

Second 2018 ILRS LARGE (Laser Ranging to GNSS s/c Experiment) Campaign

The first LARGE campaign for 2018 ended in May; the results are available on the ILRS website at:

https://ilrs.cddis.eosdis.nasa.gov/docs/2018/LARGE1_20180215_20180515_final.pdf

Several things are apparent. We have an imbalance in the tracking coverage for the three constellations; some stations have done a very nice job in tracking coverage. We ask others to please put a little more effort into the next campaign.

The second LARGE campaign for 2018 will run from August 01 through October 31, 2018. A primary objective of the campaign is to obtain improved, distributed coverage of a few satellites in each of the GNSS constellations, GLONASS, Galileo, and Compass/Beidou.

For this second LARGE campaign for 2018, the ILRS is trying to accommodate different requirements from different constellations. For the Galileo and Compass/Beidou constellations, eight satellites have been designated as high priority. Our Russian colleagues have designated only four satellites for GLONASS tracking. For all of these satellites, we ask stations to track two, and if possible three segments (2 NP's each), spread out over the arc being tracked. Since only four satellites have been designated for GLONASS, they ask that stations try to get as many passes on these satellites as possible.

The satellites designated for the second LARGE campaign for 2018 are:

System	Satellites tracked for campaign
GLONASS	GLONASS-131, -134, -136, -137
Galileo	Galileo-102, -202, -209, -210, -103, -203, -211, -213
Compass/Beidou	Compass-I3, -M3, -I5, -I6B Beidou-3M2, -3M3, -3M9, -3M10

We have interleaved the selected satellites on the priority list to try to give each constellation an equal chance of tracking. The other satellites in each constellation can be tracked on a non-interference basis with the LEO, LAGEOS, and GNSS satellites at higher priority. Thus, during this second campaign, predictions will be issued for all of the other operational GNSS satellites. We ask stations, if they have time, to try to get a few passes with at least one segment, on these other GNSS satellites. Please work with us as we try to accommodate different requirements from different constellations.

Related links:

- ILRS priority list:
https://ilrs.cddis.eosdis.nasa.gov/missions/mission_operations/priorities/index.html
- LARGE campaign information:
https://ilrs.cddis.eosdis.nasa.gov/science/ILRS_LARGE_sg/index.html

Passes	Site Name	Sta.	GLONASS				Galileo						Compass				Beidou-3				Campaign Totals			Campaign NPTS/Pass			All Tracking Totals				No. Sats. Tracked					
			-131	-134	-136	-137	-102	-202	-209	-210	-103	-203	-211	-213	-I3	-M3	-I5	-I6B	-M2	-M3	-M9	-M10	GLONASS	Galileo	mpass/Bei	Total	GLONASS	Galileo	mpass/Bei	GLONASS	Galileo	mpass/Bei	Other	All	GNSS	All
Altay	1879	11	12	11	11	0	0	2	0	1	0	1	0	0	0	0	0	0	0	0	0	45	4	0	49	2.2	2.5	0.0	139	11	0	0	55	205	23	28
Arequipa	7403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	0	418	418	0	27	
Arknyz	1886	4	4	5	6	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	19	1	0	20	4.9	3.0	0.0	54	1	0	0	102	157	15	26	
Badary	1890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	0	71	71	0	10		
Baikonur	1887	5	6	3	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	0	0	19	3.8	0.0	0.0	29	0	0	0	36	65	8	10	
Beijing	7249	6	3	6	9	0	0	5	3	4	0	4	4	0	2	4	0	3	2	0	24	20	11	55	3.9	3.5	4.1	75	54	11	220	360	32	55		
Borowiec	7811	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	5.3	0.0	0.0	3	0	0	0	86	89	2	21	
Brasilia	7407	3	5	6	0	3	1	0	0	5	1	2	0	0	1	0	0	0	0	0	14	12	1	27	2.4	2.9	3.0	76	24	1	83	184	33	45		
Changchun	7237	7	8	7	12	1	2	5	6	6	1	6	6	1	4	2	2	4	1	1	34	33	15	82	3.1	3.1	3.0	144	104	21	722	991	50	85		
Grasse	7845	3	3	6	9	5	4	6	4	5	4	2	0	0	1	3	0	4	0	5	21	30	18	69	3.2	3.9	3.7	21	30	18	101	170	16	25		
Graz	7839	11	10	8	14	6	2	6	6	12	4	10	4	0	3	1	0	6	6	43	50	21	114	4.9	4.9	4.2	144	109	21	652	926	47	80			
Greenbelt	7105	8	6	8	10	0	1	2	2	3	0	2	0	0	0	0	0	1	1	0	32	10	2	44	5.8	2.6	3.0	41	10	2	896	949	14	45		
Haleakala	7119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	0	148	148	0	26		
Hartebeesthoek (HARL)	7501	6	4	4	5	4	3	3	1	4	1	0	1	0	0	0	0	0	1	19	17	3	39	5.5	4.6	4.7	53	17	3	411	484	17	46			
Hartebeesthoek (HRTL)	7503	1	2	3	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	6	2	0	8	3.5	39.5	0.0	21	2	0	134	157	13	31			
Herstmonceux	7840	11	15	16	14	9	6	5	9	11	6	12	9	0	5	8	3	6	2	56	67	36	159	3.3	3.4	3.5	225	179	36	704	1,144	55	88			
Irkutsk	1891	3	3	3	5	4	2	2	0	3	1	0	1	0	1	0	0	0	0	14	13	1	28	2.2	2.6	1.0	53	26	1	148	228	24	43			
Katziwey	1893	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	374	374	0	22			
Kiev	1824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	39	39	0	9			
Komsomolsk	1868	6	2	9	7	0	0	0	0	0	0	1	2	0	0	0	0	0	0	24	1	0	25	3.0	4.0	0.0	78	4	0	25	107	19	24			
Kunming	7819	5	3	6	5	0	0	0	3	3	0	5	2	0	0	4	1	0	1	19	13	7	39	2.2	2.2	2.1	68	46	7	152	273	39	64			
Matera	7941	17	23	16	16	15	7	12	11	7	8	3	0	0	14	11	4	4	2	72	63	48	183	5.4	5.7	5.4	102	69	48	744	963	24	54			
McDonald	7080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	16	16	0	7			
Mendeleev	1874	3	4	3	1	0	0	1	1	0	0	0	0	0	0	0	0	0	0	11	3	0	14	3.0	2.7	0.0	45	7	0	46	98	20	30			
Monument Peak	7110	2	0	2	2	1	0	1	0	1	0	2	0	0	0	0	0	0	0	6	5	0	11	2.3	2.0	0.0	7	5	0	500	512	8	36			
Mount Stromlo	7825	6	7	10	8	6	3	5	6	8	3	5	3	8	0	0	0	0	2	31	44	13	88	3.5	3.9	2.2	72	99	13	733	917	39	66			
Potsdam	7841	5	4	3	5	0	1	5	2	2	0	3	5	0	0	0	0	0	0	17	18	0	35	3.1	3.3	0.0	54	48	0	506	608	34	64			
Riga	1884	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	0	0	0	90	90	0	18			
Sejong	7294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0	0.0	1	0	0	71	72	1	12			
Shanghai	7821	14	10	14	0	8	2	7	8	9	2	8	7	8	4	11	10	8	1	38	51	47	136	4.6	5.2	5.2	167	124	53	486	830	48	79			
Simeiz	1873	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	1	2	4.0	0.0	3.0	6	0	1	311	318	6	28			
Simosato	7838	1	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	5.3	0.0	0.0	5	0	0	222	227	3	20			
Svetloe	1888	3	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	1	0	5	3.0	3.0	0.0	8	2	0	95	105	7	25			
Tahiti	7124	0	1	3	0	2	2	0	0	2	1	0	0	0	0	0	0	1	0	4	7	1	12	6.5	6.7	2.0	10	7	1	91	109	9	33			
Wettzell (SOSW)	7827	8	9	7	11	0	5	4	5	4	1	8	3	0	2	2	0	0	0	35	30	4	69	3.5	3.0	1.8	147	82	4	250	483	44	69			
Wettzell (WETL)	8834	23	23	19	24	16	18	13	16	18	15	11	14	0	13	3	0	12	5	89	121	57	267	5.1	3.8	4.4	132	209	57	646	1,044	36	65			
Yarragadee	7090	21	24	29	20	16	16	8	8	18	15	10	9	18	20	9	24	6	2	94	100	103	297	5.6	4.6	5.1	198	144	109	1,473	1,924	41	79			
Zelenchukskaya	1889	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3.0	0.0	0.0	23	0	0	148	171	12	27				
Zimmerwald	7810	0	14	0	0	15	0	17	18	21	12	13	18	0	11	11	4	0	5	14	114	31	159	3.5	5.0	3.2	244	245	31	1,329	1,849	36	65			
Totals:	39	194	207	209	203	111	75	109	110	150	80	106	89	30	85	71	48	54	31	44	57	813	830	420	2,063	4.2	4.2	4.4	2,445	1,658	438	13,334	18,875			

Pass Summary by Network (Campaign Constellation vs. Total)

Network	Sta.	%GLO	%GAL	%COM	Tot.	GLO	GAL	COM	Tot.
Chinese Network	4	14%	14%	19%	15%	115	117	80	312
European Network	13	43%	59%	51%	51%	351	493	216	1,060
NASA Network	8	19%	17%	26%	20%	155	139	109	403
Russian Network	11	19%	4%	0%	10%	157	37	2	196
All Others	3	4%	5%	3%	4%	35	44	13	92
Totals:	39	39%	40%	20%	100%	813	830	420	2,063

Total passes/constellation>25	
Total passes/campaign>100	

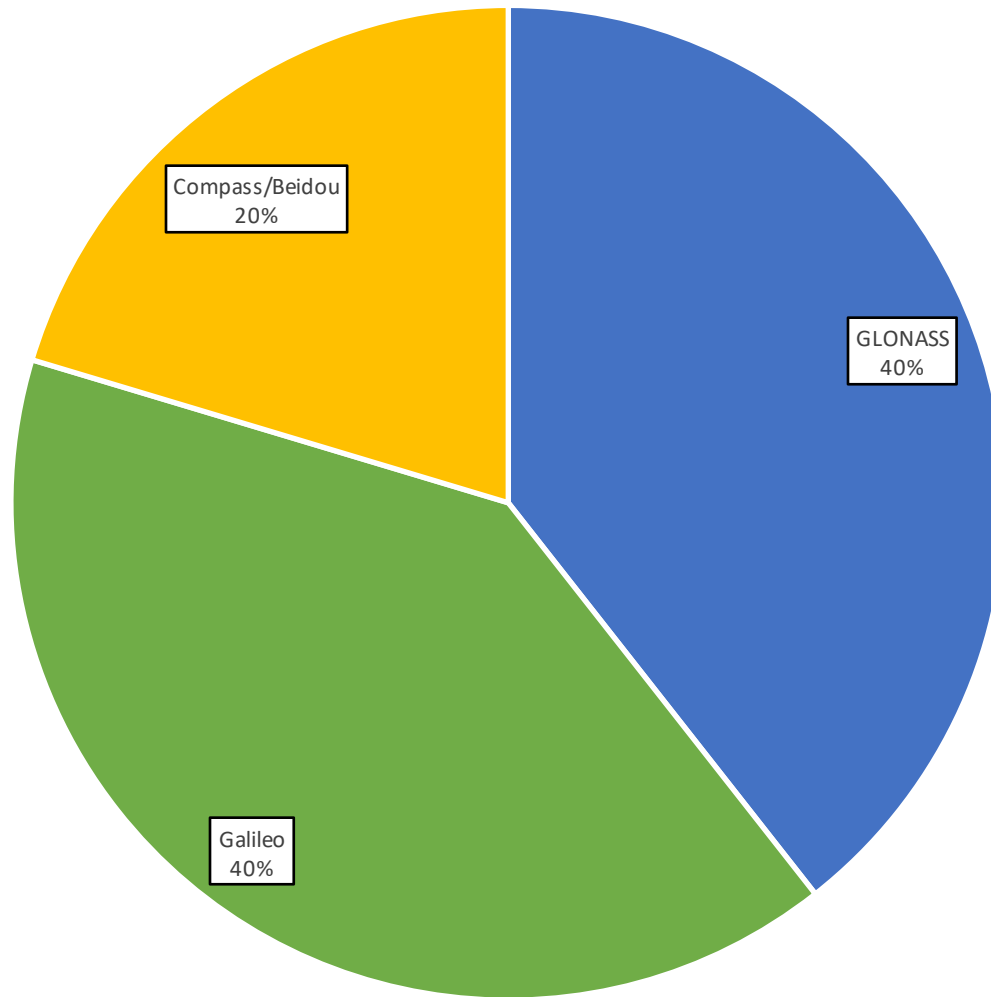
Number of NPTs		GLONASS										Galileo						Compass				Beidou-3				Campaign Totals			All Tracking Totals			
Site Name	Sta.	-131	-134	-136	-137	-102	-202	-209	-210	-103	-203	-211	-213	-I3	-M3	-I5	-I6B	-M2	-M3	-M9	-M10	GLONASS	Galileo	mpass/Bei	Total	GLONASS	Galileo	mpass/Bei	Other	All		
Altay	1879	20	26	26	28	0	0	5	0	2	0	3	0	0	0	0	0	0	0	0	0	100	10	0	110	307	25	0	331	663		
Arequipa	7403	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,506	4,506		
Arknyz	1886	20	16	21	37	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	94	3	0	97	212	3	0	718	933		
Badary	1890	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	527	527			
Baikonur	1887	21	24	10	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73	0	0	73	117	0	0	157	274		
Beijing	7249	25	14	23	31	0	0	16	12	17	0	13	12	0	6	21	0	11	7	0	0	93	70	45	208	285	218	45	1,450	1,998		
Borowiec	7811	0	12	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16	0	0	16	16	0	0	1,344	1,360		
Brasilia	7407	6	13	14	0	6	2	0	0	21	2	4	4	0	0	0	0	0	0	0	0	33	35	3	71	213	68	3	374	658		
Changchun	7237	20	30	27	30	2	7	20	22	12	17	17	21	4	0	11	7	17	14	0	107	103	45	255	437	317	61	8,095	8,910			
Grasse	7845	12	12	16	28	28	25	18	15	12	13	6	0	0	3	9	0	16	0	20	19	68	117	67	252	68	117	67	595	847		
Graz	7839	51	50	30	80	46	9	38	21	44	9	59	18	0	8	1	0	30	37	5	8	211	244	89	544	541	464	89	11,079	12,173		
Greenbelt	7105	63	36	41	45	0	4	3	2	6	7	0	0	0	6	0	0	4	2	0	0	185	26	6	217	220	26	6	15,975	16,227		
Haleakala	7119	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,994	1,994			
Hartebeesthoek (HARL)	7501	37	18	14	36	20	12	14	7	20	4	0	2	0	0	0	0	0	6	8	105	79	14	198	424	79	14	5,325	5,842			
Hartebeesthoek (HRTL)	7503	4	5	12	0	0	0	0	4	3	0	0	0	0	0	0	0	0	0	0	21	7	0	28	65	7	0	1,866	1,938			
Herstmonceux	7840	42	56	50	39	30	20	23	29	41	23	33	30	0	14	18	10	25	6	22	31	187	229	126	542	596	529	126	9,387	10,638		
Irkutsk	1891	6	6	7	12	8	7	4	0	7	3	0	5	0	1	0	0	0	0	0	0	31	34	1	66	100	61	1	958	1,120		
Katzively	1893	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,692	3,692			
Kiev	1824	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311	311			
Komsomolsk	1868	22	6	23	22	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	73	4	0	77	229	13	0	182	424		
Kunming	7819	11	6	14	11	0	0	0	7	7	0	10	4	0	0	7	3	0	2	0	3	42	28	15	85	145	100	15	1,421	1,681		
Matera	7941	119	125	82	65	109	32	69	64	25	54	6	0	0	94	64	11	22	4	26	37	391	359	258	1,008	518	380	258	8,433	9,589		
McDonald	7080	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	115	115			
Mendeleev	1874	11	10	10	2	0	0	3	2	0	0	0	3	0	0	0	0	0	0	0	0	33	8	0	41	138	20	0	880	1,038		
Monument Peak	7110	5	0	4	5	3	0	1	0	2	0	4	0	0	0	0	0	0	0	0	0	14	10	0	24	17	10	0	8,141	8,168		
Mount Stromlo	7825	25	22	36	26	33	11	17	21	31	26	8	23	7	18	0	0	0	0	4	109	170	29	308	239	324	29	9,629	10,221			
Potsdam	7841	17	7	12	17	0	2	17	7	6	0	10	18	0	0	0	0	0	0	0	0	53	60	0	113	171	164	0	6,731	7,066		
Riga	1884	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,252	1,252			
Sejong	7294	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	639	642			
Shanghai	7821	63	48	64	0	36	7	42	41	51	8	32	46	47	17	75	44	40	5	6	12	175	263	246	684	757	641	281	4,217	5,896		
Simeiz	1873	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	3	7	22	0	3	2,837	2,862		
Simosato	7838	5	0	0	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	0	0	21	25	0	0	3,133	3,158		
Svetloe	1888	9	0	3	0	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	12	3	0	15	21	6	0	503	530		
Tahiti	7124	0	18	8	0	8	9	0	0	26	4	0	0	0	0	0	0	2	0	0	0	26	47	2	75	61	47	2	1,278	1,388		
Wettzell (SOSW)	7827	23	38	23	39	0	13	16	14	12	5	21	9	0	4	3	0	0	0	0	0	123	90	7	220	395	206	7	2,567	3,175		
Wettzell (WETL)	8834	122	121	86	123	72	65	57	56	71	54	43	45	0	57	8	0	48	23	41	72	452	463	249	1,164	605	780	249	5,476	7,110		
Yarragadee	7090	103	108	176	136	82	61	53	33	84	76	44	28	85	101	30	150	16	9	75	57	523	461	523	1,507	912	588	547	21,270	23,317		
Zelenchukskaya	1889	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	74	0	0	1,263	1,337		
Zimmerwald	7810	0	49	0	0	97	0	90	85	108	48	56	86	0	39	35	9	0	17	0	0	49	570	100	719	671	1,236	100	19,446	21,453		
Totals:	39	865	876	836	850	580	286	506	446	615	331	379	350	143	365	282	234	221	126	201	3,427	3,493	1,828	8,748	8,604	6,429	1,903	168,097	185,033			

Pass Summary by Network (Campaign Constellation vs. Total)

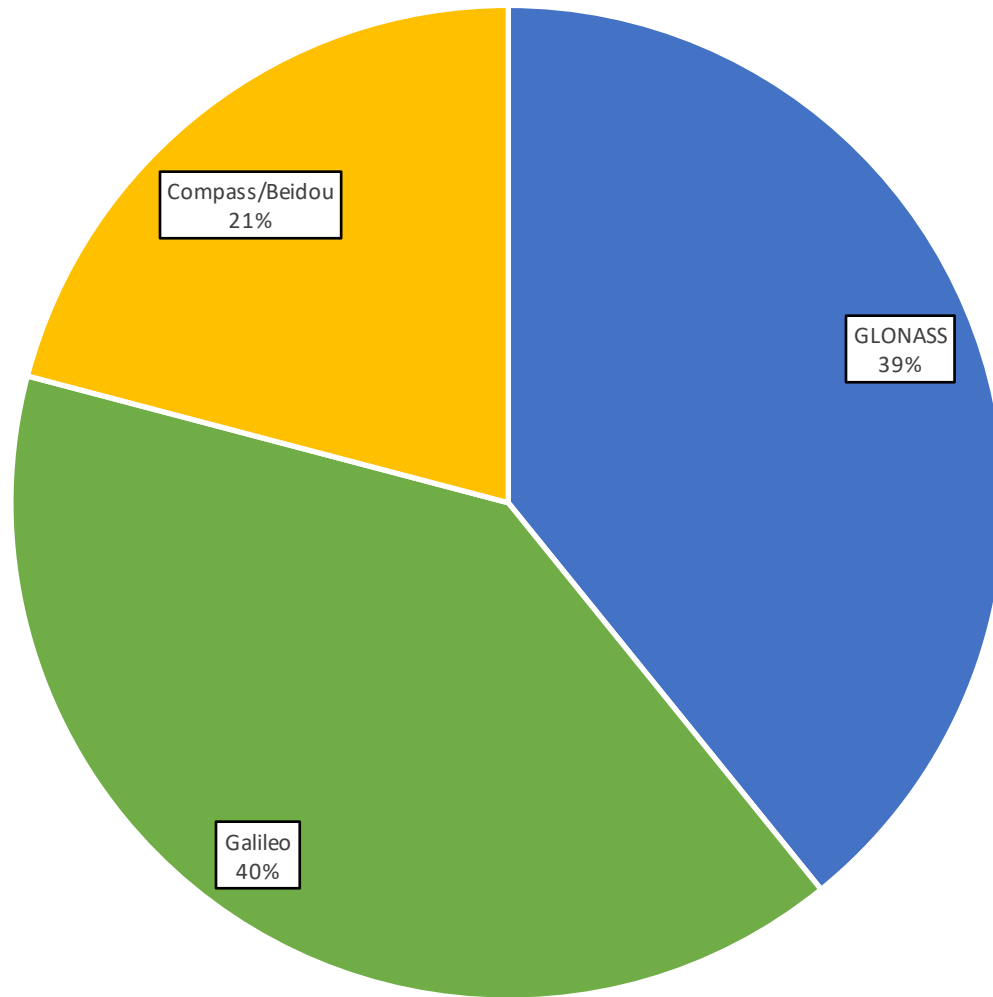
Network	Sta.	%GLO	%GAL	%COM	Tot.	GLO	GAL	COM	Tot.
Chinese Network	4	12%	13%	19%	14%	417	464	351	1,232
European Network	13	45%	61%	49%	52%	1,554	2,132	899	4,585
NASA Network	8	25%	18%	30%	23%	853	623	545	2,021
Russian Network	11	14%	3%	0%	7%	473	104	4	581
All Others	3	4%	5%	2%	4%	130	170	29	329
Totals:	39	39%	40%	21%	100%	3,427	3,493	1,828	8,748

Total NPTs/constellation>100	
Total NPTs/campaign>250	

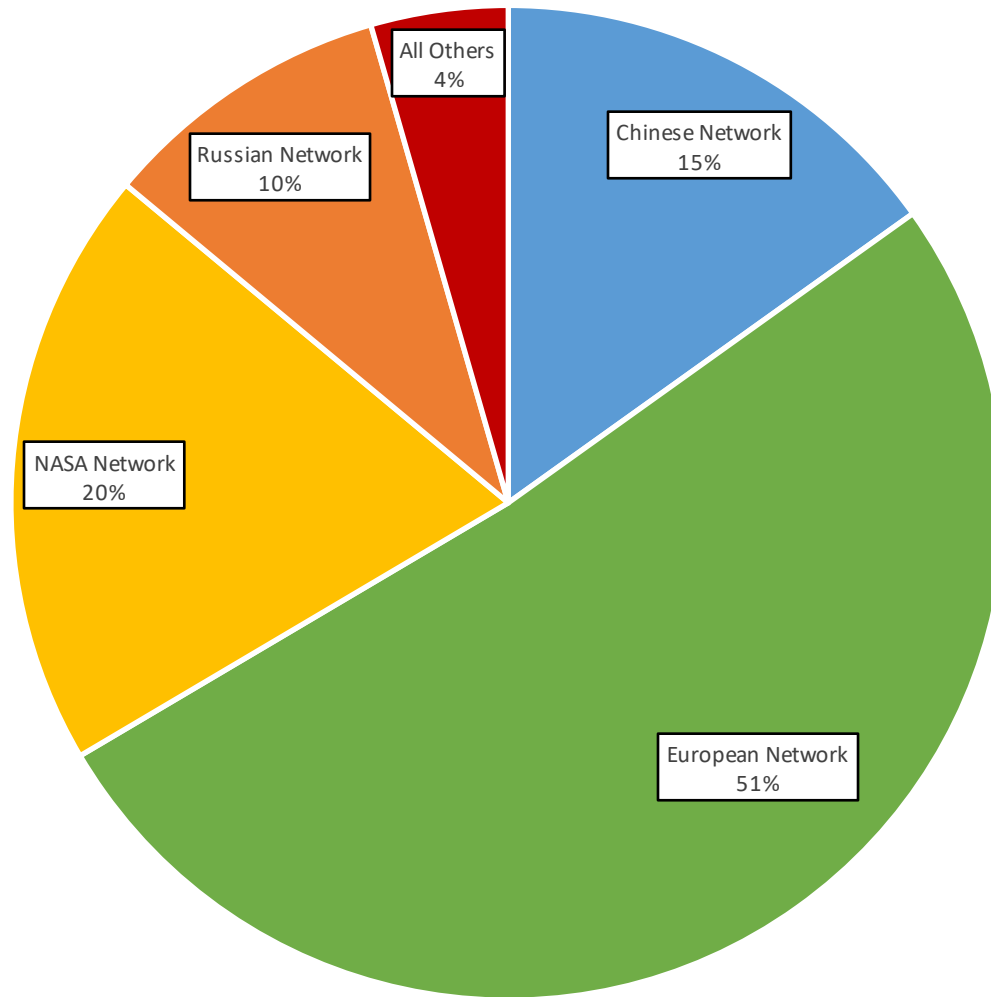
Station Tracking Totals by Constellation
(Passes)



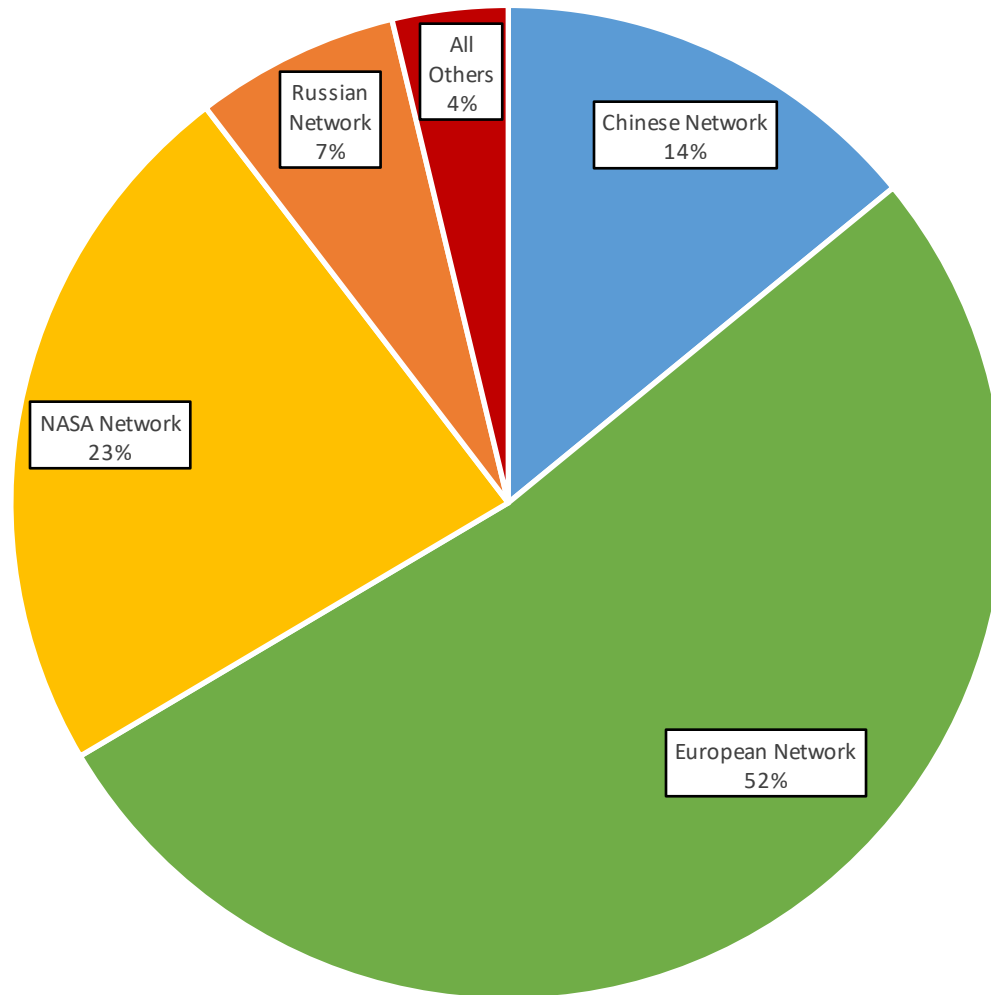
Station Tracking Totals by Constellation (NPTs)



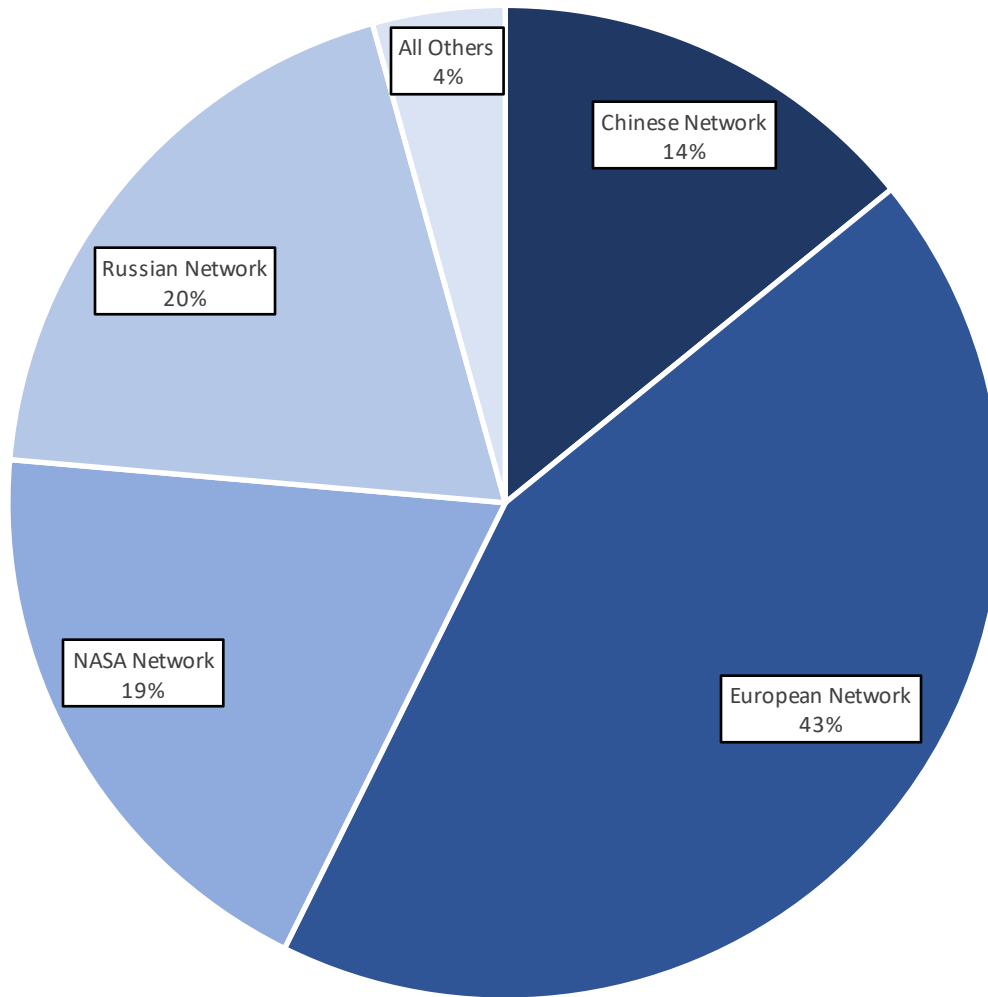
Tracking Totals by Network
(Passes)



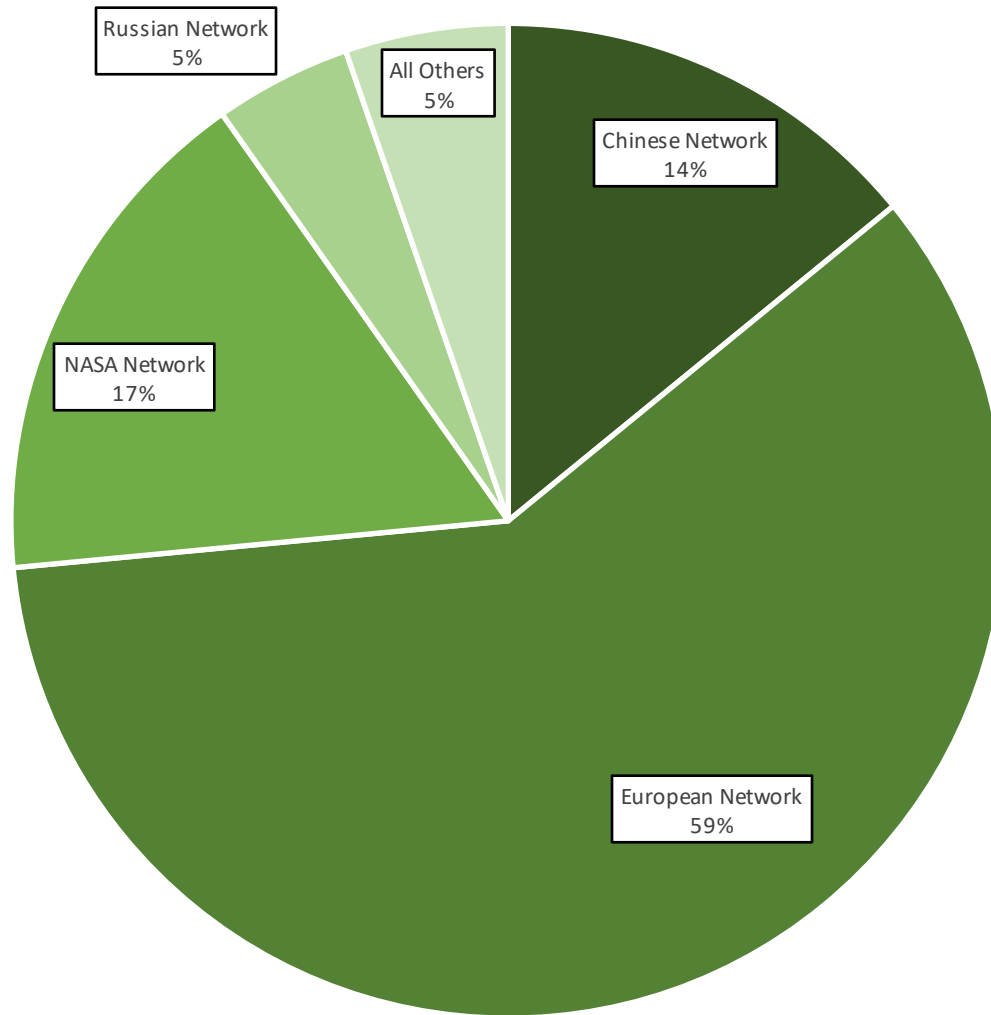
Tracking Totals by Network
(NPTs)



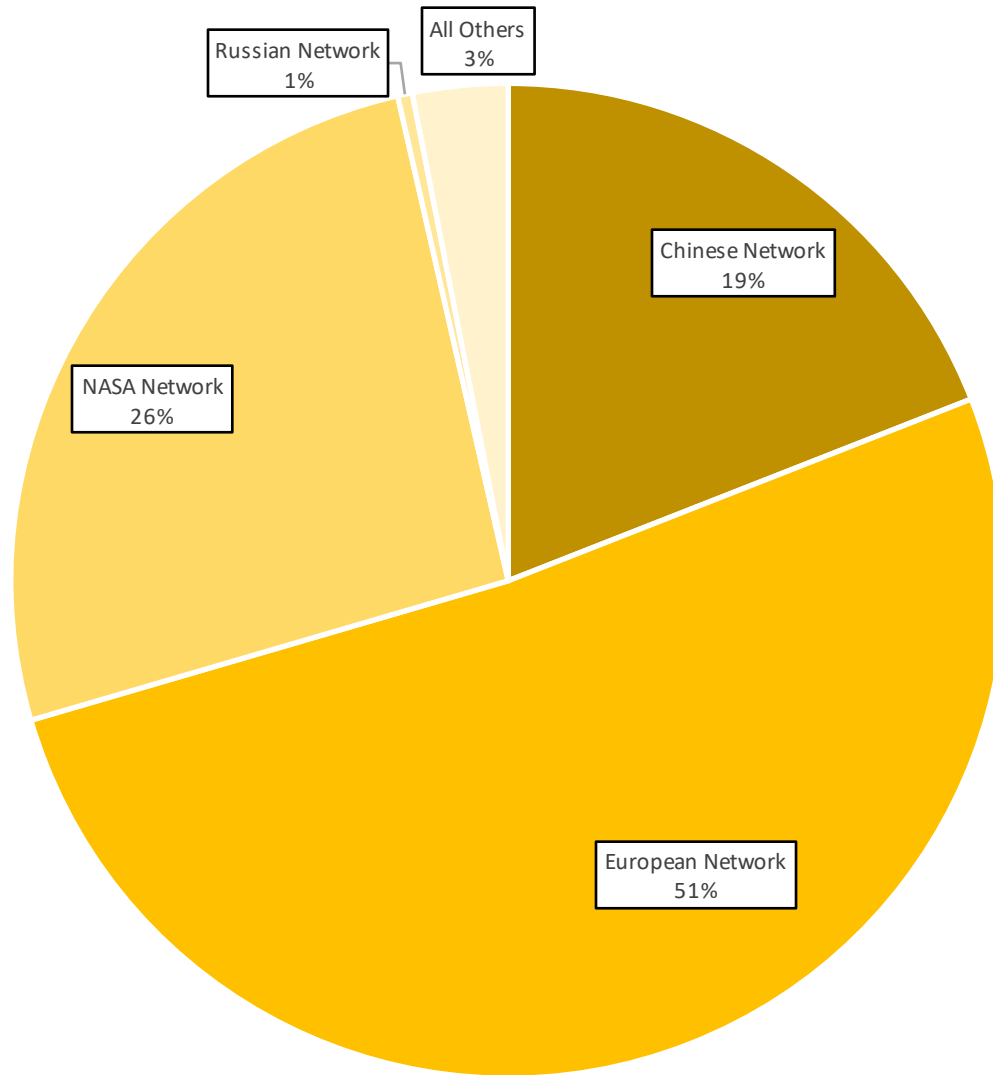
GLONASS Tracking Totals by Network
(Passes)



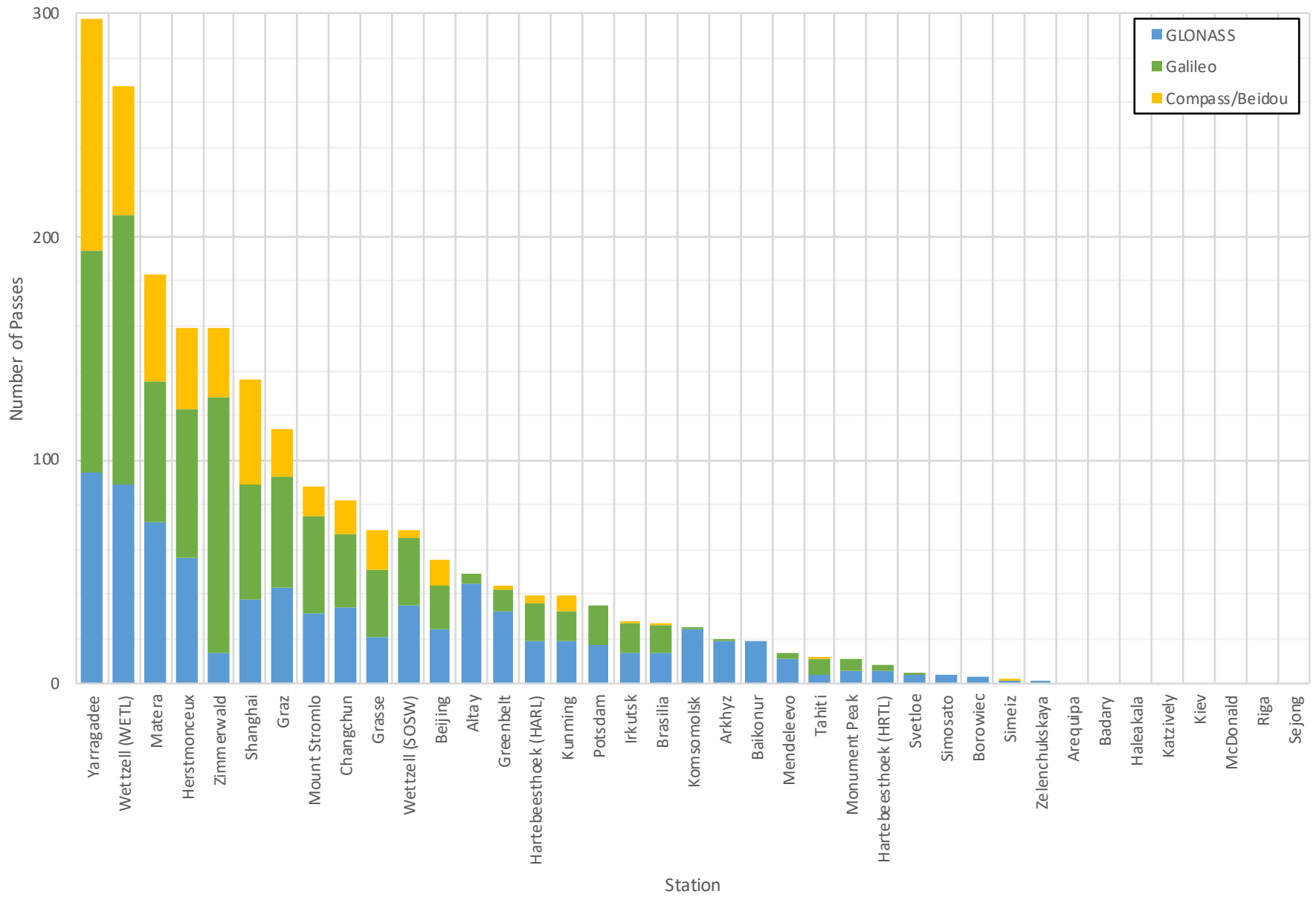
Galileo Campaign Tracking Totals by Network
(Passes)



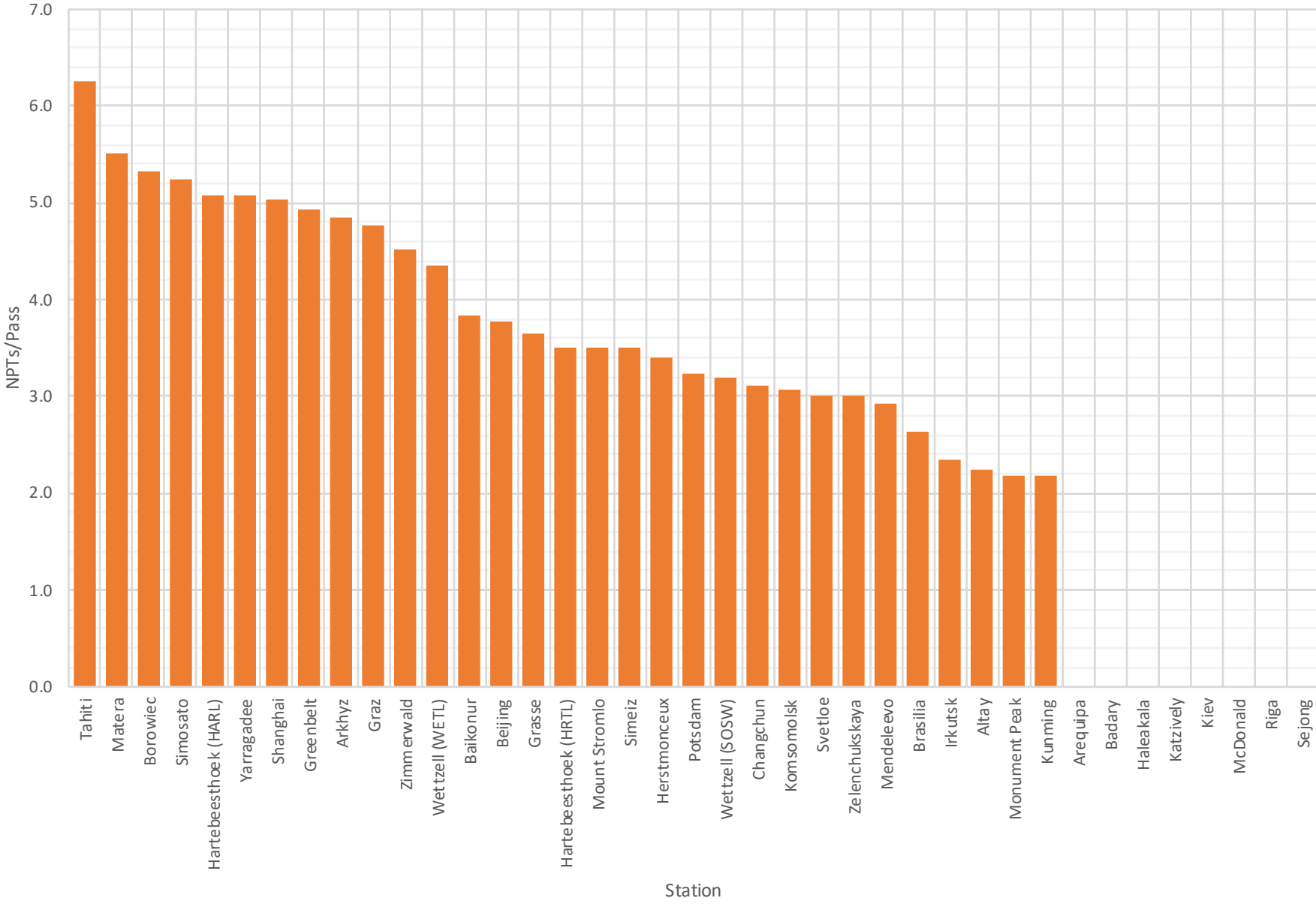
Compass Campaign Totals by Network (Passes)



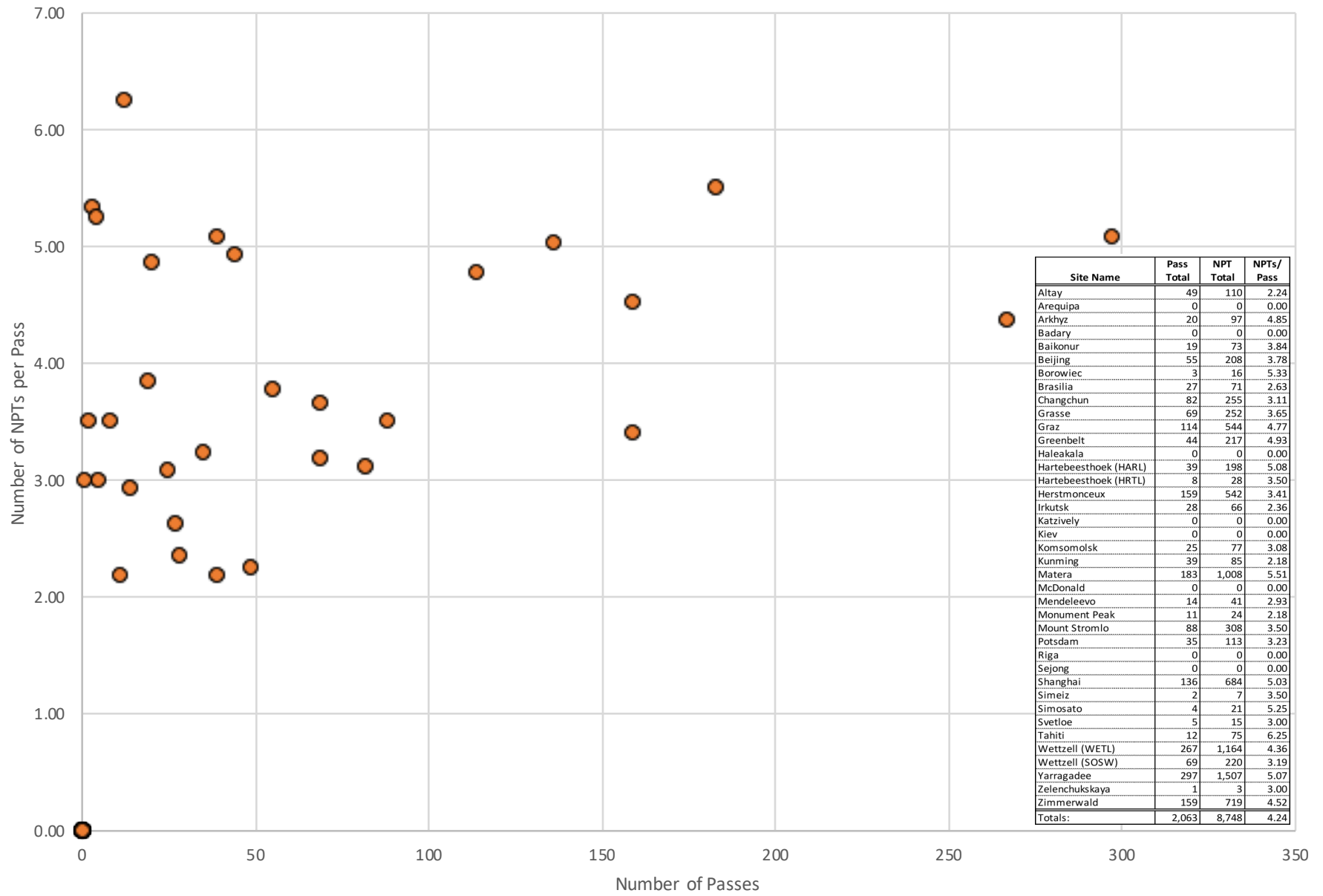
Campaign Pass Totals by Station



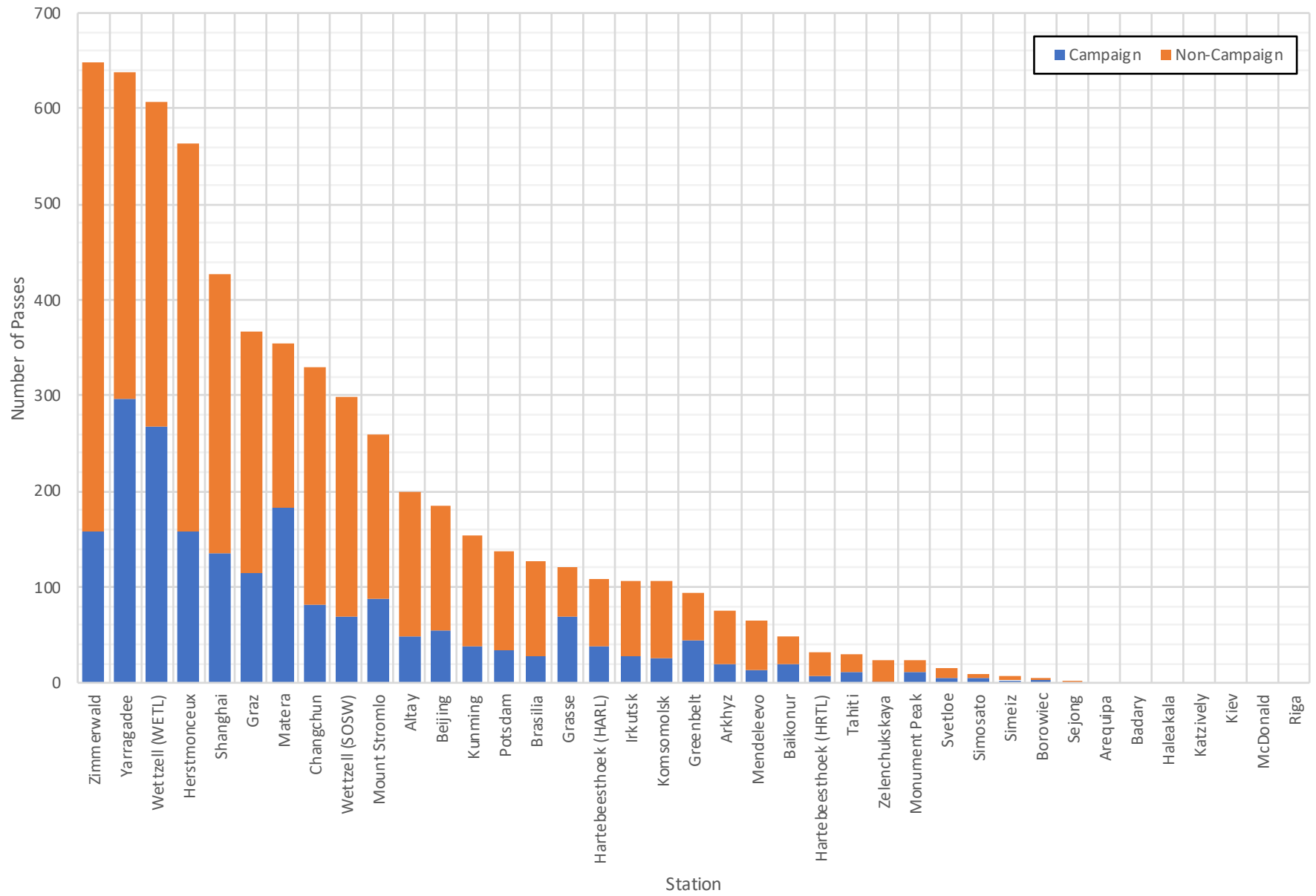
Campaign NPTs per Pass by Station



Station Performance: Campaign Normal Points per Pass



Campaign and Total GNSS (Passes)



Campaign and Total GNSS (NPTs)

