

Global View

city Kiev
comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
program Pegasus
version 4.8.4
site Laboratory satellite systems
abbreviation NAU
country Ukraine
date 25/02/2016

Range Domain

start: 06:45:58 24.02.2016 (week: 1885 sec: 283558)
end: 15:25:17 24.02.2016 (week: 1885 sec: 314717)
duration: 08:39:20 ..

quality

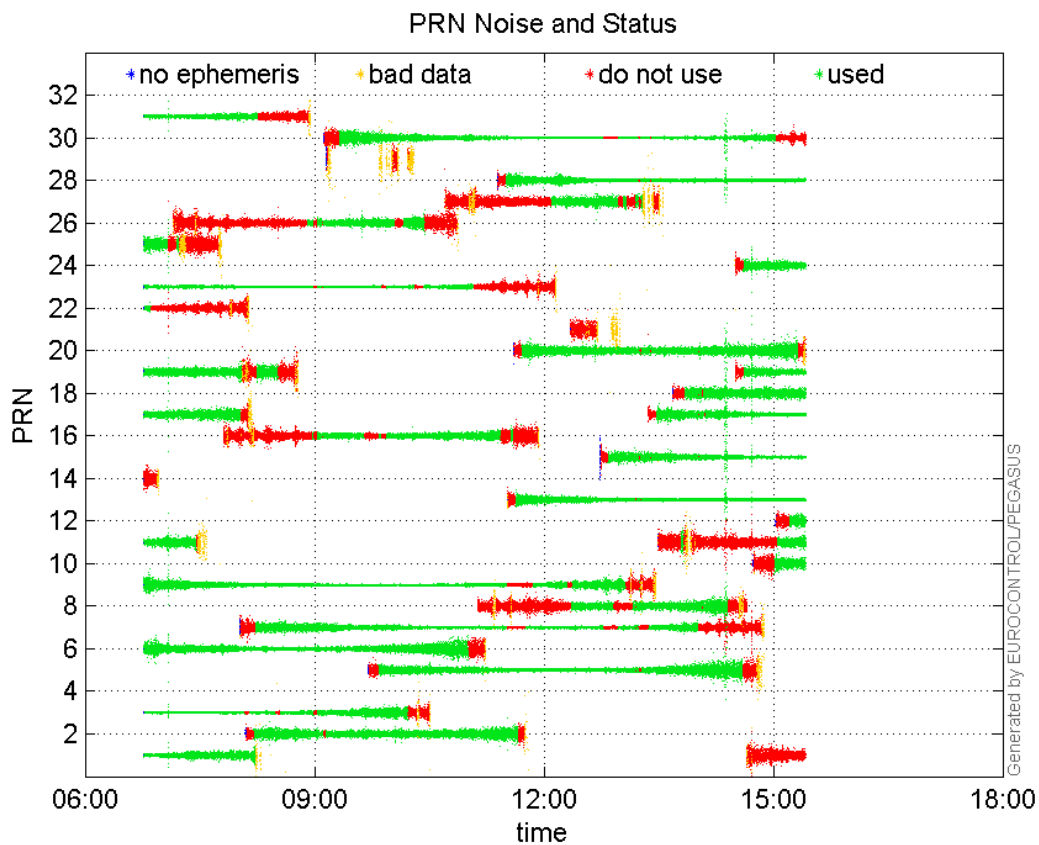
valid samples 31160
total samples 31160

PRN overview

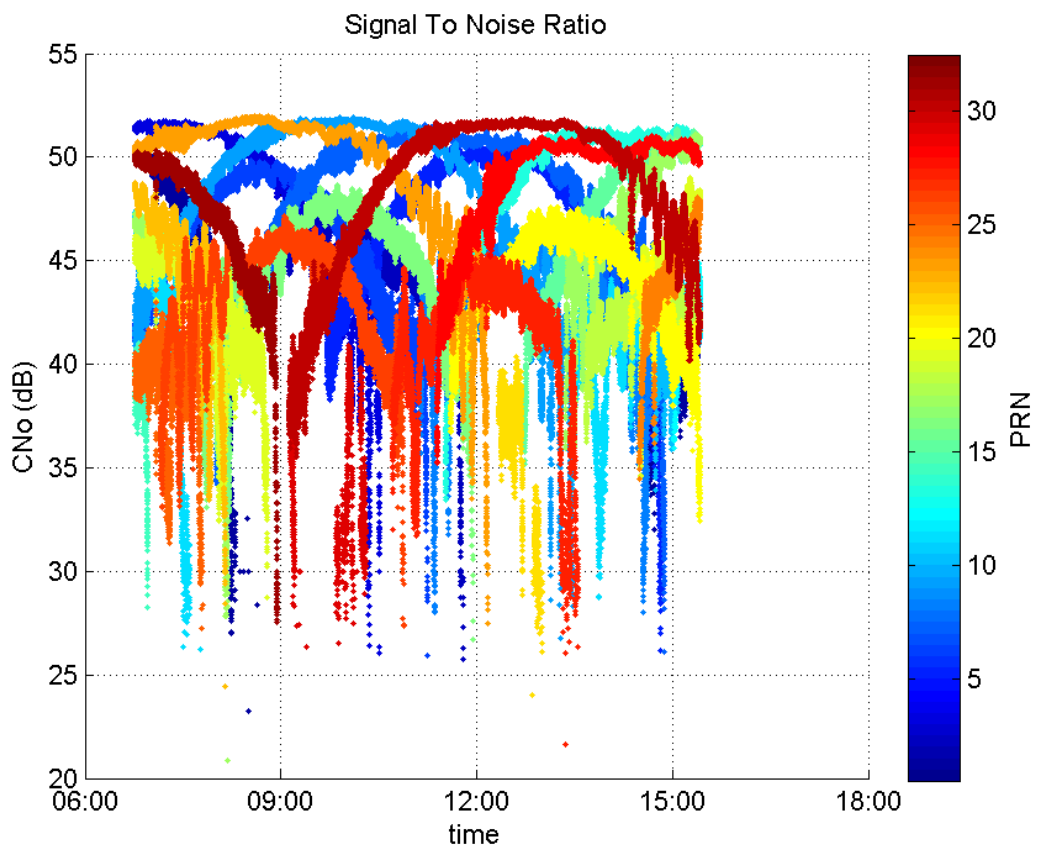
Number of Visible GPS Satellites 30
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



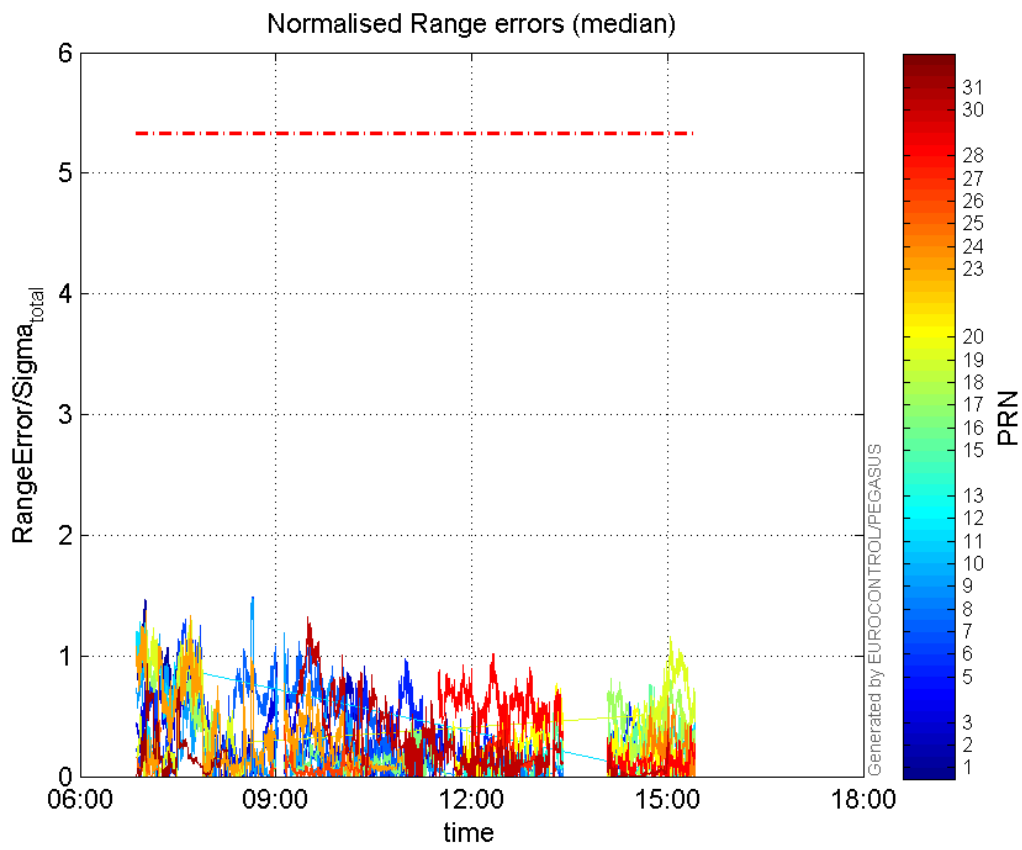
range errors

Number of Overbounding Norm Errors 0

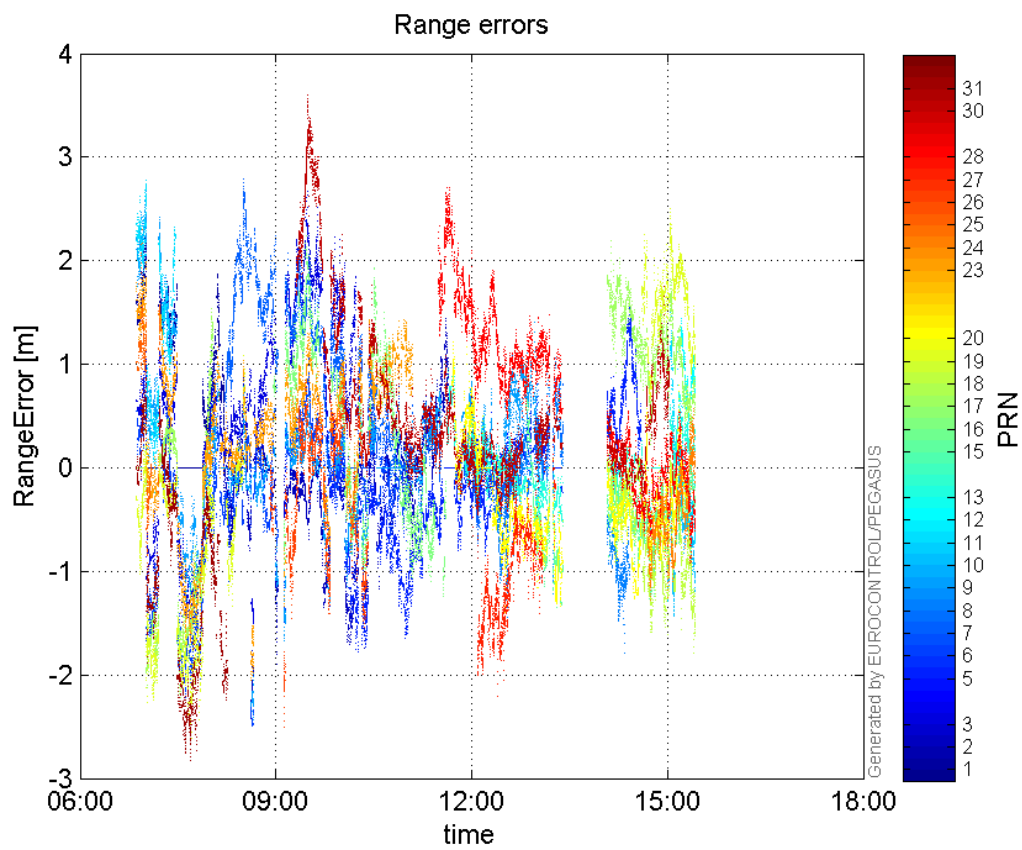
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1885	284403	1	1.46652	2.21702	1.51175
1885	290228	2	1.02941	-2.40498	2.33627
1885	286865	3	1.05909	-1.67186	1.57858
1885	298749	5	0.972853	-1.6461	1.69203
1885	290304	6	1.49003	-2.49226	1.67263
1885	293425	7	1.21219	2.05789	1.69767
1885	310126	8	0.344003	-0.967267	2.81179
1885	290325	9	1.47562	-2.37482	1.60938
1885	313565	10	0.508646	-1.43739	2.82592
1885	284451	11	1.31234	2.7754	2.11484
1885	313993	12	0.467356	1.44394	3.08959
1885	306952	13	0.523424	-0.773008	1.47683
1885	312250	15	0.763969	-1.27673	1.67118
1885	299134	16	0.495542	-1.05888	2.13681
1885	284480	17	1.2149	-2.12141	1.74616
1885	314656	18	0.735717	-1.79376	2.4381
1885	286866	19	1.33255	-2.60903	1.95792
1885	307069	20	0.766635	-1.30461	1.70174
1885	284464	23	1.37596	1.93579	1.40686
1885	313229	24	0.671379	-1.25102	1.86336
1885	285184	25	0.468427	1.55914	3.32846
1885	292091	26	0.426344	-2.50199	5.86848
1885	304399	27	0.593105	-1.57075	2.64836
1885	303560	28	1.01522	1.91247	1.88379
1885	293365	30	1.32087	3.60535	2.72952
1885	284478	31	0.936096	-1.88419	2.01281

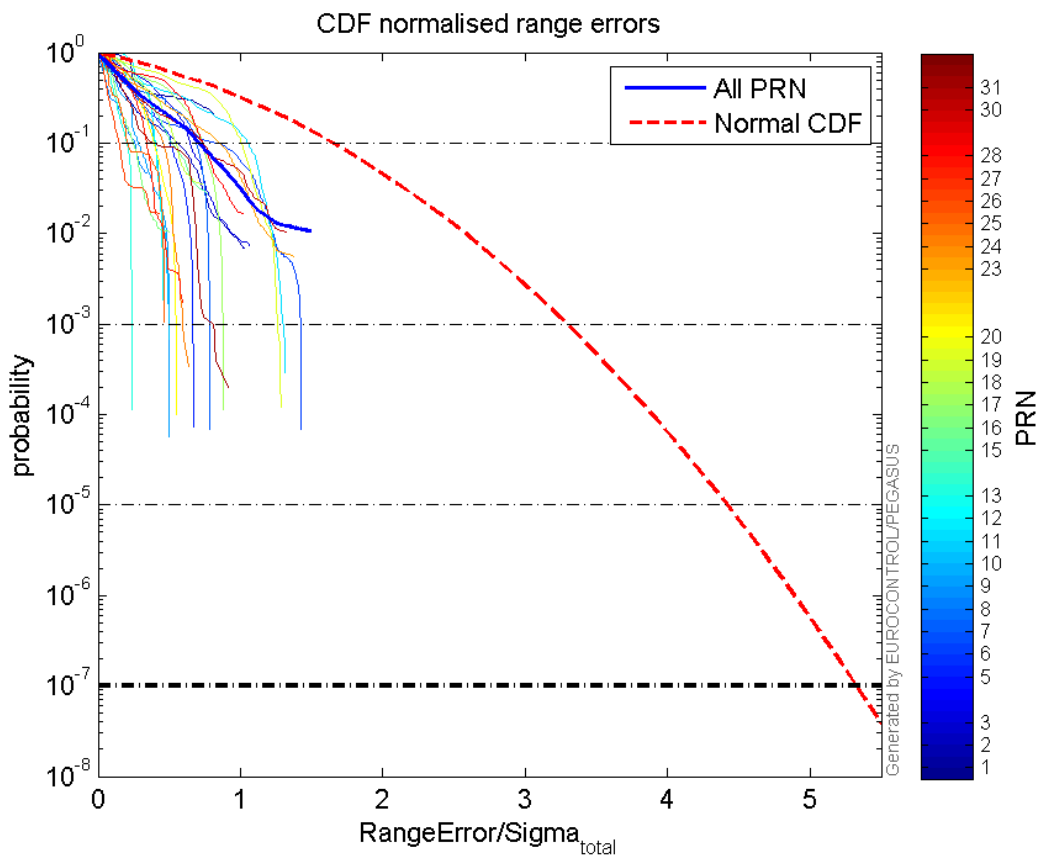
Normalised Range errors (median):



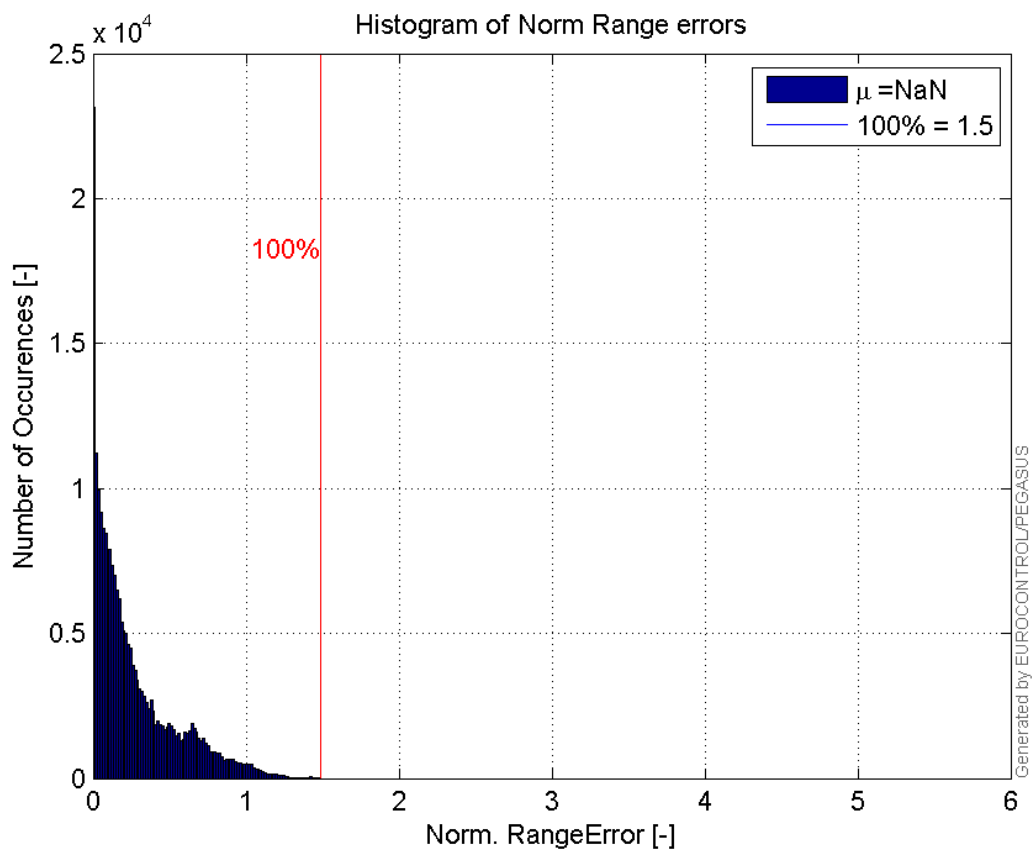
Range errors:



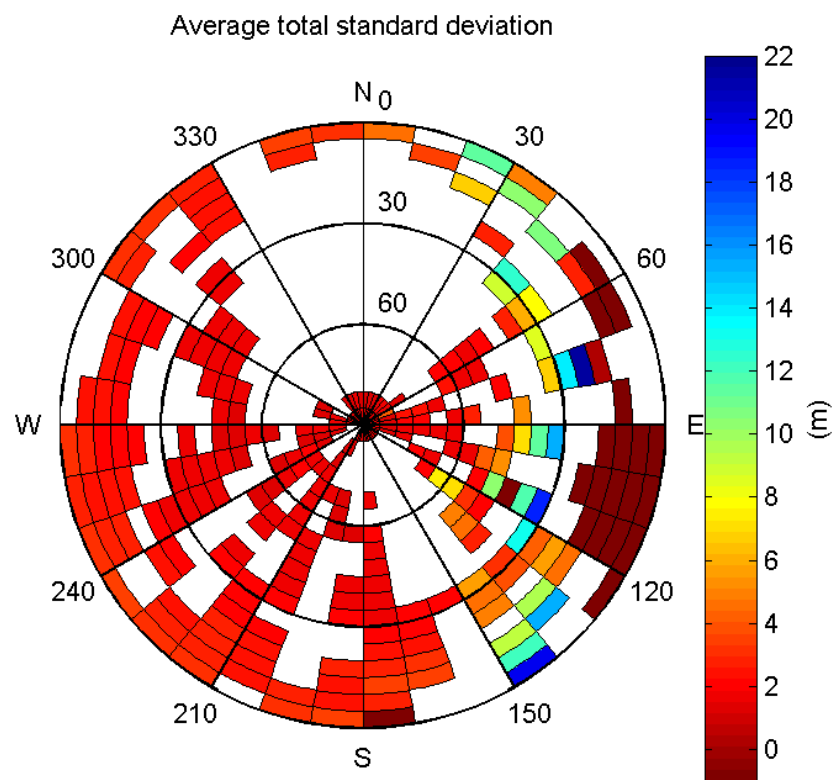
CDF normalised range errors:



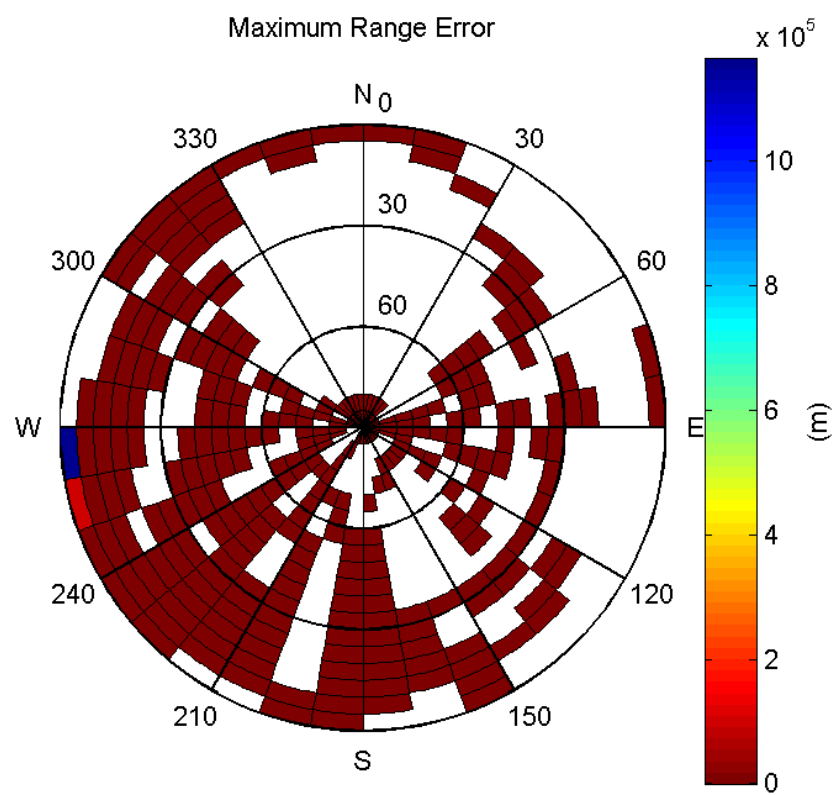
Histogram of Norm Range errors:



Sigma Sky Plot:

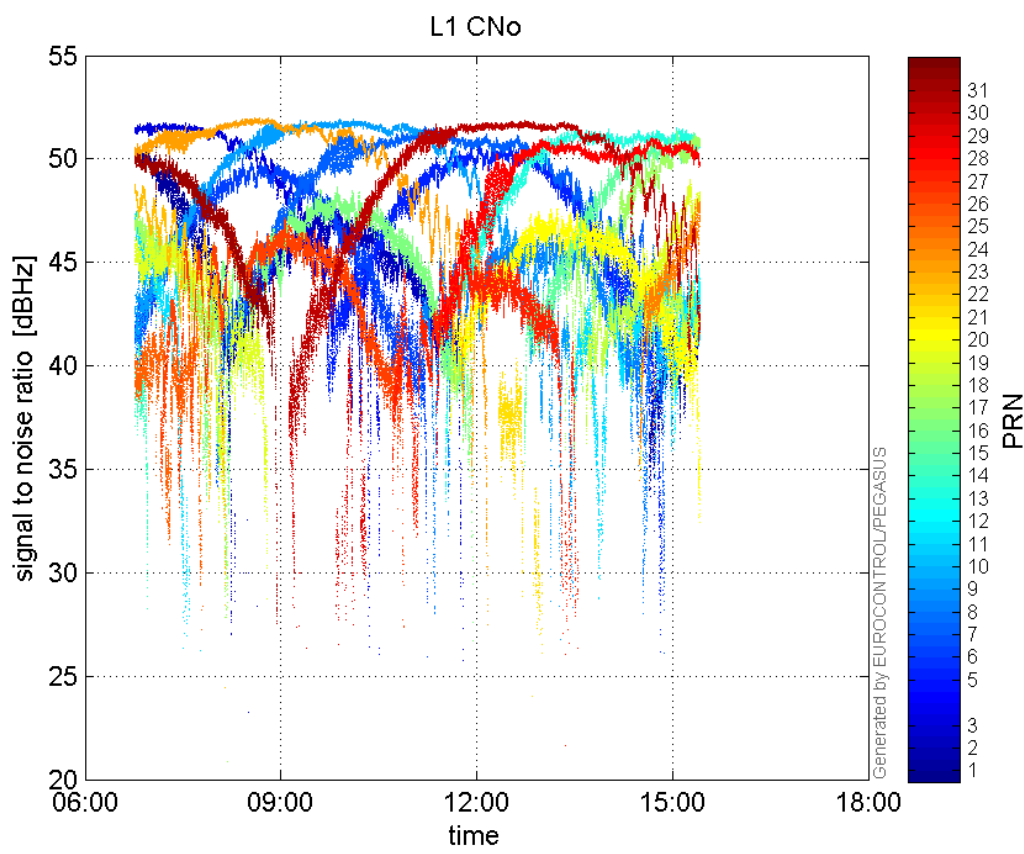


Norm Error Sky Plot:

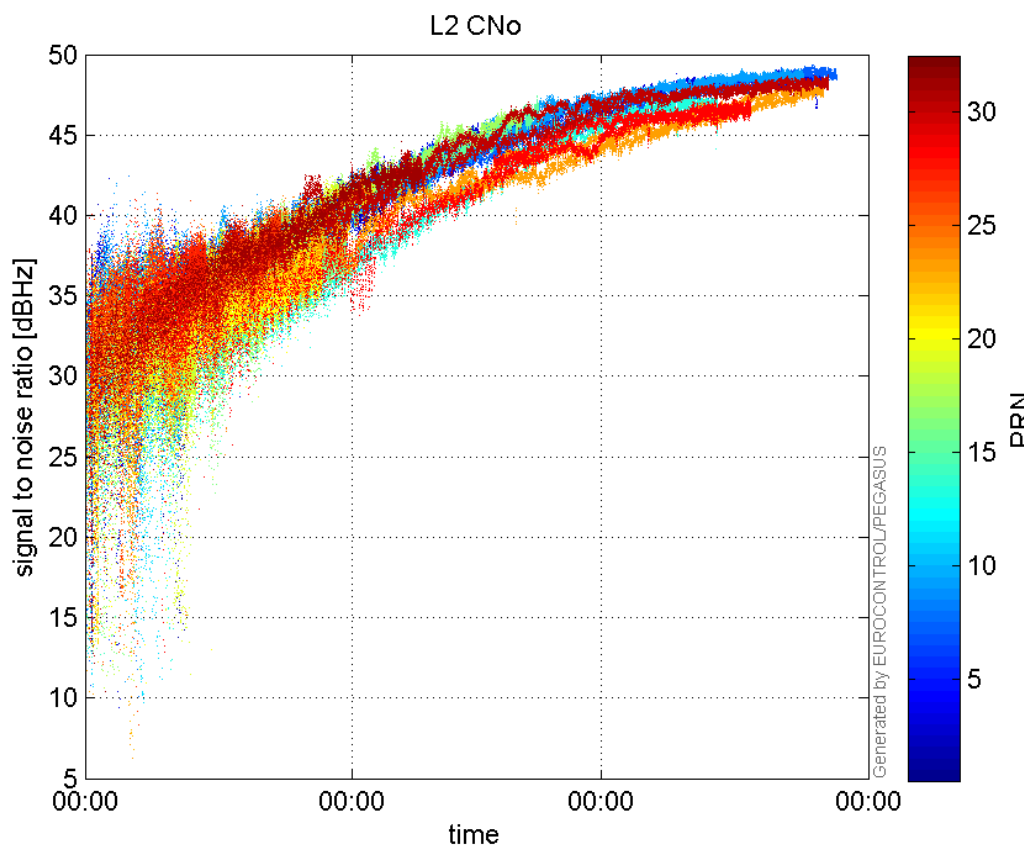


signal quality

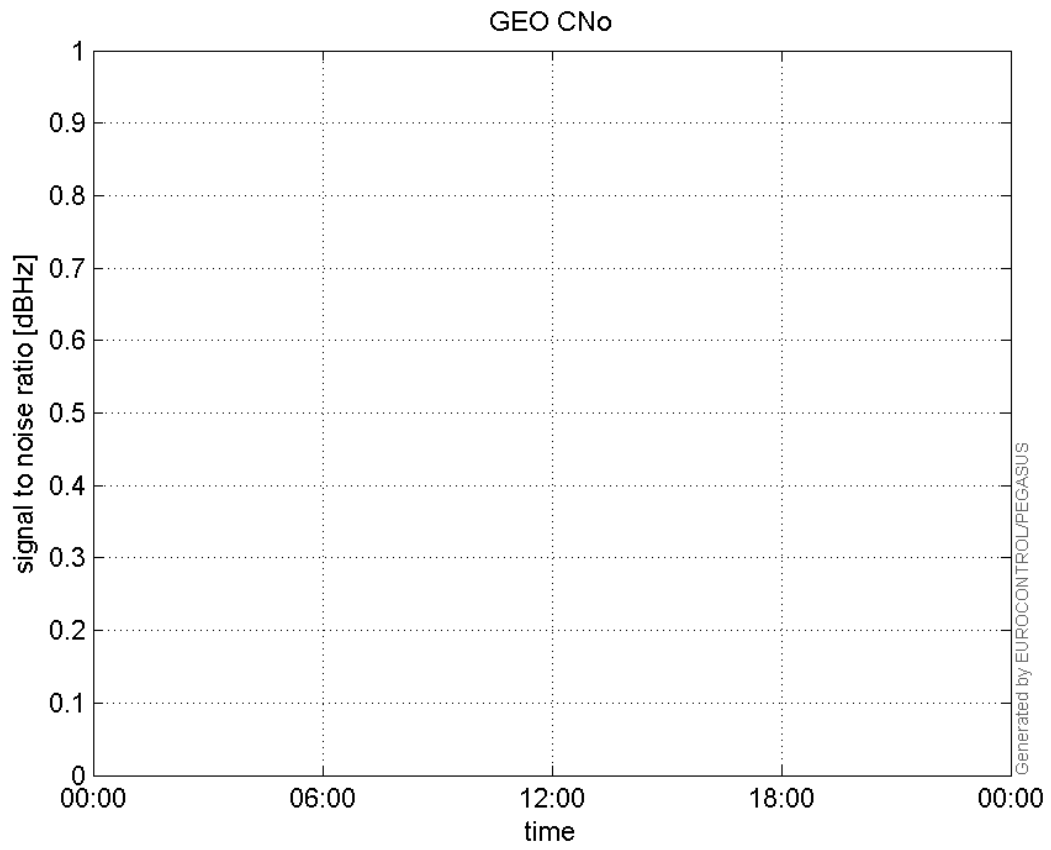
L1 CNo:



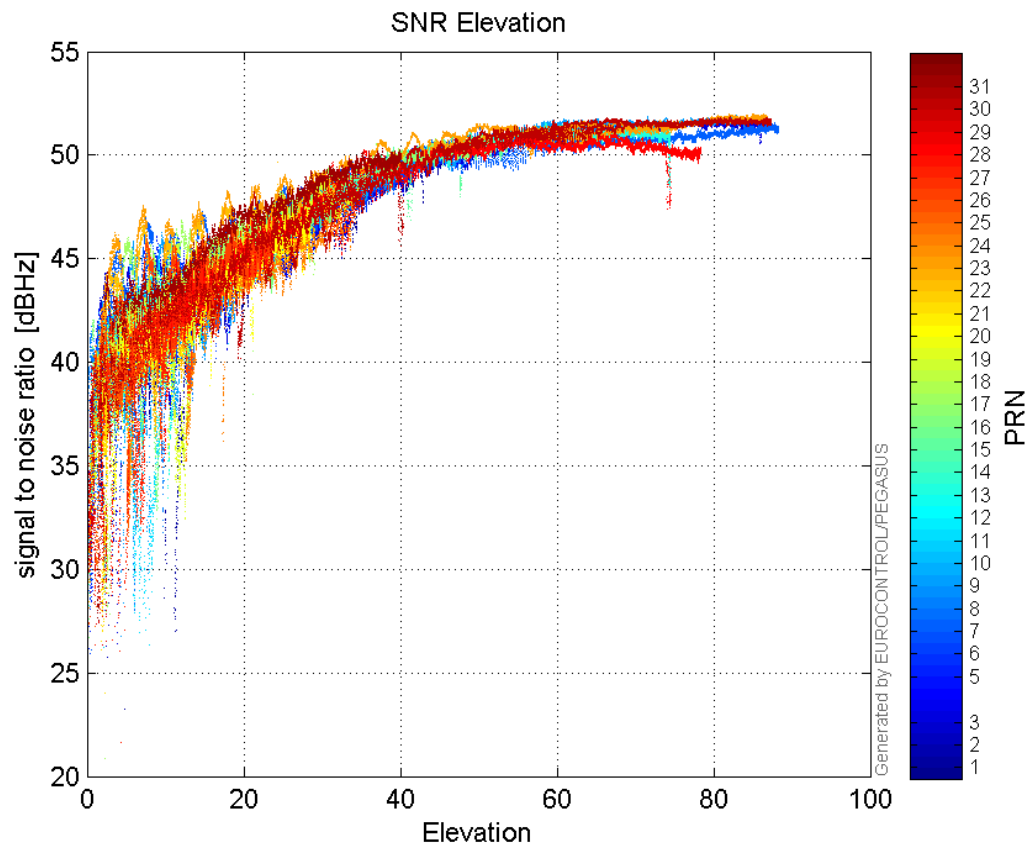
L2 CNo:



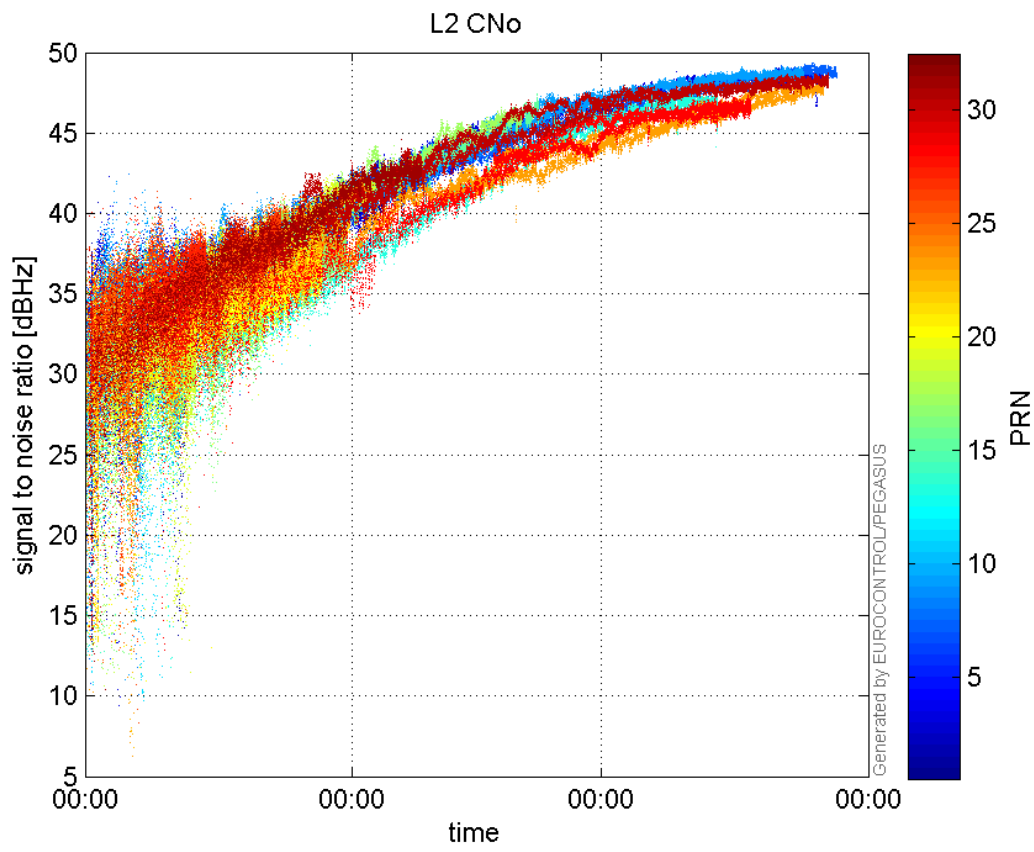
GEO CNo:



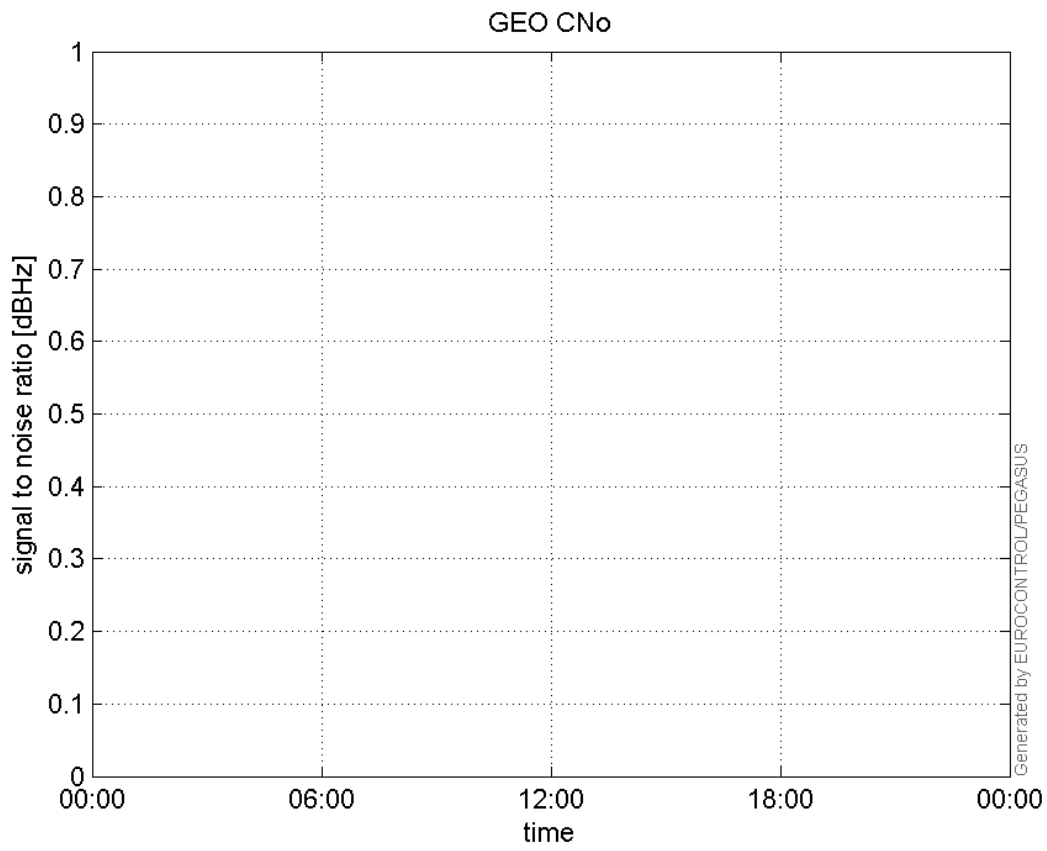
SNR Elevation:



L2 CNo:

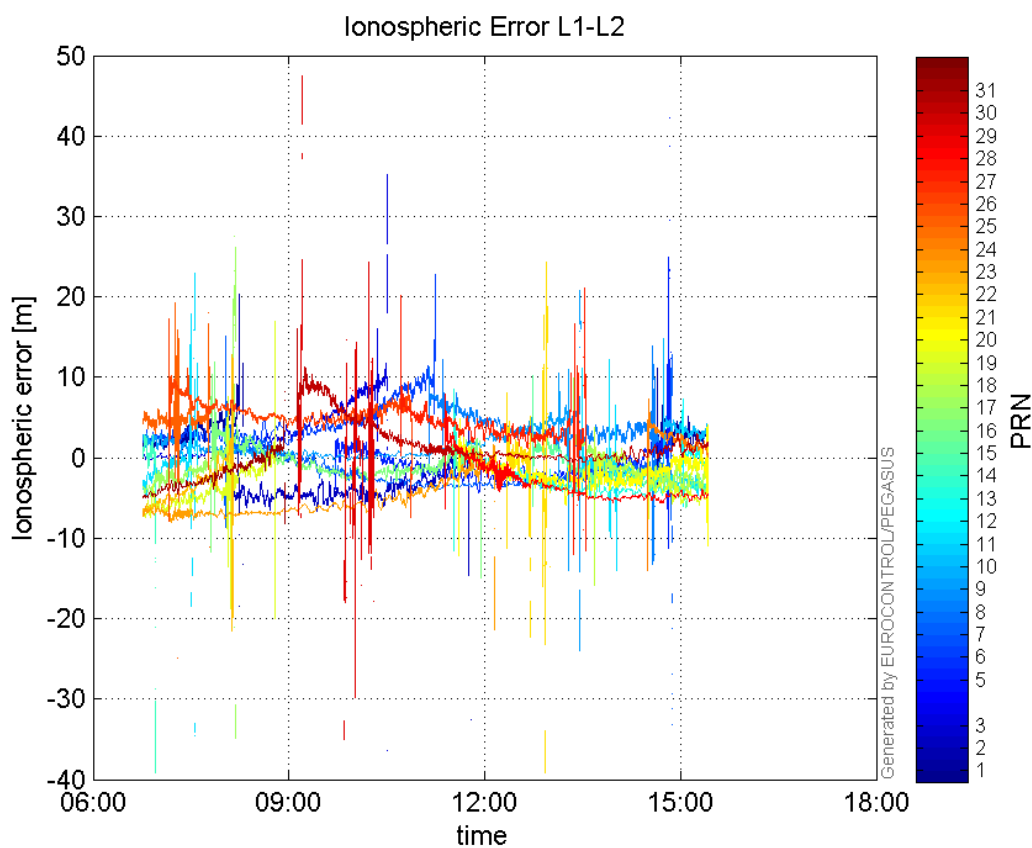


GEO CNo:



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:/PegasusDateGob/job/2016_02_24EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_24EGNOS/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	236.1694
mi_numbers	results	0

SBAS Messages

start: 06:45:57.129 24.02.2016 (week: 1885 sec: 283557.129)
end: 15:25:17.129 24.02.2016 (week: 1885 sec: 314717.129)
duration: 08:39:20 ..

quality

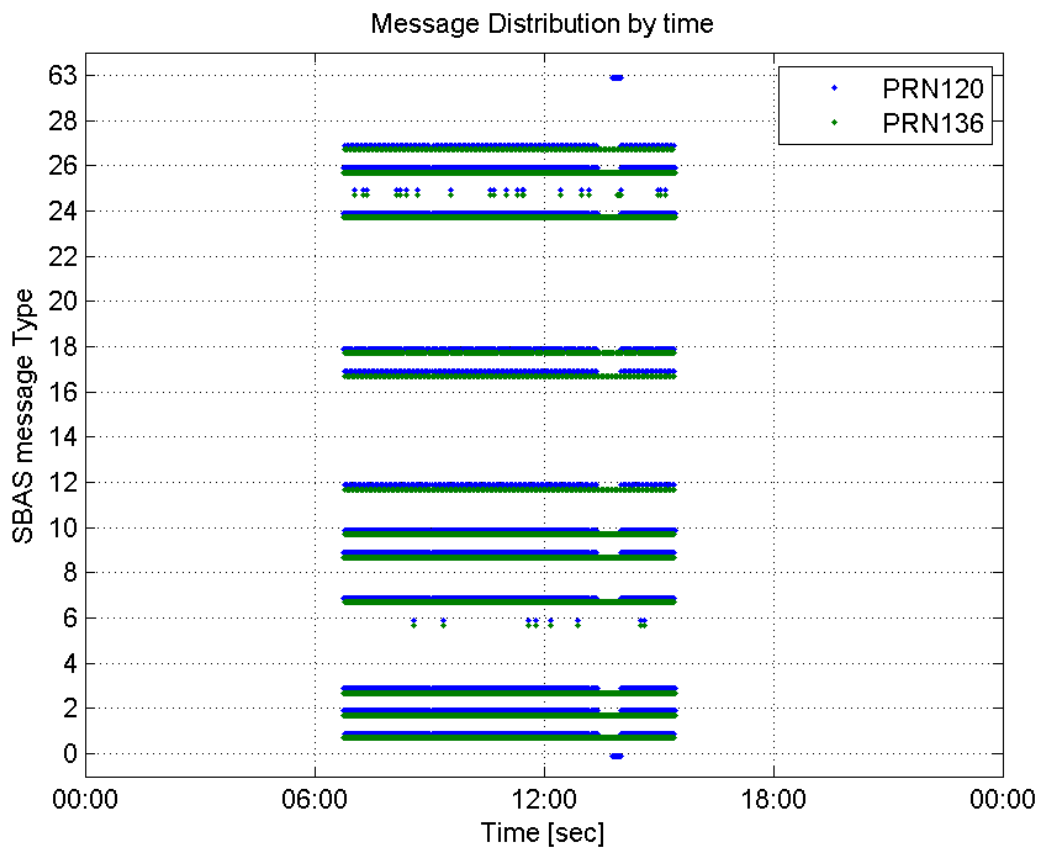
valid samples 60338
total samples 60338
number of SBAS PRNs 2

SBAS SIS Overview

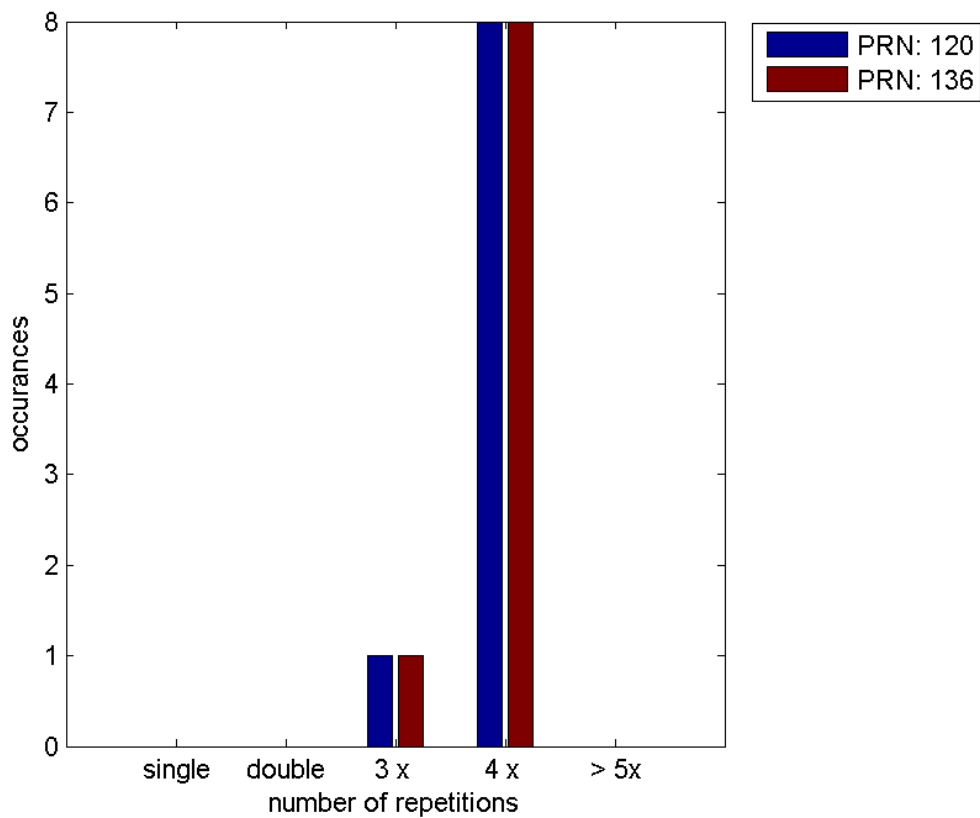
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	8	0
PRN 136	0	0	1	8	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

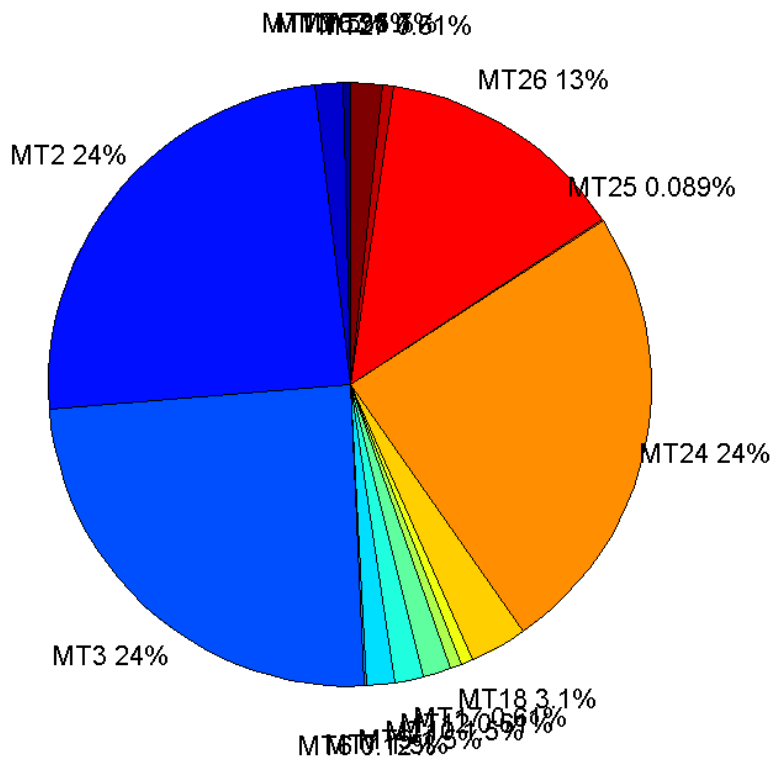
	number of messages	%
MT 0	101	0.346163
MT 1	444	1.52175
MT 2	7130	24.4371
MT 3	7131	24.4405
MT 4	0	0
MT 5	0	0
MT 6	36	0.123385
MT 7	444	1.52175
MT 9	444	1.52175
MT 10	446	1.5286
MT 12	179	0.613497
MT 17	179	0.613497
MT 18	892	3.0572
MT 24	7130	24.4371
MT 25	26	0.0891113
MT 26	3913	13.4112
MT 27	177	0.606642
MT 28	0	0
MT 62	0	0
MT 63	505	1.73082
Total	29177	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	6	30	7.26	10	0	0
MT 1	61	2221	70.0993	3	1	1
MT 2	3	2212	4.37046	14	5	5
MT 3	3	2212	4.36985	14	5	5
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	7990	622.457	8	8	8
MT 7	61	2258	70.2438	3	1	3
MT 9	61	2271	70.2438	0	0	0
MT 10	61	2236	69.9281	3	1	2
MT 12	156	2289	174.528	178	1	3
MT 17	153	2299	174.528	0	0	0
MT 18	1	2293	34.8979	2	0	0
MT 24	3	2212	4.37032	0	0	0
MT 25	1	3745	1172.04	0	0	0
MT						

26	1	2223	7.95961	0	0	0
MT 27	151	2348	175.602	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	1	26	1.44643	0	0	0

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

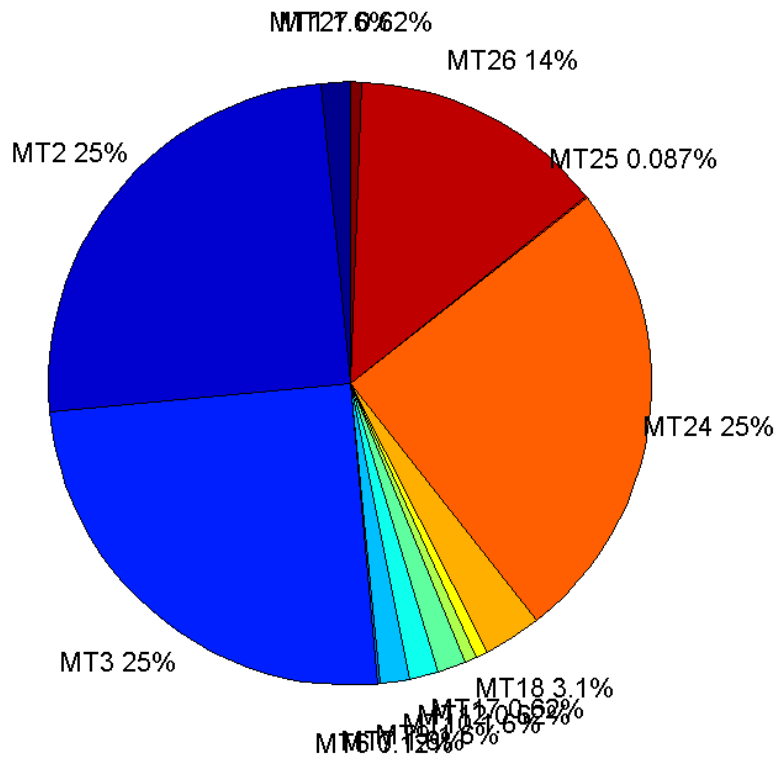
	number of messages	%
MT 0	0	0
MT 1	485	1.55643
MT 2	7778	24.9607
MT 3	7778	24.9607
MT 4	0	0
MT 5	0	0
MT 6	36	0.115529
MT 7	484	1.55322
MT 9	485	1.55643

MT 10	484	1.55322
MT 12	194	0.622573
MT 17	194	0.622573
MT 18	970	3.11287
MT 24	7779	24.9639
MT 25	27	0.0866468
MT 26	4273	13.7127
MT 27	194	0.622573
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	31161	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	73	64.3182	0	0	0
MT 2	4	8	4.00617	9	0	0
MT 3	4	8	4.00604	9	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	7990	622.457	8	8	8
MT 7	64	73	64.3023	0	0	0
MT 9	64	70	64.3017	0	0	0
MT 10	64	73	64.3188	0	0	0
MT 12	156	173	160.487	193	0	0
MT 17	156	173	160.508	0	0	0
MT 18	4	137	32.0062	0	0	0
MT 24	4	8	4.00604	0	0	0
MT 25	4	3745	1126.96	0	0	0
MT 26	4	26	7.29354	0	0	0
MT 27	156	173	160.508	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:/PegasusDateGob/job/2016_02_24EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_24EGNOS/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: 06:45:58 24.02.2016 (week: 1885 sec: 283558)
end: 15:25:17 24.02.2016 (week: 1885 sec: 314717)
duration: 08:39:20 ..

quality

valid samples 30797
total samples 31160

Event tables

Position discontinuity events type all
APV-I discontinuity events type long
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	293495	2.0327	10.0486	0.202287	0.930095	16.605	0.056013
max normVer	302440	0.949876	29.3589	0.0323539	2.7924	18.1433	0.153908
max HPE	301306	15.3415	793.242	0.0193403	-3.13198	211.495	0.0148088
max VPE	306873	0.461783	394.641	0.00117013	-3.2956	357.751	0.009212
min HPL	314151	1.29356	8.20137	0.157725	0.746876	14.0253	0.053252
min VPL	285226	1.05884	8.78457	0.120534	0.0342927	12.159	0.00282035

Position discontinuity events :

#	Epoch	duration	stable period
1	291691	347	7770
2	301329	2	9291
3	306697	172	5366
4	306916	25	47
5	307424	2439	483

APV-I discontinuity events :

#	Epoch	duration	stable period
1	291683	355	3
2	300537	27	8499
3	300621	710	57
4	305362	21	4031
5	306696	179	1285
6	306908	37	33
7	307423	2440	478

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	291683	355	3
2	300537	27	8499
3	300621	710	57
4	305202	210	3871
5	306696	195	1284

6	306908	37	17
7	307423	2440	473

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	291683	355	3
2	300537	27	8499
3	300621	710	57
4	305202	210	3871
5	306696	195	1284
6	306908	37	17
7	307423	2440	473

First Glance analysis

Duration	31160
Number of Samples	31160
Number of invalid sample	363
Number of no position solution samples	2985
Number of missing sample	0
Logging Loss	0
Processing Loss	1.165
Number of Misleading Information	0
Data gaps	0
Discontinuities	5

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
27812	26959	26766	0	26766

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.65277	1.61417	1.61487	NaN	1.61487
HPEscale 95%	NaN	6.15835	6.16549	NaN	6.16549
VPE 95%	1.63575	1.6081	1.60746	NaN	1.60746
VPEscale 95%	NaN	4.47365	3.13428	NaN	3.13428

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.903075	0.875377	0.869111	0	0.869111
measurements	0.892555	0.86518	0.858986	0	0.858986
Operational	0.892555	0.86518	0.858986	0	0.858986

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	5	45	39	--	39
Long	4	7	7	--	7

Independent	4	6	6	--	6
P(disc.)	0.00215734	0.0033384	0.00336247	NaN	0.00336247
P(slide)	0.00269668	0.00701065	0.00665023	NaN	0.00665023

Integrity events :

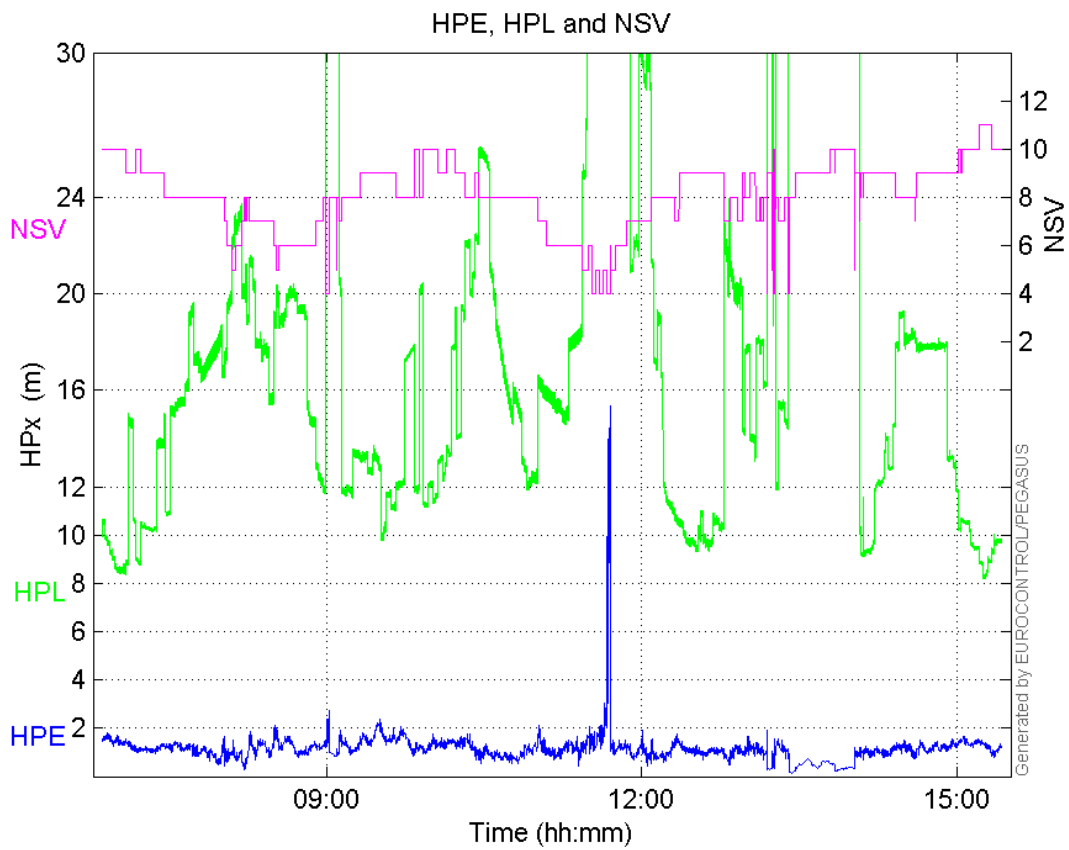
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

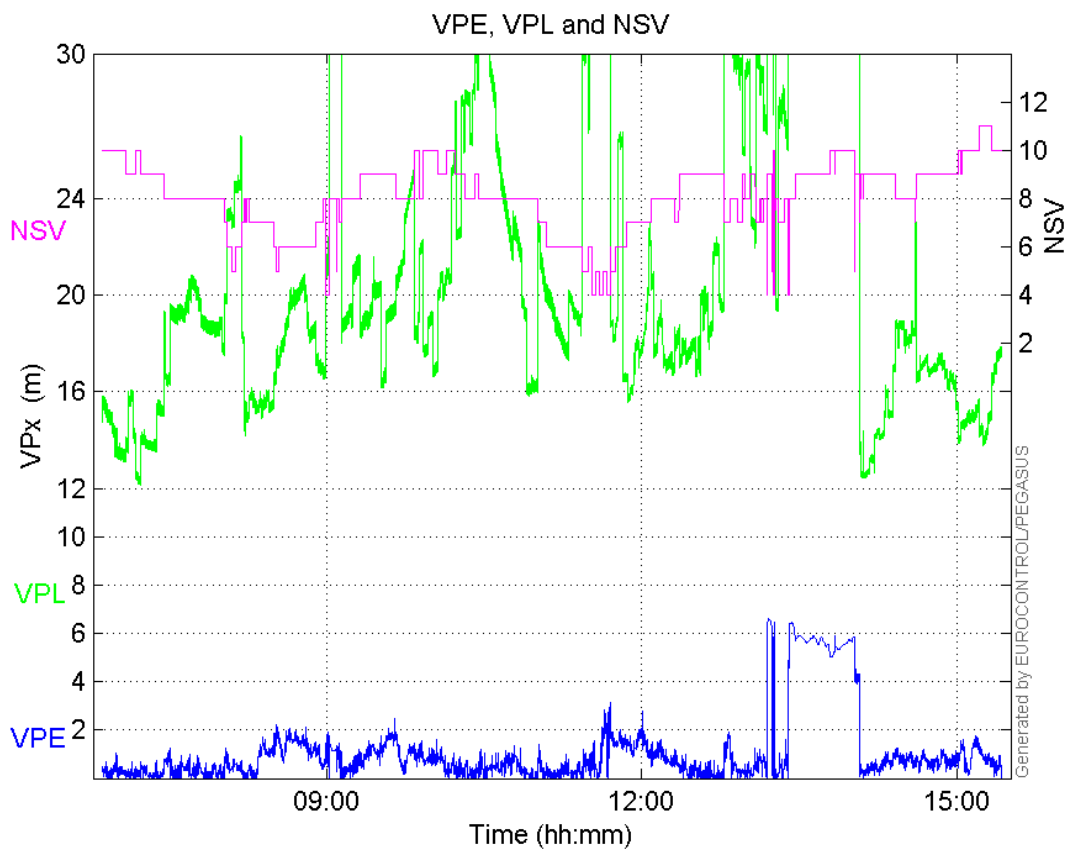
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	27812	26959	26766	0	26766
SIS Availability	0.903075	0.875377	0.869111	0	0.869111
Local Availability	0.892555	0.86518	0.858986	0	0.858986
Operational Availability	0.892555	0.86518	0.858986	0	0.858986
HPE 95%	1.65277	1.61417	1.61487	NaN	1.61487
HPEscale 95%	NaN	6.15835	6.16549	NaN	6.16549
VPE 95%	1.63575	1.6081	1.60746	NaN	1.60746
VPEscale 95%	NaN	4.47365	3.13428	NaN	3.13428
All Discontinuity Events	5	45	39	--	39
Long Discontinuity Events	4	7	7	--	7
Independent Discontinuity Events	4	6	6	--	6
P(discontinuity)	0.00215734	0.0033384	0.00336247	NaN	0.00336247
P(sliding window)	0.00269668	0.00701065	0.00665023	NaN	0.00665023
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:

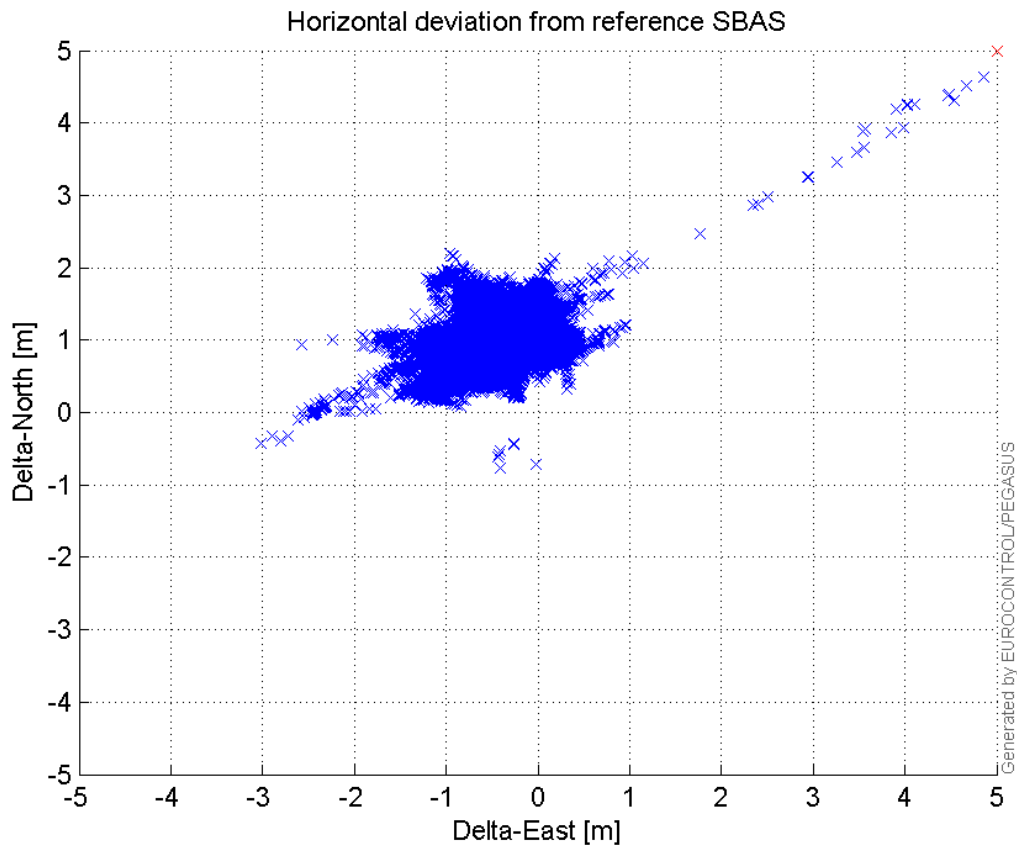


VPE, VPL and NSV:



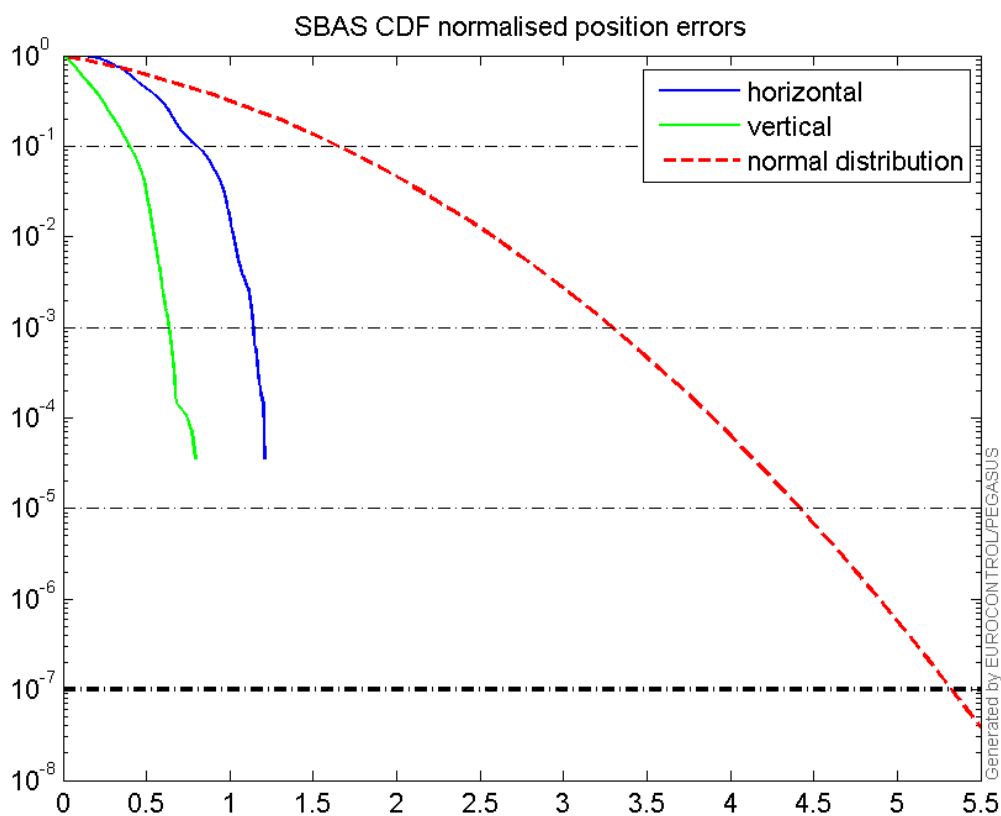
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

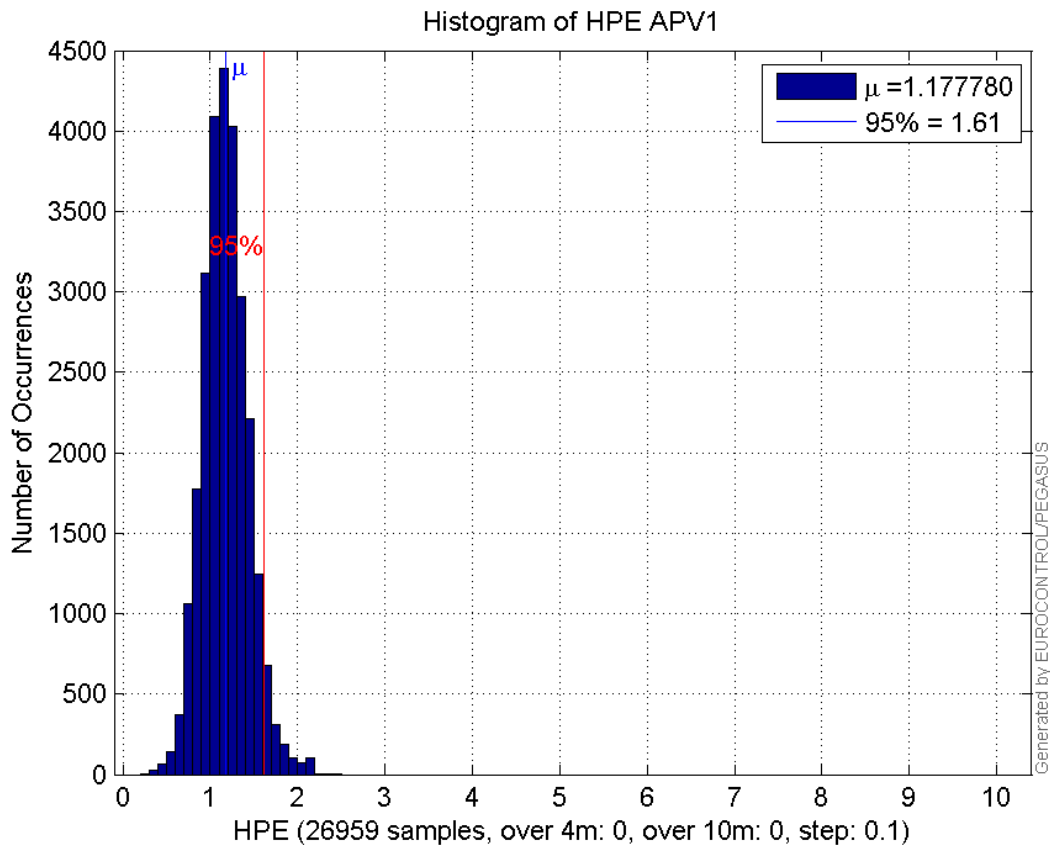
number	26959
sum	31751.773
sum2	39219.847
prctile95	1.6141702
prctile99	1.9208119
number	26959
sum	17686.634
sum2	17646.929
prctile95	1.6080976
prctile99	1.8423971
number	26959
sum	428098.86
sum2	7646449.1
prctile95	25.92112
prctile99	38.532181
number	26959
sum	528733.58
sum2	10992393
prctile95	29.54476
prctile99	32.844583
number	26959
sum	2254.8076
sum2	221.50994
prctile95	0.15395866
prctile99	0.17061615
number	26959
sum	945.70648
sum2	52.018521
prctile95	0.089472916
prctile99	0.10252069
number	26766
sum	31593.859
sum2	39088.745
prctile95	1.614874
prctile99	1.922247
number	26766
sum	17464.976
sum2	17368.238
prctile95	1.6074565
prctile99	1.8429659
number	26766
sum	423839.33
sum2	7551744.8
prctile95	25.93842
prctile99	38.537224
number	26766
sum	520736.61
sum2	10659433
prctile95	29.37114

prctile99 32.163664
number 26766
sum 2247.6491
sum2 221.24212
prctile95 0.15413716
prctile99 0.17067136
number 26766
sum 940.37916
sum2 51.858527
prctile95 0.089550996
prctile99 0.10254359

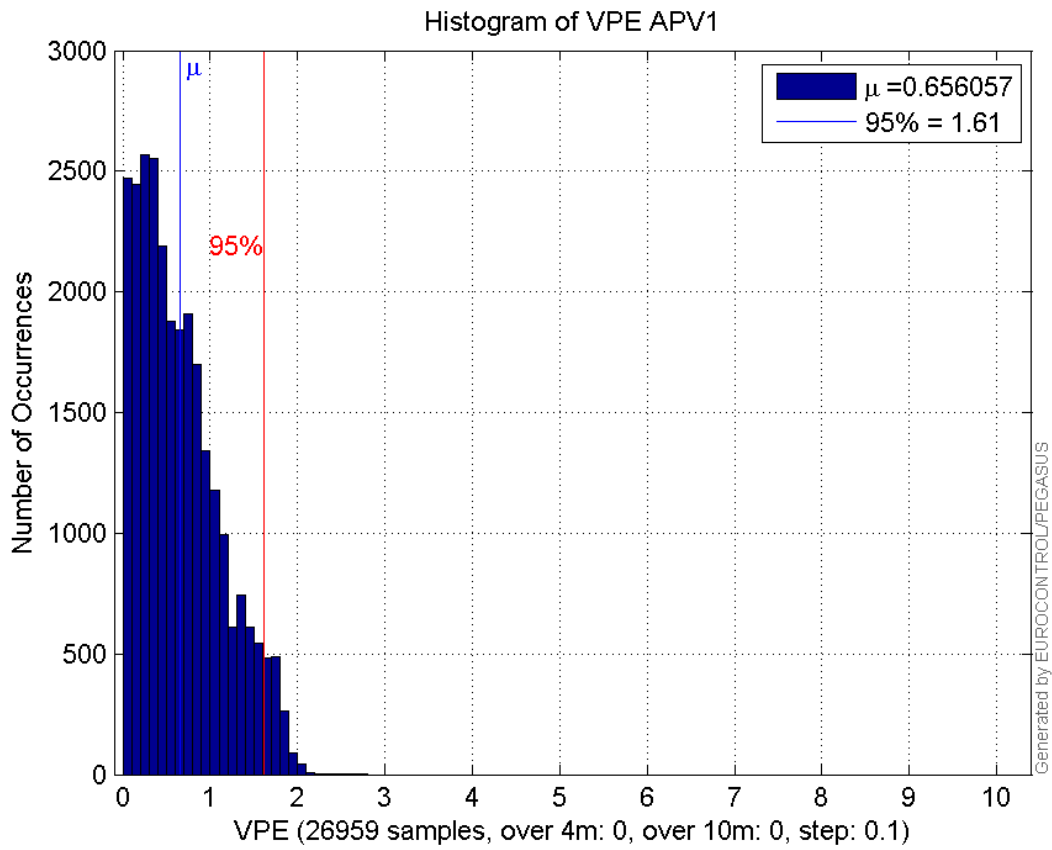
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.17778	0.260063	1.16183	1.61417	1.92081	1.20615
HPL	15.8796	5.60991	15.3268	25.9211	38.5322	16.8414
VPE	0.656057	0.473478	0.566767	1.6081	1.8424	0.809064
VPL	19.6125	4.80575	18.6836	29.5448	32.8446	20.1927

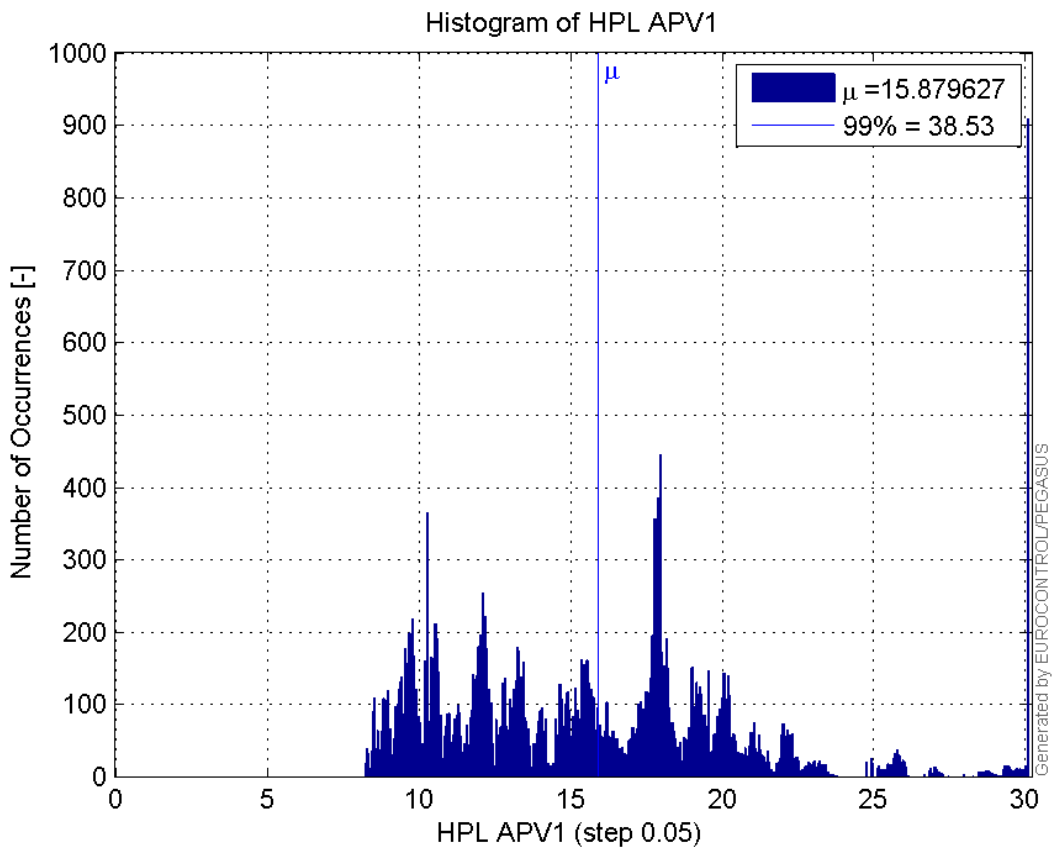
Histogram of HPE APV1:



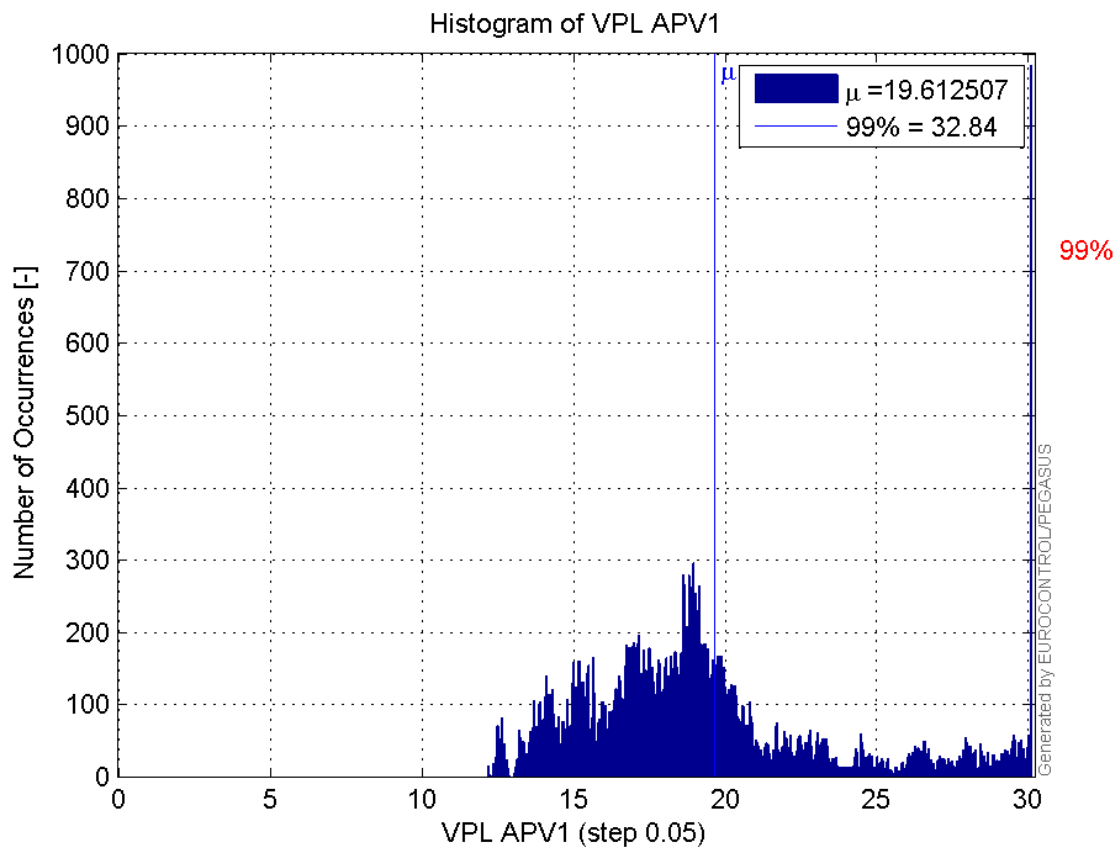
Histogram of VPE APV1:



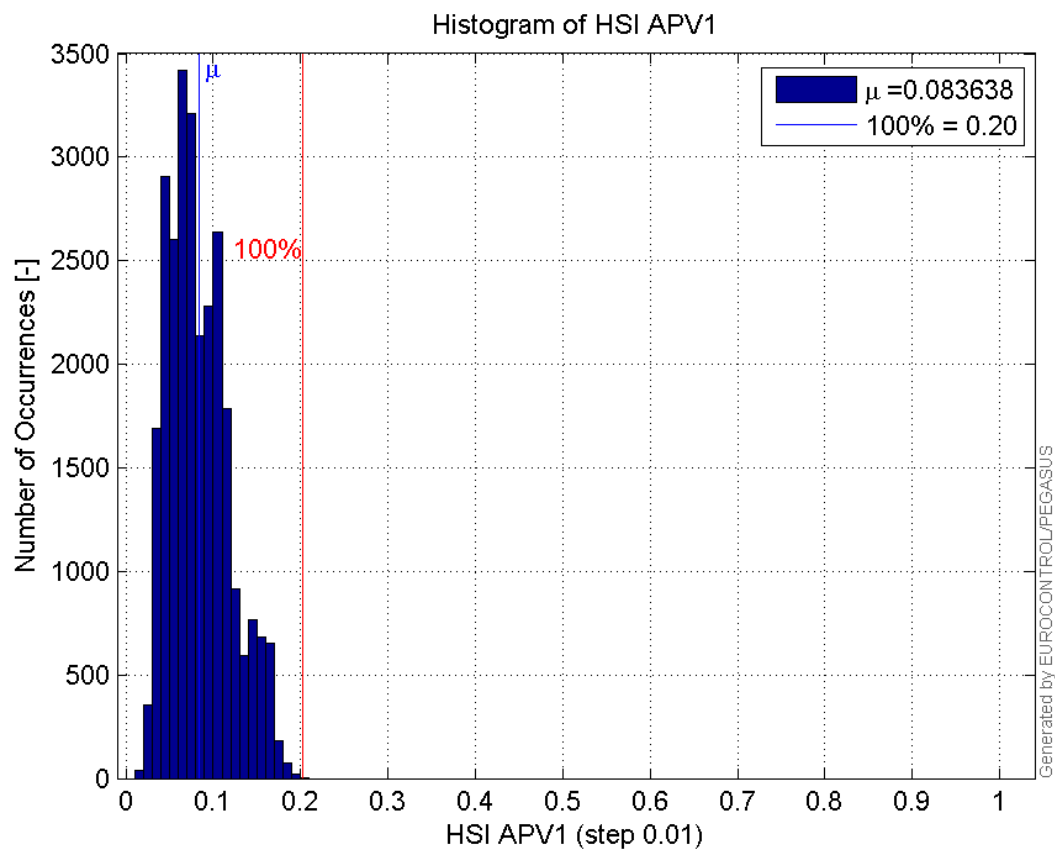
Histogram of HPL APV1:



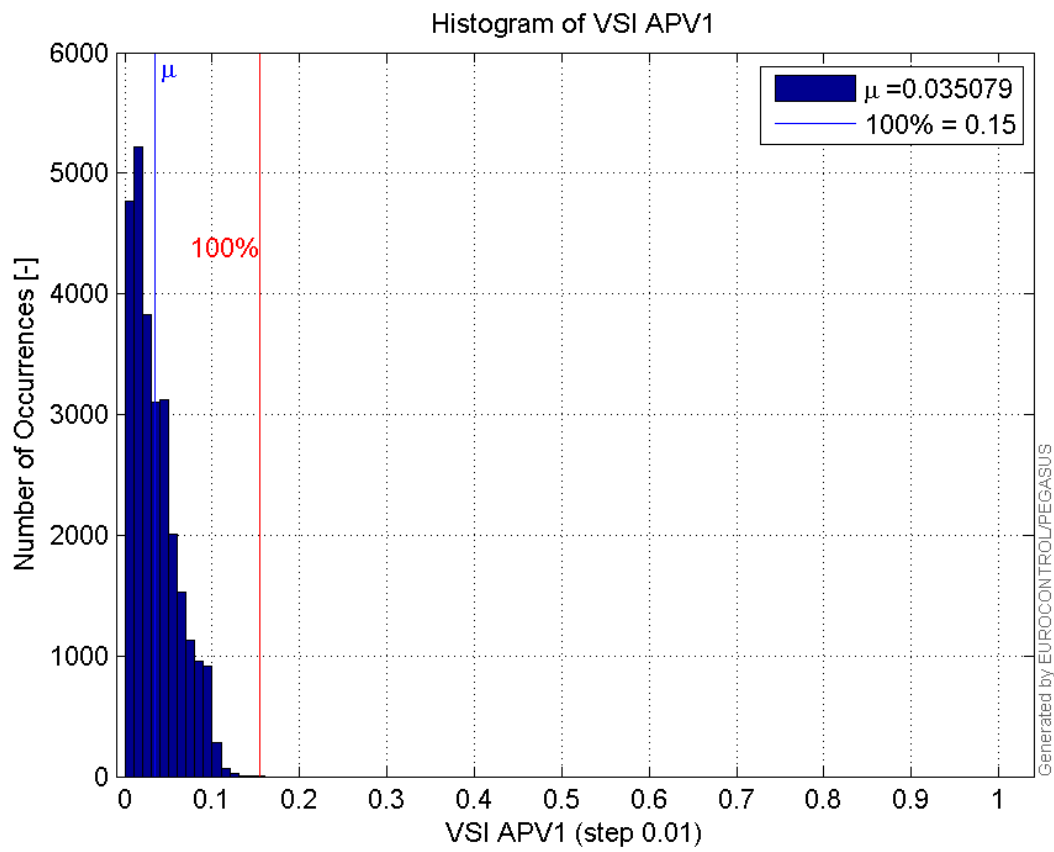
Histogram of VPL APV1:



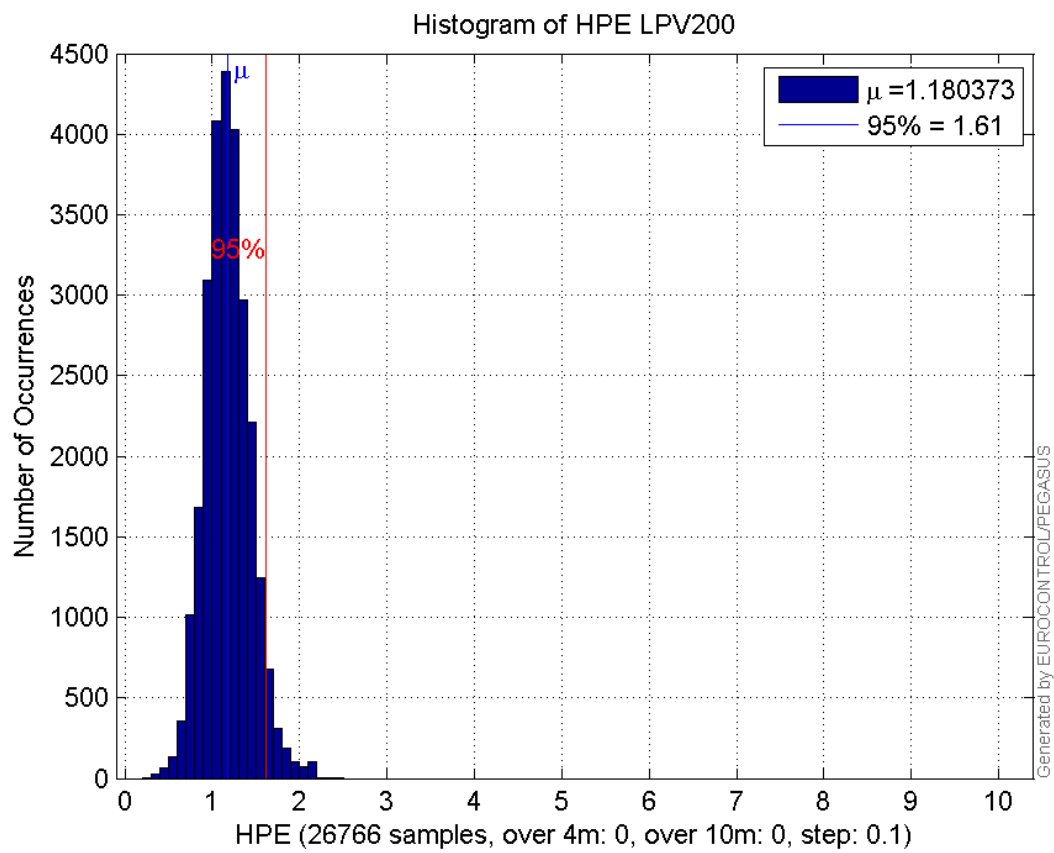
Histogram of HSI APV1:



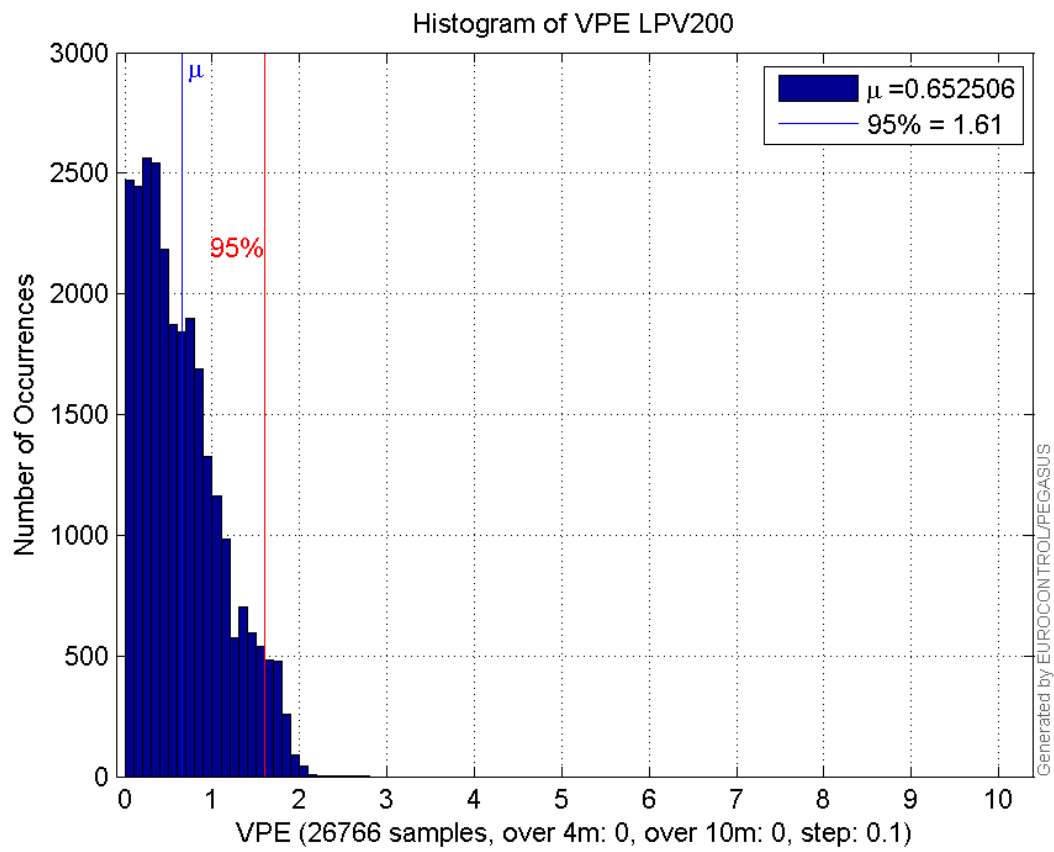
Histogram of VSI APV1:



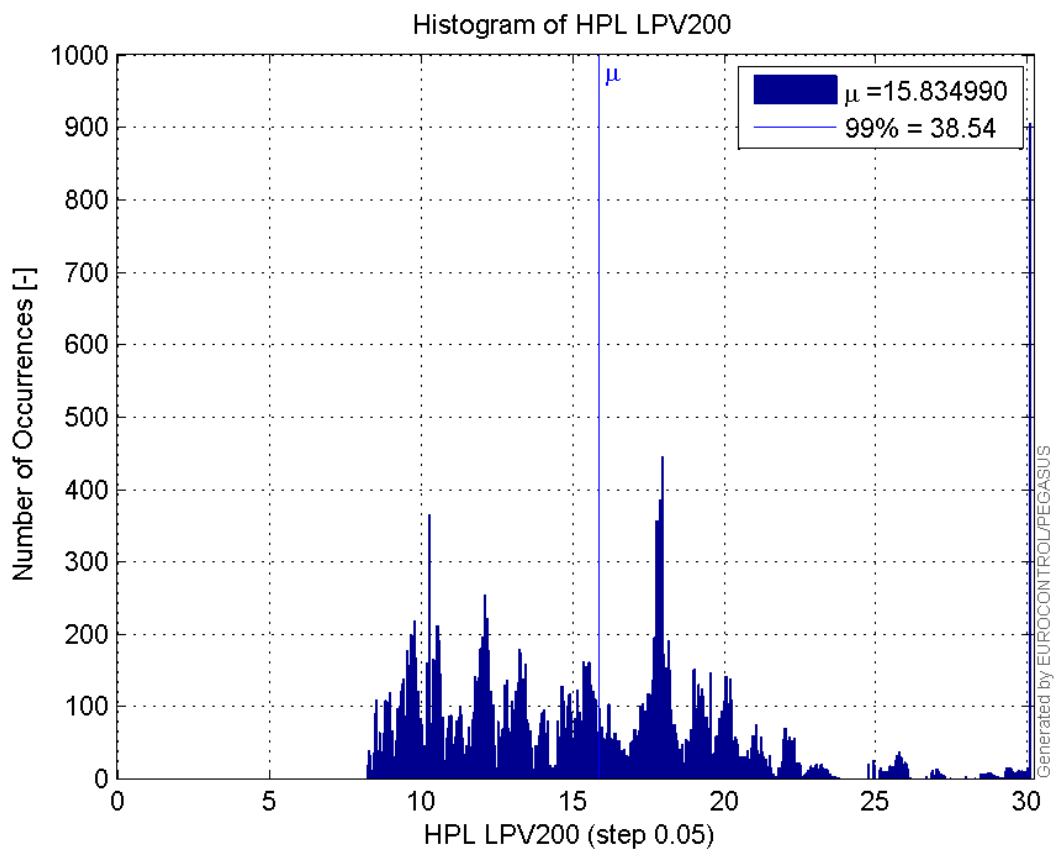
Histogram of HPE LPV200:



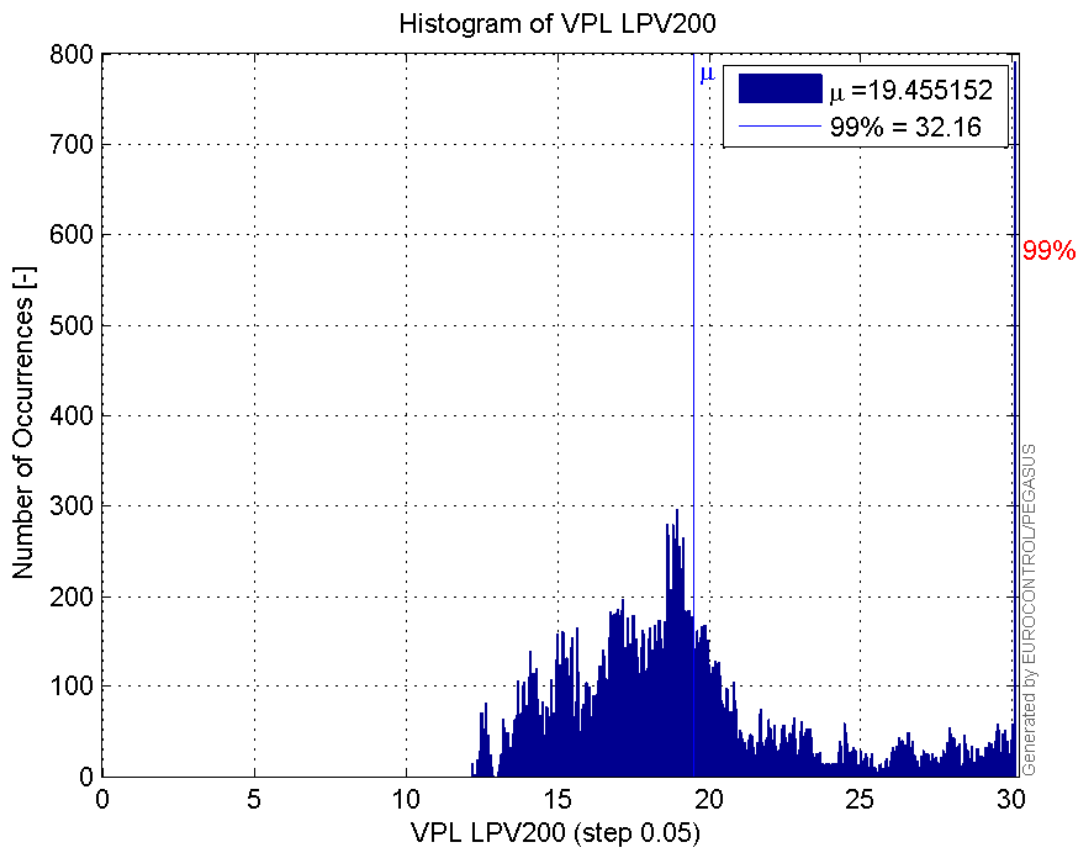
Histogram of VPE LPV200:



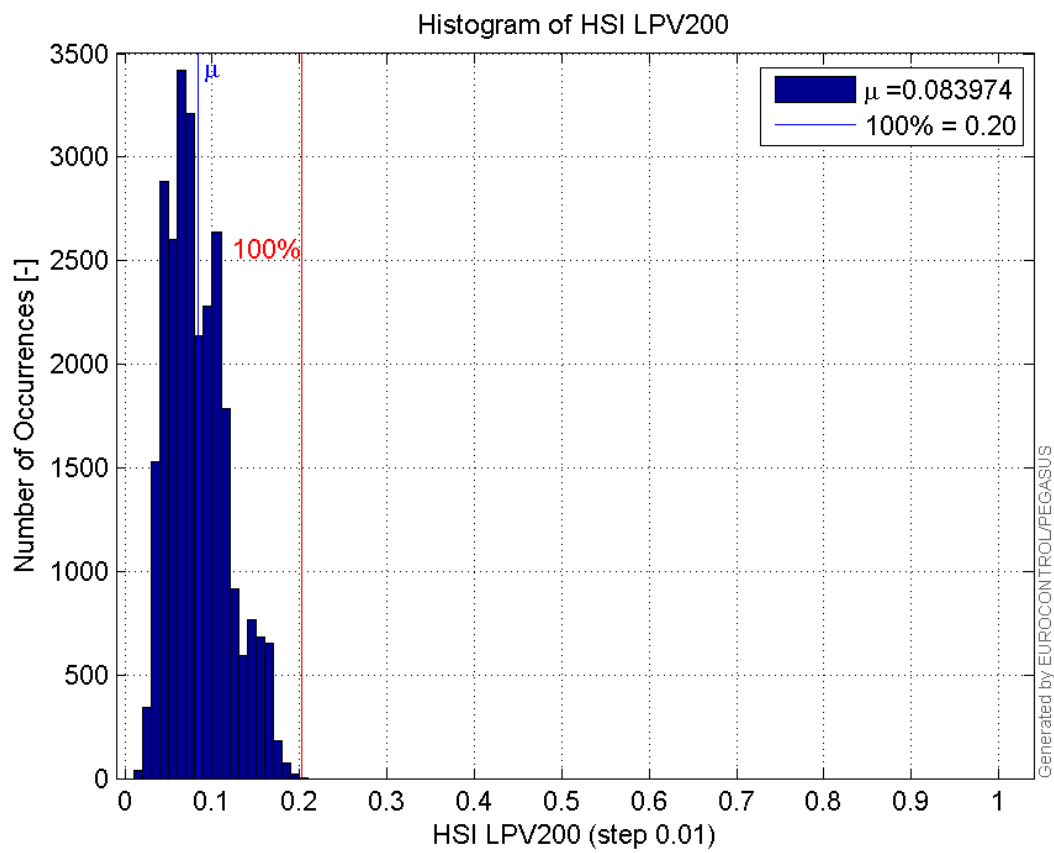
Histogram of HPL LPV200:



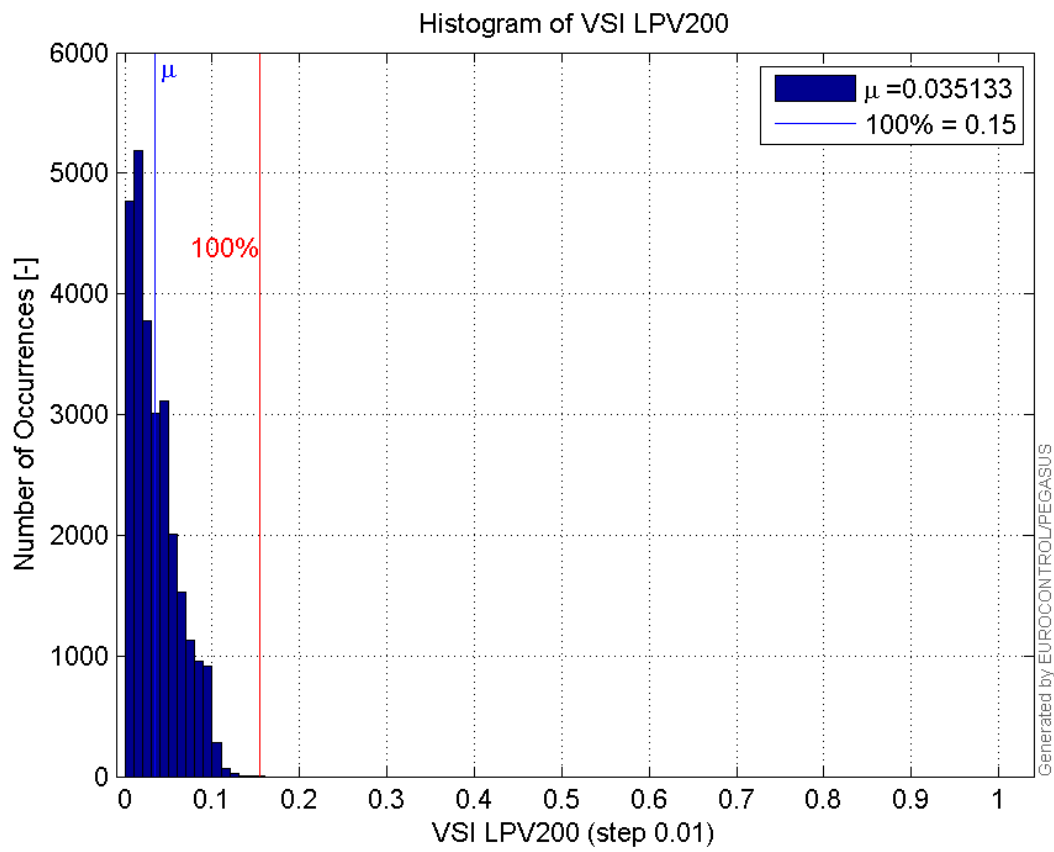
Histogram of VPL LPV200:



Histogram of HSI LPV200:

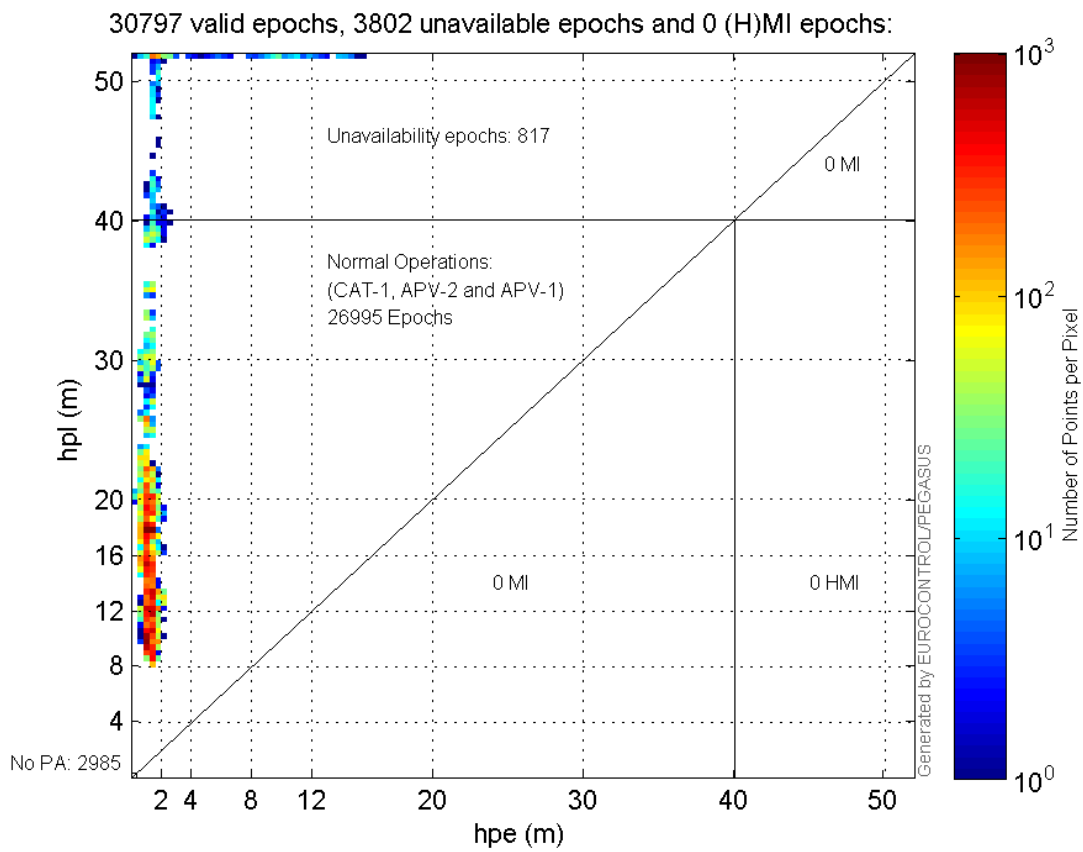


Histogram of VSI LPV200:

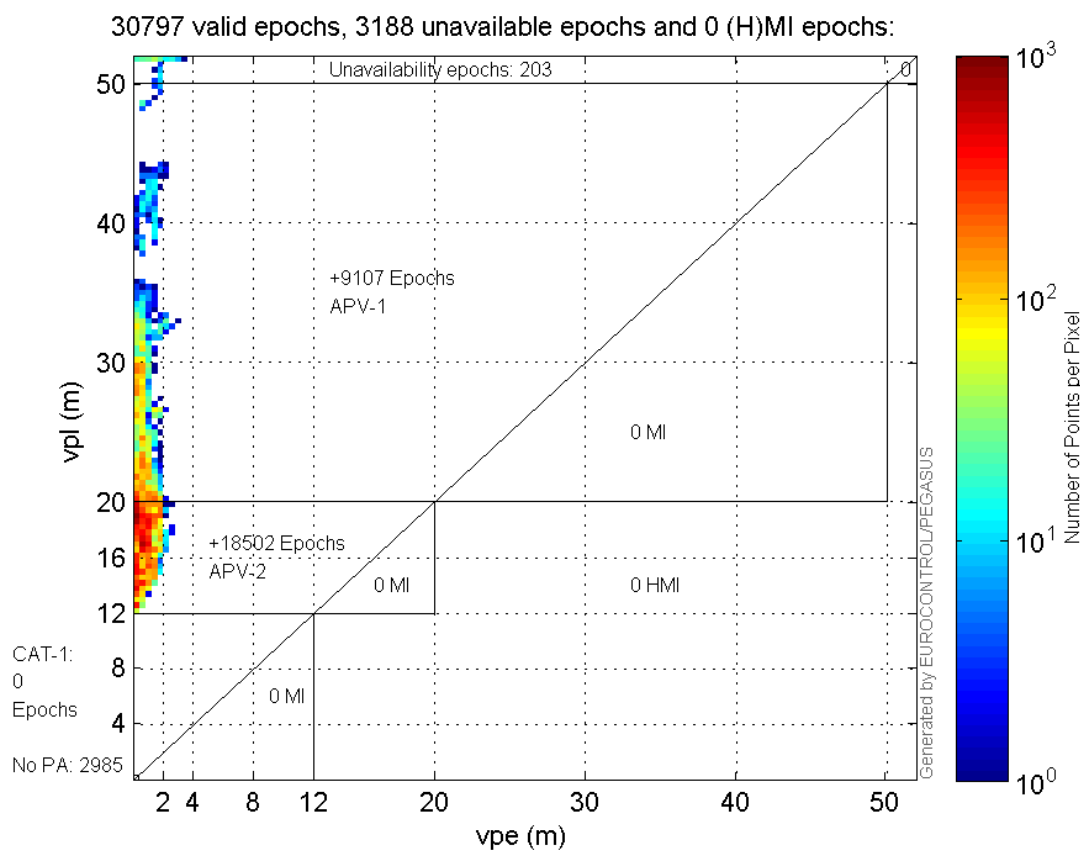


Stanford Plots

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:/PegasusDateGob/job/2016_02_24EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_24EGNOS/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	236.1694
mi_numbers	results	0