

Global View

program Pegasus
 version 4.8.4
 site Laboratory satellite systems
 abbreviation NAU
 country Ukraine
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 date 16/03/2017

SBAS Messages

start: 08:51:8.129 01.03.2017 (week: 1938 sec: 291068.129)
end: 12:51:43.129 01.03.2017 (week: 1938 sec: 305503.129)
duration: 04:00:35 ..

quality

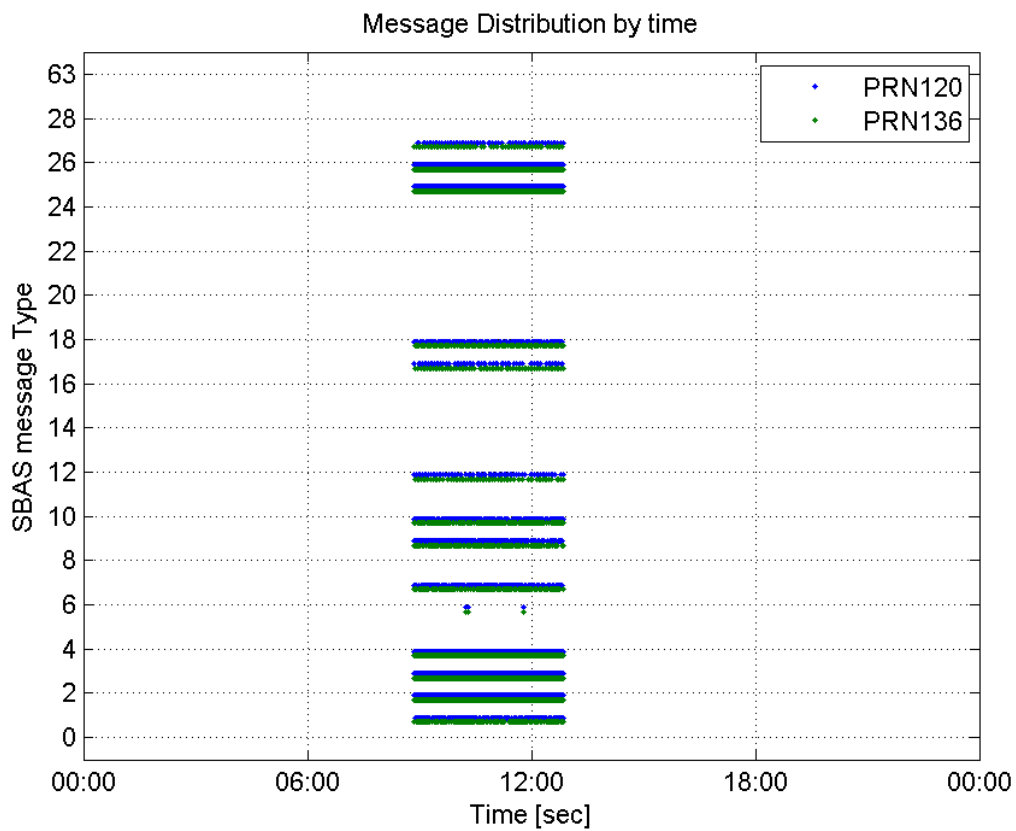
valid samples 22781
total samples 22781
number of SBAS PRNs 2

SBAS SIS Overview

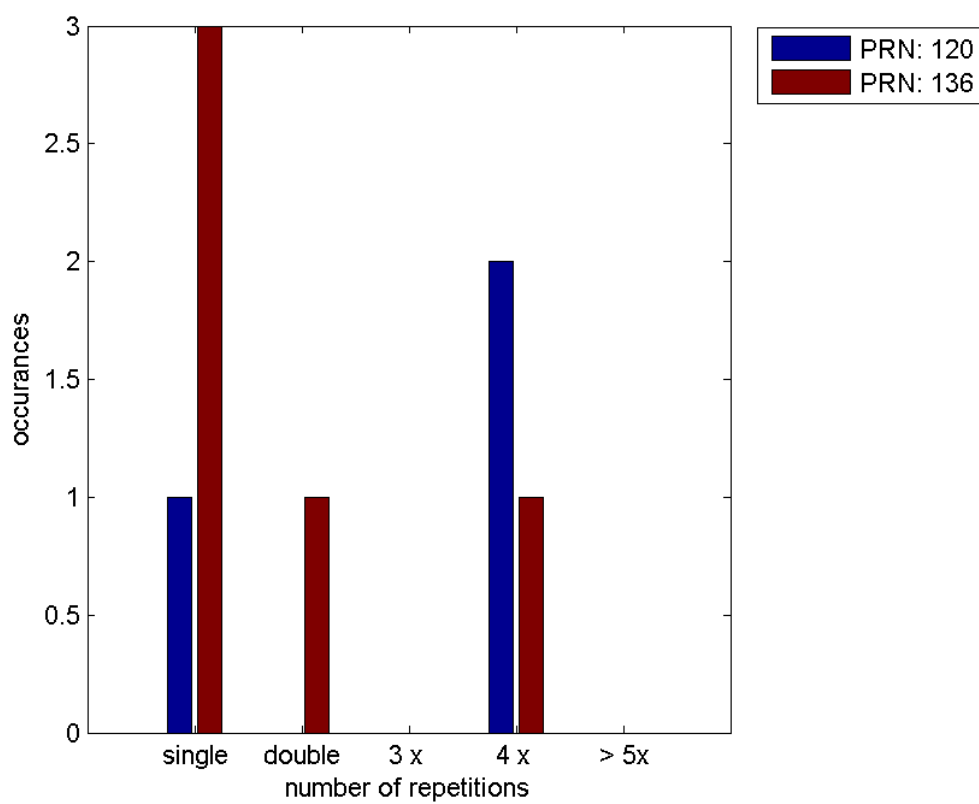
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	1	0	0	2	0
PRN 136	3	1	0	1	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

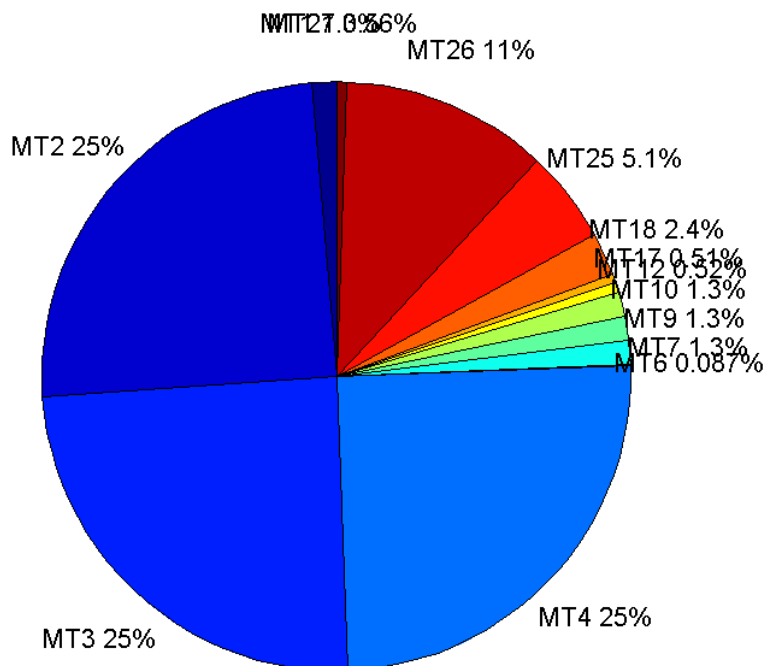
	number of messages	%
MT 0	0	0
MT 1	150	1.30833
MT 2	2842	24.7885
MT 3	2810	24.5094
MT 4	2863	24.9717
MT 5	0	0
MT 6	10	0.087222
MT 7	150	1.30833
MT 9	150	1.30833
MT 10	154	1.34322
MT 12	60	0.523332
MT 17	58	0.505887
MT 18	272	2.37244
MT 24	0	0
MT 25	580	5.05887
MT 26	1302	11.3563
MT 27	64	0.558221
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	11465	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	240	95.7517	24	0	0
MT 2	4	17	5.08025	712	0	6
MT 3	4	17	5.13635	733	0	3
MT 4	4	17	5.04123	692	0	7
MT 5	--	--	--	--	--	--
MT 6	1	5358	613.778	2	2	2
MT 7	76	243	95.698	25	0	3
MT 9	76	241	95.7785	0	0	0
MT 10	76	400	93.6928	20	1	2
MT 12	188	588	242.627	59	12	12
MT 17	188	780	251.211	0	0	0
MT 18	4	195	52.8229	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	81	24.8066	0	0	0
MT 26	4	52	11.0861	0	0	0
MT						

27	188	597	224.175	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

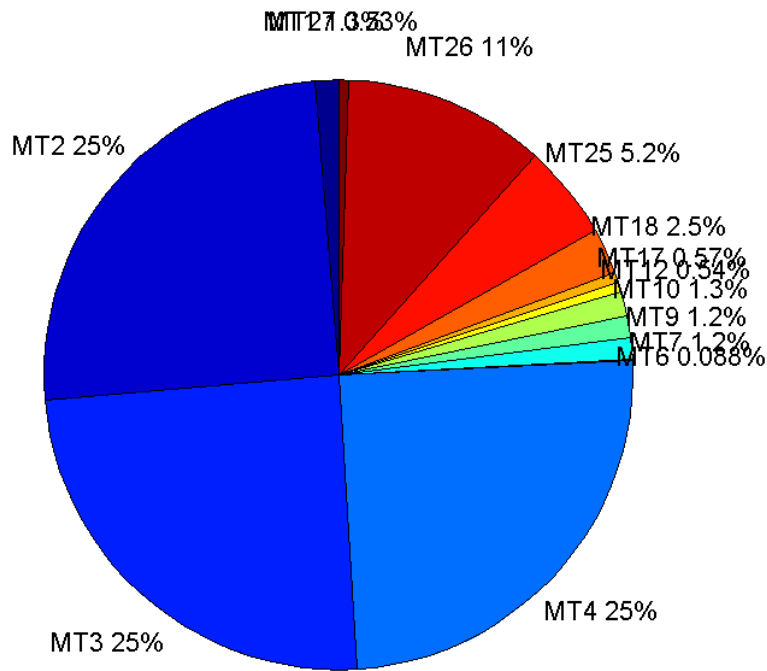
	number of messages	%
MT 0	0	0
MT 1	143	1.2637
MT 2	2840	25.0972
MT 3	2791	24.6642
MT 4	2800	24.7437
MT 5	0	0
MT 6	10	0.0883704
MT 7	134	1.18416
MT 9	134	1.18416
MT 10	148	1.30788
MT 12	61	0.53906
MT 17	65	0.574408

MT 18	286	2.52739
MT 24	0	0
MT 25	589	5.20502
MT 26	1255	11.0905
MT 27	60	0.530223
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	11316	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	101	28	0	0
MT 2	4	16	5.08242	708	0	8
MT 3	4	17	5.17276	750	0	9
MT 4	4	17	5.15506	748	0	6
MT 5	--	--	--	--	--	--
MT 6	1	5356	613.778	2	2	2
MT 7	75	320	107.805	36	0	2
MT 9	76	480	107.985	0	0	0
MT 10	75	240	97.483	28	0	0
MT 12	190	584	237.633	60	11	11
MT 17	188	584	222.656	0	0	0
MT 18	4	194	50.0982	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	144	24.5068	0	0	0
MT 26	4	82	11.5104	0	0	0
MT 27	187	780	241.661	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 136:



Parameters

System

Name	Section	Value
Name	System	Convertor
Version	System	4.3
Inputfile	System	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/02_Convertor/02_Convertor

Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	17
Correction_mode	Configuration	SBAS MODE 0/2
Dual_Frequency	Configuration	no

Position Domain

start: 08:51:09 01.03.2017 (week: 1938 sec: 291069)
end: 12:51:44 01.03.2017 (week: 1938 sec: 305504)
duration: 04:00:36 ..

quality

valid samples 26131
total samples 26802

Event tables

Position discontinuity events type long
APV-I discontinuity events type long
APV-35m discontinuity events type independent
LPV-200 discontinuity events type independent
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	303901	1.60192	10.4181	0.153763	0.07948	14.887	0.00533889
max normVer	296433	1.14613	38.2829	0.0299384	2.57026	21.177	0.12137
max HPE	303078	4.40376	156.398	0.0281574	7.36437	298.356	0.0246831
max VPE	303078	4.40376	156.398	0.0281574	7.36437	298.356	0.0246831
min HPL	304693	0.866517	9.70043	0.0893277	0.802615	13.8227	0.058065
min VPL	293643	0.995615	10.6322	0.0936415	-0.539495	13.3882	0.0402963

Position discontinuity events :

#	Epoch	duration	stable period
1	291930	196.5	76
2	293470	5.5	231.5
3	295304	45.5	24.5
4	296093	5.5	190.5
5	296173	5.5	74.5
6	296251	4.5	72.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	291756	31	18
2	291818	308.5	31.5
3	292162	12.5	35.5
4	293470	10	231.5
5	294796	13.5	99.5
6	295304	407	24.5
7	295852	578.5	141
8	296435	50.5	4.5
9	298029	5.5	41.5
10	299823	72.5	132.5
11	300421	159.5	525.5
12	302288	5.5	145.5

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	292809	7.5	55.5
2	293470	10	231.5
3	294796	13.5	99.5
4	294914	13.5	104.5
5	294967	226	24
6	295244	9	16

7	295774	3.5	63
8	295852	578.5	62.5
9	298029	5.5	41.5
10	299745	4.5	20.5
11	299823	72.5	73.5
12	300421	159.5	27.5
13	301640	100.5	18.5
14	302237	91.5	94.5
15	302628	90.5	113.5
16	302820	12.5	101.5

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	292809	7.5	55.5
2	293470	10	231.5
3	294796	13.5	99.5
4	294914	13.5	104.5
5	294967	226	24
6	295244	9	16
7	295774	3.5	63
8	295852	578.5	62.5
9	298029	5.5	41.5
10	299745	4.5	20.5
11	299823	72.5	73.5
12	300421	159.5	27.5
13	301640	100.5	18.5
14	302237	91.5	94.5
15	302628	90.5	113.5
16	302820	12.5	101.5

First Glance analysis

Duration	14436
Number of Samples	26802
Number of invalid sample	671
Number of no position solution samples	576
Number of missing sample	2070
Logging Loss	7.1696
Processing Loss	2.5035
Number of Misleading Information	0
Data gaps	5
Discontinuities	30

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
25555	22895	19833	0	19833

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m

HPE 95%	1.56472	1.48906	1.42287	NaN	1.42287
HPEScale 95%	NaN	4.86119	4.92705	NaN	4.92705
VPE 95%	1.43899	1.38756	1.37906	NaN	1.37906
VPEscale 95%	NaN	3.59617	2.61996	NaN	2.61996

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.977957	0.876162	0.758984	0	0.758984
measurements	0.953474	0.854227	0.739982	0	0.739982
Operational	1.77023	1.58597	1.37386	0	1.37386

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	25	57	96	--	96
Long	6	12	28	--	28
Independent	6	11	16	--	16
P(disc.)	0.00352182	0.00720681	0.012101	NaN	0.012101
P(slide)	0.0146742	0.0358594	0.0517824	NaN	0.0517824

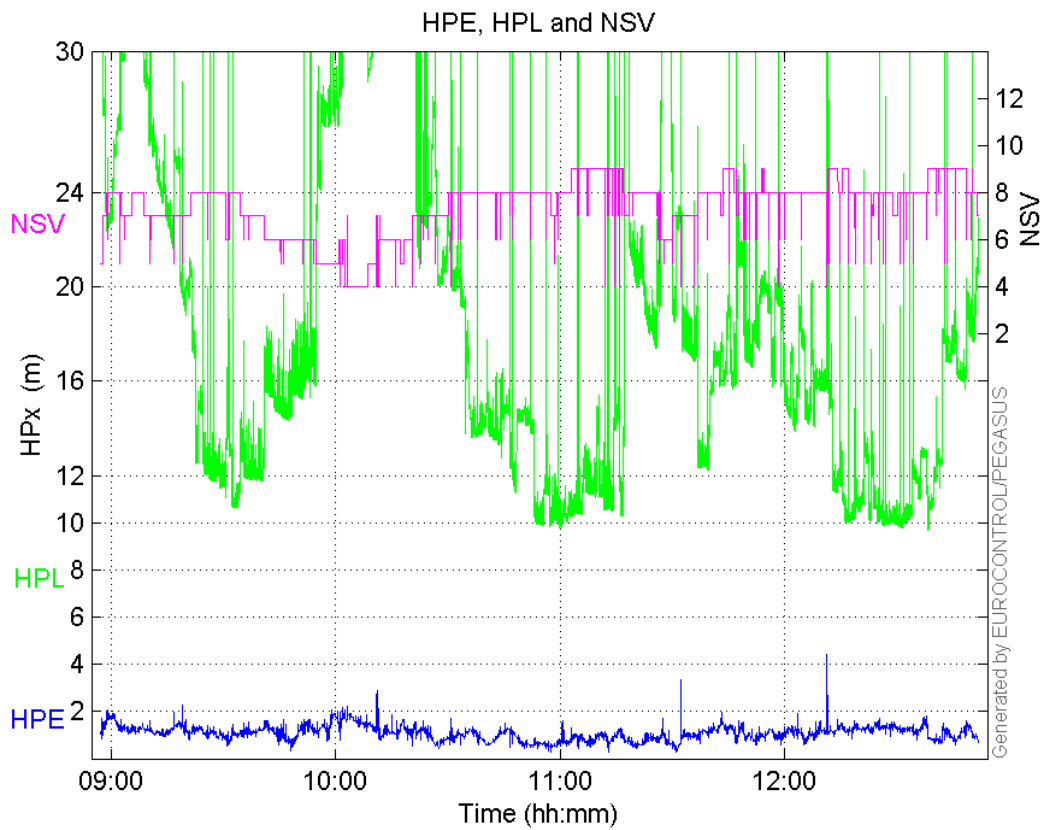
Integrity events :

	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

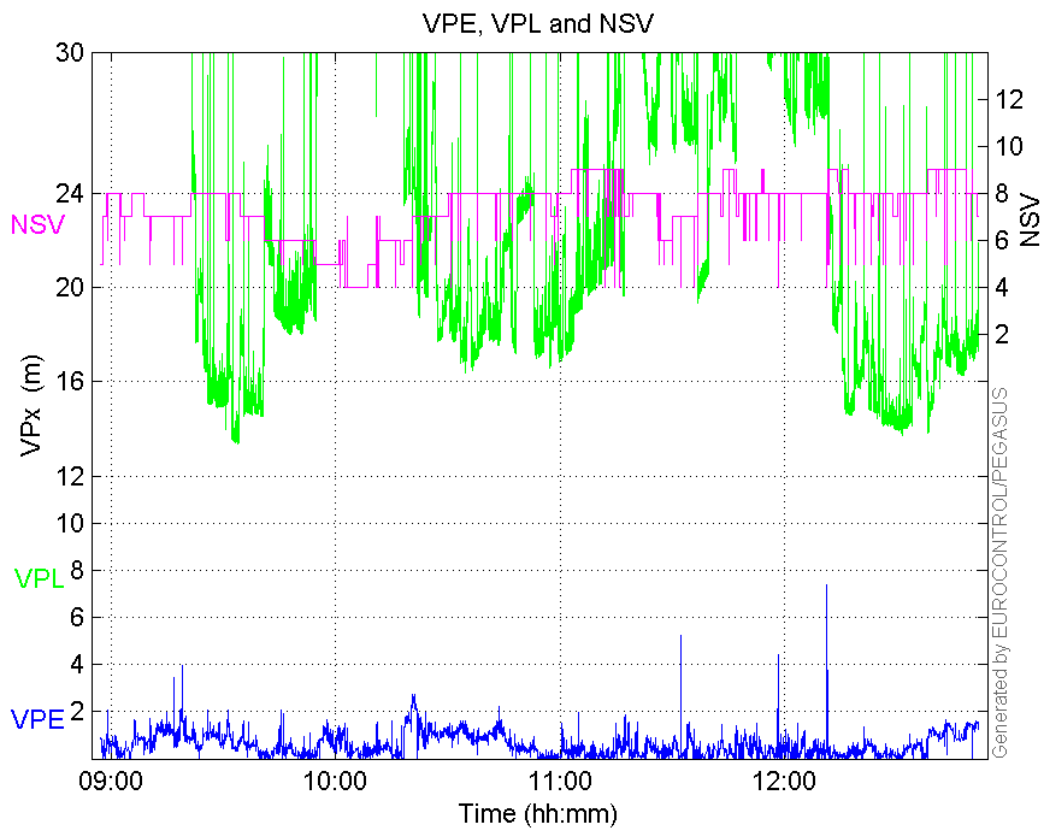
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	25555	22895	19833	0	19833
SIS Availability	0.977957	0.876162	0.758984	0	0.758984
Local Availability	0.953474	0.854227	0.739982	0	0.739982
Operational Availability	1.77023	1.58597	1.37386	0	1.37386
HPE 95%	1.56472	1.48906	1.42287	NaN	1.42287
HPEScale 95%	NaN	4.86119	4.92705	NaN	4.92705
VPE 95%	1.43899	1.38756	1.37906	NaN	1.37906
VPEscale 95%	NaN	3.59617	2.61996	NaN	2.61996
All Discontinuity Events	25	57	96	--	96
Long Discontinuity Events	6	12	28	--	28
Independent Discontinuity Events	6	11	16	--	16
P(discontinuity)	0.00352182	0.00720681	0.012101	NaN	0.012101
P(sliding window)	0.0146742	0.0358594	0.0517824	NaN	0.0517824
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series**HPE, HPL and NSV:**

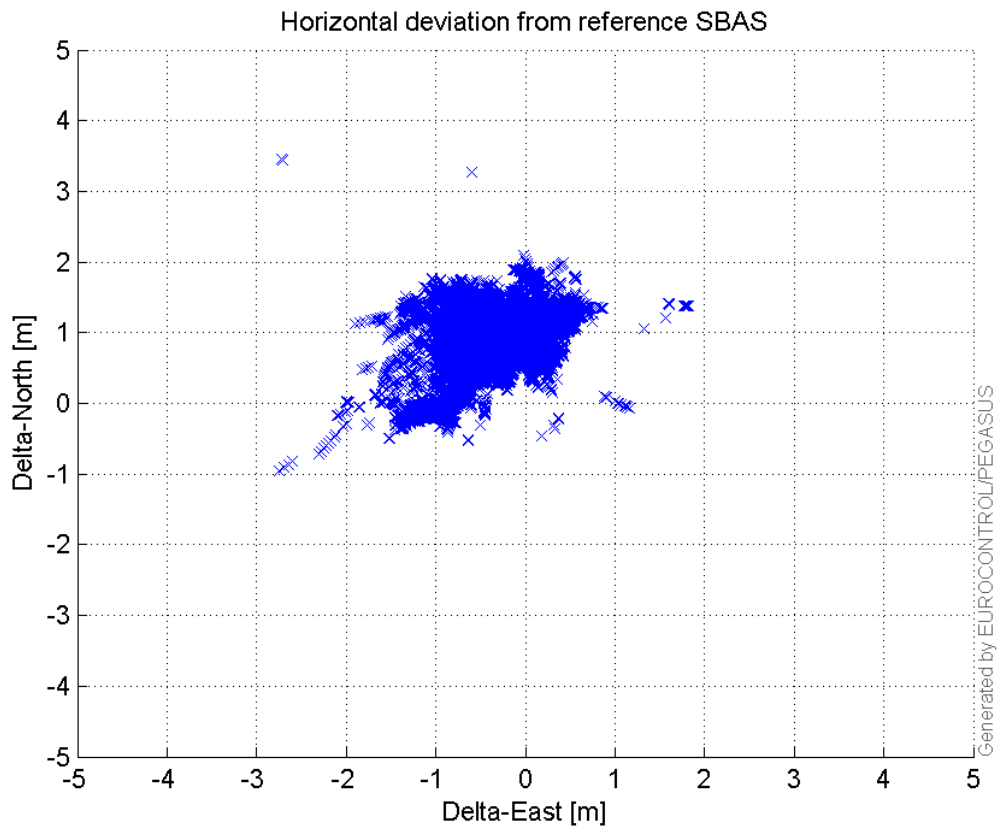


VPE, VPL and NSV:



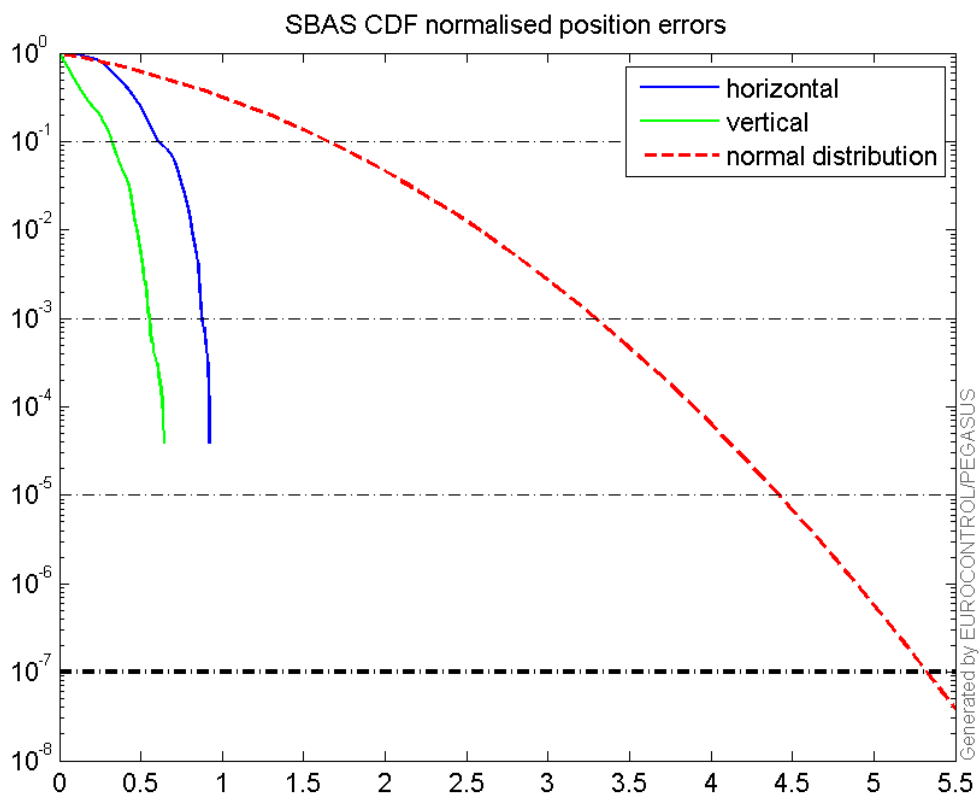
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

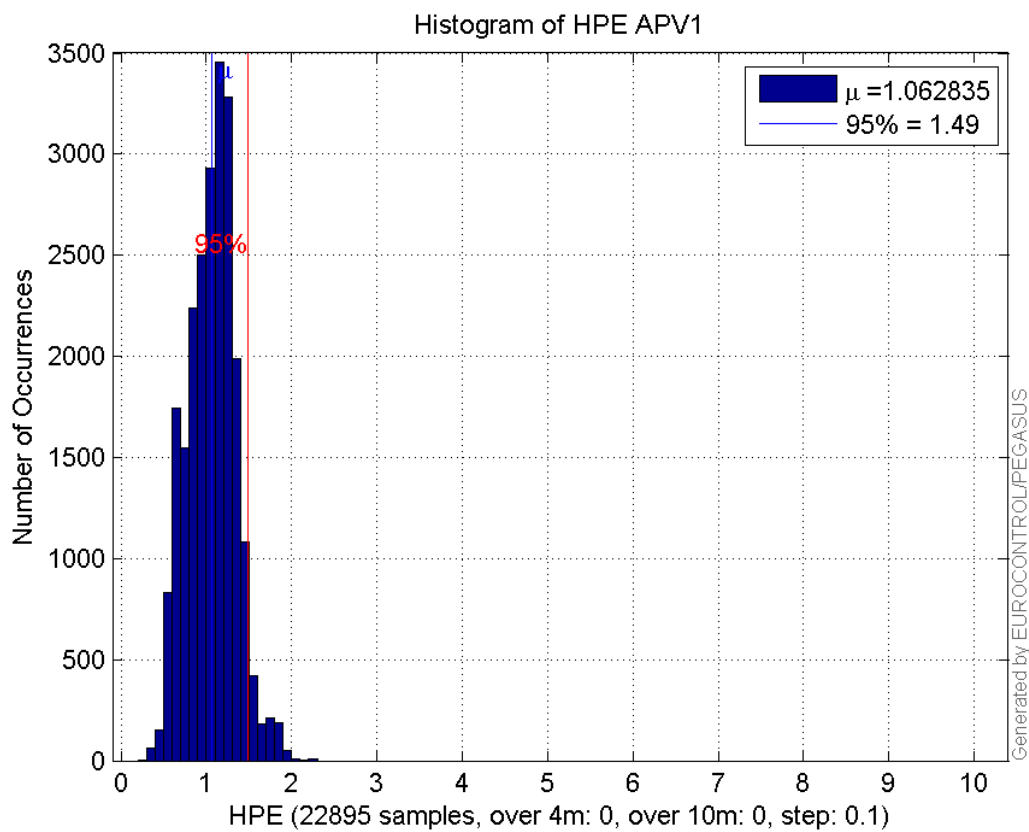
number	22895
sum	24333.604
sum2	27642.91
prctile95	1.489057
prctile99	1.8175531
number	22895
sum	13095.174
sum2	11945.606
prctile95	1.3875559
prctile99	1.7035568
number	22895
sum	379142.52
sum2	6900319.4
prctile95	27.215475
prctile99	30.0986
number	22895
sum	553143.83
sum2	14979146
prctile95	40.580025
prctile99	46.61026
number	22895
sum	1589.3344
sum2	125.40666
prctile95	0.12152977
prctile99	0.13629322
number	22895
sum	604.8417
sum2	27.605468
prctile95	0.071923402
prctile99	0.086798234
number	19833
sum	20363.998
sum2	22243.494
prctile95	1.4228737
prctile99	1.5684393
number	19833
sum	10850.071
sum2	9653.7506
prctile95	1.3790629
prctile99	1.6528661
number	19833
sum	303620.95
sum2	5000924
prctile95	22.904055
prctile99	29.172979
number	19833
sum	430143.01
sum2	9996339.7
prctile95	33.015085
prctile99	34.600138
number	19833
sum	1427.3073
sum2	116.45882

prctile95 0.12317631
prctile99 0.13720806
number 19833
sum 547.97721
sum2 26.128304
prctile95 0.074856138
prctile99 0.088015933

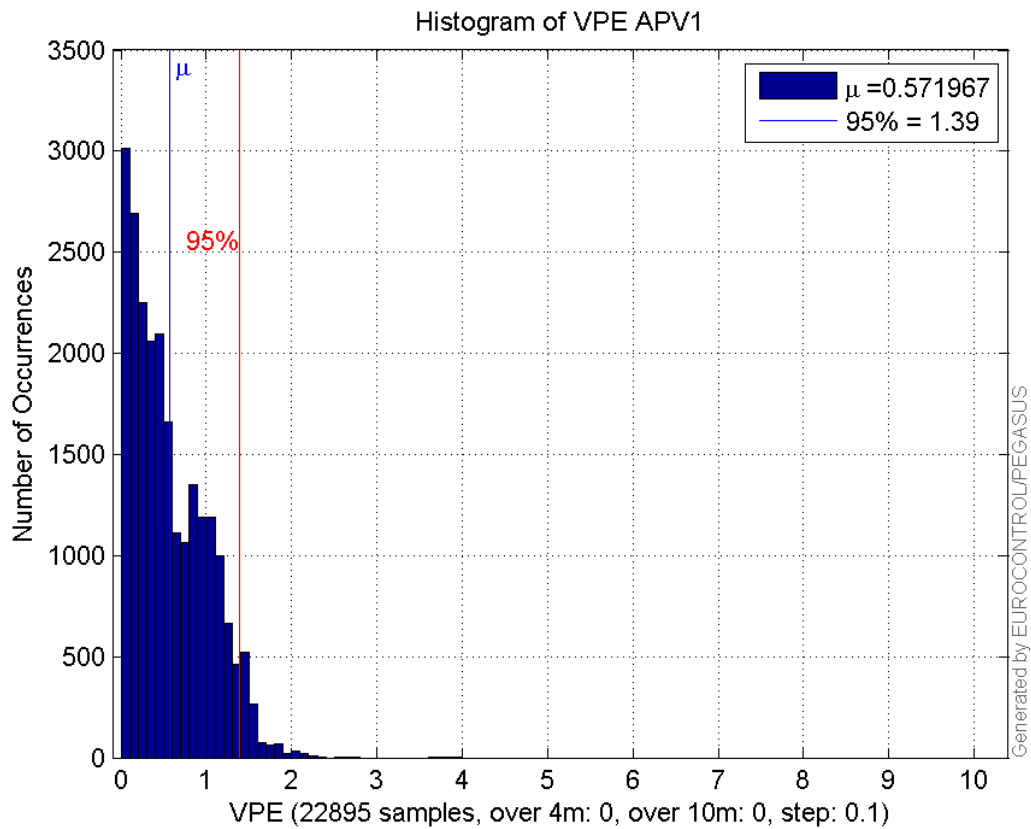
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.06283	0.27886	1.08084	1.48906	1.81755	1.09881
HPL	16.5601	5.21109	15.6609	27.2155	30.0986	17.3606
VPE	0.571967	0.441156	0.469472	1.38756	1.70356	0.722327
VPL	24.16	8.39942	20.7497	40.58	46.6103	25.5784

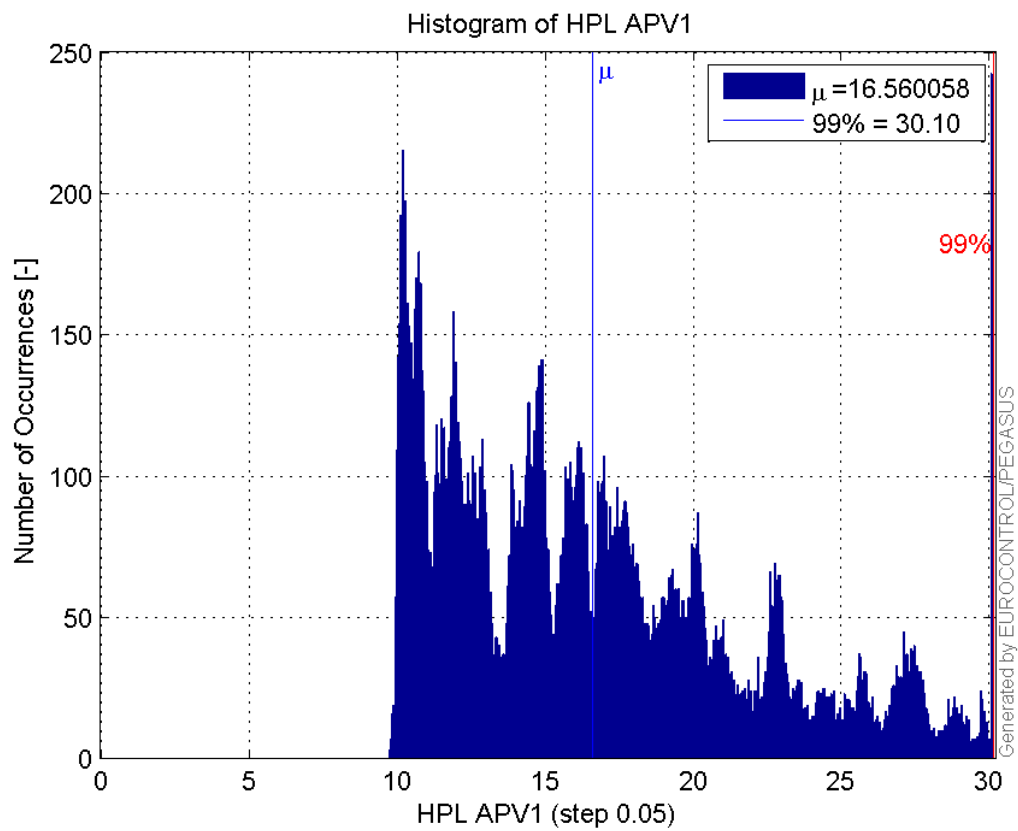
Histogram of HPE APV1:



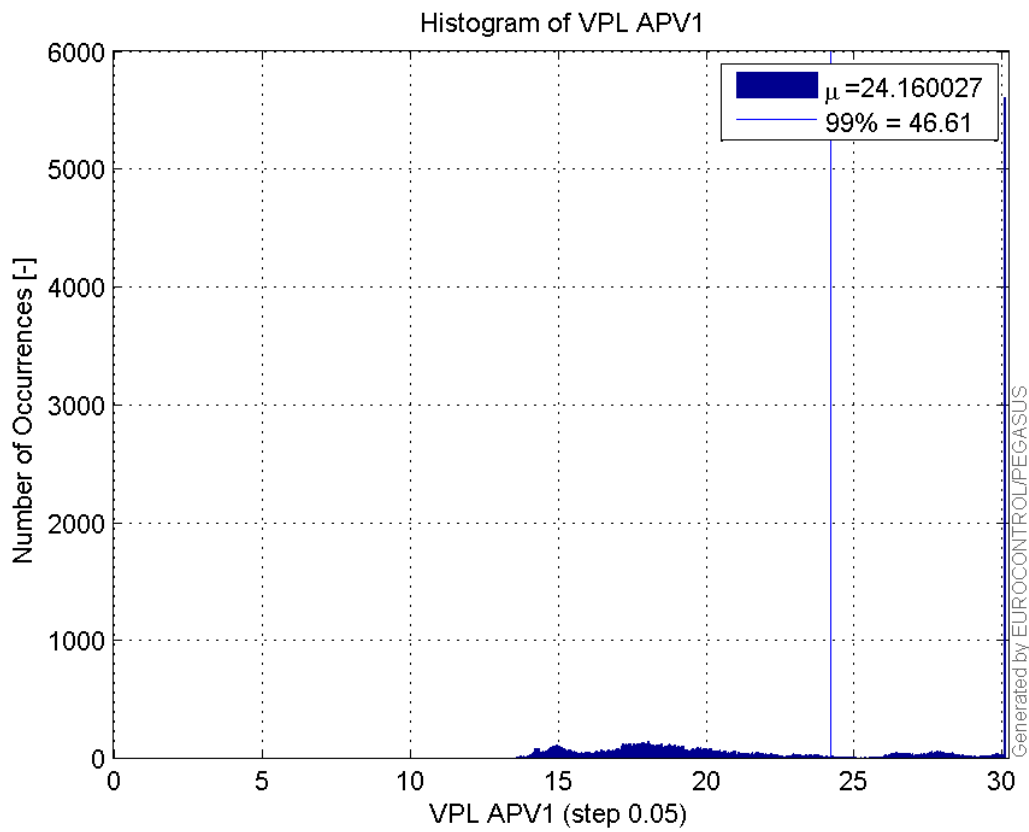
Histogram of VPE APV1:



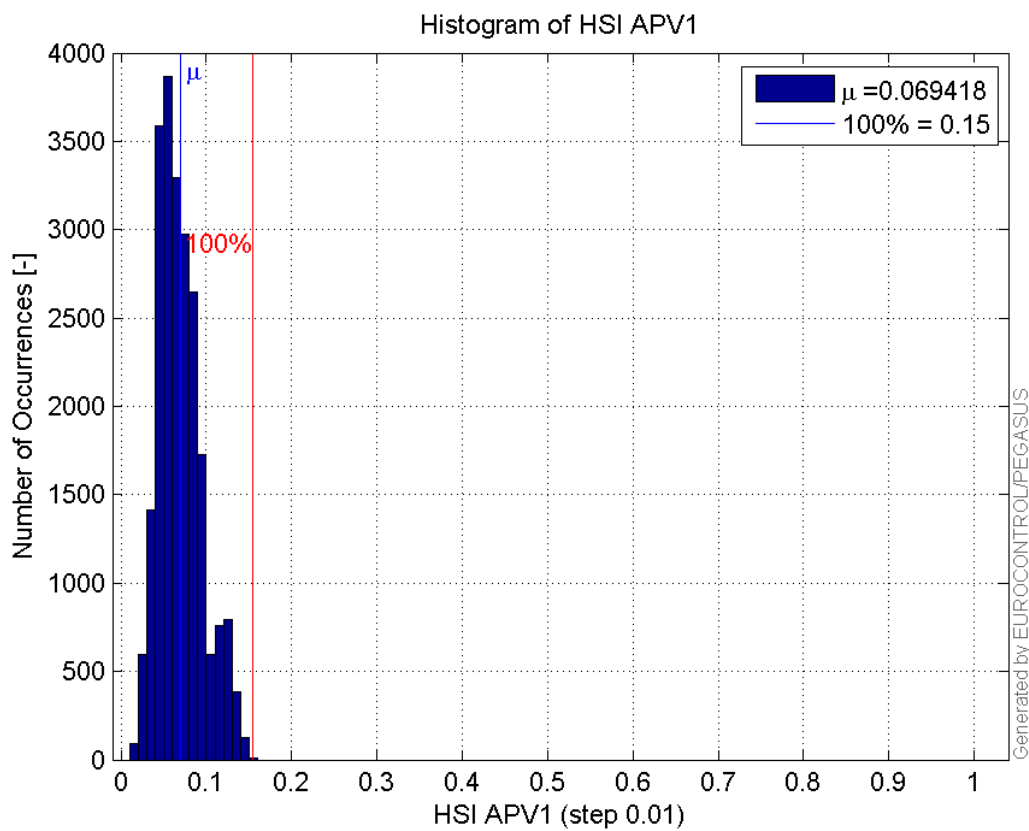
Histogram of HPL APV1:



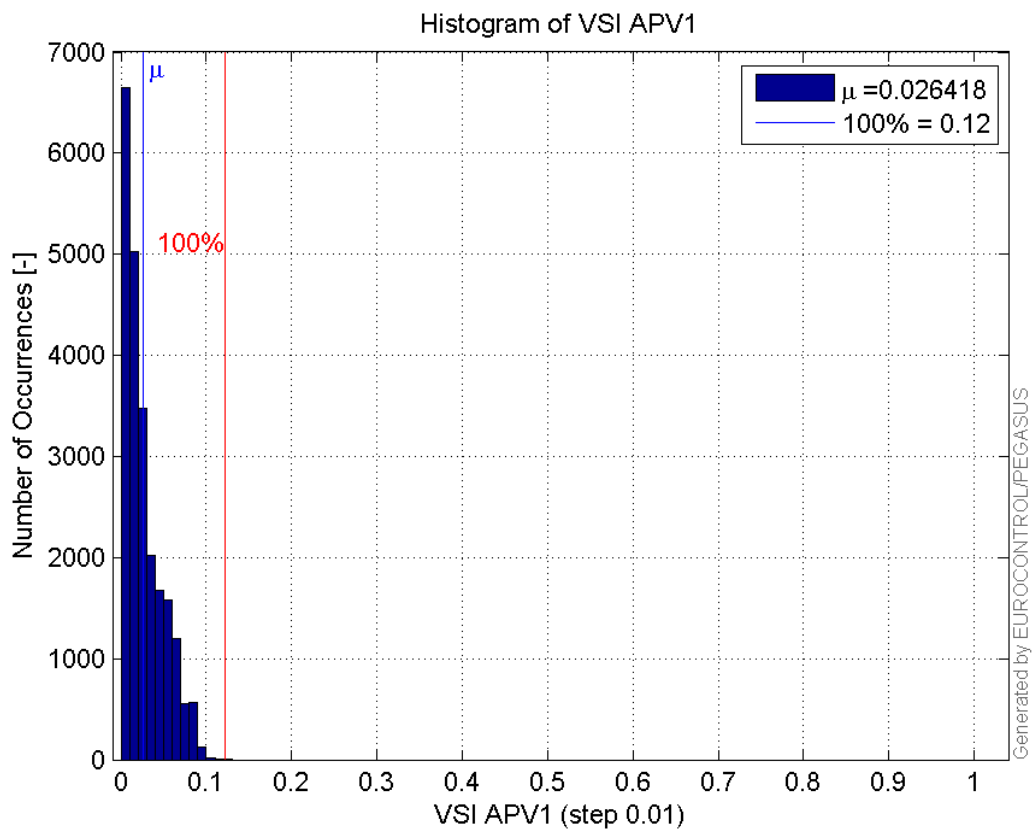
Histogram of VPL APV1:



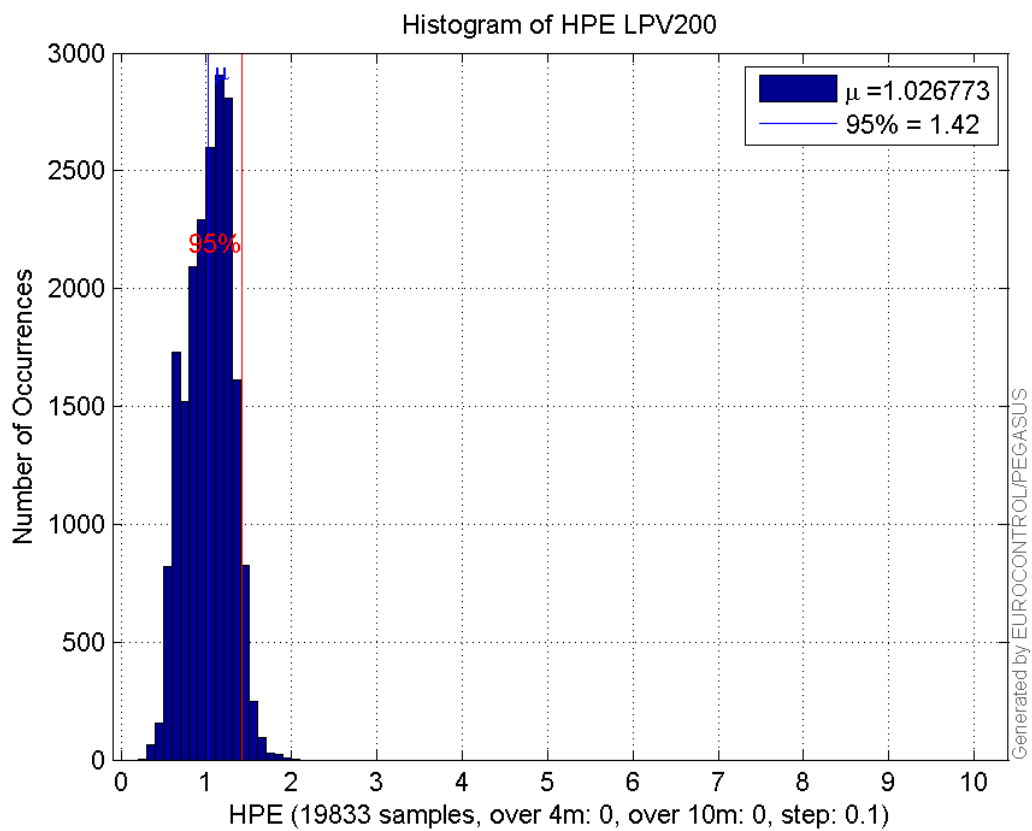
Histogram of HSI APV1:



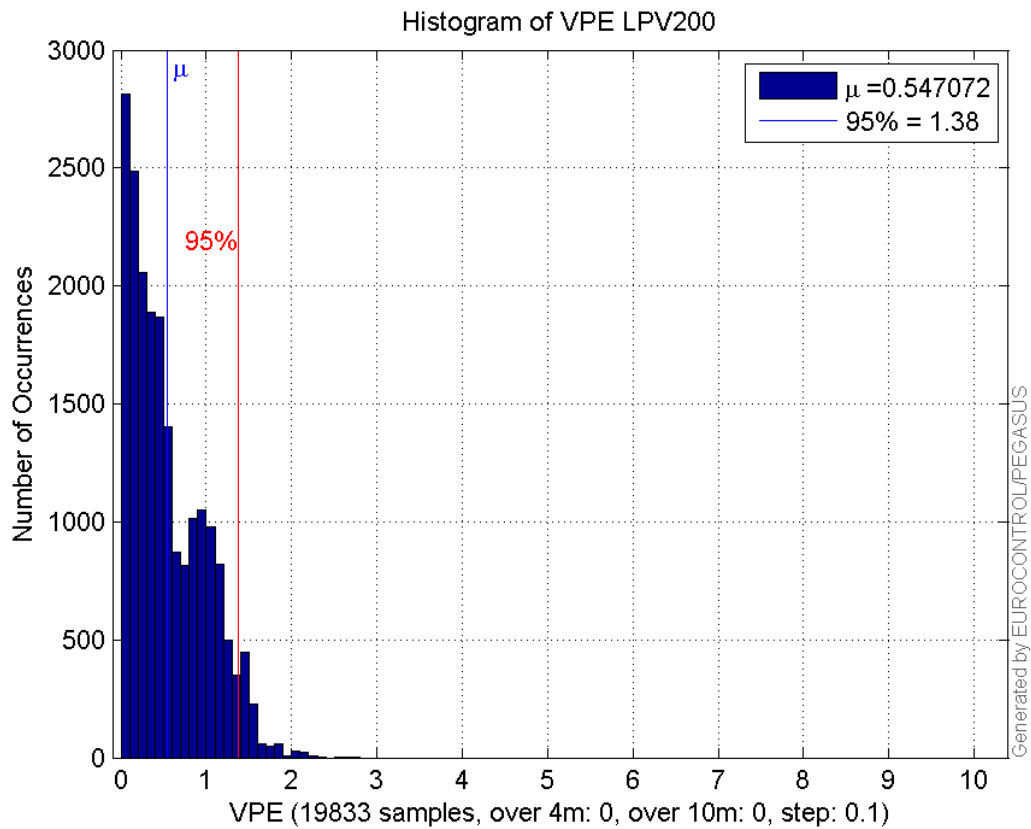
Histogram of VSI APV1:



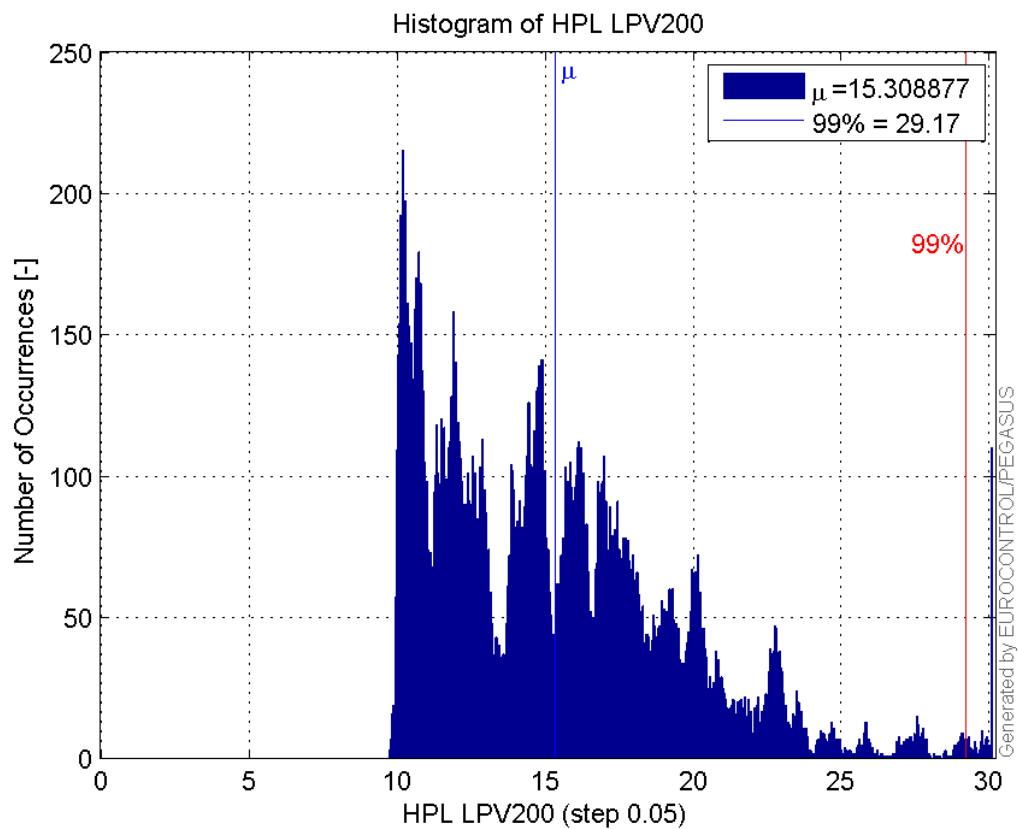
Histogram of HPE LPV200:



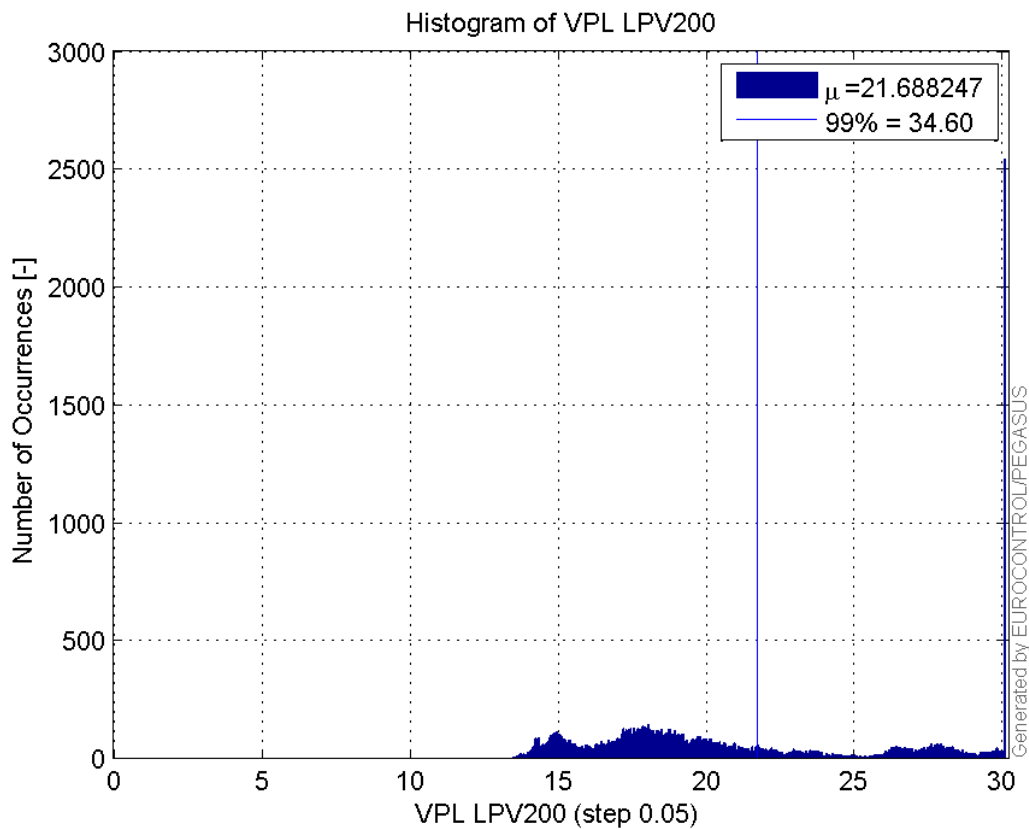
Histogram of VPE LPV200:



Histogram of HPL LPV200:

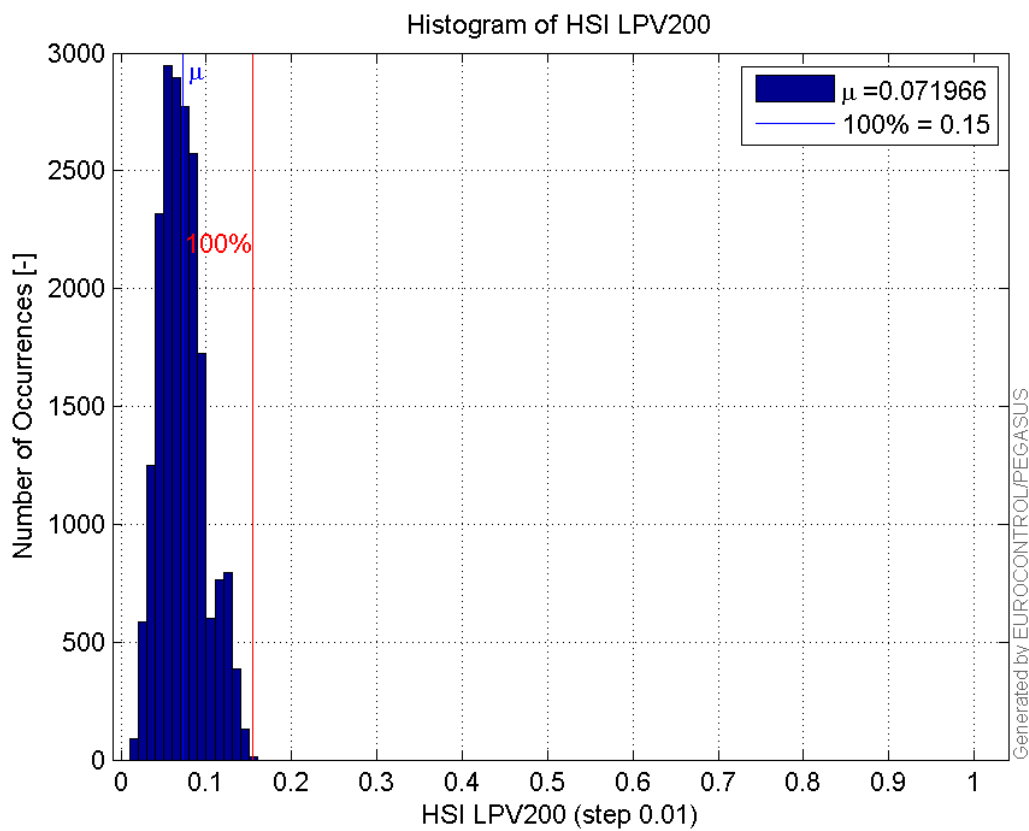


Histogram of VPL LPV200:

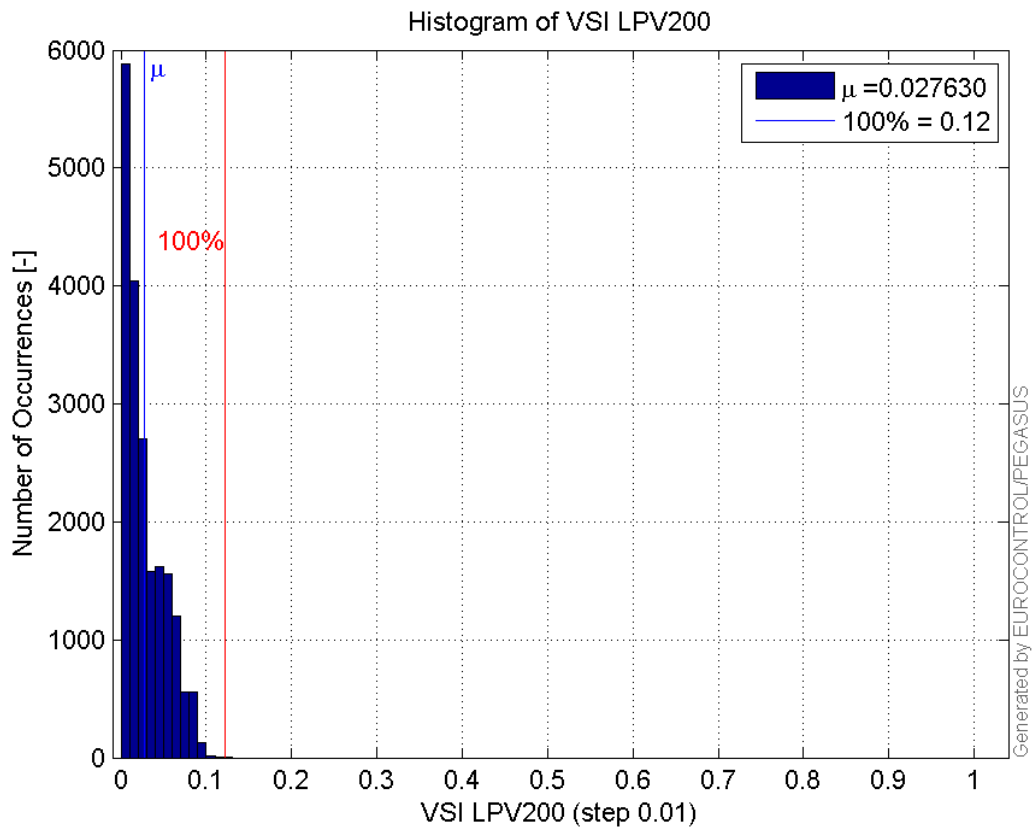


99'

Histogram of HSI LPV200:

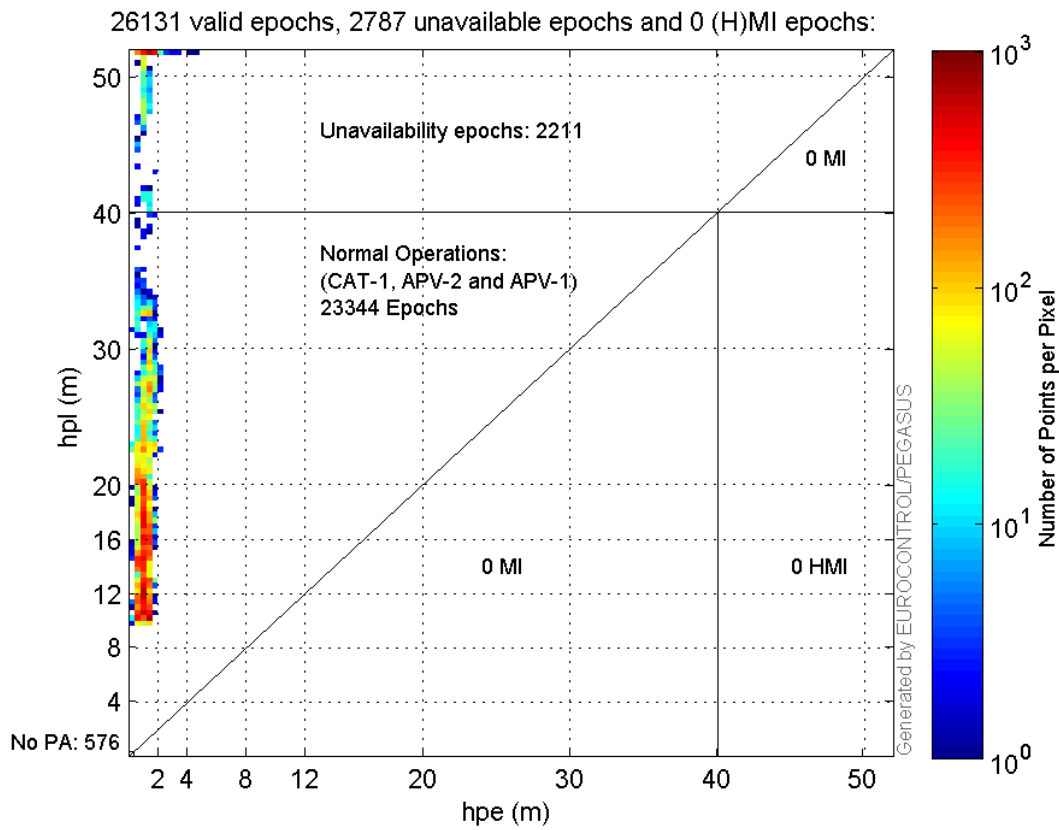


Histogram of VSI LPV200:



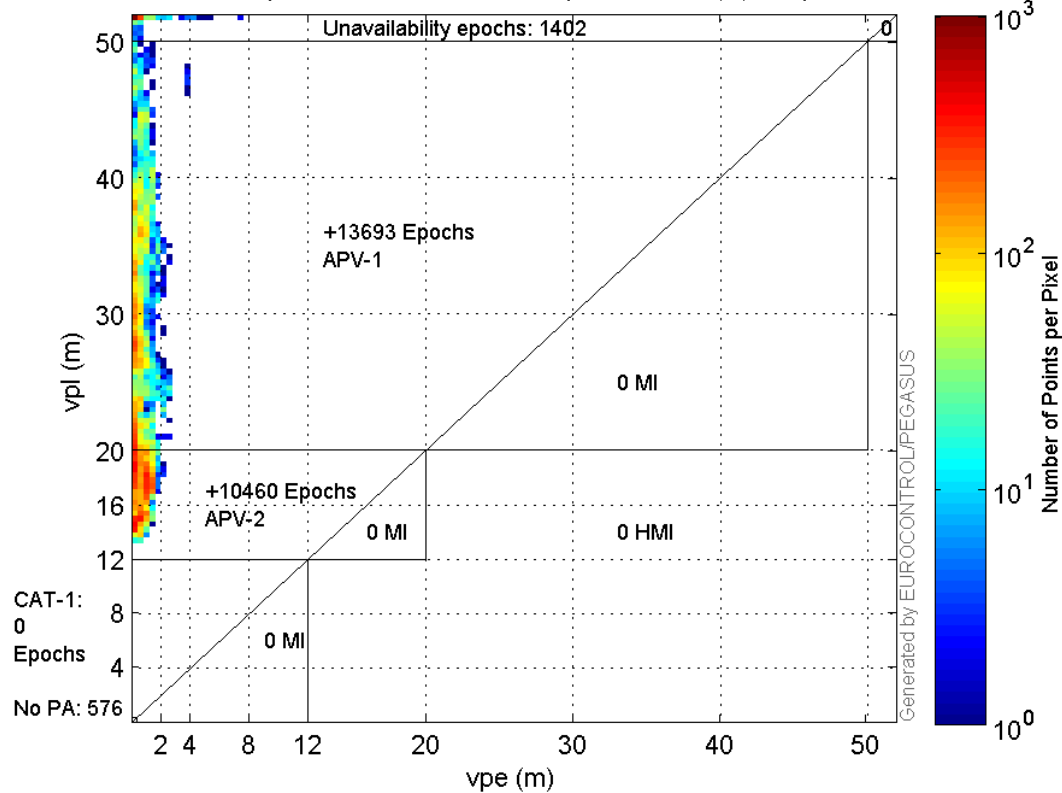
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

26131 valid epochs, 1978 unavailable epochs and 0 (H)MI epochs:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/03_GNSS_Solution/03_GNSS_Solution_sol

settings

Name	Section	Value
ref_lat	settings	50.439
ref_lon	settings	30.4297
ref_alt	settings	215.271
smoothing	settings	yes
smoothing_constant	settings	100
smoothing_max_gap	settings	10
smoothing_max_divergence	settings	3
min_elevation	settings	5
aad_model	settings	a
output_range_file	settings	yes
sbas_prn	settings	120
gnss_mode	settings	sbas

results

Name	Section	Value
init_lat	results	50.4391

init_lon	results	30.4297
init_alt	results	226.433
mi_numbers	results	0

Range Domain

start: 08:51:09 01.03.2017 (week: 1938 sec: 291069)
end: 12:51:44 01.03.2017 (week: 1938 sec: 305504)
duration: 04:00:36 ..

quality

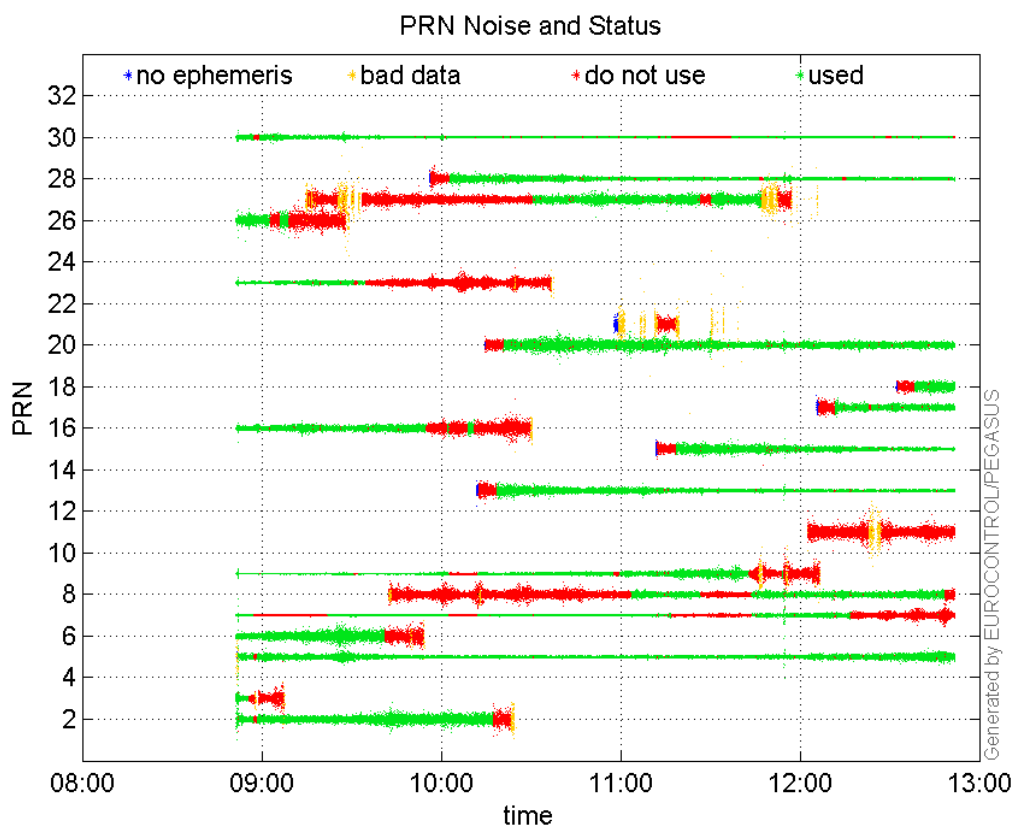
valid samples 26802
total samples 26802

PRN overview

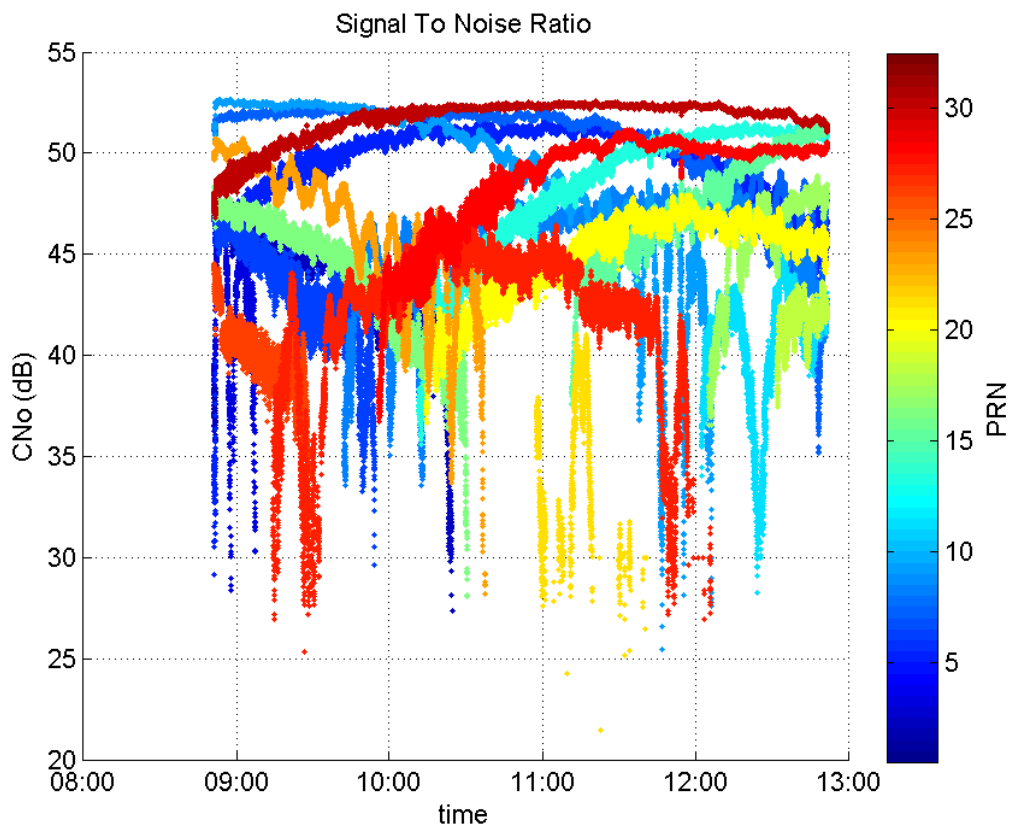
Number of Visible GPS Satellites 20
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



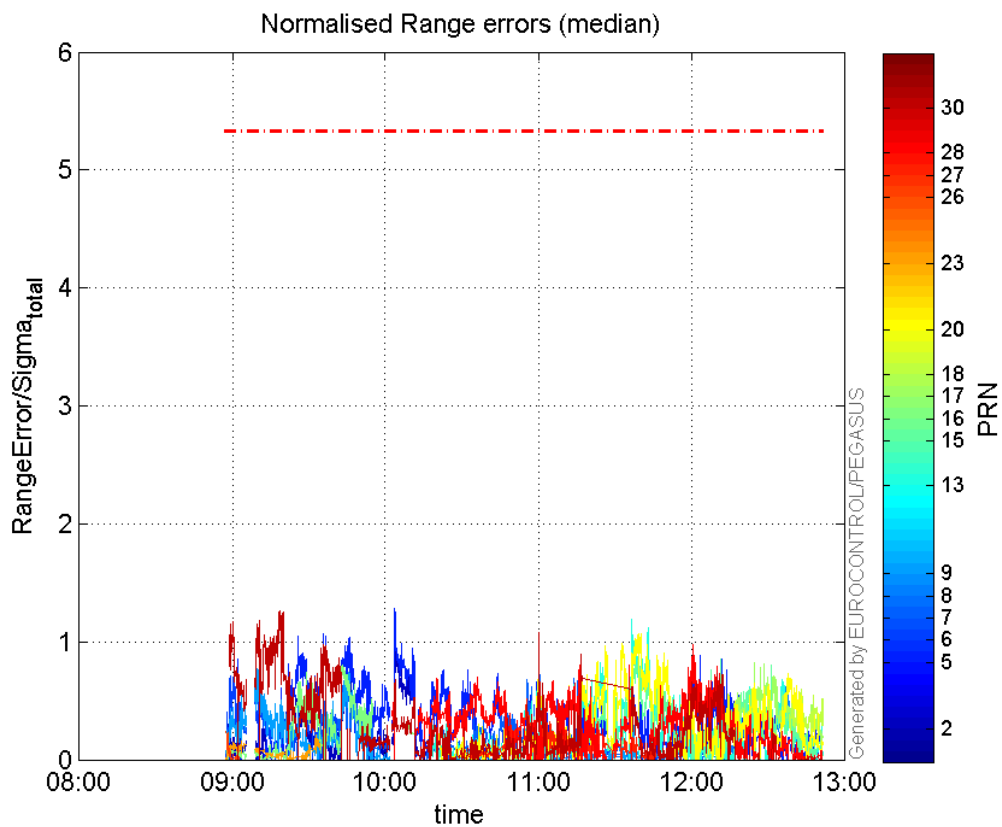
range errors

Number of Overbounding Norm Errors 0

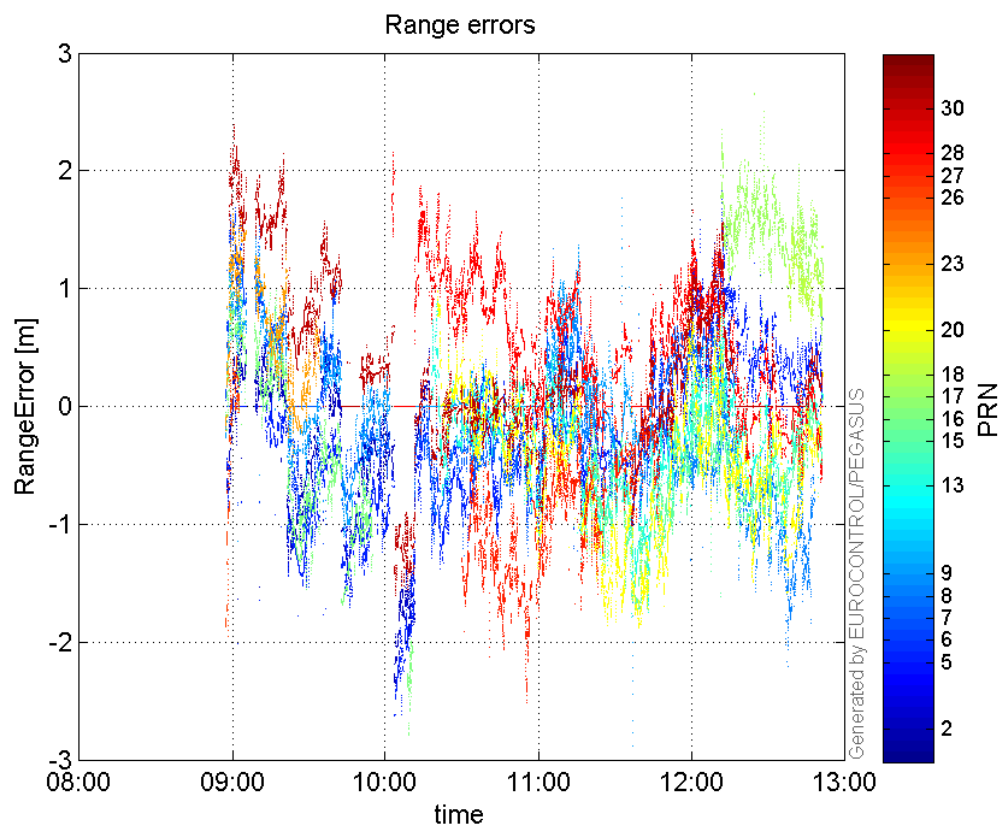
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1938	295418	2	0.945386	-2.31976	2.45377
1938	295414	5	1.28616	-2.63015	2.04496
1938	291629	6	0.73144	1.54899	2.11772
1938	298834	7	0.723236	-1.20033	1.65967
1938	304668	8	0.678156	-2.21	3.25884
1938	292188	9	0.776344	1.2471	1.60638
1938	301008	13	1.18997	-1.78425	1.49941
1938	303098	15	0.850039	-1.61972	1.90547
1938	294184	16	0.798535	-1.67858	2.10207
1938	303891	17	0.819844	2.64511	3.22636
1938	304981	18	0.594157	1.69307	2.84953
1938	301179	20	1.06934	-1.84426	1.72468
1938	293567	23	0.209541	0.741502	3.5387
1938	291458	26	0.236106	-1.87462	7.93974
1938	298539	27	0.511547	-2.51241	4.9114
1938	302431	28	0.97577	1.66458	1.70591
1938	292726	30	1.26707	1.978	1.56109

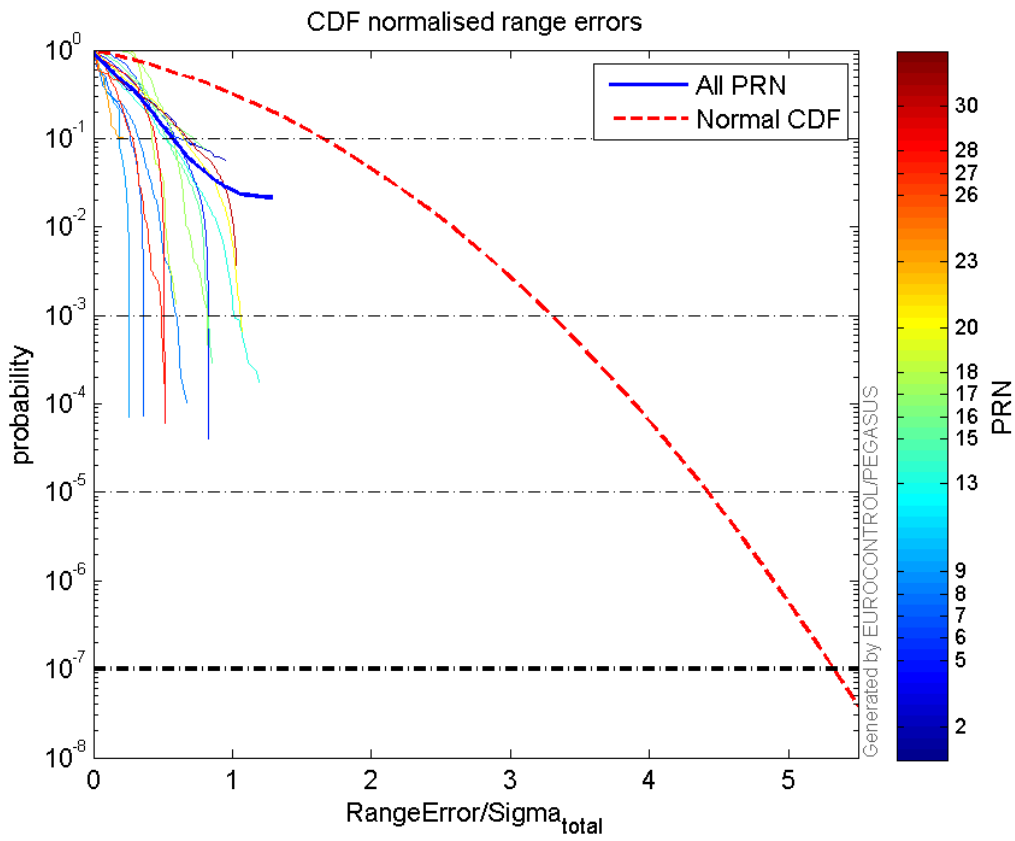
Normalised Range errors (median):



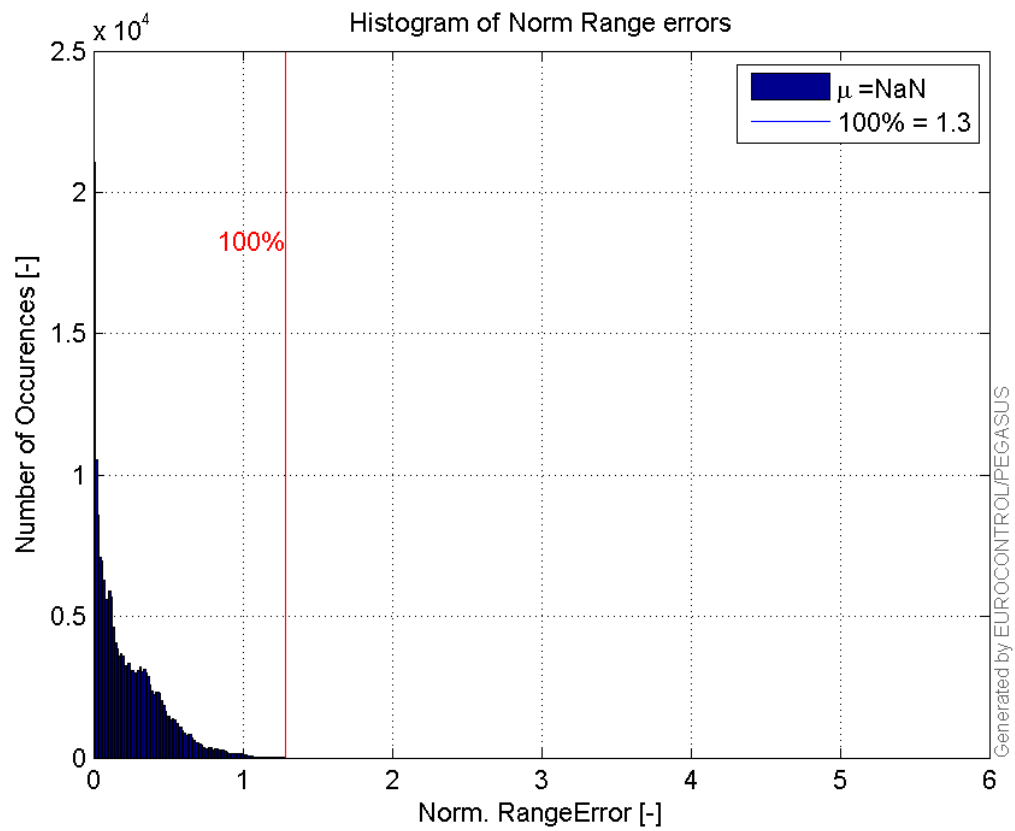
Range errors:



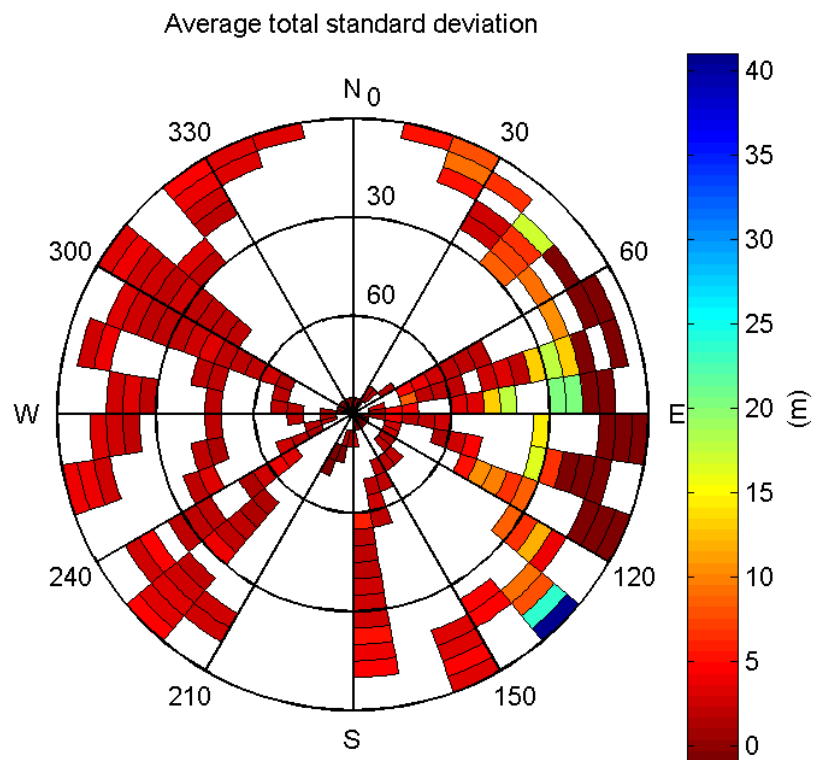
CDF normalised range errors:



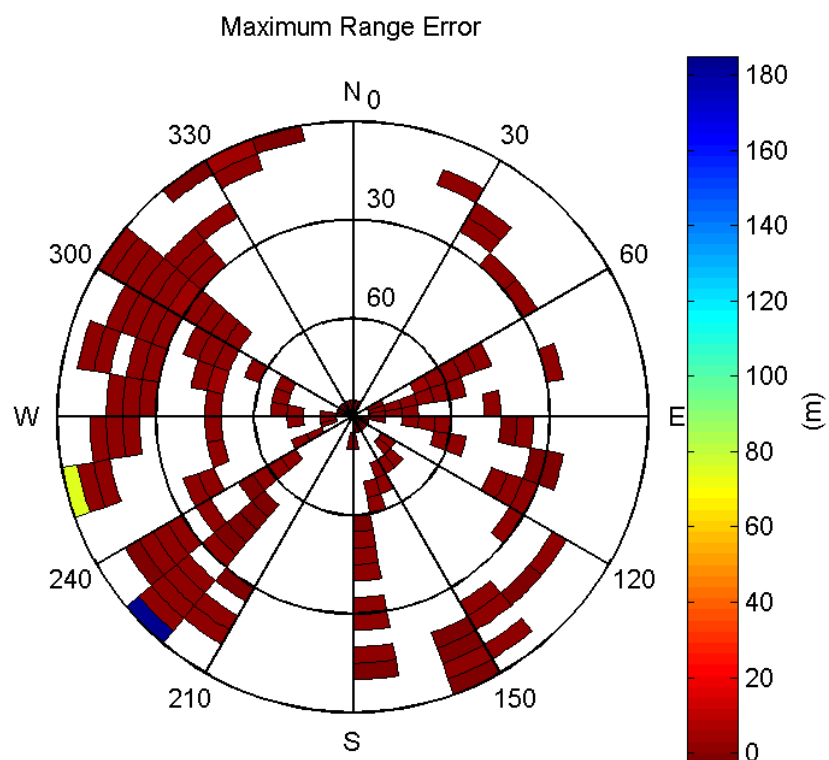
Histogram of Norm Range errors:



Sigma Sky Plot:

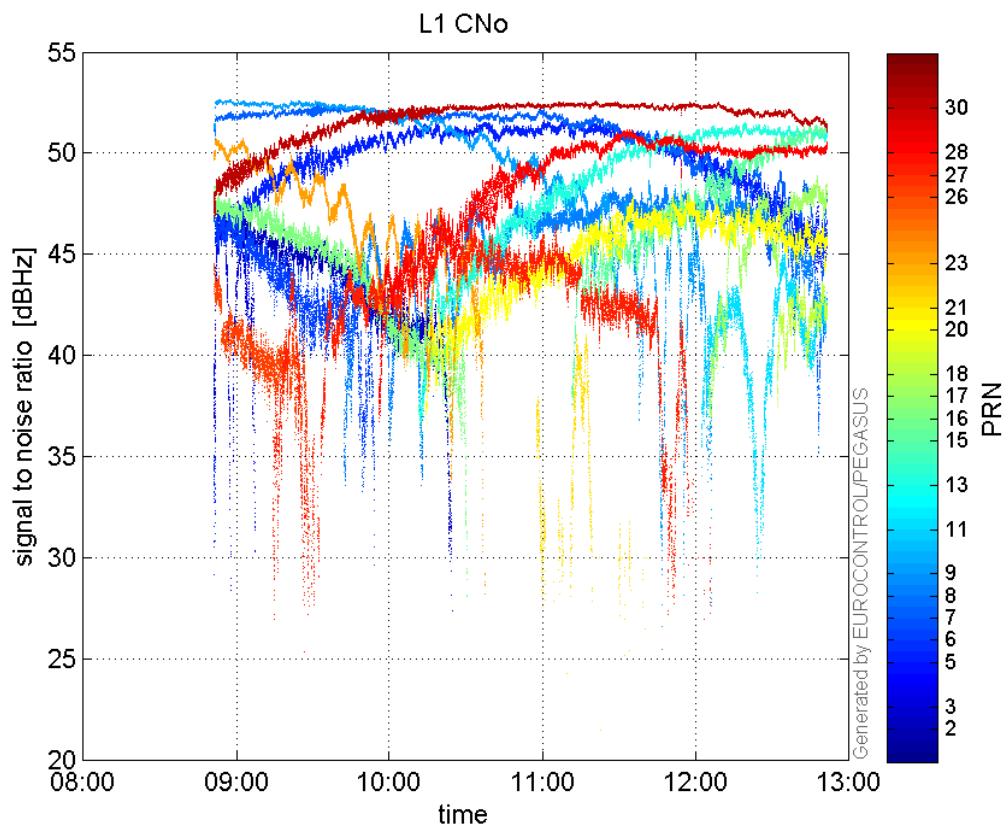


Norm Error Sky Plot:

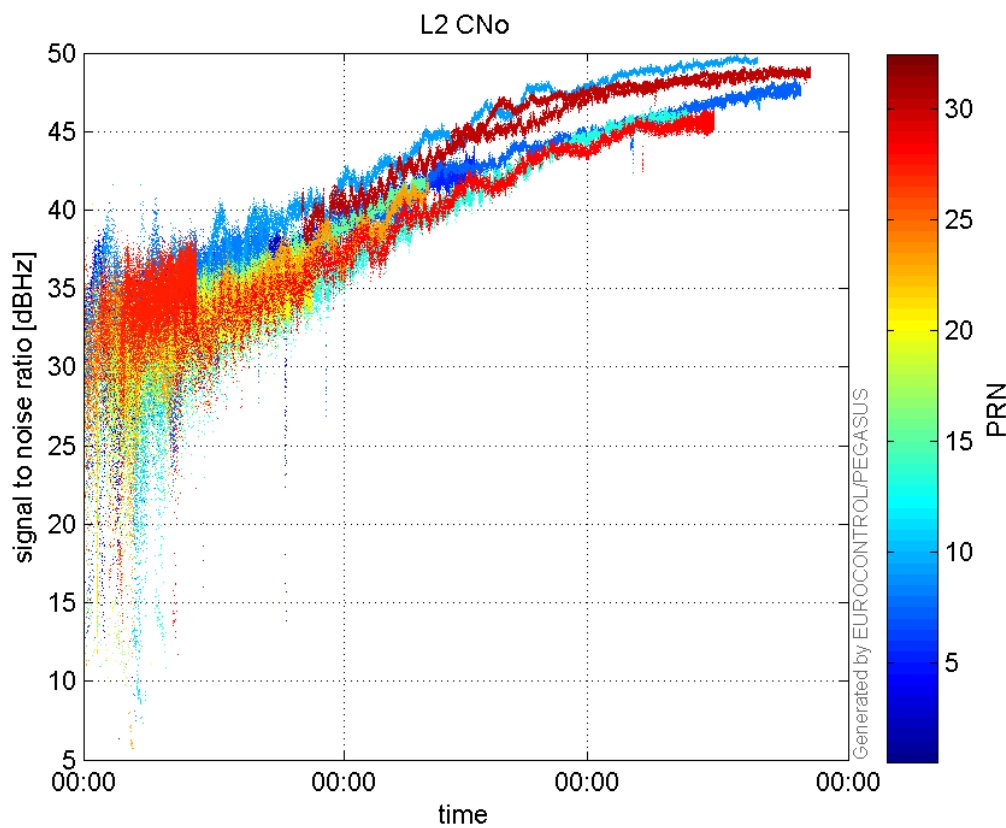


signal quality

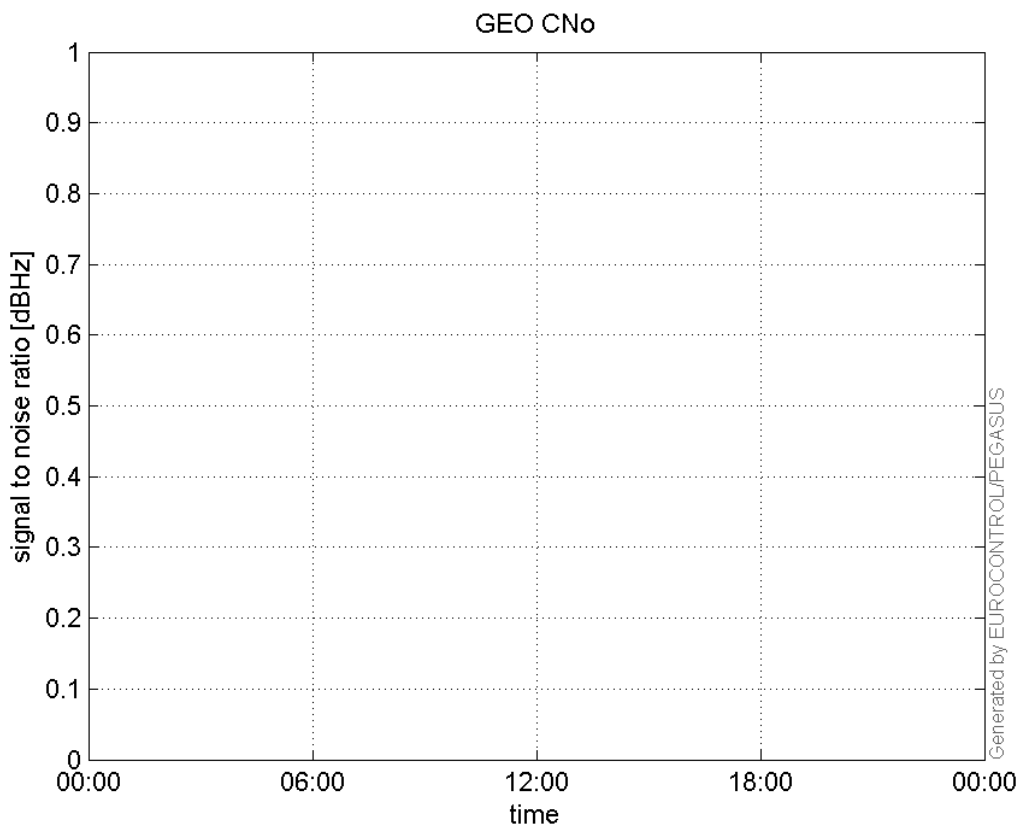
L1 CNo:



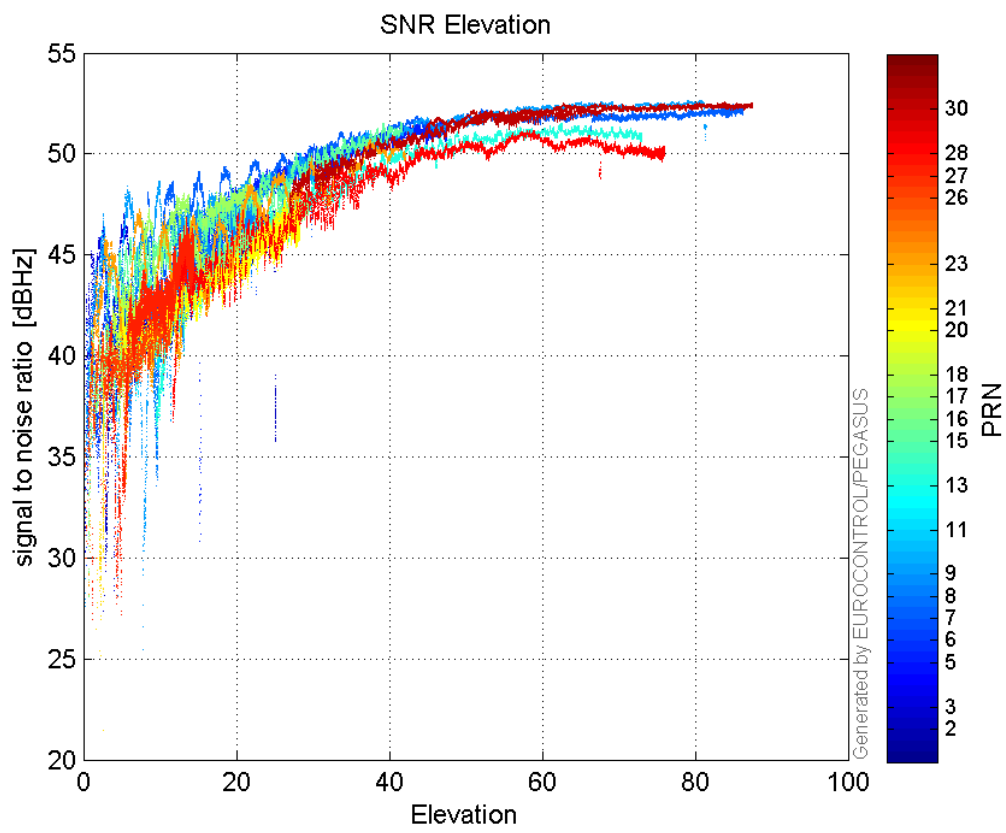
L2 CNo:



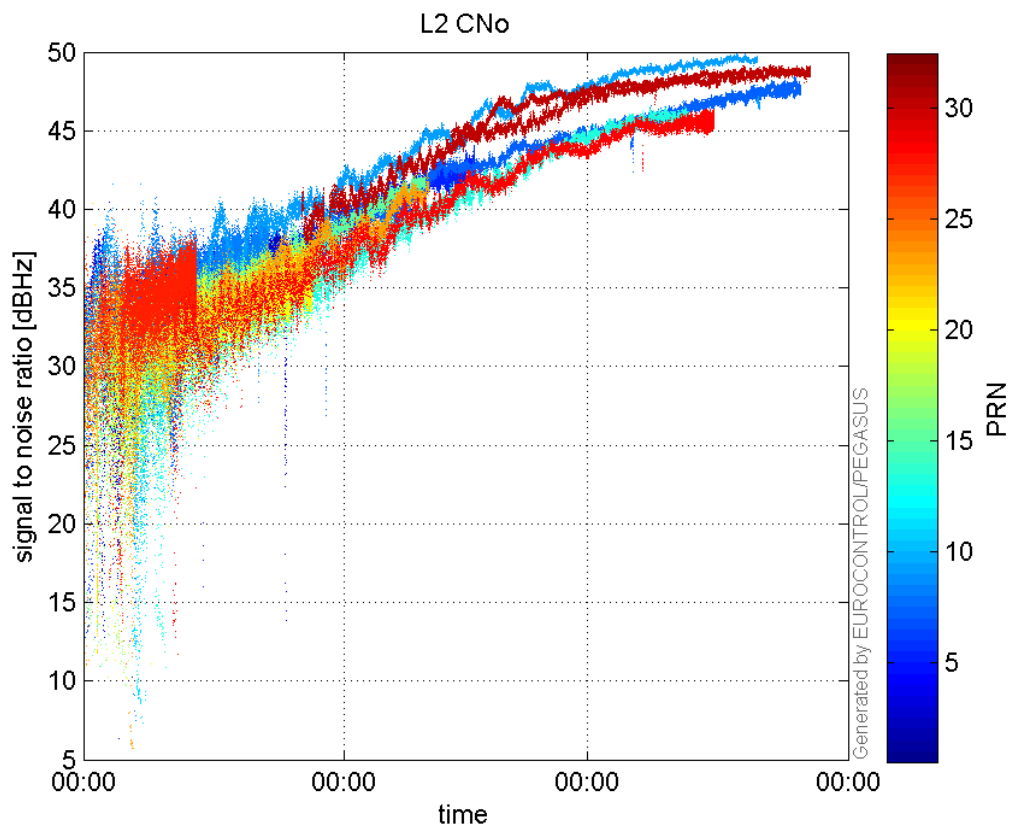
GEO CNo:



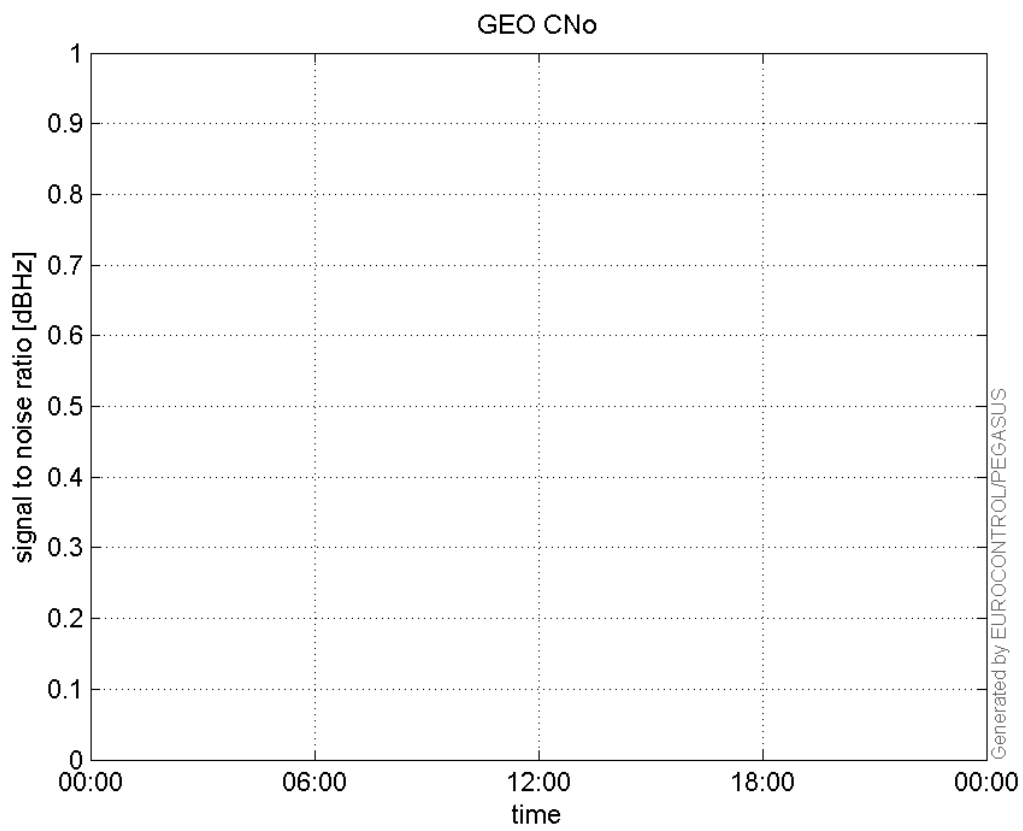
SNR Elevation:



L2 CNo:

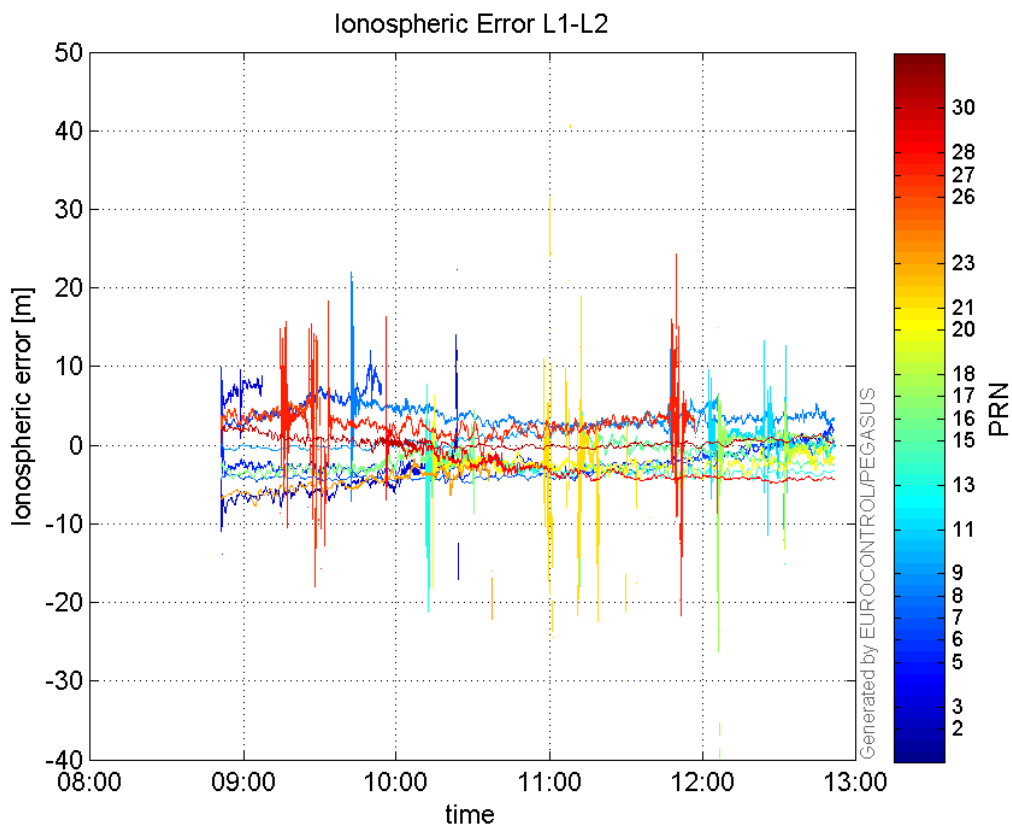


GEO CNo:



dual frequency

Ionospheric Error L1-L2:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_03_01EGNOS2Hz/03_GNSS_Solution/03_GNSS_Solution_sol

settings

Name	Section	Value
ref_lat	settings	50.439
ref_lon	settings	30.4297
ref_alt	settings	215.271
smoothing	settings	yes
smoothing_constant	settings	100
smoothing_max_gap	settings	10
smoothing_max_divergence	settings	3
min_elevation	settings	5
aad_model	settings	a
output_range_file	settings	yes
sbas_prn	settings	120
gnss_mode	settings	sbas

results

Name	Section	Value
init_lat	results	50.4391

init_lon	results	30.4297
init_alt	results	226.433
mi_numbers	results	0