

Global View

city Kiev
comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
program Pegasus
version 4.8.4
site Laboratory satellite systems
abbreviation NAU
country Ukraine
date 06/03/2016

Range Domain

start: 05:57:05 02.03.2016 (week: 1886 sec: 280625)
end: 11:44:35 02.03.2016 (week: 1886 sec: 301475)
duration: 05:47:31 ..

quality

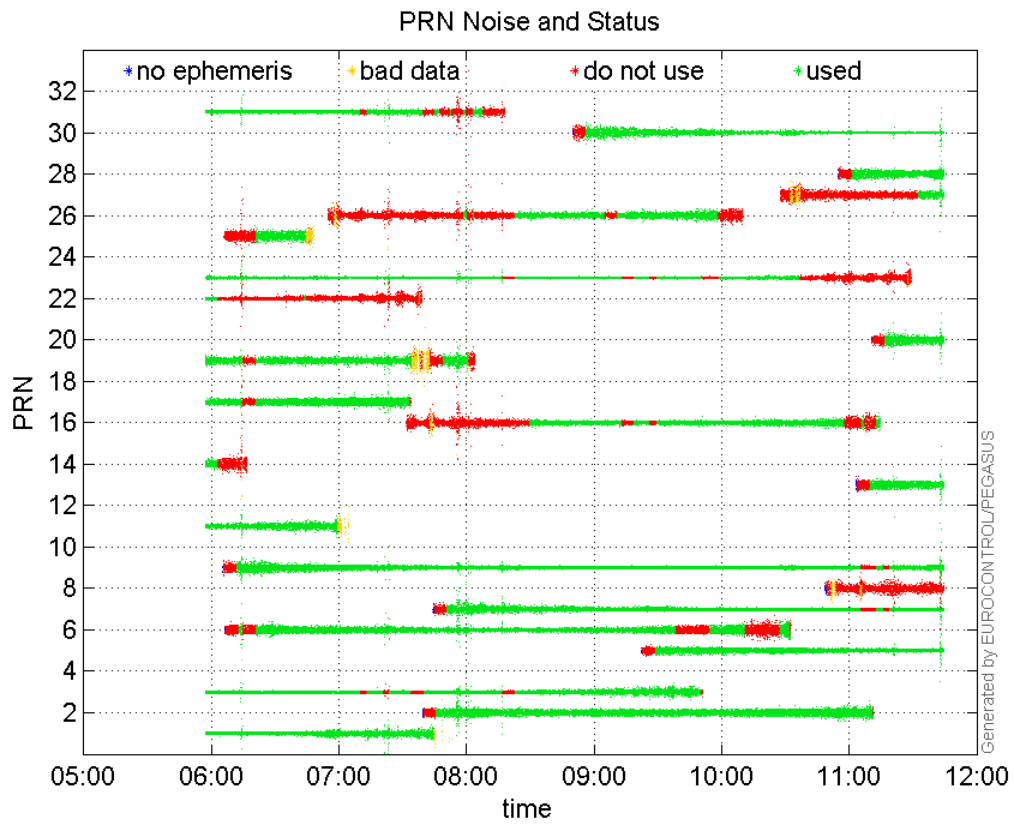
valid samples 20851
total samples 20851

PRN overview

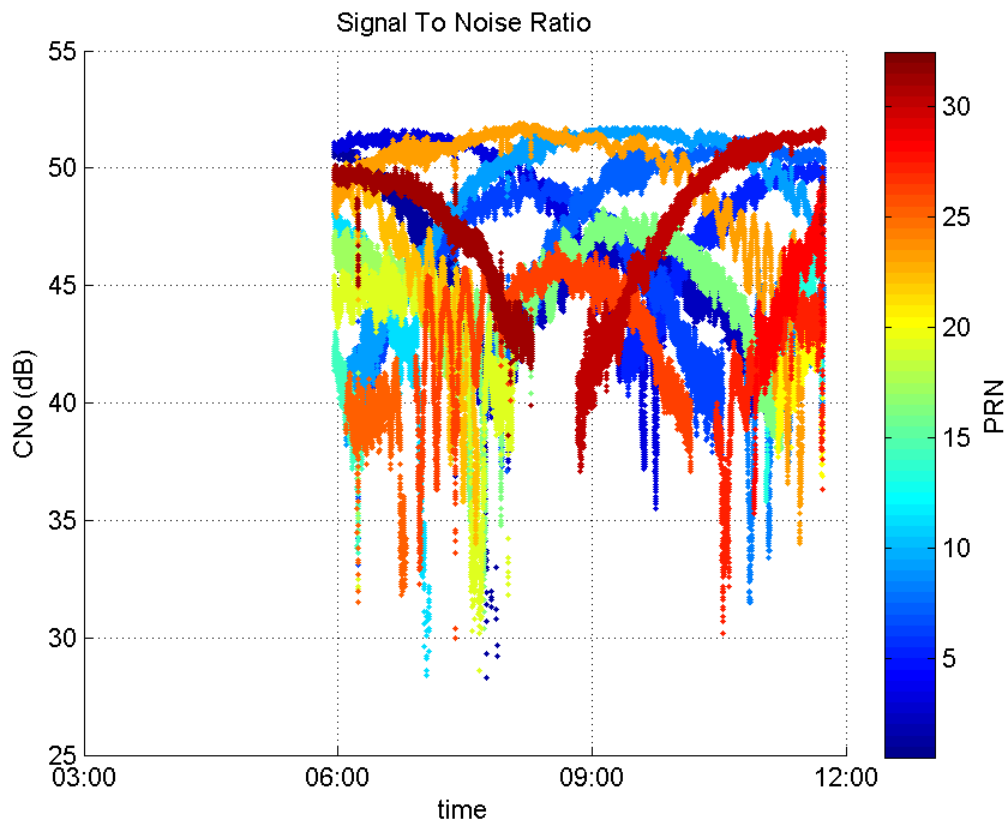
Number of Visible GPS Satellites 23
Number of Visible SBAS Satellites 3

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



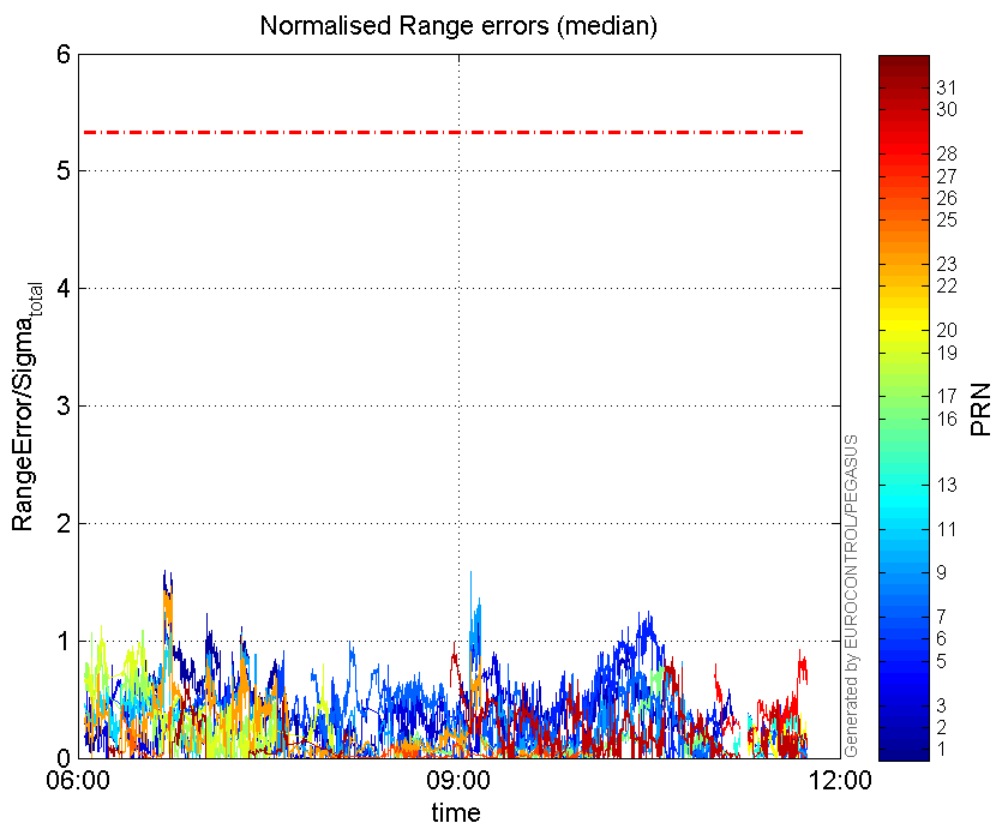
range errors

Number of Overbounding Norm Errors 0

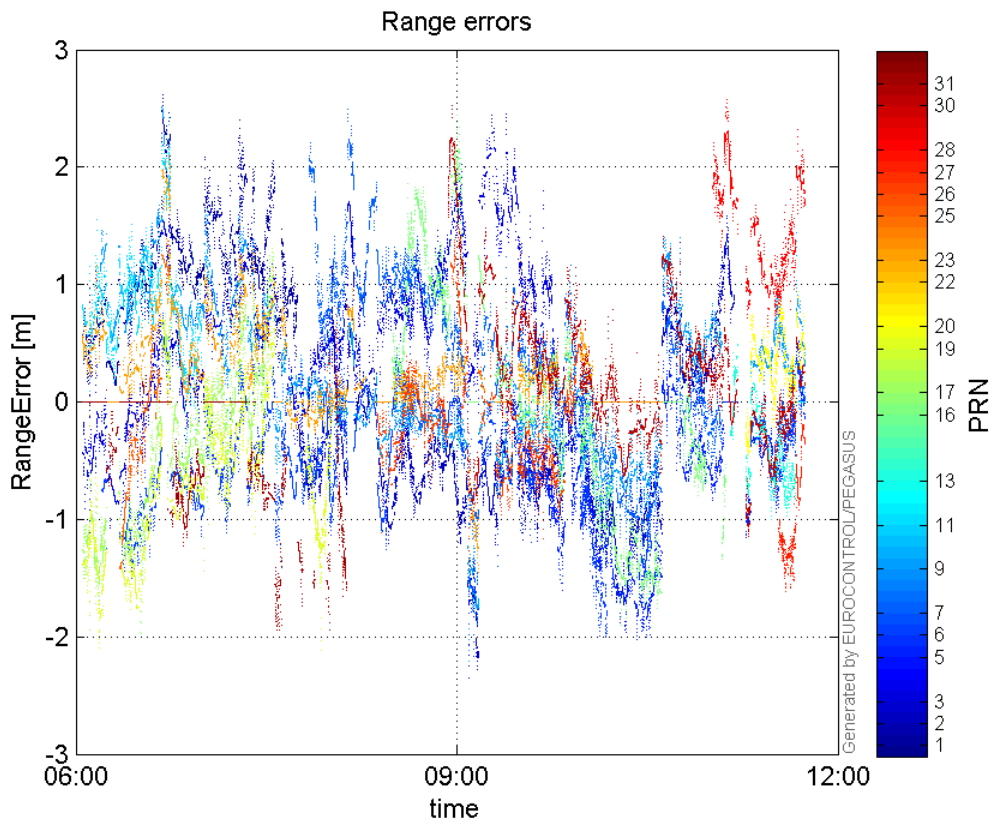
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1886	283251	1	1.59558	2.52908	1.58506
1886	291931	2	1.28336	-2.34627	1.82823
1886	283264	3	1.17364	1.6484	1.40451
1886	296979	5	1.25495	-2.00771	1.59983
1886	292080	6	1.18374	-2.16751	1.83107
1886	291931	7	1.01522	-1.63046	1.60601
1886	291931	9	1.58464	-2.20673	1.39257
1886	283424	11	1.05901	2.427	2.29177
1886	300526	13	0.437143	-1.00317	2.29484
1886	297291	16	0.817948	-1.75611	2.14697
1886	282656	17	1.09283	-1.97368	1.80602
1886	281452	19	1.13209	-2.09179	1.84772
1886	300421	20	0.408939	1.20251	2.94057
1886	283453	22	0.0774587	1.37327	17.729
1886	283422	23	1.46936	2.02949	1.38121
1886	282066	25	0.450018	-1.42267	3.16137
1886	293899	26	0.23042	-0.948175	4.11499
1886	301057	27	0.226246	-1.58423	7.00227
1886	301264	28	0.926883	2.3247	2.50808
1886	291469	30	0.982711	2.52349	2.56789
1886	283840	31	0.646417	-1.22666	1.89764

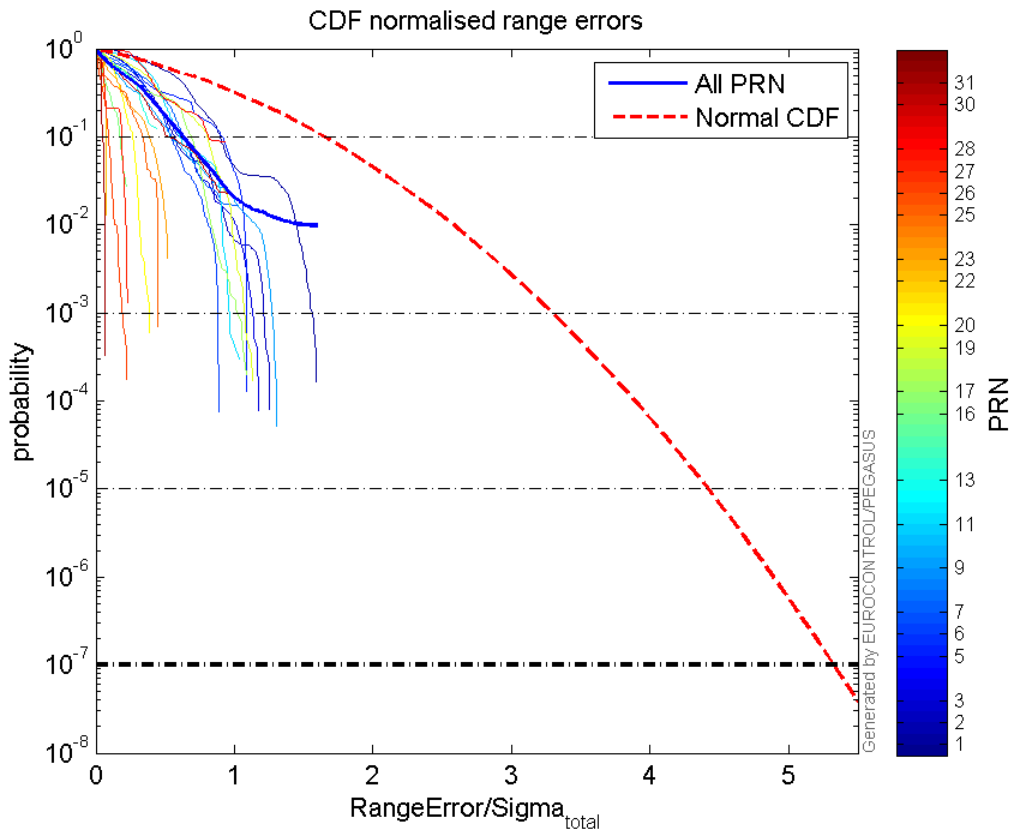
Normalised Range errors (median):



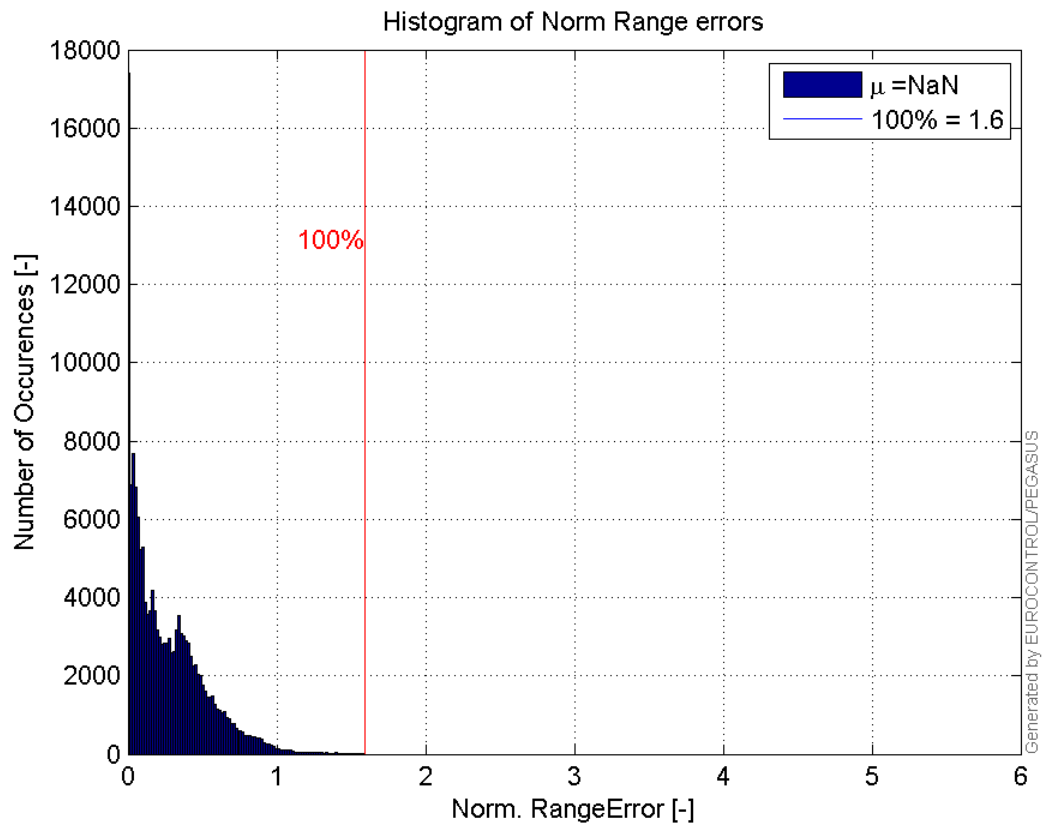
Range errors:



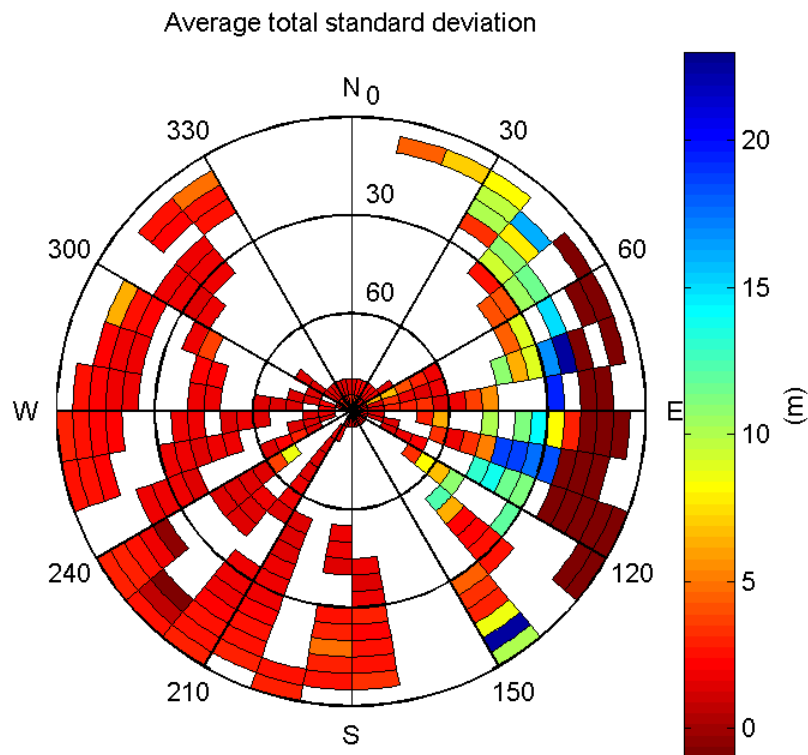
CDF normalised range errors:



Histogram of Norm Range errors:

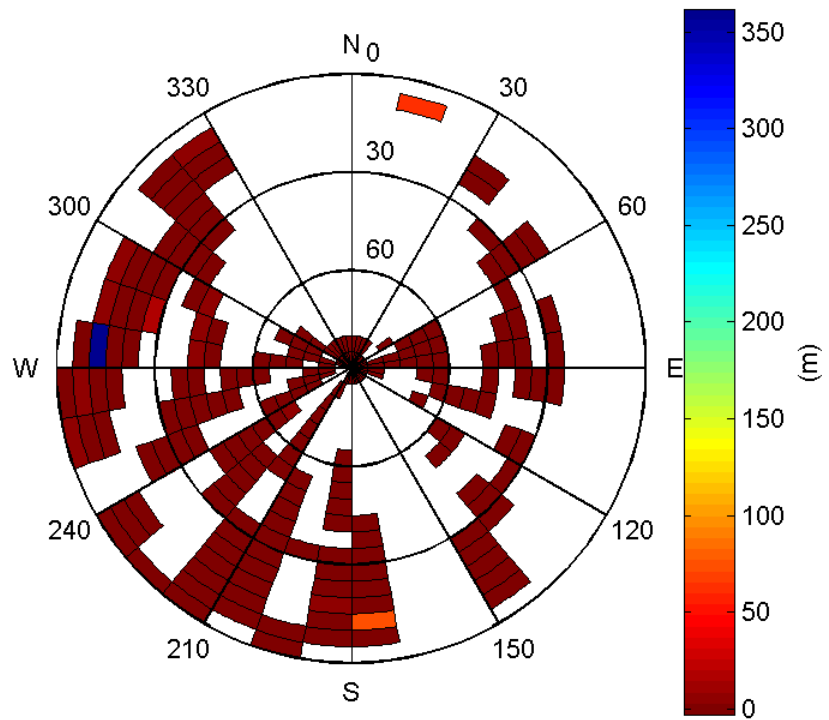


Sigma Sky Plot:



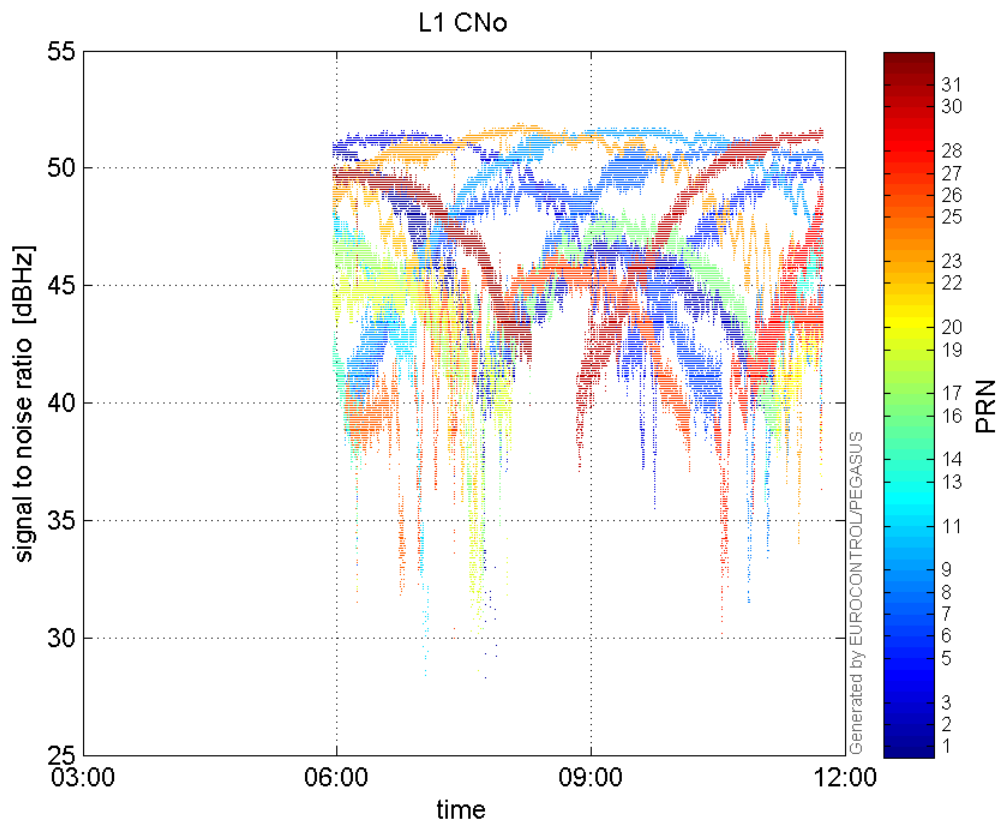
Norm Error Sky Plot:

Maximum Range Error

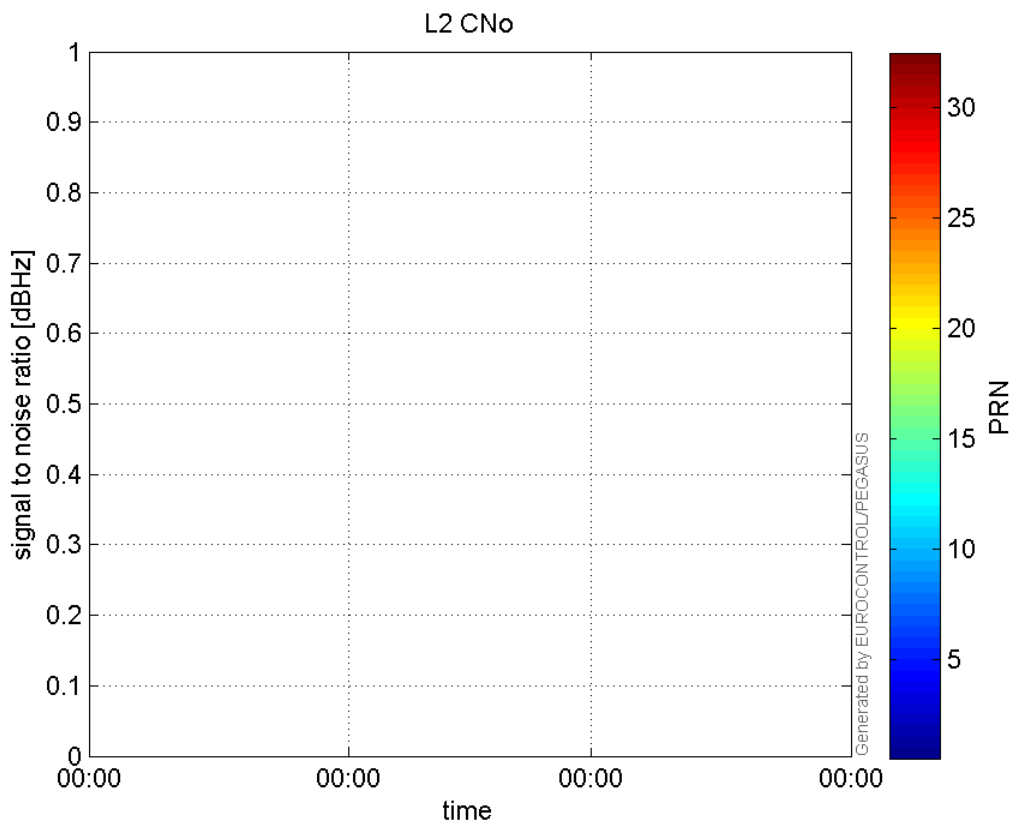


signal quality

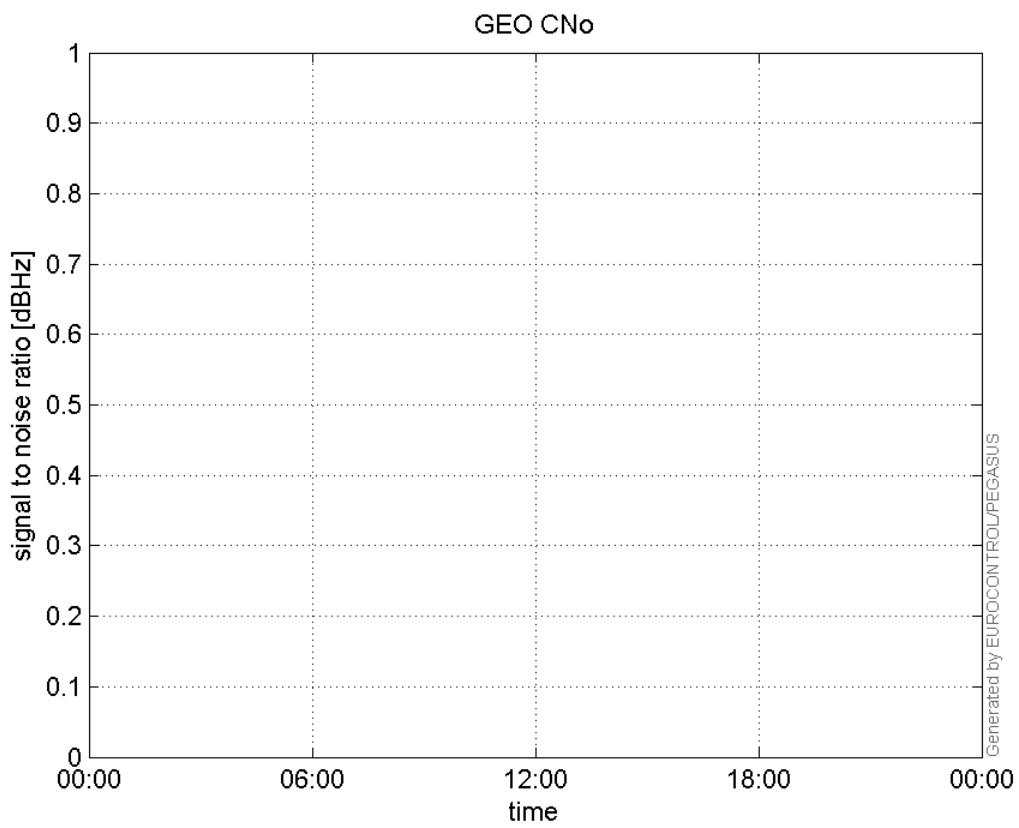
L1 CNo:



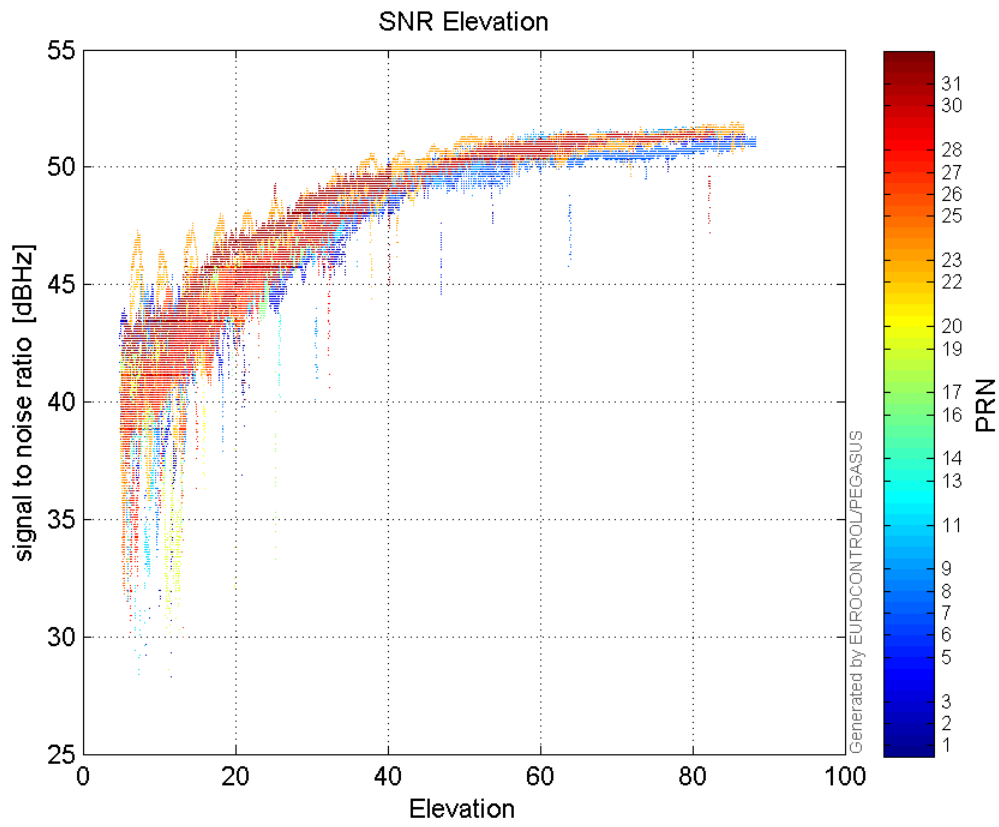
L2 CNo:



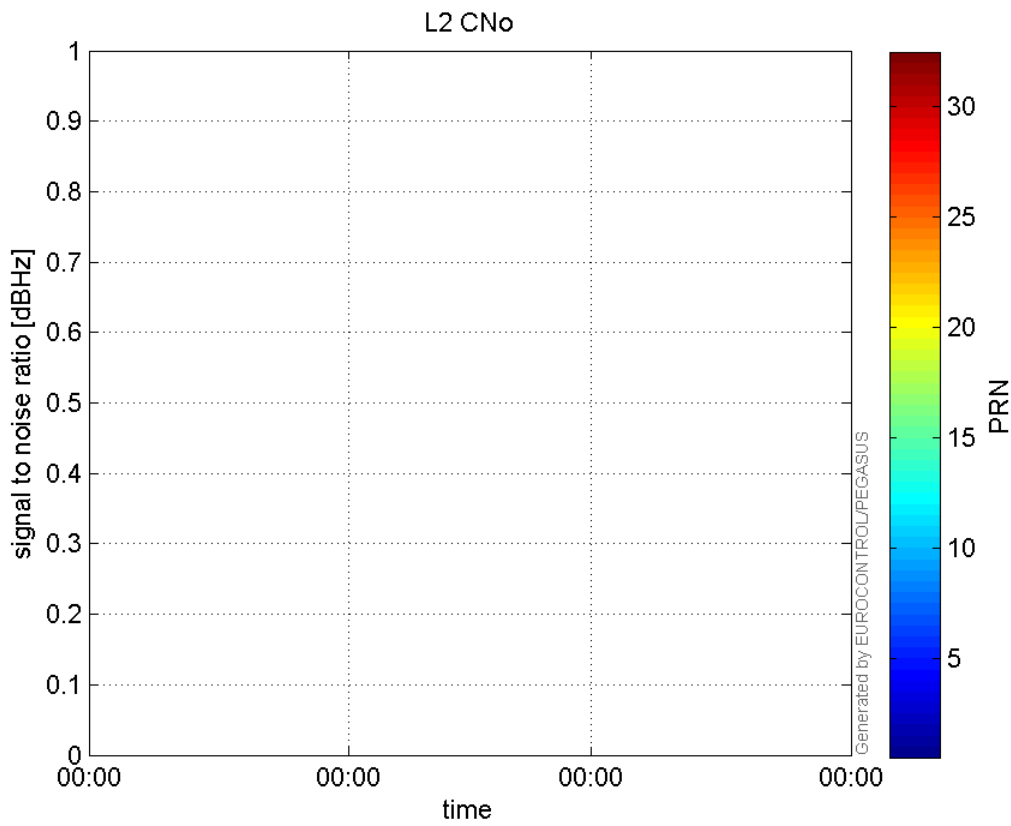
GEO CNo:



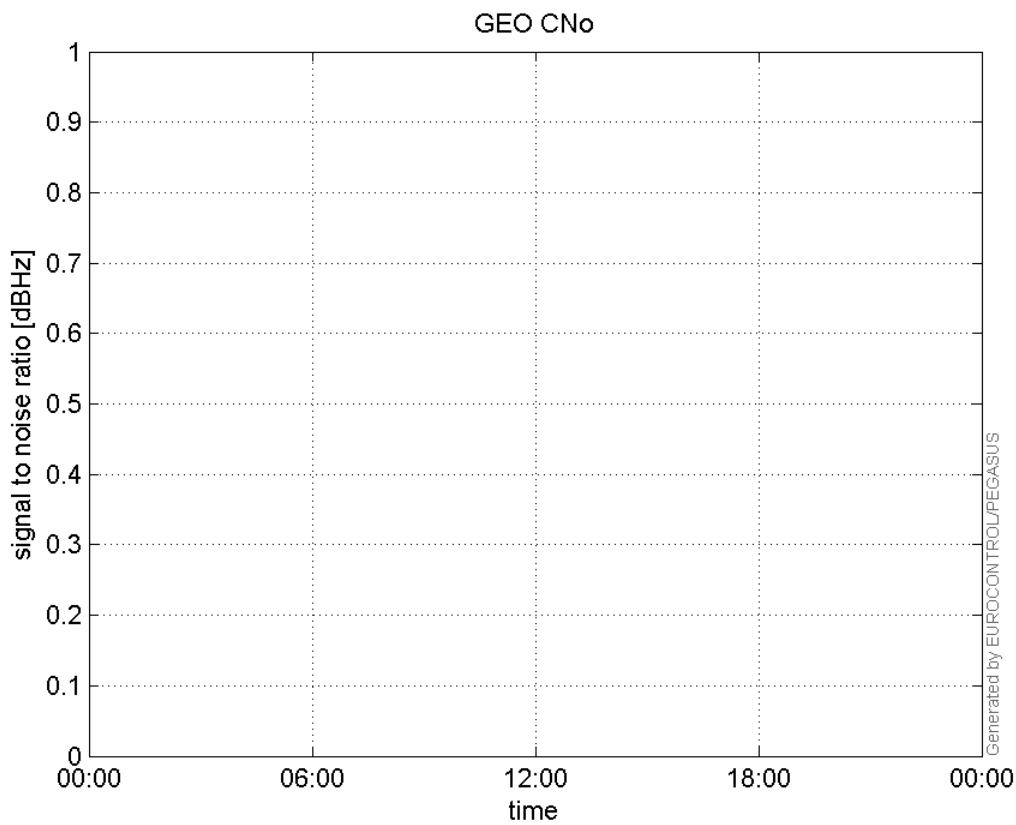
SNR Elevation:



L2 CNo:

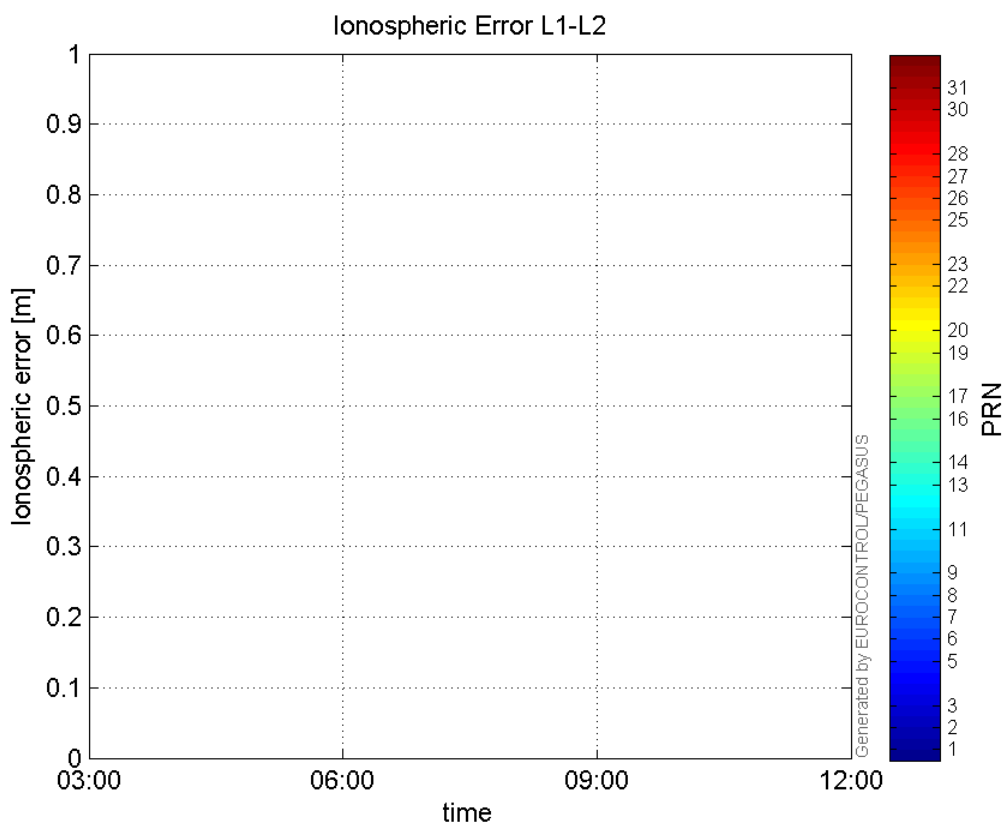


GEO CNo:



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:/PegasusDateGob/job/2016_03_02EGNOS615/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_03_02EGNOS615/03_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	224.4594
mi_numbers	results	0

SBAS Messages

start: 05:57:4.129 02.03.2016 (week: 1886 sec: 280624.129)
end: 11:44:34.129 02.03.2016 (week: 1886 sec: 301474.129)
duration: 05:47:30 ..

quality

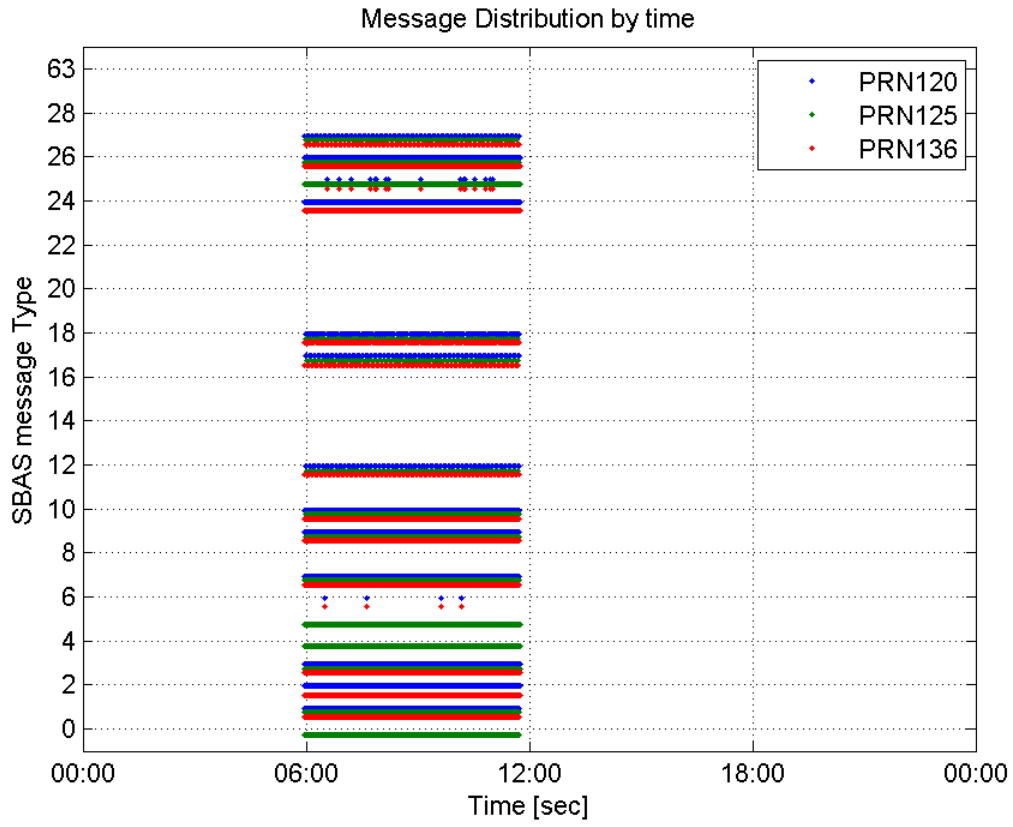
valid samples 62552
total samples 62552
number of SBAS PRNs 3

SBAS SIS Overview

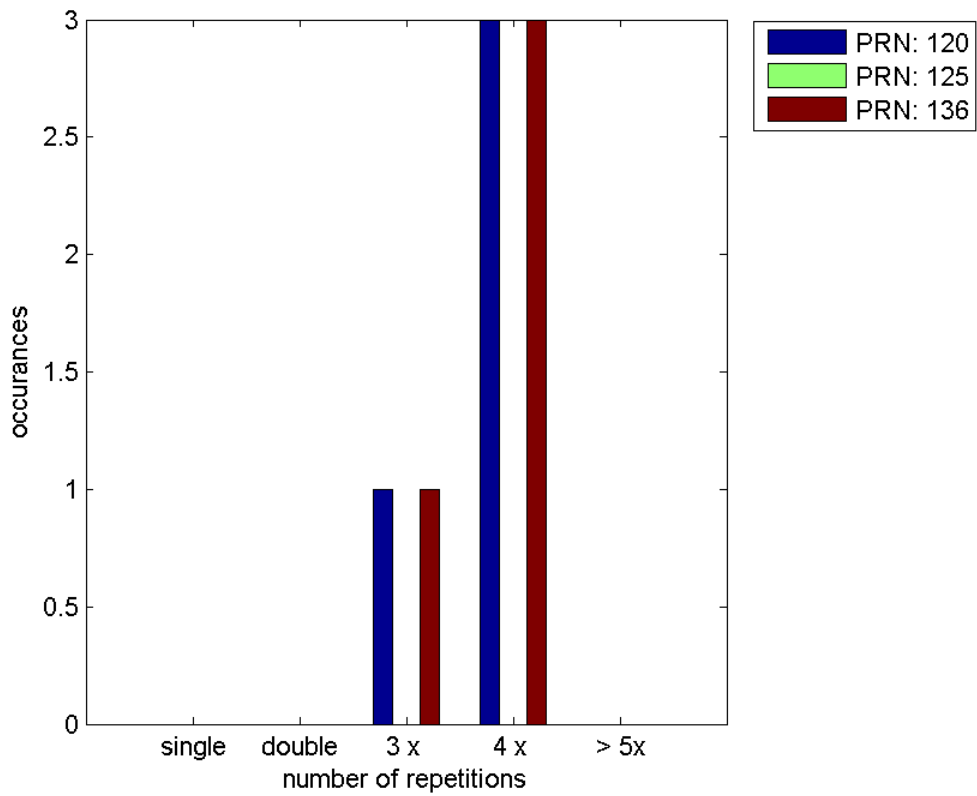
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	3	0
PRN 125	0	0	0	0	0
PRN 136	0	0	1	3	0

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

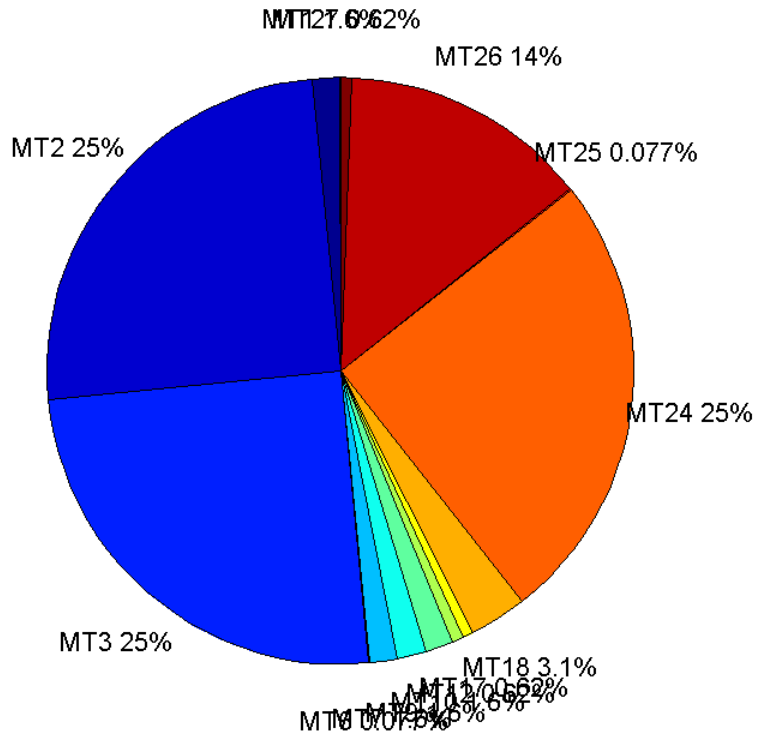
	number of messages	%
MT 0	0	0
MT 1	325	1.55875
MT 2	5207	24.9736
MT 3	5206	24.9688
MT 4	0	0
MT 5	0	0
MT 6	16	0.0767386
MT 7	324	1.55396
MT 9	325	1.55875
MT 10	325	1.55875
MT 12	130	0.623501
MT 17	130	0.623501
MT 18	650	3.11751
MT 24	5207	24.9736
MT 25	16	0.0767386
MT 26	2859	13.7122
MT 27	130	0.623501
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20850	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	68	64.1975	0	0	0
MT 2	4	8	4.00461	4	0	0
MT 3	4	8	4.00538	5	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	7239	885.733	3	3	3
MT 7	64	69	64.2105	0	0	0
MT 9	64	71	64.2222	0	0	0
MT 10	64	71	64.2099	0	0	0
MT 12	156	171	160.403	129	0	0
MT 17	156	167	160.403	0	0	0
MT 18	4	135	31.9322	0	0	0
MT 24	4	8	4.00461	0	0	0
MT 25	110	3870	1065.6	0	0	0
MT	4	28	7.29181	0	0	0

26						
MT 27	156	167	160.403	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 125

Broadcast SBAS Messages :

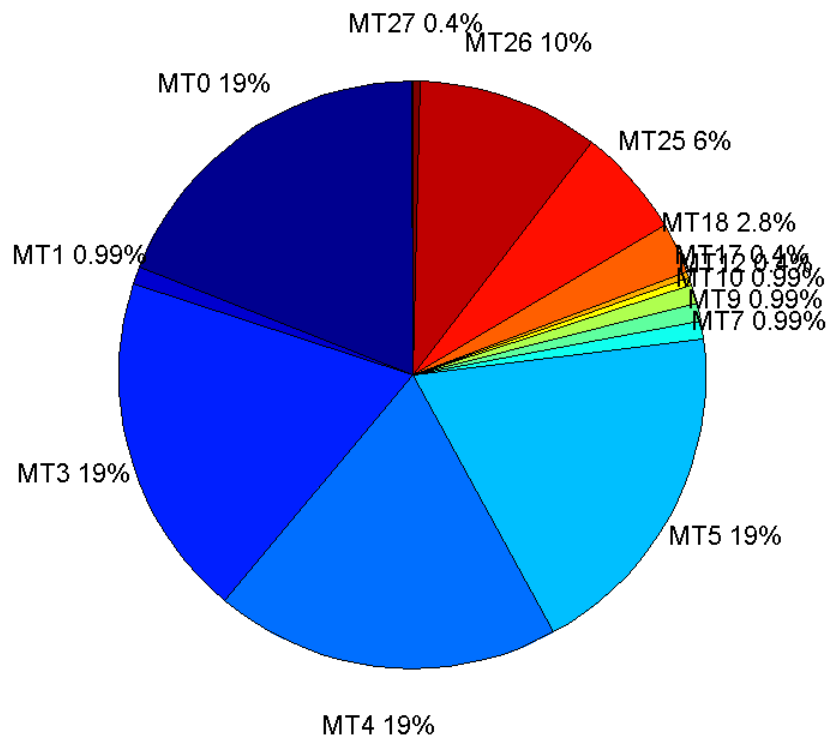
	number of messages	%
MT 0	3961	18.9967
MT 1	207	0.992758
MT 2	0	0
MT 3	3961	18.9967
MT 4	3961	18.9967
MT 5	3961	18.9967
MT 6	0	0
MT 7	207	0.992758
MT 9	206	0.987962
MT 10	207	0.992758
MT 12	83	0.398062

MT 17	83	0.398062
MT 18	581	2.78644
MT 24	0	0
MT 25	1259	6.03808
MT 26	2091	10.0283
MT 27	83	0.398062
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20851	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	5	6	5.26389	0	0	0
MT 1	97	106	100.748	0	0	0
MT 2	--	--	--	--	--	--
MT 3	5	6	5.26364	0	0	0
MT 4	5	6	5.26364	0	0	0
MT 5	5	6	5.26389	0	0	0
MT 6	--	--	--	--	--	--
MT 7	96	104	100.791	0	0	0
MT 9	99	102	100.859	0	0	0
MT 10	95	105	100.694	0	0	0
MT 12	240	254	249.866	82	0	81
MT 17	243	253	249.841	0	0	0
MT 18	1	213	35.4034	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	51	16.5715	0	0	0
MT 26	1	70	9.97368	0	0	0
MT 27	242	253	249.768	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 125:



SBAS SIS Analysis

PRN 136

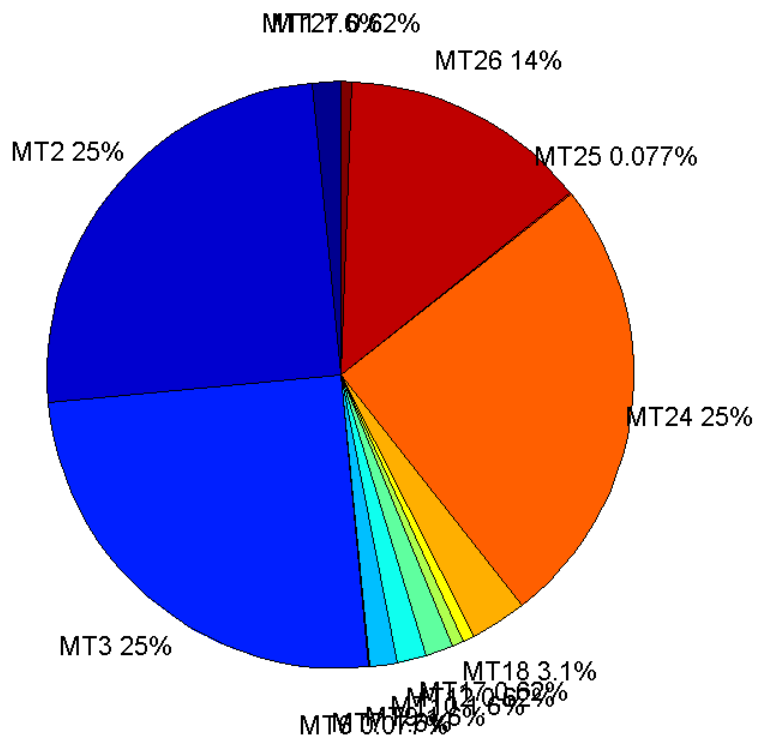
Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	325	1.55868
MT 2	5207	24.9724
MT 3	5207	24.9724
MT 4	0	0
MT 5	0	0
MT 6	16	0.0767349
MT 7	324	1.55388
MT 9	325	1.55868
MT 10	325	1.55868
MT 12	130	0.623471
MT 17	130	0.623471
MT 18	650	3.11736
MT 24	5207	24.9724
MT 25	16	0.0767349
MT 26	2859	13.7116
MT 27	130	0.623471
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20851	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	71	64.2222	0	0	0
MT 2	4	8	4.00461	4	0	0
MT 3	4	8	4.00461	4	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	7239	885.733	3	3	3
MT 7	64	69	64.2105	0	0	0
MT 9	64	68	64.1975	0	0	0
MT 10	64	71	64.2099	0	0	0
MT 12	157	168	160.403	129	0	0
MT 17	156	171	160.372	0	0	0
MT 18	4	131	32.1048	0	0	0
MT 24	4	8	4.00461	0	0	0
MT 25	110	3870	1065.6	0	0	0
MT 26	4	31	7.28761	0	0	0
MT 27	156	167	160.403	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/2016_03_02EGNOS615/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_03_02EGNOS615/02_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: 05:57:05 02.03.2016 (week: 1886 sec: 280625)
end: 11:44:35 02.03.2016 (week: 1886 sec: 301475)
duration: 05:47:31 ..

quality

valid samples 20491
total samples 20851

Event tables

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

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	284362	1.31334	7.51112	0.174852	-0.539427	12.5793	0.0428821
max normVer	291469	1.24845	12.4156	0.100555	2.0909	18.5598	0.112657
max HPE	299553	8.62044	992.072	0.00868933	3.79963	279.361	0.0136011
max VPE	299553	8.62044	992.072	0.00868933	3.79963	279.361	0.0136011
min HPL	284362	1.31334	7.51112	0.174852	-0.539427	12.5793	0.0428821
min VPL	283415	1.16729	10.0906	0.115681	-0.269988	12.2824	0.0219817

Position discontinuity events :

#	Epoch	duration	stable period
1	299553	232	18568

APV-I discontinuity events :

#	Epoch	duration	stable period
1	287082	35	6097
2	289015	320	972
3	298891	1032	9556

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	287082	236	6097
2	289015	320	972
3	294321	76	1
4	295858	534	1311
5	298891	1032	2266

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	287082	236	6097
2	289015	320	972
3	294321	76	1
4	295858	534	1311
5	298891	1032	2266

First Glance analysis

Duration 20851
Number of Samples 20851
Number of invalid sample 360
Number of no position solution samples 232

Number of missing sample	0
Logging Loss	0
Processing Loss	1.7265
Number of Misleading Information	0
Data gaps	0
Discontinuities	1

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
20259	19060	18228	0	18228

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.63779	1.61653	1.61262	NaN	1.61262
HPEscale 95%	NaN	5.83313	5.86676	NaN	5.86676
VPE 95%	1.70818	1.63871	1.64093	NaN	1.64093
VPEscale 95%	NaN	3.84133	2.70592	NaN	2.70592

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.988678	0.930164	0.889561	0	0.889561
measurements	0.971608	0.914105	0.874203	0	0.874203
Operational	0.971608	0.914105	0.874203	0	0.874203

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	1	26	40	--	40
Long	1	3	5	--	5
Independent	1	3	4	--	4
P(disc.)	0.000740412	0.00236097	0.00329164	NaN	0.00329164
P(slide)	0.000740412	0.00624344	0.0103138	NaN	0.0103138

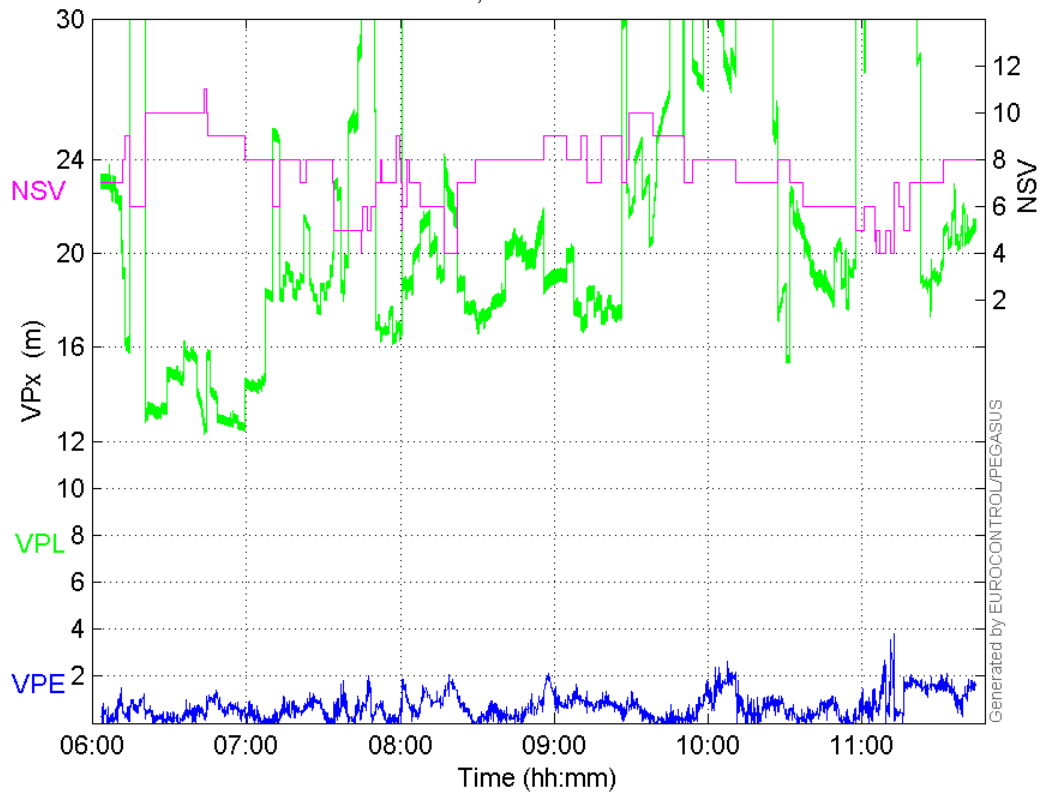
Integrity events :

	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 :

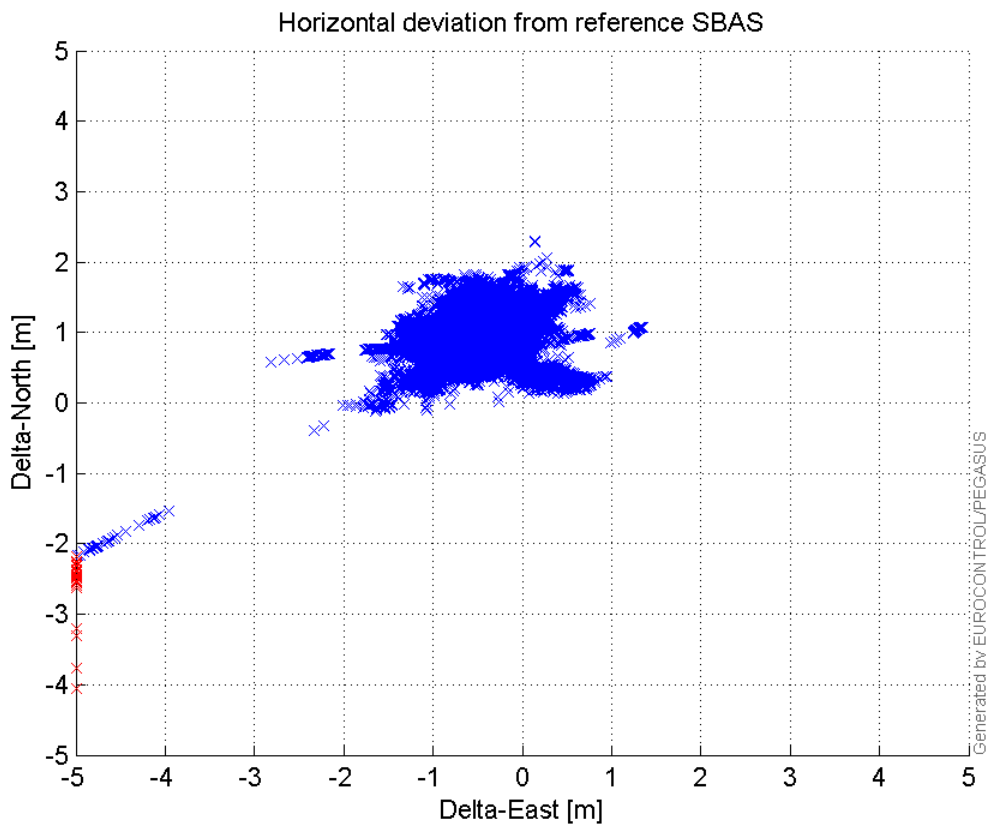
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	20259	19060	18228	0	18228
SIS Availability	0.988678	0.930164	0.889561	0	0.889561
Local Availability	0.971608	0.914105	0.874203	0	0.874203
Operational Availability	0.971608	0.914105	0.874203	0	0.874203
HPE 95%	1.63779	1.61653	1.61262	NaN	1.61262
HPEscale 95%	NaN	5.83313	5.86676	NaN	5.86676
VPE 95%	1.70818	1.63871	1.64093	NaN	1.64093

VPE, VPL and NSV



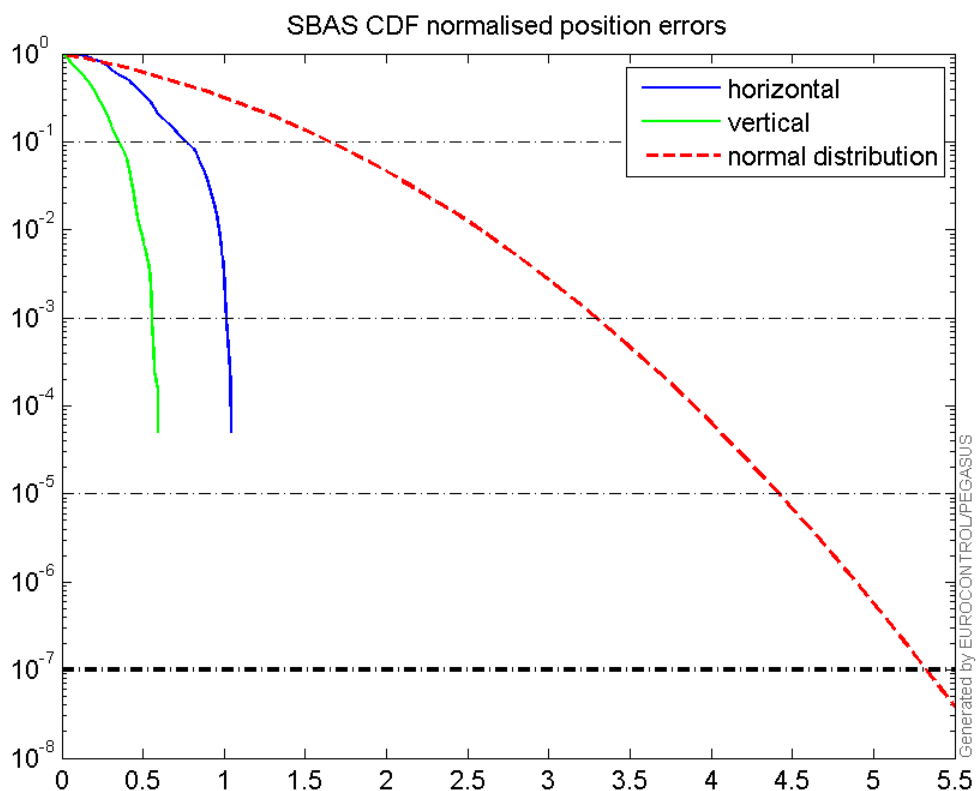
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

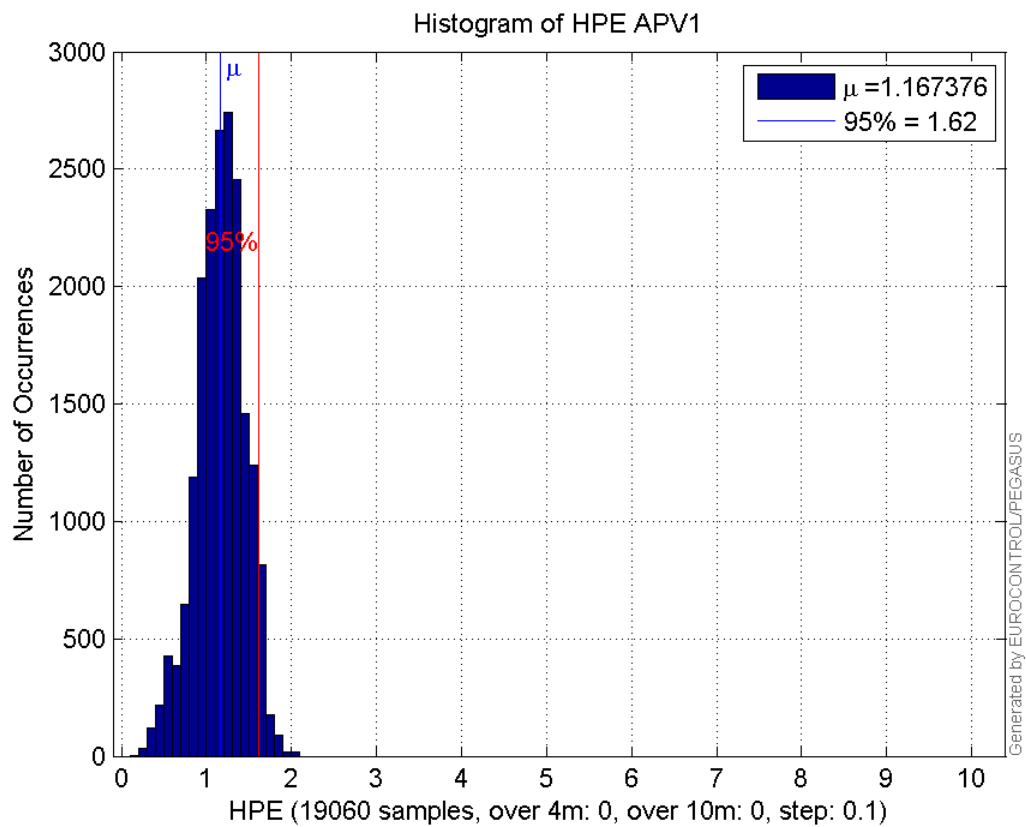
number	19060
sum	22250.183
sum2	27519.671
prctile95	1.6165293
prctile99	1.760277
number	19060
sum	12697.749
sum2	12787.378
prctile95	1.6387054
prctile99	1.9457817
number	19060
sum	345446.01
sum2	7137029.8
prctile95	30.103
prctile99	35.19585
number	19060
sum	408430.99
sum2	9549225.3
prctile95	34.5732
prctile99	41.54495
number	19060
sum	1431.623
sum2	131.37958
prctile95	0.14582818
prctile99	0.16161457
number	19060

sum 619.18595
sum2 29.965283
prctile95 0.076826511
prctile99 0.091528367
number 18228
sum 21179.553
sum2 26066.135
prctile95 1.612622
prctile99 1.7346317
number 18228
sum 12142.44
sum2 12272.136
prctile95 1.6409265
prctile99 1.949677
number 18228
sum 321169.6
sum2 6416360.2
prctile95 29.58477
prctile99 34.943322
number 18228
sum 375602.75
sum2 8248520.9
prctile95 31.65895
prctile99 34.386418
number 18228
sum 1394.6815
sum2 129.65529
prctile95 0.14666899
prctile99 0.16183934
number 18228
sum 605.42537
sum2 29.661904
prctile95 0.077312046
prctile99 0.092137004

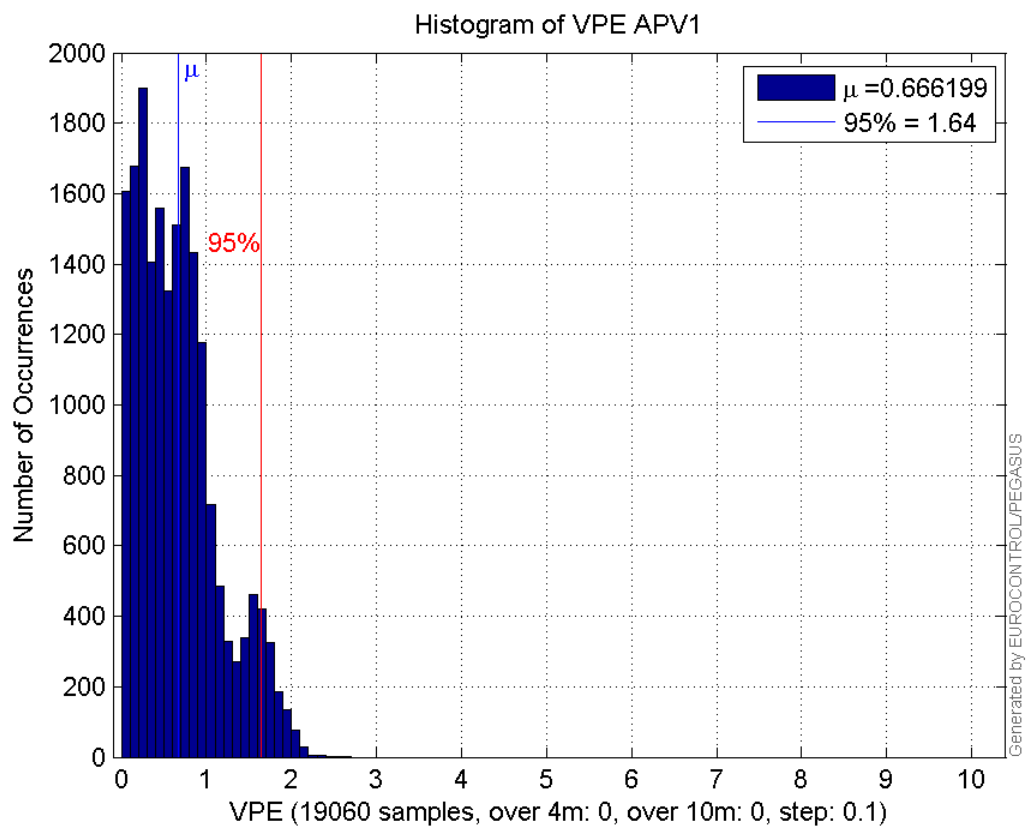
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.16738	0.284749	1.18119	1.61653	1.76028	1.2016
HPL	18.1241	6.78003	16.3583	30.103	35.1959	19.3507
VPE	0.666199	0.476542	0.604036	1.63871	1.94578	0.819086
VPL	21.4287	6.46697	19.3456	34.5732	41.545	22.3832

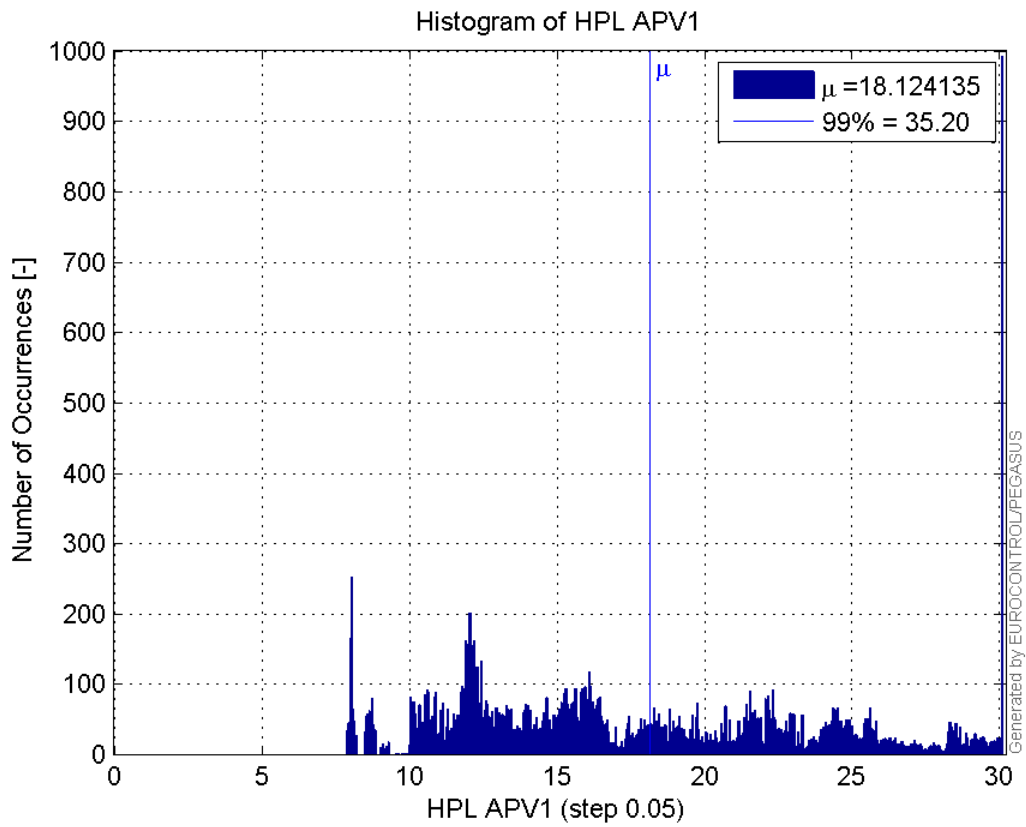
Histogram of HPE APV1:



Histogram of VPE APV1:

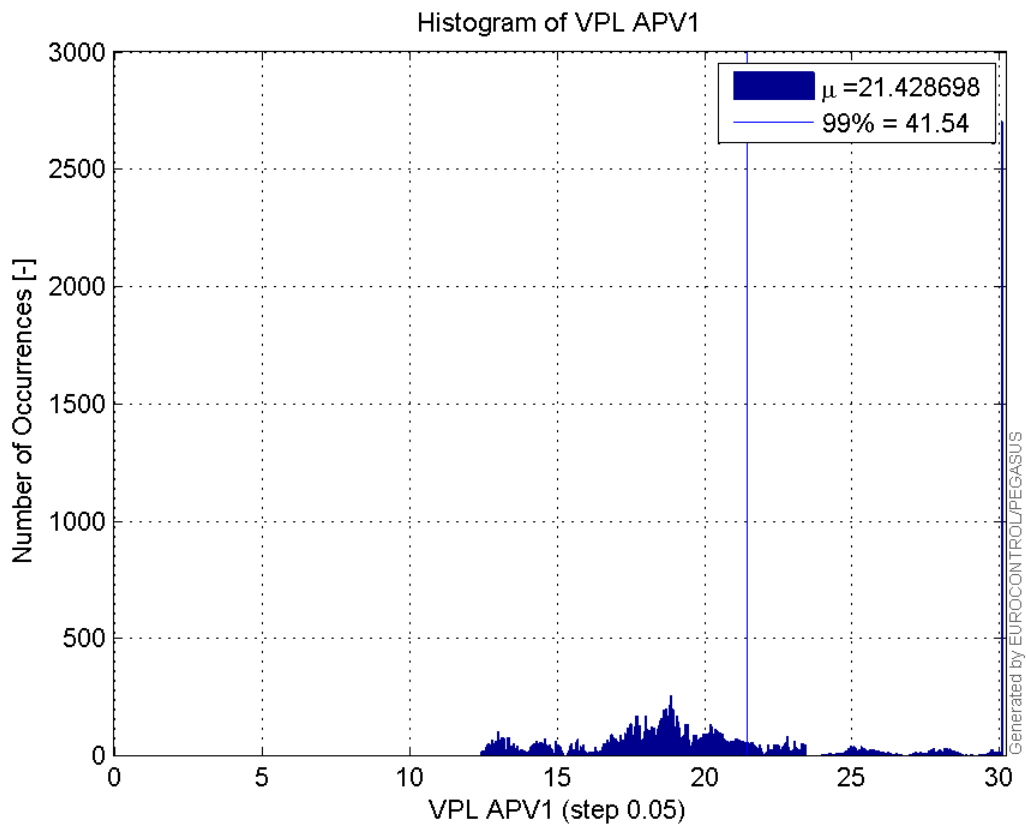


Histogram of HPL APV1:

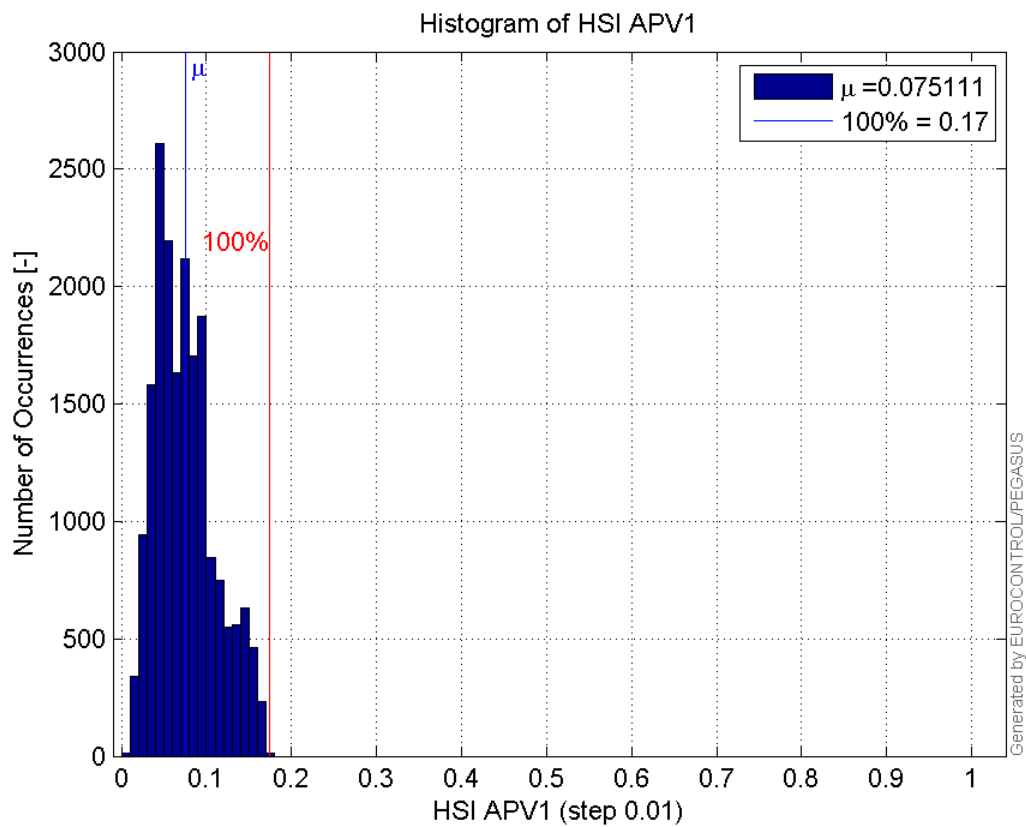
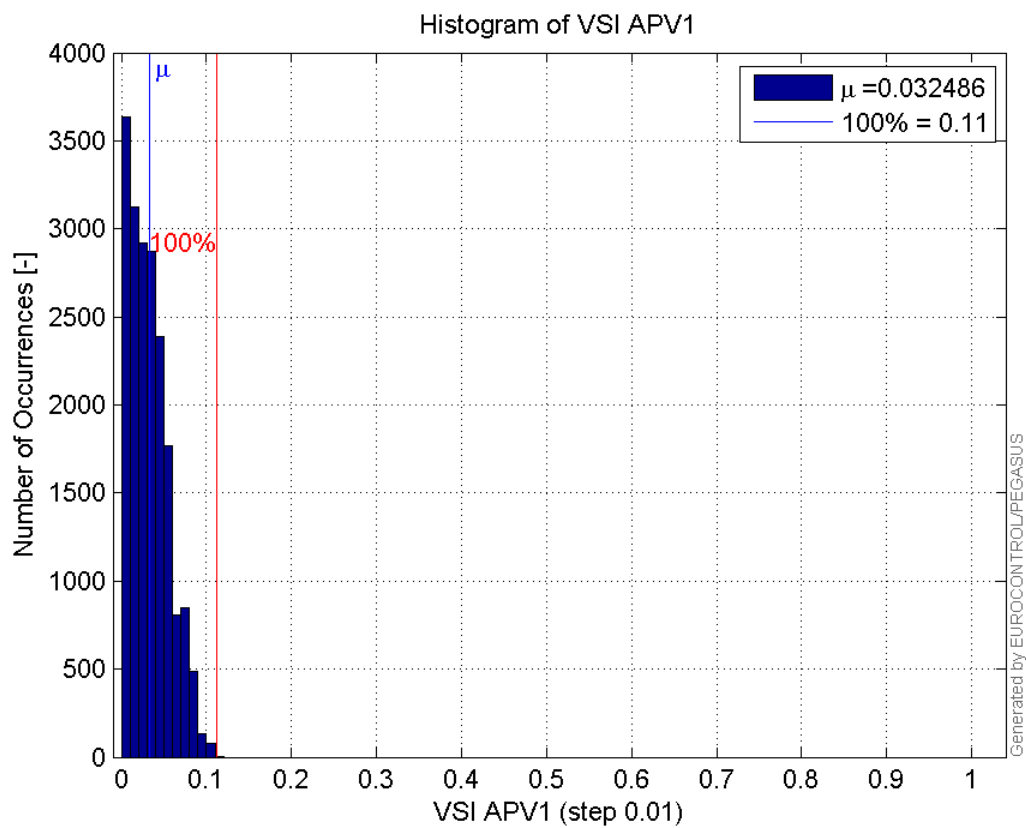


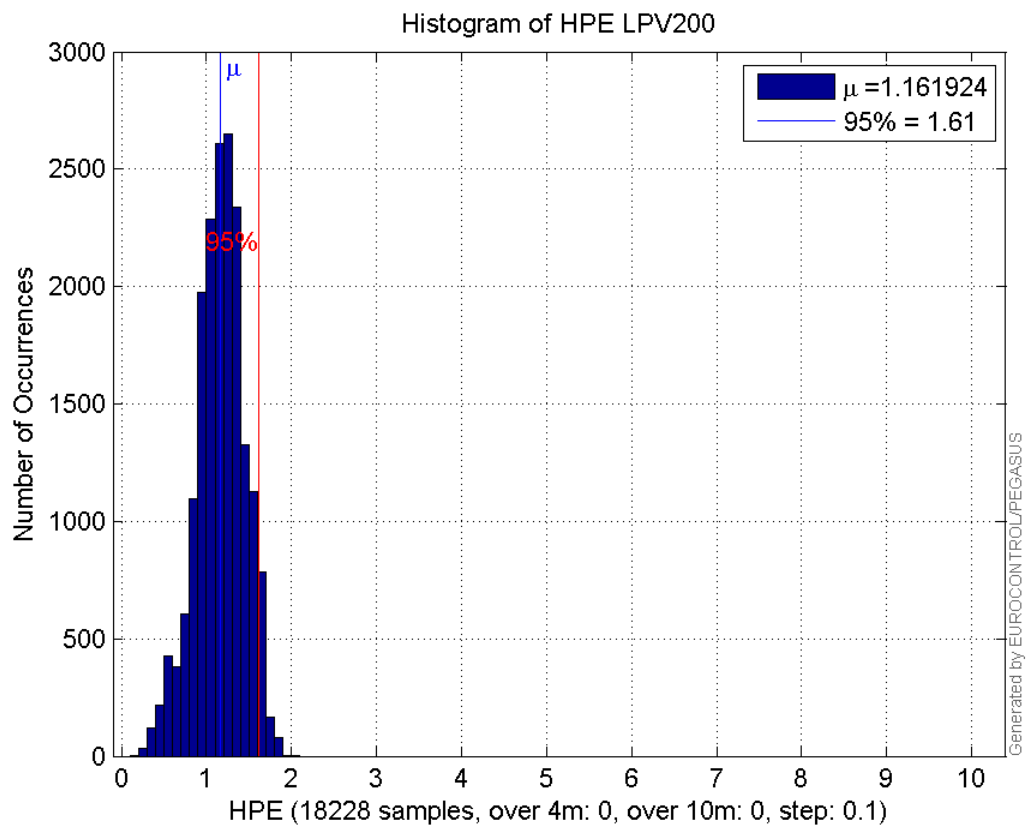
9

Histogram of VPL APV1:

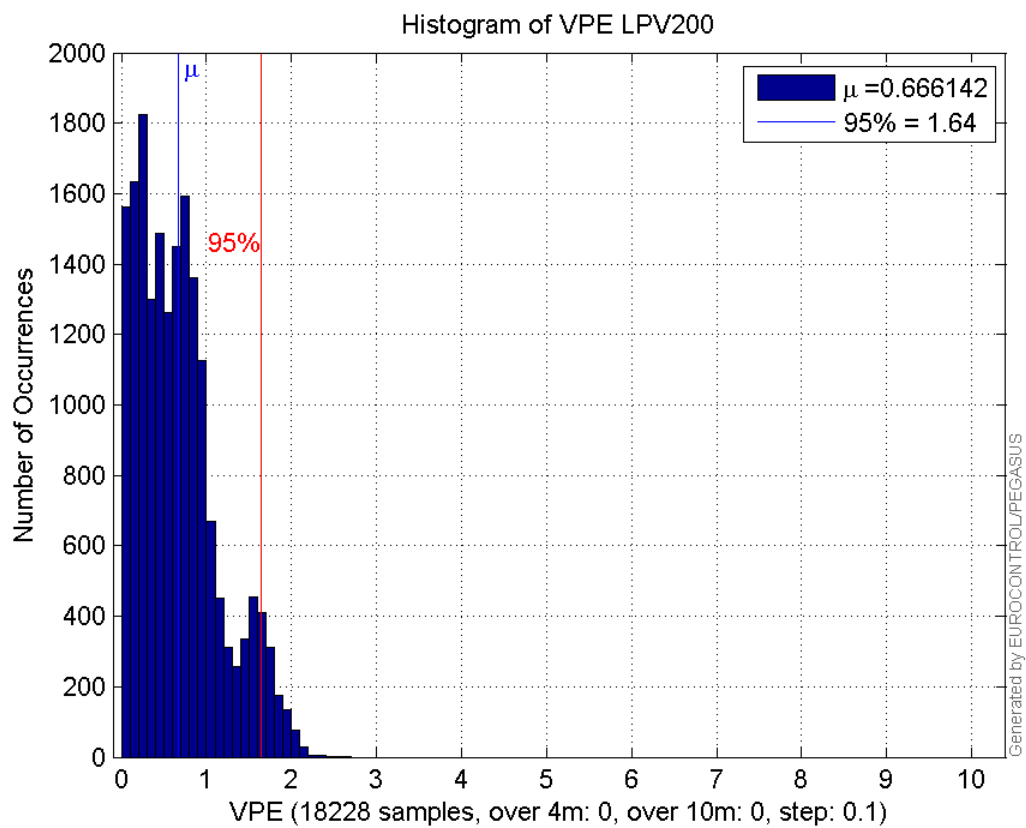


Histogram of HSI APV1:

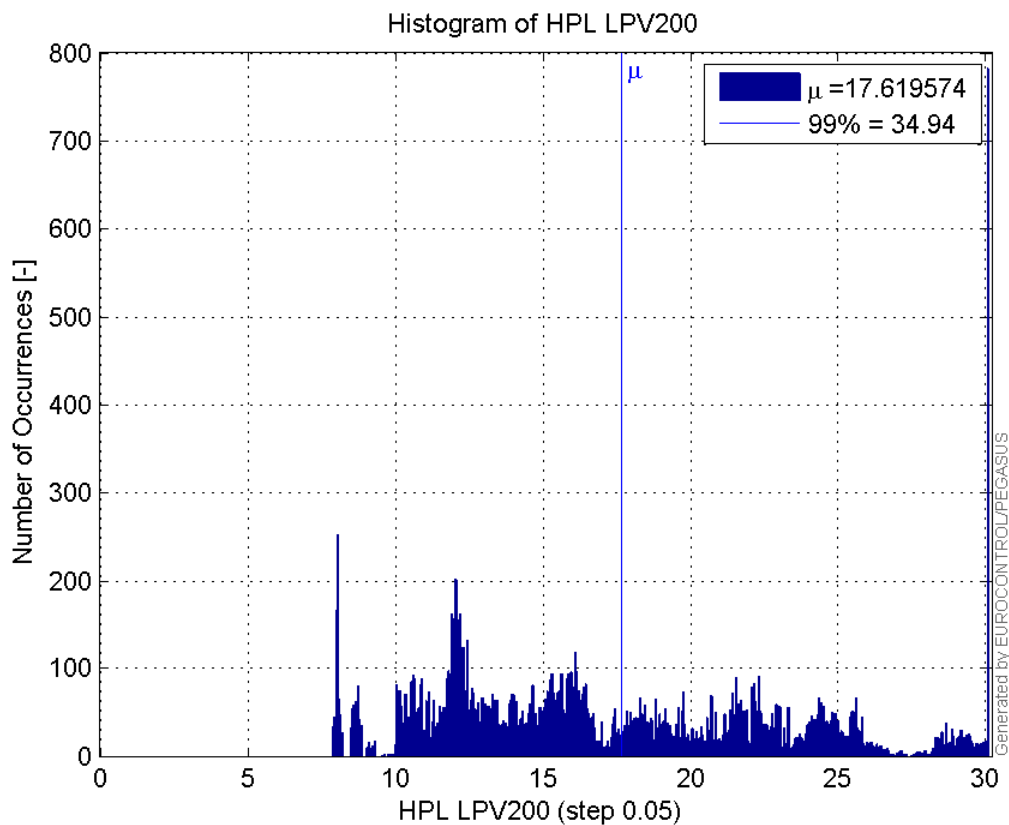
**Histogram of VSI APV1:****Histogram of HPE LPV200:**



Histogram of VPE LPV200:

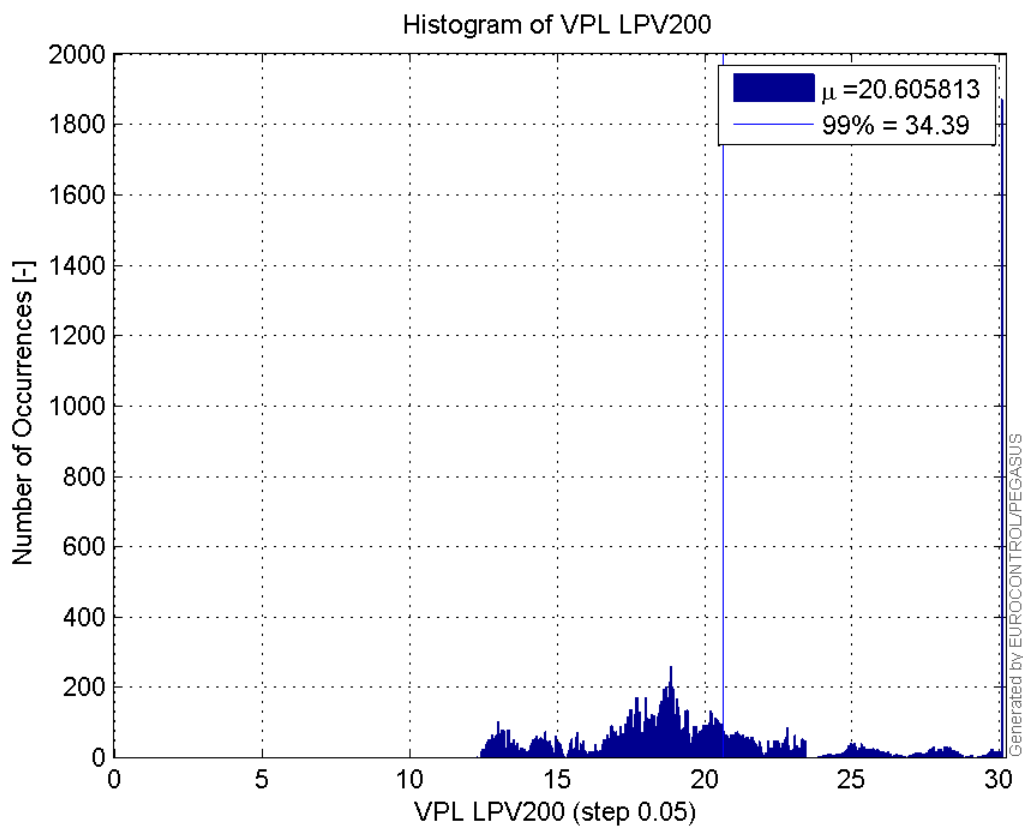


Histogram of HPL LPV200:



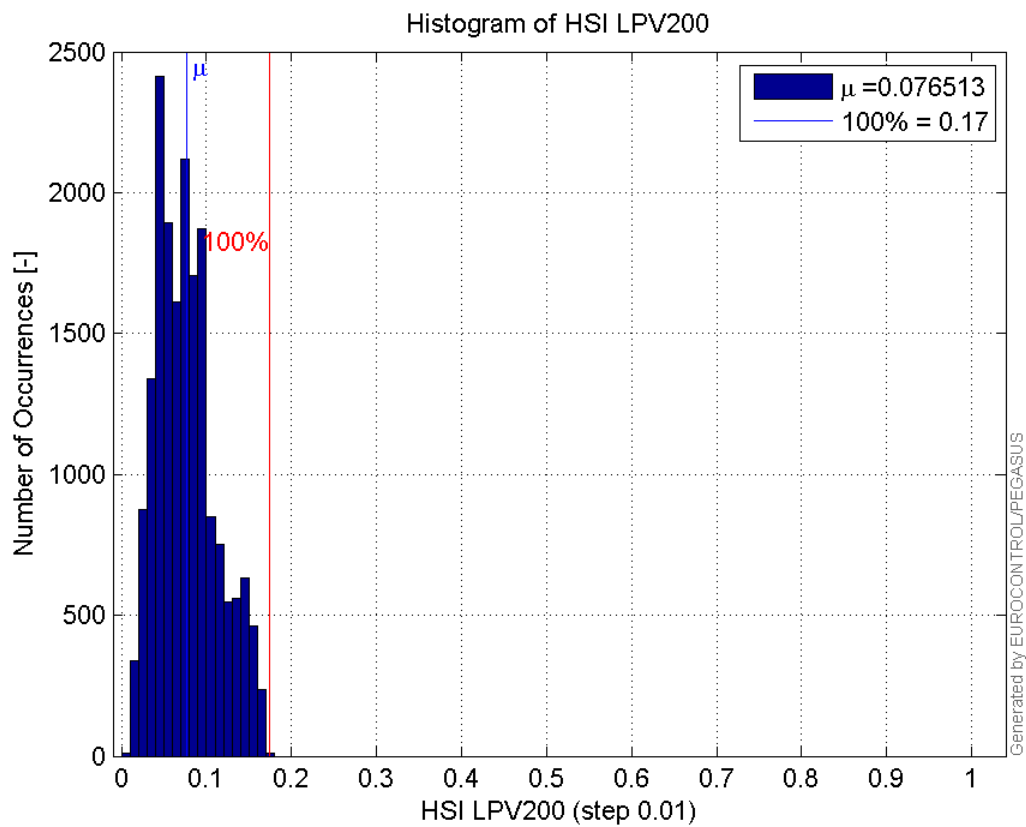
99

Histogram of VPL LPV200:

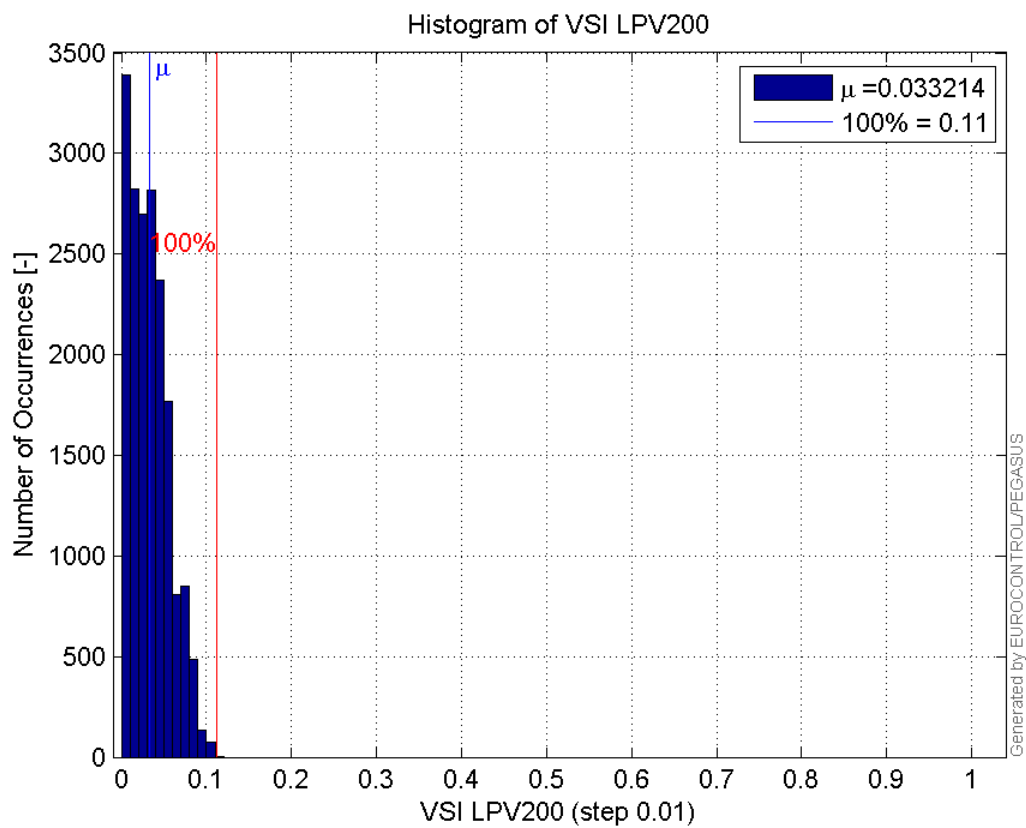


99%

Histogram of HSI LPV200:

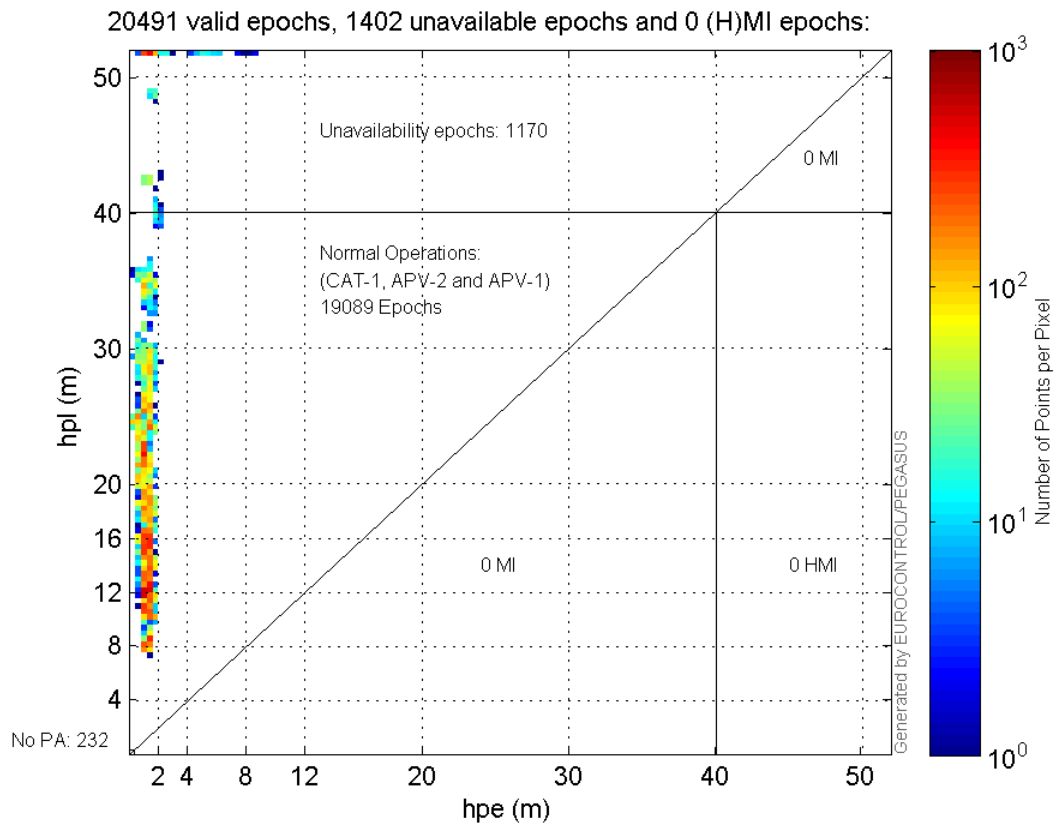


Histogram of VSI LPV200:

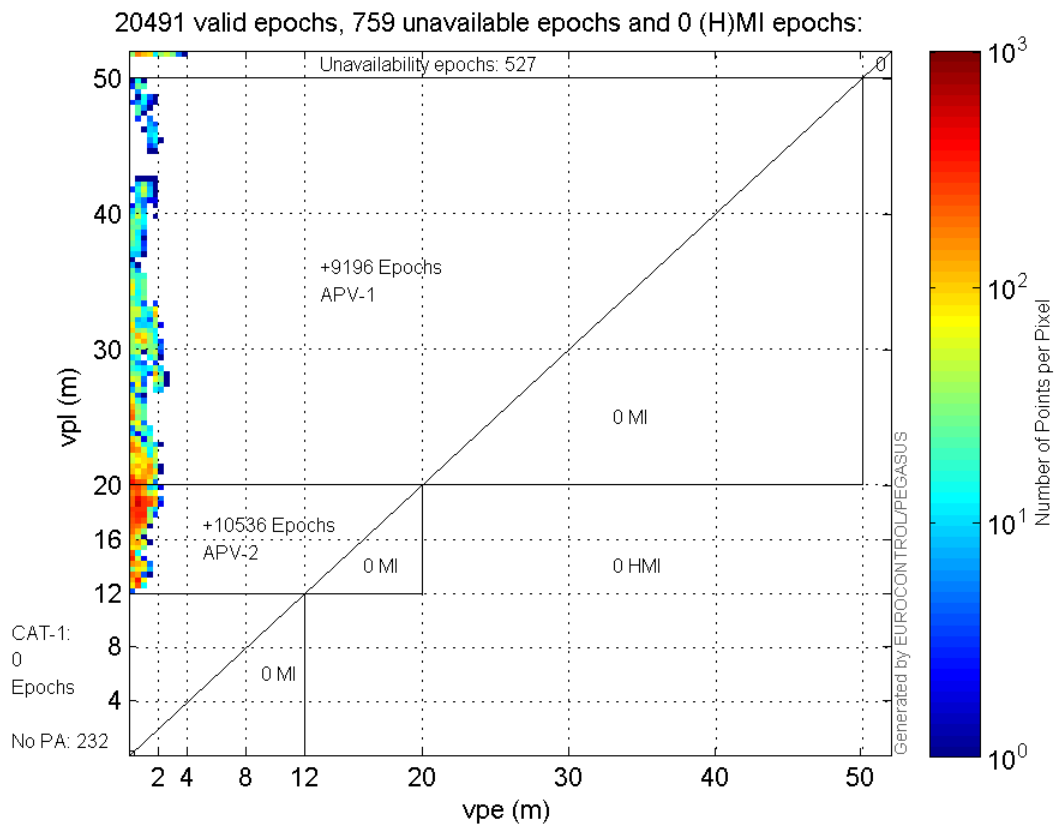


Stanford Plots

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:/PegasusDateGob/job/2016_03_02EGNOS615/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_03_02EGNOS615/03_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	224.4594
mi_numbers	results	0