

Global View

comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
version 4.8.2
country Ukraine
city Kiev
program Pegasus
site Laboratory satellite systems
abbreviation NAU
date 02/12/2015

Position Domain

start: 07:52:15 30.11.2015 (week: 1873 sec: 114735)
end: 15:03:39 30.11.2015 (week: 1873 sec: 140619)
duration: 07:11:25 ..

quality

valid samples 25524
total samples 25885

Event tables

Position discontinuity events type all
APV-I discontinuity events type all
APV-35m discontinuity events type all
LPV-200 discontinuity events type all
CAT-I discontinuity events type long

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	118616	2.18216	10.3207	0.211435	4.27359	17.8993	0.238757
max normVer	118286	2.48484	15.3276	0.162115	5.32777	19.3766	0.274959
max HPE	116663	8.34205	100.212	0.083244	-5.57489	57.2923	0.097306
max VPE	116663	8.34205	100.212	0.083244	-5.57489	57.2923	0.097306
min HPL	133994	0.91616	8.68648	0.10547	-0.61033	12.0954	0.0504596
min VPL	124327	0.781833	16.7385	0.0467087	-0.499866	11.8646	0.0421309

Position discontinuity events :

#	Epoch	duration	stable period
1	120079	380	4983
2	120534	1	75

APV-I discontinuity events :

#	Epoch	duration	stable period
1	116620	563	1524
2	117195	277	12

3	120079	408	2607
4	120522	1	35
5	120534	1	11
6	138409	196	17874

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	116620	563	1524
2	117195	277	12
3	120079	410	2607
4	120490	3	1
5	120494	3	1
6	120498	3	1
7	120502	3	1
8	120506	3	1
9	120510	3	1
10	120514	3	1
11	120518	3	1
12	120522	1	1
13	120534	1	11
14	120542	1	7
15	123631	192	3088
16	130389	778	6566
17	131169	1	2
18	138409	196	7239

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	116620	563	1524
2	117195	277	12
3	120079	410	2607
4	120490	3	1
5	120494	3	1
6	120498	3	1
7	120502	3	1
8	120506	3	1
9	120510	3	1
10	120514	3	1
11	120518	3	1
12	120522	1	1
13	120534	1	11
14	120542	1	7
15	123631	192	3088
16	130389	778	6566
17	131169	1	2
18	138409	196	7239

First Glance analysis

Duration	25885
Number of Samples	25885
Number of invalid sample	361
Number of no position solution samples	381
Number of missing sample	0
Logging Loss	0
Processing Loss	1.3946
Number of Misleading Information	0
Data gaps	0
Discontinuities	2

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
25143	24078	23080	70	23080

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	2.22746	2.13842	2.04091	0.969761	2.04091
HPEScale 95%	NaN	5.04106	5.06894	2.323	5.06894
VPE 95%	2.66435	2.51145	2.32471	0.691335	2.32471
VPEscale 95%	NaN	6.14181	4.4086	0.695269	4.4086

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.985073	0.943347	0.904247	0.00274252	0.904247
measurements	0.971335	0.930191	0.891636	0.00270427	0.891636
Operational	0.971335	0.930191	0.891636	0.00270427	0.891636

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	2	6	18	21	18
Long	1	4	6	0	6
Independent	1	3	5	0	5
P(disc.)	0.000596588	0.00186893	0.00324957	0	0.00324957
P(slide)	0.00119318	0.00344713	0.005026	0.871429	0.005026

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

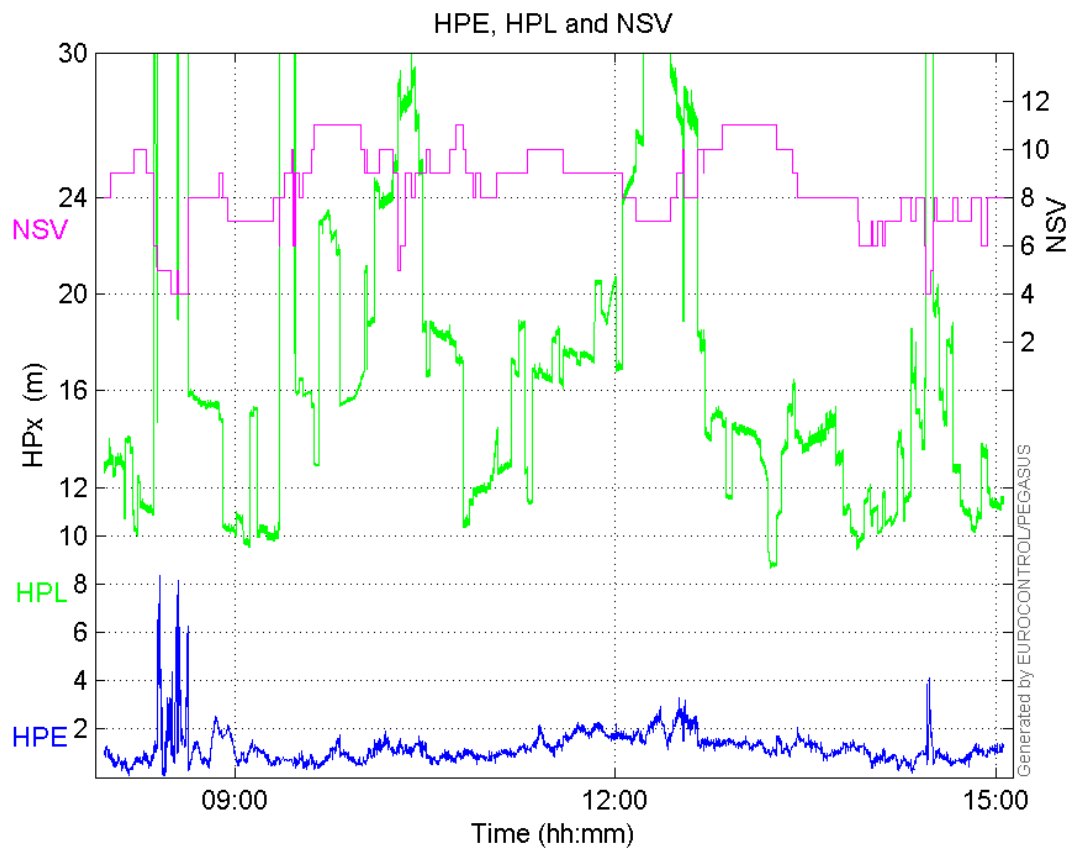
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	25143	24078	23080	70	23080

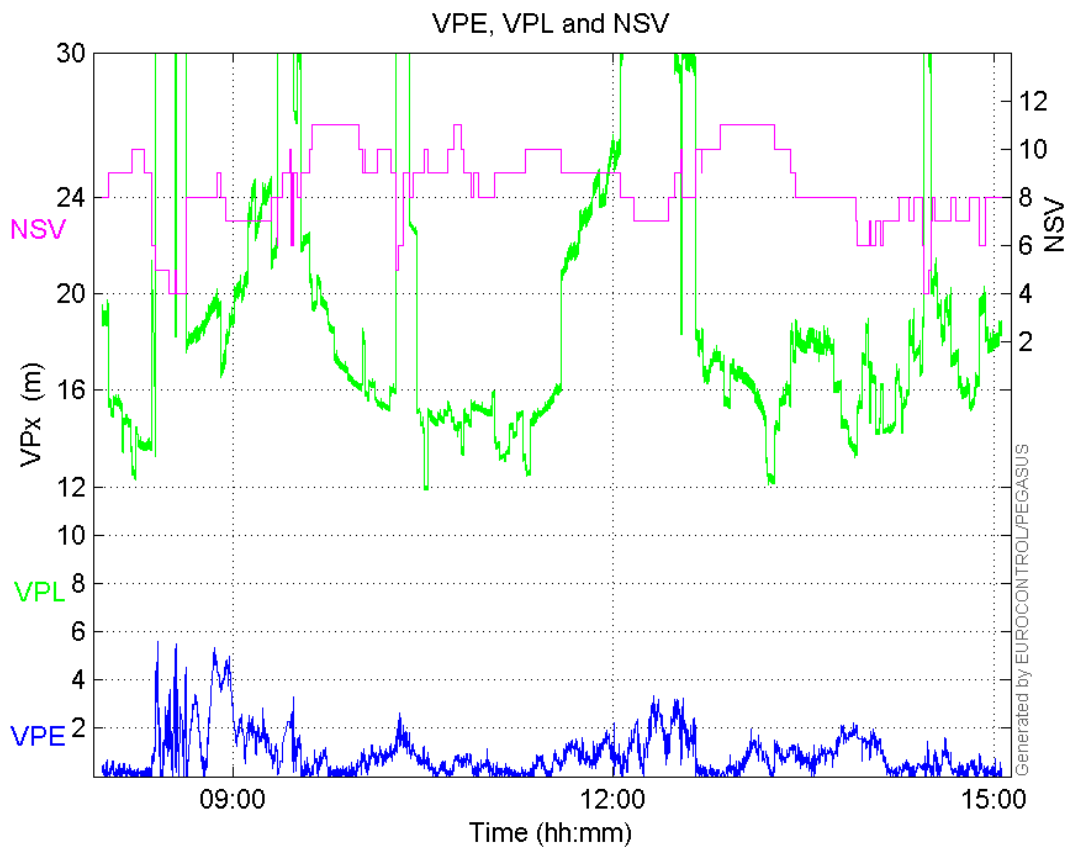
SIS Availability	0.985073	0.943347	0.904247	0.00274252	0.904247
Local Availability	0.971335	0.930191	0.891636	0.00270427	0.891636
Operational Availability	0.971335	0.930191	0.891636	0.00270427	0.891636
HPE 95%	2.22746	2.13842	2.04091	0.969761	2.04091
HPscale 95%	NaN	5.04106	5.06894	2.323	5.06894
VPE 95%	2.66435	2.51145	2.32471	0.691335	2.32471
VPscale 95%	NaN	6.14181	4.4086	0.695269	4.4086
All Discontinuity Events	2	6	18	21	18
Long Discontinuity Events	1	4	6	0	6
Independent Discontinuity Events	1	3	5	0	5
P(discontinuity)	0.000596588	0.00186893	0.00324957	0	0.00324957
P(sliding window)	0.00119318	0.00344713	0.005026	0.871429	0.005026
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:

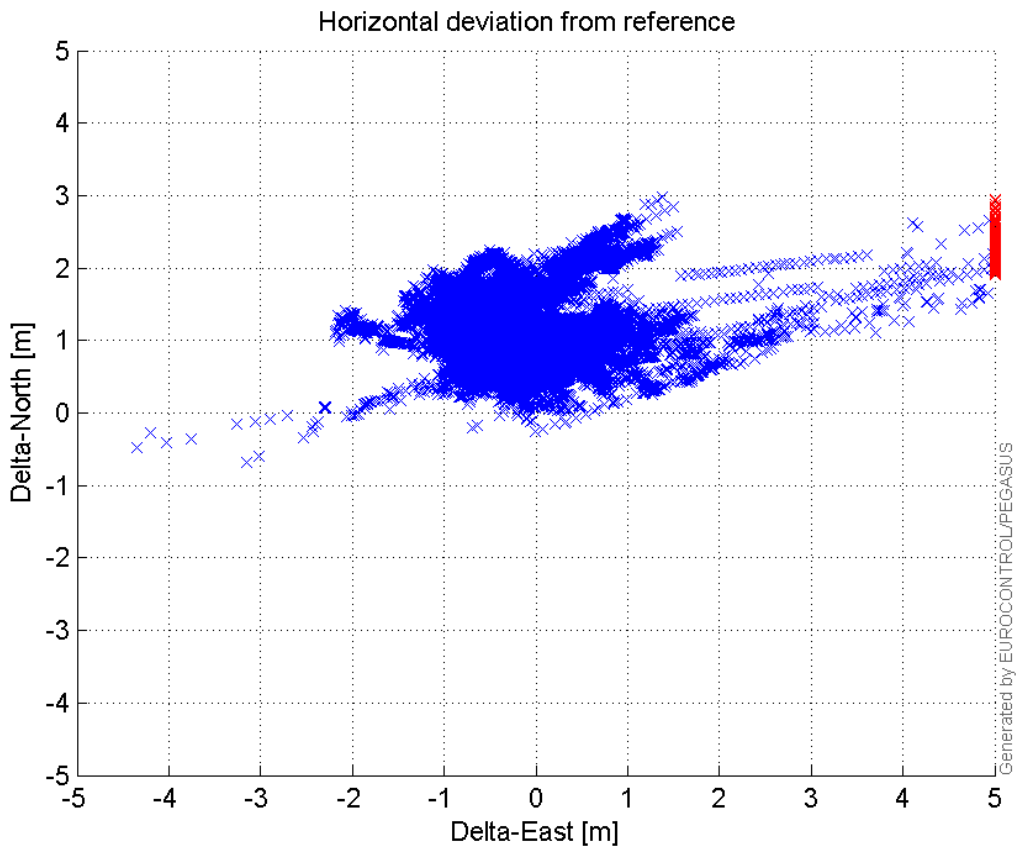


VPE, VPL and NSV:



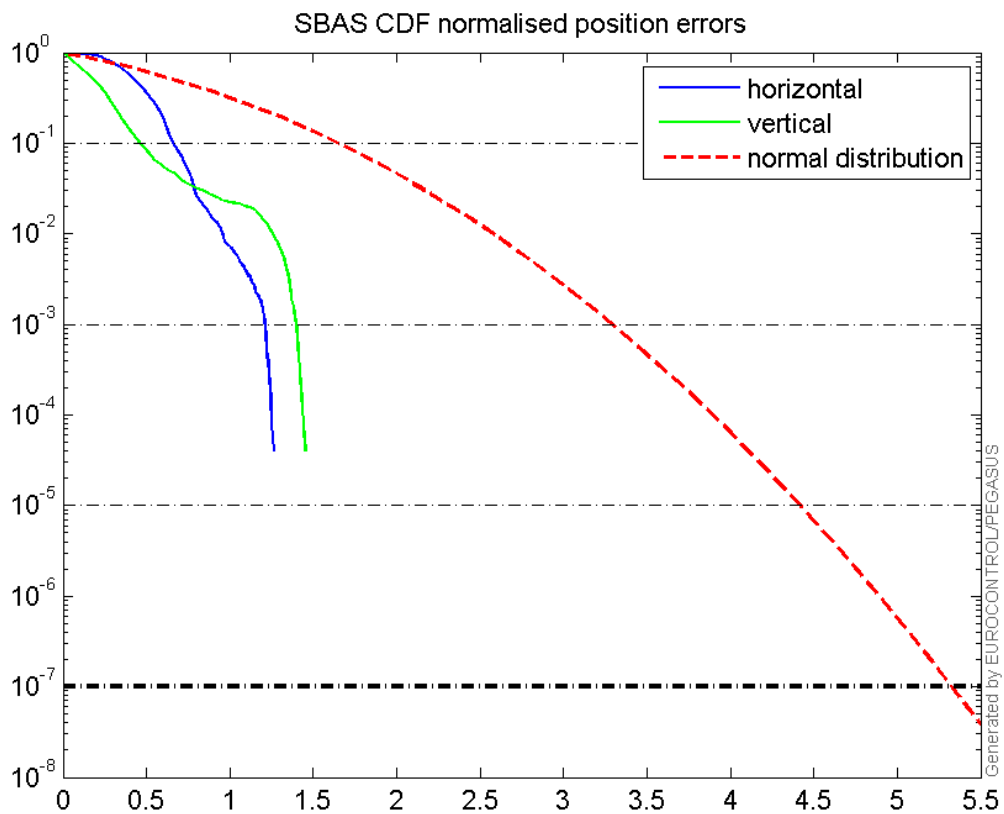
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

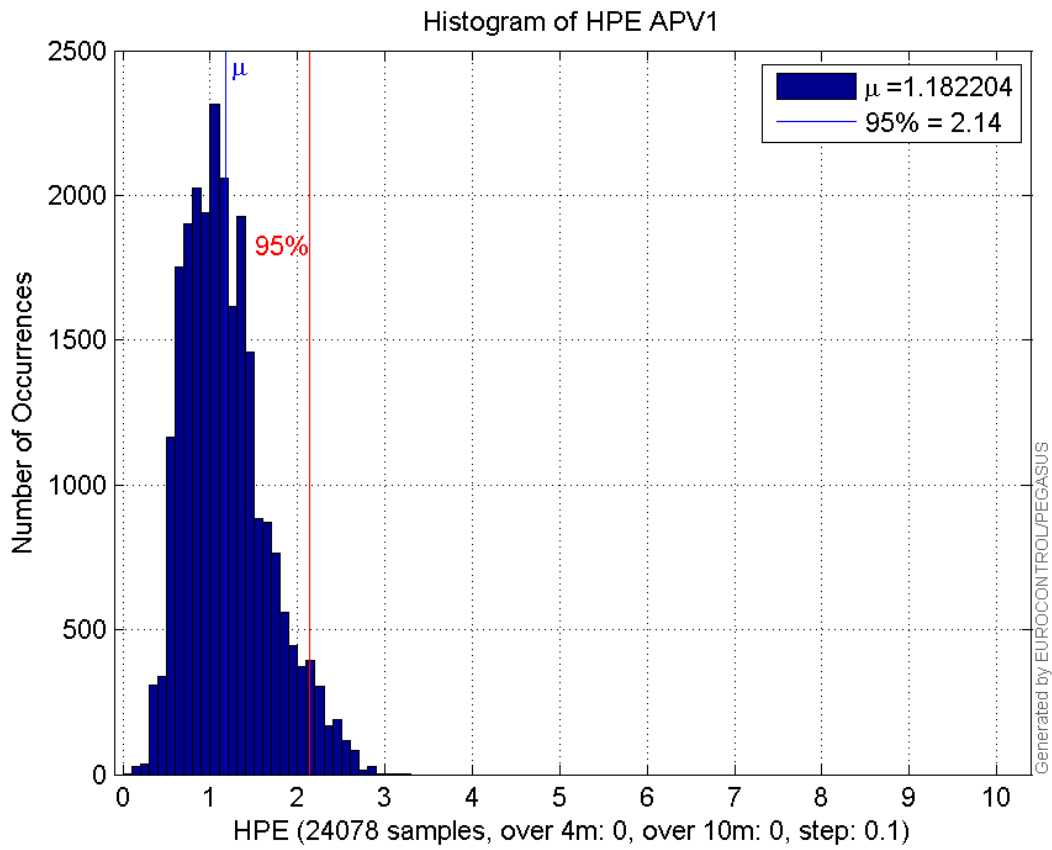
number	24078
sum	28465.109
sum2	39100.754
prctile95	2.1384183
prctile99	2.5069504
number	24078
sum	21087.84
sum2	36316.026
prctile95	2.5114549
prctile99	4.3724219
number	24078
sum	395622.81
sum2	7294641.3
prctile95	28.29464
prctile99	33.776528
number	24078
sum	462650.84
sum2	9785475.6
prctile95	34.33206
prctile99	39.395216
number	24078
sum	1819.5159

sum2 157.83567
prctile95 0.1260266
prctile99 0.15994757
number 24078
sum 1068.9962
sum2 92.390269
prctile95 0.12283616
prctile99 0.23709774
number 23080
sum 26668.809
sum2 35590.595
prctile95 2.0409058
prctile99 2.4581307
number 23080
sum 19352.499
sum2 32740.74
prctile95 2.3247113
prctile99 4.3932482
number 23080
sum 363884.36
sum2 6275091
prctile95 26.68525
prctile99 28.79779
number 23080
sum 424479.46
sum2 8323601.1
prctile95 29.8607
prctile99 34.28722
number 23080
sum 1763.8017
sum2 154.54724
prctile95 0.12672343
prctile99 0.16034585
number 23080
sum 1023.7667
sum2 89.986434
prctile95 0.12595989
prctile99 0.2380259

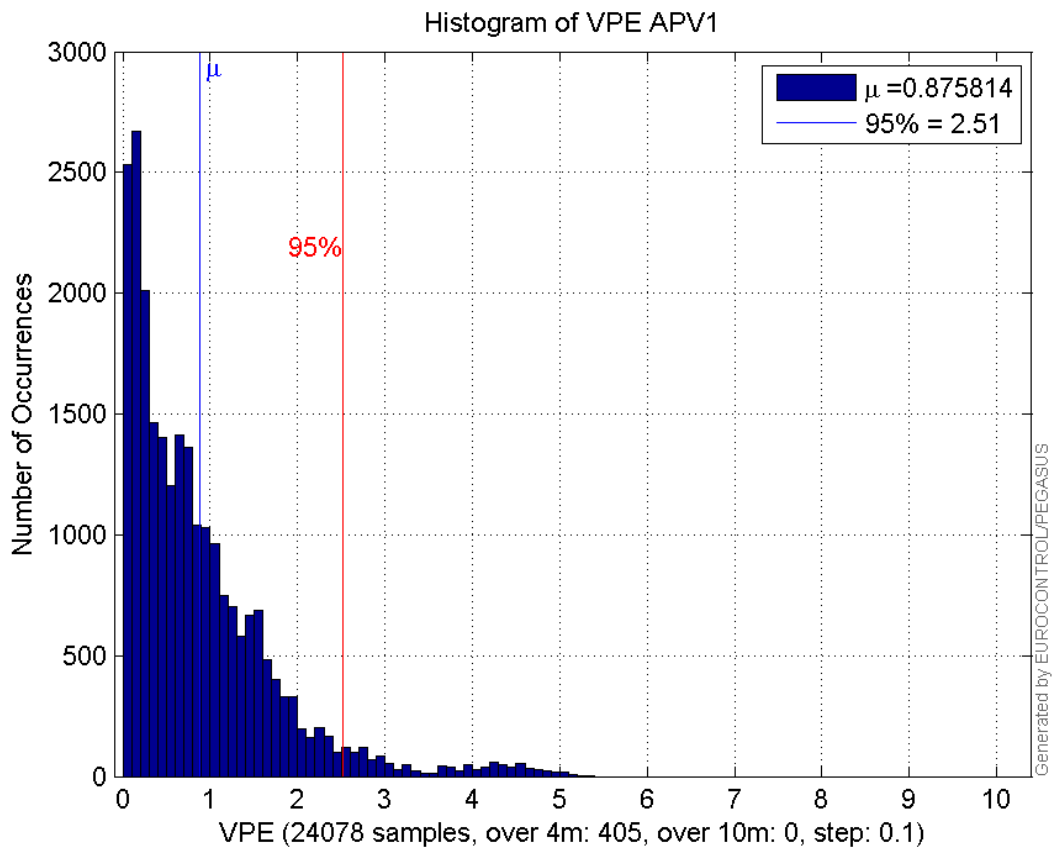
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.1822	0.475735	1.11301	2.13842	2.50695	1.27433
HPL	16.4309	5.74336	15.1301	28.2946	33.7765	17.4057
VPE	0.875814	0.860957	0.653214	2.51145	4.37242	1.22811
VPL	19.2147	6.09961	17.2011	34.3321	39.3952	20.1595

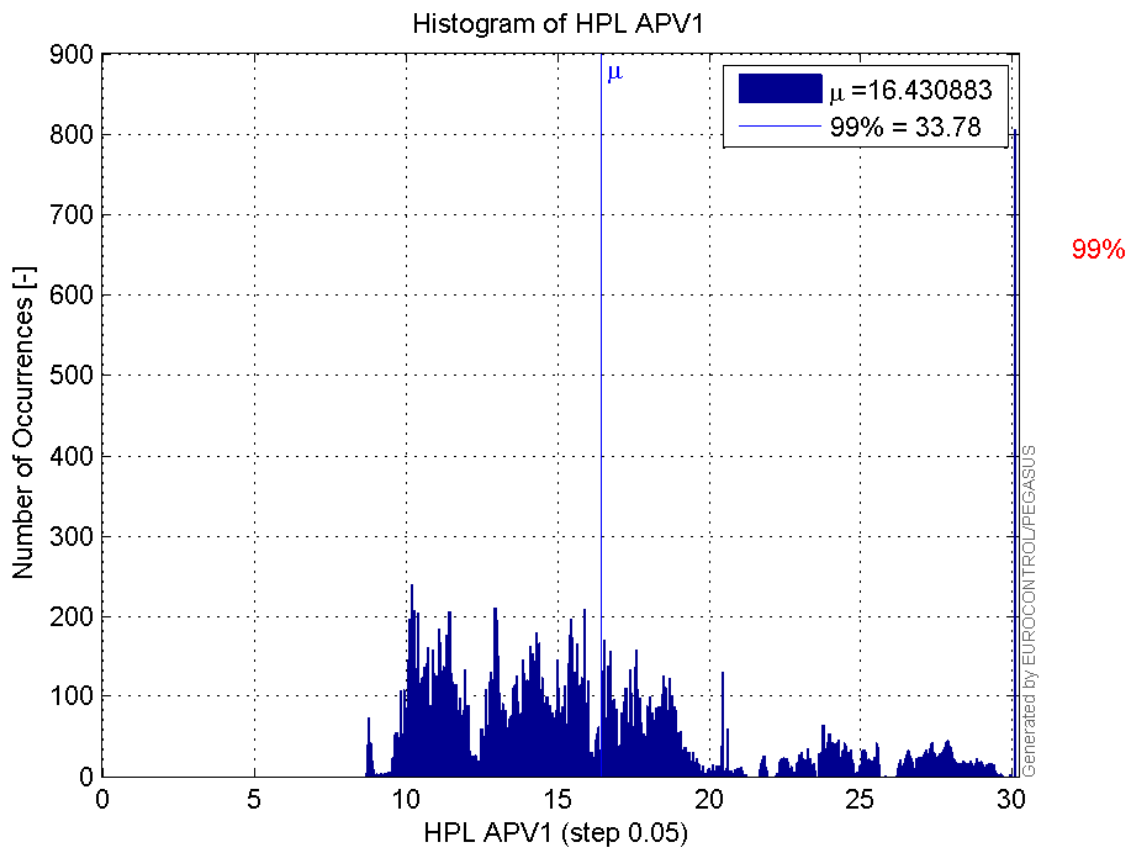
Histogram of HPE APV1:



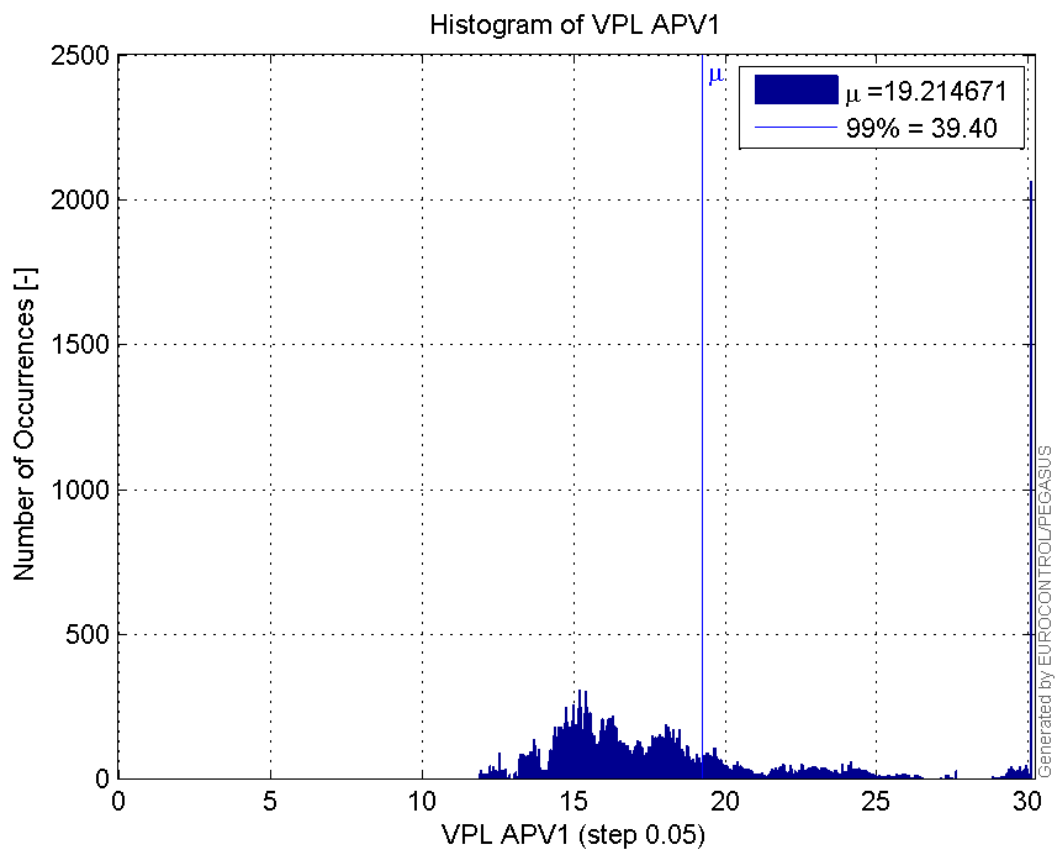
Histogram of VPE APV1:



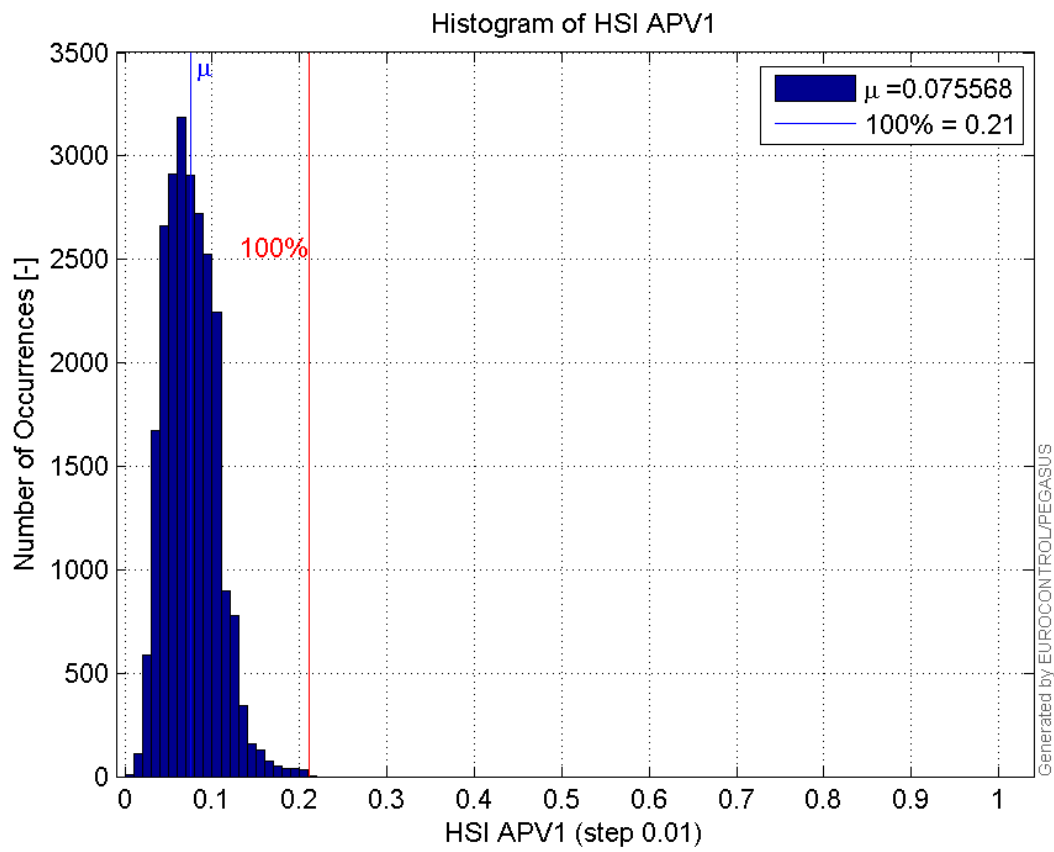
Histogram of HPL APV1:



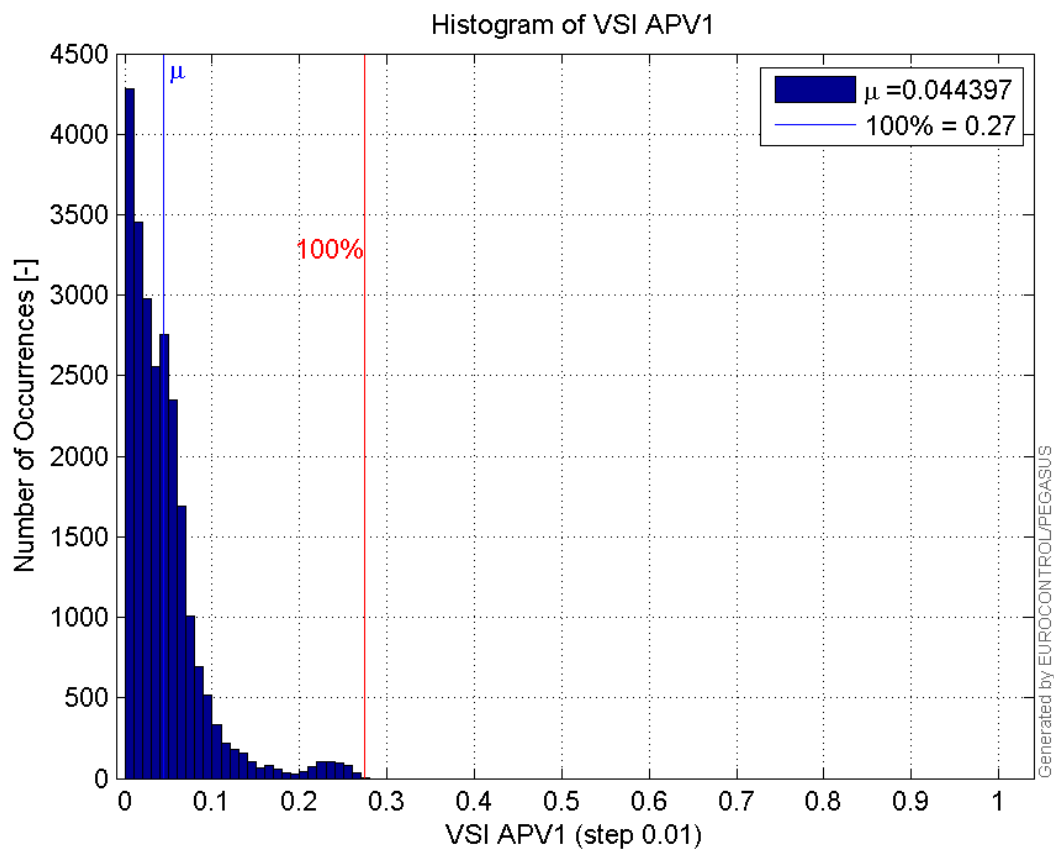
Histogram of VPL APV1:



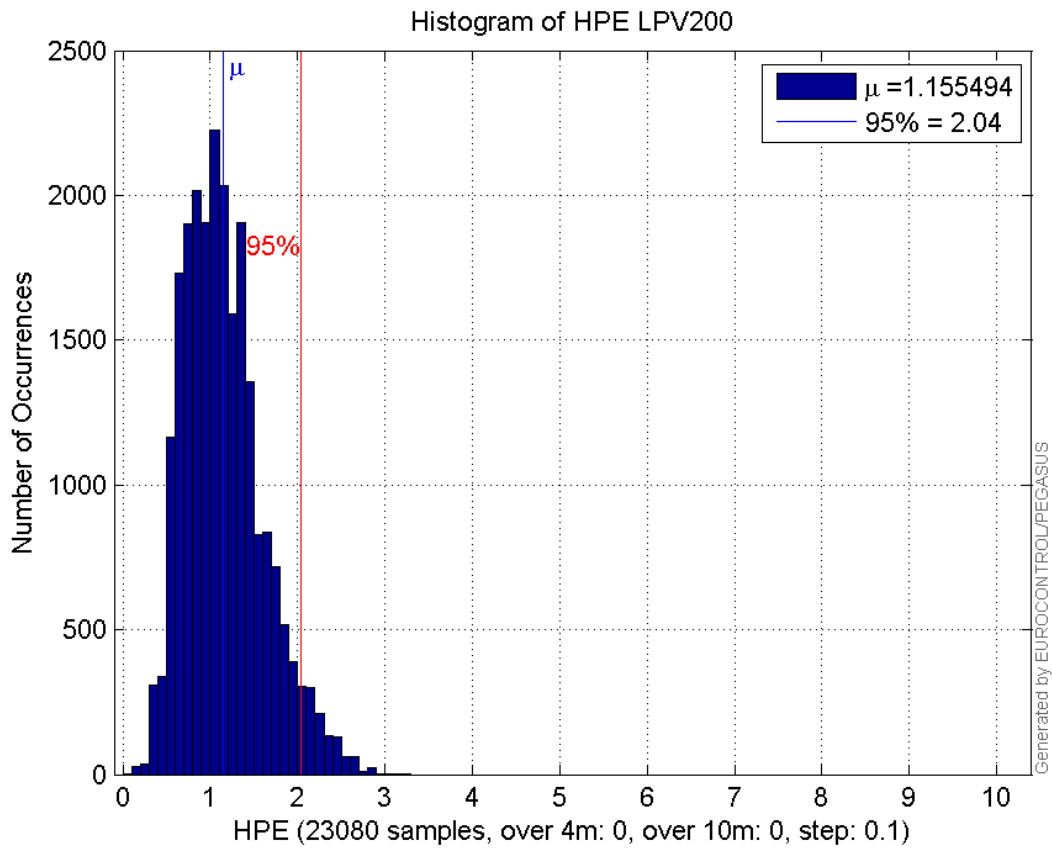
Histogram of HSI APV1:



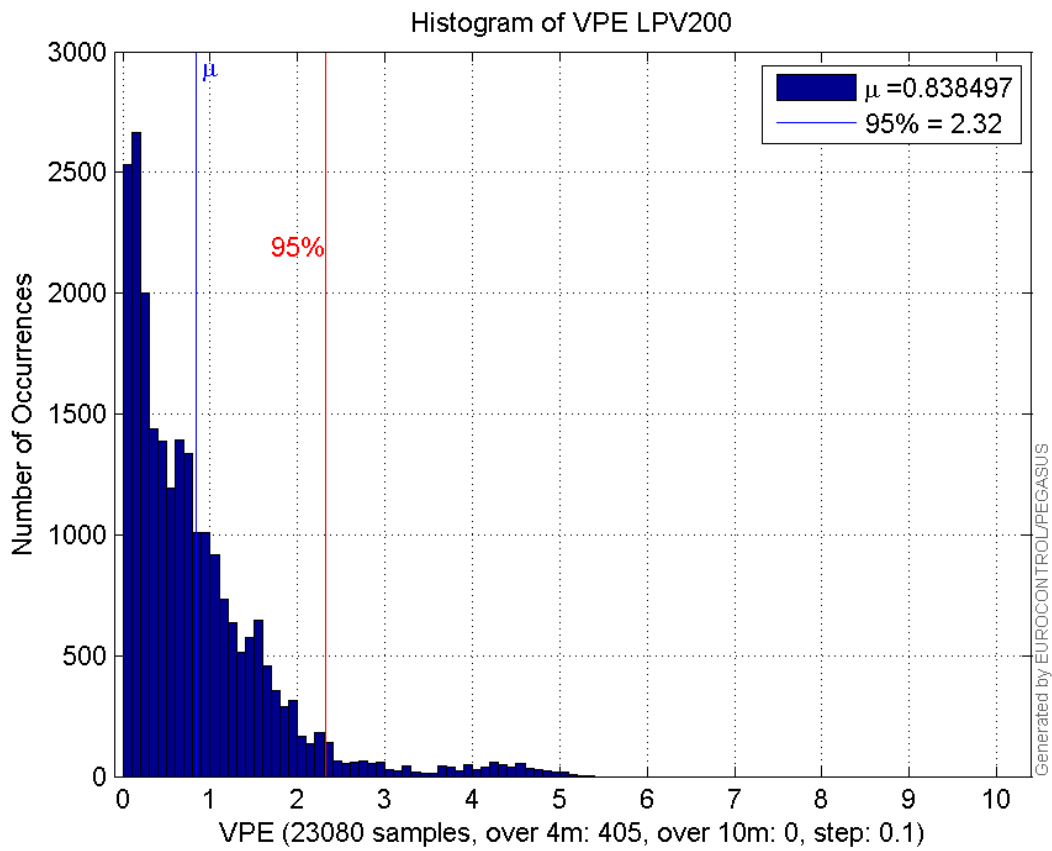
Histogram of VSI APV1:



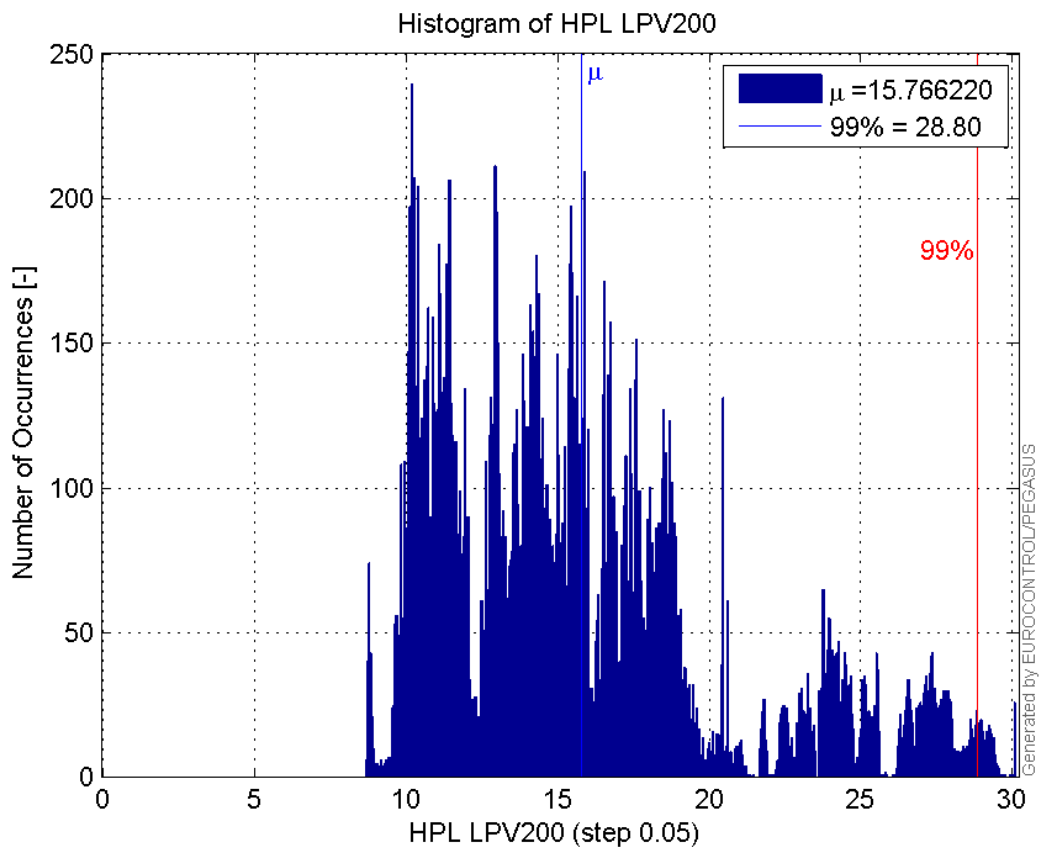
Histogram of HPE LPV200:



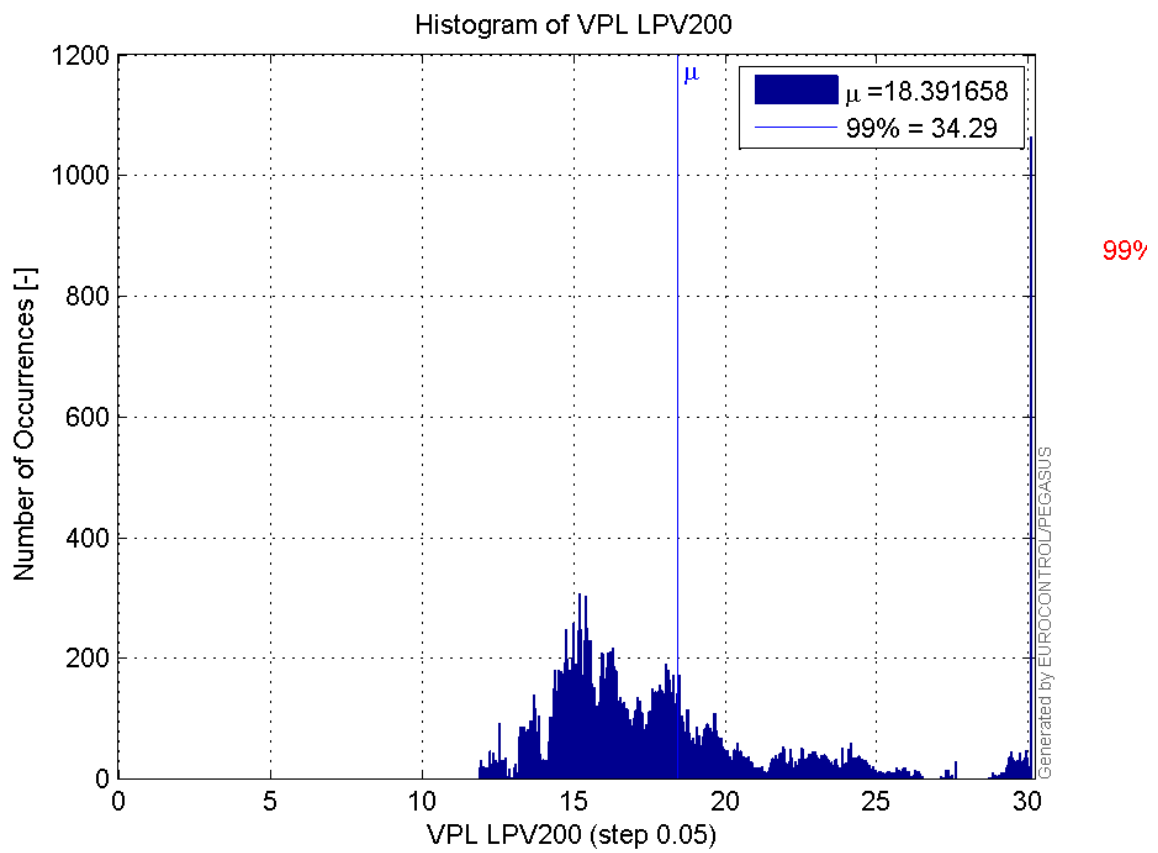
Histogram of VPE LPV200:



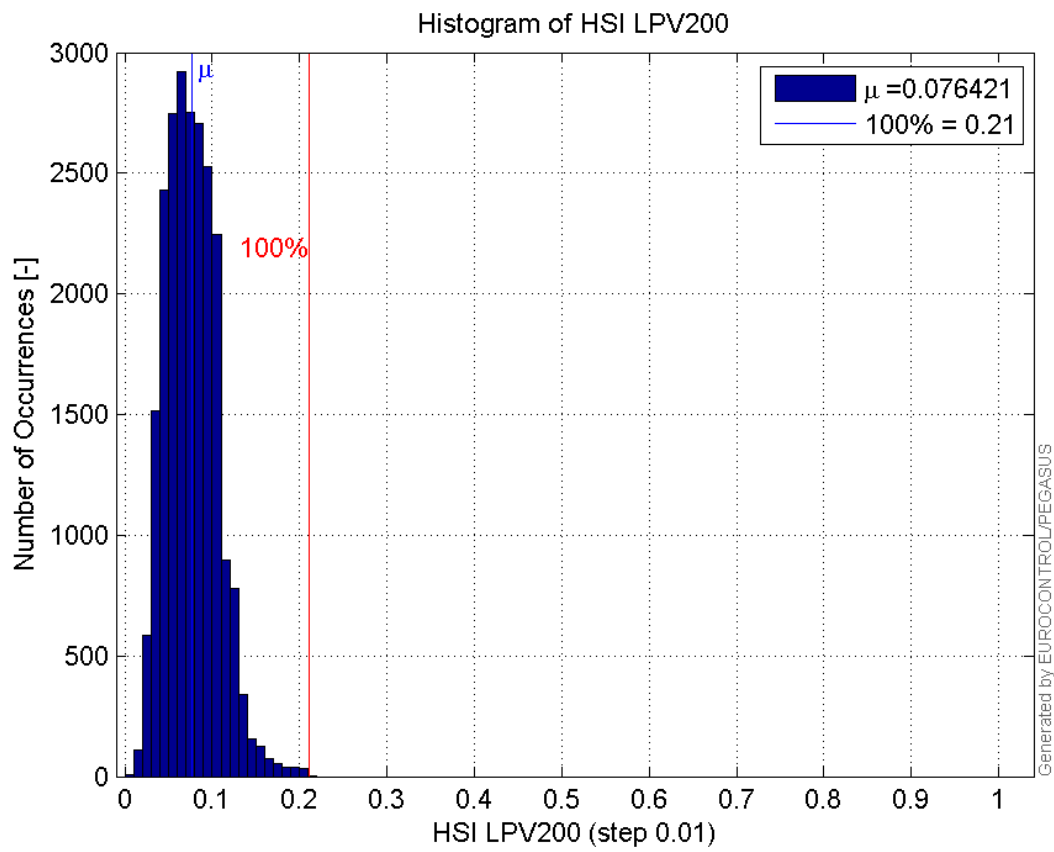
Histogram of HPL LPV200:



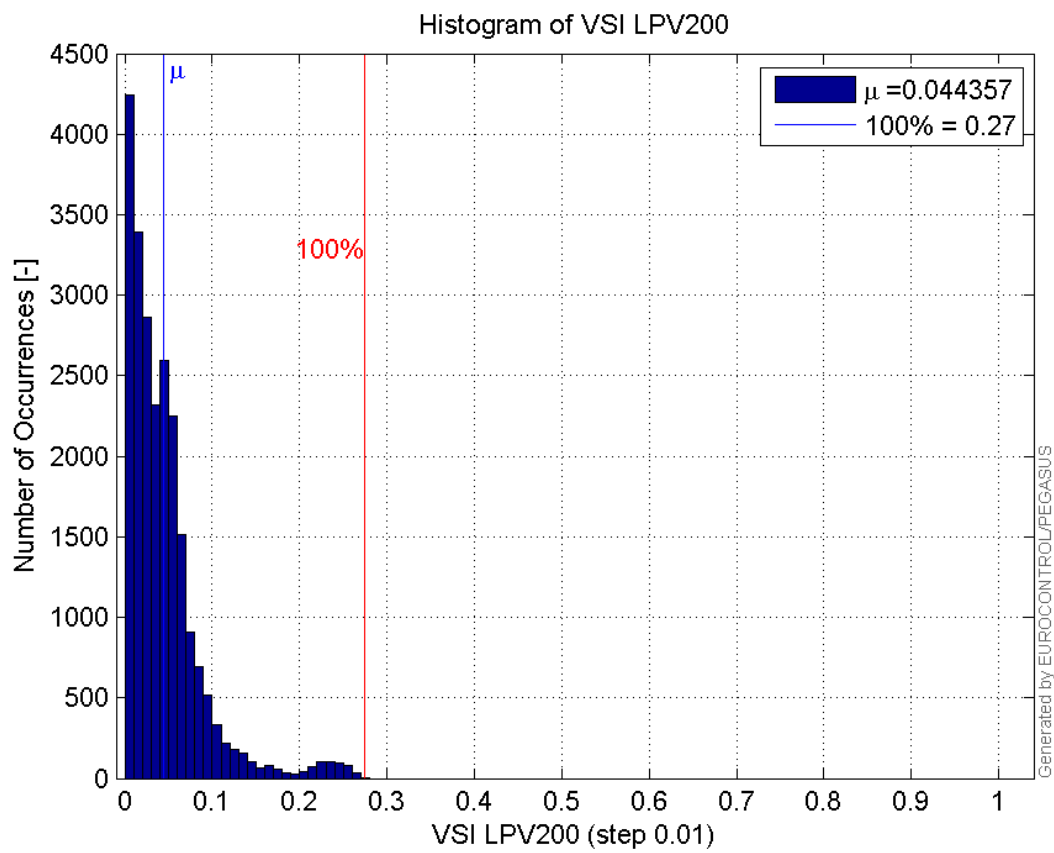
Histogram of VPL LPV200:



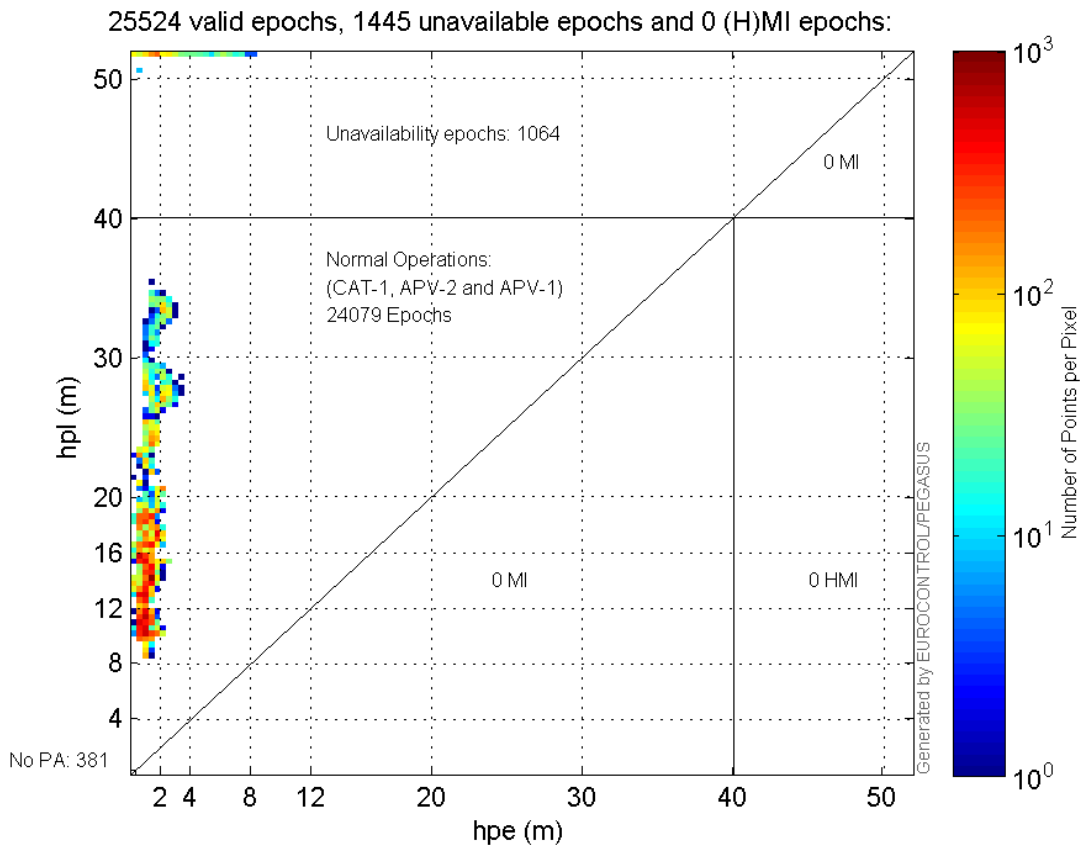
Histogram of HSI LPV200:



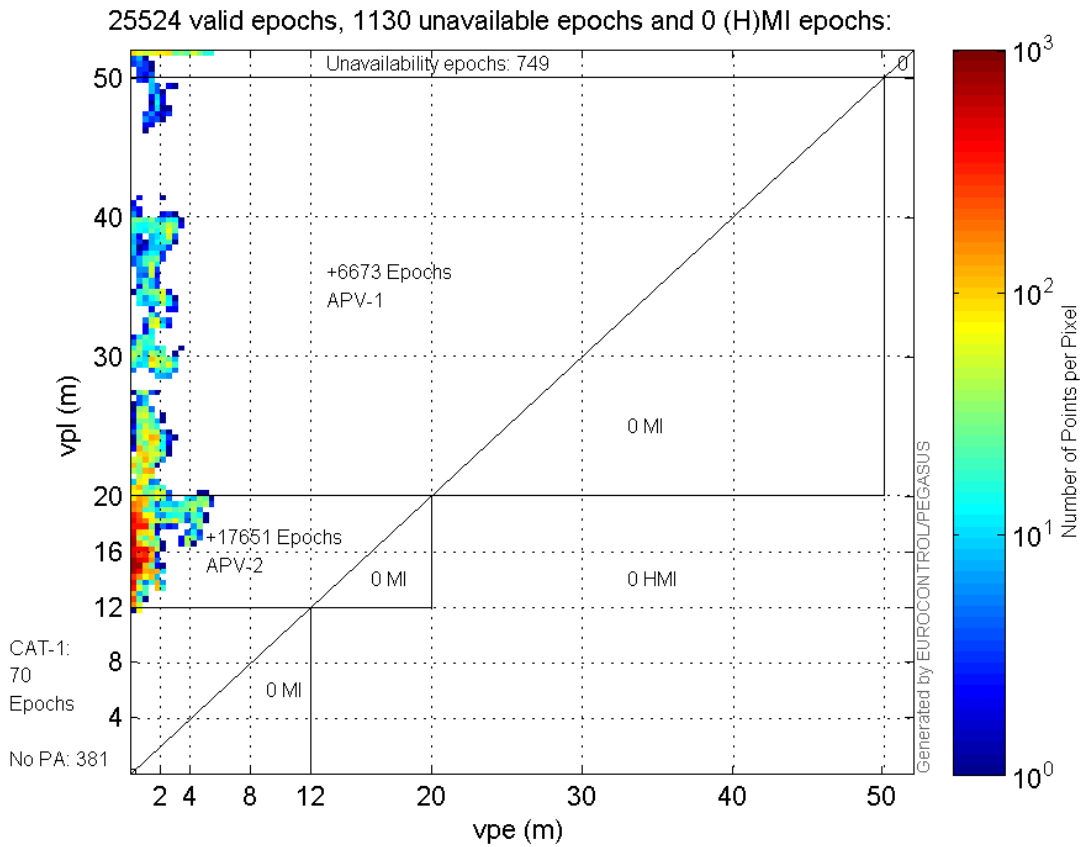
Histogram of VSI LPV200:



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:/PegasusDateGob/job/2015_11_30EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_30EGNOS/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	220.1293
mi_numbers	results	0

SBAS Messages

start: 07:52:14.129 30.11.2015 (week: 1873 sec: 114734.129)
end: 15:03:38.129 30.11.2015 (week: 1873 sec: 140618.129)
duration: 07:11:24 ..

quality

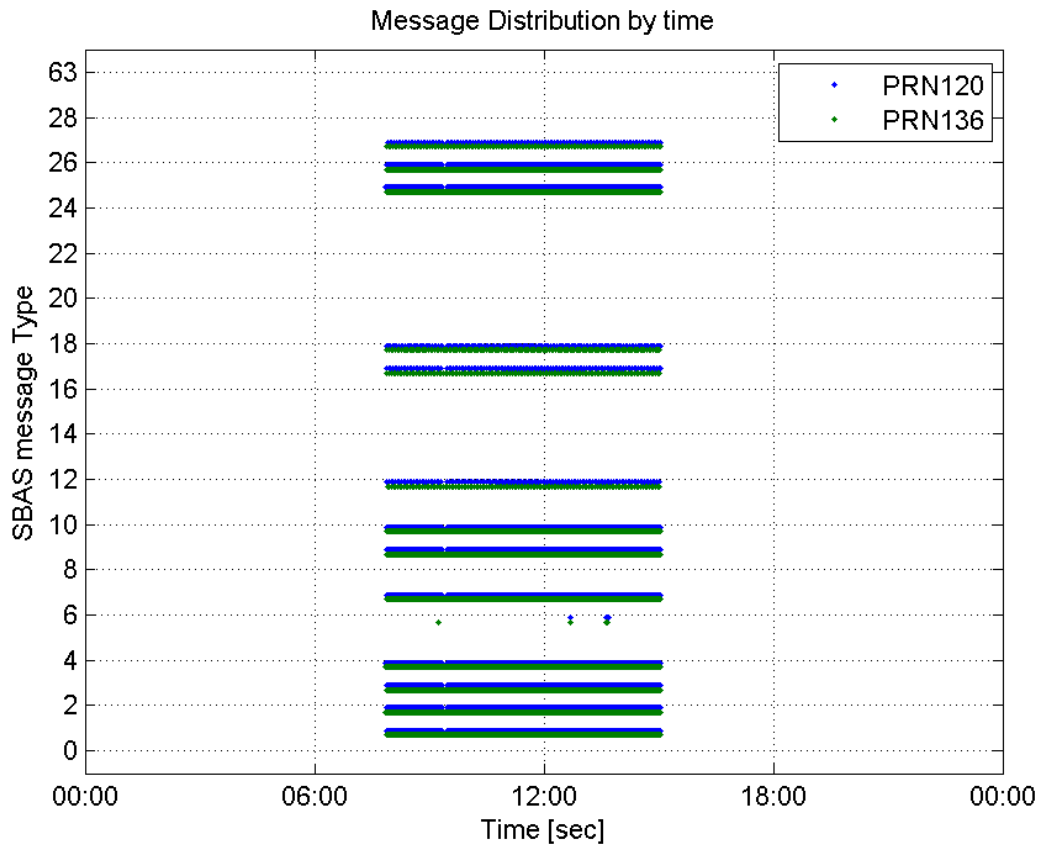
valid samples 51409
total samples 51409
number of SBAS PRNs 2

SBAS SIS Overview

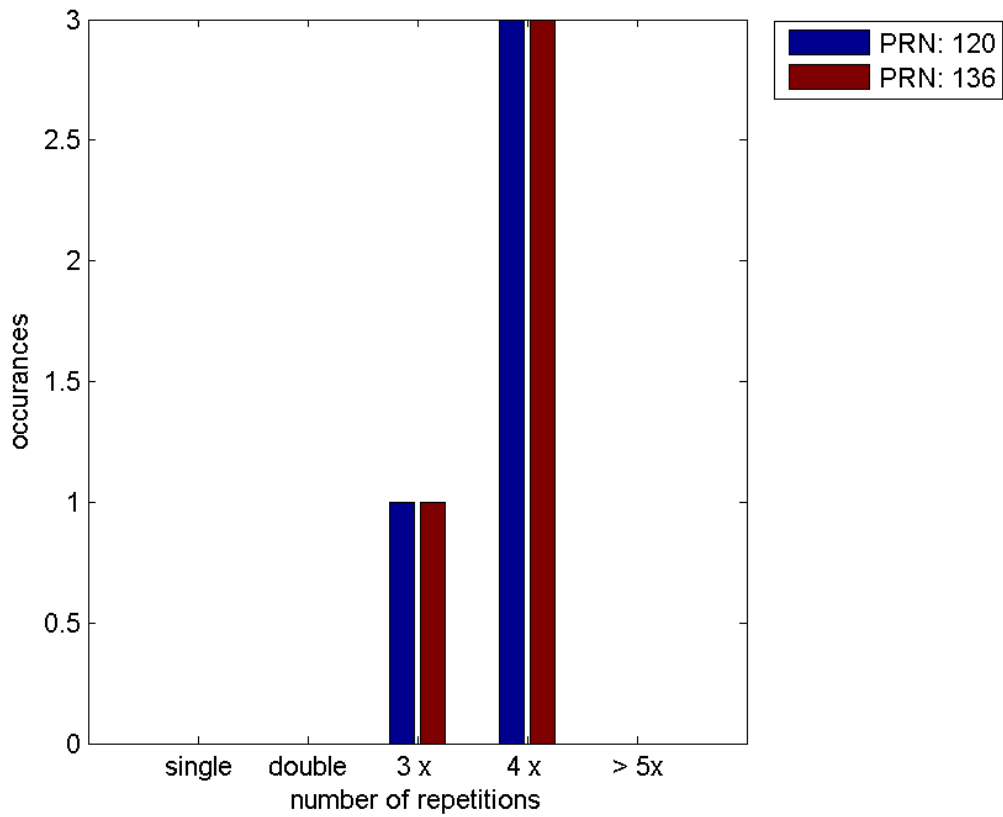
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

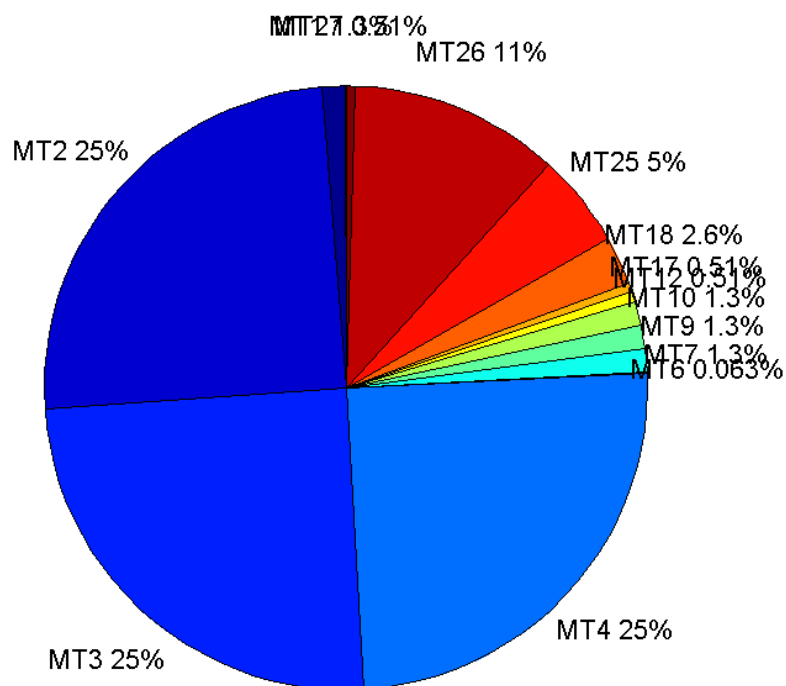
	number of messages	%
MT 0	0	0
MT 1	320	1.25372
MT 2	6342	24.8472
MT 3	6342	24.8472
MT 4	6341	24.8433
MT 5	0	0
MT 6	16	0.0626861
MT 7	321	1.25764
MT 9	321	1.25764
MT 10	321	1.25764
MT 12	130	0.509325
MT 17	131	0.513242
MT 18	656	2.57013
MT 24	0	0
MT 25	1283	5.02664
MT 26	2869	11.2404
MT 27	131	0.513242
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	25524	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	480	80.8119	1	0	0
MT 2	4	364	4.08138	5	1	1
MT 3	4	364	4.08138	5	1	1
MT 4	4	368	4.08218	5	1	1
MT 5	--	--	--	--	--	--
MT 6	1	3321	236.733	3	3	3
MT 7	74	400	80.5969	1	1	1
MT 9	76	400	80.6094	0	0	0
MT 10	75	480	80.8344	1	1	1
MT 12	188	600	198.574	129	1	1
MT 17	186	600	198.577	0	0	0
MT 18	4	400	39.4611	1	0	0
MT 24	--	--	--	--	--	--

MT 25	1	380	20.1771	0	0	0
MT 26	4	380	9.01499	0	0	0
MT 27	188	400	197.123	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

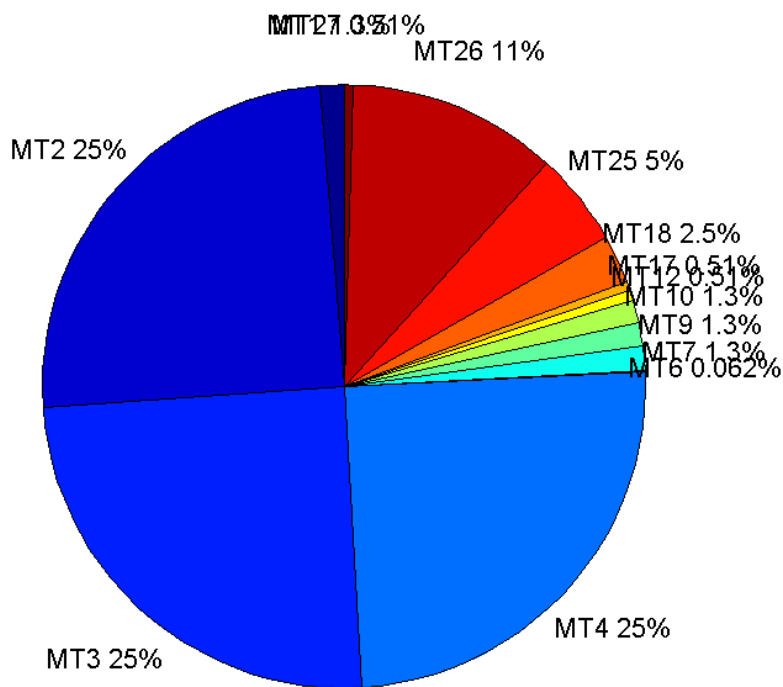
	number of messages	%
MT 0	0	0
MT 1	324	1.25169
MT 2	6433	24.8522
MT 3	6432	24.8484
MT 4	6433	24.8522
MT 5	0	0
MT 6	16	0.0618119

MT 7	325	1.25555
MT 9	325	1.25555
MT 10	325	1.25555
MT 12	132	0.509948
MT 17	132	0.509948
MT 18	660	2.54974
MT 24	0	0
MT 25	1302	5.02994
MT 26	2913	11.2536
MT 27	133	0.513811
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	25885	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	84	79.6625	0	0	0
MT 2	4	7	4.02394	4	0	0
MT 3	4	8	4.02395	4	0	0
MT 4	4	8	4.02394	4	0	0
MT 5	--	--	--	--	--	--
MT 6	1	12455	1064.27	3	3	3
MT 7	76	81	79.608	0	0	0
MT 9	75	81	79.5833	0	0	0
MT 10	74	82	79.6852	0	0	0
MT 12	188	201	195.702	131	0	0
MT 17	185	202	195.733	0	0	0
MT 18	4	174	38.9499	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	57	19.8847	0	0	0
MT 26	4	52	8.88805	0	0	0
MT 27	186	201	195.705	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/2015_11_30EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_11_30EGNOS/02_Convertor/02_Convertor

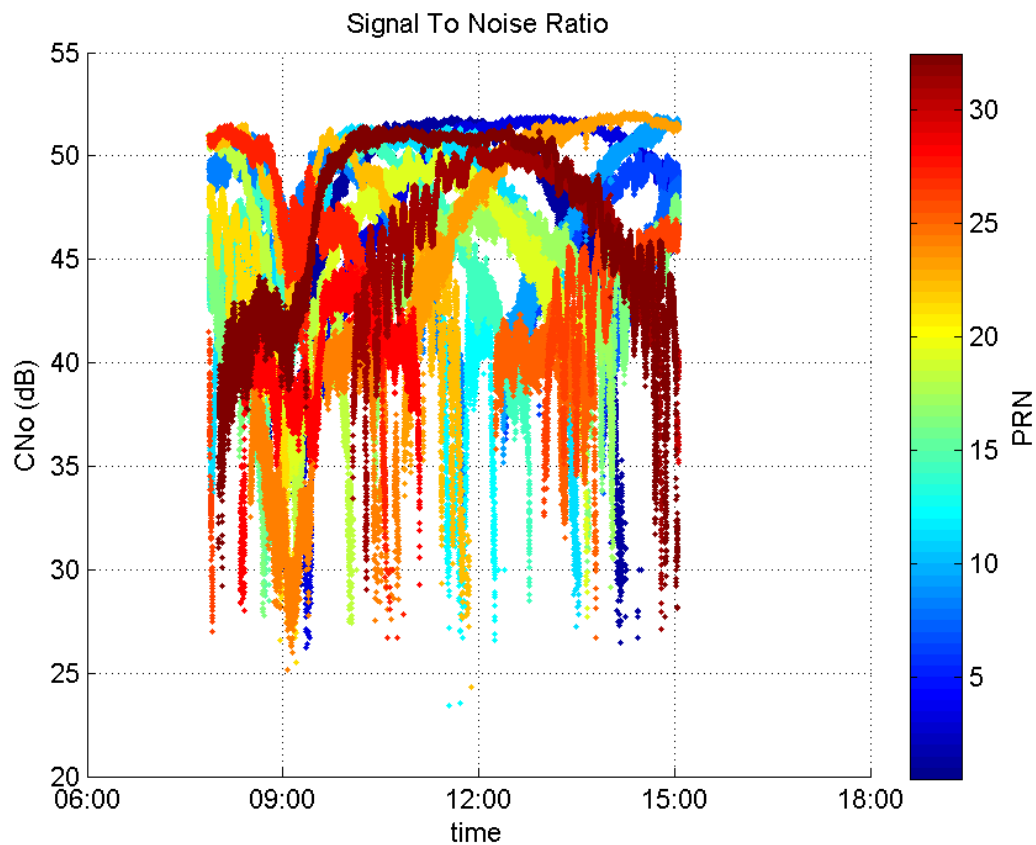
Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	17
Correction_mode	Configuration	SBAS MODE 0
Dual_Frequency	Configuration	no

Range Domain

start: 07:52:15 30.11.2015 (week: 1873 sec: 114735)
end: 15:03:39 30.11.2015 (week: 1873 sec: 140619)
duration: 07:11:25 ..

quality



range errors

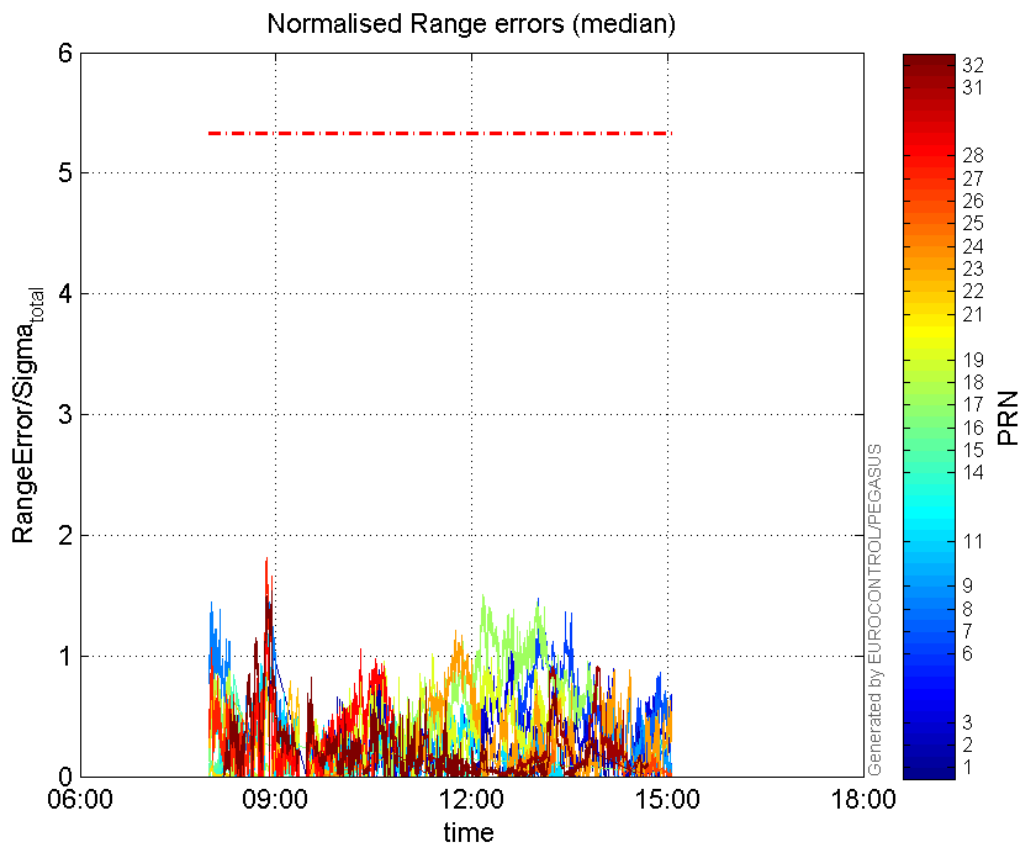
Number of Overbounding Norm Errors 0

Max Norm Errors :

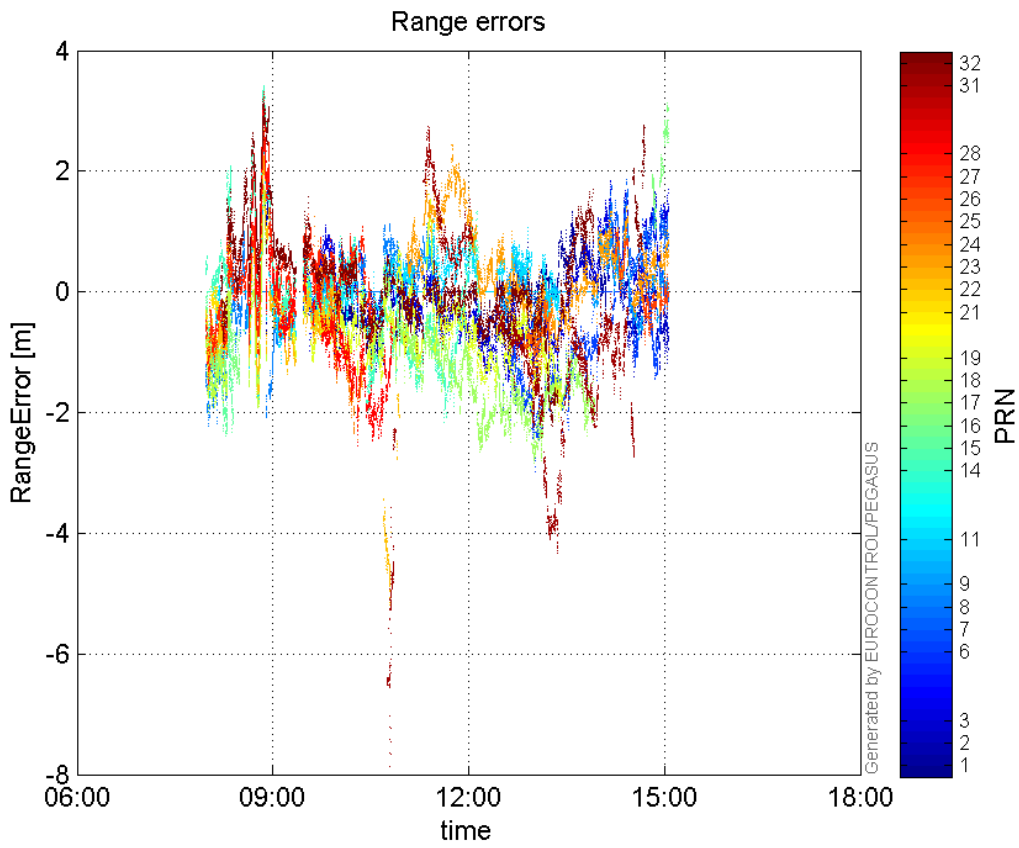
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1873	118587	1	1.1114	2.46753	2.22021
1873	140159	2	0.610624	-1.28426	2.10319
1873	131749	3	1.04199	-1.4502	1.39176
1873	133306	6	1.47903	-2.98912	2.021
1873	138342	7	0.816577	1.85649	2.27351
1873	118441	8	1.44949	-2.04366	1.40992
1873	137496	9	0.848088	1.4639	1.72611
1873	118332	11	1.25864	2.31223	1.83709
1873	118588	14	1.5105	3.02549	2.00297
1873	116620	15	0.686878	-2.01203	2.92924
1873	115259	16	0.708116	-1.61844	2.28556
1873	130186	17	1.51236	-2.65278	1.75407
1873	115232	18	0.932417	-1.99709	2.14184
1873	127440	19	1.01368	1.61966	1.59781
1873	115220	21	0.0889604	-1.58954	17.868
1873	115242	22	1.00995	-1.60819	1.59234
1873	128710	23	1.21449	2.4421	2.0108
1873	121124	24	0.231695	1.24686	5.38149
1873	134020	25	0.303936	-1.01526	3.34037
1873	139578	26	0.185014	-0.728105	3.9354

1873	118284	27	1.81447	2.65877	1.46531
1873	118287	28	1.24298	3.30882	2.662
1873	136515	31	0.913329	-2.24399	2.45694
1873	118589	32	1.5356	3.07011	1.99929

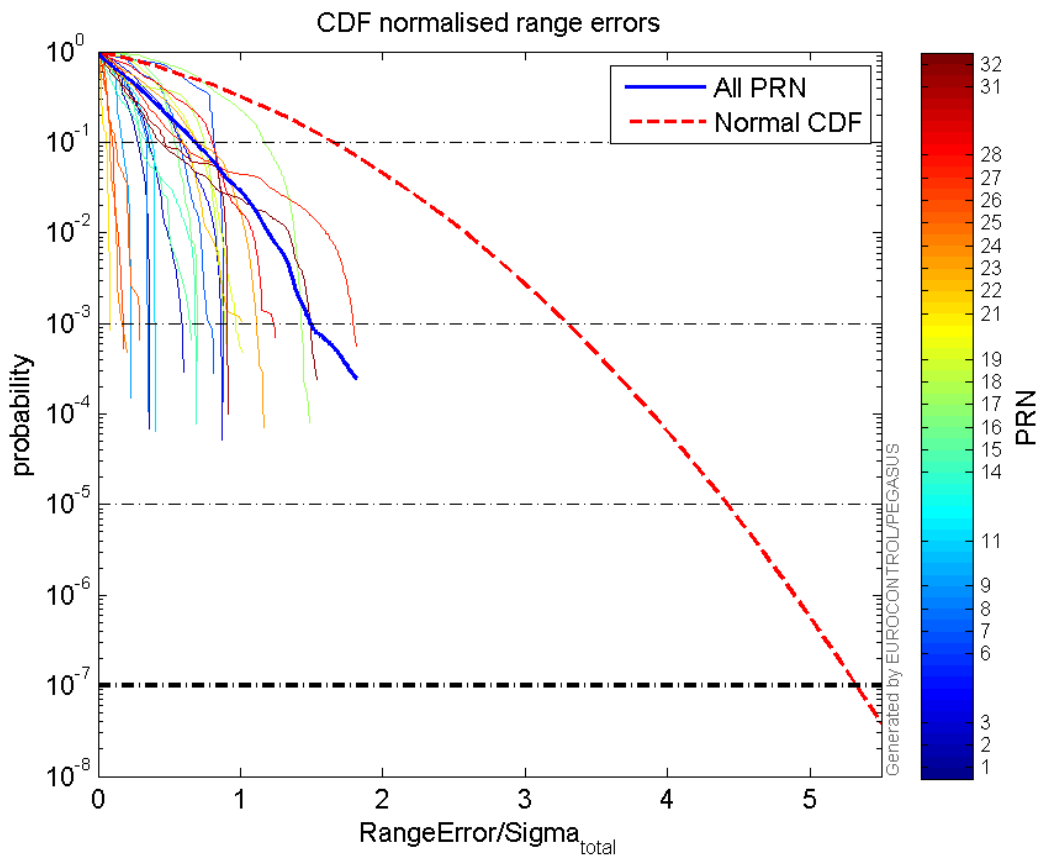
Normalised Range errors (median):



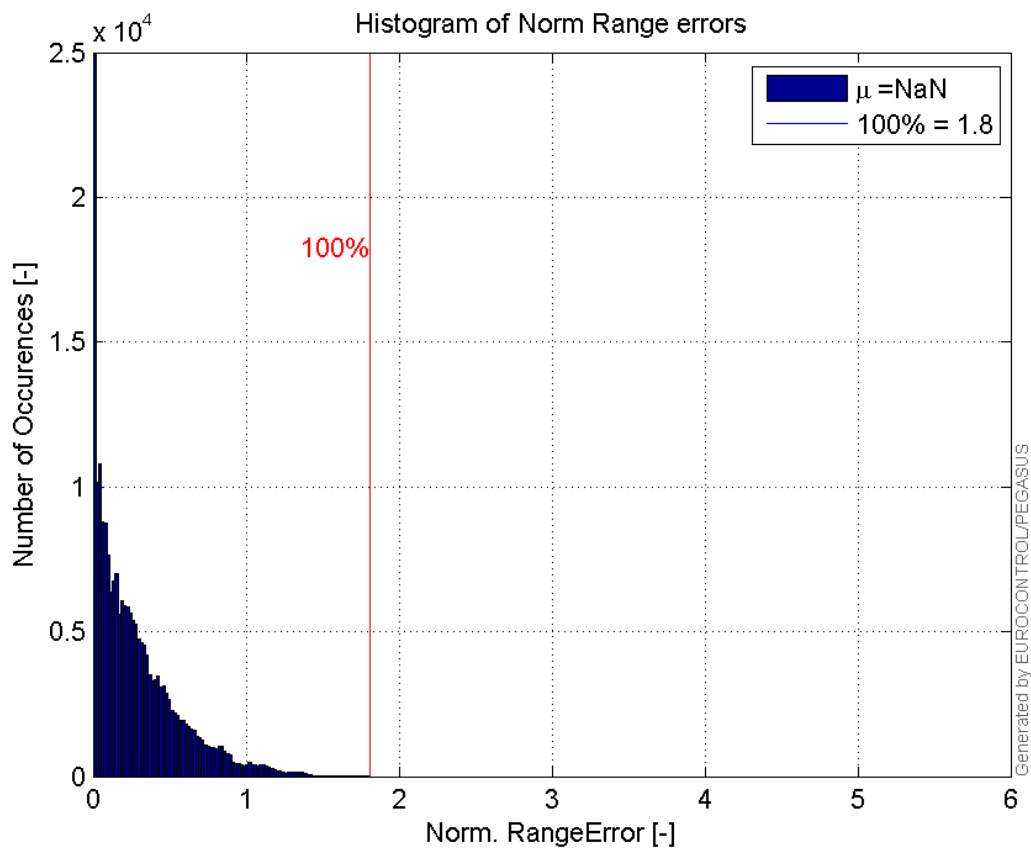
Range errors:



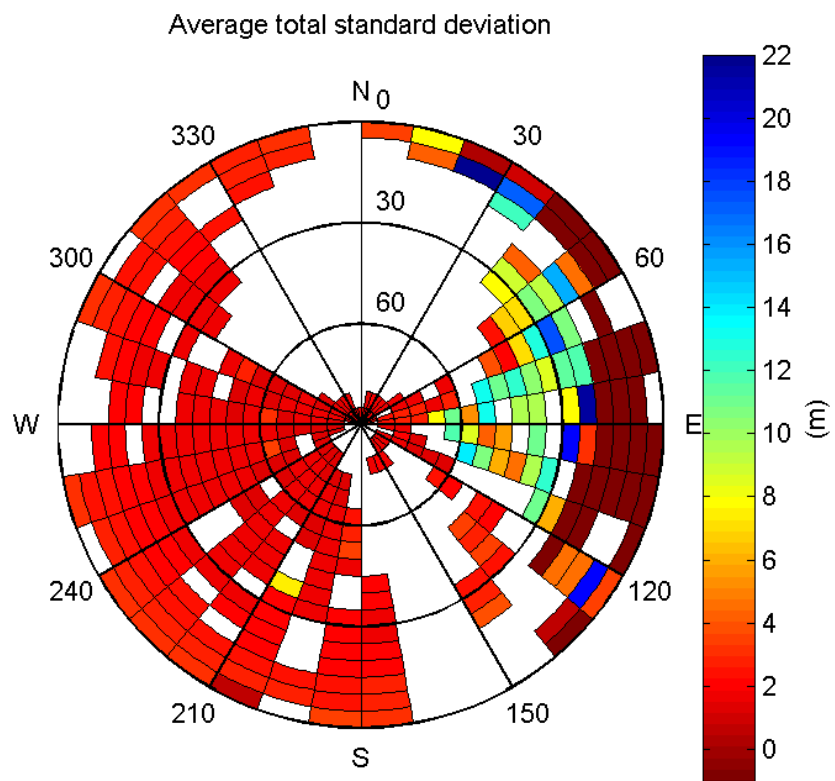
CDF normalised range errors:



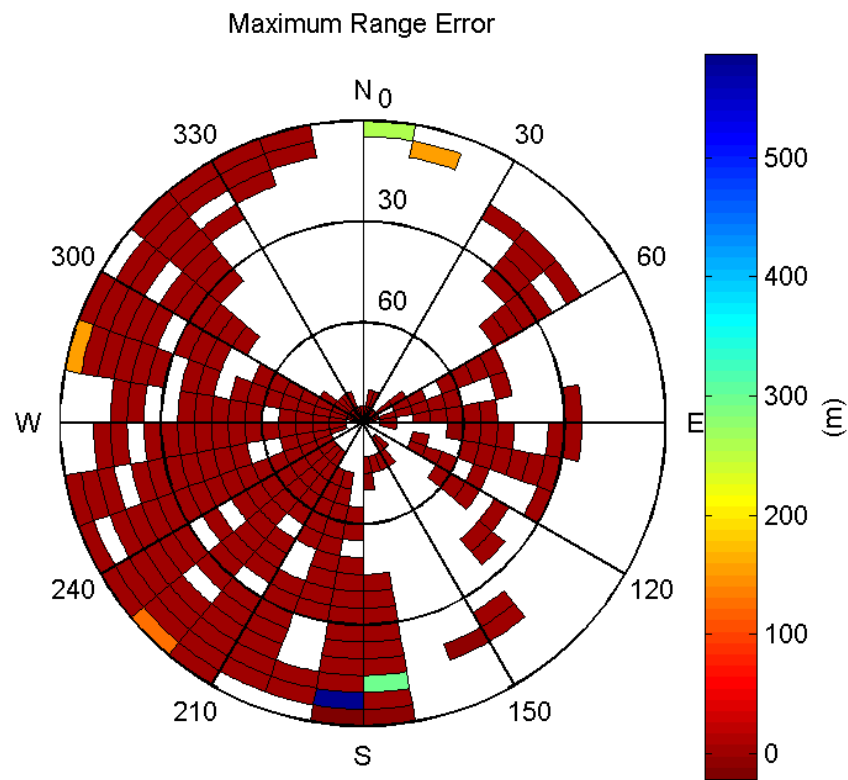
Histogram of Norm Range errors:



Sigma Sky Plot:

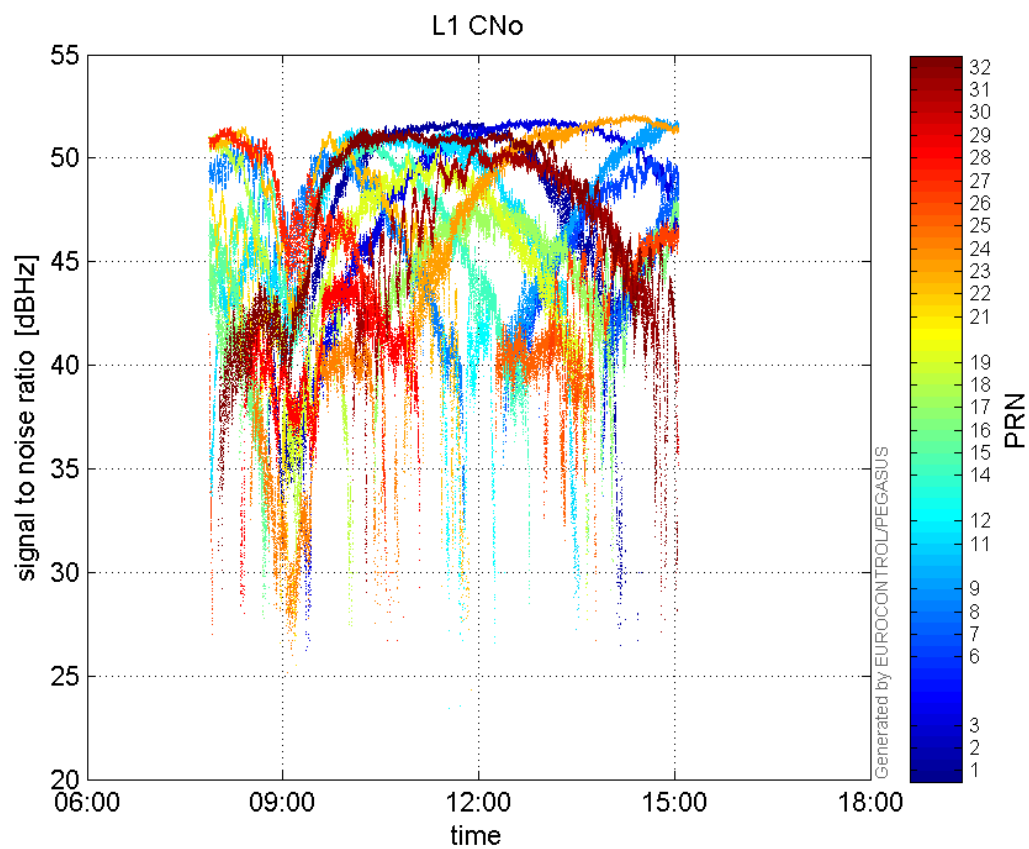


Norm Error Sky Plot:

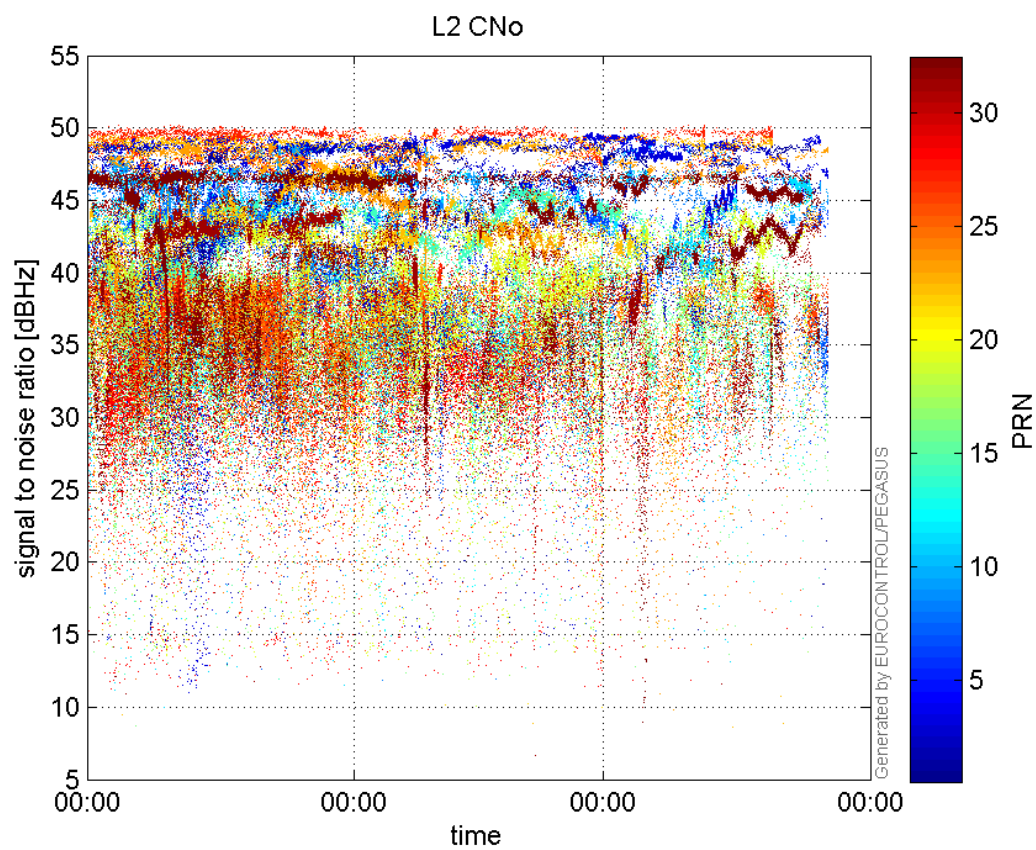


signal quality

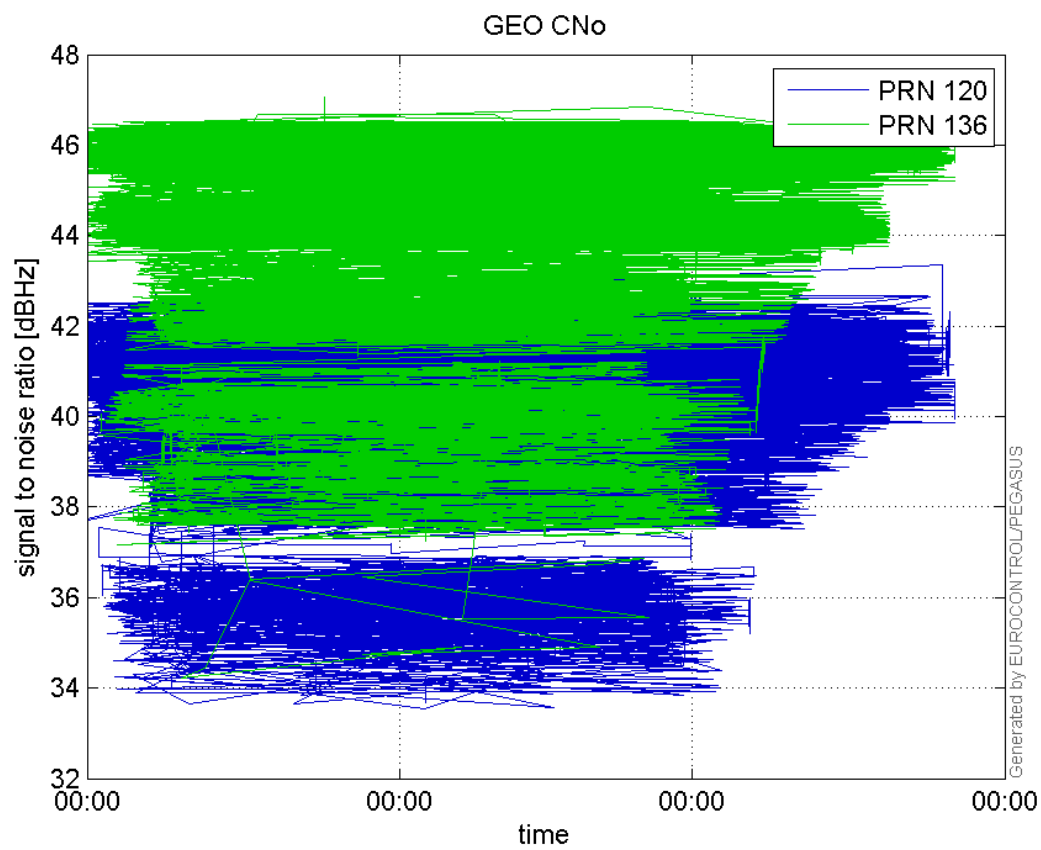
L1 CNo:



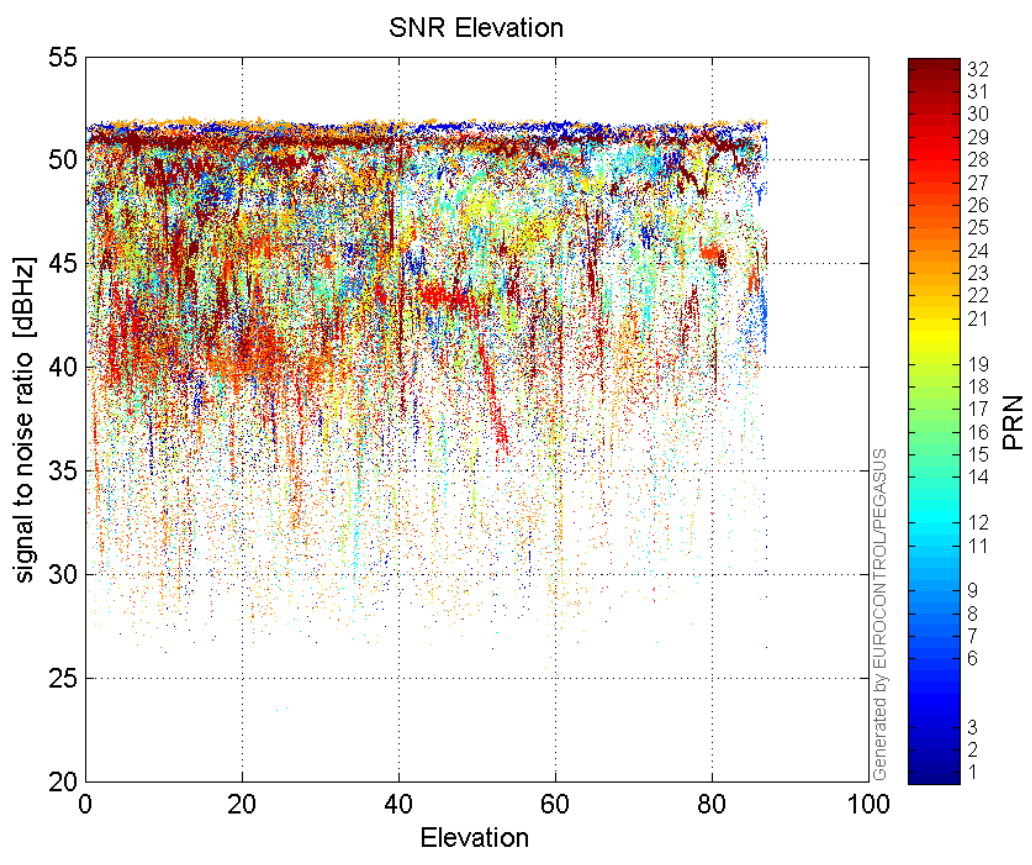
L2 CNo:



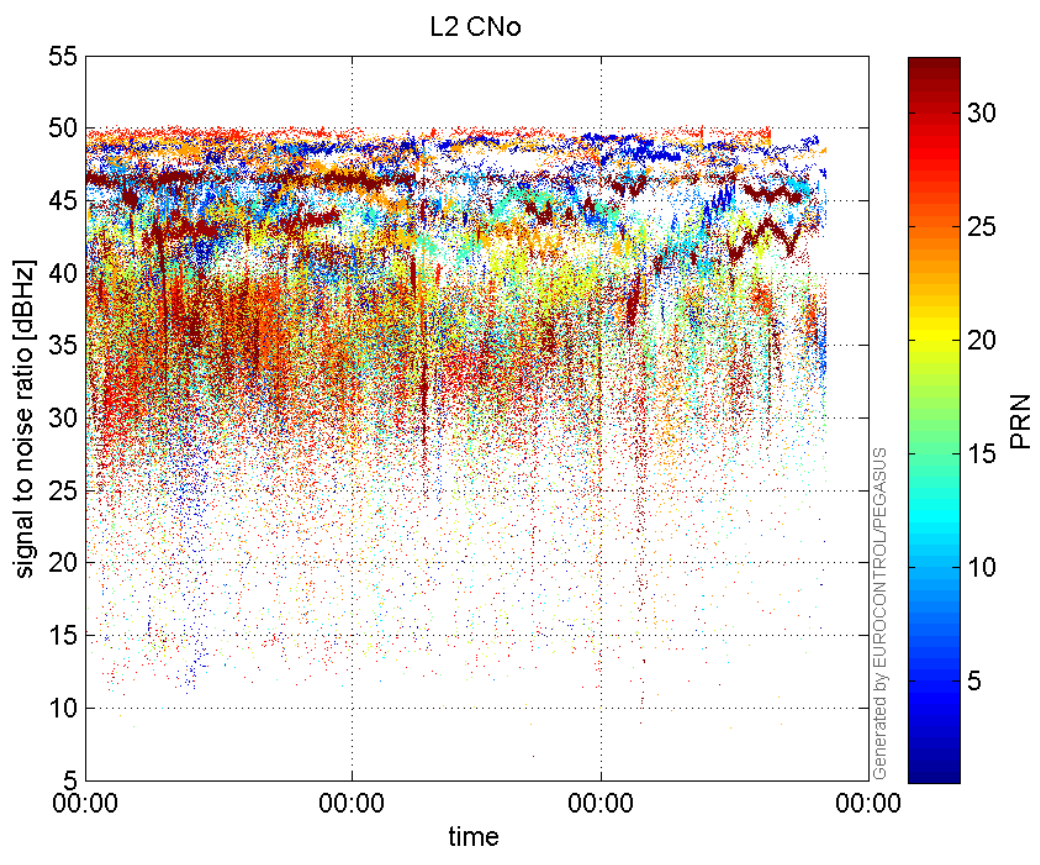
GEO CNo:



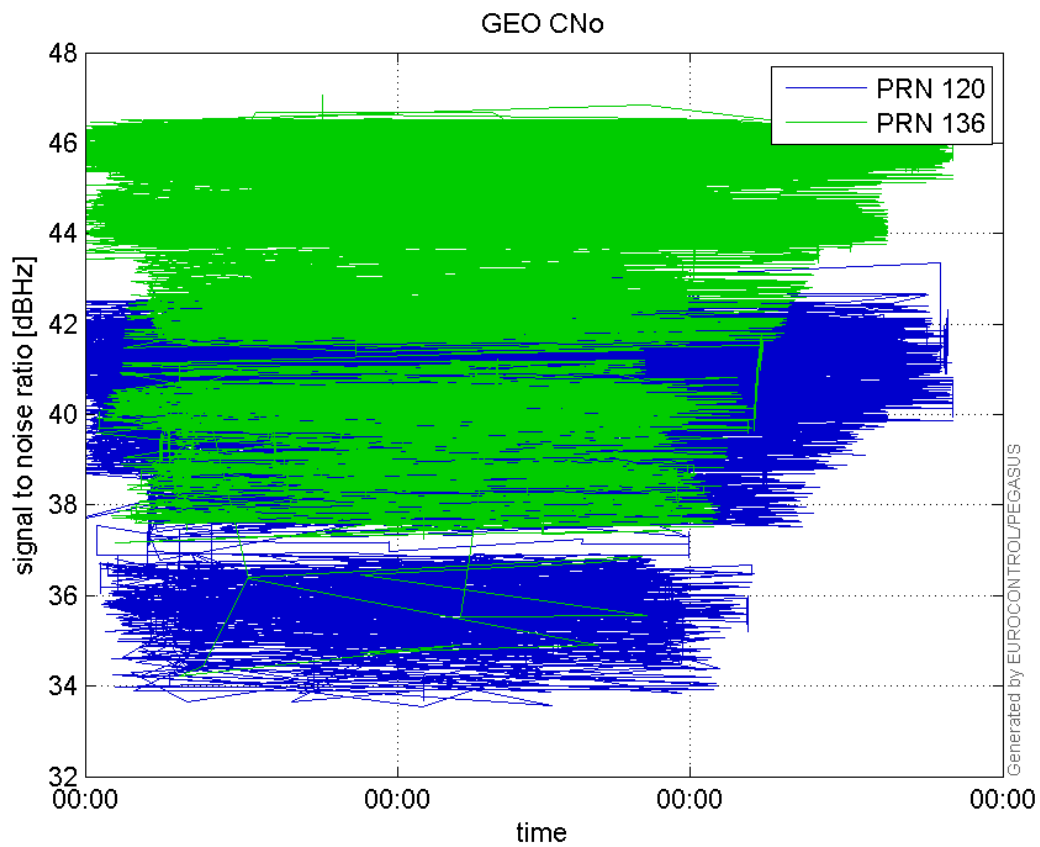
SNR Elevation:



L2 CNo:

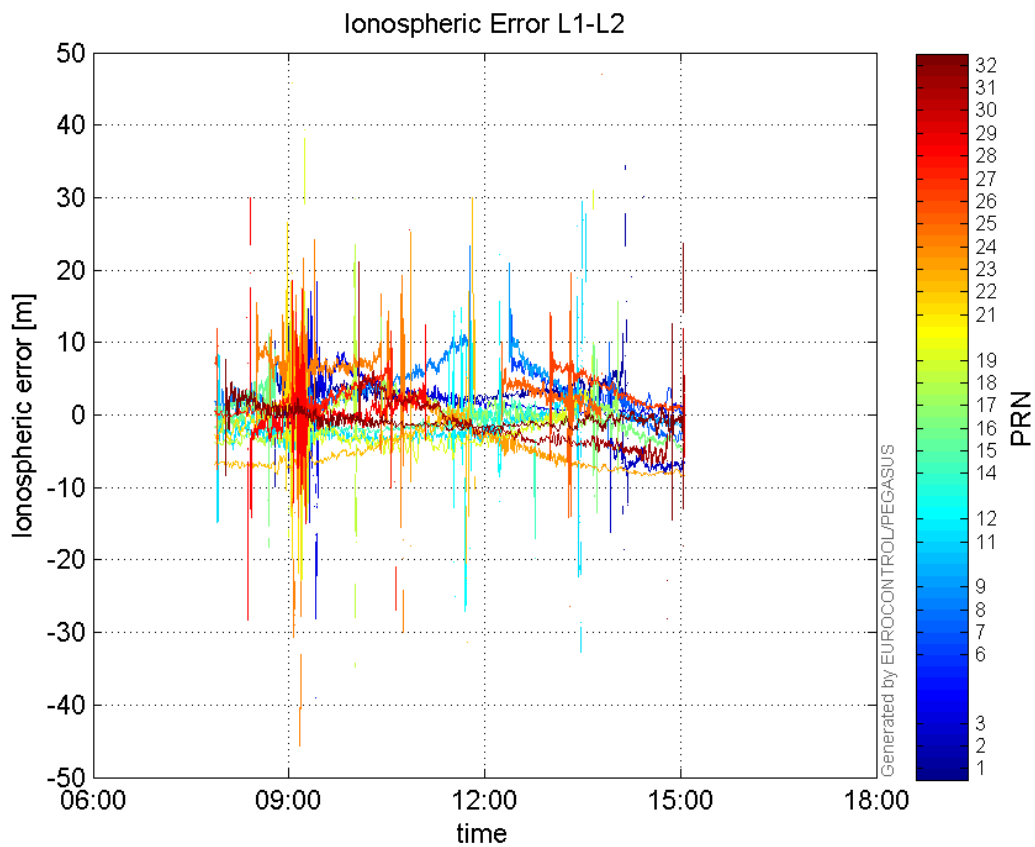


GEO CNo:



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:/PegasusDateGob/job/2015_11_30EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_30EGNOS/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	220.1293
mi_numbers	results	0