

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.	
			-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	23	21	23	20	1	1	6	1	1	0	2	1	0	0	2	0	0	0	0	0	87	13	2	102	2.4	2.2	2.5	289	28	2	81	400	40	46			
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	774	774	0	28		
Arknyz	1886	8	7	9	12	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	36	1	0	37	4.9	3.0	0.0	113	1	0	161	275	20	31			
Badary	1890	7	1	5	7	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	20	3	0	23	2.9	4.0	0.0	33	3	0	270	306	10	21			
Baikonur	1887	15	17	13	17	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	1	0	63	5.1	2.0	0.0	100	1	0	86	187	14	16			
Beijing	7249	15	9	17	16	1	4	10	9	6	2	10	7	0	7	8	0	4	2	1	1	57	49	23	129	3.5	3.5	3.4	192	129	23	559	903	45	73			
Borowiec	7811	3	5	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15	0	0	15	5.3	0.0	0.0	20	0	0	221	241	4	30			
Brasilia	7407	5	9	11	0	7	1	0	1	8	1	3	0	0	1	0	0	0	0	0	0	25	21	1	47	2.4	2.9	3.0	131	40	1	159	331	34	47			
Changchun	7237	18	27	22	26	3	8	15	15	15	2	15	16	2	14	2	14	11	5	7	93	92	58	243	2.6	3.1	3.1	396	282	77	2,004	2,759	54	92				
Grasse	7845	8	6	12	13	8	5	10	6	8	6	5	1	0	3	5	0	6	2	8	7	39	49	31	119	3.3	3.7	3.4	39	49	31	148	267	18	27			
Graz	7839	22	19	17	24	12	9	14	14	22	7	20	16	0	6	8	0	16	14	9	8	82	114	61	257	6.0	5.5	4.7	339	254	62	1,333	1,988	51	86			
Greenbelt	7105	13	10	14	13	0	1	3	2	4	0	4	0	0	0	0	0	1	1	0	1	50	14	3	67	5.9	3.0	5.0	61	14	3	1,320	1,398	15	48			
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	403	403	0	29				
Hartebeesthoek (HARL)	7501	10	7	8	10	7	5	3	2	6	3	1	3	0	0	0	0	1	1	3	35	30	5	70	6.0	4.6	3.8	87	30	5	705	827	19	50				
Hartebeesthoek (HRTL)	7503	1	3	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	7	3	0	10	3.7	46.0	0.0	24	4	0	150	178	16	34			
Herstmonceux	7840	25	37	34	34	20	14	18	23	24	14	27	20	0	15	16	9	19	12	14	15	130	160	100	390	3.5	3.5	3.2	479	388	100	1,579	2,546	55	89			
Irkutsk	1891	7	4	4	7	4	2	2	0	4	2	0	2	0	1	0	0	0	0	0	0	22	16	1	39	2.1	2.6	1.0	91	30	1	231	353	27	47			
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	580	580	0	25					
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	92	92	0	14					
Komsomolsk	1868	13	16	21	15	2	2	3	2	1	0	1	0	0	3	5	0	0	0	0	0	65	11	8	84	3.7	4.4	3.9	241	19	9	49	318	38	44			
Kunming	7819	12	9	11	12	1	2	0	6	6	0	8	4	0	1	7	3	2	2	0	1	44	27	16	87	2.2	2.3	2.3	156	96	17	356	625	48	79			
Matera	7941	41	44	28	28	32	20	22	20	12	16	15	0	0	25	11	10	14	12	16	13	141	137	101	379	5.6	6.0	5.1	199	143	101	1,570	2,013	24	57			
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	45	45	0	13					
Mendeleev	1874	4	4	3	4	0	0	1	1	1	0	0	1	0	0	0	0	0	0	0	0	15	4	0	19	2.9	2.8	0.0	62	9	0	66	137	24	35			
Monument Peak	7110	7	4	7	3	1	0	6	4	3	0	4	5	0	0	0	0	3	0	0	0	21	23	3	47	3.0	2.3	4.3	23	23	3	1,207	1,256	13	44			
Mount Stromlo	7825	8	10	18	12	14	9	8	11	17	15	8	13	5	14	0	0	0	0	3	48	95	22	165	3.5	3.4	2.2	125	206	22	1,405	1,758	39	67				
Potsdam	7841	12	8	9	11	1	2	6	6	8	1	5	8	1	0	0	0	1	1	1	1	40	37	5	82	3.5	3.4	3.4	122	104	5	1,113	1,344	43	75			
Riga	1884	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	1	0.0	3.0	0.0	0	1	0	149	150	1	21			
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	1	0	0	115	116	1	13			
Shanghai	7821	23	22	24	0	14	5	11	11	13	3	15	12	10	7	16	11	10	2	4	4	69	84	64	217	4.6	5.0	5.1	300	201	72	839	1,412	48	80			
Simeiz	1873	1	2	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	1	14	4.3	0.0	3.0	40	1	1	627	669	19	45			
Simosato	7838	1	0	0	3	0	0	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	285	290	3	21			
Svetloe	1888	5	3	3	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	11	3	0	14	3.0	2.7	0.0	21	5	0	180	206	13	31			
Tahiti	7124	8	4	6	9	3	4	1	0	3	2	1	1	0	0	0	3	1	4	2	27	15	10	52	7.4	7.5	6.7	48	15	10	273	346	19	48				
Wettzell (SOSW)	7827	18	19	14	25	6	11	8	15	8	6	15	9	0	6	4	1	5	8	4	1	76	78	29	183	3.8	2.8	2.3	331	191	29	663	1,214	52	78			
Wettzell (WETL)	8834	48	45	39	50	31	31	28	28	32	26	24	27	3	27	7	9	28	5	26	28	182	227	133	542	5.1	4.4	4.6	262	381	133	1,406	2,182	38	71			
Yarragadee	7090	50	51	56	52	38	29	17	19	34	32	17	17	38	43	15	48	18	14	33	29	209	203	238	650	5.9	5.0	4.9	430	269	249	3,256	4,204	44	86			
Zelenchukskaya	1889	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	2.4	0.0	0.0	49	0	0	242	291	15	34				
Zimmerwald	7810	4	30	0	0	31	0	32	36	38	31	31	33	0	27	17	9	0	18	0	34	232	71	337	3.1	5.2	3.1	535	536	71	2,736	3,878	37	68				
Totals:	39	438	455	436	435	237	167	224	236	278	172	232	197	60	188	135	102	144	106	126	125	1,764	1,743	986	4,493	4.4	4.4	4.2	5,344	3,453	1,027	27,438	37,262					

Pass Summary by Network (Campaign Constellation vs. Total)

Network	Sta.	%GLO	%GAL	%COM	Tot.	GLO	GAL	COM	Tot.
Chinese Network	4	15%	14%	16%	15%	263	252	161	676
European Network	13	43%	59%	54%	52%	752	1,035	532	2,319
NASA Network	8	19%	16%	26%	20%	342	285	259	886
Russian Network	11	20%	4%	1%	10%	355	76	12	443
All Others	3	3%	5%	2%	4%	52	95	22	169
Totals:	39	39%	39%	22%	100%	1,764	1,743	986	4,493

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

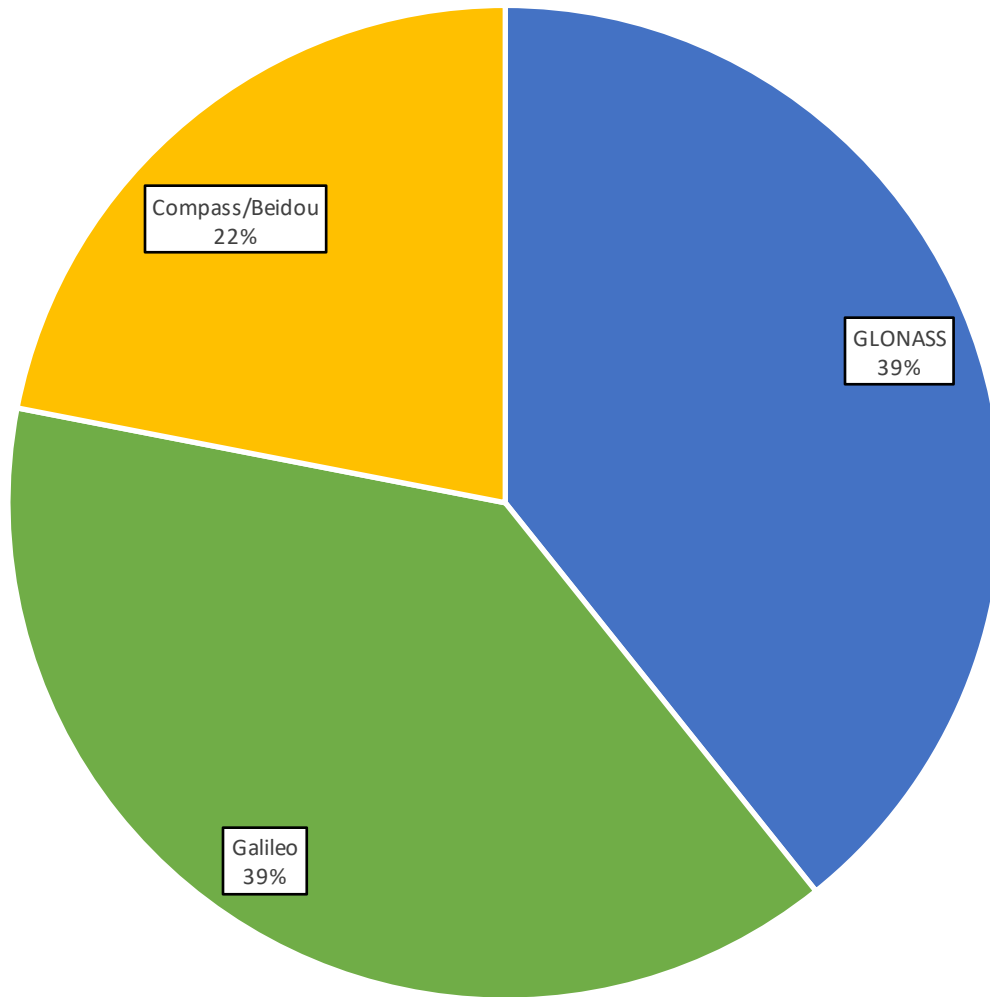
Number of NPTs		GLONASS										Galileo						Compass				Beidou-3				Campaign Totals			All Tracking Totals			
Site Name	Sta.	-131	-134	-136	-137	-102	-202	-209	-210	-103	-203	-211	-213	-I3	-M3	-I5	-I6B	-M2	-M3	-M9	-M10	GLONASS	Galileo	mpass/Bei	Total	GLONASS	Galileo	mpass/Bei	Other	All		
Altay	1879	51	45	60	53	2	2	14	1	2	0	5	2	0	0	5	0	0	0	0	0	209	28	5	242	644	61	5	441	1,151		
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	8,327	8,327	
Arknyz	1886	43	31	43	59	0	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	176	3	0	179	428	3	0	1,222	1,653		
Badary	1890	18	4	13	22	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	0	57	12	0	69	102	12	0	2,154	2,268		
Baikonur	1887	78	86	66	89	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	319	2	0	321	484	2	0	367	853		
Beijing	7249	55	36	56	53	2	10	36	31	27	4	32	30	0	19	35	0	12	7	3	2	200	172	78	450	655	487	78	4,759	5,979		
Borowiec	7811	19	24	0	36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	0	0	79	106	0	0	3,712	3,818		
Brasilia	7407	12	21	26	0	19	2	0	1	31	2	6	0	0	0	0	0	0	0	0	0	59	61	3	123	356	119	3	703	1,181		
Changchun	7237	45	80	64	57	7	23	49	57	31	28	38	52	13	4	48	7	36	38	19	16	246	285	181	712	1,125	832	254	20,410	22,521		
Grasse	7845	28	24	34	42	38	29	30	26	20	20	15	2	0	8	15	0	20	6	29	28	128	180	106	414	128	180	106	962	1,376		
Graz	7839	124	110	107	155	90	30	99	71	110	37	117	72	0	23	31	0	82	87	36	27	496	626	286	1,408	1,403	1,218	294	22,910	25,825		
Greenbelt	7105	89	61	86	60	0	4	6	6	11	0	15	0	0	0	0	0	4	2	0	0	296	42	15	353	340	42	15	24,206	24,603		
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	6,085	6,085		
Hartebeesthoek (HARL)	7501	57	43	40	70	32	24	14	11	28	12	7	10	0	0	0	0	0	2	6	11	210	138	19	367	628	138	19	9,014	9,799		
Hartebeesthoek (HRTL)	7503	4	10	12	0	0	0	0	4	6	0	0	0	0	0	0	0	0	0	0	0	26	10	0	36	80	12	0	2,147	2,239		
Herstmonceux	7840	104	138	112	99	66	41	66	78	93	54	87	76	0	49	41	23	80	29	48	50	453	561	320	1,334	1,294	1,187	320	21,801	24,602		
Irkutsk	1891	14	7	8	18	8	7	4	0	9	6	0	7	0	1	0	0	0	0	0	0	47	41	1	89	174	70	1	1,530	1,775		
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	0	5,925	5,925		
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	823	823		
Komsomolsk	1868	46	65	69	59	5	9	15	12	3	0	4	0	0	17	14	0	0	0	0	0	239	48	31	318	787	72	33	326	1,218		
Kunming	7819	26	20	24	28	2	6	0	15	14	0	17	9	0	3	14	7	4	5	0	3	98	63	36	197	344	213	38	3,479	4,074		
Matera	7941	272	238	159	121	259	99	134	110	50	109	60	0	0	155	64	36	61	48	90	62	790	821	516	2,127	1,046	842	516	17,624	20,028		
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	341	341		
Mendeleev	1874	14	10	10	10	0	0	3	2	3	0	0	0	3	0	0	0	0	0	0	0	44	11	0	55	187	26	0	1,245	1,458		
Monument Peak	7110	16	18	21	9	3	0	13	7	8	0	0	0	0	0	0	13	0	0	0	0	64	54	13	131	69	54	13	20,117	20,253		
Mount Stromlo	7825	30	35	63	39	60	30	25	35	46	45	29	57	13	31	0	0	0	0	0	5	167	327	49	543	406	658	49	18,679	19,792		
Potsdam	7841	47	17	39	35	3	5	19	23	28	3	18	26	3	0	0	0	3	4	4	3	138	125	17	280	399	356	17	15,190	15,962		
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	2,354	2,357		
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	1,209	1,212		
Shanghai	7821	108	101	106	0	66	21	59	65	68	13	58	67	59	32	106	46	45	9	15	15	315	417	327	1,059	1,354	1,027	372	7,375	10,128		
Simeiz	1873	5	8	18	25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	0	3	59	175	4	3	5,946	6,128		
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	4,050	4,075		
Svetloe	1888	13	8	12	0	1	0	0	0	3	0	4	0	0	0	0	0	0	0	0	0	33	8	0	41	53	14	0	1,093	1,160		
Tahiti	7124	78	24	30	67	14	35	4	0	37	9	5	9	0	0	0	0	12	9	34	12	199	113	67	379	360	113	67	3,694	4,234		
Wettzell (SOSW)	7827	62	76	52	97	18	32	25	48	24	17	38	19	0	18	8	2	10	17	11	1	287	221	67	575	915	464	67	7,034	8,480		
Wettzell (WETL)	8834	244	220	195	269	162	115	136	114	133	112	127	106	8	119	18	37	127	23	141	138	928	1,005	611	2,544	1,219	1,573	611	12,243	15,646		
Yarragadee	7090	267	268	344	347	212	119	100	75	178	183	75	63	160	236	45	279	80	60	150	145	1,226	1,005	1,155	3,386	2,008	1,196	1,195	48,360	52,759		
Zelenchukskaya	1889	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	0	12	145	0	0	1,890	2,035		
Zimmerwald	7810	10	95	0	0	204	0	157	203	190	157	137	157	0	86	47	33	0	53	0	0	105	1,205	219	1,529	1,529	2,671	219	42,622	47,041		
Totals:	39	1,992	1,927	1,869	1,935	1,272	646	1,008	1,007	1,156	811	901	786	256	804	491	470	589	399	586	530	7,723	7,587	4,125	19,435	18,971	13,649	4,295	352,369	389,284		

Pass Summary by Network (Campaign Constellation vs. Total)

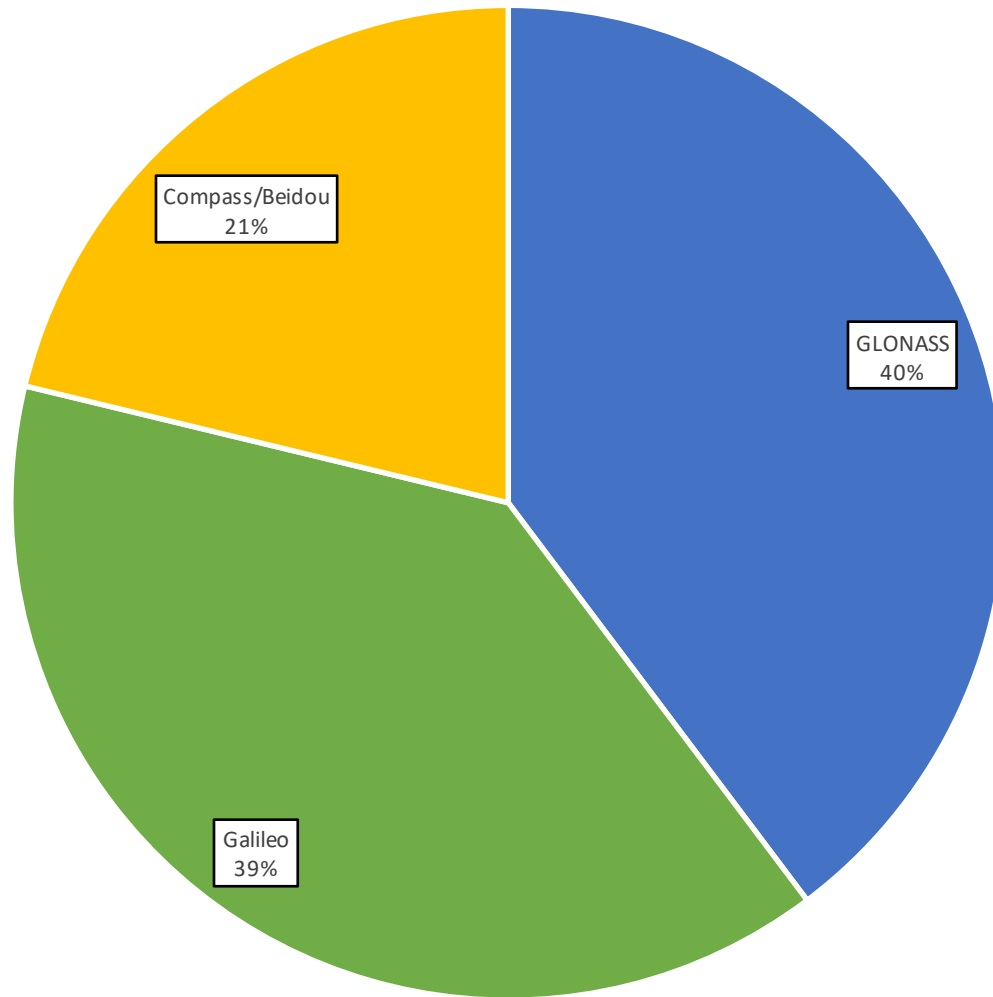
Network	Sta.	%GLO	%GAL	%COM	Tot.	GLO	GAL	COM	Tot.
Chinese Network	4	11%	12%	15%	12%	859	937	622	2,418
European Network	13	45%	63%	52%	53%	3,460	4,747	2,145	10,352
NASA Network	8	26%	18%	31%	24%	1,995	1,352	1,269	4,616
Russian Network	11	16%	3%	1%	8%	1,221	224	40	1,485
All Others	3	2%	4%	1%	3%	188	327	49	564
Totals:	39	40%	39%	21%	100%	7,723	7,587	4,125	19,435

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

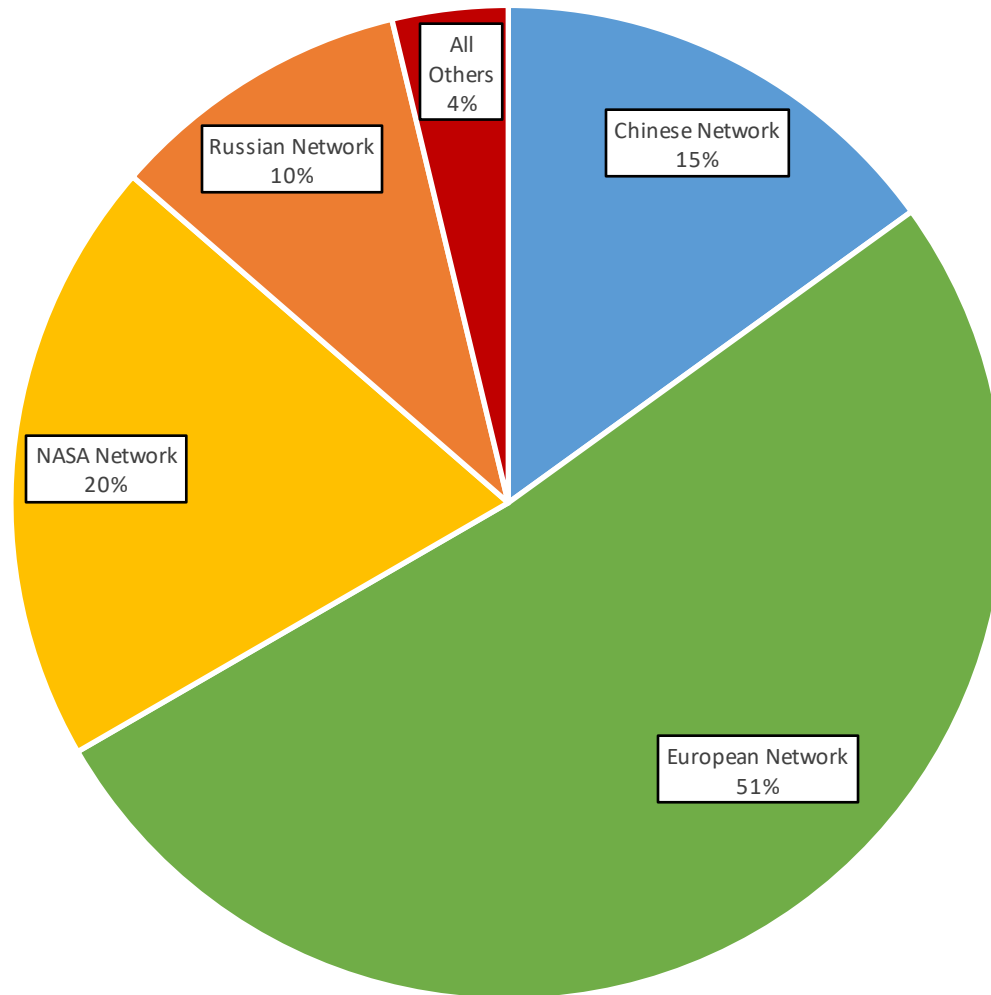
Station Tracking Totals by Constellation
(Passes)



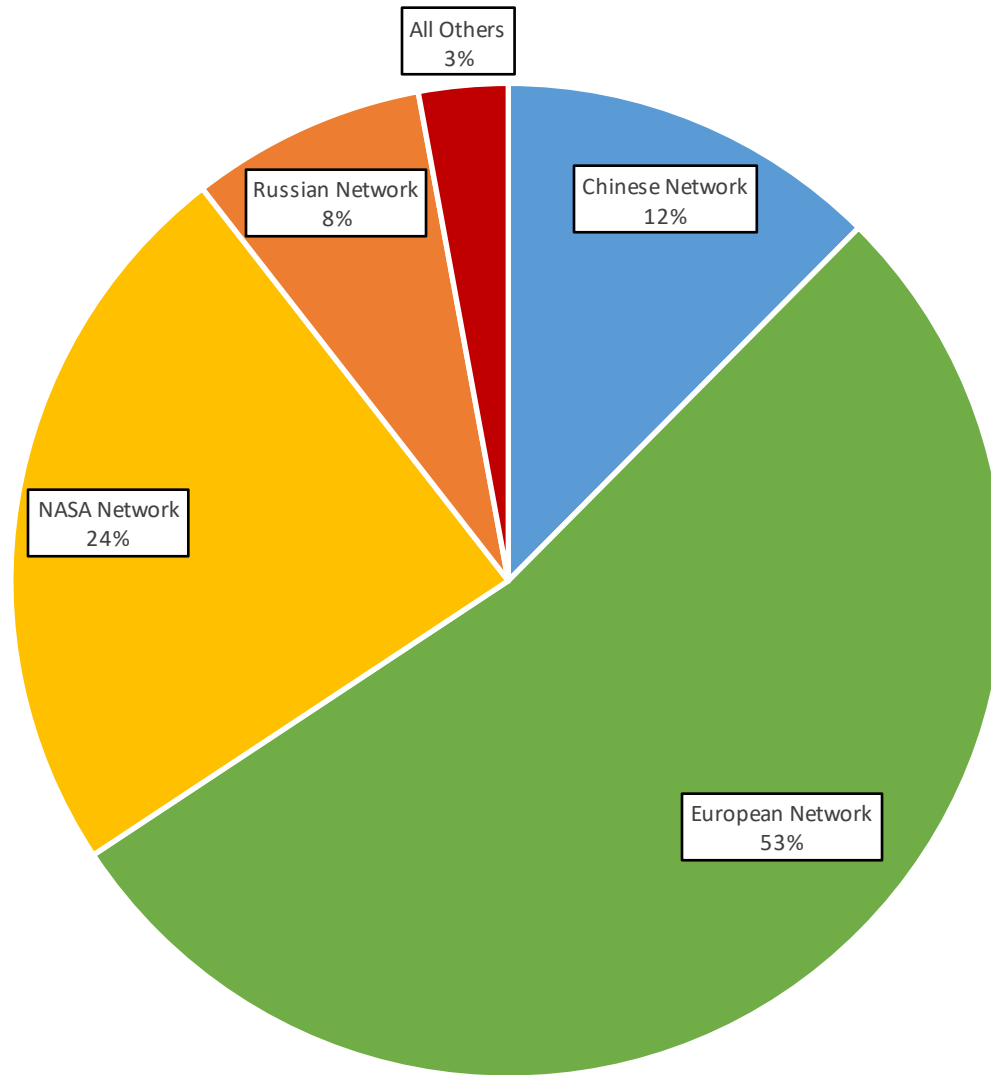
Station Tracking Totals by Constellation (NPTs)



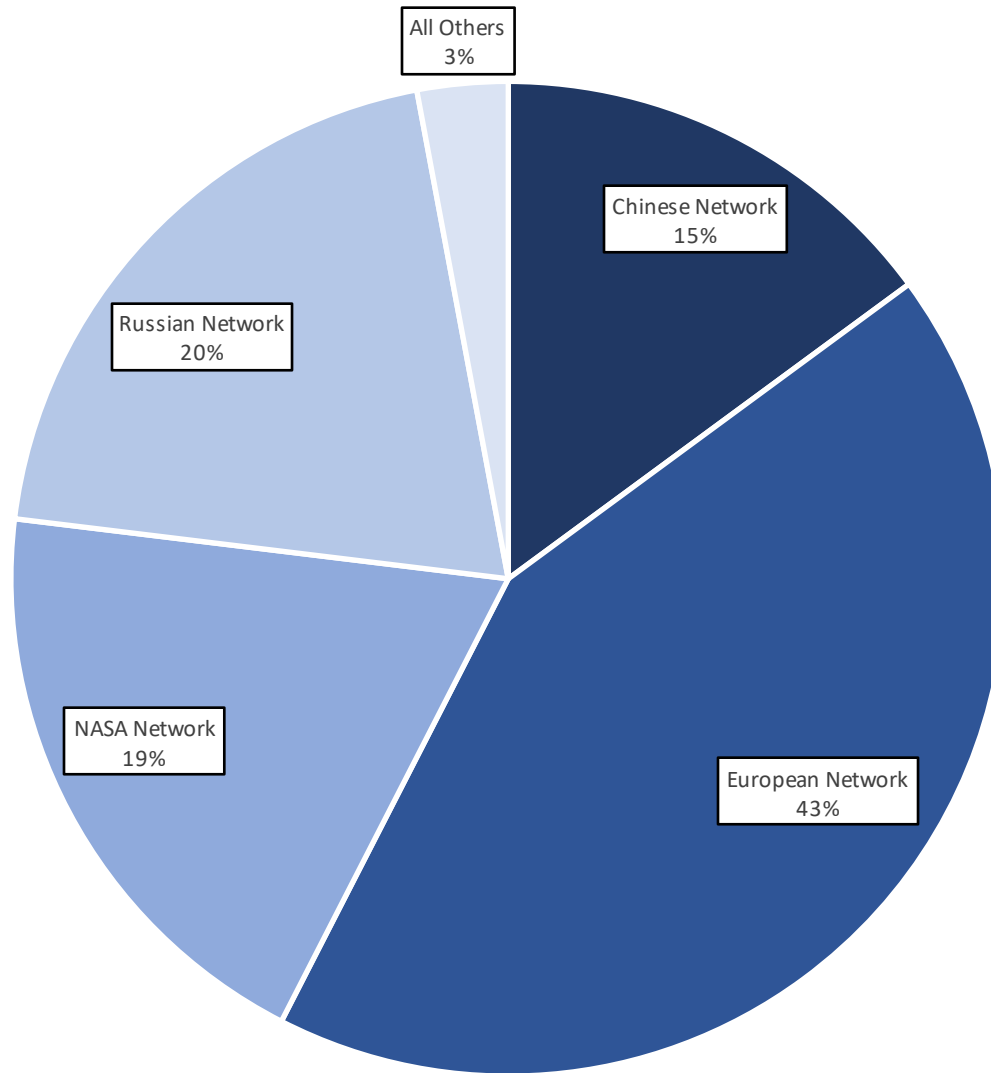
Tracking Totals by Network
(Passes)



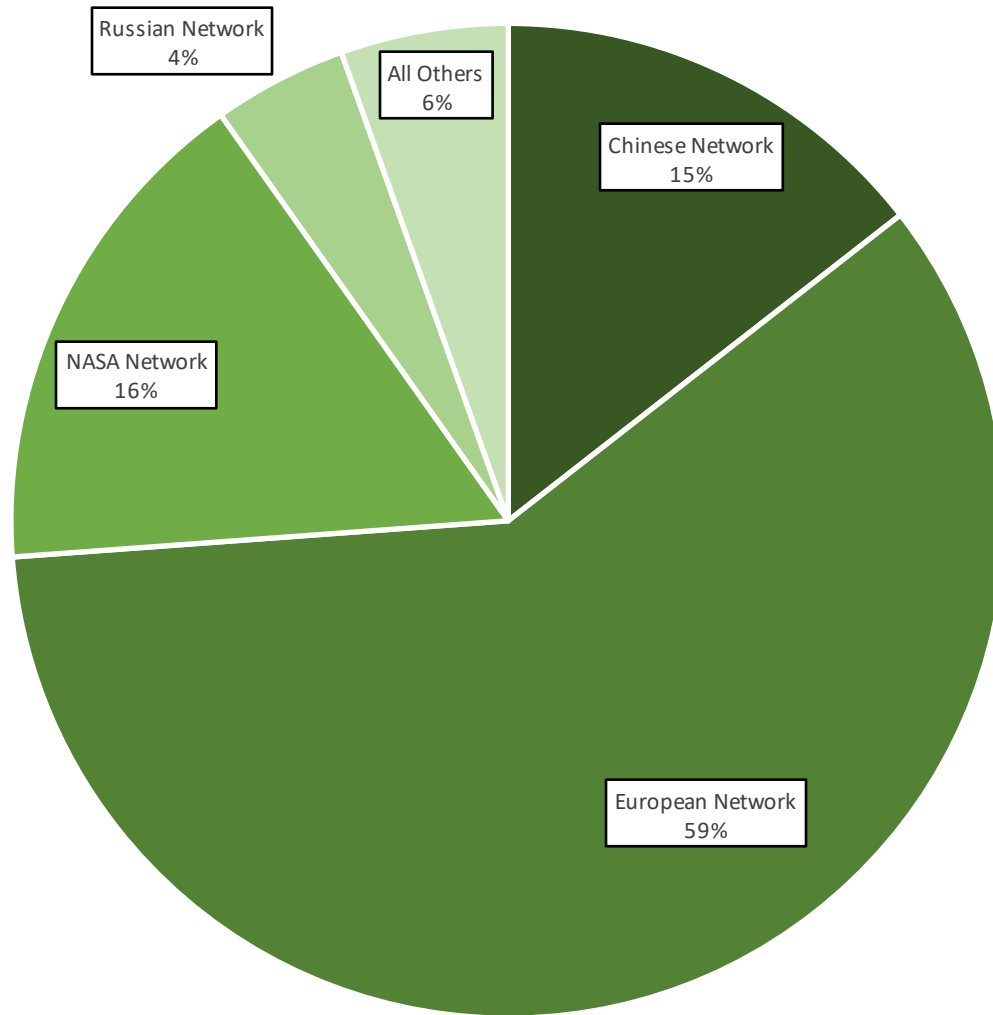
Tracking Totals by Network (NPTs)



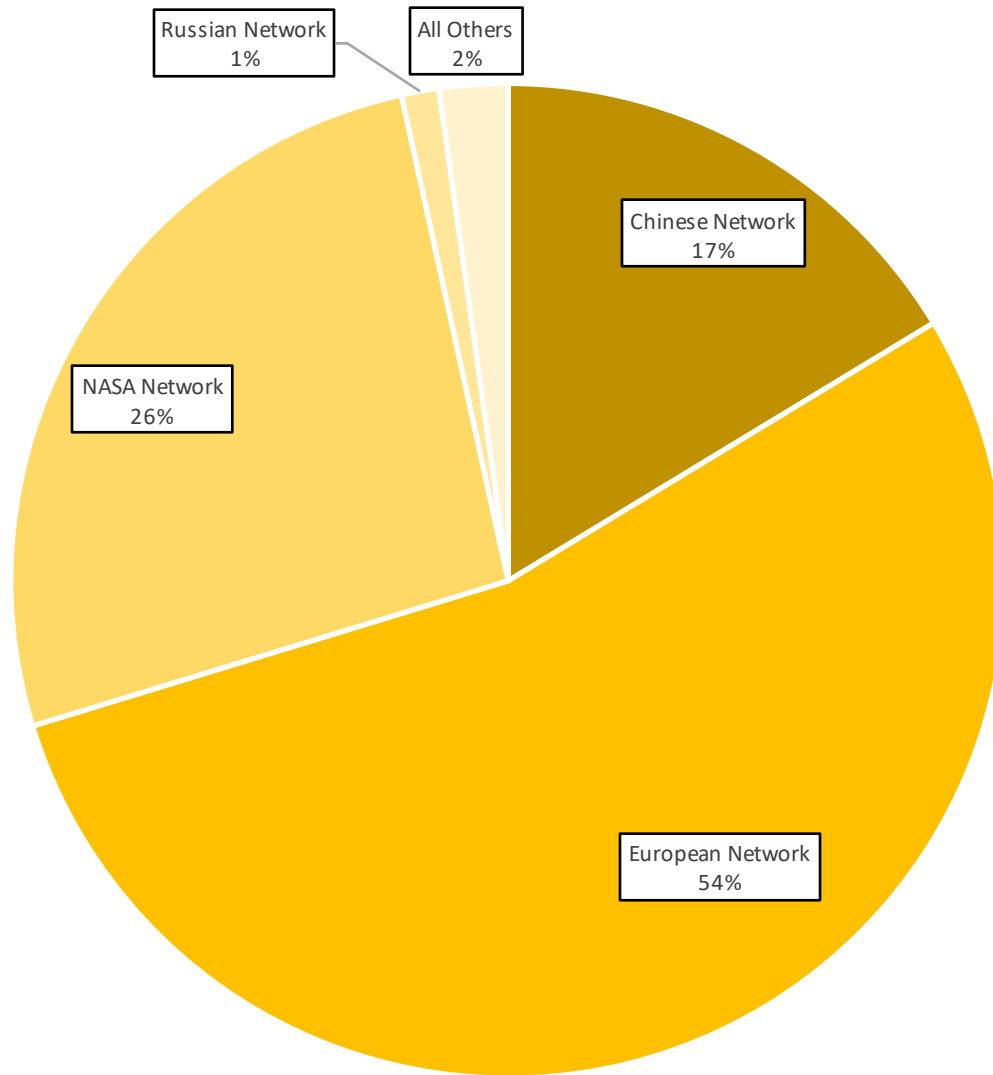
GLONASS Tracking Totals by Network (Passes)



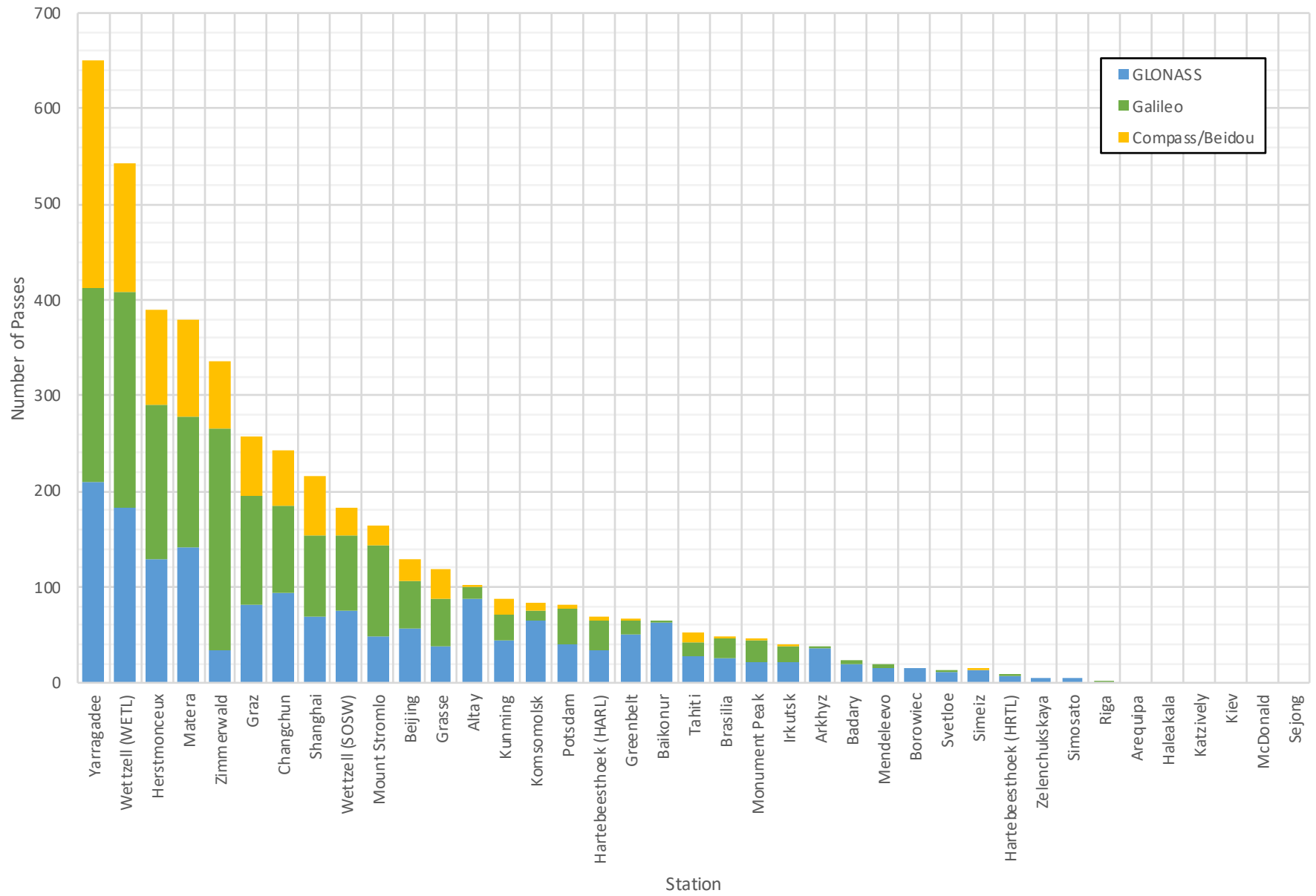
Galileo Campaign Tracking Totals by Network
(Passes)



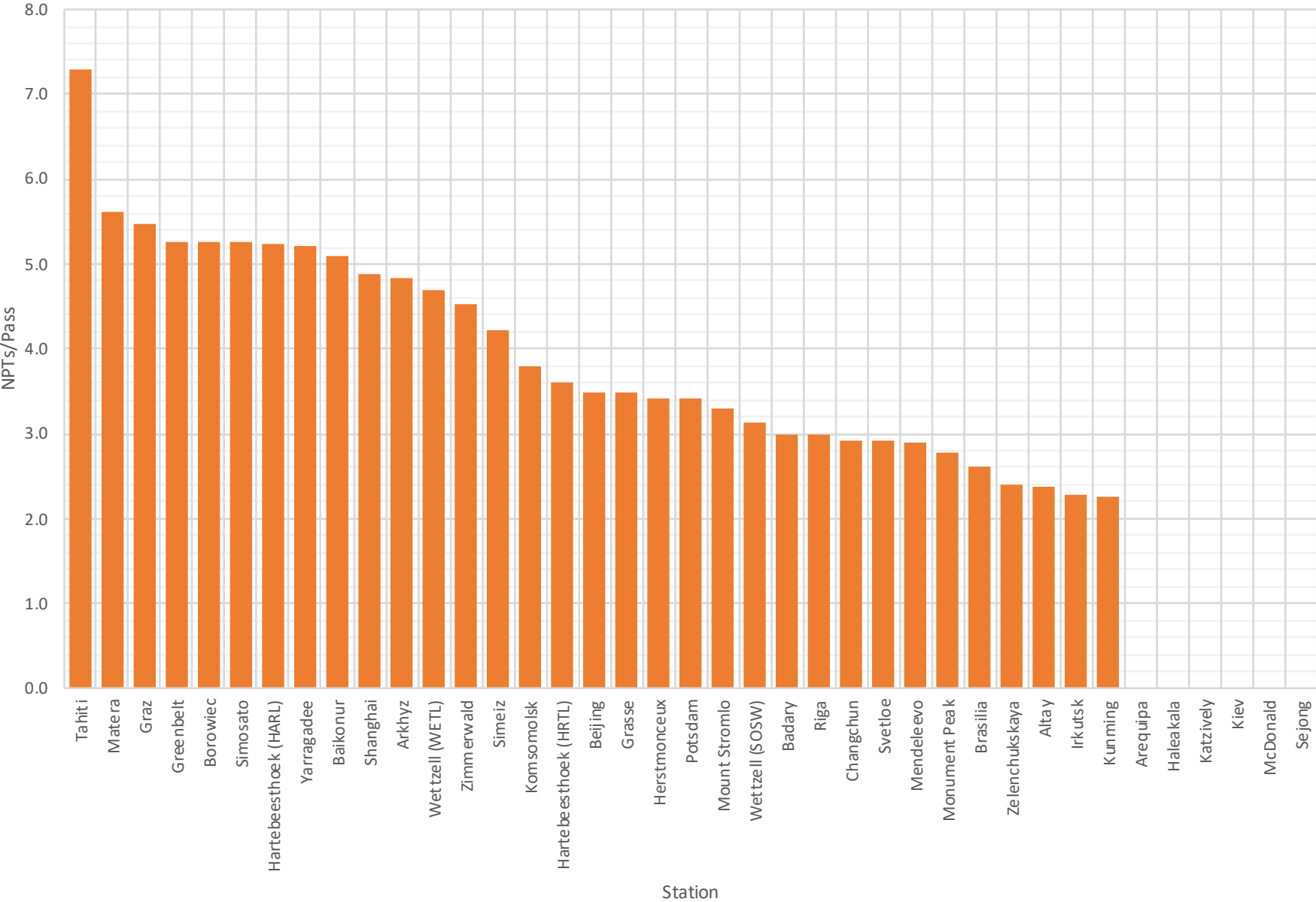
Compass Campaign Totals by Network (Passes)



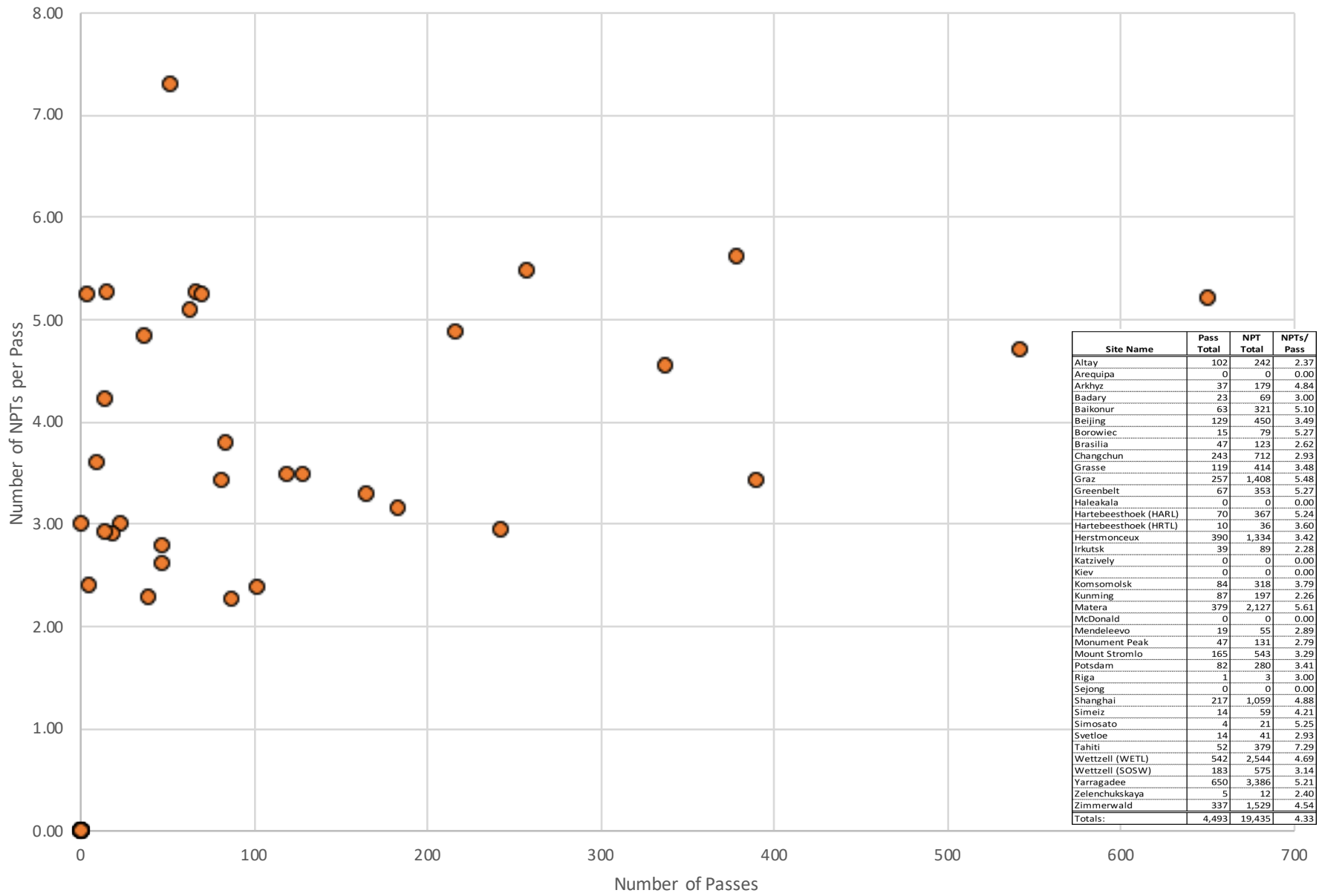
Campaign Pass Totals by Station



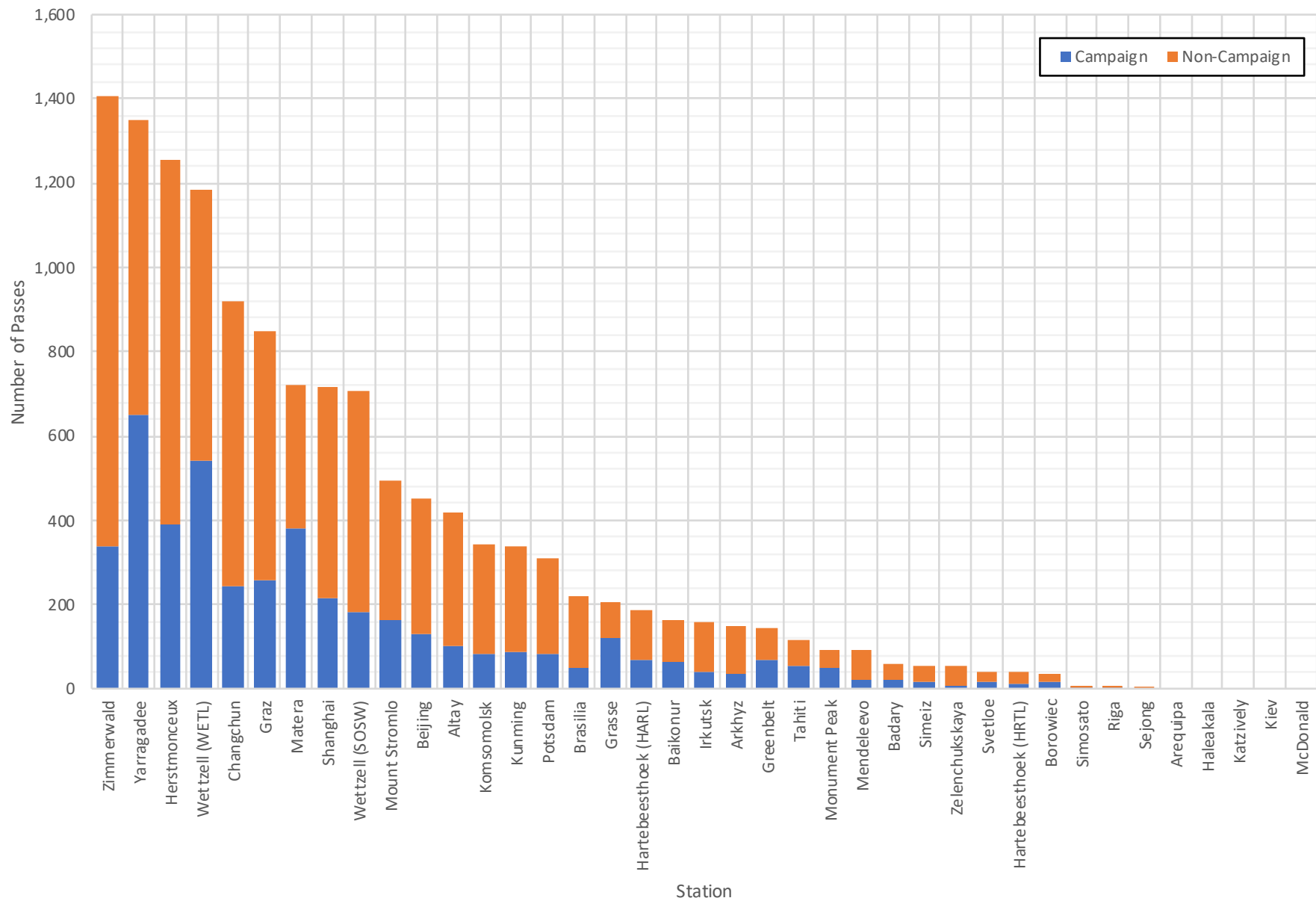
Campaign NPTs per Pass by Station



Station Performance: Campaign Normal Points per Pass



Campaign and Total GNSS (Passes)



Campaign and Total GNSS (NPTs)

