Introduction of absolute antenna PCV corrections

Discussion

Why change of the PCV model ?

Will IGS change to absolute level ?

Is where any timetable ?

Introduction of absolute antenna PCV corrections

To introduce absolute PCV is useful, if PCV of the Satellites are available !

Individual Satellite calibration ?

EPN:

Is there any necessity to change to absolute level ?

Introduction of absolute antenna PCV corrections

SA*POS*® Germany (what they want !)

Waiting for decision of IGS to switch from relative to absolute PCV:

Reduction of the observations to **ARP** absolute level, especially for real-time observations

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Introduction of absolute antenna PCV corrections

SA*POS*® Germany (Resolution 2002)

Restriction: All antennas have to be calibrated:

offsets, azimuth - and elevation dependent PCV
in 5° steps, elevation beginning 5°, if possible 0°

incorporated to IGS tables / same sign
reduction to “ADVNULLANTENNA”, absolute level

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Introduction of absolute antenna PCV corrections

GREF: (incl. BKG subnetwork for EPN)

Tests with absolute IGS-PCV (Rothacher)
since week 1214, same network, same strategy

Weekly solutions / Helmert-Transformation of the fixed (minimu-contrained) solutions:

Translation in N - E - U:	2.5 / -2.0 / 23.0 [mm]
scale:	0.014 mm/km

First results were presented at the EUREF Symposium in Toledo

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Introduction of absolute antenna PCV corrections

GREF: (incl. BKG subnetwork for EPN)

Example for week 1229:

Solutions with relative type-calibrated PCV (IGS-table)
and absolute PCV (new table of Rothacher)
only for the antennas.

HELMERT TRANSFORMATION

FILE 1: MC-X1229.CRD
FILE 2: MC-B1229.CRD

LOCAL GEODETIC DATUM: WGS - 84
RESIDUALS IN LOCAL SYSTEM (NORTH, EAST, UP)

NUM	NAME	FLG	RESIDUALS IN MILLIMETERS		
779	ALME 13437M001	M M	1.1	2.0	-2.0
778	MALL 13444M001	M M	0.6	0.3	-0.7
777	RABT 35001M002	M M	4.2	7.2	-13.1
782	YEBE 13420M001	M M	0.3	0.9	-1.9
195	ANKR 20805M002	M M	0.3	-1.0	1.6
783	DUBR 11901M001	M M	-0.8	1.4	8.4
786	ISTA 20807M001	M M	-0.2	-0.1	2.3
797	NICO 14302M001	M M	1.7	-3.2	-0.7
796	ZECK 12351M001	M M	-0.8	-6.6	-15.1

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706	AURI	M M	-0.6	-0.6	9.6	
720	BORK 14268M001	M M	-0.3	-1.9	0.9	
790	BUCU 11401M001	M M	-0.4	0.4	2.7	
784	OSJE 11902M001	M M	-0.2	0.9	7.6	
774	BUDP 10101M003	M M	0.8	0.6	-0.6	
773	SMID 10114M001	M M	0.7	0.6	-1.2	
791	BRST 10004M004	M M	-0.5	1.0	-9.5	
121	BRUS 13101M004	M M	0.2	1.2	-0.8	
712	CLAU	M M	-1.0	-0.3	8.6	
718	GREI	M M	-0.3	0.6	13.7	
793	GLSV 12356M001	M M	-1.7	-4.2	-10.1	
713	GOTH	M M	0.7	0.8	1.2	
152	HERS 13212M007	M M	0.1	1.2	-0.1	
717	HELG 14264M001	M M	-0.3	0.7	0.2	
799	HOFN 10204M002	M M	2.4	-3.1	-5.8	
709	HOBU 14202M003	M M	-0.3	-1.8	-0.7	
708	KIEL	M M	0.6	0.1	1.3	
153	**KOSG 13504M003**	**N N**	**0.2**	**-0.1**	**11.1**	
776	NPLD 13234M003	M M	0.2	1.0	0.3	
159	**ONSA 10402M004**	**N N**	**4.6**	**0.6**	**17.0**	
707	OSNA	M M	-0.3	-1.8	0.5	
772	PLYM 13229S001	M M	-1.0	3.3	-1.3	
171	POTS 14106M003	N N	0.8	1.4	15.6	
780	STAS 10330M001	M M	0.3	-2.3	-1.5	
795	VIL0 10424M001	M M	2.0	0.6	-0.2	
730	WARN 14277M002	M M	0.5	1.1	-1.5	
716	DAUN 14265M001	M M	-0.3	-1.5	-1.7	
711	DRES 14108M001	M M	-0.6	-1.9	-1.8	

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802	EFBG 14209M002	M M	-0.3	-1.4	-2.7	
710	ERLA 14266M001	M M	-0.4	-1.8	-1.2	
704	KARL 14216M001	M M	-0.3	-1.6	-0.2	
702	KLOP 14214M002	M M	-0.3	-1.7	-1.7	
701	WTZT 14201M011	M M	-0.5	-1.9	0.9	
155	**MATE 12734M008**	**N N**	**-11.6**	**3.0**	**50.2**	
785	ORID 15601M001	M M	0.3	0.9	6.8	
798	SOFI 11101M002	M M	0.7	0.2	2.1	
161	**WTZR 14201M010**	**N N**	**-0.9**	**1.5**	**17.5**	
714	EUSK 14258M003	M M	-0.3	-1.6	0.3	
724	FFMJ 14279M001	M M	-3.1	4.7	-20.5	
722	HUEG 14280M001	M M	-1.9	5.4	-23.1	
732	MUEJ 14282M001	M M	0.9	1.5	-2.3	
721	TITZ 14278M001	M M	-3.7	5.1	-21.1	
151	**GRAZ 11001M002**	**N N**	**-2.5**	**2.9**	**26.3**	
187	**REYK 10202M001**	**N N**	**12.3**	**-10.0**	**19.2**	
771	HERT 13212M010	M M	-0.6	2.4	-5.8	
788	TUBI 20806M001	M M	-0.6	-3.7	-2.0	
170	KIRU 10403M002	M M	1.8	0.7	-4.4	
789	LAMP 12706M002	M M	2.6	-1.1	-2.7	
703	LEIP 14267M001	M M	-0.5	-1.8	-2.9	
160	METS 10503S011	M M	1.0	1.0	-2.2	
775	MORP 13299S001	M M	-0.5	1.3	-3.9	
163	OBE2 14208M003	M M	0.4	1.1	3.9	
719	PTBB 14234M001	M M	0.2	0.5	-1.2	
787	TRAB 20808M001	M M	0.1	-6.4	-13.3	
781	TRDS 10331M001	M M	1.1	-2.3	-1.8	
751	WTZA 14201M013	M M	-2.9	2.1	3.7	

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211	WROC 12217M001	M	M	0.4	0.2	-4.0
158	ZIMM 14001M004	M	M	-0.7	-1.4	2.7
731	MOXA 14283M001	M	M	-3.2	4.0	-41.3
733	HOER 14284M001	M	M	0.5	1.3	-1.5
705	PFAN 11005S002	M	M	-0.3	-1.5	-2.0
729	SASS 14281M001	M	M	0.3	1.0	-3.7
	RMS / COMPONENT			2.4	2.7	11.5

NUMBER OF PARAMETERS : 7
NUMBER OF COORDINATES :213
RMS OF TRANSFORMATION : 7.0 MM

PARAMETERS:

TRANSLATION IN X	:			2.7	+ 0.8	MM
TRANSLATION IN Y	:			-2.3	+ 0.8	MM
TRANSLATION IN Z	:			-23.4	+ 0.8	MM
ROTATION AROUND X-AXIS	:		0 0	0.0000	+ 0.0002	"
ROTATION AROUND Y-AXIS	:		0 0	0.0016	+ 0.0002	"
ROTATION AROUND Z-AXIS	:	-	0 0	0.0001	+ 0.0002	"
SCALE FACTOR	:			-0.0144	+ 0.0008	MM/KM

NUMBER OF ITERATIONS : 2

Differences of coordinates of the fixed solution (e.g. week 1229)

Diff. Min.Constrained Sol. rel.PCV - abs.PCV (Ant.) GPSWEEK 1229

	dB [cm]	dL [cm]	dH [cm]	flag
GRAZ 11001M002	-0.5	0.3	0.2	N
KOSG 13504M003	0.0	-0.3	1.2	N
MATE 12734M008	-1.0	0.6	-1.7	N
ONSA 10402M004	0.4	0.2	0.2	N
POTS 14106M003	0.0	0.2	0.7	N
REYK 10202M001	0.4	-1.8	-1.0	N
WTZR 14201M010	-0.3	0.2	0.9	N

Fixed stations

Stations in Germany

AURI	0.3	-0.1	1.3	M
BORK 14268M001	0.2	0.0	2.1	M
CLAU	0.1	0.1	1.5	M
DAUN 14265M001	-0.2	0.0	2.6	M
DRES 14108M001	-0.1	0.6	2.6	M
EFBG 14209M002	-0.2	0.0	2.7	M
ERLA 14266M001	-0.3	0.4	2.7	M
EUSK 14258M003	-0.1	0.0	2.4	M
FFMJ 14279M001	0.1	-0.4	4.6	M
GOTH	-0.2	0.1	2.3	M
GREI	0.4	0.3	0.8	M
HELG 14264M001	0.3	-0.2	2.2	M
HOBU 14202M003	0.1	0.3	2.3	M
HOER 14284M001	0.3	-0.2	2.3	M
HUEG 14280M001	-0.2	-0.5	5.0	M
KARL 14216M001	-0.3	0.2	2.6	M
KIEL	0.2	0.1	2.0	M
KLOP 14214M002	-0.2	0.2	2.7	M
LEIP 14267M001	0.0	0.4	2.7	M
MOXA 14283M001	0.1	-0.2	6.6	M
MUEJ 14282M001	-0.5	0.1	2.9	M
OBE2 14208M003	-0.5	0.1	2.3	M
OSNA	0.1	0.1	2.3	M
PFAN 11005S002	-0.5	0.3	2.9	M
PTBB 14234M001	0.0	0.1	2.4	M
SASS 14281M001	0.2	0.2	2.5	M
TITZ 14278M001	0.2	-0.6	4.6	M
WARN 14277M002	0.2	0.1	2.3	M
WTZA 14201M013	-0.1	0.1	2.2	M
WTZT 14201M011	-0.3	0.5	2.5	M

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ALME	13437M001	-1.8	-0.7	4.1	M
ANKR	20805M002	-1.8	1.6	3.5	M
BRST	10004M004	-0.5	-0.8	3.6	M
BRUS	13101M004	-0.2	-0.4	2.5	M
BUCU	11401M001	-1.0	1.2	2.8	M
BUDP	10101M003	0.4	0.2	2.1	M
DUBR	11901M001	-1.1	0.6	2.4	M
GLSV	12356M001	-0.4	1.8	3.6	M
HERS	13212M007	-0.3	-0.7	2.4	M
HOFN	10204M002	0.8	-1.5	1.8	M
ISTA	20807M001	-1.5	1.4	3.2	M
KIRU	10403M002	1.7	0.8	1.6	M
LAMP	12706M002	-1.9	0.4	4.4	M
MALL	13444M001	-1.5	-0.3	3.6	M
METS	10503S011	0.8	1.1	1.9	M
MORP	13299S001	0.2	-0.9	2.5	M
NICO	14302M001	-2.3	1.7	4.4	M
NPLD	13234M003	-0.2	-0.8	2.3	M
ORID	15601M001	-1.4	0.8	2.8	M
OSJE	11902M001	-0.8	0.7	2.2	M
PLYM	13229S001	-0.3	-1.2	2.6	M
RABT	35001M002	-2.3	-1.0	5.7	M
SMID	10114M001	0.4	0.0	2.2	M
SOFI	11101M002	-1.3	1.0	3.1	M
STAS	10330M001	0.8	0.0	1.9	M
TRAB	20808M001	-1.7	2.1	5.0	M
TRDS	10331M001	1.3	0.3	1.7	M
TUBI	20806M001	-1.5	1.7	3.8	M
VIL0	10424M001	1.4	0.5	1.4	M
WROC	12217M001	-0.2	0.6	2.8	M
YEBE	13420M001	-1.4	-0.7	3.6	M
ZECK	12351M001	-1.5	2.2	4.9	M
ZIMM	14001M004	-0.5	0.1	2.5	M