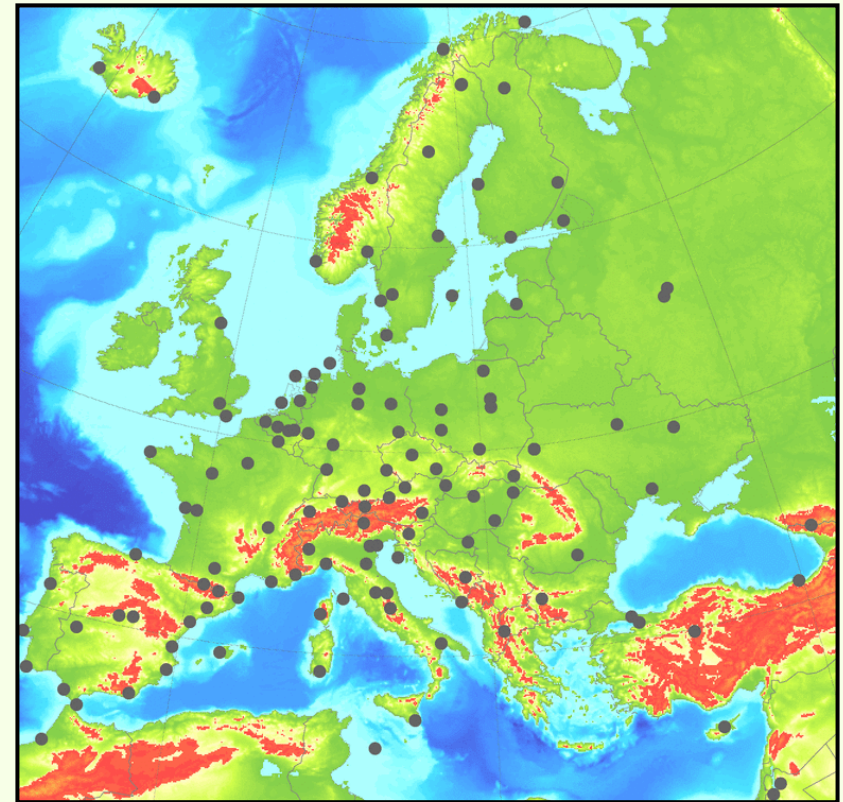


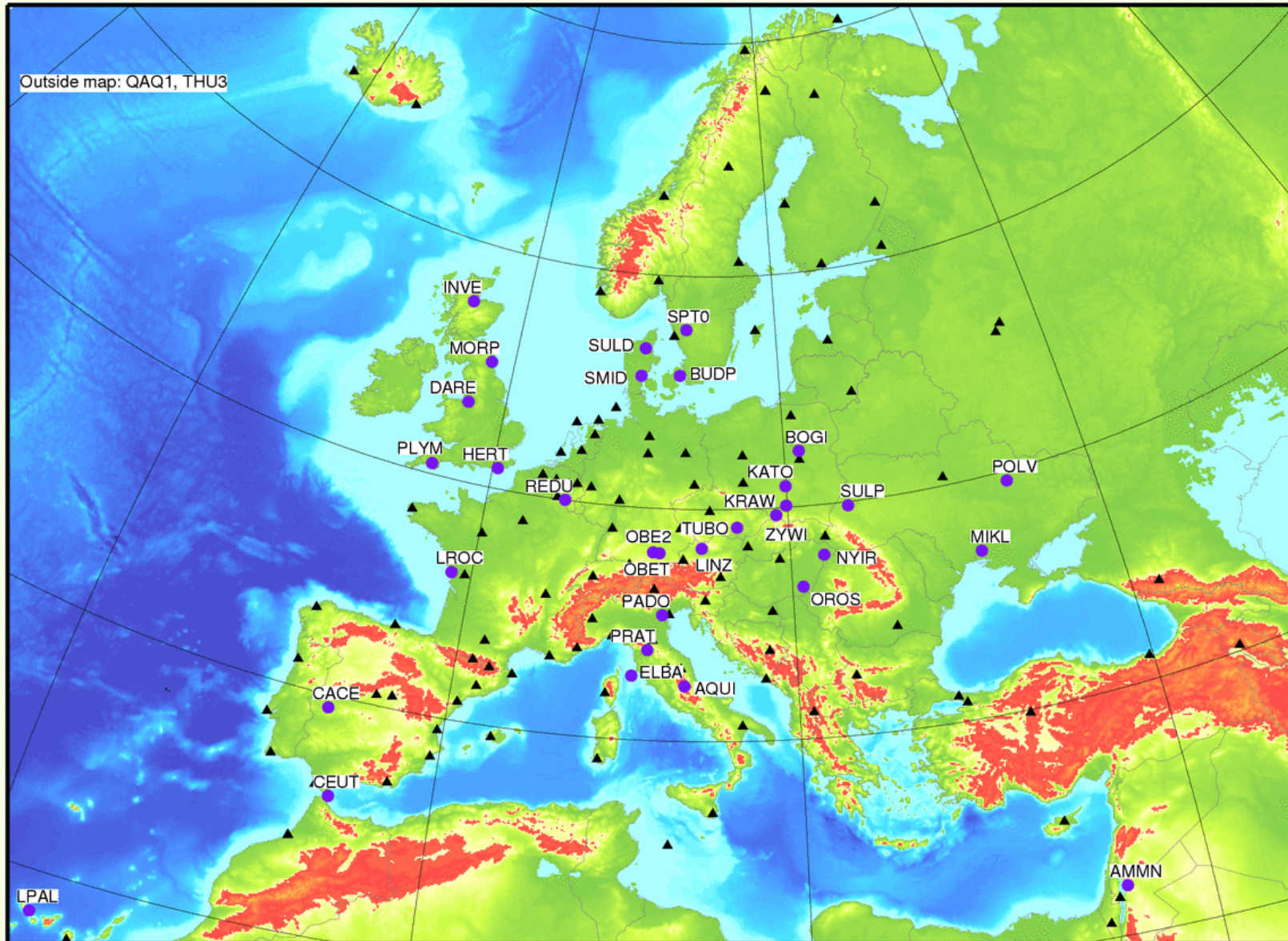
EPN status and new developments at the EPN CB

C. Bruyninx, G. Carpentier

*EPN Central Bureau
Royal Observatory of Belgium*

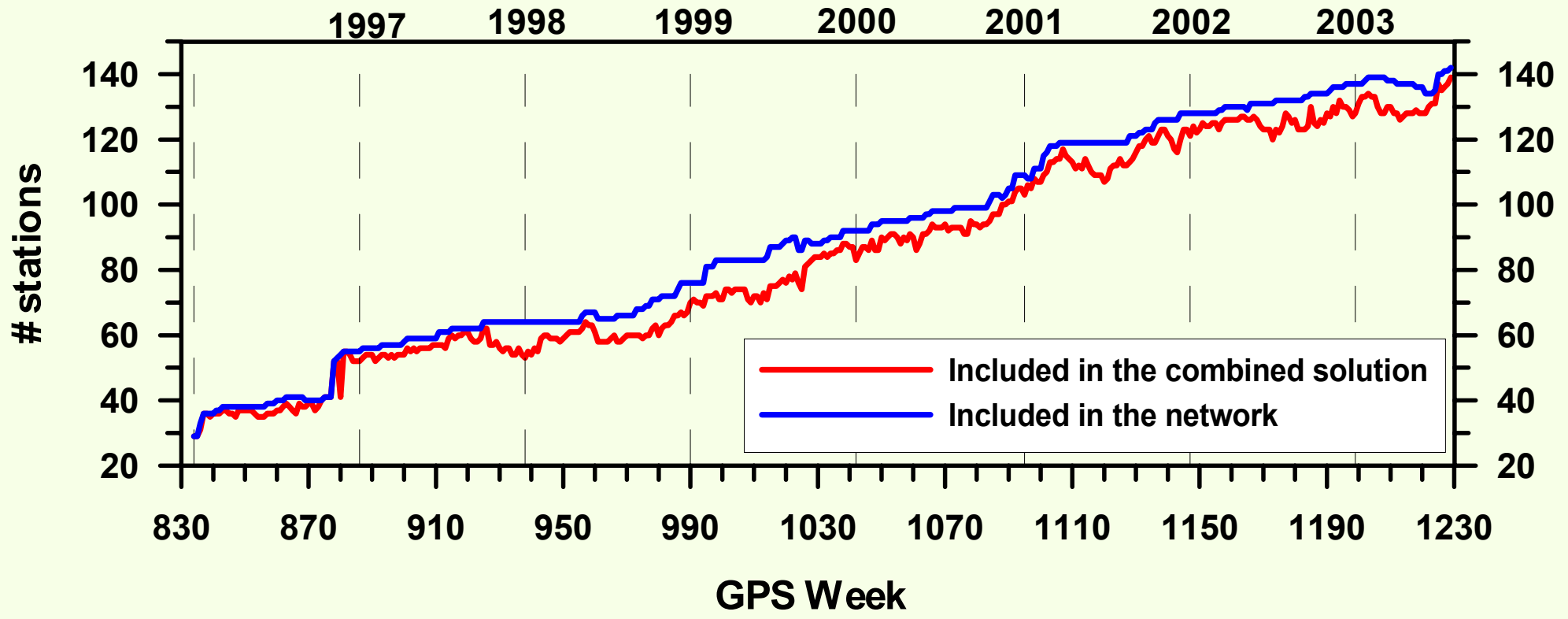


GROWTH OF THE EPN TRACKING NETWORK



#34
6/AC

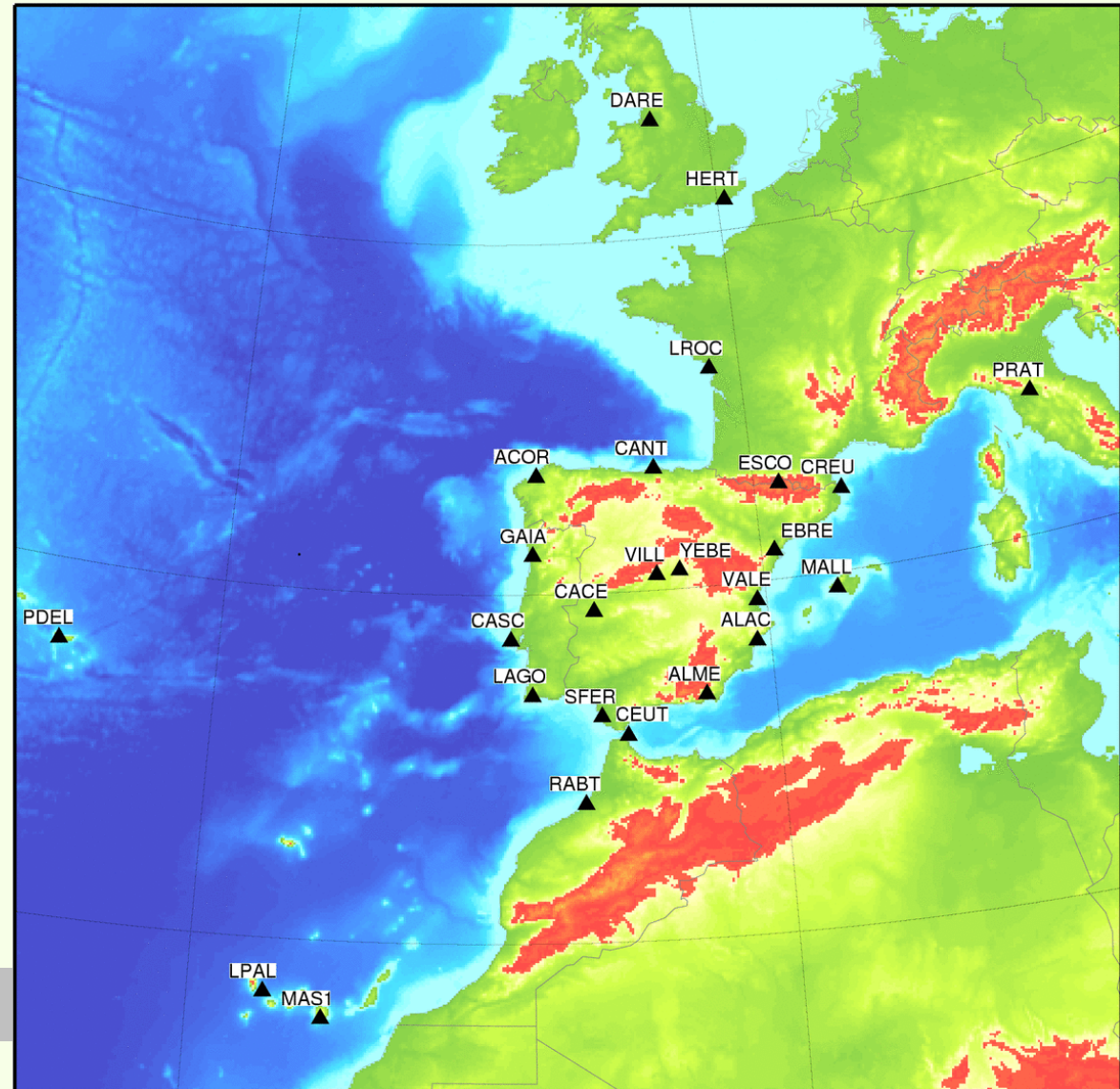
GROWTH OF THE EPN TRACKING NETWORK



Presently 145 active stations and
7 inactive (AMMN, HFLK, IAVH, MDVO, SBZG and ZWEN)

National Geographic Institute Spain (IGE, Spain)

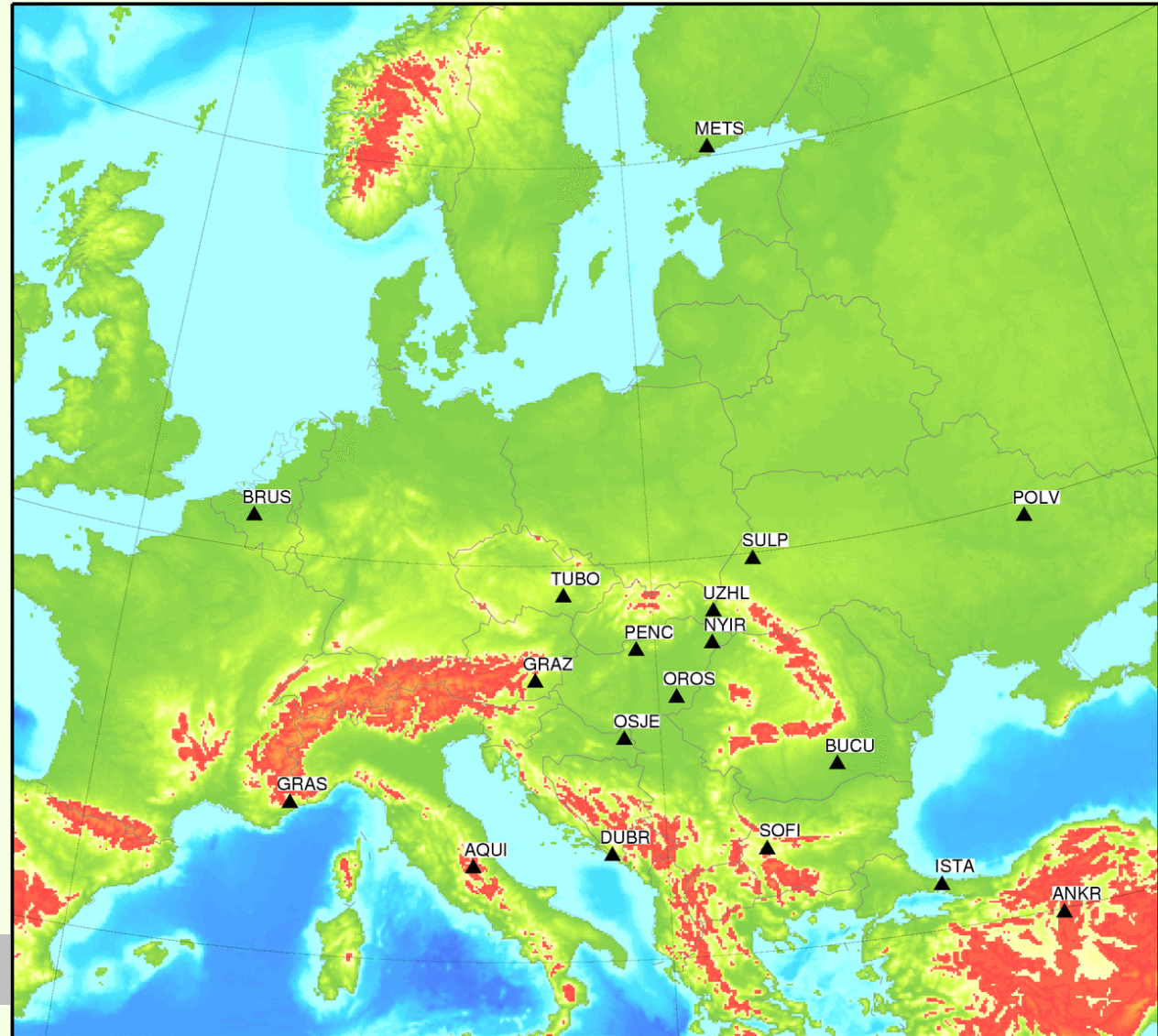
- ▶ Since September 2001
- ▶ Subnetwork of 24 stations
- ▶ Bernese 4.2



IGE SUBNETWORK

FOMI Satellite Geodetic Observatory (SGO, Hungary)

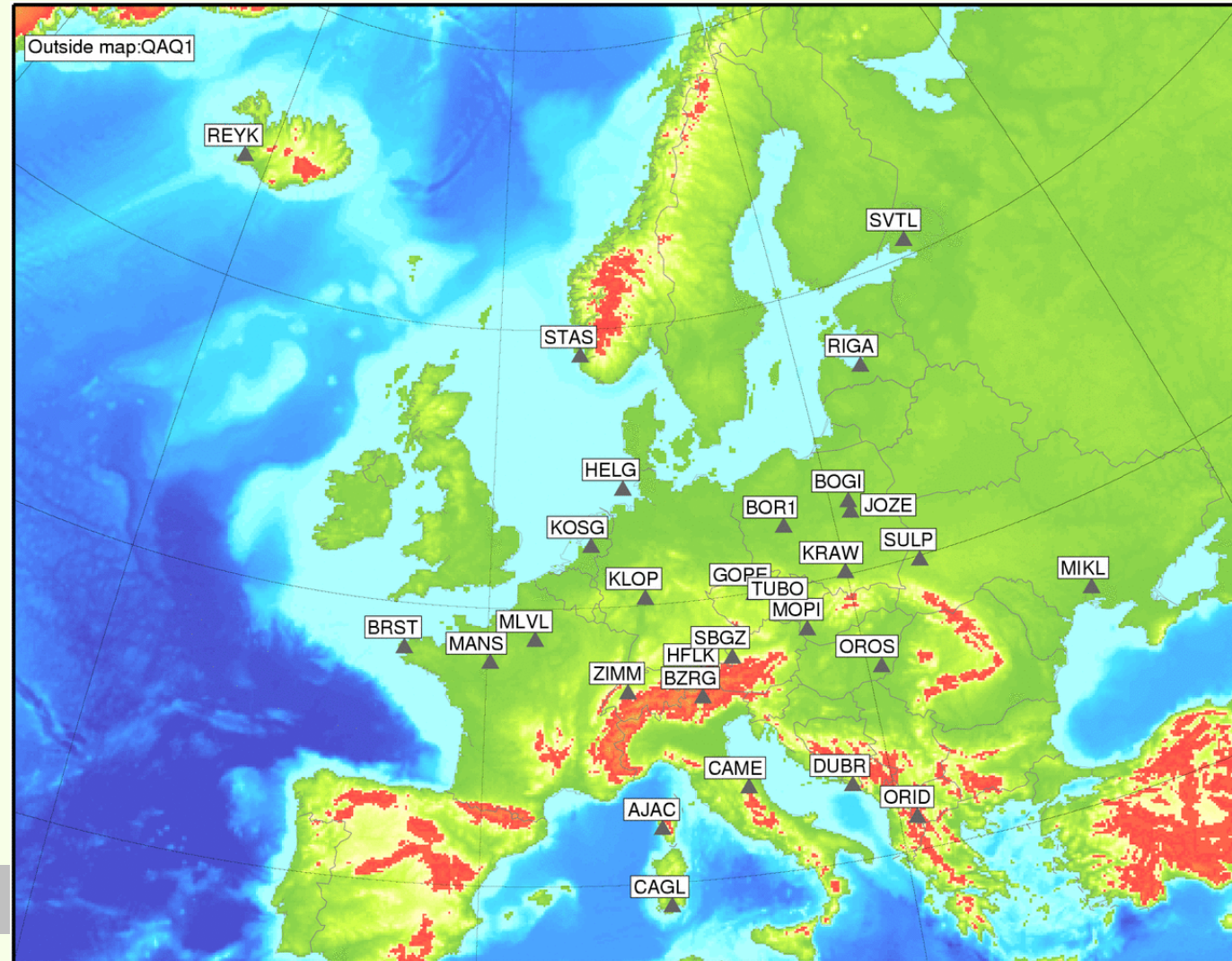
- ▶ Since December 2001
- ▶ Subnetwork of 17 stations
- ▶ Bernese 4.2



SGO SUBNETWORK

Slovak University of Technology (SUT, Slovakia)

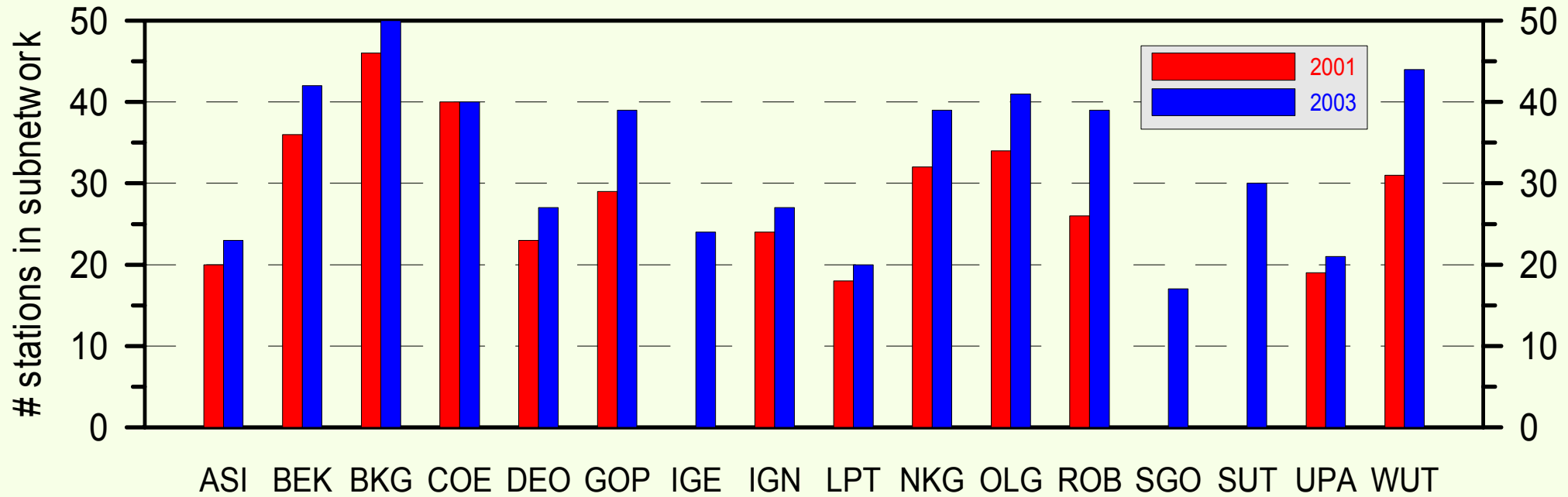
- ▶ Since September 2002
- ▶ Subnetwork of 30 stations
- ▶ Bernese 4.2



SUT SUBNETWORK

AGENCY	LOCATION	SOFTWARE	START OPERATION
Bayerische Akademie der Wissenschaften (BEK)	München, Germany	Bernese 4.2	October 1995
Bundesamt für Kartographie und Geodäsie (BKG)	Frankfurt, Germany	Bernese 4.3	December 1995
Warsaw University of Technology (WUT)	Warsaw, Poland	Bernese 4.2	January 1996
Royal Observatory of Belgium (ROB)	Brussels, Belgium	Bernese 4.2	January 1996
Observatory Lustbühel Graz (OLG)	Graz, Austria	Bernese 4.2	May 1996
Center for Orbit Determination in Europe (COE)	Berne, Switzerland	Bernese 5.0	June 1996
Italian Space Agency (ASI)	Matera, Italy	Microcosm 2001.0	July 1996
Bundesamt für Landestopographie (LPT)	Wabern, Switzerland	Bernese 4.2	November 1996
Nordic Geodetic Commission (NKG)	Onsala, Sweden	Bernese 4.2	December 1996
Geodetic Observatory Pecny (GOP)	Pecny, Czech Republic	Bernese 4.2	January 1997
Institut Géographique National (IGN)	Marne-la-Vallee, France	Bernese 4.2	November 1998
University of Padova (UPA)	Padova, Italy	Bernese 4.2	December 1998
Delft Institute for Earth-Oriented Space Research (DEO)	Delft, The Netherlands	GIPSY/OASIS II 2.5	March 2001
Instituto Geográfico Nacional de España (IGE)	Madrid, Spain	Bernese 4.2	September 2001
FOMI Satellite Geodetic Observatory (SGO)	Budapest, Hungary	Bernese 4.2	December 2001
Slovak University of Technology (SUT)	Bratislava, Slovakia	Bernese 4.2	September 2002

SIZE OF THE AC SUBNETWORKS



FUTURE NETWORK GROWTH

- EUREF-IP stations e.g. CAGZ, HERT, JOZ2
- ECGN : ± 20 stations
permanent GPS (EPN), repeated absolute gravity and repeated levelling
- Others, mainly nrt stations

EPN CB SUPPORT TO AC's - WEB

- Analysis Centres web page
 - <http://www.epncb.oma.be/analcent.html>
 - subnetwork, processing options (update!)
 - archive of all mails sent to euref_ac@ifag.de
- Station web pages
 - List of all [RINEX error inconsistencies](#)
 - [Teqc quality plots](#)
- Guidelines for ACs, including historical overview of processing options

EPN CB SUPPORT TO AC's – FTP/MAIL

- Ftp :**
- Calibration values for antennae/standard names
 - Ocean loading table
 - Log files
- Mail:**
- cc of RINEX error notifications to station managers
 - new/inactive/former stations
 - inactive (3 months not in combined solution) :
stop submitting solutions and wait for EPN CB
to declare station as active again
 - cc of notification to station manager when data quality is out of normal (Teqc)
- Software:**
- Easy tool to correct RINEX headers based on log file

Legend:

No data available
No error
Small error (RINEX header error with negligible impact on data analysis : rec. firmware vers., rec. serial nbr. and ant. serial nbr.)
Major error (RINEX header error with impact on data analysis : marker name, marker number, rec. name, ant. name and N,E,U eccentricity.)

TLSE_10003M009 inconsistencies for 2002 (previous year)

January 2003							
Wk nr	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1199				01 - 001	02 - 002	03 - 003	04 - 004
1200	05 - 005	06 - 006	07 - 007	08 - 008	09 - 009	10 - 010	11 - 011
1201	12 - 012	13 - 013	14 - 014	15 - 015	16 - 016	17 - 017	18 - 018
1202	19 - 019	20 - 020	21 - 021	22 - 022	23 - 023	24 - 024	25 - 025
1203	26 - 026	27 - 027	28 - 028	29 - 029	30 - 030	31 - 031	

February 2003							
Wk nr	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1203							01 - 032
1204	02 - 033	03 - 034	04 - 035	05 - 036	06 - 037	07 - 038	08 - 039
1205	09 - 040	10 - 041	11 - 042	12 - 043	13 - 044	14 - 045	15 - 046
1206	16 - 047	17 - 048	18 - 049	19 - 050	20 - 051	21 - 052	22 - 053
1207	23 - 054	24 - 055	25 - 056	26 - 057	27 - 058	28 - 059	

March 2003							
Wk nr	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1207							01 - 060
1208	02 - 061	03 - 062	04 - 063	05 - 064	06 - 065	07 - 066	08 - 067
1209	09 - 068	10 - 069	11 - 070	12 - 071	13 - 072	14 - 073	15 - 074
1210	16 - 075	17 - 076	18 - 077	19 - 078	20 - 079	21 - 080	22 - 081
1211	23 - 082	24 - 083	25 - 084	26 - 085	27 - 086	28 - 087	29 - 088
1212	30 - 089	31 - 090					

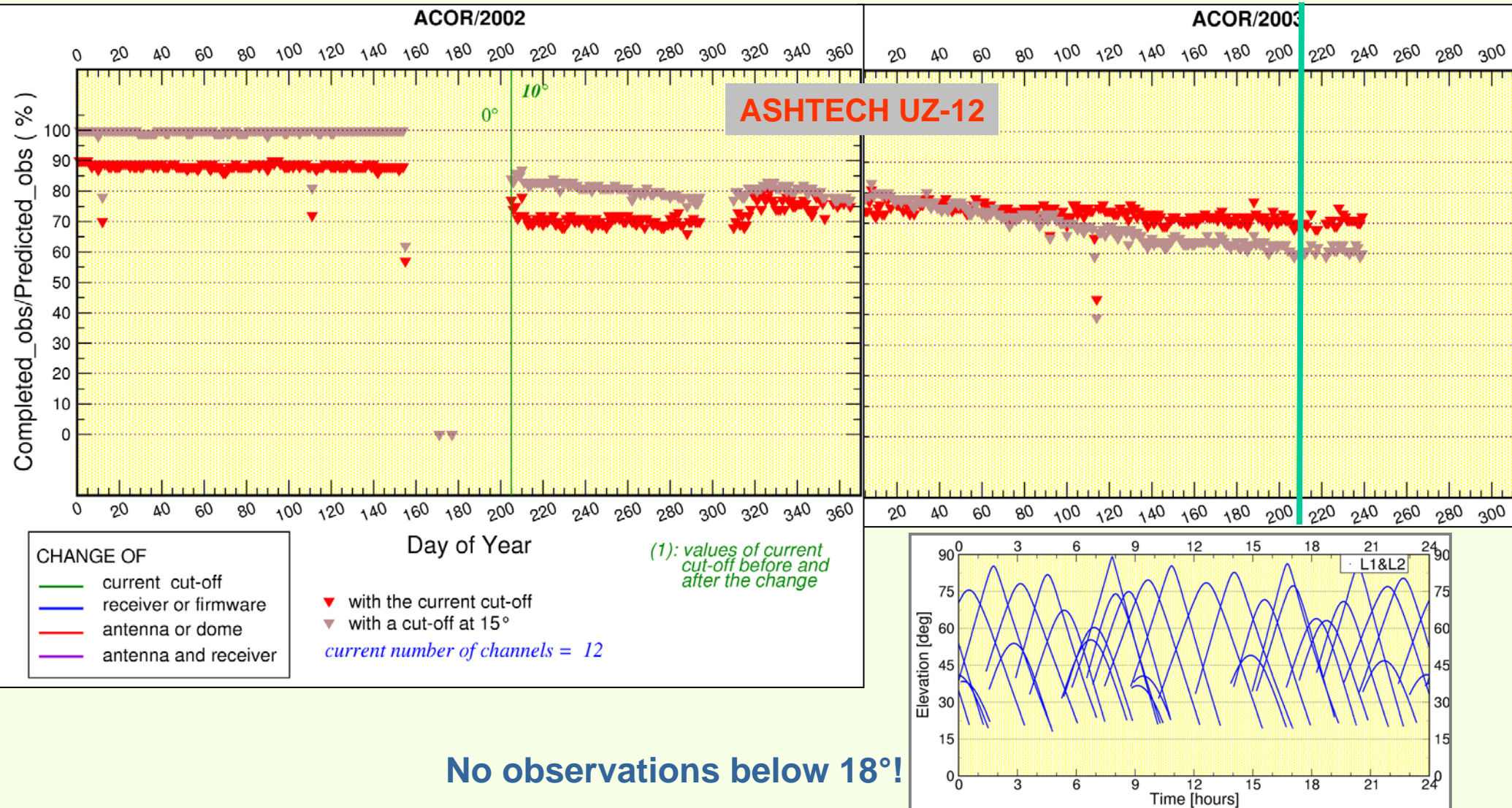
April 2003							
Wk nr	Sun	Mon	Tue	Wed	Thu	Fri	Sat
1212			01 - 091	02 - 092	03 - 093	04 - 094	05 - 095
1213	06 - 096	07 - 097	08 - 098	09 - 099	10 - 100	11 - 101	12 - 102
1214	13 - 103	14 - 104	15 - 105	16 - 106	17 - 107	18 - 108	19 - 109
1215	20 - 110	21 - 111	22 - 112	23 - 113	24 - 114	25 - 115	26 - 116
1216	27 - 117	28 - 118	29 - 119	30 - 120			

Available from station web page

**A few stations that had tracking
problems as seen
from the yearly TEQC plot**

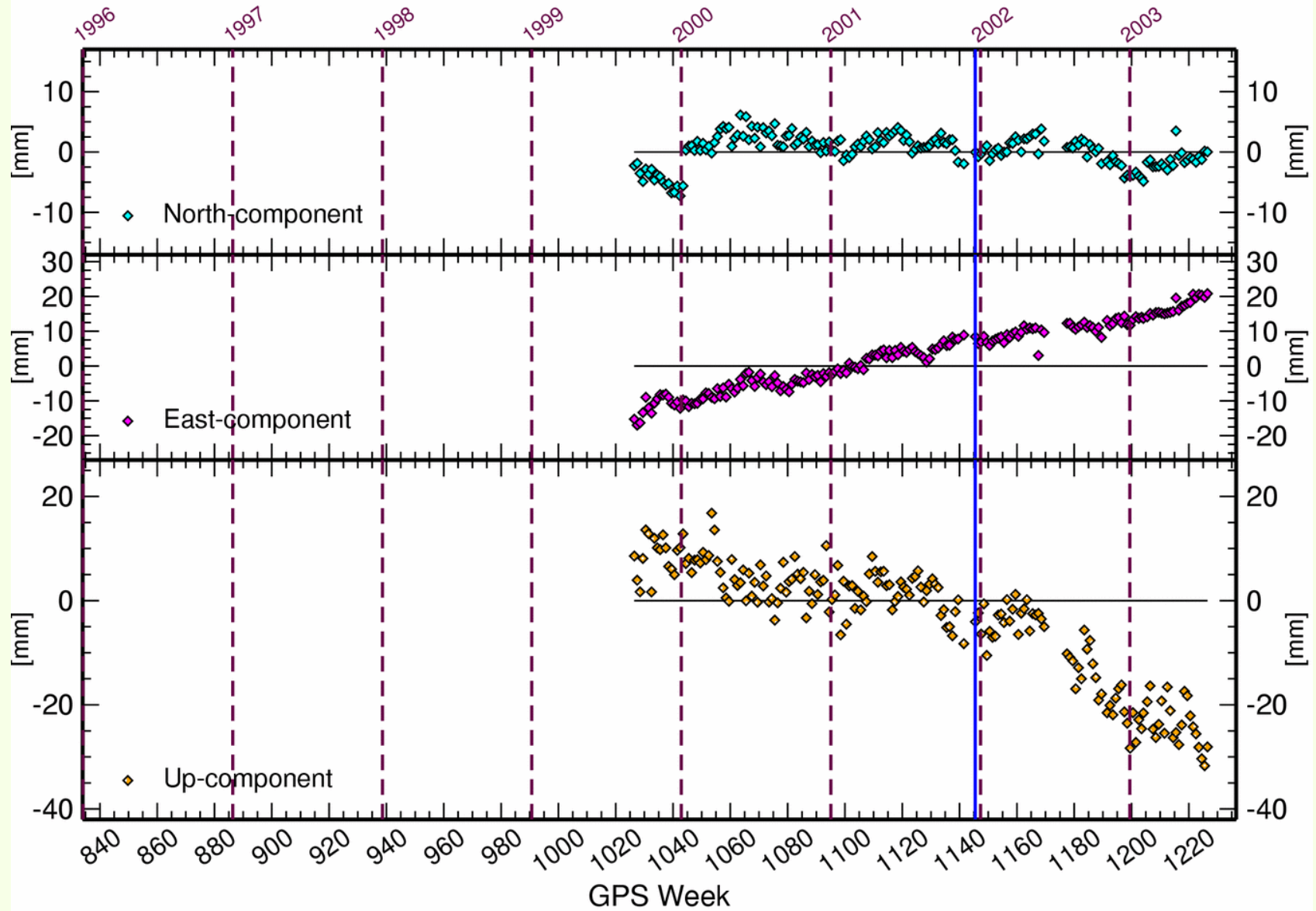
- ACOR**
- BORK**
- CANT**

A Coruna, Spain: illegal radio frequencies? (EUREF mail 1366)

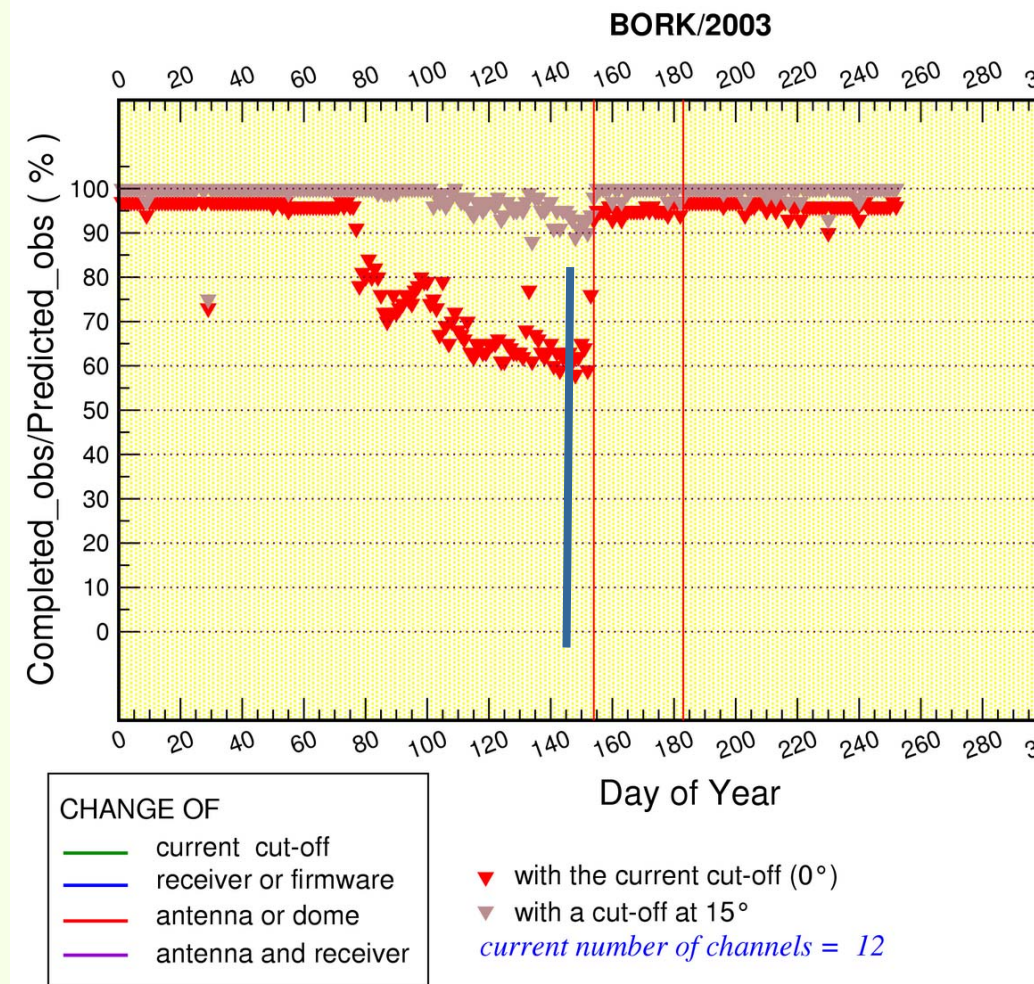
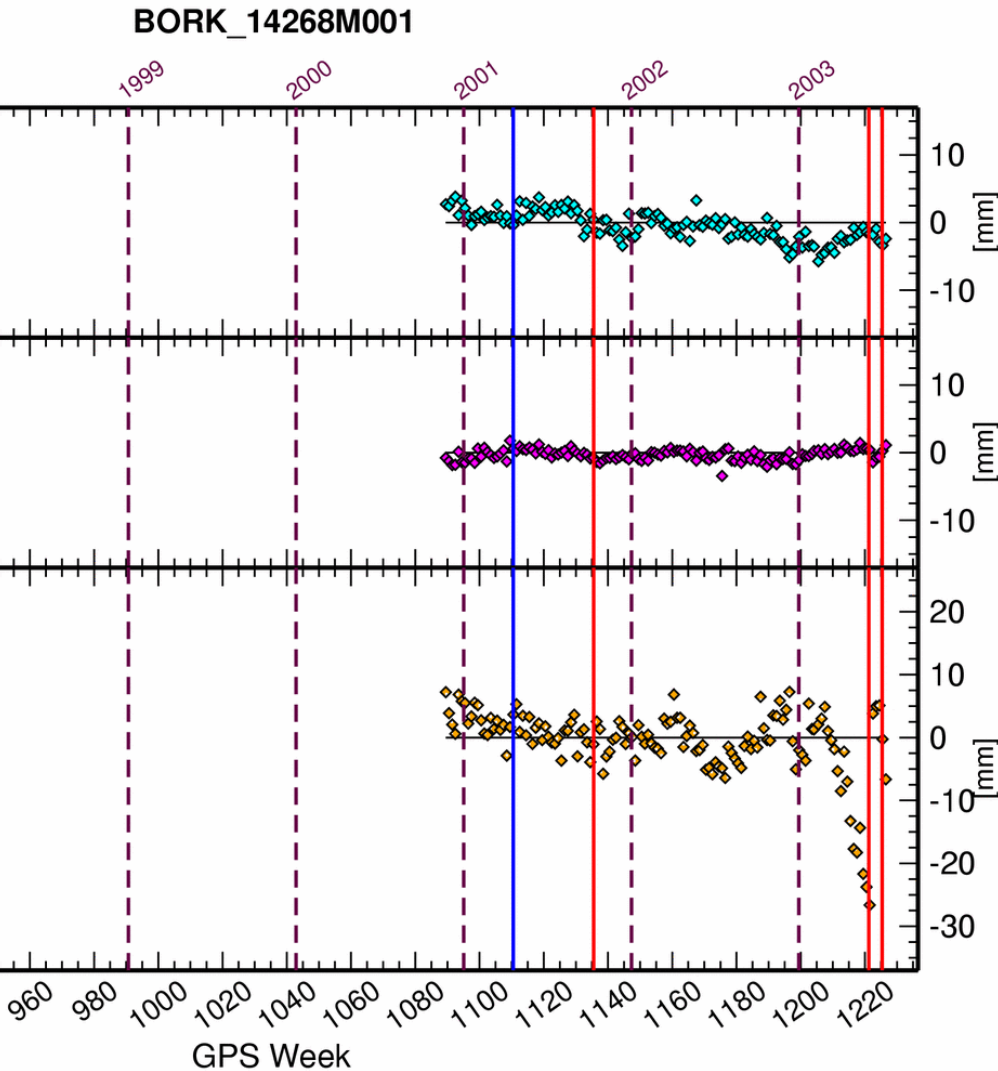


No observations below 18°!

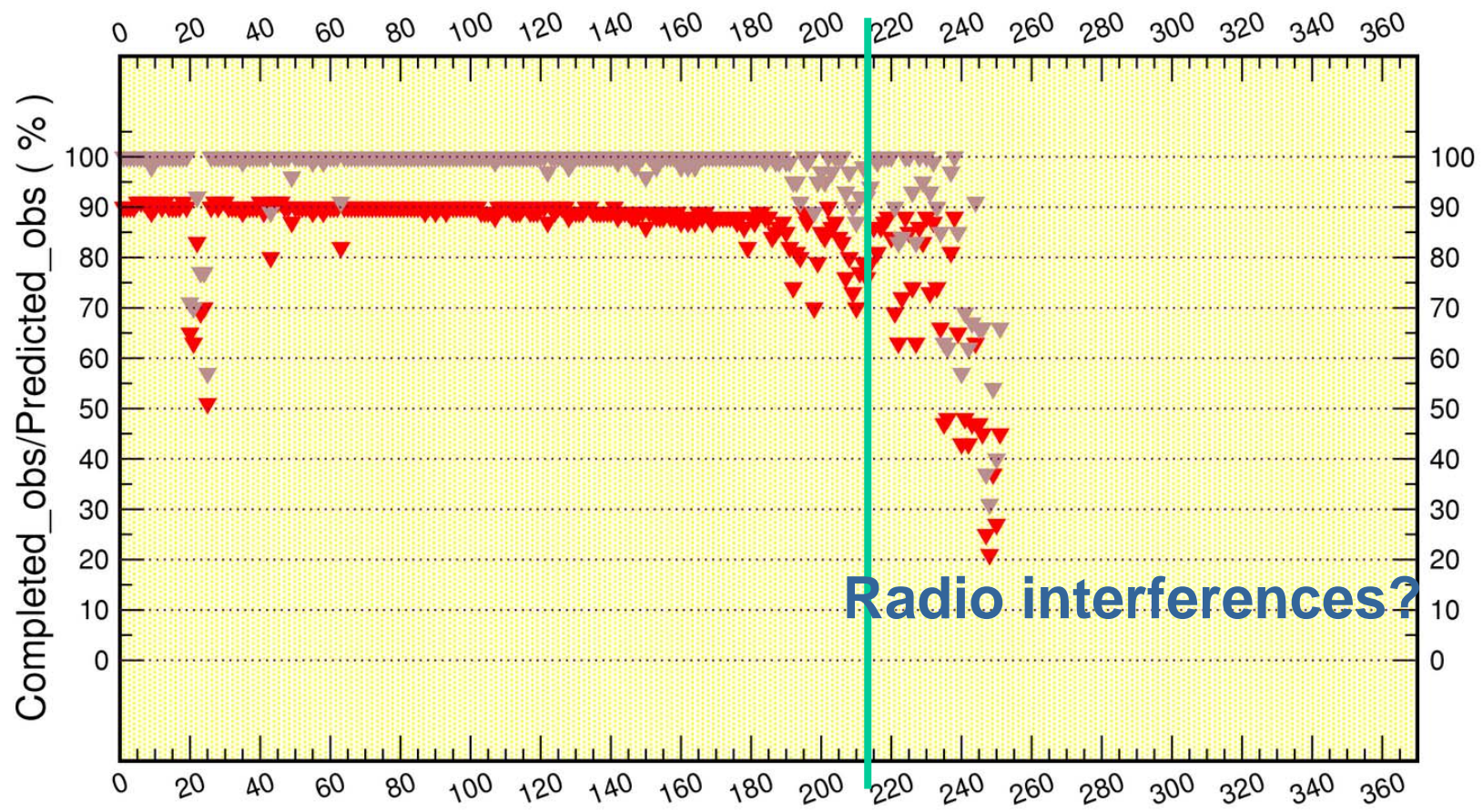
ACOR_13434M001



Borkum, Germany : degraded tracking from DOY 78/2003 (week 1210)



CANT/2003

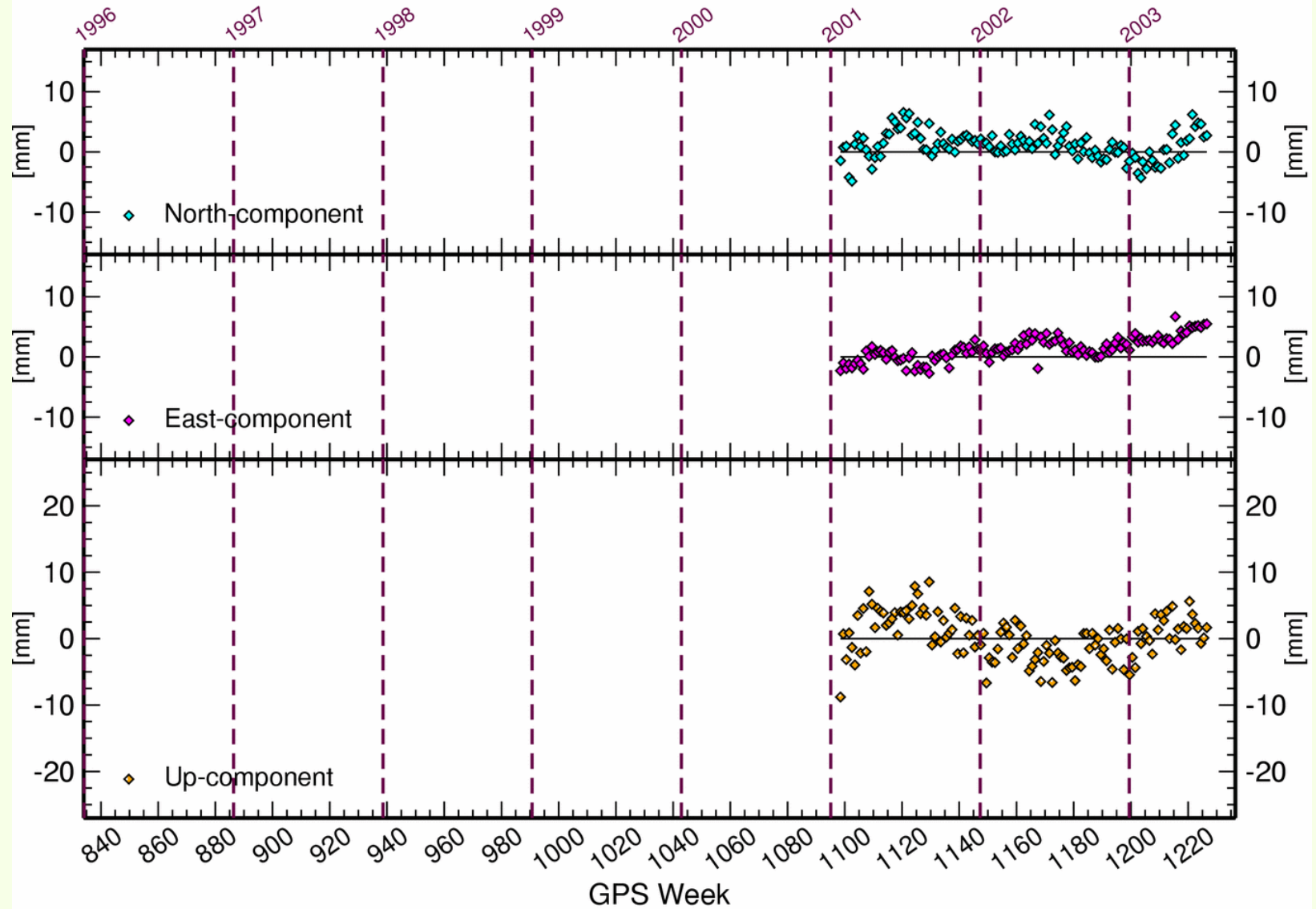


Radio interferences?

- CHANGE OF
- current cut-off
 - receiver or firmware
 - antenna or dome
 - antenna and receiver

- ▼ with the current cut-off (0°)
 - ▼ with a cut-off at 15°
- current number of channels = 12*

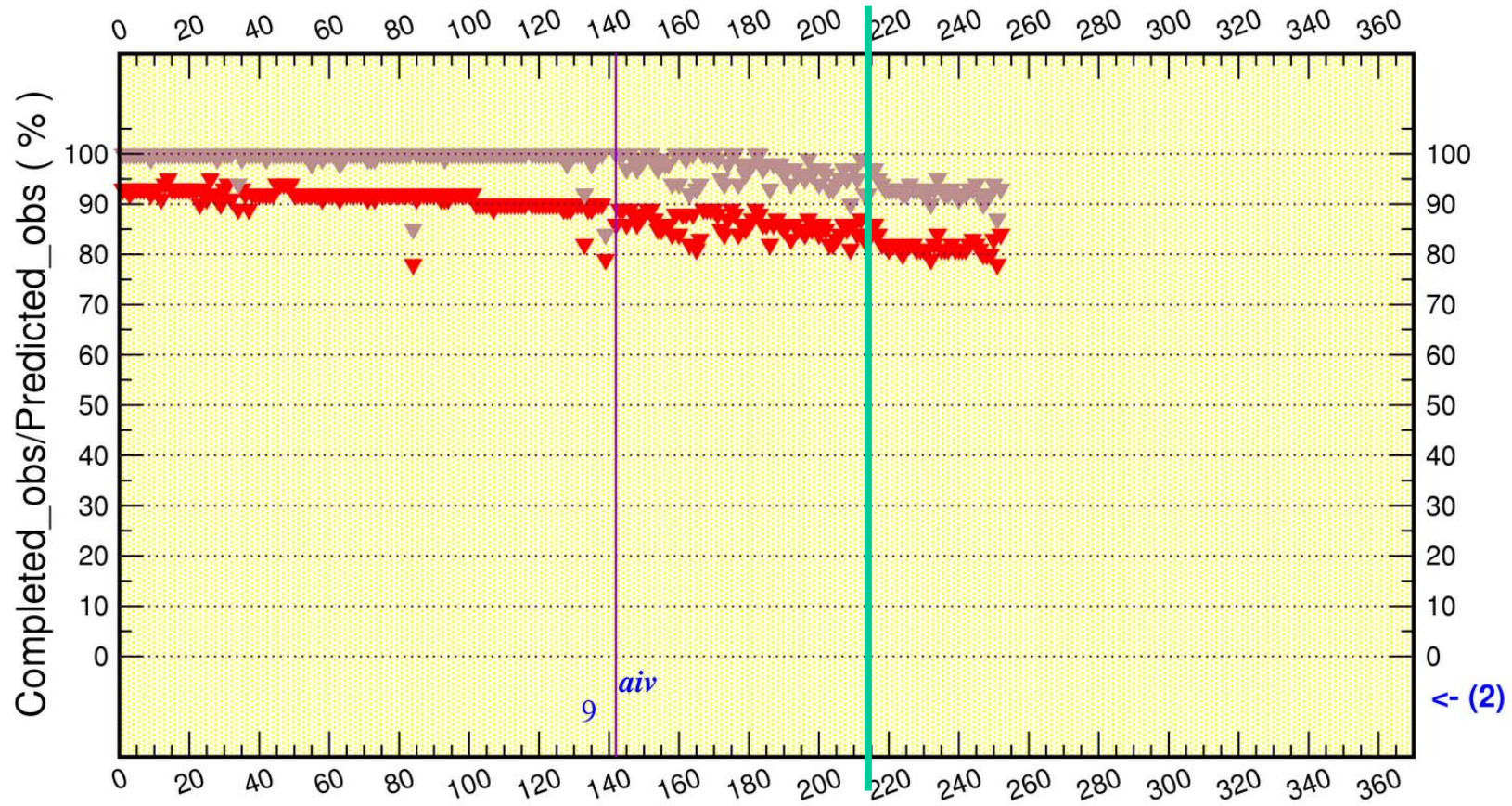
CANT_13438M001



**A few stations that need to be
carefully monitored**

- **PENC**
- **RAMO**

PENC/2003

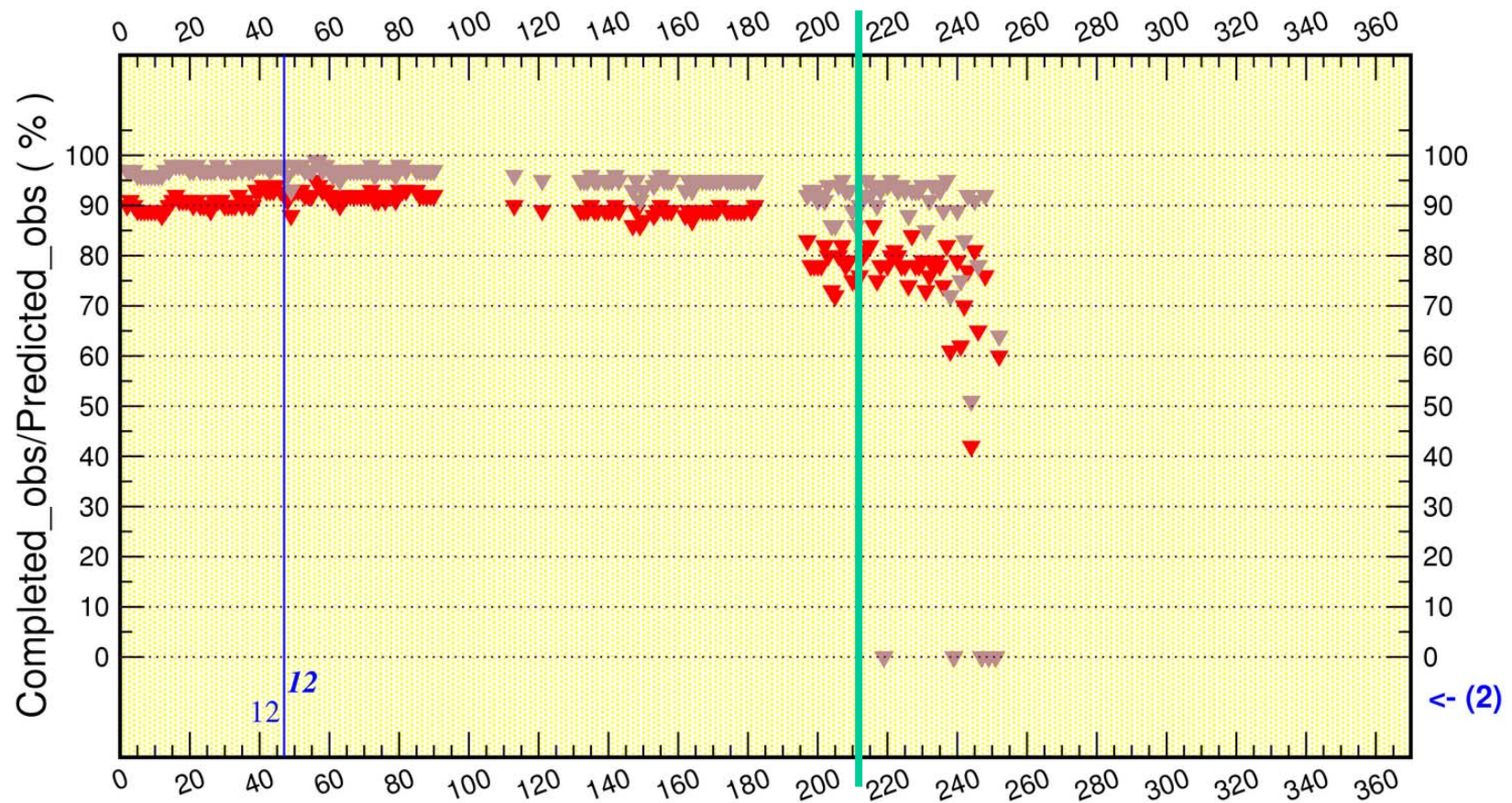


- CHANGE OF
- current cut-off
 - receiver or firmware
 - antenna or dome
 - antenna and receiver

- ▼ with the current cut-off (1°)
- ▼ with a cut-off at 15°

(2): max of available channels before and after the change

RAMO/2003



- CHANGE OF
- current cut-off
 - receiver or firmware
 - antenna or dome
 - antenna and receiver

- ▼ with the current cut-off (7°)
- ▼ with a cut-off at 15°

(2): max of available channels before and after the change

Problems/Discussion:

- **Outlier in the week antenna change occurs (DENT)**
- **Need for occasional recomputation of combined solution?**
- **Speed up the availability of the EUREF Combined solutions**