Report for Multi-Station Adjustment

Report date: 2026-05-20
Generated by: Frederik
Scope: full report

Host application: RiSCAN PRO 2.24.2
MSA module: 2.15.0
Report module: 1.15.1

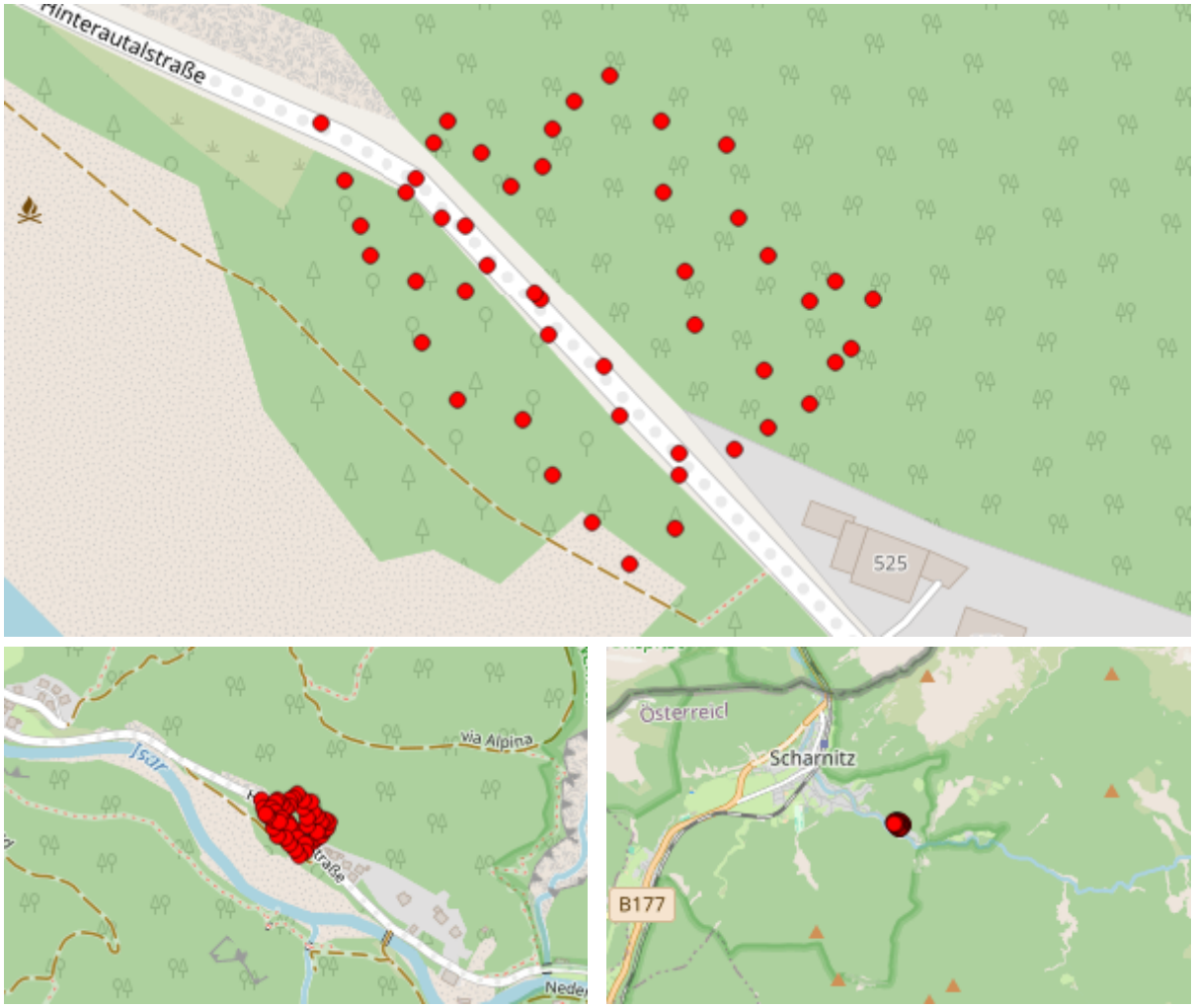
Platform: Windows-11-10.0.26200-SP0
Hostname: Geodaesie-2

1 Project Summary

Project name: **2026-04-15-Scharnitz**
Global Coordinate Reference System (GLCS): ITRF2014 / Geocentric (EPSG::7789)
Report GLCS: ITRF2014 / Geographic (EPSG::7912)
Project origin:
Latitude [deg]: N47° 22' 58.290680"
Longitude [deg]: E11° 16' 43.202449"
Altitude [m]: 1028.0461
Project Coordinate System (PRCS): levelled Cartesian east, north, up system
GNSS Coordinate Reference Systems:
CRS#1 ... ITRF2014 / Geographic (EPSG::7912)
Control Point Coordinate Reference Systems:
CRS#1 ... ITRF2014 / Geographic (EPSG::7912)
Report Coordinate System:
PRCS
number of scan positions: 49
bounding box of scanposition centers: (in PRCS)

direction	from [m]	to [m]	width [m]
east	0.213	112.902	112.688
north	-90.127	9.789	99.916
height	-4.953	25.671	30.624

instruments used:
instrument type: VZ-600i
serial number: [redacted]



Map Data © OpenStreetMap contributors

2 Data available in Project

Control point (CtrlP) – Point of known coordinates and accuracy. Control Points are used in multi-station adjustment / scan data adjustment to register pointclouds to a known control survey.
Check point (ChkP) – Check points are a freely selectable subset of the Control points to verify the success of the adjustment process. Check points are not used for pointcloud registration, but serve as an independent set of control.

2.1 Scandata

Name	Date	Time	Horiz. FoV [deg]	Resolution [mdeg]	Point Count	Image Count	Refl. Scans
ScanPos001	2026-05-13	11:36:20	360.00	34.0	19,129,541	36	0
ScanPos002	2026-05-13	11:38:25	360.00	34.0	19,482,795	36	1
ScanPos003	2026-05-13	11:41:08	360.00	34.0	26,842,535	36	0
ScanPos004	2026-05-13	11:42:22	360.00	34.0	25,405,783	36	1
ScanPos005	2026-05-13	11:44:20	360.00	34.0	22,011,883	36	0
ScanPos006	2026-05-13	11:45:55	360.00	34.0	22,091,781	36	1

Name	Date	Time	Horiz. FoV [deg]	Resolution [mdeg]	Point Count	Image Count	Refl. Scans
ScanPos007	2026-05-13	11:47:59	360.00	34.0	19,293,356	36	0
ScanPos008	2026-05-13	11:49:33	360.00	34.0	21,787,052	36	1
ScanPos009	2026-05-13	11:51:42	360.00	34.0	18,899,415	36	1
ScanPos010	2026-05-13	11:54:04	360.00	34.0	22,645,753	36	0
ScanPos011	2026-05-13	11:55:40	360.00	34.0	22,958,921	36	0
ScanPos012	2026-05-13	11:57:15	360.00	34.0	21,940,178	36	0
ScanPos013	2026-05-13	11:59:21	360.00	34.0	22,223,697	36	1
ScanPos014	2026-05-13	12:01:43	360.00	34.0	22,071,427	36	0
ScanPos015	2026-05-13	12:03:00	360.00	34.0	25,107,014	36	0
ScanPos016	2026-05-13	12:04:11	360.00	34.0	22,738,247	36	0
ScanPos017	2026-05-13	12:05:53	360.00	34.0	24,009,960	36	1
ScanPos018	2026-05-13	12:07:54	360.00	34.0	26,077,038	36	1
ScanPos019	2026-05-13	12:10:09	360.00	34.0	22,134,671	36	1
ScanPos020	2026-05-13	12:12:09	360.00	34.0	24,764,798	36	0
ScanPos021	2026-05-13	12:13:31	360.00	34.0	26,900,145	36	0
ScanPos022	2026-05-13	12:14:48	360.00	34.0	23,073,091	36	0
ScanPos023	2026-05-13	12:15:59	360.00	34.0	23,385,350	36	0
ScanPos024	2026-05-13	12:17:10	360.00	34.0	24,416,670	36	0
ScanPos025	2026-05-13	12:18:20	360.00	34.0	23,491,900	36	1
ScanPos026	2026-05-13	12:20:02	360.00	34.0	22,385,562	36	0
ScanPos027	2026-05-13	12:21:19	360.00	34.0	22,258,951	36	1
ScanPos028	2026-05-13	12:23:17	360.00	34.0	21,838,032	36	0
ScanPos029	2026-05-13	12:24:44	360.00	34.0	24,038,516	36	0
ScanPos030	2026-05-13	12:25:55	360.00	34.0	28,083,457	36	0
ScanPos031	2026-05-13	12:27:53	360.00	34.0	27,165,244	36	0
ScanPos032	2026-05-13	12:29:21	360.00	34.0	30,952,564	36	0
ScanPos033	2026-05-13	12:30:42	360.00	34.0	29,797,226	36	0
ScanPos034	2026-05-13	12:32:04	360.00	34.0	28,376,898	36	0
ScanPos035	2026-05-13	12:33:10	360.00	34.0	25,534,042	36	0
ScanPos036	2026-05-13	12:34:17	360.00	34.0	22,546,260	36	0
ScanPos037	2026-05-13	12:35:25	360.00	34.0	21,137,191	36	0
ScanPos038	2026-05-13	12:36:27	360.00	34.0	24,491,376	36	0
ScanPos039	2026-05-13	12:38:09	360.00	34.0	22,660,527	36	0
ScanPos040	2026-05-13	12:39:20	360.00	34.0	19,112,843	36	0
ScanPos041	2026-05-13	12:40:20	360.00	34.0	20,230,260	36	0
ScanPos042	2026-05-13	12:41:25	360.00	34.0	23,988,027	36	0
ScanPos043	2026-05-13	12:42:24	360.00	34.0	19,937,832	36	0
ScanPos044	2026-05-13	12:44:31	360.00	34.0	14,165,844	36	0
ScanPos045	2026-05-13	12:45:48	360.00	34.0	16,688,228	36	0
ScanPos046	2026-05-13	12:46:56	360.00	34.0	15,729,022	36	0

Name	Date	Time	Horiz. FoV [deg]	Resolution [mdeg]	Point Count	Image Count	Refl. Scans
ScanPos047	2026-05-13	12:47:56	360.00	34.0	20,809,163	36	0
ScanPos048	2026-05-13	12:49:08	360.00	34.0	22,028,583	36	0
ScanPos049	2026-05-13	12:50:49	360.00	34.0	23,513,251	36	0
Total					1,120,351,900		

2.2 GNSS Measurements

The VZ-600i acquired the following GNSS measurements at the following scan positions:

Name	CRS	Latitude [deg]	Longitude [deg]	Altitude [m]	Horiz. Acc. [m]	Vert. Acc. [m]	Satel-lites	Nav. Sol.	Age of Corr.
ScanPos001	CRS#1	N47° 22' 58.297093"	E11° 16' 43.213284"	1028.0472	0.014	0.025	27	RTK fixed	1.000
ScanPos002	CRS#1	N47° 22' 57.914475"	E11° 16' 43.442760"	1027.5558	0.014	0.035	28	RTK fixed	1.000
ScanPos003	CRS#1	N47° 22' 57.930257"	E11° 16' 44.143440"	1028.2953	0.014	0.035	28	RTK fixed	1.000
ScanPos004	CRS#1	N47° 22' 57.618856"	E11° 16' 44.624741"	1028.0890	0.014	0.033	28	RTK fixed	1.000
ScanPos005	CRS#1	N47° 22' 57.132414"	E11° 16' 45.343529"	1027.7640	0.014	0.028	27	RTK fixed	1.000
ScanPos006	CRS#1	N47° 22' 57.171003"	E11° 16' 45.291957"	1027.8200	0.014	0.023	27	RTK fixed	1.000
ScanPos007	CRS#1	N47° 22' 56.686493"	E11° 16' 45.966383"	1027.3419	0.014	0.025	28	RTK fixed	1.000
ScanPos008	CRS#1	N47° 22' 56.119129"	E11° 16' 46.712287"	1026.9853	0.014	0.026	29	RTK fixed	1.000
ScanPos009	CRS#1	N47° 22' 56.131915"	E11° 16' 47.248302"	1028.5749	0.014	0.026	29	RTK fixed	1.000
ScanPos010	CRS#1	N47° 22' 56.282145"	E11° 16' 47.579218"	1034.7492	0.014	0.015	29	RTK float	1.000
ScanPos011	CRS#1	N47° 22' 56.443744"	E11° 16' 47.972512"	1040.2036	0.014	0.039	29	RTK fixed	1.000
ScanPos012	CRS#1	N47° 22' 56.707457"	E11° 16' 48.231766"	1046.5897	0.014	0.022	30	RTK fixed	1.000
ScanPos013	CRS#1	N47° 22' 56.800196"	E11° 16' 48.391584"	1049.4982	0.014	0.028	30	RTK fixed	1.000
ScanPos014	CRS#1	N47° 22' 57.131853"	E11° 16' 48.589691"	1053.7666	0.014	0.022	29	RTK fixed	1.000
ScanPos015	CRS#1	N47° 22' 57.255377"	E11° 16' 48.222065"	1049.5724	0.014	0.040	29	RTK fixed	1.000
ScanPos016	CRS#1	N47° 22' 57.114809"	E11° 16' 47.968067"	1045.9101	0.014	0.030	29		1.000

Name	CRS	Latitude [deg]	Longitude [deg]	Altitude [m]	Horiz. Acc. [m]	Vert. Acc. [m]	Satel-lites	Nav. Sol.	Age of Corr.
								RTK fixed	
ScanPos017	CRS#1	N47° 22' 56.663845"	E11° 16' 47.534343"	1039.7538	0.032	0.105	29	RTK fixed	25.000
ScanPos018	CRS#1	N47° 22' 56.936643"	E11° 16' 46.904395"	1036.0792	0.667	1.165	28	Single	-1.000
ScanPos019	CRS#1	N47° 22' 57.380617"	E11° 16' 47.595769"	1043.3862	0.709	1.303	27	Single	-1.000
ScanPos020	CRS#1	N47° 22' 57.652836"	E11° 16' 47.318976"	1047.2172	0.646	1.173	28	Single	-1.000
ScanPos021	CRS#1	N47° 22' 57.327029"	E11° 16' 46.801018"	1041.2103	0.619	1.151	27	Single	-1.000
ScanPos022	CRS#1	N47° 22' 57.822304"	E11° 16' 46.552885"	1042.3728	0.621	1.145	27	Single	-1.000
ScanPos023	CRS#1	N47° 22' 58.101248"	E11° 16' 47.166992"	1046.9614	0.758	1.305	26	Single	-1.000
ScanPos024	CRS#1	N47° 22' 58.257811"	E11° 16' 46.519469"	1046.8335	0.795	1.308	26	Single	-1.000
ScanPos025	CRS#1	N47° 22' 58.578663"	E11° 16' 46.010572"	1048.9052	0.742	1.247	26	Single	-1.000
ScanPos026	CRS#1	N47° 22' 58.423891"	E11° 16' 45.700158"	1043.7406	0.597	1.214	26	Single	-1.000
ScanPos027	CRS#1	N47° 22' 58.219608"	E11° 16' 45.461658"	1042.5844	0.644	1.165	26	Single	-1.000
ScanPos028	CRS#1	N47° 22' 57.994953"	E11° 16' 45.330714"	1040.7359	0.654	1.099	27	RTK float	1.000
ScanPos029	CRS#1	N47° 22' 57.880813"	E11° 16' 45.064098"	1033.3702	0.016	0.069	27	RTK fixed	1.000
ScanPos030	CRS#1	N47° 22' 58.097010"	E11° 16' 44.771889"	1033.8854	0.014	0.039	25	RTK fixed	1.000
ScanPos031	CRS#1	N47° 22' 58.302676"	E11° 16' 44.441237"	1033.2921	0.014	0.042	24	RTK fixed	1.000
ScanPos032	CRS#1	N47° 22' 58.164895"	E11° 16' 44.304541"	1030.8176	0.033	0.071	24	RTK float	1.000
ScanPos033	CRS#1	N47° 22' 57.853424"	E11° 16' 44.068933"	1027.7575	0.057	0.112	24	RTK float	1.000
ScanPos034	CRS#1	N47° 22' 57.669165"	E11° 16' 44.412838"	1027.0807	0.058	0.110	24	RTK float	1.000
ScanPos035	CRS#1	N47° 22' 57.364763"	E11° 16' 44.869919"	1026.3620	0.071	0.150	24	RTK float	1.000
ScanPos036	CRS#1	N47° 22' 56.901843"	E11° 16' 45.437875"	1027.4989	0.014	0.041	24	RTK fixed	1.000
ScanPos037	CRS#1	N47° 22' 56.367292"	E11° 16' 46.127795"	1026.9736	0.014	0.040	24	RTK fixed	1.000
ScanPos038	CRS#1	N47° 22' 55.968577"	E11° 16' 46.703072"	1026.8010	0.014	0.042	24	RTK fixed	1.000
ScanPos039	CRS#1	N47° 22' 55.609097"	E11° 16' 46.665836"	1024.5651	0.014	0.043	24	RTK fixed	1.000
ScanPos040	CRS#1	N47° 22' 55.378280"	E11° 16' 46.227002"	1024.4454	0.014	0.029	24	RTK fixed	1.000
ScanPos041	CRS#1	N47° 22' 55.656795"	E11° 16' 45.857080"	1024.5145	0.014	0.048	24		1.000

Name	CRS	Latitude [deg]	Longitude [deg]	Altitude [m]	Horiz. Acc. [m]	Vert. Acc. [m]	Satel-lites	Nav. Sol.	Age of Corr.
								RTK fixed	
ScanPos042	CRS#1	N47° 22' 55.973753"	E11° 16' 45.467638"	1024.5891	0.014	0.051	24	RTK fixed	1.000
ScanPos043	CRS#1	N47° 22' 56.335728"	E11° 16' 45.170282"	1024.1867	0.014	0.029	24	RTK fixed	1.000
ScanPos044	CRS#1	N47° 22' 56.469121"	E11° 16' 44.535715"	1024.1334	0.014	0.029	24	RTK fixed	1.000
ScanPos045	CRS#1	N47° 22' 56.844466"	E11° 16' 44.186848"	1023.0764	0.014	0.032	24	RTK fixed	1.000
ScanPos046	CRS#1	N47° 22' 57.245966"	E11° 16' 44.130204"	1023.9912	0.014	0.031	25	RTK fixed	1.000
ScanPos047	CRS#1	N47° 22' 57.181096"	E11° 16' 44.609204"	1024.7228	0.014	0.038	24	RTK fixed	1.000
ScanPos048	CRS#1	N47° 22' 57.425002"	E11° 16' 43.688583"	1023.8647	0.014	0.039	24	RTK fixed	1.000
ScanPos049	CRS#1	N47° 22' 57.617218"	E11° 16' 43.602763"	1024.0474	0.014	0.031	24	RTK fixed	1.000

CRS#1 ... ITRF2014 / Geographic (EPSG::7912)

2.3 Orientation Measurements

The VZ-600i acquired the following measurements for roll, pitch and yaw angles (all values in deg).

Name	Roll	Pitch	Yaw	Acc. Roll	Acc. Pitch	Acc. Yaw	PoseEstimation Type
ScanPos001	-3.143	1.658	151.809	0.013	0.013	1.000	dynamic
ScanPos002	1.494	-5.180	110.993	0.016	0.016	1.000	dynamic
ScanPos003	-1.400	0.168	143.809	0.009	0.009	1.000	dynamic
ScanPos004	-2.426	-0.461	131.134	0.011	0.011	1.000	dynamic
ScanPos005	-1.730	-1.065	128.822	0.010	0.010	1.000	dynamic
ScanPos006	-1.733	-0.943	133.741	0.010	0.010	1.000	dynamic
ScanPos007	-2.554	-0.183	135.878	0.011	0.011	1.000	dynamic
ScanPos008	-3.070	0.476	133.674	0.012	0.012	1.000	dynamic
ScanPos009	-4.355	1.456	50.680	0.014	0.014	1.000	dynamic
ScanPos010	-3.604	-12.528	50.976	0.028	0.028	1.000	dynamic
ScanPos011	4.762	-0.328	32.621	0.015	0.015	1.000	dynamic
ScanPos012	-1.030	-4.585	-2.717	0.017	0.014	1.000	dynamic
ScanPos013	1.300	-15.541	-6.613	0.032	0.032	1.000	dynamic
ScanPos014	-0.254	-8.133	7.517	0.020	0.020	1.000	dynamic
ScanPos015	-0.324	-8.557	22.214	0.021	0.021	1.000	dynamic
ScanPos016	-1.157	-11.164	10.159	0.025	0.025	1.000	dynamic

Name	Roll	Pitch	Yaw	Acc. Roll	Acc. Pitch	Acc. Yaw	PoseEstimation Type
ScanPos017	1.913	-7.698	7.557	0.020	0.020	1.000	dynamic
ScanPos018	5.880	-3.666	27.763	0.026	0.018	1.000	dynamic
ScanPos019	-0.810	-9.973	34.362	0.023	0.023	1.000	dynamic
ScanPos020	-1.064	-7.510	49.522	0.019	0.019	1.000	dynamic
ScanPos021	0.552	-7.612	25.592	0.019	0.019	1.000	dynamic
ScanPos022	1.825	-8.718	38.076	0.021	0.021	1.000	dynamic
ScanPos023	-1.195	-6.959	28.462	0.018	0.018	1.000	dynamic
ScanPos024	3.298	-3.507	28.674	0.015	0.015	1.000	dynamic
ScanPos025	0.347	-4.004	43.302	0.013	0.013	1.000	dynamic
ScanPos026	1.012	-9.441	45.785	0.022	0.022	1.000	dynamic
ScanPos027	1.189	-7.080	15.623	0.018	0.018	1.000	dynamic
ScanPos028	2.591	-12.123	34.383	0.027	0.027	1.000	dynamic
ScanPos029	7.828	-1.828	4.317	0.023	0.020	1.000	dynamic
ScanPos030	5.870	-4.588	-1.386	0.019	0.019	1.000	dynamic
ScanPos031	-0.991	-5.697	33.429	0.016	0.016	1.000	dynamic
ScanPos032	0.305	-8.246	45.058	0.020	0.020	1.000	dynamic
ScanPos033	0.693	-4.463	79.844	0.014	0.014	1.000	dynamic
ScanPos034	0.874	-7.750	48.826	0.019	0.019	1.000	dynamic
ScanPos035	1.023	-2.797	42.717	0.012	0.012	1.000	dynamic
ScanPos036	1.034	-4.813	35.845	0.015	0.015	1.000	dynamic
ScanPos037	1.158	-11.270	43.865	0.025	0.025	1.000	dynamic
ScanPos038	1.316	-6.421	65.225	0.017	0.017	1.000	dynamic
ScanPos039	-2.062	-0.212	31.325	0.010	0.010	1.000	dynamic
ScanPos040	1.561	1.514	-95.864	0.011	0.011	1.000	dynamic
ScanPos041	0.036	2.634	-94.092	0.011	0.011	1.000	dynamic
ScanPos042	5.161	-2.543	-93.317	0.016	0.016	1.000	dynamic
ScanPos043	1.209	-2.856	-118.283	0.012	0.012	1.000	dynamic
ScanPos044	-0.178	-3.514	-118.260	0.013	0.013	1.000	dynamic
ScanPos045	-0.511	4.779	-97.690	0.015	0.015	1.000	dynamic
ScanPos046	-7.456	2.781	-144.506	0.020	0.020	1.000	dynamic
ScanPos047	1.487	0.931	130.042	0.010	0.010	1.000	dynamic
ScanPos048	-3.633	-3.189	-78.070	0.015	0.015	1.000	dynamic
ScanPos049	0.637	-2.395	-71.182	0.011	0.011	1.000	dynamic

2.4 Control Points defined in CRS#1

The following control points defined in CRS#1 ... ITRF2014 / Geographic (EPSG::7912) are available within the project:

CRS: CRS#1				PRCS					
Name	Latitude [deg]	Longitude [deg]	Altitude [m]	X [m]	Y [m]	Z [m]	Hor. Acc. [m]	Vert. Acc. [m]	Force match
target-3	47.382683148	11.278774588	1022.715	7.904	-19.773	-5.343	0.000	0.000	False
target-6 (2)	47.382386029	11.280147848	1048.273	111.647	-52.832	20.256	0.000	0.000	False

CRS: CRS#1				PRCS					
Name	Latitude [deg]	Longitude [deg]	Altitude [m]	X [m]	Y [m]	Z [m]	Hor. Acc. [m]	Vert. Acc. [m]	Force match
target-5 (2)	47.382568716	11.279823853	1039.666	87.374	-32.368	11.647	0.000	0.000	False
target-4 (2)	47.382935424	11.279284004	1043.236	46.587	8.664	15.157	0.000	0.000	False
target-2 (2)	47.382581601	11.279144243	1026.234	35.805	-31.034	-1.816	0.000	0.000	False
target-1 (2)	47.382174538	11.279689125	1025.192	76.980	-76.298	-2.865	0.000	0.000	False

2.5 Check Points defined in a coordinate reference system

No Check Points in a coordinate reference system used.

2.6 Control Points defined in a locally levelled coordinate system

No Control Points in a locally leveled coordinate system used.

2.7 Check Points defined in a locally levelled coordinate system

No Check Points in a locally leveled coordinate system defined.

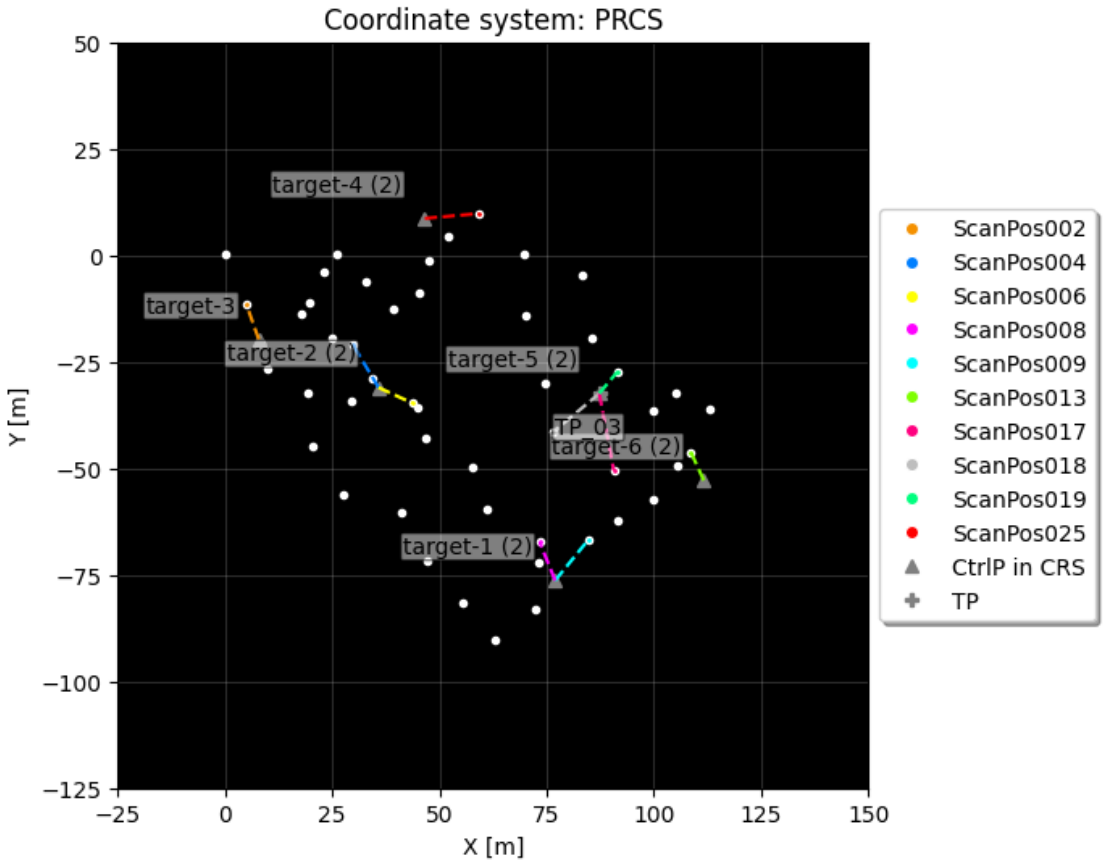
3 Data used for Multi-station-Adjustment

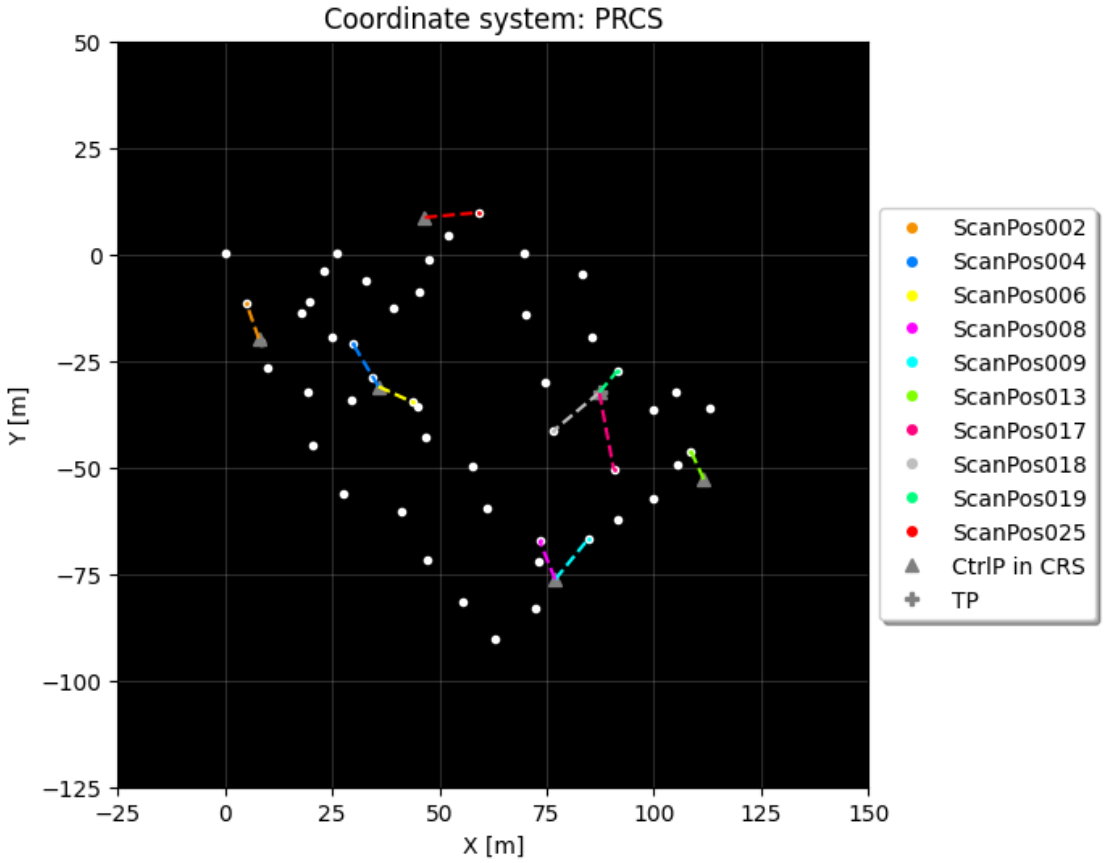
3.1 Data per Scan Position

	Number of Plane Patches			Plane Patches of Phase 3			Number of Links to	
Name	Phase 1	Phase 2	Phase 3	NS	WE	Horiz.	CtrlP in CRS	TP
ScanPos001	532	284	383	71	9	303	0	0
ScanPos002	459	220	235	41	18	176	1	0
ScanPos003	575	412	441	15	10	416	0	0
ScanPos004	585	410	428	9	1	418	1	0
ScanPos005	577	409	419	7	1	411	0	0
ScanPos006	660	475	487	9	2	476	1	0
ScanPos007	564	432	461	2	7	452	0	0
ScanPos008	790	587	656	3	122	531	1	0
ScanPos009	294	188	198	5	23	170	1	0
ScanPos010	446	274	301	14	77	210	0	0
ScanPos011	357	218	227	11	46	170	0	0
ScanPos012	146	82	88	4	15	69	0	0
ScanPos013	130	57	57	3	5	49	1	0
ScanPos014	39	17	18	3	4	11	0	0
ScanPos015	48	15	16	2	2	12	0	0
ScanPos016	71	18	18	3	0	15	0	0
ScanPos017	301	177	181	17	40	124	0	1
ScanPos018	151	83	82	2	9	71	1	0
ScanPos019	79	23	23	4	4	15	0	1

	Number of Plane Patches			Plane Patches of Phase 3			Number of Links to	
Name	Phase 1	Phase 2	Phase 3	NS	WE	Horiz.	CtrlP in CRS	TP
ScanPos020	117	54	54	5	4	45	0	0
ScanPos021	118	69	70	4	7	59	0	0
ScanPos022	64	38	38	5	4	29	0	0
ScanPos023	47	19	19	6	2	11	0	0
ScanPos024	36	20	21	1	1	19	0	0
ScanPos025	22	12	11	2	1	8	1	0
ScanPos026	28	14	14	0	1	13	0	0
ScanPos027	48	39	40	6	1	33	0	0
ScanPos028	150	100	103	15	1	87	0	0
ScanPos029	155	90	91	3	1	87	0	0
ScanPos030	91	66	67	0	4	63	0	0
ScanPos031	41	31	31	1	0	30	0	0
ScanPos032	183	135	137	2	0	135	0	0
ScanPos033	557	387	393	34	1	358	0	0
ScanPos034	603	433	437	28	1	408	0	0
ScanPos035	622	453	451	17	0	434	0	0
ScanPos036	534	423	427	6	12	409	0	0
ScanPos037	673	509	519	9	86	424	0	0
ScanPos038	834	627	655	33	141	481	0	0
ScanPos039	202	85	88	8	7	73	0	0
ScanPos040	804	418	498	0	0	498	0	0
ScanPos041	1,063	527	580	0	1	579	0	0
ScanPos042	766	362	379	0	0	379	0	0
ScanPos043	224	104	110	0	0	110	0	0
ScanPos044	123	50	52	1	0	51	0	0
ScanPos045	146	45	48	0	0	48	0	0
ScanPos046	73	22	22	0	0	22	0	0
ScanPos047	9	2	2	0	0	2	0	0
ScanPos048	20	34	33	19	2	12	0	0
ScanPos049	96	39	39	23	4	12	0	0

NS ... North-South, WE ... West-East, Horiz. ... Horizontal


Coordinate system: PRCS
target-4 (2)
target-3
target-2 (2)
target-5 (2)
TP_03
target-6 (2)
target-1 (2)
ScanPos002
ScanPos004
ScanPos006
ScanPos008
ScanPos009
ScanPos013
ScanPos017
ScanPos018
ScanPos019
ScanPos025
CtrlP in CRS
TP
Y [m]
X [m]


Coordinate system: PRCS
ScanPos002
ScanPos004
ScanPos006
ScanPos008
ScanPos009
ScanPos013
ScanPos017
ScanPos018
ScanPos019
ScanPos025
CtrlP in CRS
TP
Y [m]
X [m]

3.2 Control Points used for Multi-Station Adjustment

The following control points have been used for multi-station adjustment:

3.2.1 Control Points in CRS#1

Control points in CRS#1 ... ITRF2014 / Geographic (EPSG::7912)

CRS: CRS#1		Referenced Observation Points						
CP Name	Scan Position	Name	Range [m]	Theta [deg]	Phi [deg]	Quality %	Preview	Force match
target-3	ScanPos002	target-3	9.816	114.574	-179.626	56.8 %		False
target-6 (2)	ScanPos013	target-6 (2)	7.319	106.394	-60.878	48.9 %		False
target-5 (2)	ScanPos018	target-5 (2)	14.050	84.322	12.599	53.7 %		False
target-4 (2)	ScanPos025	target-4 (2)	14.011	112.575	144.212	58.6 %		False
target-2 (2)	ScanPos004	target-2 (2)	12.029	98.390	171.516	55.2 %		False
target-2 (2)	ScanPos006	target-2 (2)	8.805	100.789	21.658	60.3 %		False
target-1 (2)	ScanPos008	target-1 (2)	9.878	100.053	158.357	57.9 %		False
target-1 (2)	ScanPos009	target-1 (2)	12.638	107.221	178.659	49.9 %		False

3.3 Tie Points used for Multi-Station Adjustment

The following points have been used for multi-station adjustment:

		Referenced Observation Points				
TP Name	Scan Position	Name	Range [m]	Theta [deg]	Phi [deg]	Point Count
TP_03	ScanPos017	target-5	18.261	91.930	93.712	5,622
TP_03	ScanPos019	target-5	7.899	112.224	-164.992	14,608

4 Results of MSA

4.1 General Information

User Settings:

- use CRS control points: True
- use SOCS tie points: True
- use LLCS control points: False
- GNSS measurement usage: yes
- GNSS outliers: remove GNNS outliers
- GNSS trust level: low
- gap closure distance: 0.400 m
- voxel size: outdoor non-urban (0.500 m)
- adjustment effort: extreme
- adjustment matches: planes to planes
- reporting level: full
- initialize optimization with measurements: True
- maximum target range: 60.000 m

Observations Used:

- # project plane patches: 2,722
- # scan position plane patches: 10,148
- # GNSS measurements: 49
- # orientation measurements: 49
- # control points in CRS: 6
- # control points in LLCS: 0
- # tie points in PRCS: 1
- # LLCS: 0
- project northing from: GNSS

Adjustment Info:

- start time: 2026-05-20T13:55:13
- run time: 00:03:27
- # parameters estimated: 8,476

4.2 Final Poses of Scan Positions

The following positions and orientations have been estimated for the scan positions:

In the PRCS coordinate system:

Name	X [m]	Y [m]	Z [m]	Acc. X [m]	Acc. Y [m]	Acc. Z [m]
ScanPos001	0.213	0.272	0.039	0.004	0.003	0.003
ScanPos002	5.003	-11.568	-0.445	0.004	0.004	0.003
ScanPos003	19.683	-11.123	0.302	0.005	0.005	0.003
ScanPos004	29.719	-20.781	0.122	0.005	0.005	0.003
ScanPos005	44.788	-35.870	-0.228	0.007	0.008	0.003
ScanPos006	43.706	-34.693	-0.191	0.006	0.006	0.003
ScanPos007	57.779	-49.704	-0.653	0.008	0.011	0.003
ScanPos008	73.372	-67.288	-0.998	0.003	0.004	0.003
ScanPos009	84.627	-66.884	0.612	0.005	0.005	0.003
ScanPos010	91.624	-62.221	6.713	0.006	0.005	0.004
ScanPos011	99.821	-57.323	12.290	0.007	0.005	0.004
ScanPos012	105.330	-49.185	18.603	0.015	0.008	0.012
ScanPos013	108.679	-46.290	21.424	0.009	0.008	0.007
ScanPos014	112.902	-36.047	25.671	0.008	0.013	0.008
ScanPos015	105.222	-32.231	21.308	0.014	0.012	0.010
ScanPos016	99.920	-36.499	17.785	0.016	0.012	0.009
ScanPos017	90.632	-50.424	11.774	0.006	0.005	0.004
ScanPos018	76.646	-41.359	9.082	0.008	0.008	0.004
ScanPos019	91.551	-27.285	15.739	0.008	0.008	0.004
ScanPos020	85.716	-19.609	19.087	0.005	0.008	0.005
ScanPos021	74.475	-30.174	12.952	0.011	0.008	0.005
ScanPos022	70.294	-14.139	13.273	0.008	0.007	0.009
ScanPos023	83.159	-4.559	19.105	0.011	0.006	0.007

Name	X [m]	Y [m]	Z [m]	Acc. X [m]	Acc. Y [m]	Acc. Z [m]
ScanPos024	69.605	0.289	19.025	0.022	0.014	0.012
ScanPos025	59.169	9.789	21.205	0.012	0.011	0.007
ScanPos026	52.112	4.376	17.144	0.016	0.037	0.016
ScanPos027	47.547	-1.244	13.619	0.012	0.009	0.007
ScanPos028	45.416	-8.706	10.195	0.009	0.006	0.006
ScanPos029	39.083	-12.681	5.217	0.011	0.010	0.005
ScanPos030	32.915	-6.010	5.778	0.013	0.014	0.005
ScanPos031	25.960	0.358	5.255	0.042	0.020	0.010
ScanPos032	23.078	-3.907	2.528	0.014	0.011	0.003
ScanPos033	17.660	-13.789	0.172	0.006	0.004	0.003
ScanPos034	24.770	-19.463	-0.005	0.006	0.004	0.003
ScanPos035	34.222	-28.904	-0.142	0.006	0.005	0.003
ScanPos036	46.720	-42.988	-0.522	0.006	0.007	0.003
ScanPos037	61.134	-59.611	-1.041	0.004	0.005	0.003
ScanPos038	73.147	-71.938	-1.237	0.003	0.004	0.003
ScanPos039	72.351	-83.014	-3.482	0.009	0.009	0.003
ScanPos040	63.141	-90.127	-3.586	0.009	0.009	0.003
ScanPos041	55.441	-81.484	-3.482	0.008	0.008	0.003
ScanPos042	47.263	-71.666	-3.315	0.011	0.010	0.003
ScanPos043	41.064	-60.446	-3.797	0.022	0.016	0.003
ScanPos044	27.736	-56.284	-3.862	0.019	0.011	0.003
ScanPos045	20.476	-44.690	-4.953	0.026	0.013	0.004
ScanPos046	19.325	-32.280	-4.085	0.043	0.030	0.006
ScanPos047	29.372	-34.311	-3.709	0.045	0.045	0.017
ScanPos048	10.084	-26.714	-4.233	0.028	0.011	0.005
ScanPos049	8.301	-20.741	-4.011	0.025	0.008	0.006

Name	Roll [deg]	Pitch [deg]	Yaw [deg]	Acc. Roll [deg]	Acc. Pitch [deg]	Acc. Yaw [deg]
ScanPos001	-3.162	1.654	150.809	0.003	0.003	0.008
ScanPos002	1.529	-5.173	111.176	0.007	0.006	0.009
ScanPos003	-1.432	0.179	143.072	0.004	0.004	0.016
ScanPos004	-2.422	-0.459	129.593	0.004	0.004	0.013
ScanPos005	-1.748	-1.082	127.584	0.005	0.004	0.020
ScanPos006	-1.751	-0.949	132.778	0.004	0.004	0.016
ScanPos007	-2.574	-0.178	135.252	0.004	0.004	0.028
ScanPos008	-3.051	0.482	132.588	0.004	0.003	0.010
ScanPos009	-4.366	1.464	50.722	0.006	0.007	0.018
ScanPos010	-3.710	-12.389	49.969	0.006	0.007	0.014
ScanPos011	4.803	-0.279	33.469	0.008	0.008	0.016
ScanPos012	-0.999	-4.585	-3.055	0.018	0.016	0.027
ScanPos013	1.081	-15.371	-8.111	0.015	0.017	0.039
ScanPos014	-0.288	-8.083	6.769	0.023	0.014	0.022

Name	Roll [deg]	Pitch [deg]	Yaw [deg]	Acc. Roll [deg]	Acc. Pitch [deg]	Acc. Yaw [deg]
ScanPos015	-0.278	-8.525	21.141	0.034	0.021	0.045
ScanPos016	-1.151	-11.134	9.345	0.020	0.022	0.033
ScanPos017	1.920	-7.655	6.988	0.006	0.011	0.011
ScanPos018	5.725	-3.558	27.822	0.009	0.010	0.016
ScanPos019	-0.860	-9.952	33.575	0.031	0.018	0.047
ScanPos020	-1.100	-7.493	48.922	0.011	0.008	0.016
ScanPos021	0.534	-7.577	24.666	0.011	0.010	0.020
ScanPos022	1.862	-8.713	37.576	0.023	0.015	0.015
ScanPos023	-1.217	-6.964	27.986	0.019	0.018	0.016
ScanPos024	3.312	-3.501	28.790	0.027	0.023	0.055
ScanPos025	0.357	-3.986	43.183	0.021	0.020	0.043
ScanPos026	0.970	-9.448	44.948	0.042	0.030	0.141
ScanPos027	1.202	-7.027	14.832	0.014	0.023	0.020
ScanPos028	2.570	-12.124	33.681	0.010	0.013	0.014
ScanPos029	7.583	-1.918	4.420	0.011	0.012	0.028
ScanPos030	5.918	-4.623	-1.138	0.013	0.010	0.052
ScanPos031	-0.999	-5.634	33.440	0.027	0.032	0.253
ScanPos032	0.251	-8.192	43.755	0.006	0.007	0.103
ScanPos033	0.690	-4.487	79.605	0.005	0.005	0.011
ScanPos034	0.868	-7.736	48.577	0.004	0.005	0.010
ScanPos035	1.027	-2.825	42.959	0.004	0.005	0.015
ScanPos036	1.021	-4.820	35.822	0.004	0.004	0.017
ScanPos037	1.159	-11.209	43.471	0.004	0.004	0.009
ScanPos038	1.337	-6.390	64.640	0.004	0.004	0.007
ScanPos039	-2.092	-0.186	31.394	0.007	0.011	0.016
ScanPos040	1.574	1.516	-96.416	0.003	0.003	0.033
ScanPos041	0.028	2.651	-94.326	0.004	0.003	0.028
ScanPos042	5.153	-2.543	-94.182	0.004	0.004	0.042
ScanPos043	1.223	-2.857	-118.687	0.010	0.013	0.058
ScanPos044	-0.180	-3.526	-118.498	0.009	0.007	0.060
ScanPos045	-0.523	4.806	-97.671	0.015	0.011	0.082
ScanPos046	-7.441	2.780	-144.619	0.021	0.023	0.204
ScanPos047	1.487	0.929	127.848	0.030	0.030	1.562
ScanPos048	-3.630	-3.210	-77.834	0.039	0.012	0.038
ScanPos049	0.633	-2.424	-71.197	0.027	0.014	0.038

In the coordinate reference system:

Name	Latitude [deg]	Longitude [deg]	Altitude [m]	Acc. East [m]	Acc. North [m]	Acc. Up [m]
ScanPos001	N47° 22' 58.299506"	E11° 16' 43.212563"	1028.0850	0.004	0.003	0.003
ScanPos002	N47° 22' 57.916683"	E11° 16' 43.442682"	1027.5938	0.004	0.004	0.003
ScanPos003	N47° 22' 57.932576"	E11° 16' 44.142328"	1028.3479	0.005	0.005	0.003

Name	Latitude [deg]	Longitude [deg]	Altitude [m]	Acc. East [m]	Acc. North [m]	Acc. Up [m]
ScanPos004	N47° 22' 57.620941"	E11° 16' 44.622194"	1028.1637	0.005	0.005	0.003
ScanPos005	N47° 22' 57.133987"	E11° 16' 45.342782"	1027.8076	0.007	0.008	0.003
ScanPos006	N47° 22' 57.171963"	E11° 16' 45.291036"	1027.8456	0.006	0.006	0.003
ScanPos007	N47° 22' 56.687428"	E11° 16' 45.964102"	1027.3768	0.008	0.011	0.003
ScanPos008	N47° 22' 56.119745"	E11° 16' 46.710031"	1027.0243	0.003	0.004	0.003
ScanPos009	N47° 22' 56.133946"	E11° 16' 47.246417"	1028.6405	0.005	0.005	0.003
ScanPos010	N47° 22' 56.285429"	E11° 16' 47.579082"	1034.7488	0.006	0.005	0.004
ScanPos011	N47° 22' 56.444681"	E11° 16' 47.968978"	1040.3335	0.007	0.005	0.004
ScanPos012	N47° 22' 56.708532"	E11° 16' 48.230180"	1046.6557	0.015	0.008	0.012
ScanPos013	N47° 22' 56.802523"	E11° 16' 48.389325"	1049.4817	0.009	0.008	0.007
ScanPos014	N47° 22' 57.134444"	E11° 16' 48.588969"	1053.7396	0.008	0.013	0.008
ScanPos015	N47° 22' 57.257353"	E11° 16' 48.222450"	1049.3756	0.014	0.012	0.010
ScanPos016	N47° 22' 57.118716"	E11° 16' 47.970426"	1045.8470	0.016	0.012	0.009
ScanPos017	N47° 22' 56.667127"	E11° 16' 47.529915"	1039.8188	0.006	0.005	0.004
ScanPos018	N47° 22' 56.959269"	E11° 16' 46.861971"	1037.1284	0.008	0.008	0.004
ScanPos019	N47° 22' 57.416227"	E11° 16' 47.570146"	1043.8047	0.008	0.008	0.004
ScanPos020	N47° 22' 57.664047"	E11° 16' 47.290793"	1047.1562	0.005	0.008	0.005
ScanPos021	N47° 22' 57.321037"	E11° 16' 46.756689"	1041.0071	0.011	0.008	0.005
ScanPos022	N47° 22' 57.839730"	E11° 16' 46.554973"	1041.3398	0.008	0.007	0.009
ScanPos023	N47° 22' 58.151023"	E11° 16' 47.166641"	1047.1858	0.011	0.006	0.007
ScanPos024	N47° 22' 58.306596"	E11° 16' 46.519849"	1047.1036	0.022	0.014	0.012
ScanPos025	N47° 22' 58.613036"	E11° 16' 46.020935"	1049.2876	0.012	0.011	0.007
ScanPos026	N47° 22' 58.437190"	E11° 16' 45.685451"	1045.2187	0.016	0.037	0.016
ScanPos027	N47° 22' 58.254892"	E11° 16' 45.468751"	1041.6866	0.012	0.009	0.007
ScanPos028	N47° 22' 58.013165"	E11° 16' 45.368407"	1038.2550	0.009	0.006	0.006
ScanPos029	N47° 22' 57.883973"	E11° 16' 45.067204"	1033.2708	0.011	0.010	0.005
ScanPos030	N47° 22' 58.099312"	E11° 16' 44.772196"	1033.8339	0.013	0.014	0.005
ScanPos031	N47° 22' 58.304762"	E11° 16' 44.439735"	1033.3131	0.042	0.020	0.010
ScanPos032	N47° 22' 58.166470"	E11° 16' 44.303053"	1030.5817	0.014	0.011	0.003
ScanPos033	N47° 22' 57.846071"	E11° 16' 44.046345"	1028.2145	0.006	0.004	0.003
ScanPos034	N47° 22' 57.663090"	E11° 16' 44.386111"	1028.0353	0.006	0.004	0.003
ScanPos035	N47° 22' 57.358416"	E11° 16' 44.838072"	1027.8946	0.006	0.005	0.003
ScanPos036	N47° 22' 56.903722"	E11° 16' 45.435914"	1027.5090	0.006	0.007	0.003
ScanPos037	N47° 22' 56.367045"	E11° 16' 46.125508"	1026.9824	0.004	0.005	0.003
ScanPos038	N47° 22' 55.969184"	E11° 16' 46.700009"	1026.7814	0.003	0.004	0.003
ScanPos039	N47° 22' 55.610591"	E11° 16' 46.663762"	1024.5268	0.009	0.009	0.003
ScanPos040	N47° 22' 55.379357"	E11° 16' 46.225814"	1024.4114	0.009	0.009	0.003
ScanPos041	N47° 22' 55.658385"	E11° 16' 45.857478"	1024.5199	0.008	0.008	0.003
ScanPos042	N47° 22' 55.975415"	E11° 16' 45.466216"	1024.6911	0.011	0.010	0.003
ScanPos043	N47° 22' 56.338034"	E11° 16' 45.169016"	1024.2157	0.022	0.016	0.003
ScanPos044	N47° 22' 56.471440"	E11° 16' 44.533089"	1024.1487	0.019	0.011	0.003

Name	Latitude [deg]	Longitude [deg]	Altitude [m]	Acc. East [m]	Acc. North [m]	Acc. Up [m]
ScanPos045	N47° 22' 56.846078"	E11° 16' 44.185327"	1023.0642	0.026	0.013	0.004
ScanPos046	N47° 22' 57.247719"	E11° 16' 44.128582"	1023.9425	0.043	0.030	0.006
ScanPos047	N47° 22' 57.182958"	E11° 16' 44.607790"	1024.3211	0.045	0.045	0.017
ScanPos048	N47° 22' 57.426962"	E11° 16' 43.687221"	1023.7945	0.028	0.011	0.005
ScanPos049	N47° 22' 57.620149"	E11° 16' 43.601344"	1024.0212	0.025	0.008	0.006

Table with estimated shifts (base station error) in PRCS:

X [m]	Y [m]	Z [m]
-0.029	0.060	0.017

4.3 Changes in Scan Positions

The following table reflects the change of scan positions with respect to position and orientation in comparison to positions and orientations wrt to prior to multi-station adjustment.

In the PRCS coordinate system:

	Changes wrt to prior to multi-station adjustment					
Name	X [m]	Y [m]	Z [m]	Roll [deg]	Pitch [deg]	Yaw [deg]
ScanPos001	0.2463	0.2936	0.0102	0.0489	-0.0173	-0.2946
ScanPos002	0.1793	0.2629	0.0215	0.0999	0.0456	-0.3157
ScanPos003	0.1834	0.1999	0.0076	0.0331	0.0029	-0.2626
ScanPos004	0.1554	0.1540	0.0090	0.0664	0.0212	-0.2201
ScanPos005	0.0966	0.0872	0.0129	0.0535	0.0168	-0.2718
ScanPos006	0.0978	0.0933	0.0127	0.0461	0.0174	-0.2427
ScanPos007	0.0240	0.0240	0.0184	0.0403	0.0182	-0.2445
ScanPos008	-0.0253	-0.0047	0.0256	0.0809	0.0119	-0.1378
ScanPos009	-0.0218	-0.0242	0.0207	0.0064	0.0584	-0.1548
ScanPos010	-0.0178	-0.0123	0.0271	-0.0265	0.0063	-0.0627
ScanPos011	-0.0221	-0.0217	0.0180	-0.0051	0.0189	-0.0335
ScanPos012	-0.0062	-0.0379	0.0387	0.0088	-0.0141	-0.0637
ScanPos013	0.0024	-0.0404	-0.0266	-0.0422	0.0964	0.0679
ScanPos014	-0.0488	0.2573	-0.0323	-0.0769	0.0466	0.8859
ScanPos015	0.2366	0.1165	0.0775	0.0093	0.0803	0.8048
ScanPos016	0.0572	0.0708	-0.0101	0.0535	0.0355	0.8758
ScanPos017	-0.0148	-0.0219	0.0333	0.0141	0.0005	-0.0564
ScanPos018	-0.1189	-0.1395	-0.0143	-0.0293	0.0785	0.0775
ScanPos019	-0.0542	-0.0731	0.0152	0.0255	0.0057	0.3151
ScanPos020	-0.0368	-0.1633	0.0053	-0.0518	0.0074	0.3577
ScanPos021	-0.0105	-0.1869	-0.0093	-0.0105	0.0433	-0.1332
ScanPos022	0.0078	-0.2383	0.0039	0.0010	-0.0148	0.1155
ScanPos023	-0.0002	-0.1427	-0.0010	-0.0355	0.0409	0.4506
ScanPos024	-0.0077	-0.2962	-0.0406	-0.0194	0.0487	0.1500

	Changes wrt to prior to multi-station adjustment					
Name	**X [m]**	**Y [m]**	**Z [m]**	**Roll [deg]**	**Pitch [deg]**	**Yaw [deg]**
ScanPos025	0.0230	-0.2490	-0.0090	-0.0085	0.0591	-0.0382
ScanPos026	0.0221	-0.2686	-0.0072	-0.0826	-0.0216	0.0950
ScanPos027	-0.1169	0.0617	-0.0039	0.0033	0.0520	0.8042
ScanPos028	0.2830	-0.0578	0.0259	0.0162	-0.0503	-0.1279
ScanPos029	0.1254	0.0829	-0.0196	-0.1171	0.0394	0.3325
ScanPos030	0.0800	0.0761	-0.0052	-0.0294	0.0279	0.0997
ScanPos031	0.0798	0.1006	-0.0220	-0.0195	0.1121	0.8713
ScanPos032	0.2116	0.1452	0.0053	-0.0016	0.0238	-0.4820
ScanPos033	0.1898	0.2111	0.0101	0.0142	0.0342	-0.2778
ScanPos034	0.1571	0.1811	0.0108	-0.0101	0.0301	-0.2362
ScanPos035	0.1113	0.1424	0.0126	-0.0121	0.0213	-0.2326
ScanPos036	0.0651	0.0912	0.0190	-0.0267	0.0384	-0.2117
ScanPos037	-0.0052	0.0231	0.0252	-0.0049	0.0676	-0.1506
ScanPos038	-0.0379	-0.0071	0.0295	0.0170	0.0681	-0.1422
ScanPos039	-0.0708	0.0017	0.0407	-0.0152	0.0631	-0.1494
ScanPos040	-0.1084	0.0164	0.0474	-0.0236	-0.0793	-0.2424
ScanPos041	-0.0614	0.0707	0.0422	-0.0181	-0.0684	-0.2147
ScanPos042	-0.0431	0.1135	0.0366	-0.0173	-0.0569	-0.1686
ScanPos043	0.0000	0.1191	0.0298	0.0116	-0.0408	-0.1461
ScanPos044	-0.0694	0.1793	0.0250	0.0179	-0.0633	-0.1763
ScanPos045	-0.0134	0.2294	0.0257	-0.0444	-0.0361	-0.4835
ScanPos046	0.0457	0.2177	0.0240	-0.0018	-0.0415	-0.2217
ScanPos047	-0.0066	-0.4031	0.0072	0.0523	0.0192	-4.9356
ScanPos048	0.0335	0.1276	0.0284	-0.0327	-0.0638	0.8076
ScanPos049	0.1027	0.2349	0.0279	-0.0493	-0.0447	-0.3540

4.4 Residuals

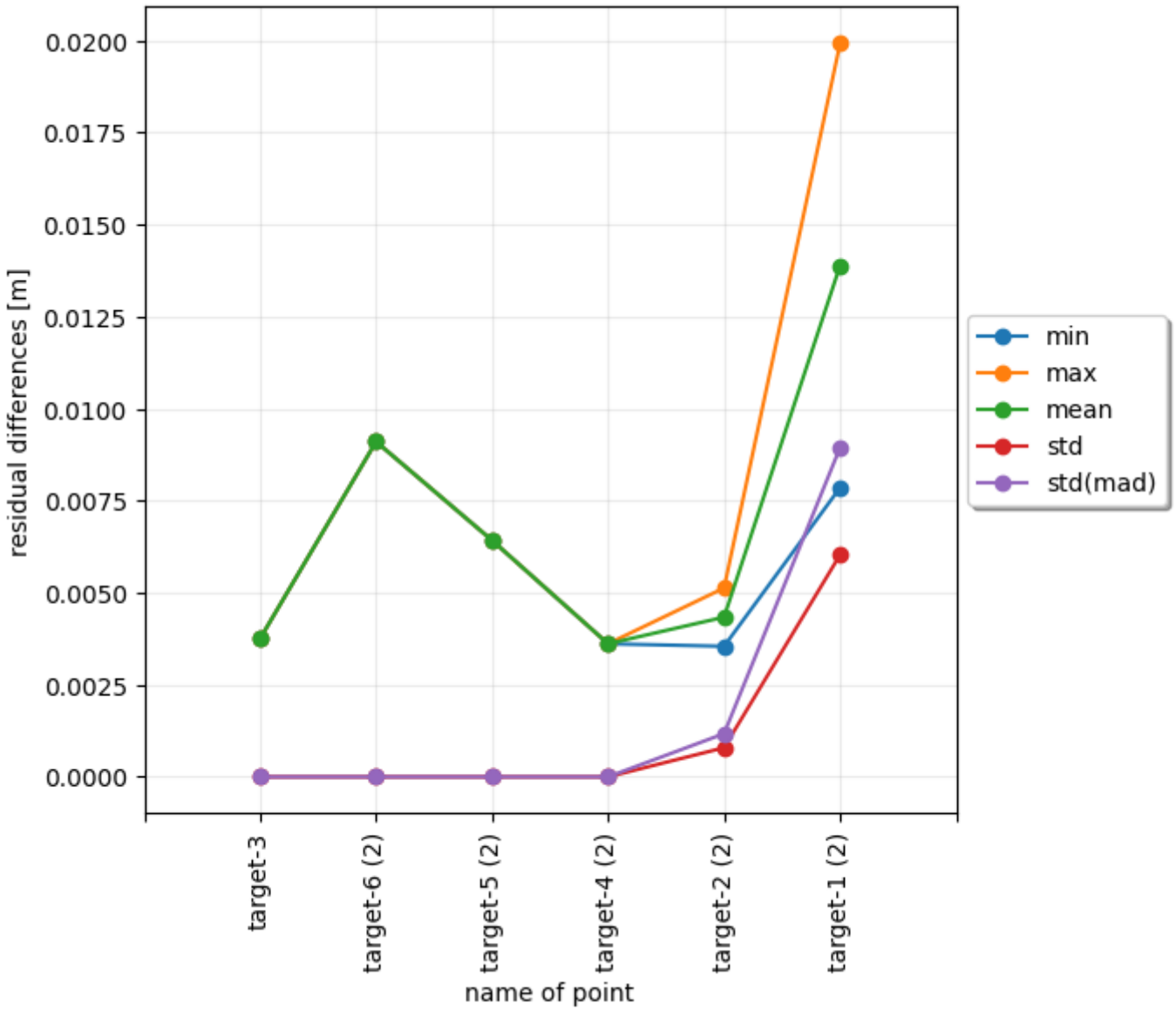
For an assessment of the quality of the multi-station adjustment the following residual deviations (in short residuals) can be observed.

4.4.1 Control Points in CRS#1

Control points in CRS#1 ... ITRF2014 / Geographic (EPSG::7912)

8 observations have been utilized on 6 control points in CRS. MSA results in the following statistics on the residuals:

	dX [m]	dY [m]	dZ [m]	dist. [m]
Minimum deviation	-0.0047	-0.0045	-0.0075	0.0035
Maximum deviation	0.0027	0.0163	0.0104	0.0199
Mean deviation	-0.0009	0.0011	0.0002	0.0074
Standard deviation	0.0028	0.0062	0.0057	---
Median abs. dev. (std)	0.0032	0.0041	0.0072	---



The table below lists the residuals according to positions and orientations after multi-station adjustment

CRS: CRS#1		Referenced Observation Points					
CP Name	**Scan Position**	**Name**	**dX [m]**	**dY [m]**	**dZ [m]**	**dist. [m]**	**Force match**
target-3	ScanPos002	target-3	0.0007	0.0023	-0.0029	0.0038	False
target-6 (2)	ScanPos013	target-6 (2)	0.0027	-0.0045	-0.0075	0.0091	False
target-5 (2)	ScanPos018	target-5 (2)	0.0003	-0.0004	-0.0064	0.0064	False
target-4 (2)	ScanPos025	target-4 (2)	0.0002	-0.0016	0.0033	0.0036	False
target-2 (2)	ScanPos004	target-2 (2)	0.0021	0.0023	-0.0017	0.0035	False
target-2 (2)	ScanPos006	target-2 (2)	-0.0042	-0.0028	0.0004	0.0051	False
target-1 (2)	ScanPos008	target-1 (2)	-0.0047	0.0163	0.0104	0.0199	False
target-1 (2)	ScanPos009	target-1 (2)	-0.0042	-0.0032	0.0058	0.0079	False

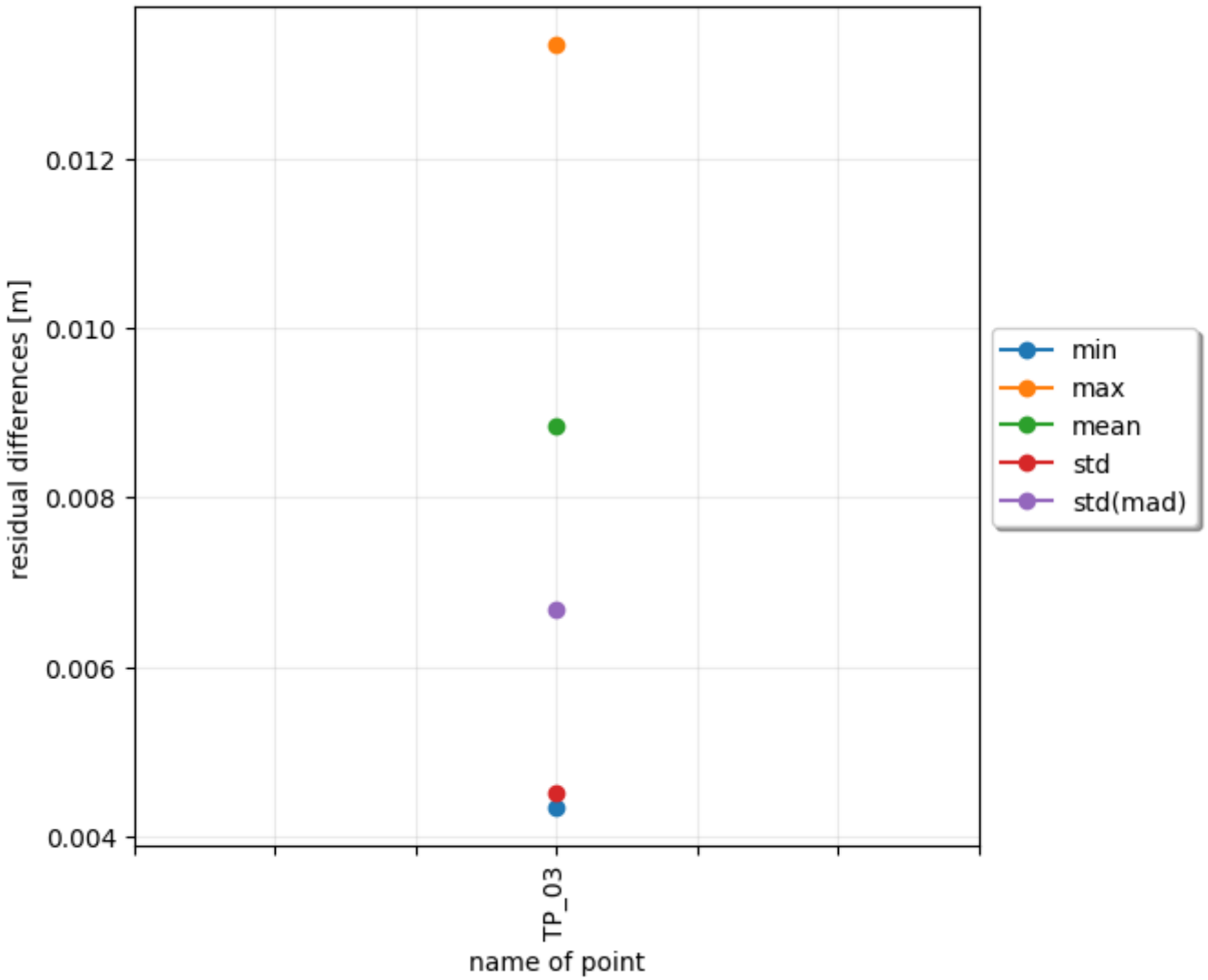
For comparison the table below lists the residuals according to positions and orientations prior to multi-station adjustment.

CRS: CRS#1		Referenced Observation Points					
CP Name	**Scan Position**	**Name**	**dX [m]**	**dY [m]**	**dZ [m]**	**dist. [m]**	**Force match**
target-3	ScanPos002	target-3	0.1309	0.2422	0.0255	0.2765	False
target-6 (2)	ScanPos013	target-6 (2)	0.0095	-0.0424	-0.0362	0.0566	False
target-5 (2)	ScanPos018	target-5 (2)	-0.1278	-0.1231	-0.0407	0.1820	False
target-4 (2)	ScanPos025	target-4 (2)	0.0183	-0.2470	0.0035	0.2477	False
target-2 (2)	ScanPos004	target-2 (2)	0.1175	0.1305	0.0136	0.1761	False
target-2 (2)	ScanPos006	target-2 (2)	0.1089	0.1222	0.0132	0.1642	False
target-1 (2)	ScanPos008	target-1 (2)	-0.0534	0.0010	0.0427	0.0684	False
target-1 (2)	ScanPos009	target-1 (2)	-0.0540	-0.0091	0.0389	0.0672	False

4.4.2 Tie Points

2 observations have been utilized on 1 tie points. MSA results in the following statistics on the residuals:

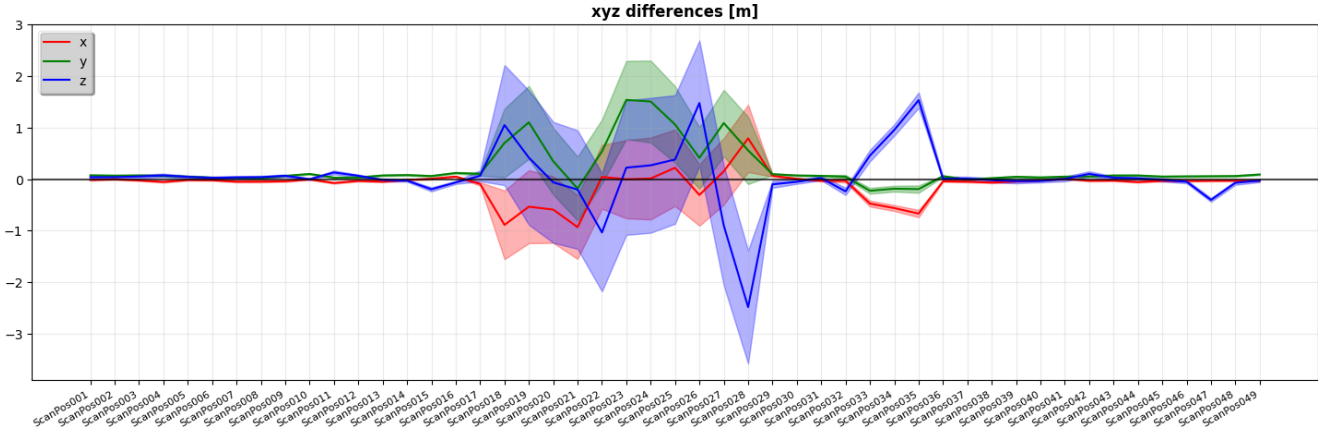
	dX [m]	**dY [m]**	**dZ [m]**	**dist. [m]**
Minimum deviation	-0.0013	-0.0017	-0.0038	0.0043
Maximum deviation	-0.0005	0.0127	0.0040	0.0133
Mean deviation	-0.0009	0.0055	0.0001	0.0088
Standard deviation	0.0004	0.0072	0.0039	---
Median abs. dev. (std)	0.0006	0.0107	0.0057	---

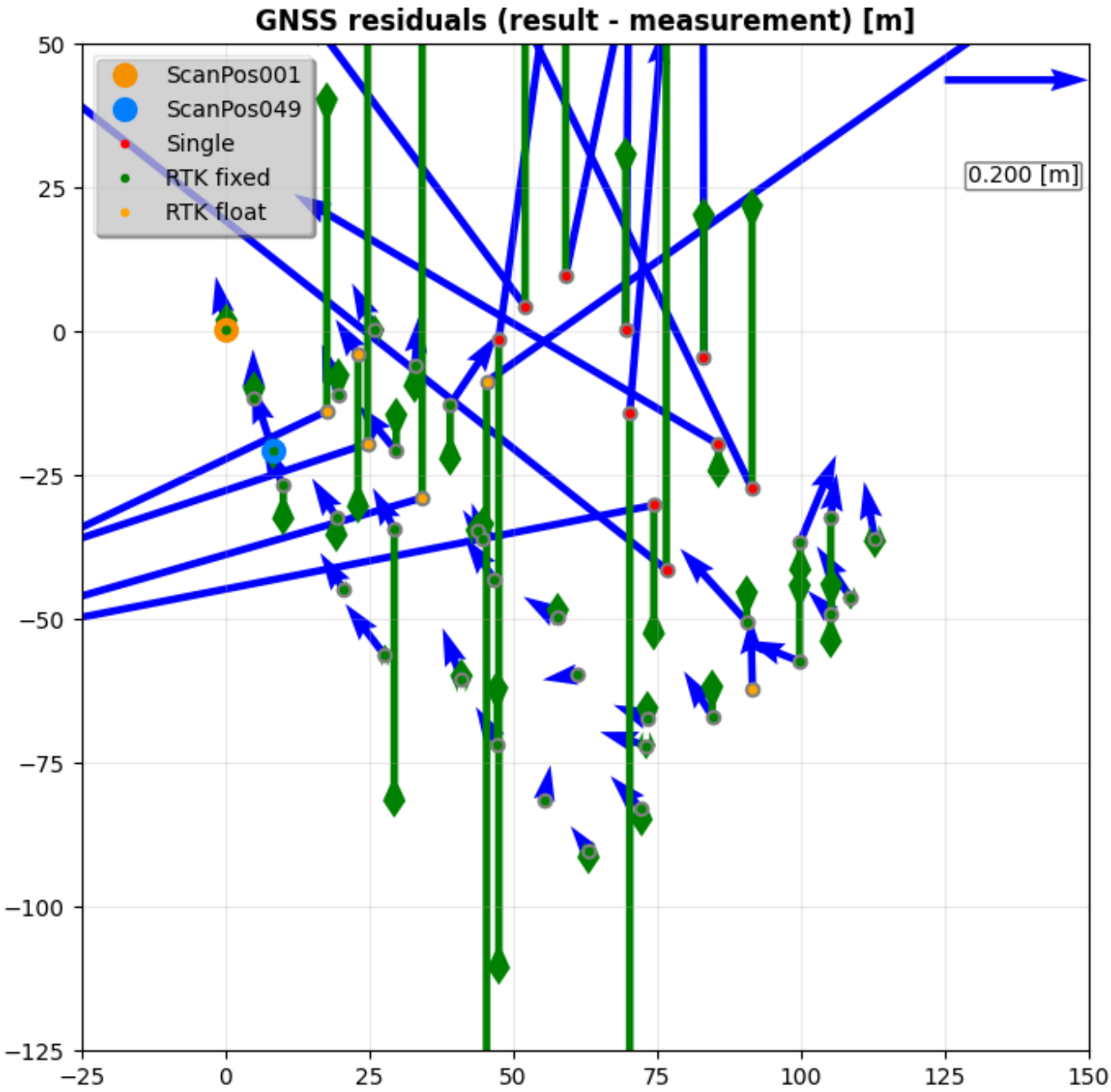


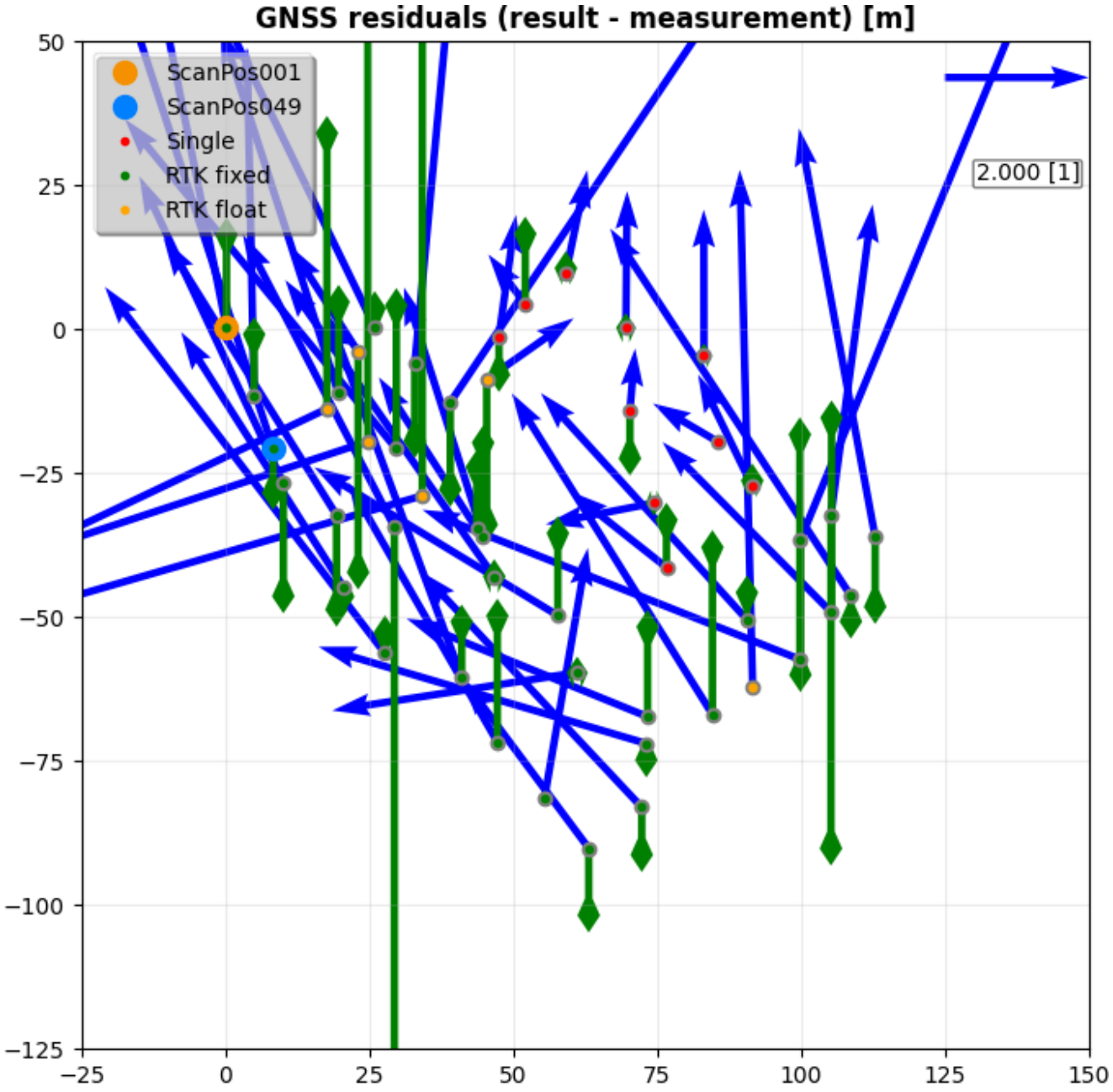
		Referenced Observation Points				
TP Name	**Scan Position**	**Name**	**dX [m]**	**dY [m]**	**dZ [m]**	**dist. [m]**
TP_03	ScanPos017	target-5	-0.0013	0.0127	-0.0038	0.0133
TP_03	ScanPos019	target-5	-0.0005	-0.0017	0.0040	0.0043

4.4.3 GNSS Measurements

Note: The listed deviations include the estimated shifts of the base station error. For the calculation these shifts are considered.


xyz differences [m]
x
y
z
3
2
1
0
−1
−2
−3
ScanPos001
ScanPos002
ScanPos003
ScanPos004
ScanPos005
ScanPos006
ScanPos007
ScanPos008
ScanPos009
ScanPos010
ScanPos011
ScanPos012
ScanPos013
ScanPos014
ScanPos015
ScanPos016
ScanPos017
ScanPos018
ScanPos019
ScanPos020
ScanPos021
ScanPos022
ScanPos023
ScanPos024
ScanPos025
ScanPos026
ScanPos027
ScanPos028
ScanPos029
ScanPos030
ScanPos031
ScanPos032
ScanPos033
ScanPos034
ScanPos035
ScanPos036
ScanPos037
ScanPos038
ScanPos039
ScanPos040
ScanPos041
ScanPos042
ScanPos043
ScanPos044
ScanPos045
ScanPos046
ScanPos047
ScanPos048
ScanPos049


GNSS residuals (result - measurement) [m]
ScanPos001
ScanPos049
Single
RTK fixed
RTK float
0.200 [m]
50
25
0
−25
−50
−75
−100
−125
−25
0
25
50
75
100
125
150



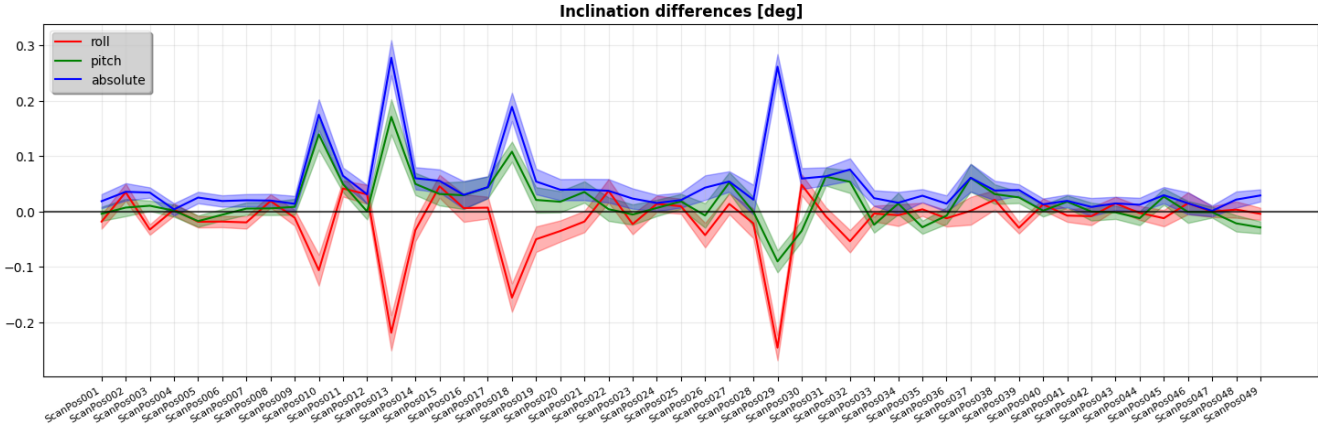
	Deviations in PRCS			a priori Accuracies	
Name	**Res. X [m]**	**Res. Y [m]**	**Res. Z [m]**	**Horiz. [m]**	**Vert. [m]**
ScanPos001	-0.0149	0.0746	0.0377	0.014	0.025
ScanPos002	-0.0014	0.0682	0.0379	0.014	0.035
ScanPos003	-0.0231	0.0717	0.0525	0.014	0.035
ScanPos004	-0.0532	0.0646	0.0747	0.014	0.033
ScanPos005	-0.0155	0.0487	0.0436	0.014	0.028
ScanPos006	-0.0192	0.0297	0.0256	0.014	0.023
ScanPos007	-0.0477	0.0290	0.0348	0.014	0.025
ScanPos008*	-0.0472	0.0192	0.0390	0.014	0.026
ScanPos009	-0.0393	0.0629	0.0656	0.014	0.026

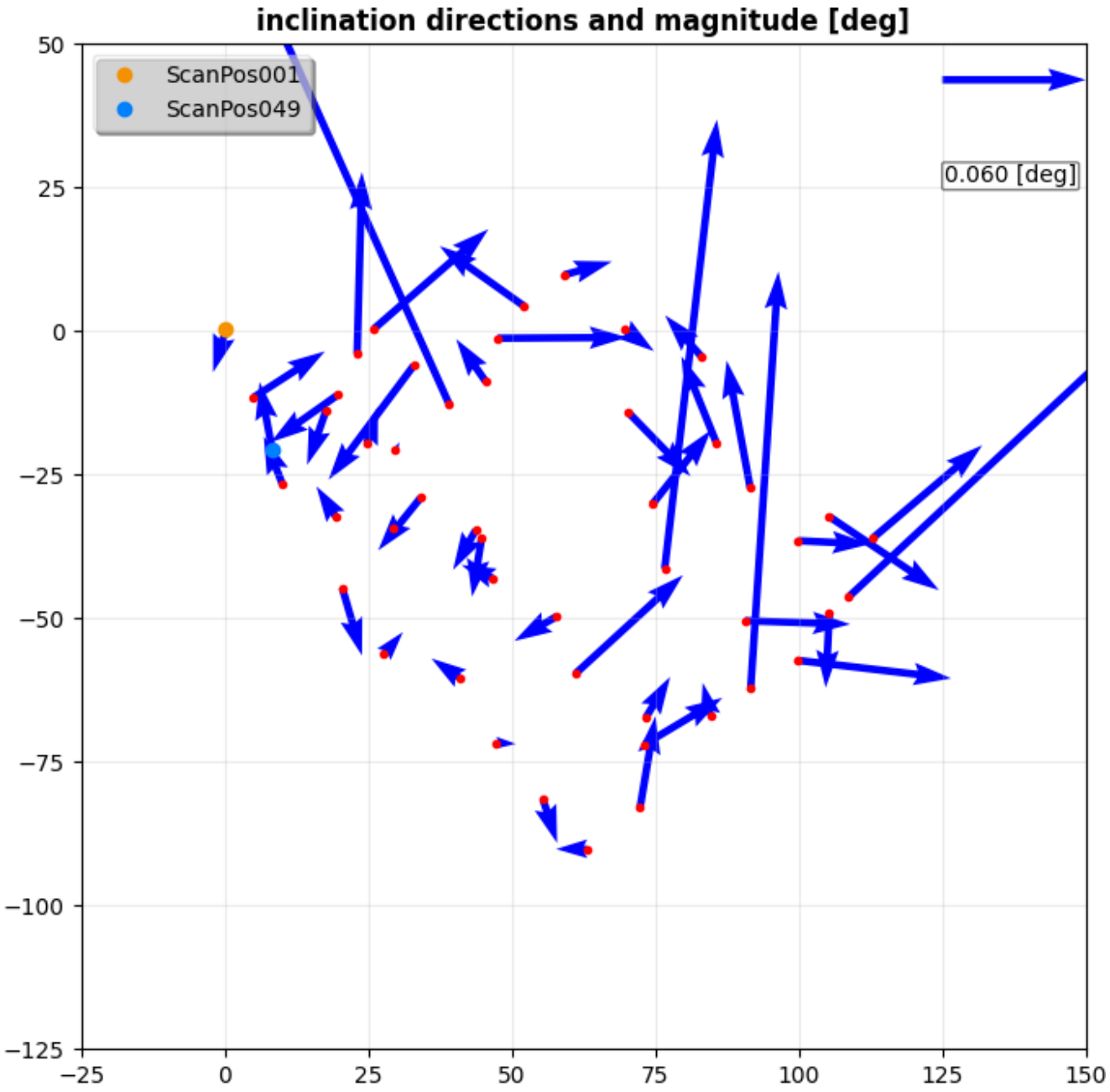
	Deviations in PRCS			a priori Accuracies	
Name	**Res. X [m]**	**Res. Y [m]**	**Res. Z [m]**	**Horiz. [m]**	**Vert. [m]**
ScanPos010*	-0.0025	0.1014	-0.0005	0.014	0.015
ScanPos011*	-0.0740	0.0293	0.1299	0.014	0.039
ScanPos012	-0.0331	0.0334	0.0660	0.014	0.022
ScanPos013	-0.0472	0.0720	-0.0165	0.014	0.028
ScanPos014	-0.0149	0.0800	-0.0271	0.014	0.022
ScanPos015*	0.0082	0.0608	-0.1969	0.014	0.040
ScanPos016*	0.0498	0.1205	-0.0632	0.014	0.030
ScanPos017	-0.0925	0.1017	0.0649	0.032	0.105
ScanPos018	-0.8873	0.7026	1.0490	0.667	1.165
ScanPos019	-0.5339	1.1020	0.4178	0.709	1.303
ScanPos020	-0.5902	0.3481	-0.0610	0.646	1.173
ScanPos021	-0.9307	-0.1823	-0.2026	0.619	1.151
ScanPos022	0.0450	0.5372	-1.0334	0.621	1.145
ScanPos023	-0.0024	1.5376	0.2230	0.758	1.305
ScanPos024	0.0128	1.5071	0.2688	0.795	1.308
ScanPos025	0.2209	1.0613	0.3813	0.742	1.247
ScanPos026	-0.3065	0.4130	1.4780	0.597	1.214
ScanPos027	0.1518	1.0886	-0.8988	0.644	1.165
ScanPos028	0.7914	0.5579	-2.4818	0.654	1.099
ScanPos029*	0.0654	0.0973	-0.0996	0.016	0.069
ScanPos030	0.0066	0.0710	-0.0515	0.014	0.039
ScanPos031	-0.0313	0.0645	0.0209	0.014	0.042
ScanPos032*	-0.0312	0.0486	-0.2359	0.033	0.071
ScanPos033*	-0.4744	-0.2252	0.4575	0.057	0.112
ScanPos034*	-0.5608	-0.1851	0.9550	0.058	0.110
ScanPos035*	-0.6680	-0.1926	1.5331	0.071	0.150
ScanPos036	-0.0410	0.0582	0.0100	0.014	0.041
ScanPos037*	-0.0480	-0.0075	0.0089	0.014	0.040
ScanPos038*	-0.0642	0.0190	-0.0196	0.014	0.042
ScanPos039	-0.0434	0.0462	-0.0384	0.014	0.043
ScanPos040	-0.0248	0.0333	-0.0340	0.014	0.029
ScanPos041	0.0085	0.0491	0.0053	0.014	0.048
ScanPos042	-0.0296	0.0515	0.1020	0.014	0.051
ScanPos043	-0.0263	0.0714	0.0290	0.014	0.029
ScanPos044	-0.0549	0.0718	0.0153	0.014	0.029
ScanPos045	-0.0318	0.0499	-0.0122	0.014	0.032
ScanPos046	-0.0339	0.0542	-0.0487	0.014	0.031
ScanPos047*	-0.0297	0.0572	-0.4017	0.014	0.038
ScanPos048	-0.0284	0.0605	-0.0702	0.014	0.039
ScanPos049	-0.0295	0.0906	-0.0263	0.014	0.031

* ... Observation classified as outlier that has not been used for adjustment

Statistics	mean	median	std. dev.	std(mad)	min	max	count
Res. X [m]	-0.0775	-0.0295	0.2838	0.0266	-0.9307	0.7914	36
Res. Y [m]	0.2828	0.0712	0.4346	0.0331	-0.1823	1.5376	36
Res. Z [m]	-0.0139	0.0233	0.5738	0.0755	-2.4818	1.4780	36
Res. X [1]	-1.485	-1.571	1.322	1.400	-3.891	1.210	36
Res. Y [1]	3.200	3.466	1.713	2.230	-0.295	6.427	36
Res. Z [1]	0.281	0.276	1.248	1.474	-2.257	2.947	36
Res. X with outlier [m]	-0.0953	-0.0312	0.2740	0.0351	-0.9307	0.7914	49
Res. Y with outlier [m]	0.2066	0.0645	0.3978	0.0463	-0.2252	1.5376	49
Res. Z with outlier [m]	0.0328	0.0153	0.5637	0.0881	-2.4818	1.5331	49
Res. X with outlier [1]	-1.888	-1.761	2.574	1.951	-9.737	4.013	49
Res. Y with outlier [1]	2.880	3.280	2.503	2.607	-3.959	8.545	49
Res. Z with outlier [1]	0.315	0.222	2.911	1.668	-10.461	10.200	49

4.4.4 Orientation Measurements





	Deviations in PRCS			a priori Accuracies		
Name	**Roll [deg]**	**Pitch [deg]**	**Yaw [deg]**	**Roll [deg]**	**Pitch [deg]**	**Yaw [deg]**
ScanPos001	-0.0182	-0.0041	-1.0007	0.013	0.013	10.000
ScanPos002	0.0349	0.0072	0.1831	0.016	0.016	10.000
ScanPos003	-0.0325	0.0105	-0.7364	0.009	0.009	10.000
ScanPos004	0.0036	0.0016	-1.5407	0.011	0.011	10.000
ScanPos005	-0.0184	-0.0173	-1.2378	0.010	0.010	10.000
ScanPos006	-0.0181	-0.0057	-0.9635	0.010	0.010	10.000
ScanPos007	-0.0196	0.0053	-0.6260	0.011	0.011	10.000
ScanPos008	0.0190	0.0057	-1.0865	0.012	0.012	10.000
ScanPos009	-0.0111	0.0085	0.0420	0.014	0.014	10.000

	Deviations in PRCS			a priori Accuracies		
Name	**Roll [deg]**	**Pitch [deg]**	**Yaw [deg]**	**Roll [deg]**	**Pitch [deg]**	**Yaw [deg]**
ScanPos010	-0.1059	0.1391	-1.0069	0.028	0.028	10.000
ScanPos011	0.0416	0.0496	0.8478	0.015	0.015	10.000
ScanPos012	0.0310	0.0001	-0.3382	0.017	0.014	10.000
ScanPos013	-0.2188	0.1709	-1.4987	0.032	0.032	10.000
ScanPos014	-0.0334	0.0498	-0.7480	0.020	0.020	10.000
ScanPos015	0.0456	0.0316	-1.0733	0.021	0.021	10.000
ScanPos016	0.0063	0.0294	-0.8148	0.025	0.025	10.000
ScanPos017	0.0071	0.0435	-0.5688	0.020	0.020	10.000
ScanPos018	-0.1554	0.1080	0.0593	0.026	0.018	10.000
ScanPos019	-0.0499	0.0209	-0.7869	0.023	0.023	10.000
ScanPos020	-0.0352	0.0177	-0.6000	0.019	0.019	10.000
ScanPos021	-0.0181	0.0353	-0.9265	0.019	0.019	10.000
ScanPos022	0.0372	0.0043	-0.5001	0.021	0.021	10.000
ScanPos023	-0.0228	-0.0054	-0.4759	0.018	0.018	10.000
ScanPos024	0.0139	0.0065	0.1154	0.015	0.015	10.000
ScanPos025	0.0096	0.0183	-0.1194	0.013	0.013	10.000
ScanPos026	-0.0426	-0.0071	-0.8364	0.022	0.022	10.000
ScanPos027	0.0138	0.0524	-0.7910	0.018	0.018	10.000
ScanPos028	-0.0214	-0.0004	-0.7028	0.027	0.027	10.000
ScanPos029	-0.2457	-0.0899	0.1031	0.023	0.020	10.000
ScanPos030	0.0482	-0.0350	0.2475	0.019	0.019	10.000
ScanPos031	-0.0085	0.0630	0.0115	0.016	0.016	10.000
ScanPos032	-0.0537	0.0536	-1.3022	0.020	0.020	10.000
ScanPos033	-0.0037	-0.0239	-0.2394	0.014	0.014	10.000
ScanPos034	-0.0065	0.0144	-0.2489	0.019	0.019	10.000
ScanPos035	0.0040	-0.0283	0.2418	0.012	0.012	10.000
ScanPos036	-0.0121	-0.0075	-0.0234	0.015	0.015	10.000
ScanPos037	0.0013	0.0609	-0.3933	0.025	0.025	10.000
ScanPos038	0.0212	0.0314	-0.5852	0.017	0.017	10.000
ScanPos039	-0.0293	0.0255	0.0688	0.010	0.010	10.000
ScanPos040	0.0129	0.0016	-0.5521	0.011	0.011	10.000
ScanPos041	-0.0073	0.0178	-0.2341	0.011	0.011	10.000
ScanPos042	-0.0084	-0.0001	-0.8656	0.016	0.016	10.000
ScanPos043	0.0146	-0.0014	-0.4030	0.012	0.012	10.000
ScanPos044	-0.0025	-0.0120	-0.2387	0.013	0.013	10.000
ScanPos045	-0.0120	0.0269	0.0189	0.015	0.015	10.000
ScanPos046	0.0149	-0.0008	-0.1121	0.020	0.020	10.000
ScanPos047	-0.0001	-0.0012	-2.1937	0.010	0.010	10.000
ScanPos048	0.0035	-0.0213	0.2358	0.015	0.015	10.000
ScanPos049	-0.0041	-0.0287	-0.0152	0.011	0.011	10.000

Statistics	mean	median	std. dev.	std(mad)	min	max	count
Roll [deg]	-0.0170	-0.0065	0.0564	0.0240	-0.2457	0.0482	49
Pitch [deg]	0.0168	0.0065	0.0420	0.0213	-0.0899	0.1709	49
Yaw [deg]	-0.4941	-0.5001	0.5649	0.6322	-2.1937	0.8478	49
Roll [1]	-0.730	-0.378	2.429	1.920	-10.774	2.842	49
Pitch [1]	0.756	0.473	1.996	1.533	-4.530	5.972	49
Yaw [1]	-0.049	-0.050	0.056	0.063	-0.219	0.085	49

Residuals exceeding 3 times the measurements' standard deviation are colored red.

4.4.5 Plane Patches

Statistics of the plane patch residuals (distance and angle) are given below as mean, median, standard deviation and median absolute deviation (std(mad)).

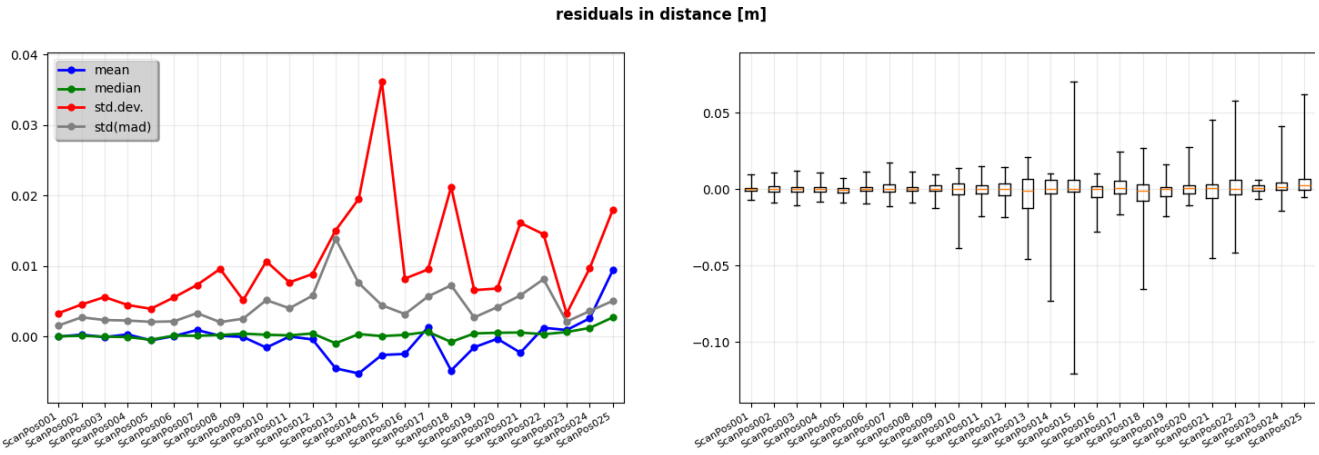
The following table shows project-wide residual statistics, given as weighted averages over all scan positions' residual statistics (weighted by number of plane patches).

Plane Patch Distance Residuals [m]				
# plane patches	mean	median	std. dev.	std(mad)
10148	-0.0002	0.0000	0.0067	0.0030

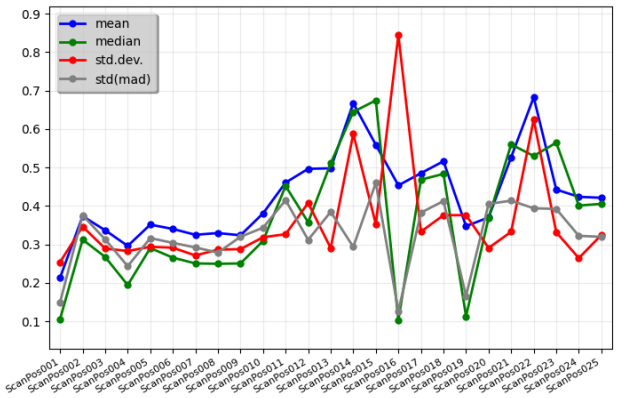
Plane Patch Angular Residuals [deg]				
# plane patches	mean	median	std. dev.	std(mad)
10148	0.3620	0.2979	0.3101	0.3293

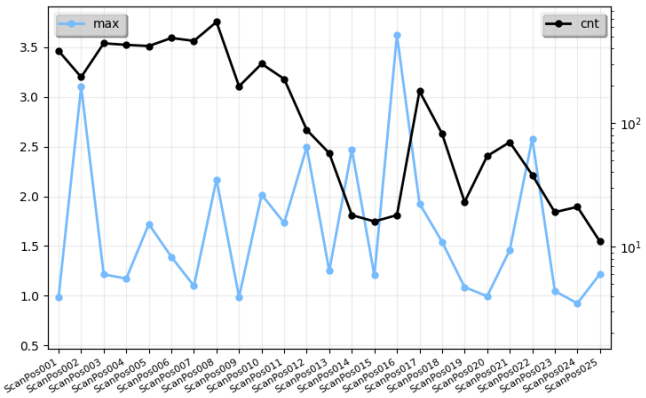
The following figures show the residual statistics per scan position and the number of plane patches available for every scan position.

For the residuals in distance of the plane patches the boxplot shows the median as orange line. The box is defined by the qantil 25% and 75%. This translates to 50 percent of the total amount of points lie in the range shown by the box. The whiskers are at the quantil 2.5% and 97.5%, containing 95% of all points.

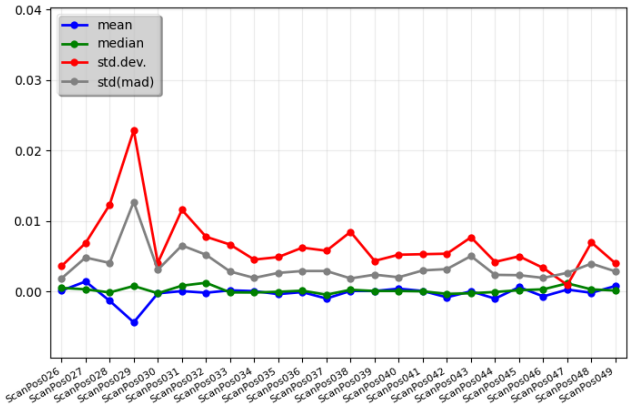


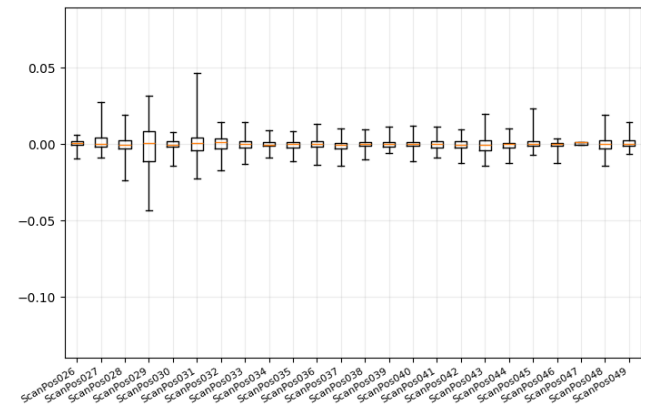
residuals in angle [deg]



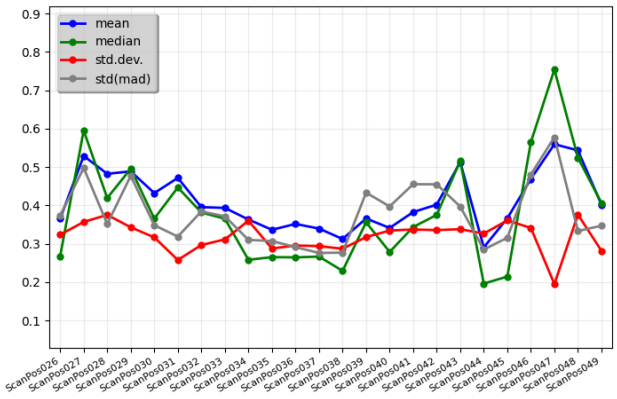


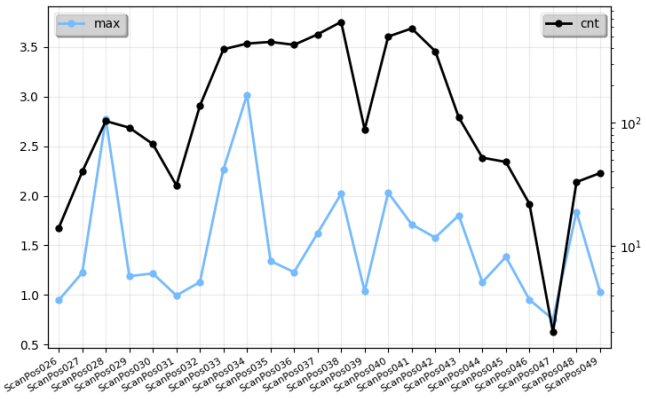
residuals in distance [m]





residuals in angle [deg]





		Plane Patch Distance Residuals [m]									
Name	**# plane patches**	**mean**	**median**	**std. dev.**	**std(mad)**	**min**	**q2.5%**	**q25%**	**q75%**	**q97.5%**	**max**
ScanPos001	383	-0.0001	-0.0000	0.0033	0.0015	-0.0150	-0.0070	-0.0010	0.0009	0.0096	0.0156
ScanPos002	235	0.0002	0.0001	0.0045	0.0027	-0.0289	-0.0091	-0.0016	0.0020	0.0111	0.0209
ScanPos003	441	-0.0001	-0.0001	0.0056	0.0023	-0.0461	-0.0107	-0.0015	0.0015	0.0119	0.0378
ScanPos004	428	0.0003	-0.0001	0.0044	0.0022	-0.0168	-0.0079	-0.0016	0.0015	0.0111	0.0290
ScanPos005	419	-0.0006	-0.0005	0.0039	0.0020	-0.0221	-0.0088	-0.0020	0.0008	0.0072	0.0233
ScanPos006	487	0.0000	0.0001	0.0055	0.0021	-0.0648	-0.0091	-0.0013	0.0015	0.0117	0.0316
ScanPos007	461	0.0009	0.0001	0.0073	0.0033	-0.0686	-0.0113	-0.0015	0.0029	0.0177	0.0538

		Plane Patch Distance Residuals [m]									
Name	**# plane patches**	**mean**	**median**	**std. dev.**	**std(mad)**	**min**	**q2.5%**	**q25%**	**q75%**	**q97.5%**	**max**
ScanPos008	656	0.0001	0.0002	0.0096	0.0020	-0.1840	-0.0091	-0.0013	0.0015	0.0113	0.0906
ScanPos009	198	-0.0001	0.0004	0.0051	0.0025	-0.0360	-0.0122	-0.0012	0.0023	0.0097	0.0162
ScanPos010	301	-0.0016	0.0002	0.0106	0.0051	-0.0514	-0.0386	-0.0034	0.0036	0.0141	0.0198
ScanPos011	227	-0.0000	0.0001	0.0076	0.0040	-0.0335	-0.0179	-0.0026	0.0026	0.0153	0.0381
ScanPos012	88	-0.0004	0.0004	0.0088	0.0058	-0.0389	-0.0182	-0.0041	0.0038	0.0145	0.0348
ScanPos013	57	-0.0046	-0.0010	0.0150	0.0138	-0.0461	-0.0457	-0.0123	0.0065	0.0210	0.0210
ScanPos014	18	-0.0053	0.0003	0.0195	0.0075	-0.0731	-0.0731	-0.0029	0.0060	0.0103	0.0103
ScanPos015	16	-0.0027	0.0000	0.0362	0.0044	-0.1208	-0.1208	-0.0017	0.0062	0.0704	0.0704
ScanPos016	18	-0.0025	0.0002	0.0082	0.0031	-0.0280	-0.0280	-0.0052	0.0019	0.0102	0.0102
ScanPos017	181	0.0013	0.0006	0.0095	0.0056	-0.0345	-0.0164	-0.0030	0.0055	0.0245	0.0342
ScanPos018	82	-0.0049	-0.0008	0.0212	0.0072	-0.0771	-0.0656	-0.0078	0.0029	0.0272	0.0741
ScanPos019	23	-0.0016	0.0004	0.0065	0.0027	-0.0177	-0.0177	-0.0046	0.0014	0.0163	0.0163
ScanPos020	54	-0.0004	0.0005	0.0068	0.0041	-0.0304	-0.0104	-0.0029	0.0023	0.0273	0.0273
ScanPos021	70	-0.0023	0.0005	0.0161	0.0058	-0.0884	-0.0453	-0.0060	0.0030	0.0456	0.0456
ScanPos022	38	0.0012	0.0003	0.0145	0.0081	-0.0413	-0.0413	-0.0036	0.0062	0.0581	0.0581
ScanPos023	19	0.0009	0.0006	0.0032	0.0021	-0.0067	-0.0067	-0.0008	0.0027	0.0059	0.0059
ScanPos024	21	0.0025	0.0012	0.0097	0.0036	-0.0139	-0.0139	-0.0007	0.0040	0.0413	0.0413
ScanPos025	11	0.0094	0.0027	0.0180	0.0050	-0.0055	-0.0055	-0.0003	0.0068	0.0619	0.0619
ScanPos026	14	0.0001	0.0005	0.0035	0.0018	-0.0096	-0.0096	-0.0007	0.0017	0.0064	0.0064
ScanPos027	40	0.0014	0.0003	0.0068	0.0048	-0.0132	-0.0087	-0.0019	0.0041	0.0277	0.0277
ScanPos028	103	-0.0014	-0.0002	0.0123	0.0040	-0.1035	-0.0239	-0.0029	0.0025	0.0190	0.0251
ScanPos029	91	-0.0044	0.0007	0.0228	0.0127	-0.1217	-0.0432	-0.0112	0.0084	0.0317	0.0330
ScanPos030	67	-0.0003	-0.0003	0.0040	0.0030	-0.0148	-0.0140	-0.0019	0.0022	0.0078	0.0078
ScanPos031	31	0.0000	0.0008	0.0116	0.0065	-0.0224	-0.0224	-0.0041	0.0044	0.0467	0.0467
ScanPos032	137	-0.0002	0.0012	0.0077	0.0052	-0.0402	-0.0173	-0.0031	0.0038	0.0144	0.0153
ScanPos033	393	0.0001	-0.0002	0.0066	0.0028	-0.0321	-0.0129	-0.0021	0.0017	0.0145	0.0490
ScanPos034	437	0.0000	-0.0002	0.0045	0.0019	-0.0315	-0.0091	-0.0013	0.0012	0.0093	0.0237
ScanPos035	451	-0.0004	-0.0001	0.0048	0.0026	-0.0312	-0.0110	-0.0020	0.0014	0.0082	0.0288
ScanPos036	427	-0.0001	0.0001	0.0062	0.0029	-0.0483	-0.0135	-0.0019	0.0020	0.0133	0.0306
ScanPos037	519	-0.0010	-0.0005	0.0057	0.0029	-0.0378	-0.0143	-0.0031	0.0010	0.0103	0.0463
ScanPos038	655	0.0000	0.0002	0.0084	0.0018	-0.1087	-0.0103	-0.0010	0.0014	0.0097	0.1200
ScanPos039	88	0.0000	0.0000	0.0043	0.0024	-0.0144	-0.0057	-0.0019	0.0013	0.0114	0.0251
ScanPos040	498	0.0004	0.0000	0.0052	0.0020	-0.0198	-0.0110	-0.0010	0.0016	0.0122	0.0356
ScanPos041	580	0.0000	-0.0000	0.0053	0.0030	-0.0247	-0.0088	-0.0021	0.0018	0.0115	0.0399
ScanPos042	379	-0.0009	-0.0004	0.0053	0.0031	-0.0295	-0.0126	-0.0025	0.0018	0.0096	0.0204
ScanPos043	110	-0.0000	-0.0003	0.0077	0.0050	-0.0191	-0.0143	-0.0042	0.0025	0.0197	0.0444
ScanPos044	52	-0.0011	-0.0001	0.0042	0.0023	-0.0172	-0.0121	-0.0024	0.0008	0.0103	0.0103
ScanPos045	48	0.0006	0.0002	0.0050	0.0023	-0.0073	-0.0070	-0.0009	0.0019	0.0235	0.0235
ScanPos046	22	-0.0007	0.0003	0.0033	0.0019	-0.0123	-0.0123	-0.0013	0.0010	0.0037	0.0037
ScanPos047	2	0.0002	0.0011	0.0009	0.0026	-0.0006	-0.0006	-0.0006	0.0011	0.0011	0.0011

		Plane Patch Distance Residuals [m]									
Name	**# plane patches**	**mean**	**median**	**std. dev.**	**std(mad)**	**min**	**q2.5%**	**q25%**	**q75%**	**q97.5%**	**max**
ScanPos048	33	-0.0002	0.0003	0.0069	0.0039	-0.0143	-0.0143	-0.0029	0.0022	0.0191	0.0191
ScanPos049	39	0.0007	0.0001	0.0040	0.0028	-0.0062	-0.0062	-0.0013	0.0028	0.0145	0.0145

		Plane Patch Angular Residuals [deg]									
Name	**# plane patches**	**mean**	**median**	**std. dev.**	**std(mad)**	**min**	**q2.5%**	**q25%**	**q75%**	**q97.5%**	**max**
ScanPos001	383	0.2132	0.1055	0.2537	0.1488	0.0002	0.0013	0.0159	0.3115	0.8907	0.9875
ScanPos002	235	0.3732	0.3122	0.3462	0.3757	0.0009	0.0061	0.0753	0.5969	0.9638	3.1042
ScanPos003	441	0.3367	0.2672	0.2892	0.3129	0.0002	0.0025	0.0774	0.5381	0.9612	1.2149
ScanPos004	428	0.2959	0.1941	0.2826	0.2432	0.0005	0.0016	0.0664	0.4346	0.9629	1.1724
ScanPos005	419	0.3512	0.2903	0.2937	0.3162	0.0008	0.0043	0.0941	0.5620	0.9476	1.7207
ScanPos006	487	0.3400	0.2654	0.2912	0.3038	0.0003	0.0020	0.0937	0.5266	0.9734	1.3914
ScanPos007	461	0.3249	0.2504	0.2710	0.2919	0.0005	0.0022	0.0806	0.5134	0.9262	1.0983
ScanPos008	656	0.3293	0.2494	0.2863	0.2785	0.0002	0.0029	0.0864	0.5387	0.9247	2.1703
ScanPos009	198	0.3235	0.2503	0.2875	0.3196	0.0012	0.0046	0.0609	0.5343	0.8770	0.9880
ScanPos010	301	0.3805	0.3088	0.3184	0.3432	0.0018	0.0039	0.1111	0.6163	0.9987	2.0165
ScanPos011	227	0.4606	0.4517	0.3263	0.4148	0.0009	0.0115	0.1549	0.7090	1.1191	1.7329
ScanPos012	88	0.4964	0.3575	0.4076	0.3116	0.0126	0.0248	0.2110	0.7954	1.9524	2.4951
ScanPos013	57	0.4978	0.5108	0.2901	0.3845	0.0260	0.0416	0.2320	0.7031	1.2498	1.2498
ScanPos014	18	0.6670	0.6445	0.5876	0.2934	0.0048	0.0048	0.2617	0.8112	2.4712	2.4712
ScanPos015	16	0.5589	0.6743	0.3522	0.4601	0.0077	0.0077	0.3026	0.9008	1.2045	1.2045
ScanPos016	18	0.4534	0.1028	0.8446	0.1266	0.0017	0.0017	0.0294	0.5123	3.6239	3.6239
ScanPos017	181	0.4850	0.4682	0.3329	0.3824	0.0041	0.0191	0.1972	0.7075	1.3054	1.9281
ScanPos018	82	0.5161	0.4832	0.3757	0.4127	0.0033	0.0107	0.2300	0.7813	1.4661	1.5424
ScanPos019	23	0.3473	0.1128	0.3760	0.1659	0.0005	0.0005	0.0134	0.5946	1.0869	1.0869
ScanPos020	54	0.3700	0.3691	0.2906	0.4051	0.0026	0.0035	0.0878	0.5896	0.9949	0.9949
ScanPos021	70	0.5265	0.5599	0.3326	0.4136	0.0064	0.0173	0.2429	0.8063	1.4586	1.4586
ScanPos022	38	0.6826	0.5298	0.6245	0.3938	0.0017	0.0017	0.2811	0.7954	2.5806	2.5806
ScanPos023	19	0.4424	0.5645	0.3315	0.3920	0.0047	0.0047	0.0372	0.6268	1.0474	1.0474
ScanPos024	21	0.4236	0.4008	0.2642	0.3221	0.0386	0.0386	0.2123	0.6181	0.9235	0.9235
ScanPos025	11	0.4210	0.4053	0.3244	0.3195	0.0314	0.0314	0.1321	0.5274	1.2191	1.2191
ScanPos026	14	0.3654	0.2671	0.3235	0.3731	0.0040	0.0040	0.0358	0.6100	0.9467	0.9467
ScanPos027	40	0.5287	0.5951	0.3566	0.4976	0.0322	0.0412	0.1849	0.8001	1.2244	1.2244
ScanPos028	103	0.4821	0.4190	0.3751	0.3514	0.0099	0.0291	0.1938	0.6777	1.4008	2.7763
ScanPos029	91	0.4886	0.4955	0.3427	0.4770	0.0003	0.0058	0.1643	0.7319	1.1417	1.1897
ScanPos030	67	0.4319	0.3654	0.3165	0.3481	0.0005	0.0039	0.1612	0.6495	1.2172	1.2172
ScanPos031	31	0.4715	0.4466	0.2576	0.3185	0.0663	0.0663	0.2420	0.6614	0.9945	0.9945
ScanPos032	137	0.3953	0.3813	0.2965	0.3840	0.0007	0.0035	0.1017	0.6302	0.9781	1.1306
ScanPos033	393	0.3932	0.3651	0.3112	0.3714	0.0027	0.0061	0.1184	0.6215	0.9790	2.2664
ScanPos034	437	0.3631	0.2580	0.3599	0.3099	0.0013	0.0047	0.0946	0.5505	1.0281	3.0190
ScanPos035	451	0.3363	0.2650	0.2874	0.3069	0.0004	0.0025	0.0767	0.5304	0.9450	1.3430
ScanPos036	427	0.3515	0.2643	0.2952	0.2911	0.0009	0.0045	0.0998	0.5536	0.9579	1.2305

		Plane Patch Angular Residuals [deg]									
Name	**# plane patches**	**mean**	**median**	**std. dev.**	**std(mad)**	**min**	**q2.5%**	**q25%**	**q75%**	**q97.5%**	**max**
ScanPos037	519	0.3394	0.2664	0.2937	0.2759	0.0004	0.0044	0.1016	0.5241	0.9760	1.6231
ScanPos038	655	0.3123	0.2292	0.2868	0.2767	0.0006	0.0028	0.0744	0.4915	0.9291	2.0199
ScanPos039	88	0.3657	0.3558	0.3173	0.4330	0.0008	0.0046	0.0582	0.6052	0.9965	1.0361
ScanPos040	498	0.3410	0.2785	0.3342	0.3971	0.0001	0.0012	0.0189	0.5968	0.9845	2.0315
ScanPos041	580	0.3825	0.3434	0.3370	0.4551	0.0004	0.0015	0.0421	0.6656	0.9720	1.7112
ScanPos042	379	0.4017	0.3750	0.3354	0.4547	0.0002	0.0009	0.0516	0.6565	1.0042	1.5781
ScanPos043	110	0.5125	0.5162	0.3378	0.3967	0.0018	0.0060	0.2486	0.7757	1.2998	1.8038
ScanPos044	52	0.2904	0.1959	0.3263	0.2848	0.0005	0.0006	0.0203	0.4787	1.1282	1.1282
ScanPos045	48	0.3662	0.2143	0.3607	0.3155	0.0009	0.0015	0.0111	0.6415	1.3841	1.3841
ScanPos046	22	0.4687	0.5644	0.3411	0.4803	0.0014	0.0014	0.0793	0.7985	0.9526	0.9526
ScanPos047	2	0.5593	0.7541	0.1948	0.5775	0.3646	0.3646	0.3646	0.7541	0.7541	0.7541
ScanPos048	33	0.5432	0.5241	0.3758	0.3330	0.0248	0.0248	0.2771	0.7055	1.8378	1.8378
ScanPos049	39	0.4016	0.4061	0.2815	0.3469	0.0029	0.0029	0.1451	0.5491	1.0325	1.0325