Global View

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

SBAS Messages

start: 11:13:44.129 23.02.2017 (week: 1937 sec: 386024.129)
end: 12:47:10.129 23.02.2017 (week: 1937 sec: 391630.129)
duration: 01:33:26 ..

quality

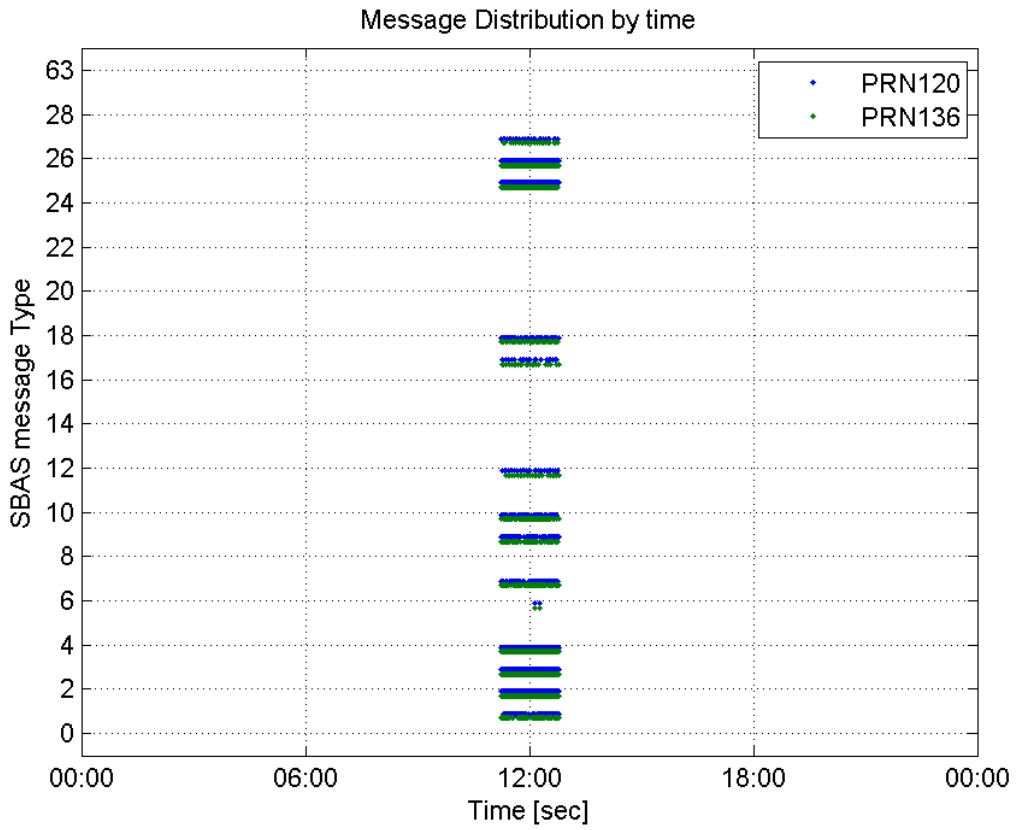
valid samples	8879
total samples	8879
number of SBAS PRNs	2

SBAS SIS Overview

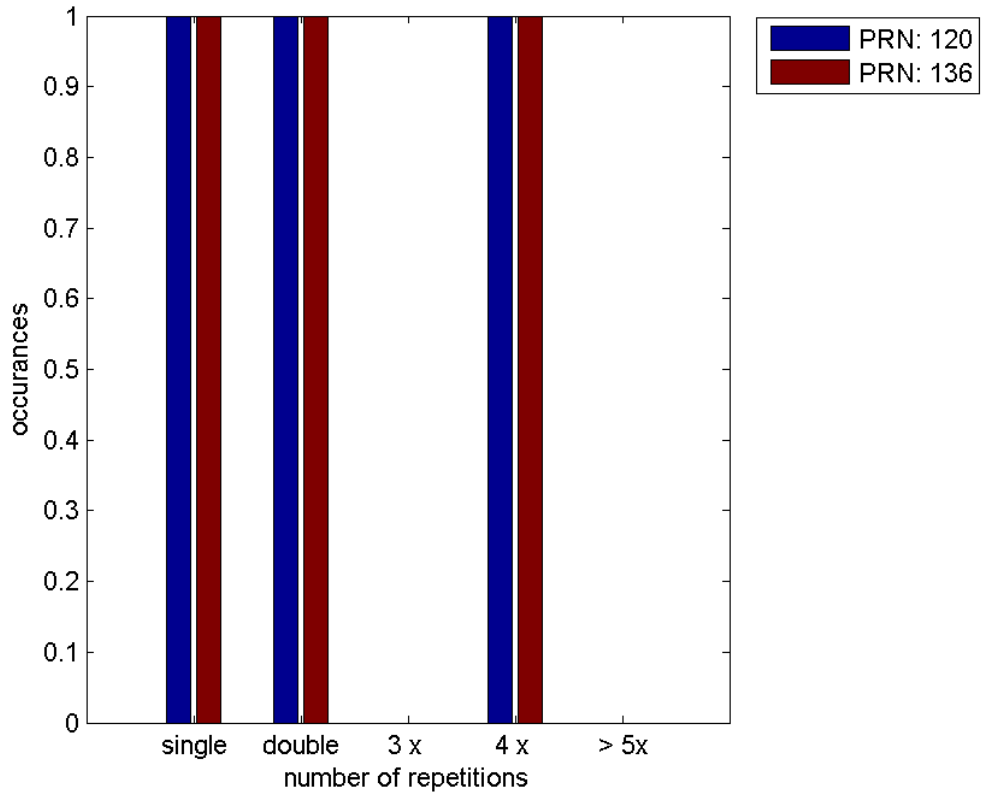
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

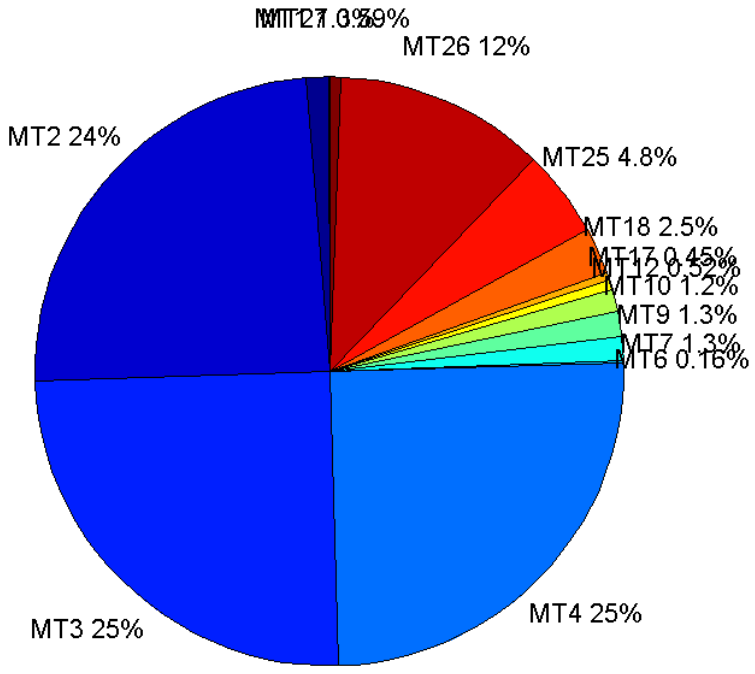
	number of messages	%
MT 0	0	0
MT 1	57	1.28465
MT 2	1076	24.2506
MT 3	1106	24.9268
MT 4	1109	24.9944
MT 5	0	0
MT 6	7	0.157764
MT 7	58	1.30719
MT 9	59	1.32973
MT 10	55	1.23958
MT 12	23	0.518368
MT 17	20	0.450755
MT 18	112	2.52423
MT 24	0	0
MT 25	213	4.80054
MT 26	516	11.6295
MT 27	26	0.585982
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	4437	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	95.3214	7	0	0
MT 2	4	33	5.21209	295	1	1
MT 3	4	37	5.06787	270	1	2
MT 4	4	33	5.05325	262	1	2
MT 5	--	--	--	--	--	--
MT 6	1	532	89.6667	1	1	1
MT 7	76	480	96.8421	7	1	2
MT 9	76	320	96.1724	0	0	0
MT 10	79	240	99.3148	10	0	0
MT 12	189	400	240.727	22	5	5
MT 17	192	600	278.737	0	0	0
MT 18	4	196	49.6396	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	108	26.3679	0	0	0
MT 26	4	64	10.8777	0	0	0
MT						

27	190	400	219.8	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

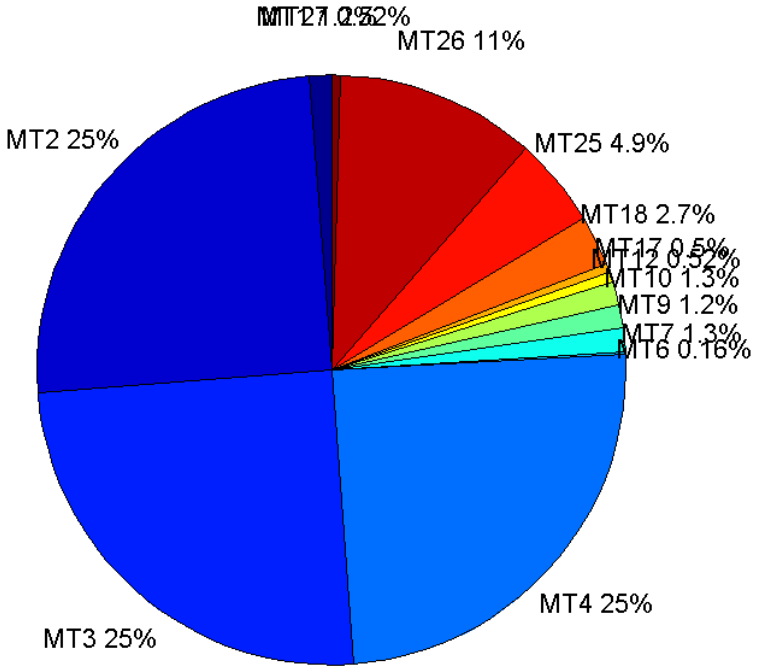
	number of messages	%
MT 0	0	0
MT 1	54	1.21567
MT 2	1112	25.0338
MT 3	1108	24.9437
MT 4	1095	24.6511
MT 5	0	0
MT 6	7	0.157587
MT 7	58	1.30572
MT 9	55	1.23818
MT 10	57	1.28321
MT 12	23	0.517785
MT 17	22	0.495272

MT 18	122	2.74651
MT 24	0	0
MT 25	219	4.93021
MT 26	487	10.9635
MT 27	23	0.517785
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	4442	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	480	105.283	10	0	0
MT 2	4	13	5.0432	269	0	1
MT 3	4	12	5.06143	269	0	0
MT 4	4	12	5.117	283	0	0
MT 5	--	--	--	--	--	--
MT 6	1	532	89.6667	1	1	1
MT 7	75	240	96.3509	9	0	0
MT 9	79	400	102.278	0	0	0
MT 10	75	240	99.5714	13	0	0
MT 12	187	585	230.182	22	3	3
MT 17	192	778	259.619	0	0	0
MT 18	4	186	45.4215	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	80	25.2661	0	0	0
MT 26	4	72	11.5309	0	0	0
MT 27	191	577	238.682	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_23EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_23EGNOS2Hz/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: 11:13:44 23.02.2017 (week: 1937 sec: 386024)
end: 12:47:10.5 23.02.2017 (week: 1937 sec: 391630.5)
duration: 01:33:27 ..

quality

valid samples 9702
total samples 10403

Event tables

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

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	387619	1.77944	11.0428	0.16114	0.228268	20.4549	0.0111596
max normVer	388993	1.03358	20.3699	0.0507404	-2.3305	29.1361	0.0799868
max HPE	389074	5.6767	232.135	0.0244543	2.70936	174.354	0.0155394
max VPE	390807	5.13341	300.293	0.0170947	7.69329	581.639	0.0132269
min HPL	386800	1.07715	10.2241	0.105354	-0.224018	17.8837	0.0125264
min VPL	391352	1.49817	11.0597	0.135462	-0.426892	15.4176	0.0276886

Position discontinuity events :

#	Epoch	duration	stable period
1	388840	19.5	154

APV-I discontinuity events :

#	Epoch	duration	stable period
1	386916	0.5	323.5
2	387176	0.5	259.5
3	388516	239.5	1179
4	388834	33.5	78.5
5	389036	0.5	168.5
6	389073	0.5	36.5
7	389600	0.5	526.5
8	389660	0.5	59.5
9	389734	0.5	73.5
10	389936	0.5	201.5
11	389988	2.5	51.5
12	389995	4	4
13	390001	0.5	2.5
14	390003	4	1
15	390806	0.5	799.5

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	388516	239.5	247.5
2	388834	33.5	78.5
3	389585	3.5	4.5
4	389593	7.5	4.5
5	389653	38.5	4.5
6	389712	4.5	3.5
7	389730	6.5	1.5
8	389763	120.5	26.5

9	389943	81	1
10	390552	51.5	1.5

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	388516	239.5	247.5
2	388834	33.5	78.5
3	389585	3.5	4.5
4	389593	7.5	4.5
5	389653	38.5	4.5
6	389712	4.5	3.5
7	389730	6.5	1.5
8	389763	120.5	26.5
9	389943	81	1
10	390552	51.5	1.5

First Glance analysis

Duration	5607
Number of Samples	10403
Number of invalid sample	701
Number of no position solution samples	396
Number of missing sample	811
Logging Loss	7.232
Processing Loss	6.7384
Number of Misleading Information	0
Data gaps	2
Discontinuities	3

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
9306	8804	8175	0	8175

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.68057	1.68242	1.68794	NaN	1.68794
HPEscale 95%	NaN	5.32235	5.34422	NaN	5.34422
VPE 95%	1.28989	1.29582	1.30382	NaN	1.30382
VPEscale 95%	NaN	2.24398	1.5859	NaN	1.5859

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.959184	0.907442	0.84261	0	0.84261
measurements	0.89455	0.846294	0.785831	0	0.785831
Operational	1.65971	1.57018	1.458	0	1.458

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	1	15	40	--	40

Long	1	4	10	--	10
Independent	1	2	3	--	3
P(disc.)	0.00161186	0.00340754	0.00550459	NaN	0.00550459
P(slide)	0.00161186	0.0212971	0.0492966	NaN	0.0492966

Integrity events :

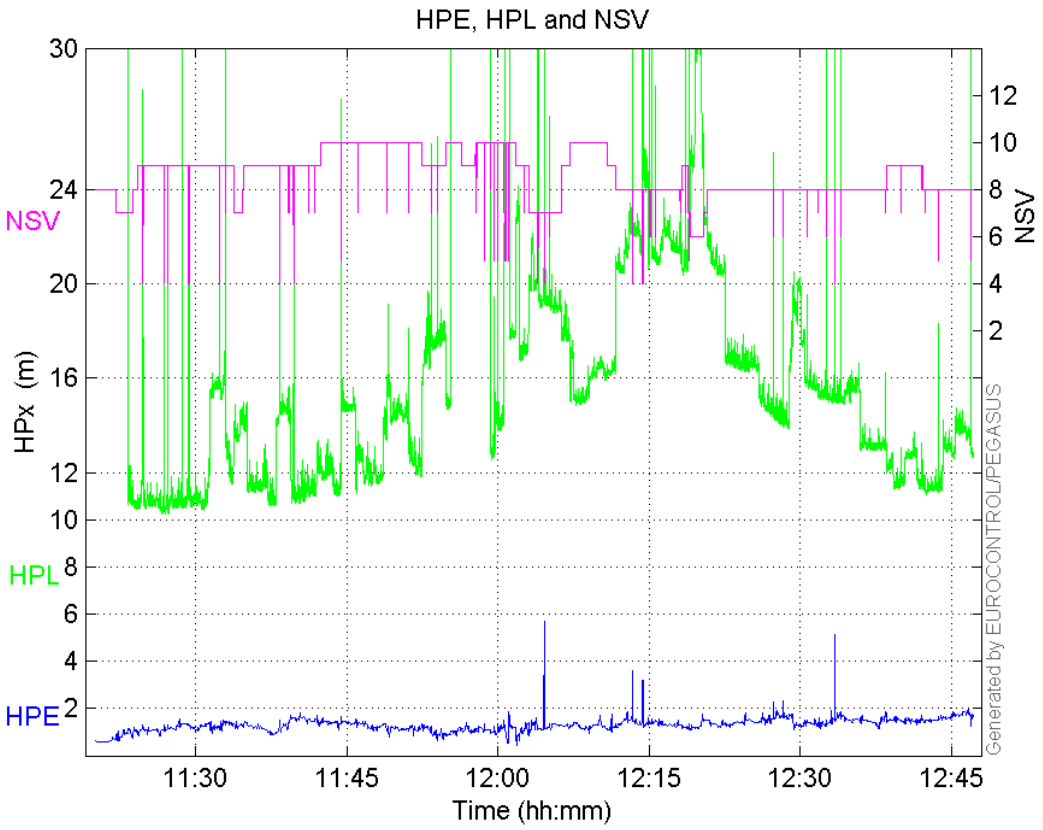
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

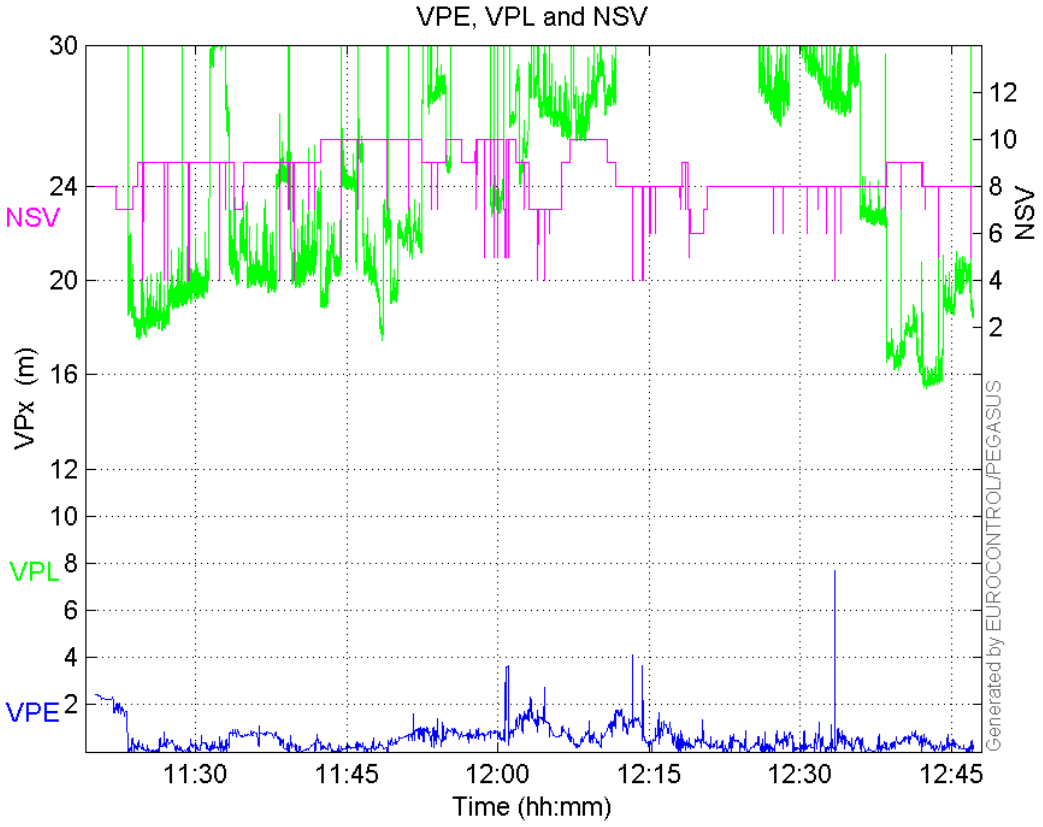
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	9306	8804	8175	0	8175
SIS Availability	0.959184	0.907442	0.84261	0	0.84261
Local Availability	0.89455	0.846294	0.785831	0	0.785831
Operational Availability	1.65971	1.57018	1.458	0	1.458
HPE 95%	1.68057	1.68242	1.68794	NaN	1.68794
HPEscale 95%	NaN	5.32235	5.34422	NaN	5.34422
VPE 95%	1.28989	1.29582	1.30382	NaN	1.30382
VPEscale 95%	NaN	2.24398	1.5859	NaN	1.5859
All Discontinuity Events	1	15	40	--	40
Long Discontinuity Events	1	4	10	--	10
Independent Discontinuity Events	1	2	3	--	3
P(discontinuity)	0.00161186	0.00340754	0.00550459	NaN	0.00550459
P(sliding window)	0.00161186	0.0212971	0.0492966	NaN	0.0492966
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:

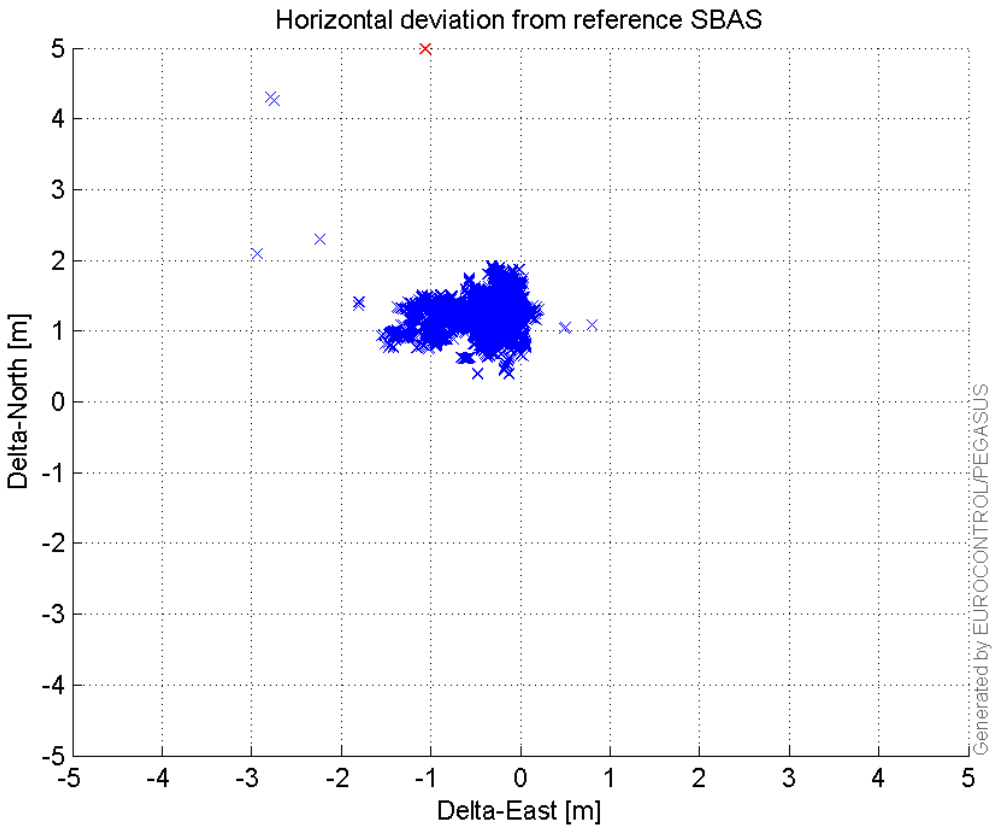


VPE, VPL and NSV:



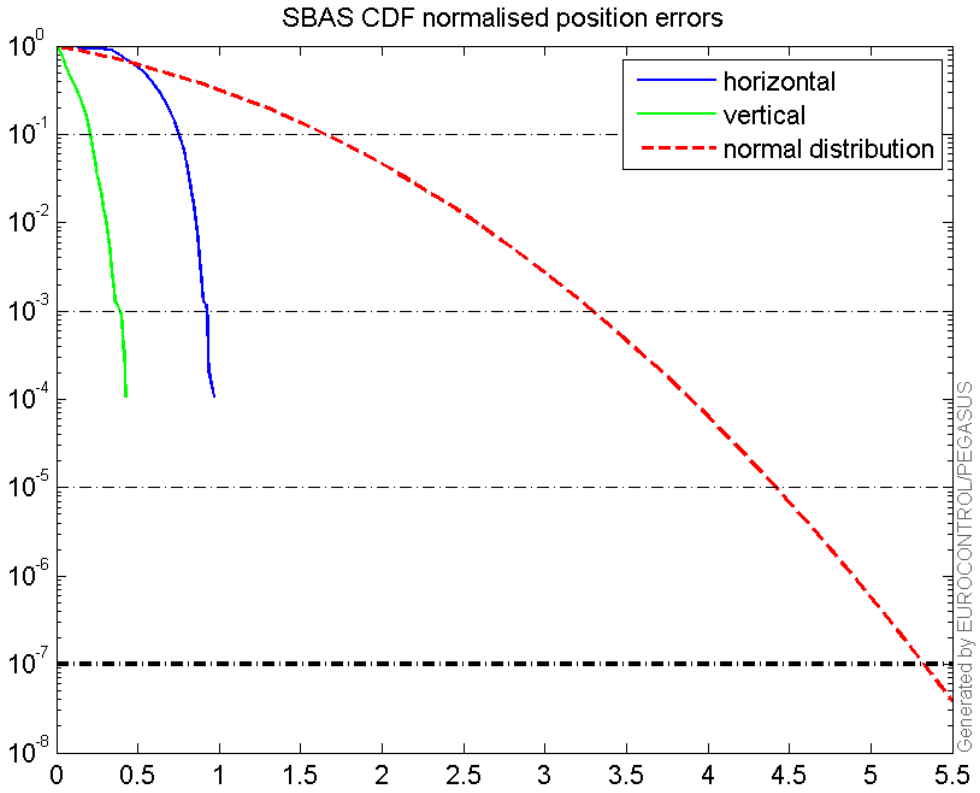
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

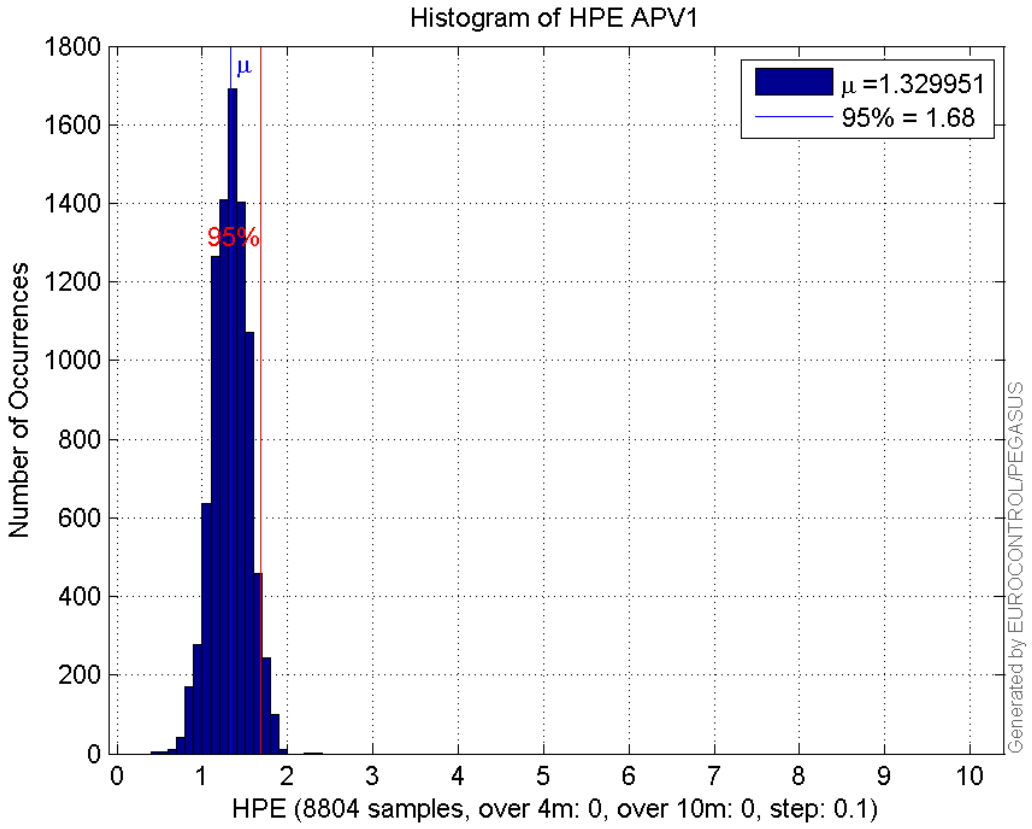
number	8804
sum	11708.89
sum2	15962.182
prctile95	1.6824189
prctile99	1.817802
number	8804
sum	4198.9432
sum2	3310.7933
prctile95	1.2958209
prctile99	1.6215758
number	8804
sum	135350.9
sum2	2222552.8
prctile95	22.26637
prctile99	26.621212
number	8804
sum	225507.03
sum2	6114680.4
prctile95	36.16098
prctile99	41.789526
number	8804
sum	807.03262
sum2	79.536003
prctile95	0.13305877
prctile99	0.14290078
number	8804
sum	164.6021
sum2	4.8562395
prctile95	0.044879694
prctile99	0.057652478
number	8175
sum	10878.944
sum2	14857.26
prctile95	1.6879359
prctile99	1.8233104
number	8175
sum	3848.1419
sum2	3025.9166
prctile95	1.30382
prctile99	1.6304962
number	8175
sum	120858.73
sum2	1882099.9
prctile95	21.082825
prctile99	22.783775
number	8175
sum	201254.34
sum2	5170875.3
prctile95	33.478125
prctile99	34.5319
number	8175
sum	770.33788
sum2	77.340102

prctile95 0.13360538
prctile99 0.1433571
number 8175
sum 155.32706
sum2 4.6508419
prctile95 0.04531135
prctile99 0.05804073

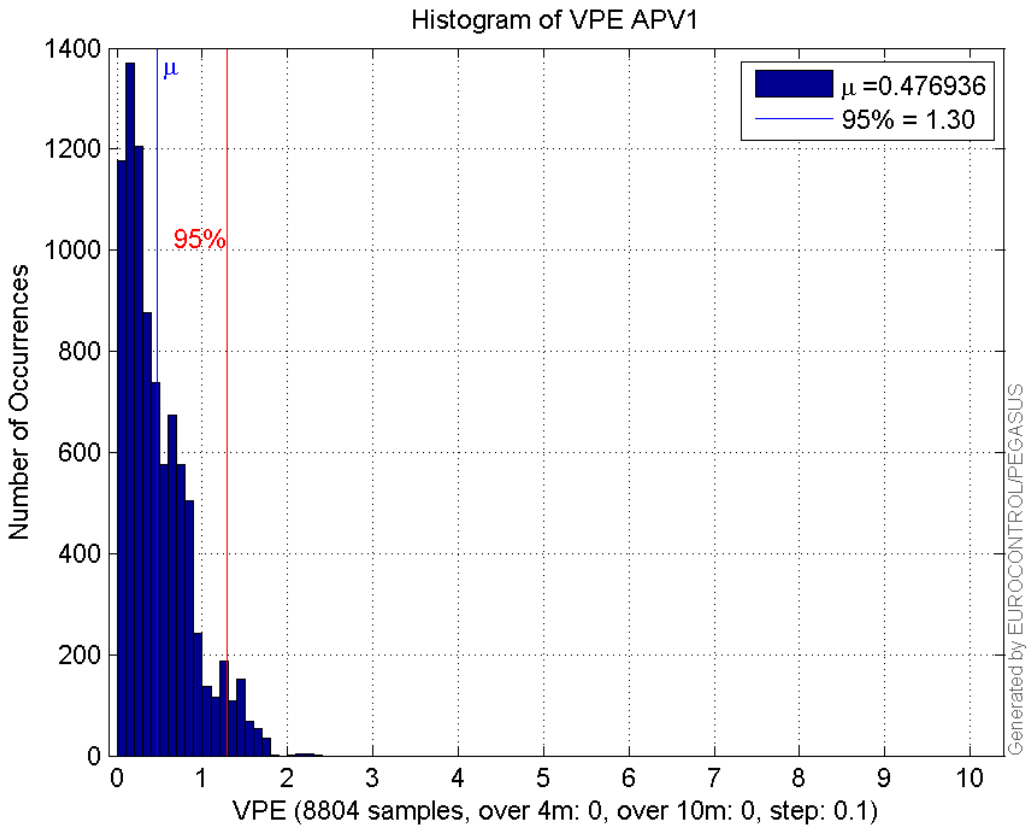
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.32995	0.210464	1.33622	1.68242	1.8178	1.3465
HPL	15.3738	4.01202	14.7805	22.2664	26.6212	15.8886
VPE	0.476936	0.385493	0.377604	1.29582	1.62158	0.613234
VPL	25.6142	6.2011	25.2748	36.161	41.7895	26.354

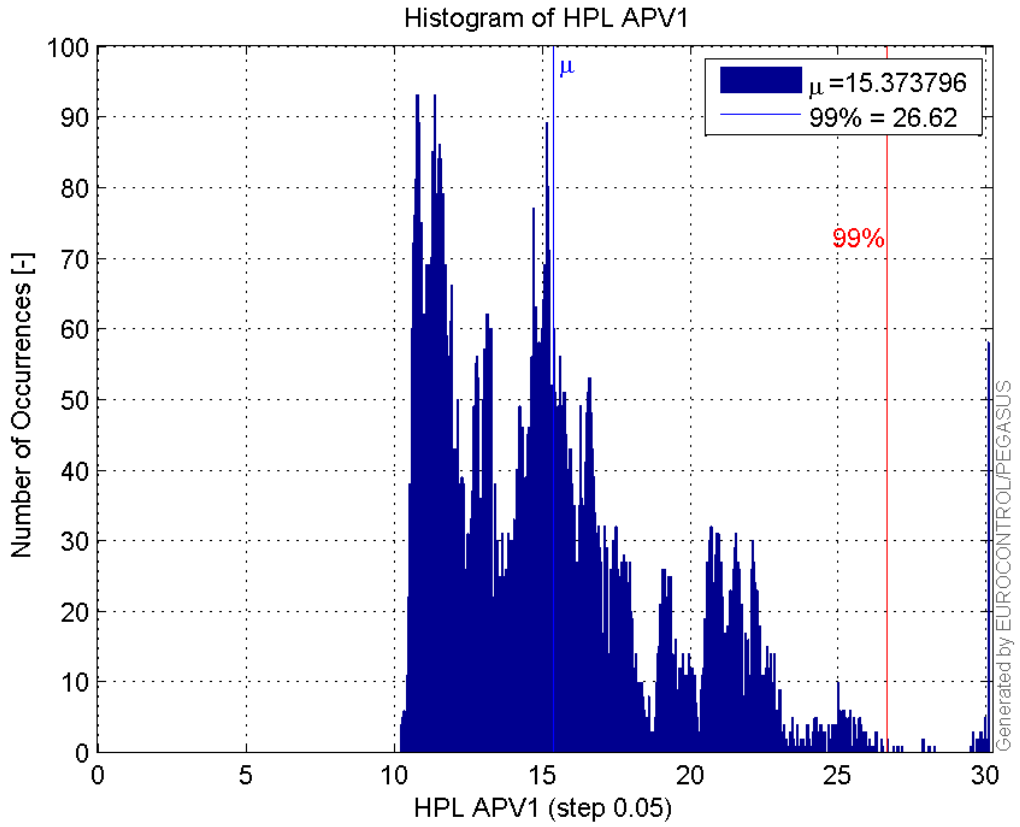
Histogram of HPE APV1:



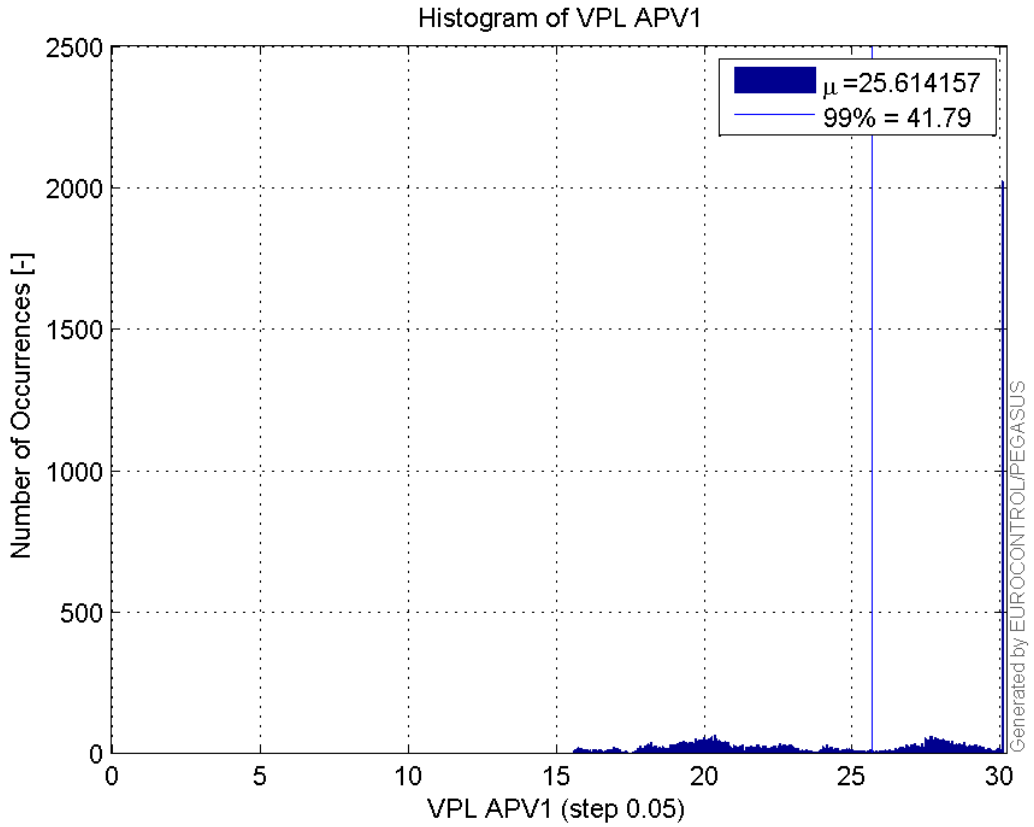
Histogram of VPE APV1:



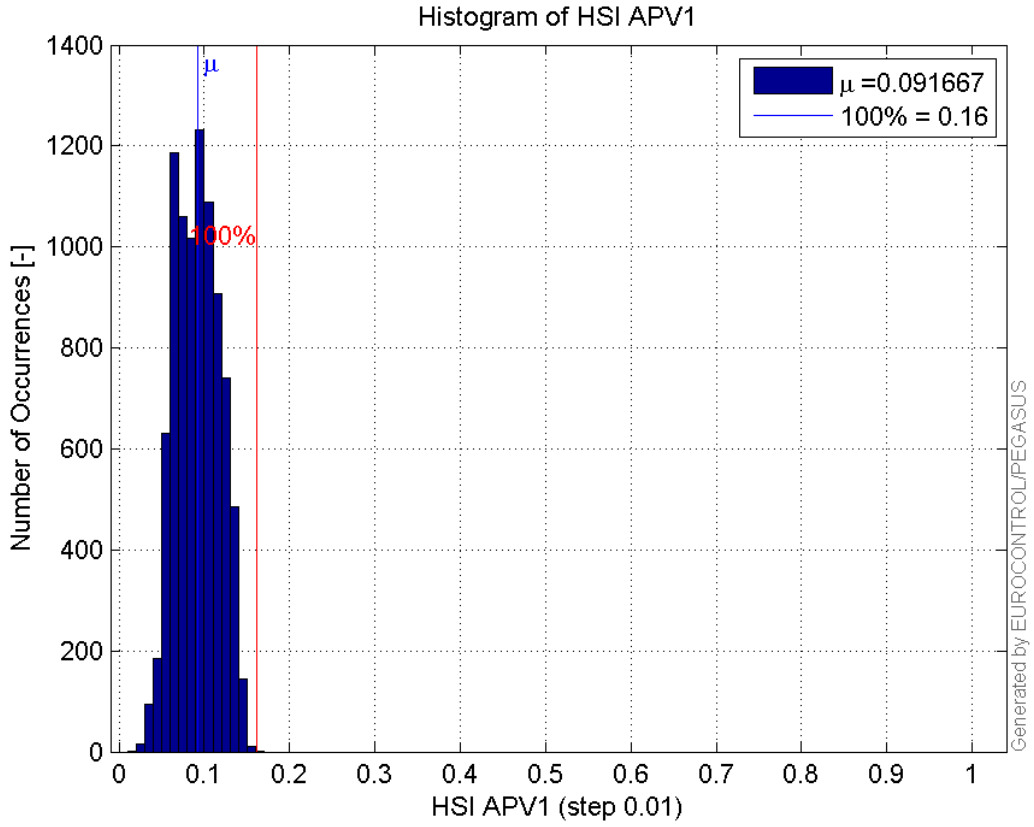
Histogram of HPL APV1:



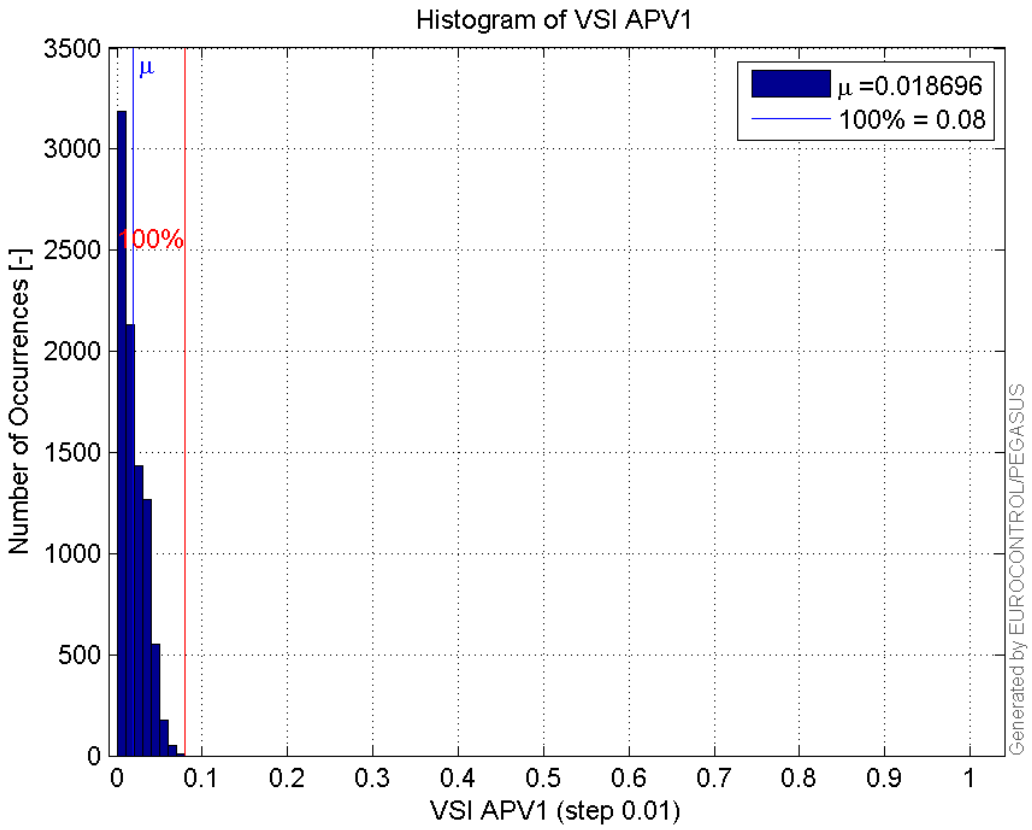
Histogram of VPL APV1:



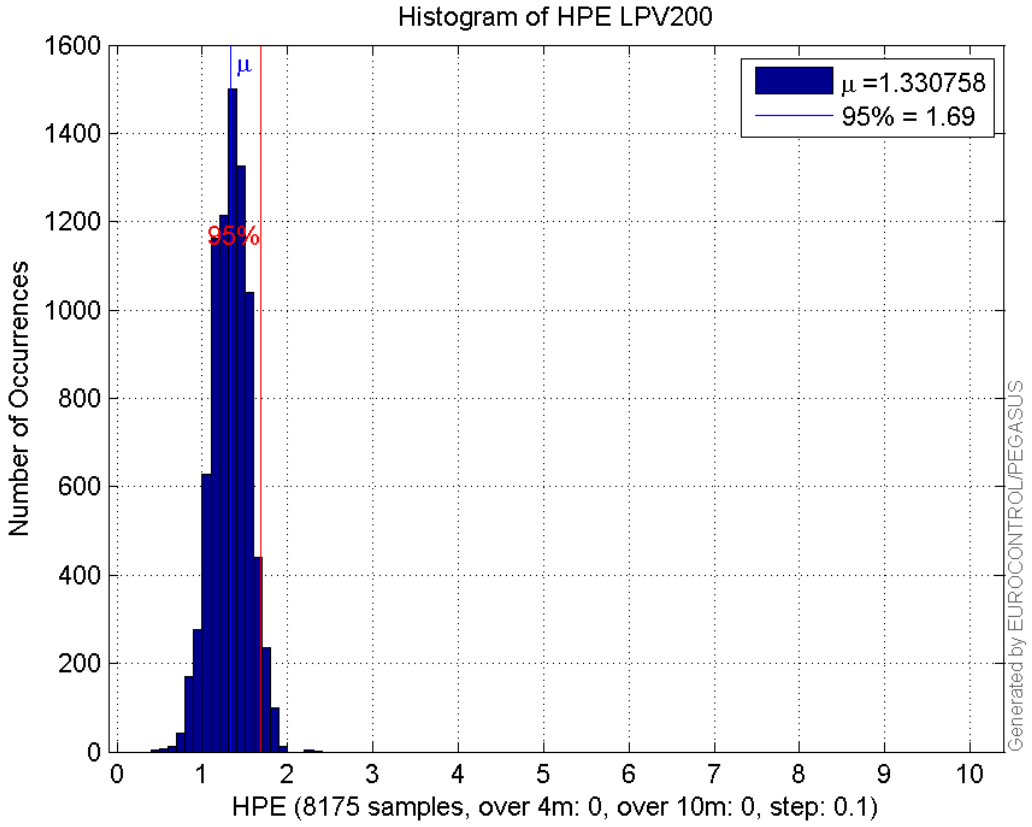
Histogram of HSI APV1:



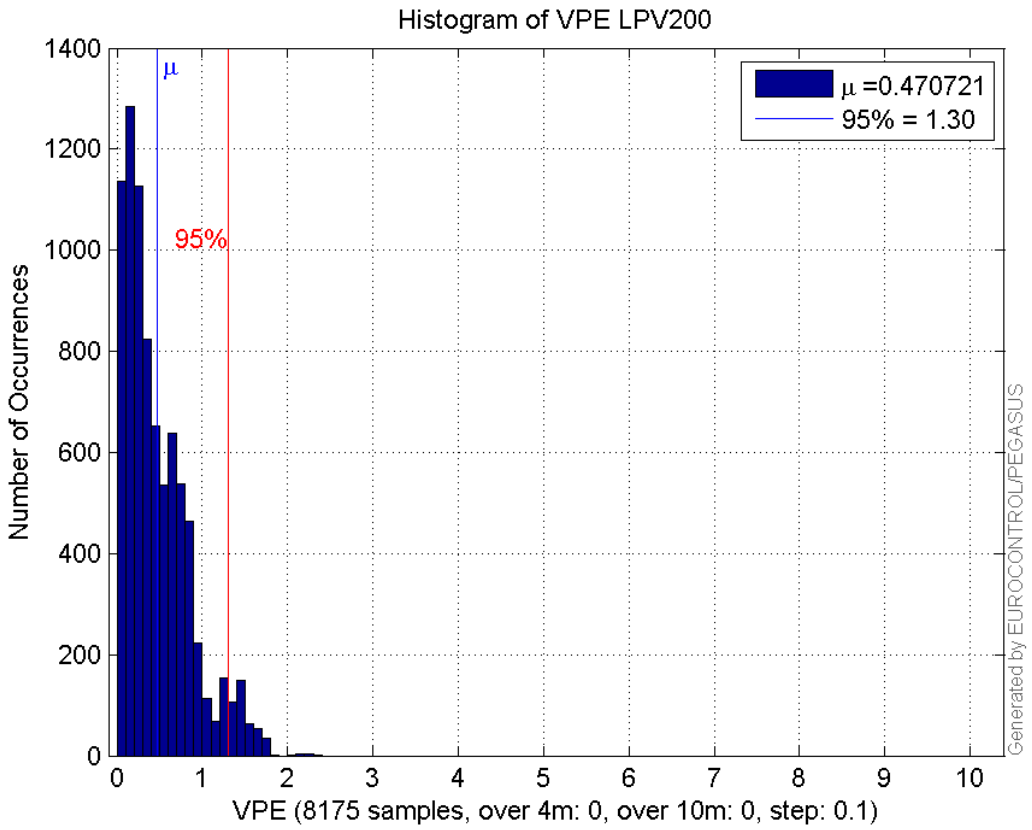
Histogram of VSI APV1:



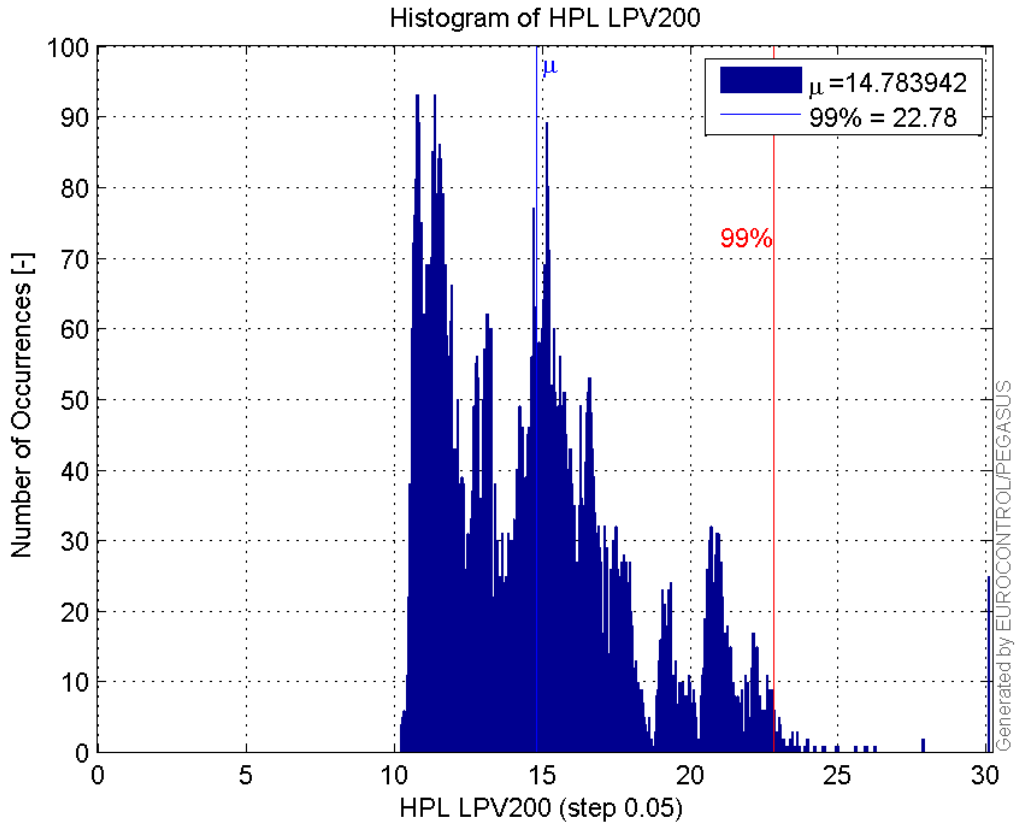
Histogram of HPE LPV200:



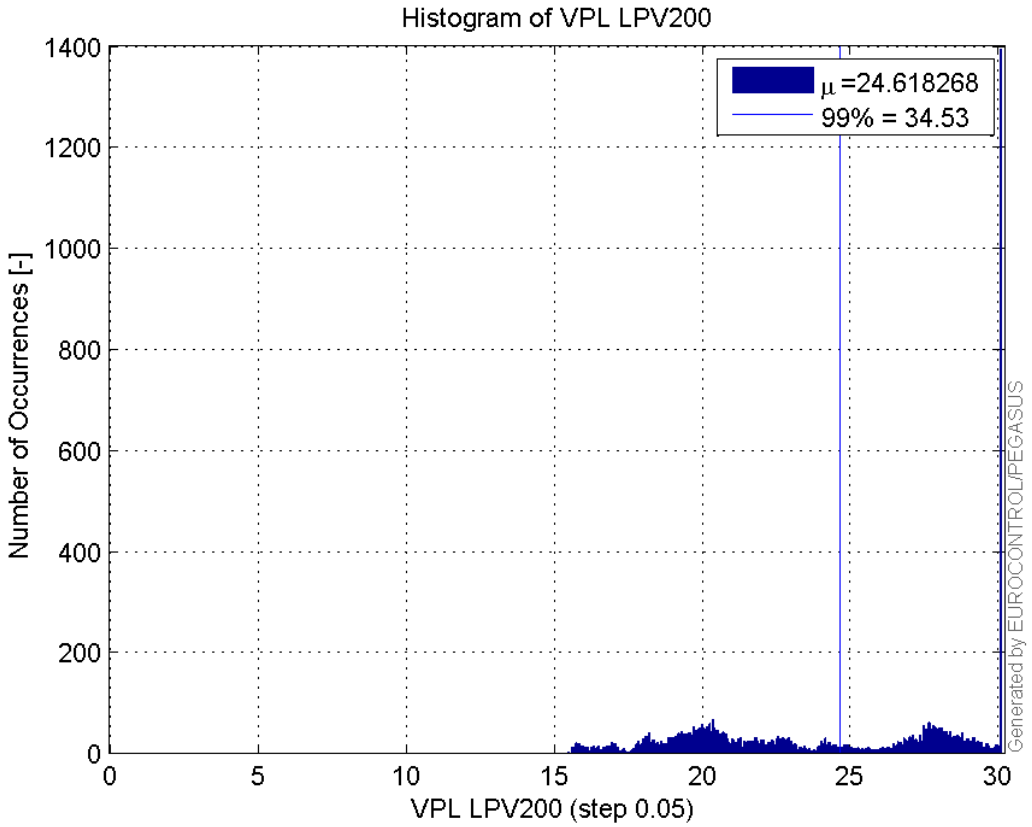
Histogram of VPE LPV200:



Histogram of HPL LPV200:

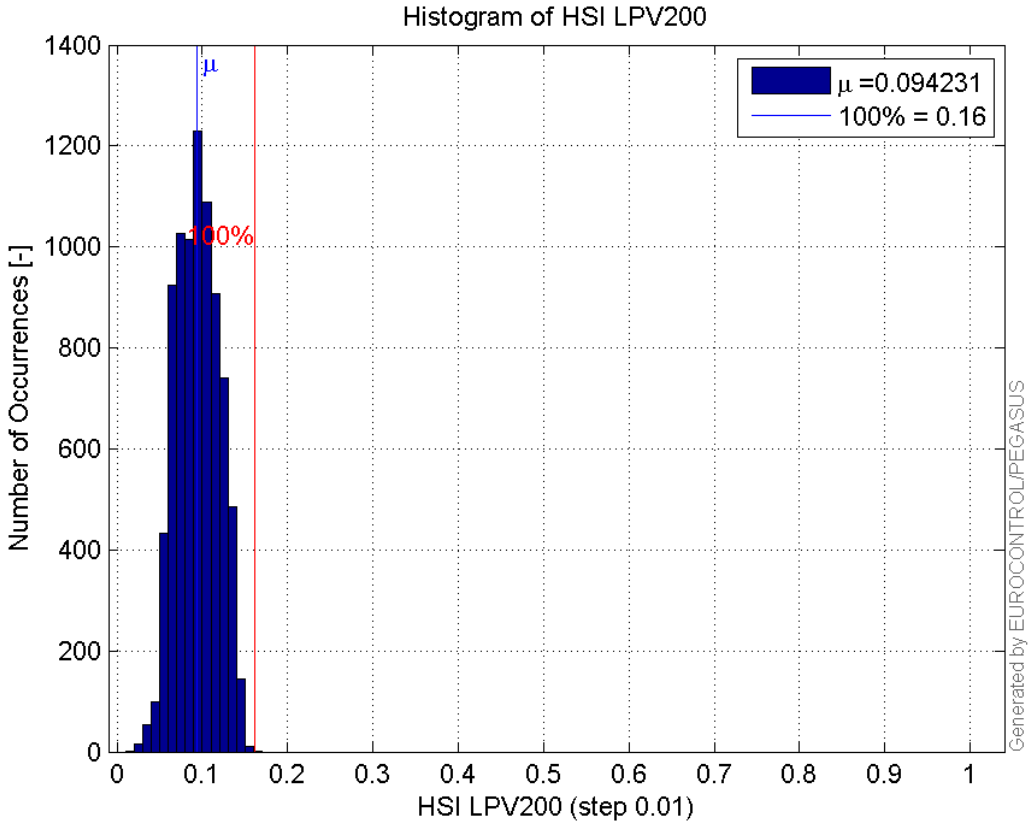


Histogram of VPL LPV200:

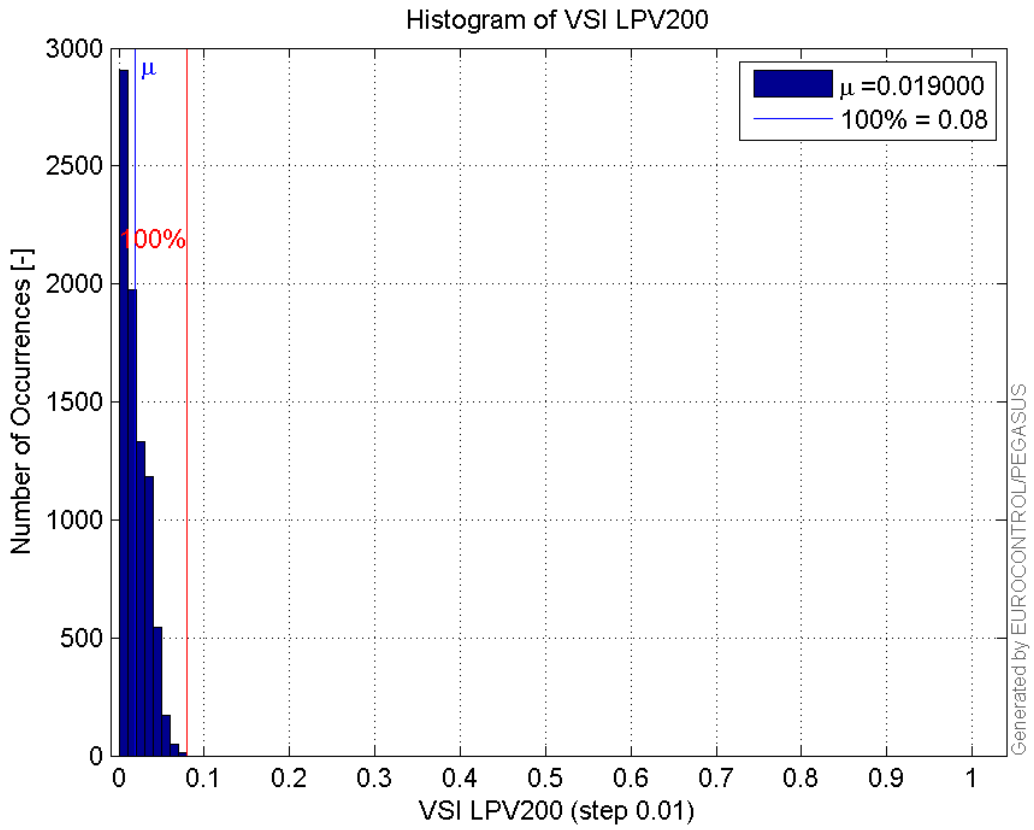


99

Histogram of HSI LPV200:

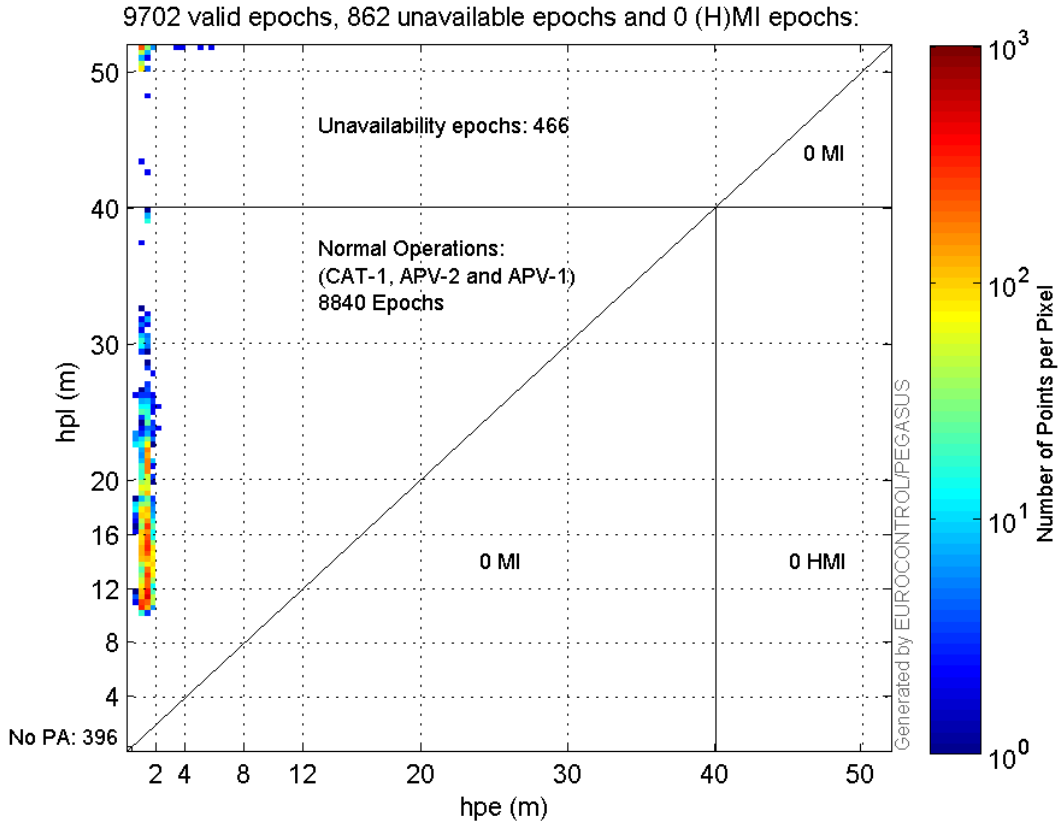


Histogram of VSI LPV200:

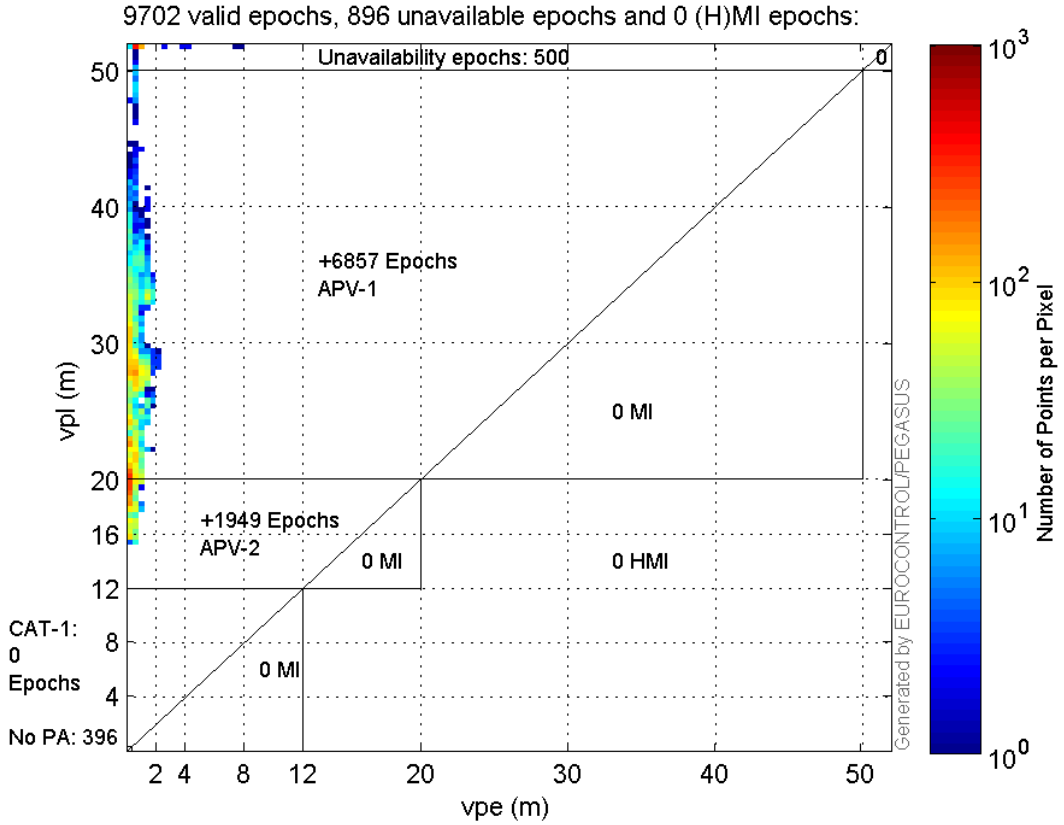


Stanford Plots

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_23EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_23EGNOS2Hz/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	216.352
mi_numbers	results	0

Range Domain

start: 11:13:44 23.02.2017 (week: 1937 sec: 386024)
end: 12:47:10.5 23.02.2017 (week: 1937 sec: 391630.5)
duration: 01:33:27 ..

quality

valid samples 10403
total samples 10403

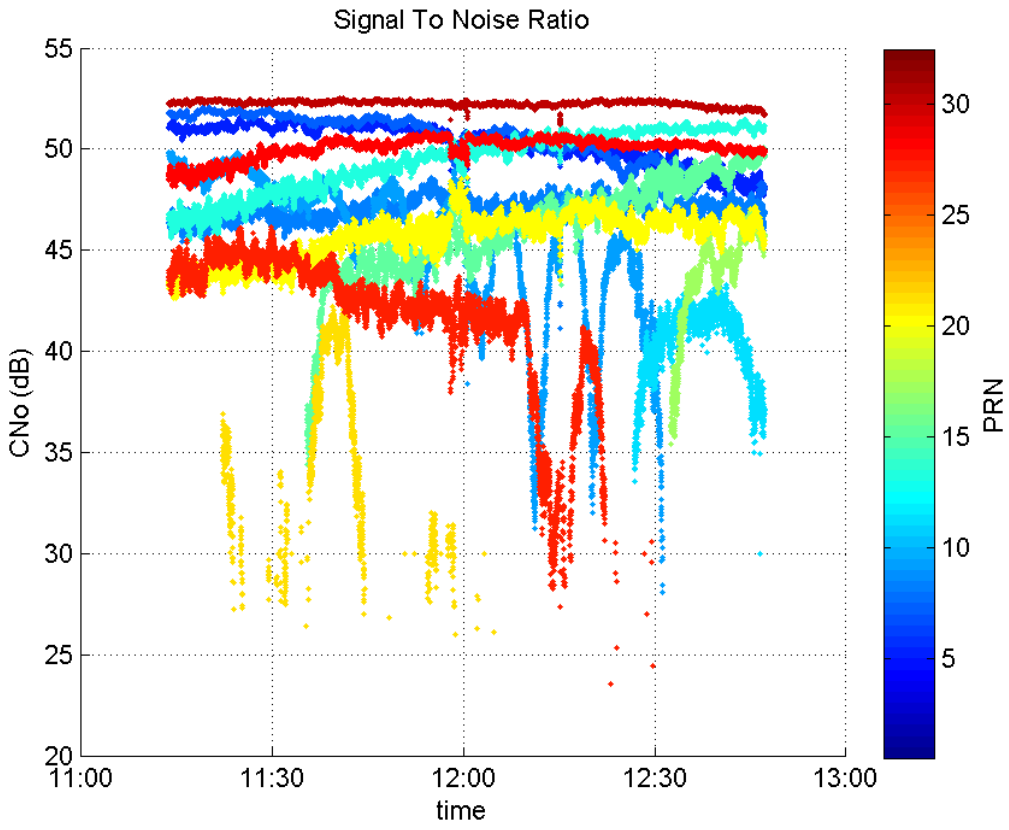
PRN overview

Number of Visible GPS Satellites 13
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:

Signal To Noise Ratio:



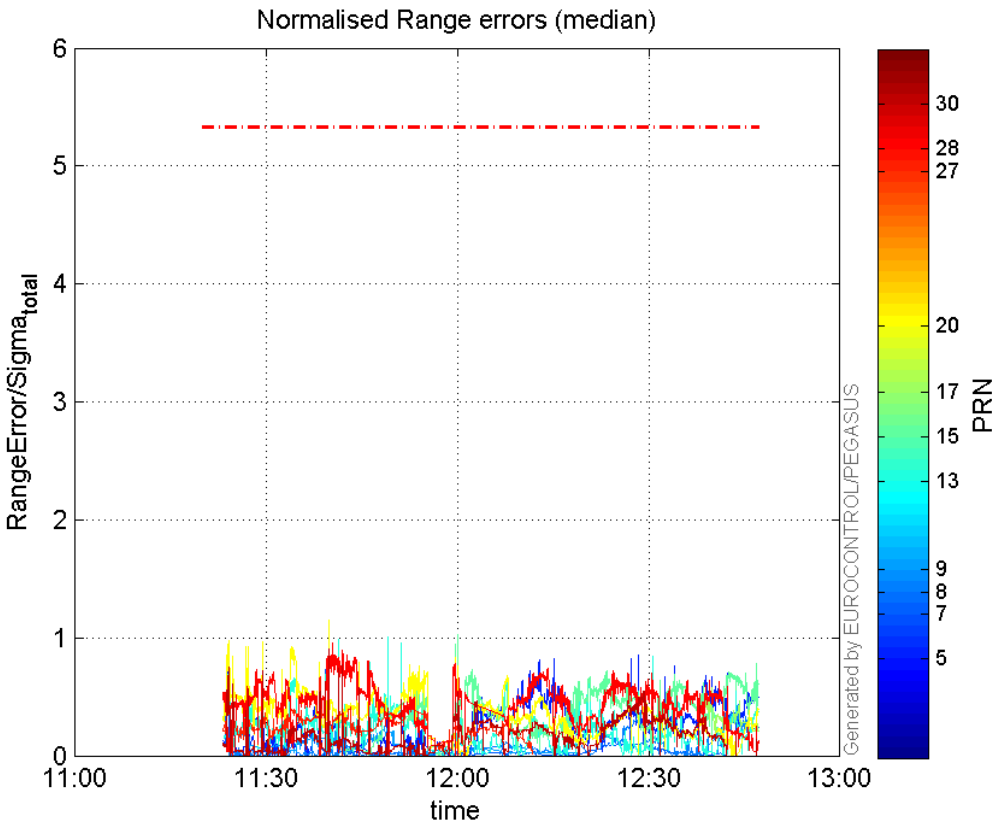
range errors

Number of Overbounding Norm Errors 0

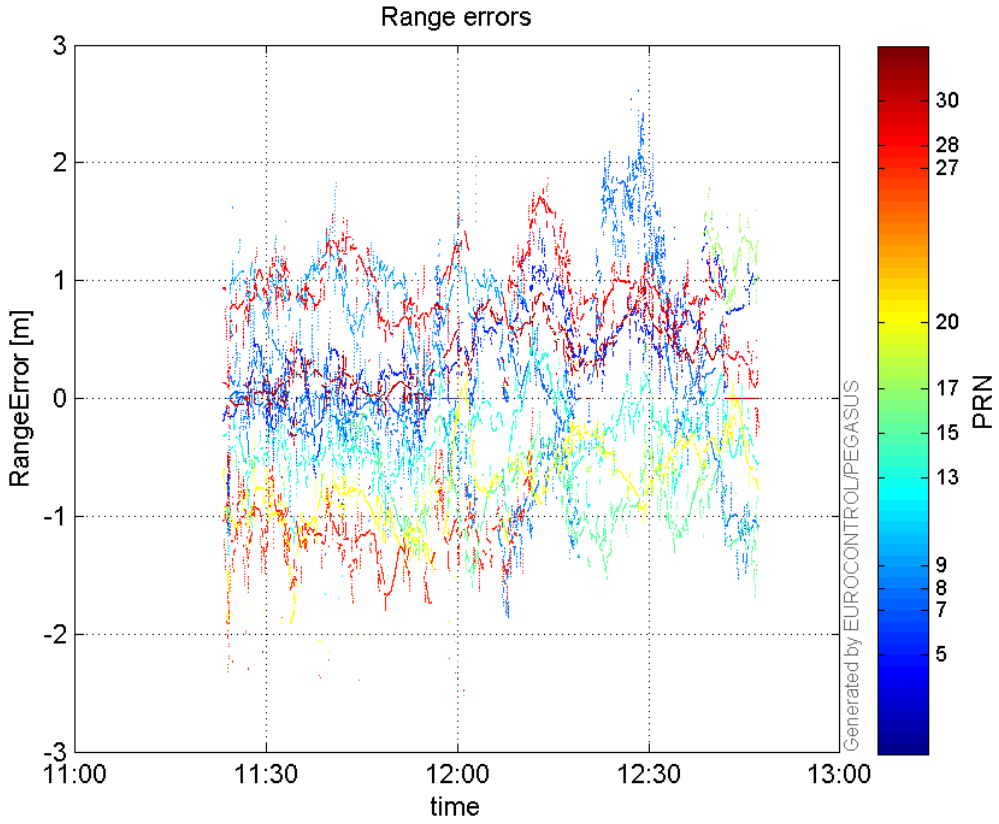
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1937	390497	5	0.854606	1.59291	1.86392
1937	387710	7	0.789683	-1.40664	1.78127
1937	391439	8	0.435856	-1.53681	3.52596
1937	386682	9	0.2757	1.62559	5.89624
1937	388139	13	1.00212	-1.52951	1.52627
1937	388797	15	1.02568	-2.22933	2.17351
1937	391197	17	0.579754	1.97669	3.40952
1937	387582	20	1.14887	-2.15498	1.87574
1937	387502	27	0.668857	-2.37226	3.54674
1937	387619	28	0.956244	1.55485	1.62599
1937	387582	30	0.901881	-1.25781	1.39465

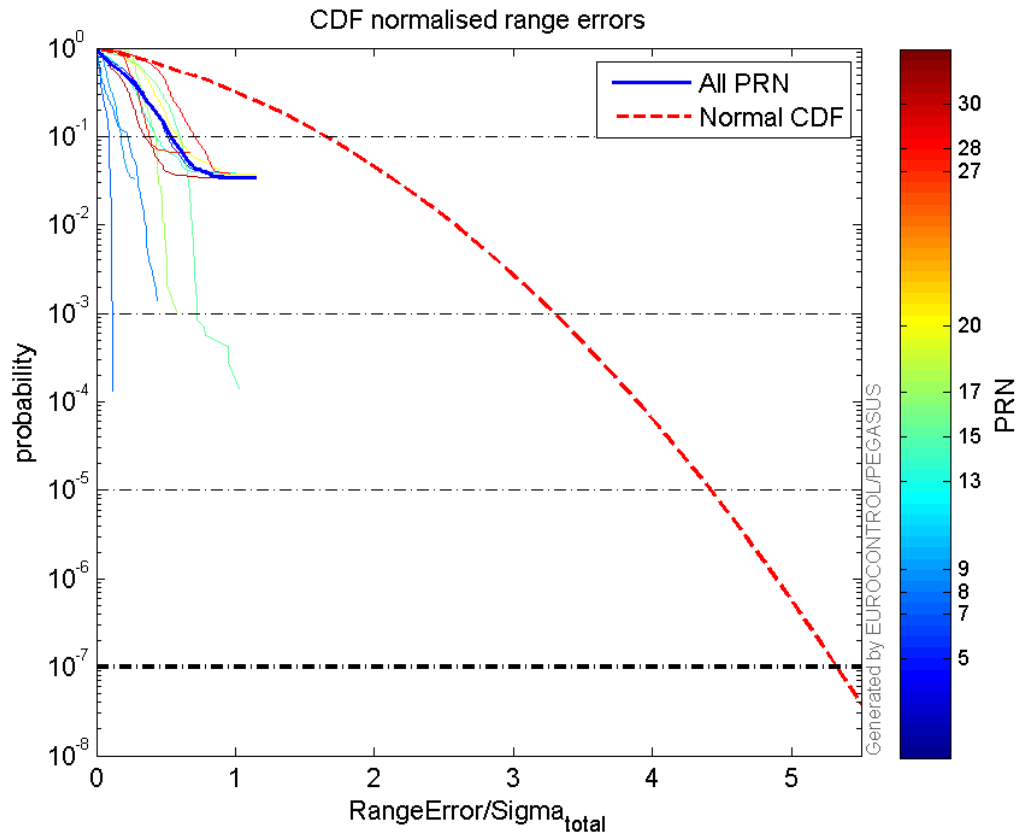
Normalised Range errors (median):



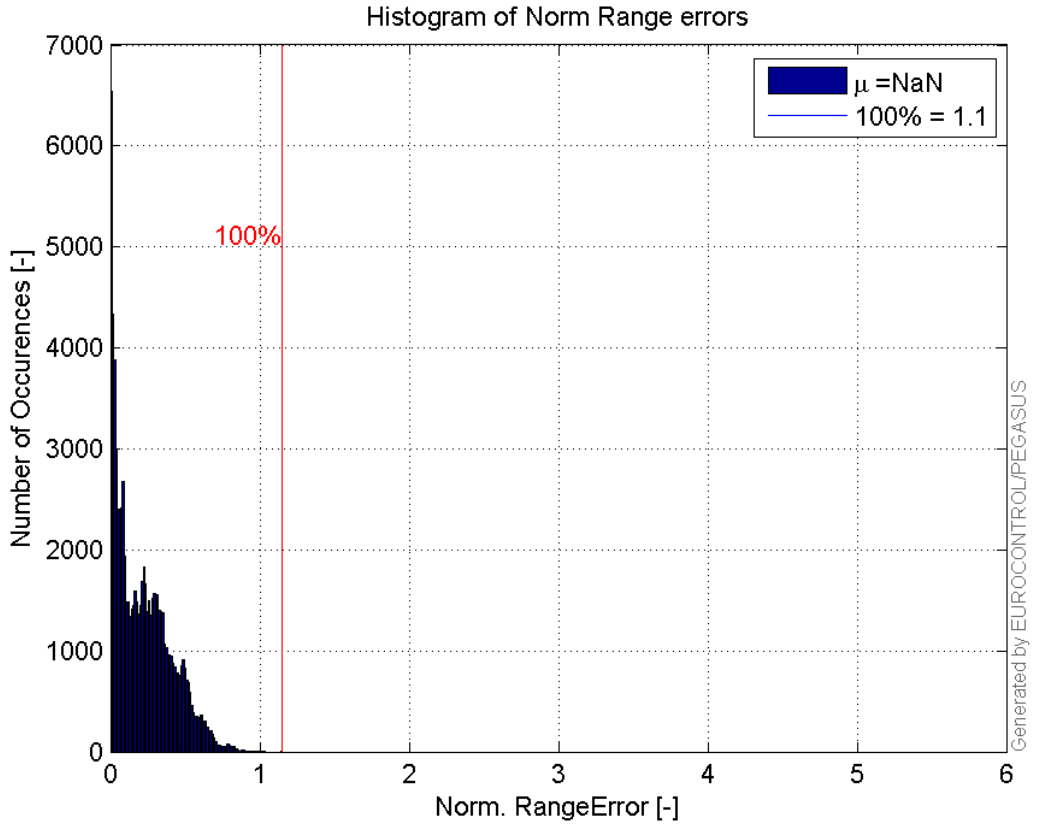
Range errors:



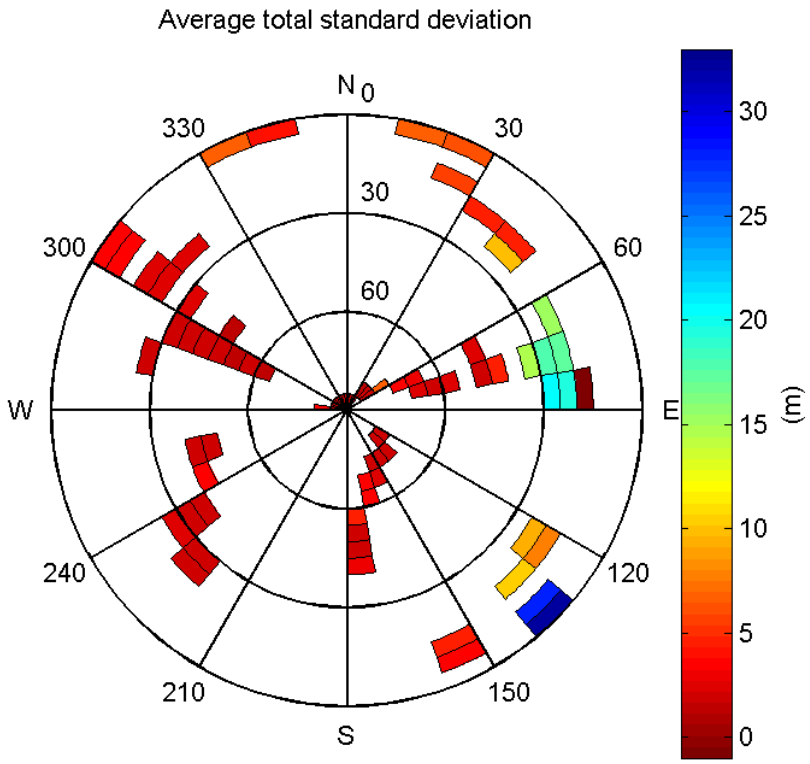
CDF normalised range errors:



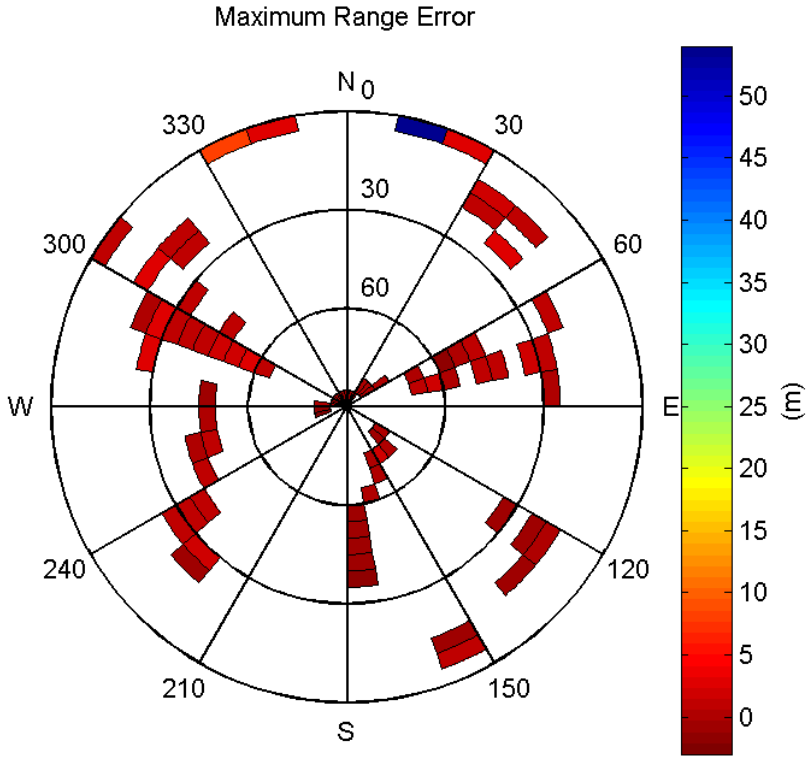
Histogram of Norm Range errors:



Sigma Sky Plot:

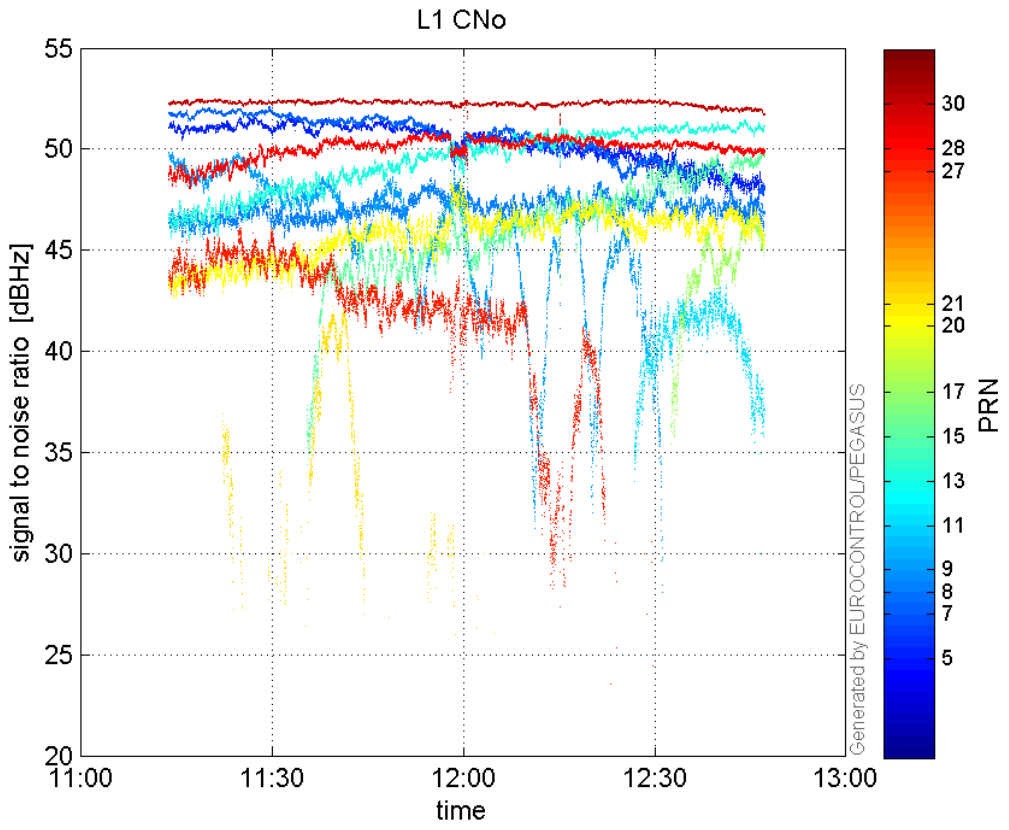


Norm Error Sky Plot:

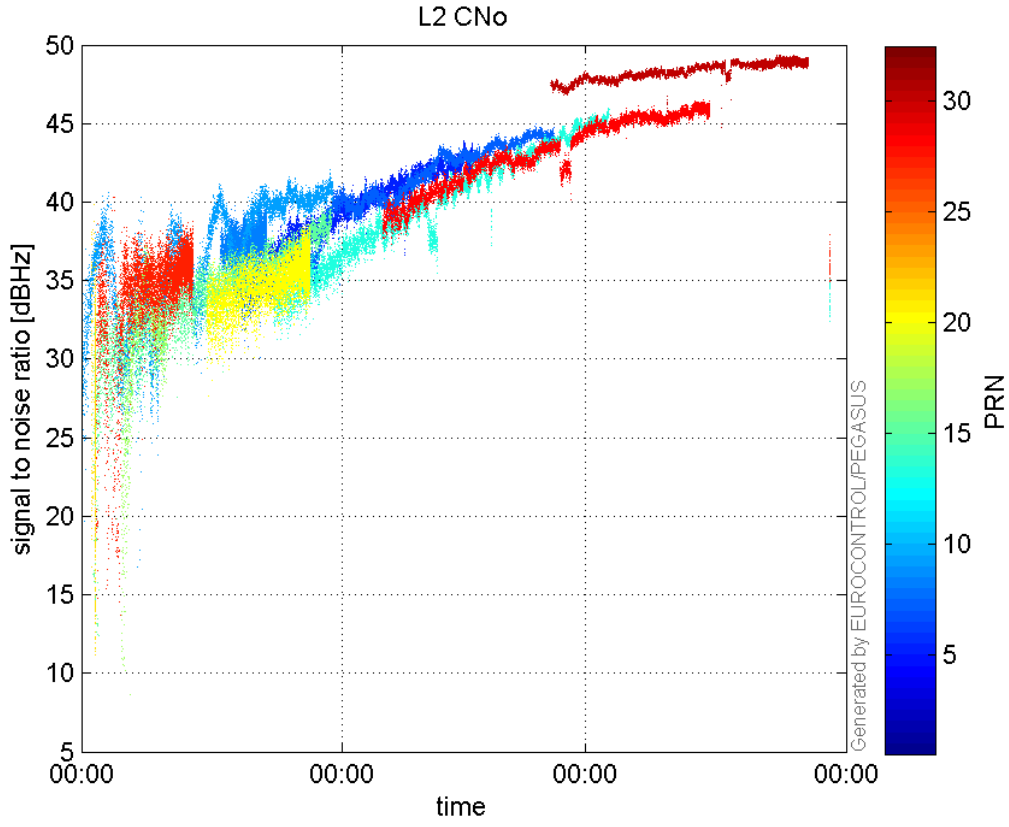


signal quality

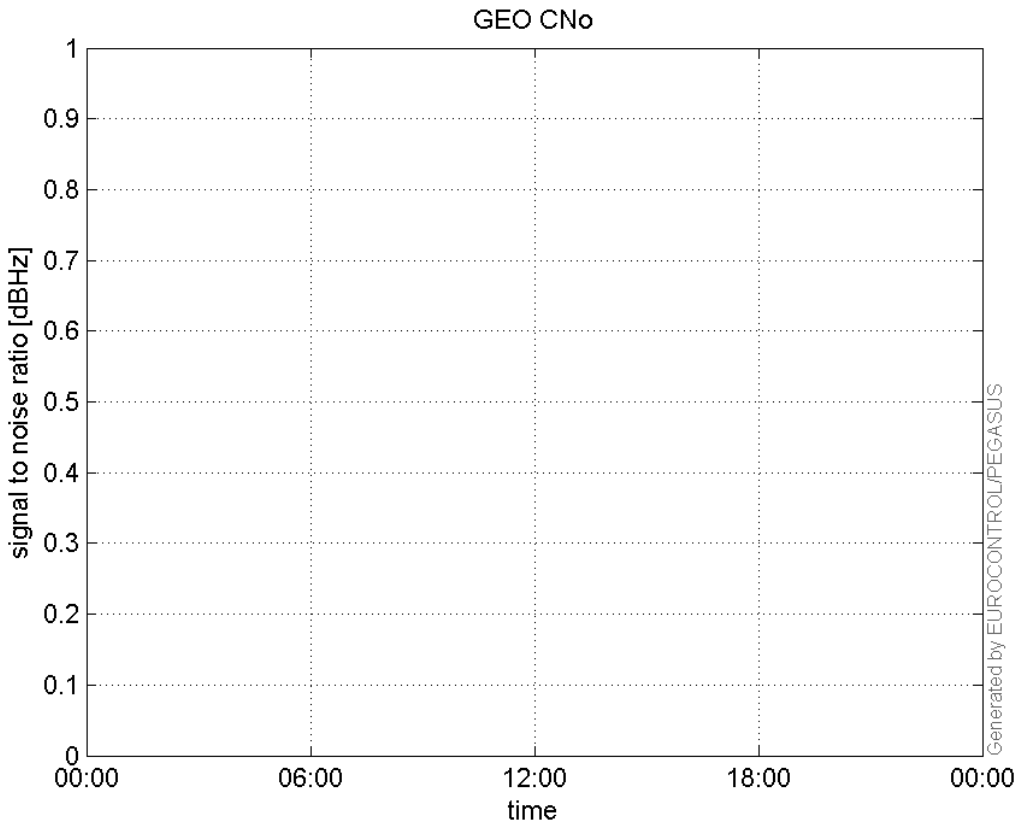
L1 CNo:



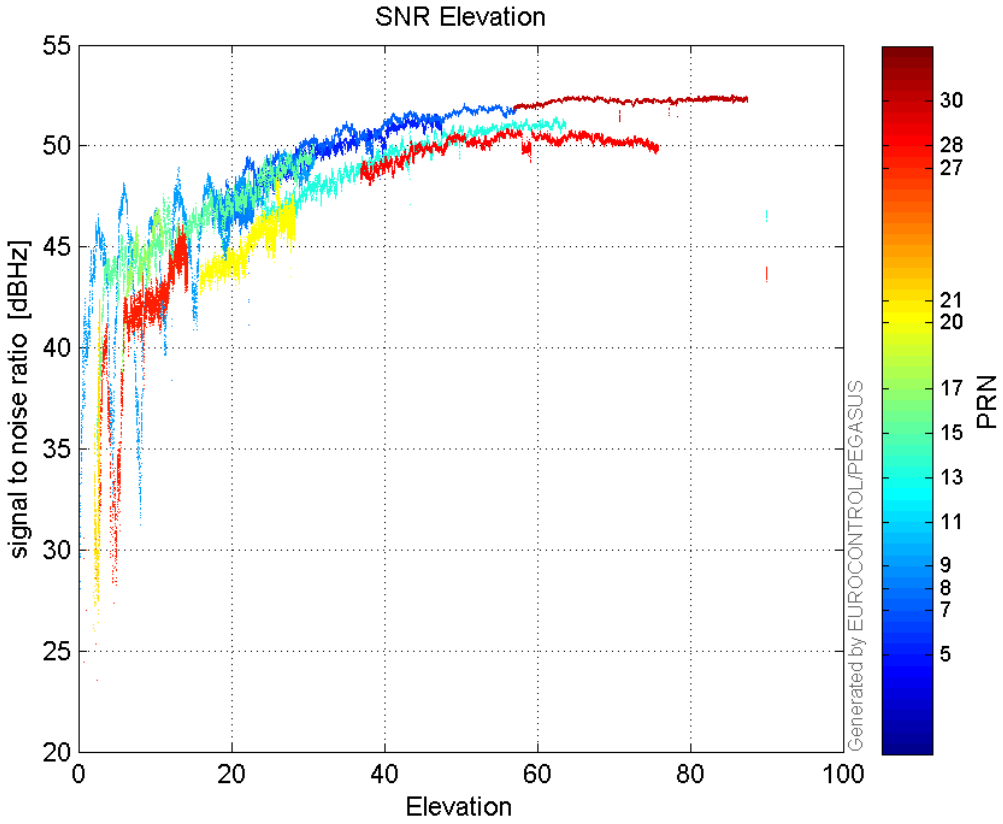
L2 CNo:



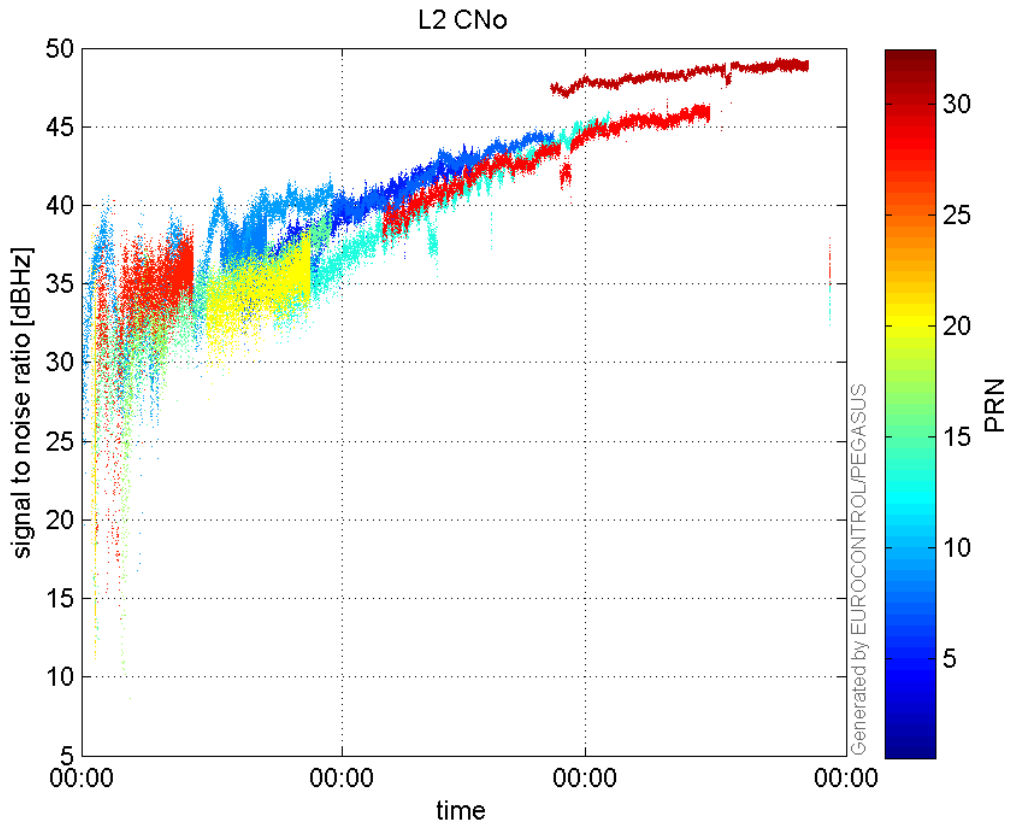
GEO CNo:



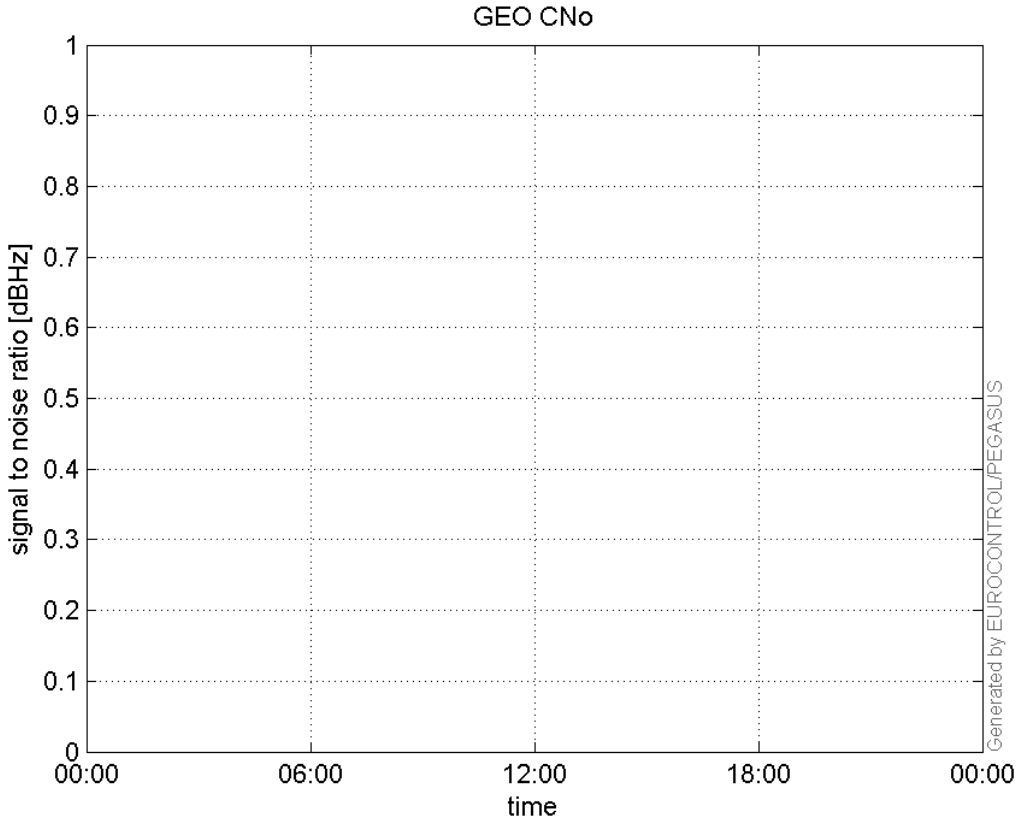
SNR Elevation:



L2 CNo:

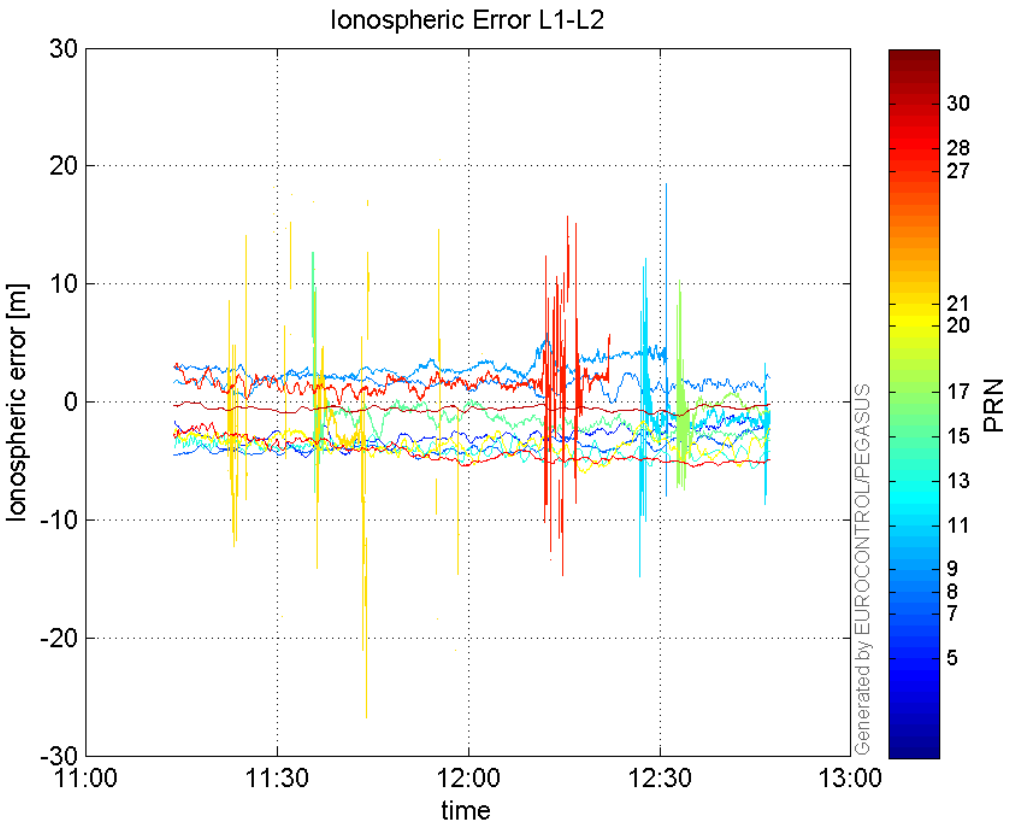


GEO CNo:



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_23EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_23EGNOS2Hz/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	216.352
mi_numbers	results	0