

Global View

site Laboratory satellite systems
 abbreviation NAU
 country Ukraine
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 program Pegasus
 version 4.8.2
 date 17/02/2016

SBAS Messages

start: 05:49:59.129 17.02.2016 (week: 1884 sec: 280199.129)
end: 14:27:22.129 17.02.2016 (week: 1884 sec: 311242.129)
duration: 08:37:23 ..

quality

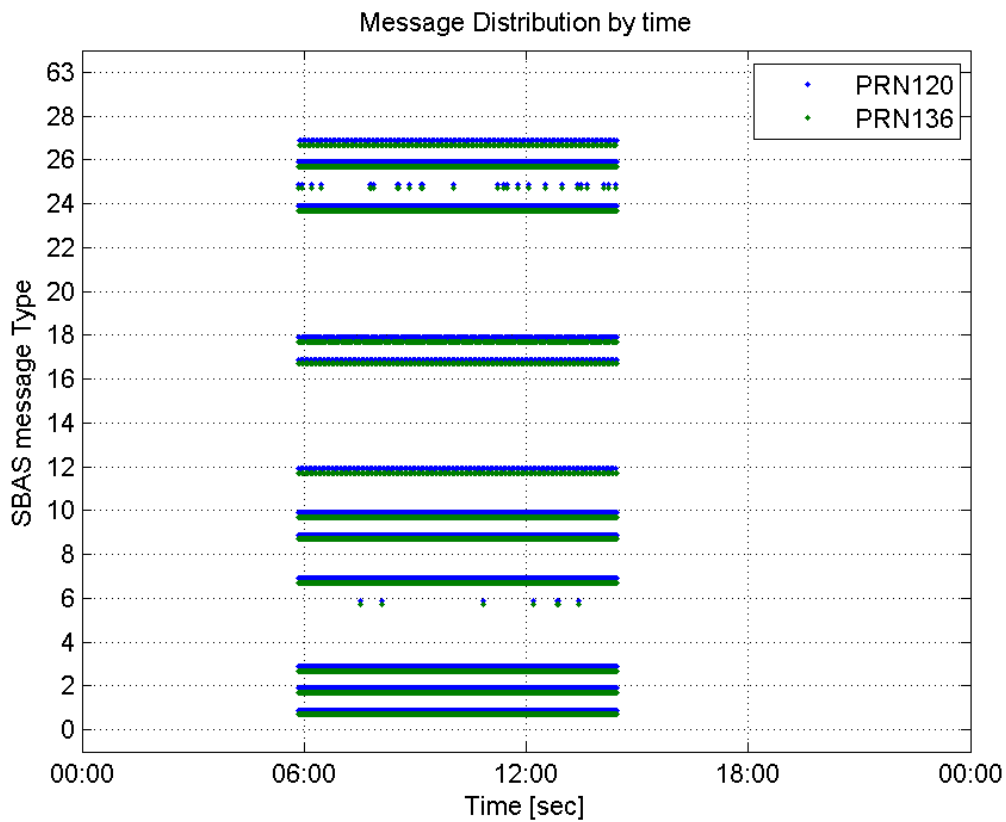
valid samples 62080
total samples 62080
number of SBAS PRNs 2

SBAS SIS Overview

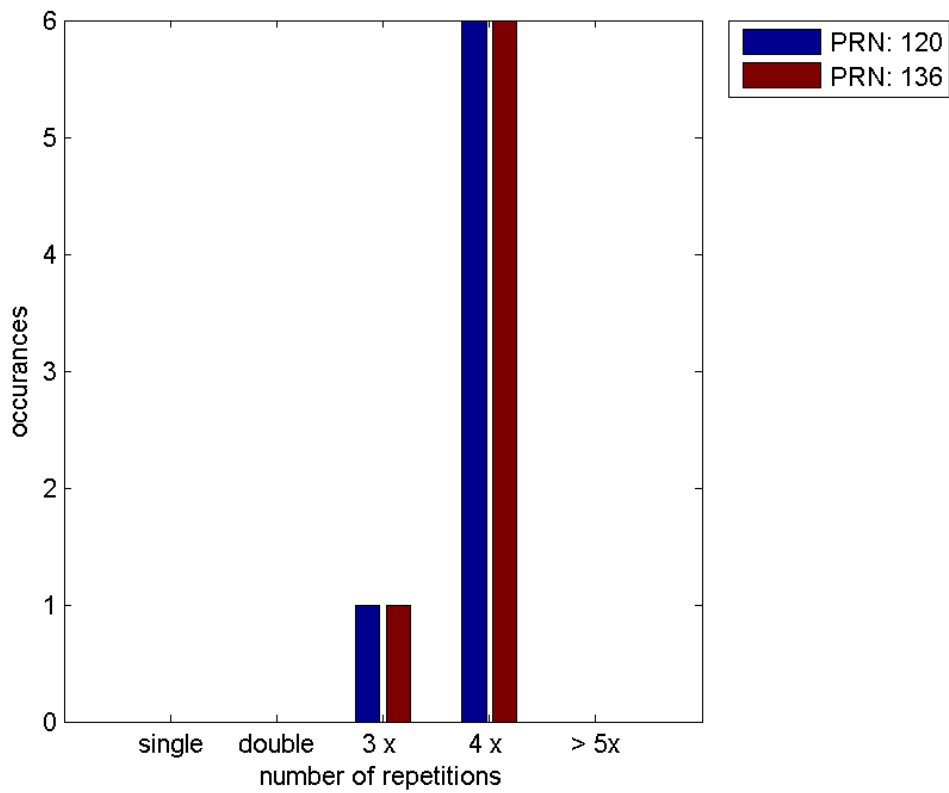
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

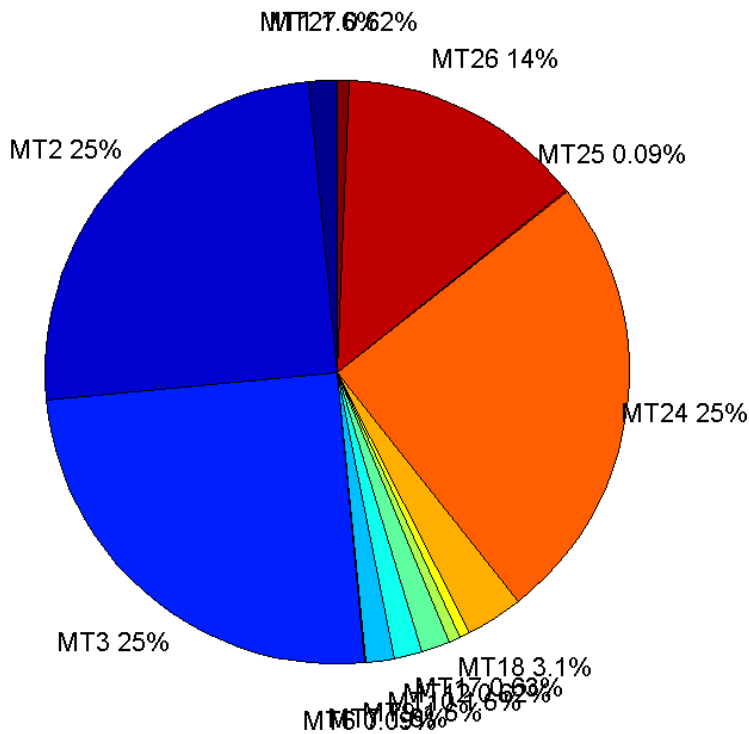
	number of messages	%
MT 0	0	0
MT 1	483	1.55616
MT 2	7749	24.9662
MT 3	7750	24.9694
MT 4	0	0
MT 5	0	0
MT 6	28	0.090212
MT 7	483	1.55616
MT 9	483	1.55616
MT 10	483	1.55616
MT 12	193	0.621818
MT 17	194	0.62504
MT 18	970	3.1252
MT 24	7748	24.9629
MT 25	28	0.090212
MT 26	4253	13.7026
MT 27	193	0.621818
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	31038	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	70	64.305	0	0	0
MT 2	4	8	4.0062	9	0	0
MT 3	4	8	4.00581	8	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	9876	787.519	6	6	6
MT 7	64	71	64.2967	0	0	0
MT 9	64	71	64.2801	0	0	0
MT 10	64	71	64.2884	0	0	0
MT 12	156	167	160.443	192	0	0
MT 17	156	167	160.472	0	0	0
MT 18	4	135	31.9948	0	0	0
MT 24	4	8	4.00671	0	0	0
MT 25	10	4676	1141.67	0	0	0
MT 26	4	26	7.29798	0	0	0
MT 27	156	171	160.453	0	0	0

MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

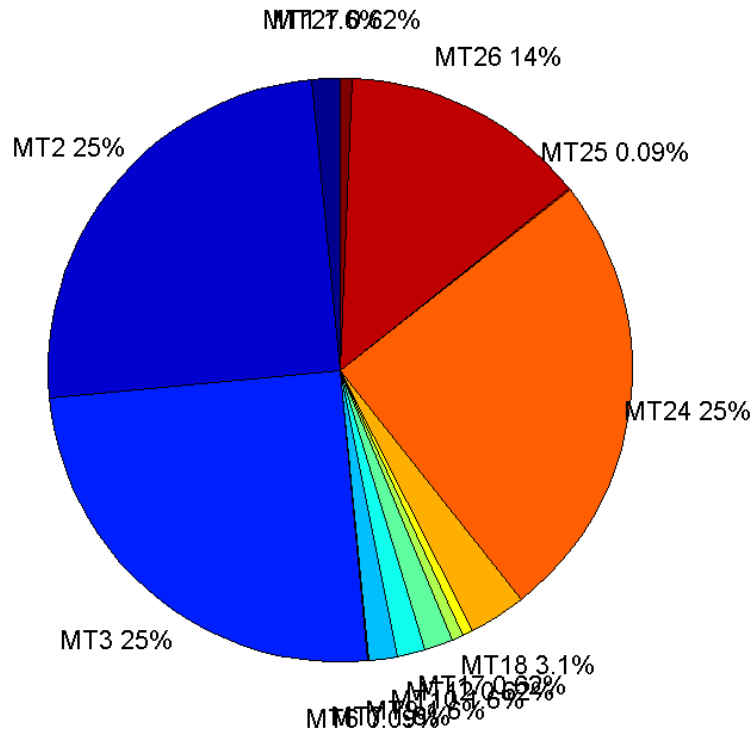
	number of messages	%
MT 0	0	0
MT 1	483	1.55596
MT 2	7750	24.9662
MT 3	7751	24.9694
MT 4	0	0
MT 5	0	0
MT 6	28	0.0902004
MT 7	483	1.55596
MT 9	483	1.55596
MT 10	483	1.55596
MT 12	194	0.62496
MT 17	194	0.62496
MT 18	970	3.1248
MT 24	7750	24.9662

MT 25	28	0.0902004
MT 26	4252	13.6976
MT 27	193	0.621738
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	31042	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	70	64.2884	0	0	0
MT 2	4	8	4.00568	8	0	0
MT 3	4	8	4.00529	7	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	9876	787.519	6	6	6
MT 7	64	71	64.2801	0	0	0
MT 9	64	71	64.2884	0	0	0
MT 10	64	71	64.2884	0	0	0
MT 12	156	171	160.472	193	0	0
MT 17	156	167	160.472	0	0	0
MT 18	4	143	31.9948	0	0	0
MT 24	4	8	4.00568	0	0	0
MT 25	10	4676	1141.67	0	0	0
MT 26	4	28	7.30064	0	0	0
MT 27	156	167	160.453	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:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/01_User/01_User
Outputfile	System	D:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/02_Convertor/02_Convertor

Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	15
Correction_mode	Configuration	SBAS MODE 0
Dual_Frequency	Configuration	no

Position Domain

start: 05:50:00 17.02.2016 (week: 1884 sec: 280200)
end: 14:27:23 17.02.2016 (week: 1884 sec: 311243)
duration: 08:37:24 ..

quality

valid samples 30682
total samples 31043

Event tables

Position discontinuity events type no (0)
APV-I discontinuity events type long
APV-35m discontinuity events type long
LPV-200 discontinuity events type long
CAT-I discontinuity events type all

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	286084	1.43357	8.05302	0.178017	0.325354	14.1123	0.0230547
max normVer	303043	1.31021	40.0655	0.0327018	2.39058	16.5757	0.144222
max HPE	302987	14.0052	586.417	0.0238826	-1.46208	150.01	0.00974654
max VPE	302879	3.1626	57.2715	0.0552212	2.87703	28.4885	0.100989
min HPL	286615	1.07386	7.69383	0.139574	0.180262	13.343	0.0135099
min VPL	280780	0.686066	10.0825	0.0680452	0.606171	11.9821	0.0505897

APV-I discontinuity events :

#	Epoch	duration	stable period
1	292397	480	11836
2	293357	70	480
3	301970	136	6906
4	302382	649	1

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	292397	480	3818
2	293357	70	480
3	298054	430	2
4	298556	155	1
5	301970	136	3215
6	302382	649	1
7	306836	160	3703

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	292397	480	3818
2	293357	70	480
3	298054	430	2
4	298556	155	1
5	301970	136	3215
6	302382	649	1
7	306836	160	3703

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	280780	3	0
2	280784	3	1
3	280788	3	1
4	280792	3	1

5	280796	3	1
6	280800	3	1
7	280804	3	1

First Glance analysis

Duration	31044
Number of Samples	31043
Number of invalid sample	361
Number of no position solution samples	0
Number of missing sample	1
Logging Loss	0.0032212
Processing Loss	1.1629
Number of Misleading Information	0
Data gaps	1
Discontinuities	1

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
30682	29275	28441	8	28441

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.70549	1.59855	1.57514	0.777034	1.57514
HPEscale 95%	NaN	5.11751	5.13528	3.08335	5.13528
VPE 95%	1.81258	1.68362	1.67363	0.738054	1.67363
VPEscale 95%	NaN	4.72703	3.3224	0.738762	3.3224

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	1	0.954142	0.92696	0.000260739	0.92696
measurements	0.988371	0.943047	0.916181	0.000257707	0.916181
Operational	0.988339	0.943016	0.916151	0.000257699	0.916151

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	--	46	101	7	101
Long	--	4	7	0	7
Independent	--	3	4	0	4
P(disc.)	NaN	0.00153715	0.00210963	0	0.00210963
P(side)	NaN	0.00532878	0.0111107	0.75	0.0111107

Integrity events :

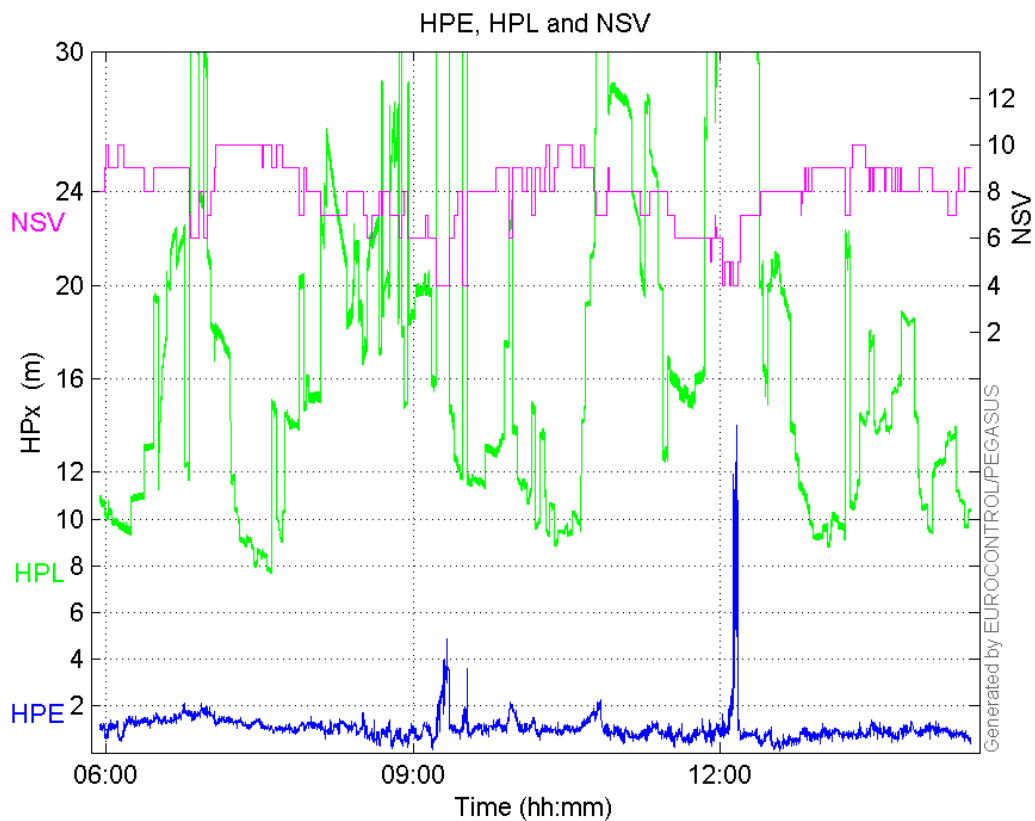
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

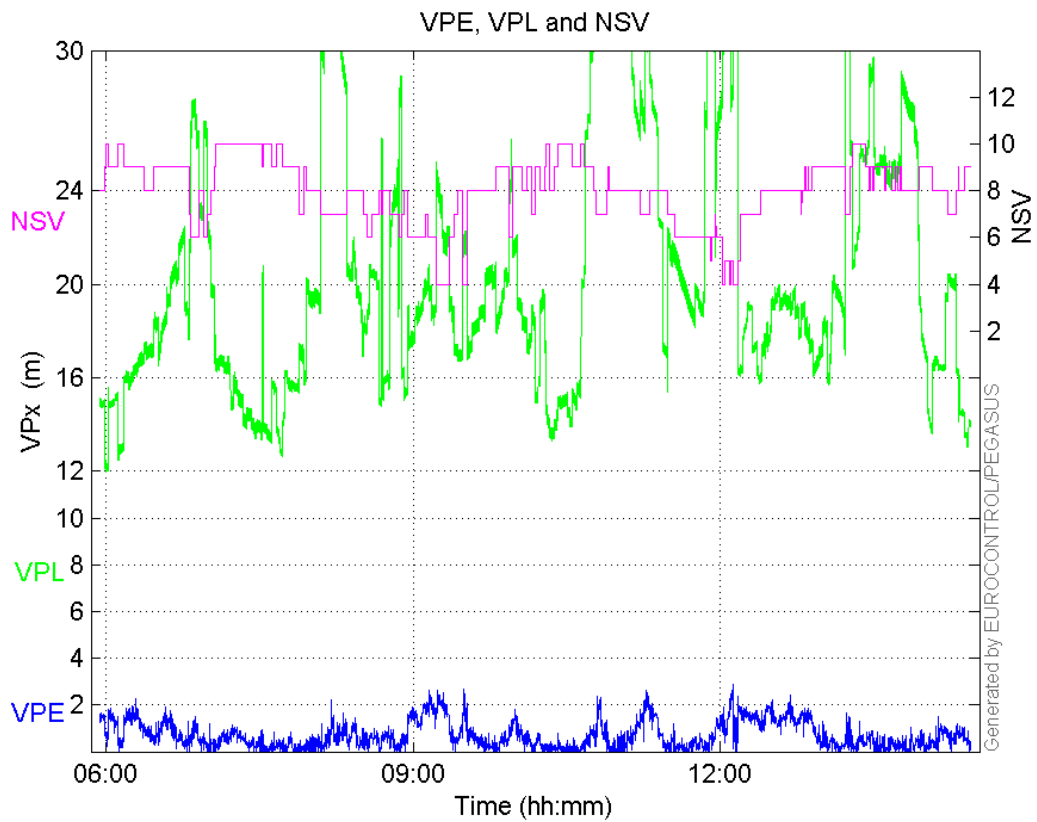
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	30682	29275	28441	8	28441
SIS Availability	1	0.954142	0.92696	0.000260739	0.92696
Local Availability	0.988371	0.943047	0.916181	0.000257707	0.916181
Operational Availability	0.988339	0.943016	0.916151	0.000257699	0.916151
HPE 95%	1.70549	1.59855	1.57514	0.777034	1.57514
HPEscale 95%	NaN	5.11751	5.13528	3.08335	5.13528
VPE 95%	1.81258	1.68362	1.67363	0.738054	1.67363
VPEscale 95%	NaN	4.72703	3.3224	0.738762	3.3224
All Discontinuity Events	--	46	101	7	101
Long Discontinuity Events	--	4	7	0	7
Independent Discontinuity Events	--	3	4	0	4
P(discontinuity)	NaN	0.00153715	0.00210963	0	0.00210963
P(sliding window)	NaN	0.00532878	0.0111107	0.75	0.0111107
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:

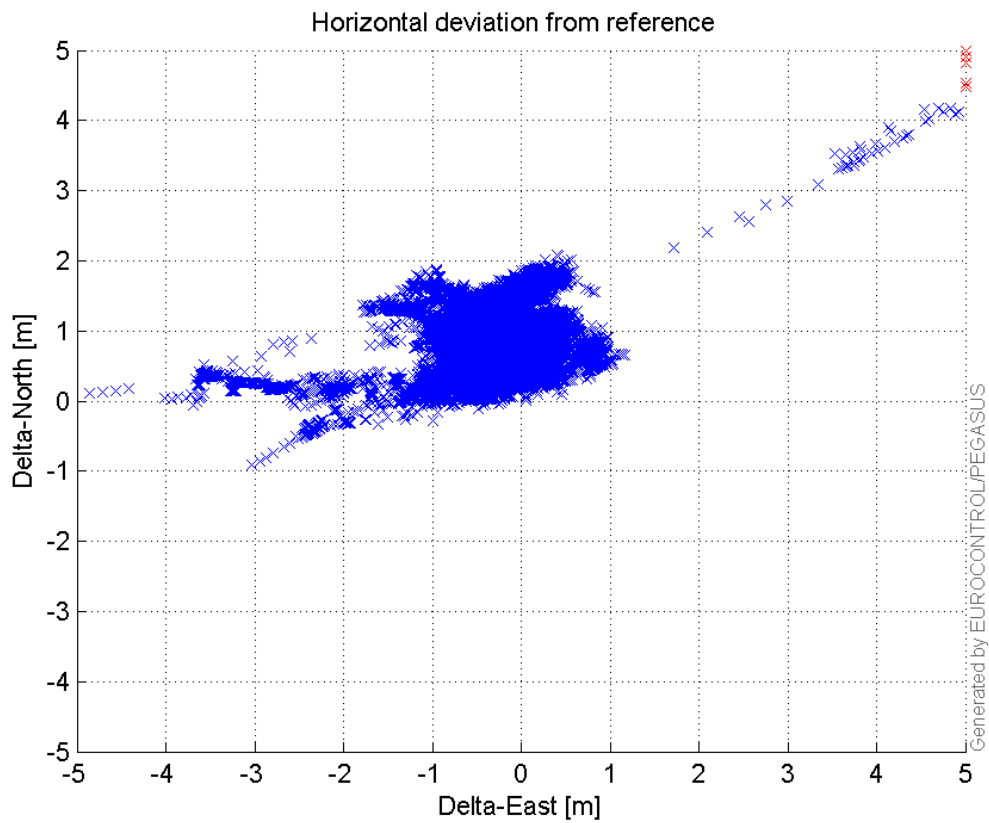


VPE, VPL and NSV:



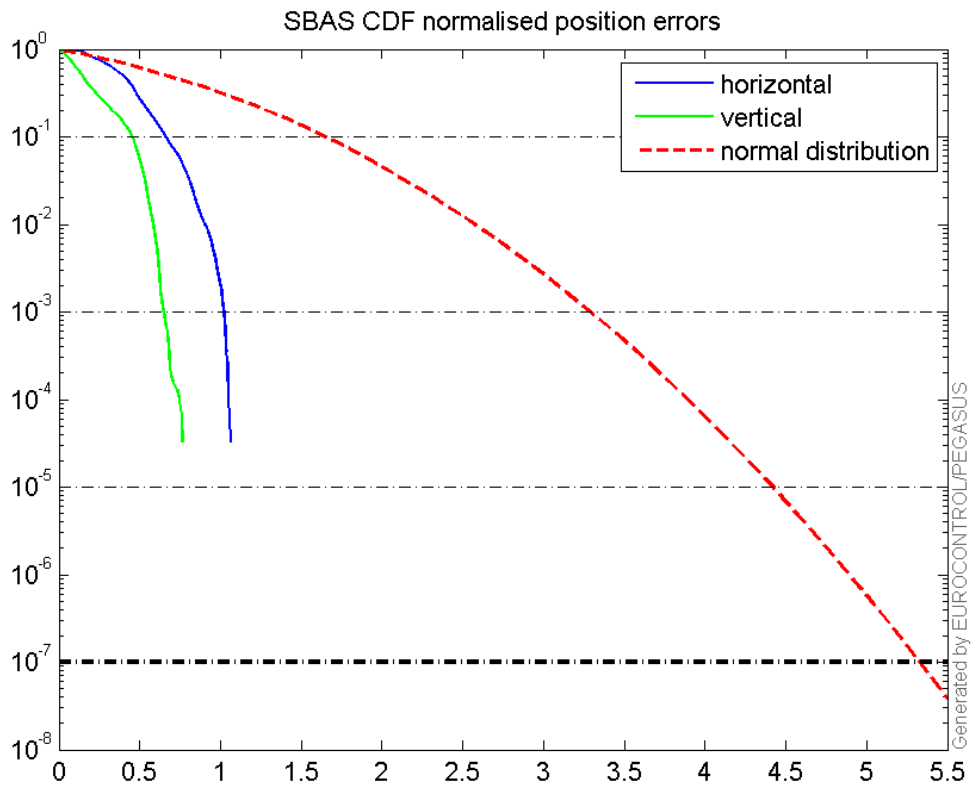
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

```

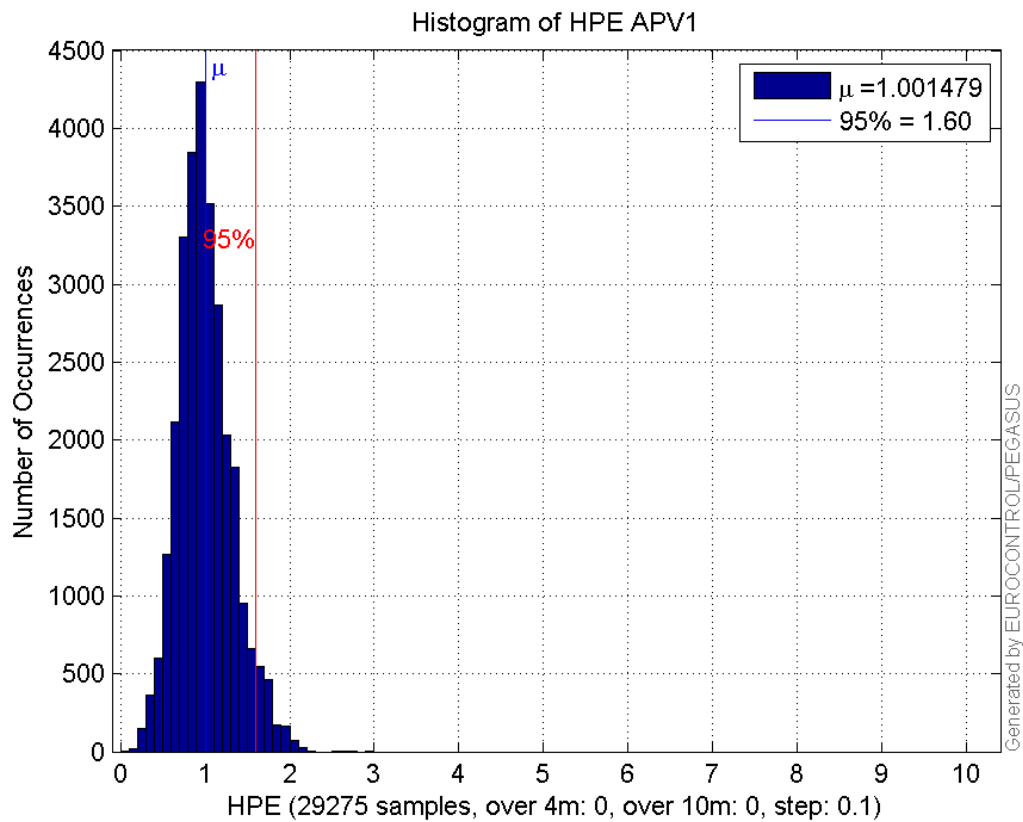
number 29275
sum 29318.299
sum2 32314.415
prctile95 1.5985521
prctile99 1.8858687
number 29275
sum 19892.434
sum2 21615.172
prctile95 1.6836234
prctile99 2.0344471
number 29275
sum 491771.64
sum2 9613607.2
prctile95 31.04375
prctile99 35.46795
number 29275
sum 601338.72
sum2 13402835
prctile95 33.3666
prctile99 41.831275
number 29275
sum 2009.4564
sum2 166.83157
prctile95 0.12793767
prctile99 0.15165696
number 29275
    
```

sum 1024.0514
sum2 59.545936
prctile95 0.094540672
prctile99 0.10933111
number 28441
sum 28379.078
sum2 31089.66
prctile95 1.5751355
prctile99 1.8216931
number 28441
sum 19228.499
sum2 20803.042
prctile95 1.6736257
prctile99 2.0194406
number 28441
sum 466556.85
sum2 8829053.6
prctile95 29.558455
prctile99 33.871235
number 28441
sum 567906.34
sum2 12053975
prctile95 30.339875
prctile99 34.148581
number 28441
sum 1978.7508
sum2 165.59828
prctile95 0.12838201
prctile99 0.1522051
number 28441
sum 1007.949
sum2 59.074746
prctile95 0.094925668
prctile99 0.10941425

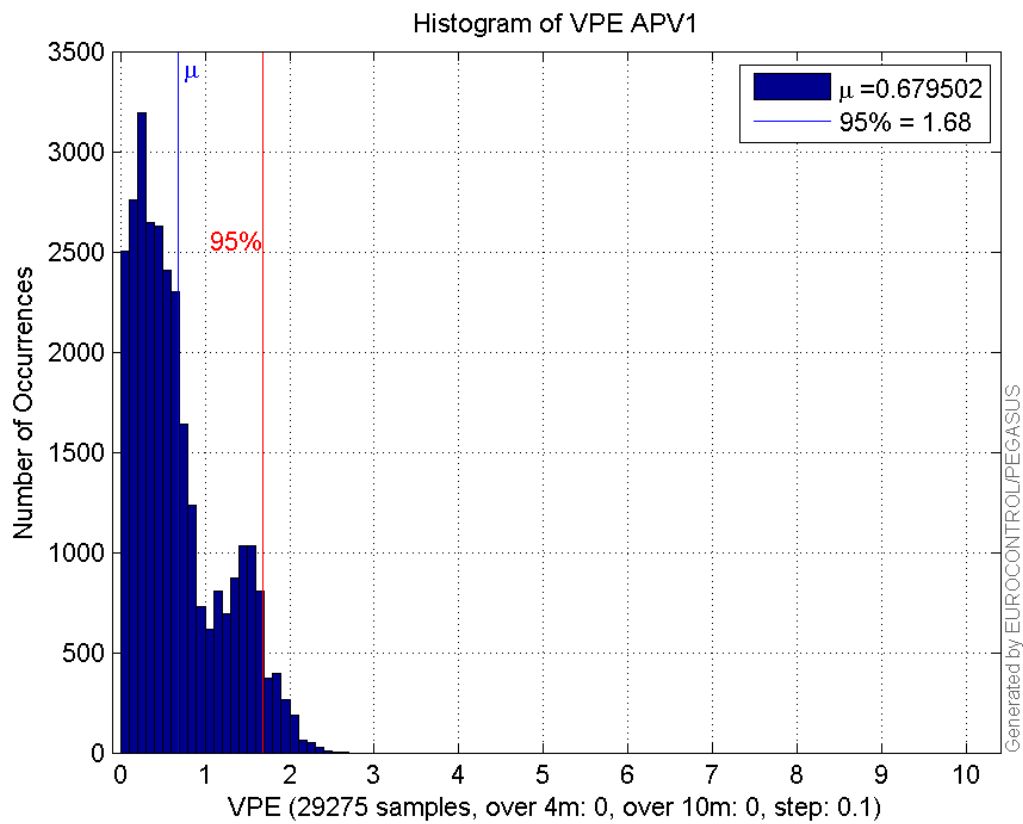
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.00148	0.317594	0.973203	1.59855	1.88587	1.05063
HPL	16.7983	6.79755	15.0095	31.0438	35.468	18.1215
VPE	0.679502	0.525961	0.536259	1.68362	2.03445	0.859272
VPL	20.541	5.99104	18.9544	33.3666	41.8313	21.3969

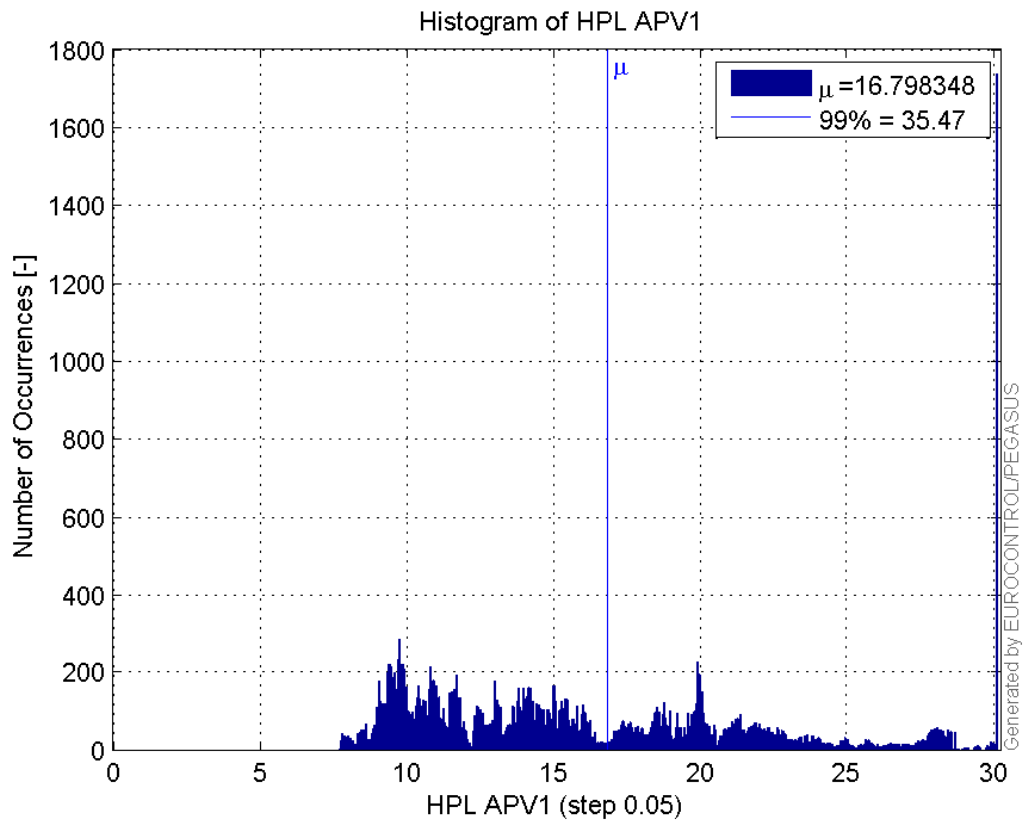
Histogram of HPE APV1:



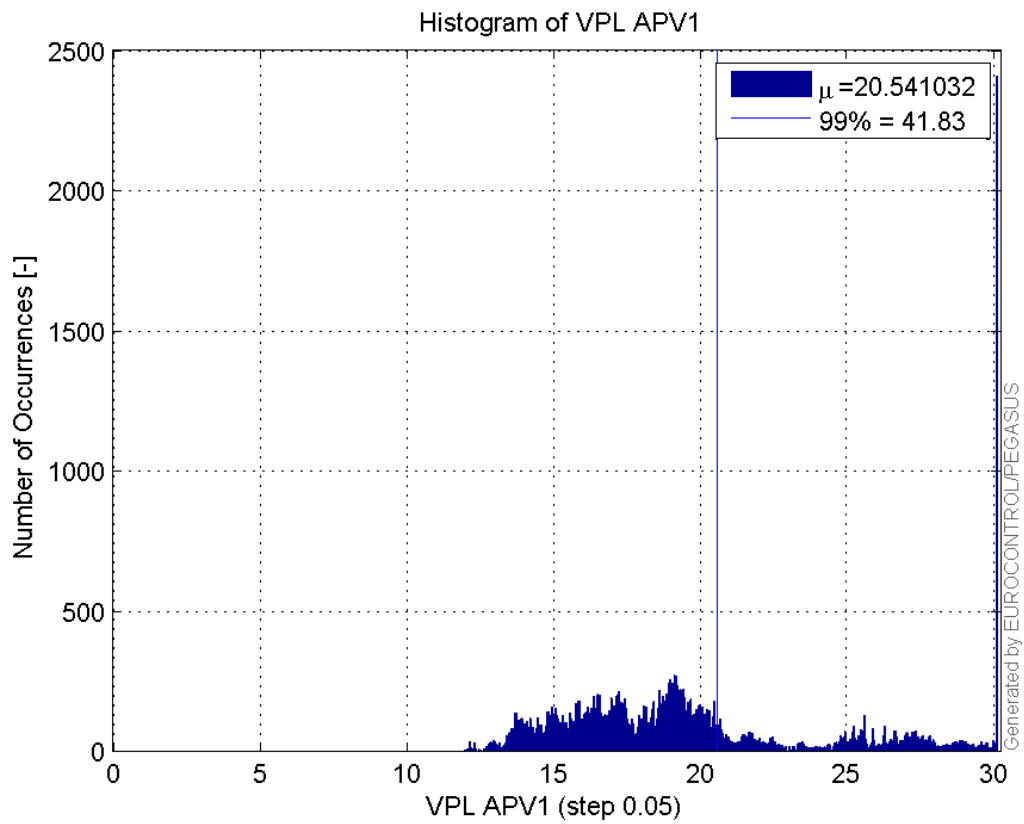
Histogram of VPE APV1:



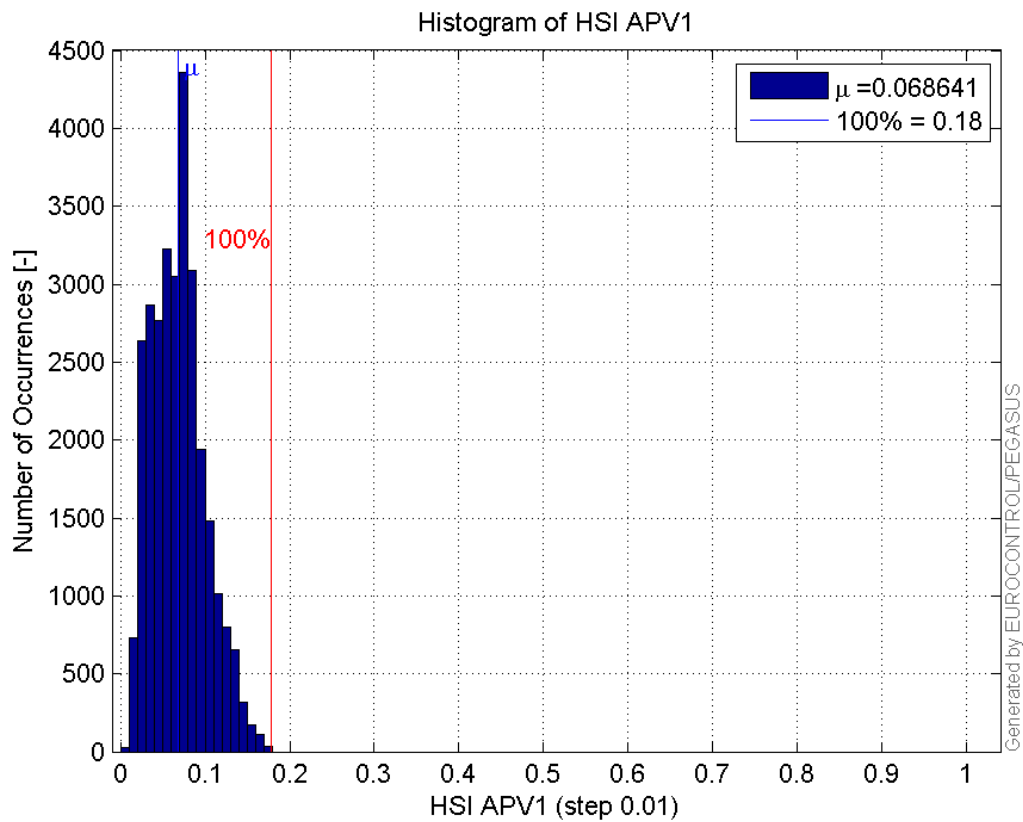
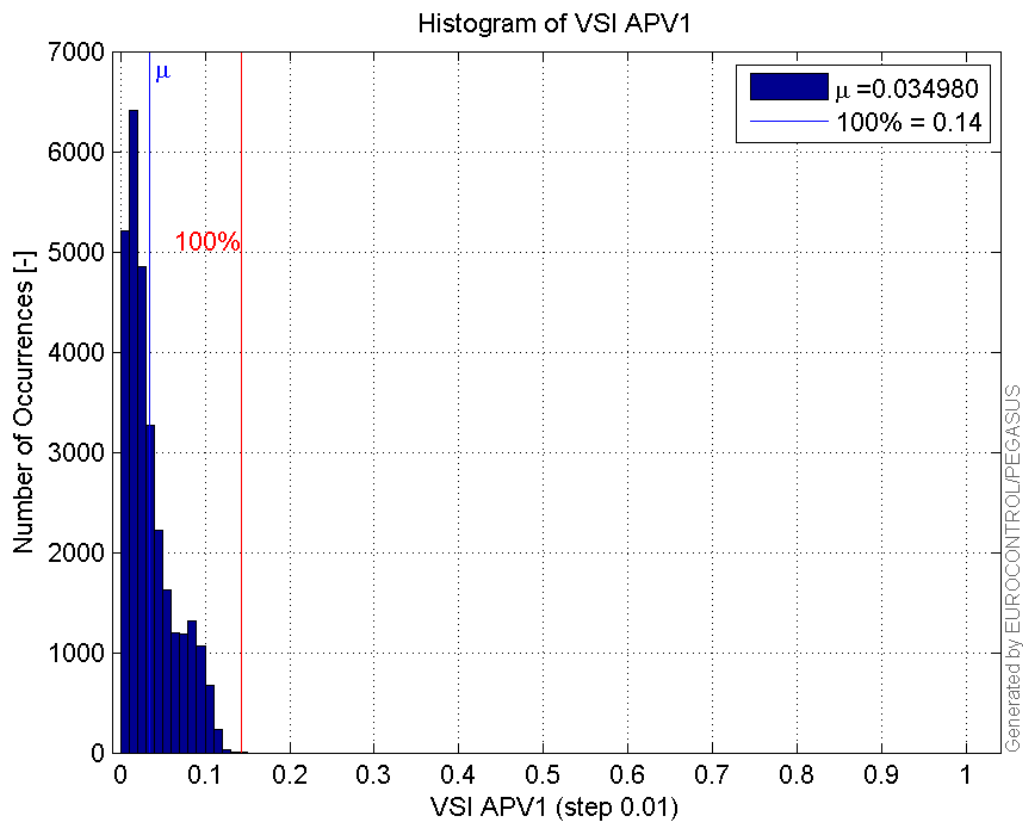
Histogram of HPL APV1:

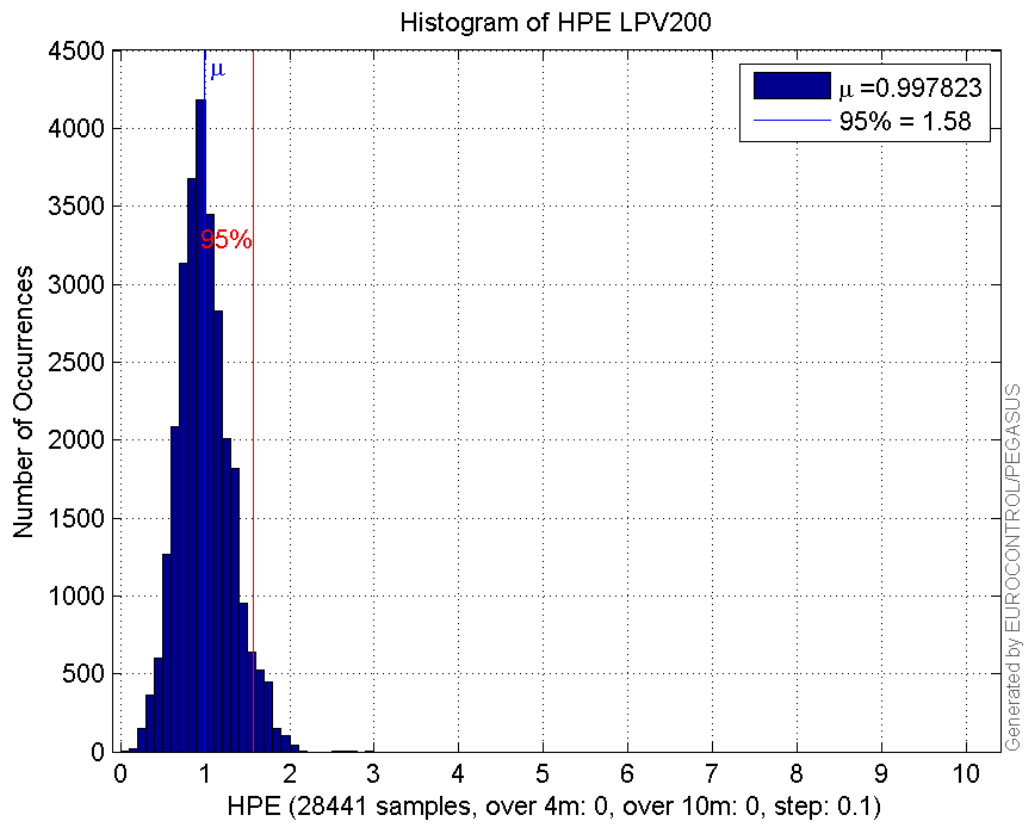


Histogram of VPL APV1:

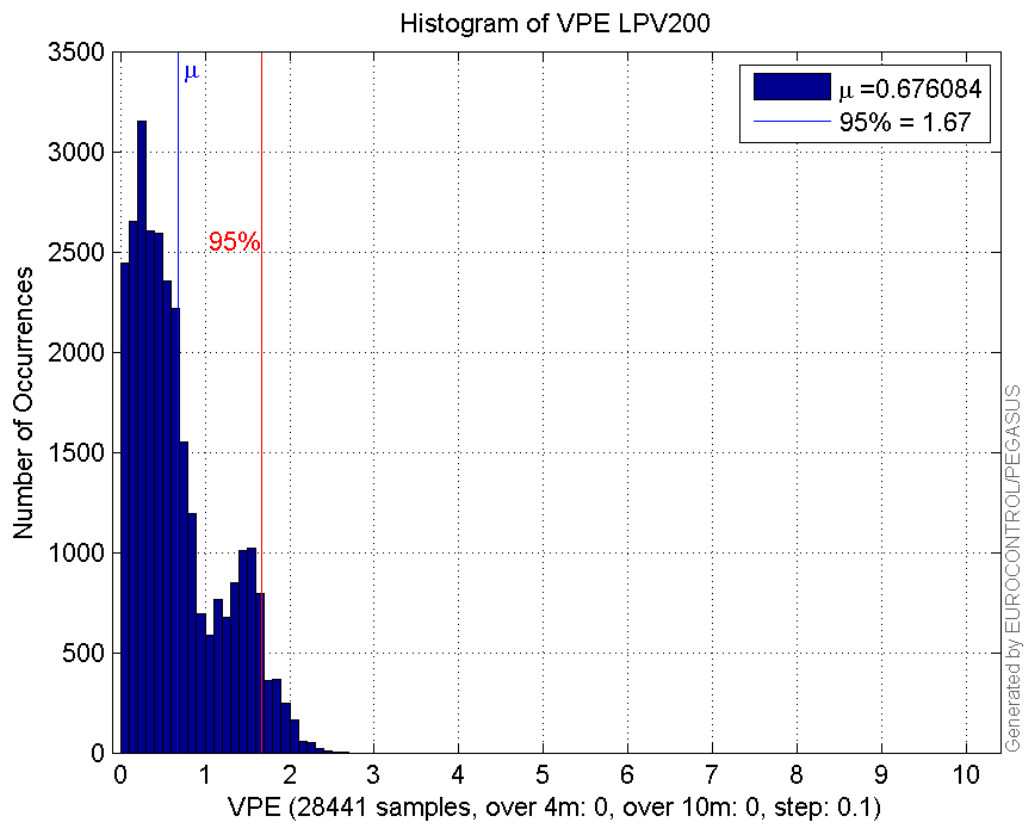


Histogram of HSI APV1:

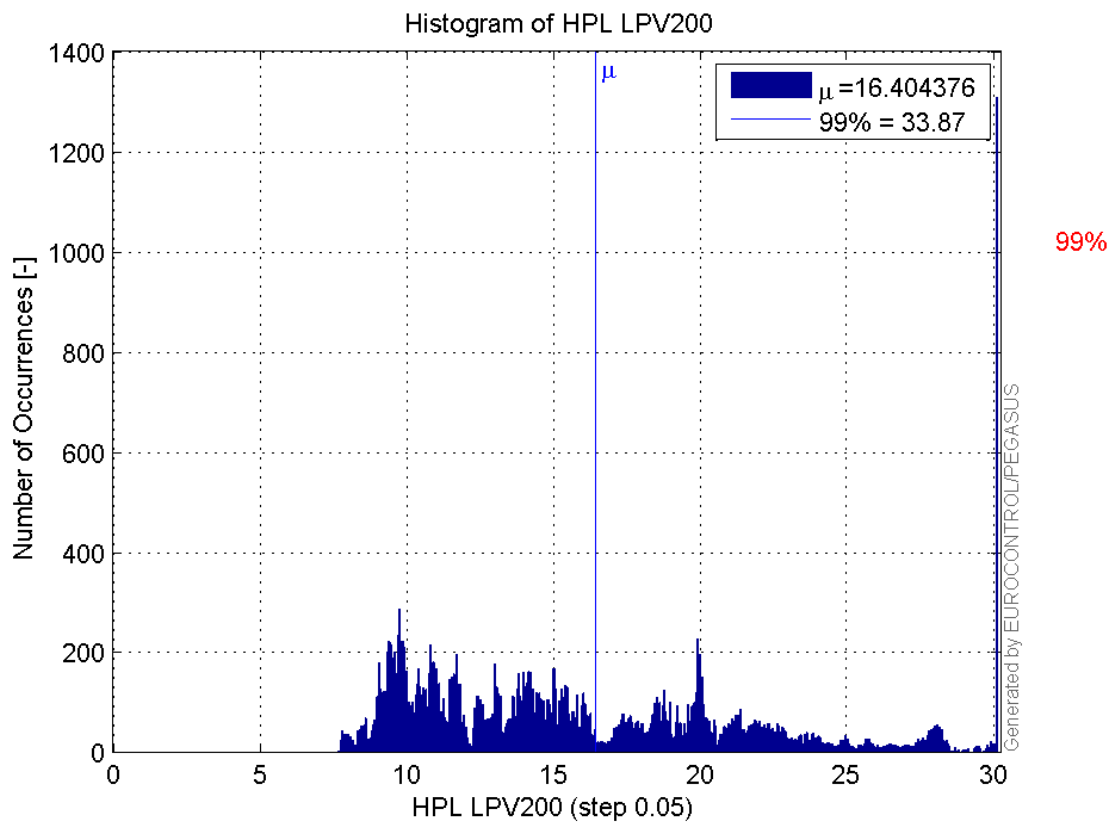
**Histogram of VSI APV1:****Histogram of HPE LPV200:**



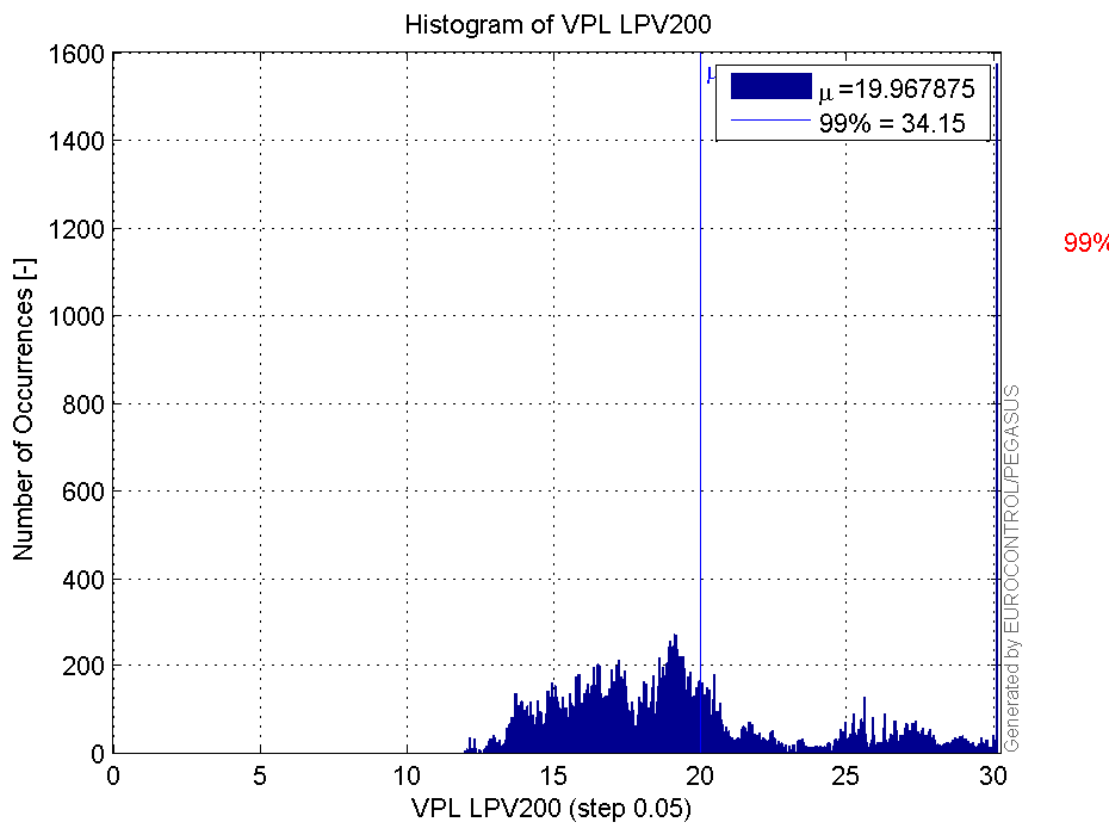
Histogram of VPE LPV200:



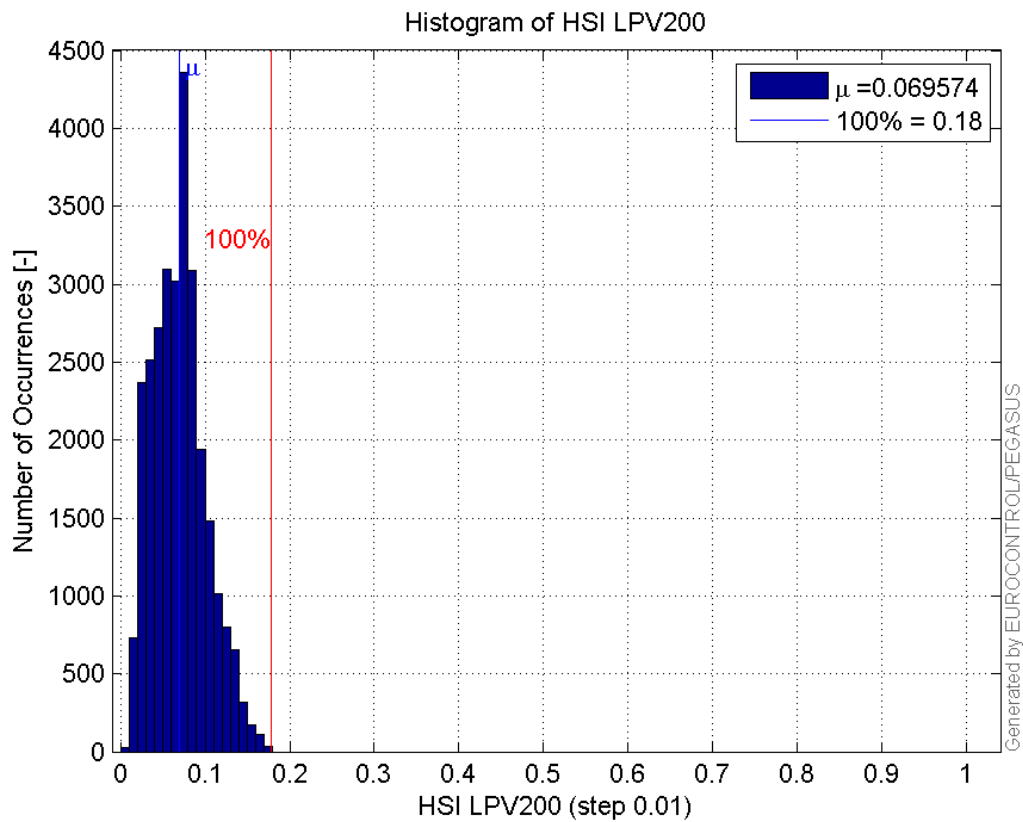
Histogram of HPL LPV200:



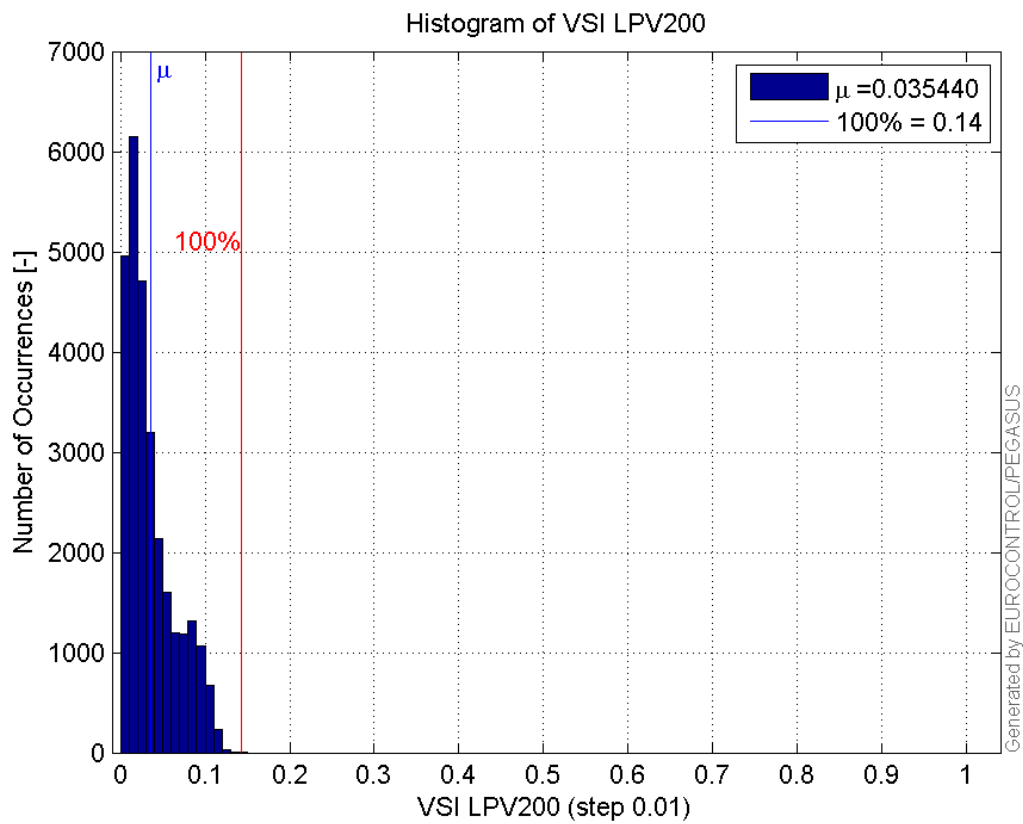
Histogram of VPL LPV200:



Histogram of HSI LPV200:

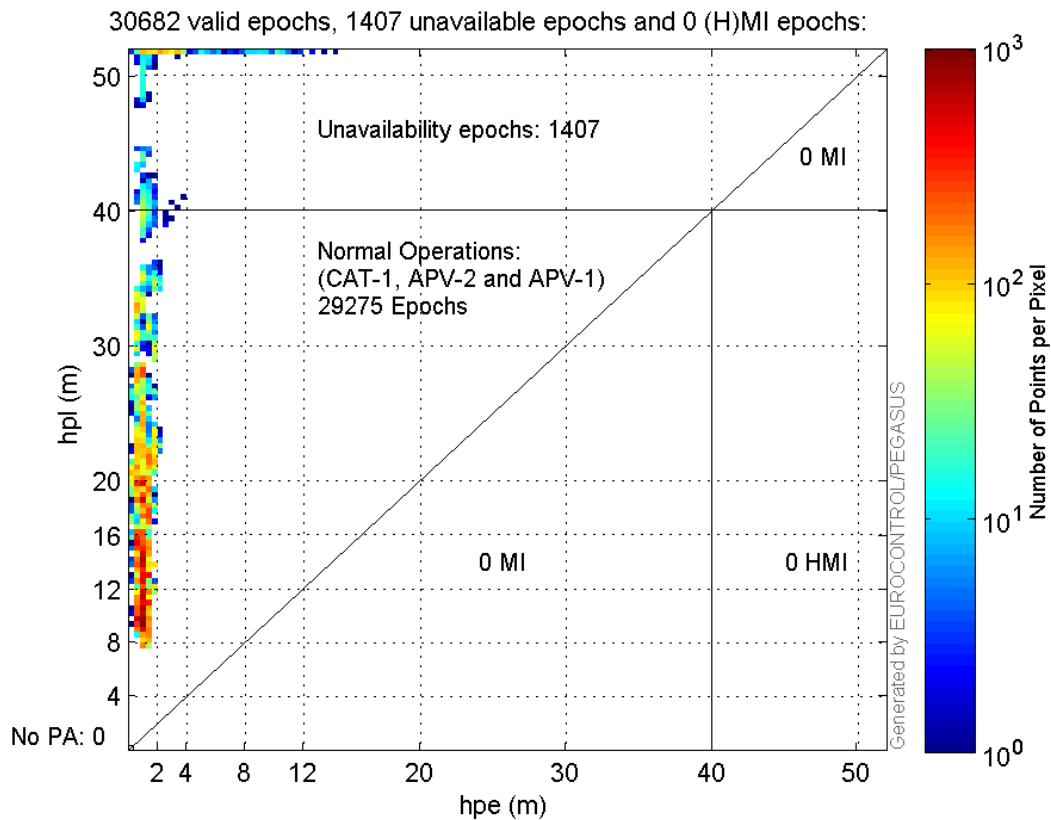


Histogram of VSI LPV200:

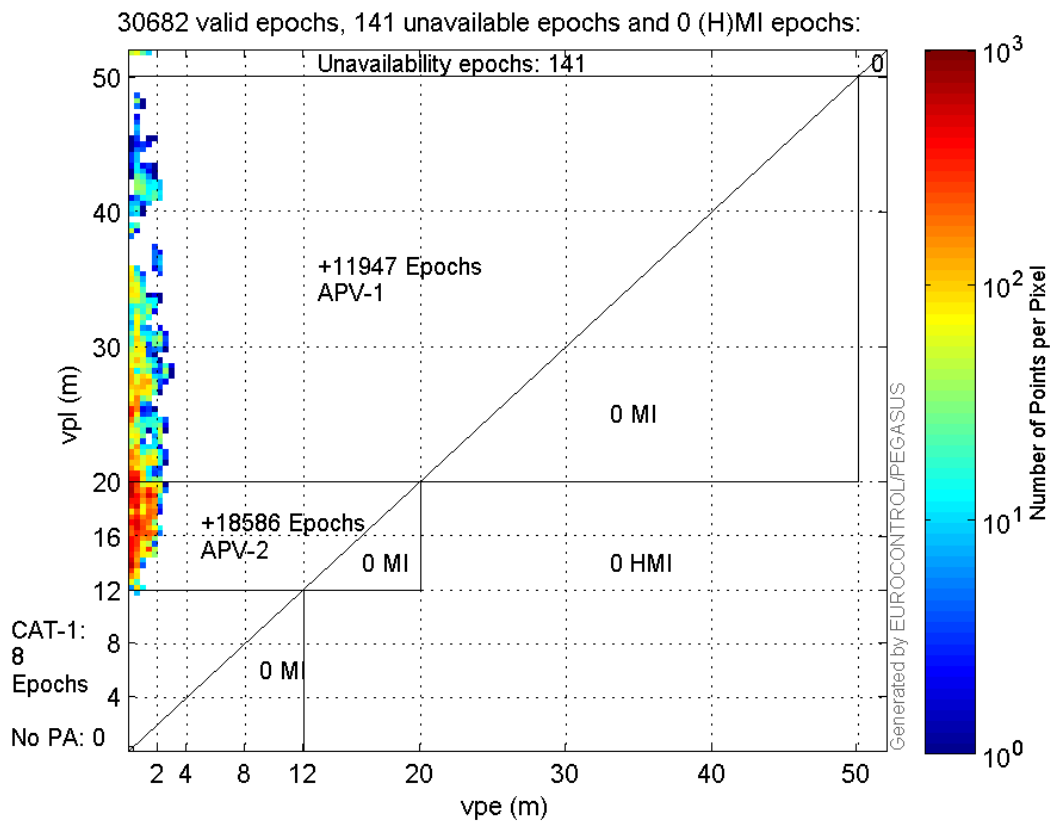


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
------	---------	-------

name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/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	234.4749
mi_numbers	results	0

Range Domain

start: 05:50:00 17.02.2016 (week: 1884 sec: 280200)
end: 14:27:23 17.02.2016 (week: 1884 sec: 311243)
duration: 08:37:24 ..

quality

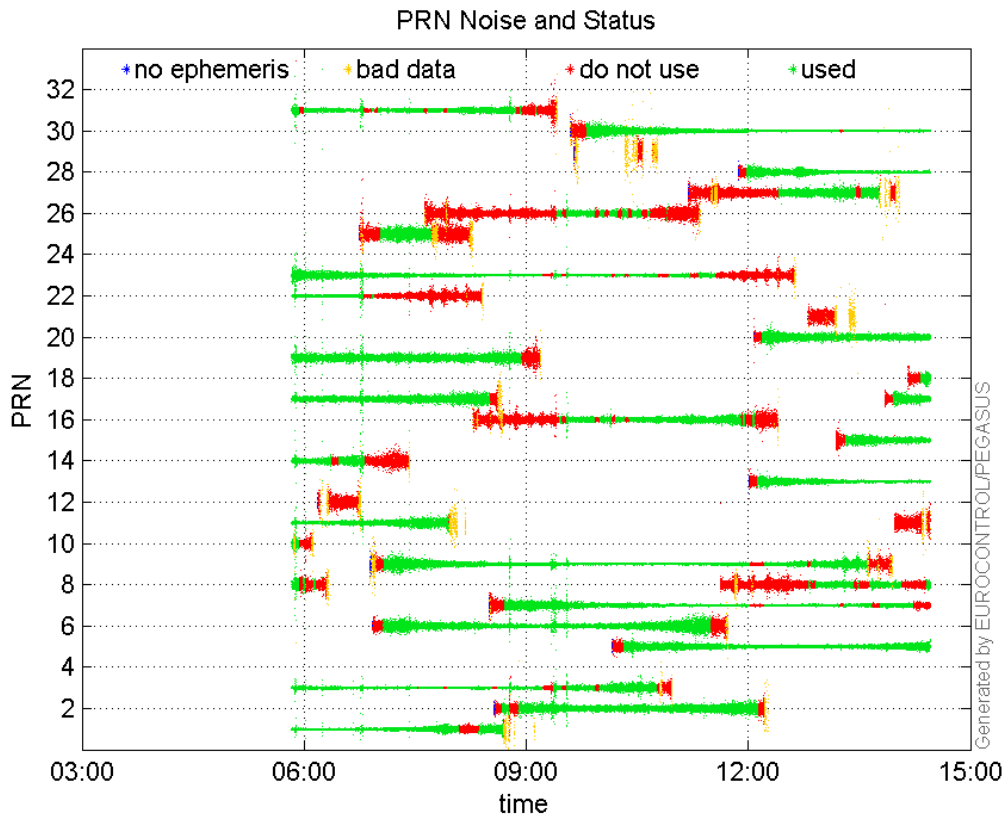
valid samples 31043
total samples 31043

PRN overview

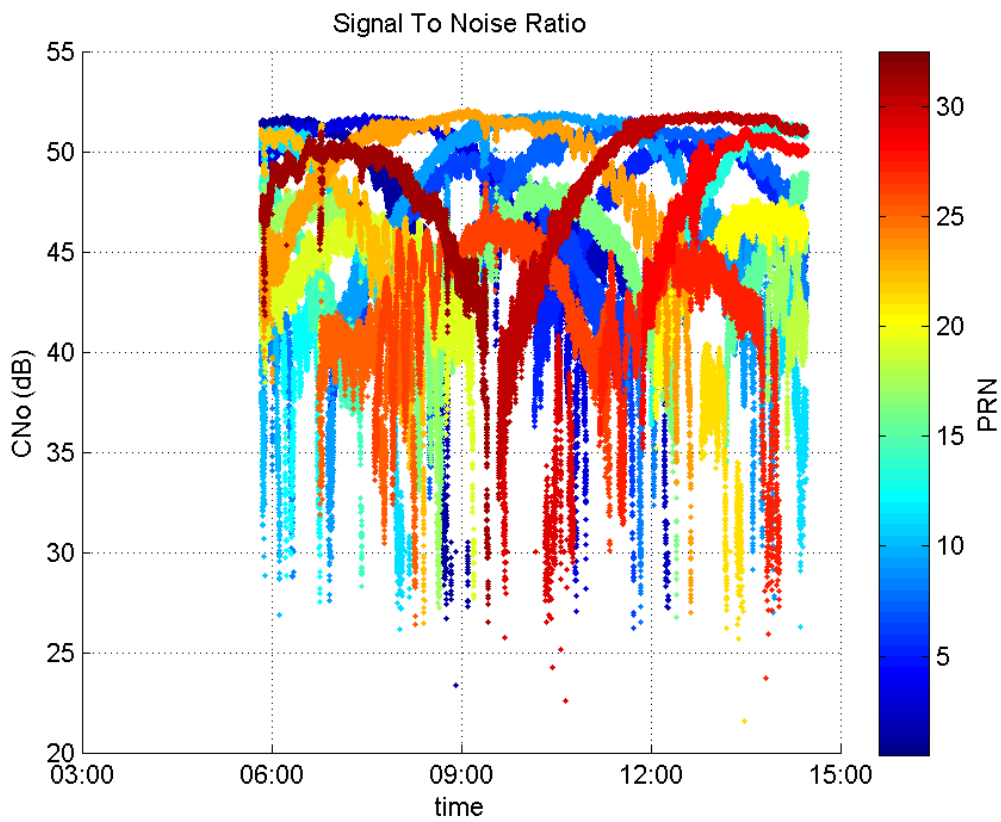
Number of Visible GPS Satellites 29
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



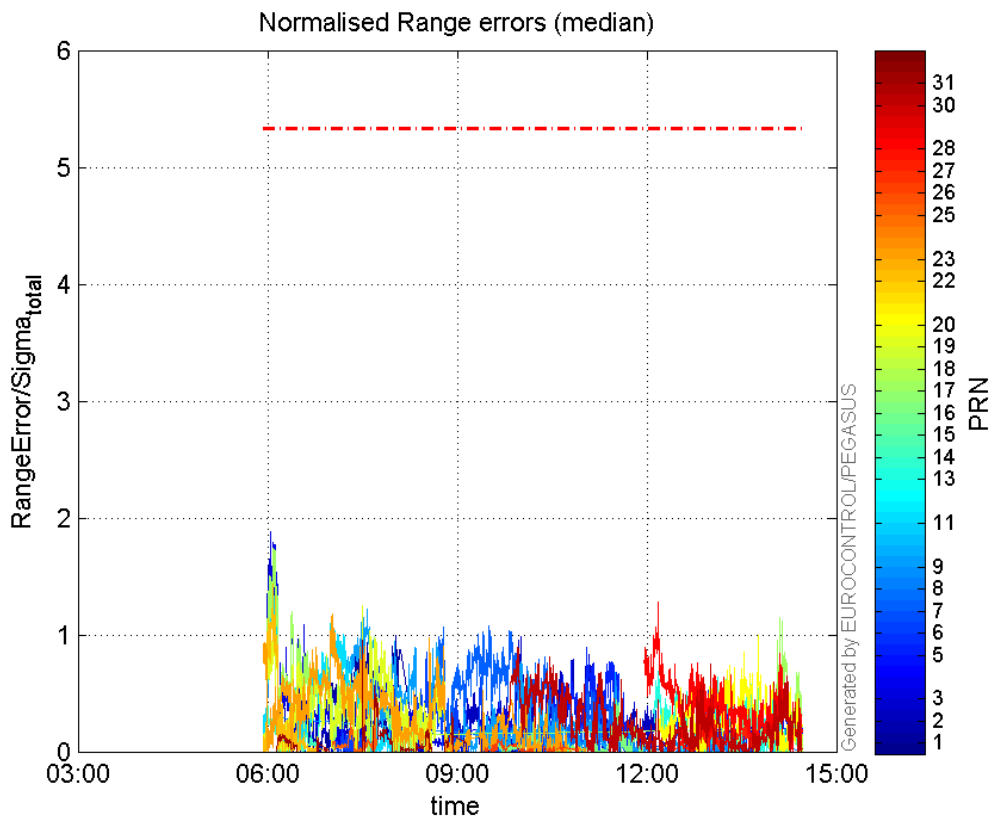
range errors

Number of Overbounding Norm Errors 0

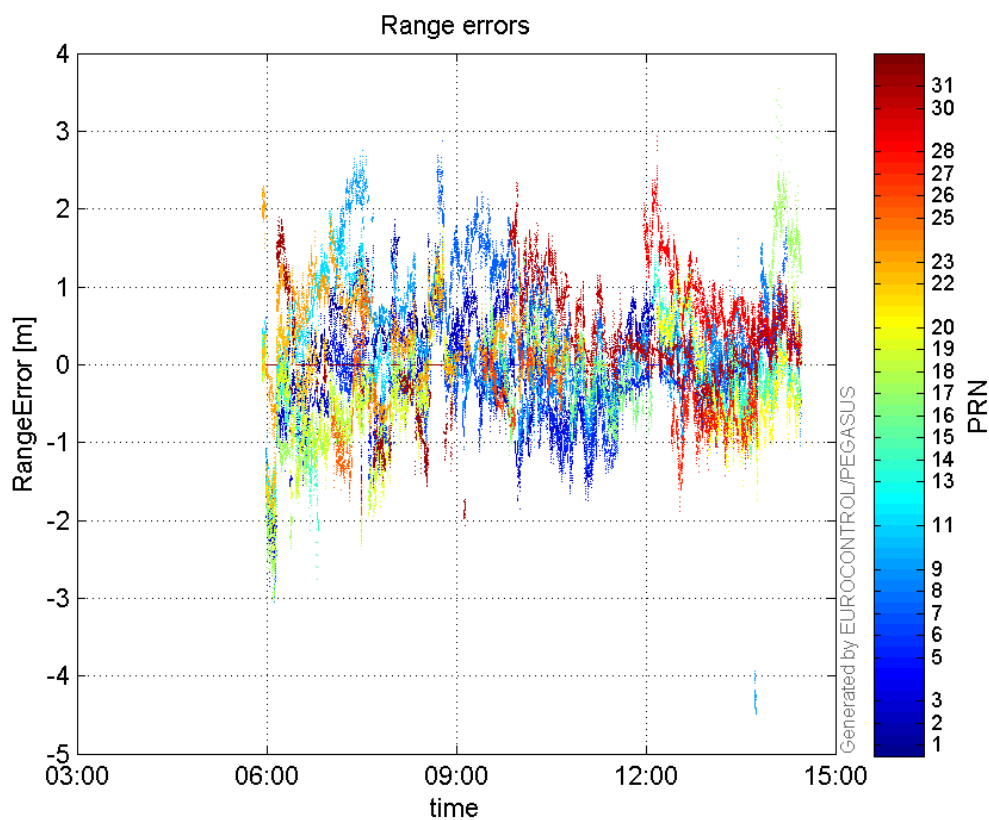
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1884	280936	1	1.67675	-2.25779	1.34653
1884	295219	2	0.984245	-1.84907	1.87867
1884	280951	3	1.88075	-2.85607	1.51859
1884	298986	5	0.889042	-1.72711	1.94266
1884	290819	6	0.897614	1.44573	1.61064
1884	293419	7	1.07557	2.13116	1.98142
1884	281251	8	1.06637	-3.05109	2.86119
1884	286493	9	1.22039	2.66894	2.18695
1884	281216	11	1.50664	-2.22701	1.47813
1884	303043	13	0.683772	1.59347	2.33041
1884	280811	14	0.388747	-2.69121	6.92278
1884	308740	15	0.545976	-1.21849	2.23176
1884	300692	16	0.445119	-1.15998	2.606
1884	281128	17	1.74284	-3.0555	1.75317
1884	310749	18	0.385717	1.15118	2.98452
1884	286190	19	1.2528	-2.29484	1.83176
1884	308740	20	0.995055	-1.74713	1.75582
1884	281125	22	1.437	-2.27948	1.58628
1884	284494	23	1.17891	1.89752	1.60955
1884	285522	25	0.241393	-1.75229	7.25909
1884	293974	26	0.104693	-0.586049	5.59779
1884	305933	27	0.420514	-1.35584	3.22424
1884	303043	28	1.27721	2.93406	2.29725
1884	295052	30	0.889496	2.33353	2.62343
1884	286191	31	0.95491	-1.78244	1.8666

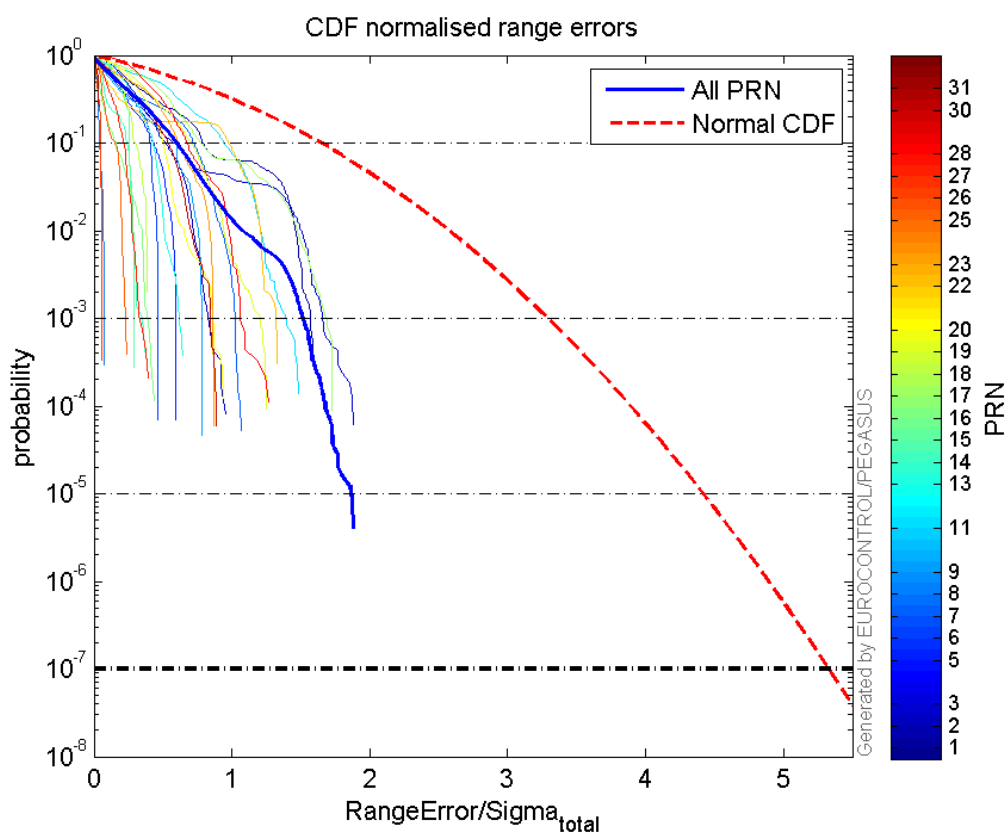
Normalised Range errors (median):



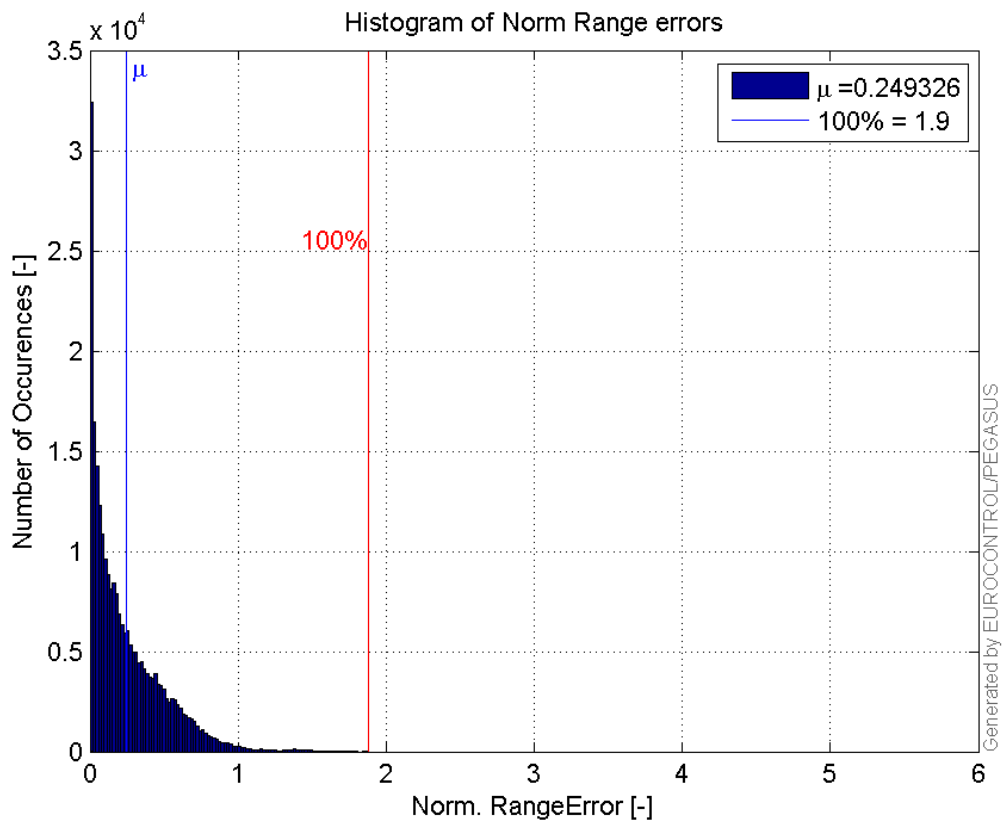
Range errors:



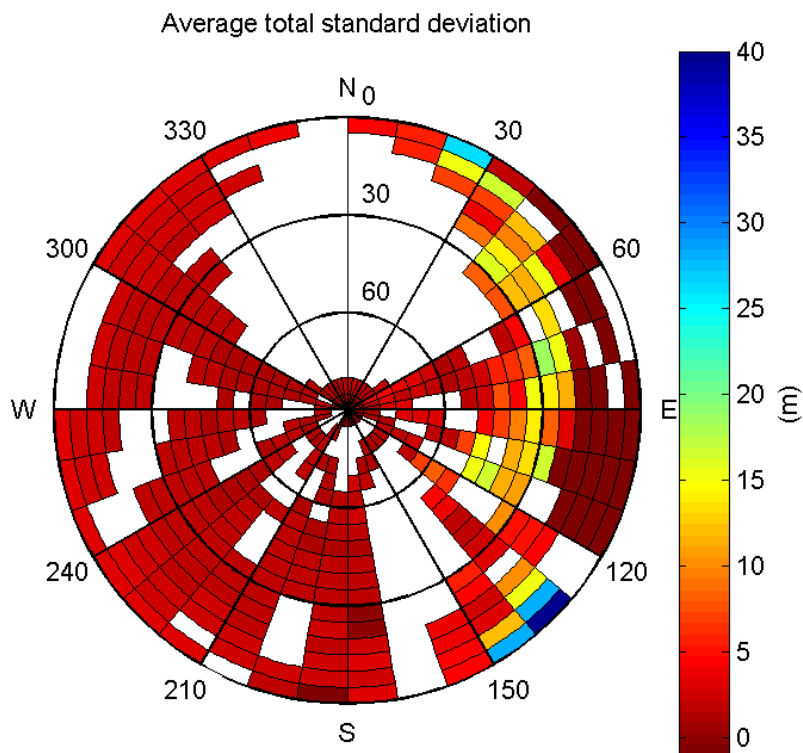
CDF normalised range errors:



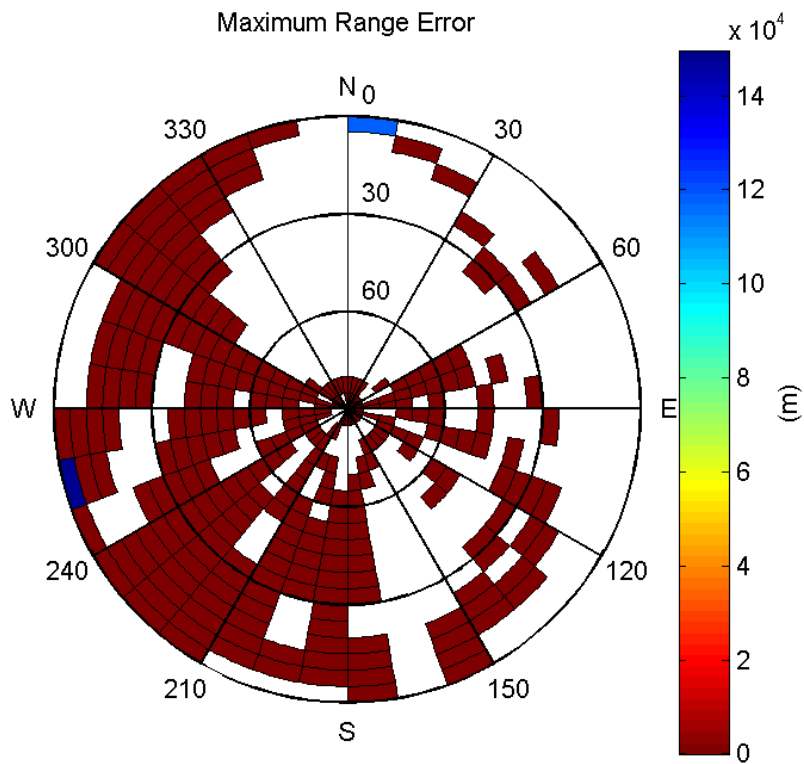
Histogram of Norm Range errors:



Sigma Sky Plot:

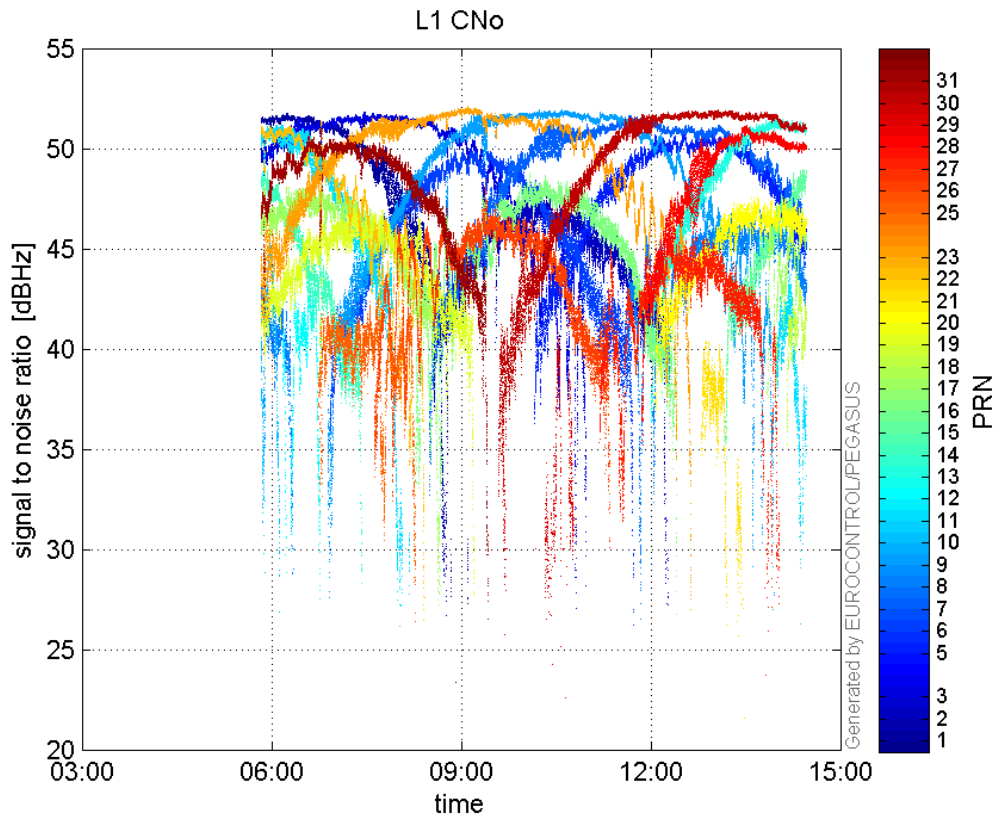


Norm Error Sky Plot:

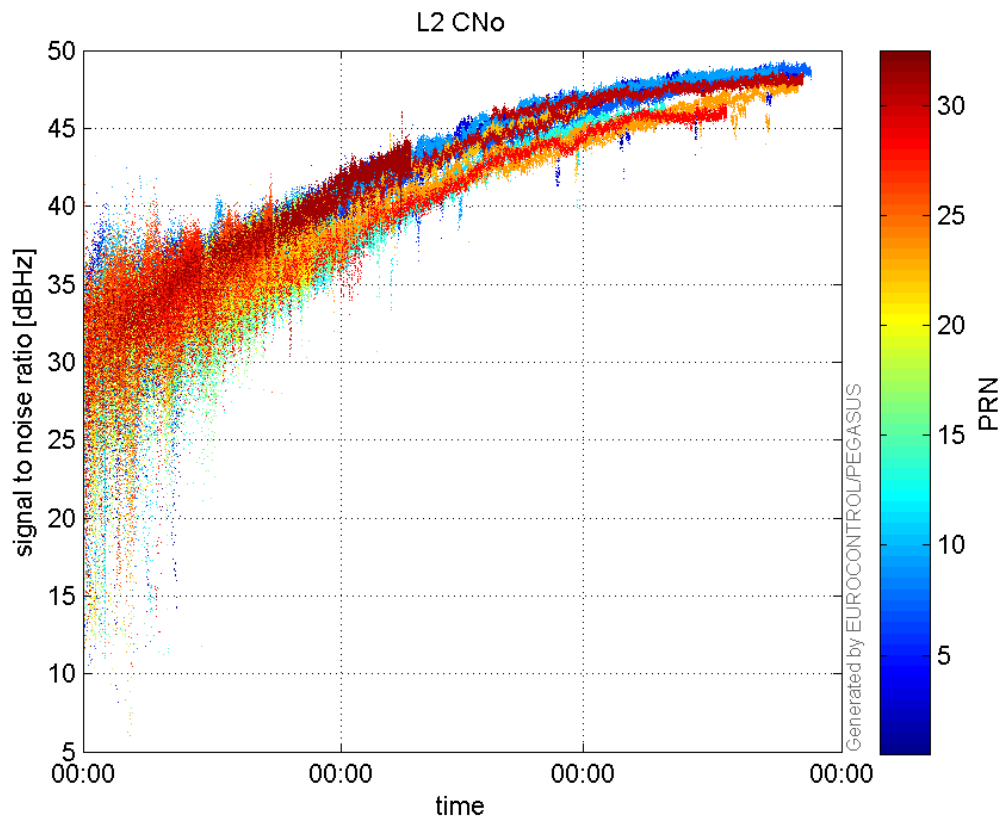


signal quality

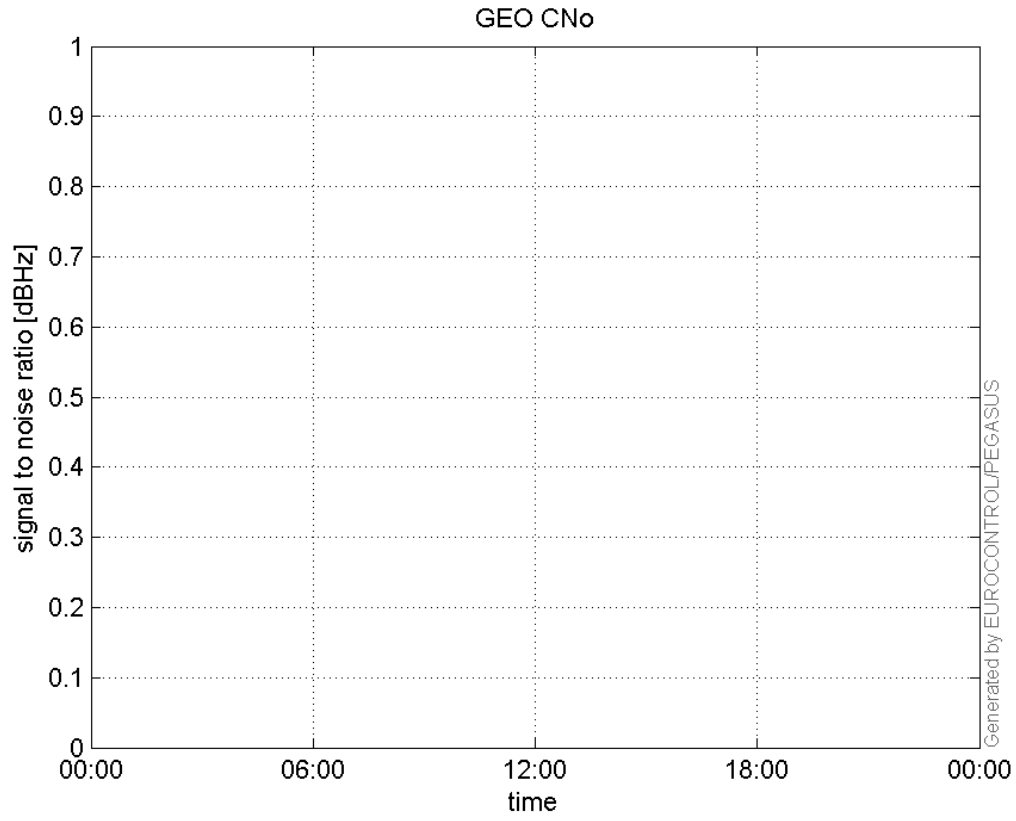
L1 CNo:



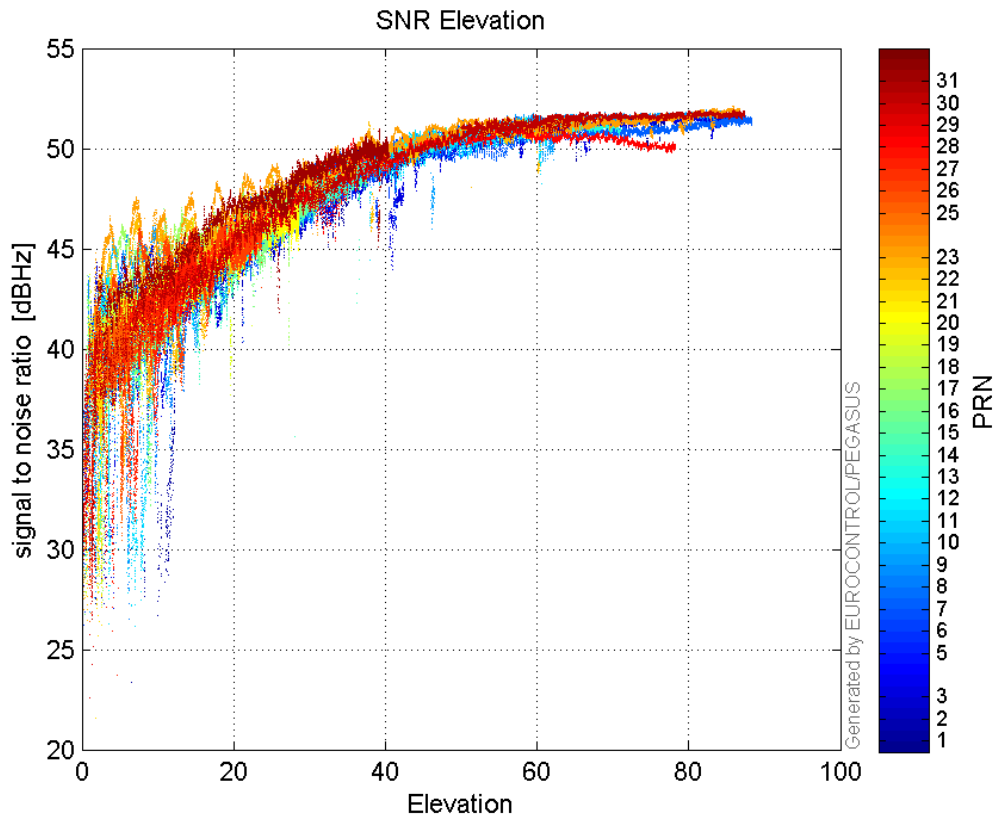
L2 CNo:



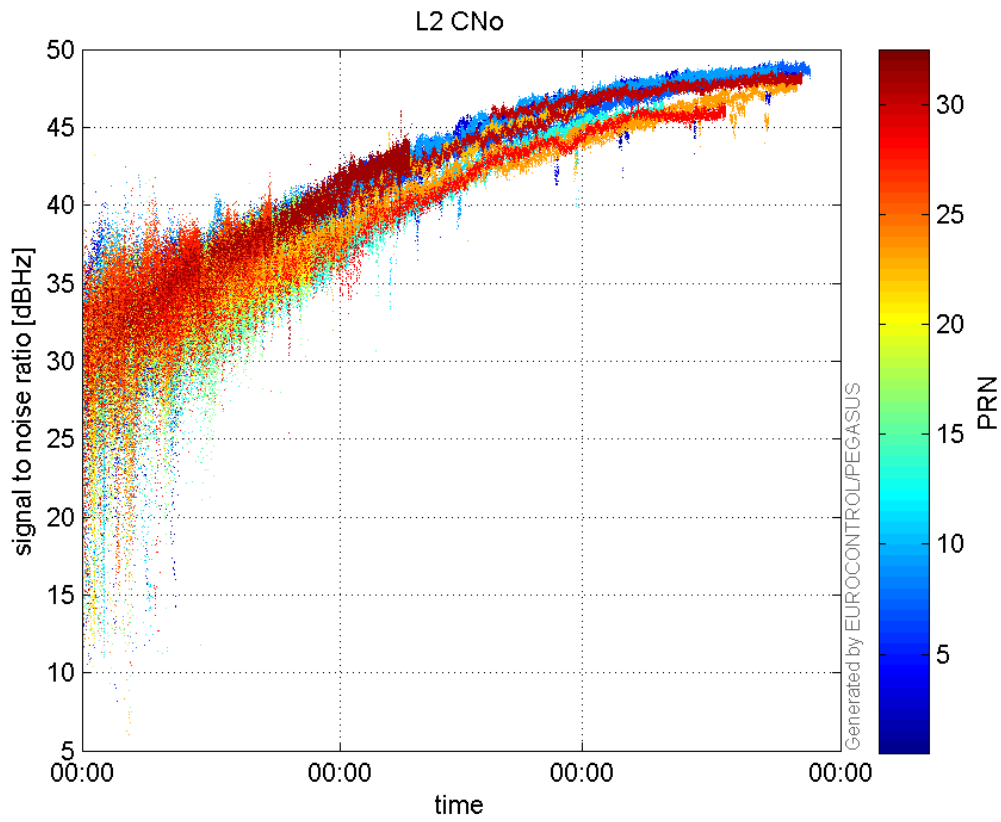
GEO CNo:



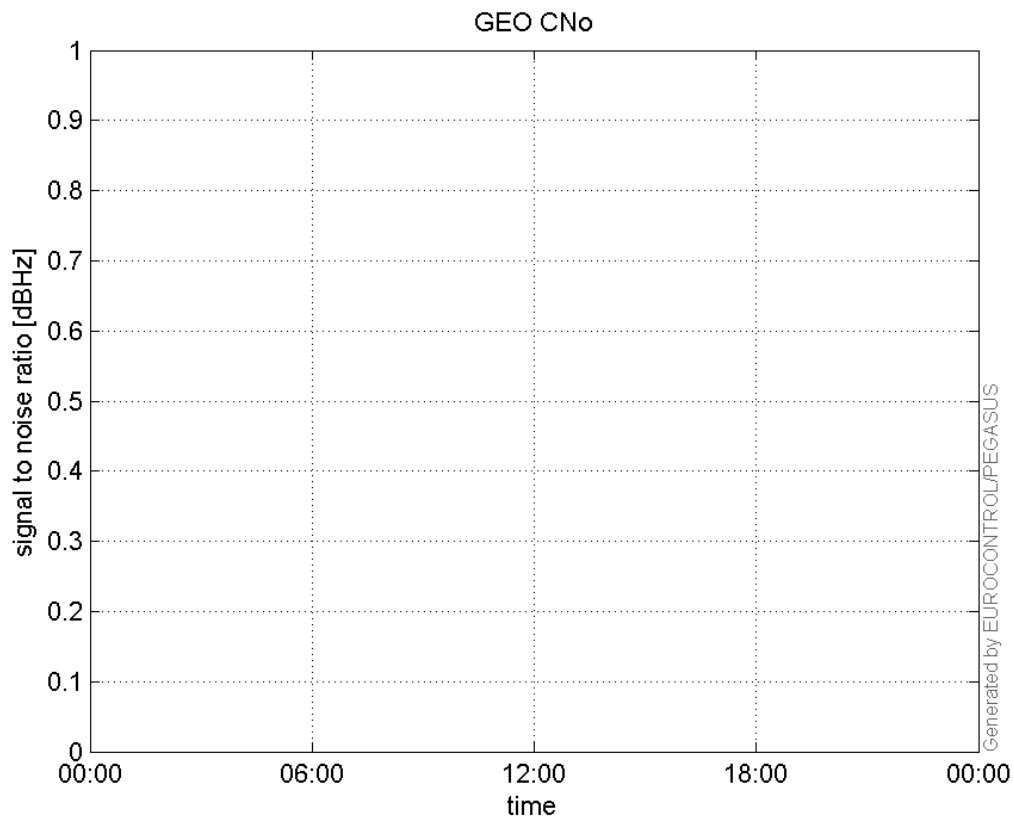
SNR Elevation:



L2 CNo:

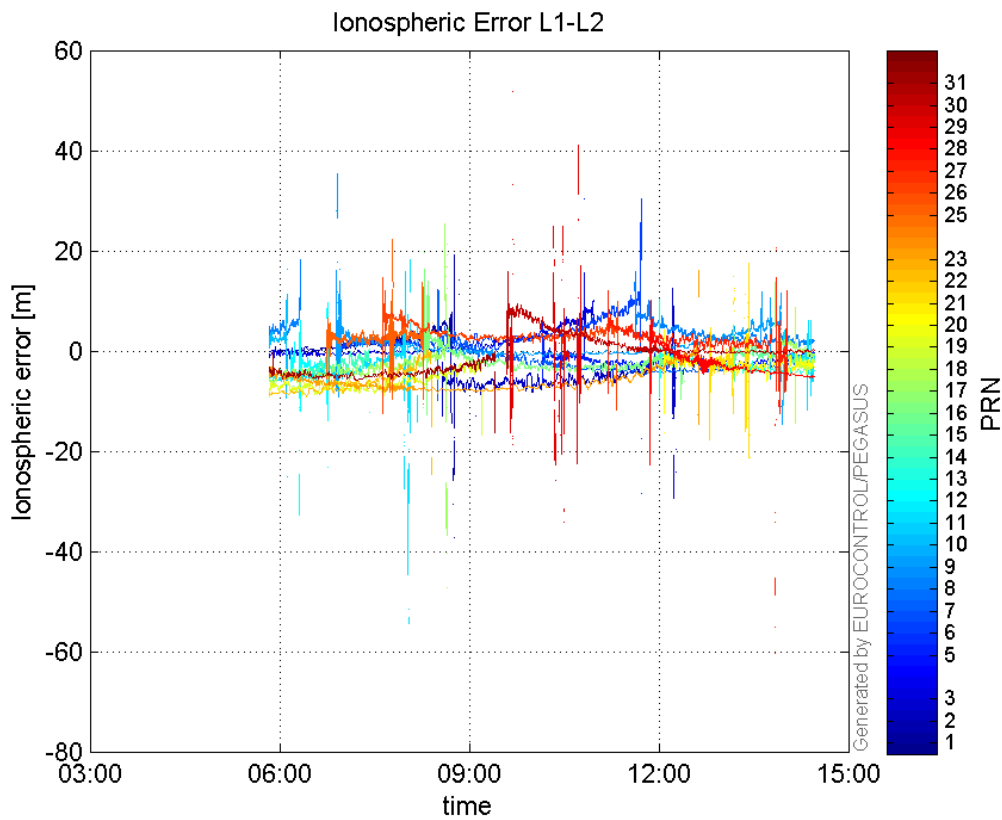


GEO CNo:



dual frequency

Ionospheric Error L1-L2:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PEGASUS_DAT_job/JOB/2016_02_17EGNOS/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	234.4749
mi_numbers	results	0