

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 29/01/2017

SBAS Messages

start: 06:51:21.129 16.01.2017 (week: 1932 sec: 111081.129)
end: 13:45:26.129 16.01.2017 (week: 1932 sec: 135926.129)
duration: 06:54:05 ..

quality

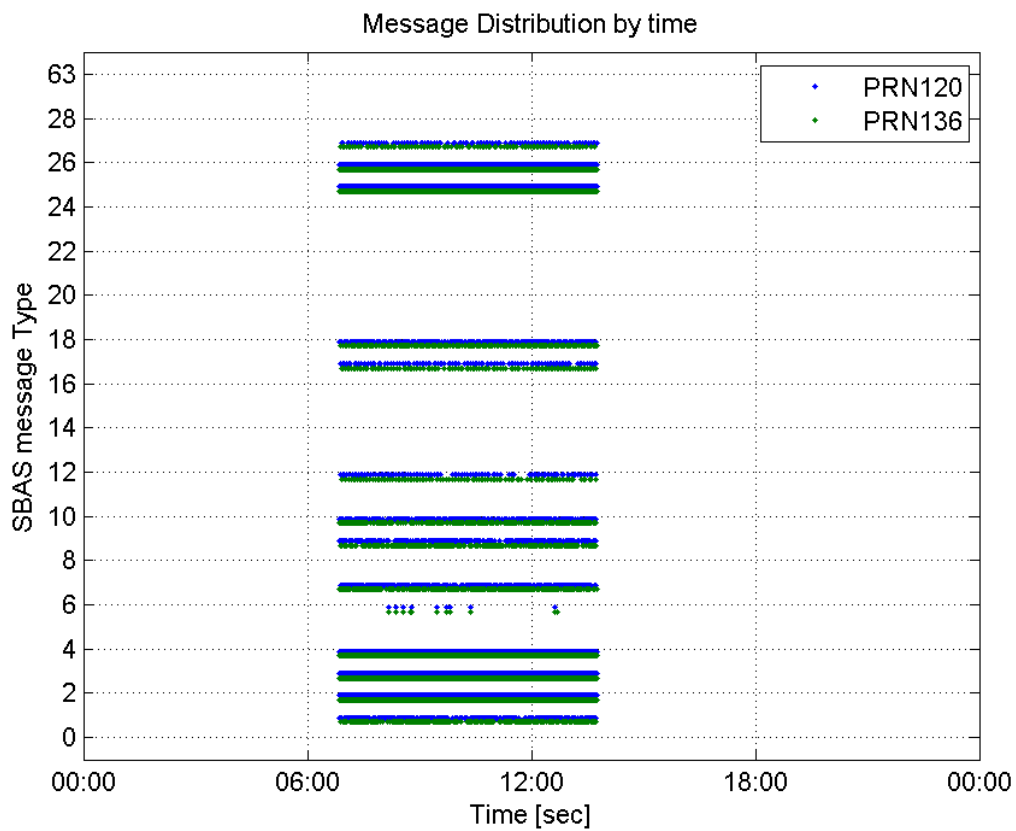
valid samples 38402
total samples 38402
number of SBAS PRNs 2

SBAS SIS Overview

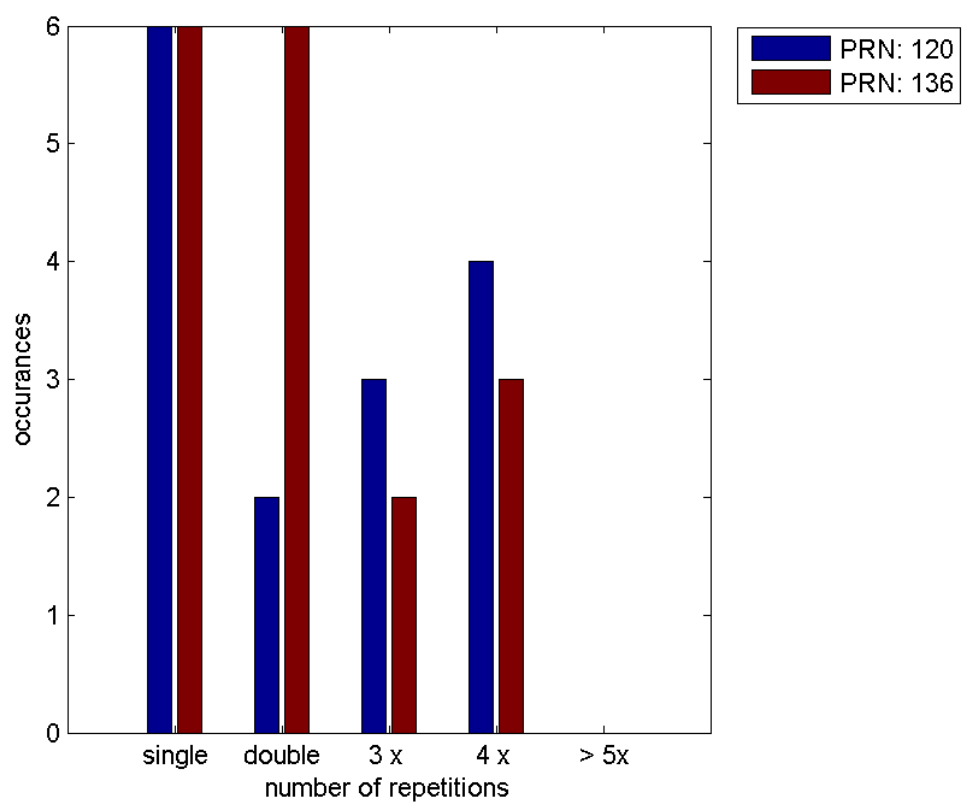
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	6	2	3	4	0
PRN 136	6	6	2	3	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

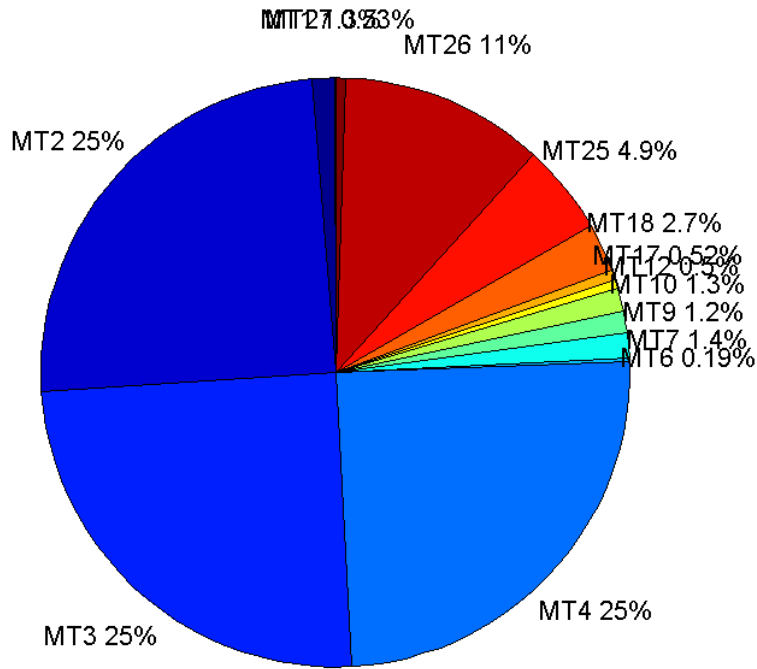
	number of messages	%
MT 0	0	0
MT 1	246	1.28232
MT 2	4744	24.7289
MT 3	4767	24.8488
MT 4	4742	24.7185
MT 5	0	0
MT 6	36	0.187656
MT 7	261	1.36051
MT 9	237	1.2354
MT 10	241	1.25626
MT 12	95	0.495204
MT 17	100	0.521268
MT 18	511	2.66368
MT 24	0	0
MT 25	947	4.93641
MT 26	2156	11.2385
MT 27	101	0.52648
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19184	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	560	101.139	38	0	0
MT 2	4	20	5.2374	1329	1	12
MT 3	4	21	5.21276	1313	2	5
MT 4	4	20	5.23961	1317	1	13
MT 5	--	--	--	--	--	--
MT 6	1	8135	459.657	10	9	9
MT 7	74	403	94.8115	35	1	4
MT 9	75	560	104.758	0	0	0
MT 10	74	399	102.908	51	1	6
MT 12	184	1594	262.287	94	20	20
MT 17	188	781	249.04	0	0	0
MT 18	4	189	48.4137	0	0	0
MT 24	--	--	--	--	--	--
MT 25	3	127	26.1977	0	0	0
MT 26	1	48	11.522	0	0	0
MT						

27	186	800	246.61	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

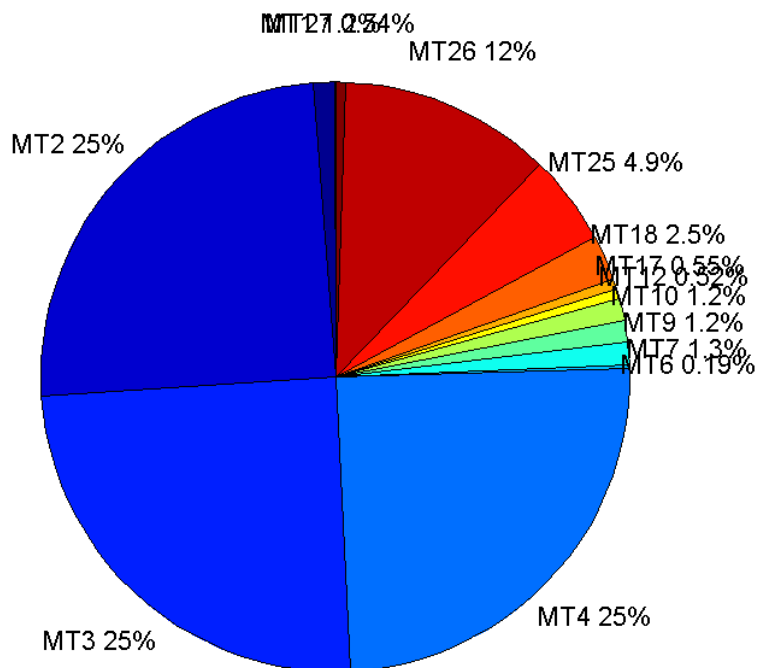
	number of messages	%
MT 0	0	0
MT 1	230	1.19679
MT 2	4771	24.8257
MT 3	4763	24.7841
MT 4	4735	24.6384
MT 5	0	0
MT 6	37	0.192528
MT 7	242	1.25924
MT 9	223	1.16037
MT 10	235	1.22281
MT 12	99	0.515142
MT 17	106	0.551566

MT 18	486	2.52888
MT 24	0	0
MT 25	950	4.94328
MT 26	2237	11.6401
MT 27	104	0.541159
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19218	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	560	107.895	44	0	0
MT 2	4	17	5.20839	1297	0	16
MT 3	4	16	5.21714	1316	0	10
MT 4	4	20	5.24715	1327	2	13
MT 5	--	--	--	--	--	--
MT 6	1	8141	451.361	11	10	10
MT 7	75	560	102.788	47	3	7
MT 9	76	641	110.757	0	0	0
MT 10	76	401	105.607	55	2	6
MT 12	188	787	250.163	98	25	25
MT 17	186	588	233.486	0	0	0
MT 18	4	190	50.9526	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	140	26.1623	0	0	0
MT 26	1	75	11.1073	0	0	0
MT 27	186	588	237.99	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_01_16EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_01_16EGNOS2Hz/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: 06:51:21.5 16.01.2017 (week: 1932 sec: 111081.5)
end: 13:45:26.5 16.01.2017 (week: 1932 sec: 135926.5)
duration: 06:54:06 ..

quality

valid samples 44739
total samples 45419

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (27)
APV-35m discontinuity events type too many (32)
LPV-200 discontinuity events type too many (32)
CAT-I discontinuity events type long

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	126585	1.65558	8.80468	0.188034	0.234985	14.4303	0.0162841
max normVer	128741	3.01421	16.2041	0.186015	2.81762	19.642	0.143449
max HPE	123019	8.25726	134.067	0.0615905	-0.843788	47.6491	0.0177084
max VPE	115657	3.86418	263.522	0.0146636	-6.09588	385.703	0.0158046
min HPL	126585	1.65558	8.80468	0.188034	0.234985	14.4303	0.0162841
min VPL	111834	1.05386	9.99807	0.105406	0.381649	11.0353	0.0345844

Position discontinuity events :

#	Epoch	duration	stable period
1	119048	5.5	68.5
2	119189	80.5	135.5
3	121473	3.5	27.5
4	123767	4.5	195.5
5	124404	5.5	358.5
6	133422	80.5	197.5
7	133518	64.5	15.5
8	133593	362.5	10.5
9	134515	5.5	271.5

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	111615	3.5	1.5
2	111623	36	1
3	111719	81	12
4	111877	41.5	19
5	112048	4.5	15.5
6	112082	3.5	5.5
7	112095	550	9.5
8	112697	3.5	4.5
9	112740	3.5	4.5
10	112828	4.5	15.5
11	112838	4	1
12	112943	14.5	10.5
13	112976	18.5	18.5
14	113013	4.5	3.5
15	113023	3.5	1.5

Duration	24846
Number of Samples	45419
Number of invalid sample	680
Number of no position solution samples	1197
Number of missing sample	4273
Logging Loss	8.599
Processing Loss	1.4972
Number of Misleading Information	0
Data gaps	20
Discontinuities	69

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
43542	38250	37533	1039	37533

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.7261	1.65543	1.6541	1.28024	1.6541
HPEscale 95%	NaN	5.26766	5.28455	4.89229	5.28455
VPE 95%	1.41447	1.33087	1.32349	0.746202	1.32349
VPEscale 95%	NaN	3.16249	2.21986	0.770881	2.21986

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.973245	0.854959	0.838932	0.0232236	0.838932
measurements	0.958674	0.842159	0.826372	0.0228759	0.826372
Operational	1.75248	1.53948	1.51063	0.0418176	1.51063

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	49	147	204	75	204
Long	9	34	46	15	46
Independent	8	27	32	4	32
P(disc.)	0.00275596	0.0105882	0.0127887	0.0577478	0.0127887
P(slide)	0.0165013	0.0504575	0.0632643	0.456208	0.0632643

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

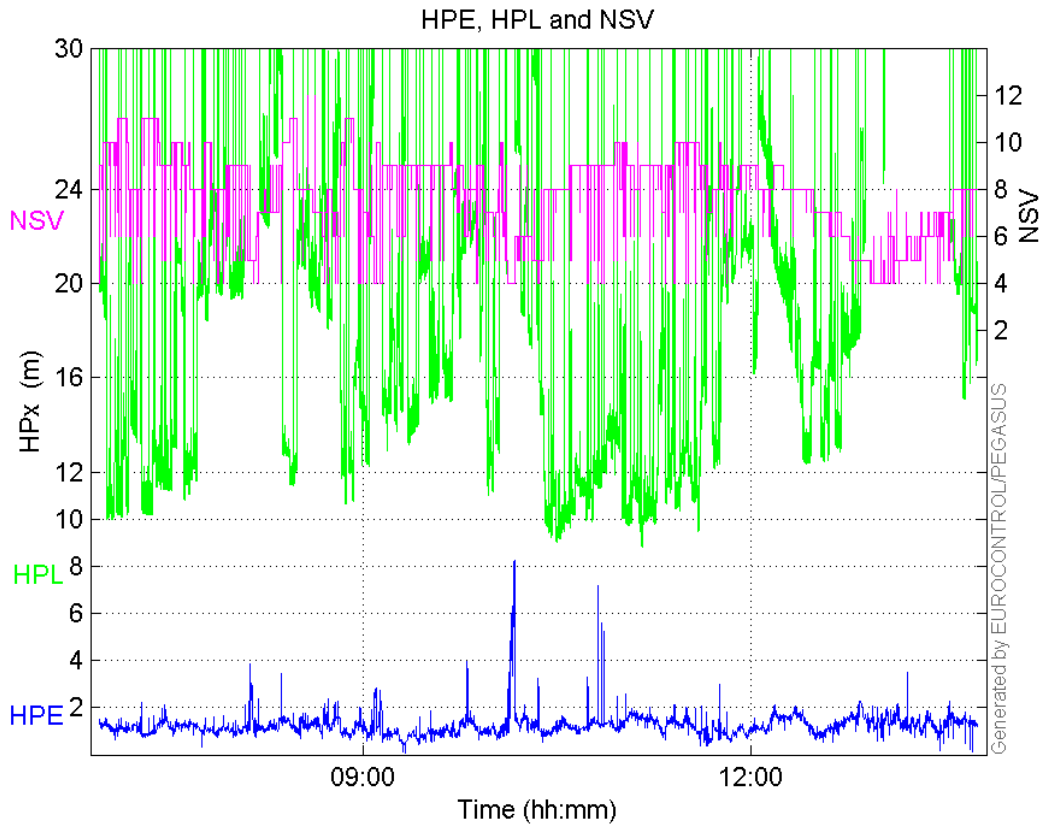
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	43542	38250	37533	1039	37533
SIS Availability	0.973245	0.854959	0.838932	0.0232236	0.838932
Local Availability	0.958674	0.842159	0.826372	0.0228759	0.826372
Operational Availability	1.75248	1.53948	1.51063	0.0418176	1.51063

HPE 95%	1.7261	1.65543	1.6541	1.28024	1.6541
HPEscale 95%	NaN	5.26766	5.28455	4.89229	5.28455
VPE 95%	1.41447	1.33087	1.32349	0.746202	1.32349
VPEscale 95%	NaN	3.16249	2.21986	0.770881	2.21986
All Discontinuity Events	49	147	204	75	204
Long Discontinuity Events	9	34	46	15	46
Independent Discontinuity Events	8	27	32	4	32
P(discontinuity)	0.00275596	0.0105882	0.0127887	0.0577478	0.0127887
P(sliding window)	0.0165013	0.0504575	0.0632643	0.456208	0.0632643
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

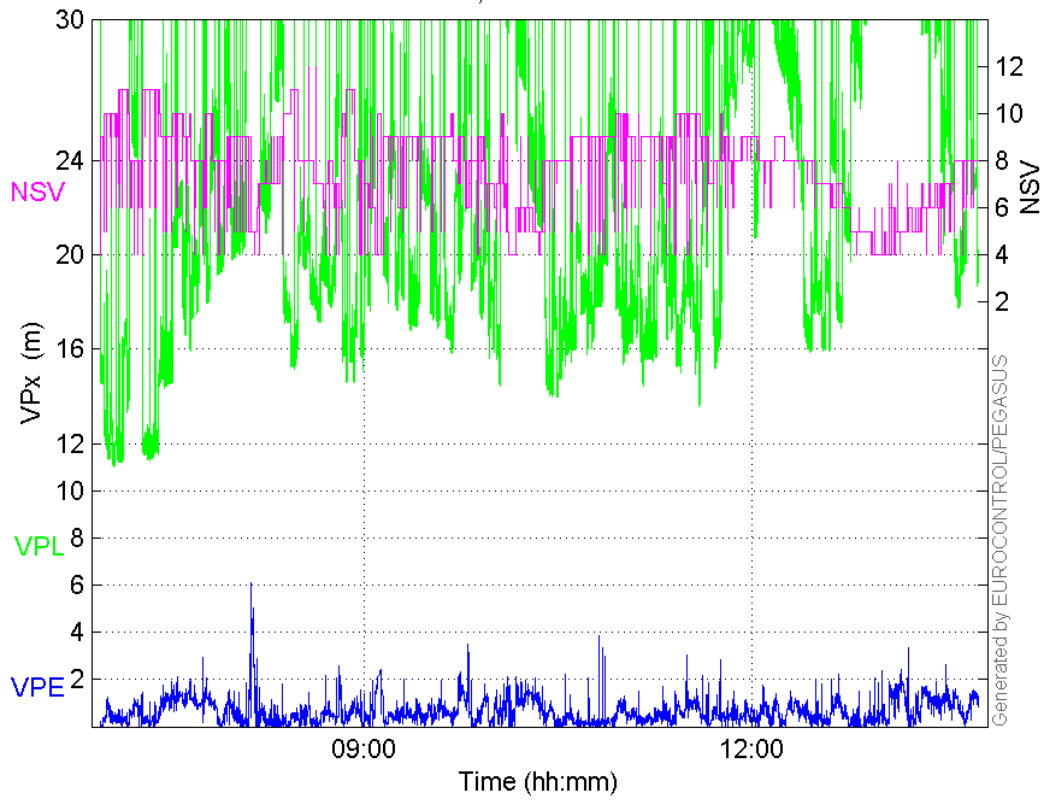
Time Series

HPE, HPL and NSV:



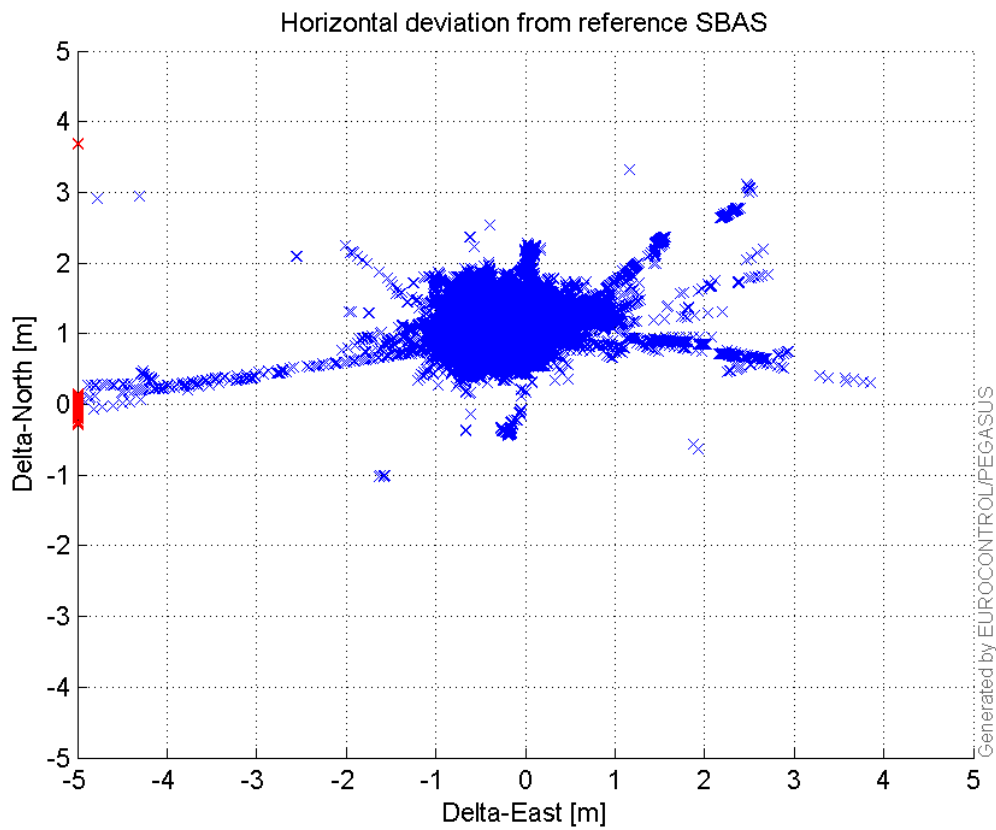
VPE, VPL and NSV:

VPE, VPL and NSV



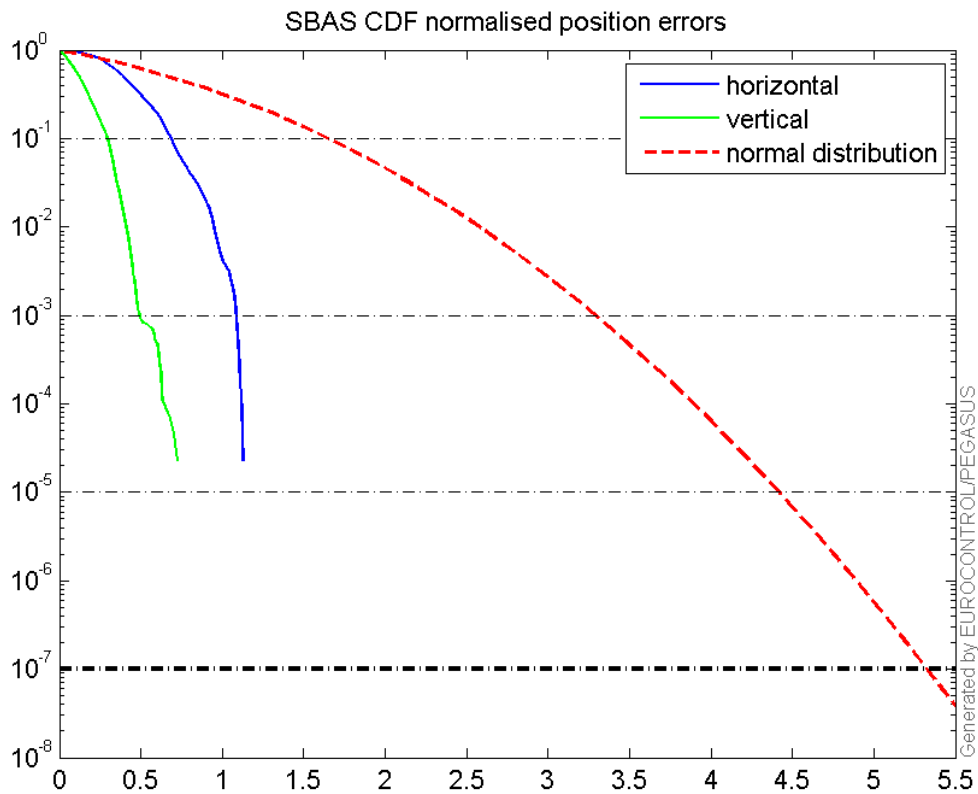
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

```

number 38250
sum 45625.829
sum2 57454.025
prctile95 1.6554305
prctile99 1.889273
number 38250
sum 22016.566
sum2 18623.61
prctile95 1.3308746
prctile99 1.5567603
number 38250
sum 672979
sum2 13232602
prctile95 28.3943
prctile99 38.1682
number 38250
sum 814593.15
sum2 18528495
prctile95 31.1094
prctile99 36.5615
number 38250
sum 2891.1833
sum2 254.01775
prctile95 0.13169143

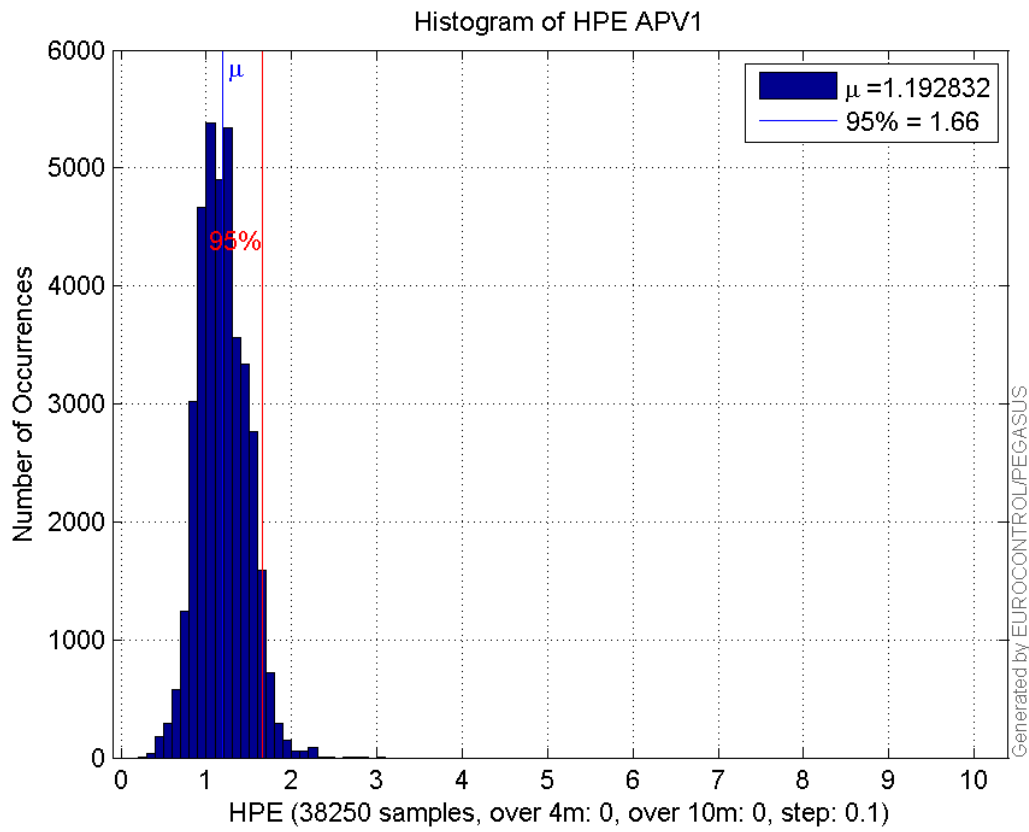
```

prctile99 0.15918296
number 38250
sum 1066.2221
sum2 43.549521
prctile95 0.063249881
prctile99 0.078038597
number 37533
sum 44660.995
sum2 56093.891
prctile95 1.6540979
prctile99 1.8835506
number 37533
sum 21432.159
sum2 17998.219
prctile95 1.32349
prctile99 1.5514076
number 37533
sum 652471.67
sum2 12625600
prctile95 26.94134
prctile99 37.353985
number 37533
sum 786814.09
sum2 17439815
prctile95 29.993155
prctile99 33.847255
number 37533
sum 2856.2583
sum2 252.16653
prctile95 0.13211372
prctile99 0.15930167
number 37533
sum 1051.0156
sum2 43.125881
prctile95 0.063424707
prctile99 0.078203778

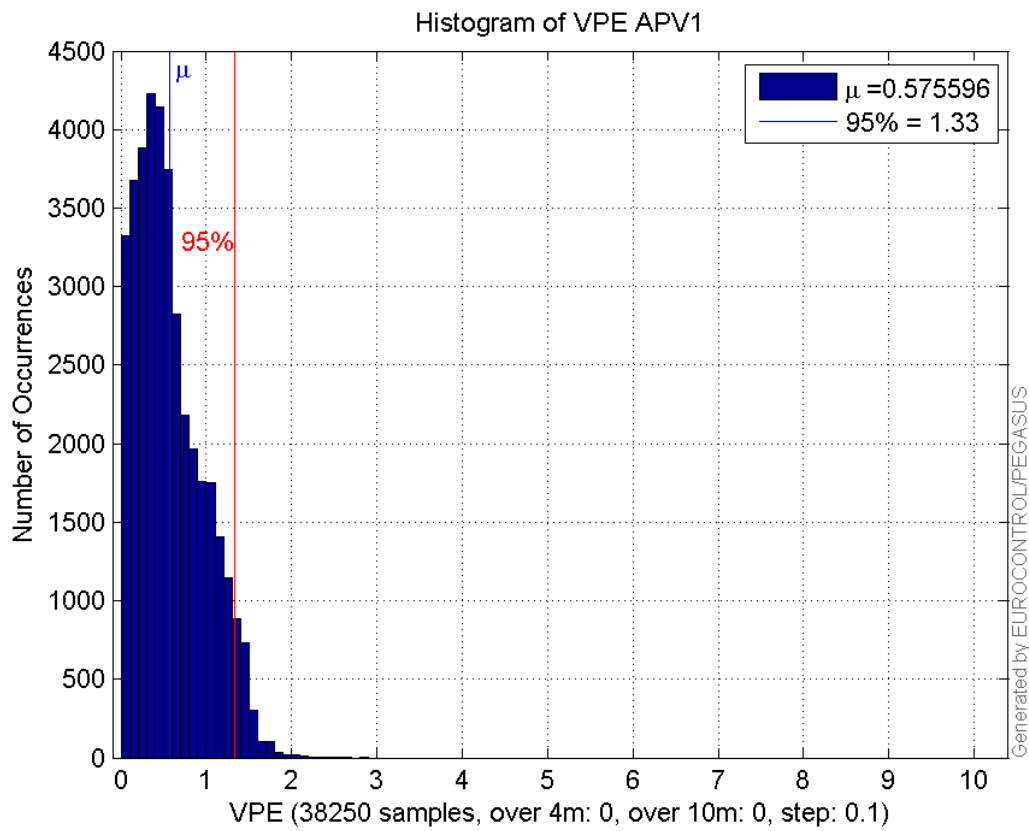
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.19283	0.28146	1.17585	1.65543	1.88927	1.22559
HPL	17.5942	6.0328	16.885	28.3943	38.1682	18.5997
VPE	0.575596	0.394442	0.496512	1.33087	1.55676	0.697776
VPL	21.2966	5.55542	20.0275	31.1094	36.5615	22.0092

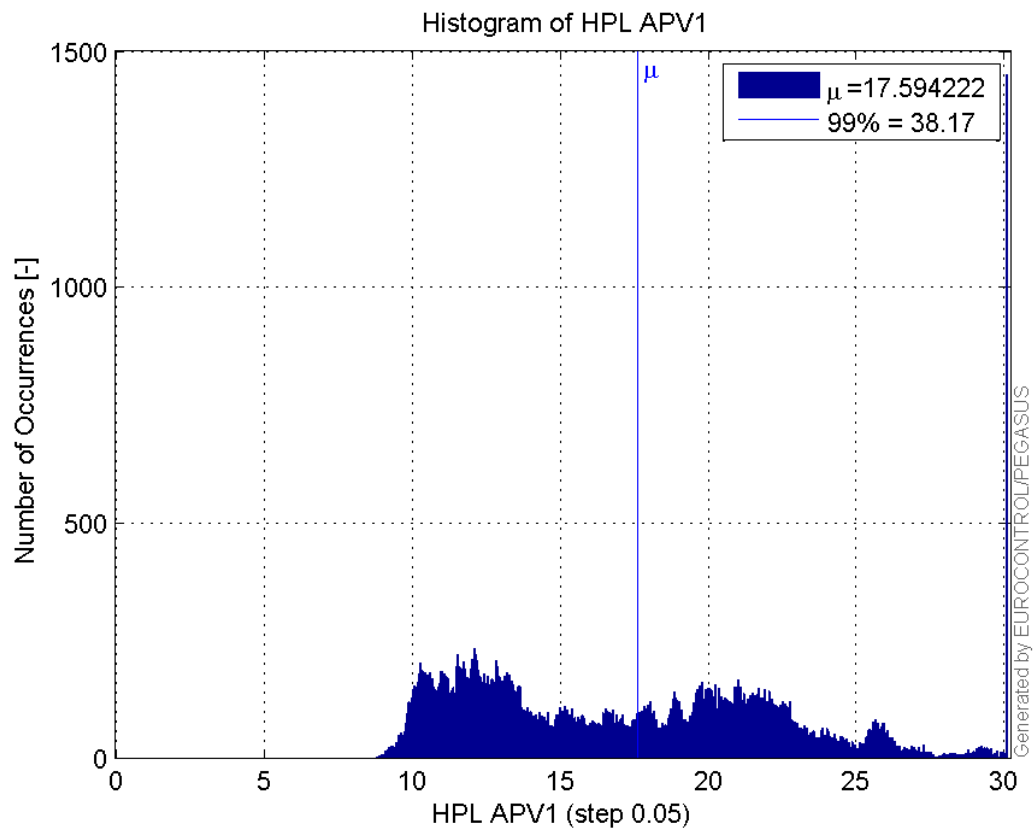
Histogram of HPE APV1:



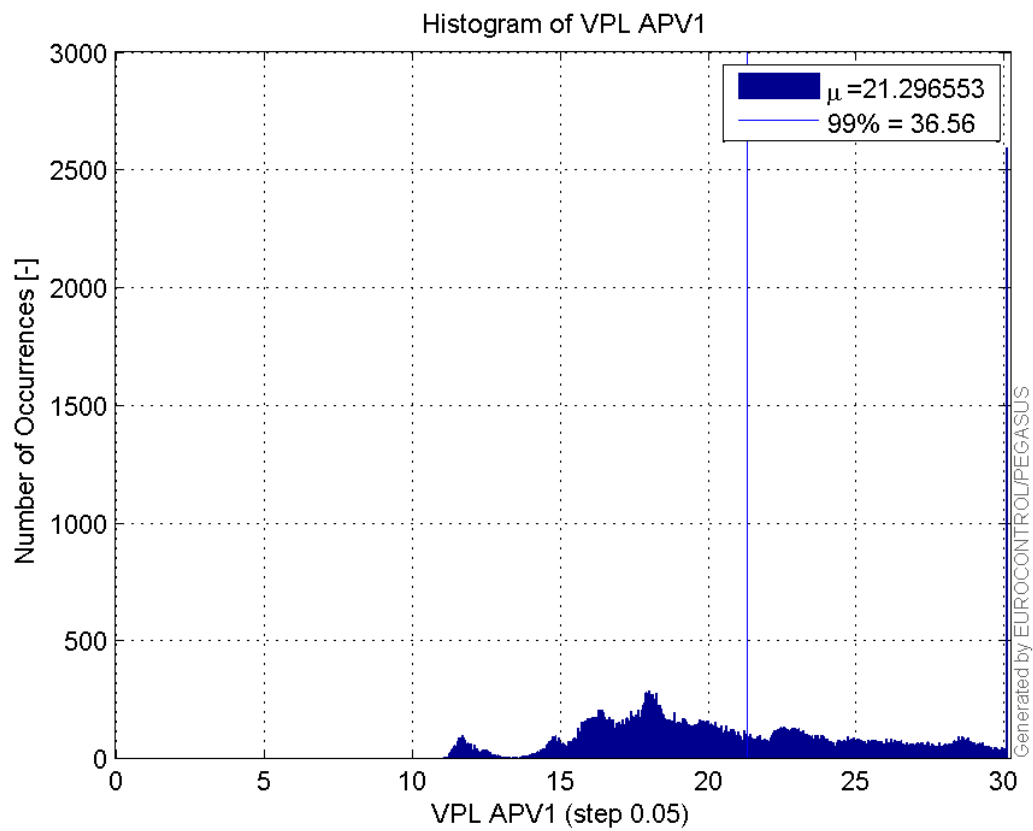
Histogram of VPE APV1:



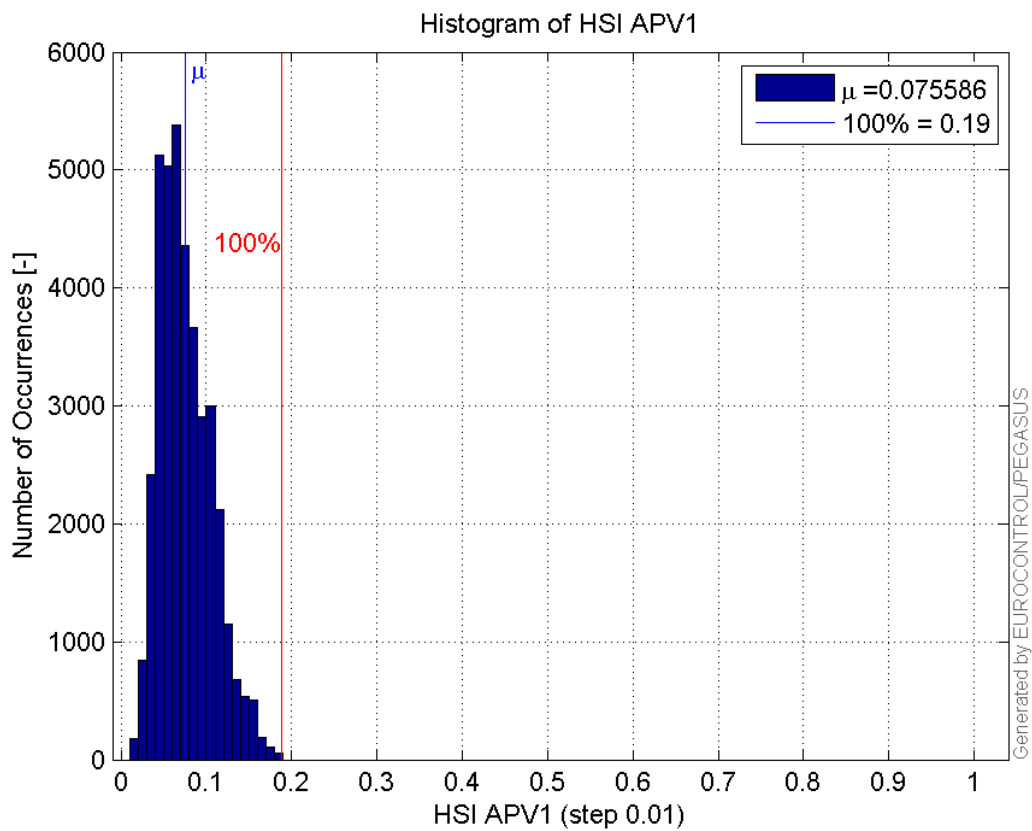
Histogram of HPL APV1:



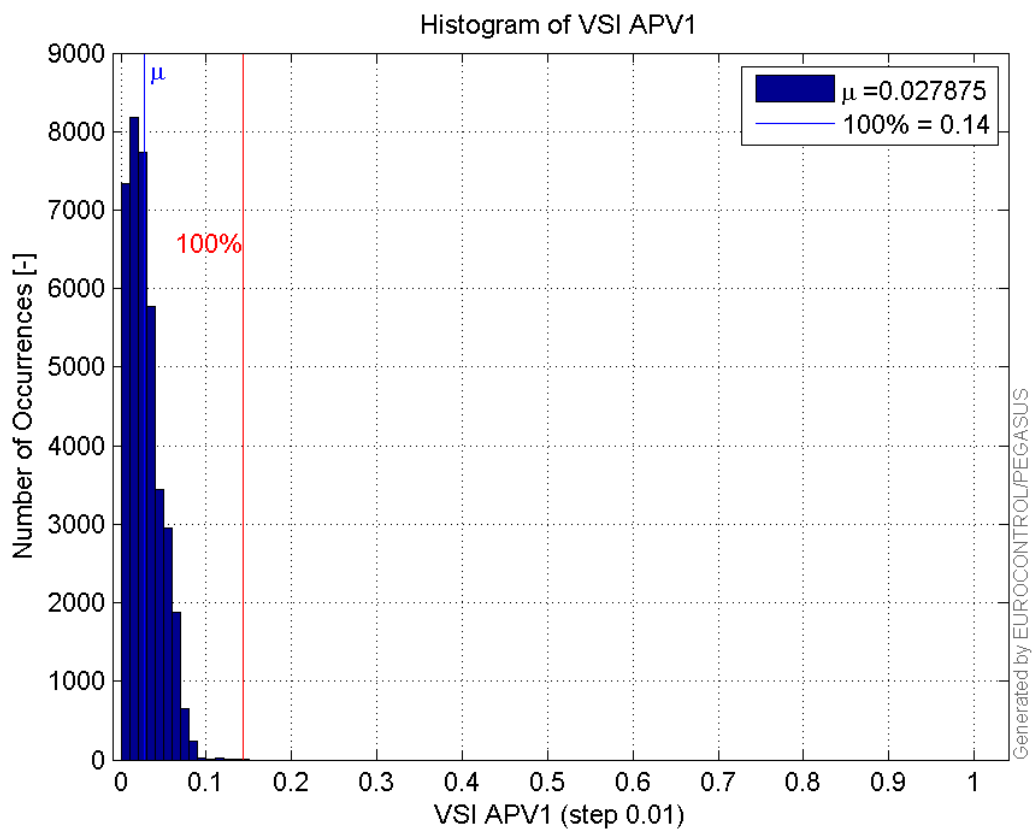
Histogram of VPL APV1:



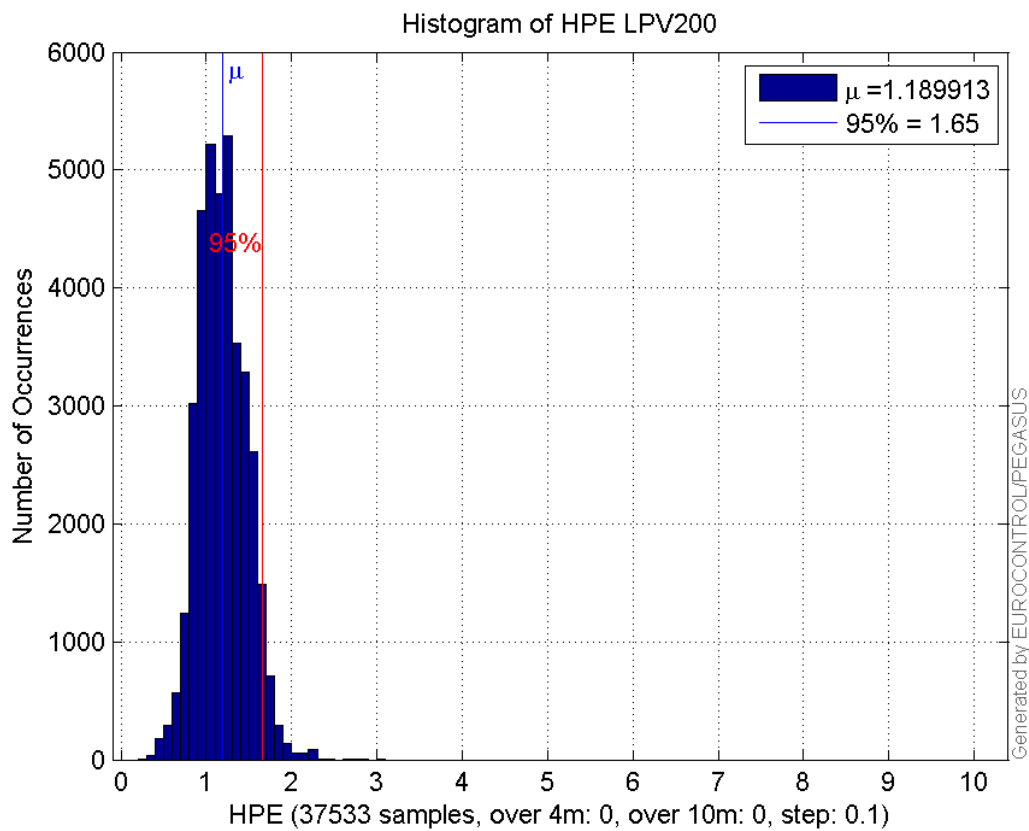
Histogram of HSI APV1:



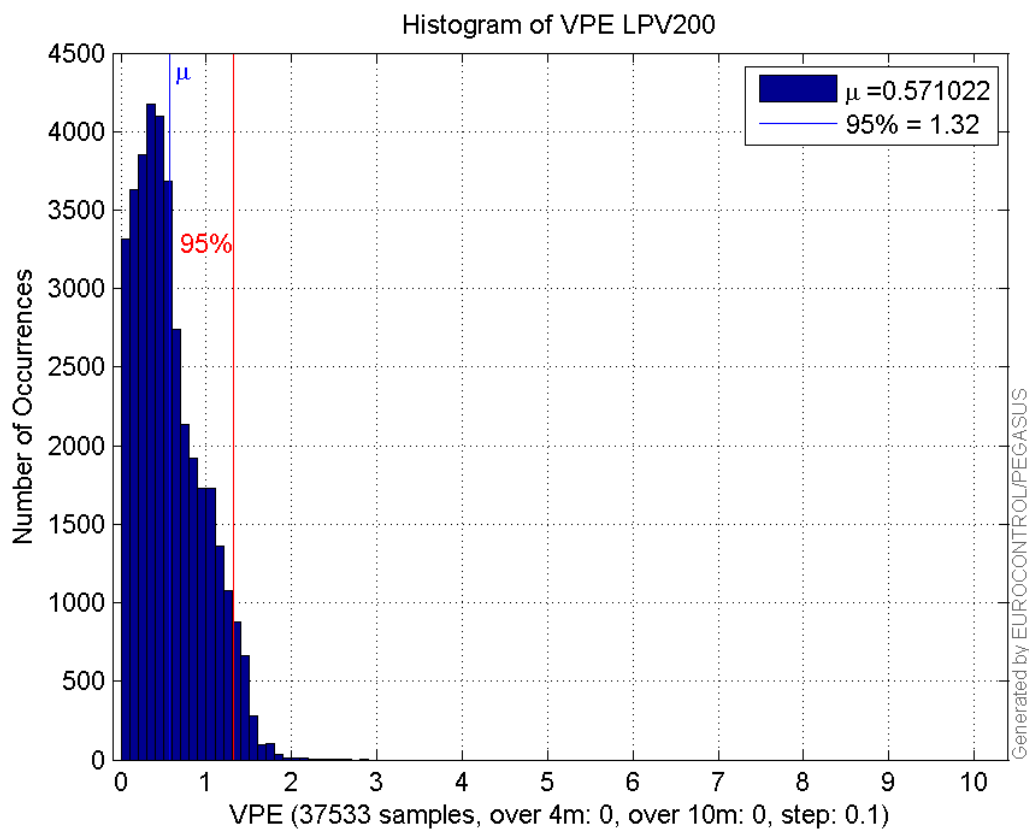
Histogram of VSI APV1:



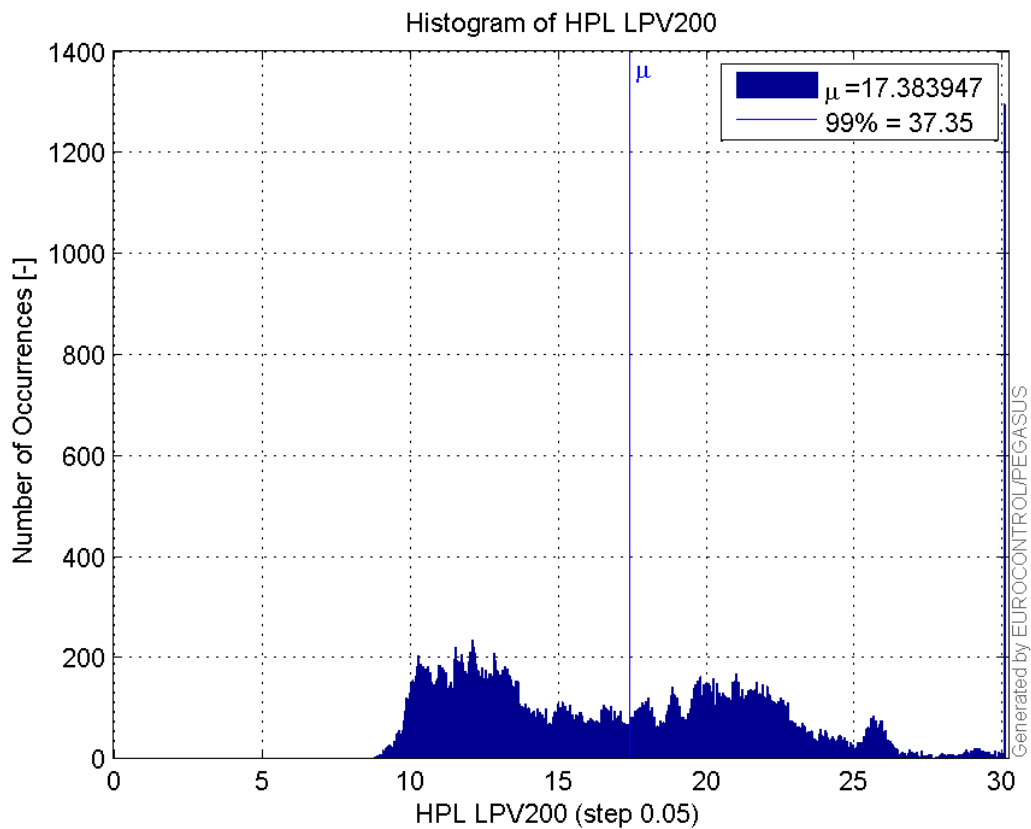
Histogram of HPE LPV200:



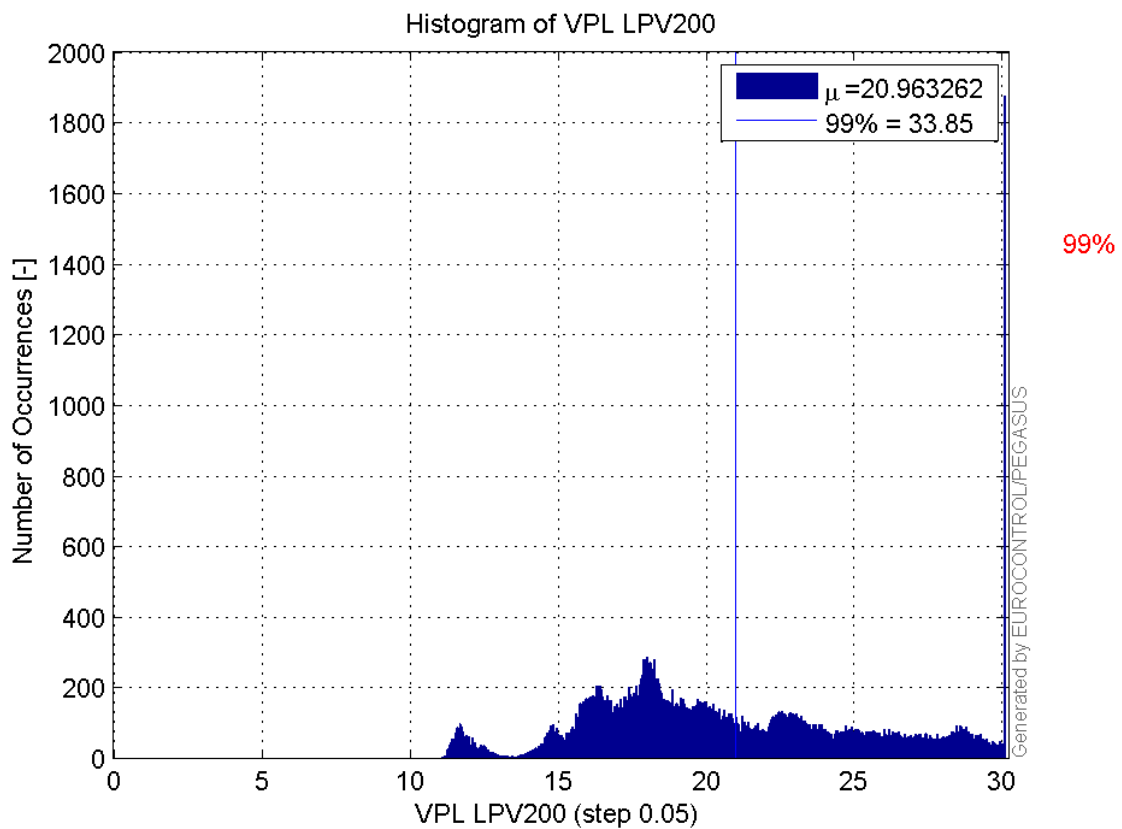
Histogram of VPE LPV200:



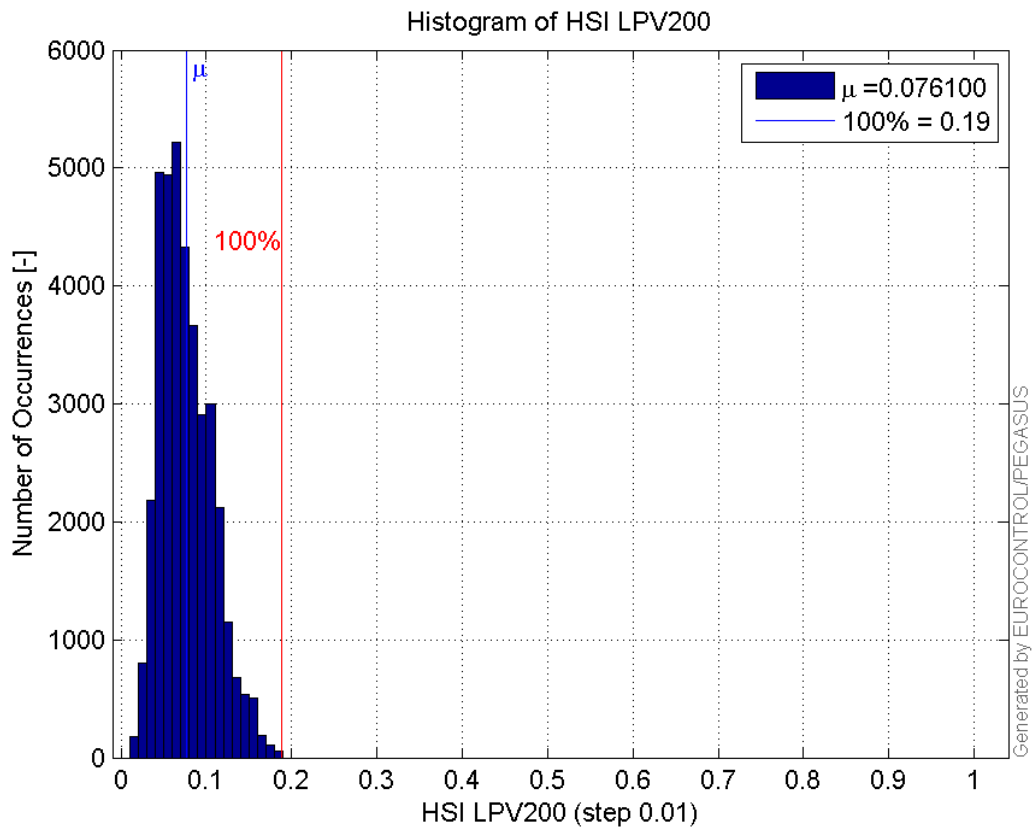
Histogram of HPL LPV200:



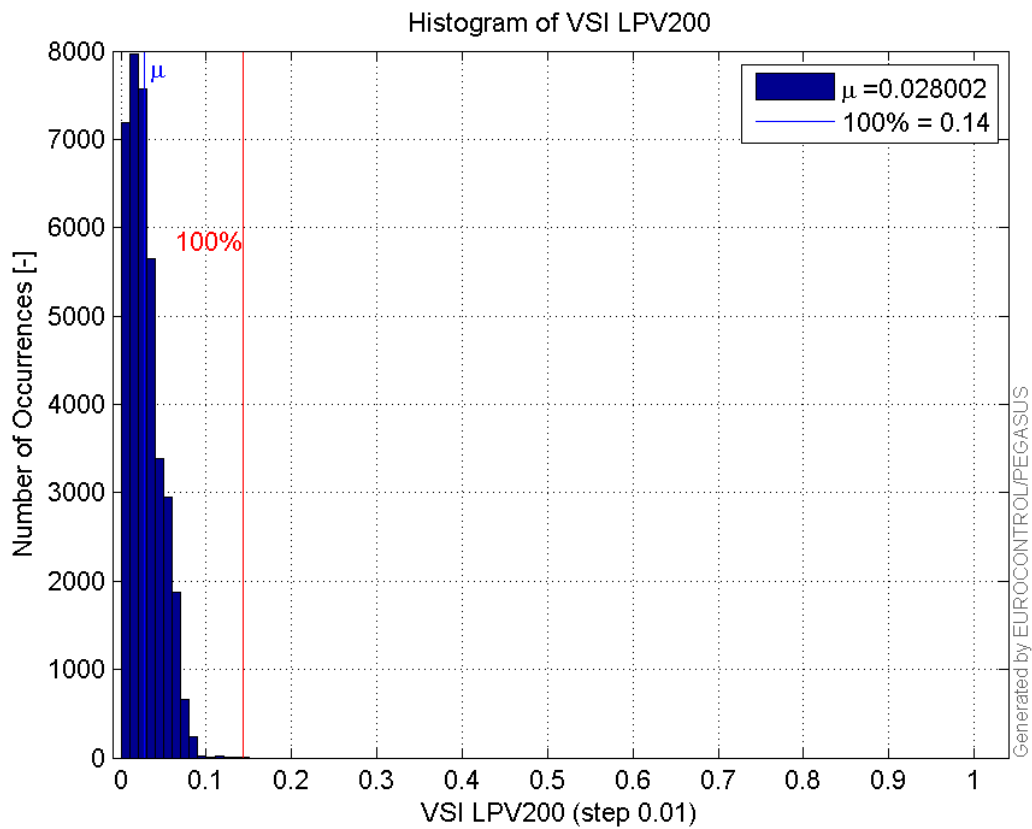
Histogram of VPL LPV200:



Histogram of HSI LPV200:

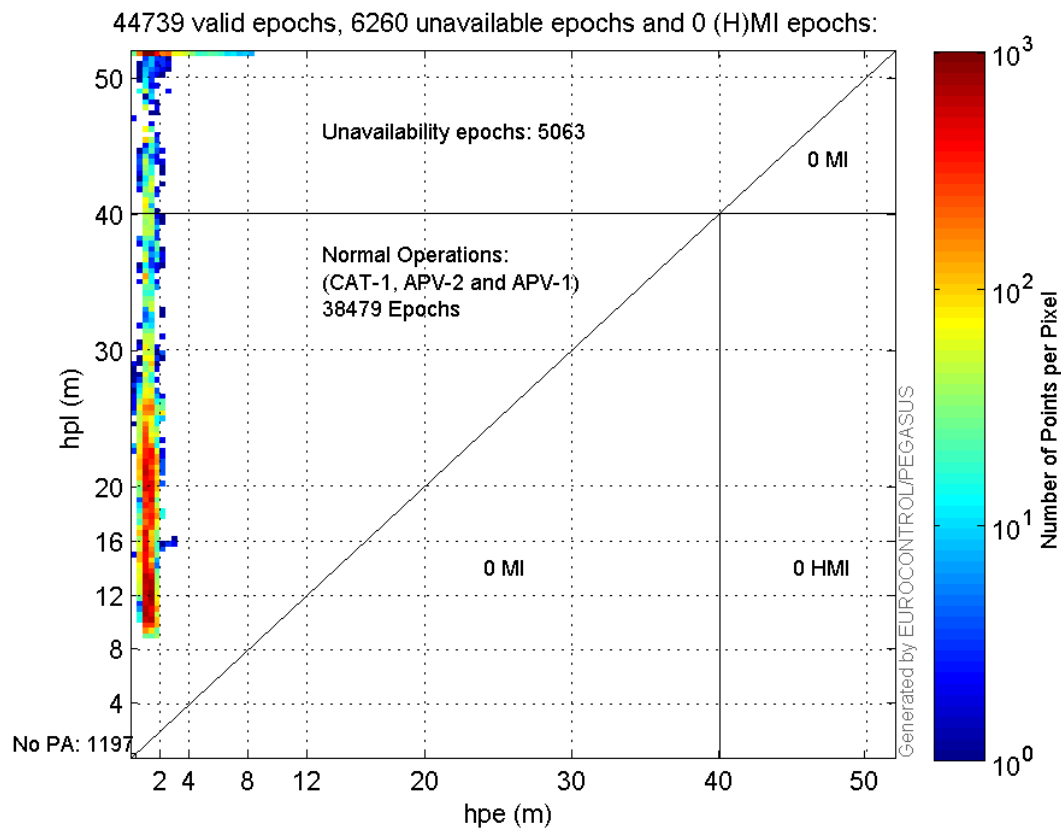


Histogram of VSI LPV200:

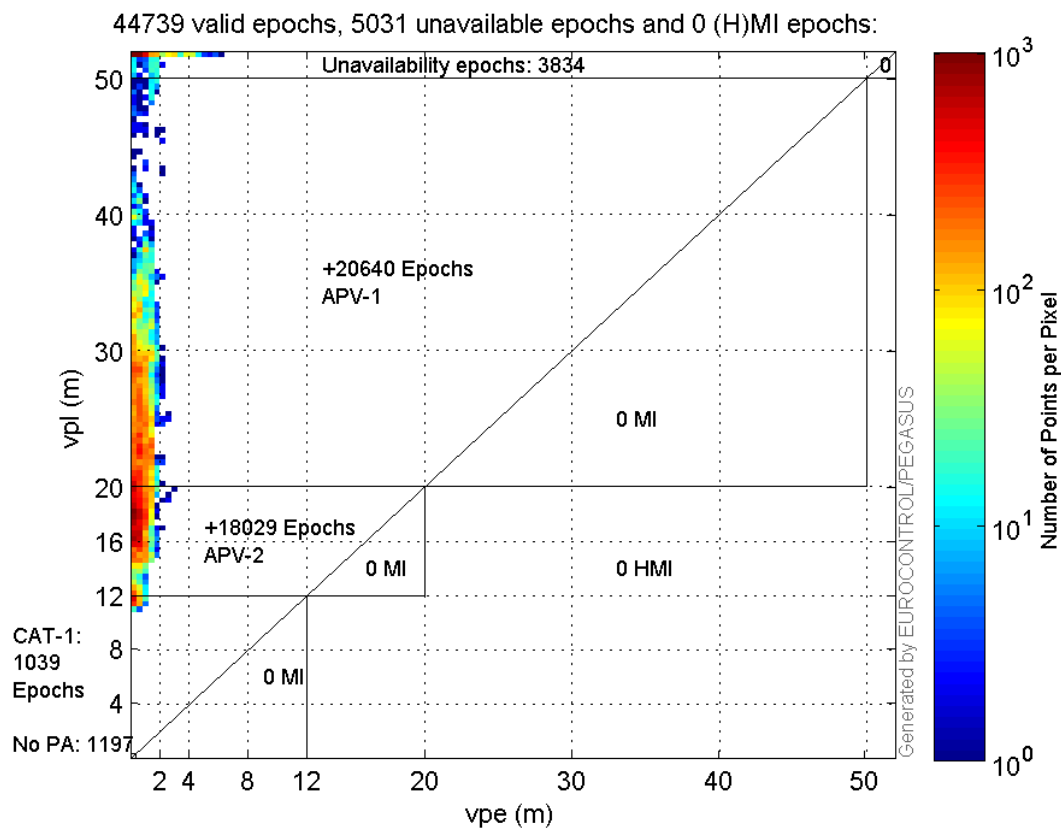


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_01_16EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_16EGNOS2Hz/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	218.6432
mi_numbers	results	0

Range Domain

start: 06:51:21.5 16.01.2017 (week: 1932 sec: 111081.5)
end: 13:45:26.5 16.01.2017 (week: 1932 sec: 135926.5)
duration: 06:54:06 ..

quality

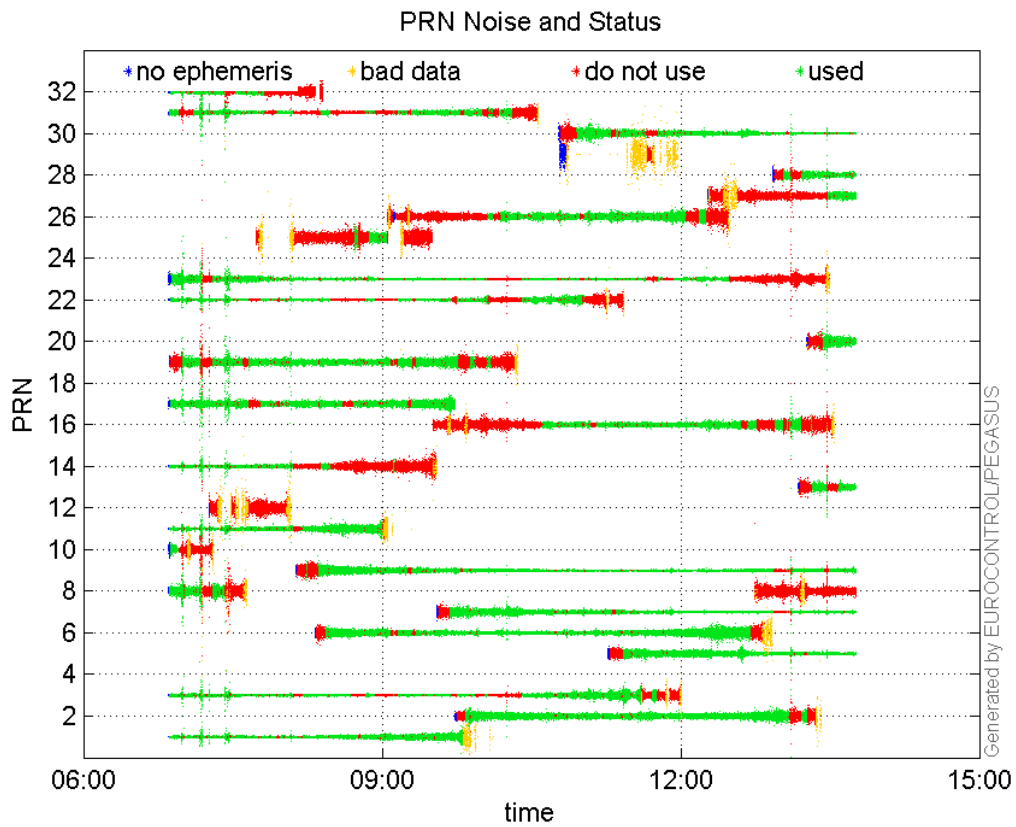
valid samples 45419
total samples 45419

PRN overview

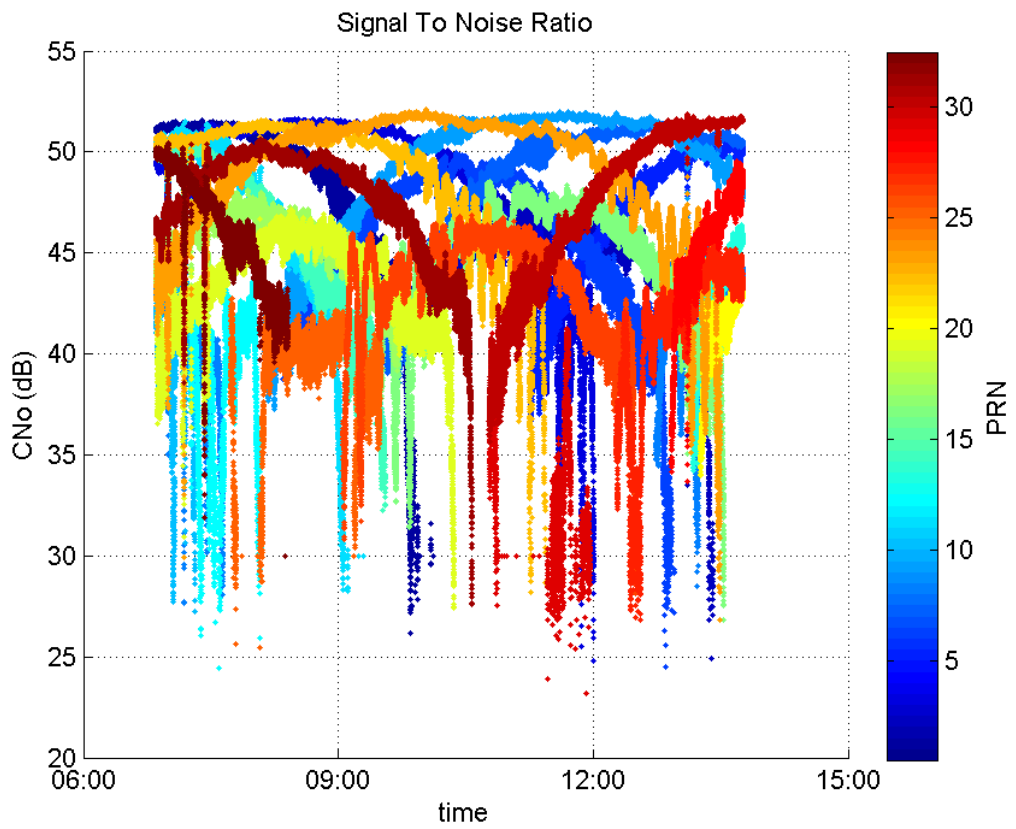
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



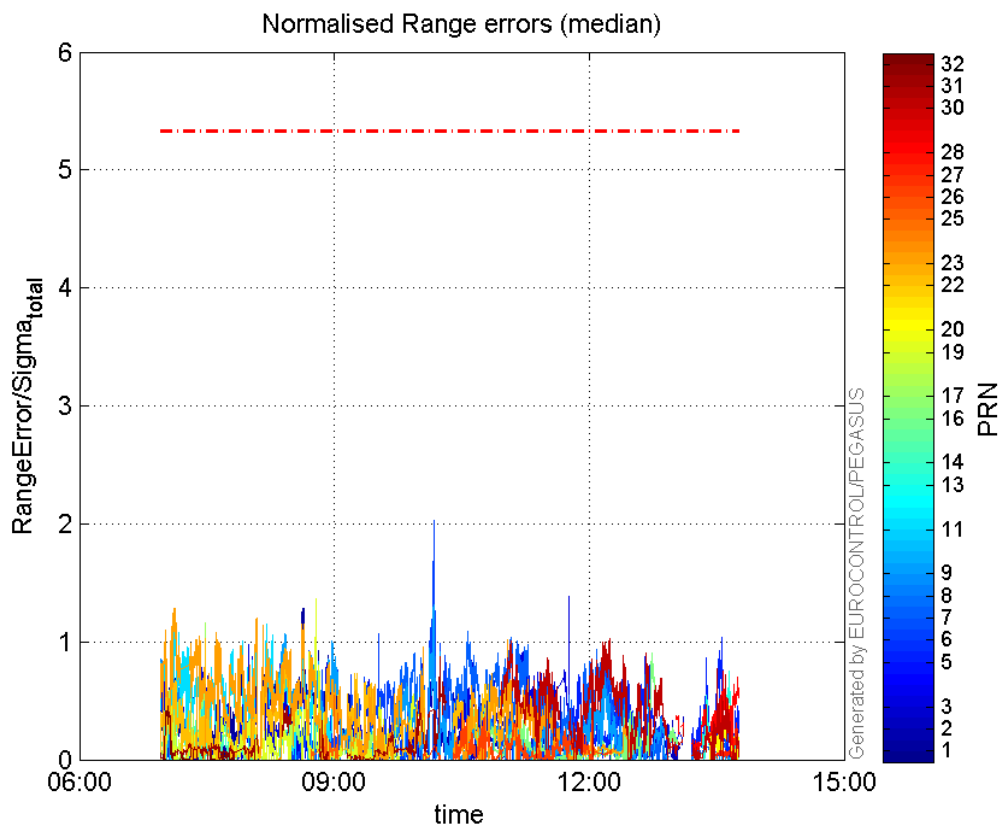
range errors

Number of Overbounding Norm Errors 0

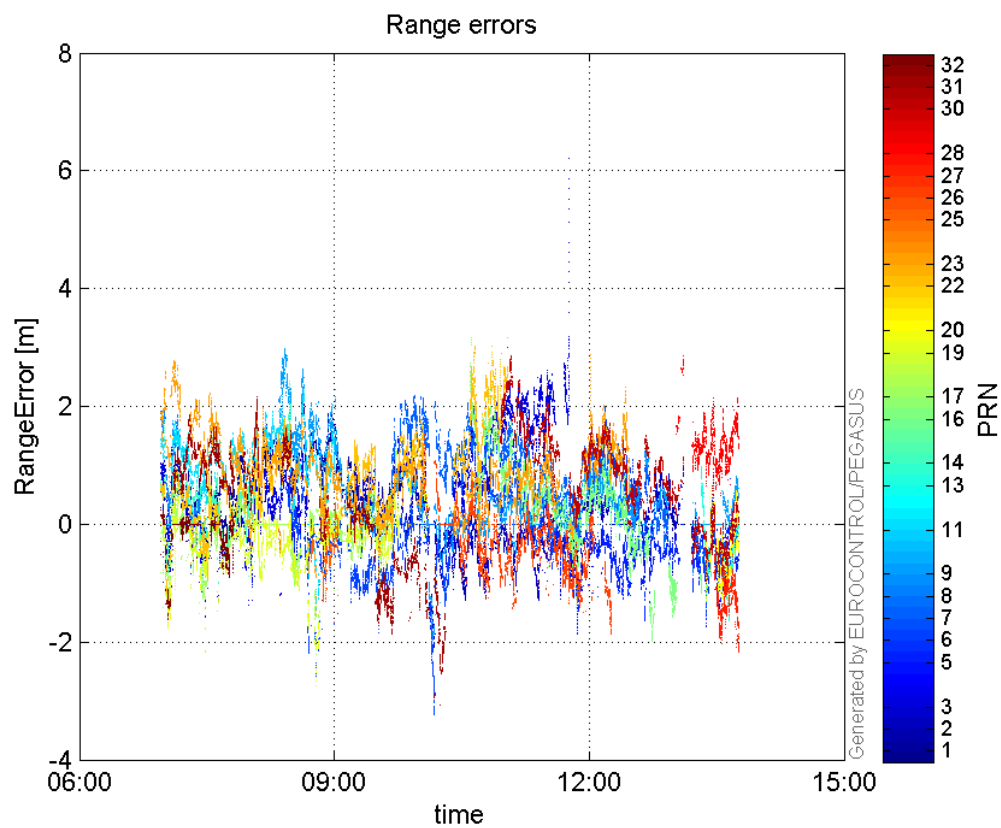
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1932	117489	1	1.28347	2.25764	1.759
1932	123027	2	0.898074	-2.03876	2.27015
1932	128741	3	1.38381	6.20628	4.48491
1932	135232	5	1.04134	-1.87326	1.79889
1932	123026	6	2.03096	-3.09624	1.52452
1932	124454	7	1.08411	2.05491	1.89548
1932	111470	8	0.850552	1.92717	2.26579
1932	123004	9	1.31004	-1.85142	1.41325
1932	112042	11	1.24276	1.73714	1.39781
1932	135531	13	0.756196	-1.64327	2.17308
1932	113310	14	0.618572	-1.25463	2.02826
1932	132245	16	0.906164	-1.96083	2.16388
1932	113310	17	1.15614	-2.14957	1.85927
1932	118011	19	1.36593	-2.74344	2.00848
1932	135500	20	0.499854	-1.27712	2.55499
1932	113310	22	1.02874	-1.41953	1.37986
1932	112004	23	1.28425	2.77793	2.16307
1932	118810	25	0.54542	-1.66186	3.04694
1932	124216	26	0.410759	-1.00711	2.45183
1932	135810	27	0.311007	-2.08231	6.69537
1932	135270	28	0.75154	1.9412	2.58296
1932	130471	30	1.02448	1.71188	1.67098
1932	123257	31	0.874735	-3.07851	3.51936
1932	111753	32	0.458934	-1.62654	3.54416

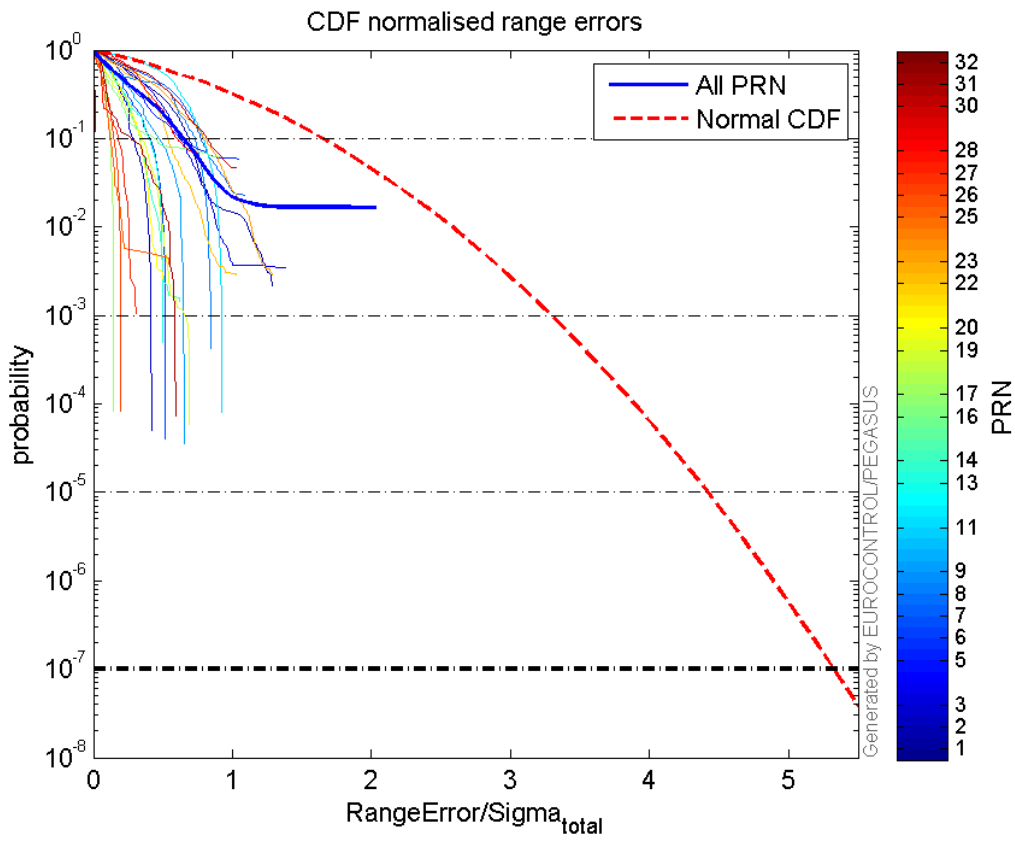
Normalised Range errors (median):



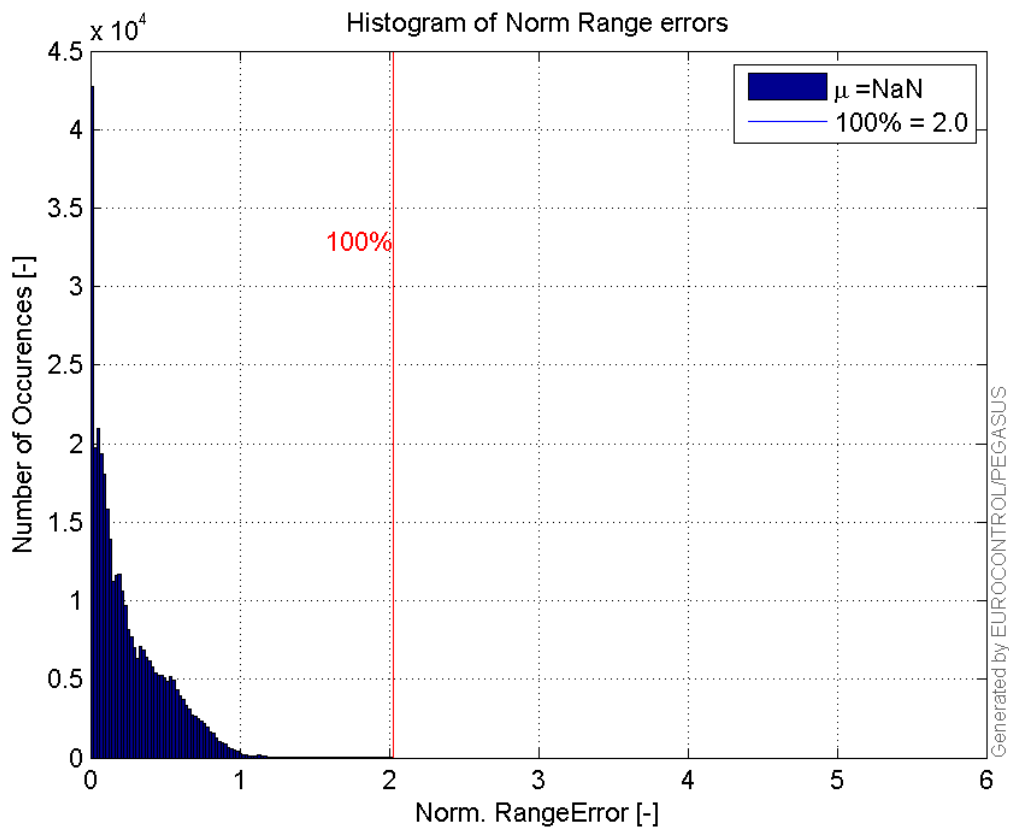
Range errors:



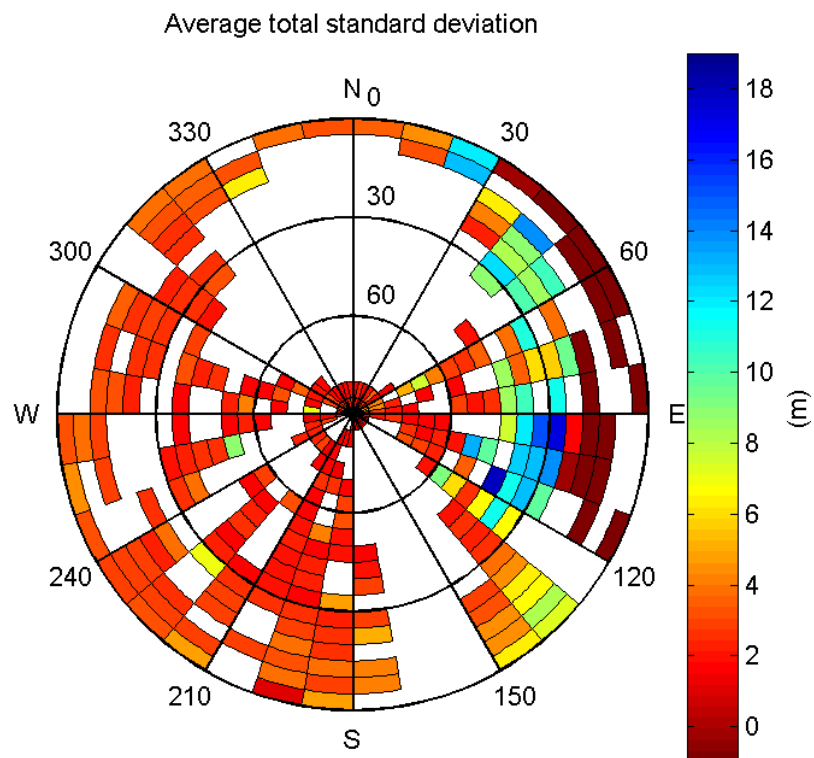
CDF normalised range errors:



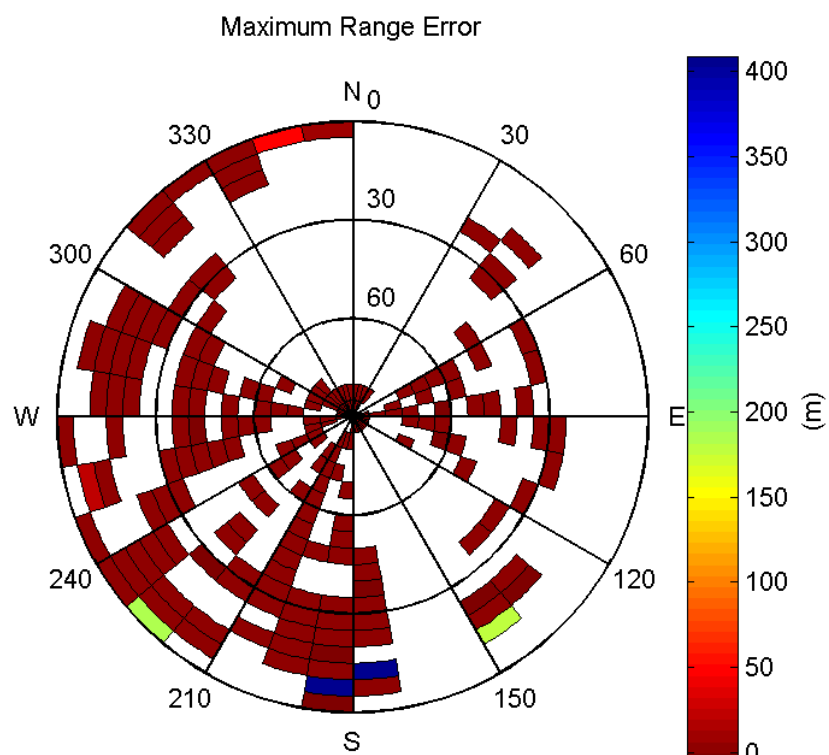
Histogram of Norm Range errors:



Sigma Sky Plot:

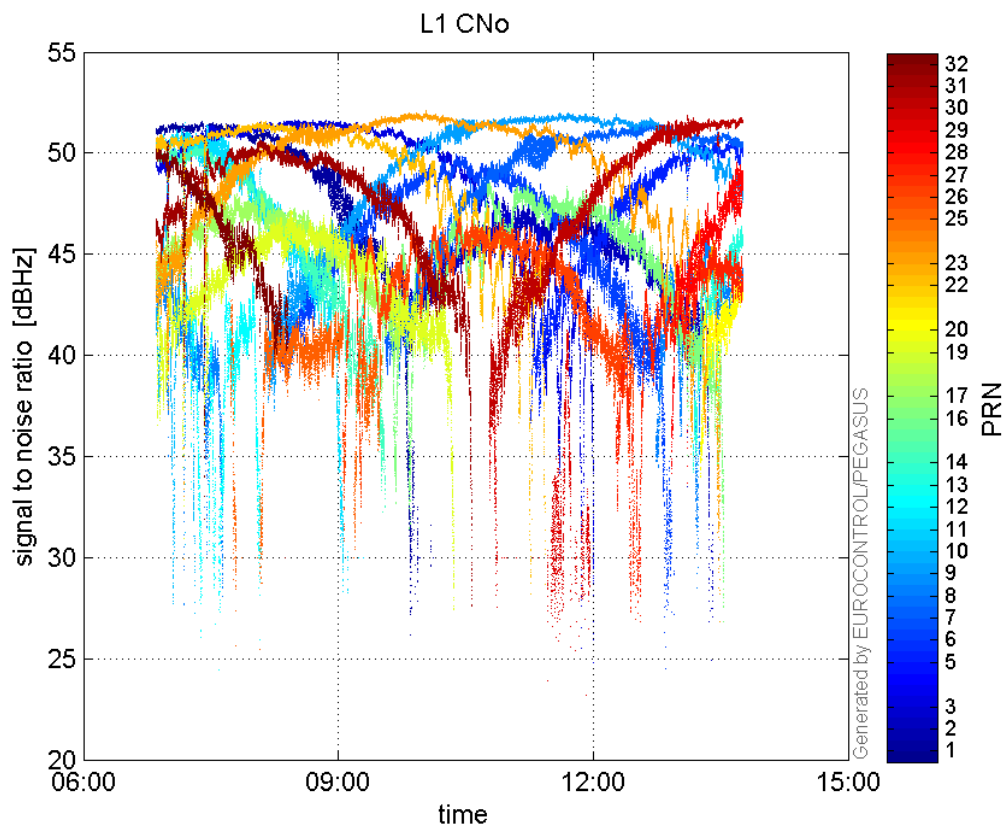


Norm Error Sky Plot:

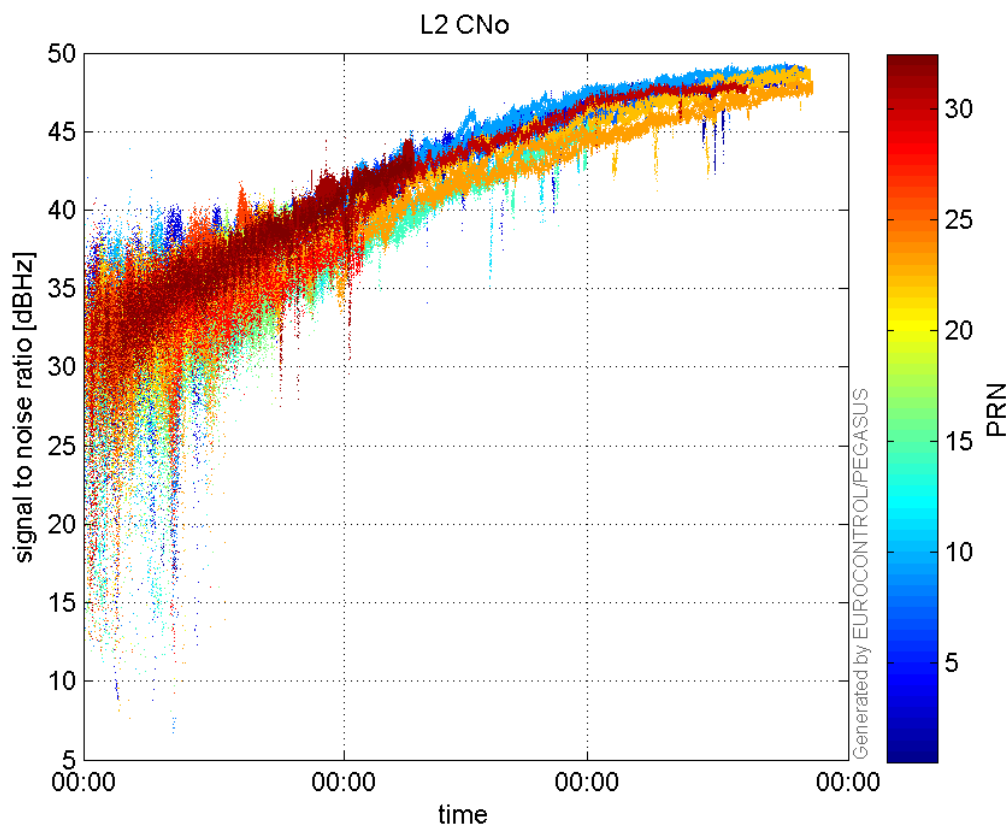


signal quality

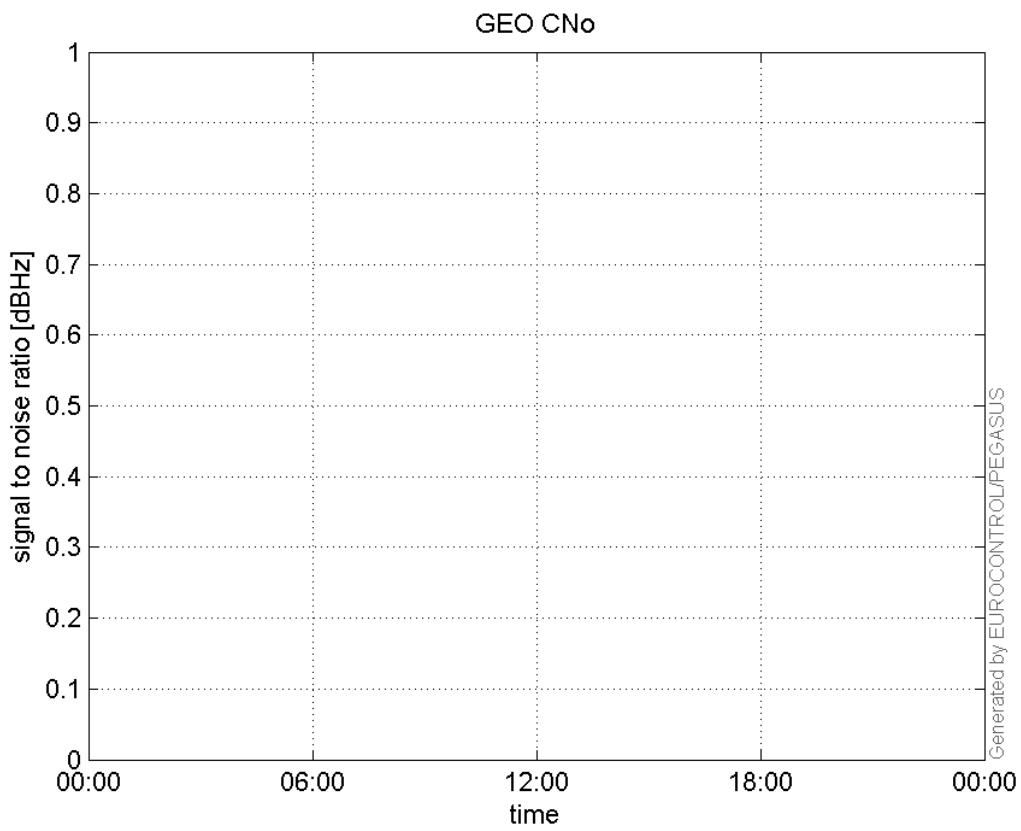
L1 CNo:



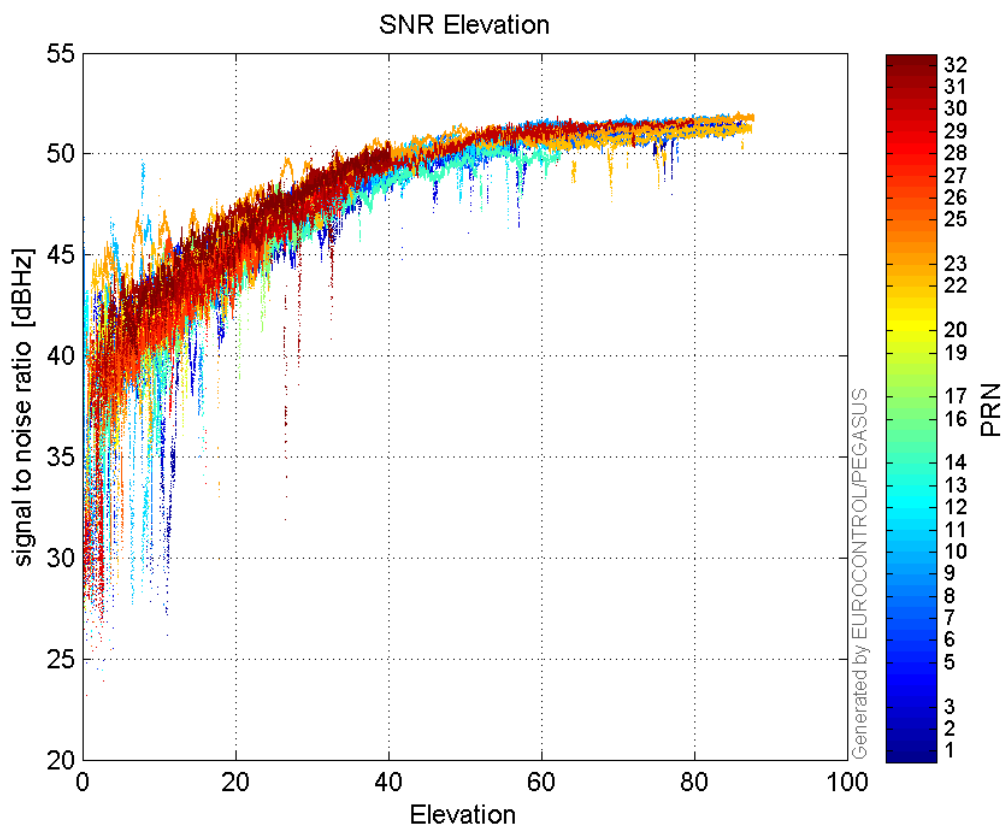
L2 CNo:



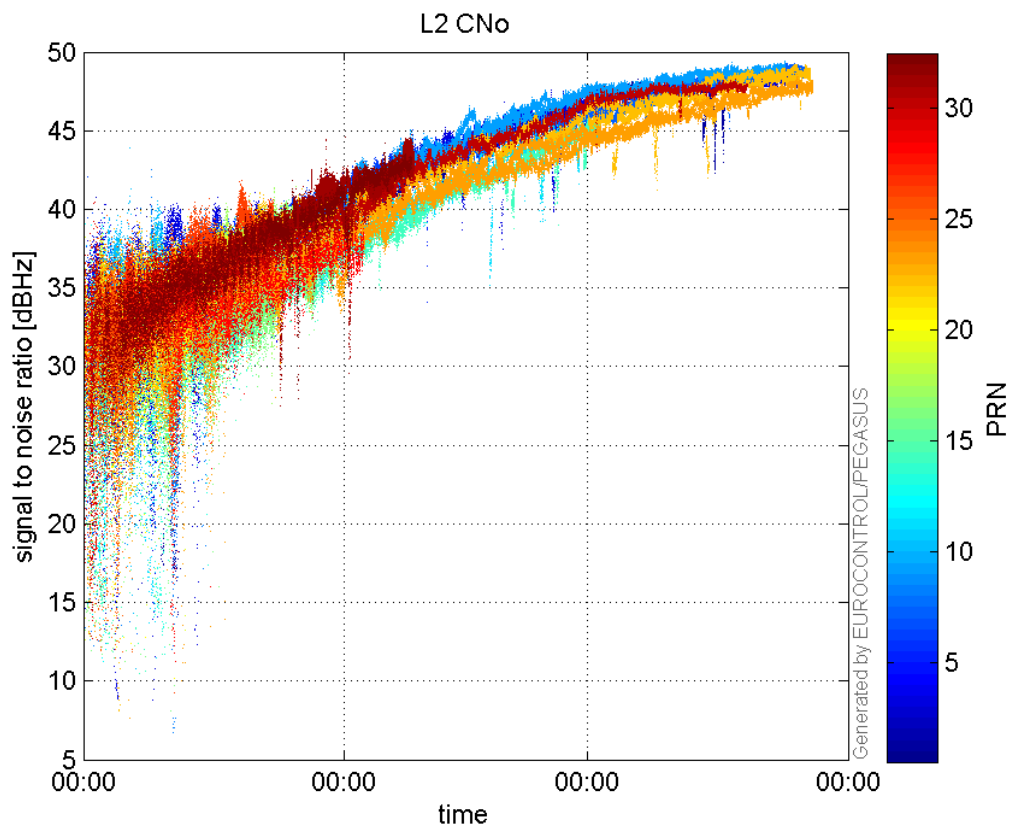
GEO CNo:



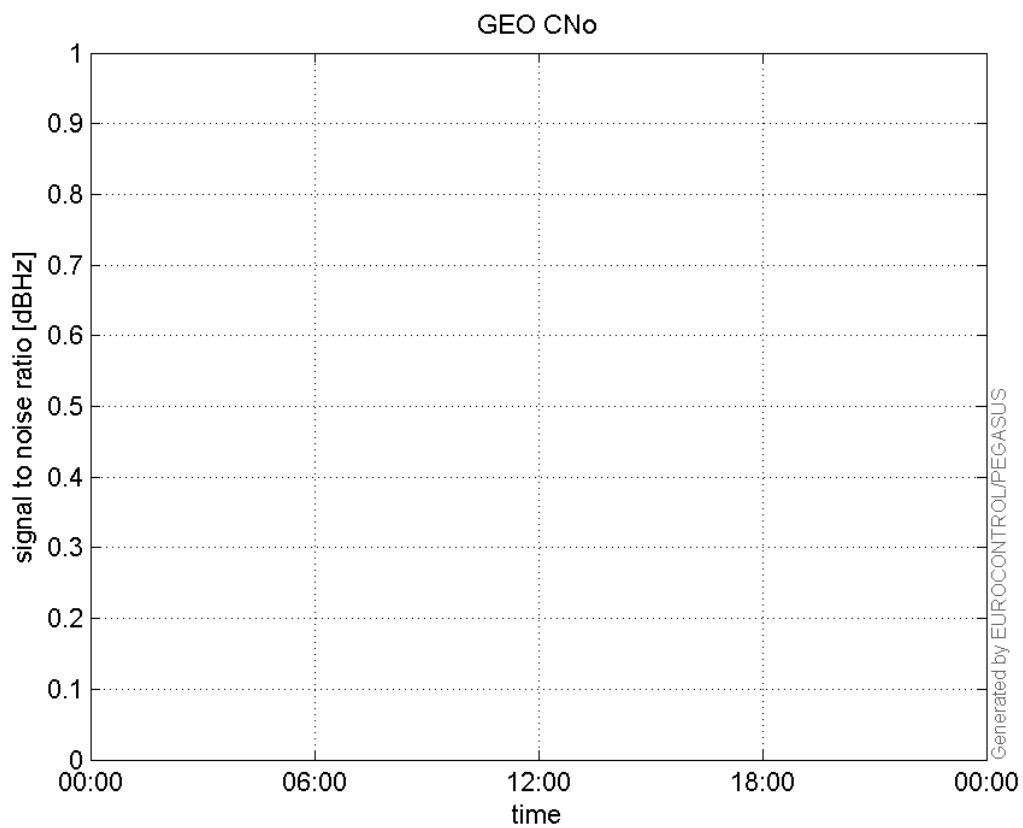
SNR Elevation:



L2 CNo:

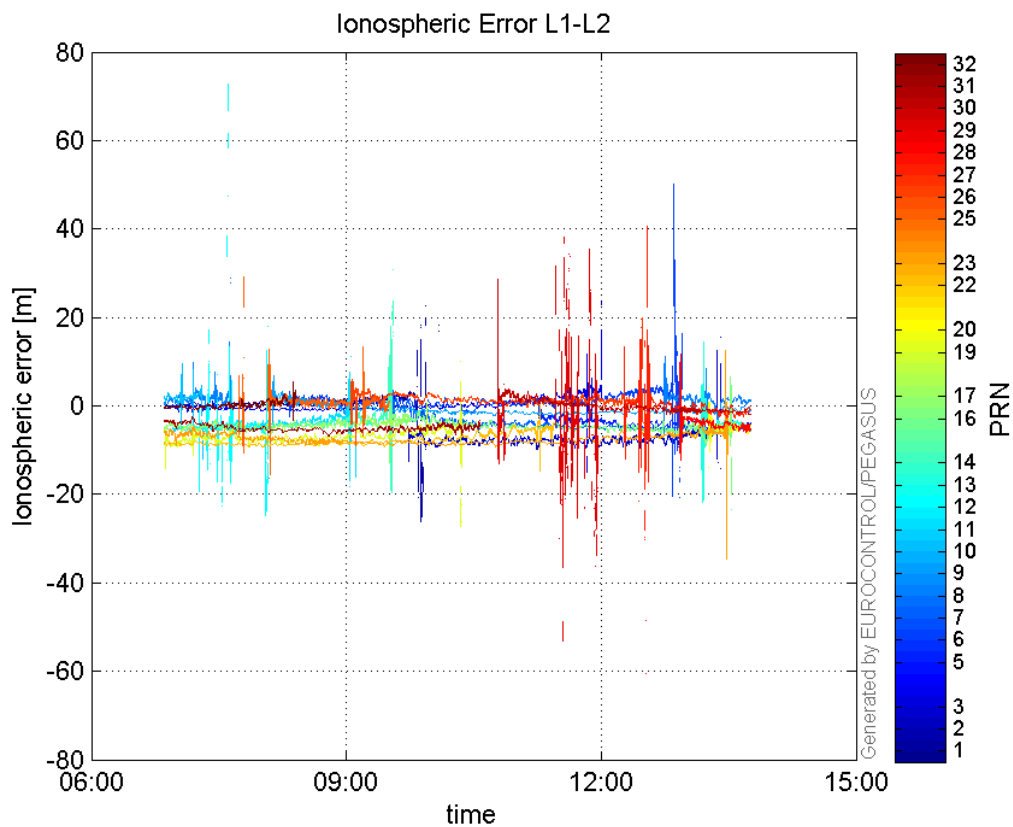


GEO CNo:



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_01_16EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_16EGNOS2Hz/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	218.6432
mi_numbers	results	0