

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: 08:11:20.129 28.02.2017 (week: 1938 sec: 202280.129)
end: 14:43:48.129 28.02.2017 (week: 1938 sec: 225828.129)
duration: 06:32:28 ..

quality

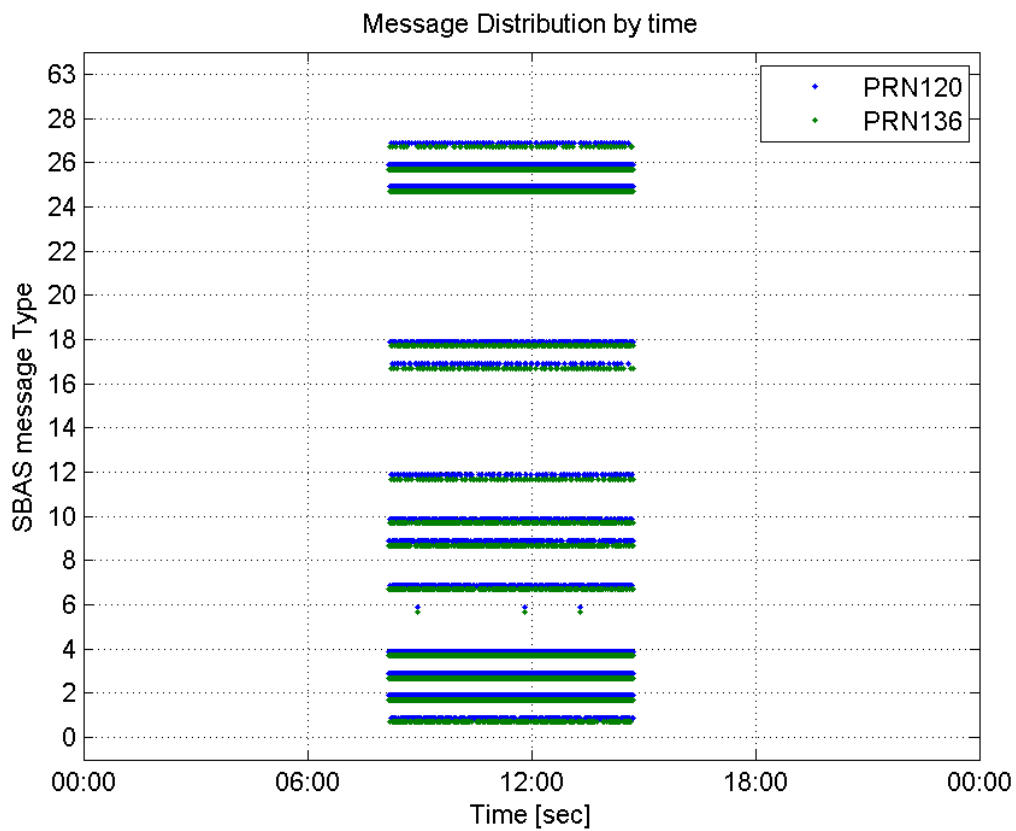
valid samples 37011
total samples 37011
number of SBAS PRNs 2

SBAS SIS Overview

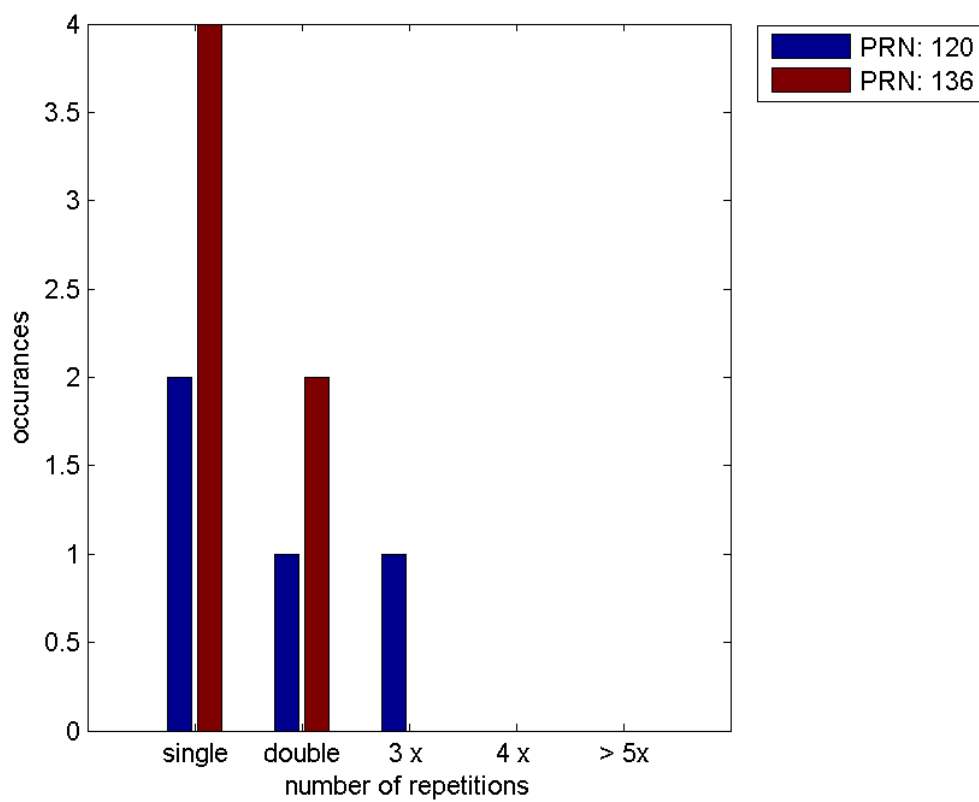
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

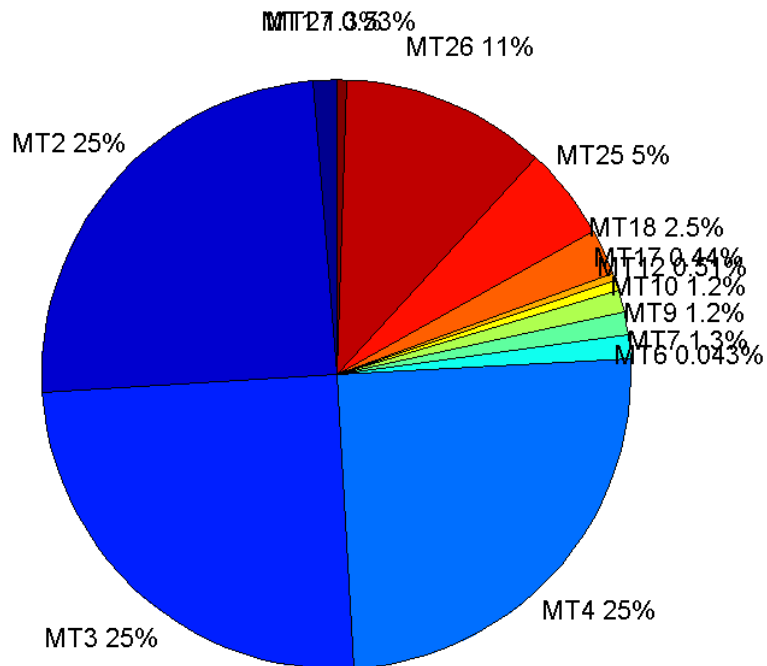
	number of messages	%
MT 0	0	0
MT 1	241	1.30017
MT 2	4572	24.6655
MT 3	4624	24.9461
MT 4	4617	24.9083
MT 5	0	0
MT 6	8	0.0431593
MT 7	239	1.28938
MT 9	231	1.24622
MT 10	231	1.24622
MT 12	95	0.512516
MT 17	81	0.436987
MT 18	466	2.51403
MT 24	0	0
MT 25	933	5.03345
MT 26	2099	11.3239
MT 27	99	0.534096
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18536	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	474	97.2833	33	0	0
MT 2	4	20	5.15139	1209	1	10
MT 3	4	17	5.09236	1166	0	8
MT 4	4	17	5.10009	1167	0	8
MT 5	--	--	--	--	--	--
MT 6	1	10301	2243.14	2	2	2
MT 7	76	320	98.4748	36	0	5
MT 9	76	557	102.23	0	0	0
MT 10	76	400	101.9	38	1	6
MT 12	188	777	247.543	94	19	19
MT 17	188	595	283.637	0	0	0
MT 18	4	183	50.514	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	120	25.1685	0	0	0
MT 26	4	58	11.2226	0	0	0
MT						

27	186	588	233.531	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

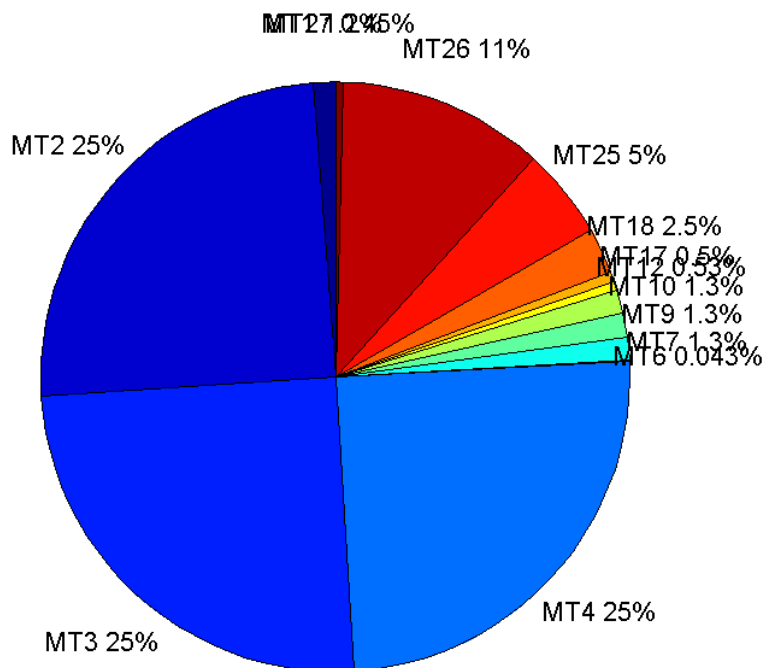
	number of messages	%
MT 0	0	0
MT 1	220	1.1908
MT 2	4596	24.8769
MT 3	4602	24.9093
MT 4	4600	24.8985
MT 5	0	0
MT 6	8	0.0433018
MT 7	233	1.26116
MT 9	235	1.27199
MT 10	238	1.28823
MT 12	97	0.525034
MT 17	92	0.49797

MT 18	466	2.52233
MT 24	0	0
MT 25	925	5.00677
MT 26	2080	11.2585
MT 27	83	0.449256
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18475	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	640	106.027	43	1	1
MT 2	4	20	5.12427	1188	1	5
MT 3	4	17	5.1178	1179	0	9
MT 4	4	20	5.11829	1180	1	7
MT 5	--	--	--	--	--	--
MT 6	1	10299	2243	2	2	2
MT 7	76	400	101.379	45	1	4
MT 9	76	480	100.513	0	0	0
MT 10	76	400	99.1561	47	1	4
MT 12	188	600	243.365	96	20	20
MT 17	191	780	256.692	0	0	0
MT 18	4	193	50.3032	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	100	25.4091	0	0	0
MT 26	4	80	11.3189	0	0	0
MT 27	191	1000	284.829	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_28EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_28EGNOS2Hz/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: 08:11:20.5 28.02.2017 (week: 1938 sec: 202280.5)
end: 14:43:49 28.02.2017 (week: 1938 sec: 225829)
duration: 06:32:29 ..

quality

valid samples 42660
total samples 43407

Event tables

Position discontinuity events type long
APV-I discontinuity events type independent
APV-35m discontinuity events type too many (24)
LPV-200 discontinuity events type too many (24)
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	203225	2.03841	10.7444	0.189718	0.265973	17.0302	0.0156177
max normVer	221550	1.21873	11.8477	0.102866	1.92455	15.9758	0.120467
max HPE	216892	6.98642	168.31	0.0415092	13.1889	322.391	0.0409097
max VPE	216892	6.98642	168.31	0.0415092	13.1889	322.391	0.0409097
min HPL	222819	1.18356	8.46813	0.139767	1.15331	15.1161	0.0762965
min VPL	202753	1.30601	9.43107	0.138479	0.411763	13.7662	0.0299111

Position discontinuity events :

#	Epoch	duration	stable period
1	204102	5.5	176.5
2	205016	4.5	12.5
3	209120	39	116.5
4	209341	364	182
5	215558	373.5	1181.5
6	224369	5.5	91.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	204102	9.5	176.5
2	206457	5.5	264.5
3	208929	1336	323.5
4	210320	9.5	55
5	210689	92.5	58.5
6	210831	12.5	49.5
7	213715	79.5	53.5
8	215508	5.5	359.5
9	218811	77.5	69.5
10	219400	112.5	140.5
11	220365	5.5	481.5
12	220774	5.5	403.5
13	221284	79.5	61
14	222963	159.5	73.5
15	223758	5.5	139
16	224369	9.5	91.5

First Glance analysis

Duration 23549
Number of Samples 43407
Number of invalid sample 747

Number of no position solution samples	1521
Number of missing sample	3691
Logging Loss	7.8369
Processing Loss	1.7209
Number of Misleading Information	0
Data gaps	12
Discontinuities	47

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
41139	37048	30104	0	30104

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.69036	1.60884	1.53628	NaN	1.53628
HPEscale 95%	NaN	4.72039	4.85811	NaN	4.85811
VPE 95%	1.93303	1.78671	1.50845	NaN	1.50845
VPEscale 95%	NaN	3.86917	2.80431	NaN	2.80431

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.964346	0.868448	0.705673	0	0.705673
measurements	0.94775	0.853503	0.693529	0	0.693529
Operational	1.74695	1.57323	1.27836	0	1.27836

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	35	99	160	--	160
Long	6	25	52	--	52
Independent	5	16	24	--	24
P(disc.)	0.00182309	0.00647808	0.0119585	NaN	0.0119585
P(slide)	0.0121904	0.0377213	0.0501262	NaN	0.0501262

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

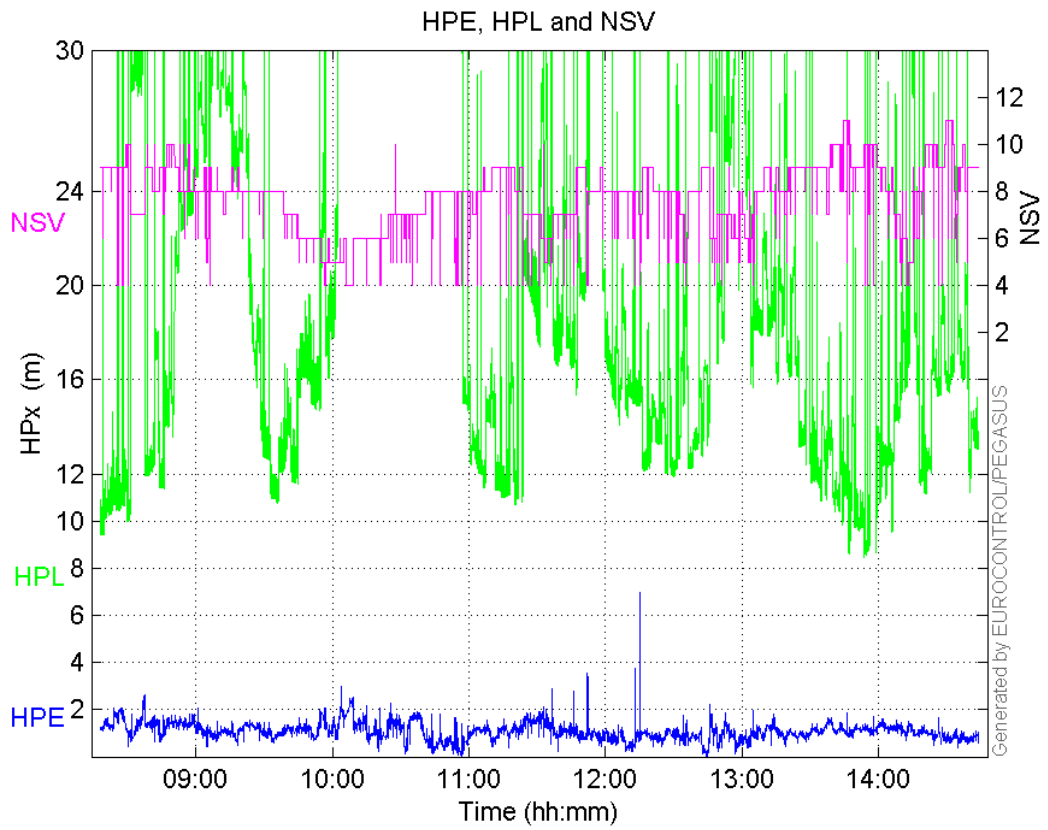
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	41139	37048	30104	0	30104
SIS Availability	0.964346	0.868448	0.705673	0	0.705673
Local Availability	0.94775	0.853503	0.693529	0	0.693529
Operational Availability	1.74695	1.57323	1.27836	0	1.27836
HPE 95%	1.69036	1.60884	1.53628	NaN	1.53628
HPEscale 95%	NaN	4.72039	4.85811	NaN	4.85811
VPE 95%	1.93303	1.78671	1.50845	NaN	1.50845

VPEscale 95%	NaN	3.86917	2.80431	NaN	2.80431
All Discontinuity Events	35	99	160	--	160
Long Discontinuity Events	6	25	52	--	52
Independent Discontinuity Events	5	16	24	--	24
P(discontinuity)	0.00182309	0.00647808	0.0119585	NaN	0.0119585
P(sliding window)	0.0121904	0.0377213	0.0501262	NaN	0.0501262
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

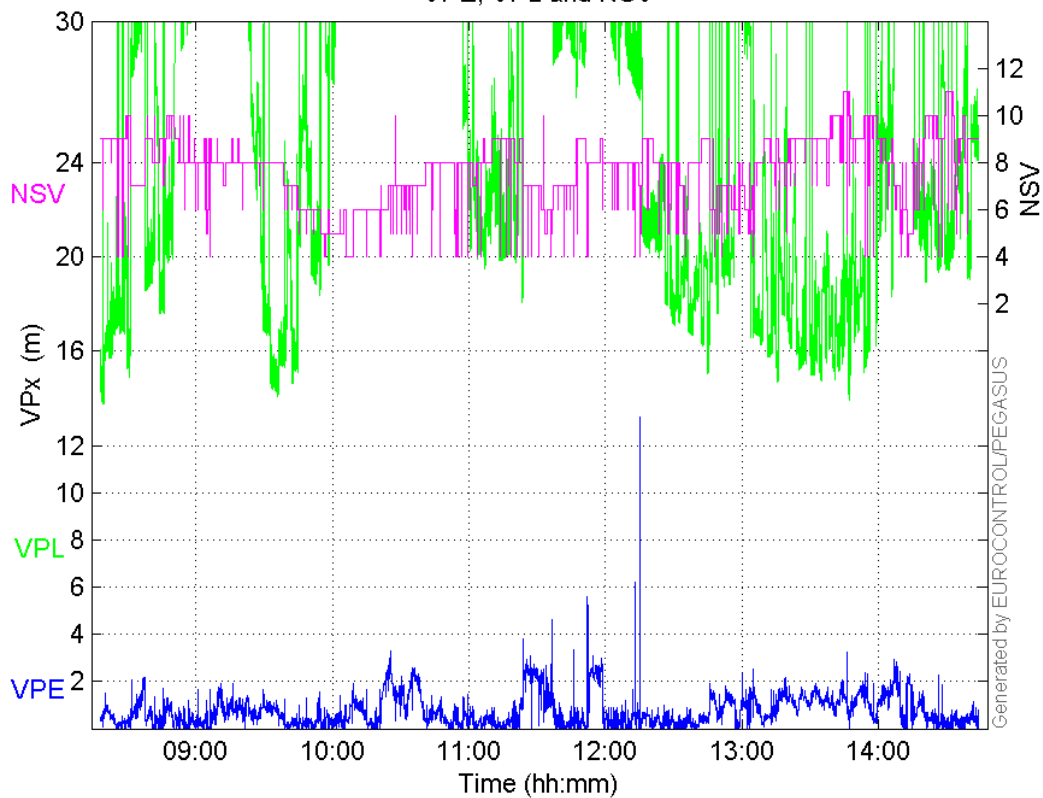
Time Series

HPE, HPL and NSV:



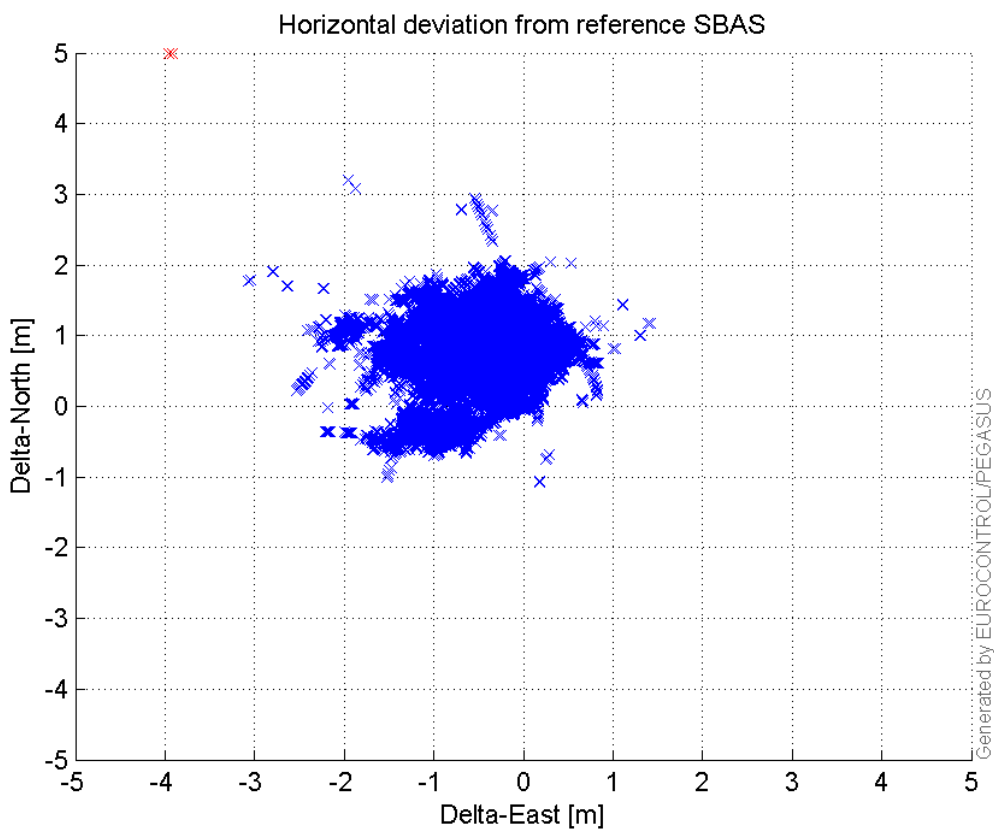
VPE, VPL and NSV:

VPE, VPL and NSV



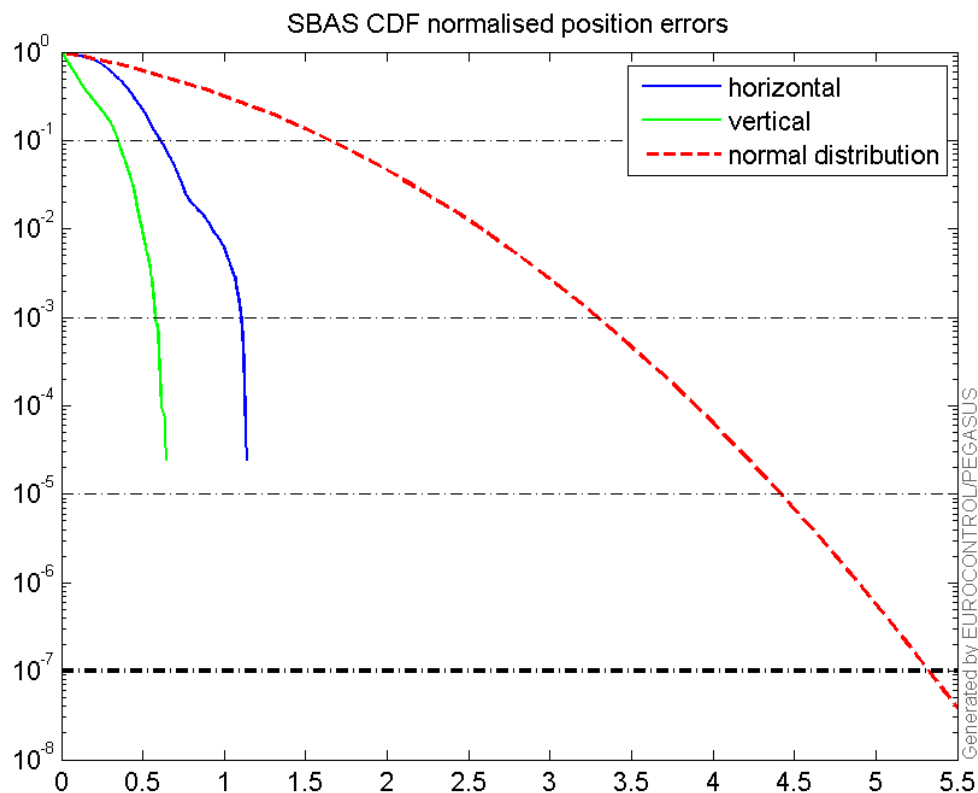
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

```

number 37048
sum 39292.441
sum2 45699.458
prctile95 1.6088367
prctile99 1.9081322
number 37048
sum 25280.209
sum2 29507.406
prctile95 1.7867073
prctile99 2.4453638
number 37048
sum 688562.98
sum2 14713981
prctile95 34.3814
prctile99 37.899928
number 37048
sum 950728.33
sum2 26824396
prctile95 39.8205
prctile99 44.921872
number 37048
sum 2412.781
sum2 190.04797
prctile95 0.11800979

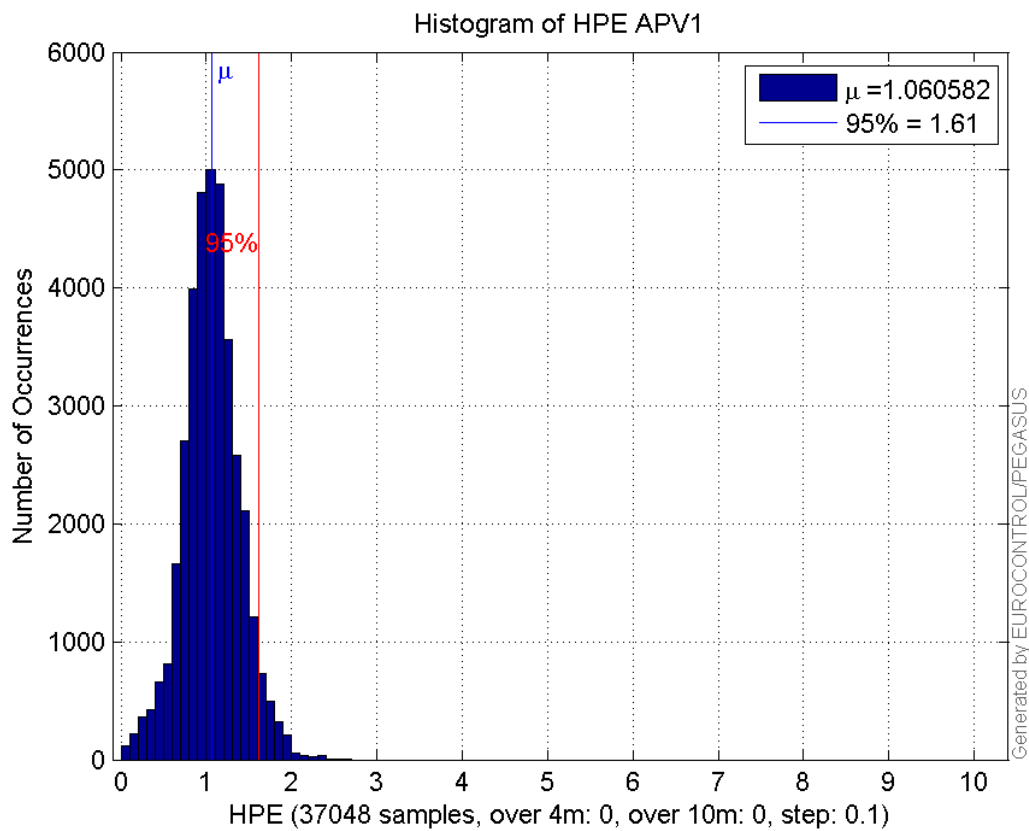
```

prctile99 0.15702566
number 37048
sum 1064.8559
sum2 52.806599
prctile95 0.077383485
prctile99 0.093594301
number 30104
sum 31932.797
sum2 36553.747
prctile95 1.5362762
prctile99 1.9164456
number 30104
sum 18245.717
sum2 17998.645
prctile95 1.5084491
prctile99 1.8175144
number 30104
sum 492248.79
sum2 8823423
prctile95 26.94466
prctile99 30.610474
number 30104
sum 681521.67
sum2 16328833
prctile95 32.69801
prctile99 34.52616
number 30104
sum 2123.7176
sum2 174.51599
prctile95 0.12145269
prctile99 0.16309395
number 30104
sum 881.39074
sum2 44.832228
prctile95 0.080123169
prctile99 0.095390256

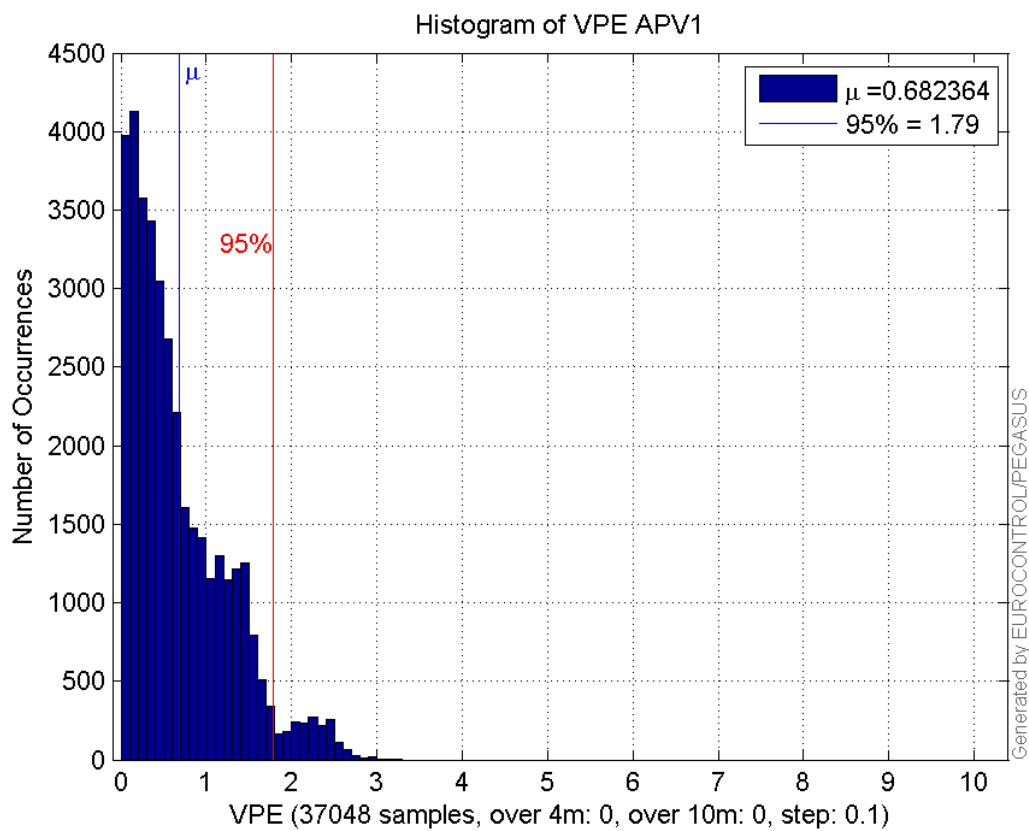
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.06058	0.32968	1.05647	1.60884	1.90813	1.11064
HPL	18.5857	7.19257	16.3084	34.3814	37.8999	19.9289
VPE	0.682364	0.575198	0.512895	1.78671	2.44536	0.892448
VPL	25.6621	8.09348	22.8712	39.8205	44.9219	26.9081

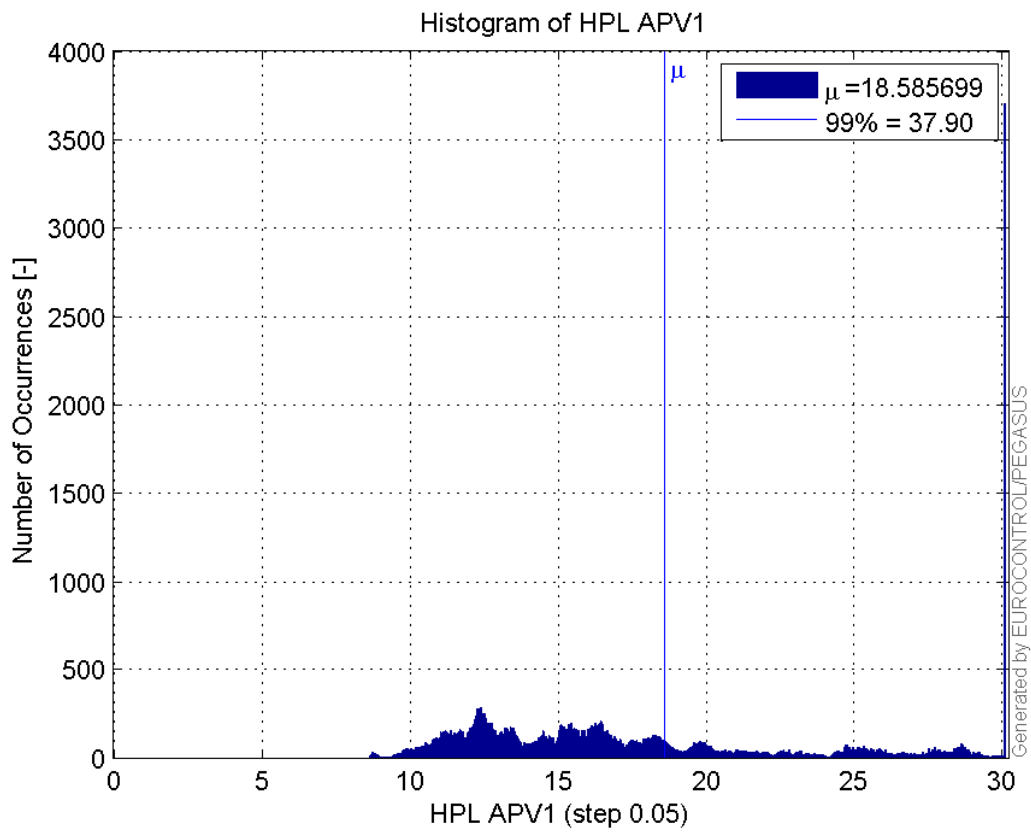
Histogram of HPE APV1:



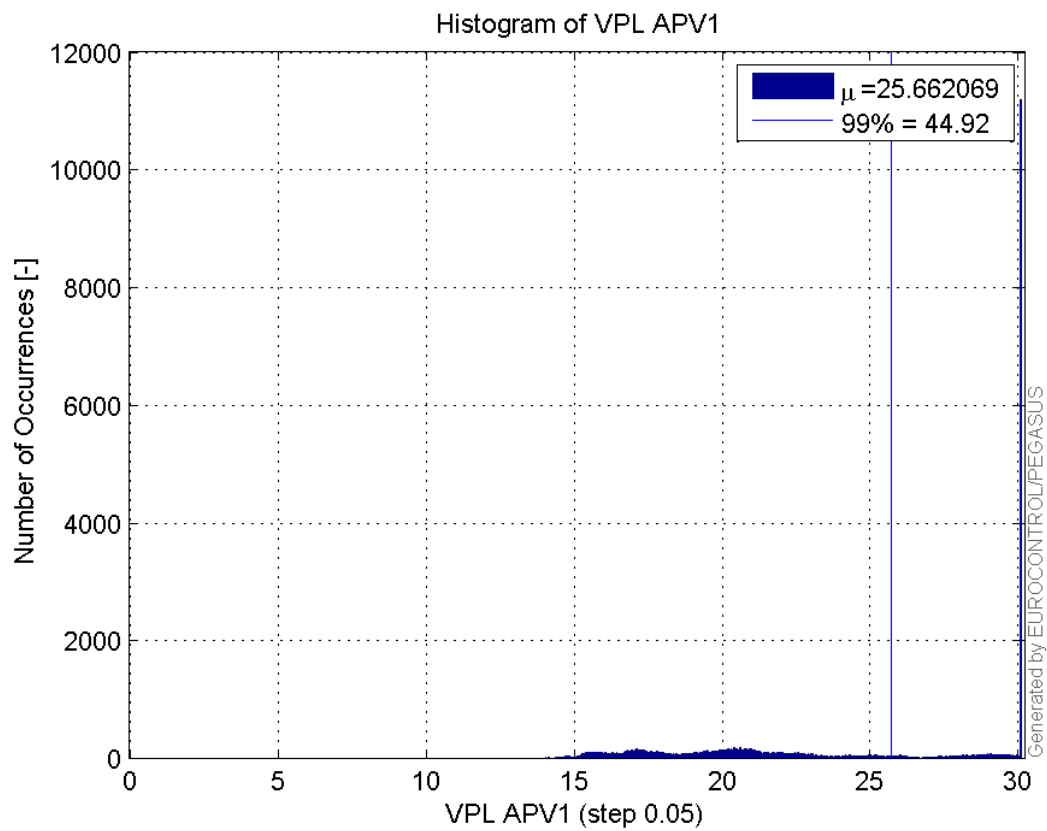
Histogram of VPE APV1:



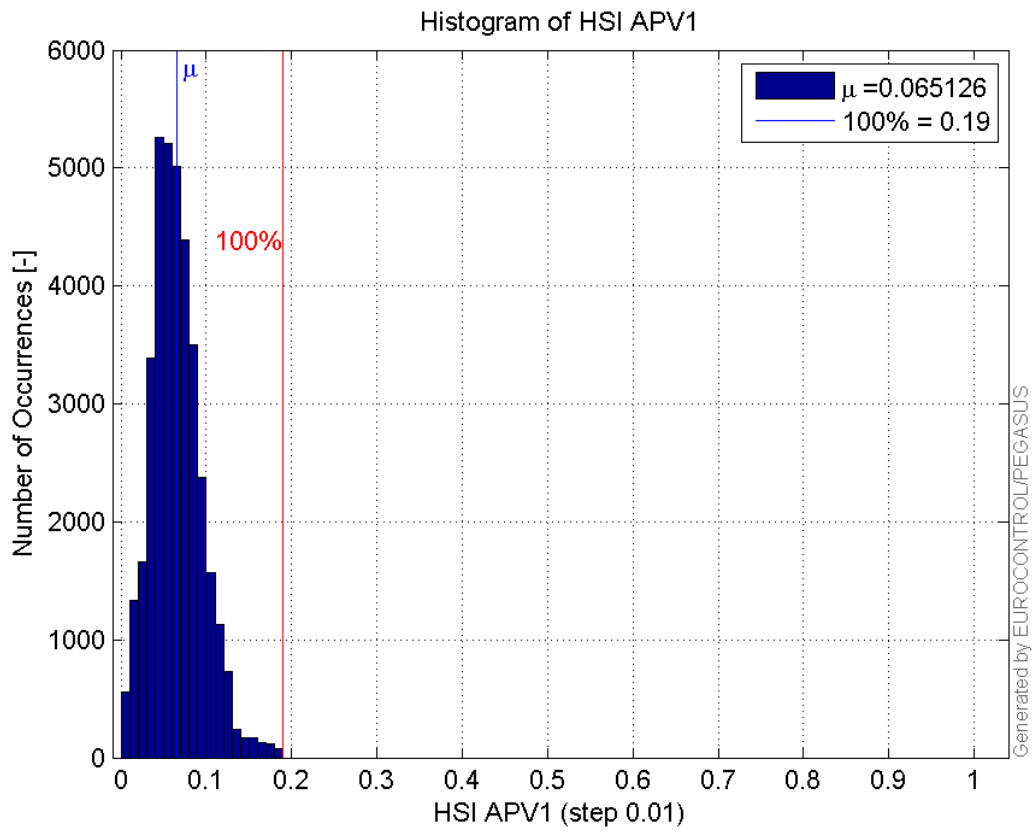
Histogram of HPL APV1:



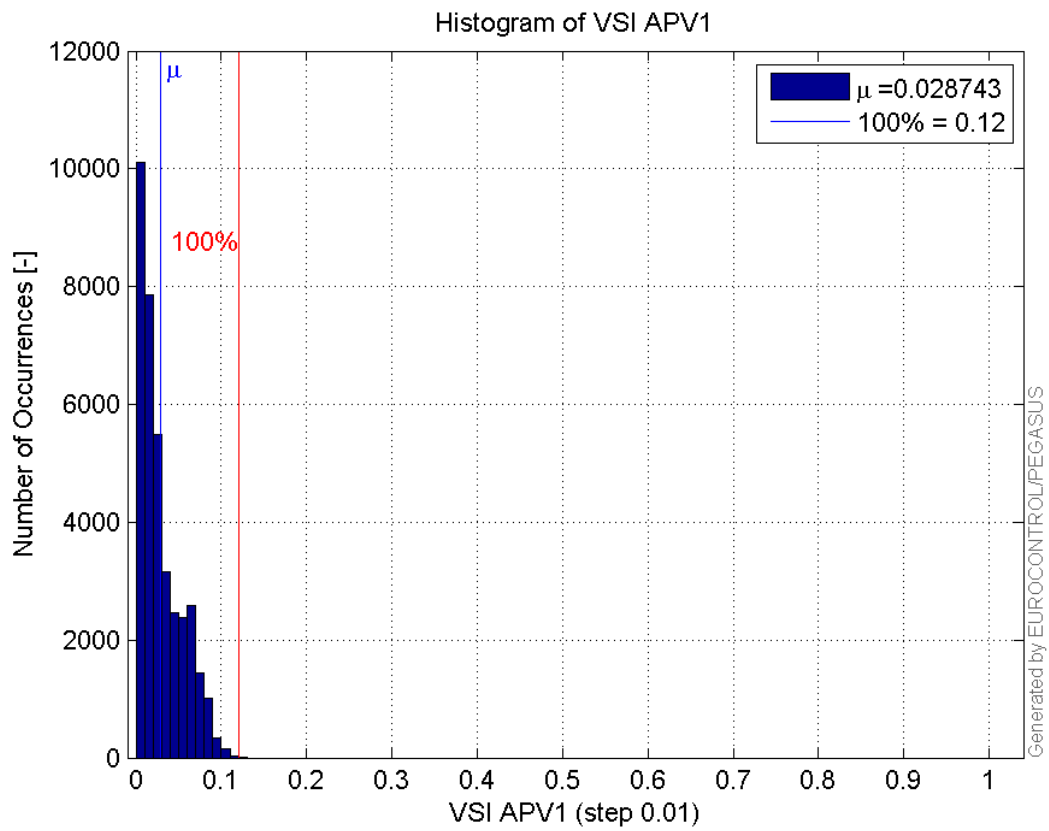
Histogram of VPL APV1:



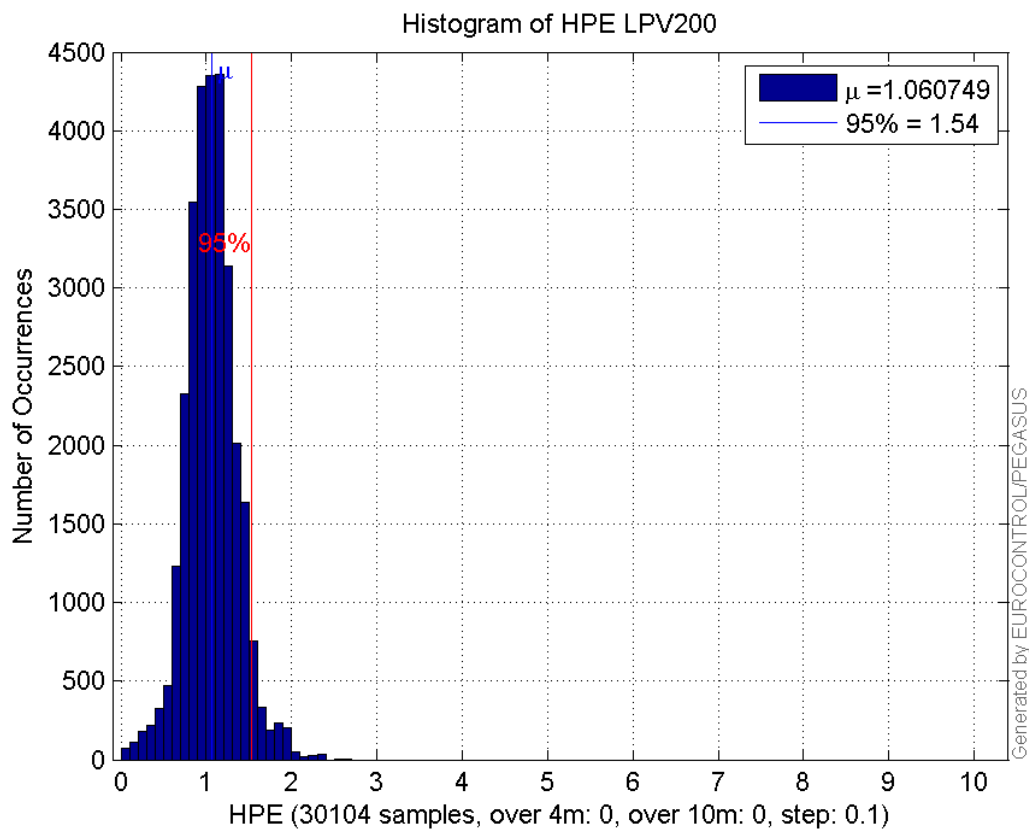
Histogram of HSI APV1:



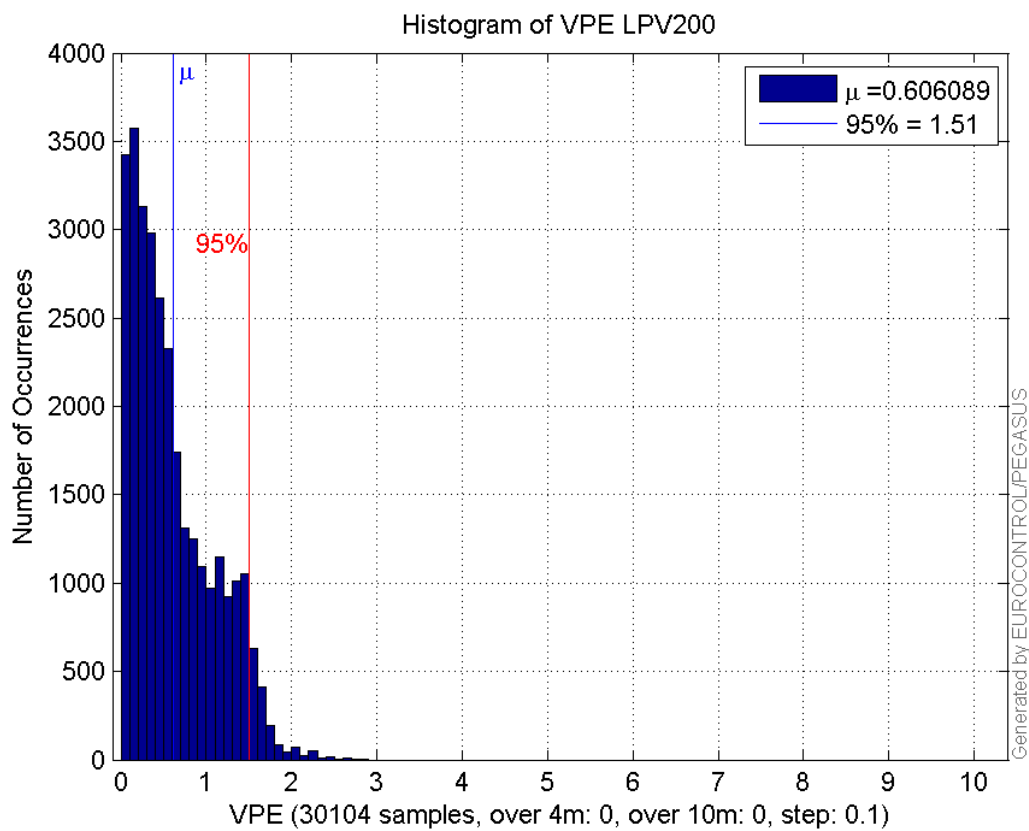
Histogram of VSI APV1:



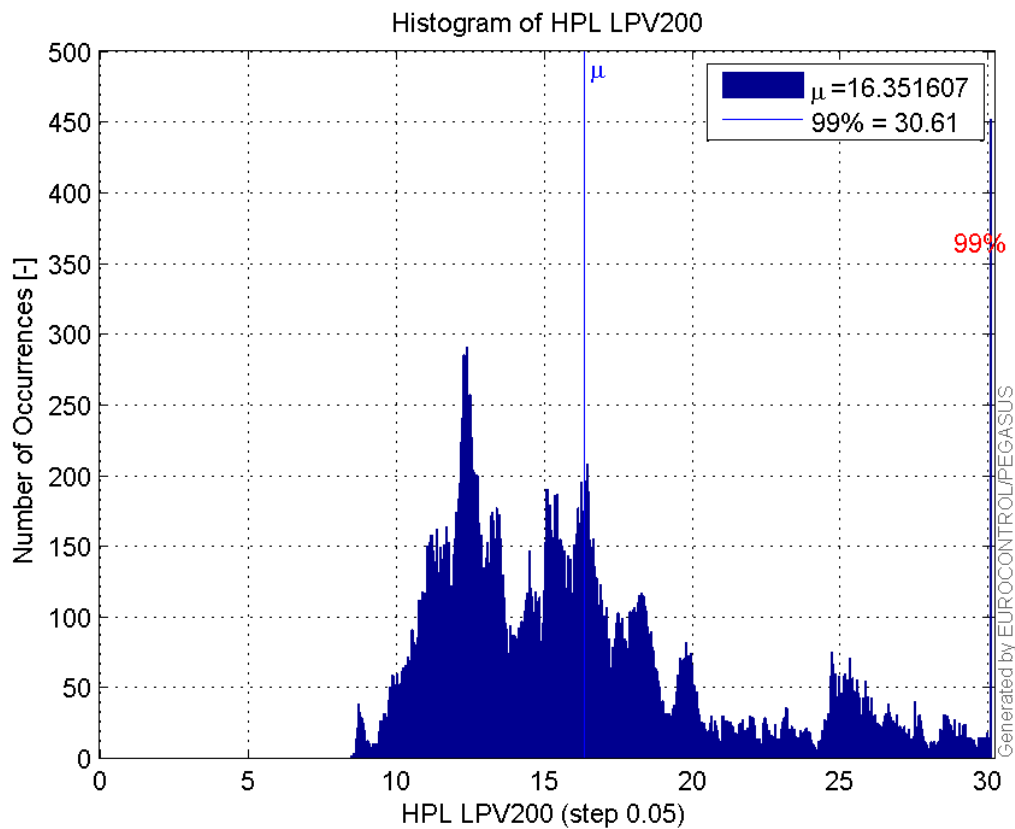
Histogram of HPE LPV200:



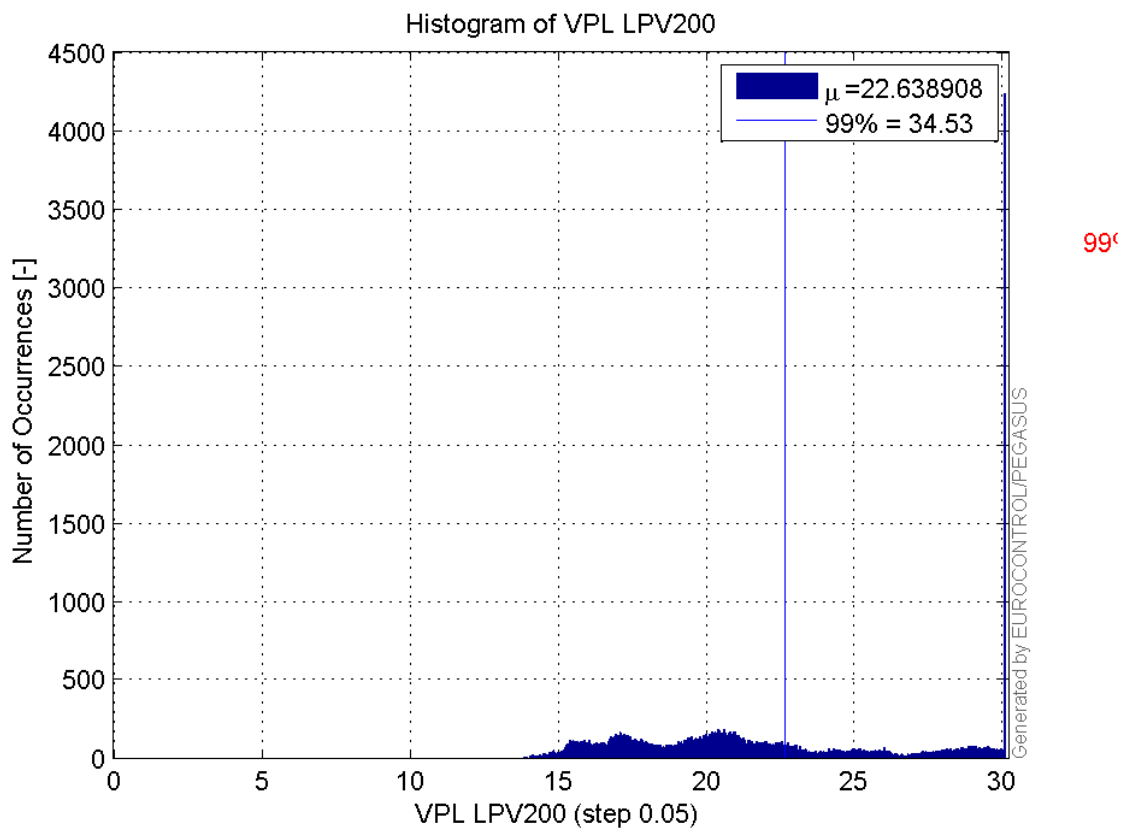
Histogram of VPE LPV200:



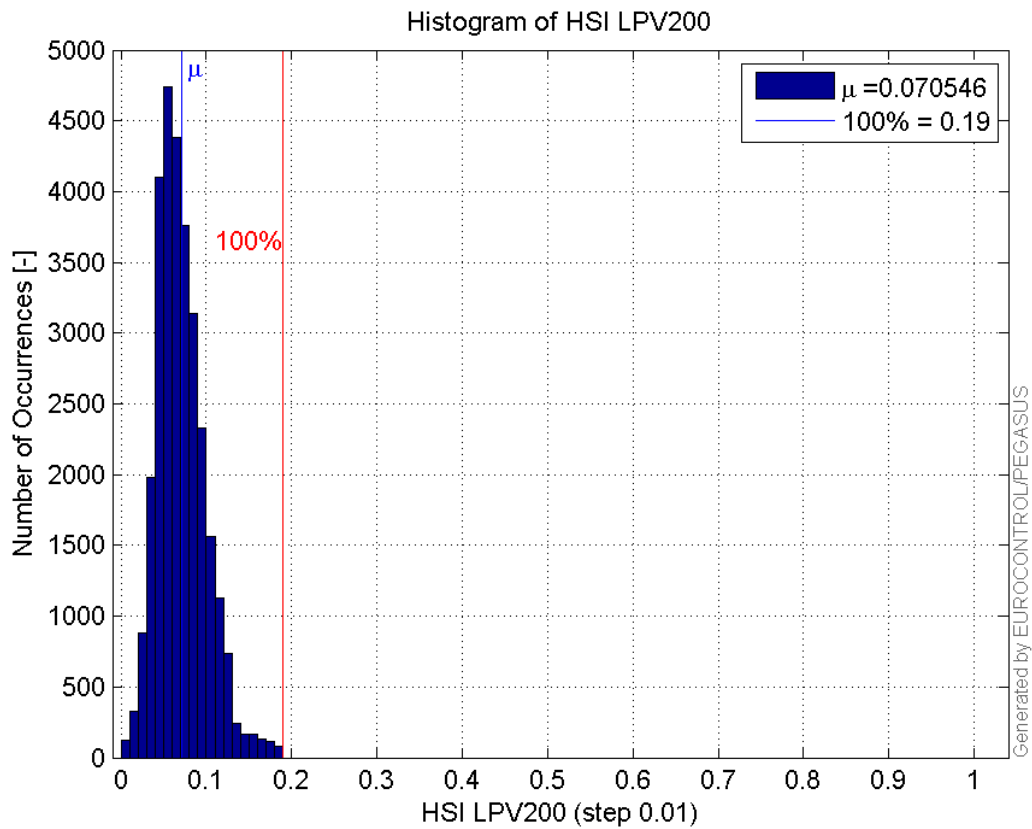
Histogram of HPL LPV200:



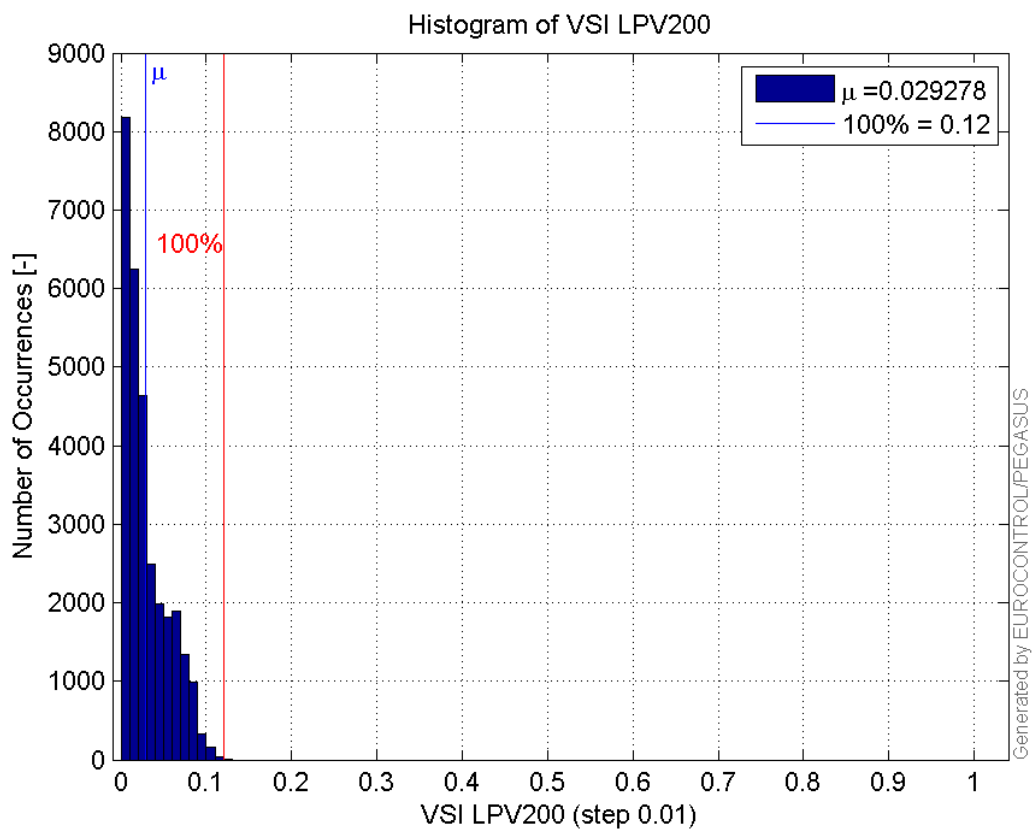
Histogram of VPL LPV200:



Histogram of HSI LPV200:

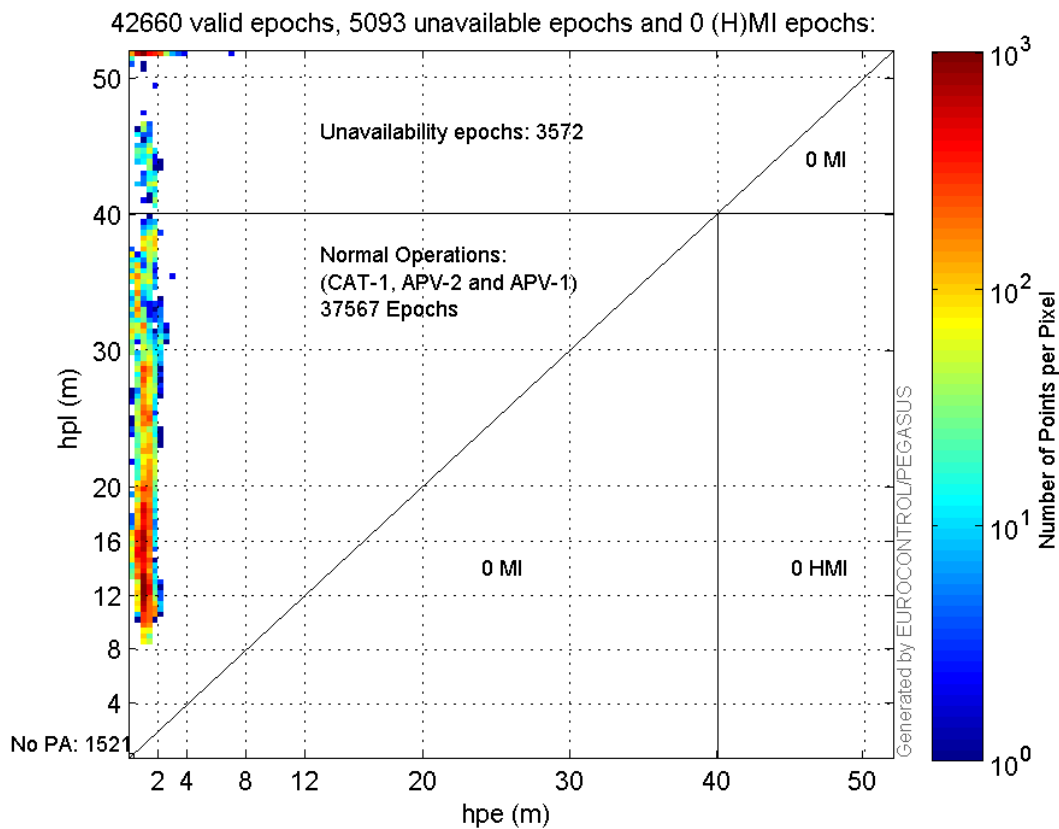


Histogram of VSI LPV200:

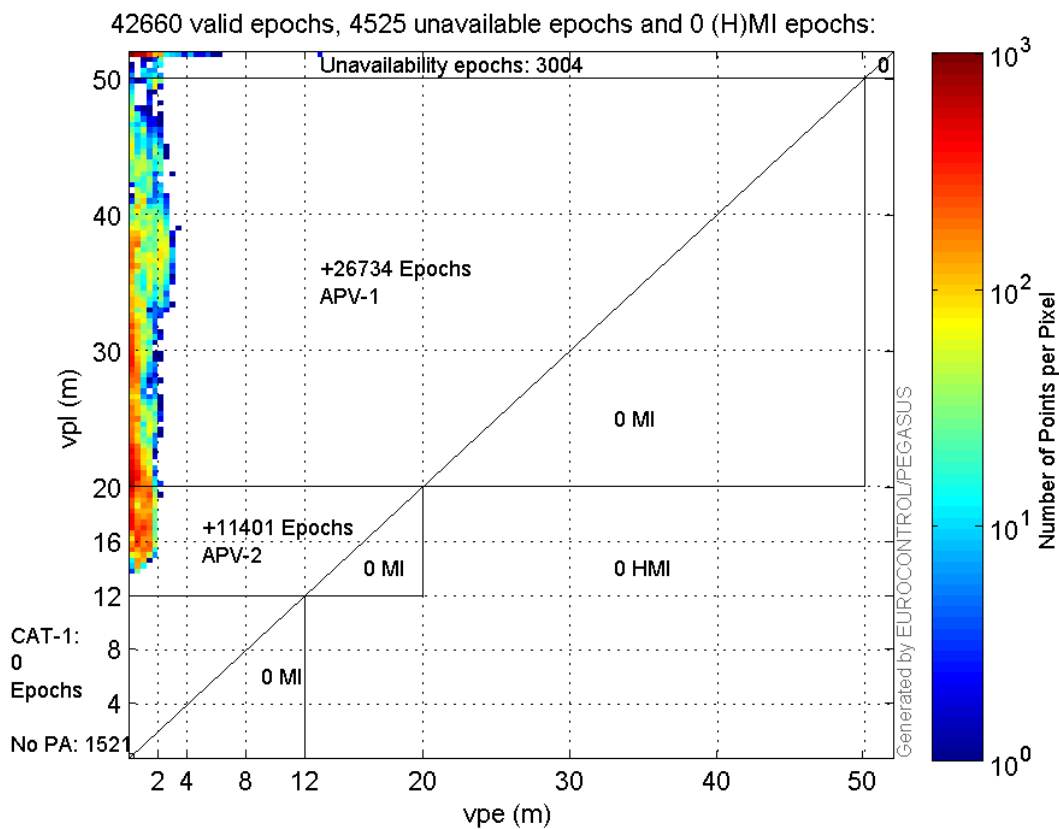


Stanford Plots

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_28EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_28EGNOS2Hz/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	231.5457
mi_numbers	results	0

Range Domain

start: 08:11:20.5 28.02.2017 (week: 1938 sec: 202280.5)
end: 14:43:49 28.02.2017 (week: 1938 sec: 225829)
duration: 06:32:29 ..

quality

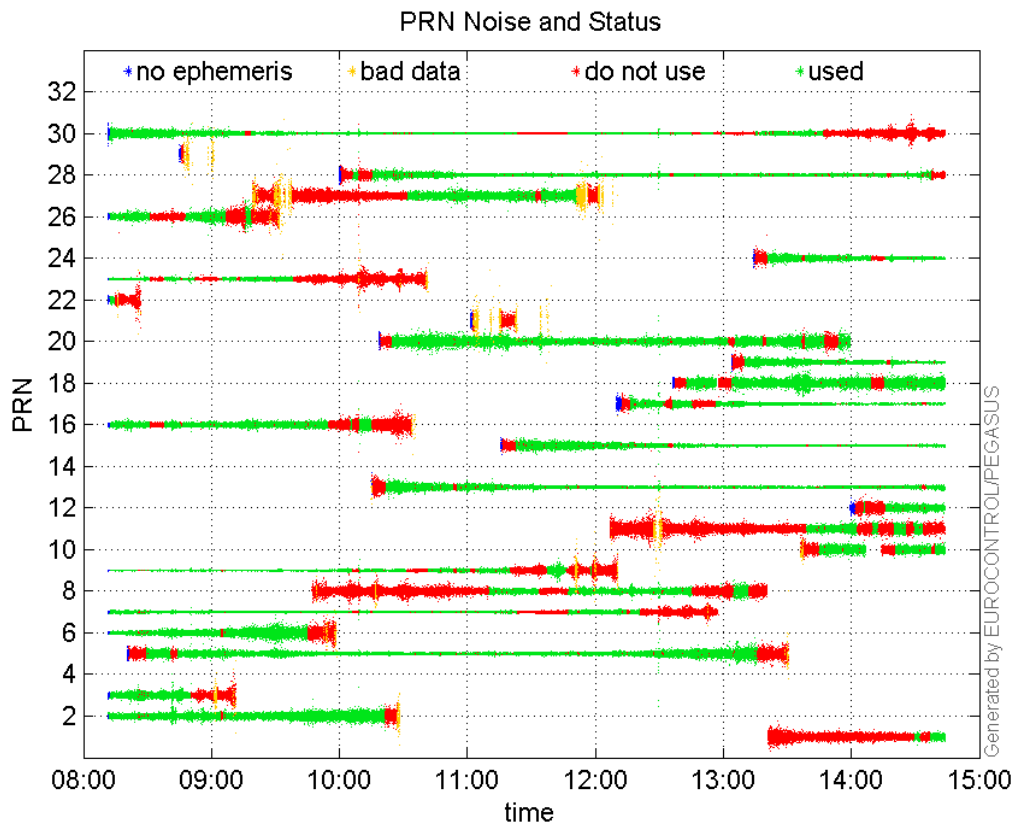
valid samples 43407
total samples 43407

PRN overview

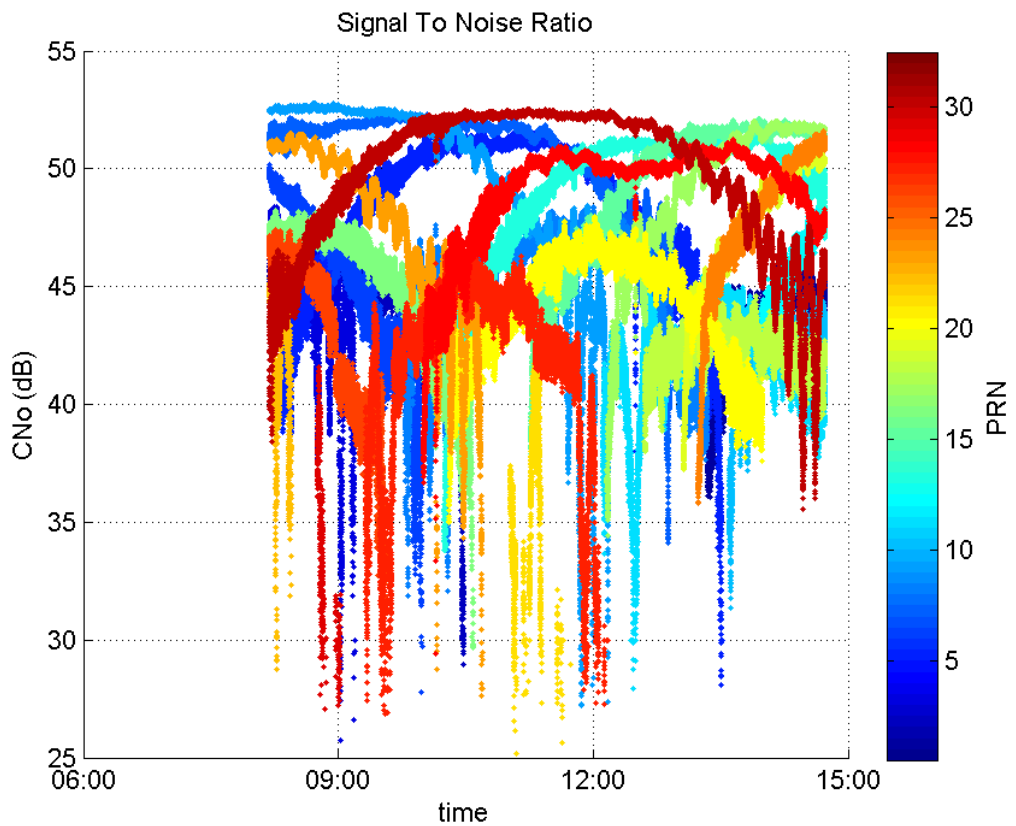
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



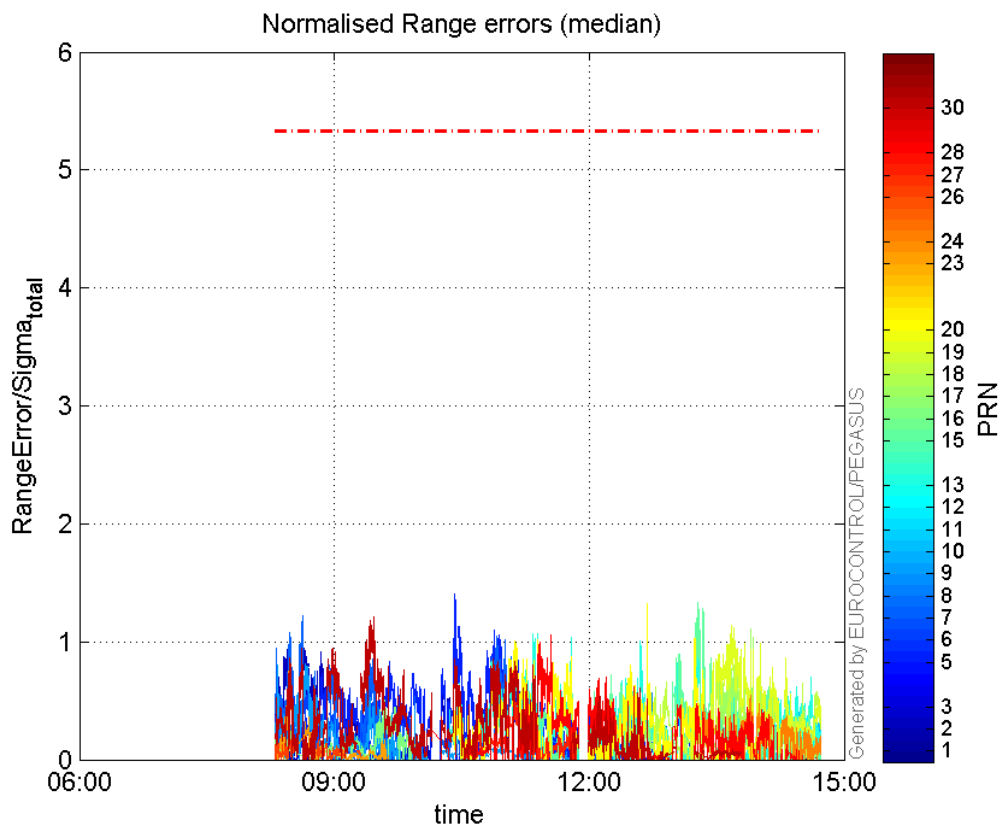
range errors

Number of Overbounding Norm Errors 0

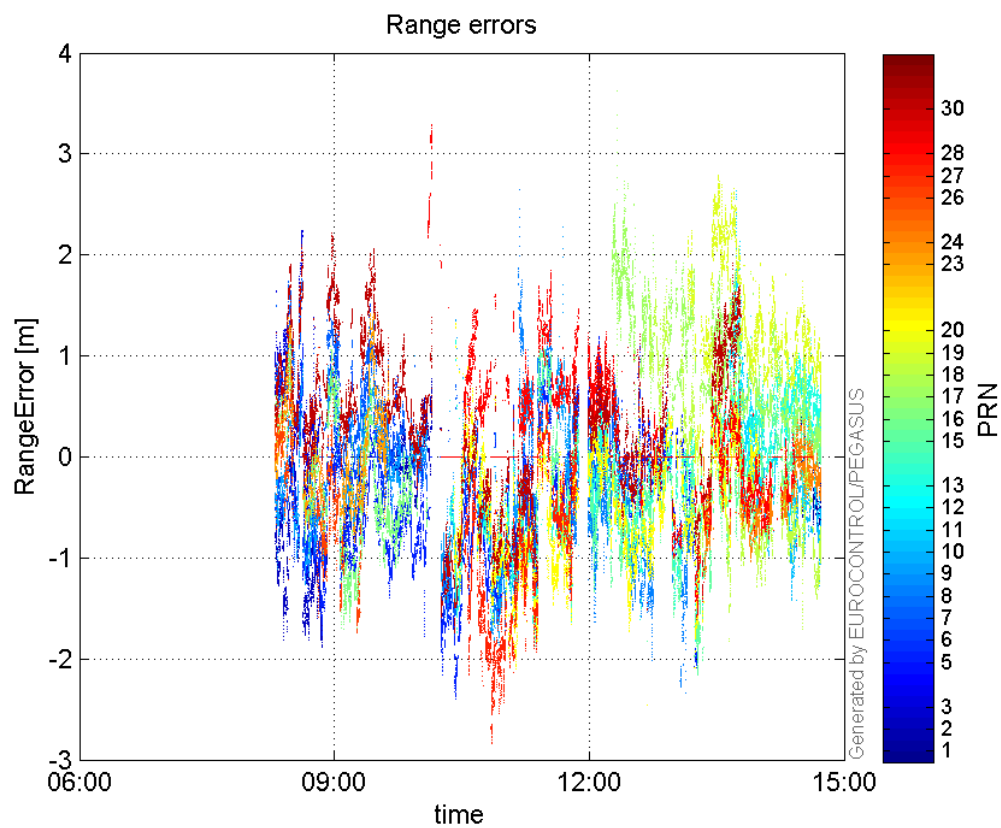
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1938	225082	1	0.0497034	1.3929	28.0243
1938	203931	2	0.948989	-1.67178	1.76164
1938	202746	3	0.32006	1.63994	5.12385
1938	210305	5	1.40452	-2.285	1.6269
1938	204062	6	0.777246	-1.4589	1.87701
1938	203851	7	1.21874	1.73641	1.42476
1938	218650	8	0.562611	-2.01417	3.58003
1938	203971	9	0.809224	-1.17882	1.45673
1938	224780	10	0.591282	-1.41882	2.39957
1938	222247	11	0.292985	2.63416	8.99075
1938	225144	12	0.47216	0.984408	2.08491
1938	220602	13	1.15074	-1.63498	1.4208
1938	220598	15	1.33303	-1.97667	1.48284
1938	207350	16	0.501348	-1.10024	2.19457
1938	222833	17	1.10971	1.80996	1.63103
1938	221937	18	0.7459	-1.82367	2.44493
1938	222034	19	1.14373	2.61192	2.28368
1938	218457	20	1.32518	-2.45729	1.85431
1938	203302	23	0.853842	1.29836	1.52061
1938	222847	24	0.545949	-0.990902	1.81501
1938	203250	26	0.306645	-1.21968	3.9775
1938	213661	27	0.55569	-1.89181	3.40443
1938	214376	28	1.05823	1.8458	1.74424
1938	206855	30	1.2106	1.96715	1.62493

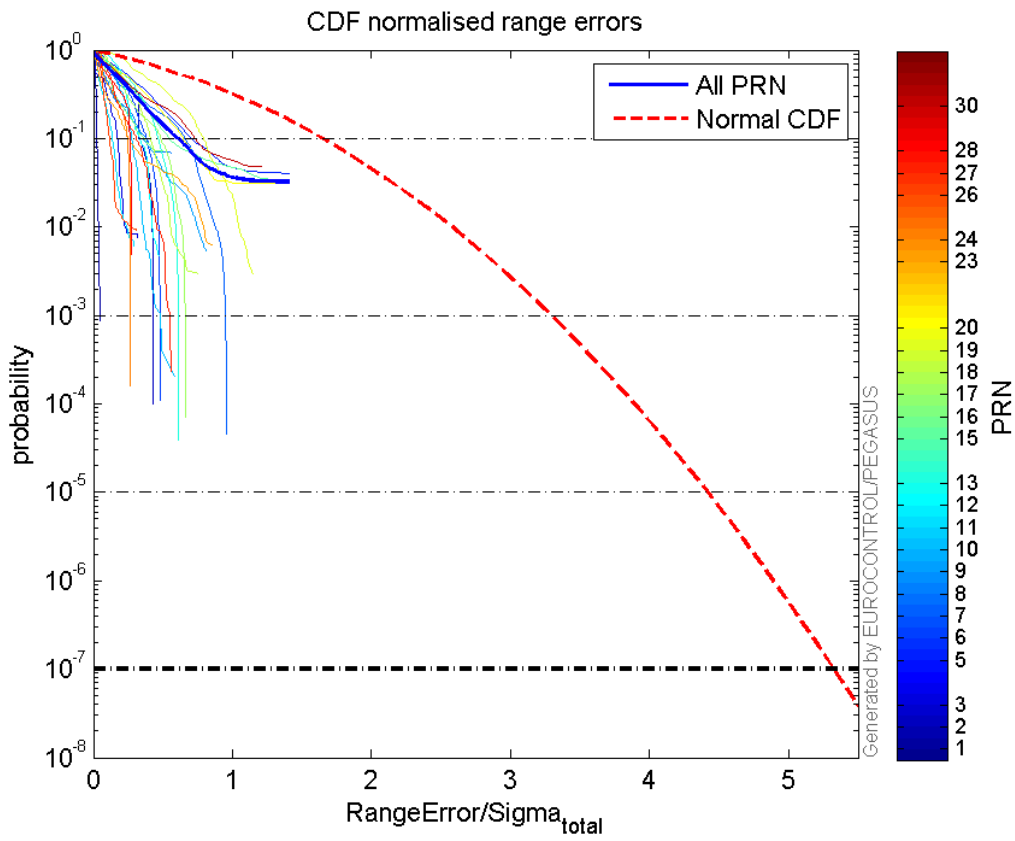
Normalised Range errors (median):



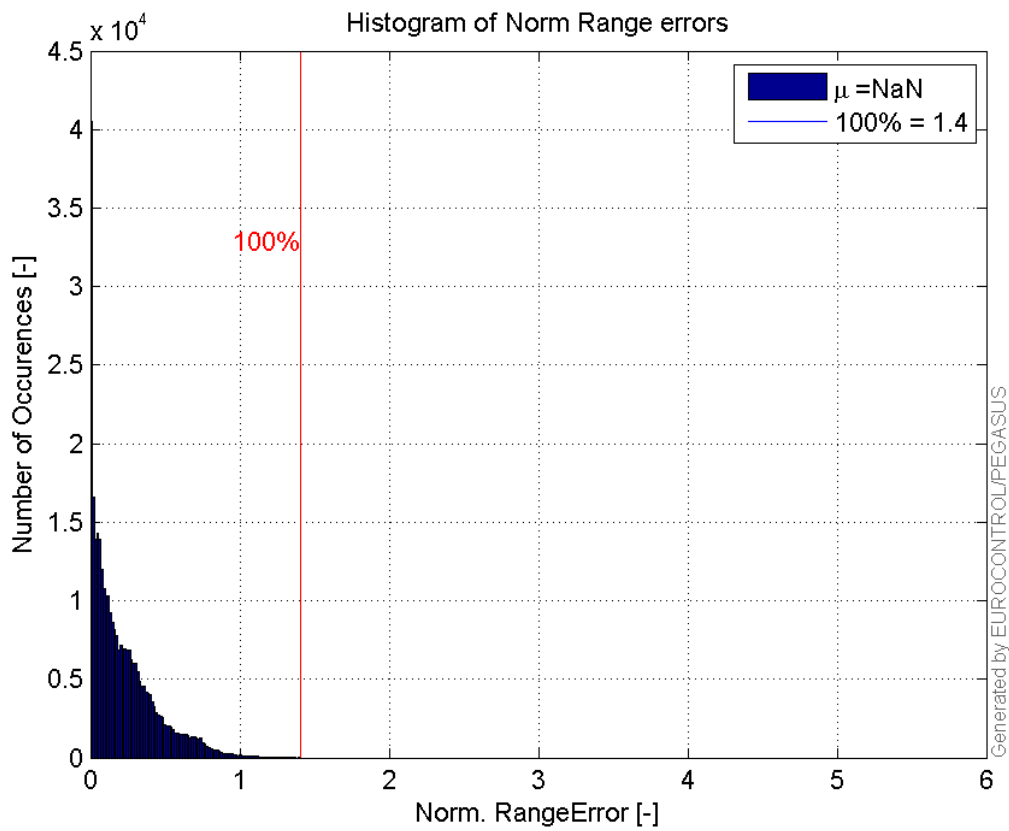
Range errors:



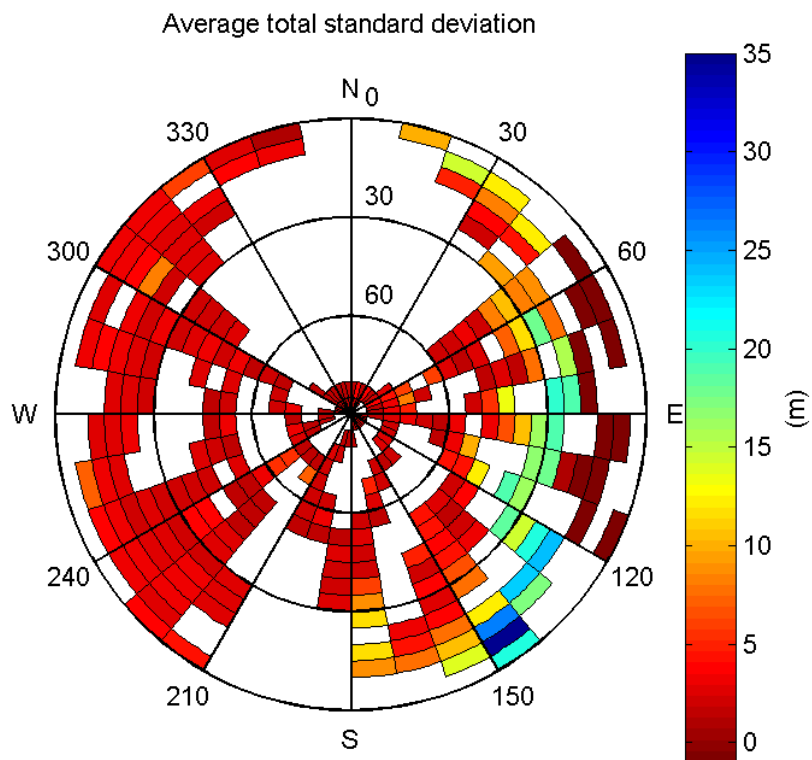
CDF normalised range errors:



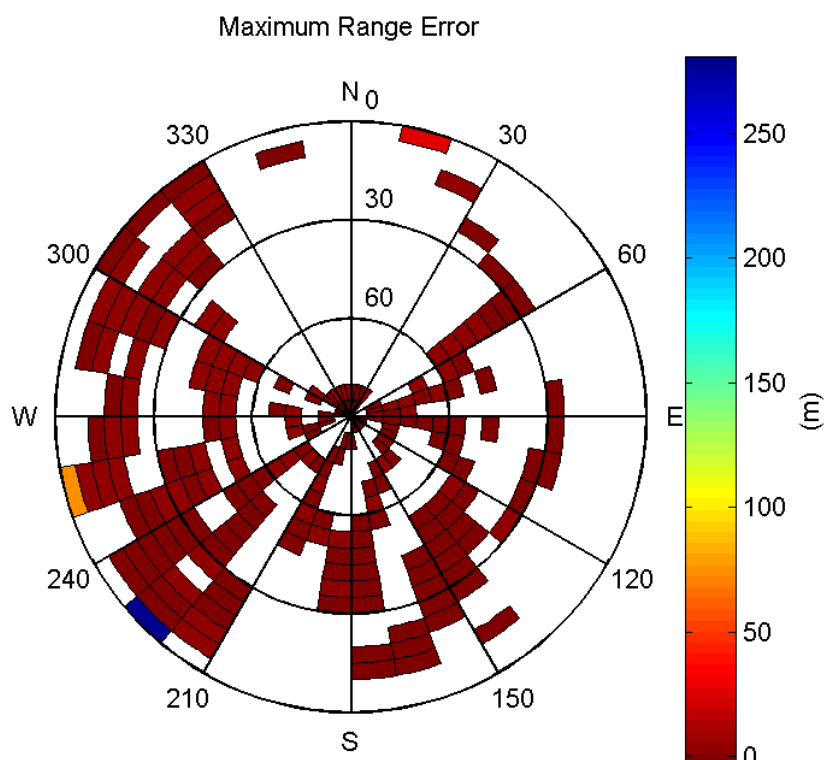
Histogram of Norm Range errors:



Sigma Sky Plot:

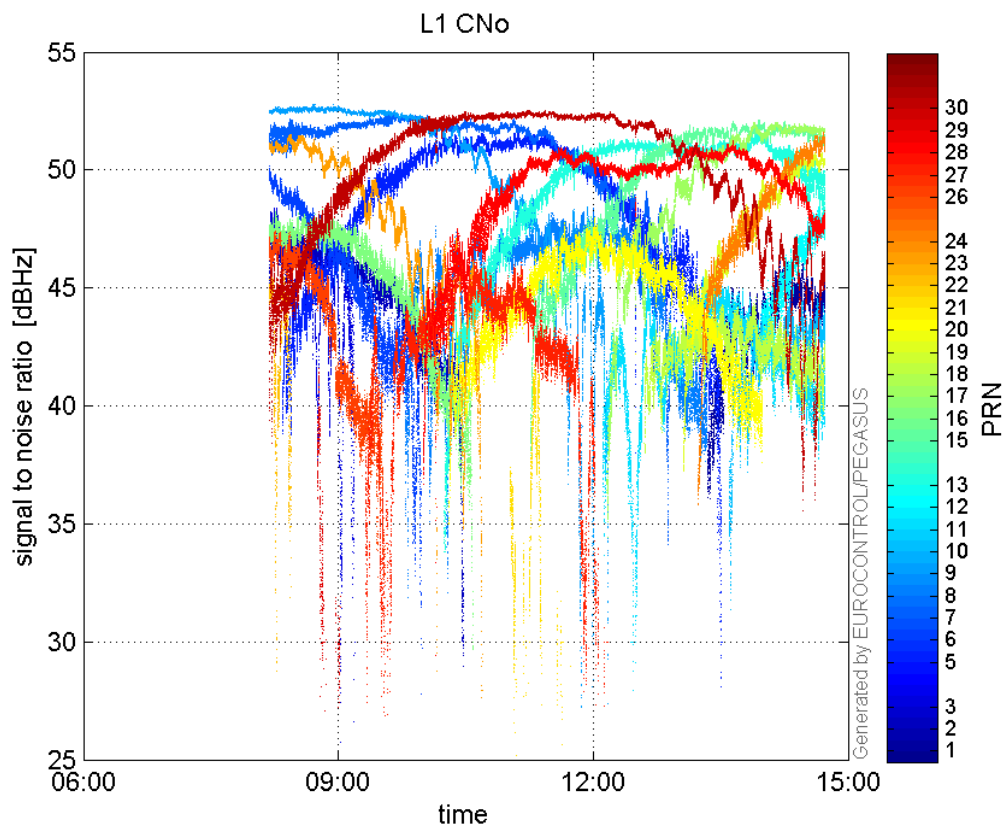


Norm Error Sky Plot:

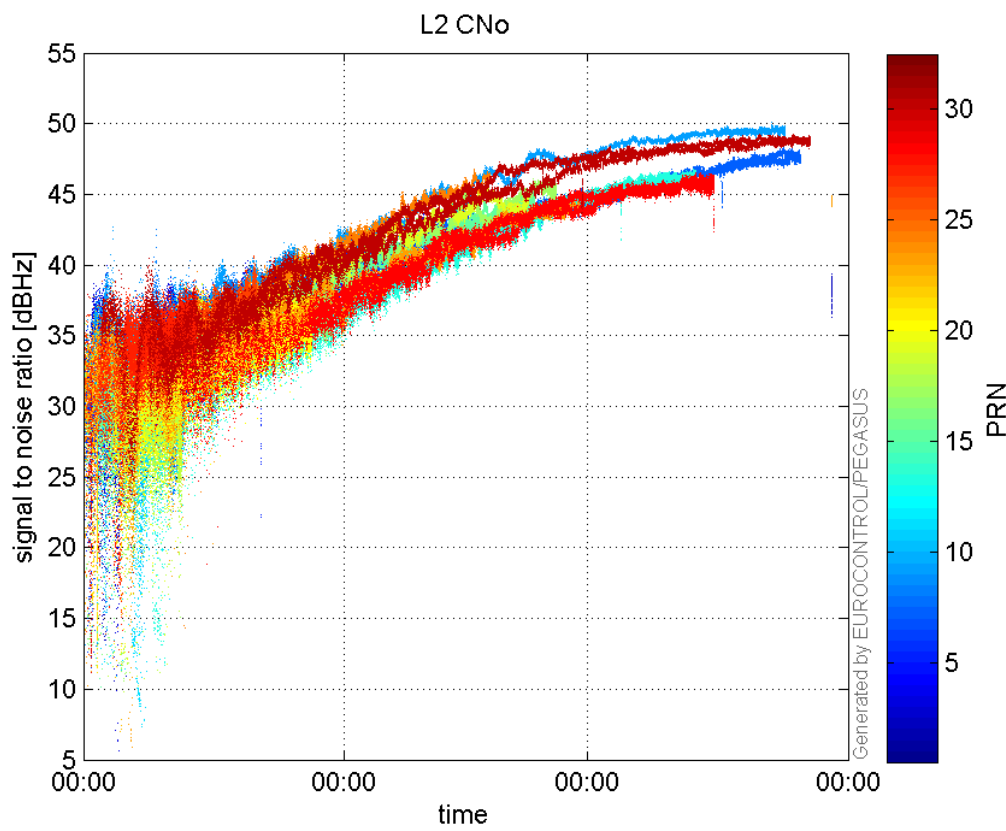


signal quality

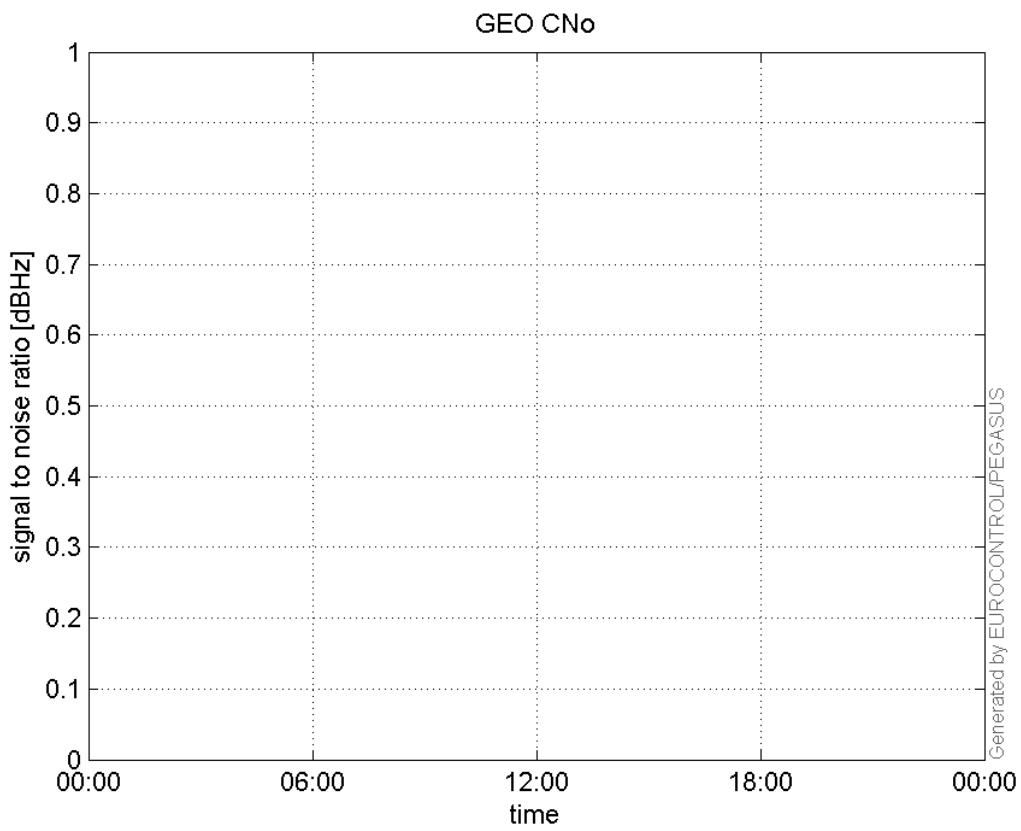
L1 CNo:



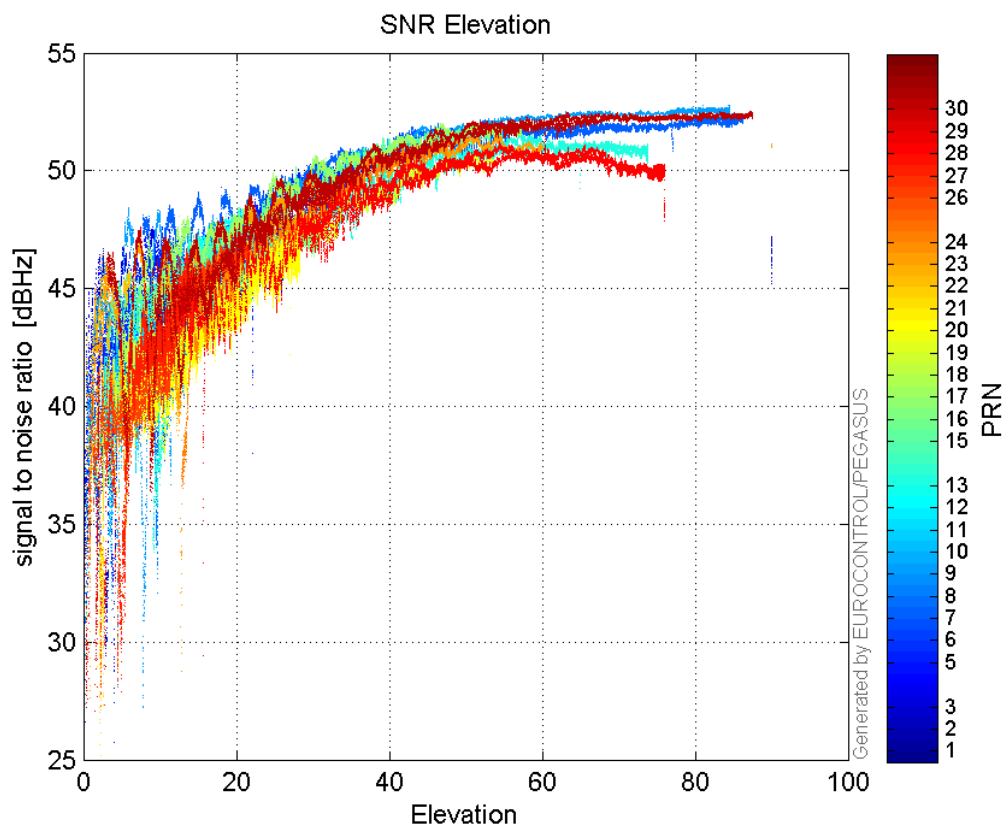
L2 CNo:



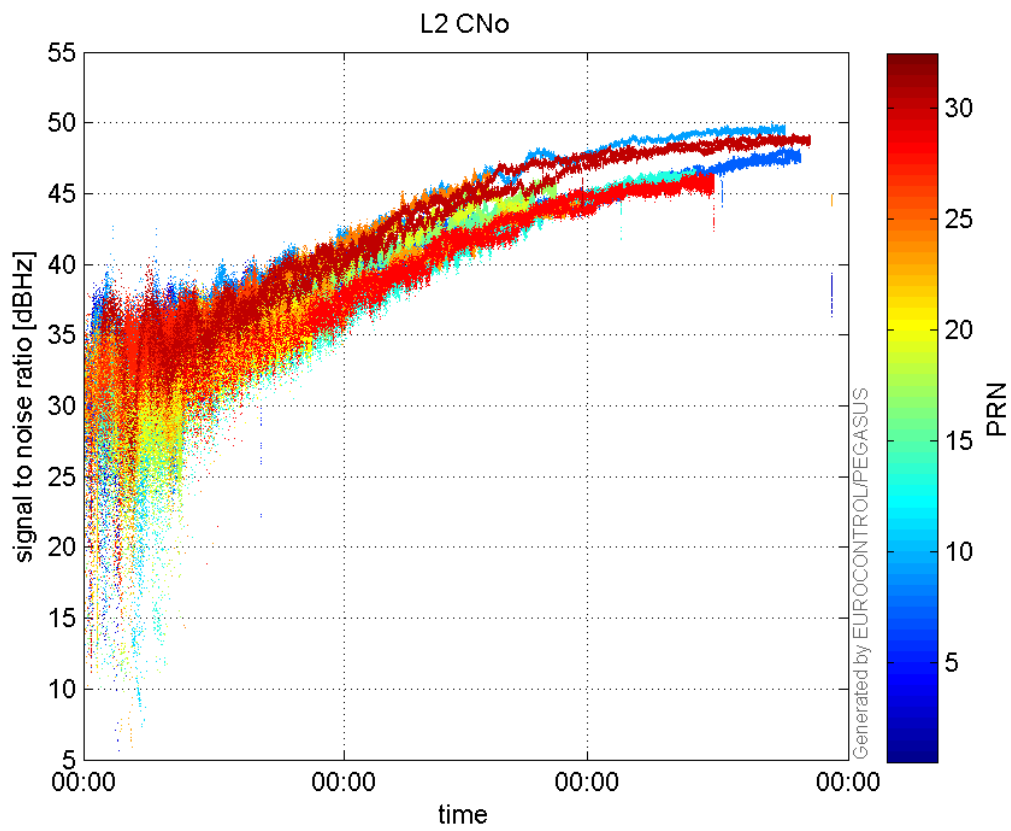
GEO CNo:



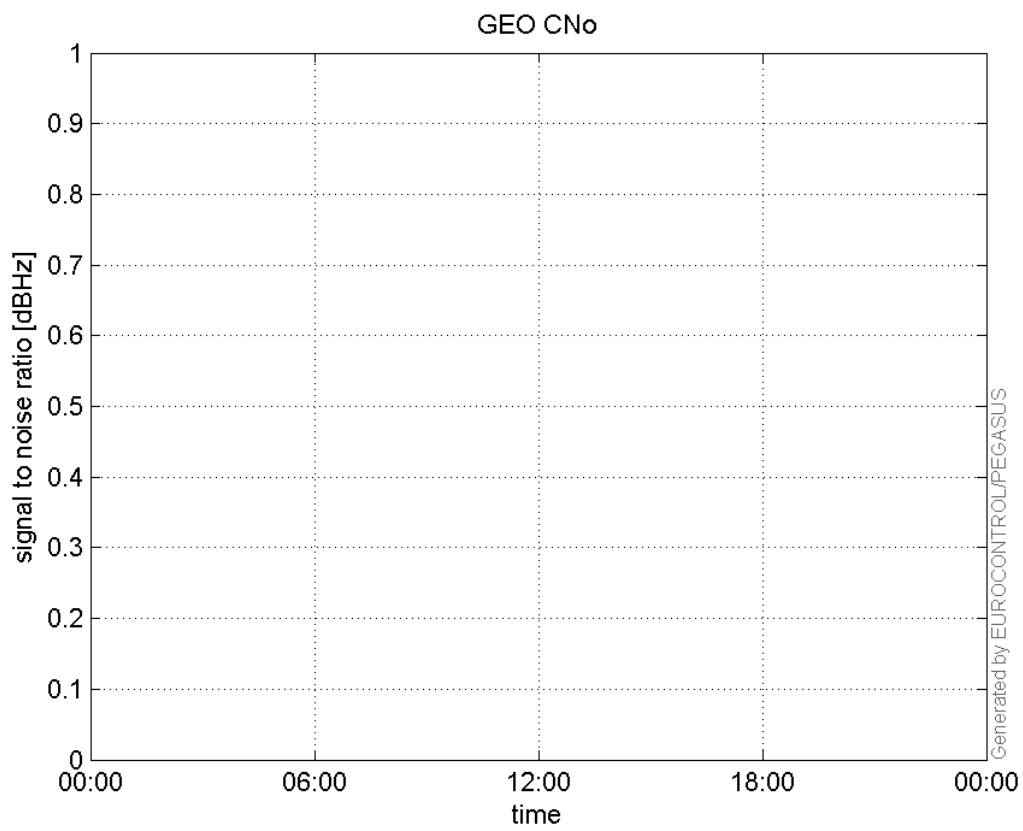
SNR Elevation:



L2 CNo:

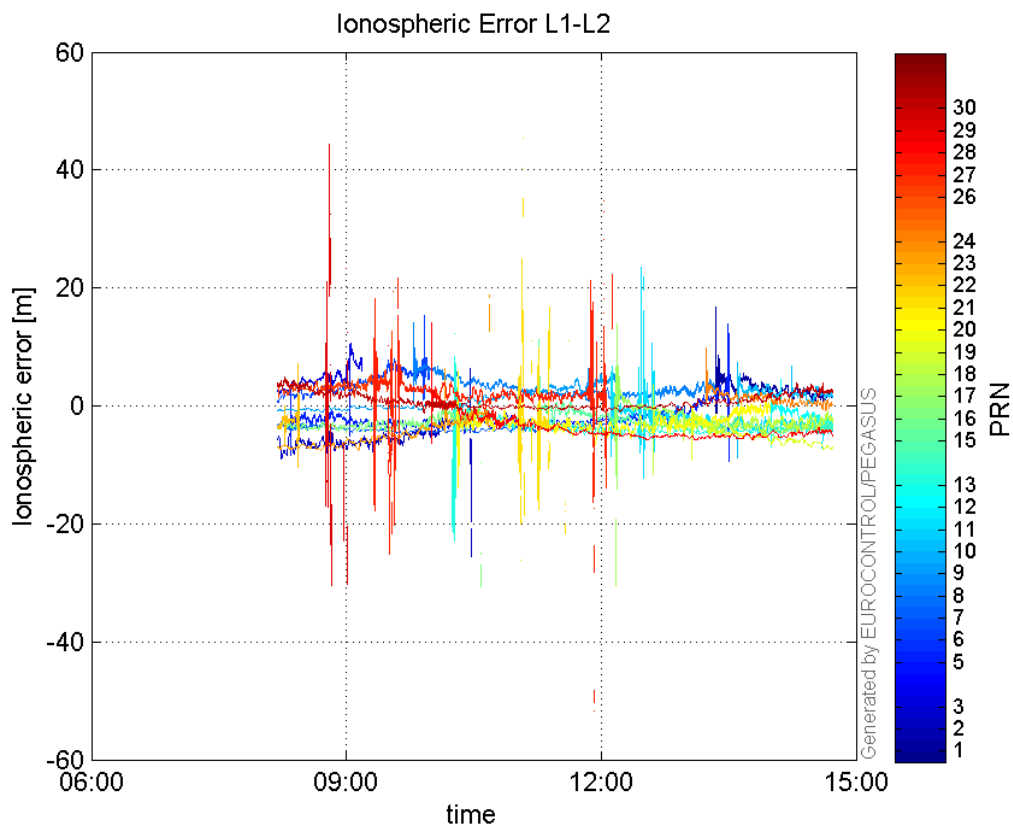


GEO CNo:



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_28EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_28EGNOS2Hz/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	231.5457
mi_numbers	results	0