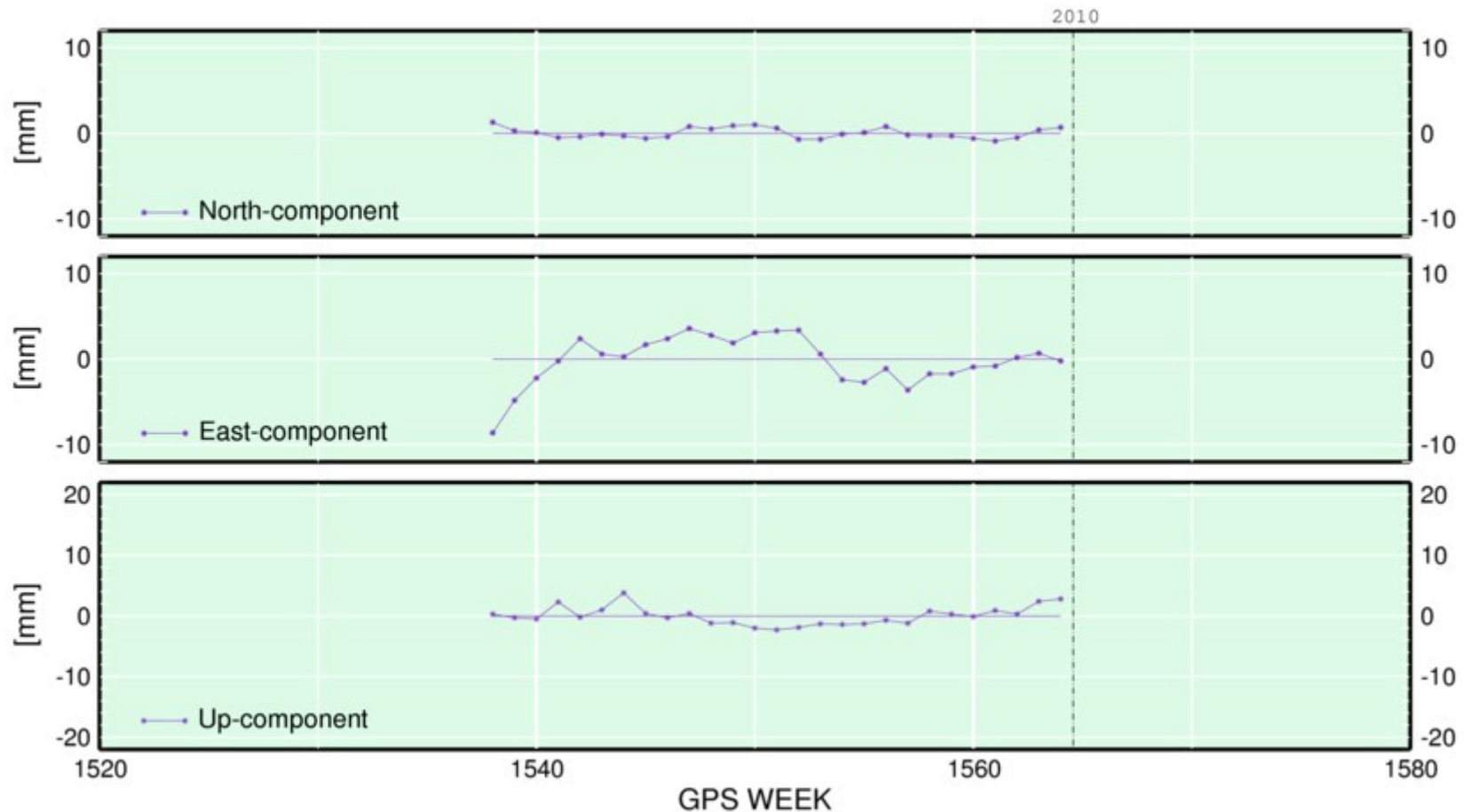
HIGH SCATTER

STRG_10102M111 (CLEAN)



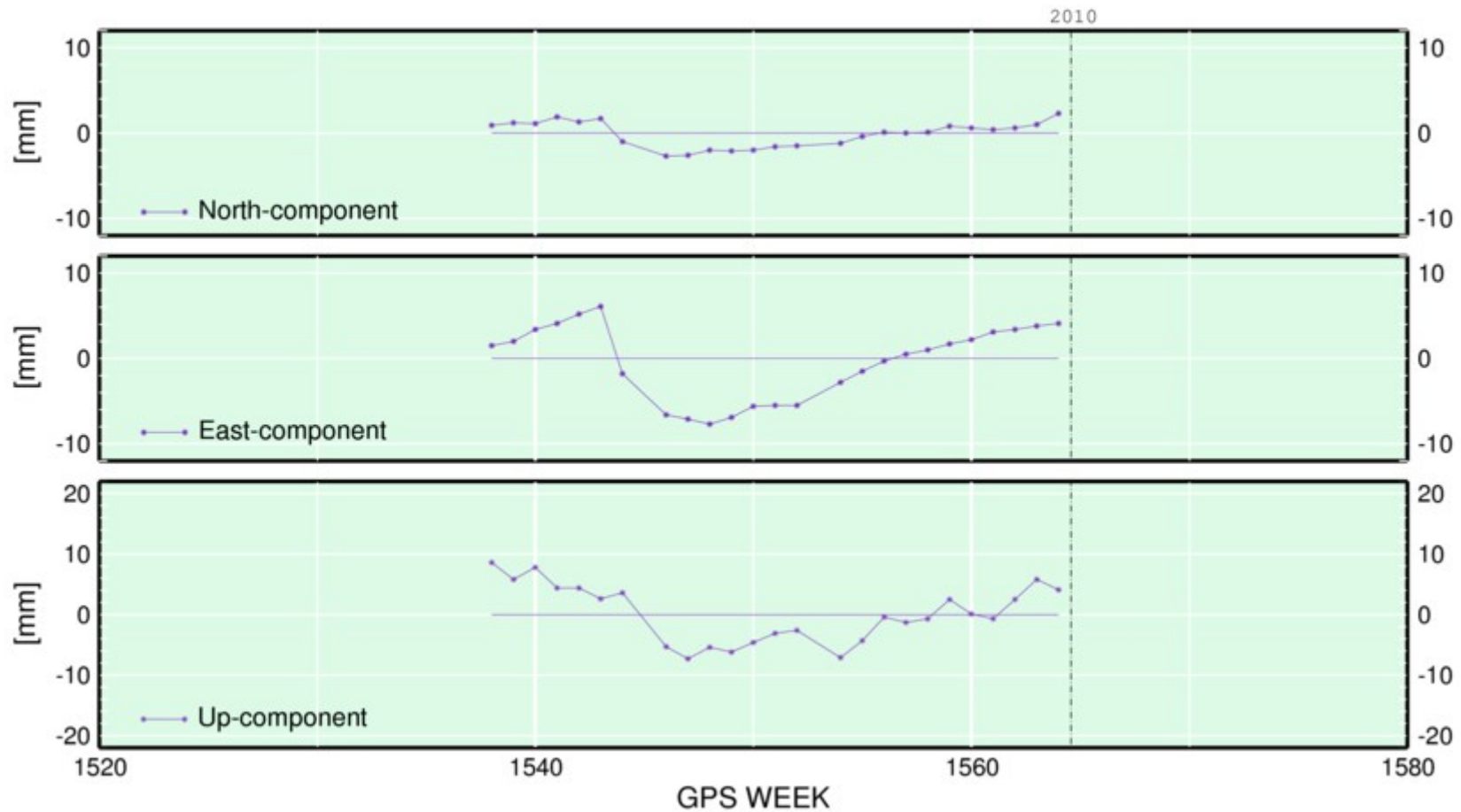
SEASONAL SIGNAL

SZEG_11223M002 (CLEAN)



OFFSET?

VIR2_10666M002 (CLEAN)



SUMMARY

- Tests proved that the ECC is able to serve the expected homogenization needs,
- ECC as EPN densification?
- The combination is planned to be continued
 - Backwards to include all data before wk1538
 - Forward on a quasi-routine weekly basis
 - Stable and reliable support from the national GNSS ACs is expected
 - Extension - the floor is open for everyone!
- Publication means should be developed