

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 09/02/2017

SBAS Messages

start: 09:32:48.129 01.02.2017 (week: 1934 sec: 293568.129)
end: 16:07:55.129 01.02.2017 (week: 1934 sec: 317275.129)
duration: 06:35:07 ..

quality

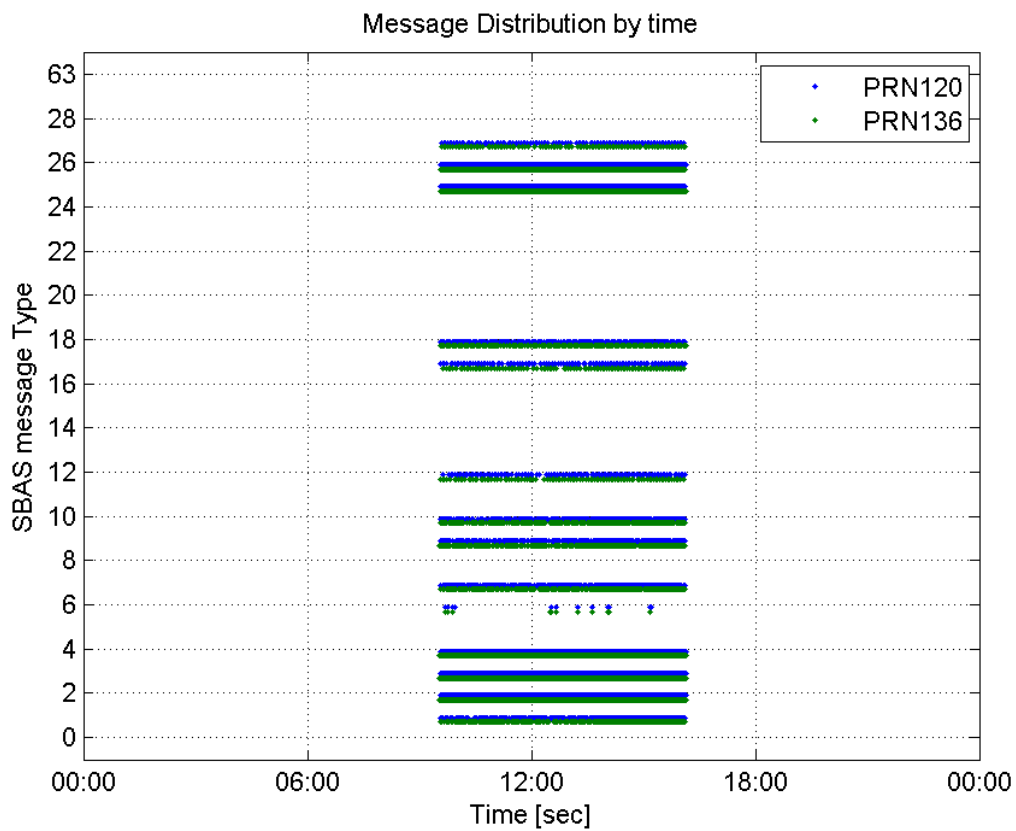
valid samples 40464
total samples 40464
number of SBAS PRNs 2

SBAS SIS Overview

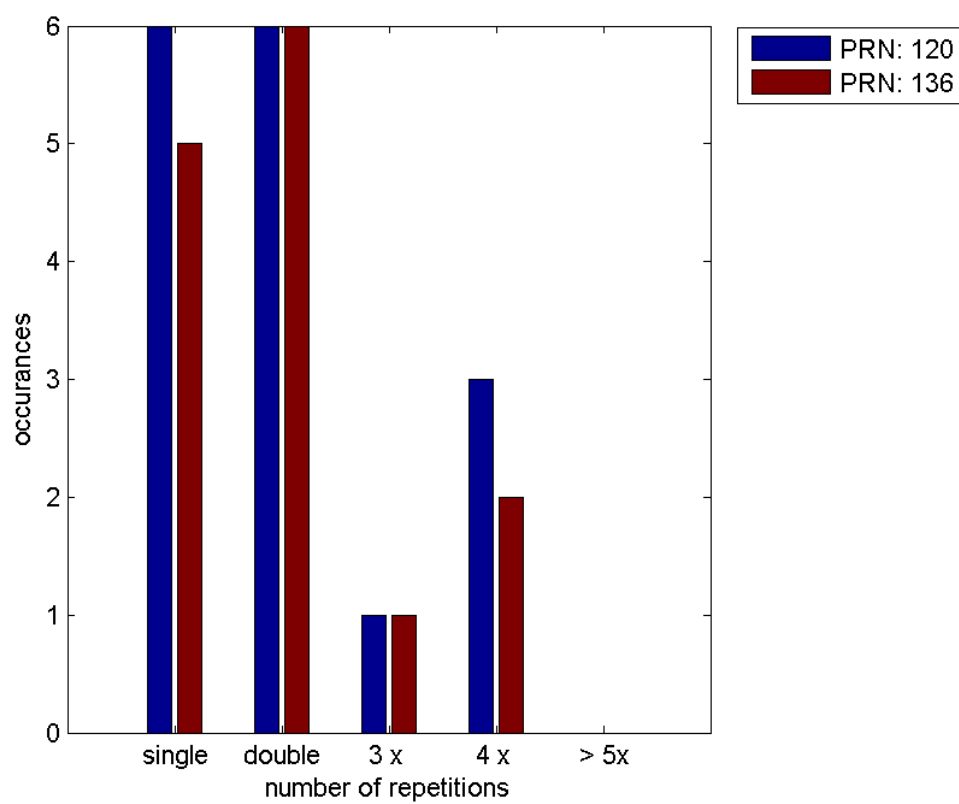
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	6	6	1	3	0
PRN 136	5	6	1	2	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

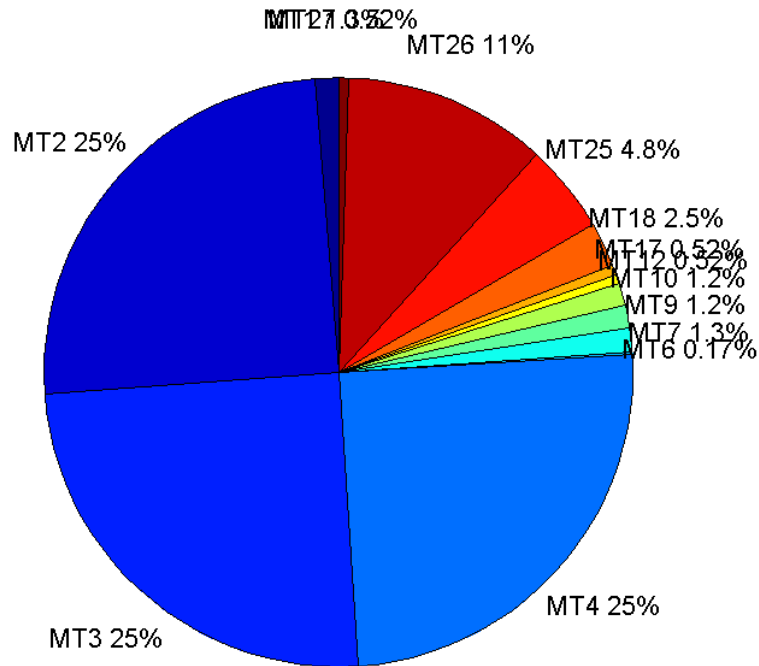
	number of messages	%
MT 0	0	0
MT 1	254	1.25525
MT 2	5039	24.9024
MT 3	5039	24.9024
MT 4	5039	24.9024
MT 5	0	0
MT 6	34	0.168026
MT 7	264	1.30467
MT 9	250	1.23548
MT 10	245	1.21077
MT 12	106	0.523845
MT 17	106	0.523845
MT 18	504	2.49073
MT 24	0	0
MT 25	971	4.79862
MT 26	2278	11.2577
MT 27	106	0.523845
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20235	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	479	93.083	27	0	0
MT 2	4	32	4.69869	796	1	8
MT 3	4	48	4.69849	805	1	2
MT 4	4	28	4.6977	792	1	5
MT 5	--	--	--	--	--	--
MT 6	1	9286	601.636	9	9	9
MT 7	74	393	89.8175	24	1	2
MT 9	76	320	94.5783	0	0	0
MT 10	76	480	96.9098	35	1	6
MT 12	186	800	222.533	105	11	11
MT 17	188	597	224.324	0	0	0
MT 18	4	200	46.8668	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	160	24.3608	0	0	0
MT 26	4	63	10.3917	0	0	0
MT						

27	188	597	222.429	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

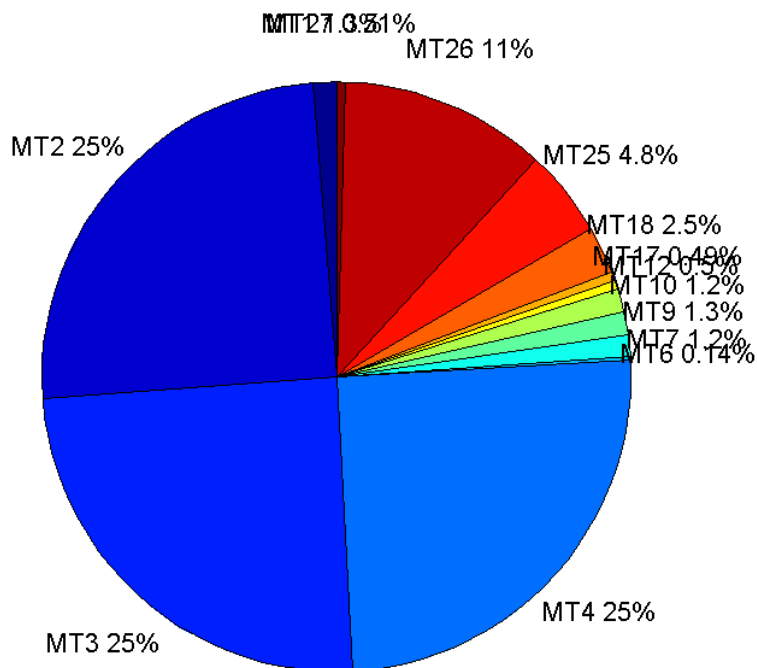
	number of messages	%
MT 0	0	0
MT 1	253	1.25068
MT 2	5047	24.9493
MT 3	4991	24.6725
MT 4	5070	25.063
MT 5	0	0
MT 6	29	0.143359
MT 7	248	1.22596
MT 9	257	1.27045
MT 10	249	1.23091
MT 12	102	0.504227
MT 17	100	0.49434

MT 18	515	2.54585
MT 24	0	0
MT 25	974	4.81487
MT 26	2290	11.3204
MT 27	104	0.514113
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20229	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	477	93.7698	30	0	0
MT 2	4	20	4.69818	785	1	5
MT 3	4	17	4.7503	849	0	3
MT 4	4	20	4.67607	768	2	8
MT 5	--	--	--	--	--	--
MT 6	1	9480	708.821	8	8	8
MT 7	76	479	95.668	38	1	2
MT 9	76	320	92.3203	0	0	0
MT 10	74	480	95.25	37	1	2
MT 12	188	800	232.465	101	17	17
MT 17	188	793	235.141	0	0	0
MT 18	1	200	46.0973	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	136	24.3433	0	0	0
MT 26	4	56	10.3408	0	0	0
MT 27	184	599	227.981	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_02_01EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_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: 09:32:48.5 01.02.2017 (week: 1934 sec: 293568.5)
end: 16:07:56 01.02.2017 (week: 1934 sec: 317276)
duration: 06:35:08 ..

quality

valid samples 44434
total samples 45114

Event tables

Position discontinuity events type long
APV-I discontinuity events type long
APV-35m discontinuity events type too many (22)
LPV-200 discontinuity events type too many (22)
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	316287	1.78627	10.9053	0.163798	1.52539	20.9005	0.0729834
max normVer	304343	0.937416	13.946	0.0672175	1.82991	17.6523	0.103664
max HPE	302760	3.45909	65.8643	0.0525185	2.55246	41.9038	0.0609124
max VPE	307614	3.25198	84.1217	0.038658	4.15932	91.4177	0.045498
min HPL	315972	0.998121	8.4241	0.118484	0.415774	15.0671	0.0275948
min VPL	311565	0.576989	8.74092	0.0660101	0.851296	12.409	0.0686031

Position discontinuity events :

#	Epoch	duration	stable period
1	296253	4.5	175.5
2	301994	163.5	107.5
3	302603	153.5	16
4	303519	628.5	397.5
5	306337	20.5	11.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	294373	5.5	444
2	296076	5.5	397.5
3	296151	79.5	69.5
4	296253	8.5	22.5
5	296561	78.5	299.5
6	296960	239.5	33.5
7	297856	27.5	385.5
8	297920	79.5	2.5
9	301994	163.5	107.5
10	302175	1196.5	4.5
11	303519	668.5	49.5
12	304256	79.5	30.5
13	305296	79.5	112
14	306337	26.5	10.5

First Glance analysis

Duration 23708
Number of Samples 45114
Number of invalid sample 680
Number of no position solution samples 1870
Number of missing sample 2302
Logging Loss 4.8549

Processing Loss	1.5073
Number of Misleading Information	0
Data gaps	10
Discontinuities	50

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
42564	39328	36940	0	36940

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.28371	1.25574	1.26026	NaN	1.26026
HPEScale 95%	NaN	4.66421	4.71146	NaN	4.71146
VPE 95%	1.28092	1.25994	1.24972	NaN	1.24972
VPEscale 95%	NaN	3.42266	2.41383	NaN	2.41383

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.957915	0.885088	0.831345	0	0.831345
measurements	0.943477	0.871747	0.818815	0	0.818815
Operational	1.79534	1.65885	1.55812	0	1.55812

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	41	56	141	--	141
Long	5	14	38	--	38
Independent	4	11	22	--	22
P(disc.)	0.00140964	0.00419548	0.00893341	NaN	0.00893341
P(slide)	0.0133681	0.0203926	0.0371548	NaN	0.0371548

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

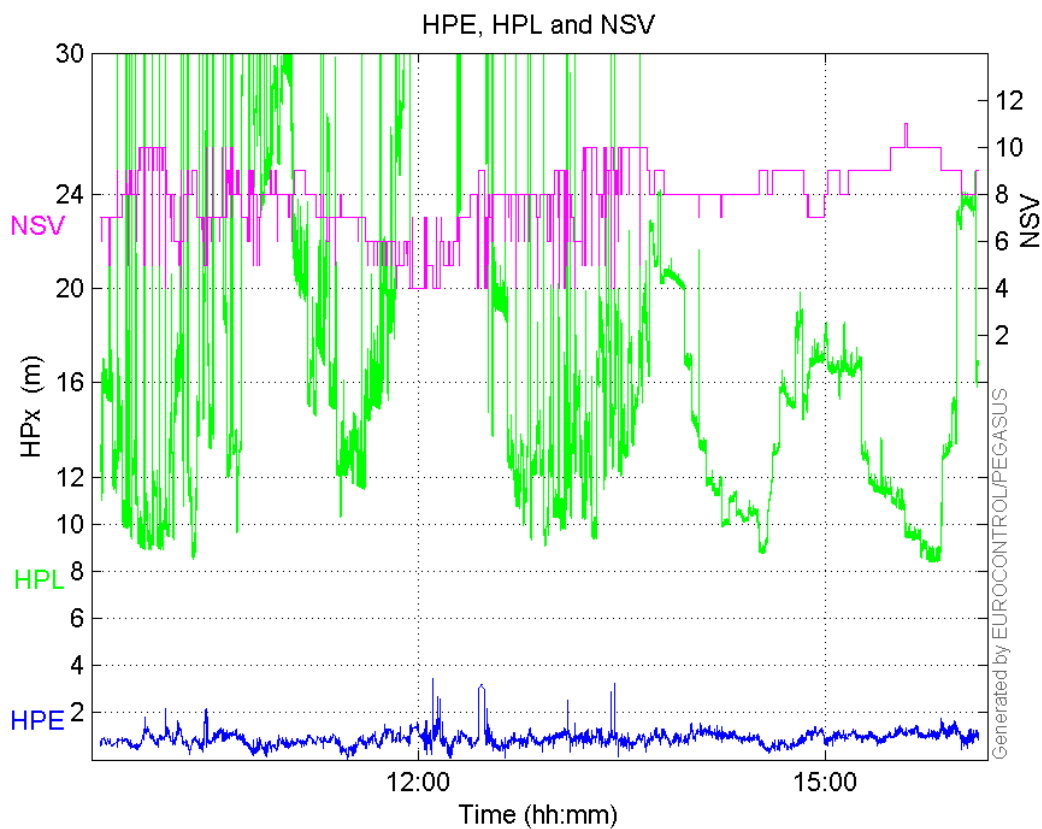
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	42564	39328	36940	0	36940
SIS Availability	0.957915	0.885088	0.831345	0	0.831345
Local Availability	0.943477	0.871747	0.818815	0	0.818815
Operational Availability	1.79534	1.65885	1.55812	0	1.55812
HPE 95%	1.28371	1.25574	1.26026	NaN	1.26026
HPEScale 95%	NaN	4.66421	4.71146	NaN	4.71146
VPE 95%	1.28092	1.25994	1.24972	NaN	1.24972
VPEscale 95%	NaN	3.42266	2.41383	NaN	2.41383
All Discontinuity Events	41	56	141	--	141
Long Discontinuity Events	5	14	38	--	38

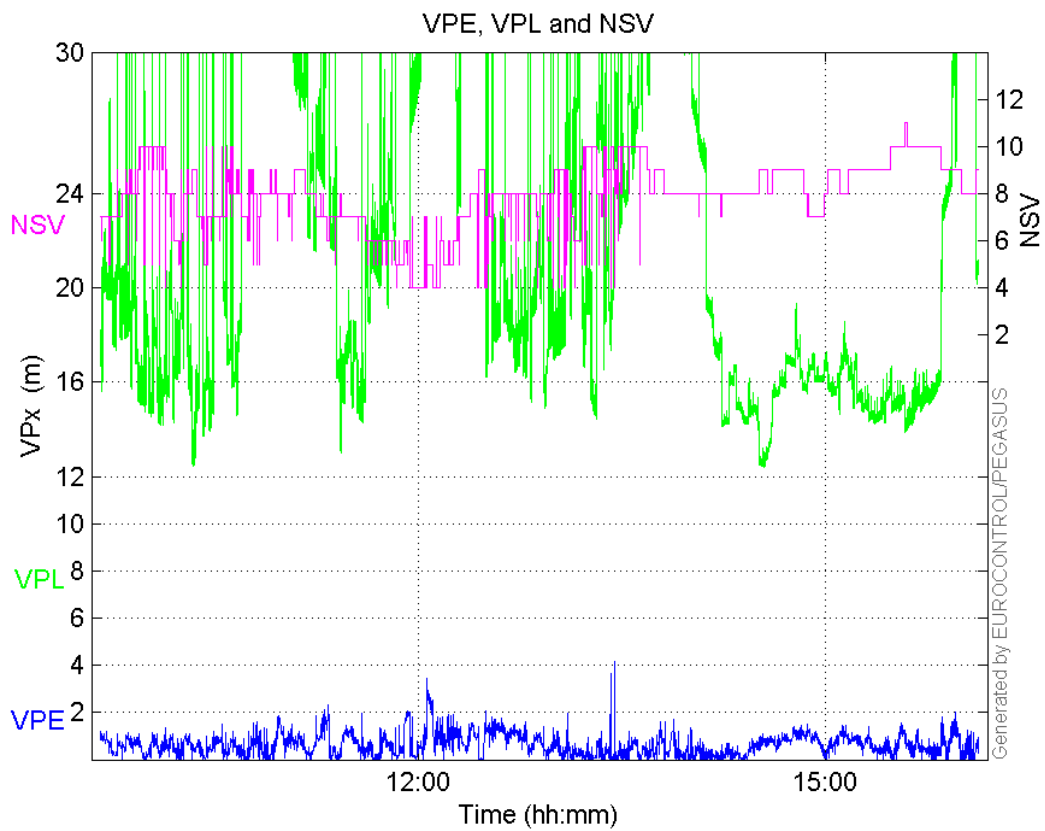
Independent Discontinuity Events	4	11	22	--	22
P(discontinuity)	0.00140964	0.00419548	0.00893341	NaN	0.00893341
P(sliding window)	0.0133681	0.0203926	0.0371548	NaN	0.0371548
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series

HPE, HPL and NSV:

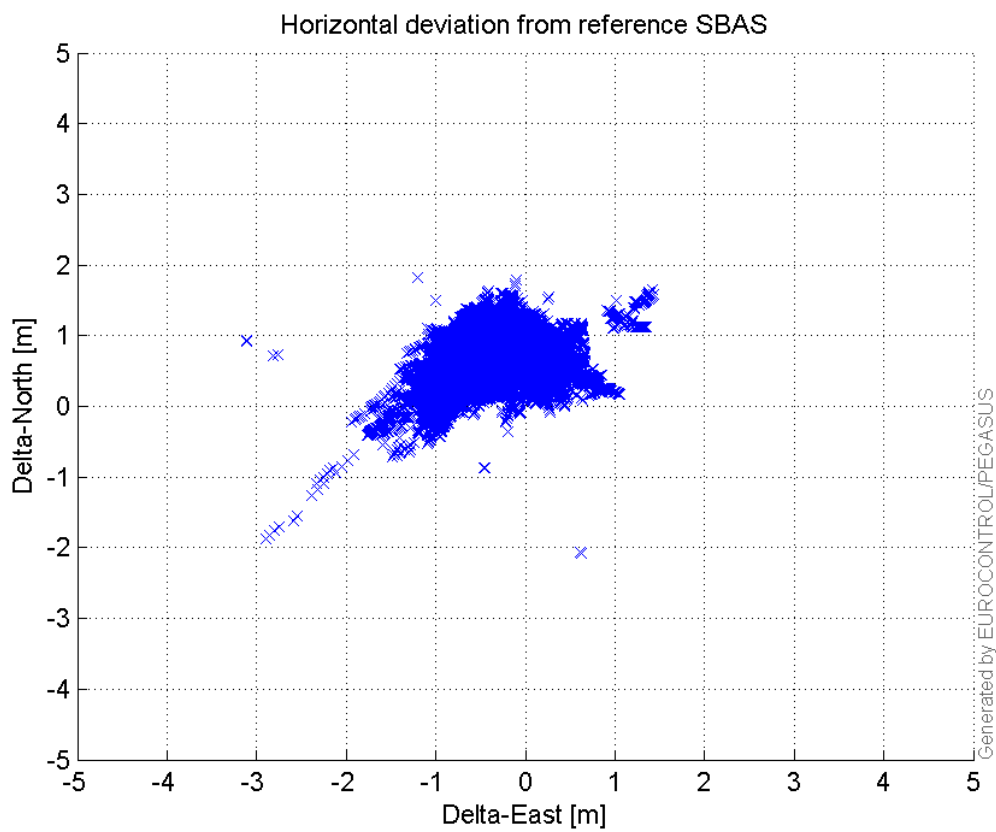


VPE, VPL and NSV:



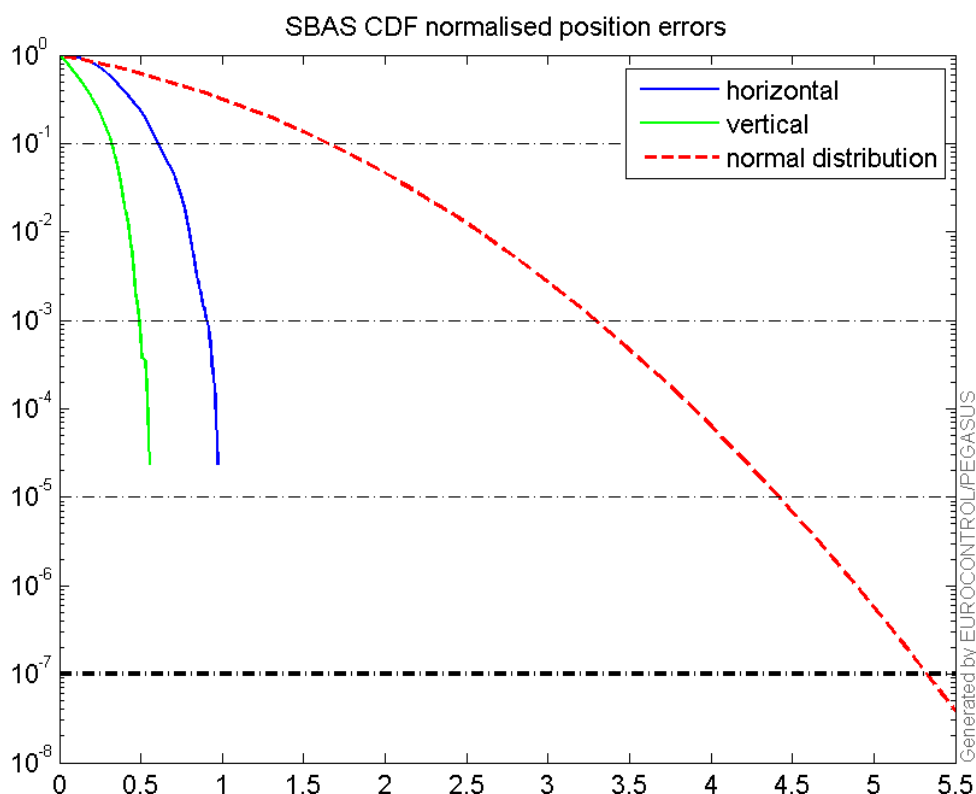
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

```

number 39328
sum 34911.252
sum2 33116.569
prctile95 1.2557445
prctile99 1.4140473
number 39328
sum 23143.446
sum2 19363.567
prctile95 1.2599389
prctile99 1.5680855
number 39328
sum 609341.87
sum2 10552584
prctile95 26.52329
prctile99 30.939164
number 39328
sum 845363.85
sum2 20331304
prctile95 35.86851
prctile99 41.411632
number 39328
sum 2528.4536
sum2 192.41474
prctile95 0.11660525

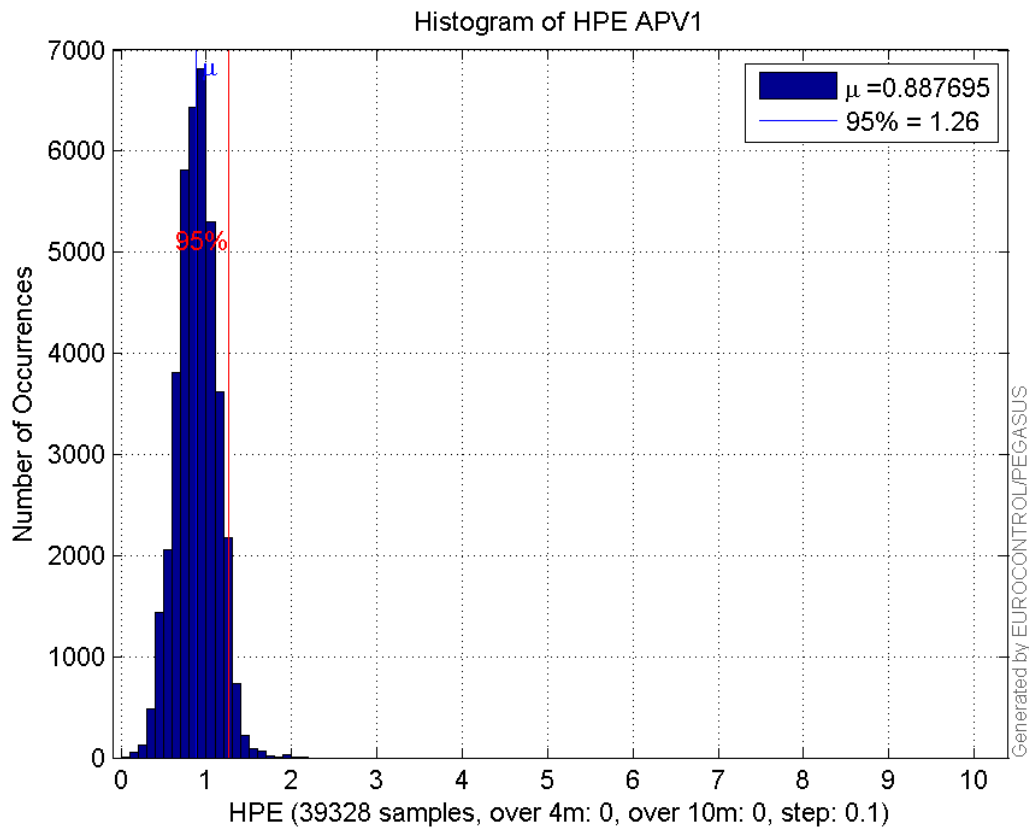
```

prctile99 0.13334058
number 39328
sum 1191.1651
sum2 53.398538
prctile95 0.068453213
prctile99 0.080589322
number 36940
sum 33186.662
sum2 31786.887
prctile95 1.2602575
prctile99 1.4201964
number 36940
sum 21525.451
sum2 17739.052
prctile95 1.2497201
prctile99 1.52781
number 36940
sum 544448.44
sum2 8754323.6
prctile95 23.6291
prctile99 27.23186
number 36940
sum 752199.66
sum2 16673886
prctile95 33.0896
prctile99 34.60654
number 36940
sum 2462.2984
sum2 190.3099
prctile95 0.11778661
prctile99 0.13375615
number 36940
sum 1150.191
sum2 52.375708
prctile95 0.068966464
prctile99 0.080880366

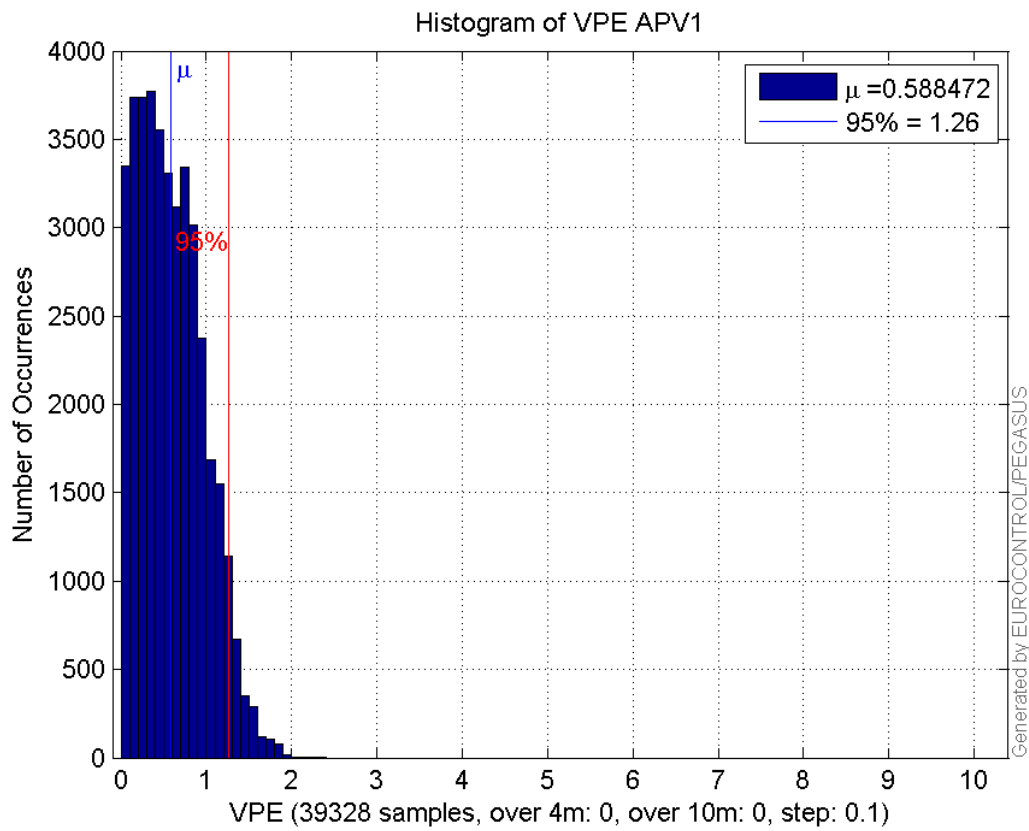
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.887695	0.232509	0.890633	1.25574	1.41405	0.917639
HPL	15.4938	5.31639	14.37	26.5233	30.9392	16.3806
VPE	0.588472	0.382184	0.544385	1.25994	1.56809	0.701684
VPL	21.4952	7.41112	18.383	35.8685	41.4116	22.7369

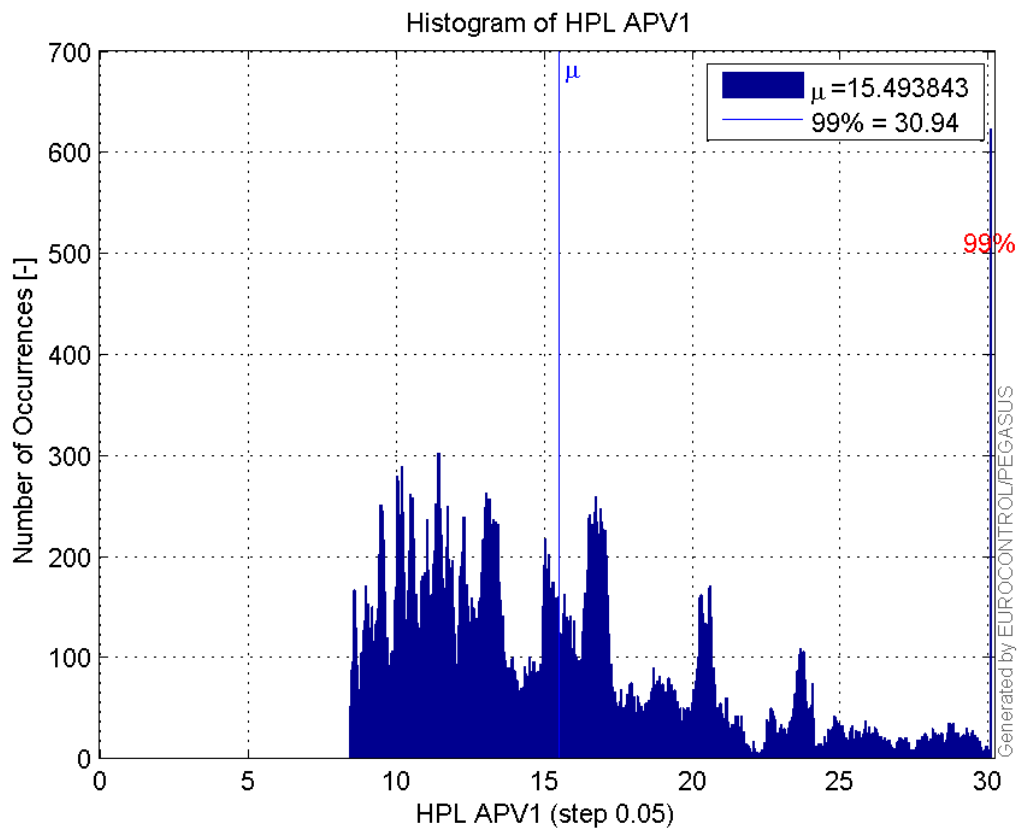
Histogram of HPE APV1:



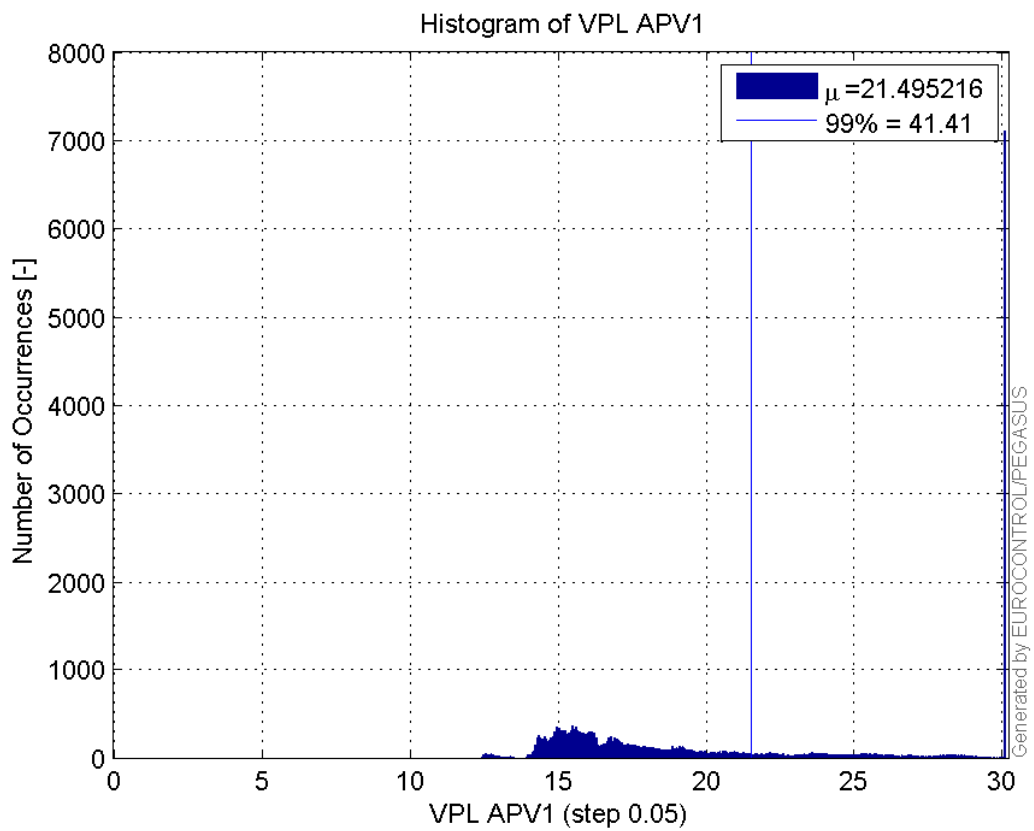
Histogram of VPE APV1:



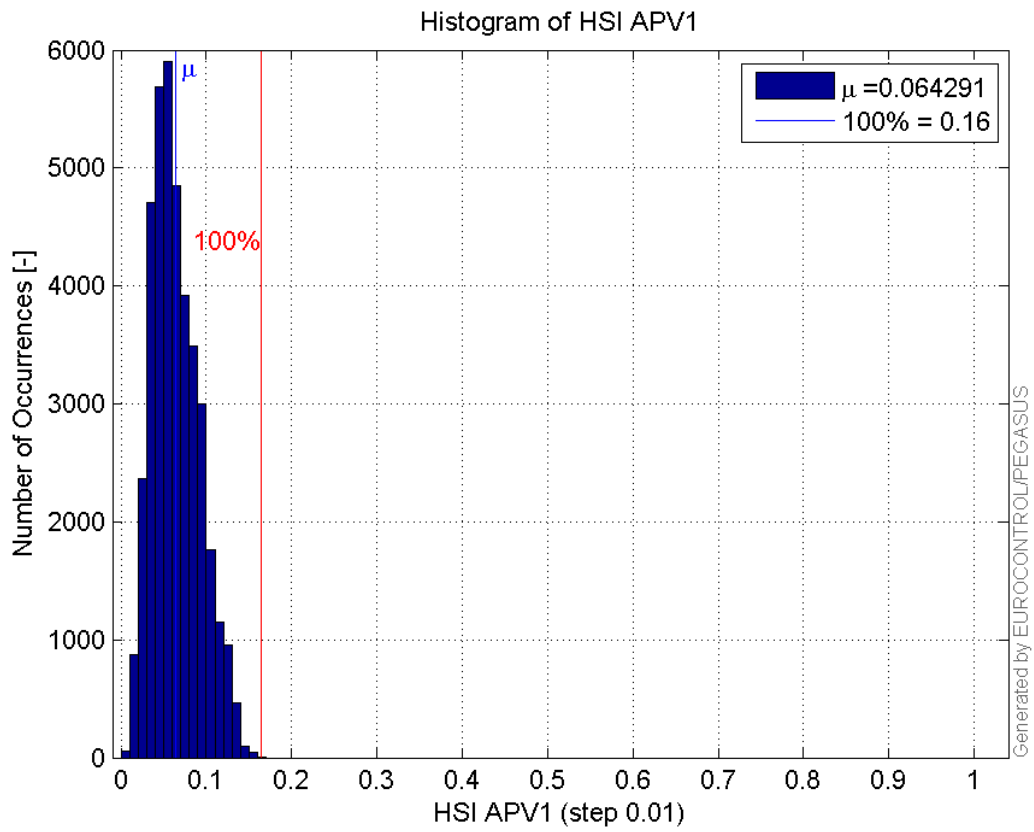
Histogram of HPL APV1:



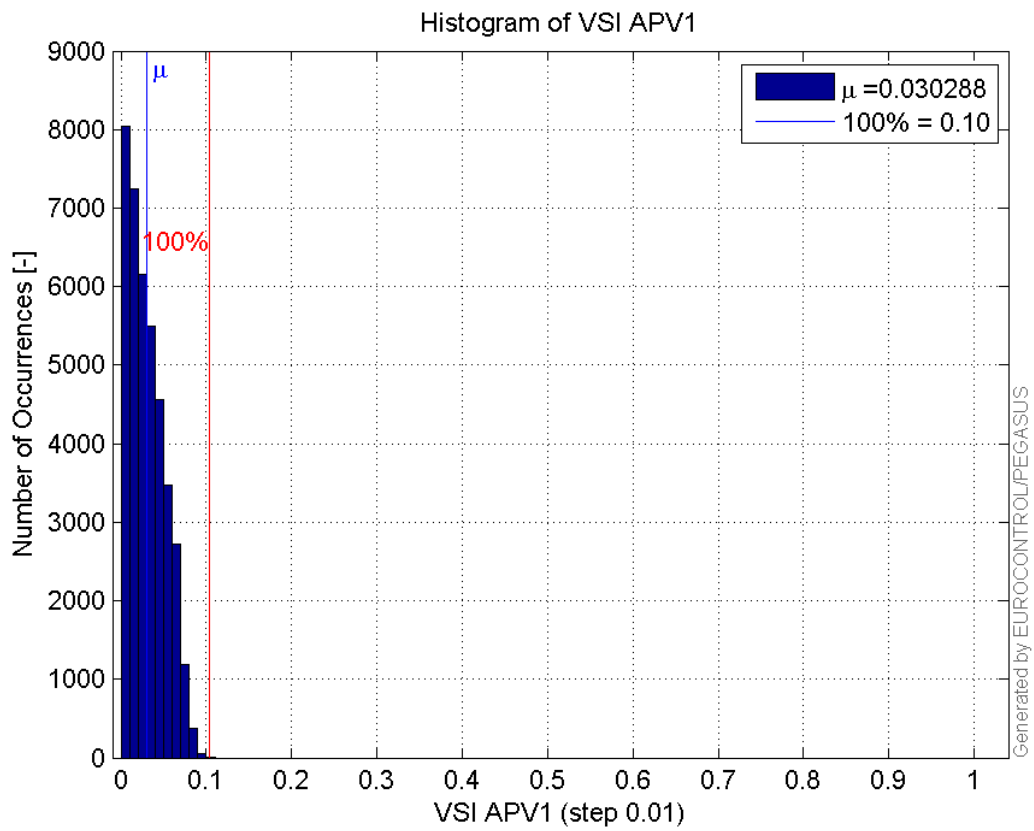
Histogram of VPL APV1:



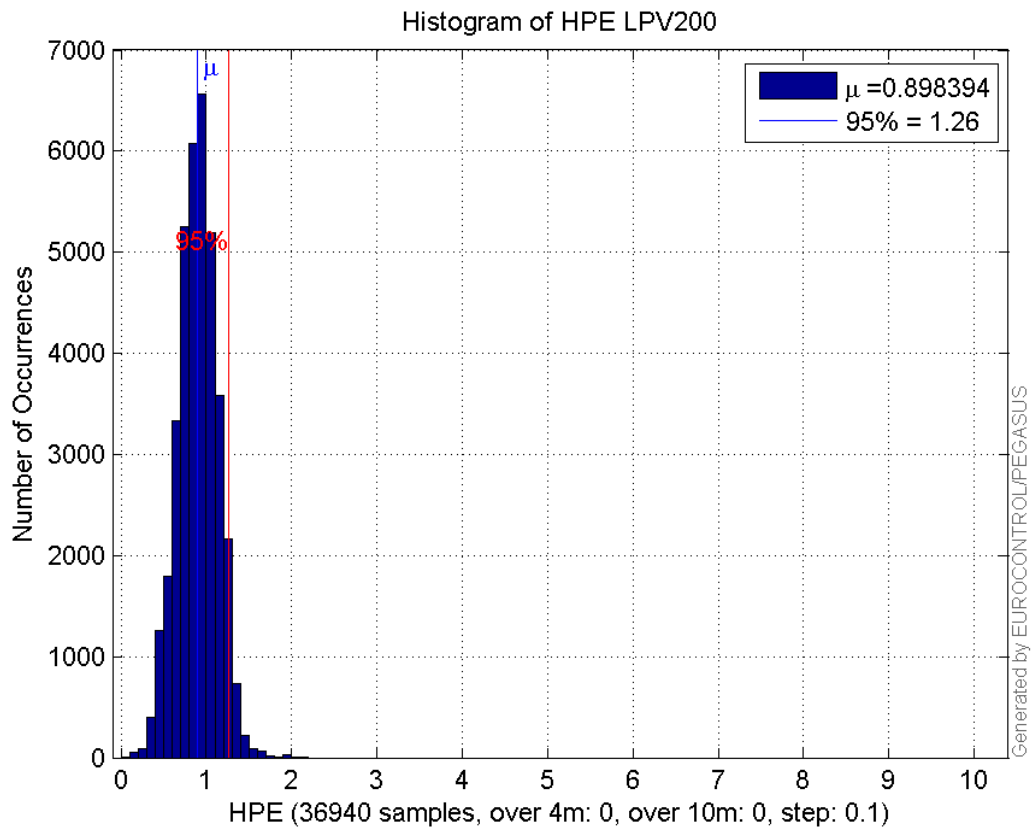
Histogram of HSI APV1:



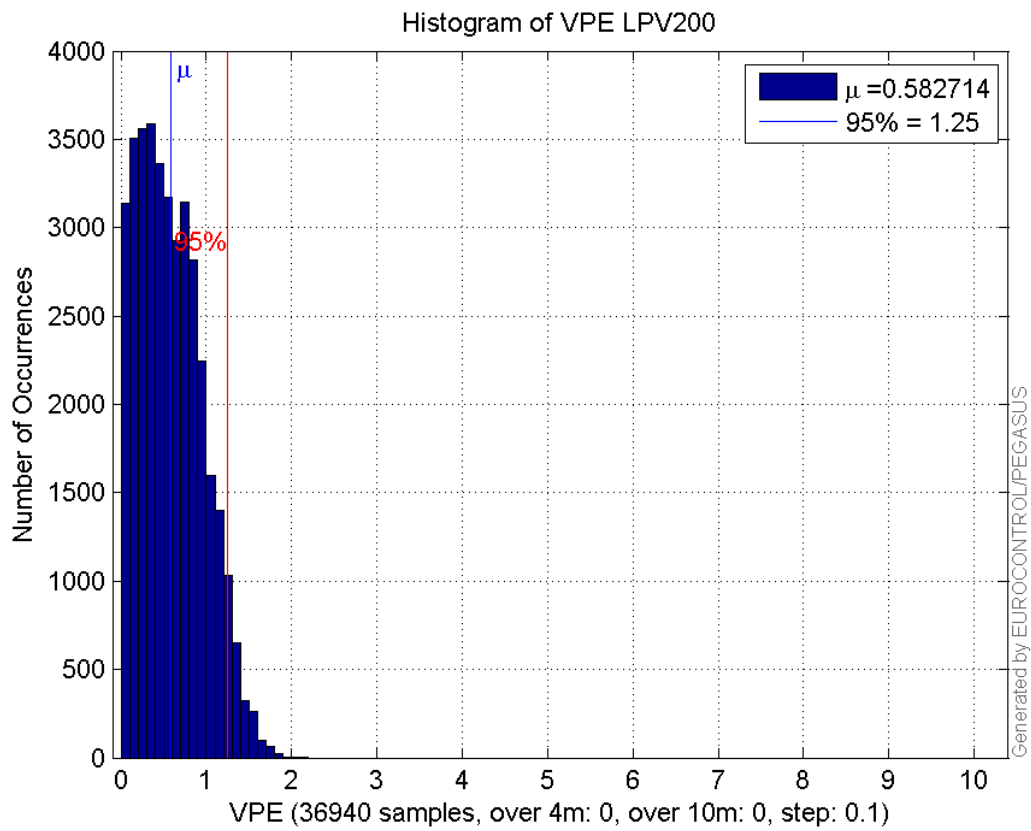
Histogram of VSI APV1:



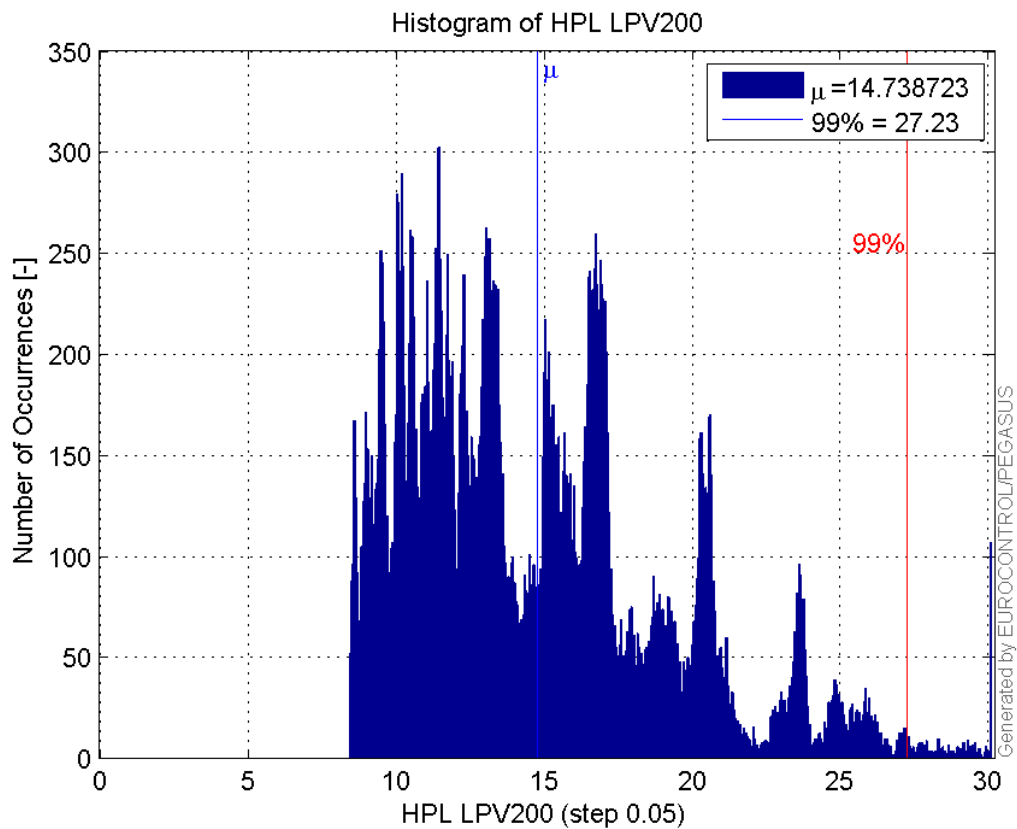
Histogram of HPE LPV200:



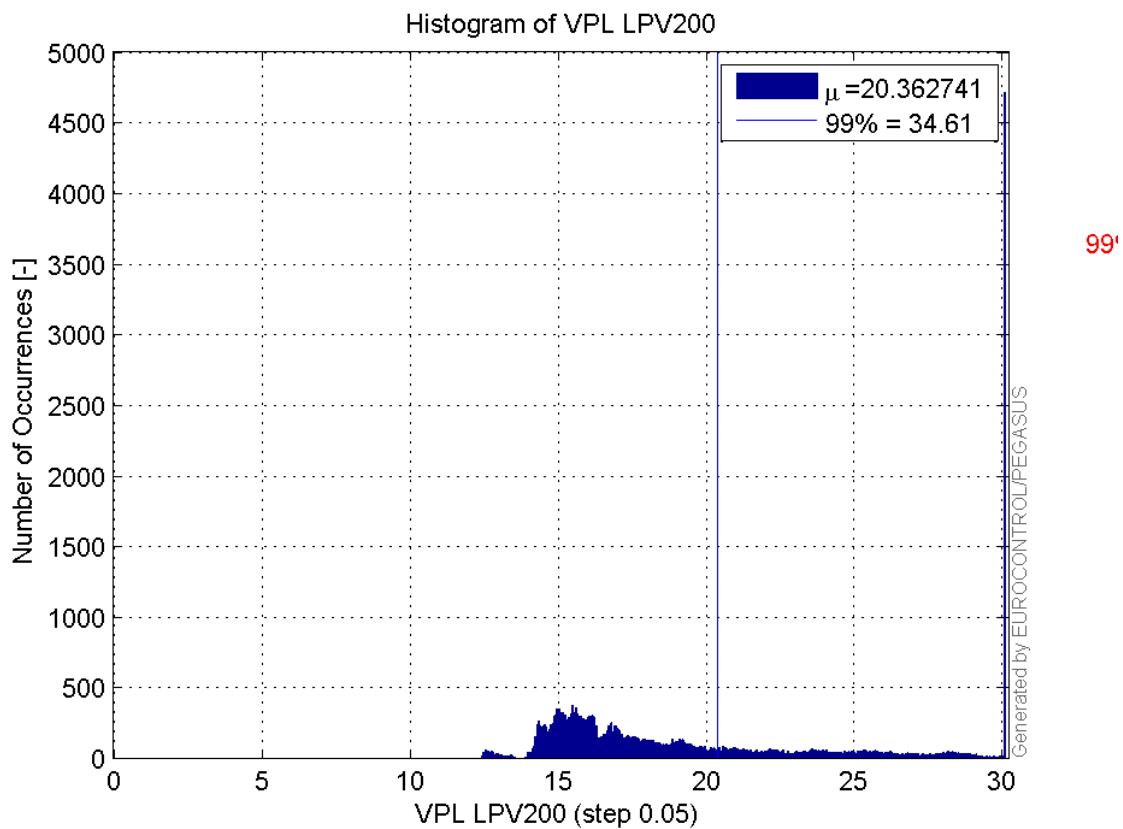
Histogram of VPE LPV200:



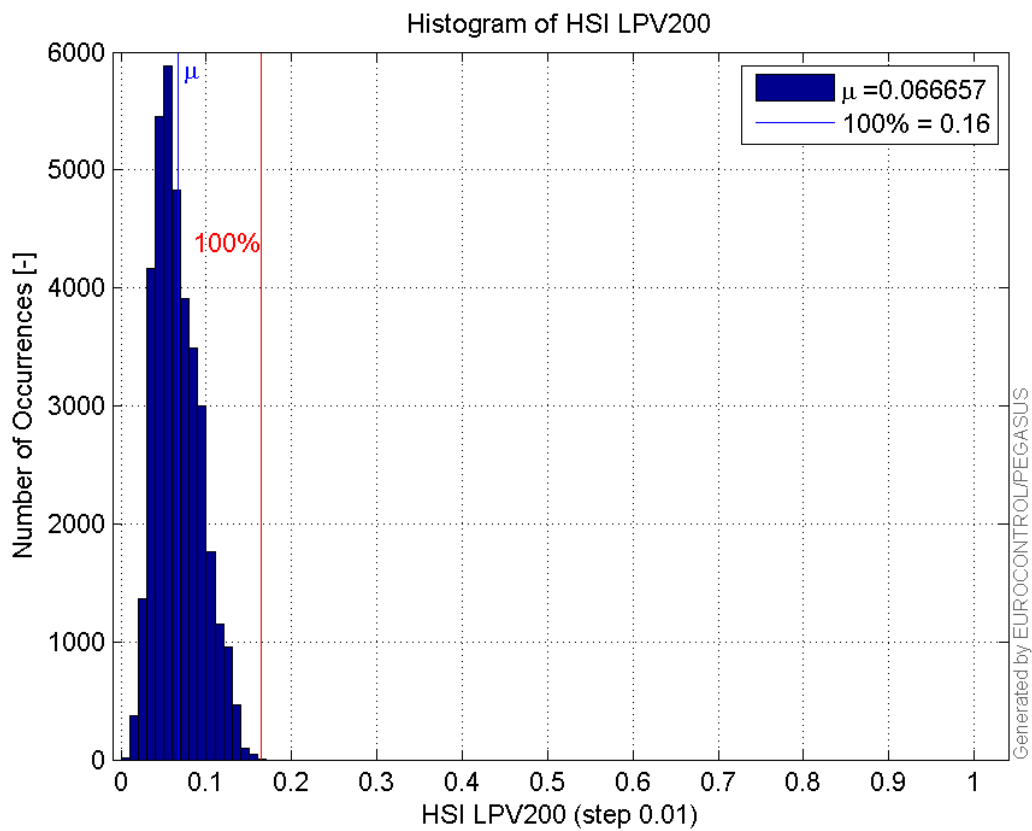
Histogram of HPL LPV200:



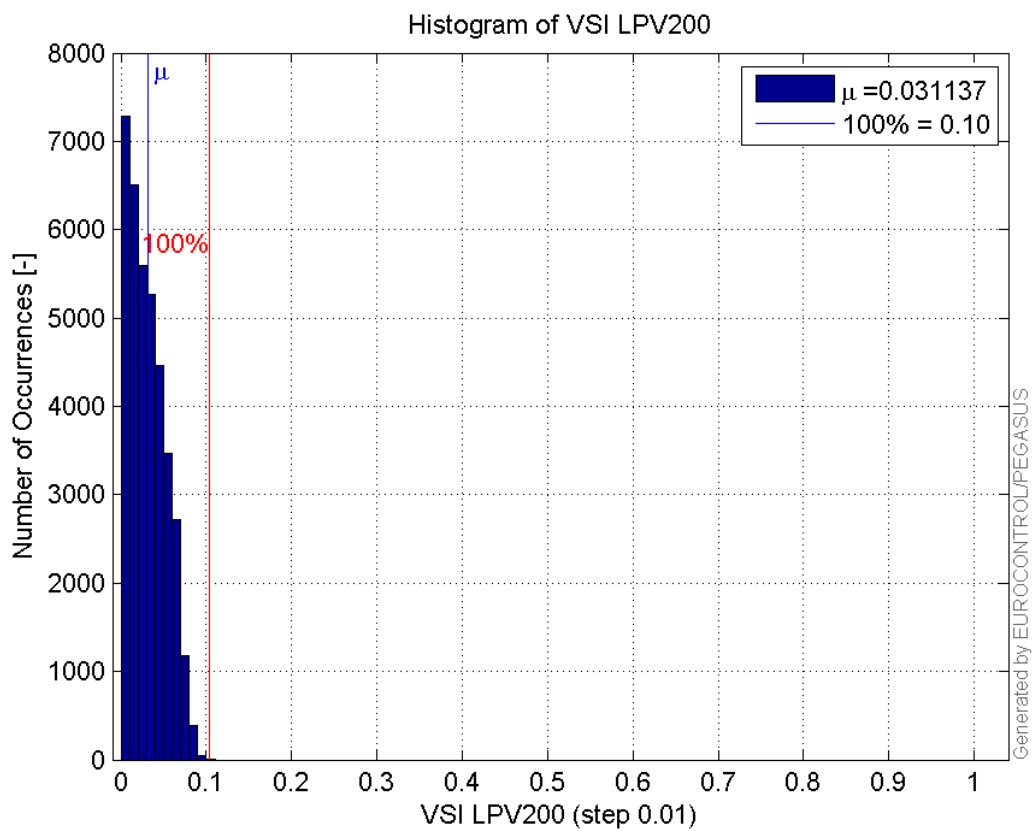
Histogram of VPL LPV200:



Histogram of HSI LPV200:

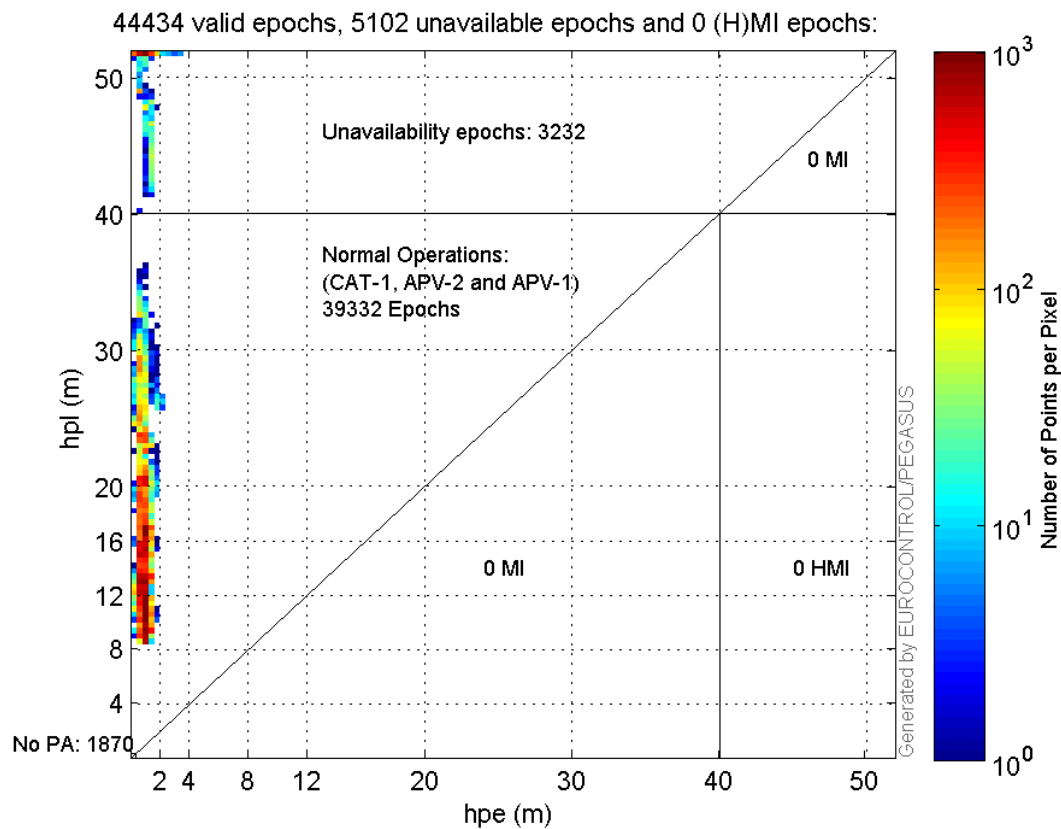


Histogram of VSI LPV200:

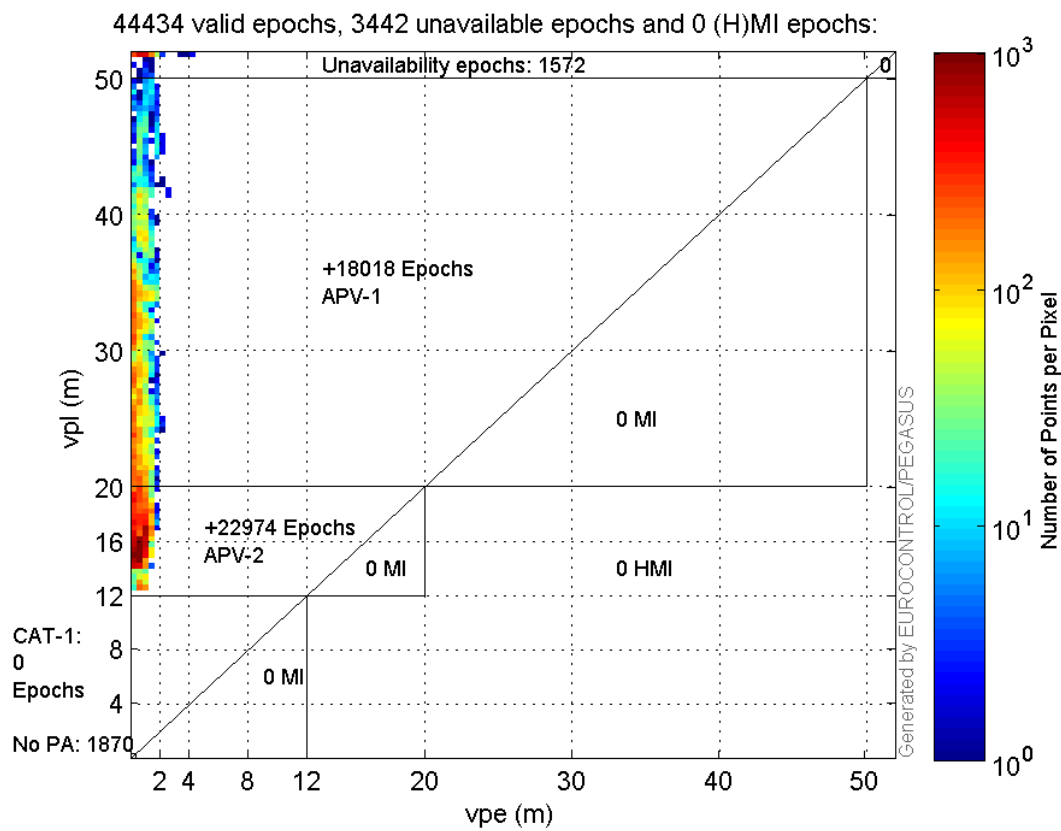


Stanford Plots

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_02_01EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	220.7286
mi_numbers	results	0

Range Domain

start: 09:32:48.5 01.02.2017 (week: 1934 sec: 293568.5)
end: 16:07:56 01.02.2017 (week: 1934 sec: 317276)
duration: 06:35:08 ..

quality

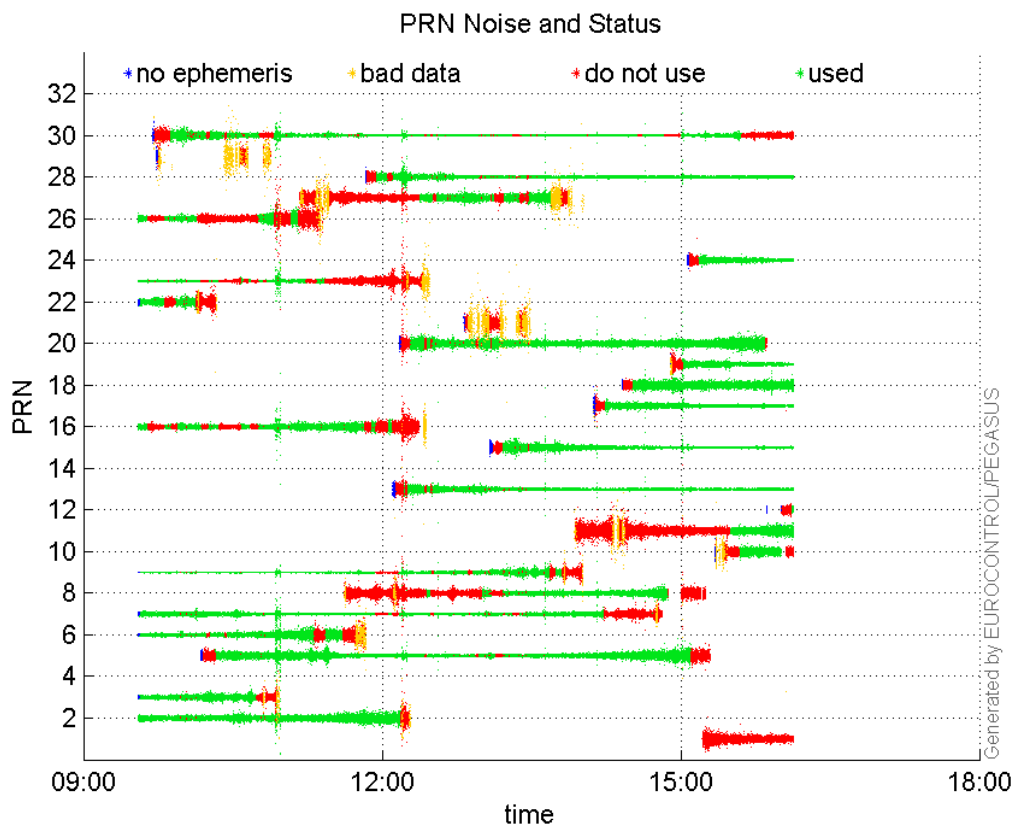
valid samples 45114
total samples 45114

PRN overview

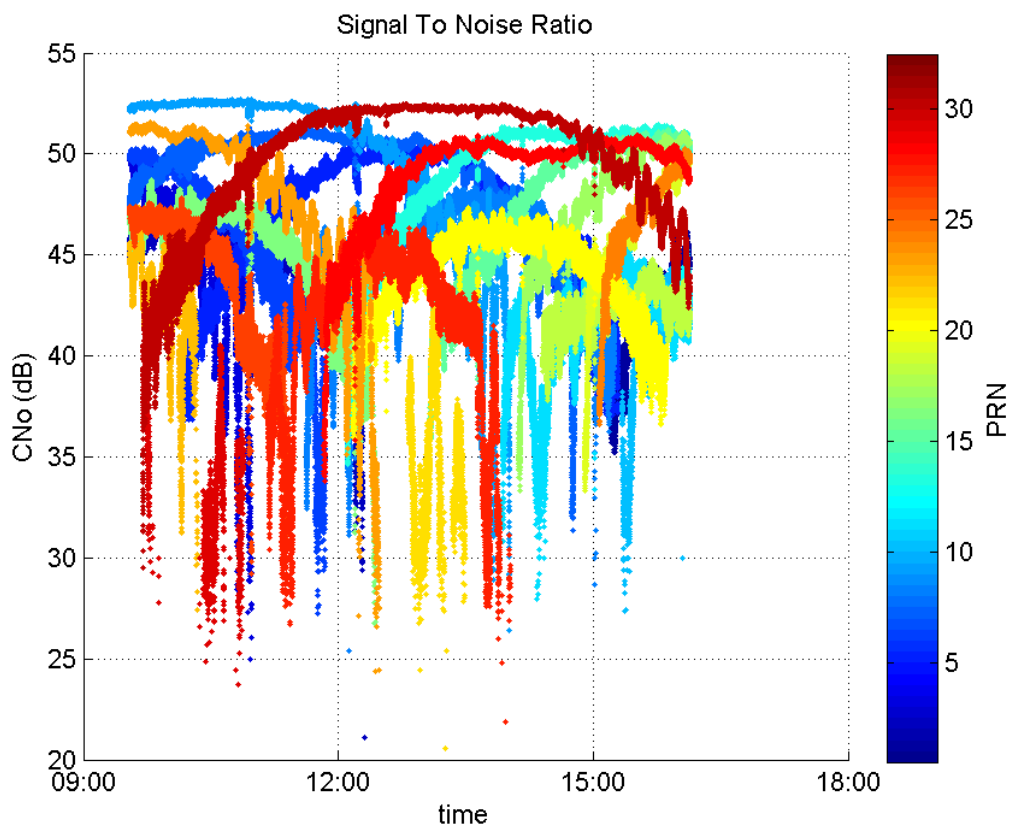
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



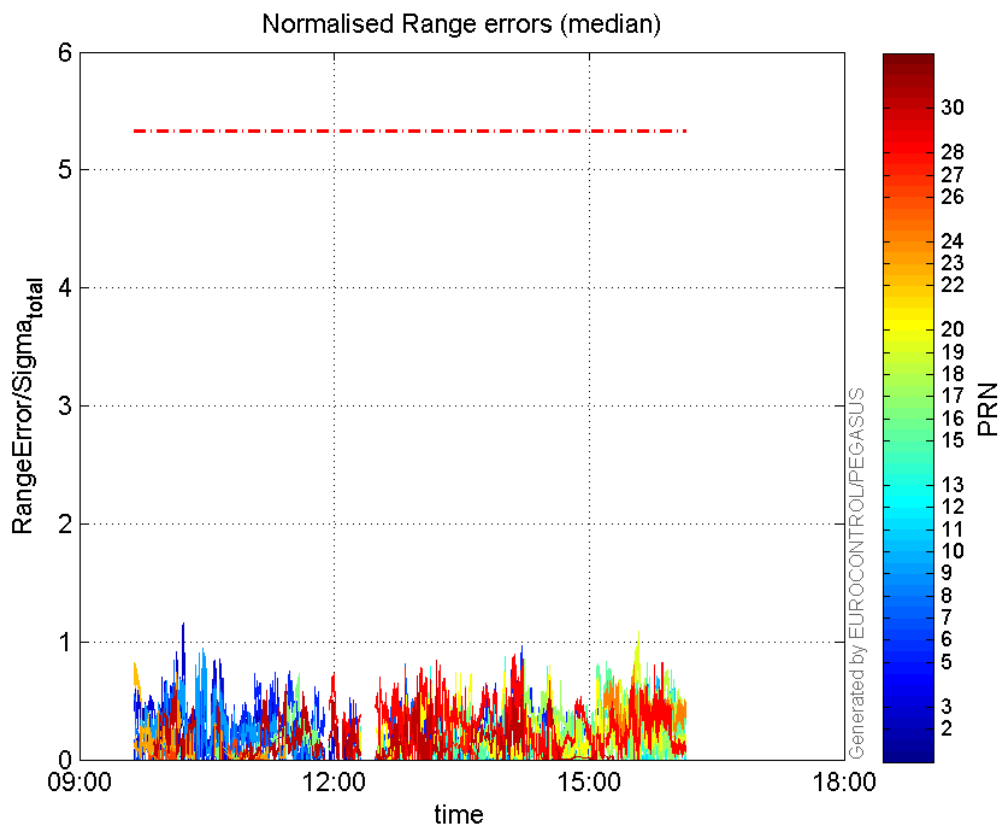
range errors

Number of Overbounding Norm Errors 0

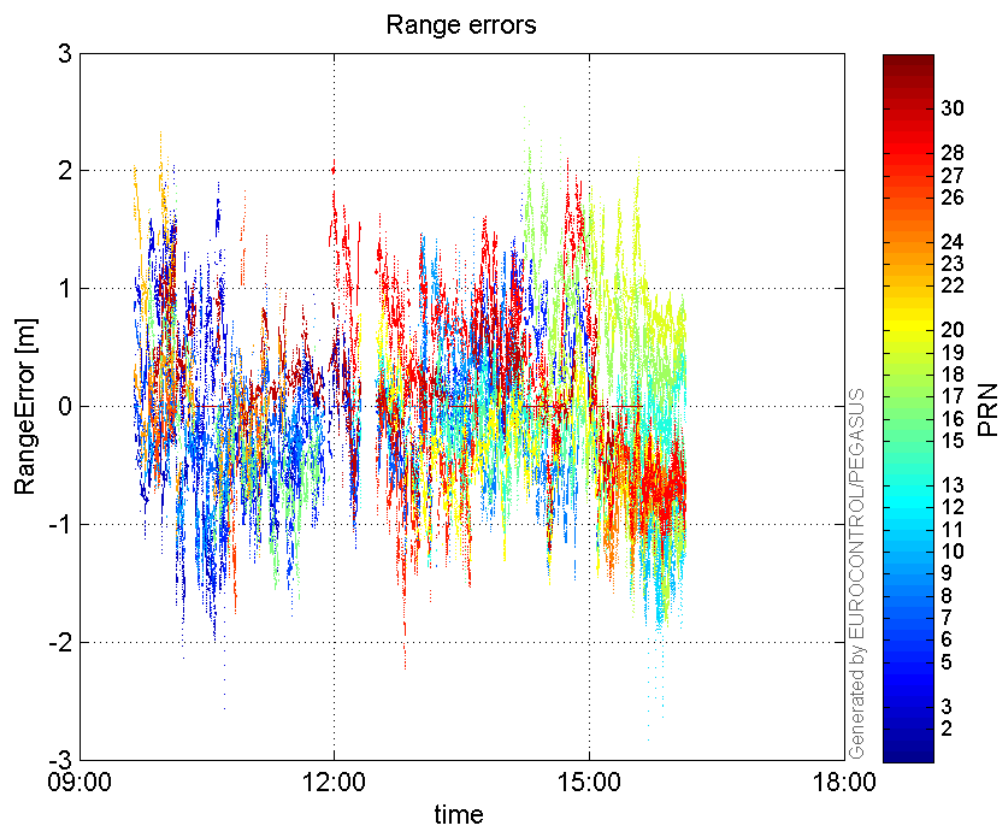
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1934	295989	2	1.16321	-2.13273	1.83348
1934	295224	3	0.667274	1.89808	2.84452
1934	310327	5	0.965138	1.80459	1.86977
1934	295731	6	0.742301	-1.24774	1.68091
1934	295617	7	0.845254	1.26465	1.49618
1934	311499	8	0.559499	-1.42646	2.54954
1934	296829	9	0.944288	-1.27693	1.35226
1934	316077	10	0.713425	-1.88813	2.64657
1934	316321	11	0.663184	-2.63418	3.97202
1934	317267	12	0.190262	0.431306	2.2669
1934	309646	13	0.875426	-1.28575	1.46872
1934	313921	15	0.836166	-1.28397	1.53554
1934	300925	16	0.735202	-1.64027	2.23104
1934	310460	17	0.851829	2.54912	2.99253
1934	316518	18	0.762555	-1.87498	2.45881
1934	315286	19	1.0934	2.11136	1.931
1934	311526	20	0.803719	-1.51373	1.88341
1934	293945	22	0.821086	2.04241	2.48744
1934	295707	23	0.740716	-1.13439	1.53148
1934	315101	24	0.802463	-1.57067	1.95731
1934	298230	26	0.187206	-1.75664	9.38345
1934	305382	27	0.783881	-2.22598	2.83969
1934	310031	28	0.896032	1.34472	1.50075
1934	306734	30	0.838527	-1.11032	1.32413

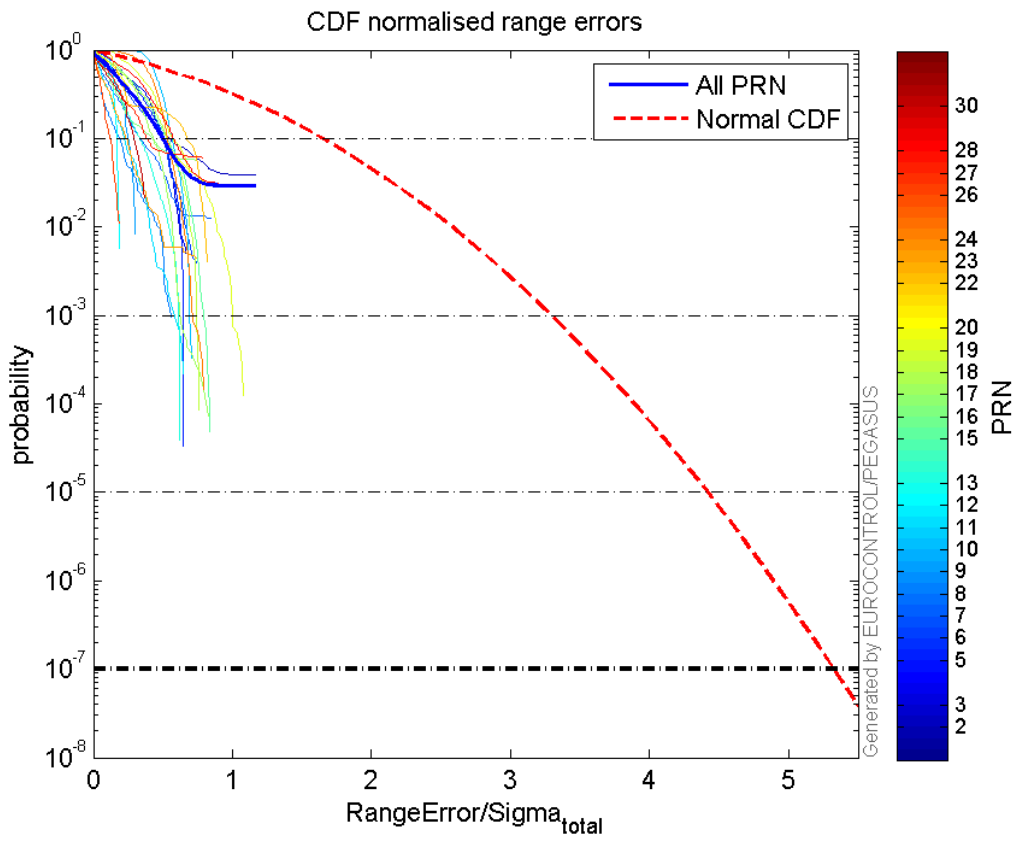
Normalised Range errors (median):



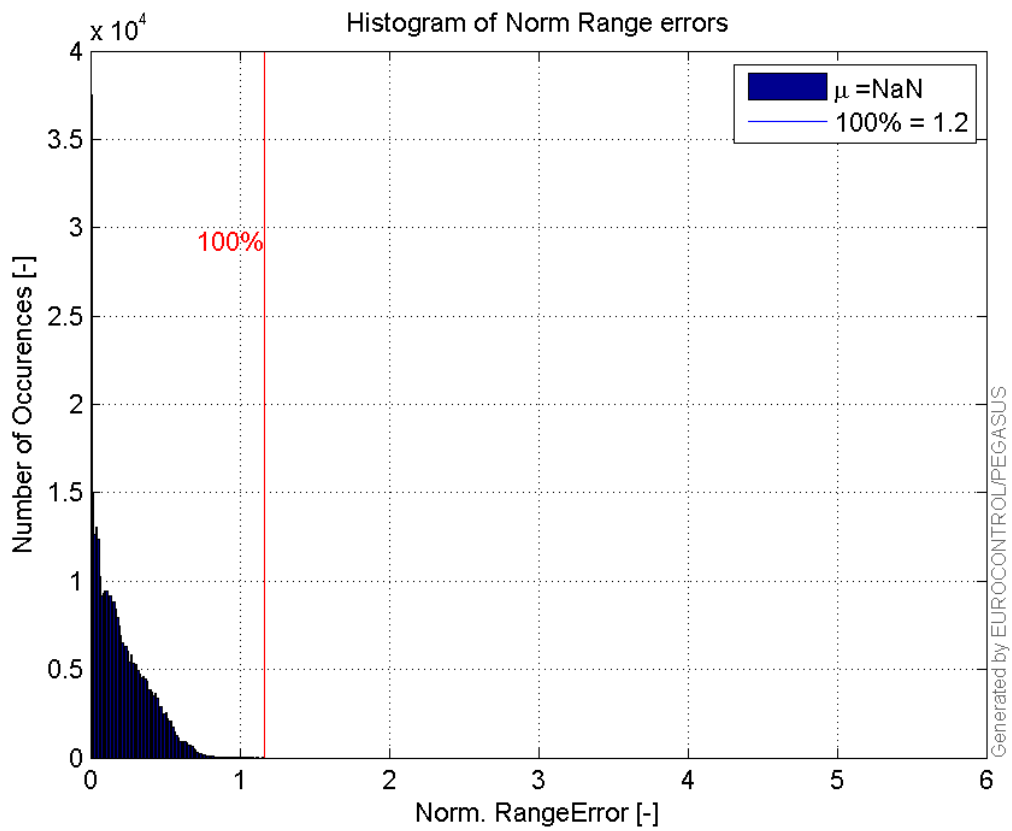
Range errors:



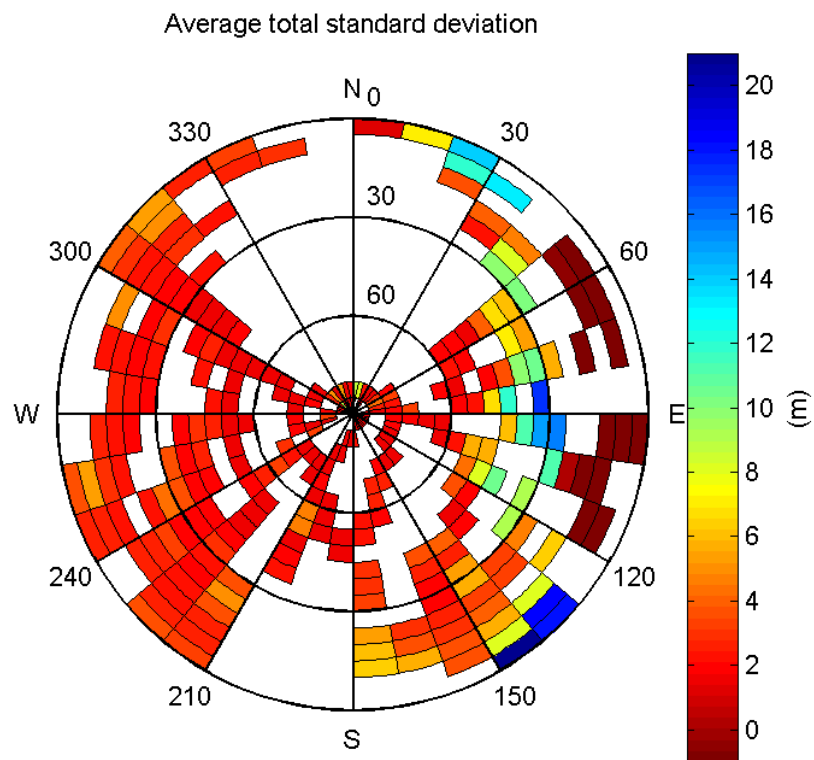
CDF normalised range errors:



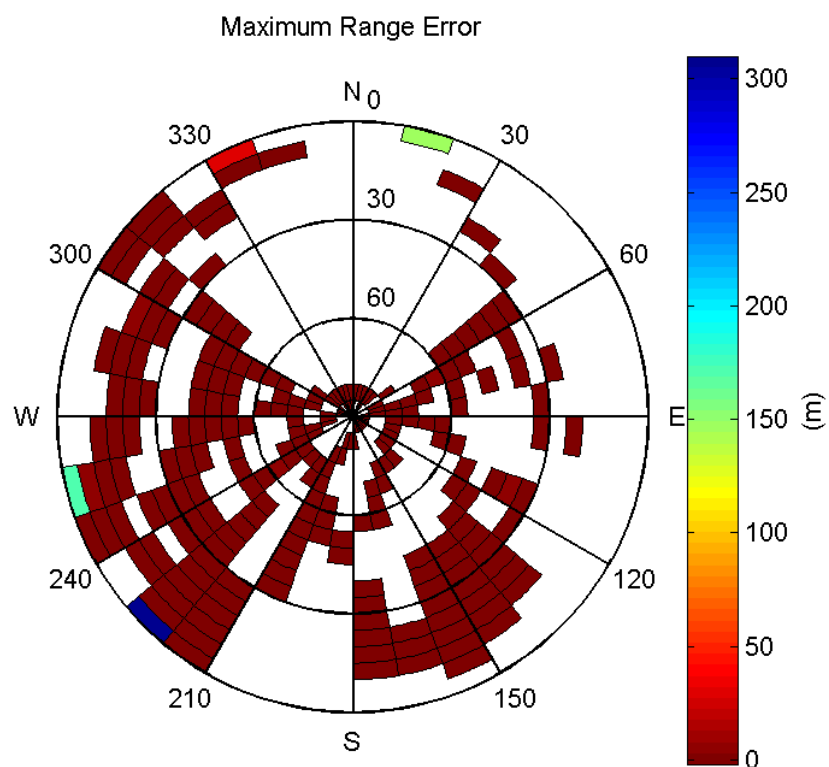
Histogram of Norm Range errors:



Sigma Sky Plot:

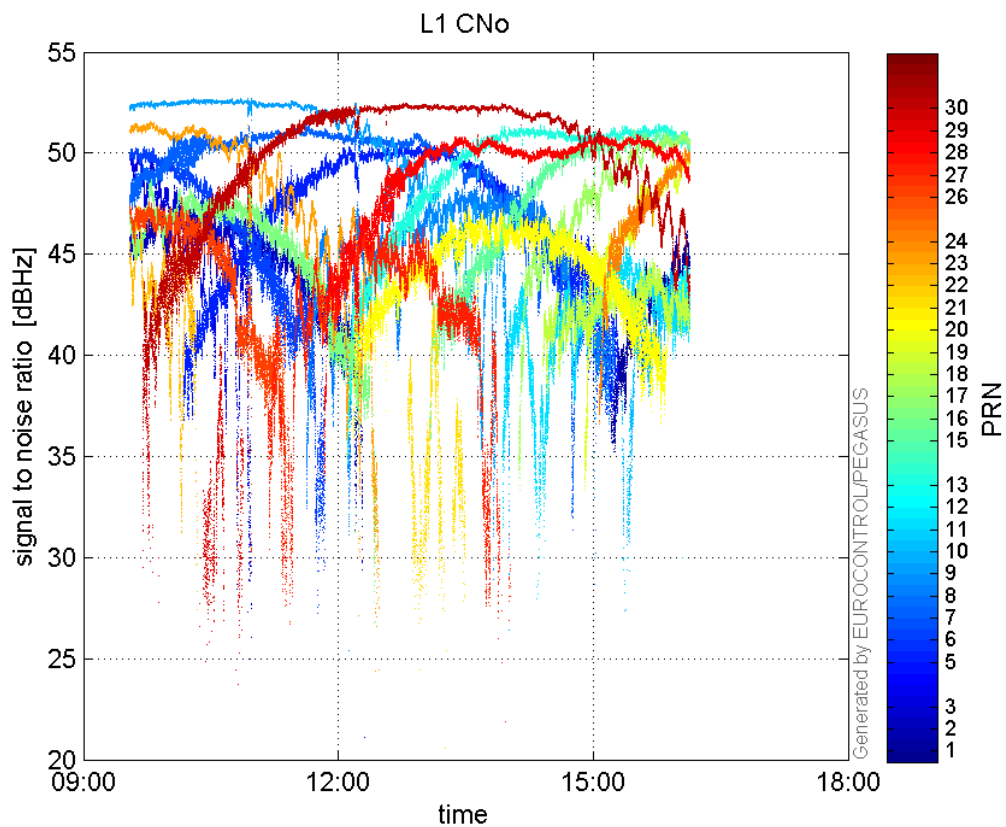


Norm Error Sky Plot:

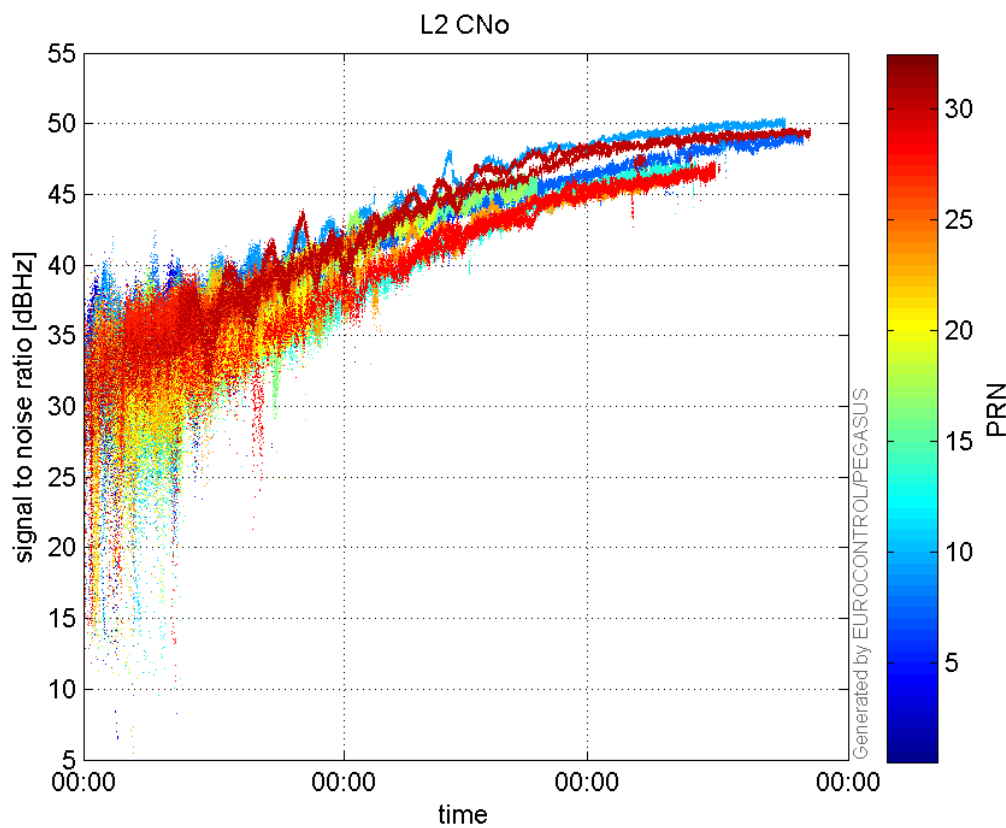


signal quality

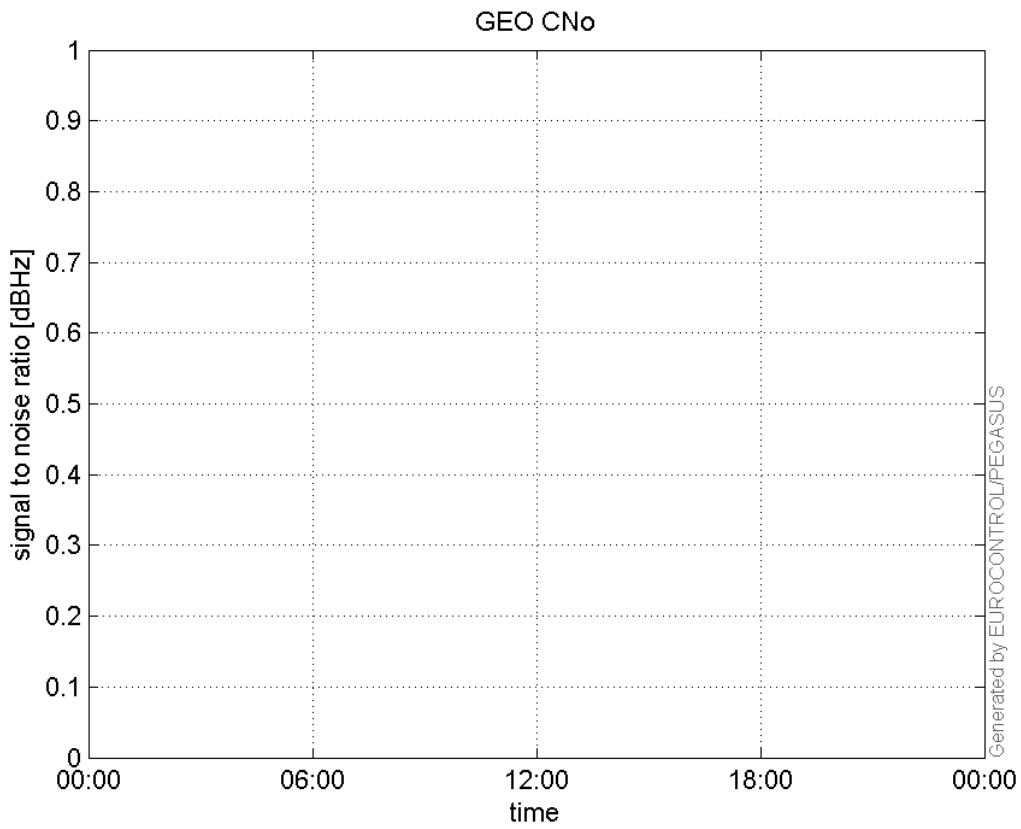
L1 CNo:



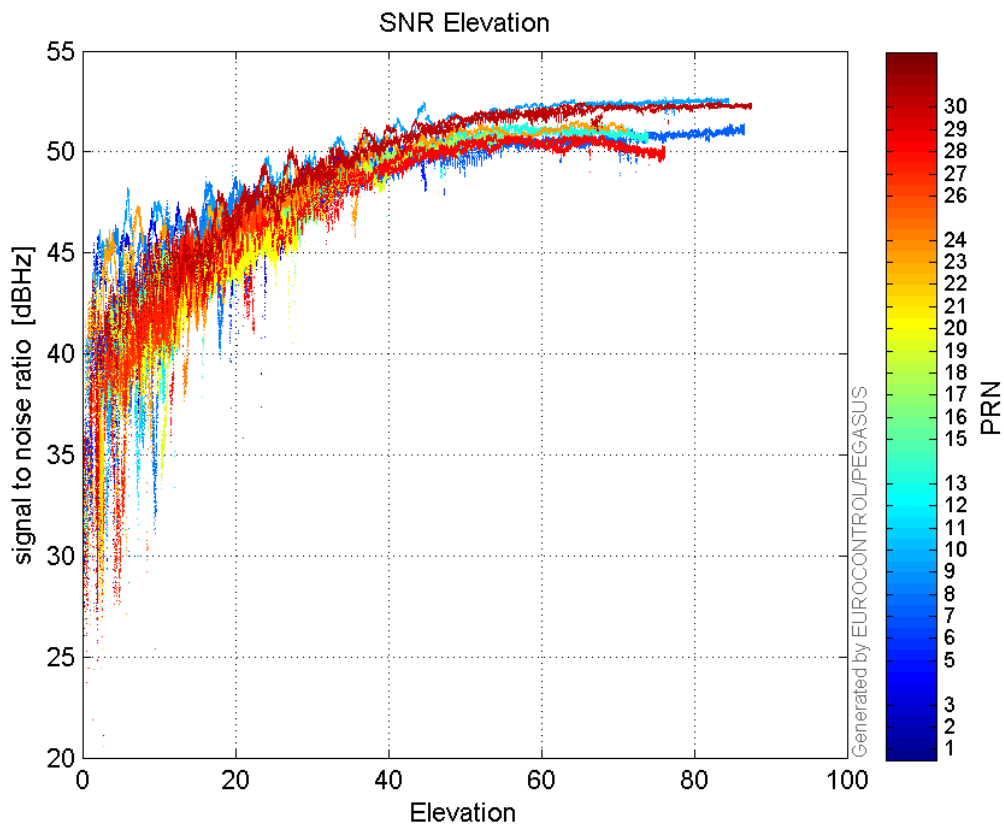
L2 CNo:



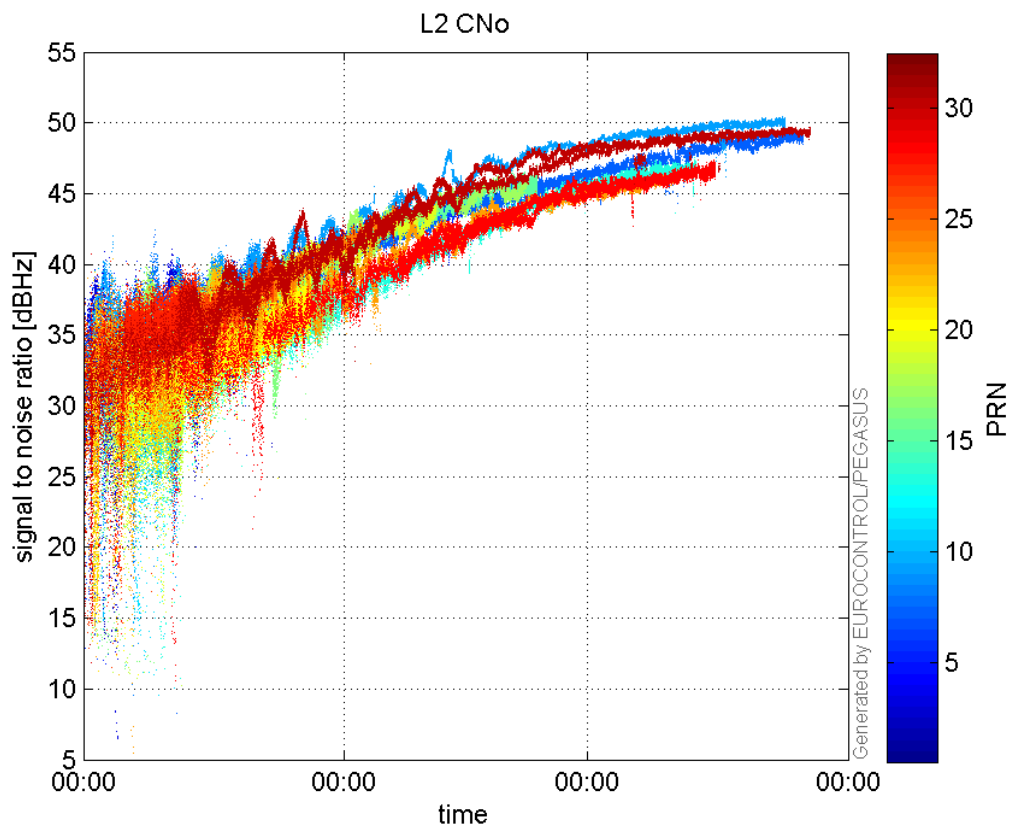
GEO CNo:



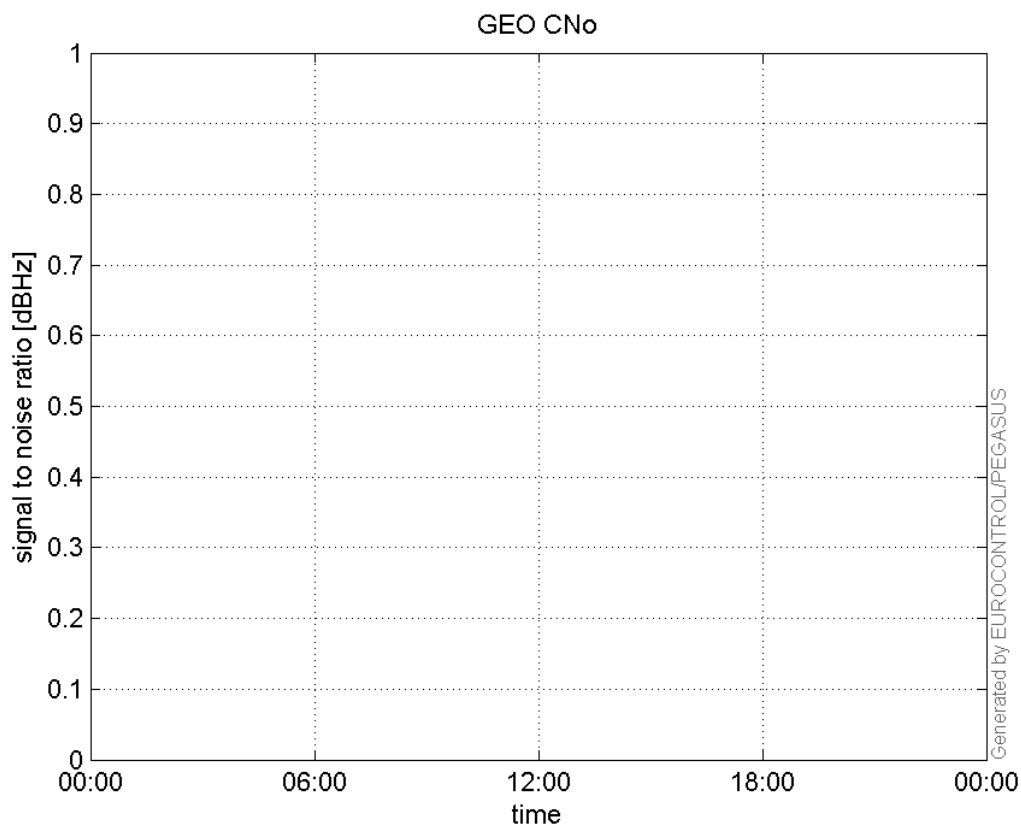
SNR Elevation:



L2 CNo:

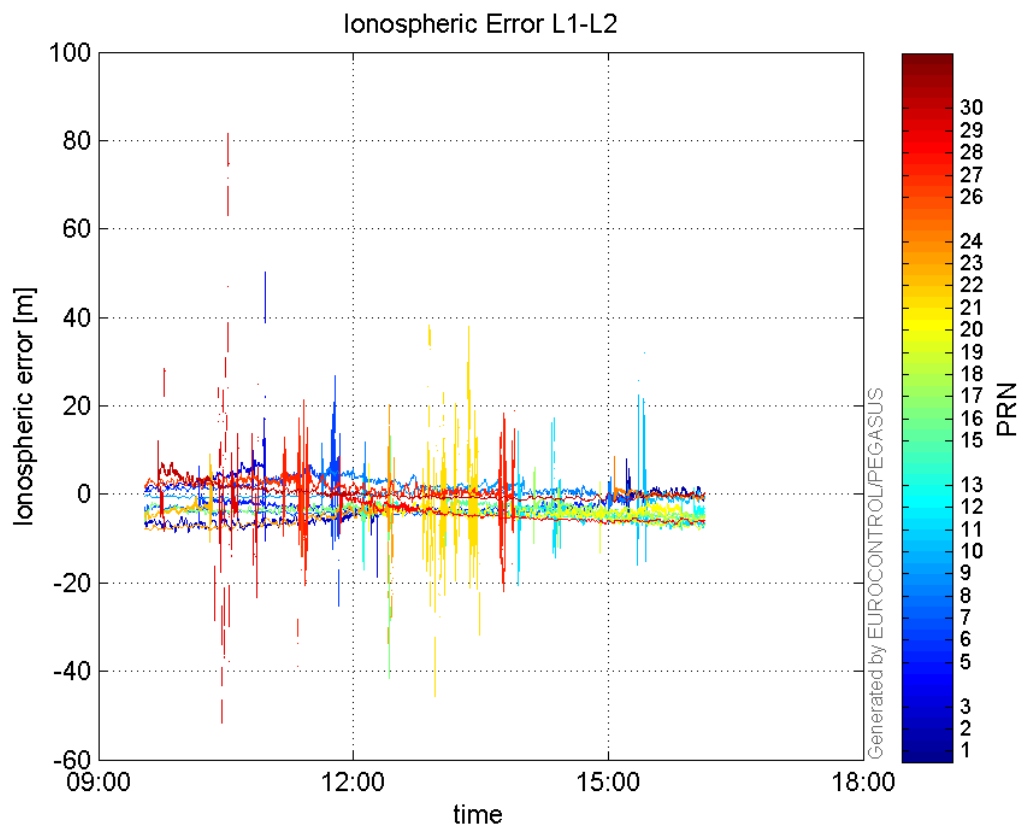


GEO CNo:



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_02_01EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	220.7286
mi_numbers	results	0