

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 15/03/2017

SBAS Messages

start: 08:56:42.129 16.02.2017 (week: 1936 sec: 377802.129)
end: 13:17:57.129 16.02.2017 (week: 1936 sec: 393477.129)
duration: 04:21:15 ..

quality

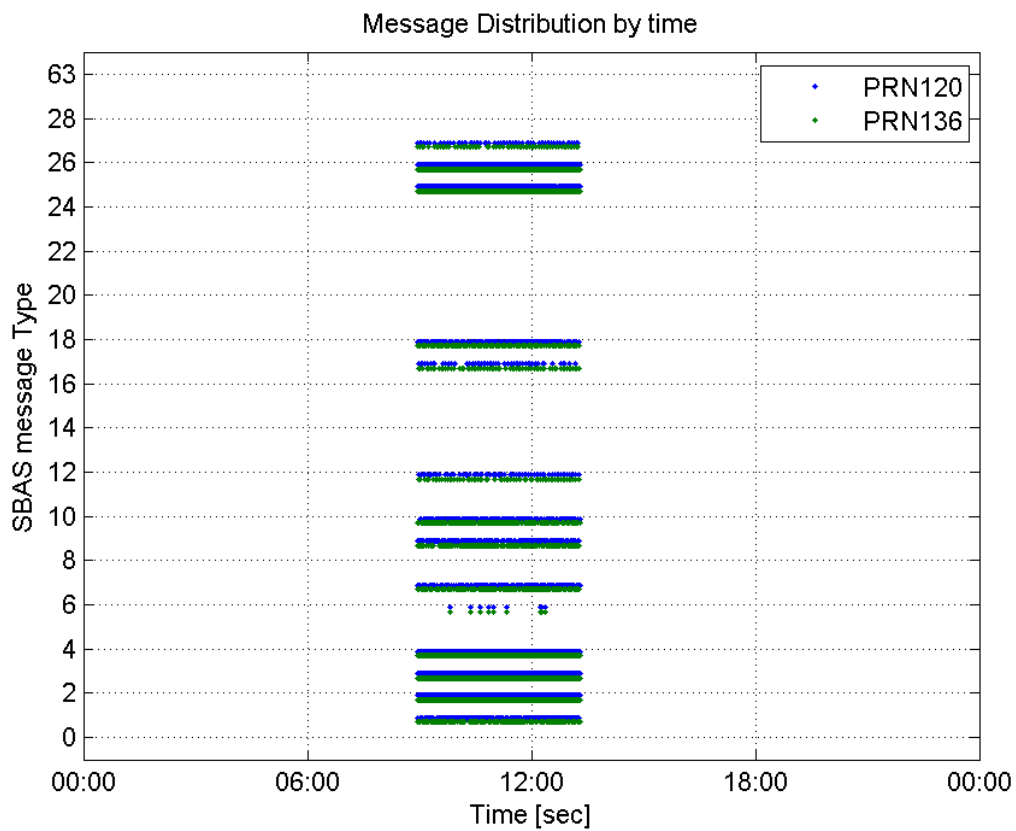
valid samples 24646
total samples 24646
number of SBAS PRNs 2

SBAS SIS Overview

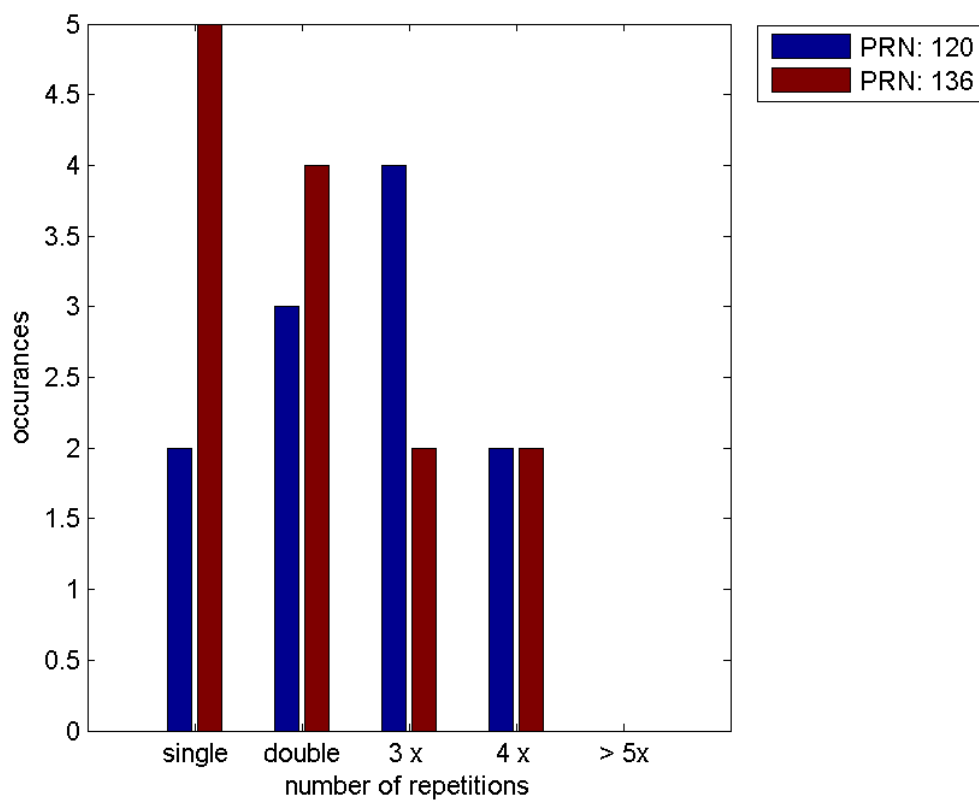
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

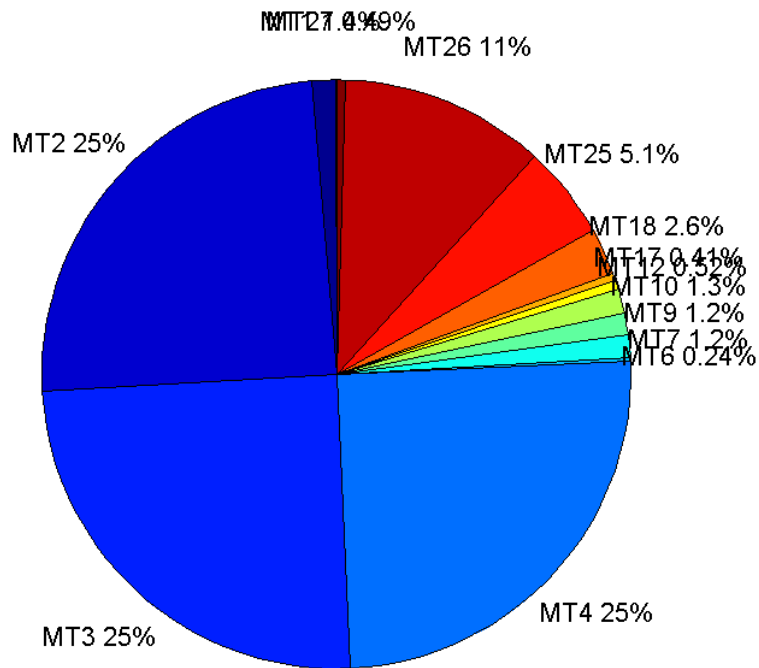
	number of messages	%
MT 0	0	0
MT 1	167	1.35464
MT 2	3025	24.5376
MT 3	3061	24.8297
MT 4	3079	24.9757
MT 5	0	0
MT 6	29	0.235237
MT 7	152	1.23297
MT 9	148	1.20052
MT 10	160	1.29786
MT 12	64	0.519143
MT 17	50	0.405581
MT 18	319	2.58761
MT 24	0	0
MT 25	631	5.11843
MT 26	1383	11.2184
MT 27	60	0.486697
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	12328	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	93.5241	22	0	0
MT 2	4	17	5.18254	818	0	7
MT 3	4	13	5.12026	786	0	6
MT 4	4	17	5.09162	779	0	4
MT 5	--	--	--	--	--	--
MT 6	1	3240	324.75	8	8	8
MT 7	76	320	103.517	32	0	5
MT 9	76	317	106.122	0	0	0
MT 10	76	241	96.5975	30	0	1
MT 12	185	587	245.397	63	13	13
MT 17	189	1167	307.571	0	0	0
MT 18	4	180	48.739	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	155	24.8762	0	0	0
MT 26	3	77	11.3343	0	0	0
MT						

27	190	592	262.203	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

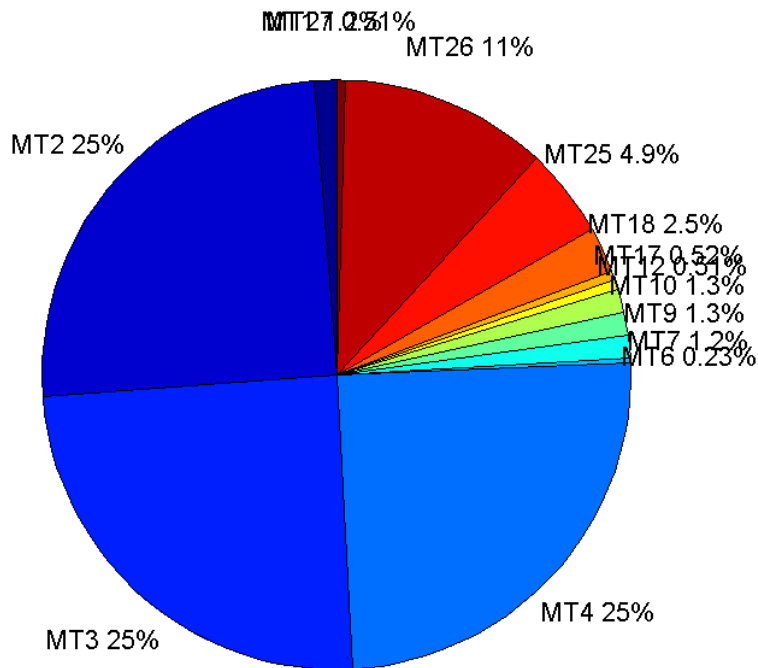
	number of messages	%
MT 0	0	0
MT 1	152	1.23397
MT 2	3070	24.9229
MT 3	3045	24.7199
MT 4	3055	24.8011
MT 5	0	0
MT 6	28	0.22731
MT 7	151	1.22585
MT 9	158	1.28268
MT 10	161	1.30703
MT 12	63	0.511447
MT 17	64	0.519565

MT 18	310	2.51664
MT 24	0	0
MT 25	598	4.85468
MT 26	1400	11.3655
MT 27	63	0.511447
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	12318	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	470	103.464	30	0	0
MT 2	4	20	5.10688	781	2	7
MT 3	4	17	5.14915	790	0	9
MT 4	4	17	5.12934	801	0	3
MT 5	--	--	--	--	--	--
MT 6	1	3240	336.741	8	8	8
MT 7	73	400	103.973	32	1	5
MT 9	74	480	98.9809	0	0	0
MT 10	74	321	97.7	32	0	2
MT 12	191	593	249.613	62	15	15
MT 17	188	589	245.651	0	0	0
MT 18	4	188	50.1618	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	84	26.2044	0	0	0
MT 26	4	80	11.1994	0	0	0
MT 27	187	786	249.742	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_16EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_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: 08:56:42 16.02.2017 (week: 1936 sec: 377802)
end: 13:17:58.5 16.02.2017 (week: 1936 sec: 393478.5)
duration: 04:21:18 ..

quality

valid samples 28337
total samples 29002

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	380121	1.91458	10.0597	0.190322	0.633242	15.7781	0.0401342
max normVer	378422	1.55322	11.4252	0.135947	1.72013	18.8896	0.0910623
max HPE	392223	8.74181	331.723	0.0263528	-22.4364	667.135	0.033631
max VPE	392223	8.74181	331.723	0.0263528	-22.4364	667.135	0.033631
min HPL	379629	1.36037	9.07059	0.149976	0.431618	13.42	0.0321623
min VPL	379734	1.55258	9.10123	0.170591	0.645013	13.4037	0.048122

Position discontinuity events :

#	Epoch	duration	stable period
1	380270	5.5	207
2	384671	214	80.5
3	385171	5.5	137.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	378863	79.5	439.5
2	379481	13.5	449
3	380270	9.5	207
4	380929	5.5	151.5
5	381038	9.5	103.5
6	381638	4.5	23.5
7	381652	8.5	1.5
8	384503	48.5	88.5
9	384671	1398.5	80.5
10	386162	5.5	69.5
11	386469	13.5	19.5
12	386830	77.5	36.5
13	388280	92	12
14	389697	5.5	290.5
15	390095	11.5	74.5
16	390631	3.5	98
17	390642	41.5	3.5
18	391306	9.5	18.5

First Glance analysis

Duration 15678
Number of Samples 29002
Number of invalid sample 665
Number of no position solution samples 475

Number of missing sample	2354
Logging Loss	7.5073
Processing Loss	2.2929
Number of Misleading Information	0
Data gaps	7
Discontinuities	37

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
27862	24795	20243	0	20243

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.97063	1.92539	1.90015	NaN	1.90015
HPEScale 95%	NaN	5.73391	5.85945	NaN	5.85945
VPE 95%	1.52145	1.4842	1.49448	NaN	1.49448
VPEscale 95%	NaN	3.21848	2.33487	NaN	2.33487

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.983237	0.875004	0.714366	0	0.714366
measurements	0.960692	0.854941	0.697986	0	0.697986
Operational	1.77714	1.58152	1.29117	0	1.29117

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	30	75	180	--	180
Long	3	18	58	--	58
Independent	3	15	22	--	22
P(disc.)	0.0016151	0.00907441	0.0163019	NaN	0.0163019
P(slide)	0.016151	0.03902	0.0831152	NaN	0.0831152

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

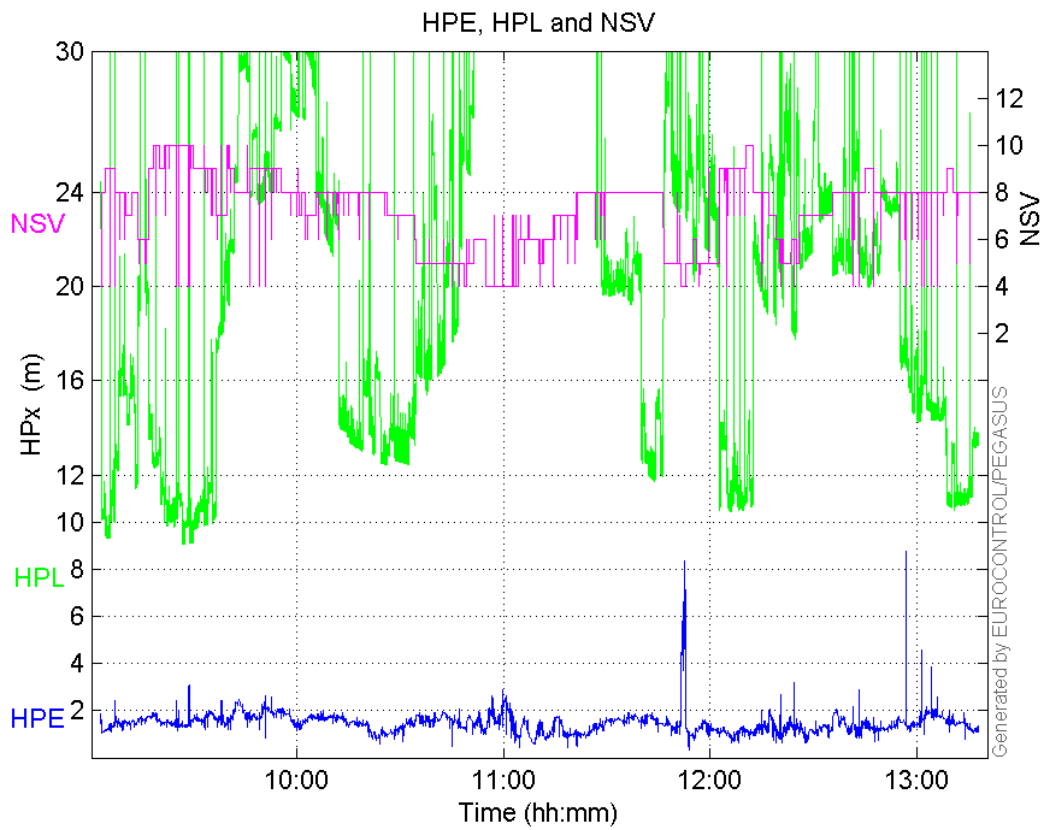
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	27862	24795	20243	0	20243
SIS Availability	0.983237	0.875004	0.714366	0	0.714366
Local Availability	0.960692	0.854941	0.697986	0	0.697986
Operational Availability	1.77714	1.58152	1.29117	0	1.29117
HPE 95%	1.97063	1.92539	1.90015	NaN	1.90015
HPEScale 95%	NaN	5.73391	5.85945	NaN	5.85945
VPE 95%	1.52145	1.4842	1.49448	NaN	1.49448
VPEscale 95%	NaN	3.21848	2.33487	NaN	2.33487

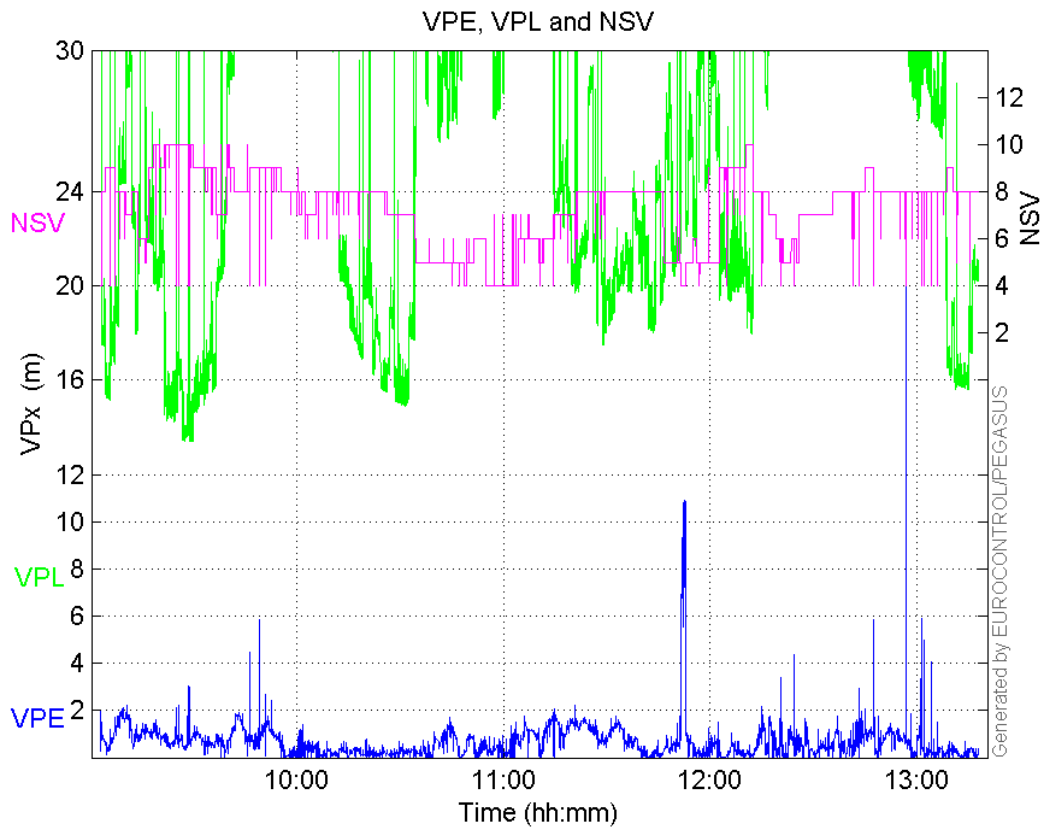
All Discontinuity Events	30	75	180	--	180
Long Discontinuity Events	3	18	58	--	58
Independent Discontinuity Events	3	15	22	--	22
P(discontinuity)	0.0016151	0.00907441	0.0163019	NaN	0.0163019
P(sliding window)	0.016151	0.03902	0.0831152	NaN	0.0831152
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series

HPE, HPL and NSV:

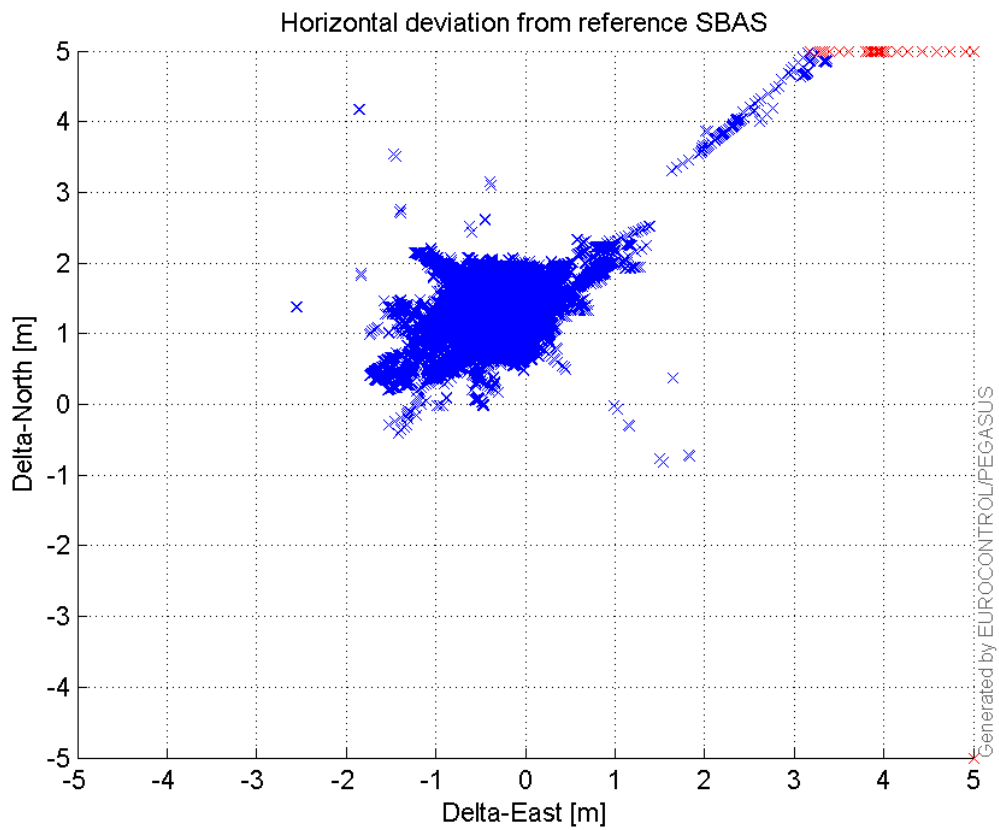


VPE, VPL and NSV:



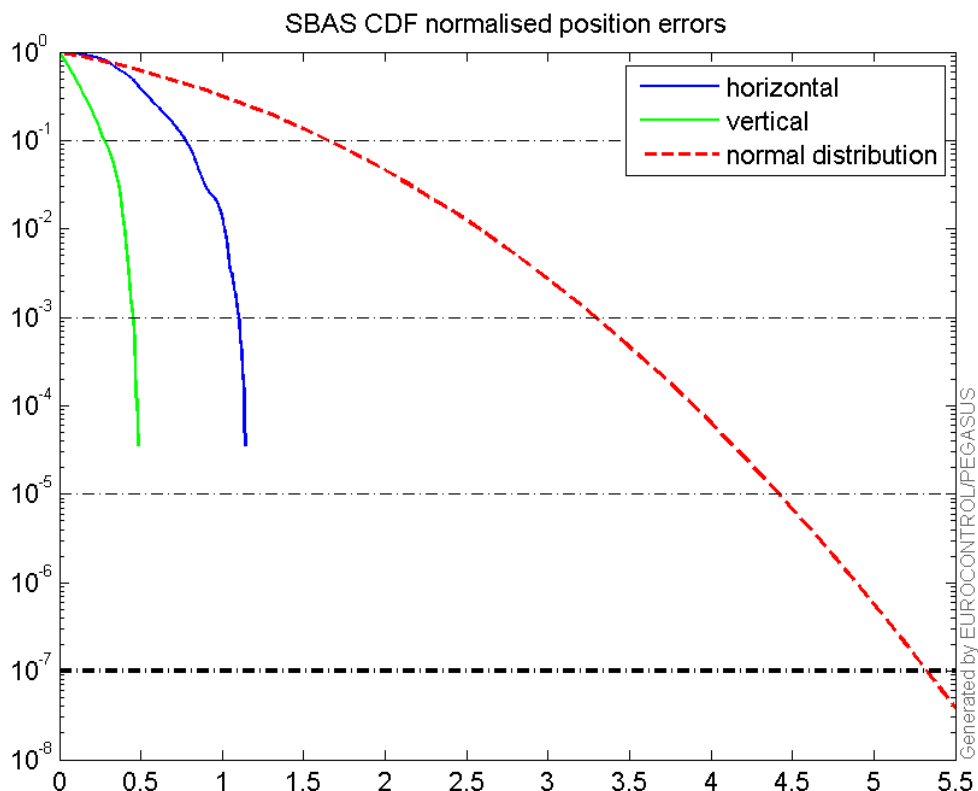
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

```

number 24795
sum 35929.049
sum2 54272.427
prctile95 1.9253917
prctile99 2.1669098
number 24795
sum 15047.437
sum2 14279.134
prctile95 1.484204
prctile99 1.7840996
number 24795
sum 485972.51
sum2 10645669
prctile95 32.249925
prctile99 36.353775
number 24795
sum 666180.24
sum2 19604993
prctile95 40.818475
prctile99 45.411765
number 24795
sum 2062.1194
sum2 198.11638
prctile95 0.14334769

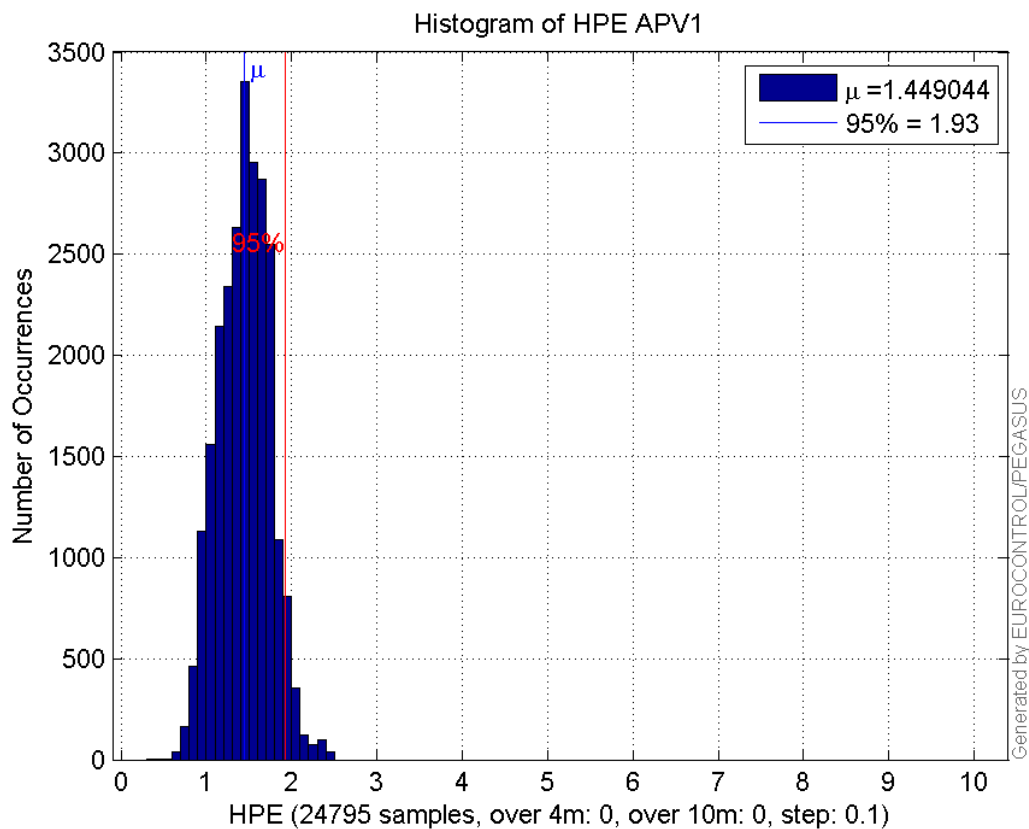
```

prctile99 0.16988855
number 24795
sum 603.3085
sum2 23.900068
prctile95 0.06436956
prctile99 0.075423988
number 20243
sum 29226.66
sum2 43911.906
prctile95 1.9001496
prctile99 2.0937658
number 20243
sum 12356.664
sum2 11838.528
prctile95 1.4944796
prctile99 1.7789216
number 20243
sum 369037.08
sum2 7590450.9
prctile95 33.055665
prctile99 36.478721
number 20243
sum 487271.3
sum2 12525205
prctile95 33.991195
prctile99 34.789691
number 20243
sum 1800.9176
sum2 182.58703
prctile95 0.14648625
prctile99 0.17109808
number 20243
sum 534.29929
sum2 22.292389
prctile95 0.066710448
prctile99 0.076066322

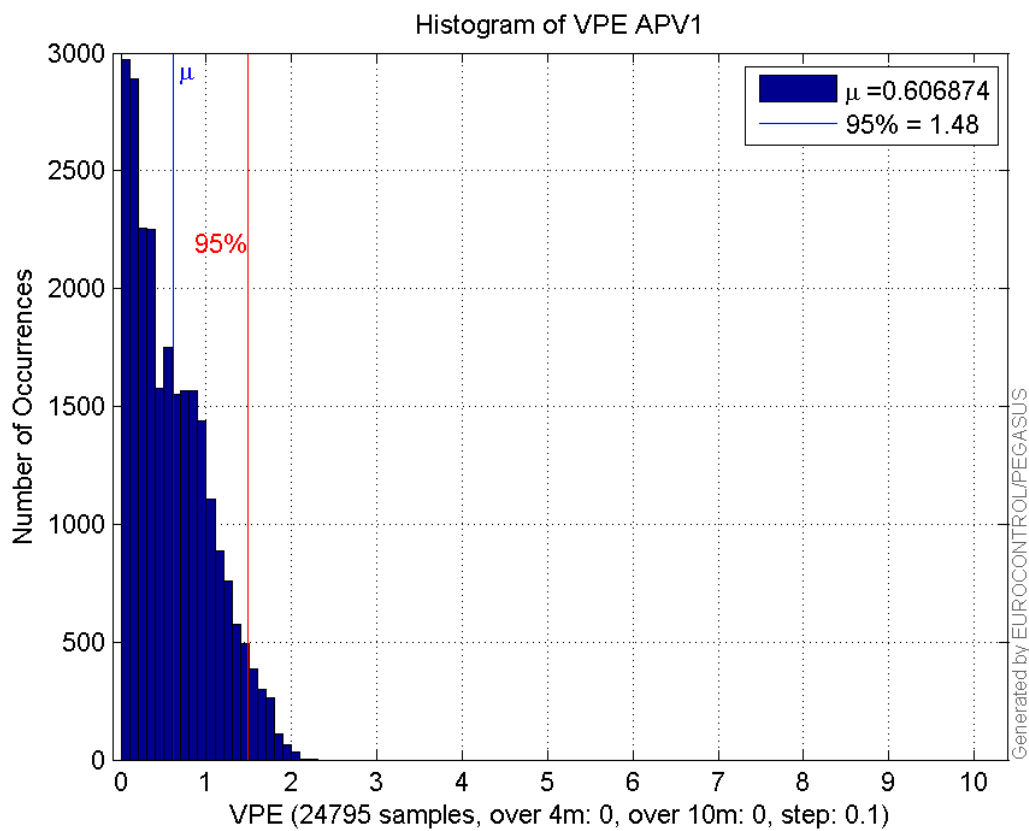
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.44904	0.29853	1.46088	1.92539	2.16691	1.47947
HPL	19.5996	6.72341	20.0233	32.2499	36.3538	20.7207
VPE	0.606874	0.455632	0.52426	1.4842	1.7841	0.758873
VPL	26.8675	8.29592	26.2938	40.8185	45.4118	28.1191

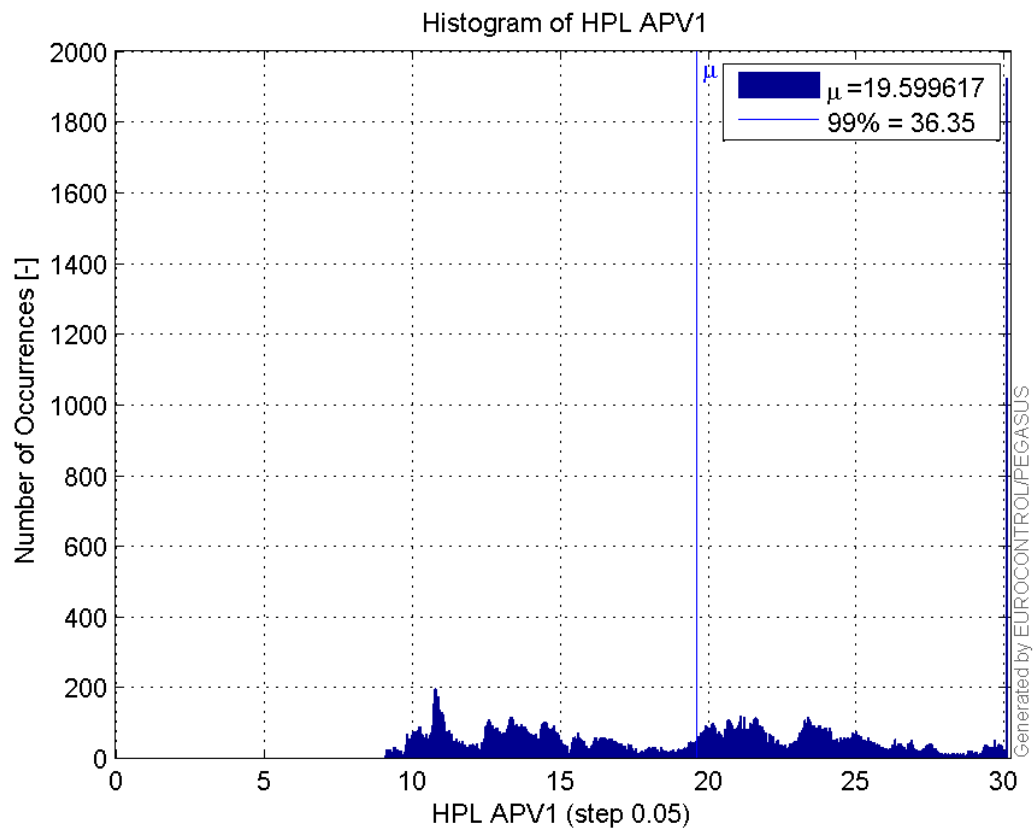
Histogram of HPE APV1:



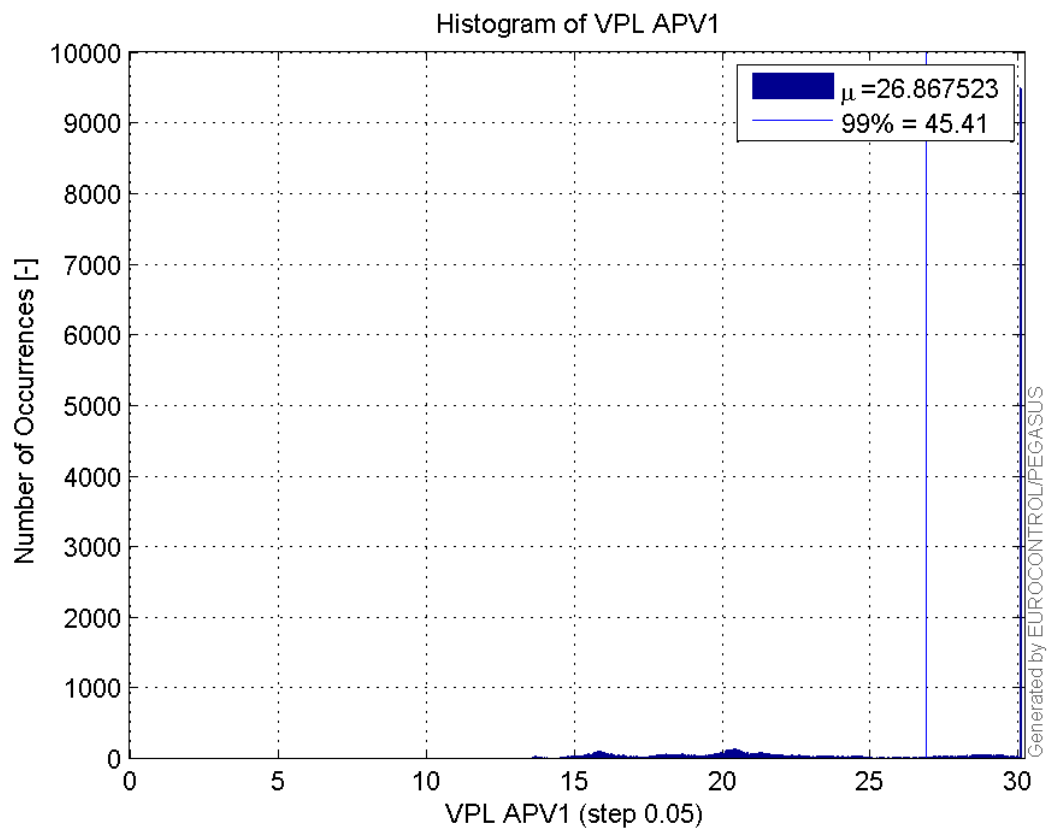
Histogram of VPE APV1:



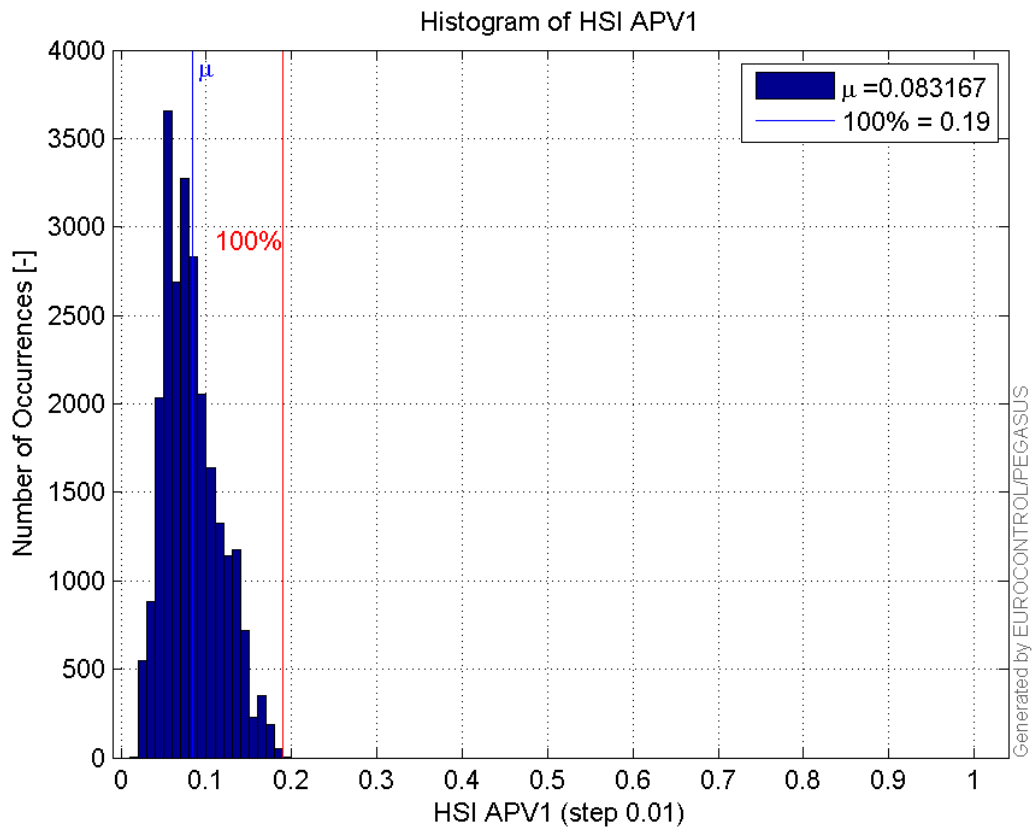
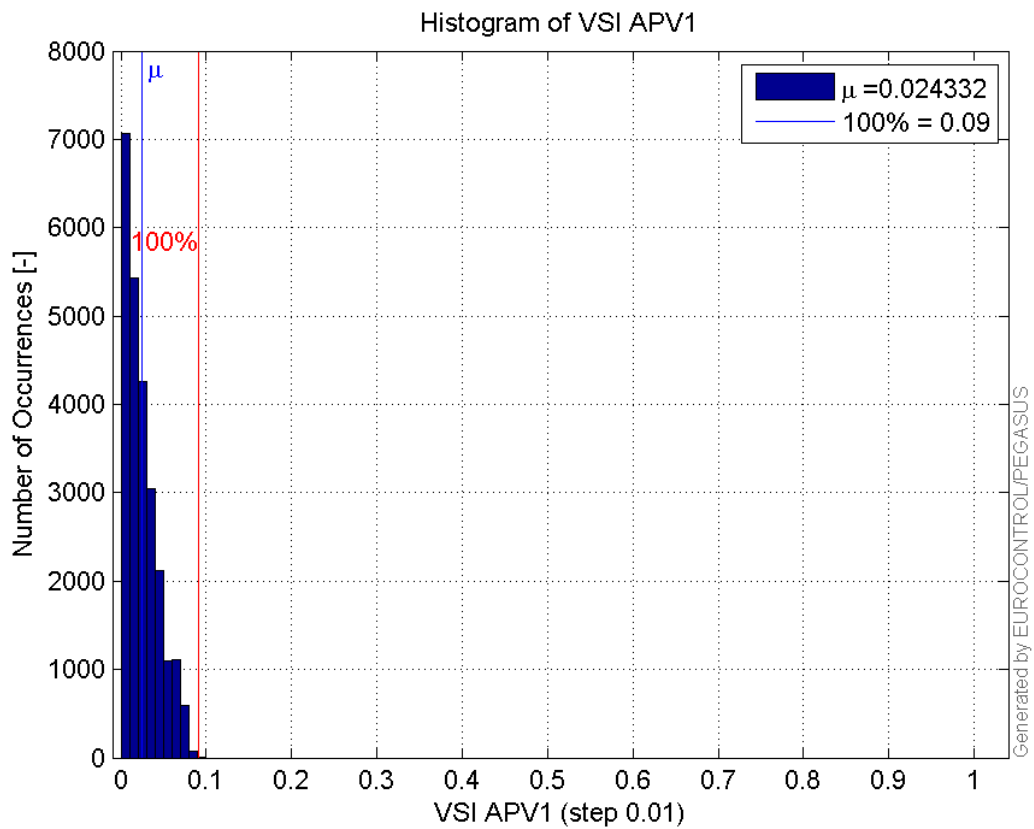
Histogram of HPL APV1:

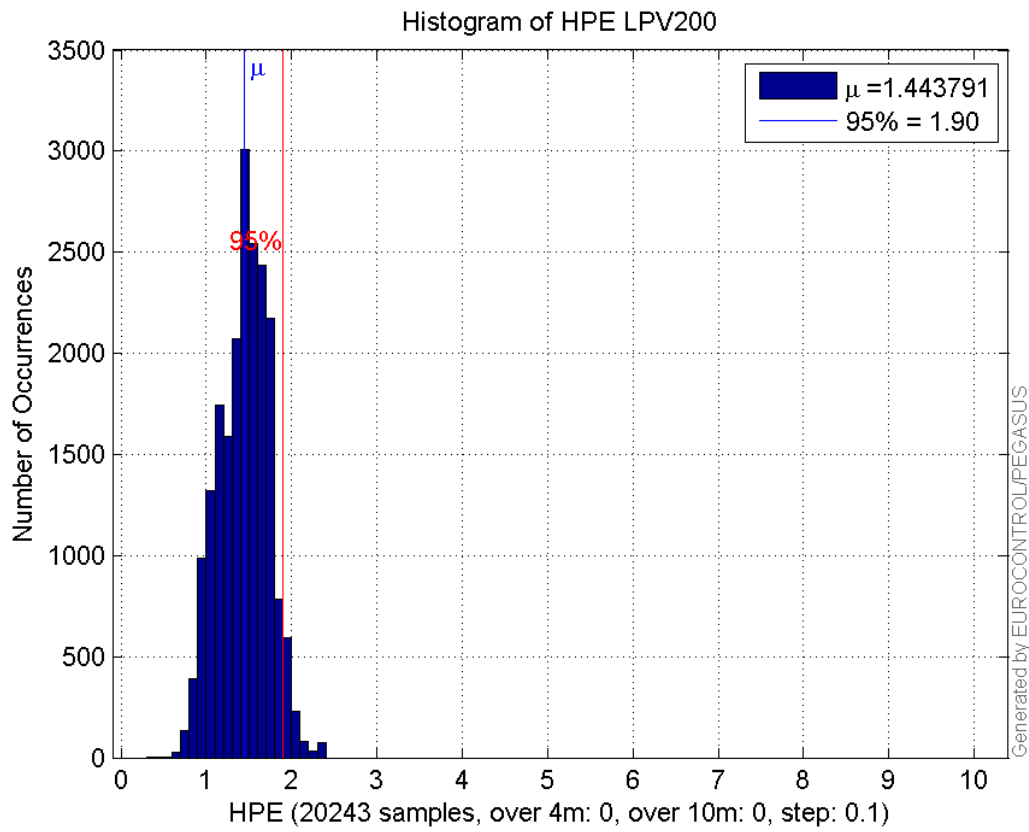


Histogram of VPL APV1:

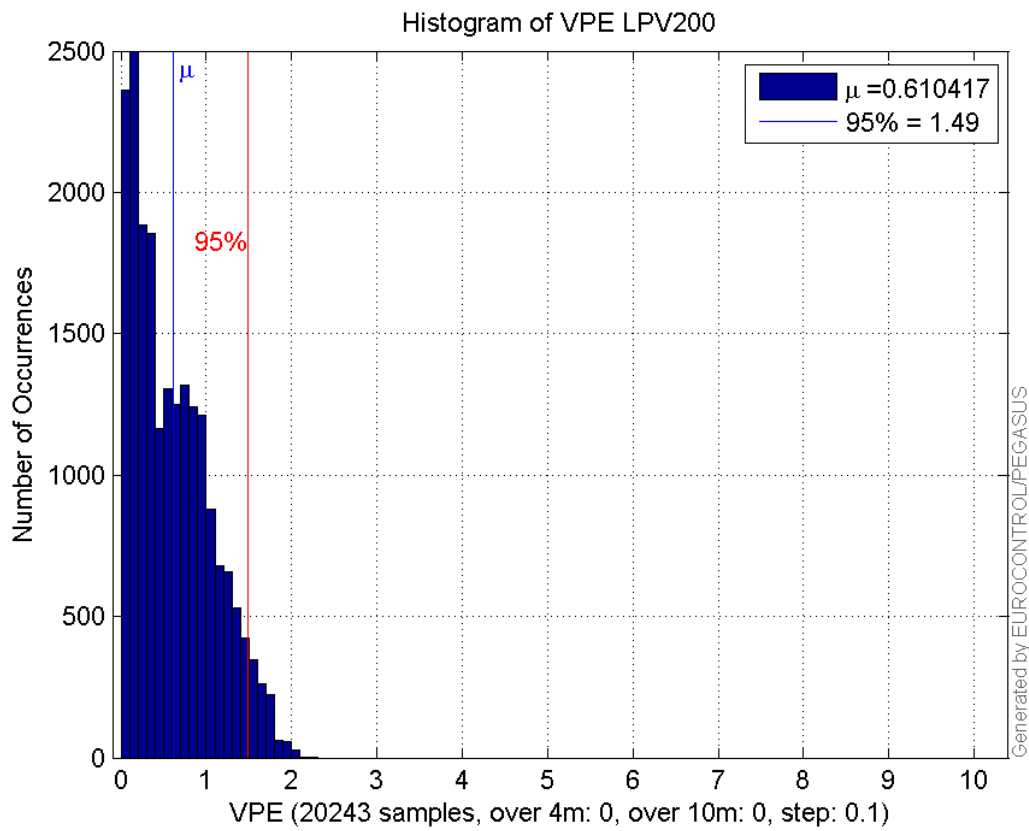


Histogram of HSI APV1:

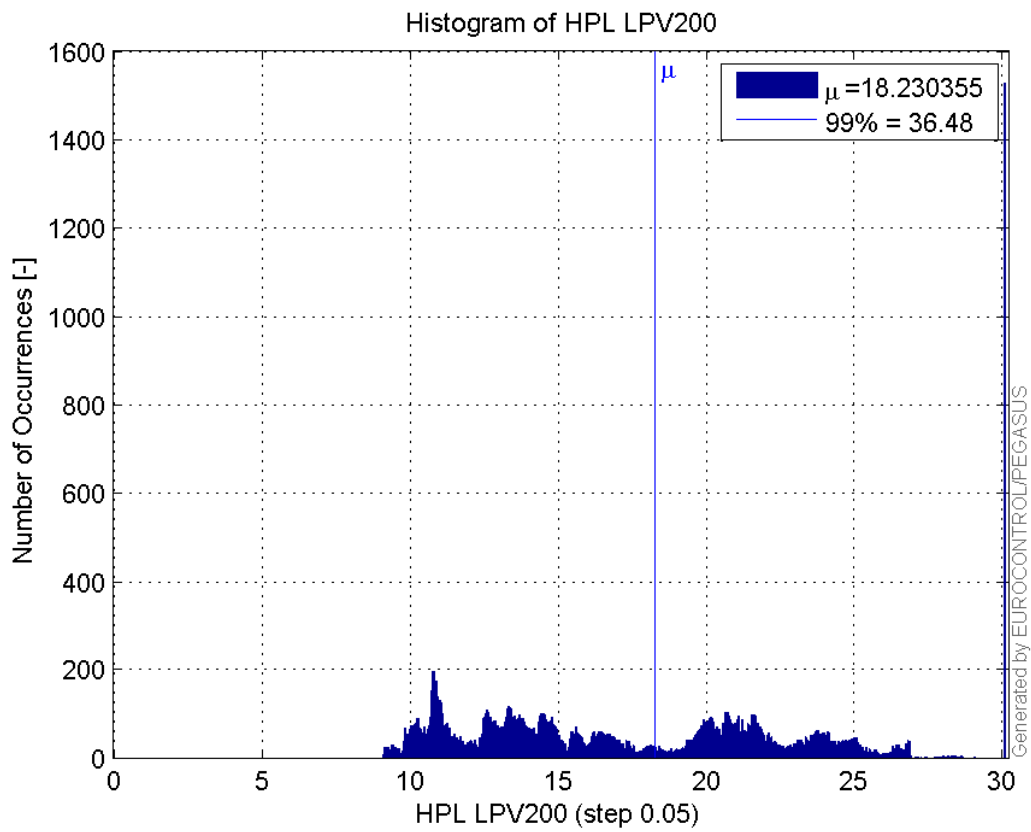
**Histogram of VSI APV1:****Histogram of HPE LPV200:**



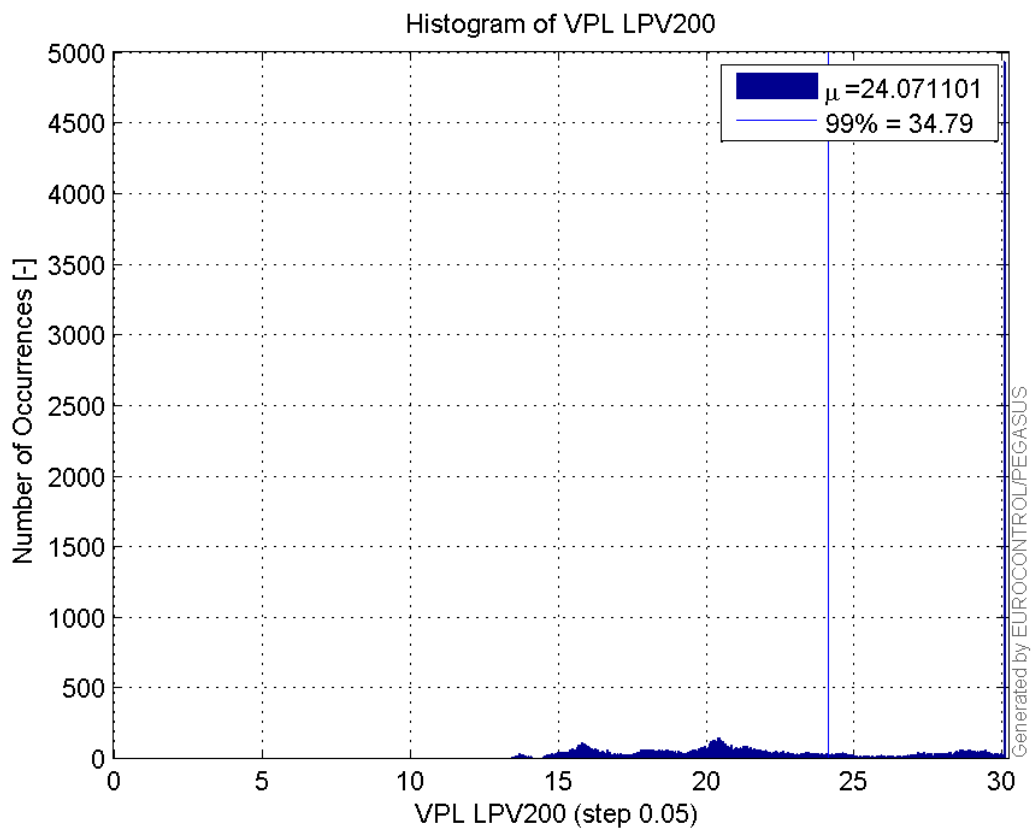
Histogram of VPE LPV200:



Histogram of HPL LPV200:

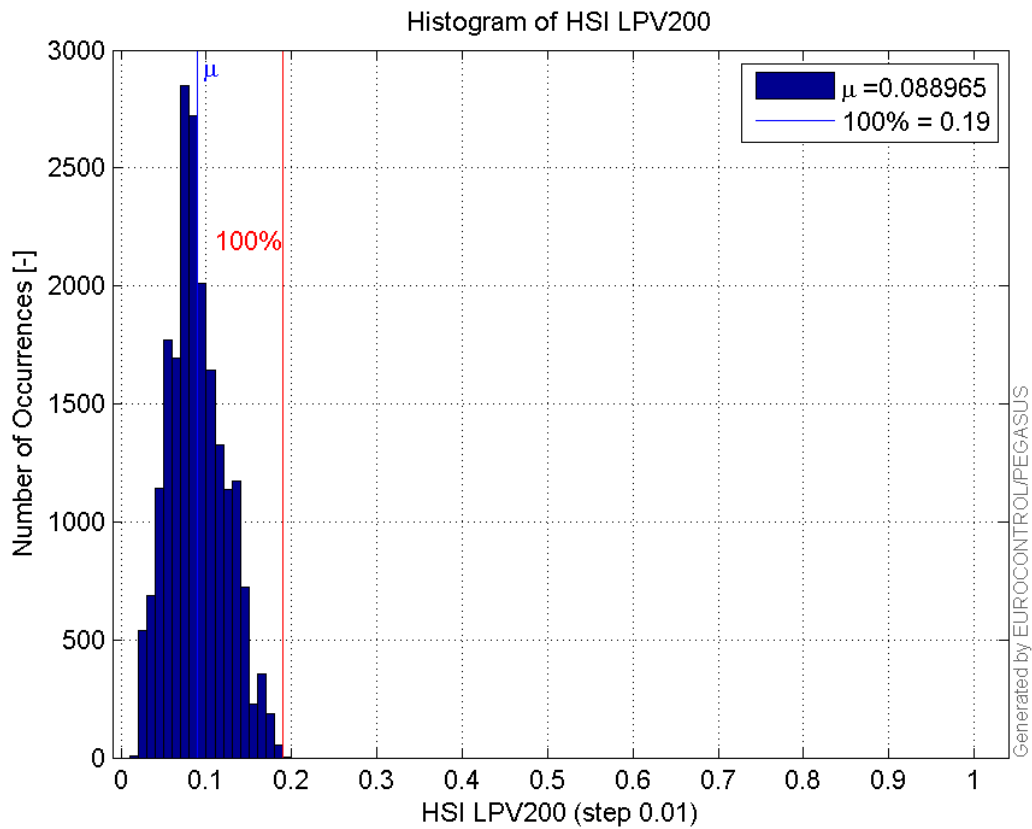


Histogram of VPL LPV200:

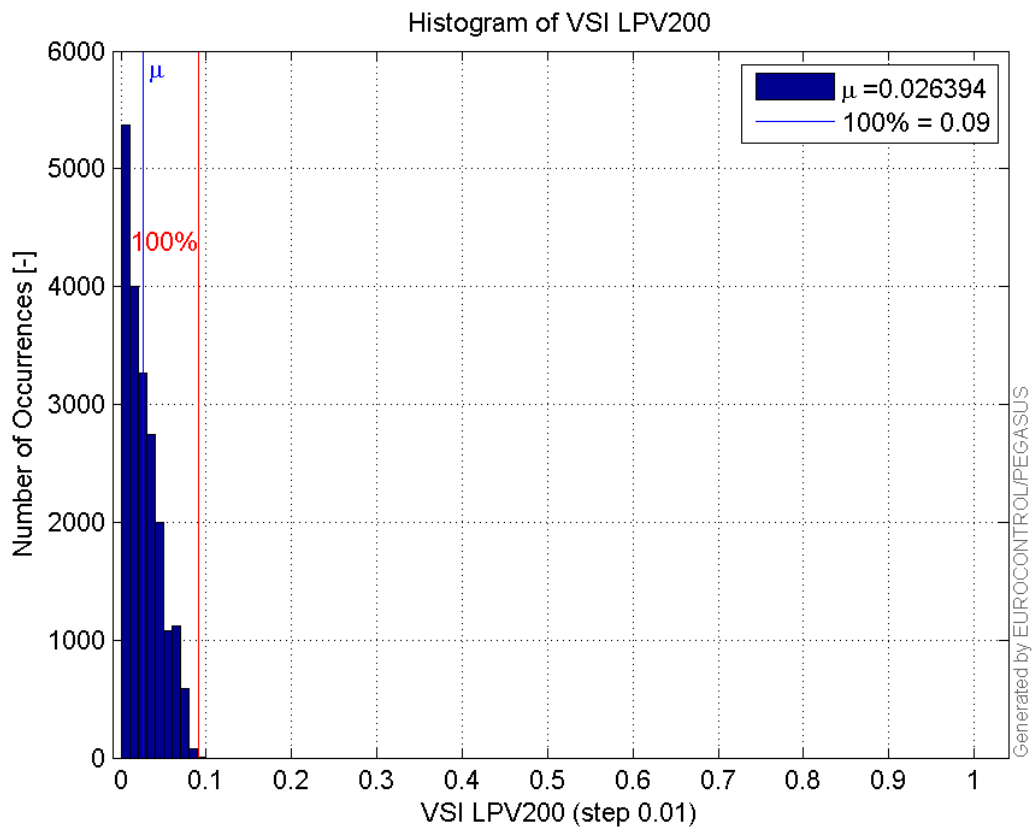


99

Histogram of HSI LPV200:

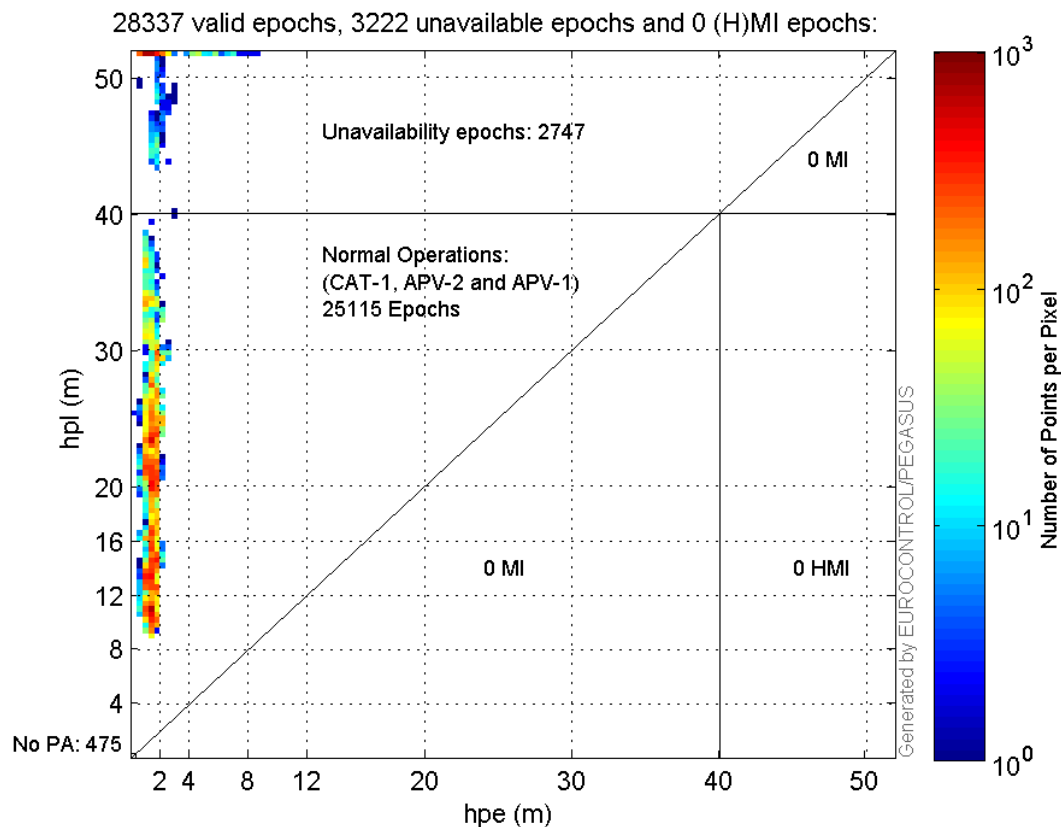


Histogram of VSI LPV200:

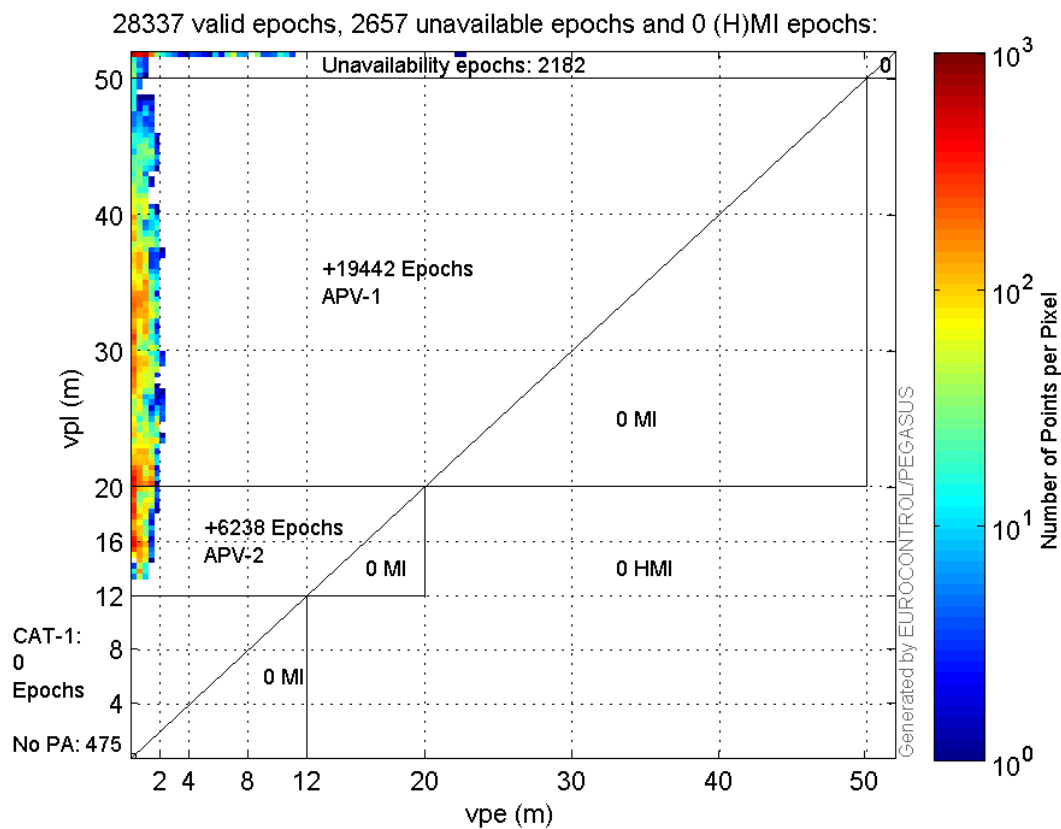


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_02_16EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	50.439
init_lon	results	30.4297
init_alt	results	224.9329
mi_numbers	results	0

Range Domain

start: 08:56:42 16.02.2017 (week: 1936 sec: 377802)
end: 13:17:58.5 16.02.2017 (week: 1936 sec: 393478.5)
duration: 04:21:18 ..

quality

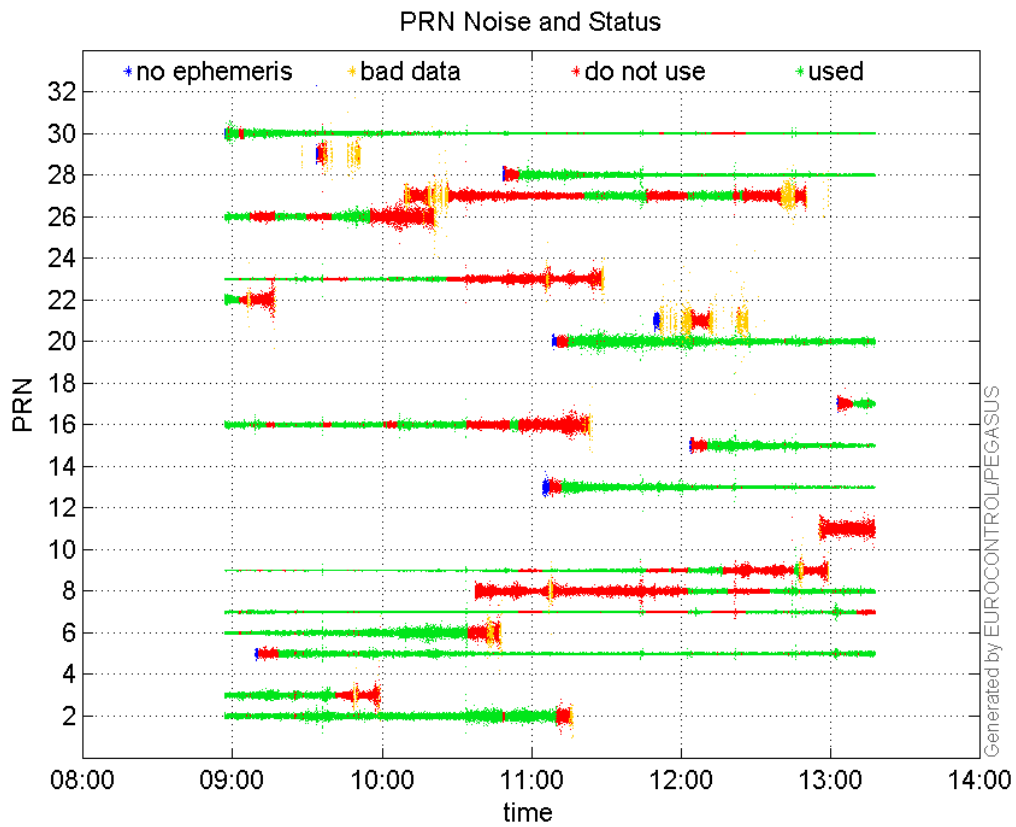
valid samples 29002
total samples 29002

PRN overview

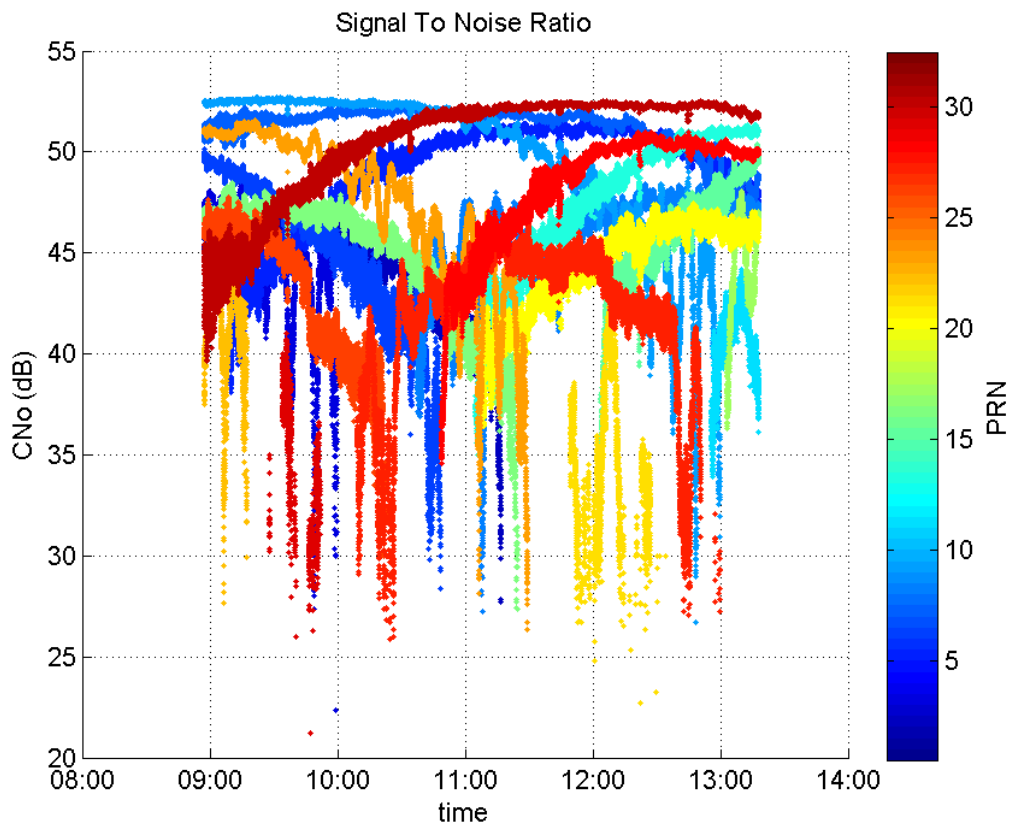
Number of Visible GPS Satellites 21
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



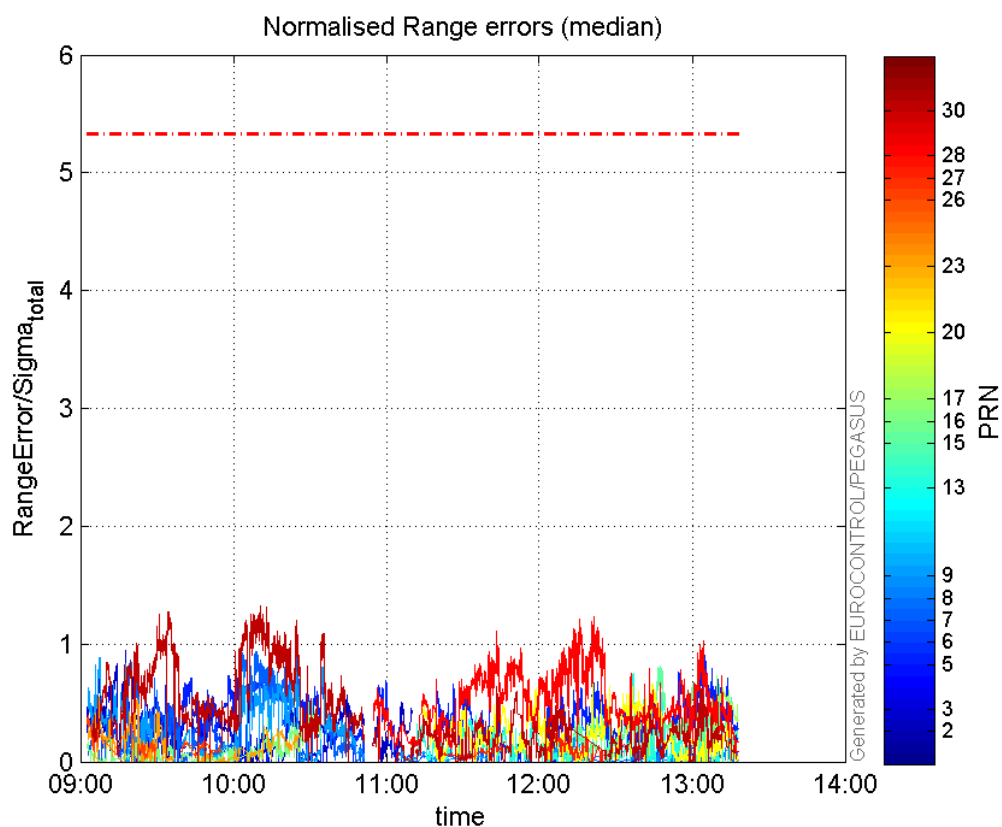
range errors

Number of Overbounding Norm Errors 0

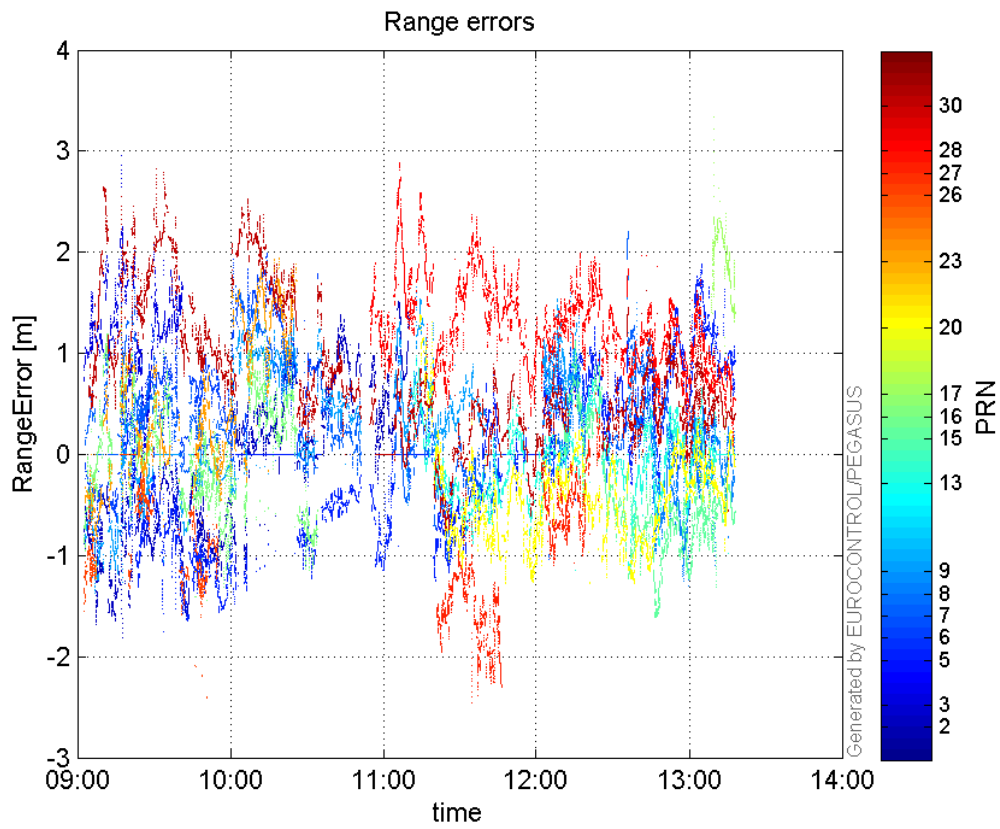
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1936	379051	2	0.944409	-1.81159	1.91822
1936	378682	3	0.655572	1.96934	3.004
1936	392711	5	0.908131	1.88119	2.0715
1936	382450	6	0.776857	1.95199	2.51267
1936	379350	7	0.936294	1.65218	1.7646
1936	393021	8	0.315486	-1.09708	3.47744
1936	378473	9	0.886195	-1.24058	1.39989
1936	391020	13	0.754895	-1.14593	1.518
1936	391643	15	0.808528	-1.59856	1.97712
1936	383462	16	0.518561	-1.14253	2.20328
1936	392971	17	0.729914	3.33399	4.56764
1936	390058	20	0.697837	-1.26945	1.81912
1936	379031	23	0.610589	1.40645	2.30343
1936	378175	26	0.396013	-1.45731	3.67995
1936	389228	27	0.282706	-1.03675	3.66725
1936	390081	28	1.22707	1.87392	1.52715
1936	382234	30	1.31889	2.29085	1.73695

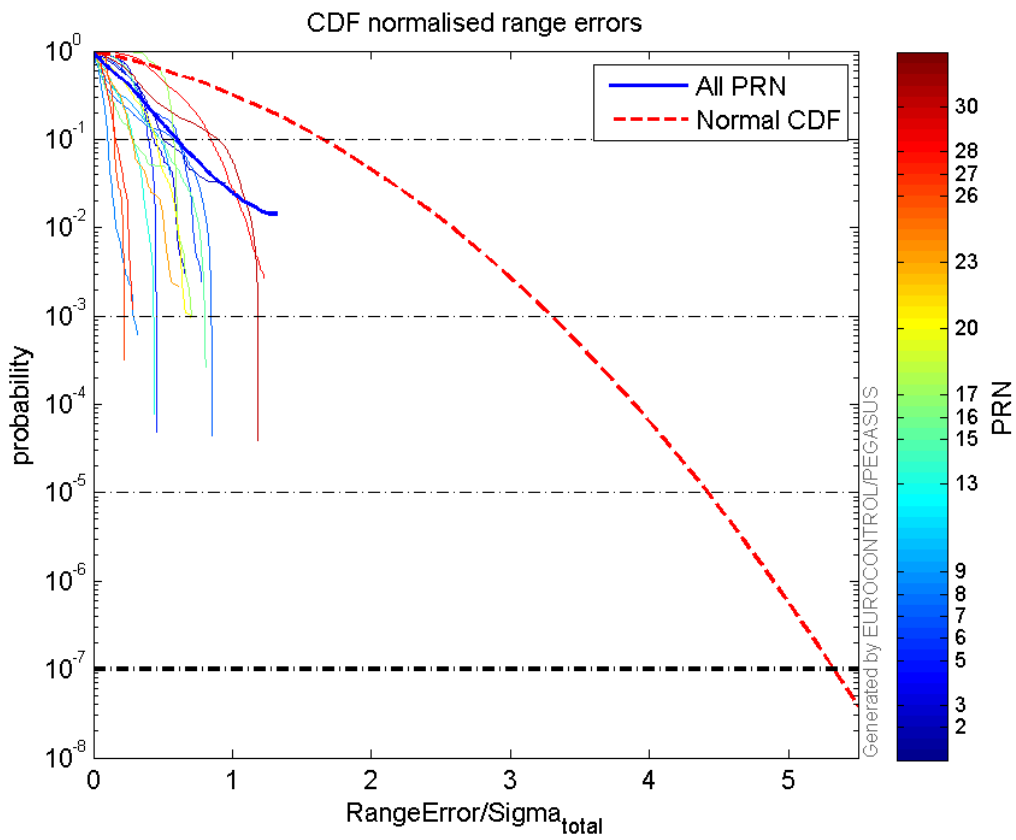
Normalised Range errors (median):



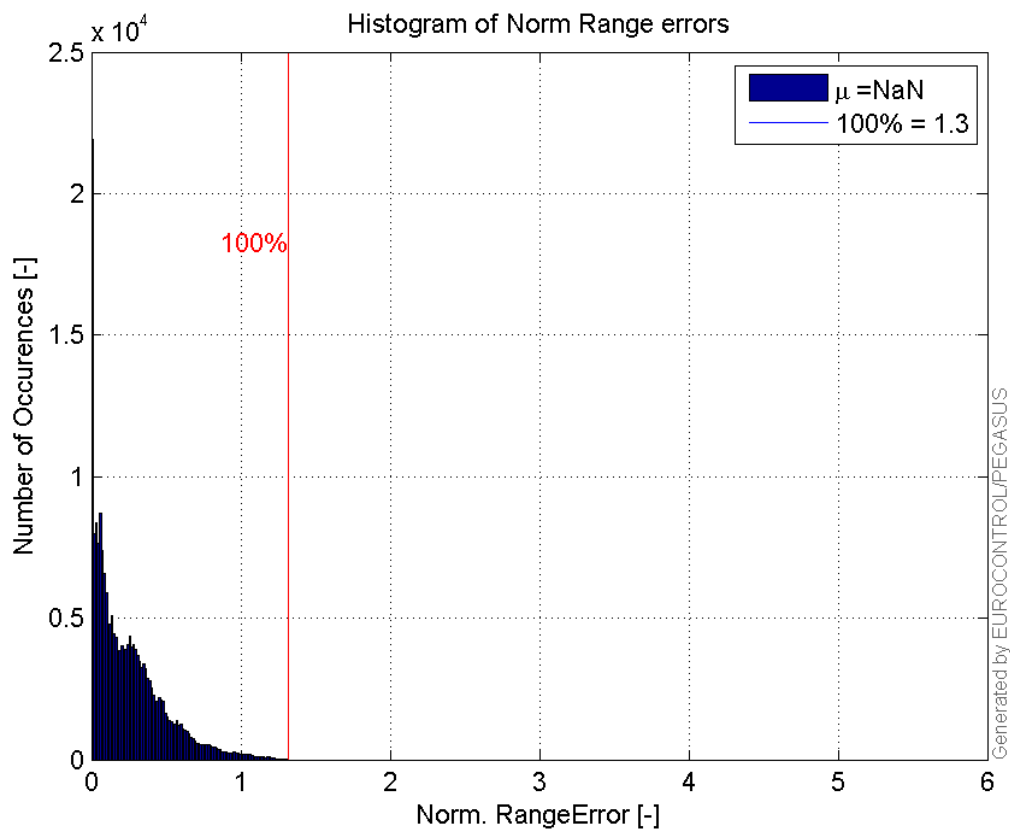
Range errors:



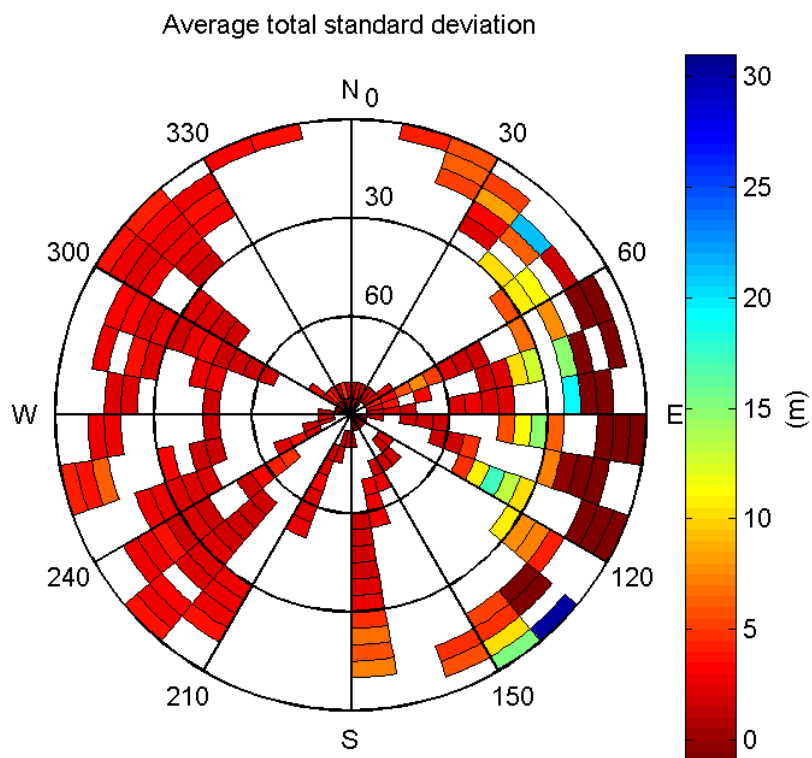
CDF normalised range errors:



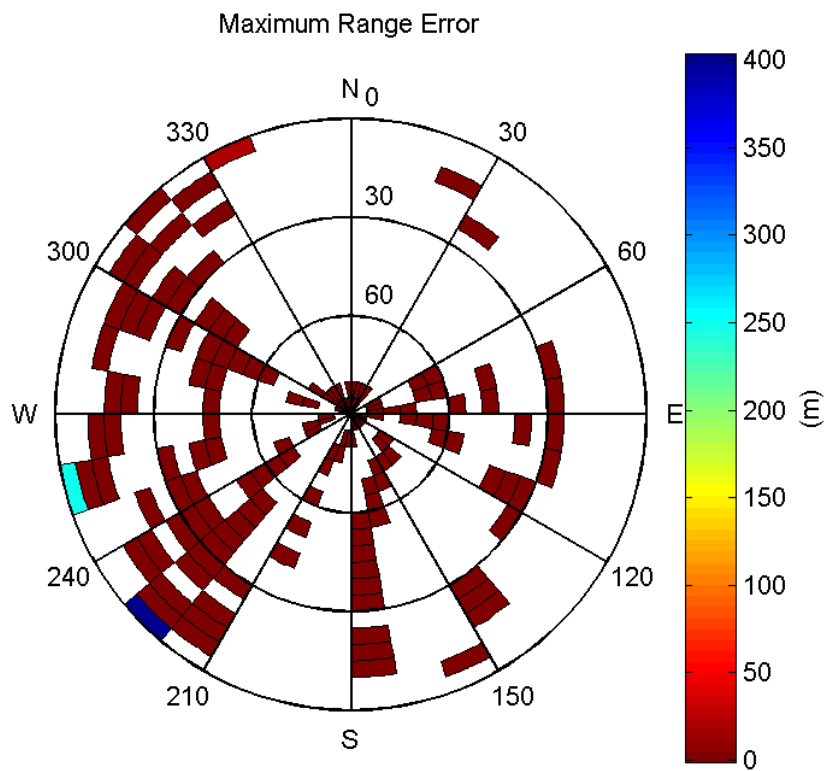
Histogram of Norm Range errors:



Sigma Sky Plot:

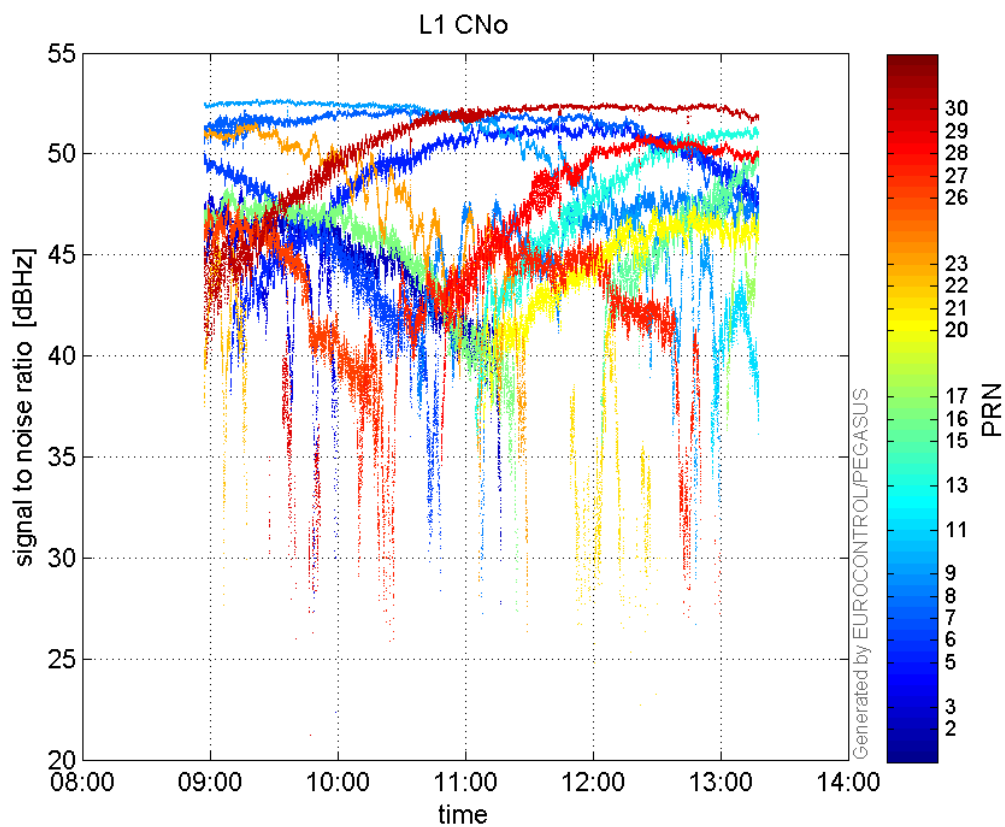


Norm Error Sky Plot:

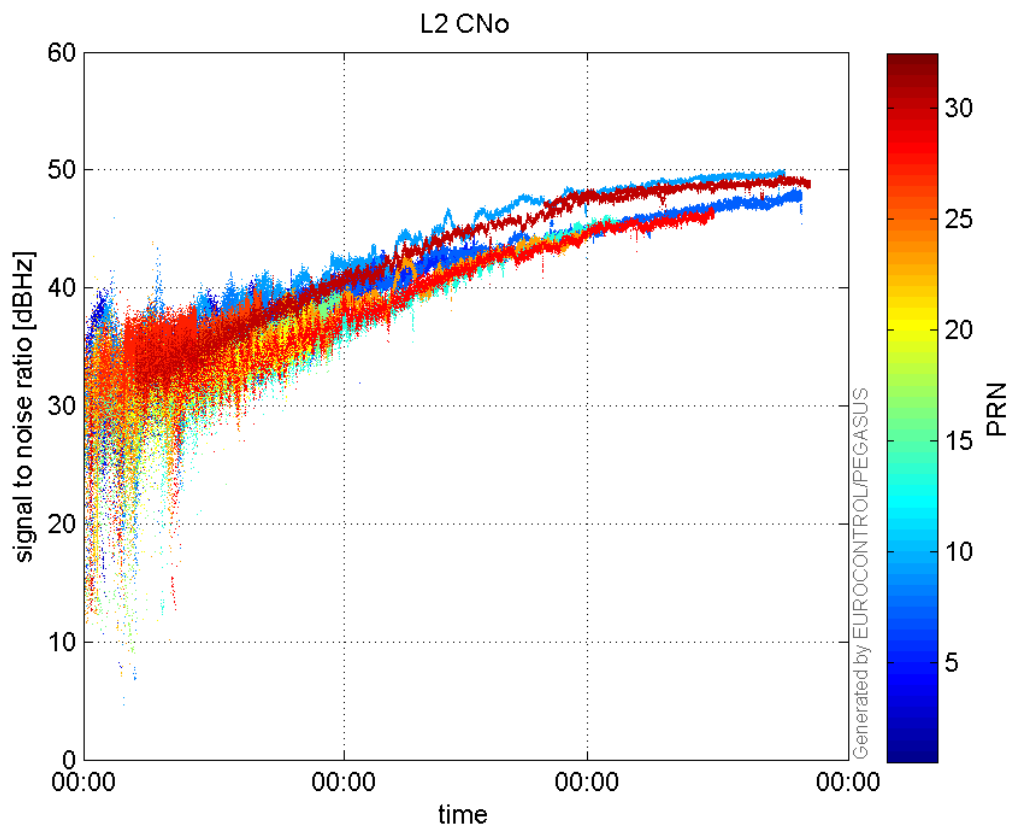


signal quality

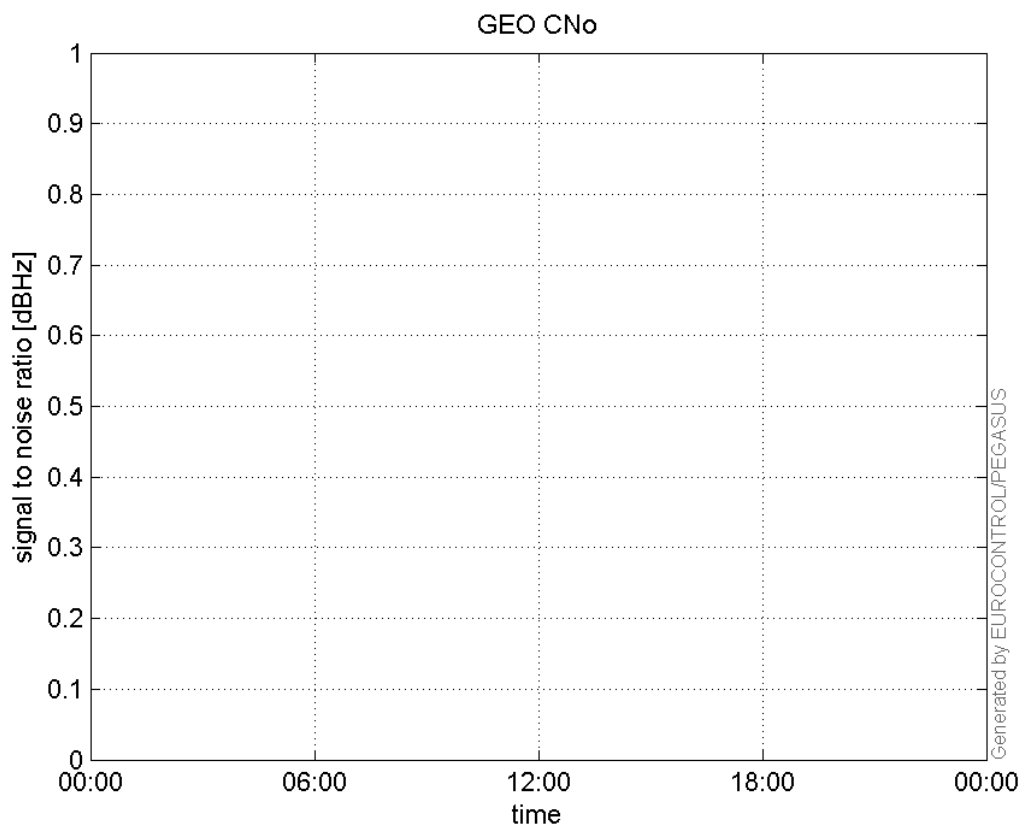
L1 CNo:



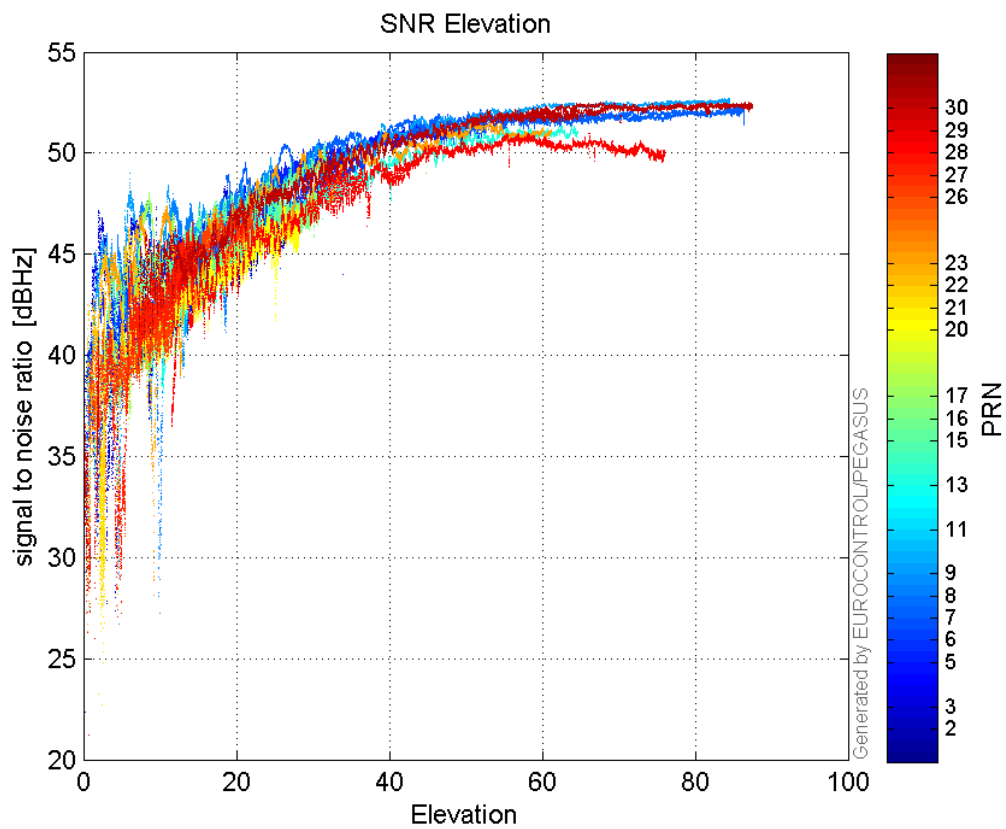
L2 CNo:



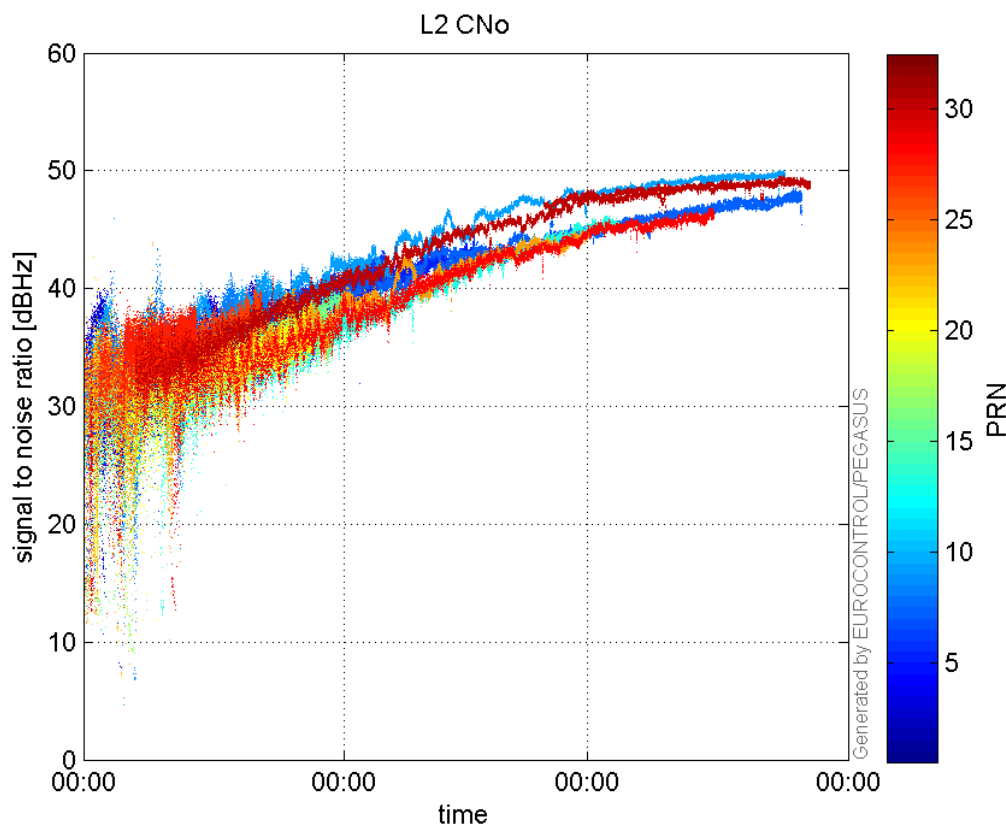
GEO CNo:



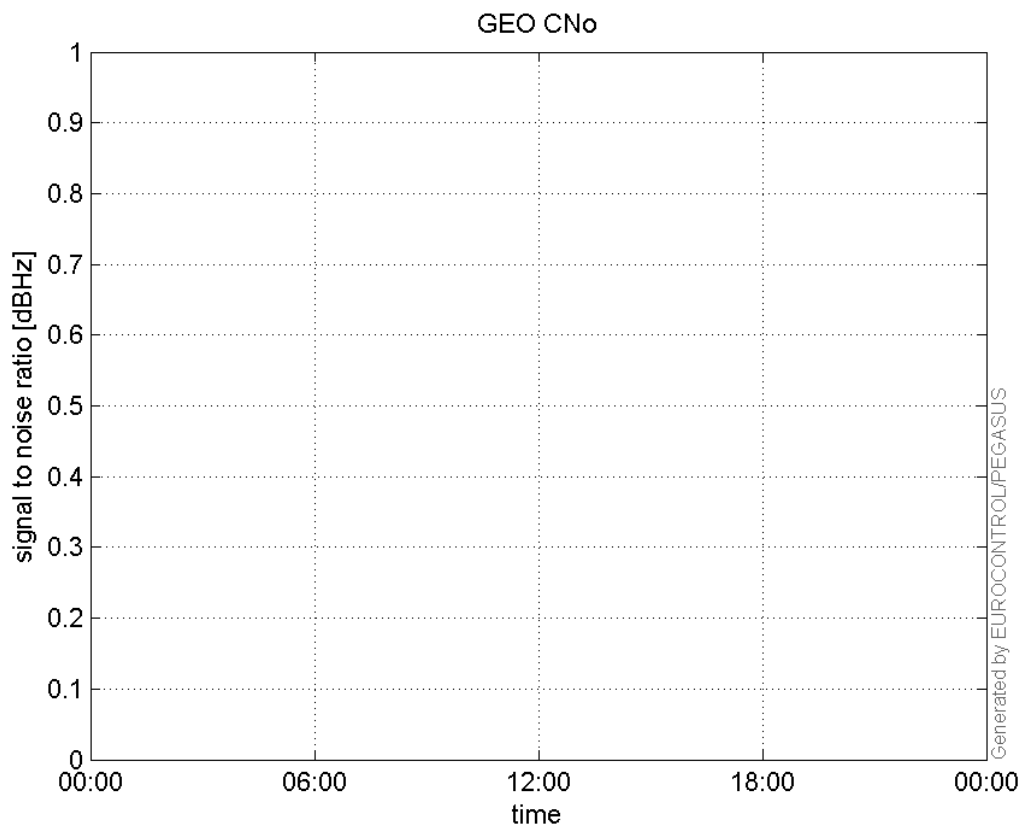
SNR Elevation:



L2 CNo:

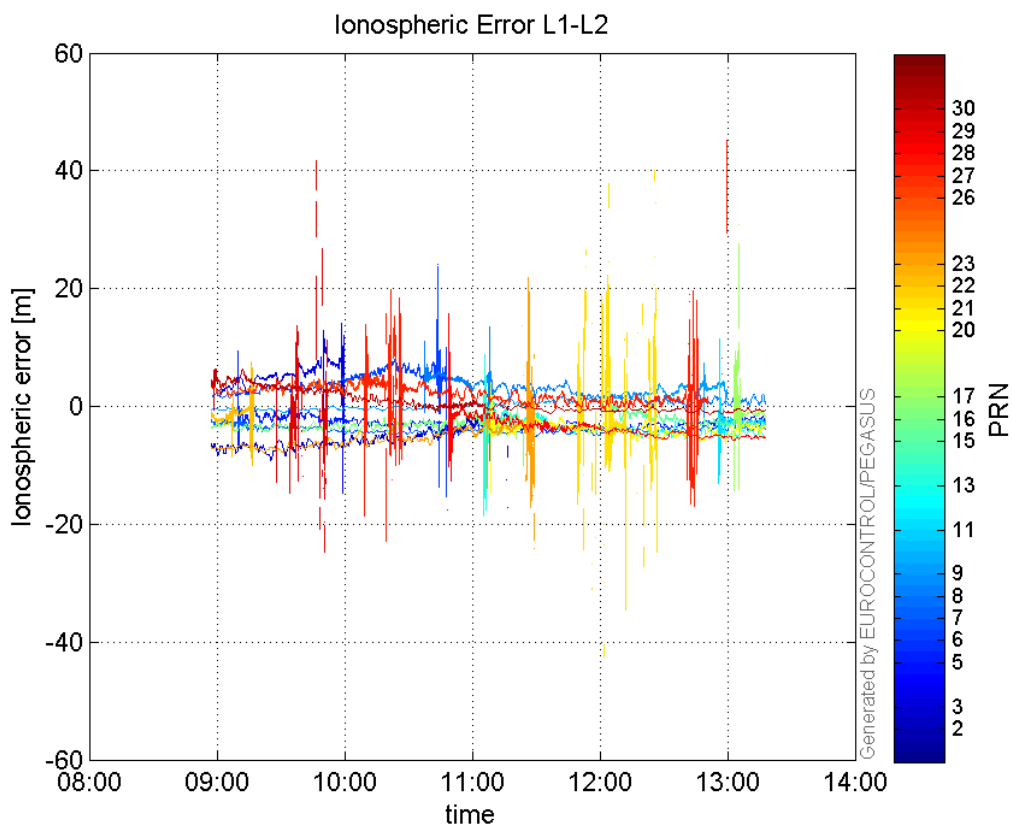


GEO CNo:



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_16EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	50.439
init_lon	results	30.4297
init_alt	results	224.9329
mi_numbers	results	0