

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 09/02/2017

Range Domain

start: 09:07:10.5 31.01.2017 (week: 1934 sec: 205630.5)
end: 09:54:17 31.01.2017 (week: 1934 sec: 208457)
duration: 00:47:07 ..

quality

valid samples 5230
total samples 5230

PRN overview

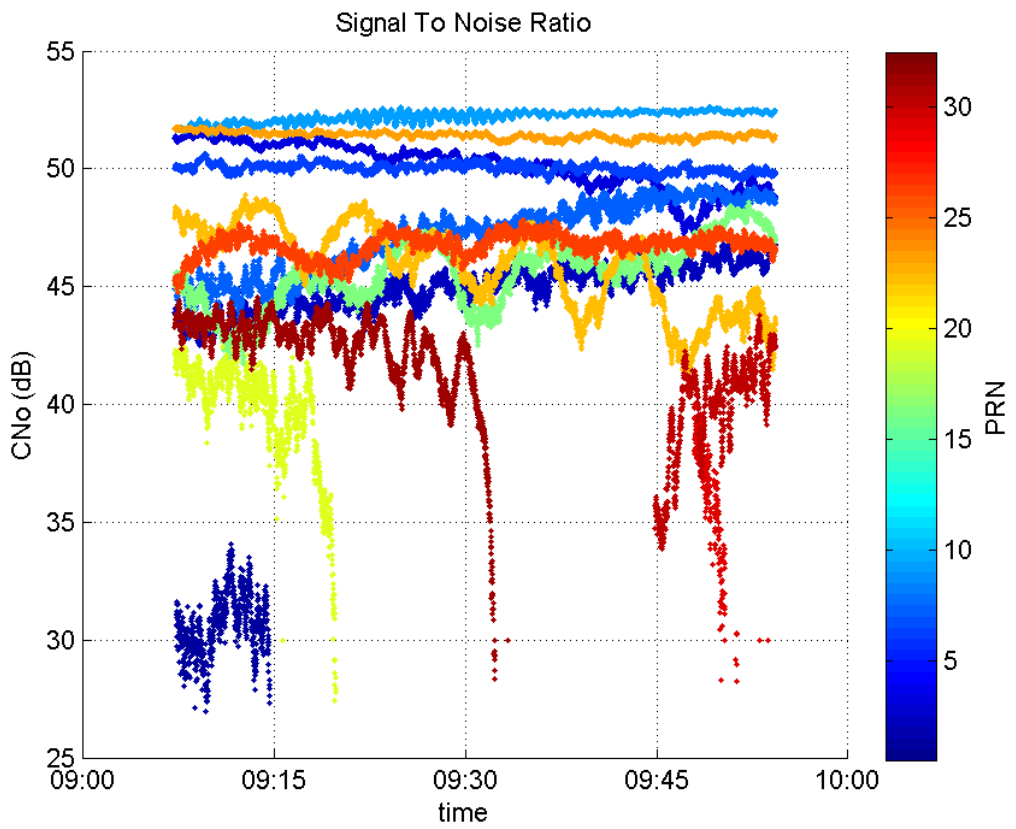
Number of Visible GPS Satellites 14
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:

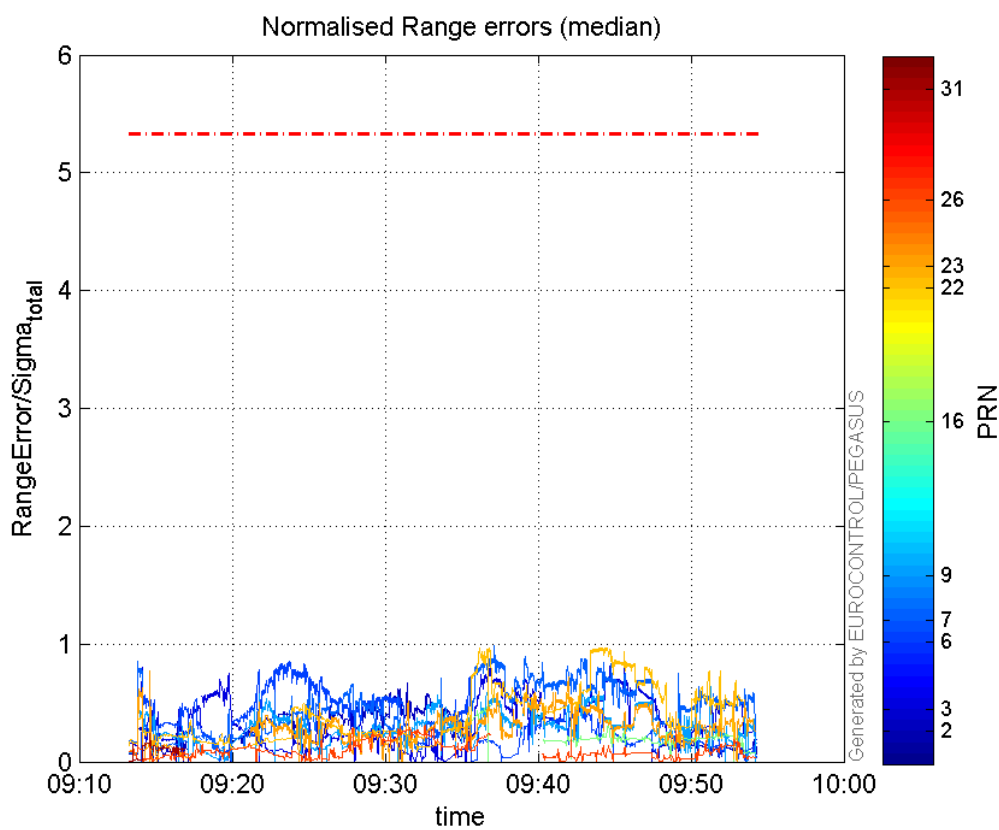


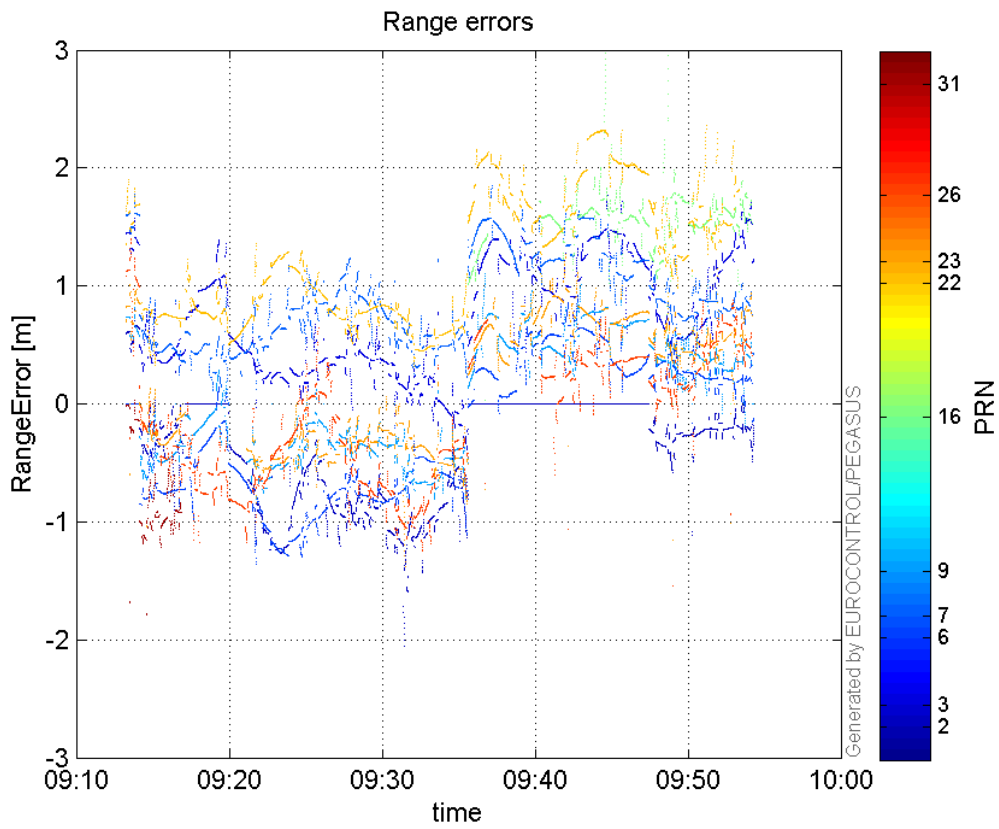
range errors

Number of Overbounding Norm Errors 0

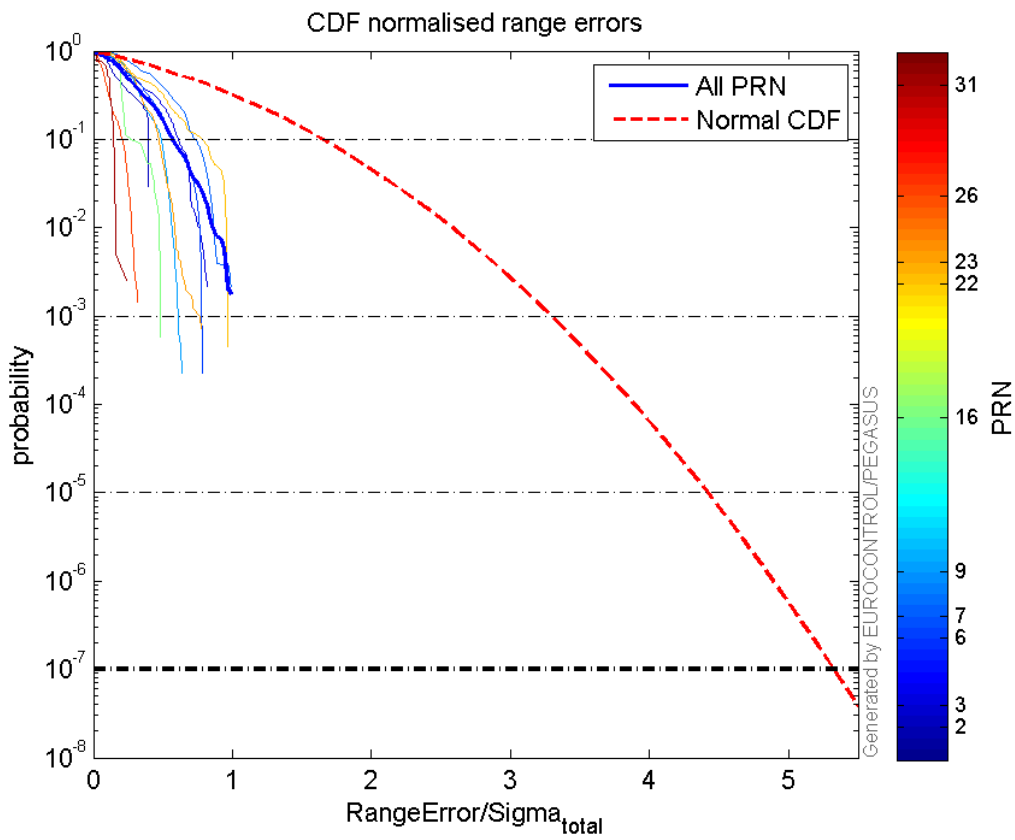
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1934	207083	2	0.666047	-2.05412	3.08405
1934	207879	3	0.819427	1.76398	2.1527
1934	206622	6	0.85818	-1.28088	1.49256
1934	207426	7	0.987959	1.84517	1.86766
1934	208276	9	0.643354	1.0431	1.62134
1934	207406	16	0.481754	1.41448	2.93611
1934	207367	22	0.966312	2.16054	2.23587
1934	206074	23	0.771759	-1.03605	1.34246
1934	207154	26	0.316864	-1.24563	3.93113
1934	206074	31	0.241621	-1.78812	7.40052

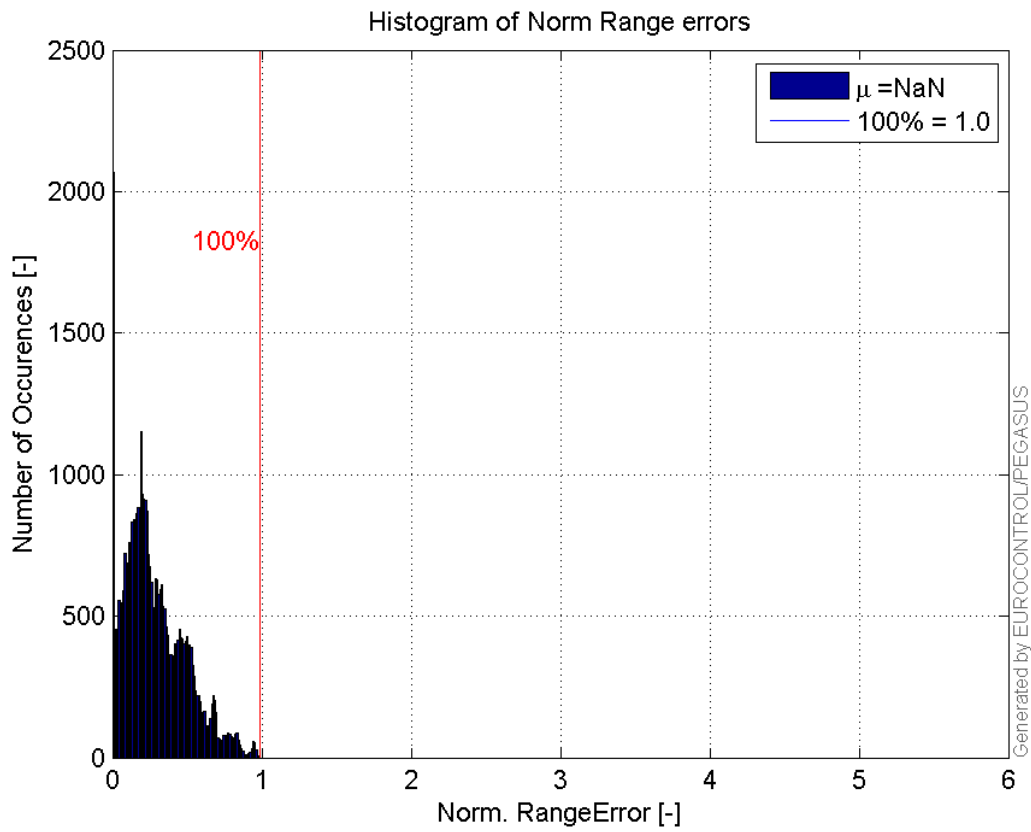
Normalised Range errors (median):**Range errors:**



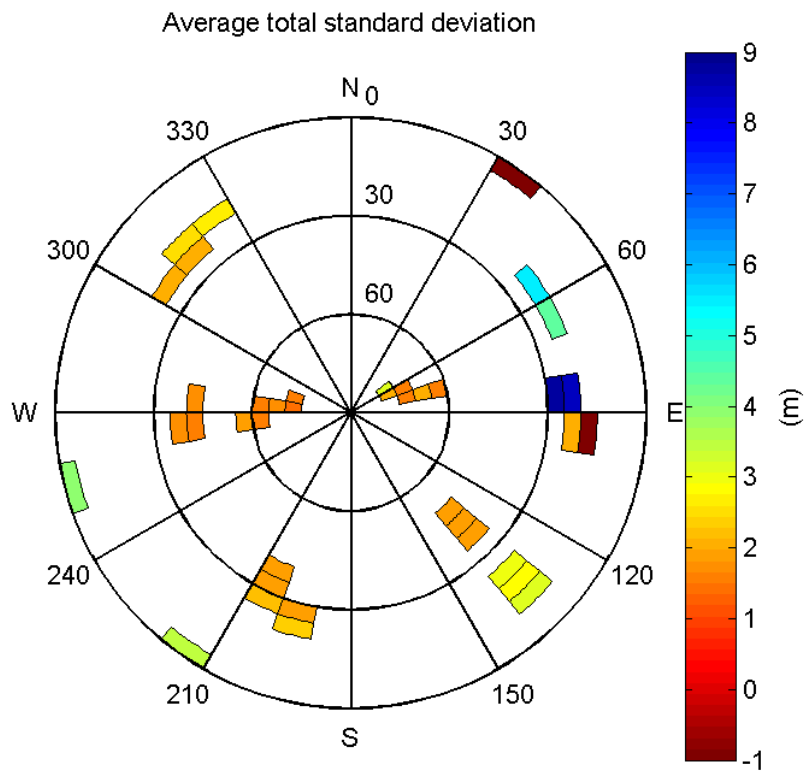
CDF normalised range errors:



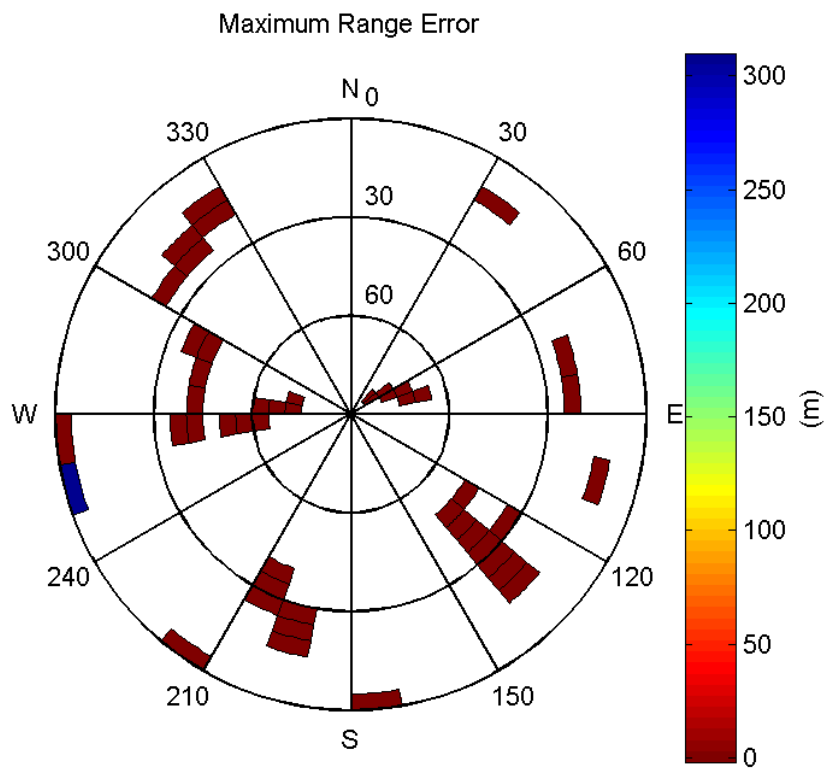
Histogram of Norm Range errors:



Sigma Sky Plot:

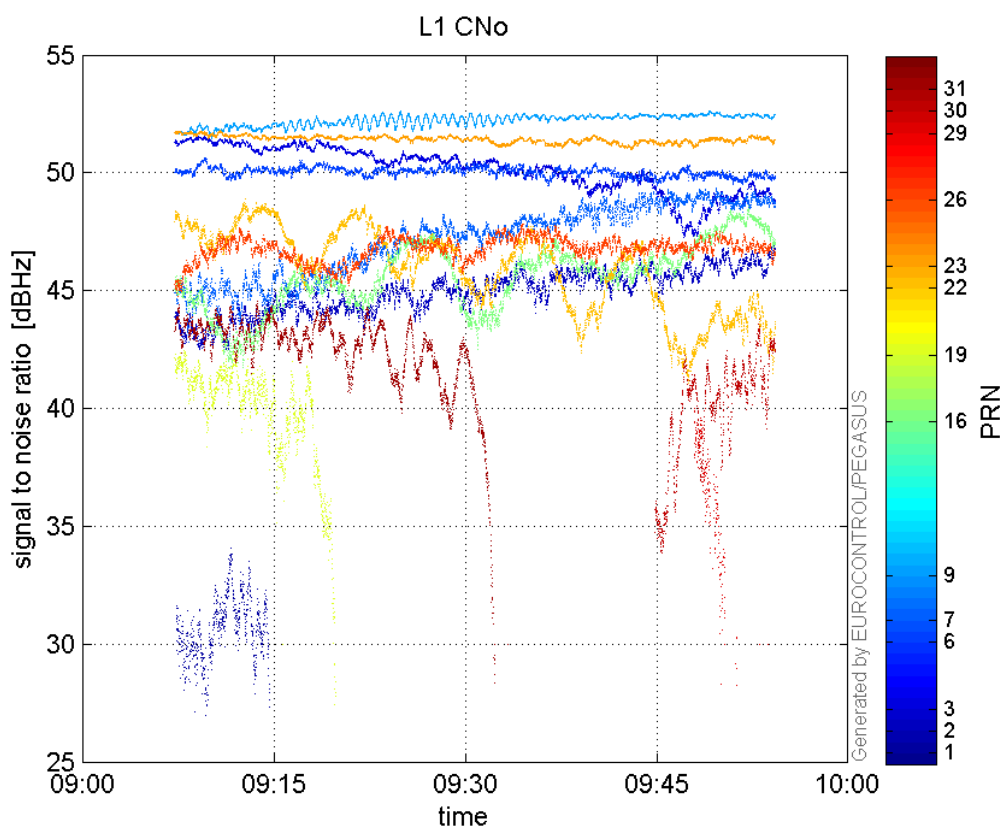


Norm Error Sky Plot:

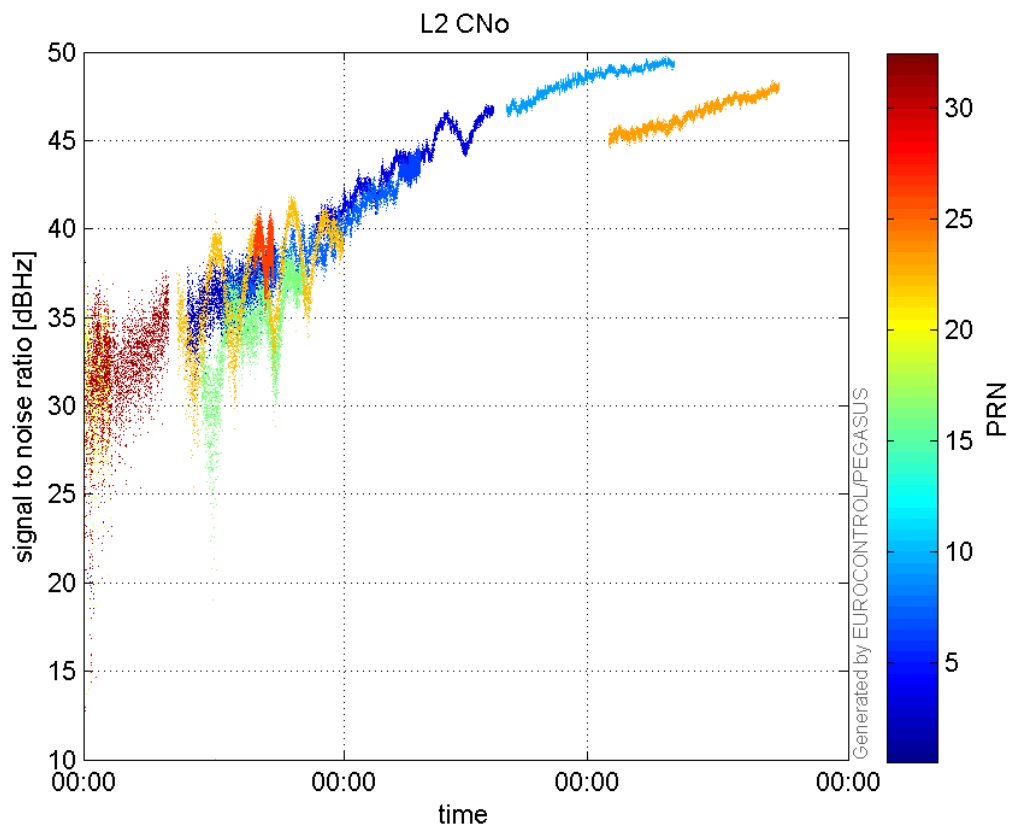


signal quality

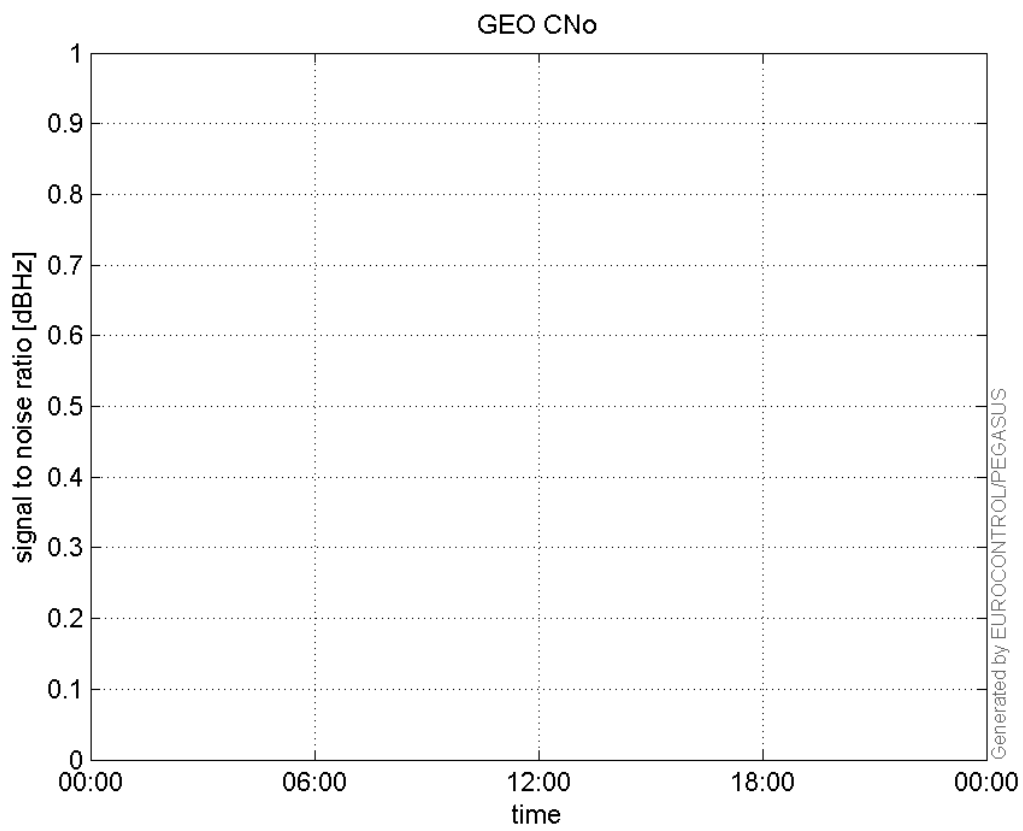
L1 CNo:



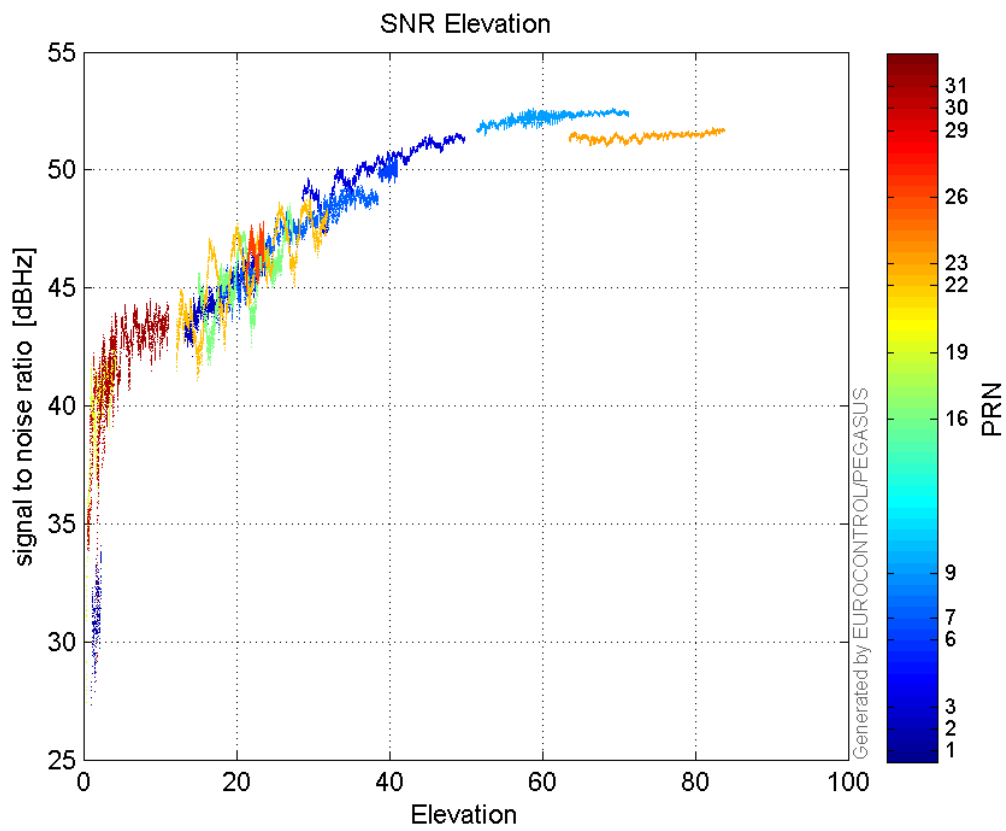
L2 CNo:



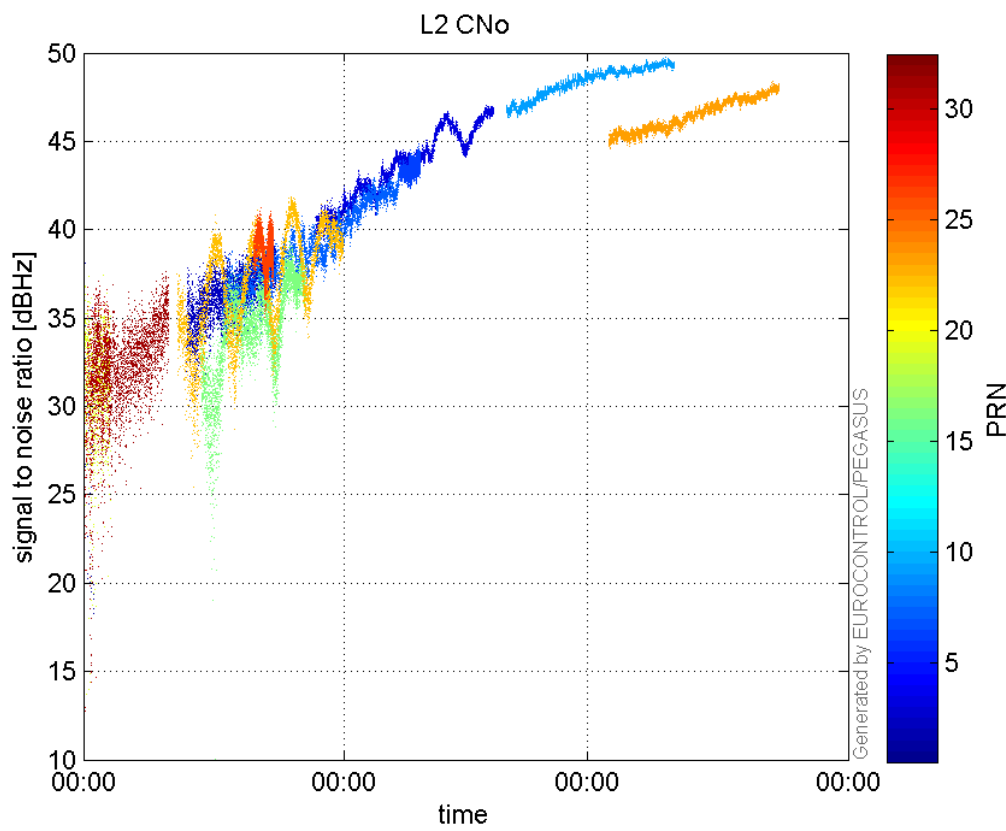
GEO CNo:



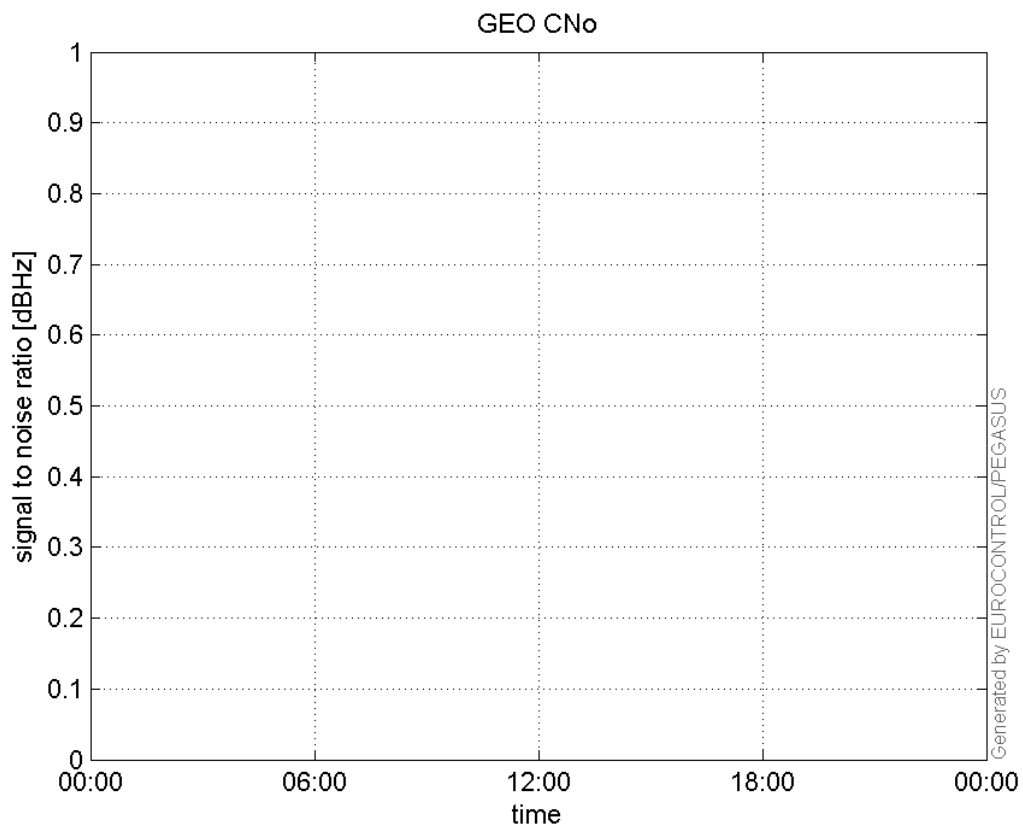
SNR Elevation:



L2 CNo:

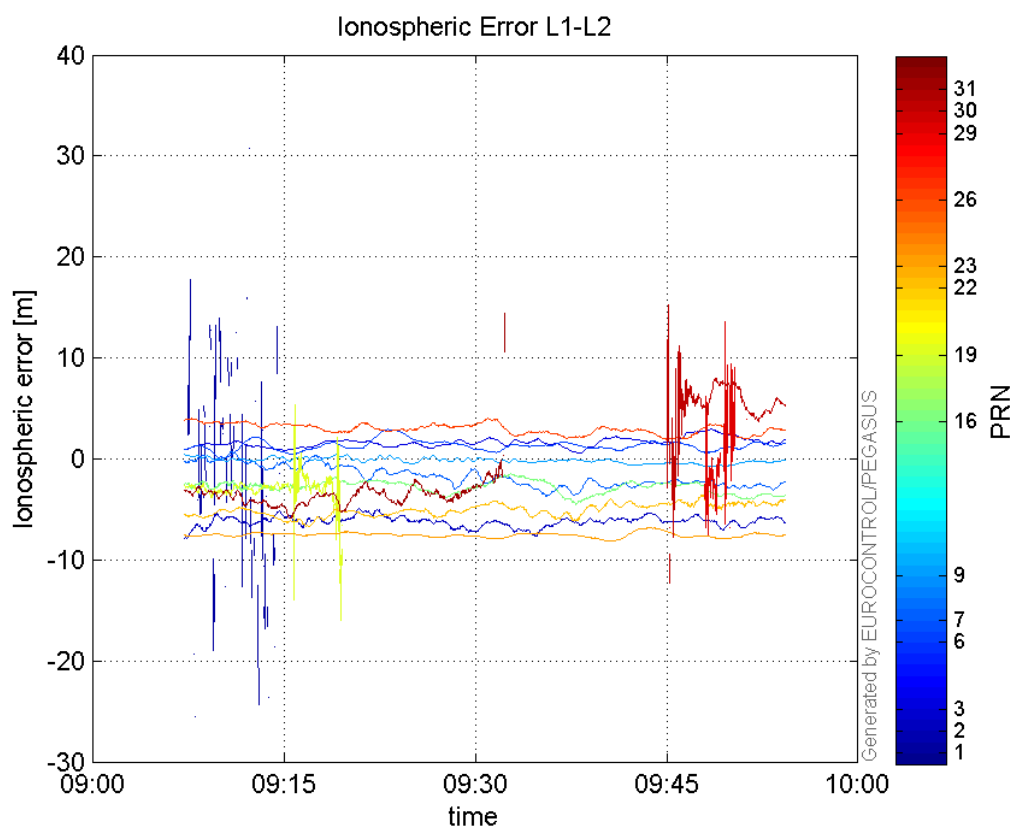


GEO CNo:



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:/PegasusDataJob/job/2017_01_31EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDataJob/job/2017_01_31EGNOS2Hz/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	30.4298
init_alt	results	239.2869
mi_numbers	results	0

SBAS Messages

start: 09:07:10.129 31.01.2017 (week: 1934 sec: 205630.129)
end: 09:54:16.129 31.01.2017 (week: 1934 sec: 208456.129)
duration: 00:47:06 ..

quality

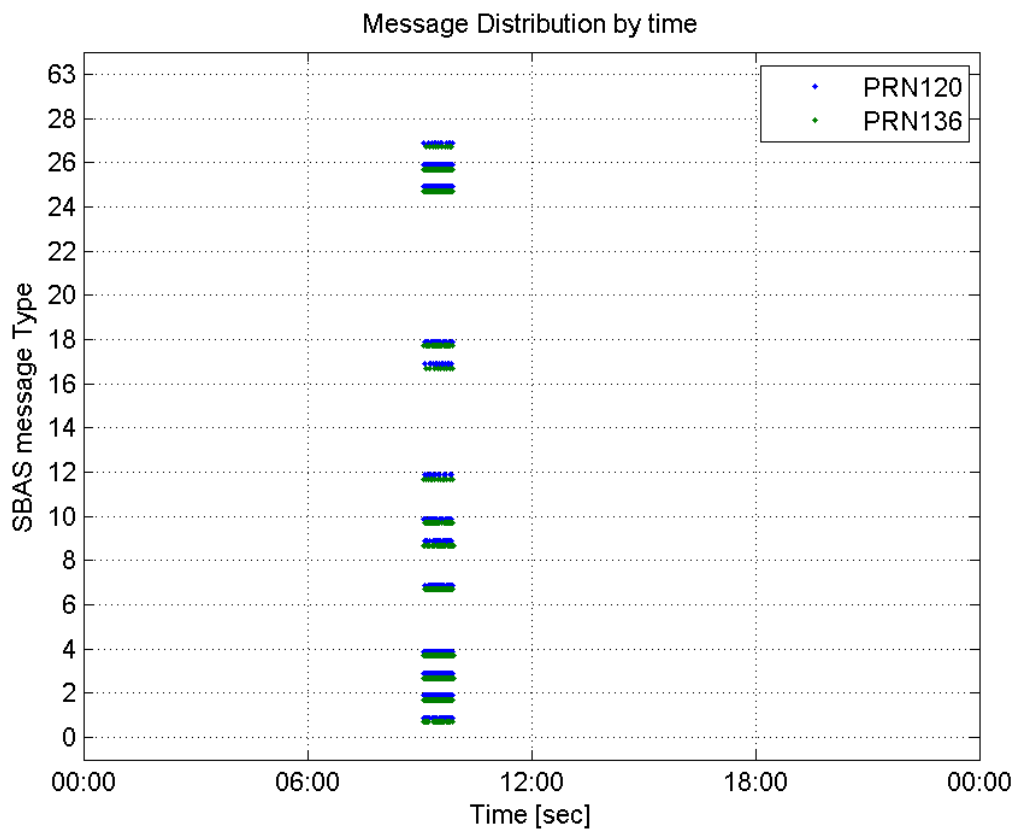
valid samples 4460
total samples 4460
number of SBAS PRNs 2

SBAS SIS Overview

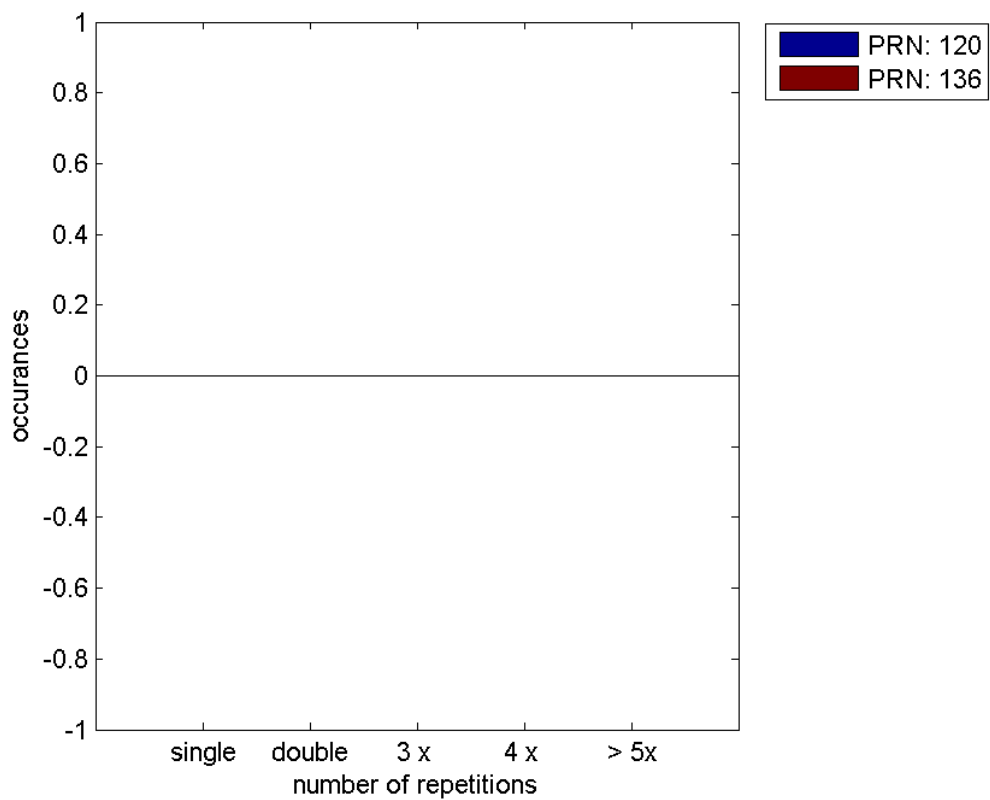
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

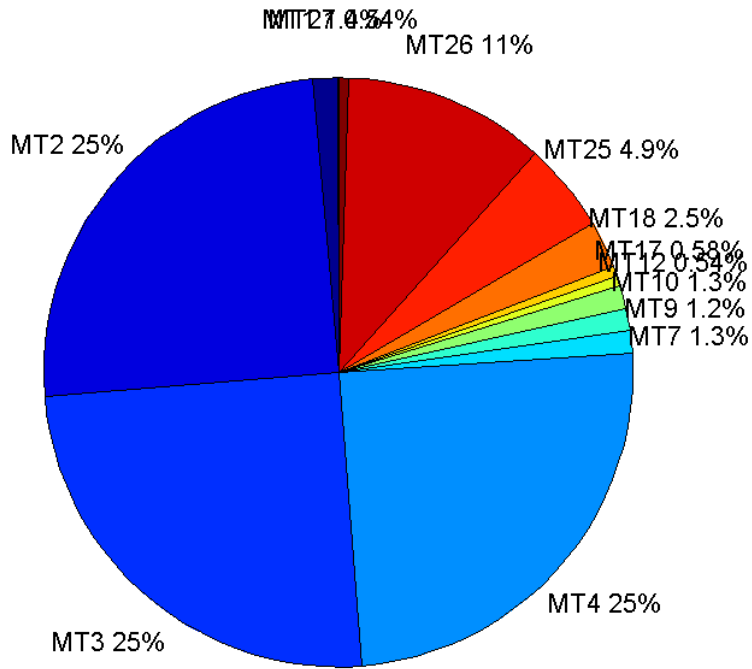
	number of messages	%
MT 0	0	0
MT 1	31	1.38455
MT 2	558	24.9218
MT 3	559	24.9665
MT 4	554	24.7432
MT 5	0	0
MT 6	0	0
MT 7	28	1.25056
MT 9	27	1.2059
MT 10	29	1.29522
MT 12	12	0.535954
MT 17	13	0.580616
MT 18	57	2.54578
MT 24	0	0
MT 25	110	4.91291
MT 26	249	11.121
MT 27	12	0.535954
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	2239	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	237	90.0667	3	0	0
MT 2	4	12	5.05027	132	0	0
MT 3	4	12	5.02688	135	0	0
MT 4	4	13	5.08499	137	0	2
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	78	317	100.519	5	0	1
MT 9	77	239	98.0385	0	0	0
MT 10	77	161	93.7857	5	0	0
MT 12	191	397	232.091	11	2	2
MT 17	193	386	212.333	0	0	0
MT 18	4	167	49.0357	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	80	25.3761	0	0	0
MT	4	57	11.3145	0	0	0

26						
MT 27	192	394	249.636	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

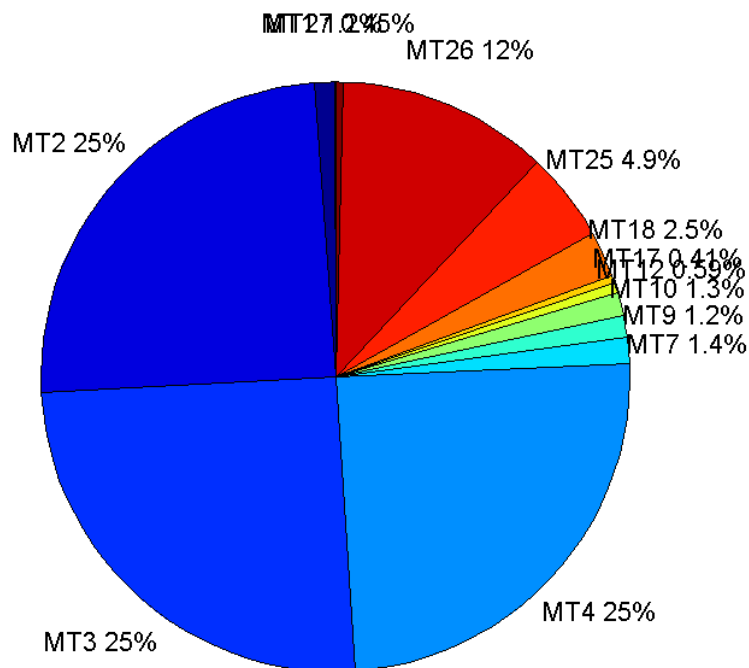
	number of messages	%
MT 0	0	0
MT 1	26	1.17064
MT 2	548	24.6736
MT 3	561	25.2589
MT 4	547	24.6285
MT 5	0	0
MT 6	0	0
MT 7	32	1.44079
MT 9	26	1.17064
MT 10	28	1.26069
MT 12	13	0.585322

MT 17	9	0.405223
MT 18	55	2.47636
MT 24	0	0
MT 25	109	4.9077
MT 26	257	11.5714
MT 27	10	0.450248
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	2221	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	78	400	111.76	5	0	0
MT 2	4	13	5.15539	143	0	1
MT 3	4	12	5.04107	133	0	0
MT 4	4	12	5.17033	148	0	0
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	77	161	87.3871	3	0	0
MT 9	76	320	111.6	0	0	0
MT 10	78	321	100.481	5	0	1
MT 12	192	392	227.417	12	2	2
MT 17	192	392	316.75	0	0	0
MT 18	4	188	50.5556	0	0	0
MT 24	--	--	--	--	--	--
MT 25	3	80	26.0185	0	0	0
MT 26	4	48	11.0078	0	0	0
MT 27	192	393	282	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_31EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_01_31EGNOS2Hz/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: 09:07:10.5 31.01.2017 (week: 1934 sec: 205630.5)
end: 09:54:17 31.01.2017 (week: 1934 sec: 208457)
duration: 00:47:07 ..

quality

valid samples 4574
total samples 5230

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 nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	206863	1.32996	10.2089	0.130274	0.207312	15.3132	0.0135381
max normVer	206737	1.09729	11.1169	0.0987045	0.998525	17.0565	0.0585422
max HPE	208136	5.03096	246.229	0.020432	-2.86821	146.597	0.0195653
max VPE	208136	5.03096	246.229	0.020432	-2.86821	146.597	0.0195653
min HPL	207354	0.888467	9.01596	0.0985438	0.705251	14.2709	0.0494188
min VPL	207352	0.883006	9.08241	0.0972215	0.710449	14.255	0.0498386

Position discontinuity events :

#	Epoch	duration	stable period
1	206275	0.5	284
2	206355	0.5	79.5
3	207533	0.5	790

APV-I discontinuity events :

#	Epoch	duration	stable period
1	206073	0.5	47.5
2	206275	0.5	201.5
3	206355	0.5	79.5
4	207400	0.5	657
5	207533	0.5	132.5
6	207726	0.5	192.5
7	207972	1.5	245.5
8	208135	0.5	161.5
9	208363	0.5	7

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	206073	0.5	47.5
2	206275	0.5	201.5
3	206355	0.5	79.5
4	207400	0.5	657
5	207533	0.5	132.5
6	207726	0.5	192.5
7	207972	1.5	245.5
8	208135	0.5	161.5
9	208363	0.5	7

LPV-200 discontinuity events :

#	Epoch	duration	stable period
---	-------	----------	---------------

1	206073	0.5	47.5
2	206275	0.5	201.5
3	206355	0.5	79.5
4	207400	0.5	657
5	207533	0.5	132.5
6	207726	0.5	192.5
7	207972	1.5	245.5
8	208135	0.5	161.5
9	208363	0.5	7

First Glance analysis

Duration	2827
Number of Samples	5230
Number of invalid sample	656
Number of no position solution samples	10
Number of missing sample	424
Logging Loss	7.4991
Processing Loss	12.543
Number of Misleading Information	0
Data gaps	2
Discontinuities	5

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
4564	4487	4486	0	4486

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.2882	1.28679	1.2868	NaN	1.2868
HPEScale 95%	NaN	4.46847	4.46847	NaN	4.46847
VPE 95%	0.768325	0.762666	0.762691	NaN	0.762691
VPEscale 95%	NaN	2.15323	1.50729	NaN	1.50729

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.997814	0.980979	0.980761	0	0.980761
measurements	0.872658	0.857935	0.857744	0	0.857744
Operational	1.61443	1.58719	1.58684	0	1.58684

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	3	9	9	--	9
Long	0	0	0	--	0
Independent	0	0	0	--	0
P(disc.)	0	0	0	--	0
P(slide)	0.00985977	0.028304	0.0283103	NaN	0.0283103

Integrity events :

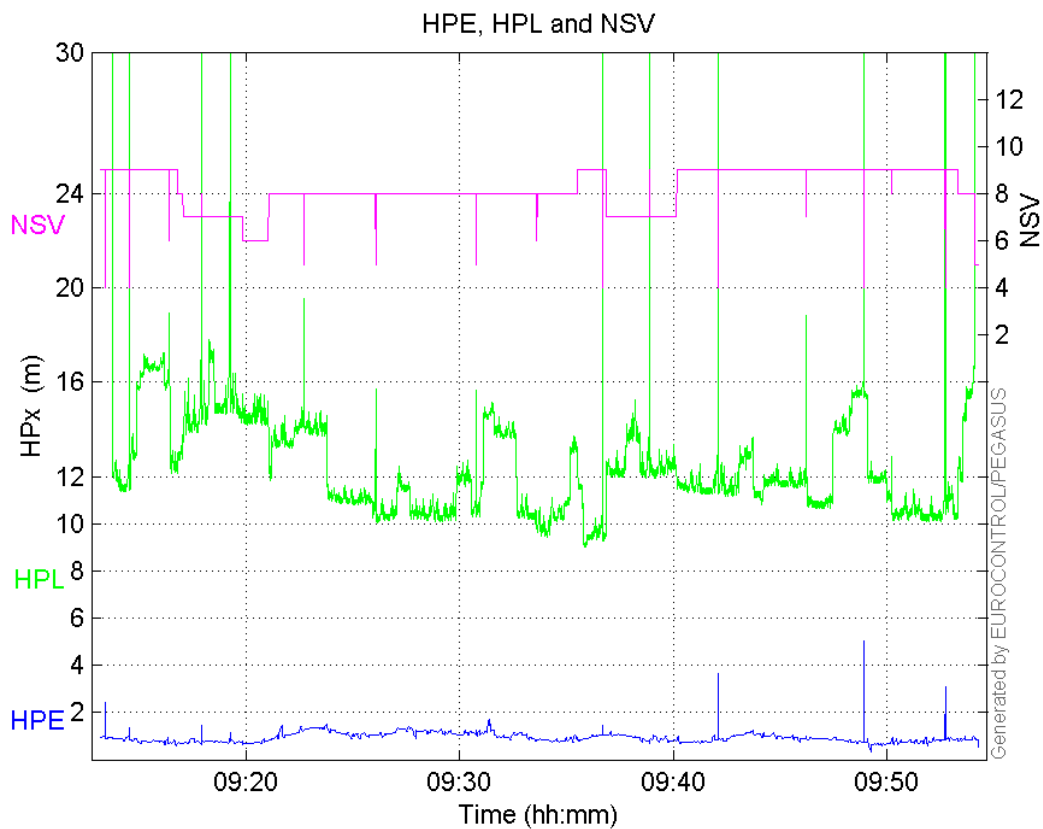
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

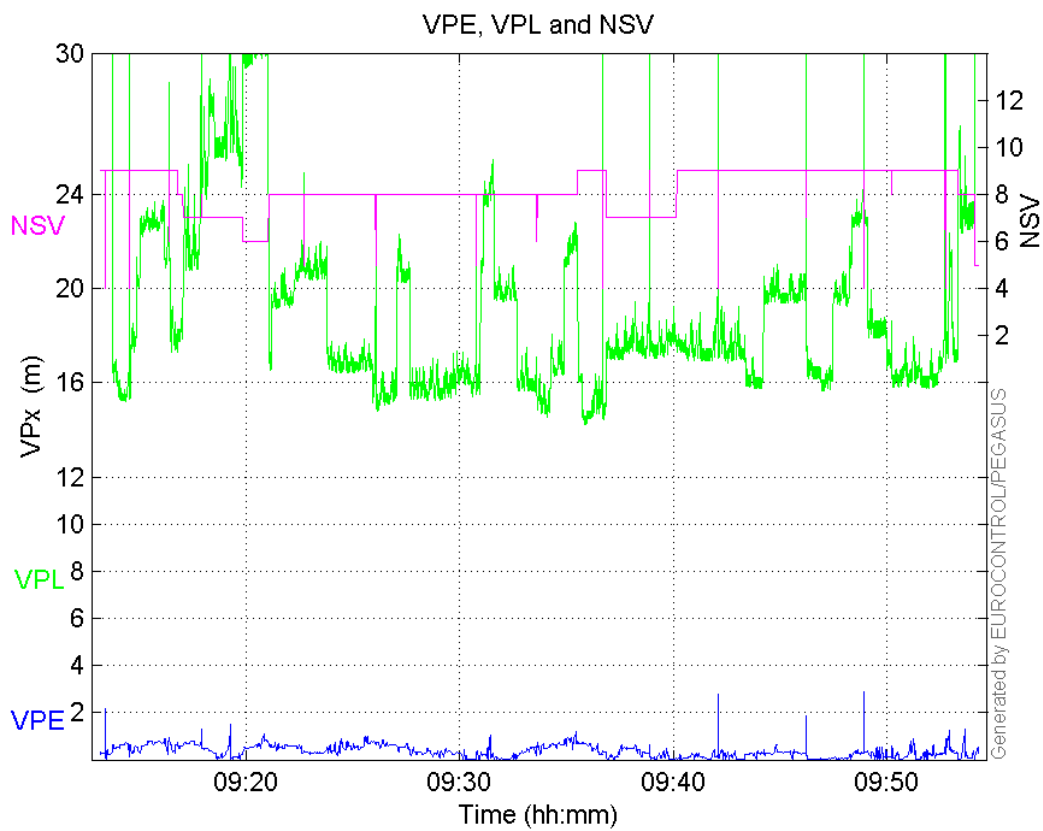
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	4564	4487	4486	0	4486
SIS Availability	0.997814	0.980979	0.980761	0	0.980761
Local Availability	0.872658	0.857935	0.857744	0	0.857744
Operational Availability	1.61443	1.58719	1.58684	0	1.58684
HPE 95%	1.2882	1.28679	1.2868	NaN	1.2868
HPEscale 95%	NaN	4.46847	4.46847	NaN	4.46847
VPE 95%	0.768325	0.762666	0.762691	NaN	0.762691
VPEscale 95%	NaN	2.15323	1.50729	NaN	1.50729
All Discontinuity Events	3	9	9	--	9
Long Discontinuity Events	0	0	0	--	0
Independent Discontinuity Events	0	0	0	--	0
P(discontinuity)	0	0	0	--	0
P(sliding window)	0.00985977	0.028304	0.0283103	NaN	0.0283103
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:

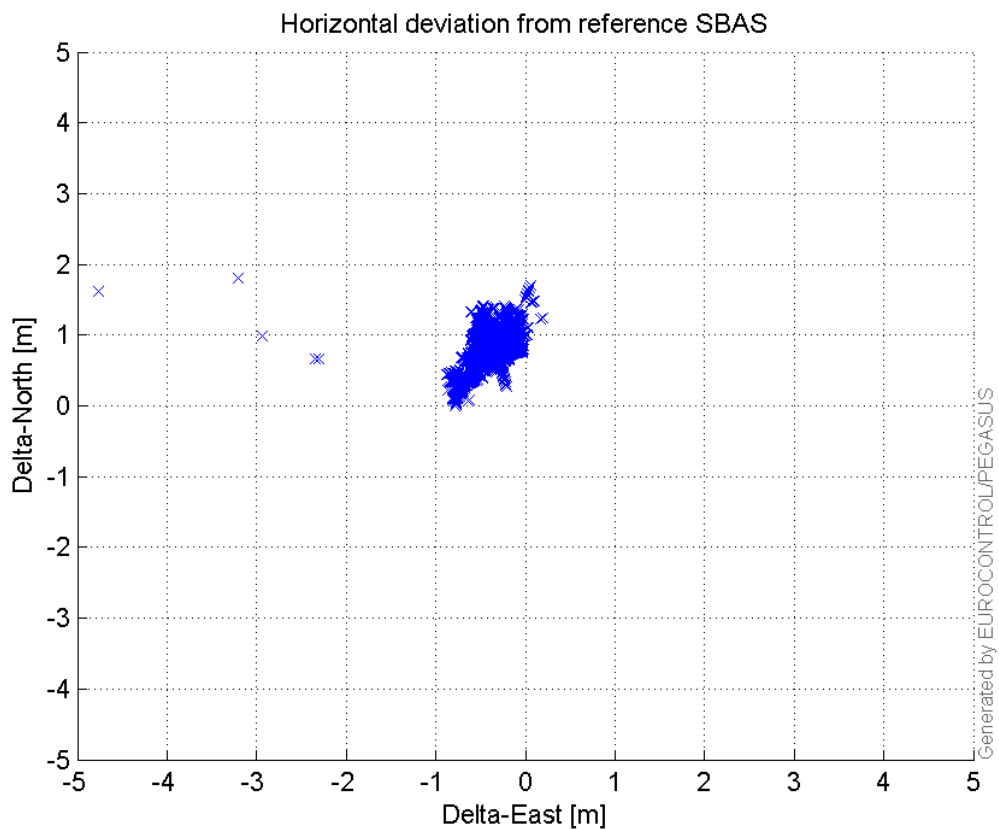


VPE, VPL and NSV:



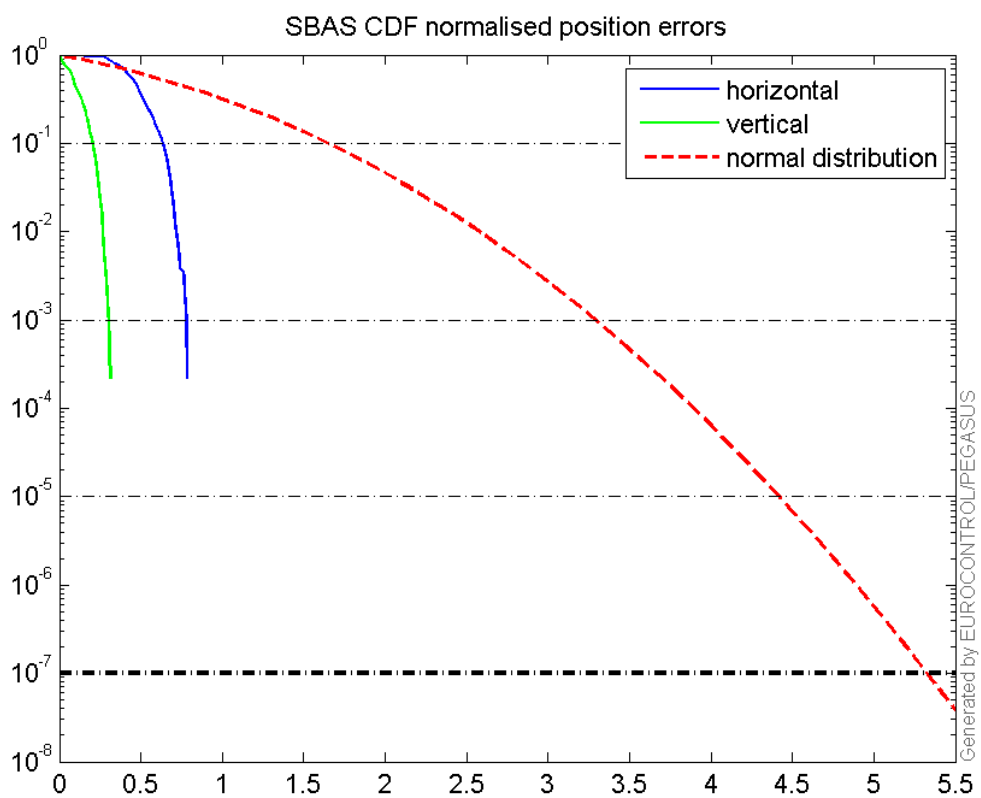
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

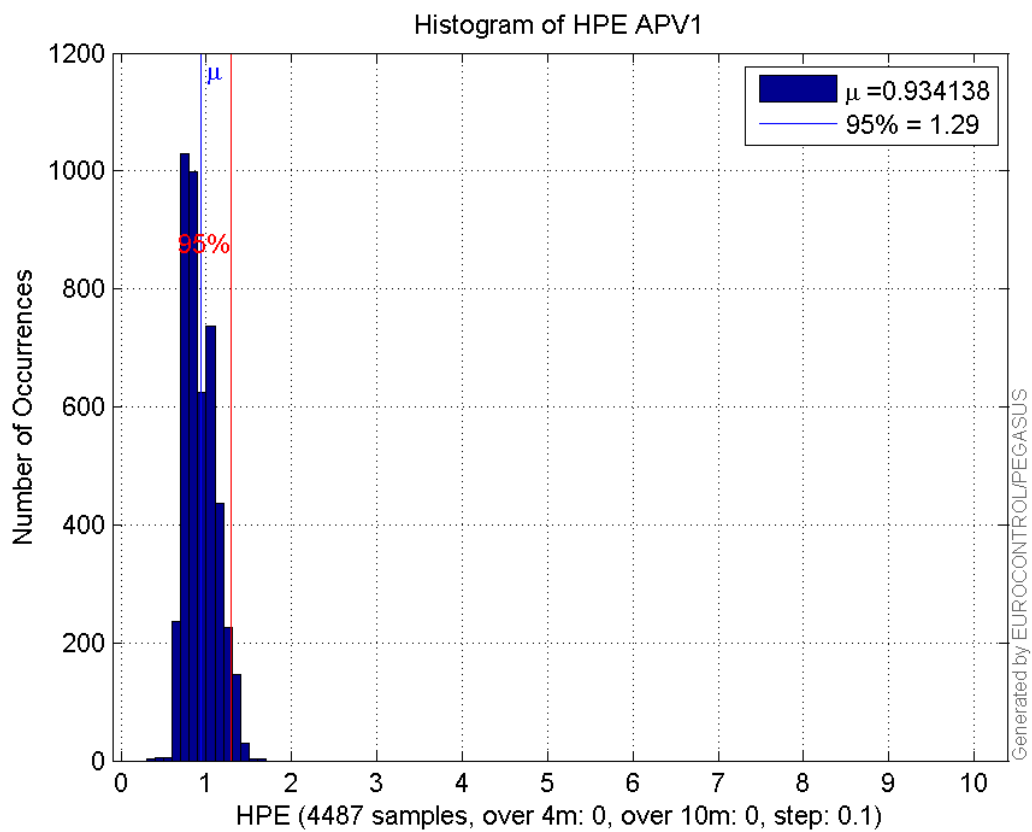
number	4487
sum	4191.4755
sum2	4063.8338
prctile95	1.2867921
prctile99	1.3737837
number	4487
sum	1601.8228
sum2	842.31485
prctile95	0.76266629
prctile99	0.94291792
number	4487
sum	55965.263
sum2	723389.53
prctile95	16.011505
prctile99	17.149449
number	4487
sum	85523.316
sum2	1691149.5
prctile95	26.81115
prctile99	31.594024
number	4487
sum	346.75589
sum2	28.590198
prctile95	0.11171167
prctile99	0.11956496
number	4487
sum	85.527347
sum2	2.4230676
prctile95	0.043064573
prctile99	0.049670113
number	4486
sum	4190.6198
sum2	4063.1017
prctile95	1.2868045
prctile99	1.3738012
number	4486
sum	1601.2888
sum2	842.02964
prctile95	0.76269066
prctile99	0.94293076
number	4486
sum	55927.776
sum2	721984.26
prctile95	16.00736
prctile99	17.144112
number	4486
sum	85488.245
sum2	1689919.5
prctile95	26.79958
prctile99	31.559428
number	4486
sum	346.73307
sum2	28.589677

prctile95 0.11171183
prctile99 0.11956597
number 4486
sum 85.51212
sum2 2.4228357
prctile95 0.043065444
prctile99 0.049670227

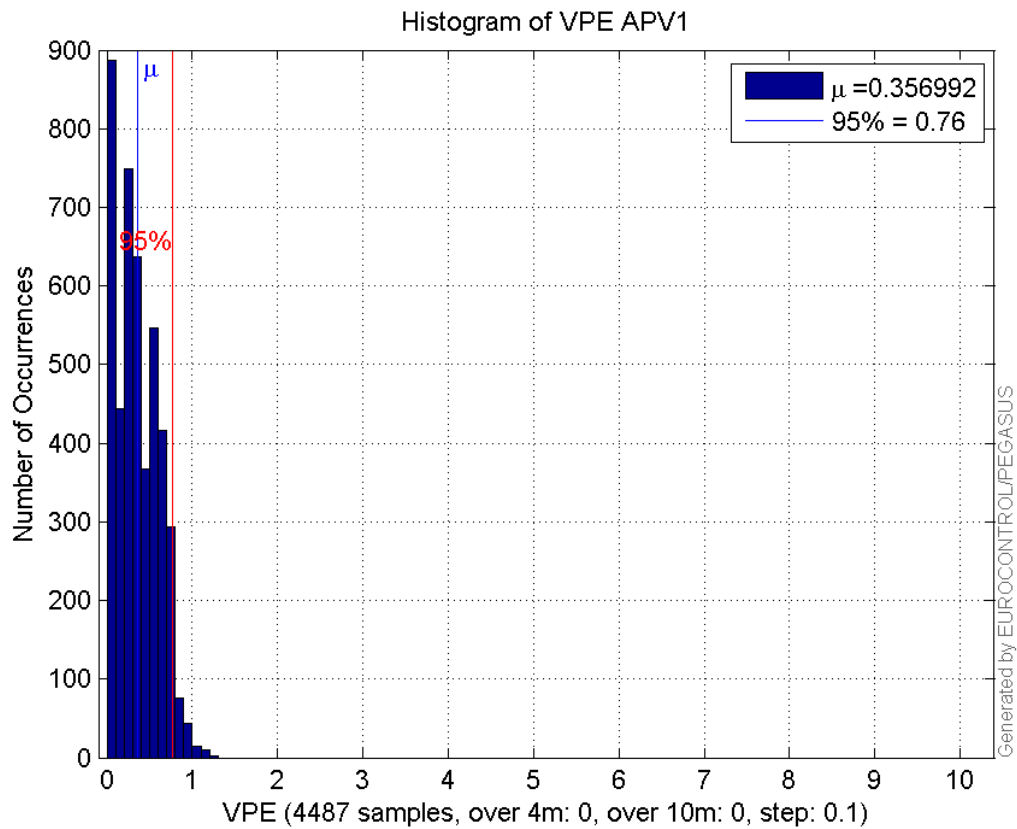
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.934138	0.181893	0.896826	1.28679	1.37378	0.951678
HPL	12.4728	2.37709	11.8893	16.0115	17.1494	12.6972
VPE	0.356992	0.245548	0.319227	0.762666	0.942918	0.433271
VPL	19.0602	3.68917	17.6506	26.8112	31.594	19.4139

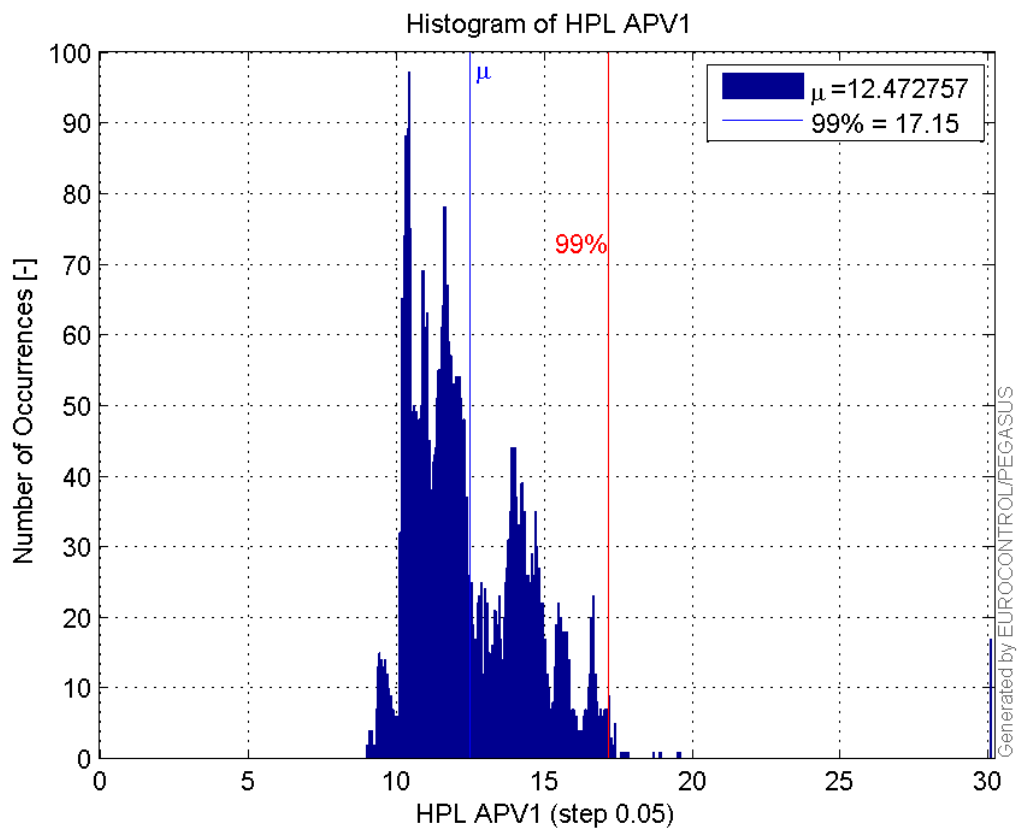
Histogram of HPE APV1:



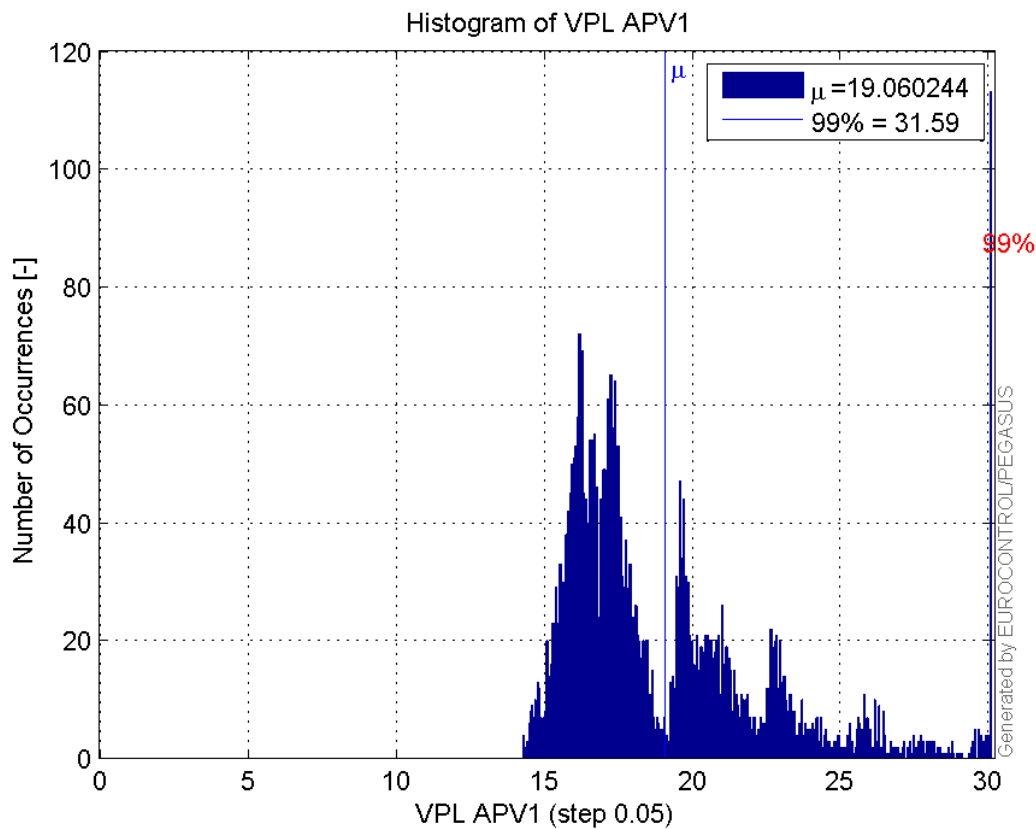
Histogram of VPE APV1:



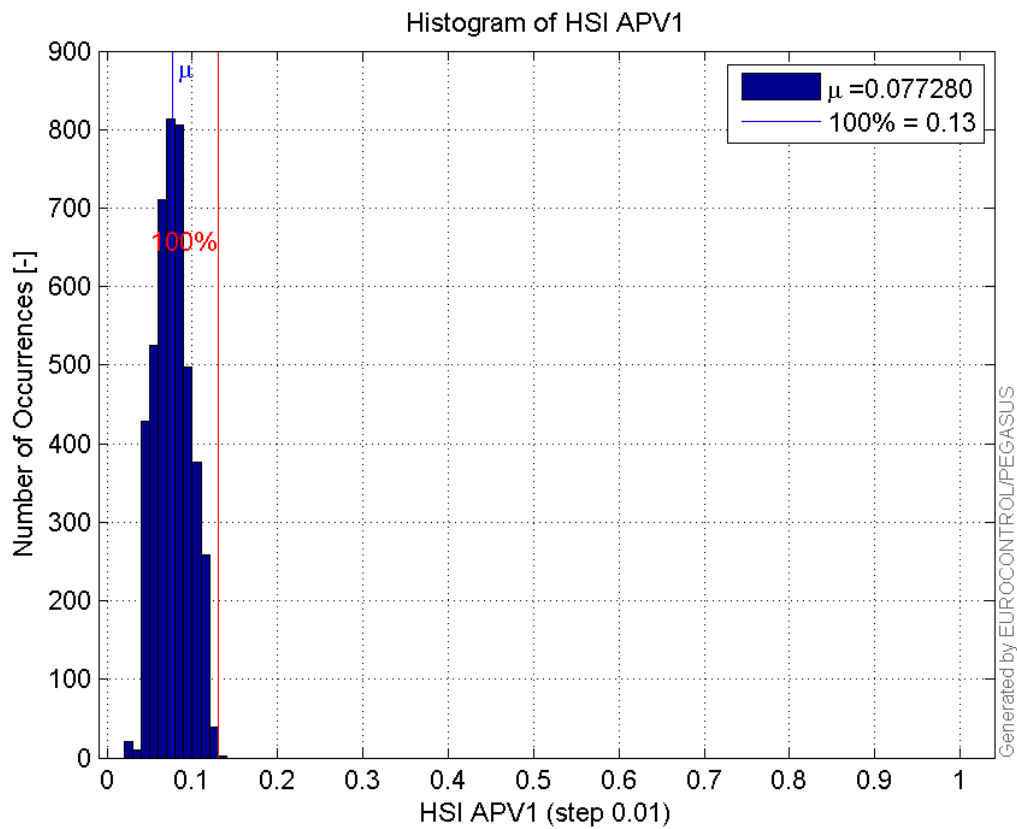
Histogram of HPL APV1:



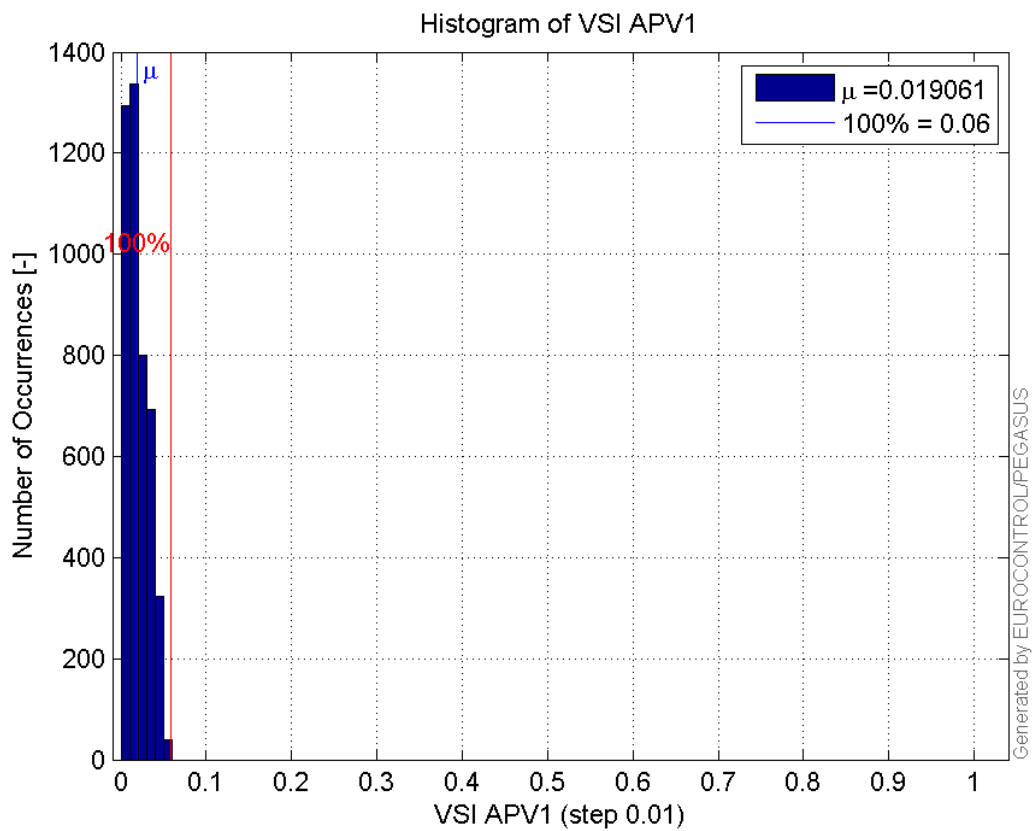
Histogram of VPL APV1:



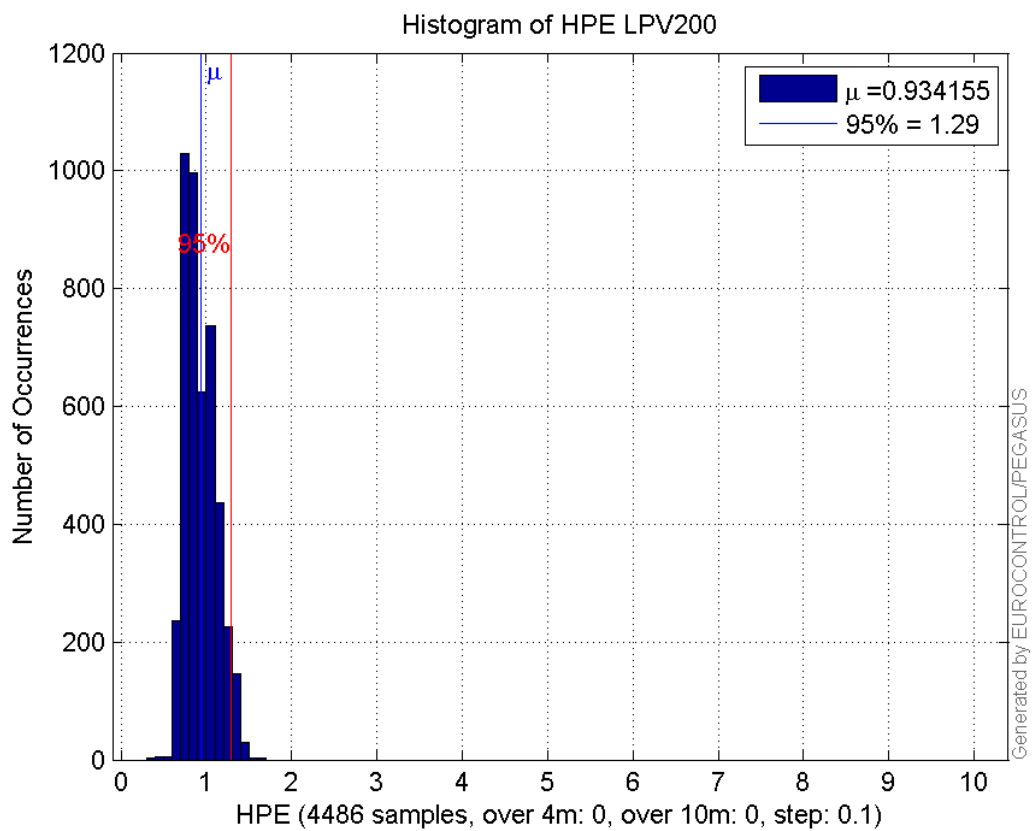
Histogram of HSI APV1:



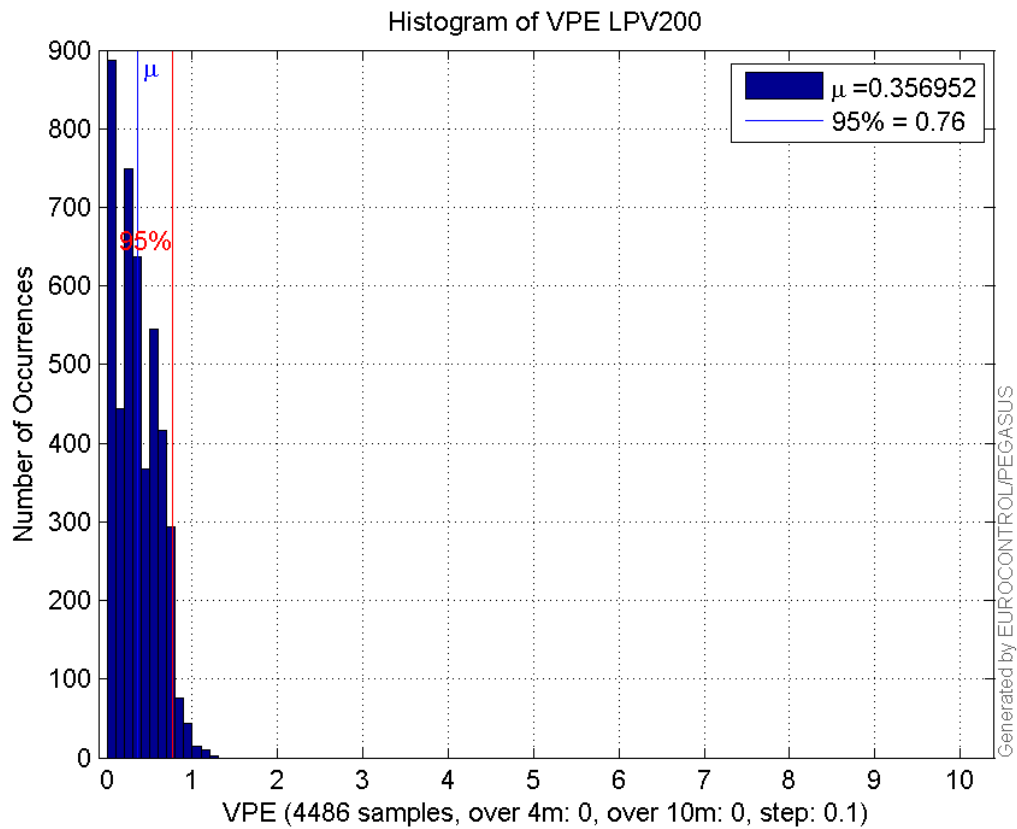
Histogram of VSI APV1:



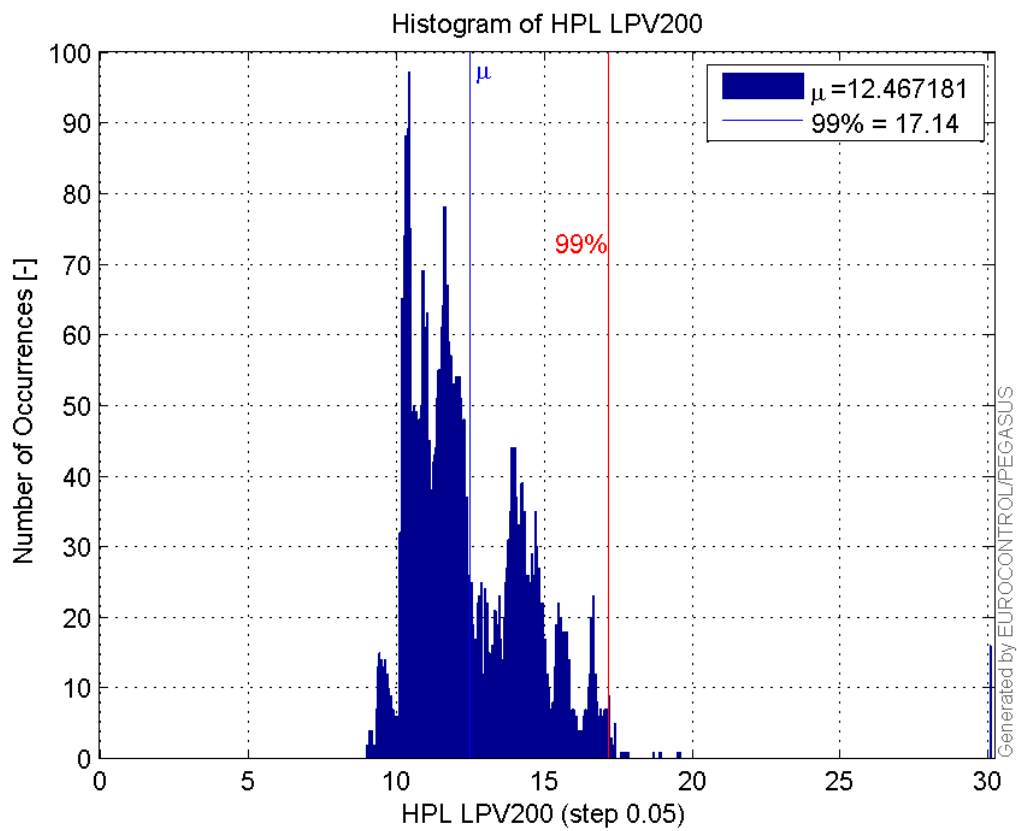
Histogram of HPE LPV200:



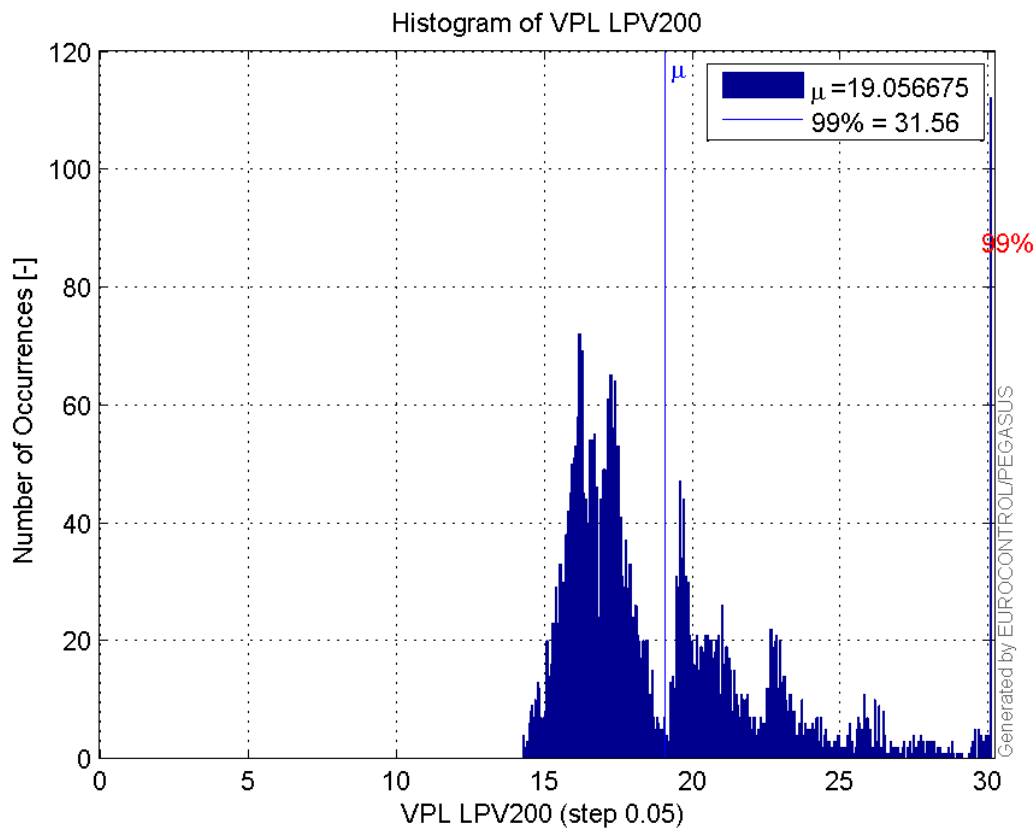
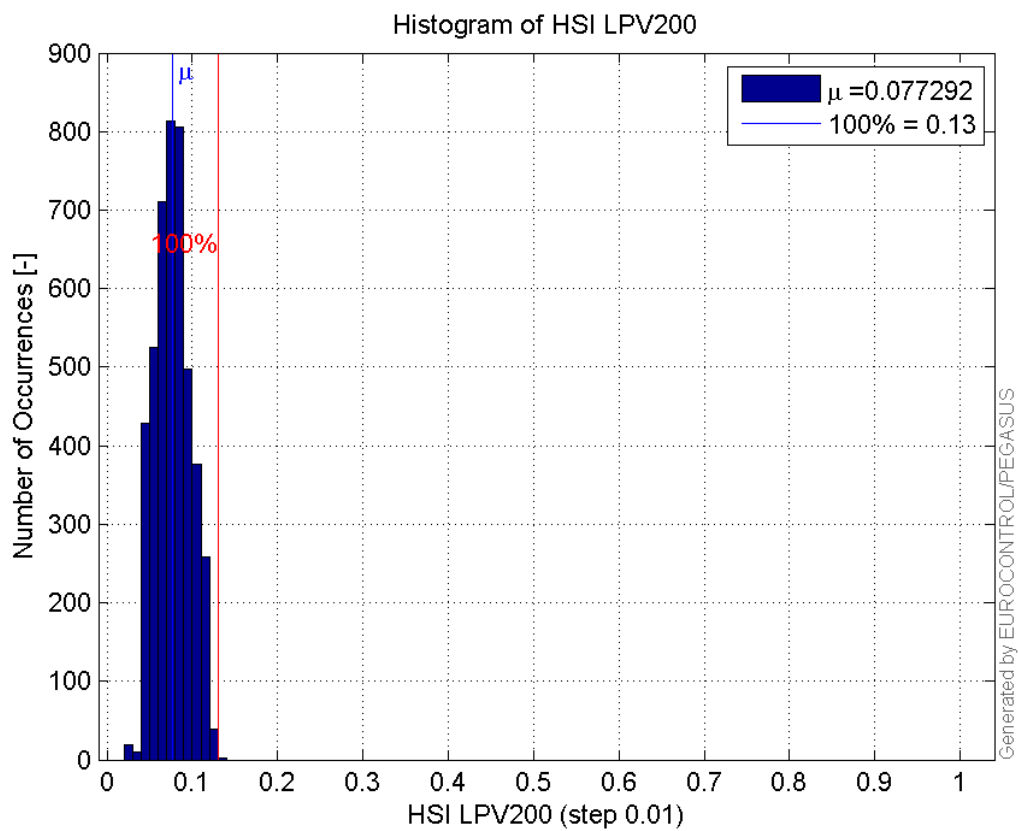
Histogram of VPE LPV200:

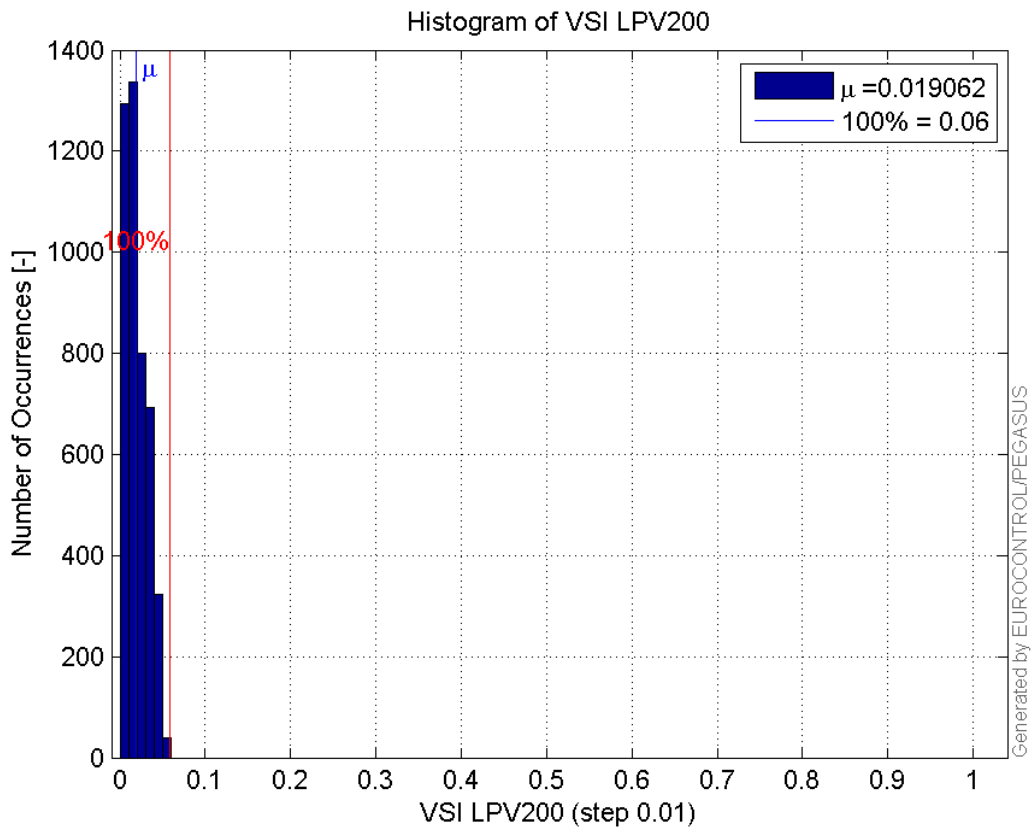


Histogram of HPL LPV200:



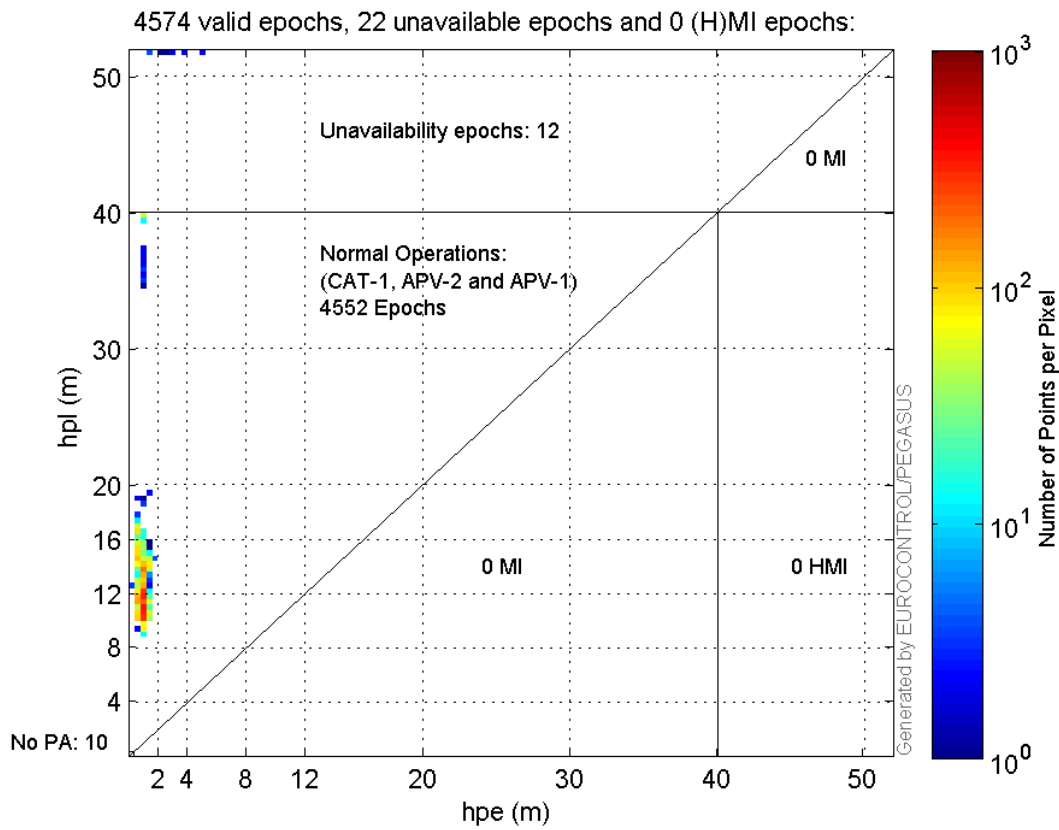
Histogram of VPL LPV200:

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

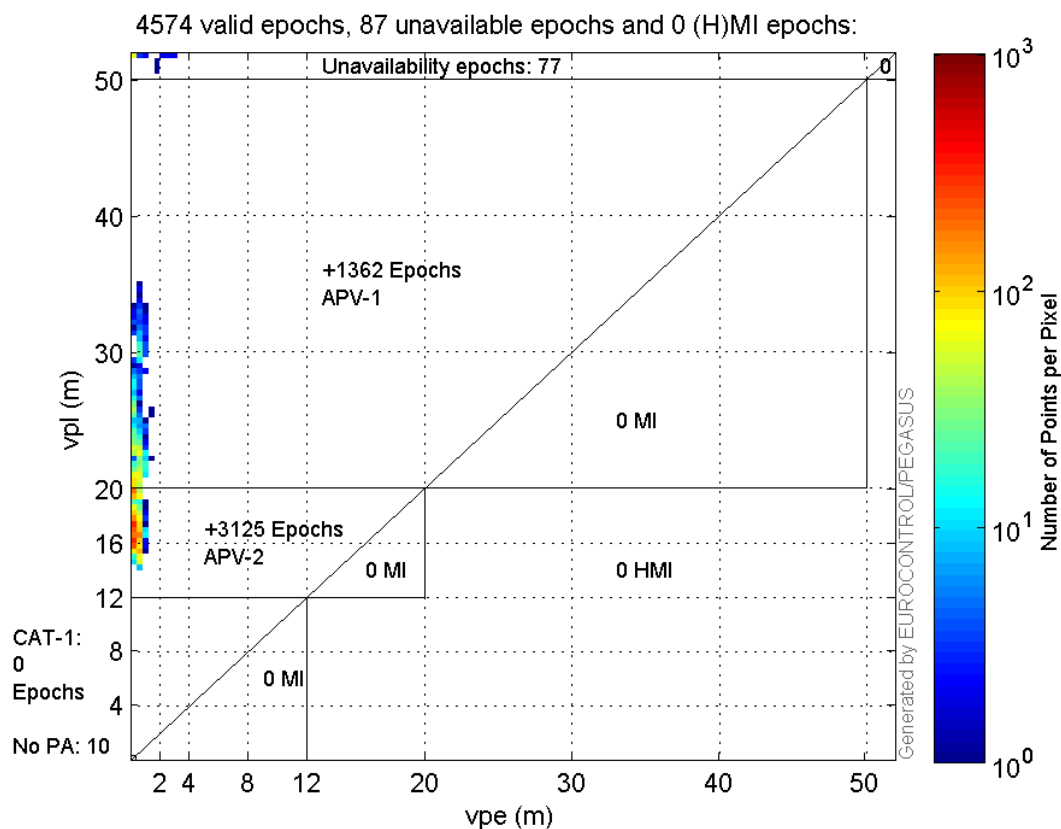


Stanford Plots

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:/PegasusDateJob/job/2017_01_31EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_31EGNOS2Hz/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	30.4298
init_alt	results	239.2869
mi_numbers	results	0