

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 17/12/2016

SBAS Messages

start: 07:25:38.129 07.12.2016 (week: 1926 sec: 285938.129)
end: 14:13:16.129 07.12.2016 (week: 1926 sec: 310396.129)
duration: 06:47:38 ..

quality

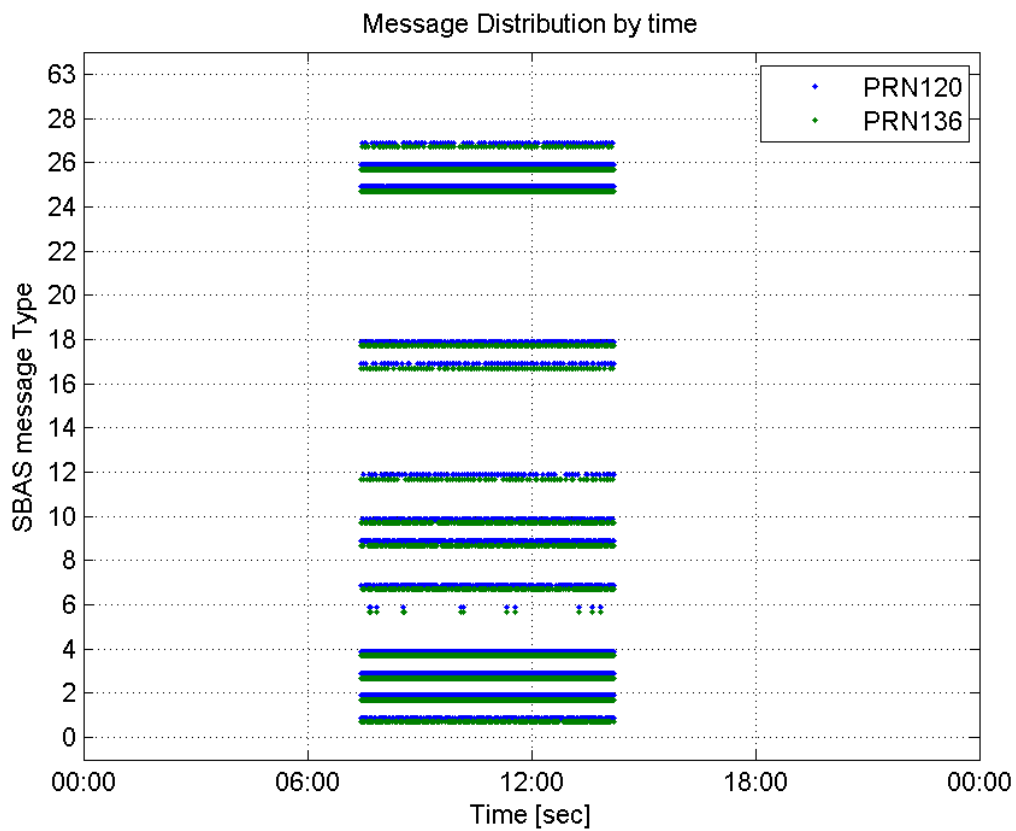
valid samples 37343
total samples 37343
number of SBAS PRNs 2

SBAS SIS Overview

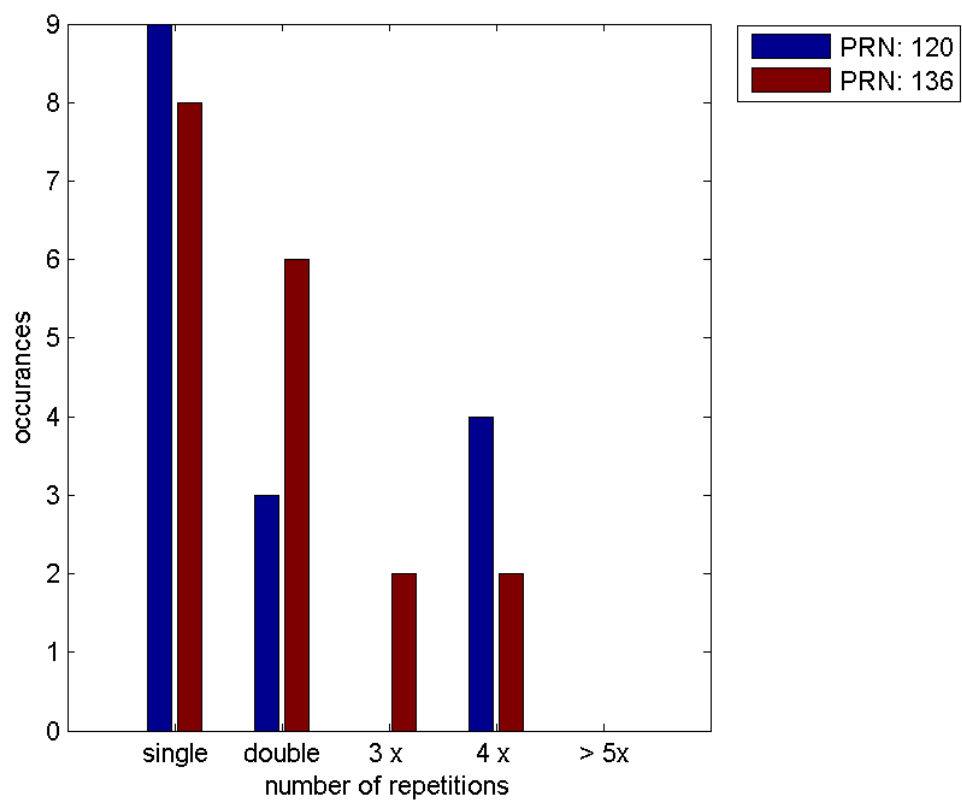
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	9	3	0	4	0
PRN 136	8	6	2	2	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

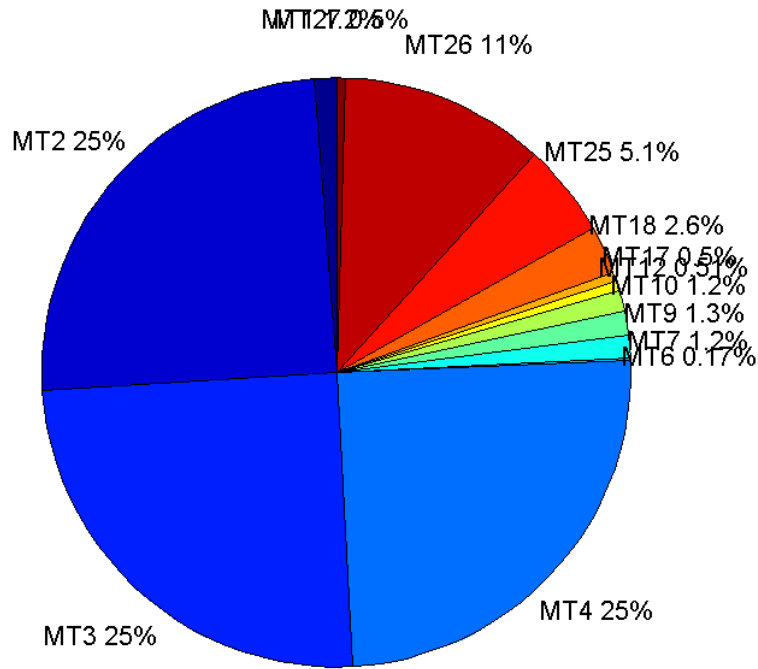
	number of messages	%
MT 0	0	0
MT 1	230	1.22758
MT 2	4643	24.7812
MT 3	4655	24.8452
MT 4	4642	24.7758
MT 5	0	0
MT 6	31	0.165457
MT 7	227	1.21157
MT 9	248	1.32365
MT 10	222	1.18488
MT 12	96	0.512383
MT 17	94	0.501708
MT 18	491	2.62062
MT 24	0	0
MT 25	955	5.09714
MT 26	2108	11.2511
MT 27	94	0.501708
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18736	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	106.179	52	0	0
MT 2	4	20	5.26713	1313	1	6
MT 3	4	21	5.25419	1297	2	12
MT 4	4	17	5.26998	1331	0	10
MT 5	--	--	--	--	--	--
MT 6	1	6165	742.433	9	9	9
MT 7	76	480	107.726	51	3	7
MT 9	74	318	98.6599	0	0	0
MT 10	76	400	109.167	60	1	4
MT 12	188	973	254.516	95	21	21
MT 17	184	786	262.118	0	0	0
MT 18	4	180	49.8429	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	212	25.6216	0	0	0
MT 26	3	80	11.6028	0	0	0
MT						

27	184	976	260.054	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

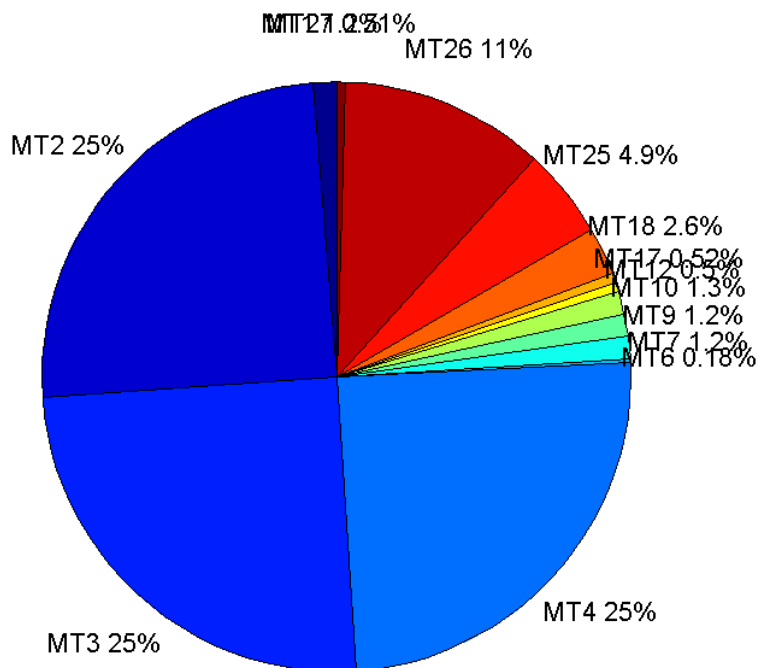
	number of messages	%
MT 0	0	0
MT 1	231	1.24147
MT 2	4630	24.8831
MT 3	4639	24.9315
MT 4	4600	24.7219
MT 5	0	0
MT 6	34	0.182727
MT 7	231	1.24147
MT 9	225	1.20922
MT 10	236	1.26834
MT 12	93	0.499812
MT 17	97	0.521309

MT 18	486	2.61192
MT 24	0	0
MT 25	920	4.94438
MT 26	2091	11.2377
MT 27	94	0.505186
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18607	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	401	105.996	51	0	0
MT 2	4	17	5.28257	1313	0	13
MT 3	4	20	5.27318	1314	2	11
MT 4	4	20	5.31703	1347	1	12
MT 5	--	--	--	--	--	--
MT 6	1	6165	674.939	11	11	11
MT 7	74	397	105.526	46	3	8
MT 9	76	480	108.781	0	0	0
MT 10	74	560	103.715	50	1	5
MT 12	186	783	263.641	92	25	25
MT 17	188	780	252.615	0	0	0
MT 18	4	198	50.3938	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	136	26.5756	0	0	0
MT 26	1	88	11.6981	0	0	0
MT 27	187	591	258.613	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/2016_12_07EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_12_07EGNOS2Hz/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: 07:25:38.5 07.12.2016 (week: 1926 sec: 285938.5)
end: 14:13:17 07.12.2016 (week: 1926 sec: 310397)
duration: 06:47:39 ..

quality

valid samples 43976
total samples 44633

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (20)
APV-35m discontinuity events type too many (25)
LPV-200 discontinuity events type too many (25)
CAT-I discontinuity events type all

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	309815	1.75215	10.7093	0.16361	-0.187158	16.7672	0.0111621
max normVer	286359	0.853344	11.441	0.0745865	3.24767	19.3828	0.167554
max HPE	304443	5.38818	98.4508	0.0547297	4.44779	81.4809	0.0545869
max VPE	299089	5.00482	173.842	0.0287895	-10.1741	280.627	0.0362547
min HPL	307090	1.11691	9.61433	0.116172	0.0240069	14.7991	0.00162219
min VPL	294699	0.960601	10.7638	0.0892437	0.755878	11.7462	0.0643509

Position discontinuity events :

#	Epoch	duration	stable period
1	305529	5.5	181
2	307140	5.5	574.5
3	309513	5.5	607.5

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	294585	113	0

First Glance analysis

Duration 24459
Number of Samples 44633
Number of invalid sample 657
Number of no position solution samples 141
Number of missing sample 4285
Logging Loss 8.7596
Processing Loss 1.472
Number of Misleading Information 0
Data gaps 13
Discontinuities 51

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
43835	40505	39794	5	39794

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.81734	1.78651	1.78834	0.997753	1.78834
HPEscale 95%	NaN	4.73275	4.73873	3.92299	4.73873
VPE 95%	1.59884	1.58018	1.57102	0.912202	1.57102
VPEscale 95%	NaN	3.80584	2.67157	0.91326	2.67157

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.996794	0.921071	0.904903	0.000113698	0.904903
measurements	0.982121	0.907512	0.891582	0.000112025	0.891582
Operational	1.79218	1.65604	1.62697	0.000204424	1.62697

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	38	153	188	1	188
Long	3	26	40	1	40
Independent	3	20	25	0	25
P(disc.)	0.00102658	0.00740649	0.00942353	0	0.00942353
P(slide)	0.0126383	0.0524009	0.0621702	0	0.0621702

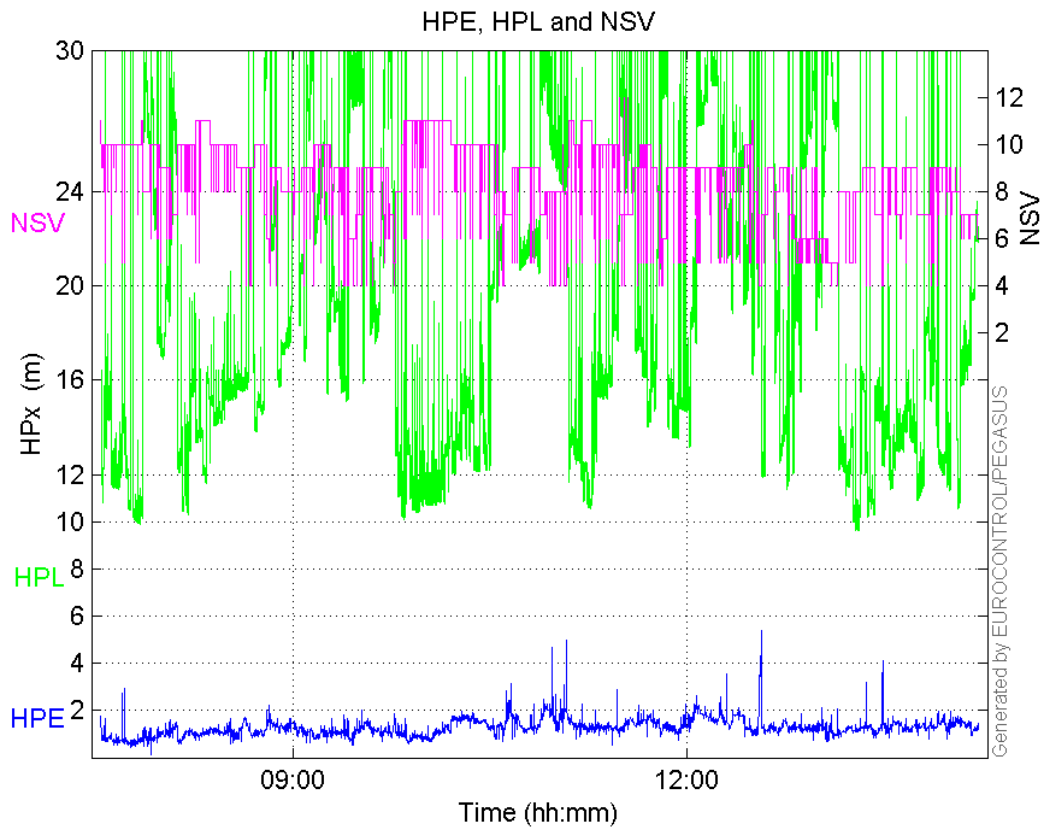
Integrity events :

	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

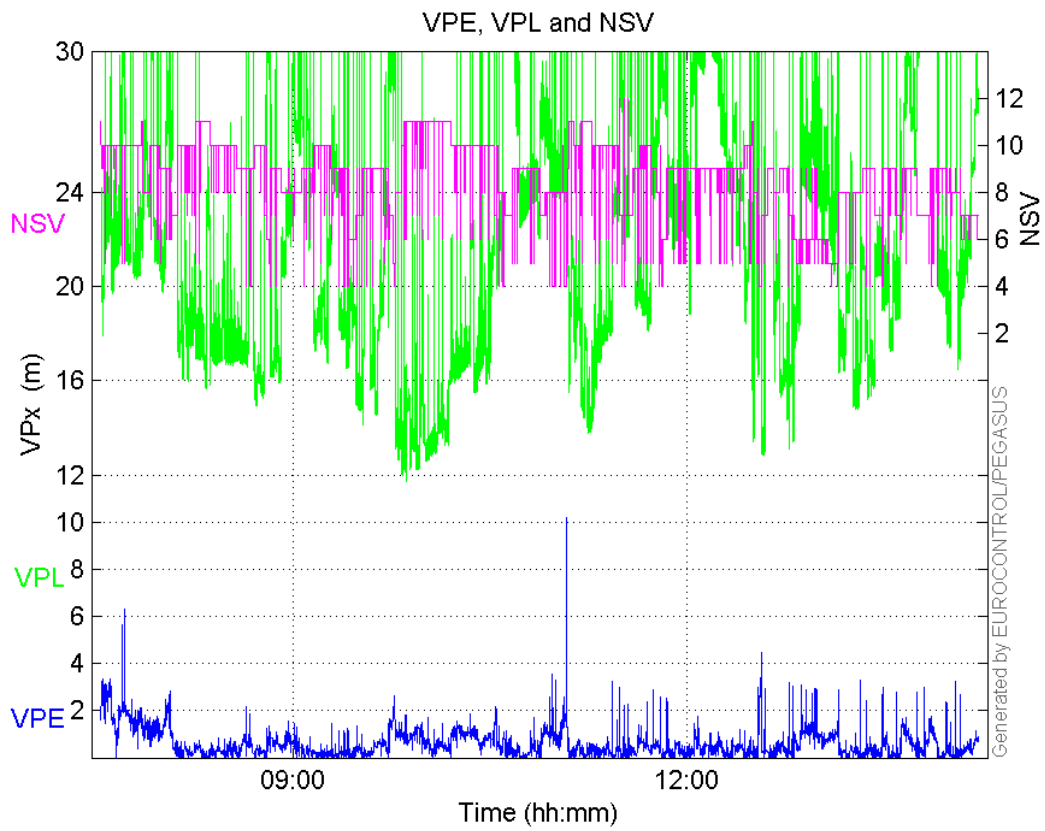
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	43835	40505	39794	5	39794
SIS Availability	0.996794	0.921071	0.904903	0.000113698	0.904903
Local Availability	0.982121	0.907512	0.891582	0.000112025	0.891582
Operational Availability	1.79218	1.65604	1.62697	0.000204424	1.62697
HPE 95%	1.81734	1.78651	1.78834	0.997753	1.78834
HPEScale 95%	NaN	4.73275	4.73873	3.92299	4.73873
VPE 95%	1.59884	1.58018	1.57102	0.912202	1.57102
VPEscale 95%	NaN	3.80584	2.67157	0.91326	2.67157
All Discontinuity Events	38	153	188	1	188
Long Discontinuity Events	3	26	40	1	40
Independent Discontinuity Events	3	20	25	0	25
P(discontinuity)	0.00102658	0.00740649	0.00942353	0	0.00942353
P(sliding window)	0.0126383	0.0524009	0.0621702	0	0.0621702
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:**

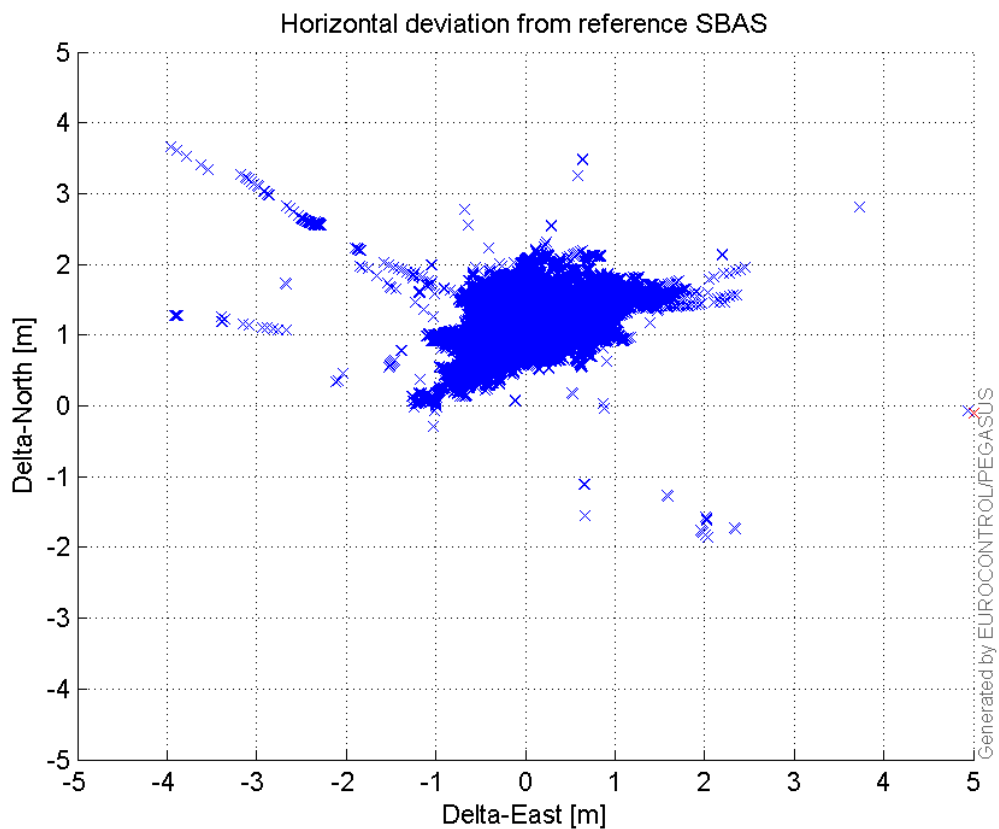


VPE, VPL and NSV:



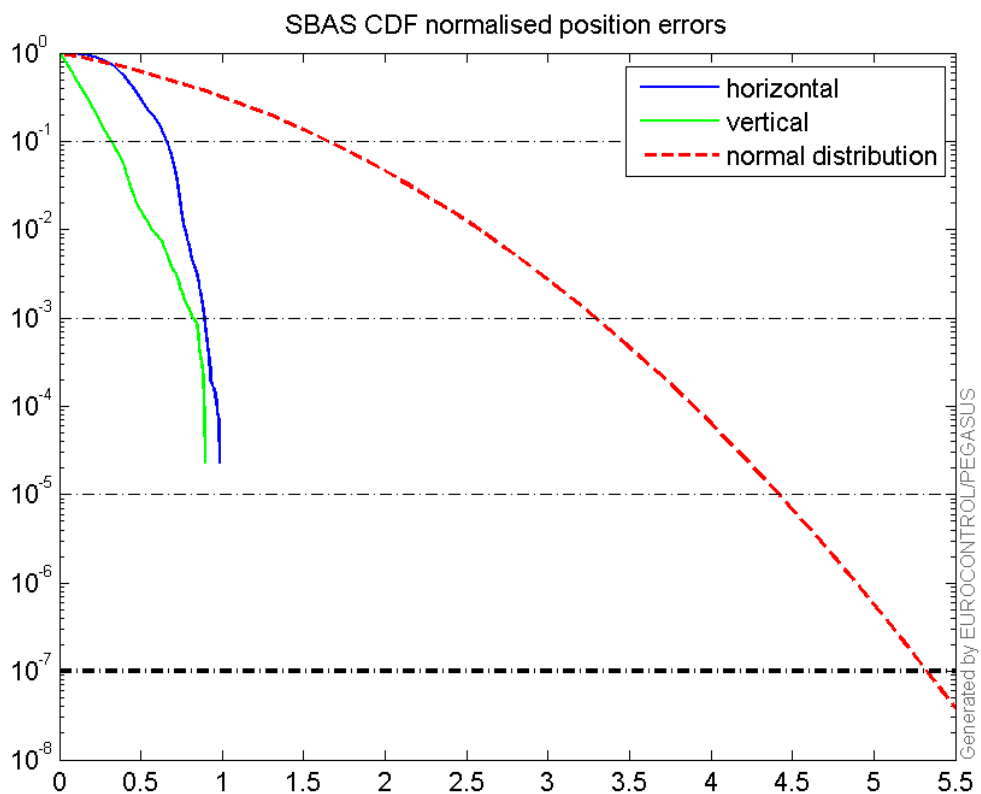
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

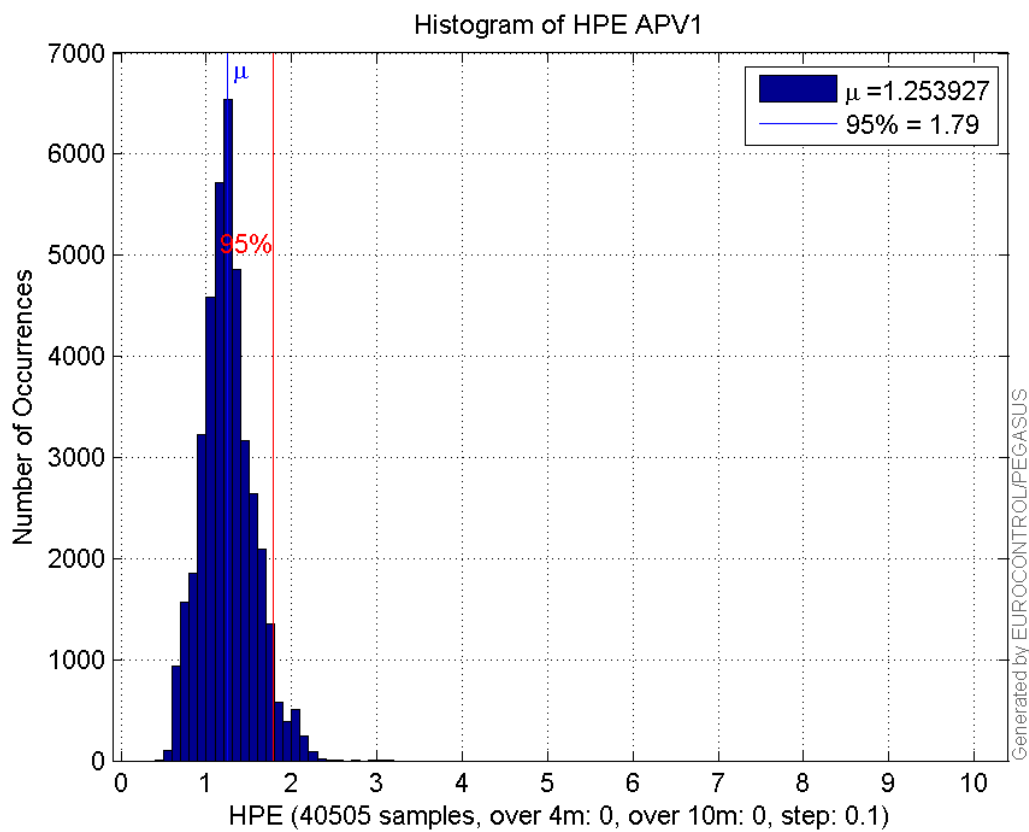
number	40505
sum	50790.329
sum2	67418.813
prctile95	1.7865147
prctile99	2.0837101
number	40505
sum	23431.033
sum2	24558.631
prctile95	1.5801847
prctile99	2.5870065
number	40505
sum	745196.94
sum2	15336064
prctile95	30.037675
prctile99	34.931225
number	40505
sum	873167.82
sum2	20049804
prctile95	30.9017
prctile99	39.21549
number	40505
sum	3002.3101
sum2	247.15815
prctile95	0.11831884
prctile99	0.12927499
number	40505
sum	1115.2379
sum2	54.535141
prctile95	0.076116863
prctile99	0.10949967
number	39794
sum	49879.356
sum2	66205.946
prctile95	1.7883373
prctile99	2.0843892
number	39794
sum	22785.332
sum2	23775.079
prctile95	1.571022
prctile99	2.5923249
number	39794
sum	728387.93
sum2	14909437
prctile95	29.8161
prctile99	34.90766
number	39794
sum	844324.51
sum2	18866566
prctile95	29.97158
prctile99	33.194272
number	39794
sum	2960.5225
sum2	244.41854

prctile95 0.11846817
prctile99 0.12941255
number 39794
sum 1099.4496
sum2 54.085327
prctile95 0.076330694
prctile99 0.11012965

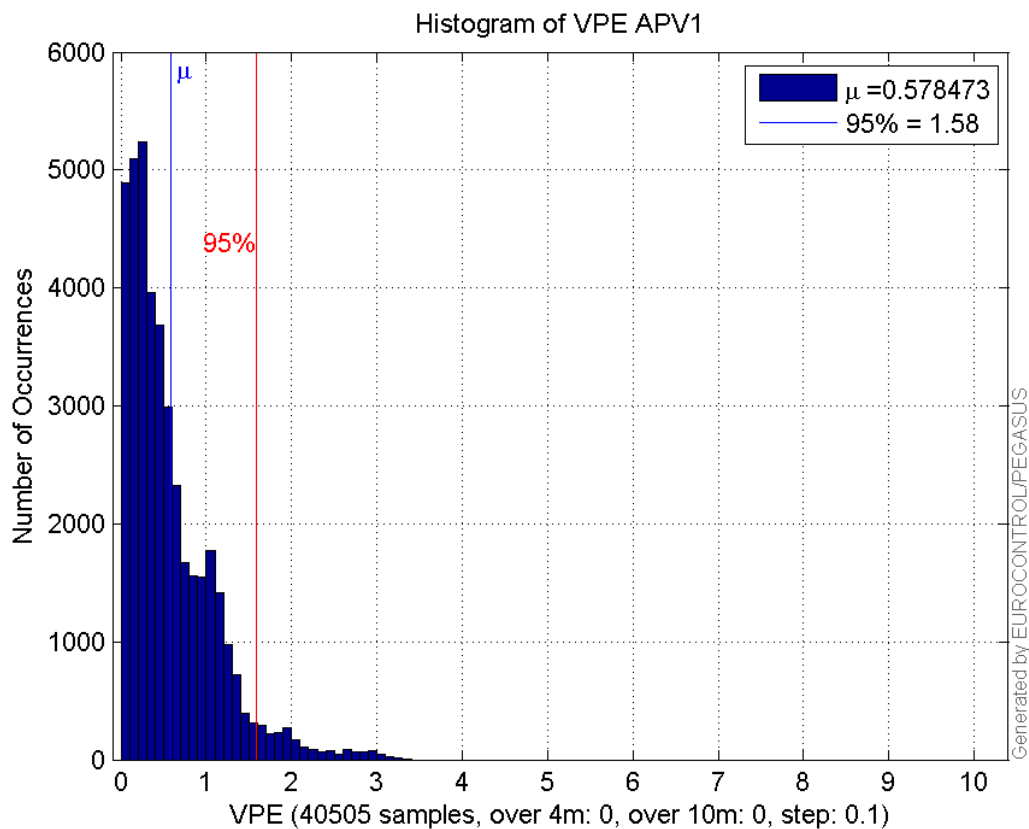
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.25393	0.303521	1.23715	1.78651	2.08371	1.29014
HPL	18.3977	6.33631	16.1299	30.0377	34.9312	19.4582
VPE	0.578473	0.521236	0.429968	1.58018	2.58701	0.77866
VPL	21.557	5.50369	20.9217	30.9017	39.2155	22.2485

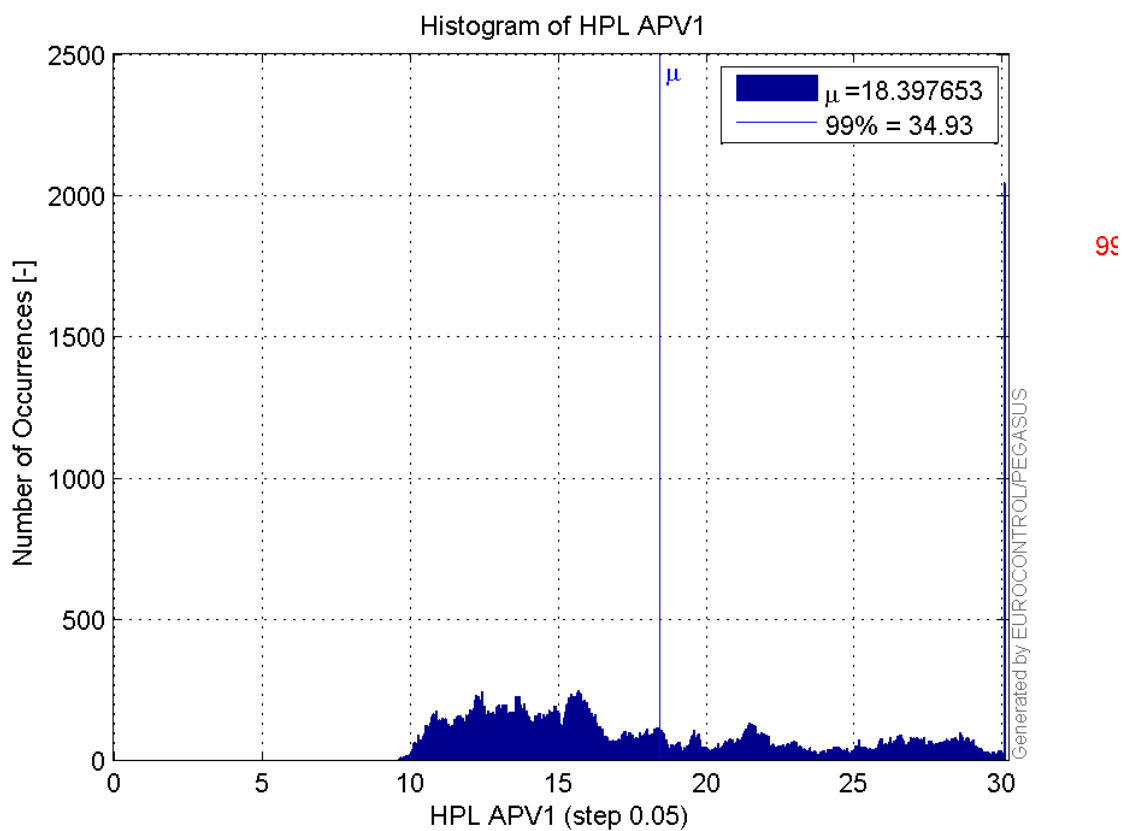
Histogram of HPE APV1:



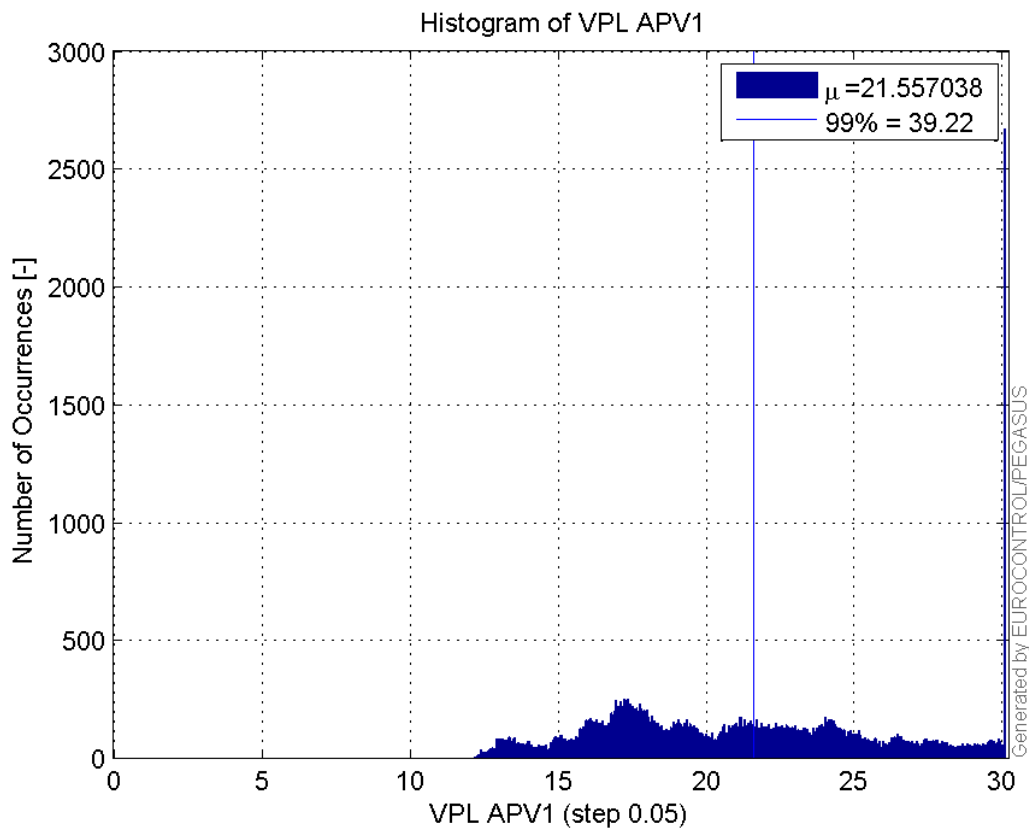
Histogram of VPE APV1:



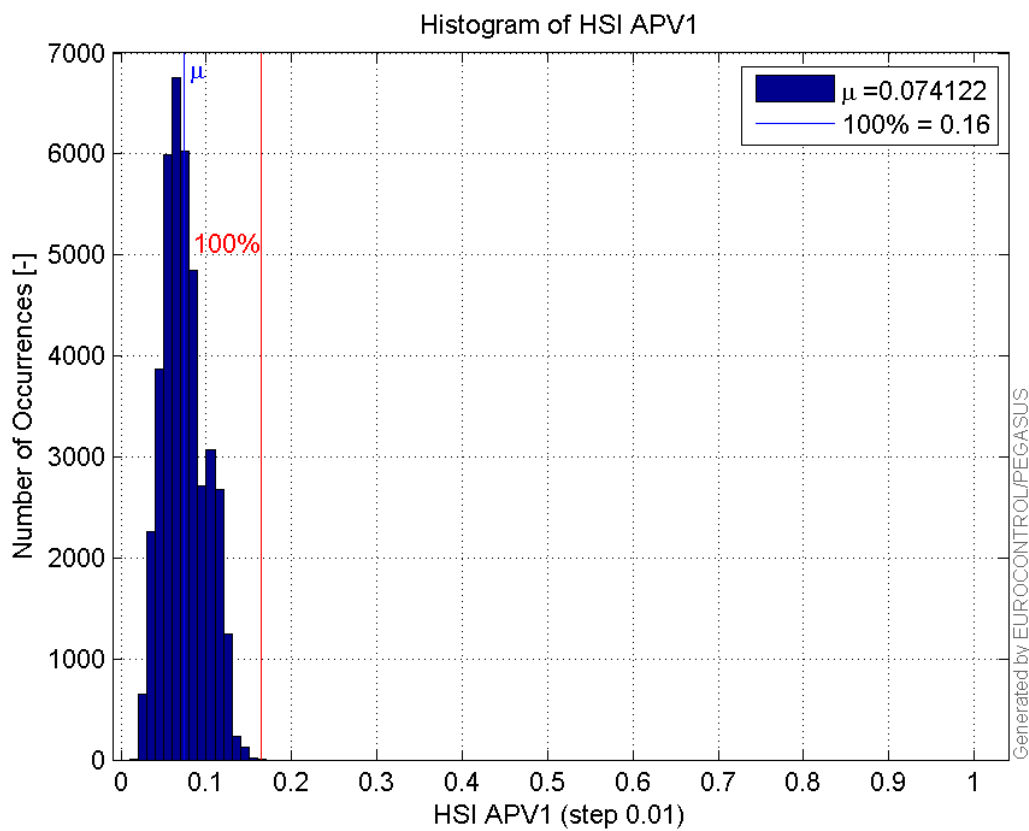
Histogram of HPL APV1:



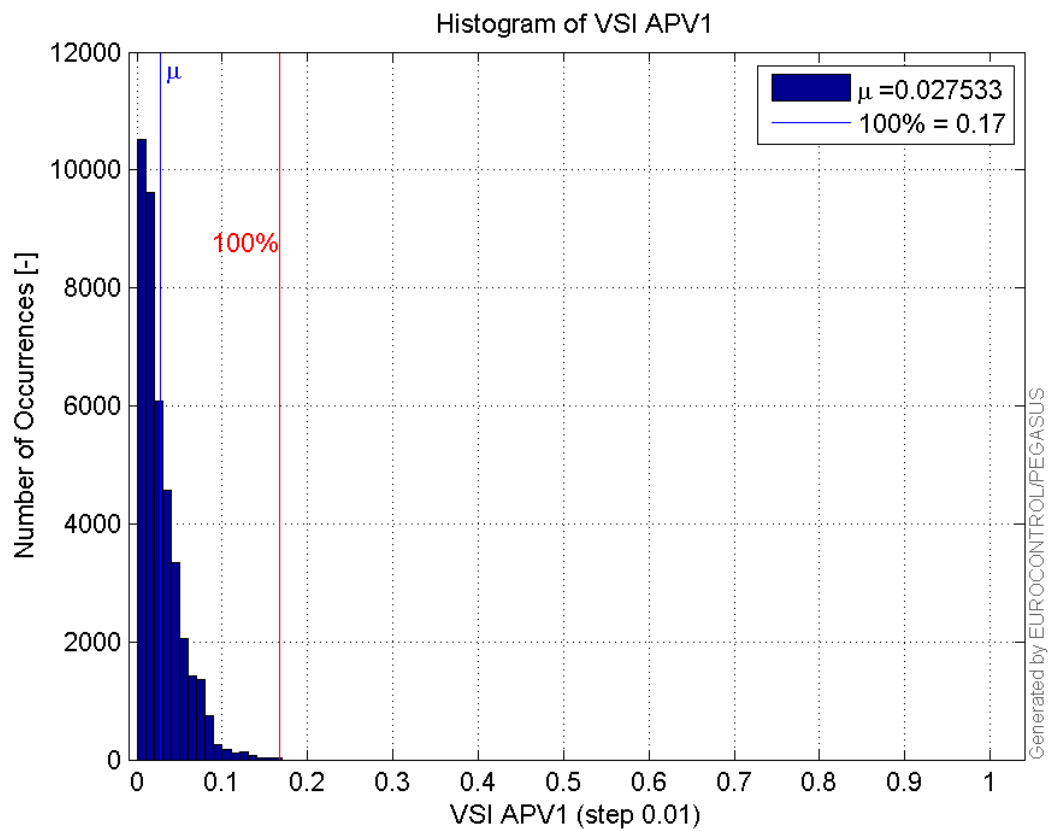
Histogram of VPL APV1:



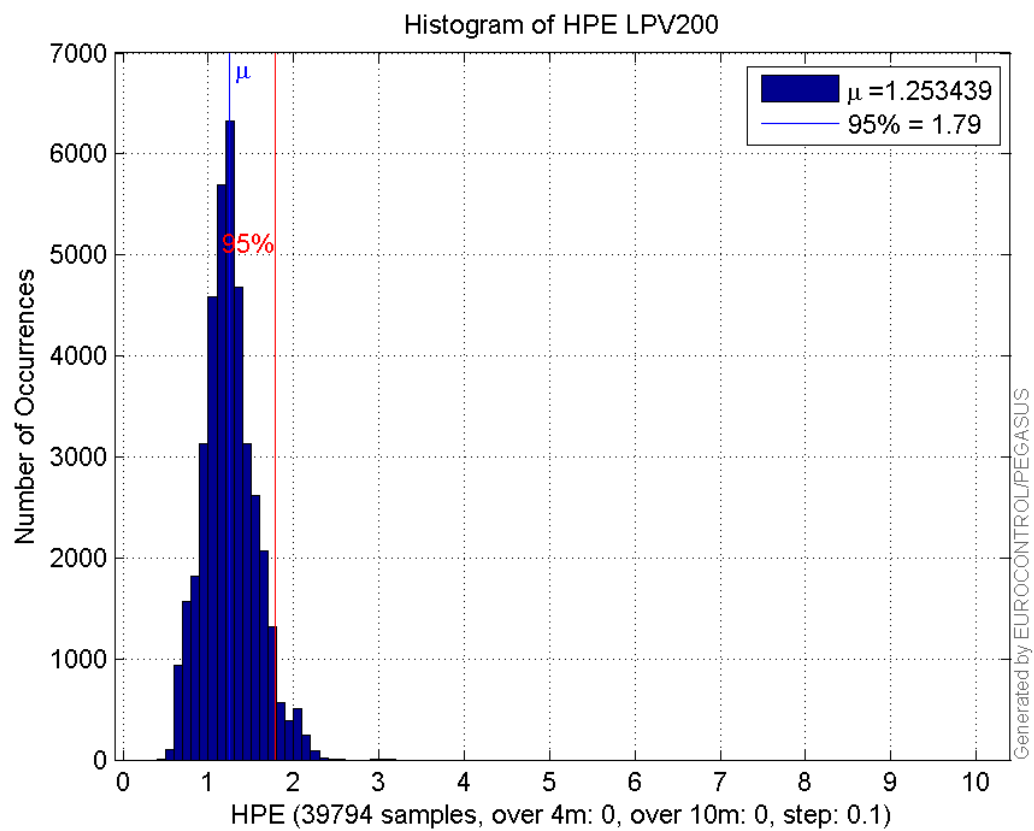
Histogram of HSI APV1:



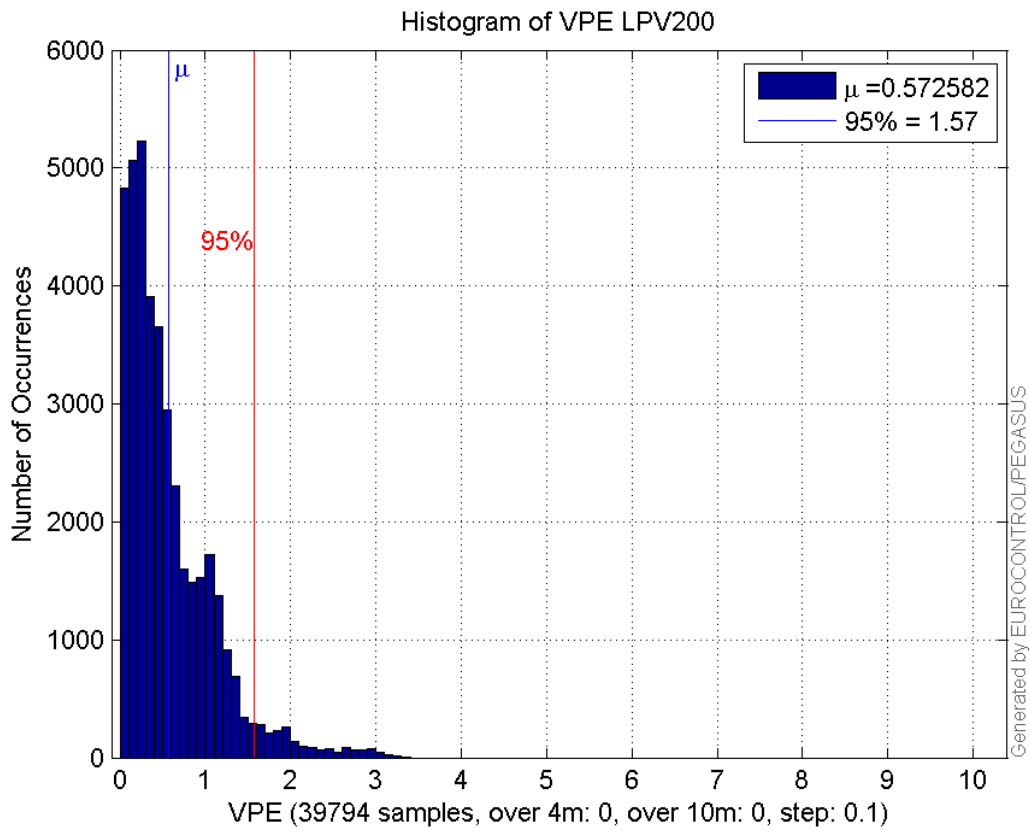
Histogram of VSI APV1:



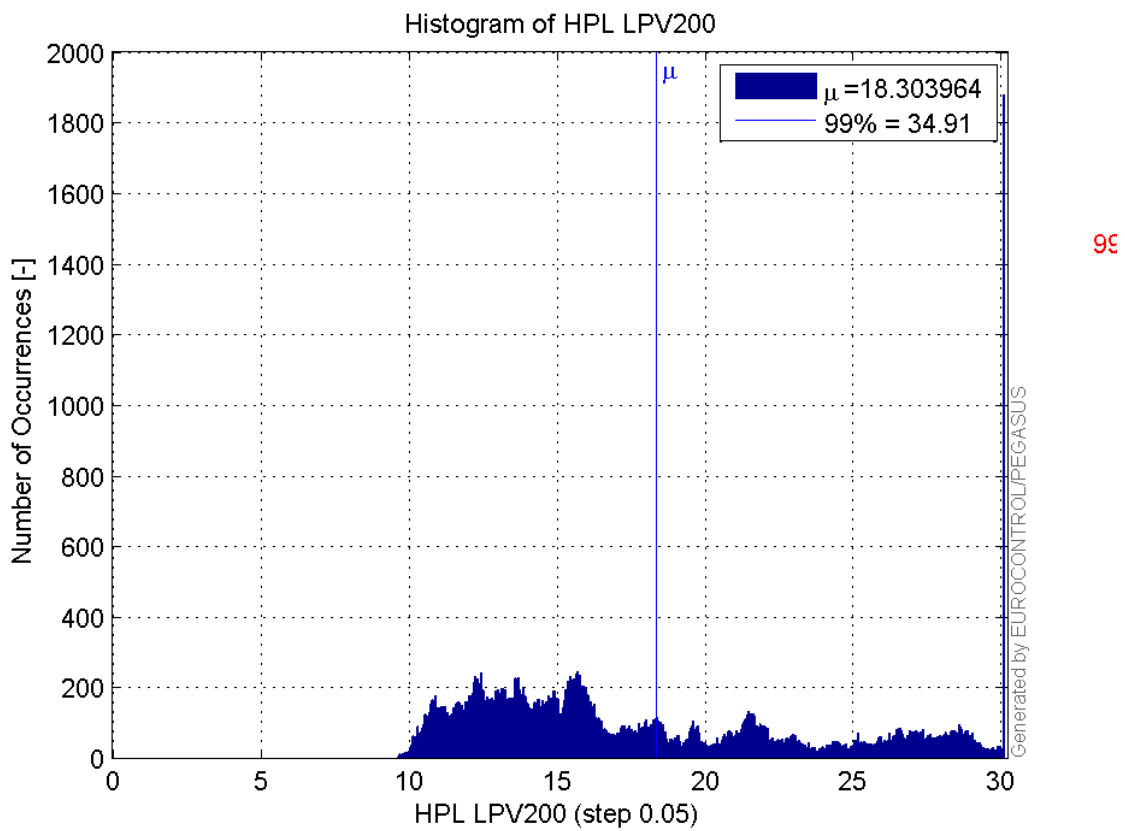
Histogram of HPE LPV200:



Histogram of VPE LPV200:

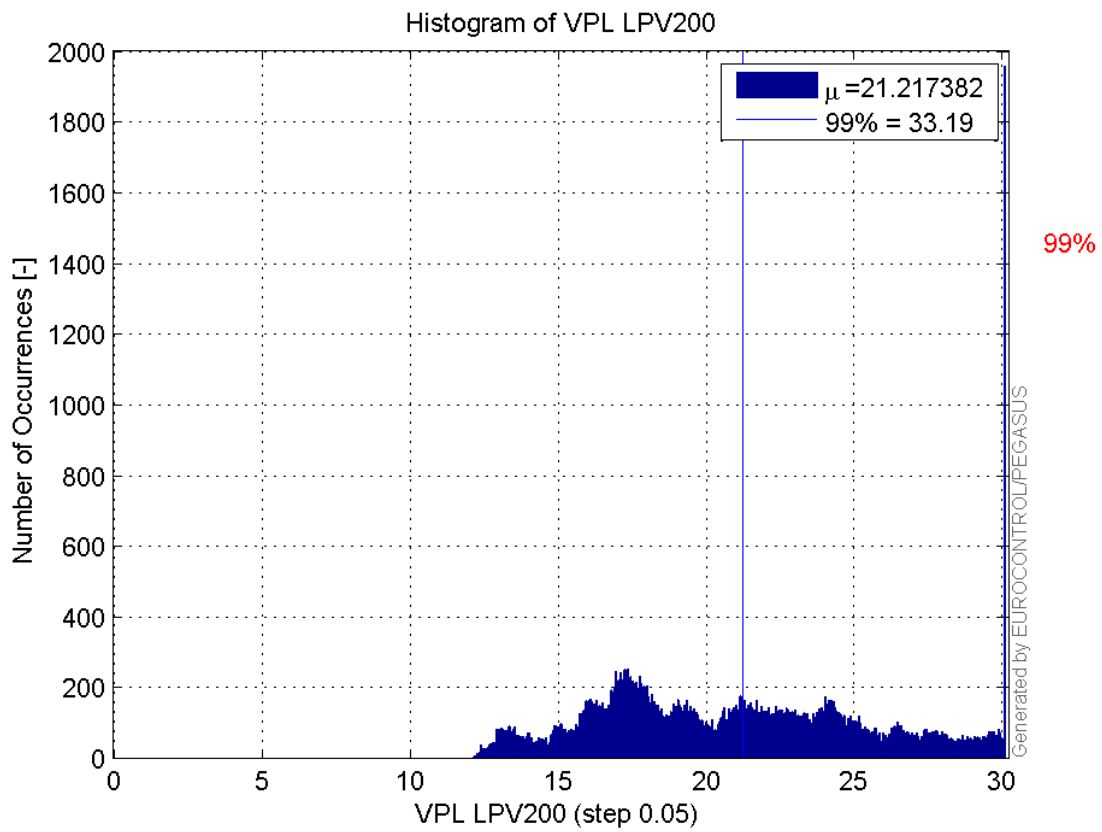


Histogram of HPL LPV200:

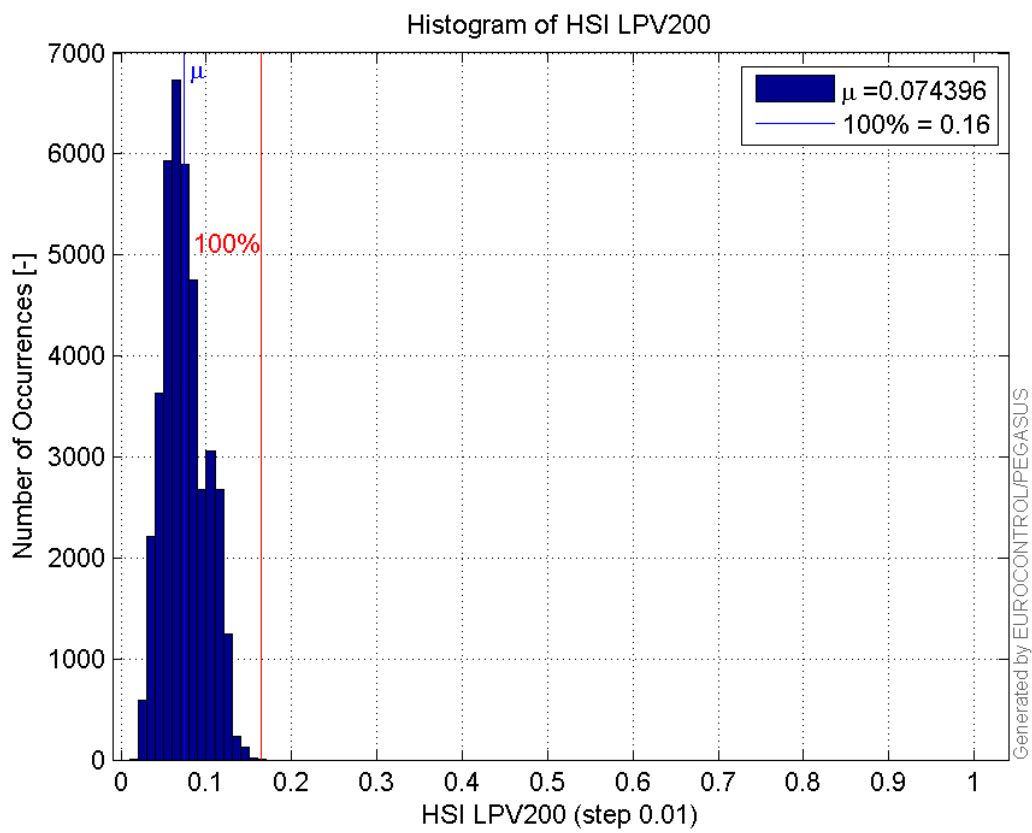


Histogram of VPL LPV200:

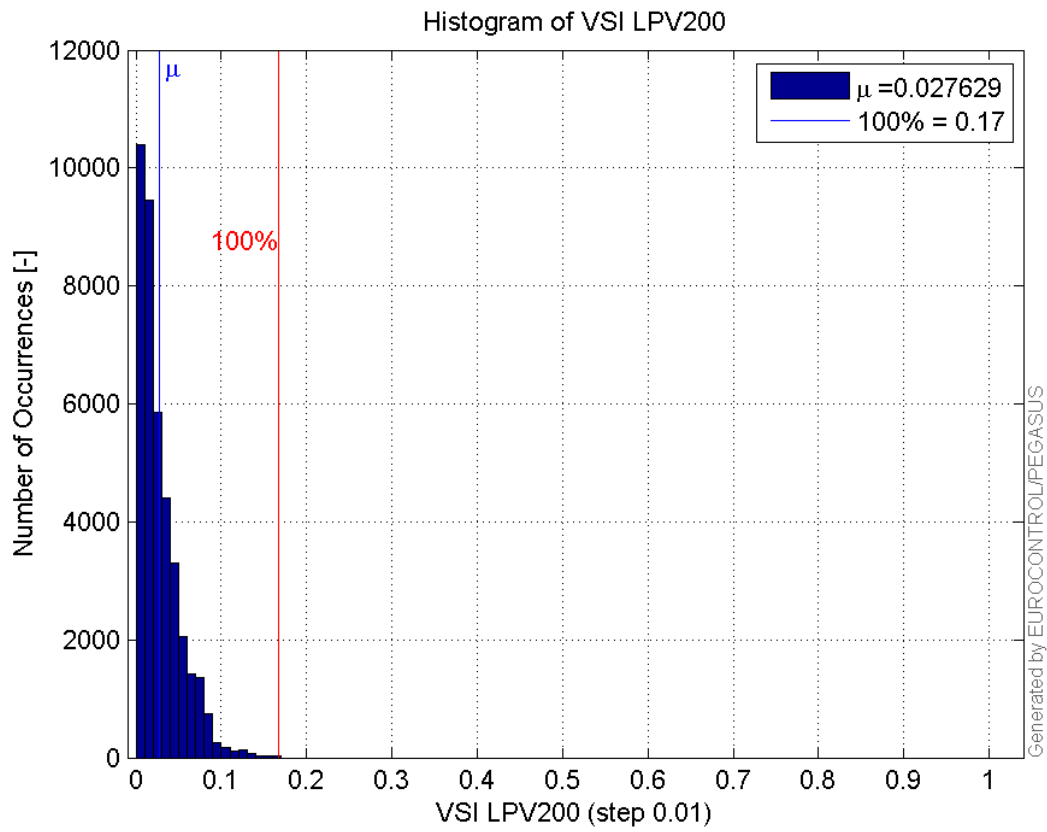
95



Histogram of HSI LPV200:

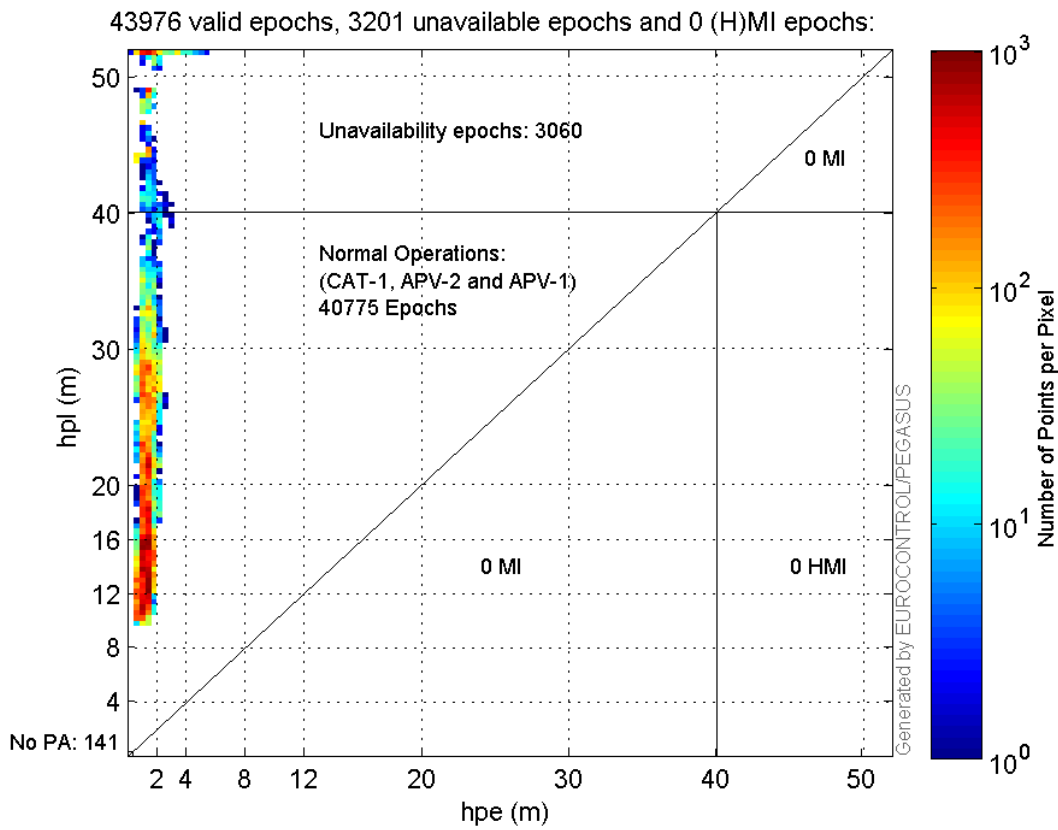


Histogram of VSI LPV200:



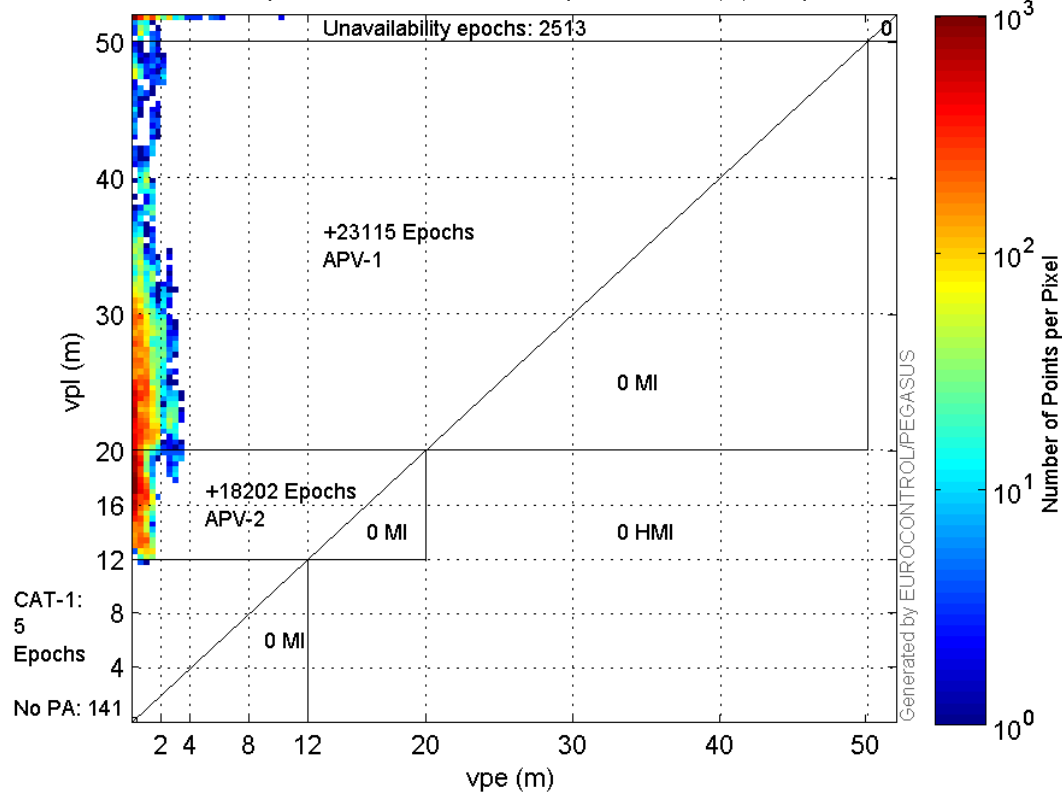
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

43976 valid epochs, 2654 unavailable epochs and 0 (H)MI epochs:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_12_07EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_12_07EGNOS2Hz/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	232.6599
mi_numbers	results	0

Range Domain

start: 07:25:38.5 07.12.2016 (week: 1926 sec: 285938.5)
end: 14:13:17 07.12.2016 (week: 1926 sec: 310397)
duration: 06:47:39 ..

quality

valid samples 44633
total samples 44633

PRN overview

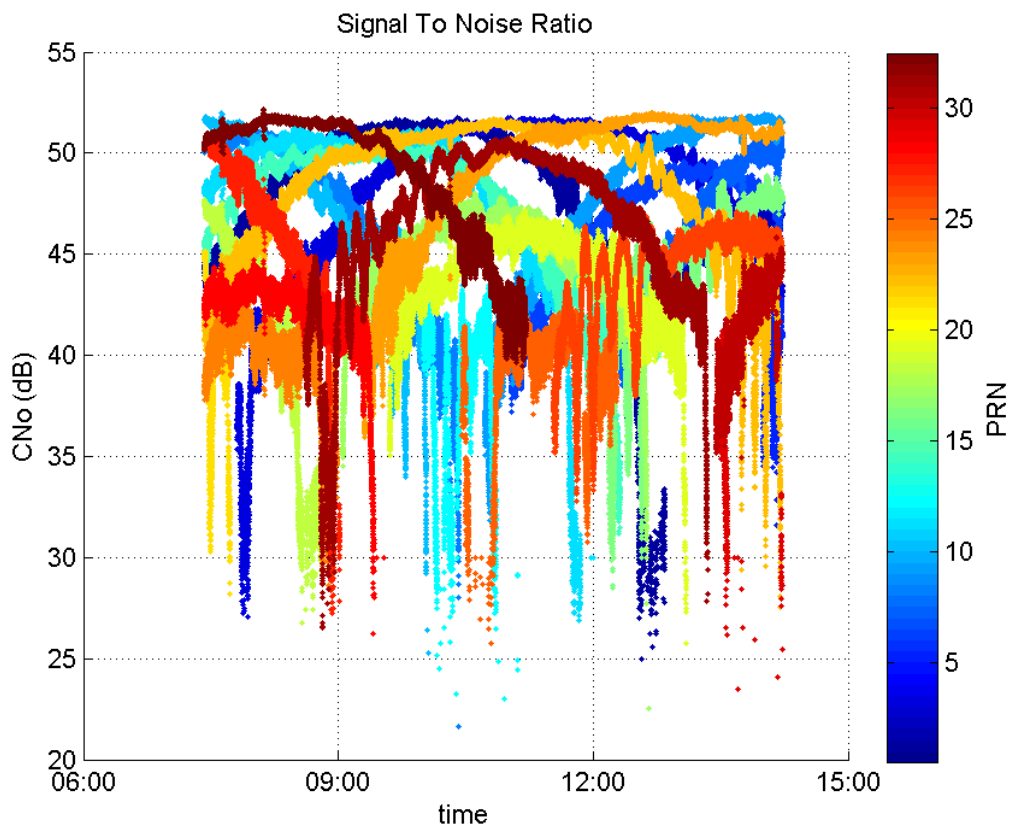
Number of Visible GPS Satellites 28
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



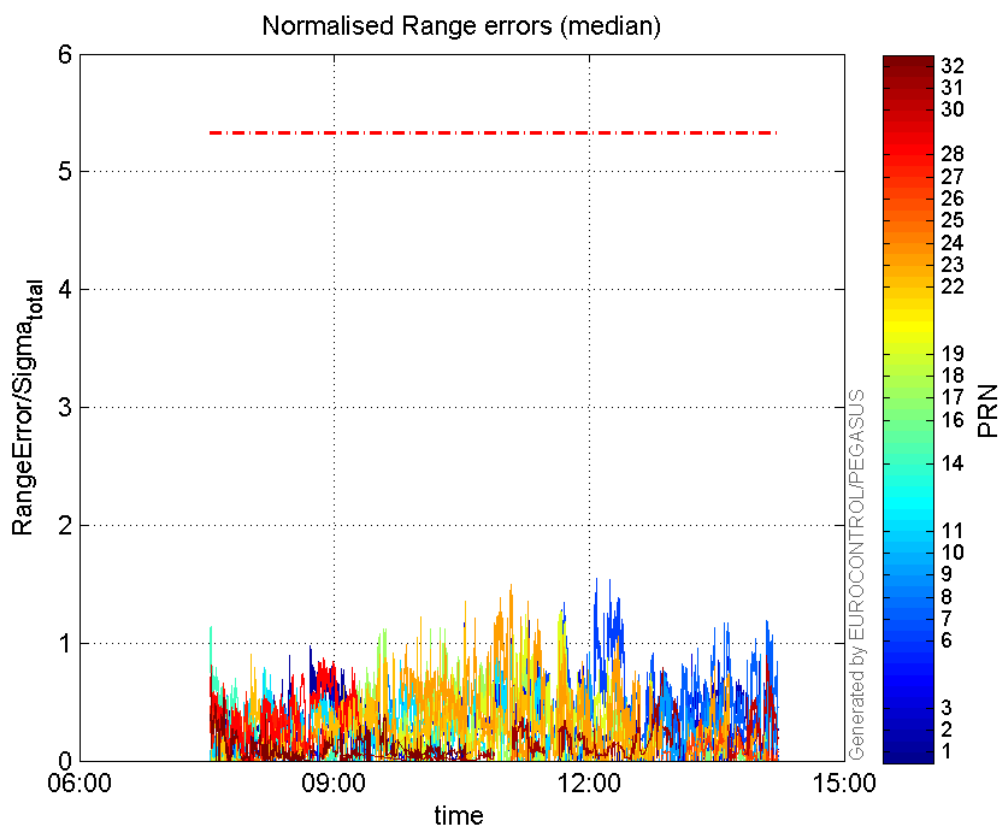
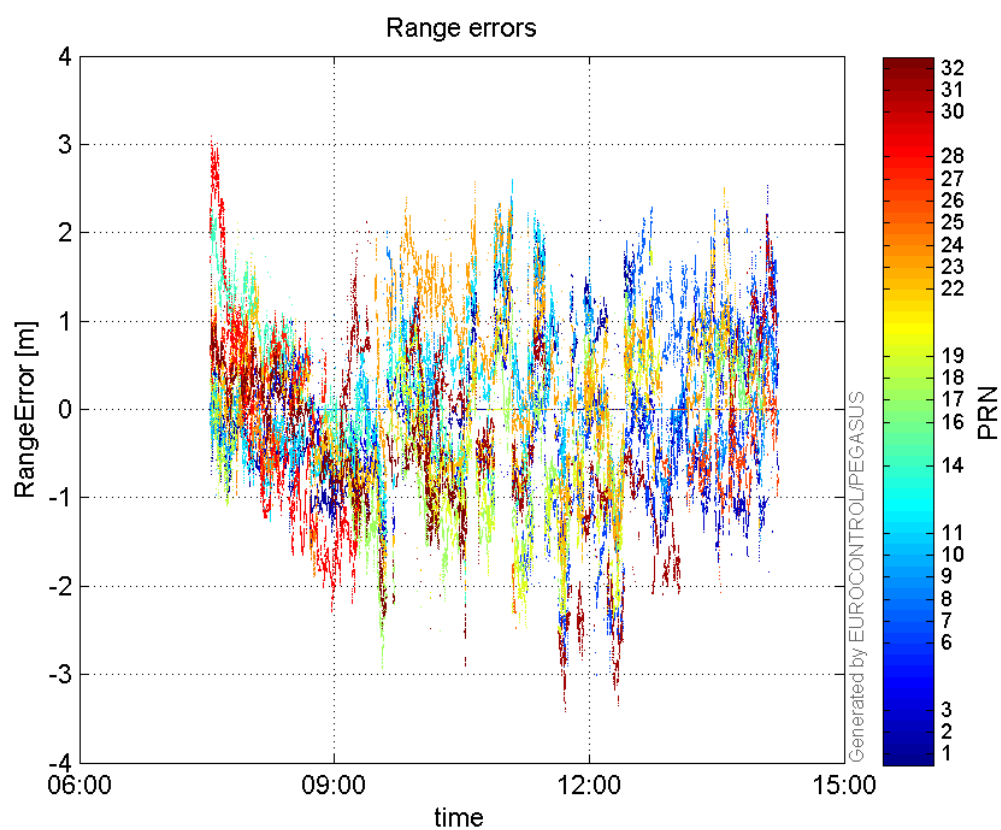
range errors

Number of Overbounding Norm Errors 0

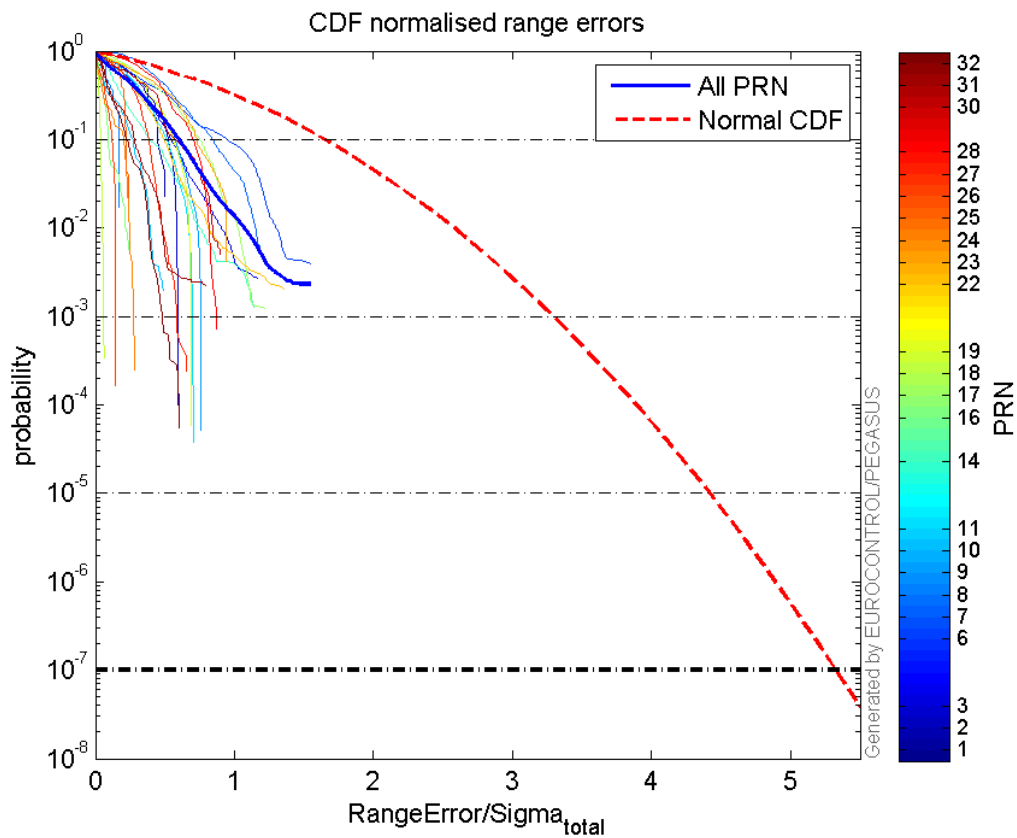
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1926	299794	1	1.28579	2.195	1.70712
1926	309992	2	0.911581	-1.84133	2.01993
1926	297122	3	1.16836	-1.64656	1.40929
1926	302709	6	1.5502	-2.99529	1.93219
1926	309893	7	1.19229	1.87043	1.56877
1926	293823	8	0.835772	2.00953	2.4044
1926	299151	9	0.9889	2.56398	2.59276
1926	287091	10	0.485556	-0.874059	1.80012
1926	299151	11	1.09827	2.60106	2.36832
1926	286374	14	1.1369	2.17787	1.91562
1926	307350	16	0.247129	0.976456	3.9512
1926	295280	17	1.21618	-2.24078	1.84248
1926	287517	18	0.0853327	2.10615	24.6816
1926	301176	19	1.26758	-2.54044	2.00417
1926	297141	22	1.35895	-1.93198	1.42167
1926	299085	23	1.50161	2.29849	1.53068
1926	290716	24	0.284468	-1.89402	6.65812
1926	299280	25	0.237379	-2.48249	10.4579
1926	307946	26	0.366315	-2.06555	5.63873
1926	286898	27	0.656181	1.33836	2.03962
1926	291151	28	0.873813	-1.99297	2.28078
1926	309901	30	0.896223	2.1991	2.45374

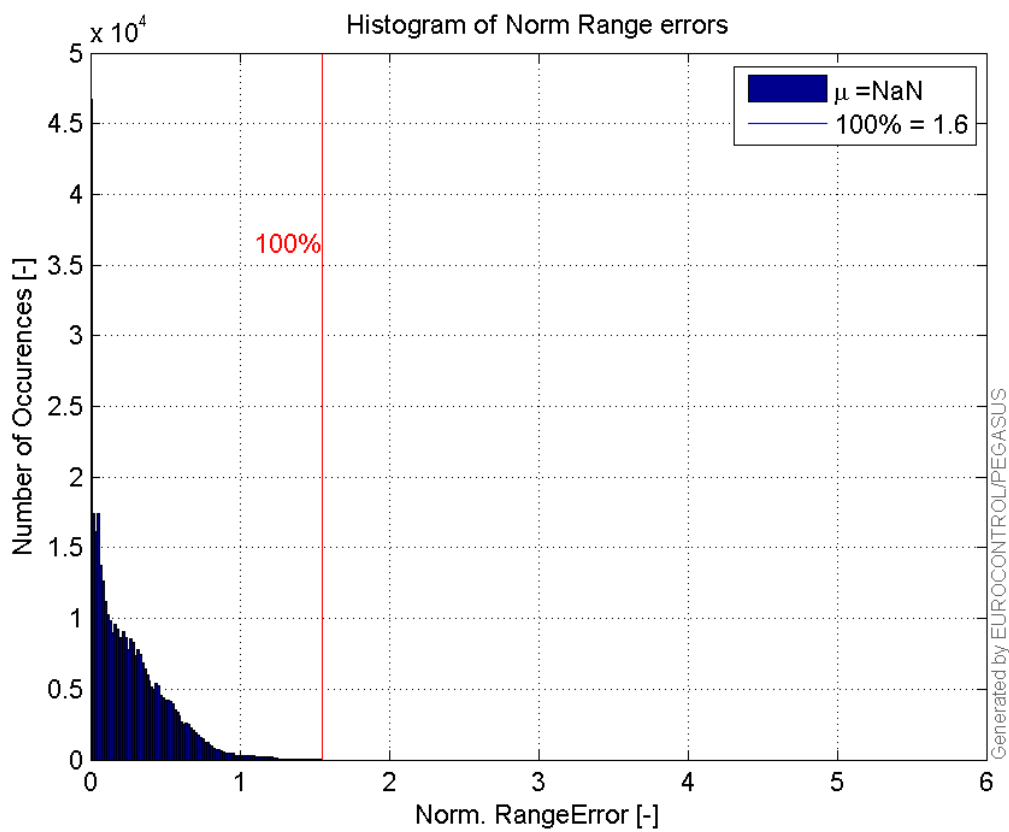
1926	305517	31	0.788272	-1.98483	2.51795
1926	286389	32	0.742861	1.5297	2.0592

Normalised Range errors (median):**Range errors:**

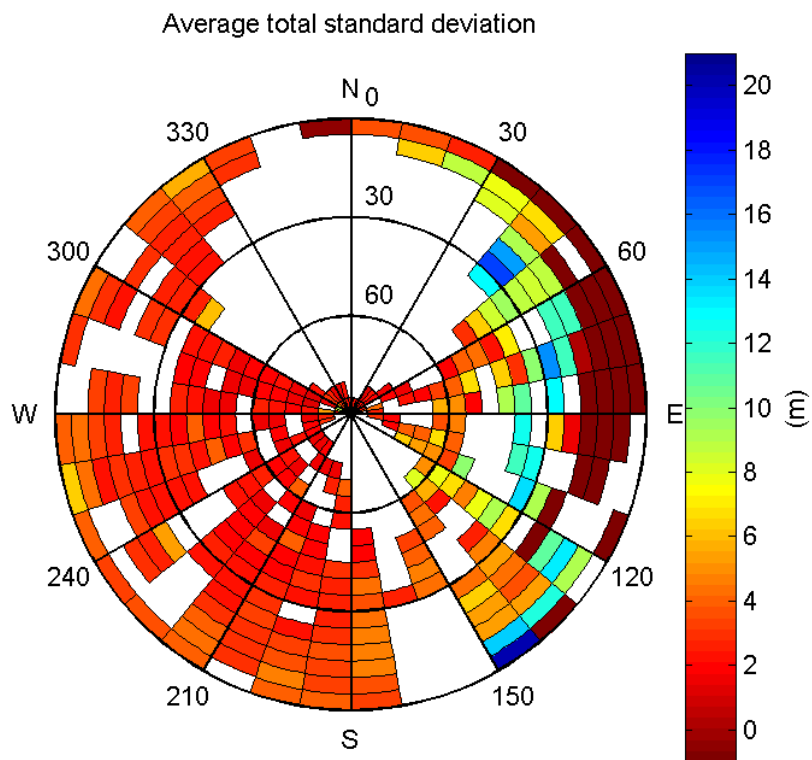
CDF normalised range errors:



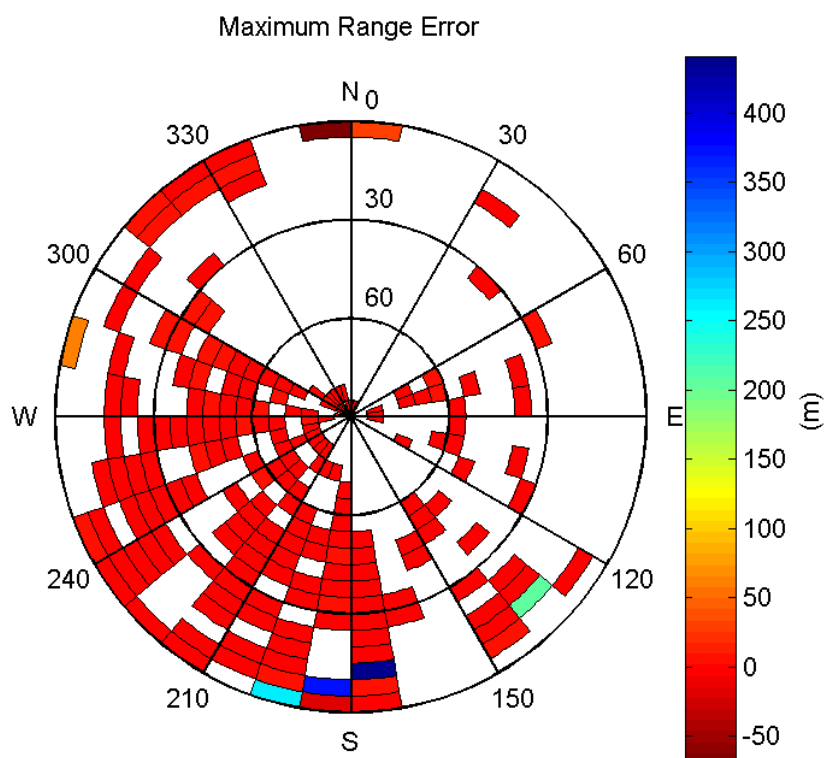
Histogram of Norm Range errors:



Sigma Sky Plot:

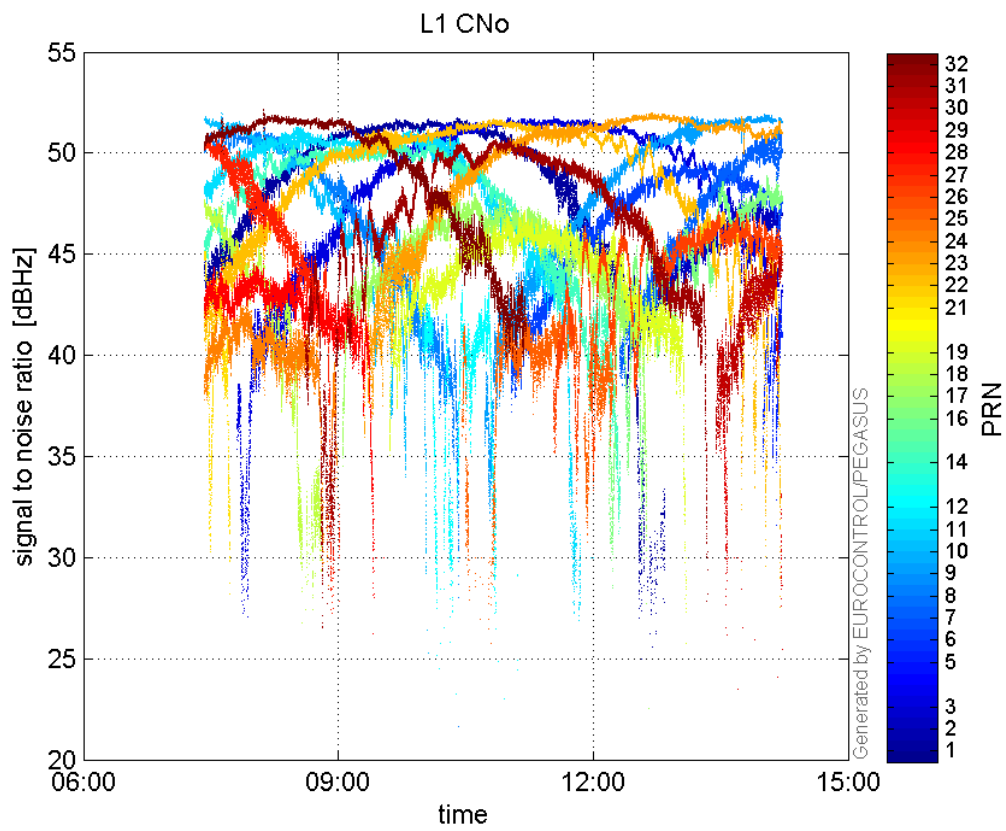


Norm Error Sky Plot:

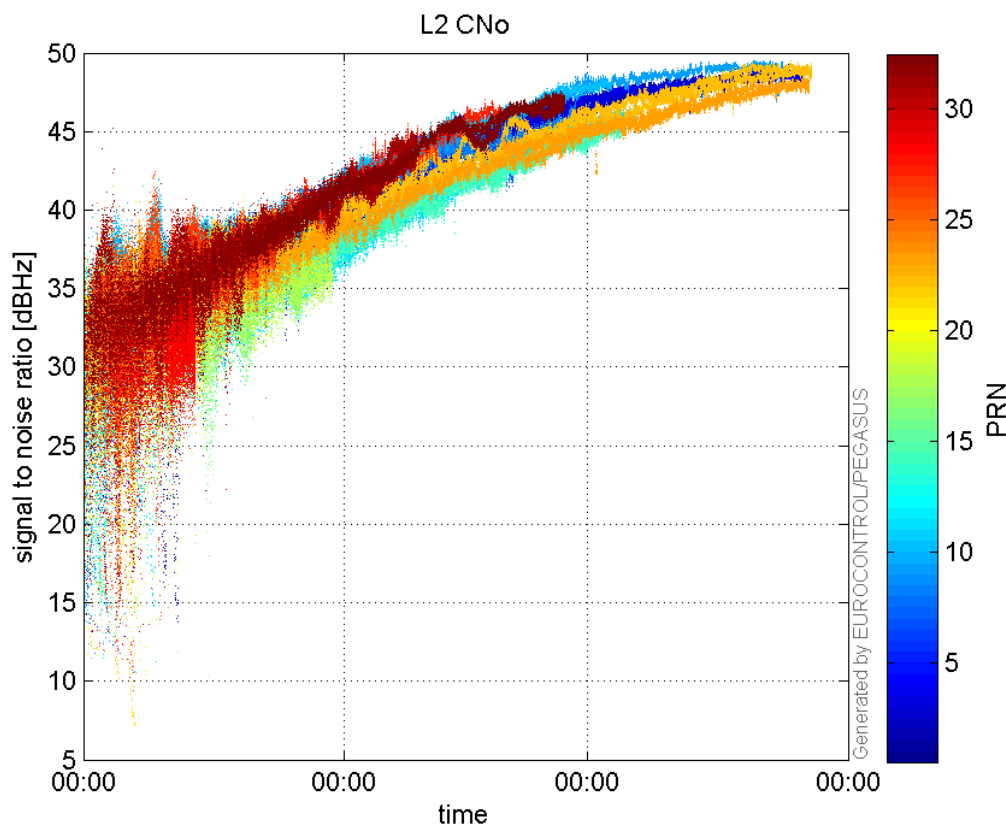


signal quality

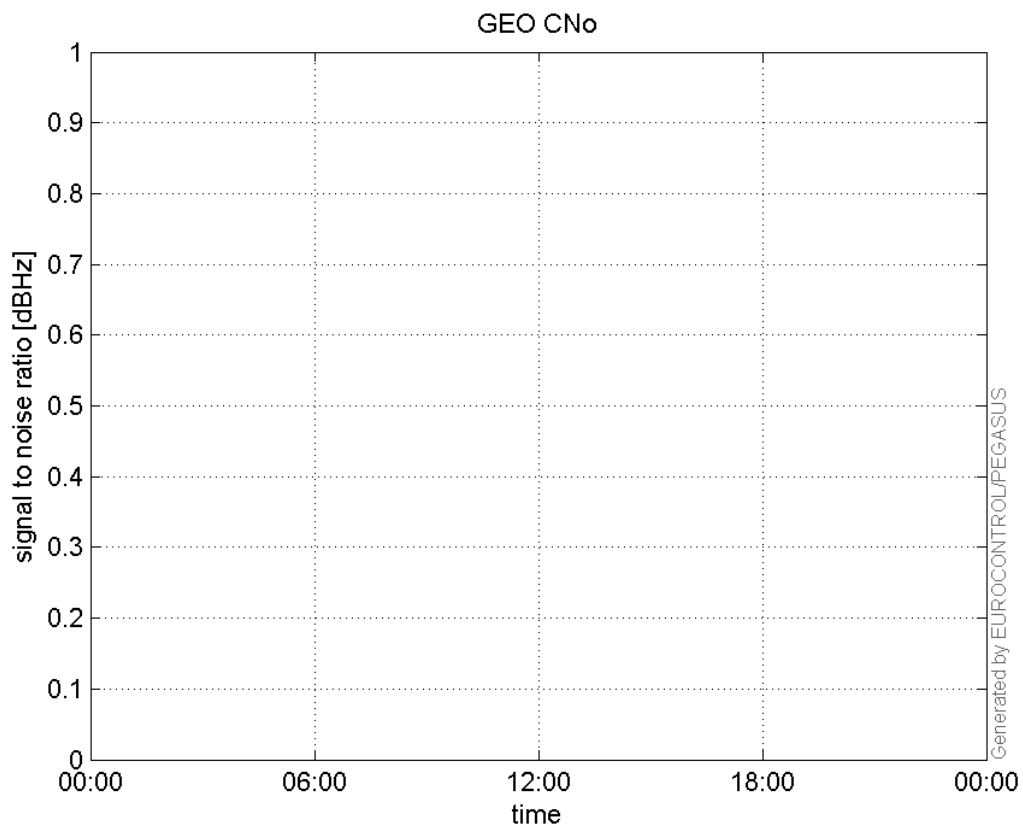
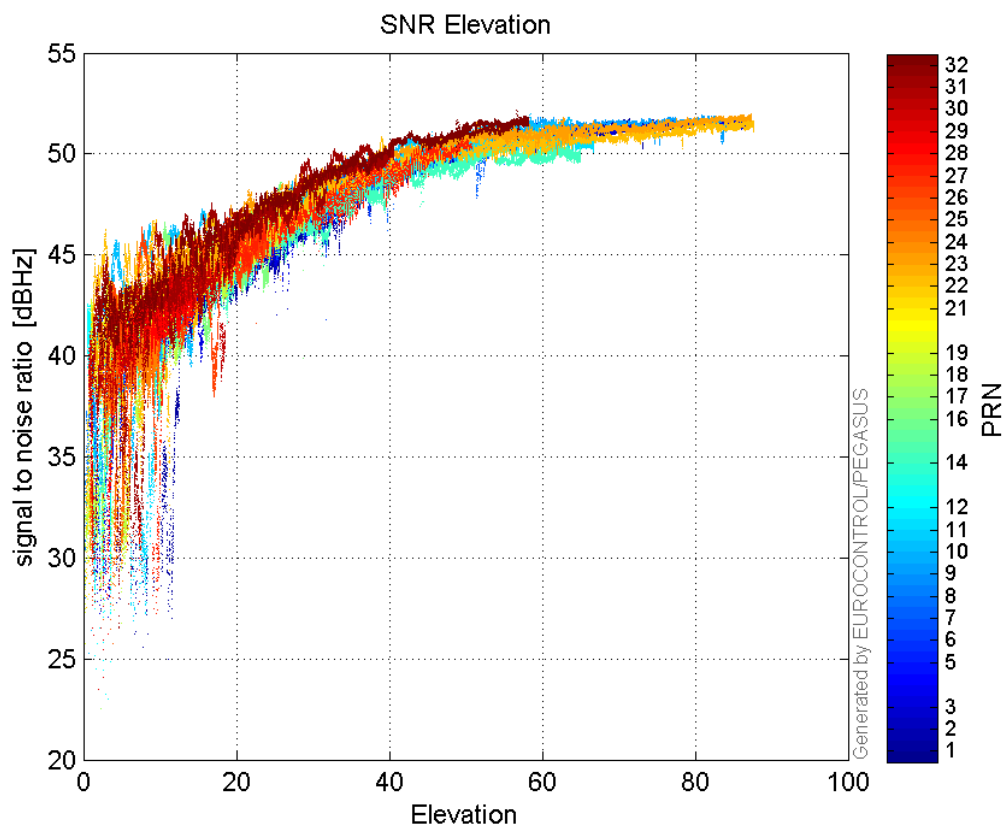
L1 CNo:

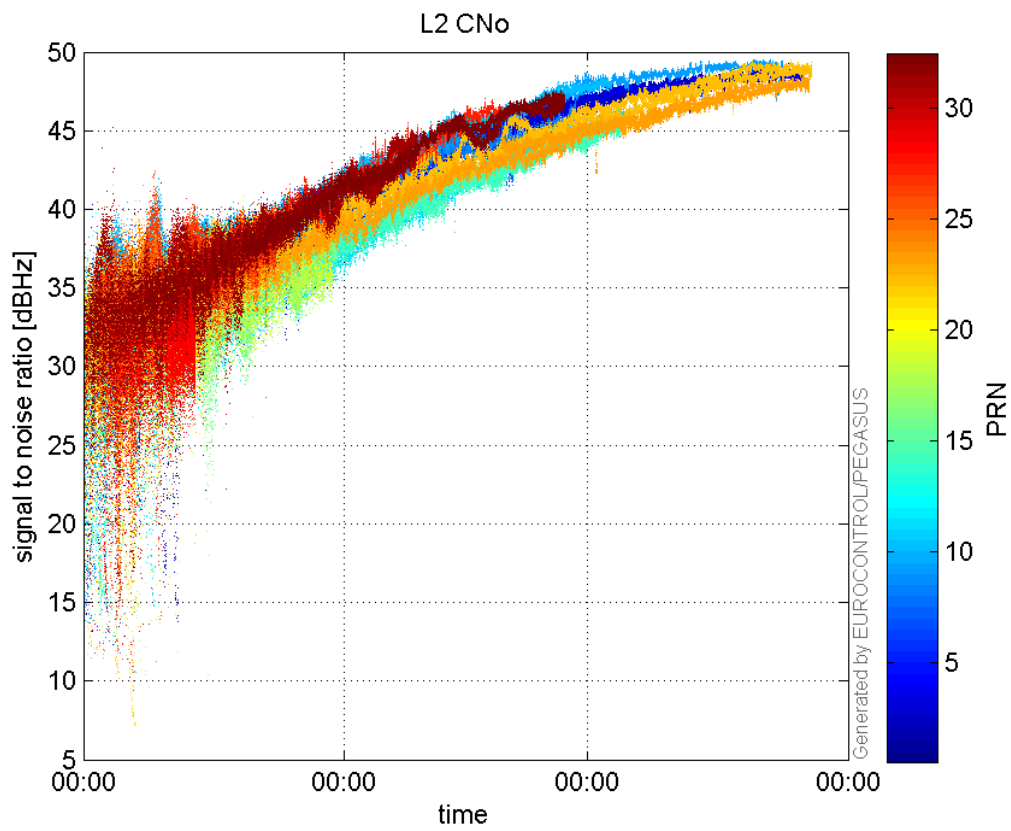


L2 CNo:

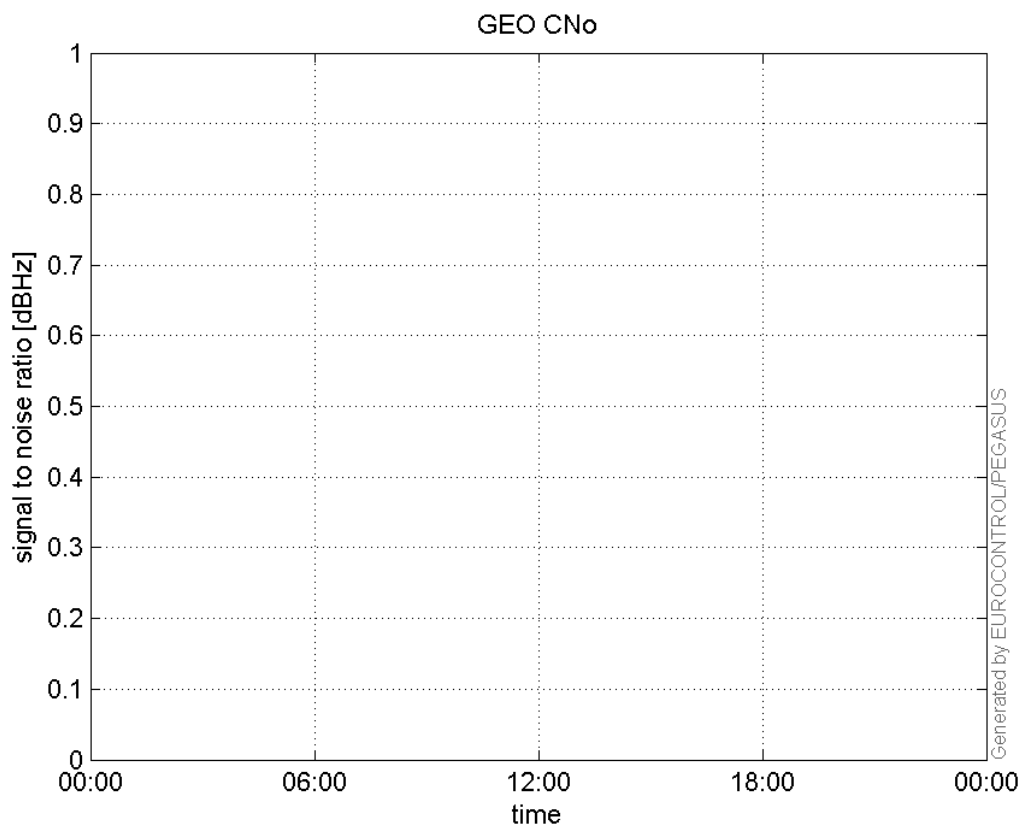


GEO CNo:

**SNR Elevation:****L2 CNo:**

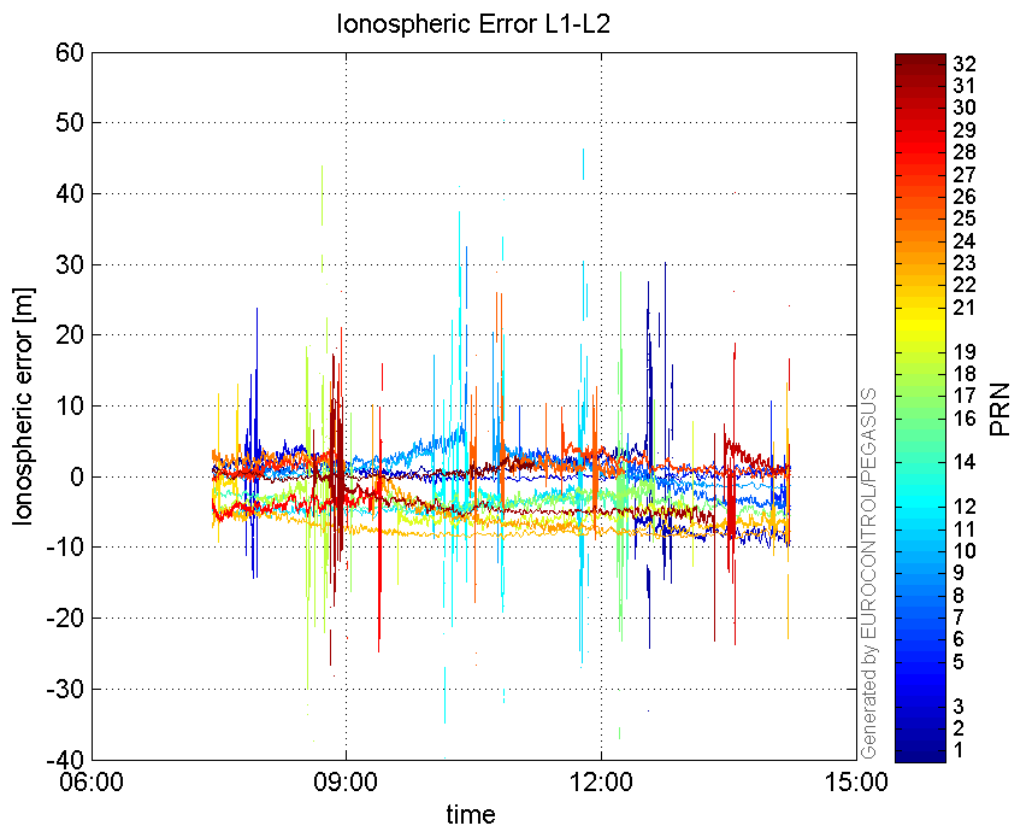


GEO CNo:



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/2016_12_07EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_12_07EGNOS2Hz/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	232.6599
mi_numbers	results	0