

Activities of the EPN Analysis Combination Centre

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ROUTINE PRODUCTS:

Final products: daily and weekly solution

based on 16 individual EPN AC solutions

Rapid products: daily solution

based on 10 individual EPN AC solutions

Ultra-rapid products: hourly solution

based on 3 individual EPN AC solutions

SPECIAL PRODUCTS:

Daily combined solution from repro2

FINAL PRODUCTS:

Daily and weekly solution combined from 16 individual solutions provided by EPN ACs. Combination is done in ADDNEQ2 at normal equation level (NEQ).

ASI BEK BKG COE IGE **IGN** LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT

15# BERNESE, 1# GIPSY OASIS

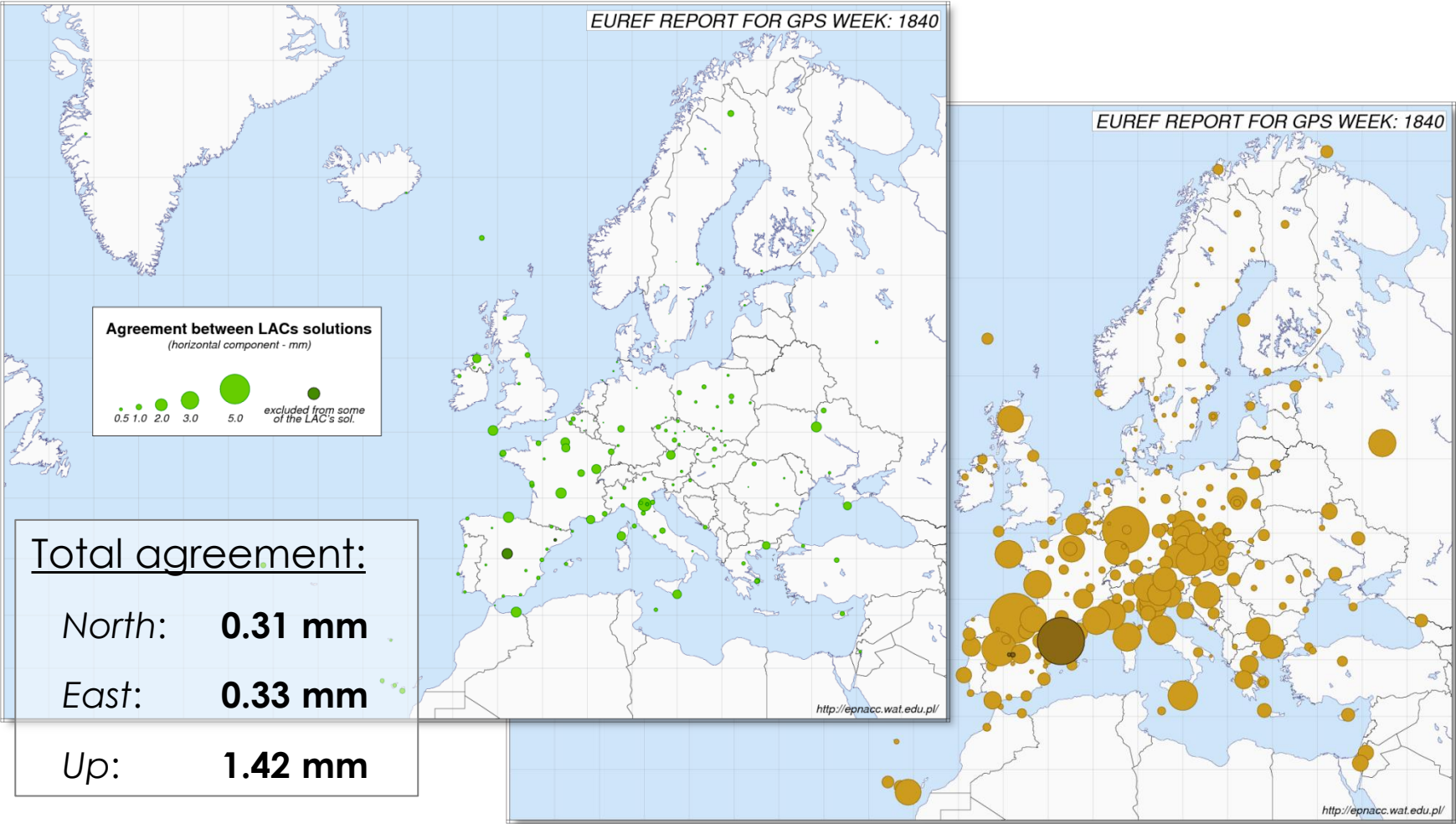
ASI BEK BKG COE IGE **IGN** LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT

15# REGIONAL, 1# GLOBAL

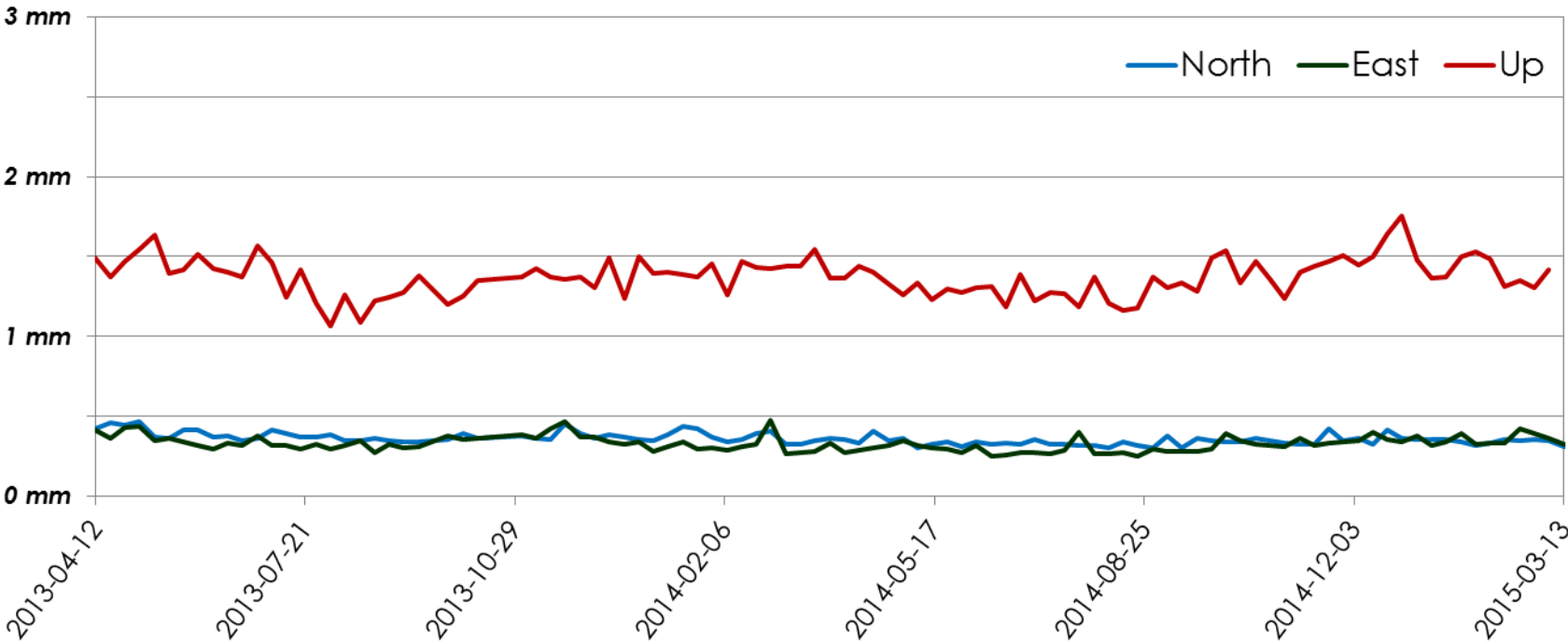
ASI BEK BKG COE IGE **IGN** LPT MUT NKG OLG RGA ROB SGO **SUT** UPA WUT

14# GPS + GLONASS, 2# GPS only

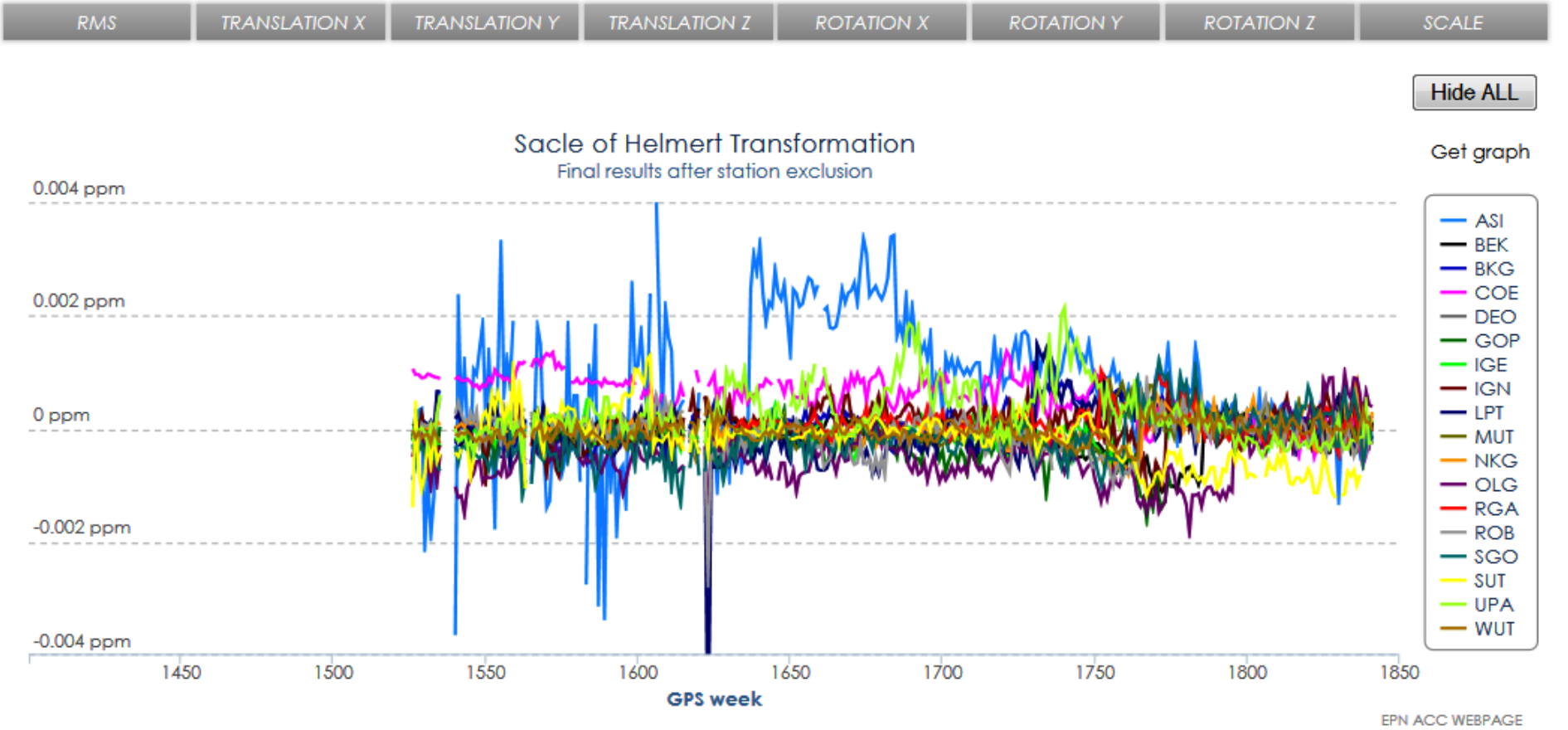
FINAL PRODUCTS:



FINAL PRODUCTS:



History of total agreement between LAC solutions (GPS weeks: 1740 - 1840)



***Helmert parameters (scale)
between each weekly AC solution and combined solution***

GET REPORTS

RAPID PRODUCTS:

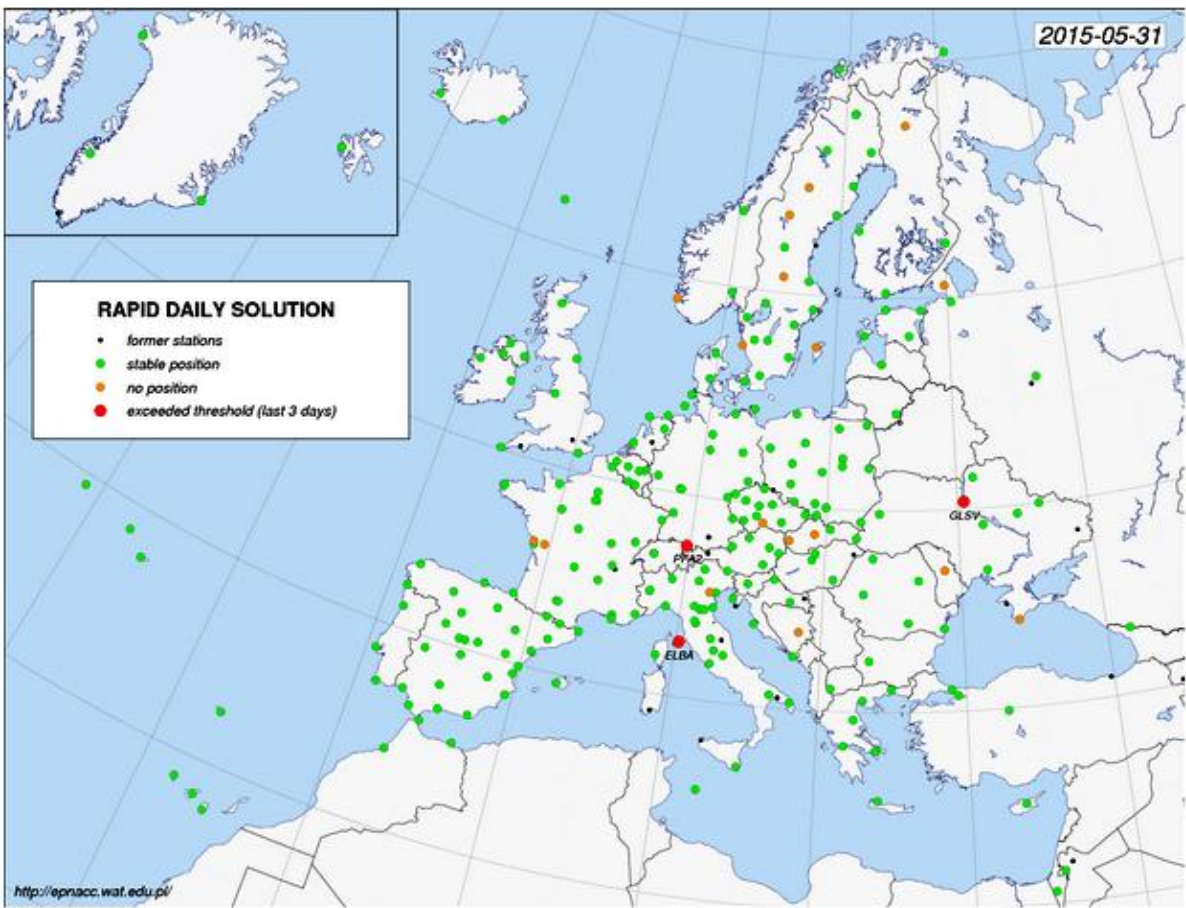
Daily solution combined from 10 individual solutions provided by EPN ACs.



9# BERNESE, 1# GIPSY OASIS

- Rapid monitoring of EPN station positions.
- 1 day latency.
- Currently ~95% stations monitored (but many processed by 1 LAC only).
- Metadata in LACs SINEX files checked against log files.
- Problematic stations excluded.
- Notification emails sent to LACs.
- Software used for combination: Bernese GNSS software ver. 5.2.
- Products and reports available at the BKG EPN data center.

RAPID PRODUCTS:



STATUS FOR EPOCH: 2015-05-31 (DOY: 151)

List of the stations for which residual exceeded specified threshold (0.01/0.01/0.02)

NAME	North[m]	East[m]	Up[m]
ELBA	-0.0032	0.0106	0.0056
PFA2	-0.0027	0.0128	0.0154

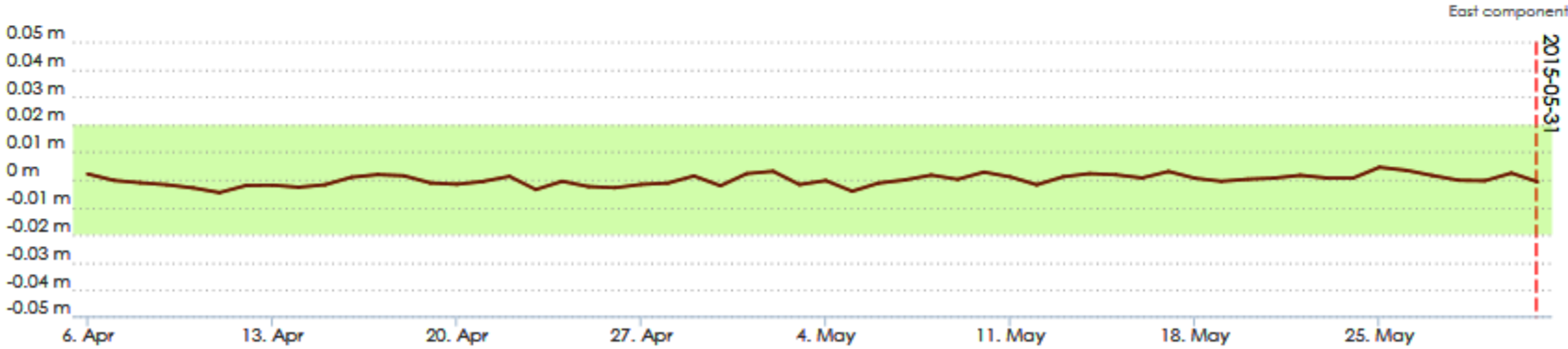
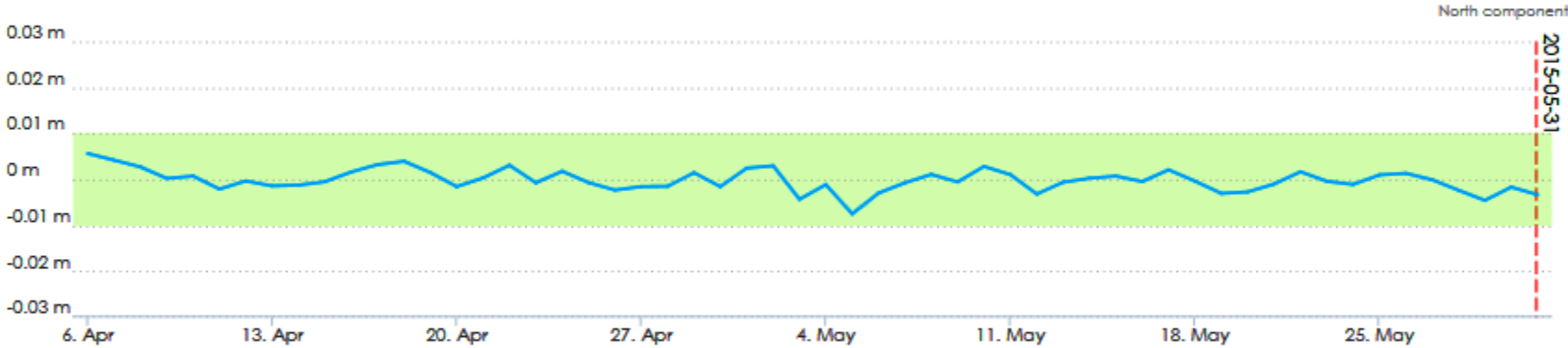
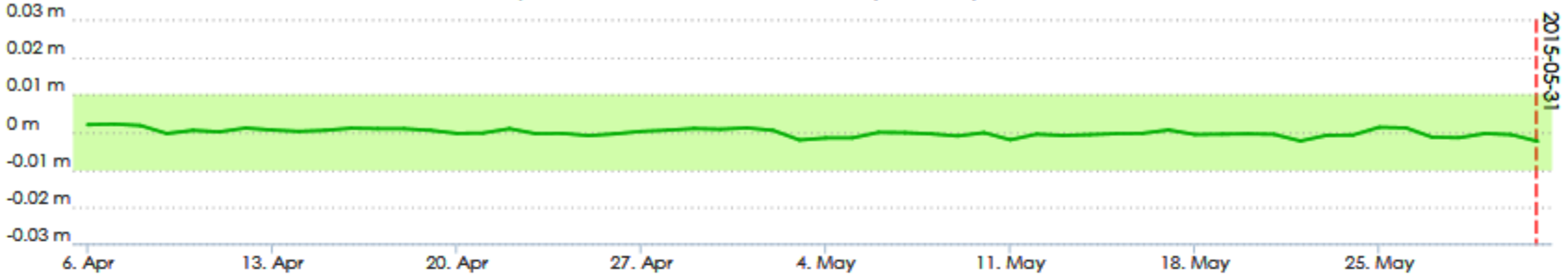
List of the stations without estimated crd.:

BBYS CHIZ IGEO KTVL KUNZ LEK6 LROC MOP2
ONSA OST6 PADO QAQ1 SODA SRJV STAS SVTL
VIL0 VIS6

Current status of the EPN stations

POTS (POTSDAM, GERMANY) ▼

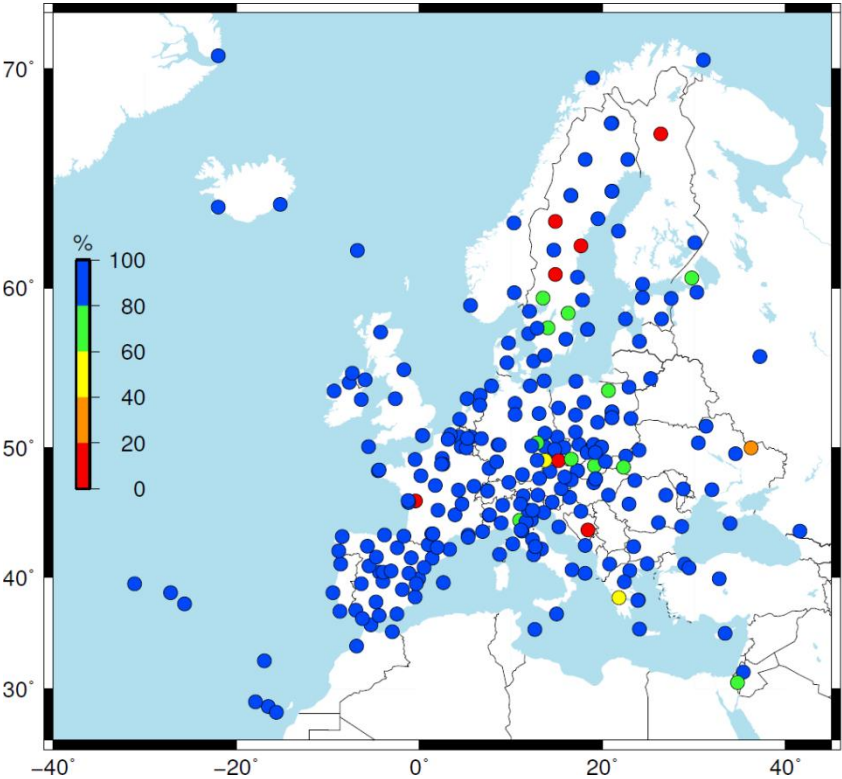
Residual position time series of the rapid daily EPN solution: **POTS**



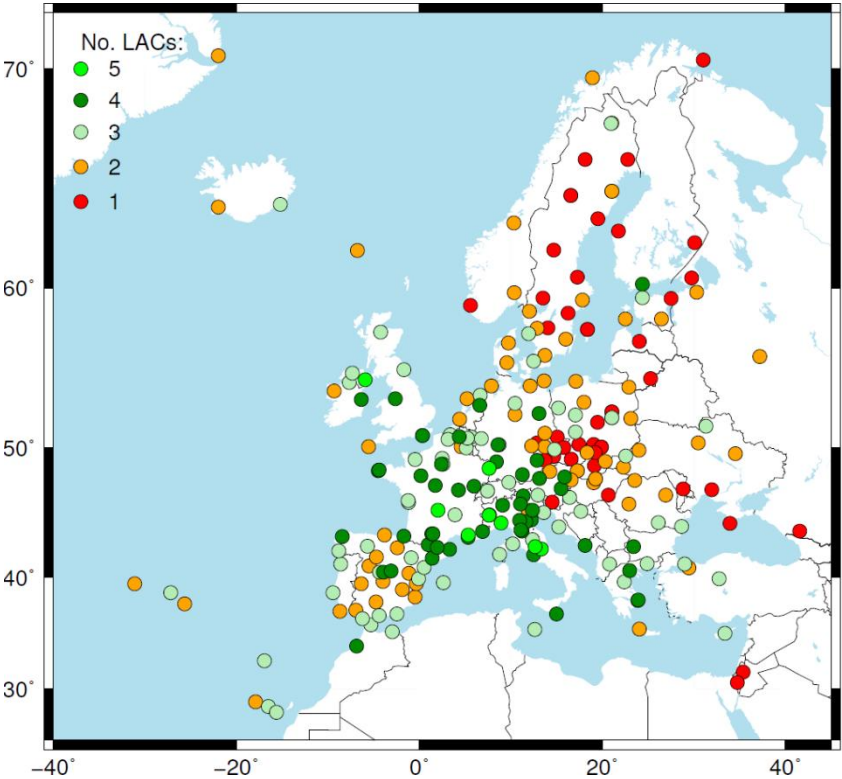
Up component

Residual positions time series from last 56 days (8 weeks)

RAPID PRODUCTS:

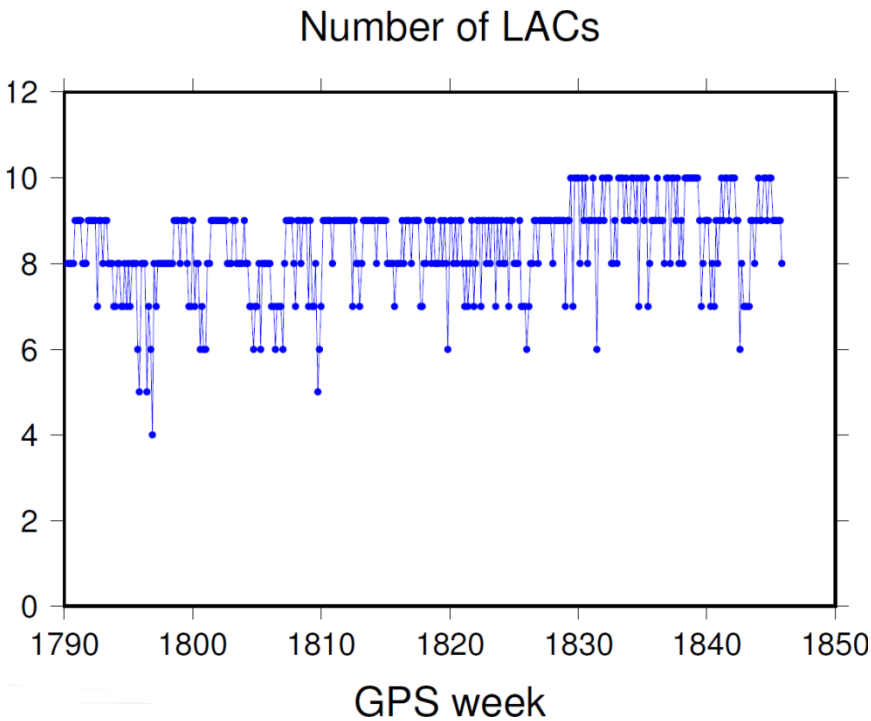


**Completeness of observations
in rapid solutions
(GPS weeks 1840-1845)**

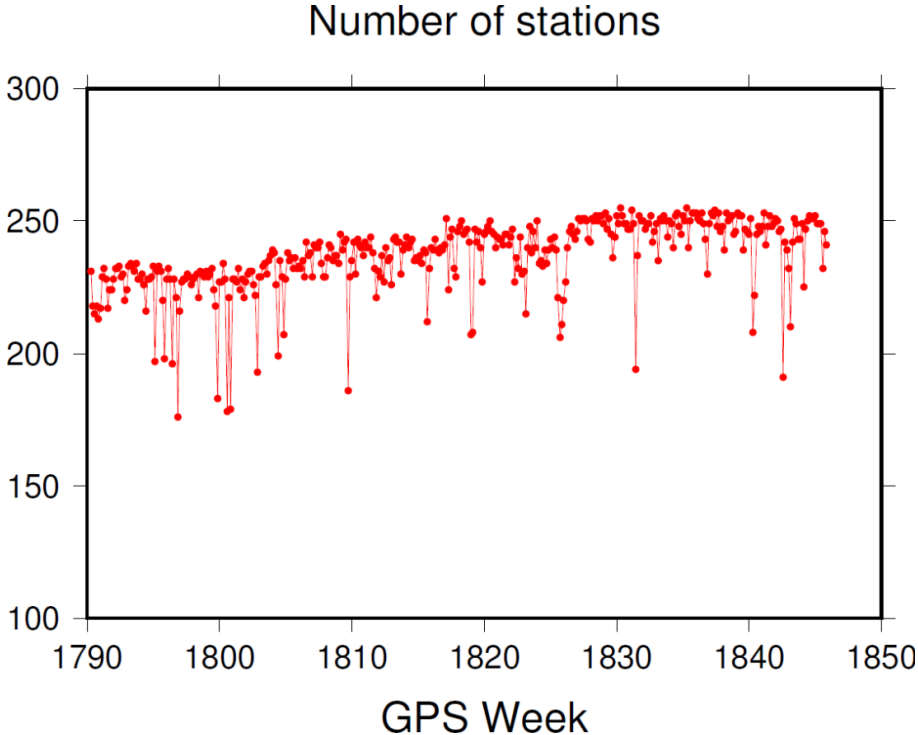


**Number of LACs processing
each EPN station (day 1845 0)**

RAPID PRODUCTS:



***Number of solutions (ACs)
included in rapid combination***



***Number of stations
included in rapid combination***

ULTRA-RAPID PRODUCTS:

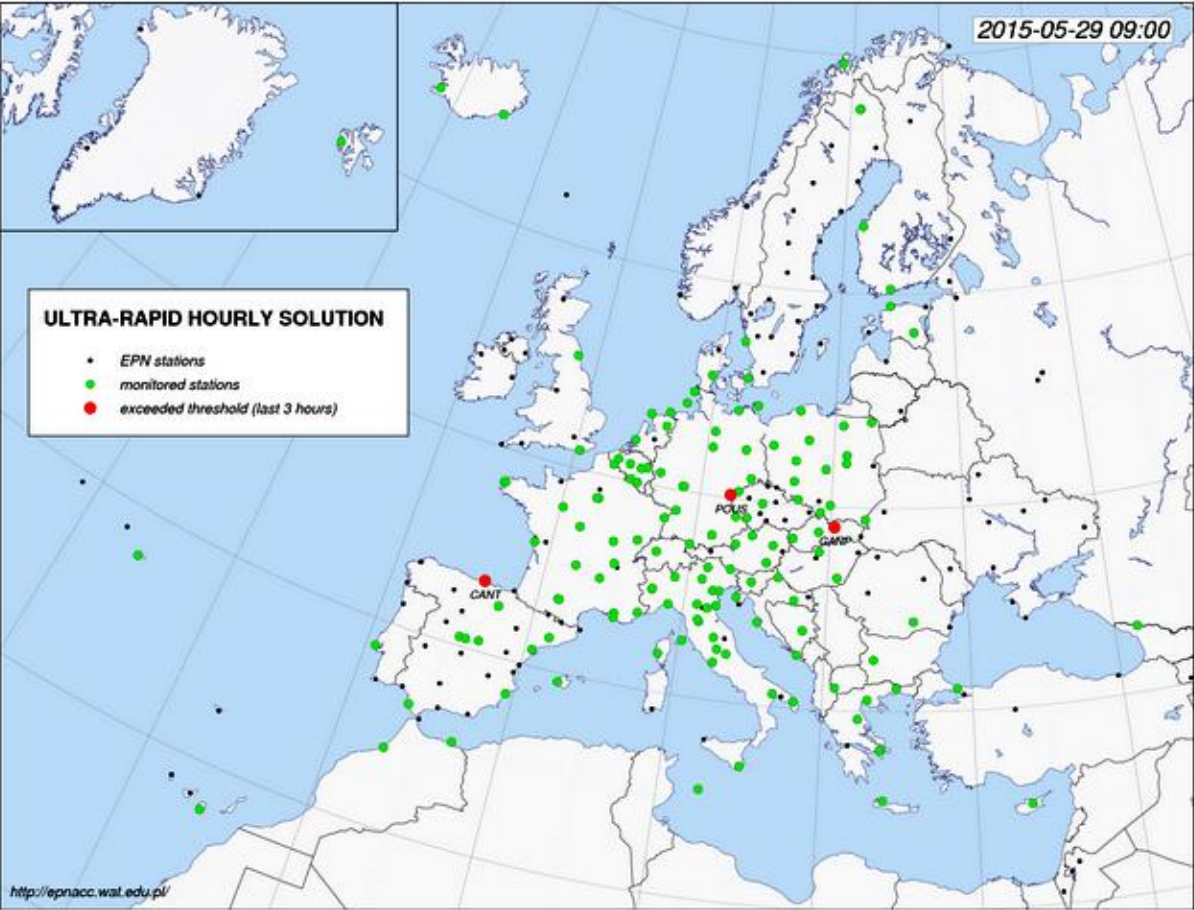
Hourly solution combined from 3 individual solutions provided by LACs.



2# BERNESE, 1# GIPSY OASIS

- Near real time monitoring of EPN station positions (1 hour latency).
- Metadata in LACs SINEX files checked against log files (problematic stations excluded).
- Products from combinations available at the BKG EPN data center.

ULTRA-RAPID PRODUCTS:



STATUS FOR EPOCH: 2015-05-29 (DOY: 149) 09:00
=====

List of the stations for which residual exceeded specified threshold (0.01/0.01/0.02)

NAME	North[m]	East[m]	Up[m]
GANP	0.0079	0.0106	-0.0039

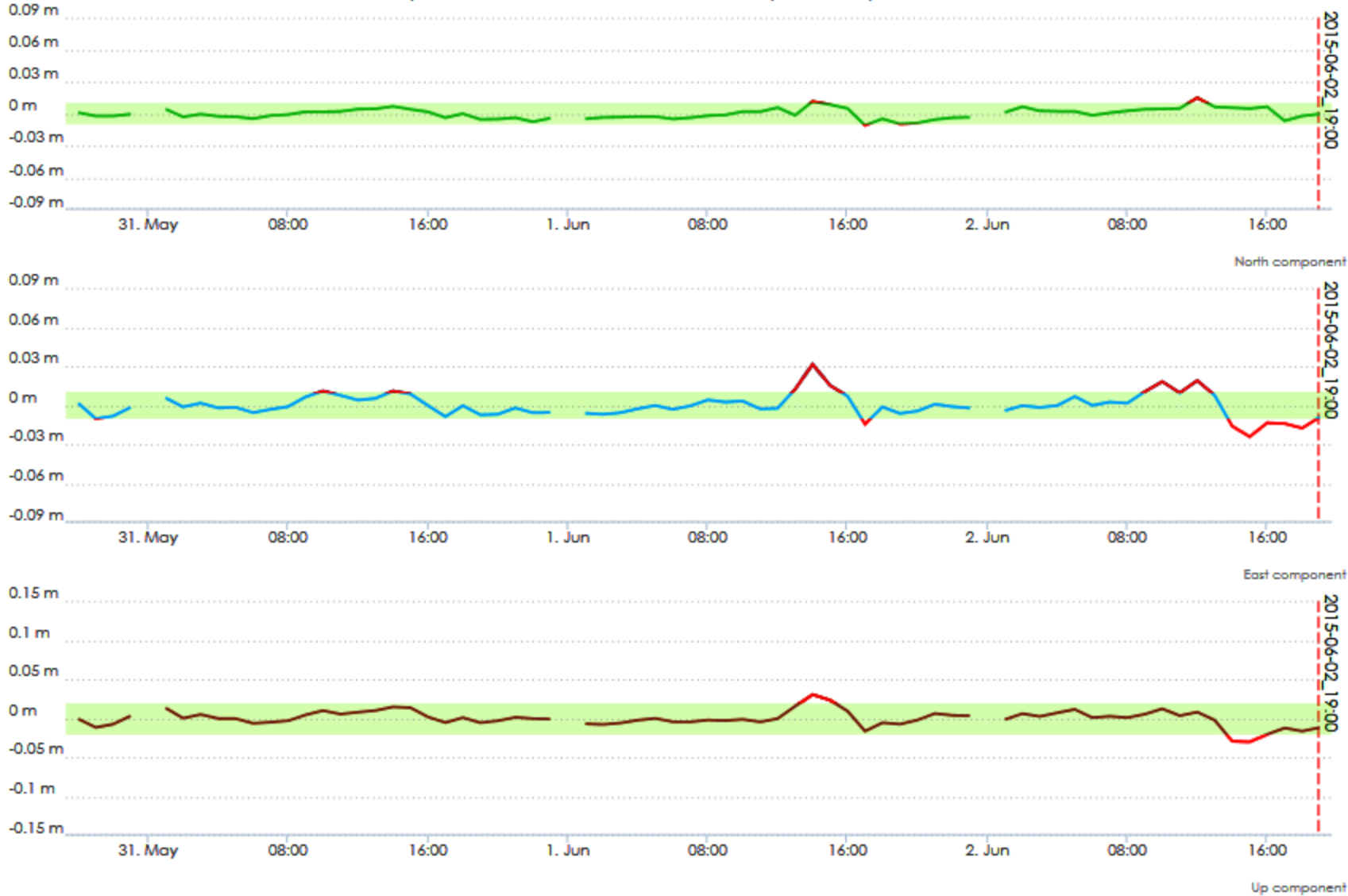
List of the monitored stations:

AJAC	AQUI	AUT1	AUTN	AXPV	BADH	BISK	BOGO
BOR1	BORJ	BRST	BRUX	BSCN	BUCU	BUDP	BYDG
BZRG	CANT	CASC	COMO	DEL	DENT	DOUR	DRES
DUTH	DYNG	EGLT	EIJS	ENTZ	EUSK	GANP	GENO
GOPE	GRAS	GRAZ	GSR1	GUIP	GWVL	HELG	HERS
HERT	HOB	HOFN	IENG	ISTA	JOZ2	JOZE	KARL
KIR0	KIRU	KLOP	KRAW	LAMP	LARM	LIL2	LINZ
LODZ	M0SE	MALL	MAN2	MARJ	MARS	MAS1	MATE
MEDI	MELI	METS	MLVL	MORP	NICO	NOA1	NOT1
NYA1	OBE4	ORID	OROS	PADO	PDEL	PEN2	PENC
PFA2	POTS	POUS	PTBB	PUYV	RABT	REDU	REDZ
REYK	SASS	SBG2	SFER	SMID	SMNE	SOFI	SRJV
SUR4	SWKI	TERS	TLMF	TLSE	TOR2	TORI	TRF2
TRO1	TUC2	UNTR	USAL	USDL	VAAS	VACO	VEN1

Current status of the EPN stations

ACOR (A CORUNA, SPAIN) ▼

Residual position time series of the ultra-rapid hourly EPN solution: **AQUI**



Residual positions time series from last 72 hours

ROUTINE PRODUCTS:

Final products: daily and weekly solution
based on 16 individual LAC solutions

Rapid products: daily solution
based on 10 individual LAC solutions

Ultra-rapid products: hourly solution
based on 3 individual LAC solutions

SPECIAL PRODUCTS:

Daily combined solution from repro2

REPROCESSING 2:

Voelksen et al.:
„ EPN Repro 2: Activities on the EPN
Working Group on Reprocessing”

Daily solution combined from 5 individual solutions provided by ACs.

ASI BEK BKG COE IGE IGN LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT GOP

3# BSW, 1# GIPSY-OASIS, 1# GAMIT

ASI BEK BKG COE IGE IGN LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT GOP

3# FULL EPN, 2# PART EPN

ASI BEK BKG COE IGE IGN LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT GOP

4# NET, 1# PPP

ASI BEK BKG COE IGE IGN LPT MUT NKG OLG RGA ROB SGO SUT UPA WUT GOP

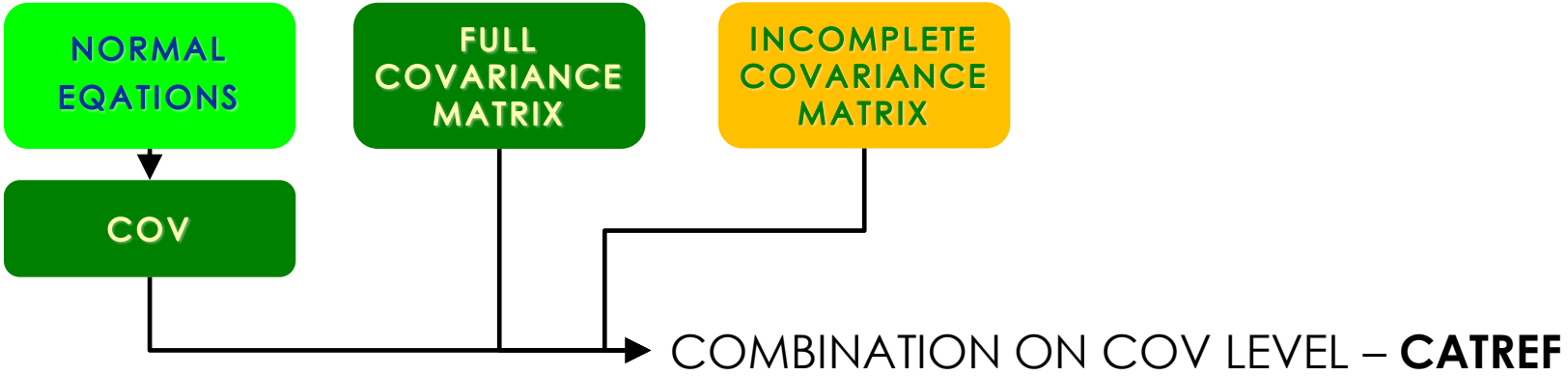
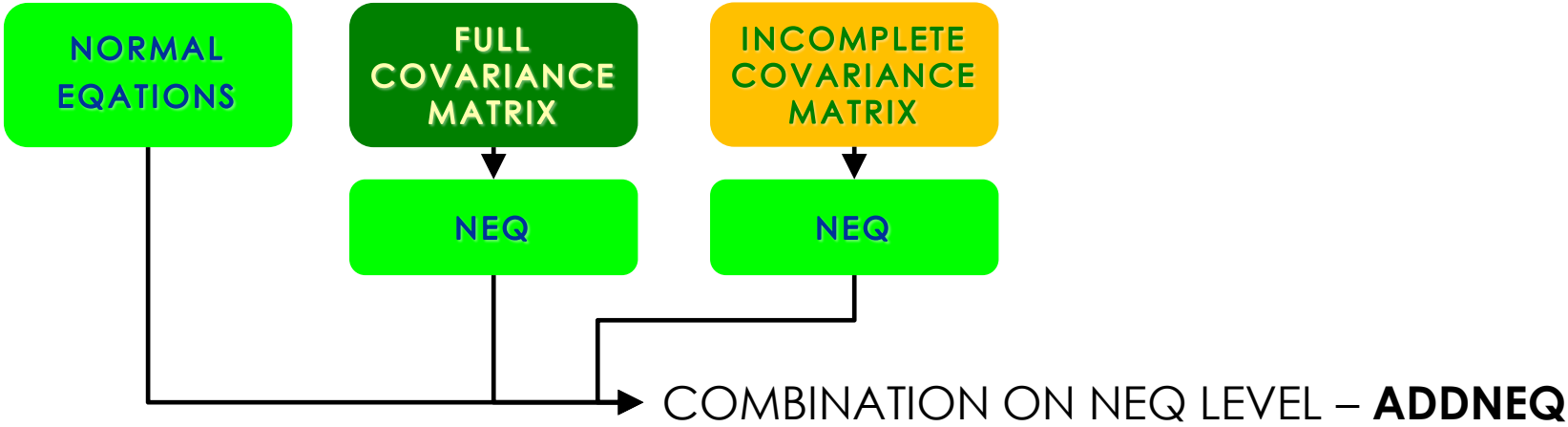
3# FULL NEQ, 1# FULL COV, 1# INCOMPLETE COV

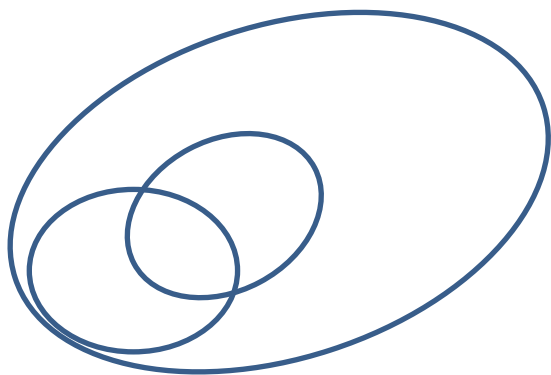
REPROCESSING 2:

Main concerns regarding combined solution:

1. Various processing **tools**.
2. Different **extent** of processed networks.
3. Different **format of solution** (normal equations, covariance matrix or incomplete covariance matrix).

REPROCESSING 2:

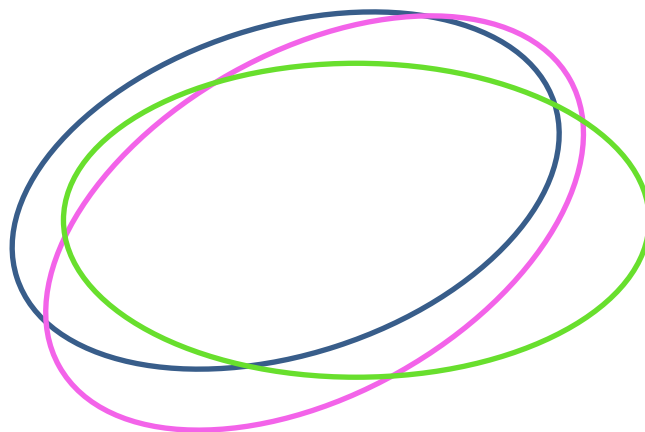




3 BSW solutions:

- GOP (full EPN)
- LPT (EPN subnetwork)
- IGE (EPN subnetwork)

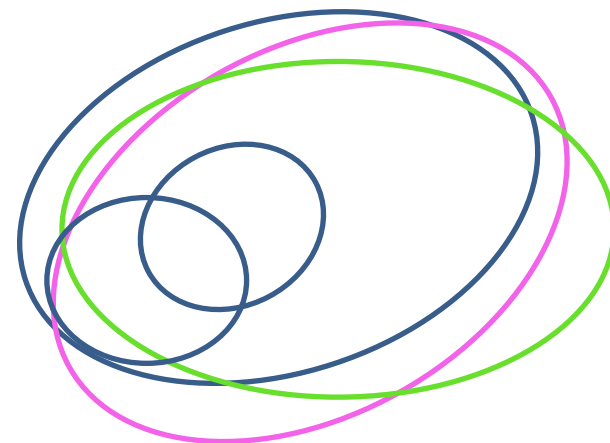
THE SAME SOFTWARE,
DIFFERENT NETWORKS



3 solutions (full EPN):

- GOP (BSW)
- ASI (GIPSY-OASIS)
- MUT (GAMIT)

DIFFERENT SOFTWARE,
THE SAME NETWORKS



5 solutions:

- GOP (full EPN, BSW)
- ASI (full EPN, GIPSY-OASIS)
- MUT (full EPN, GAMIT)
- LPT (subnetwork, BSW)
- IGE (subnetwork, BSW)

ALL SOLUTIONS

Test period: **GPS week 1677**

SUMMARY AND OUTLOOK

- Routine EPN ACC products: final weekly, final daily, rapid daily and ultra rapid (hourly).
- Routine solutions available at <http://www.epnacc.wat.edu.pl>.
- Several tests of repro2 combination on the level of NEQ (BSW) and COV (CATREF) were carried out.
- Main goal for the near future: full agreement of repro2 combination products estimated on the level of NEQ and COV.