

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 29/01/2017

SBAS Messages

start: 08:57:51.129 24.01.2017 (week: 1933 sec: 205071.129)
end: 13:54:14.129 24.01.2017 (week: 1933 sec: 222854.129)
duration: 04:56:23 ..

quality

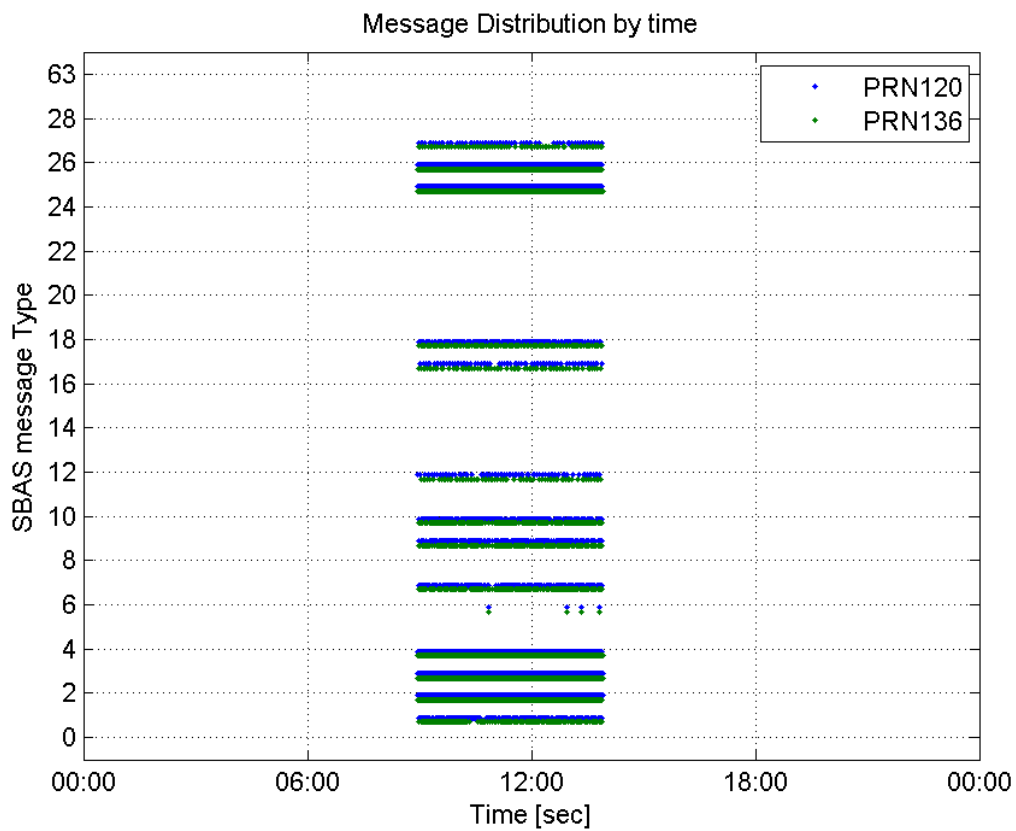
valid samples 27756
total samples 27756
number of SBAS PRNs 2

SBAS SIS Overview

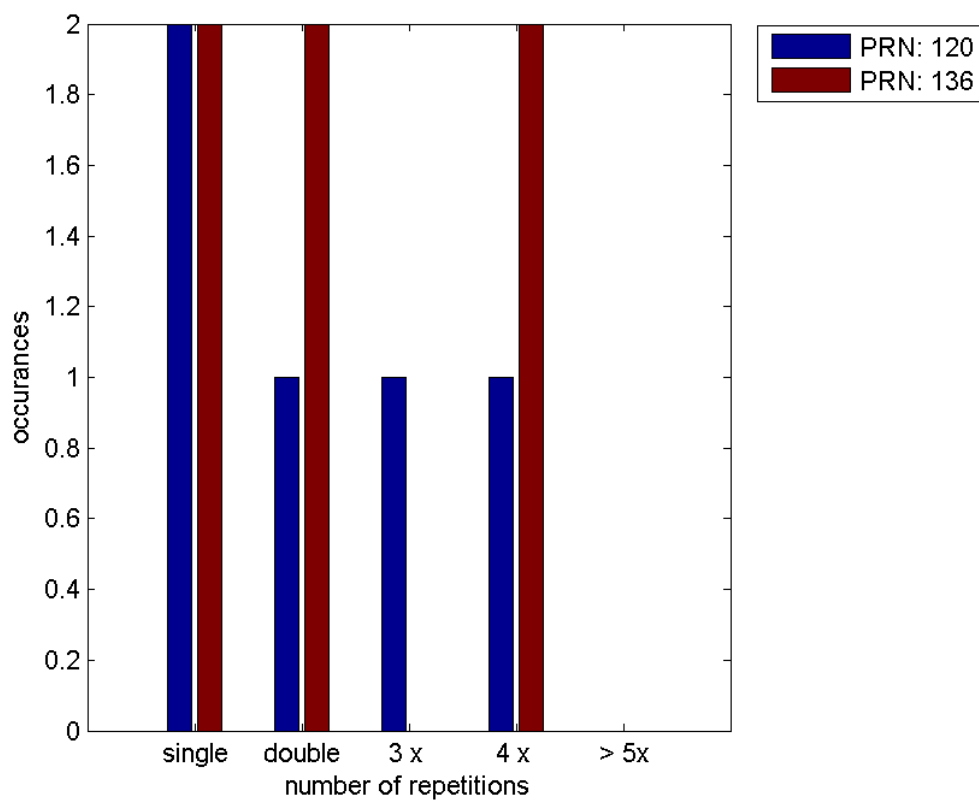
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

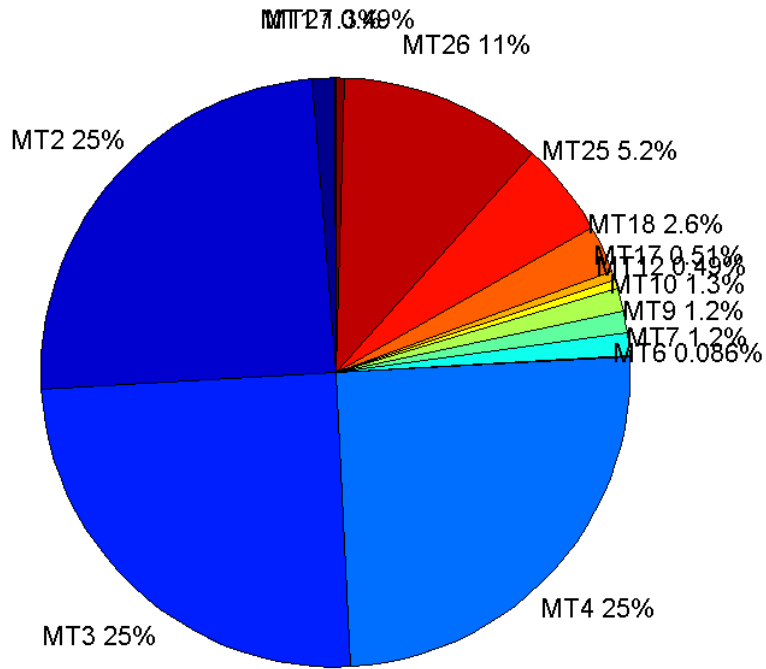
	number of messages	%
MT 0	0	0
MT 1	181	1.29554
MT 2	3440	24.6224
MT 3	3478	24.8944
MT 4	3498	25.0376
MT 5	0	0
MT 6	12	0.0858922
MT 7	172	1.23112
MT 9	167	1.19533
MT 10	175	1.25259
MT 12	68	0.486722
MT 17	71	0.508196
MT 18	360	2.57677
MT 24	0	0
MT 25	721	5.16069
MT 26	1560	11.166
MT 27	68	0.486722
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13971	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	560	98.2056	26	0	0
MT 2	4	16	5.16982	907	0	5
MT 3	4	13	5.1136	892	0	3
MT 4	4	16	5.08436	878	0	4
MT 5	--	--	--	--	--	--
MT 6	1	7532	973.364	3	3	3
MT 7	76	719	103.374	32	1	2
MT 9	76	320	106.898	0	0	0
MT 10	75	481	101.569	32	2	5
MT 12	188	1000	261.313	67	17	17
MT 17	184	1000	250.014	0	0	0
MT 18	4	200	48.8691	0	0	0
MT 24	--	--	--	--	--	--
MT 25	3	80	24.6125	0	0	0
MT 26	4	60	11.3977	0	0	0
MT						

27	185	1364	264.134	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

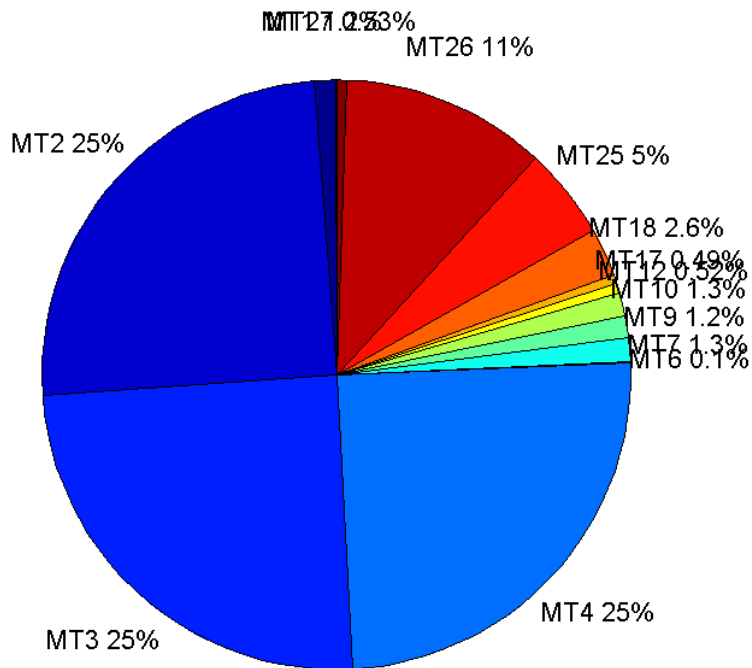
	number of messages	%
MT 0	0	0
MT 1	166	1.20421
MT 2	3437	24.9329
MT 3	3412	24.7515
MT 4	3412	24.7515
MT 5	0	0
MT 6	14	0.10156
MT 7	175	1.2695
MT 9	169	1.22597
MT 10	174	1.26224
MT 12	71	0.515053
MT 17	68	0.49329

MT 18	363	2.6333
MT 24	0	0
MT 25	690	5.00544
MT 26	1561	11.3239
MT 27	73	0.529561
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13785	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	880	107.103	34	1	1
MT 2	4	20	5.17433	918	1	3
MT 3	4	17	5.21313	947	0	6
MT 4	4	16	5.21196	946	0	7
MT 5	--	--	--	--	--	--
MT 6	1	7532	820.769	3	3	3
MT 7	75	399	101.448	31	1	3
MT 9	76	400	105.214	0	0	0
MT 10	75	401	101.595	31	1	5
MT 12	187	600	247.314	70	13	13
MT 17	188	600	261.373	0	0	0
MT 18	4	189	48.9309	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	100	25.807	0	0	0
MT 26	4	98	11.375	0	0	0
MT 27	184	600	245.847	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_01_24EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_01_24EGNOS2Hz/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: 08:57:51 24.01.2017 (week: 1933 sec: 205071)
end: 13:54:14.5 24.01.2017 (week: 1933 sec: 222854.5)
duration: 04:56:25 ..

quality

valid samples 32089
total samples 32777

Event tables

Position discontinuity events type long
APV-I discontinuity events type long
APV-35m discontinuity events type independent
LPV-200 discontinuity events type independent
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	210635	1.90891	10.1694	0.187711	-0.617567	16.2226	0.0380683
max normVer	219682	1.23693	24.1366	0.0512471	2.26156	23.3817	0.0967237
max HPE	209820	5.47418	140.095	0.0390747	-3.42016	91.0568	0.0375607
max VPE	211038	1.95264	95.7732	0.0203882	-4.94515	454.019	0.010892
min HPL	209764	1.06574	8.82983	0.120697	-0.0252018	14.7197	0.00171211
min VPL	206943	0.827808	11.3741	0.0727801	0.0380326	12.8526	0.00295913

Position discontinuity events :

#	Epoch	duration	stable period
1	217534	195.5	105.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	206931	8.5	181.5
2	208424	5.5	243.5
3	208489	5.5	59.5
4	209288	5.5	130
5	211700	5.5	78.5
6	211884	49	22.5
7	212131	479.5	19.5
8	213343	79.5	47.5
9	213682	400.5	146.5
10	217534	1465.5	105.5
11	219282	80.5	189.5
12	220015	5.5	309.5
13	220167	18.5	146.5
14	222065	239.5	612

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	206931	8.5	181.5
2	208424	5.5	243.5
3	208489	5.5	59.5
4	209288	5.5	130
5	211700	5.5	78.5
6	211884	49	22.5
7	213343	79.5	47.5
8	213682	400.5	146.5
9	214136	3.5	53.5

10	214230	245.5	38.5
11	214788	3.5	106.5
12	214824	3.5	28.5
13	214858	15.5	26
14	217534	1465.5	105.5
15	219282	80.5	189.5
16	220015	5.5	309.5
17	220167	18.5	146.5
18	222065	239.5	269.5

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	206931	8.5	181.5
2	208424	5.5	243.5
3	208489	5.5	59.5
4	209288	5.5	130
5	211700	5.5	78.5
6	211884	49	22.5
7	213343	79.5	47.5
8	213682	400.5	146.5
9	214136	3.5	53.5
10	214230	245.5	38.5
11	214788	3.5	106.5
12	214824	3.5	28.5
13	214858	15.5	26
14	217534	1465.5	105.5
15	219282	80.5	189.5
16	220015	5.5	309.5
17	220167	18.5	146.5
18	222065	239.5	269.5

First Glance analysis

Duration	17785
Number of Samples	32777
Number of invalid sample	688
Number of no position solution samples	468
Number of missing sample	2793
Logging Loss	7.8521
Processing Loss	2.099
Number of Misleading Information	0
Data gaps	10
Discontinuities	62

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
31621	26745	26015	0	26015

Accuracy statistics :

--	--	--	--	--	--

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.71149	1.66579	1.66383	NaN	1.66383
HPEscale 95%	NaN	5.08631	5.10039	NaN	5.10039
VPE 95%	1.19368	1.16445	1.17086	NaN	1.17086
VPEscale 95%	NaN	2.80616	1.9734	NaN	1.9734

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.985416	0.833463	0.810714	0	0.810714
measurements	0.964731	0.815969	0.793697	0	0.793697
Operational	1.77796	1.5038	1.46275	0	1.46275

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	52	78	112	--	112
Long	1	14	24	--	24
Independent	1	14	18	--	18
P(disc.)	0.000474368	0.00785193	0.0103786	NaN	0.0103786
P(slide)	0.0244142	0.0430922	0.0532193	NaN	0.0532193

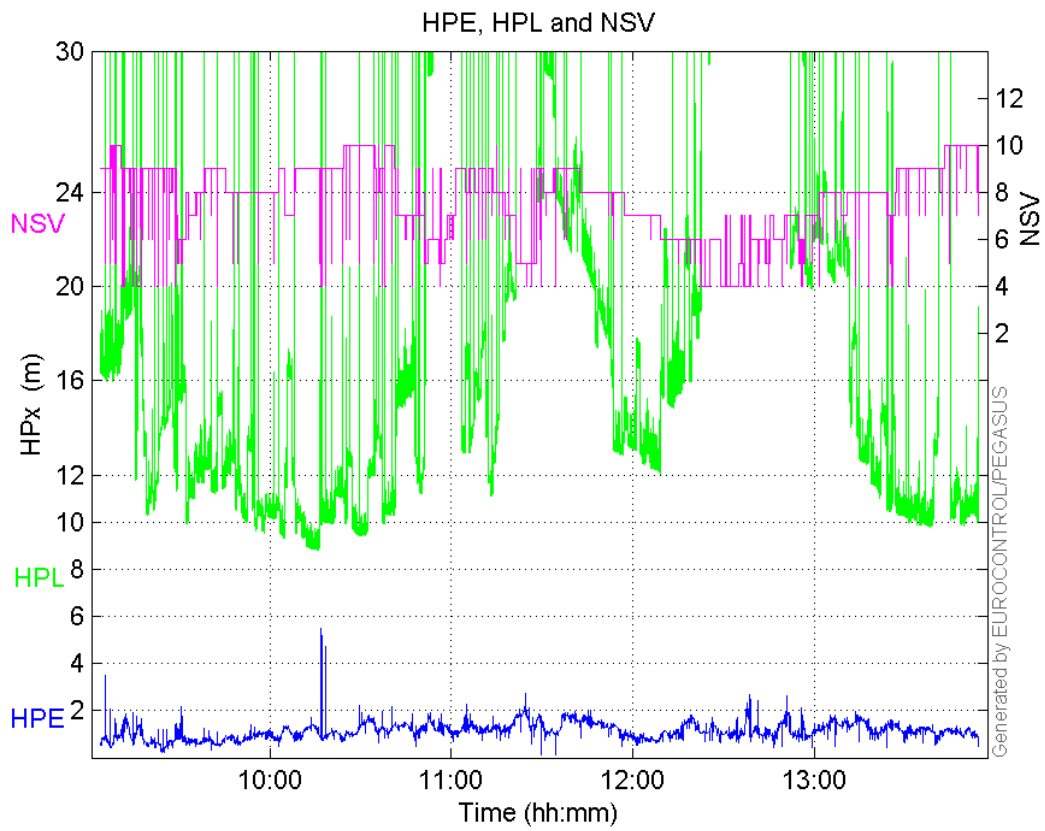
Integrity events :

	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

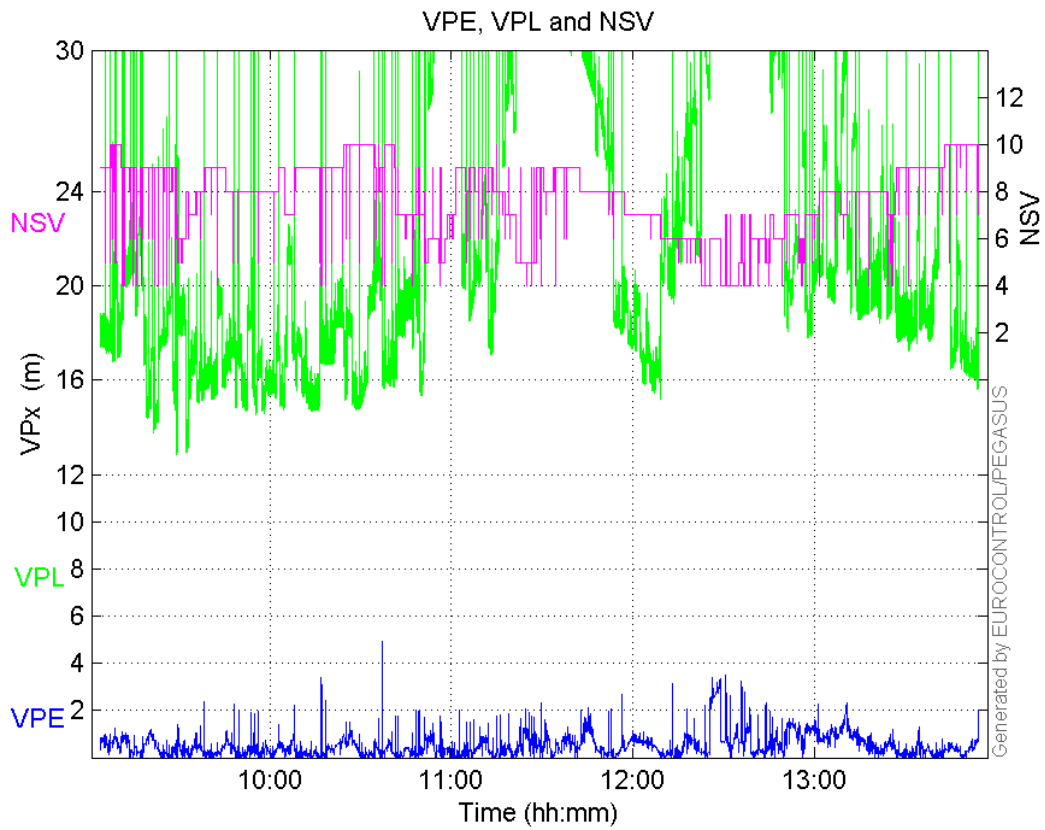
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	31621	26745	26015	0	26015
SIS Availability	0.985416	0.833463	0.810714	0	0.810714
Local Availability	0.964731	0.815969	0.793697	0	0.793697
Operational Availability	1.77796	1.5038	1.46275	0	1.46275
HPE 95%	1.71149	1.66579	1.66383	NaN	1.66383
HPEscale 95%	NaN	5.08631	5.10039	NaN	5.10039
VPE 95%	1.19368	1.16445	1.17086	NaN	1.17086
VPEscale 95%	NaN	2.80616	1.9734	NaN	1.9734
All Discontinuity Events	52	78	112	--	112
Long Discontinuity Events	1	14	24	--	24
Independent Discontinuity Events	1	14	18	--	18
P(discontinuity)	0.000474368	0.00785193	0.0103786	NaN	0.0103786
P(sliding window)	0.0244142	0.0430922	0.0532193	NaN	0.0532193
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

HPE, HPL and NSV:

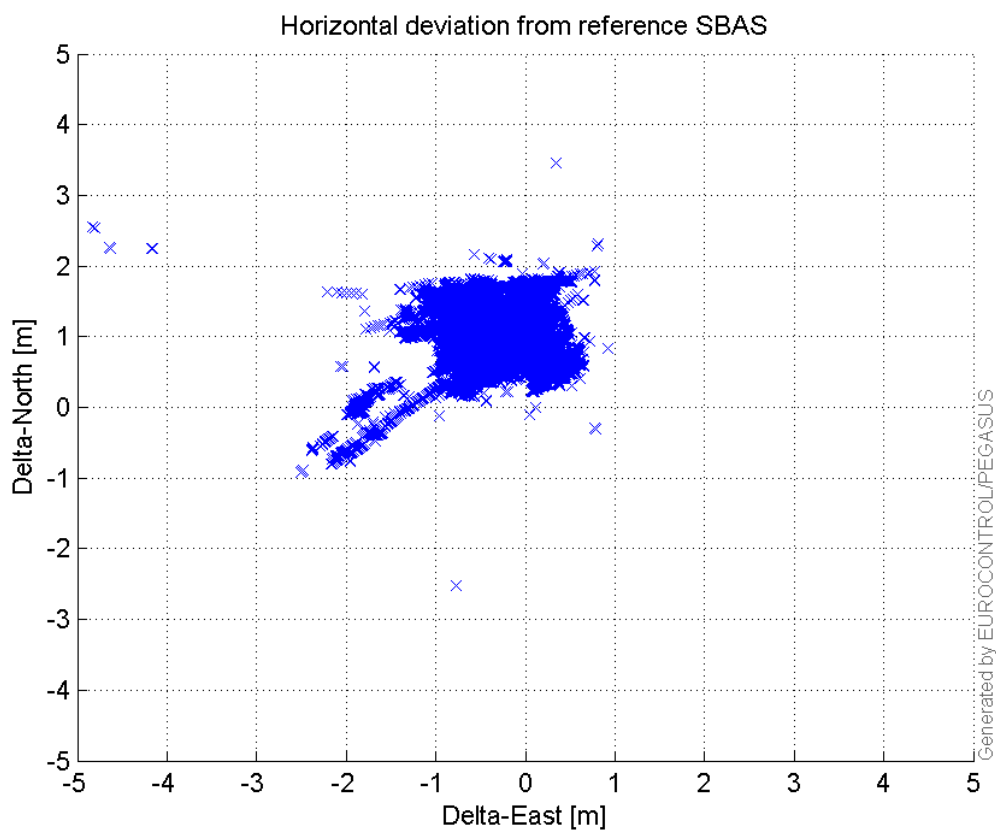


VPE, VPL and NSV:



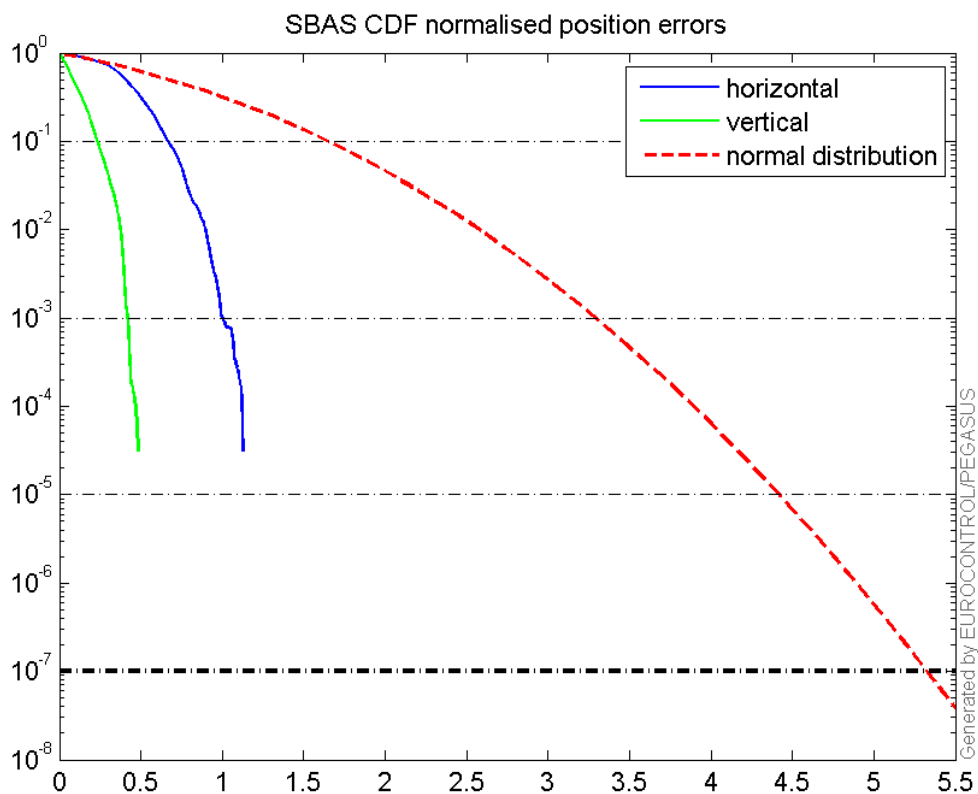
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



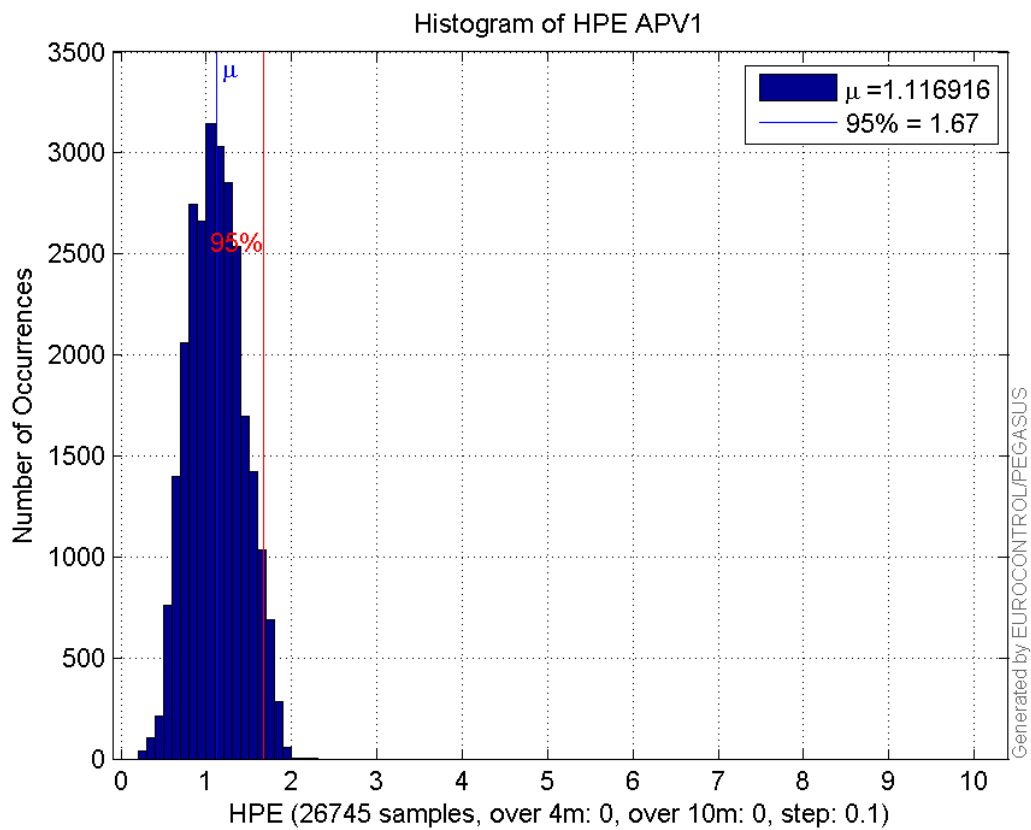
Statistics

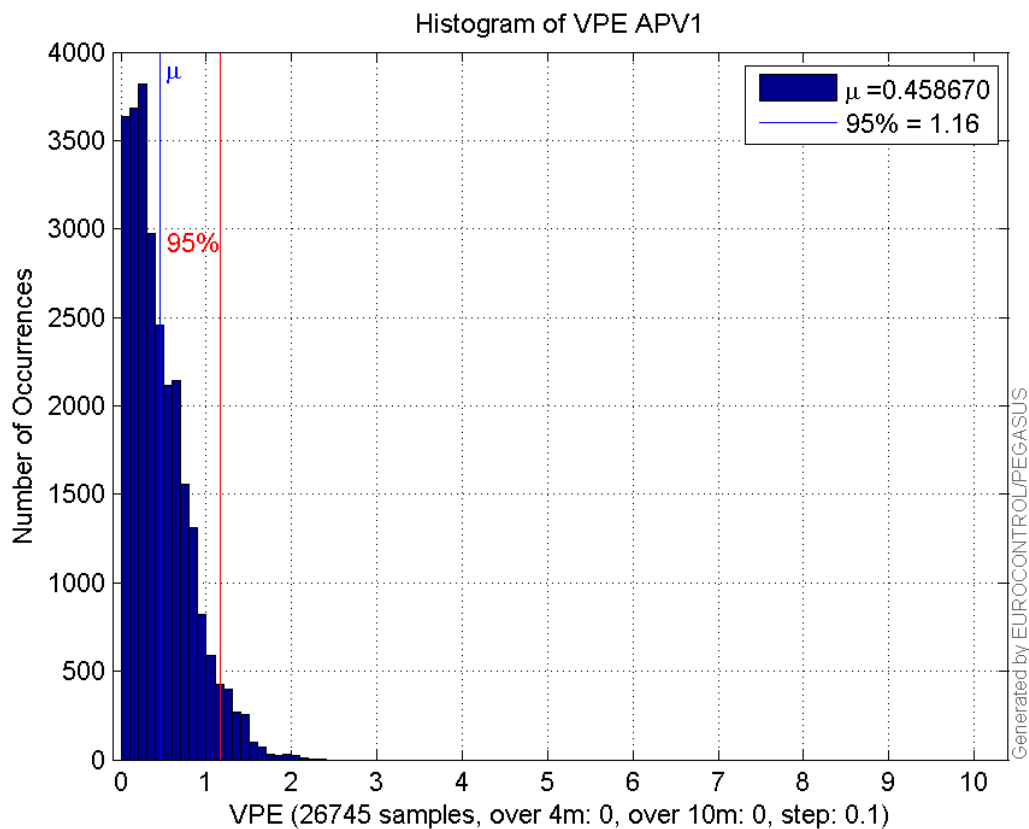
number	26745
sum	29871.931
sum2	36056.609
prctile95	1.6657856
prctile99	1.8206574
number	26745
sum	12267.124
sum2	9019.9161
prctile95	1.1644491
prctile99	1.5261154
number	26745
sum	418408.12
sum2	7402723.5
prctile95	28.9756
prctile99	33.456505
number	26745
sum	553019.85
sum2	12189179
prctile95	32.434275
prctile99	37.984835
number	26745
sum	2062.9176
sum2	179.00223
prctile95	0.12715774
prctile99	0.15057797
number	26745
sum	600.3824
sum2	21.047837
prctile95	0.056123214
prctile99	0.071198178
number	26015
sum	28994.943
sum2	34955.087
prctile95	1.6638276
prctile99	1.820393
number	26015
sum	11915.298
sum2	8784.5289
prctile95	1.1708601
prctile99	1.5353903
number	26015
sum	396905.48
sum2	6758621.8
prctile95	24.2177
prctile99	32.31096
number	26015
sum	525747.33
sum2	11168807
prctile95	30.344925
prctile99	34.19416
number	26015
sum	2032.3858

sum2 177.61196
prctile95 0.12750985
prctile99 0.1508316
number 26015
sum 591.00148
sum2 20.882363
prctile95 0.056382949
prctile99 0.07130196

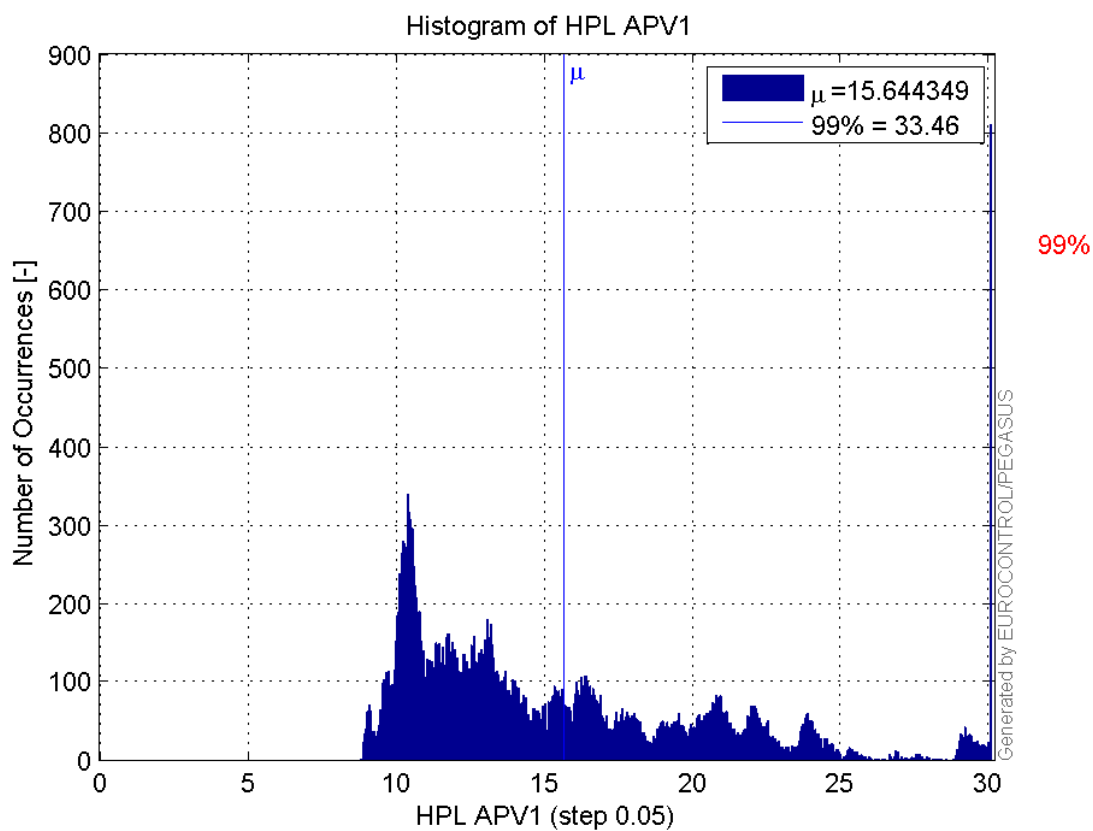
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.11692	0.317276	1.10725	1.66579	1.82066	1.1611
HPL	15.6443	5.6608	13.7498	28.9756	33.4565	16.637
VPE	0.45867	0.356206	0.377281	1.16445	1.52612	0.580738
VPL	20.6775	5.31011	19.0423	32.4343	37.9848	21.3484

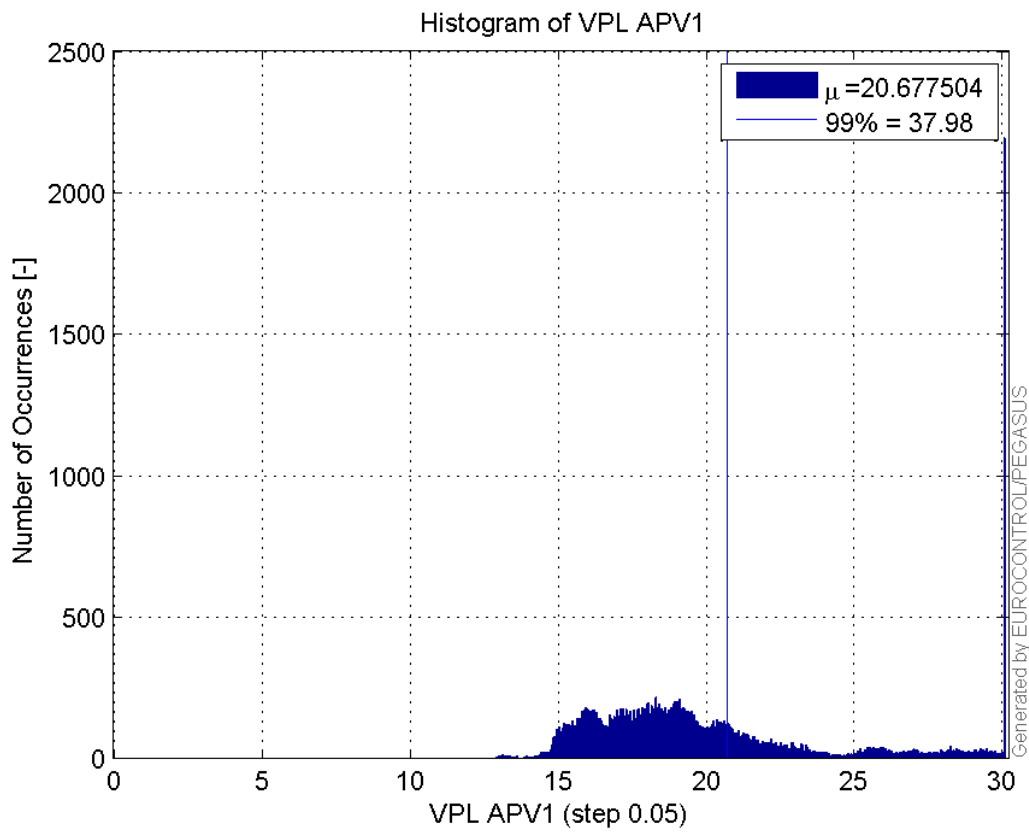
Histogram of HPE APV1:

Histogram of VPE APV1:



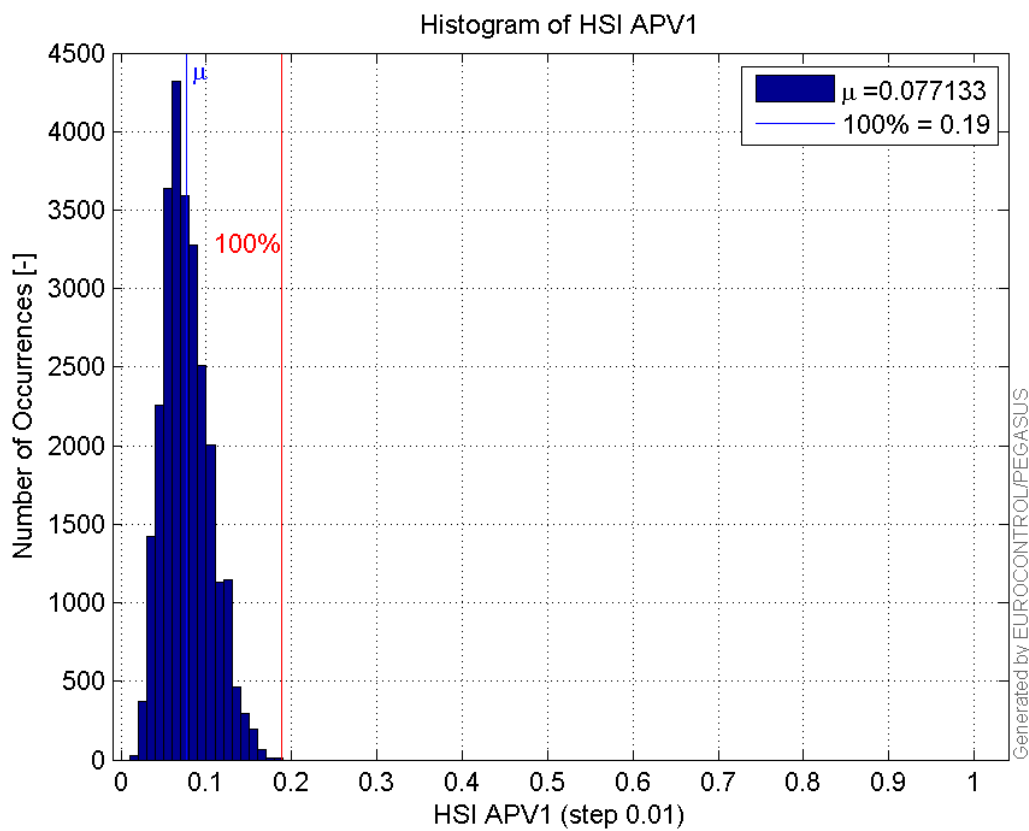
Histogram of HPL APV1:



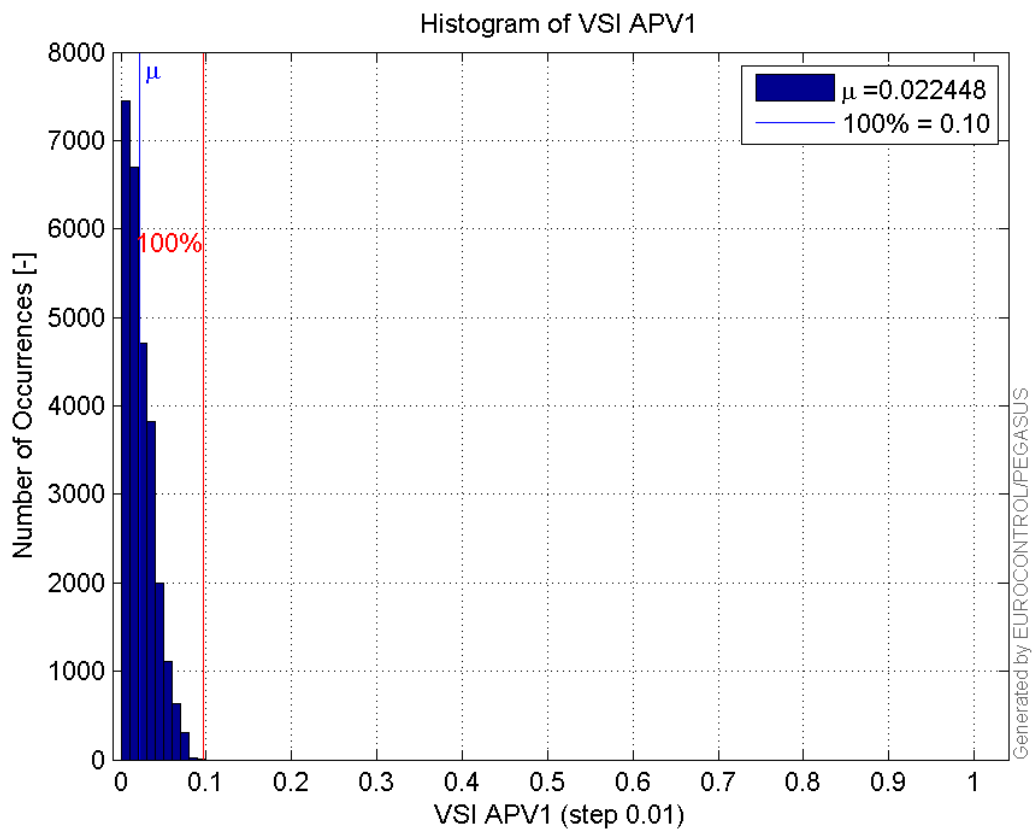
Histogram of VPL APV1:



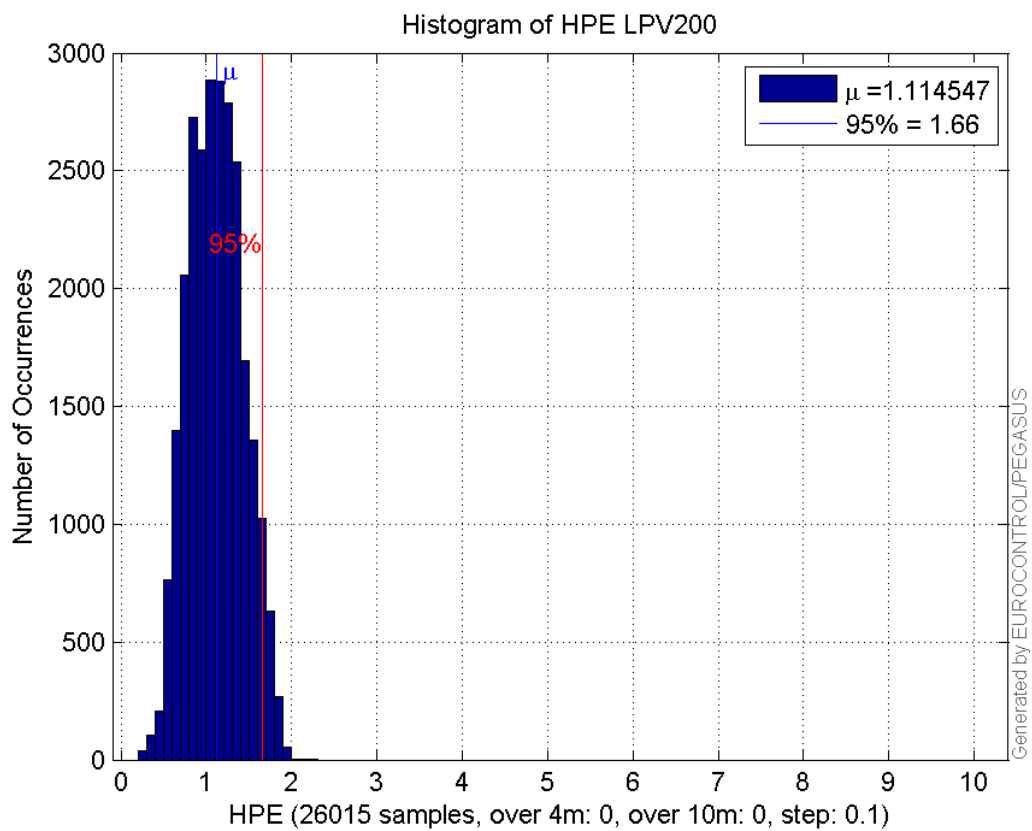
Histogram of HSI APV1:



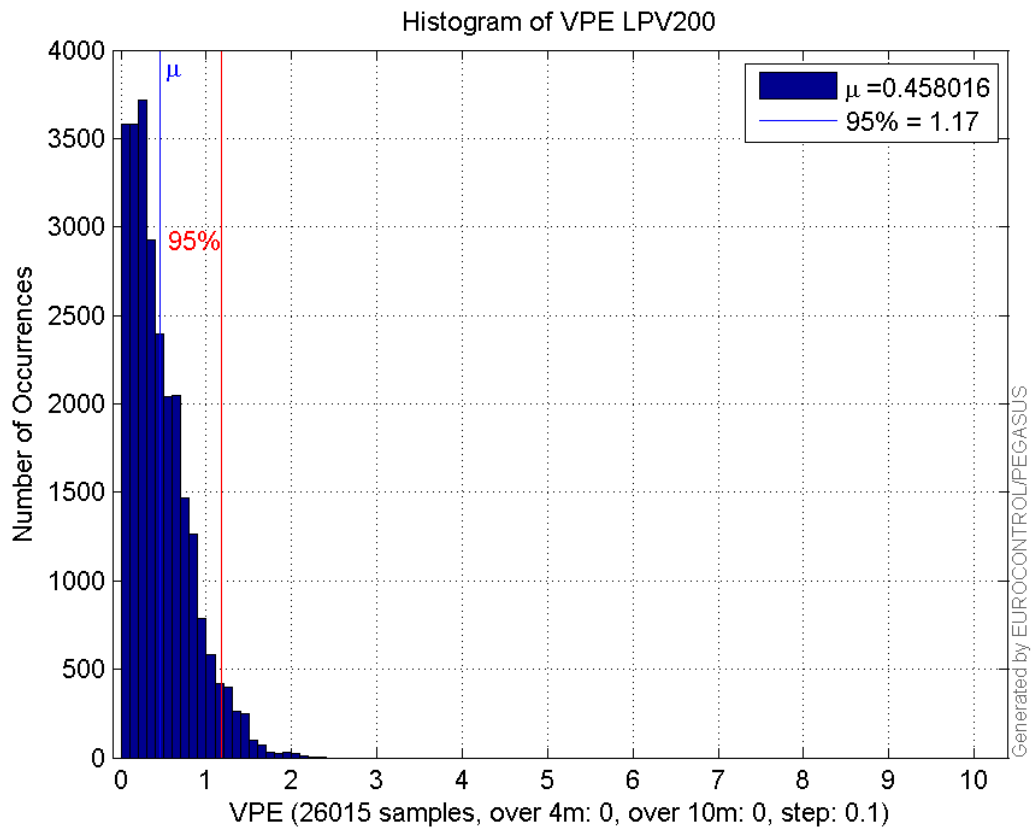
Histogram of VSI APV1:



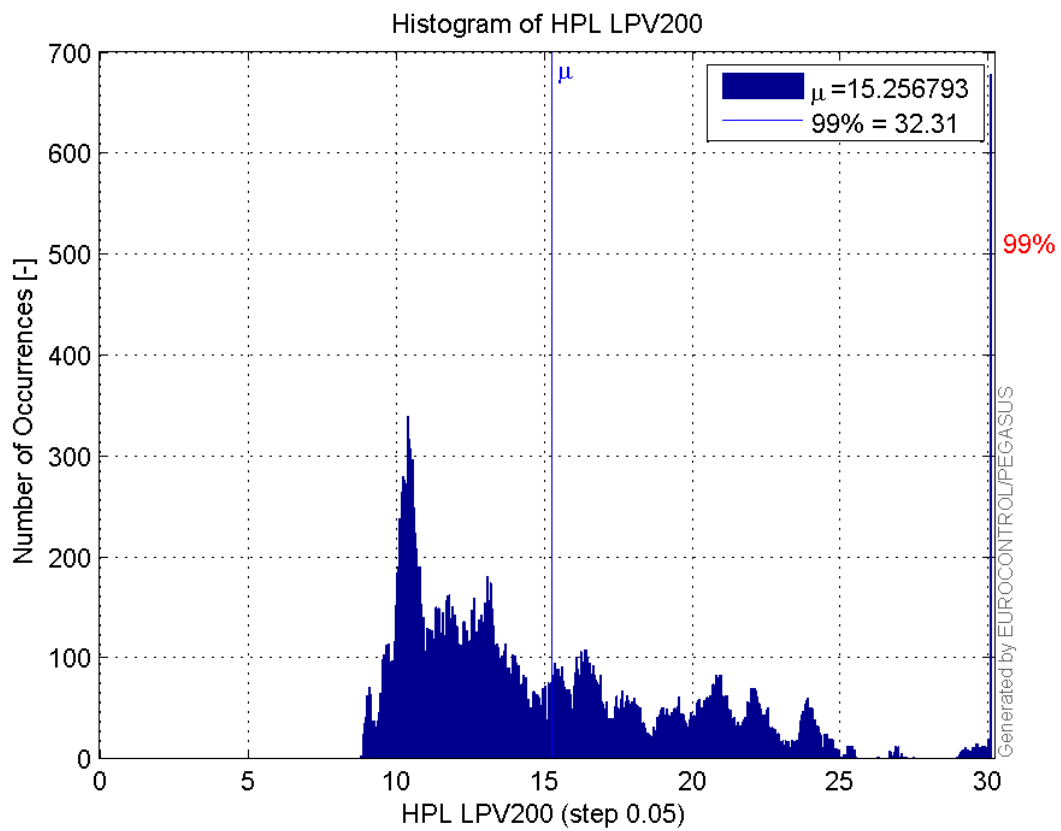
Histogram of HPE LPV200:



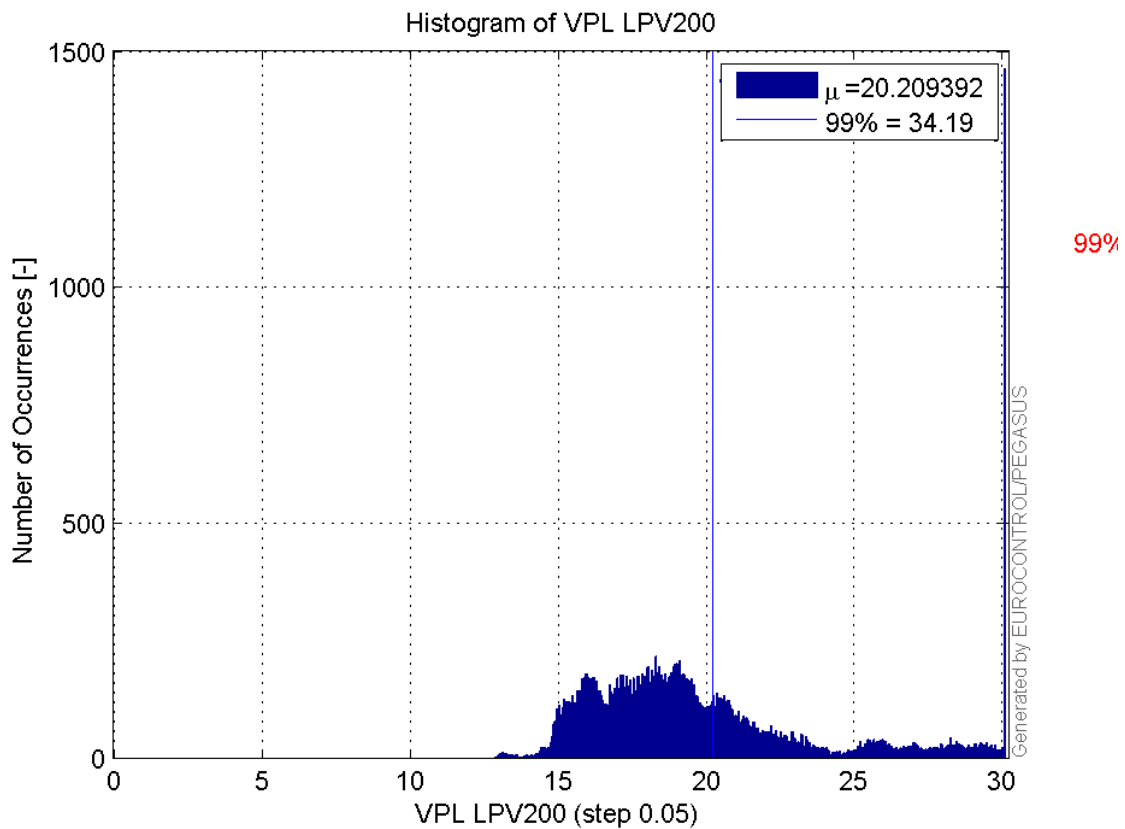
Histogram of VPE LPV200:



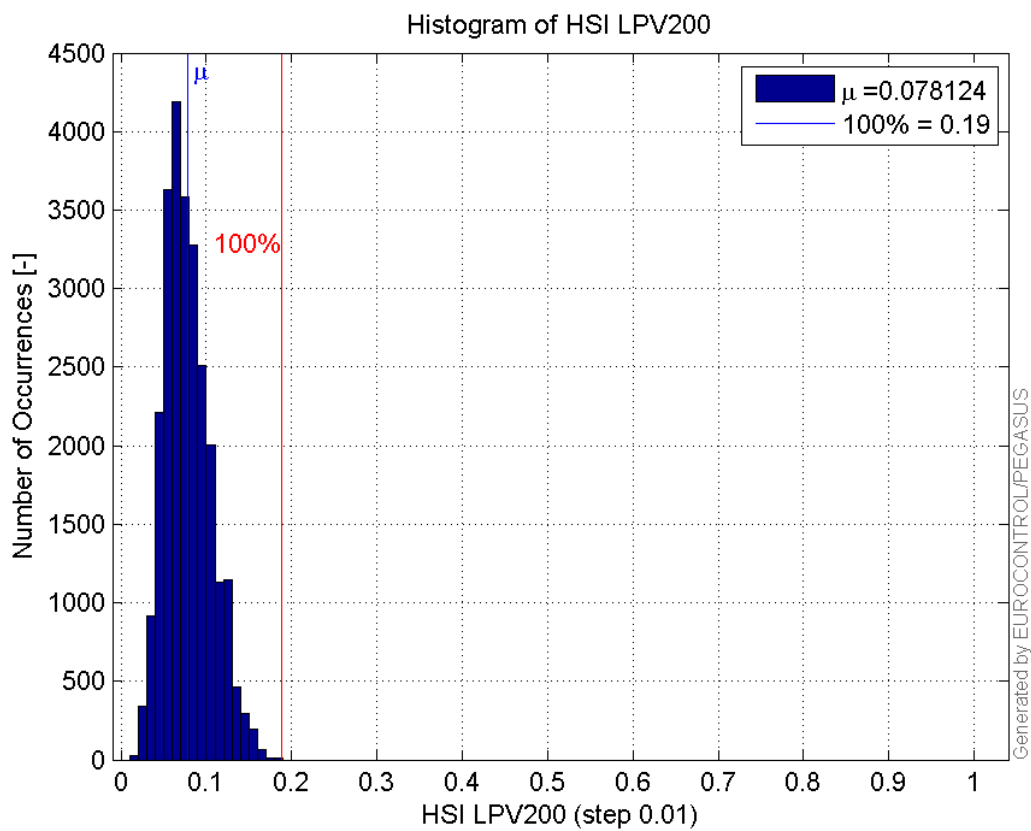
Histogram of HPL LPV200:



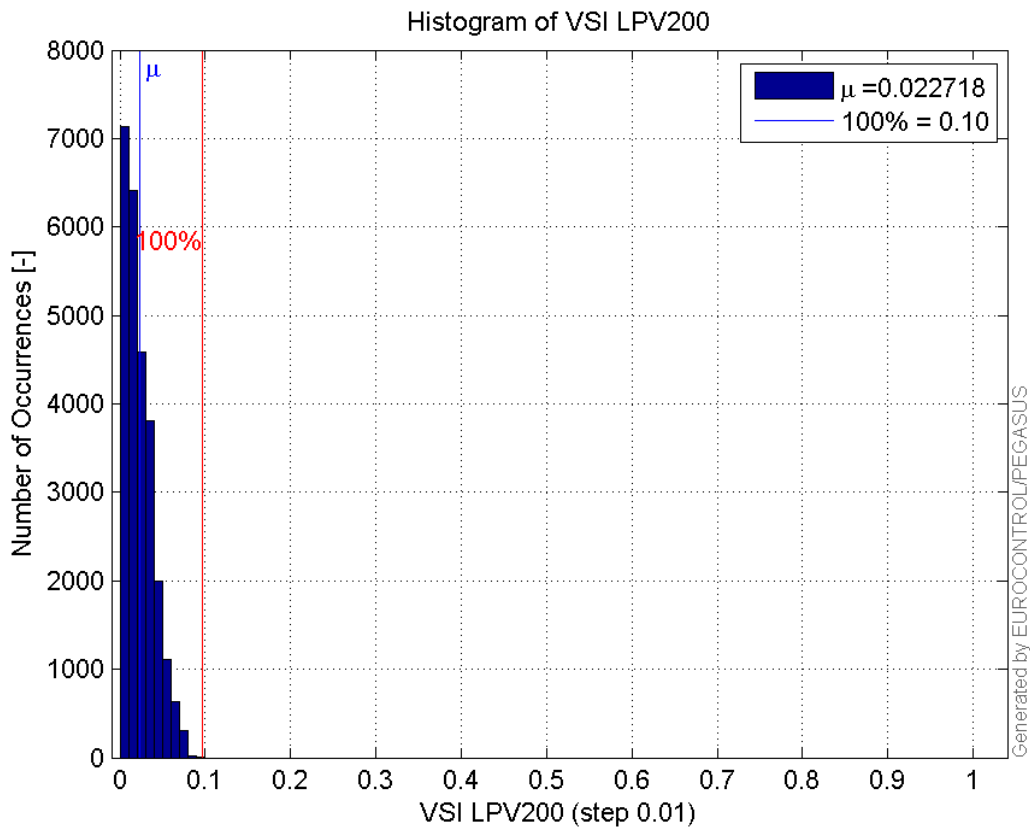
Histogram of VPL LPV200:



Histogram of HSI LPV200:

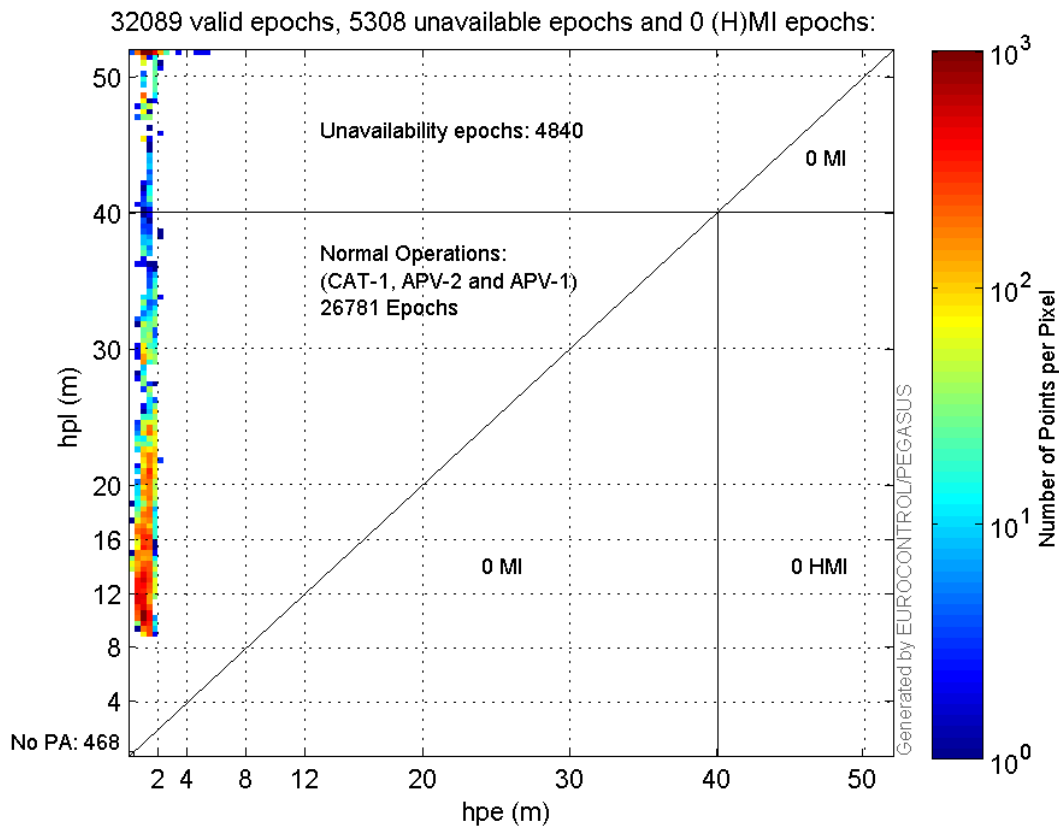


Histogram of VSI LPV200:



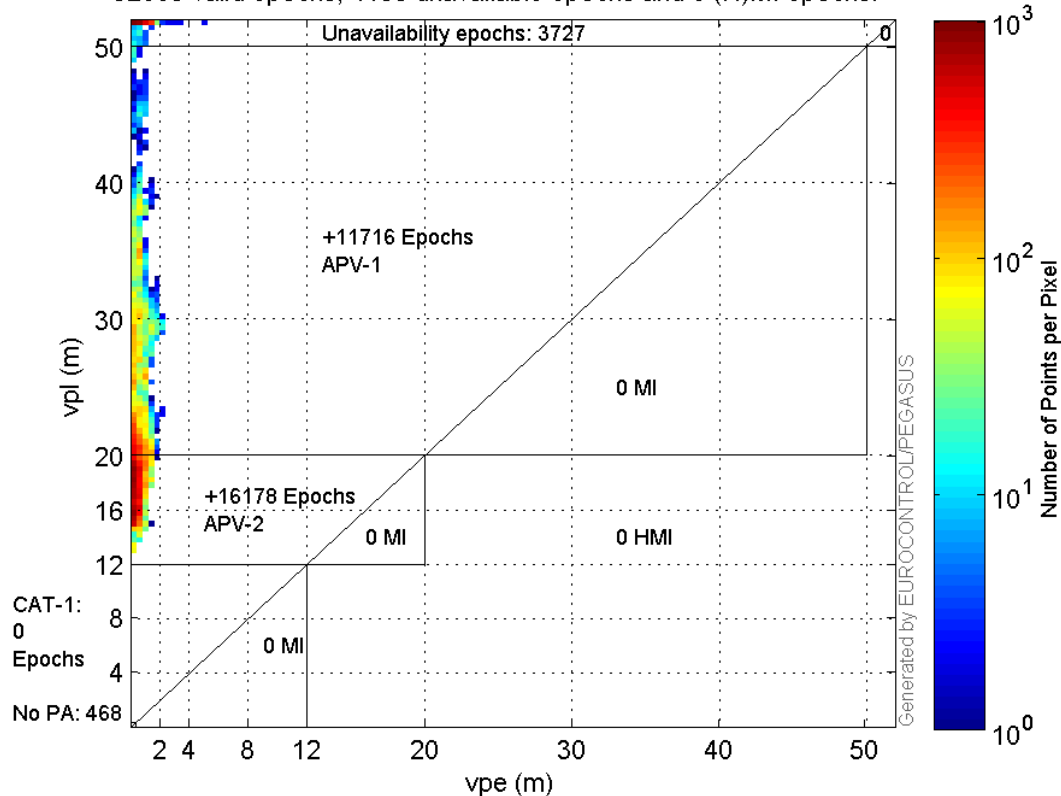
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

32089 valid epochs, 4195 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_01_24EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_24EGNOS2Hz/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	224.0083
mi_numbers	results	0

Range Domain

start: 08:57:51 24.01.2017 (week: 1933 sec: 205071)
end: 13:54:14.5 24.01.2017 (week: 1933 sec: 222854.5)
duration: 04:56:25 ..

quality

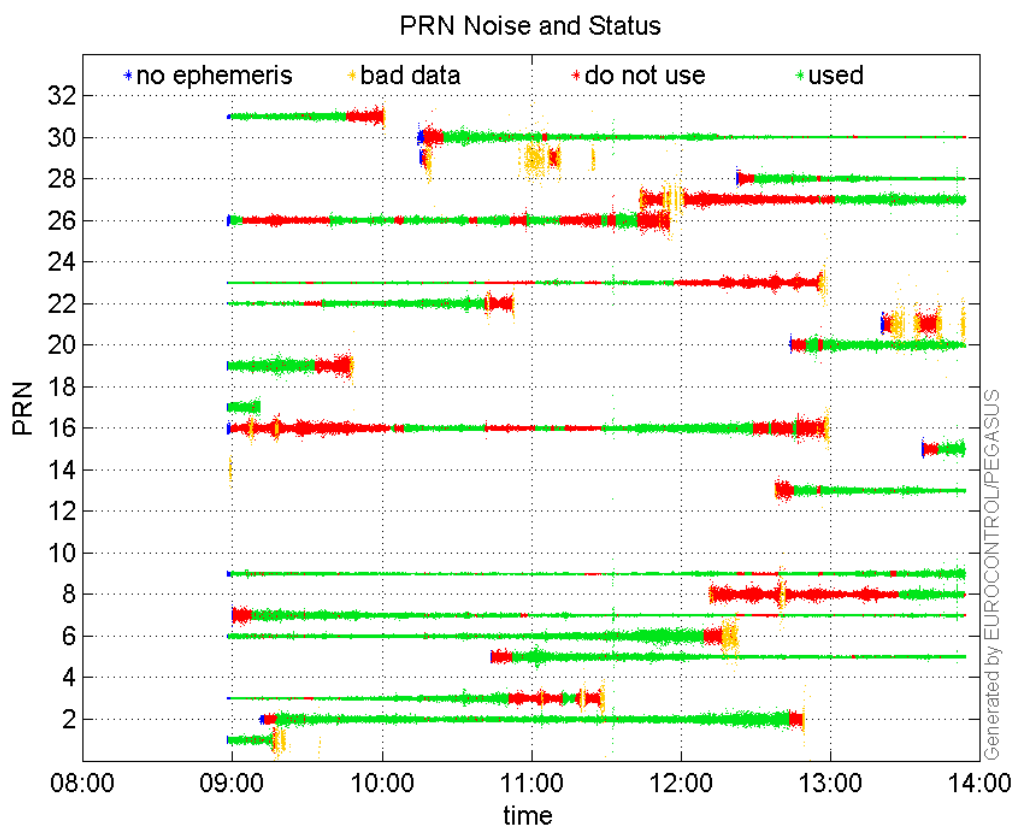
valid samples 32777
total samples 32777

PRN overview

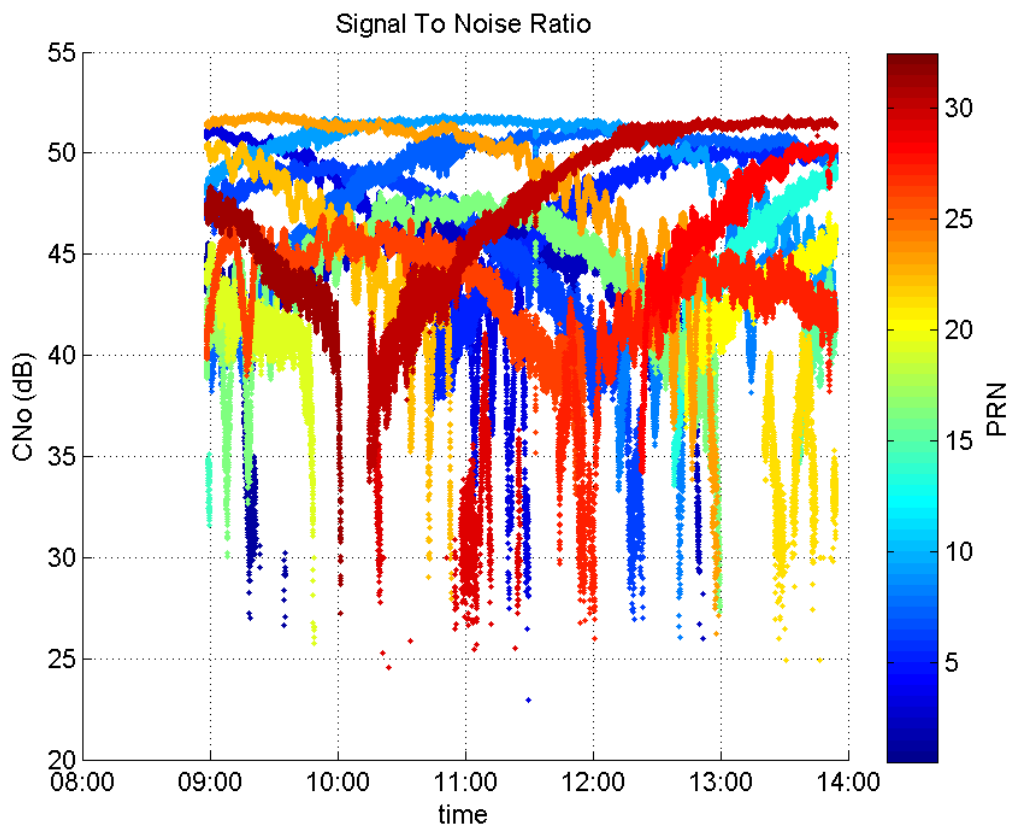
Number of Visible GPS Satellites 24
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:

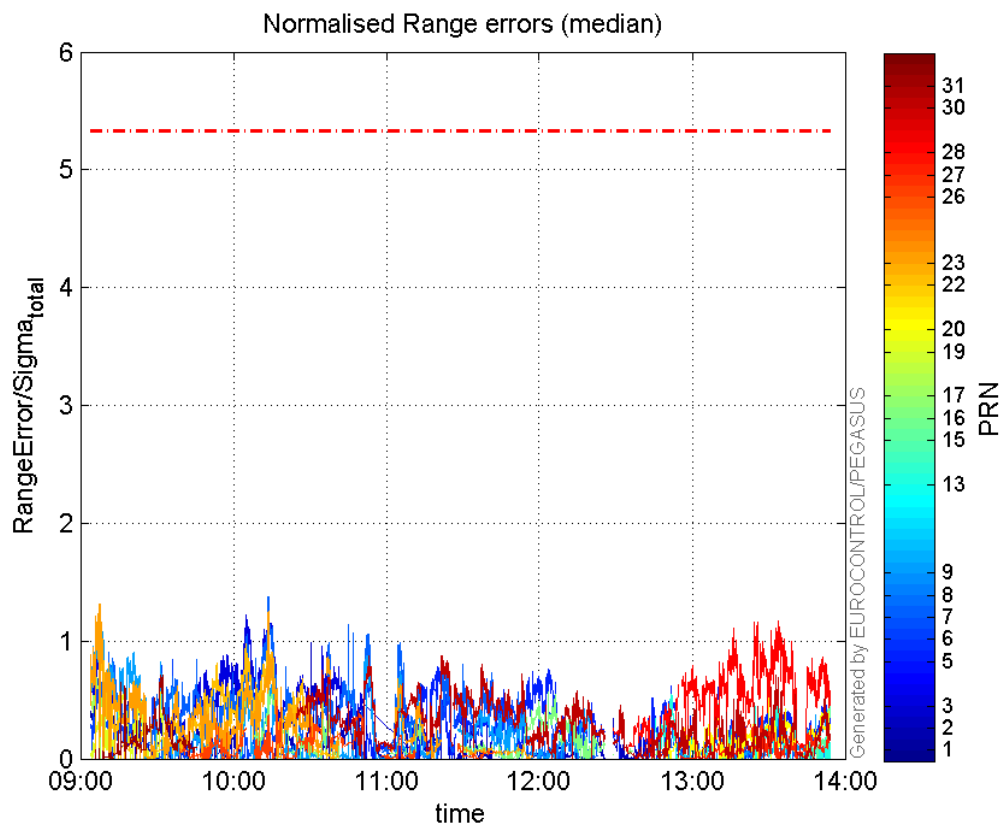
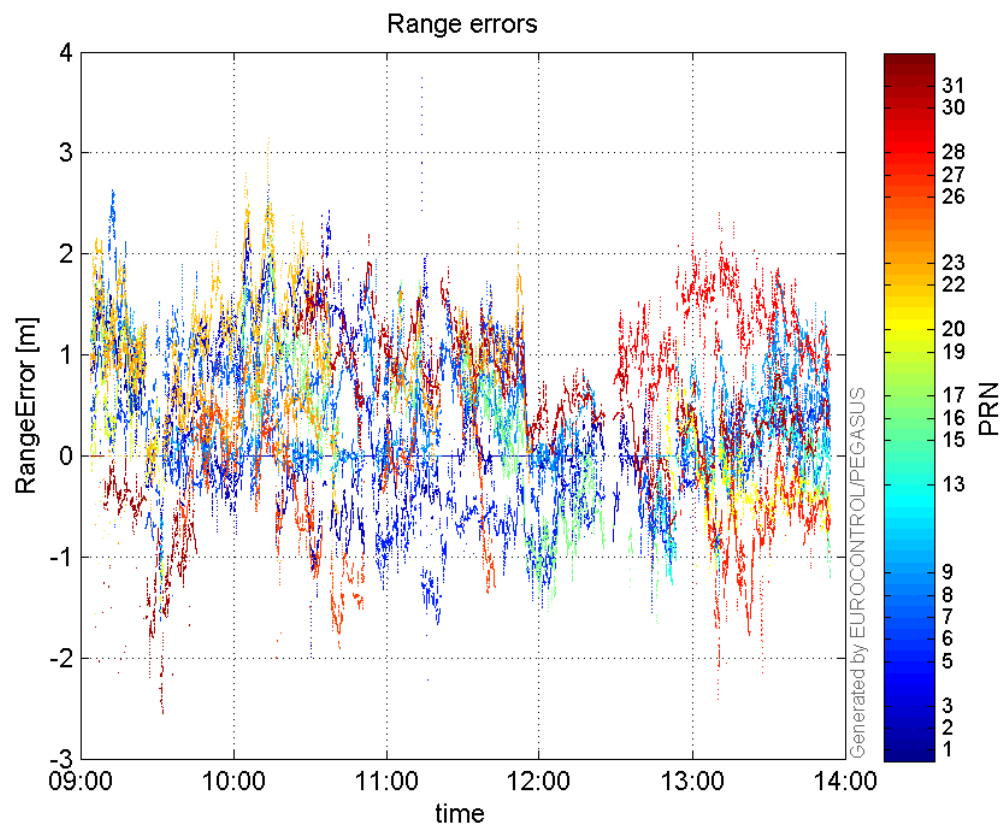


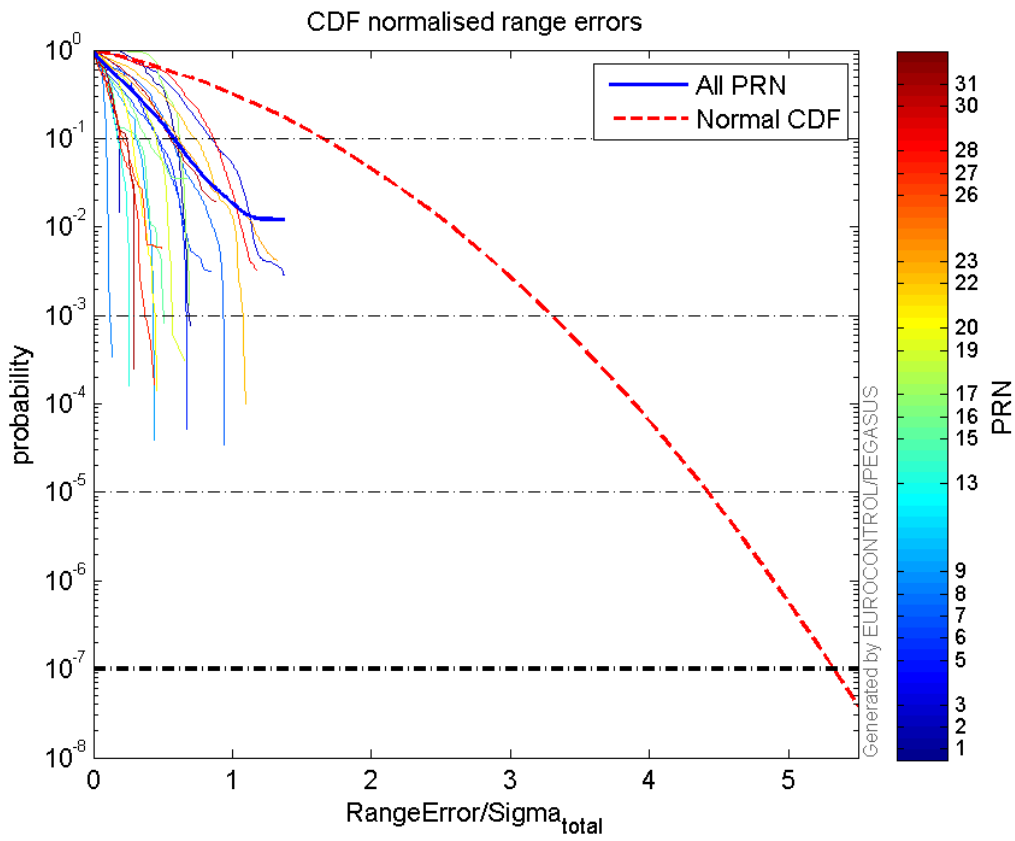
range errors

Number of Overbounding Norm Errors 0

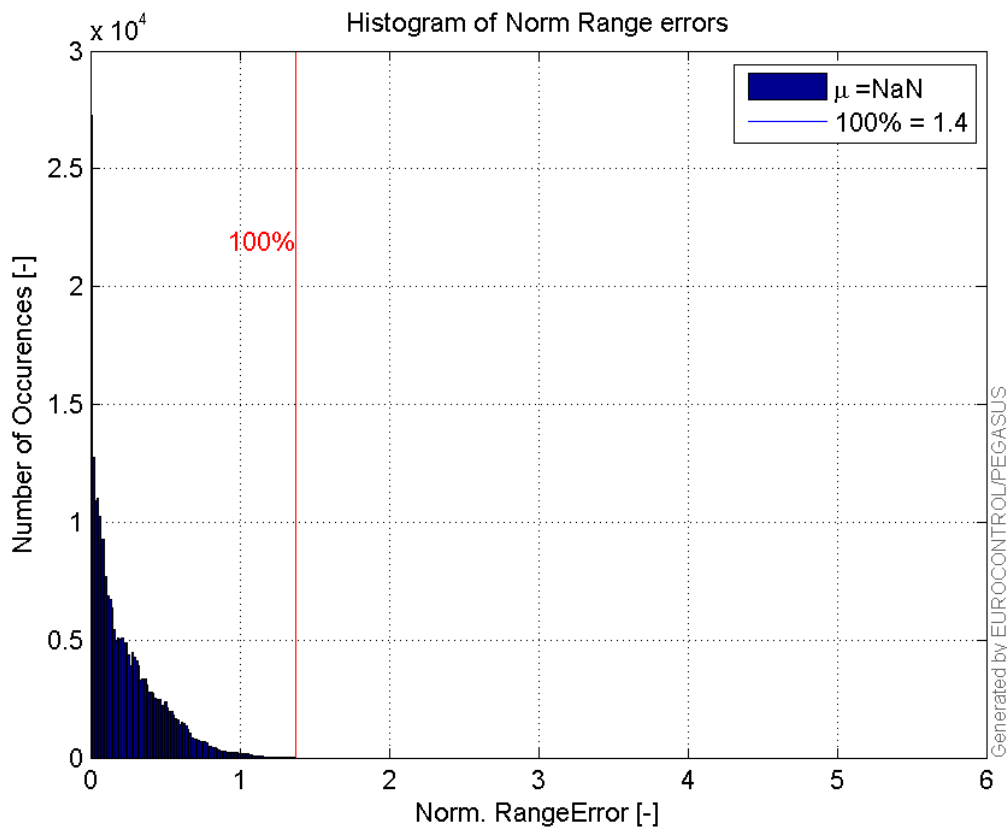
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1933	205575	1	0.69991	1.6852	2.40774
1933	210636	2	0.981325	-1.99058	2.02846
1933	209623	3	1.37114	2.67663	1.95211
1933	213617	5	0.779764	-1.65737	2.12547
1933	207364	6	0.84501	-1.38869	1.64341
1933	209623	7	1.37643	2.54739	1.85072
1933	222696	8	0.136326	0.951126	6.97687
1933	205575	9	1.09956	1.70463	1.55027
1933	219109	13	0.545858	-1.23893	2.2697
1933	222852	15	0.509117	-1.20925	2.3752
1933	209646	16	0.6689	2.51327	3.75732
1933	205575	17	0.686787	1.72886	2.51732
1933	205546	19	0.654208	-1.5608	2.38579
1933	221410	20	0.538081	-1.08622	2.01869
1933	209623	22	1.13136	3.14204	2.77723
1933	205657	23	1.31795	1.75385	1.33074
1933	209820	26	0.490989	-2.00946	4.09267
1933	221254	27	0.445985	-2.15011	4.82105
1933	221640	28	1.17005	1.85113	1.5821
1933	213706	30	0.877632	1.74111	1.98387
1933	207078	31	0.712112	-2.43091	3.41366

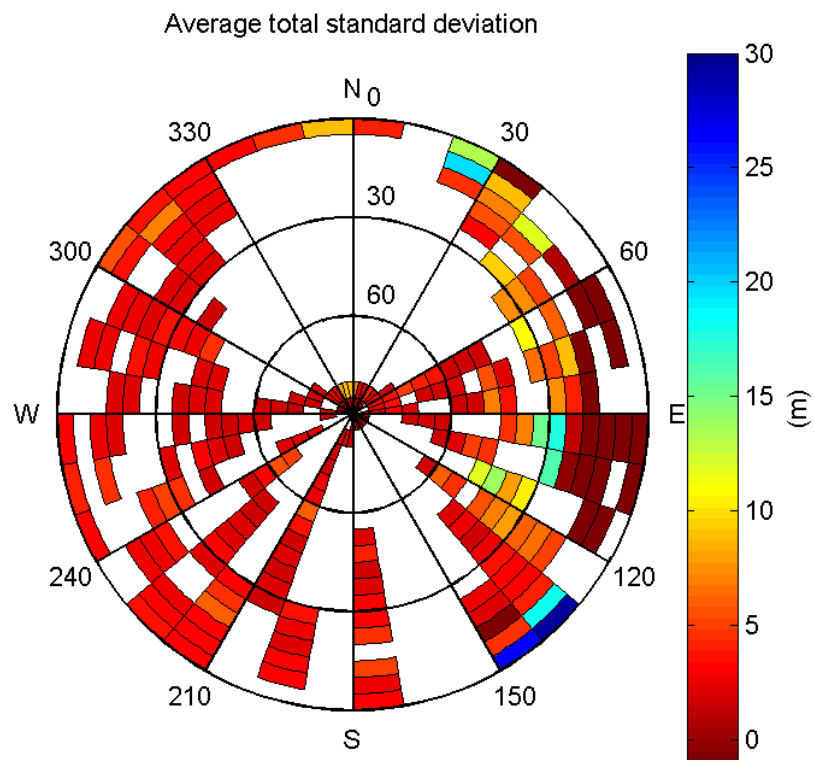
Normalised Range errors (median):**Range errors:****CDF normalised range errors:**



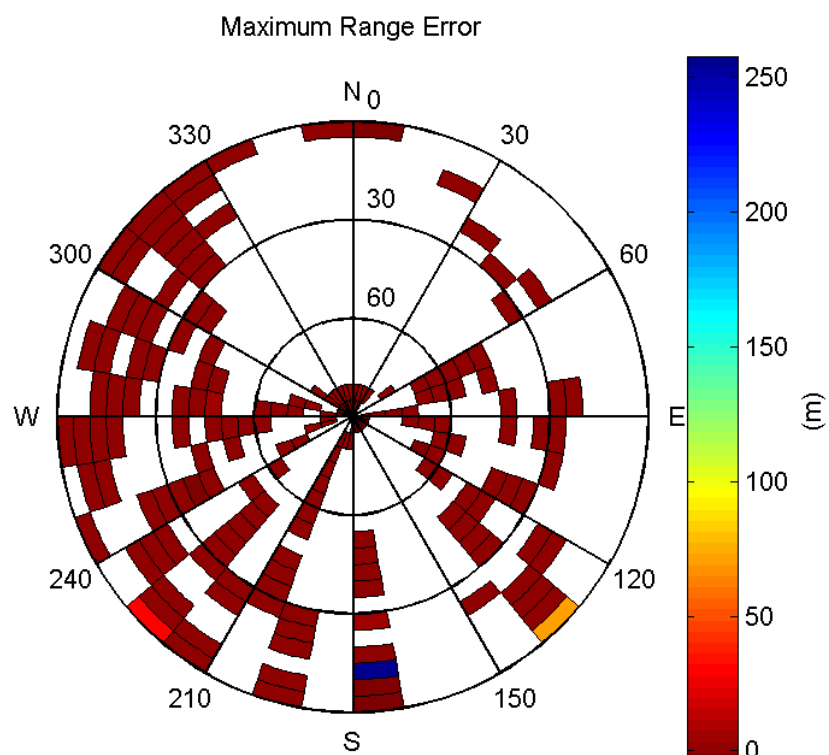
Histogram of Norm Range errors:



Sigma Sky Plot:

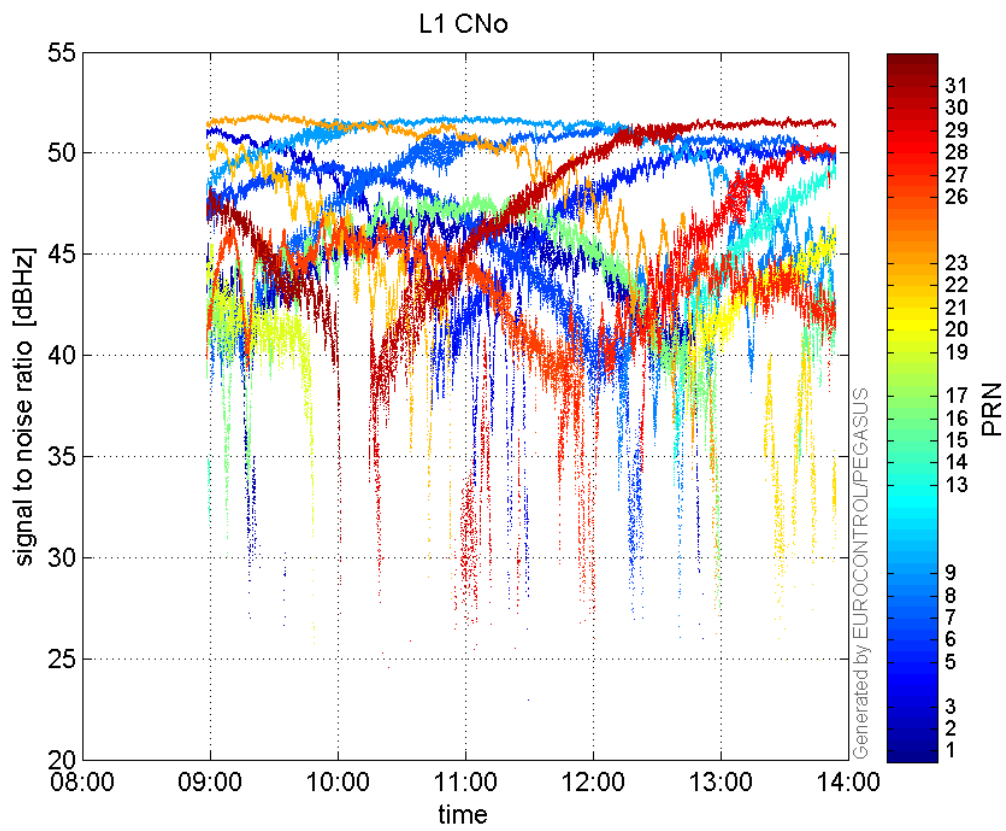


Norm Error Sky Plot:

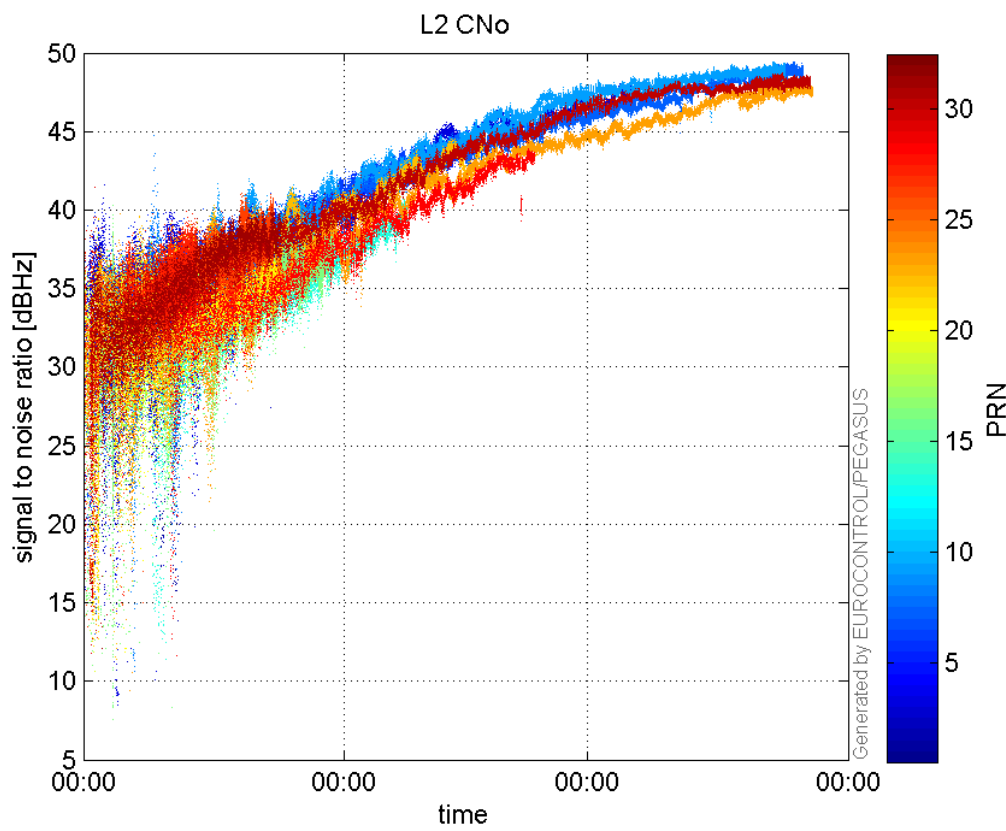


signal quality

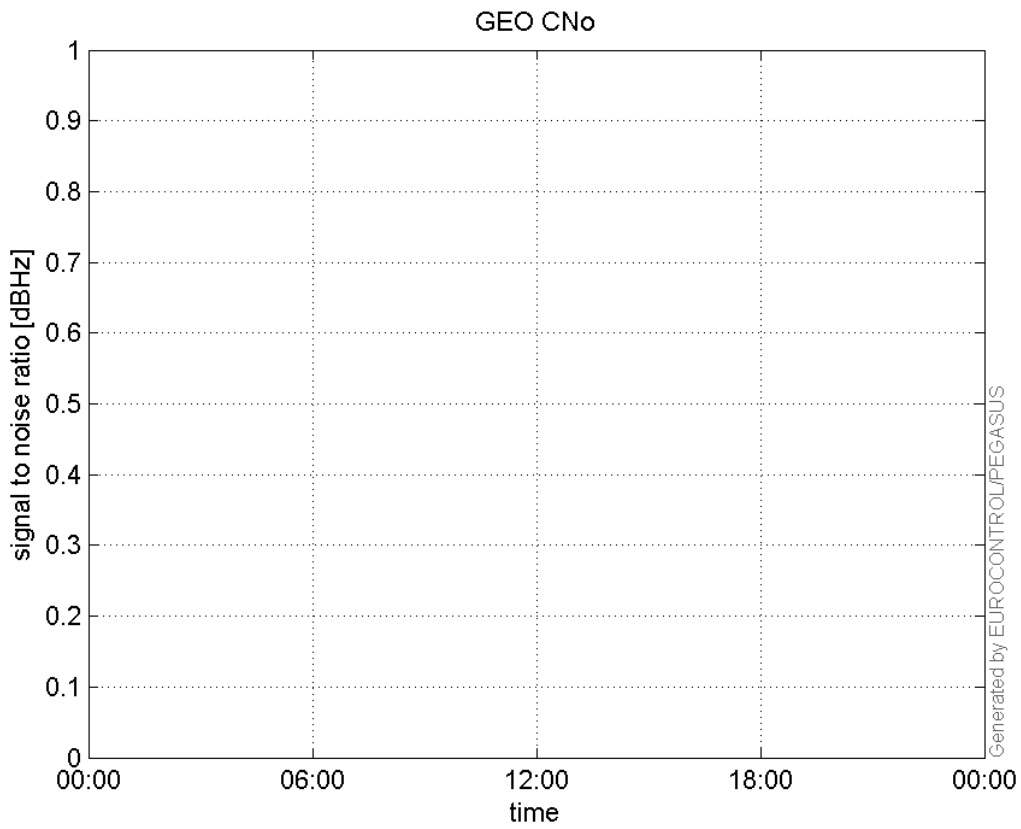
L1 CNo:



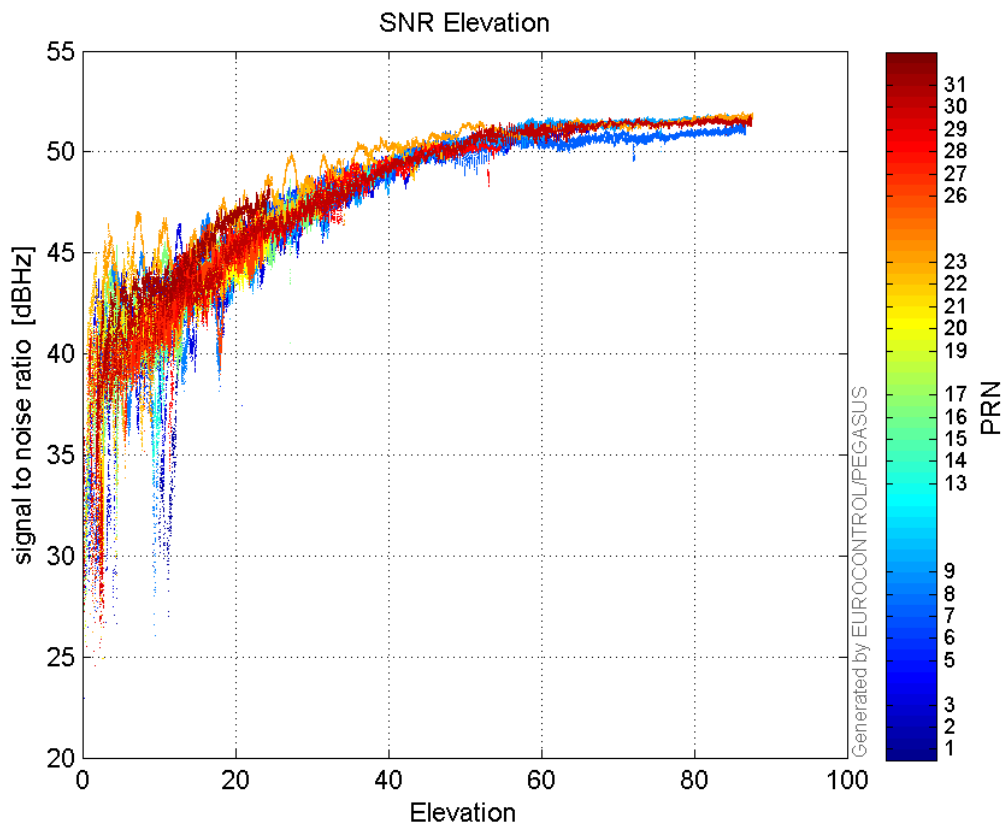
L2 CNo:



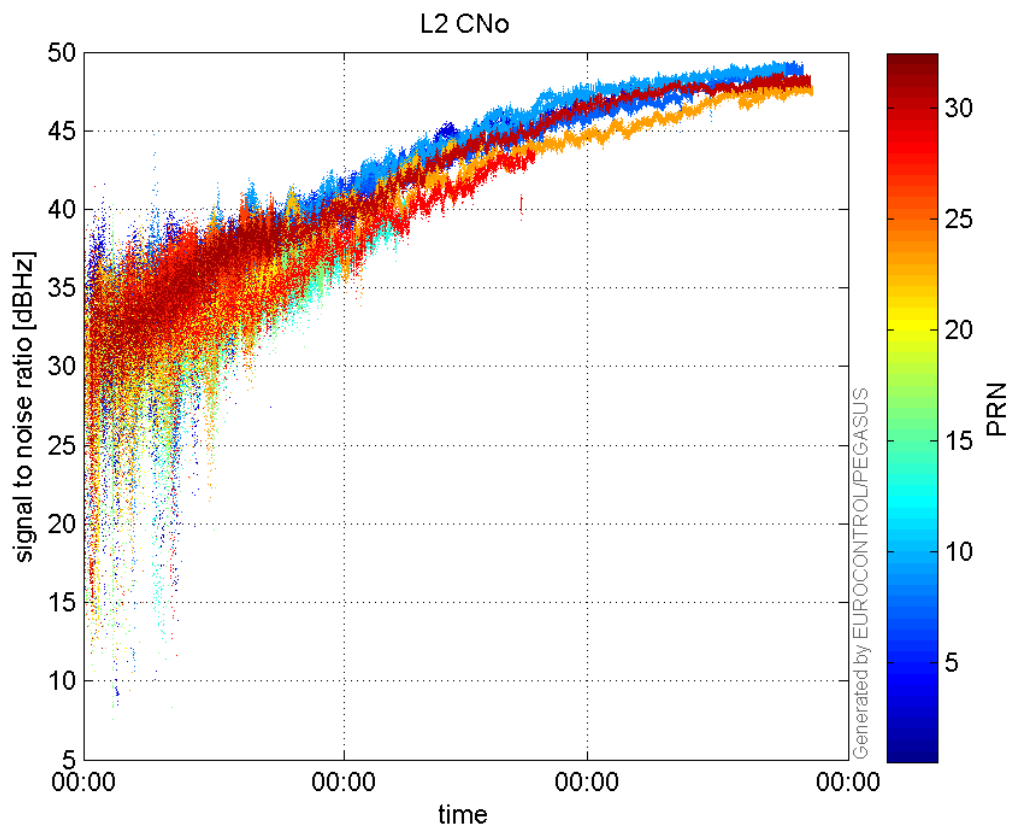
GEO CNo:



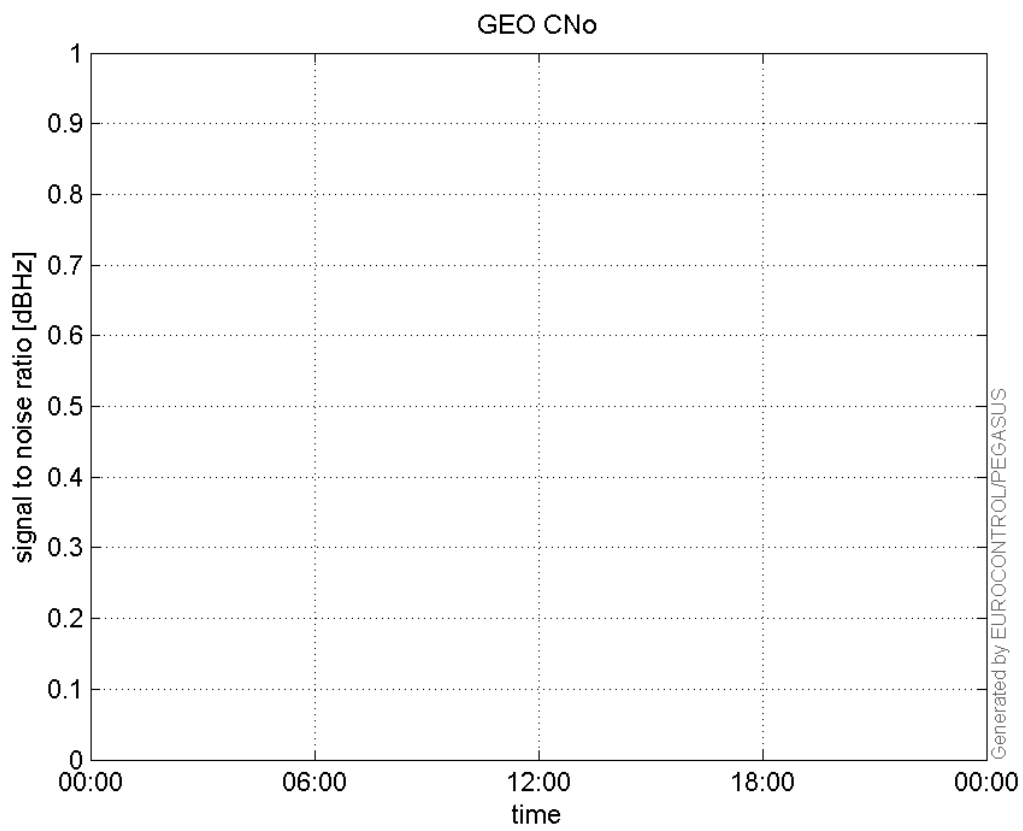
SNR Elevation:



L2 CNo:

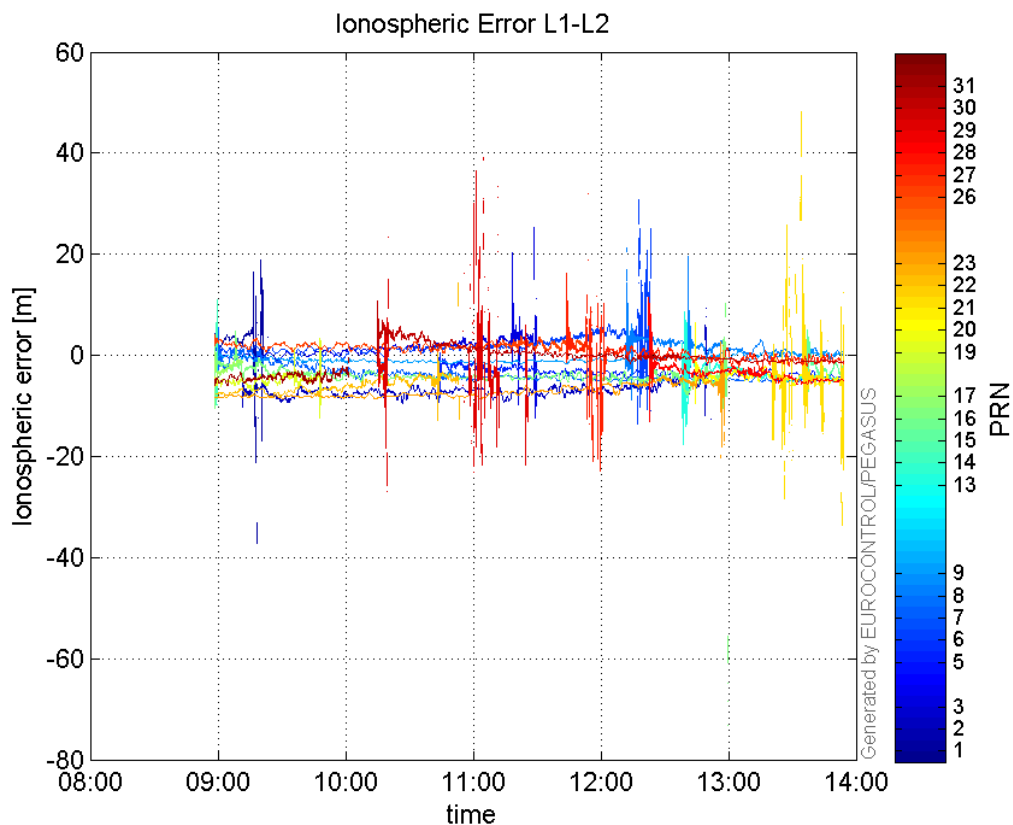


GEO CNo:



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_01_24EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_24EGNOS2Hz/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	224.0083
mi_numbers	results	0