

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: 05:55:38.129 20.02.2017 (week: 1937 sec: 107738.129)
end: 11:36:26.129 20.02.2017 (week: 1937 sec: 128186.129)
duration: 05:40:48 ..

quality

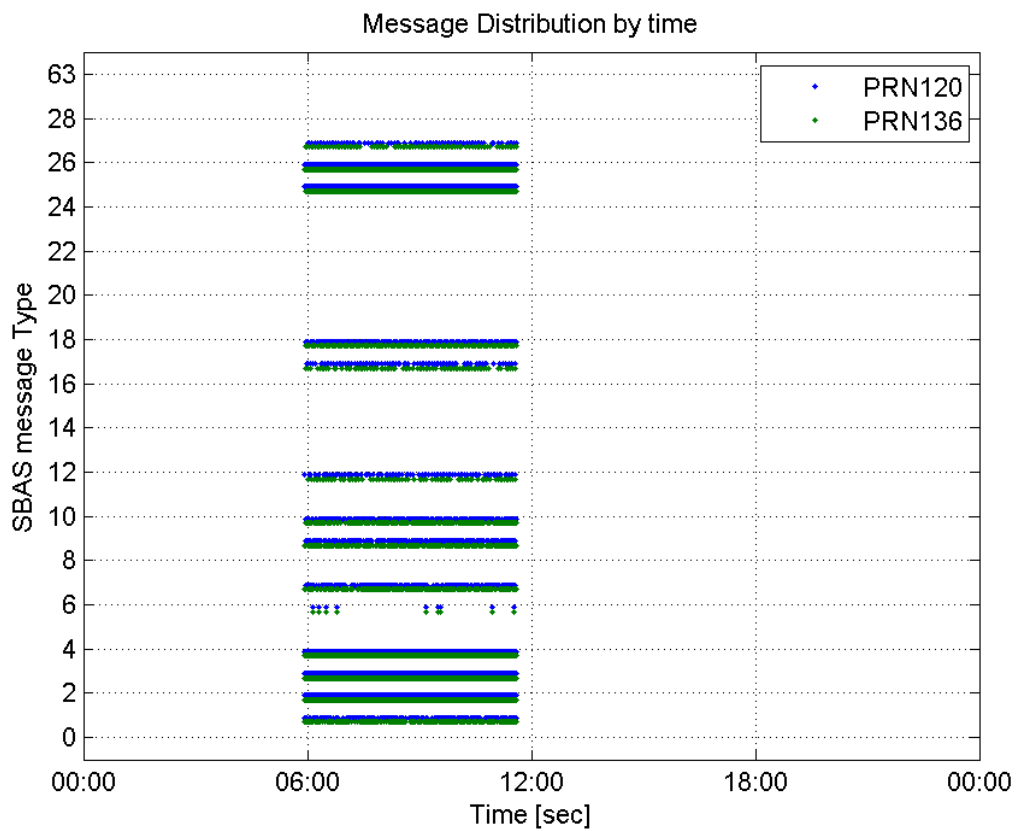
valid samples 31925
total samples 31925
number of SBAS PRNs 2

SBAS SIS Overview

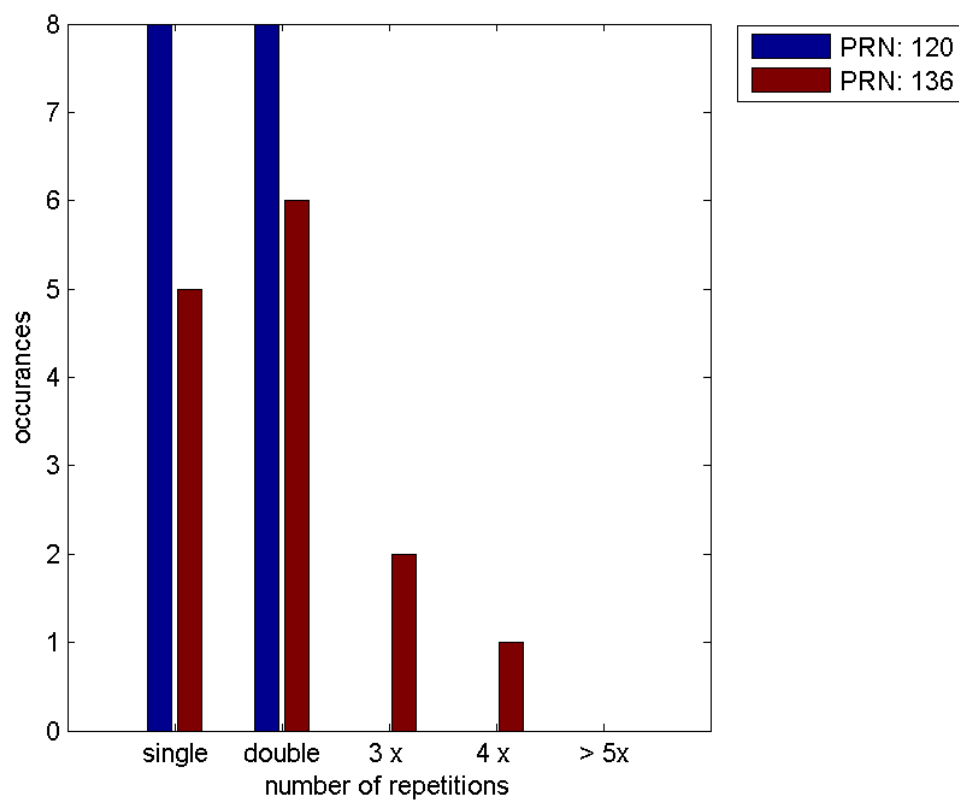
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	8	8	0	0	0
PRN 136	5	6	2	1	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

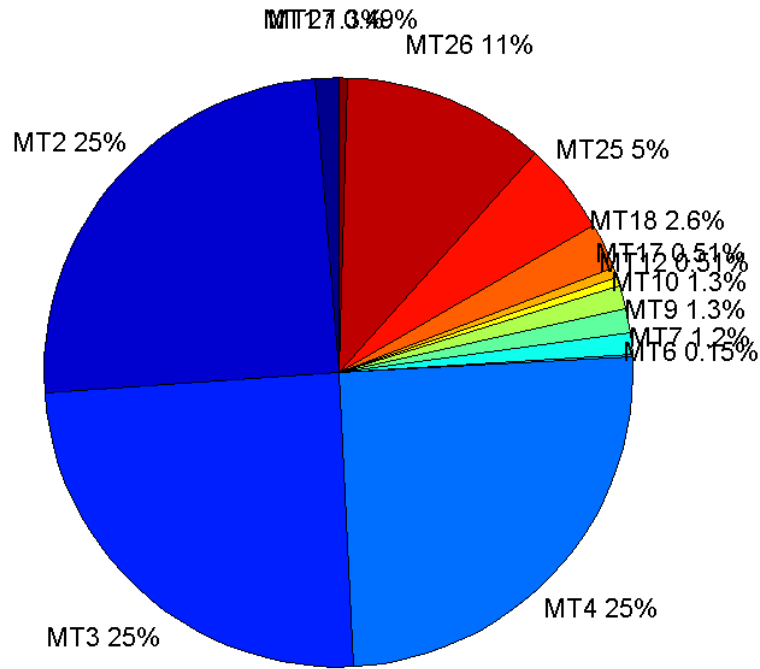
	number of messages	%
MT 0	0	0
MT 1	201	1.26082
MT 2	3962	24.8526
MT 3	3942	24.7271
MT 4	3985	24.9969
MT 5	0	0
MT 6	24	0.150546
MT 7	191	1.19809
MT 9	204	1.27964
MT 10	202	1.26709
MT 12	82	0.514365
MT 17	82	0.514365
MT 18	409	2.56555
MT 24	0	0
MT 25	796	4.9931
MT 26	1784	11.1906
MT 27	78	0.489274
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	15942	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	101.985	36	0	0
MT 2	4	65	5.16233	1022	2	16
MT 3	4	64	5.18625	1053	2	10
MT 4	4	61	5.13153	1013	1	6
MT 5	--	--	--	--	--	--
MT 6	1	8617	842.87	9	8	8
MT 7	76	560	106.589	43	2	6
MT 9	75	472	100.044	0	0	0
MT 10	75	313	100.816	46	0	3
MT 12	182	596	250.741	81	21	21
MT 17	186	782	248.395	0	0	0
MT 18	4	185	49.8431	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	116	25.7069	0	0	0
MT 26	4	78	11.4532	0	0	0
MT						

27	185	788	261.247	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

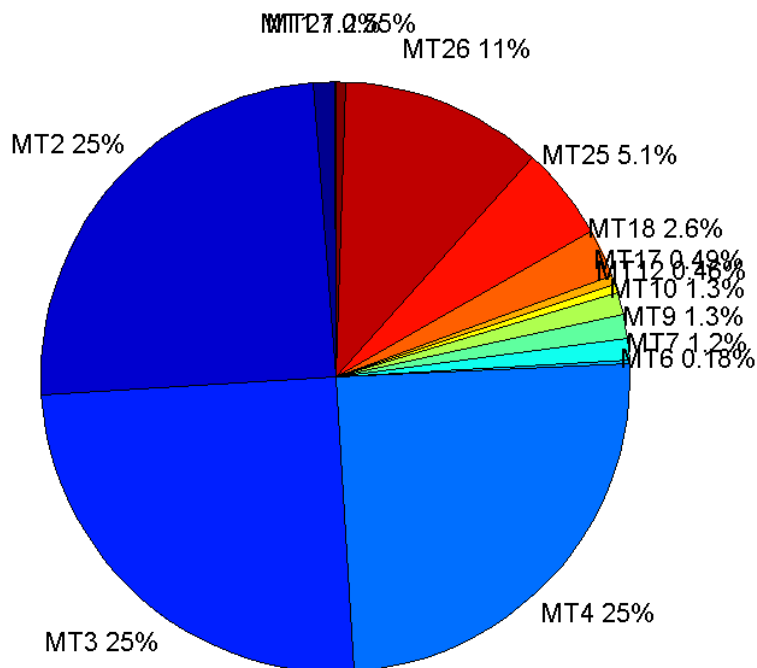
	number of messages	%
MT 0	0	0
MT 1	197	1.23256
MT 2	3958	24.7638
MT 3	4000	25.0266
MT 4	3946	24.6887
MT 5	0	0
MT 6	28	0.175186
MT 7	197	1.23256
MT 9	201	1.25759
MT 10	200	1.25133
MT 12	74	0.462992
MT 17	79	0.494275

MT 18	422	2.64031
MT 24	0	0
MT 25	818	5.11794
MT 26	1775	11.1055
MT 27	88	0.550585
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	15983	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	480	104.107	42	0	0
MT 2	4	20	5.16629	1049	1	10
MT 3	4	17	5.11328	1007	0	13
MT 4	4	20	5.18124	1053	2	14
MT 5	--	--	--	--	--	--
MT 6	1	8617	718	9	8	8
MT 7	76	560	104.148	40	2	6
MT 9	76	320	102.045	0	0	0
MT 10	76	480	102.151	37	3	4
MT 12	188	785	273.096	73	19	19
MT 17	190	976	258.115	0	0	0
MT 18	4	192	48.38	0	0	0
MT 24	--	--	--	--	--	--
MT 25	3	108	24.9547	0	0	0
MT 26	2	74	11.5113	0	0	0
MT 27	188	1169	233.69	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_20EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_20EGNOS2Hz/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: 05:55:38 20.02.2017 (week: 1937 sec: 107738)
end: 11:36:27 20.02.2017 (week: 1937 sec: 128187)
duration: 05:40:50 ..

quality

valid samples 37108
total samples 37763

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (23)
APV-35m discontinuity events type too many (23)
LPV-200 discontinuity events type too many (23)
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	117751	1.69625	9.46731	0.179169	0.277052	15.69	0.0176578
max normVer	125926	1.80355	35.2459	0.0511704	2.19272	20.178	0.108669
max HPE	126535	7.76163	148.418	0.0522957	10.2024	161.871	0.063028
max VPE	126535	7.76163	148.418	0.0522957	10.2024	161.871	0.063028
min HPL	118214	1.14442	8.49121	0.134777	0.90628	14.03	0.0645958
min VPL	114104	0.698167	9.85177	0.0708672	0.344493	12.8976	0.0267099

Position discontinuity events :

#	Epoch	duration	stable period
1	109538	5.5	19.5
2	110856	5.5	704.5
3	119754	56.5	59.5
4	121958	5.5	108.5
5	123540	4.5	779.5
6	124181	174.5	16.5
7	124955	389.5	84.5

First Glance analysis

Duration 20450
Number of Samples 37763
Number of invalid sample 655
Number of no position solution samples 1282
Number of missing sample 3137
Logging Loss 7.6699
Processing Loss 1.7345
Number of Misleading Information 0
Data gaps 14
Discontinuities 63

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
35826	30417	28671	0	28671

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.87495	1.70178	1.68444	NaN	1.68444
HPEscale 95%	NaN	4.79618	4.8626	NaN	4.8626
VPE 95%	1.75998	1.45339	1.43909	NaN	1.43909
VPEscale 95%	NaN	3.27286	2.29248	NaN	2.29248

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.965452	0.819688	0.772637	0	0.772637
measurements	0.948706	0.805471	0.759235	0	0.759235
Operational	1.75188	1.48738	1.402	0	1.402

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	49	96	105	--	105
Long	7	32	31	--	31
Independent	7	23	23	--	23
P(disc.)	0.00293083	0.0113423	0.0120331	NaN	0.0120331
P(slide)	0.019497	0.0420817	0.0491612	NaN	0.0491612

Integrity events :

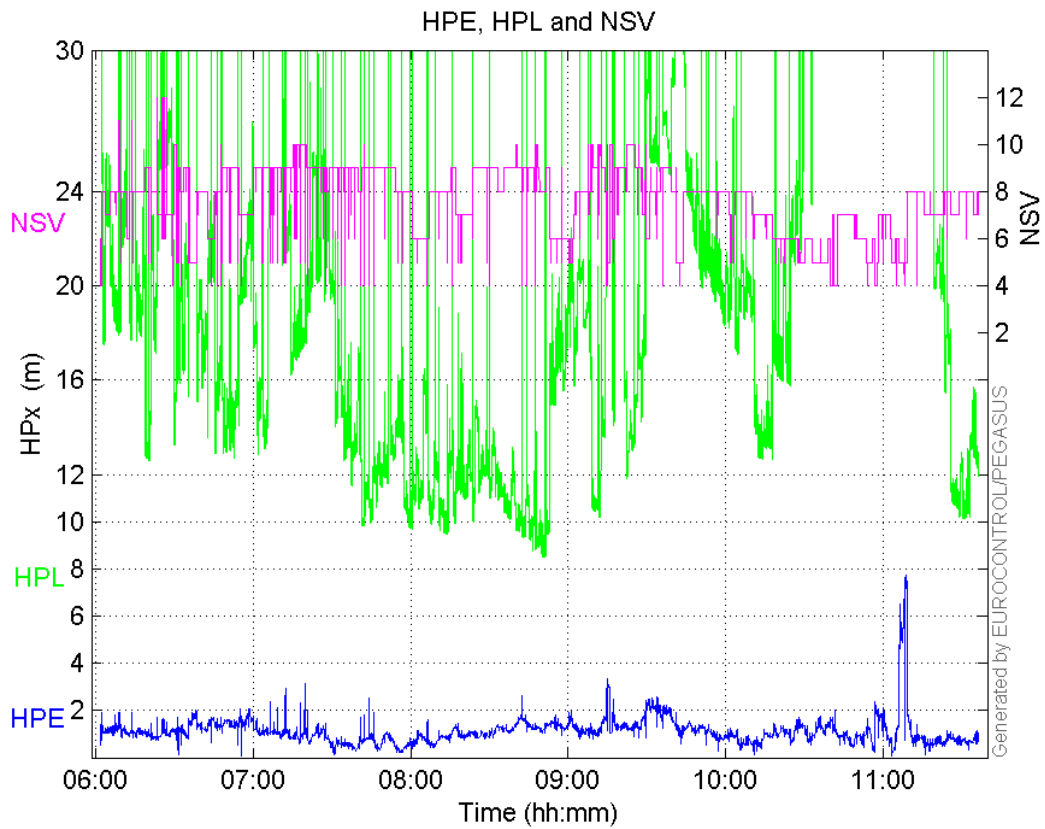
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

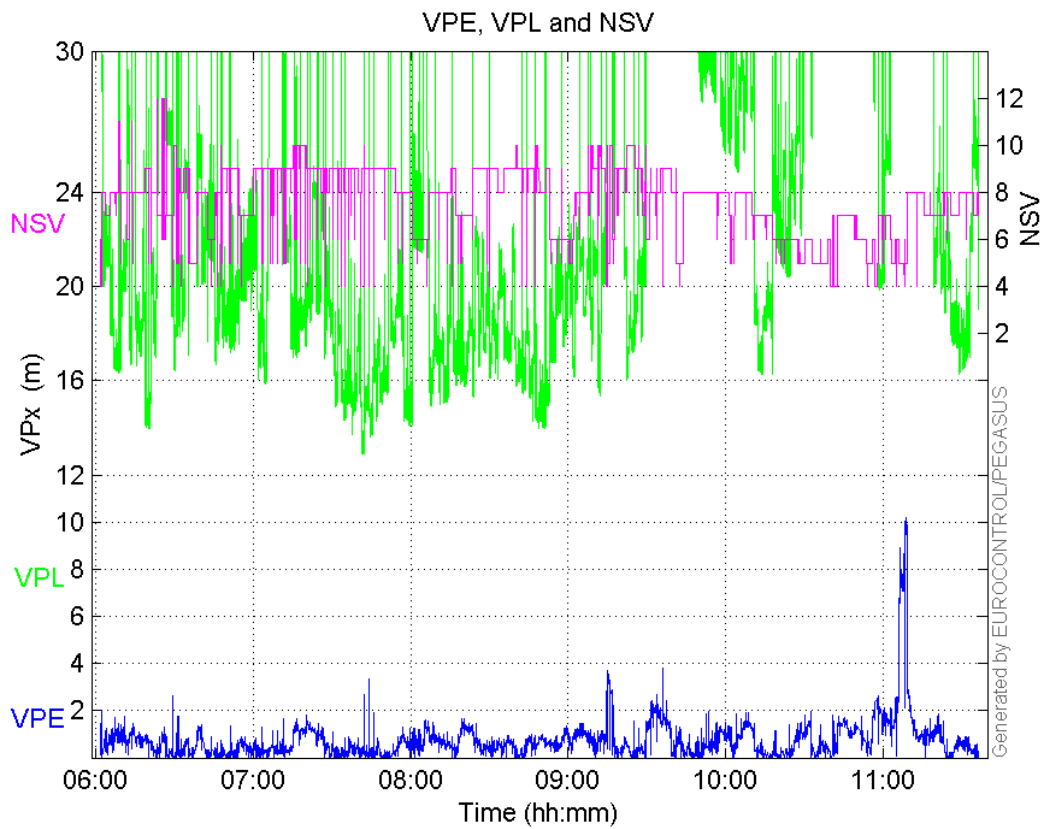
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	35826	30417	28671	0	28671
SIS Availability	0.965452	0.819688	0.772637	0	0.772637
Local Availability	0.948706	0.805471	0.759235	0	0.759235
Operational Availability	1.75188	1.48738	1.402	0	1.402
HPE 95%	1.87495	1.70178	1.68444	NaN	1.68444
HPEScale 95%	NaN	4.79618	4.8626	NaN	4.8626
VPE 95%	1.75998	1.45339	1.43909	NaN	1.43909
VPEscale 95%	NaN	3.27286	2.29248	NaN	2.29248
All Discontinuity Events	49	96	105	--	105
Long Discontinuity Events	7	32	31	--	31
Independent Discontinuity Events	7	23	23	--	23
P(discontinuity)	0.00293083	0.0113423	0.0120331	NaN	0.0120331
P(sliding window)	0.019497	0.0420817	0.0491612	NaN	0.0491612
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:

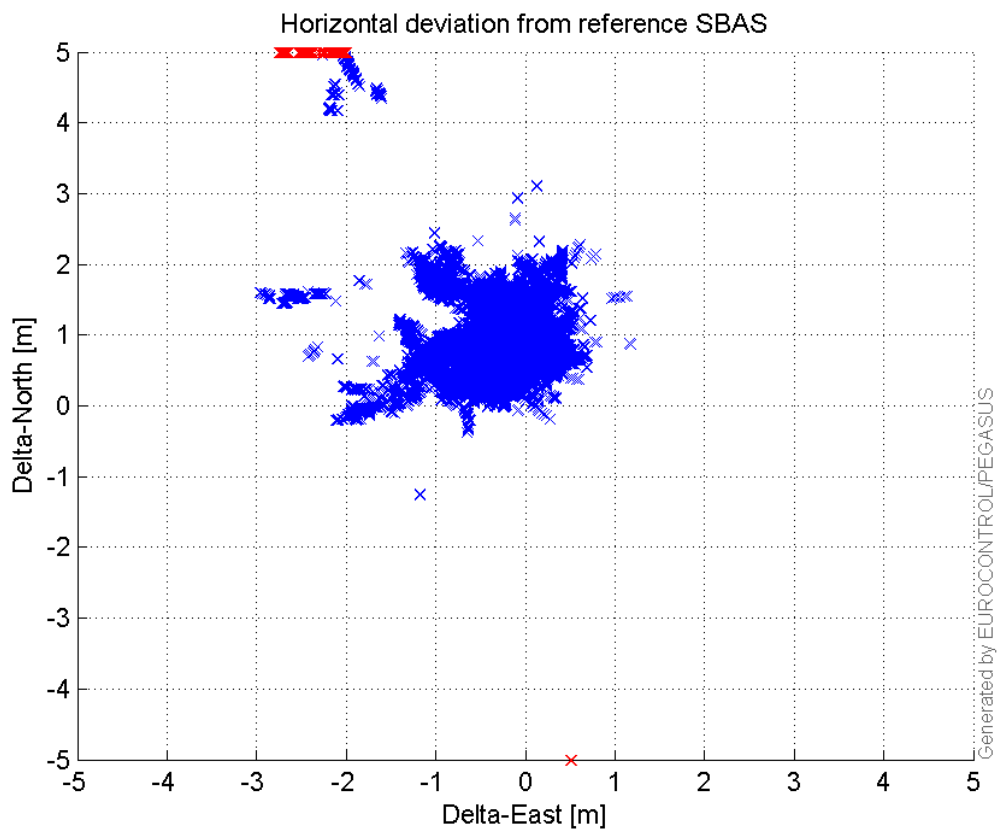


VPE, VPL and NSV:



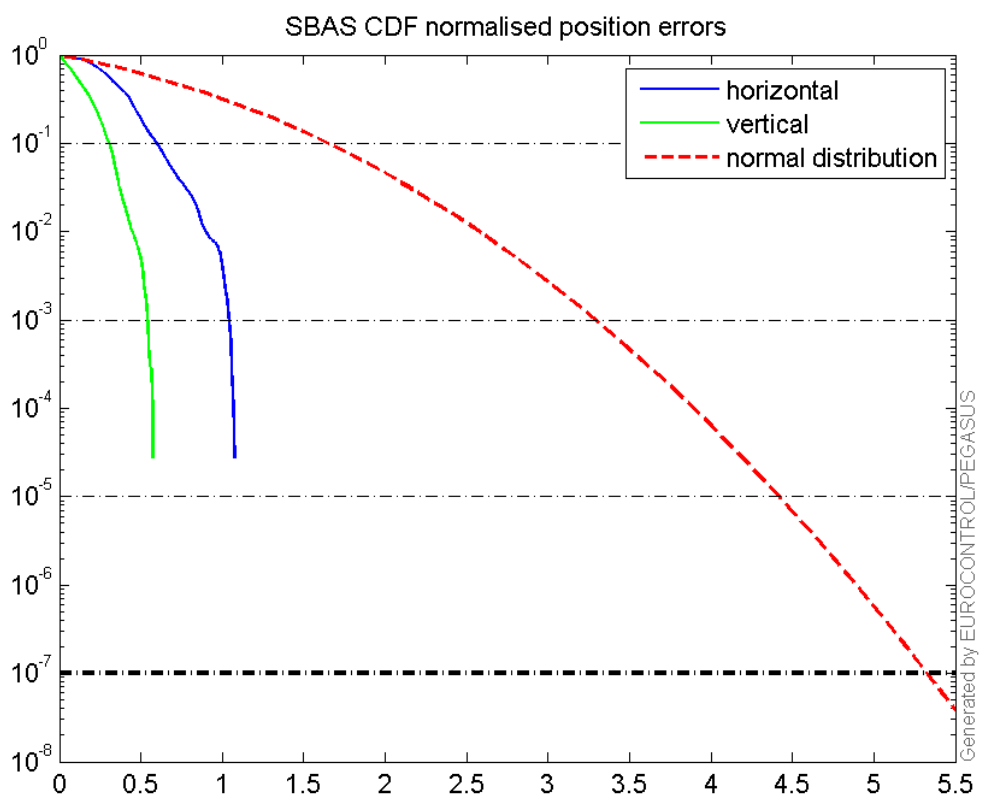
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

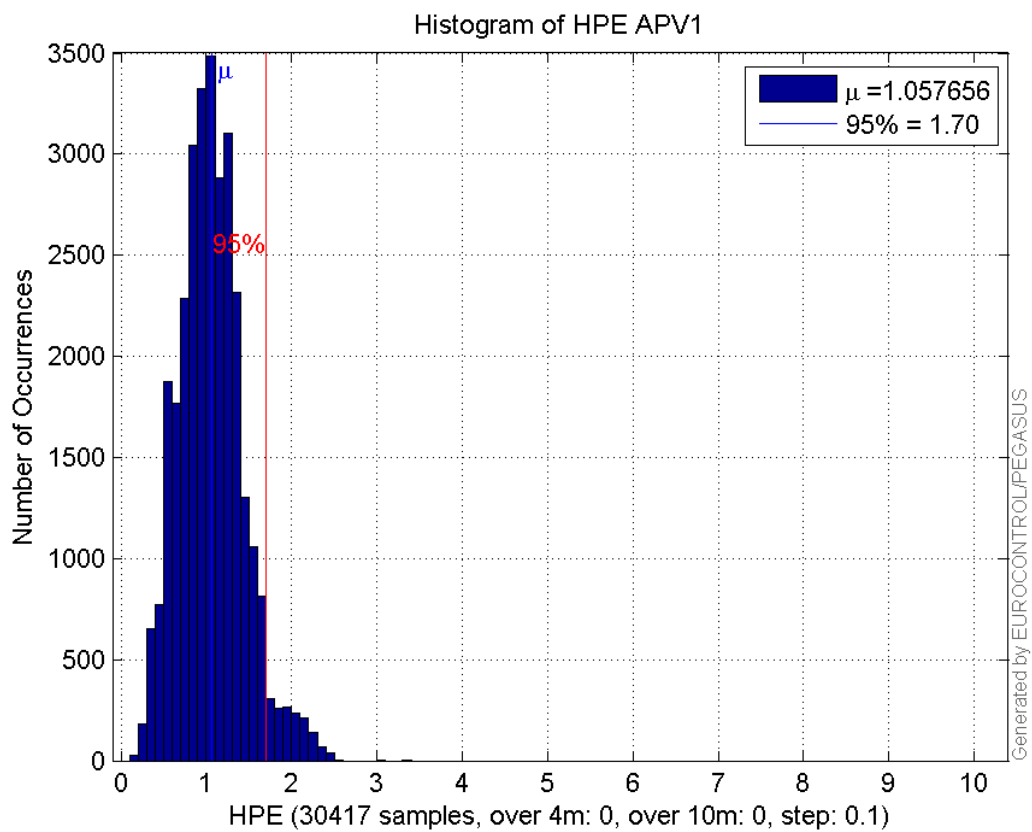
number	30417
sum	32170.733
sum2	38416.289
prctile95	1.7017791
prctile99	2.1762398
number	30417
sum	18991.675
sum2	18468.286
prctile95	1.4533887
prctile99	2.046682
number	30417
sum	542378.98
sum2	11026986
prctile95	35.09512
prctile99	38.195386
number	30417
sum	666465.92
sum2	15889450
prctile95	37.214895
prctile99	43.107866
number	30417
sum	1987.0746
sum2	155.53297
prctile95	0.11990438
prctile99	0.15392136
number	30417
sum	883.43012
sum2	38.357548
prctile95	0.065457192
prctile99	0.085145884
number	28671
sum	30237.783
sum2	35775.422
prctile95	1.6844442
prctile99	2.0983755
number	28671
sum	17555.926
sum2	16600.608
prctile95	1.4390892
prctile99	2.0075412
number	28671
sum	482702.54
sum2	8954378.6
prctile95	25.43488
prctile99	35.936947
number	28671
sum	596313.2
sum2	13049824
prctile95	31.25566
prctile99	33.640479
number	28671
sum	1927.5054
sum2	152.84025

prctile95 0.12156501
prctile99 0.15639067
number 28671
sum 846.879
sum2 37.13072
prctile95 0.065499487
prctile99 0.086222202

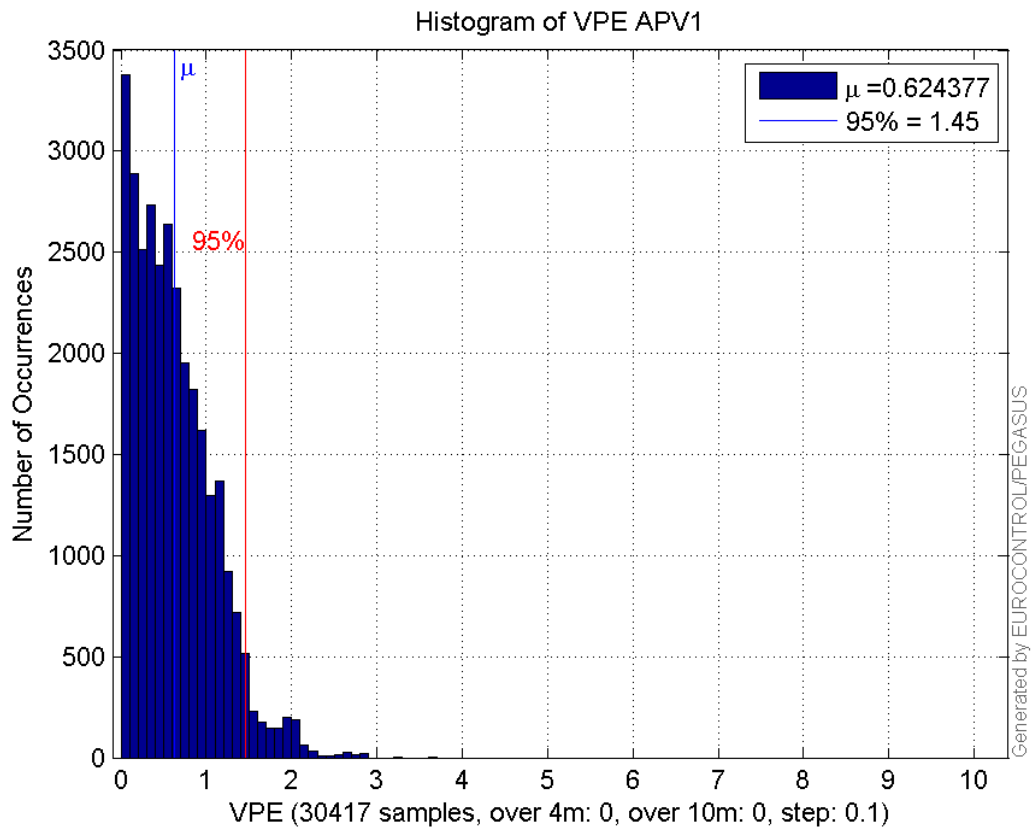
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.05766	0.379941	1.03378	1.70178	2.17624	1.12383
HPL	17.8314	6.67594	16.8622	35.0951	38.1954	19.0401
VPE	0.624377	0.466187	0.548975	1.45339	2.04668	0.779211
VPL	21.911	6.50369	19.9954	37.2149	43.1079	22.8558

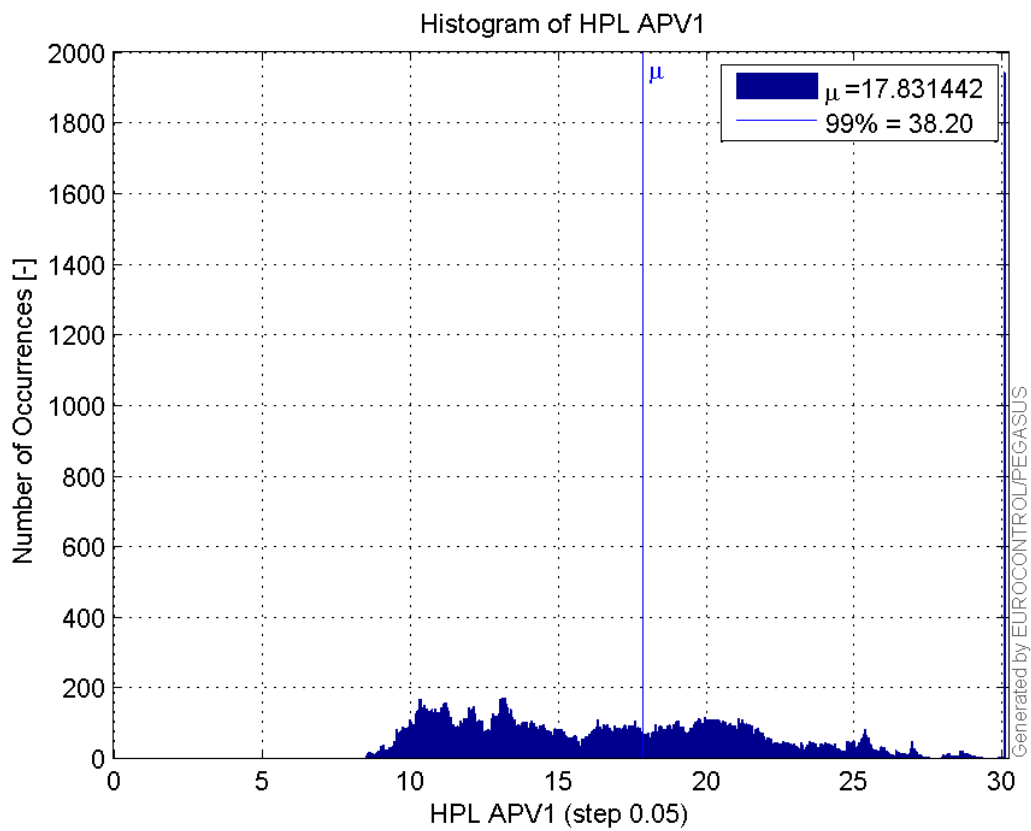
Histogram of HPE APV1:



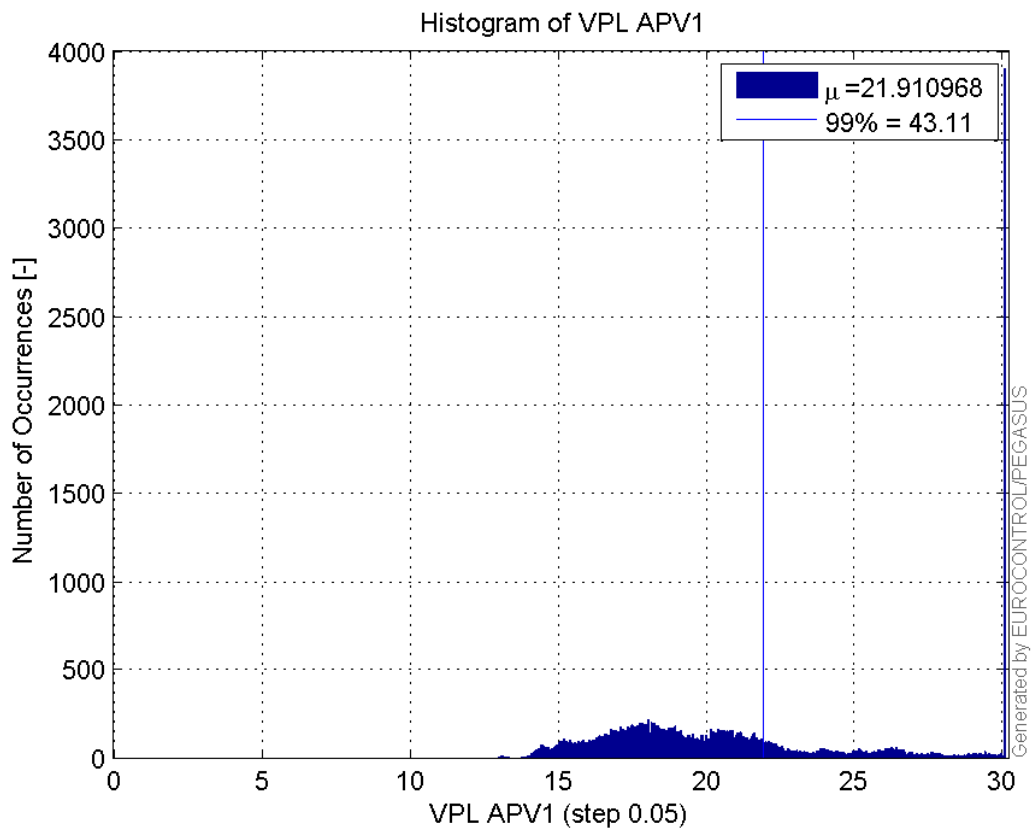
Histogram of VPE APV1:



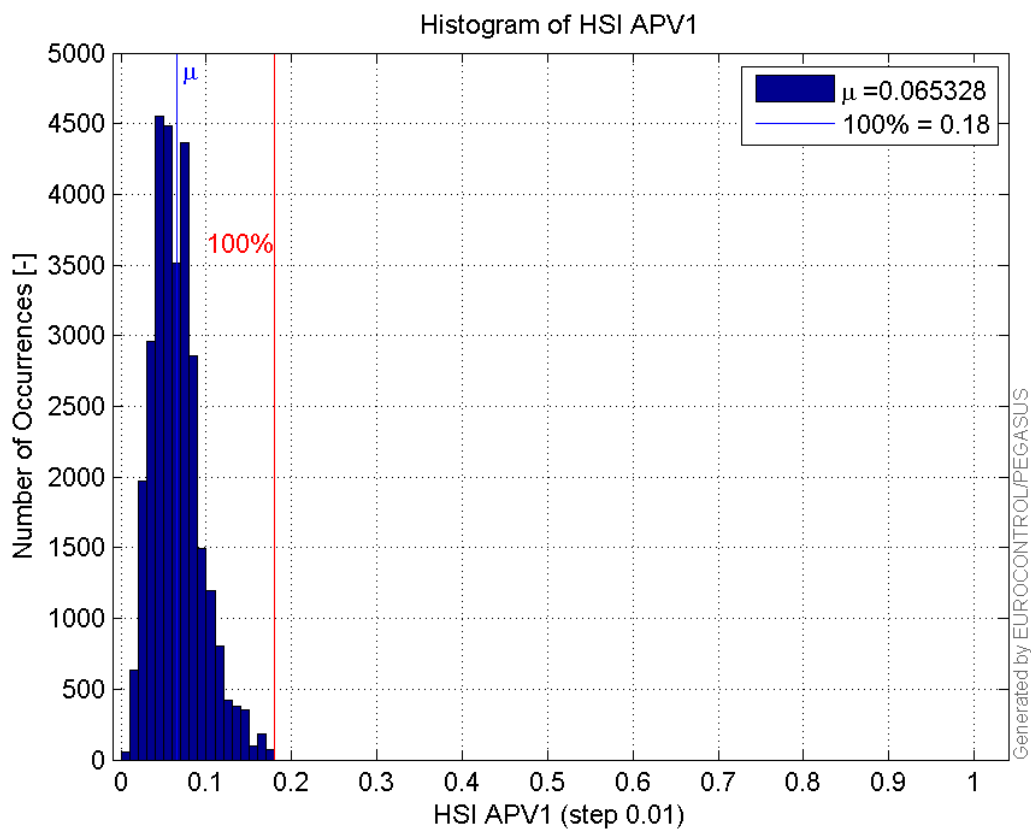
Histogram of HPL APV1:



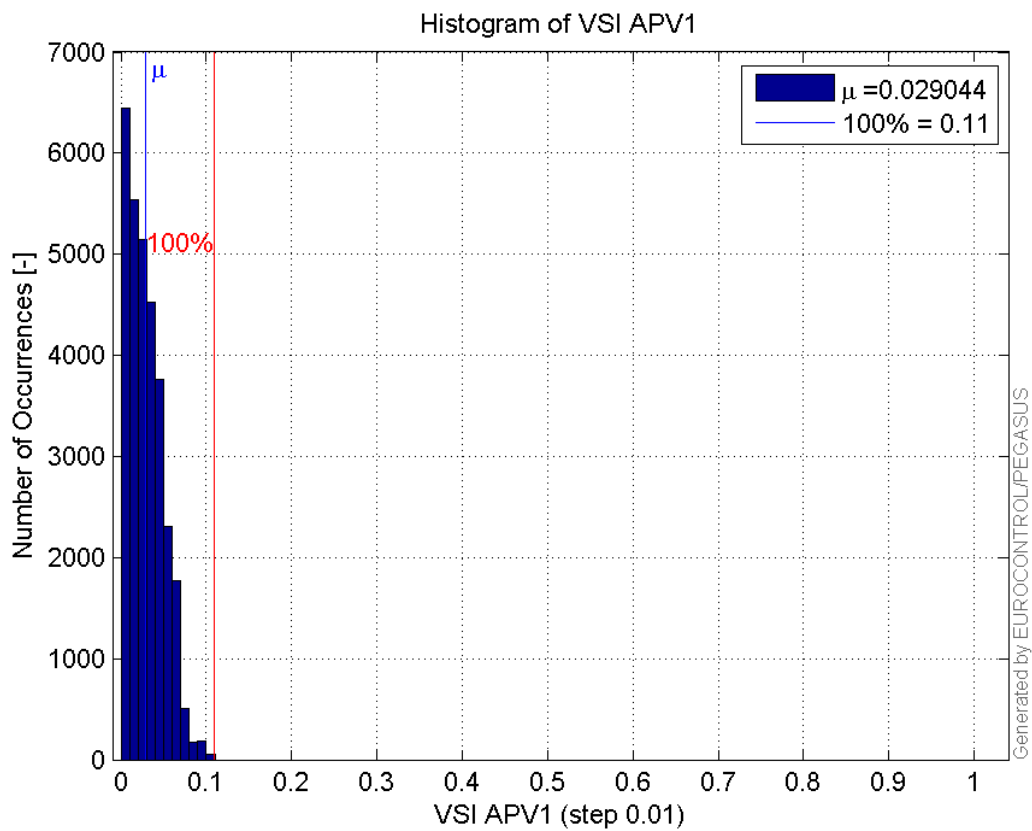
Histogram of VPL APV1:



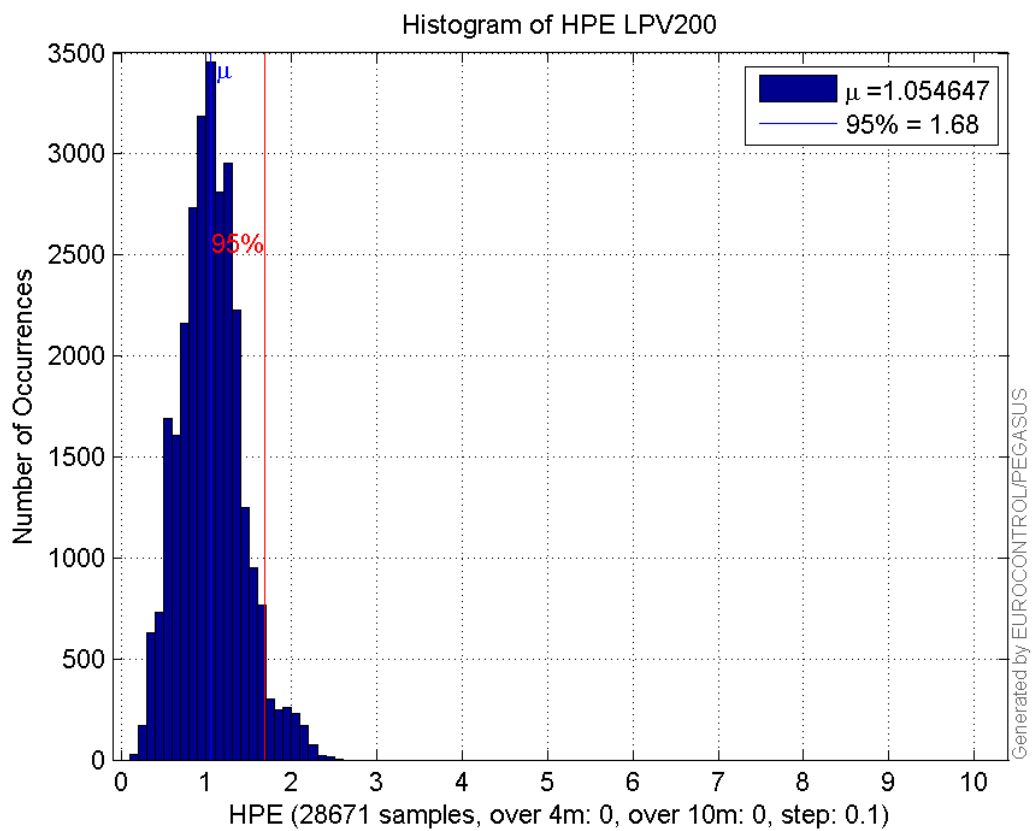
Histogram of HSI APV1:



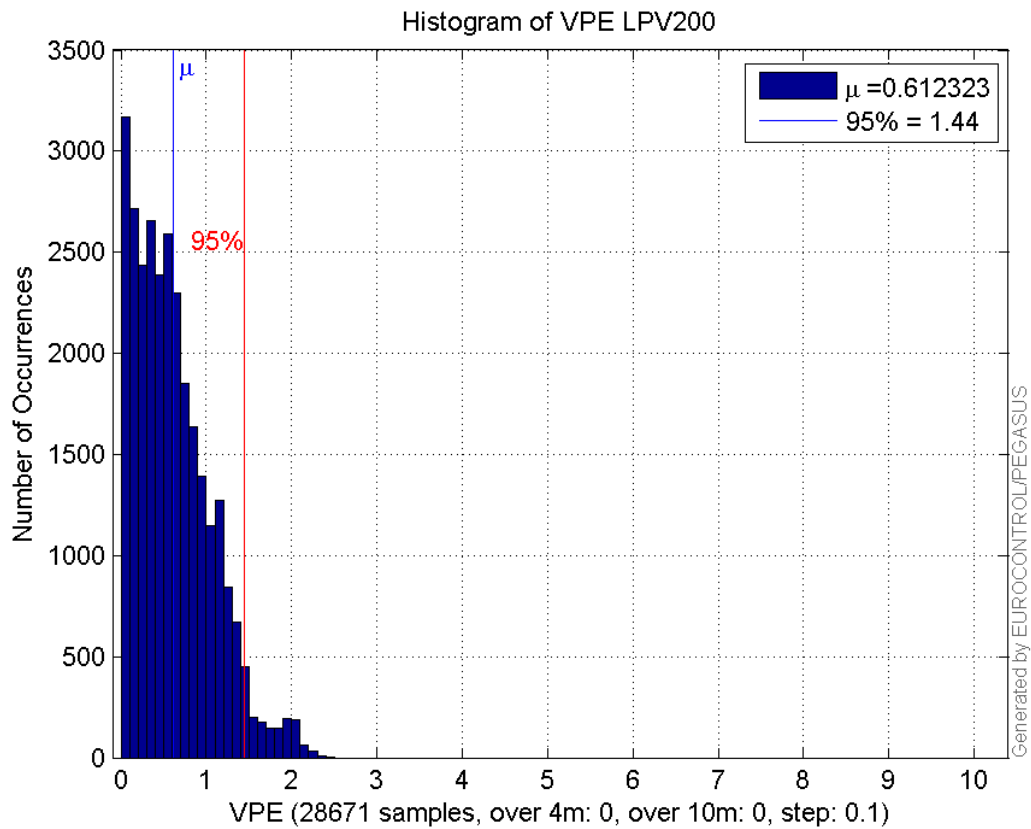
Histogram of VSI APV1:



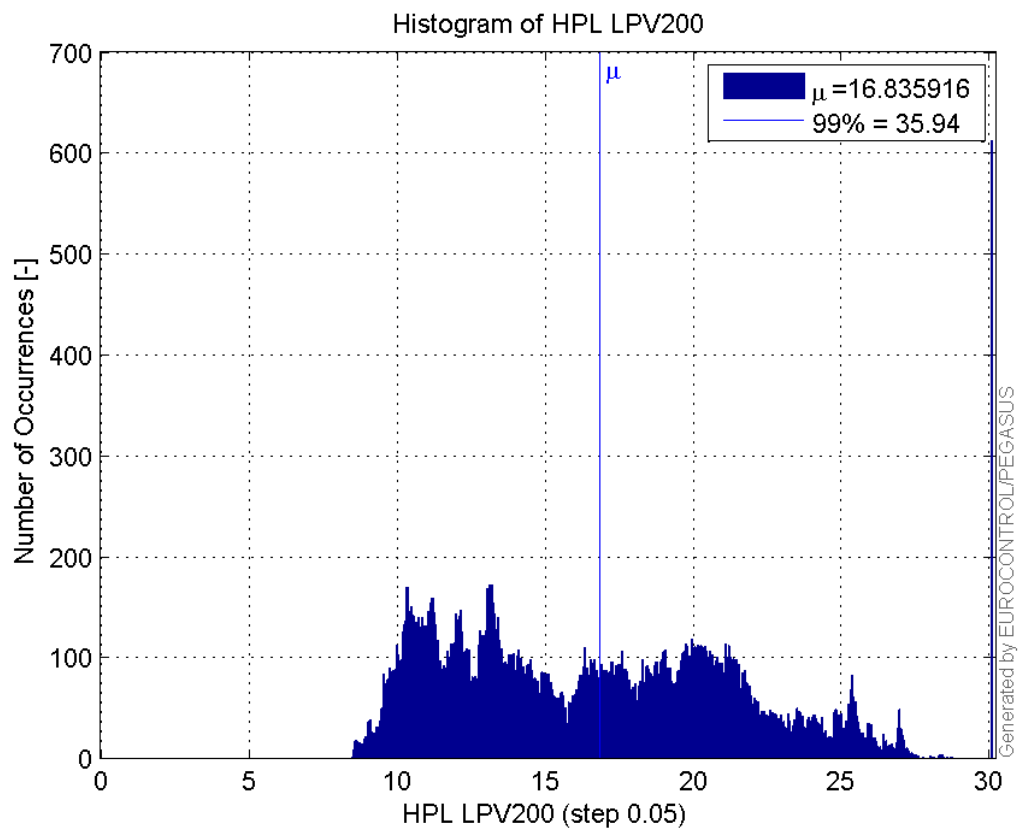
Histogram of HPE LPV200:



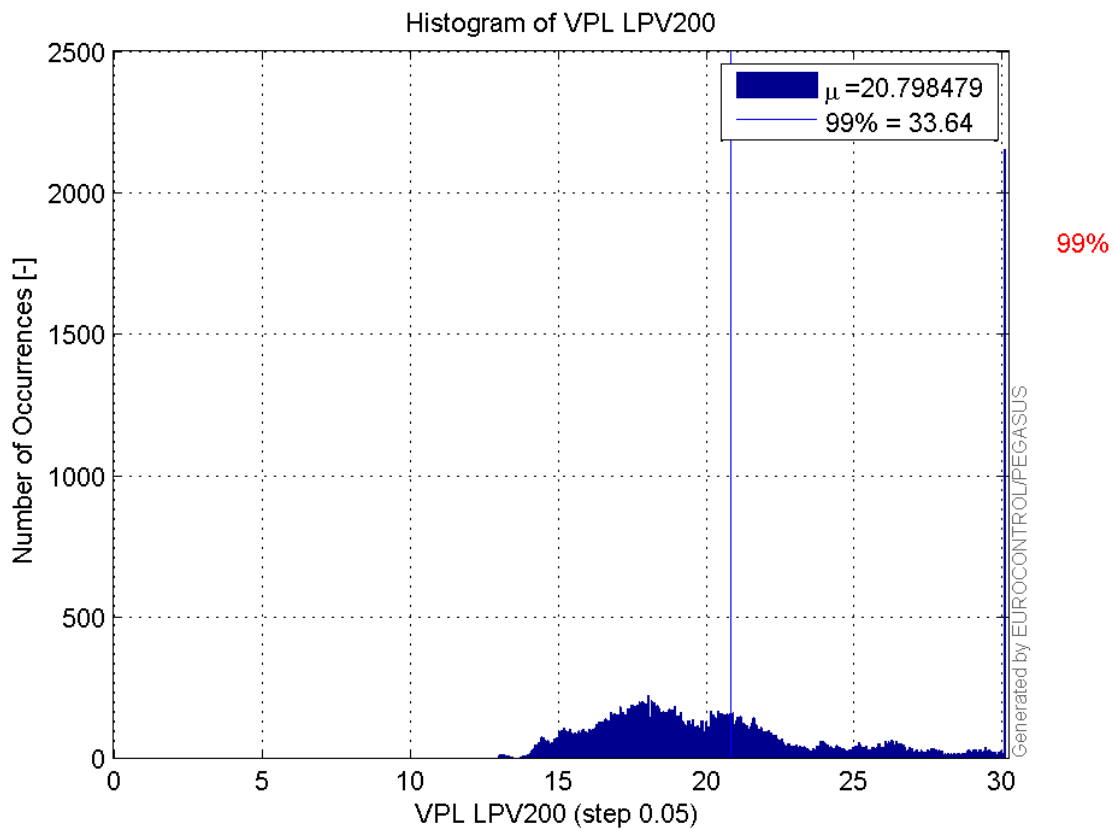
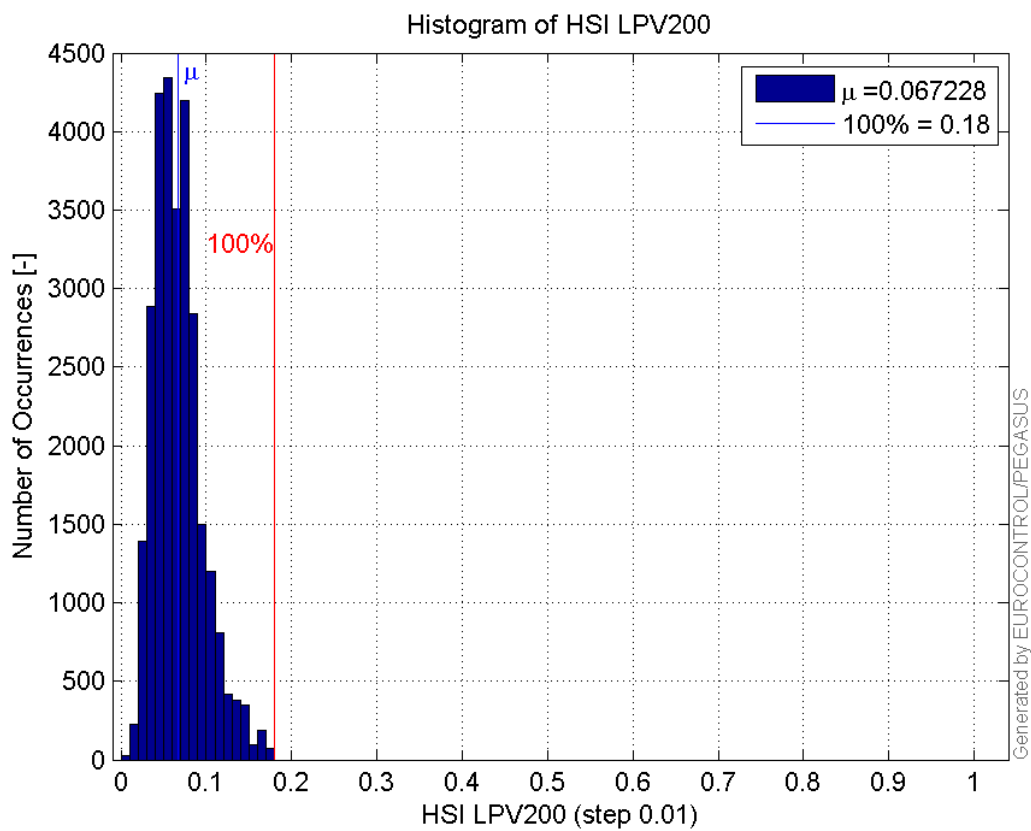
Histogram of VPE LPV200:

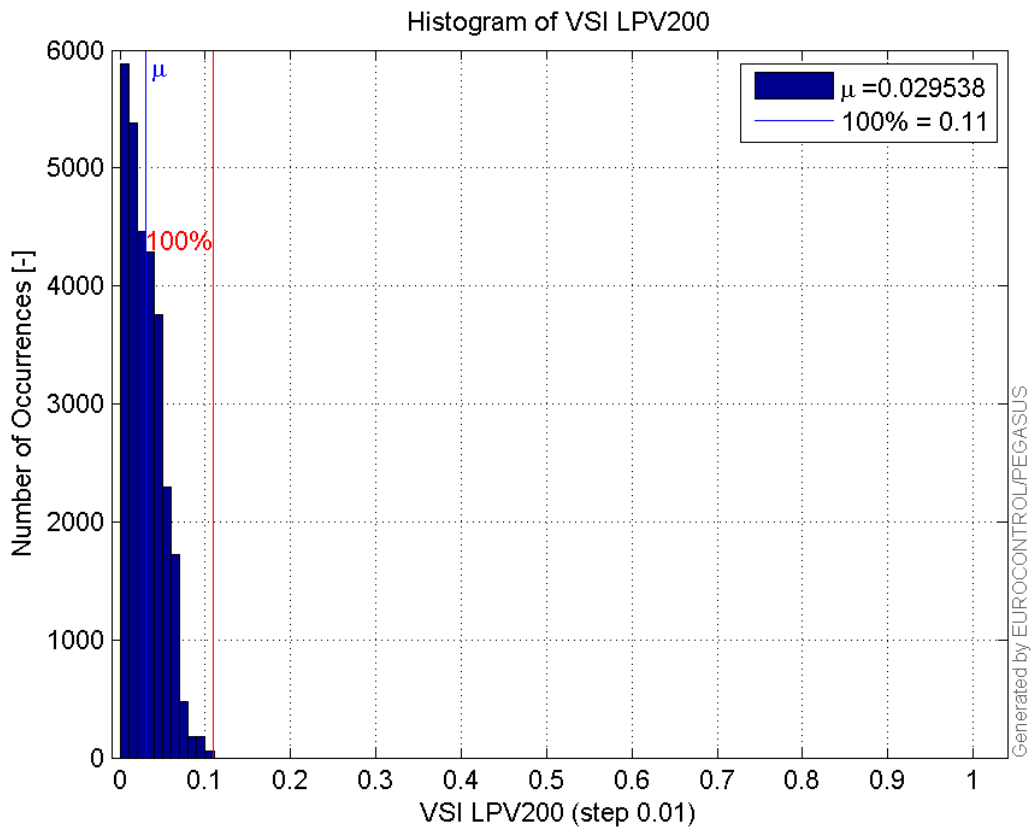


Histogram of HPL LPV200:



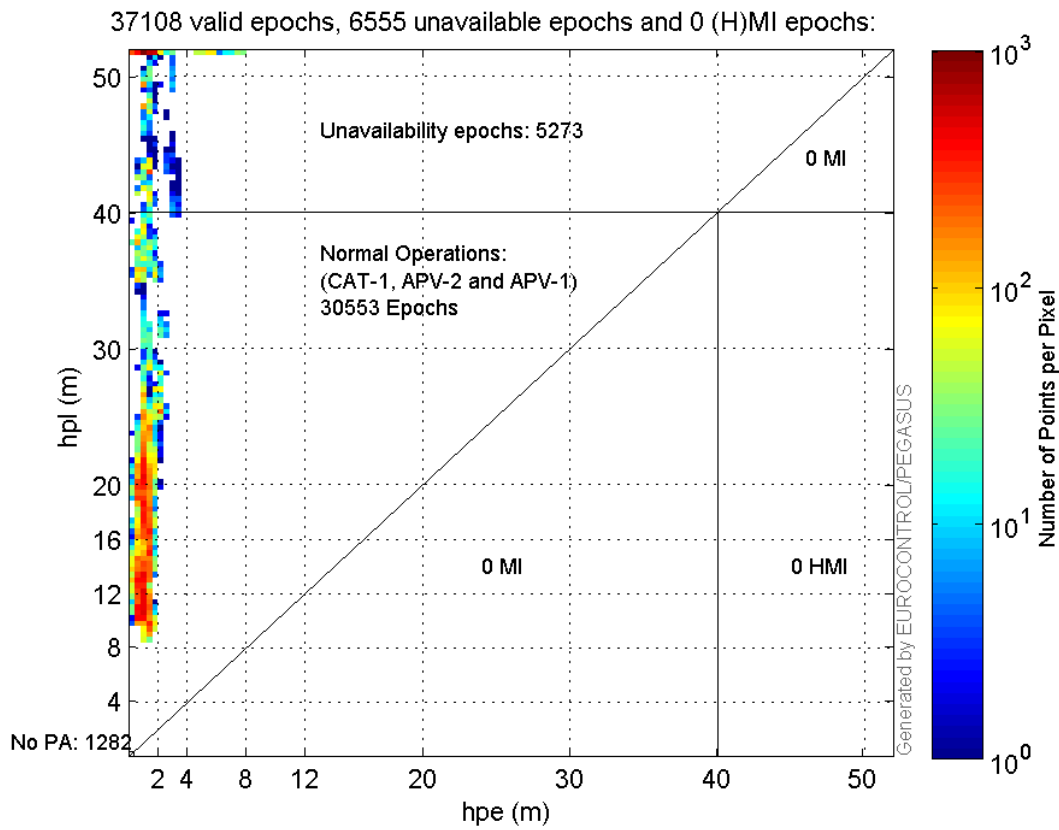
Histogram of VPL LPV200:

**Histogram of HSI LPV200:****Histogram of VSI LPV200:**



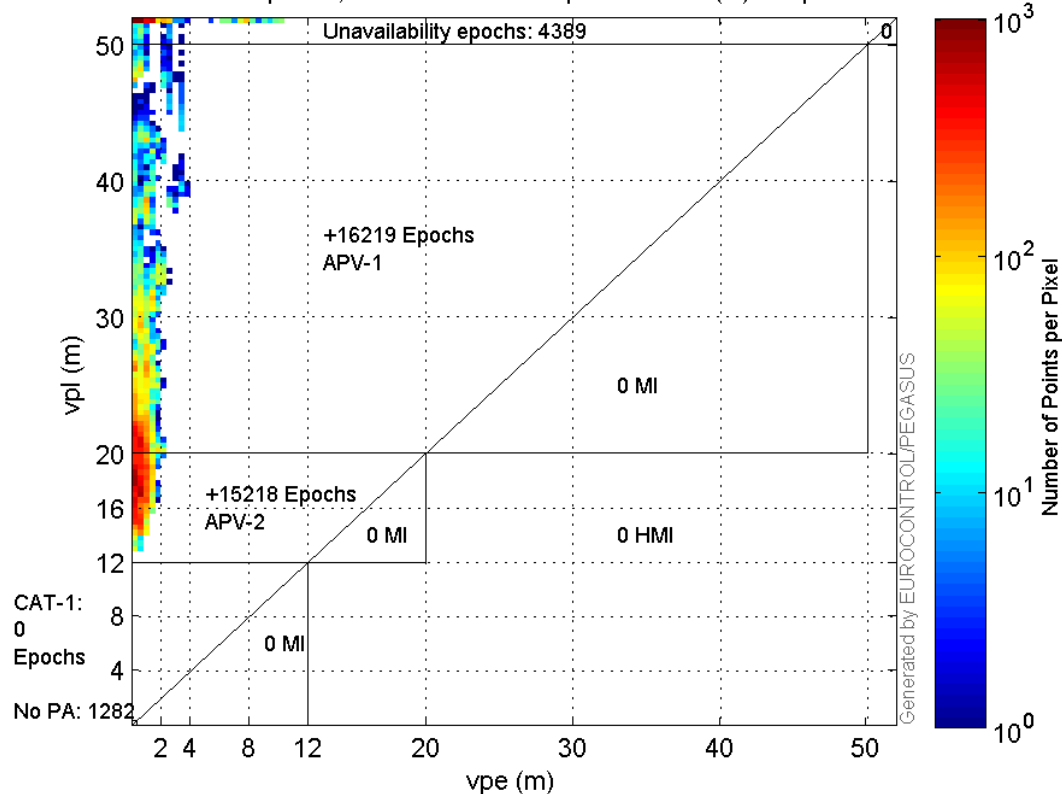
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

37108 valid epochs, 5671 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/2017_02_20EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_20EGNOS2Hz/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	30.4296
init_alt	results	237.3949
mi_numbers	results	0

Range Domain

start: 05:55:38 20.02.2017 (week: 1937 sec: 107738)
end: 11:36:27 20.02.2017 (week: 1937 sec: 128187)
duration: 05:40:50 ..

quality

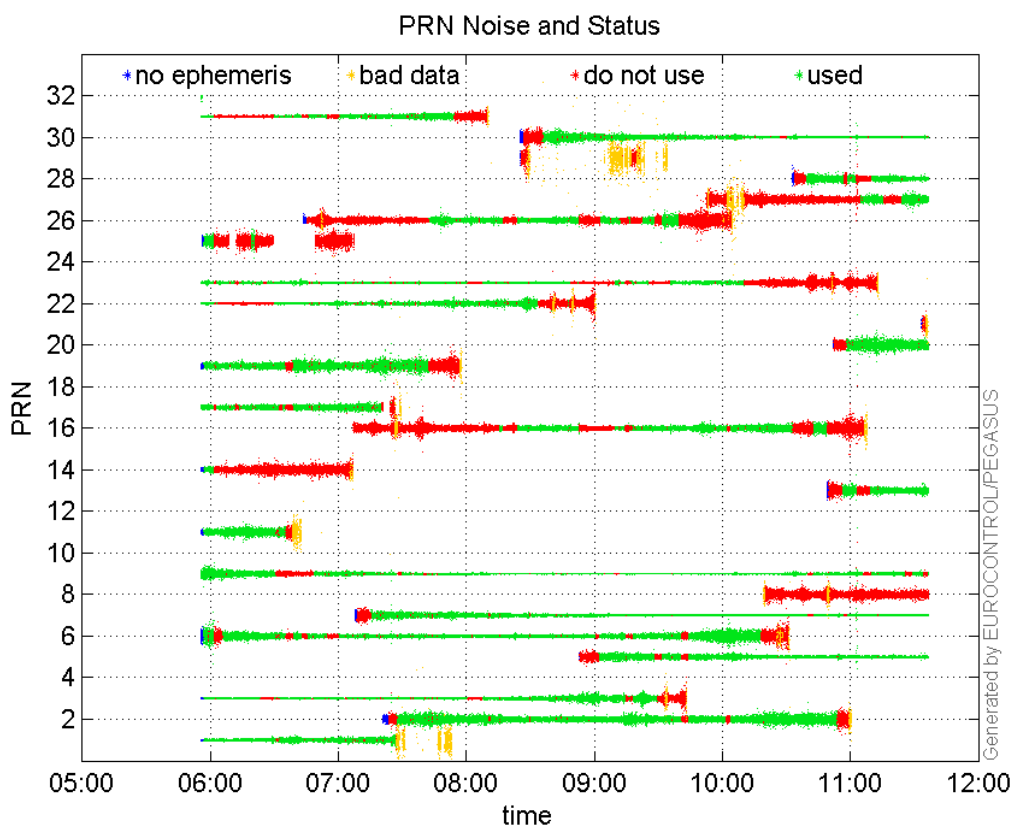
valid samples 37763
total samples 37763

PRN overview

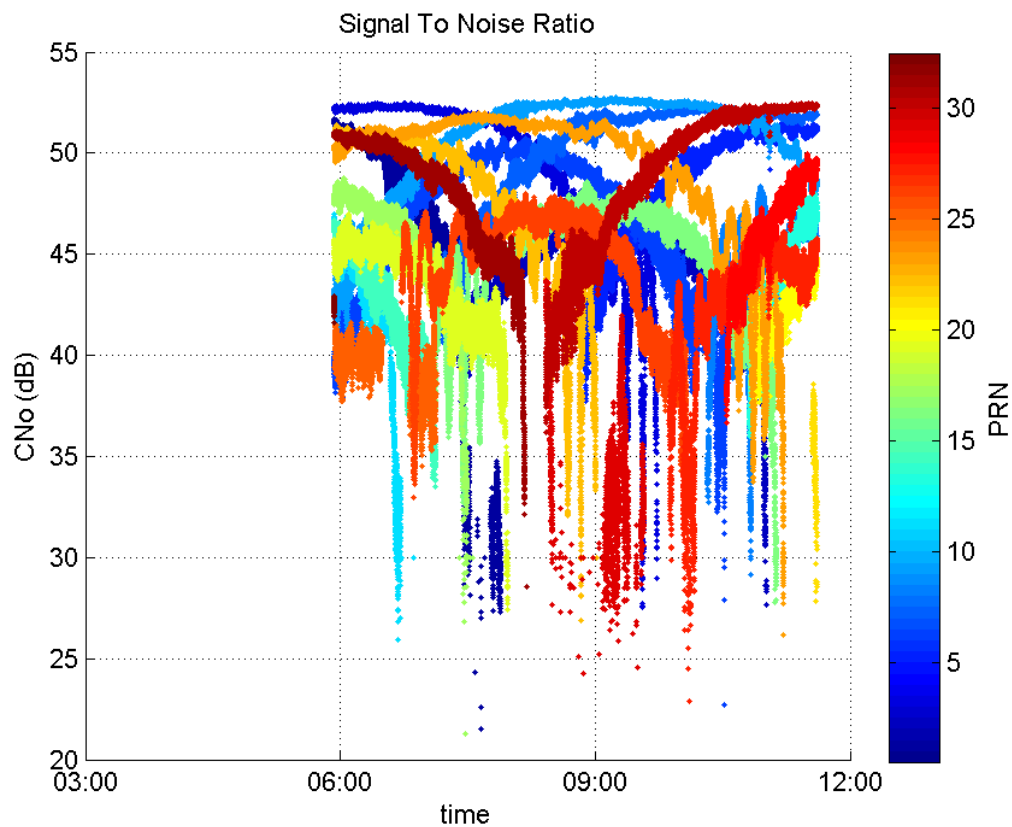
Number of Visible GPS Satellites 26
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



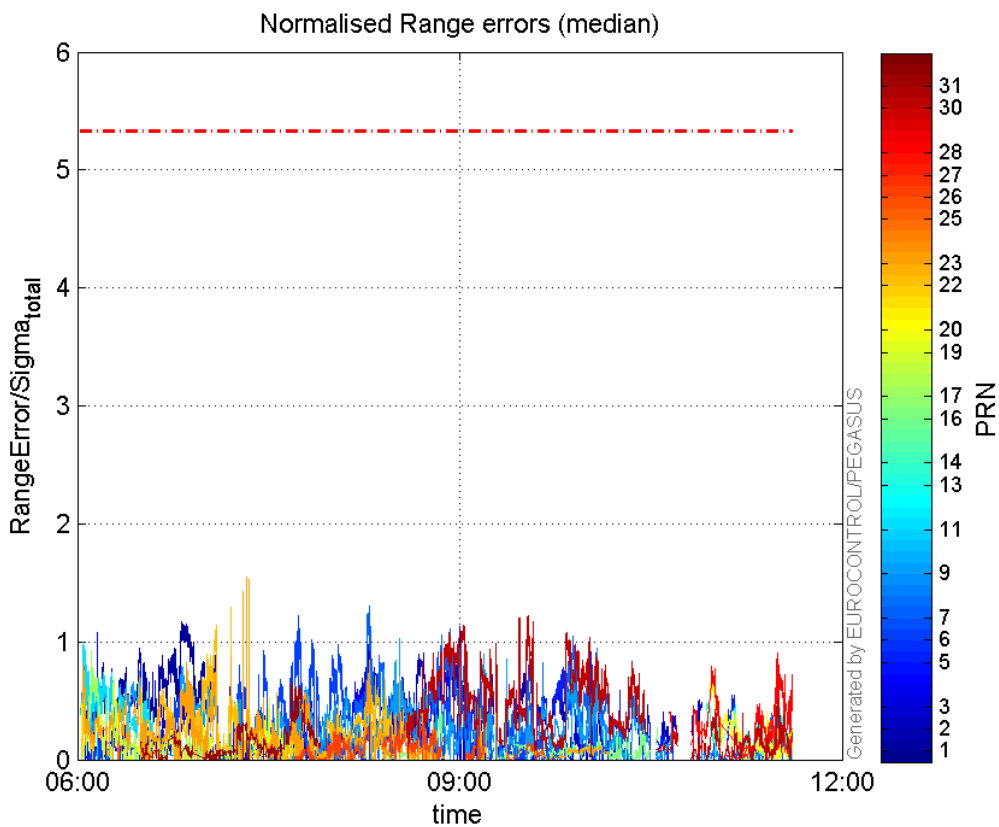
range errors

Number of Overbounding Norm Errors 0

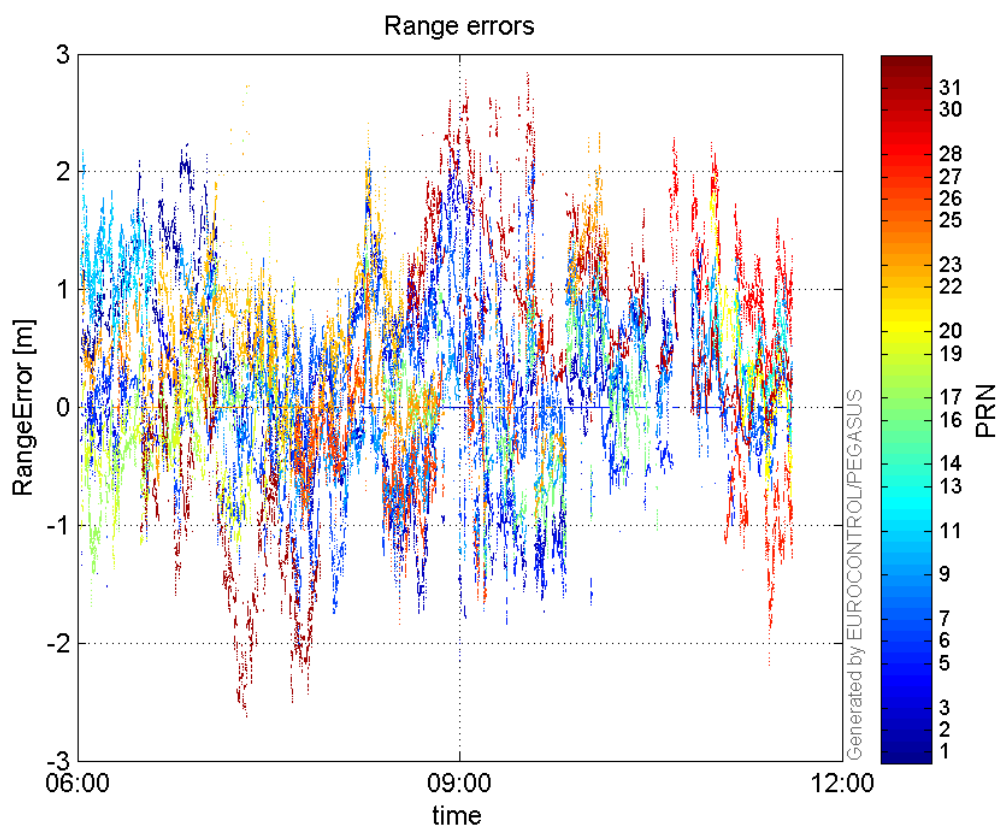
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1937	110935	1	1.16753	2.15521	1.84595
1937	118817	2	1.13207	-2.14495	1.89471
1937	108566	3	1.07472	-1.41275	1.31453
1937	122520	5	0.916563	-1.60701	1.7533
1937	114253	6	1.22316	-1.86298	1.52309
1937	116240	7	1.2982	2.14681	1.65368
1937	117110	9	1.03103	-1.60512	1.5568
1937	108161	11	0.994489	1.85287	1.86313
1937	127819	13	0.524495	1.04681	1.99584
1937	108527	14	NaN	NaN	9.20116
1937	118232	16	0.41963	1.03839	2.47455
1937	112787	17	0.965653	2.66704	2.76191
1937	109027	19	0.688221	-1.36551	1.98412
1937	126001	20	0.75188	2.01284	2.67707
1937	112324	22	1.29316	2.35553	1.82153
1937	112787	23	1.54816	2.34395	1.51403
1937	109184	25	0.203925	0.899887	4.41283
1937	119546	26	0.450723	-1.60638	3.56402
1937	127606	27	0.327965	-1.83034	5.58091
1937	127766	28	0.904233	1.60454	1.77448
1937	120746	30	1.22516	2.82452	2.30543
1937	114060	31	0.645049	-2.4914	3.86234

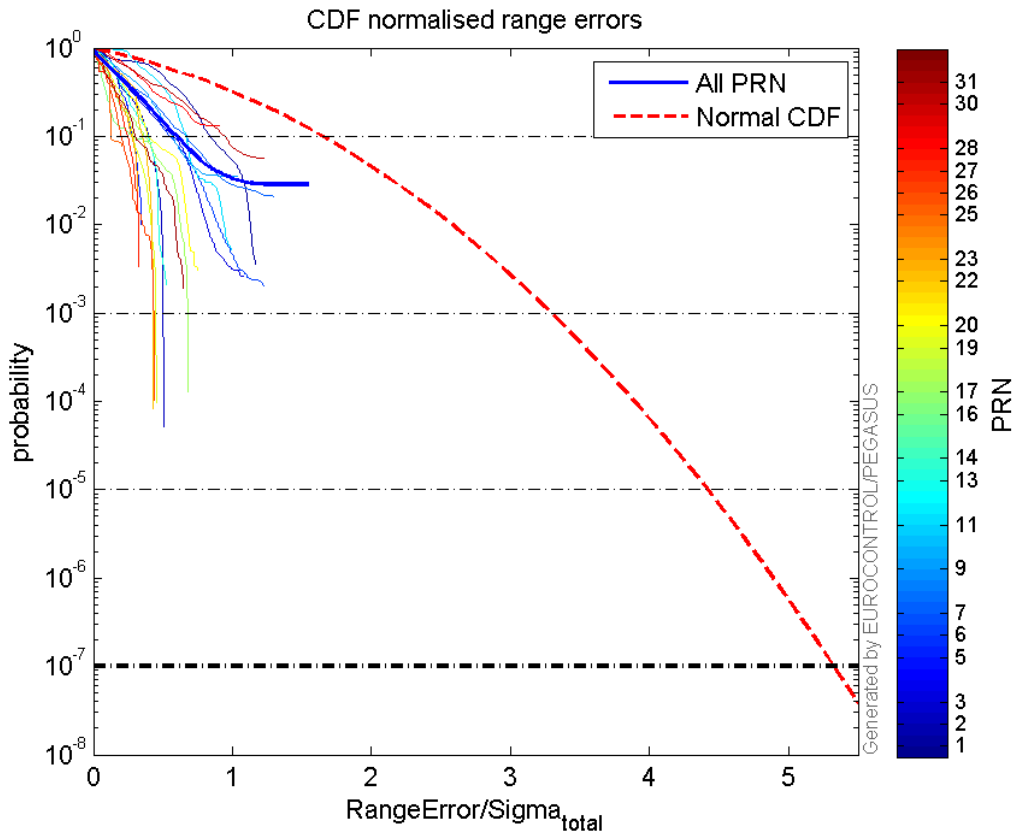
Normalised Range errors (median):



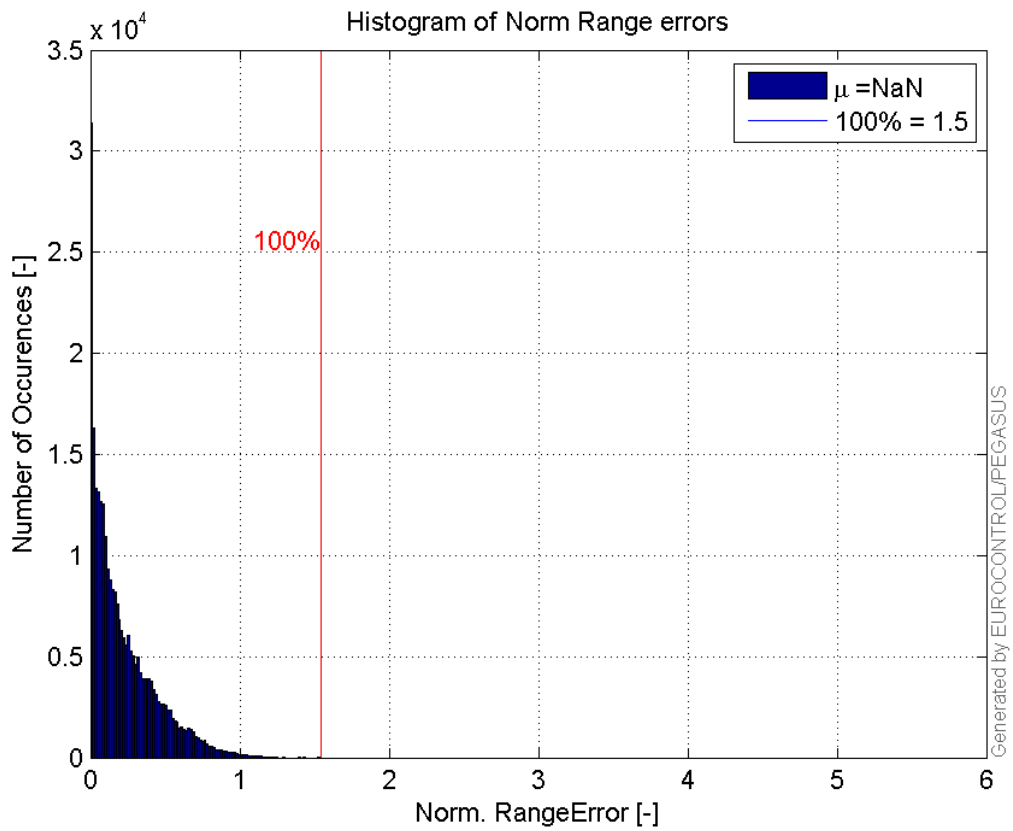
Range errors:



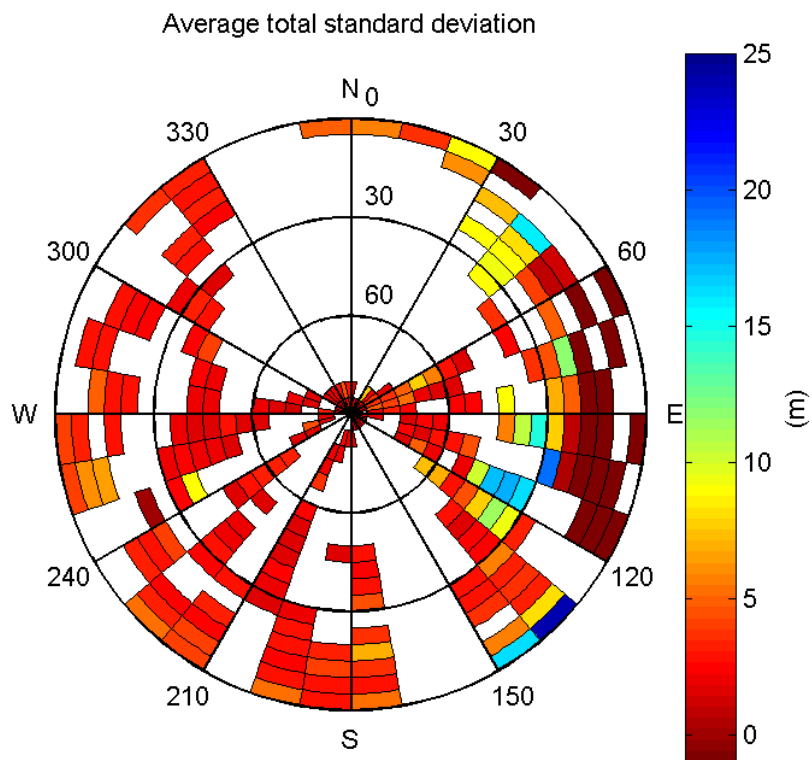
CDF normalised range errors:



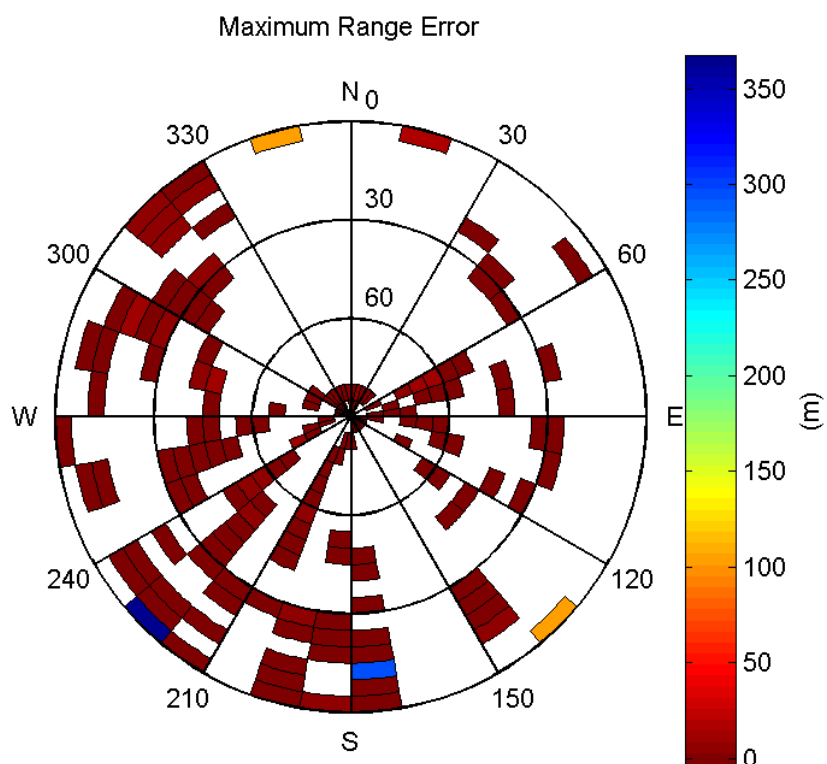
Histogram of Norm Range errors:



Sigma Sky Plot:

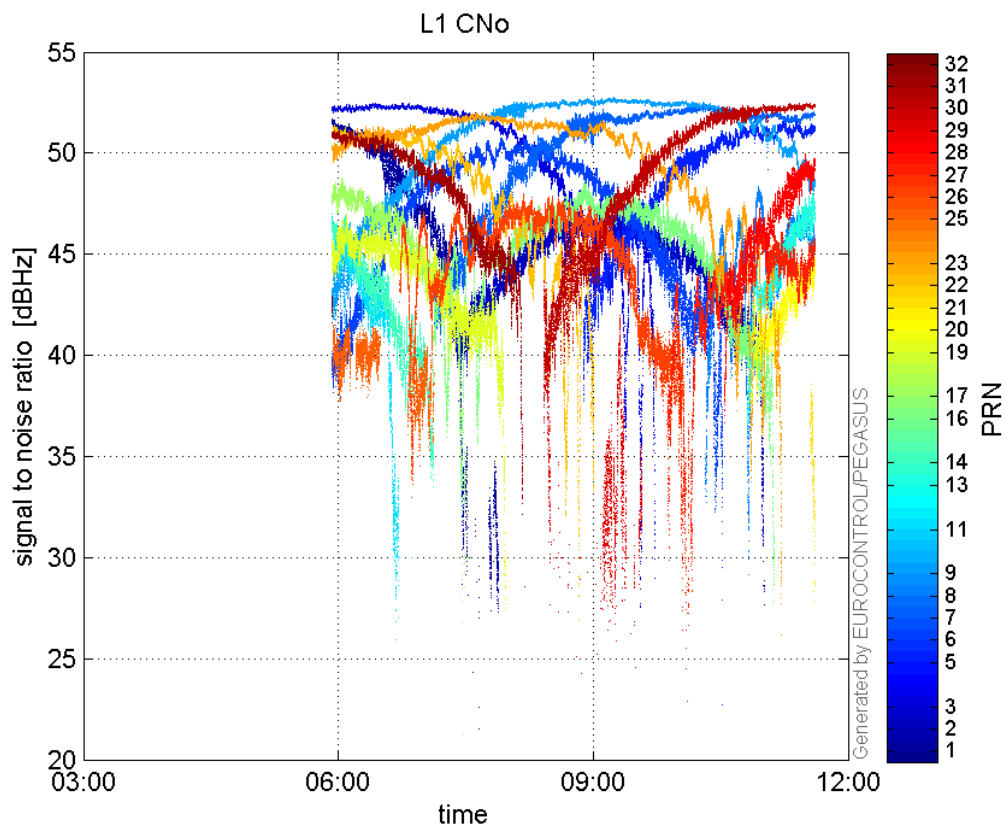


Norm Error Sky Plot:

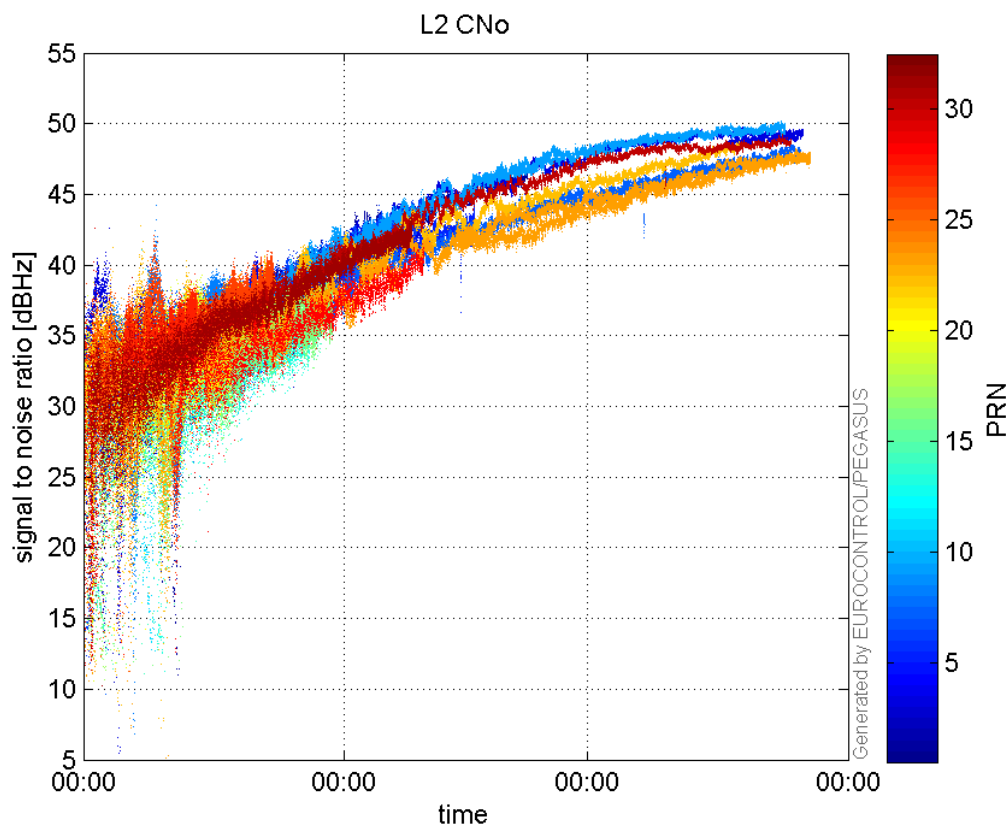


signal quality

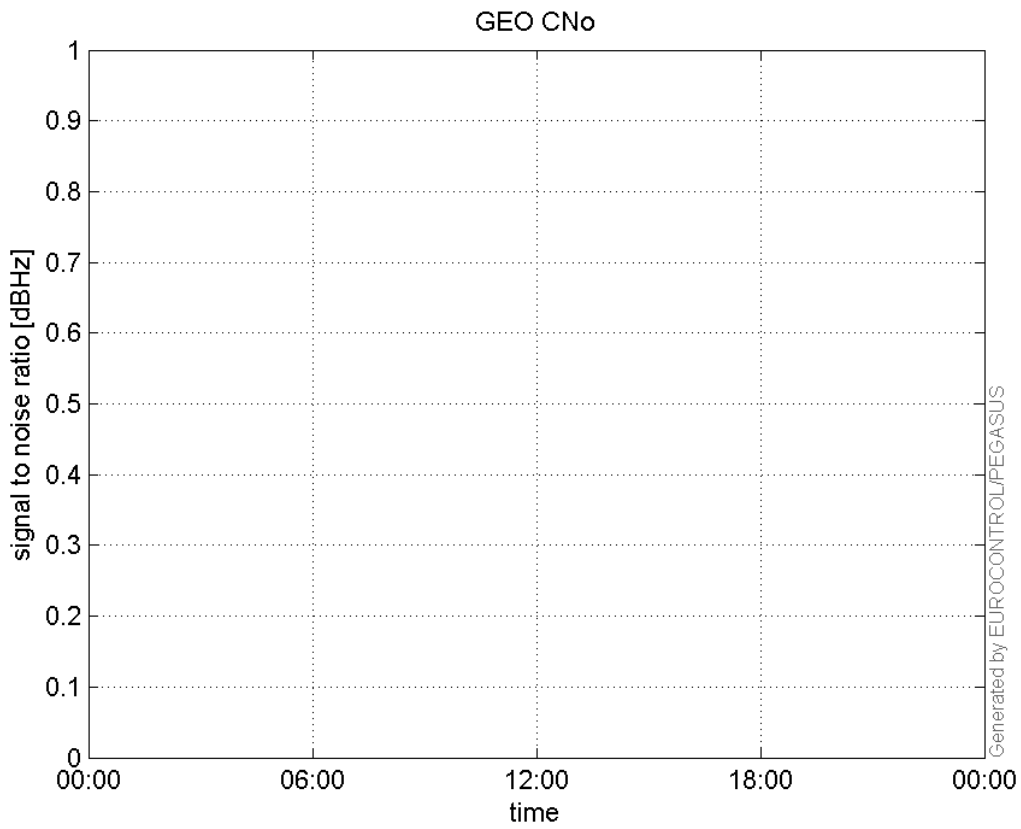
L1 CNo:



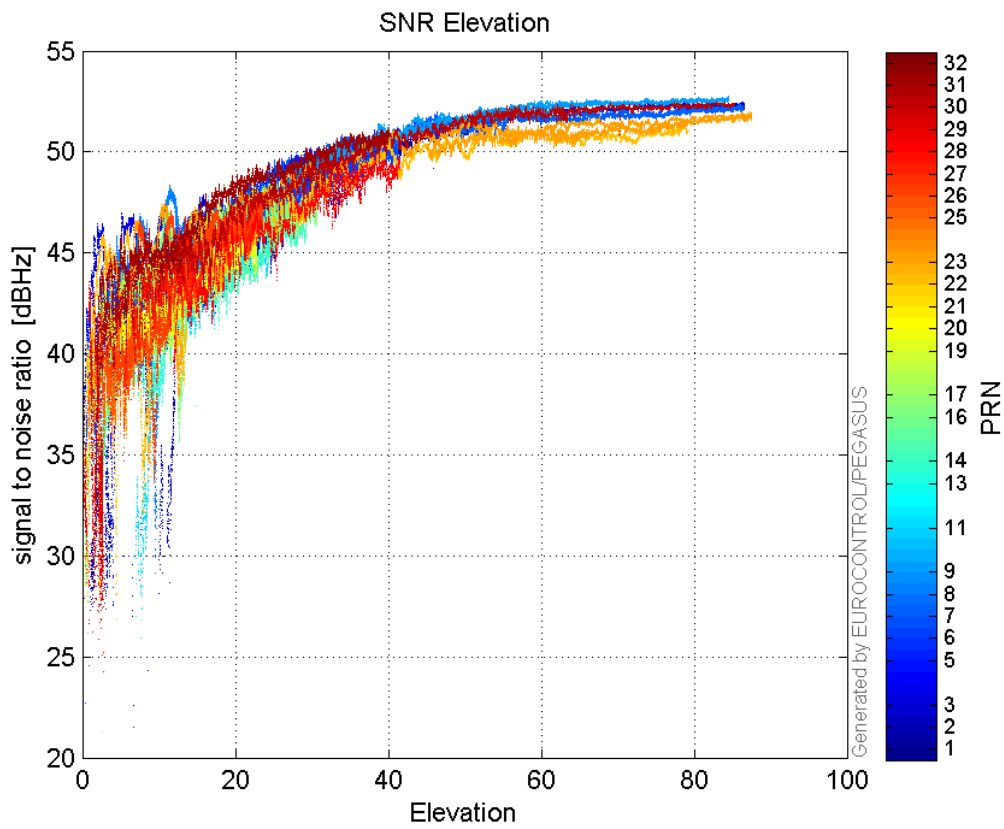
L2 CNo:



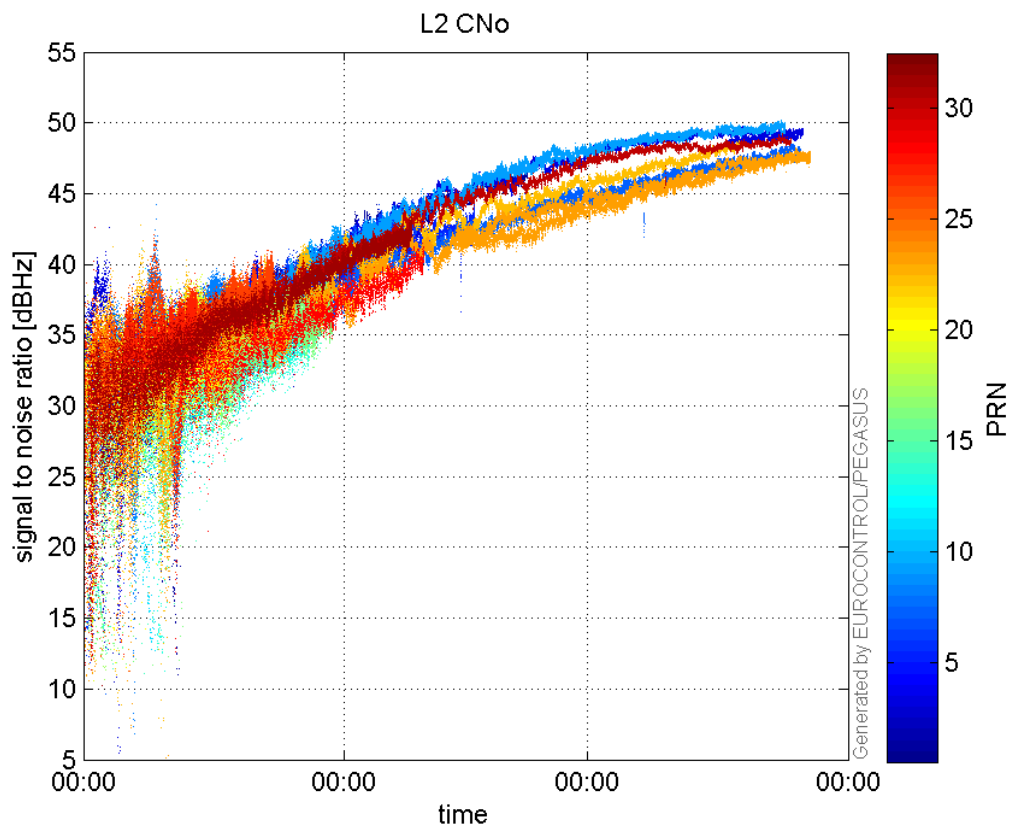
GEO CNo:



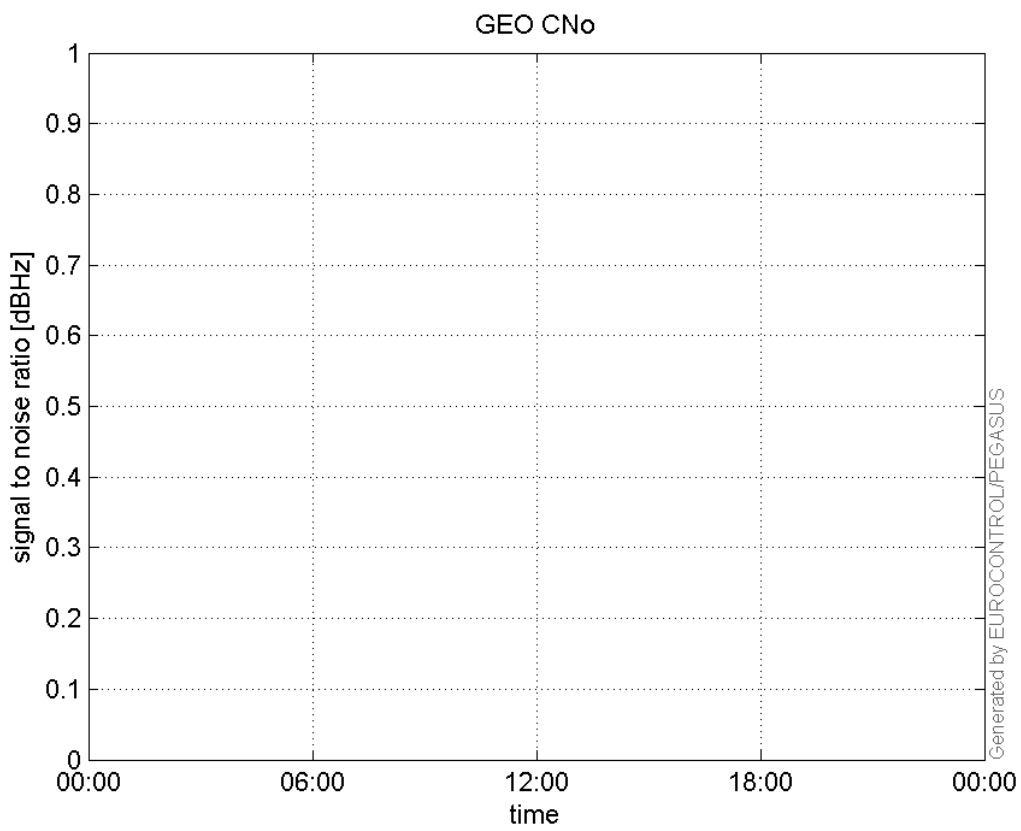
SNR Elevation:



L2 CNo:

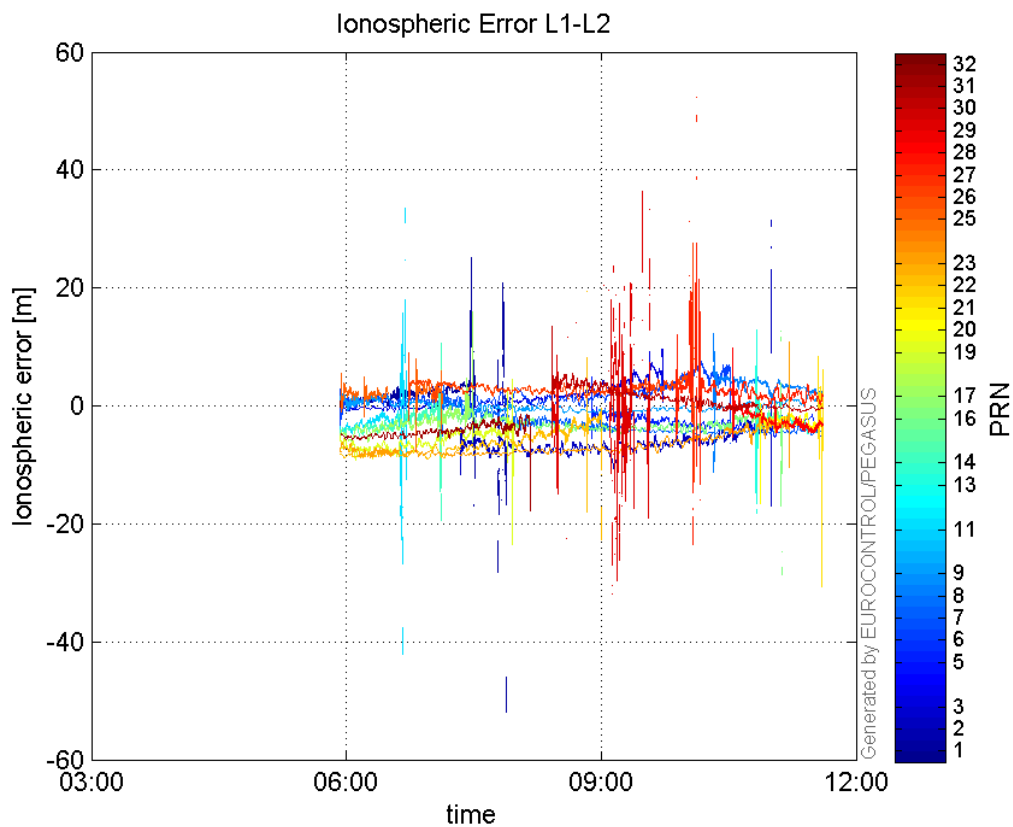


GEO CNo:



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_20EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_20EGNOS2Hz/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	30.4296
init_alt	results	237.3949
mi_numbers	results	0