

Global View

comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
city Kiev
country Ukraine
abbreviation NAU
site Laboratory satellite systems
version 4.8.2
program Pegasus
date 29/01/2016

Range Domain

start: 10:59:31 22.01.2016 (week: 1880 sec: 471571)
end: 15:38:49 22.01.2016 (week: 1880 sec: 488329)
duration: 04:39:19 ..

quality

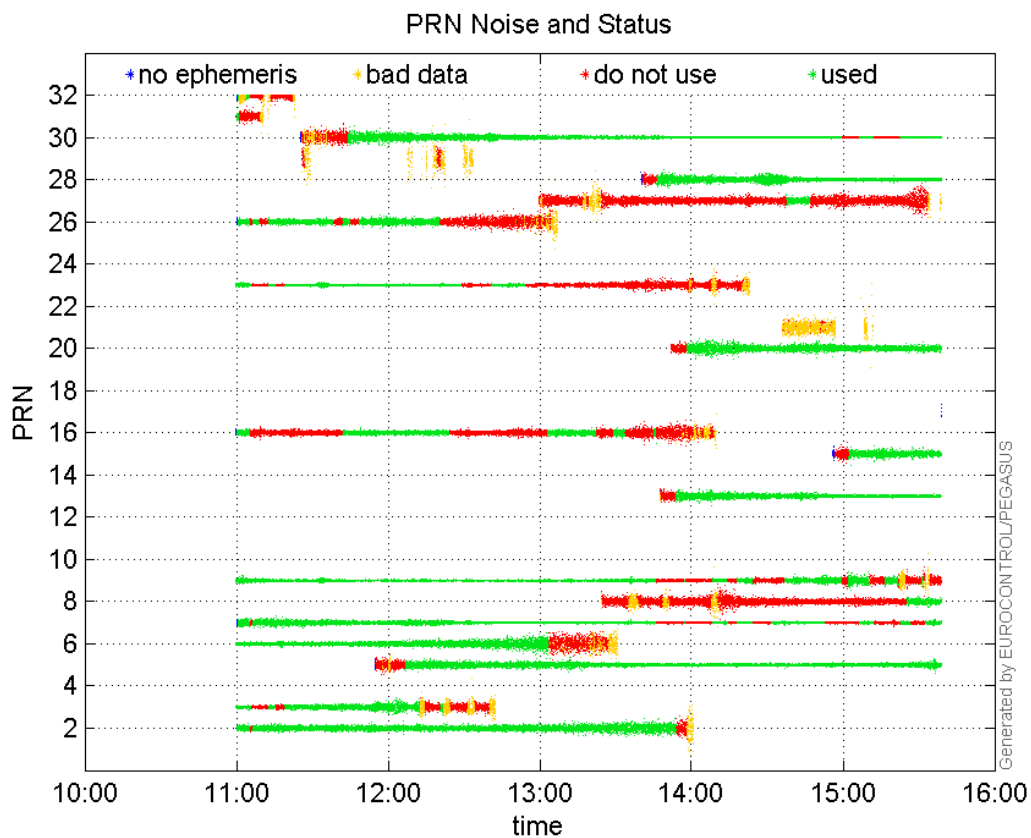
valid samples 16759
total samples 16759

PRN overview

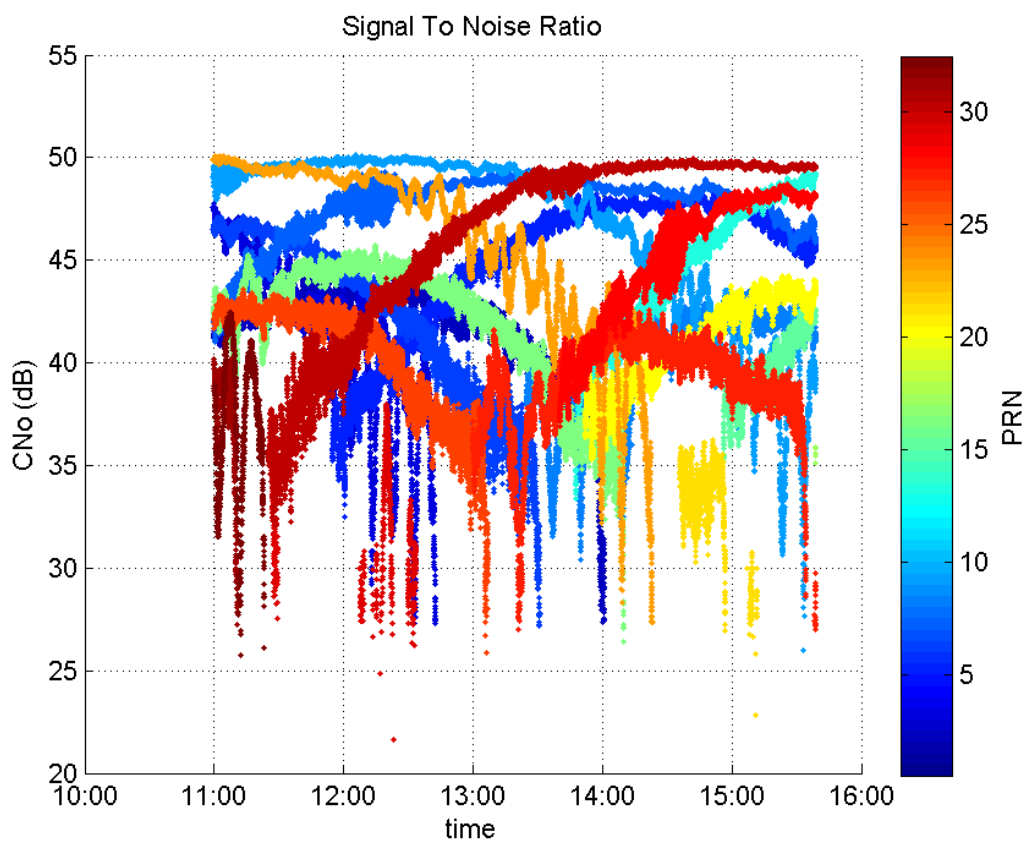
Number of Visible GPS Satellites 21
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



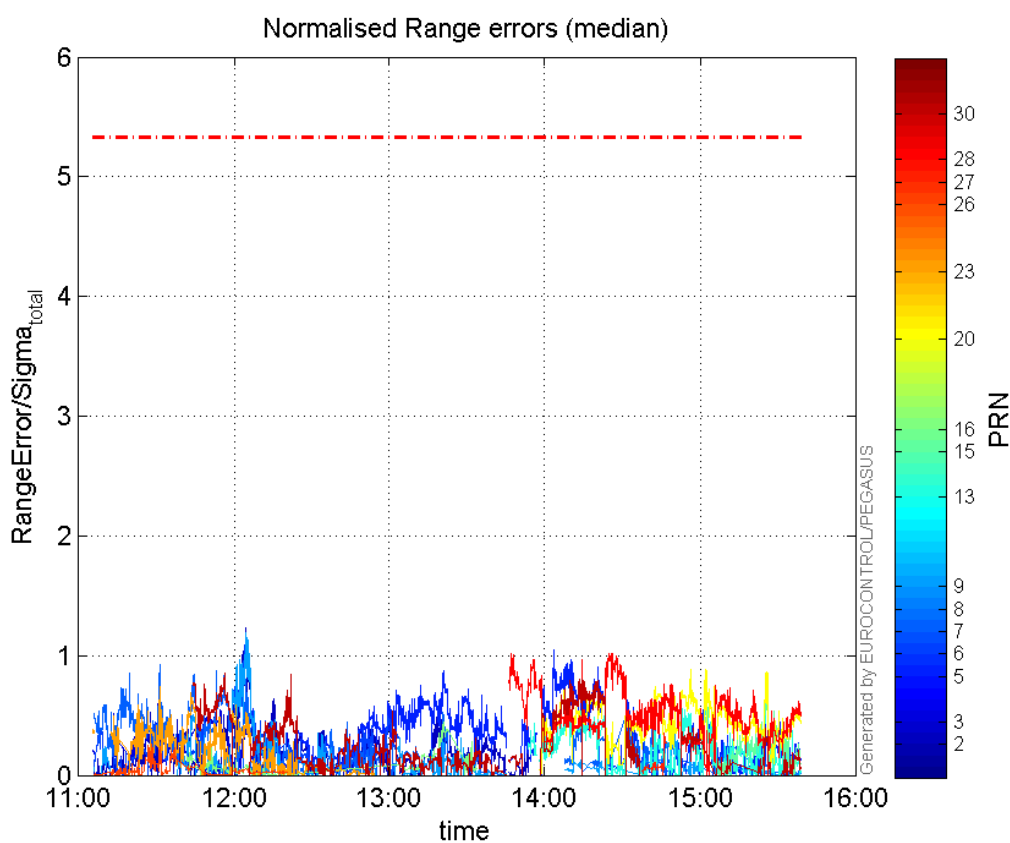
range errors

Number of Overbounding Norm Errors 0

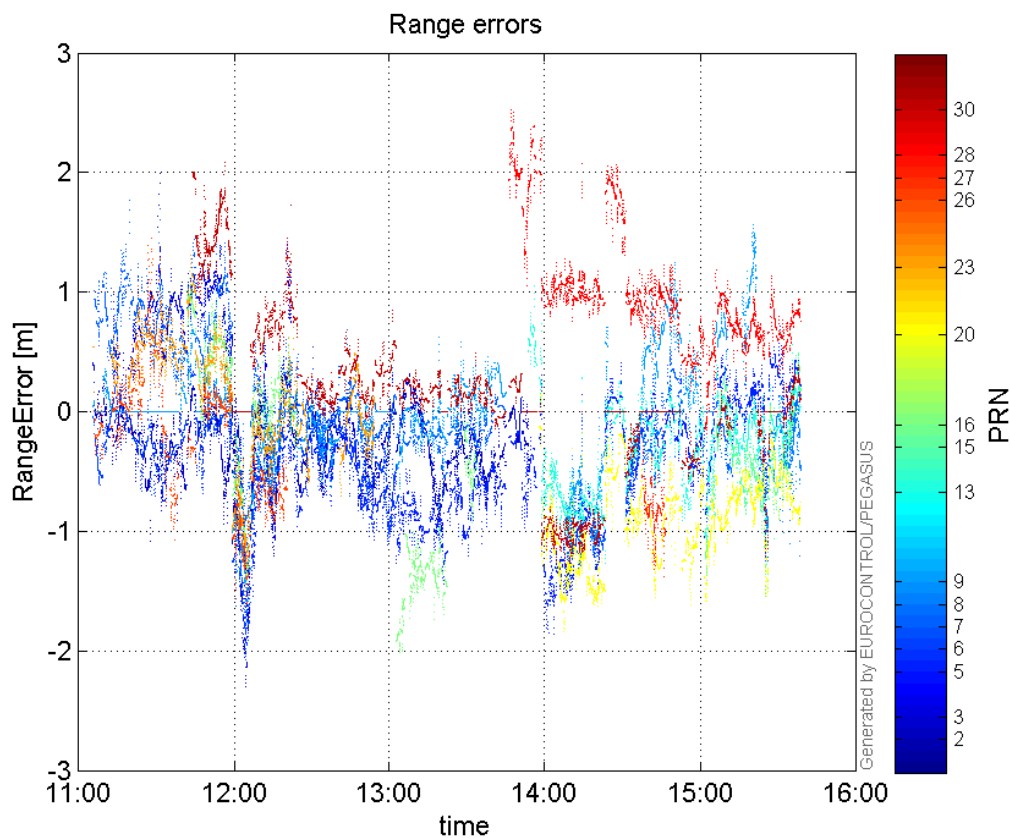
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1880	475481	2	1.23257	-2.29541	1.86229
1880	473472	3	0.701429	1.99771	2.84805
1880	482608	5	1.04699	-1.86014	1.77666
1880	475481	6	1.15456	-2.07546	1.79762
1880	473472	7	0.920276	1.69681	1.84381
1880	488309	8	0.0440256	-1.2035	27.3362
1880	475481	9	1.19333	-1.72937	1.4492
1880	487563	13	0.831837	-1.17314	1.4103
1880	487526	15	0.724065	-1.54855	2.13868
1880	480050	16	0.4418	-1.69282	3.83164
1880	485781	20	0.885605	-1.61186	1.82007
1880	473472	23	0.745093	1.28033	1.71835
1880	473294	26	0.265319	1.45588	5.48729
1880	485174	27	0.348782	-1.12101	3.21406
1880	483942	28	1.01988	2.04892	2.00898
1880	474976	30	0.850249	2.08247	2.44925

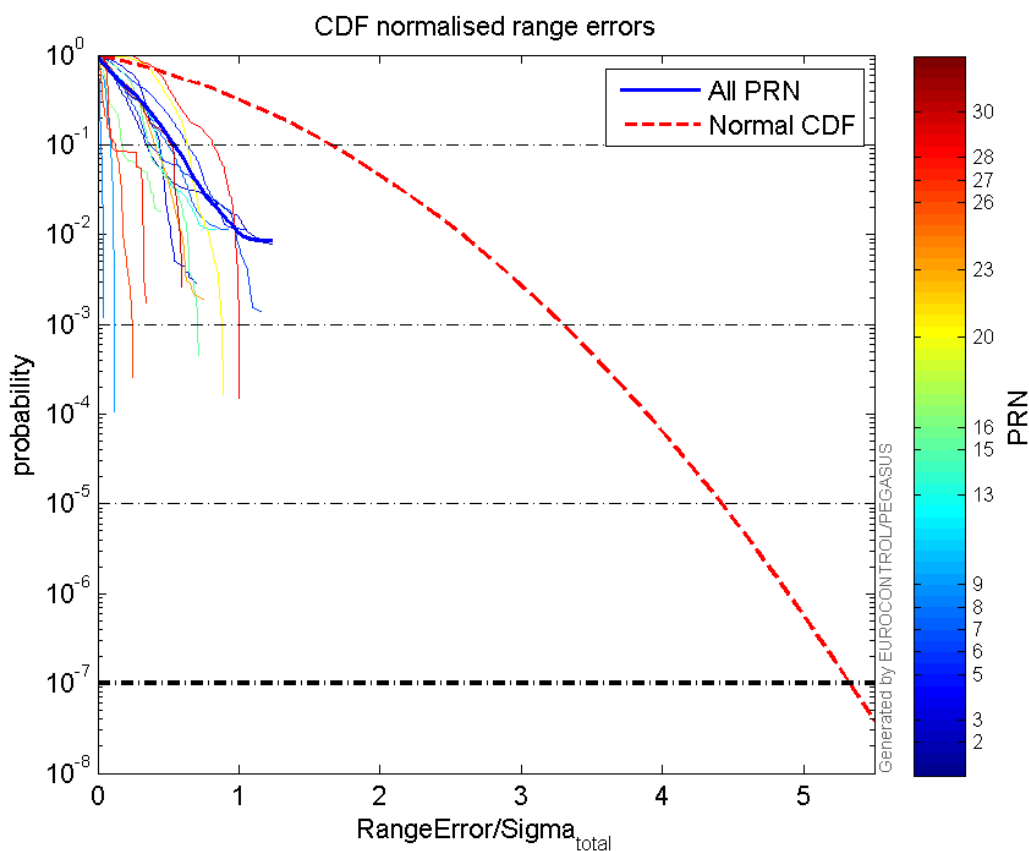
Normalised Range errors (median):



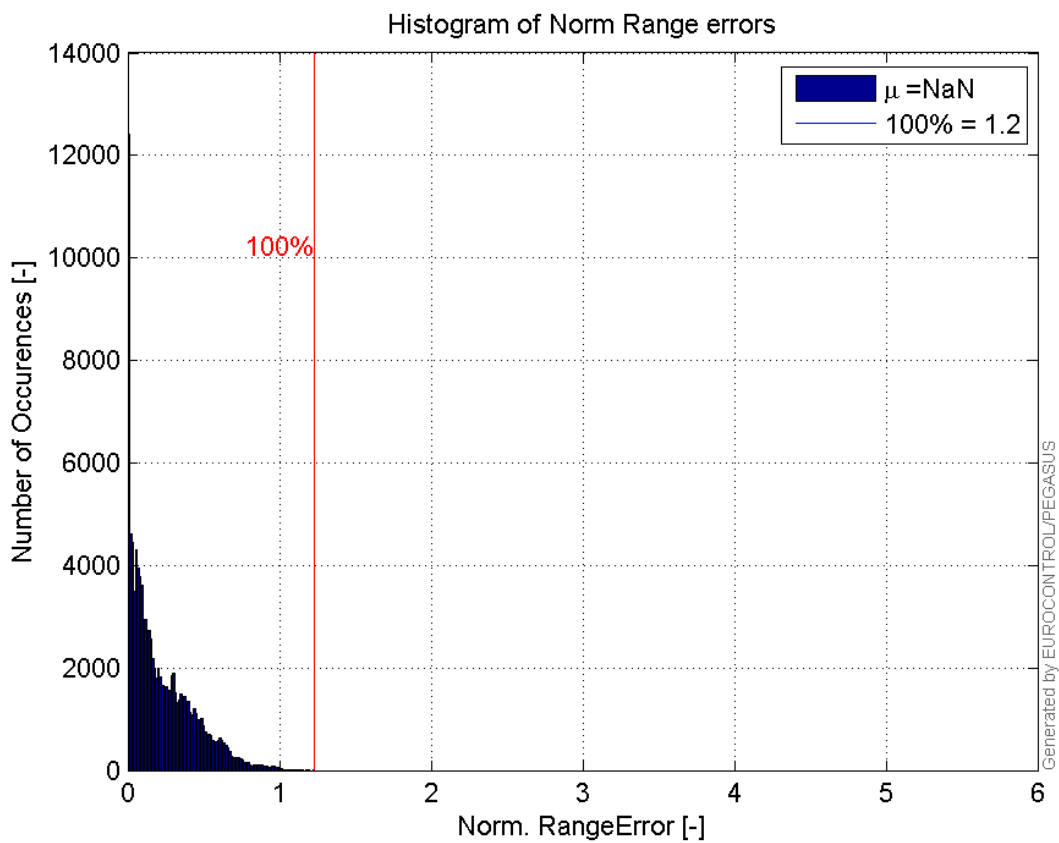
Range errors:



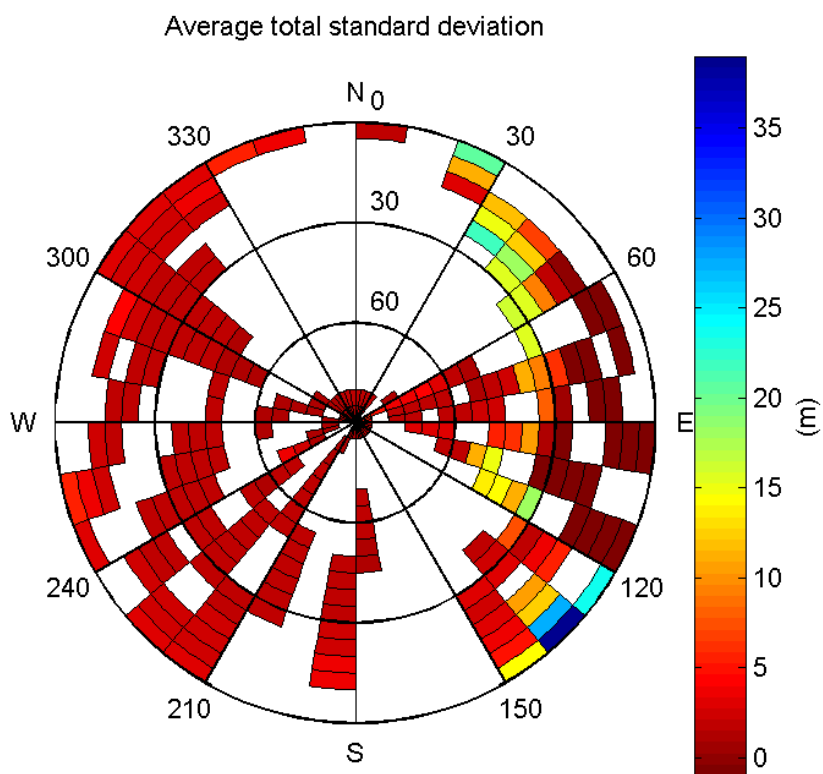
CDF normalised range errors:



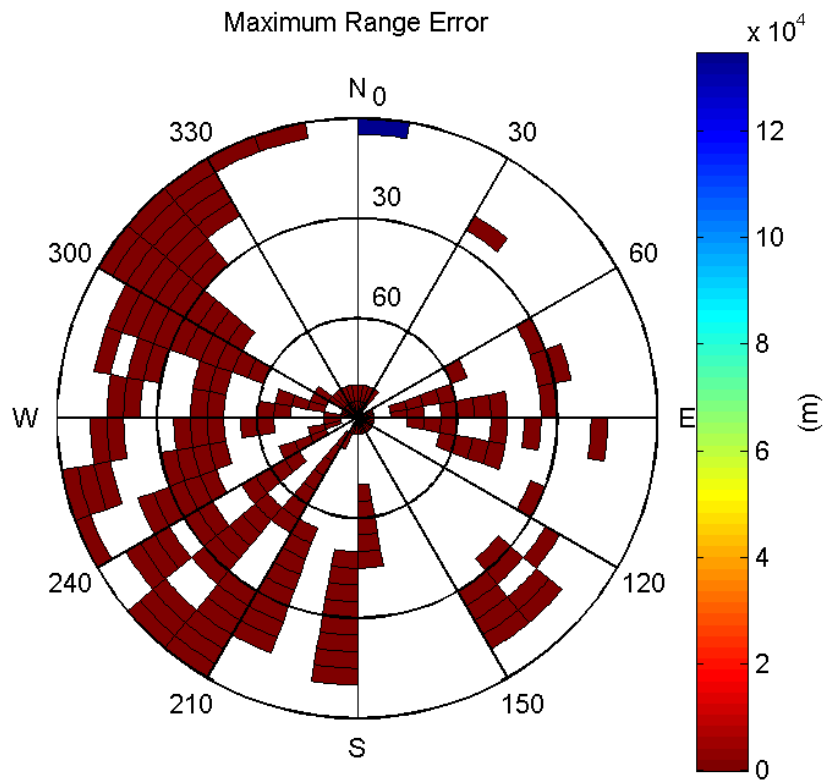
Histogram of Norm Range errors:



Sigma Sky Plot:

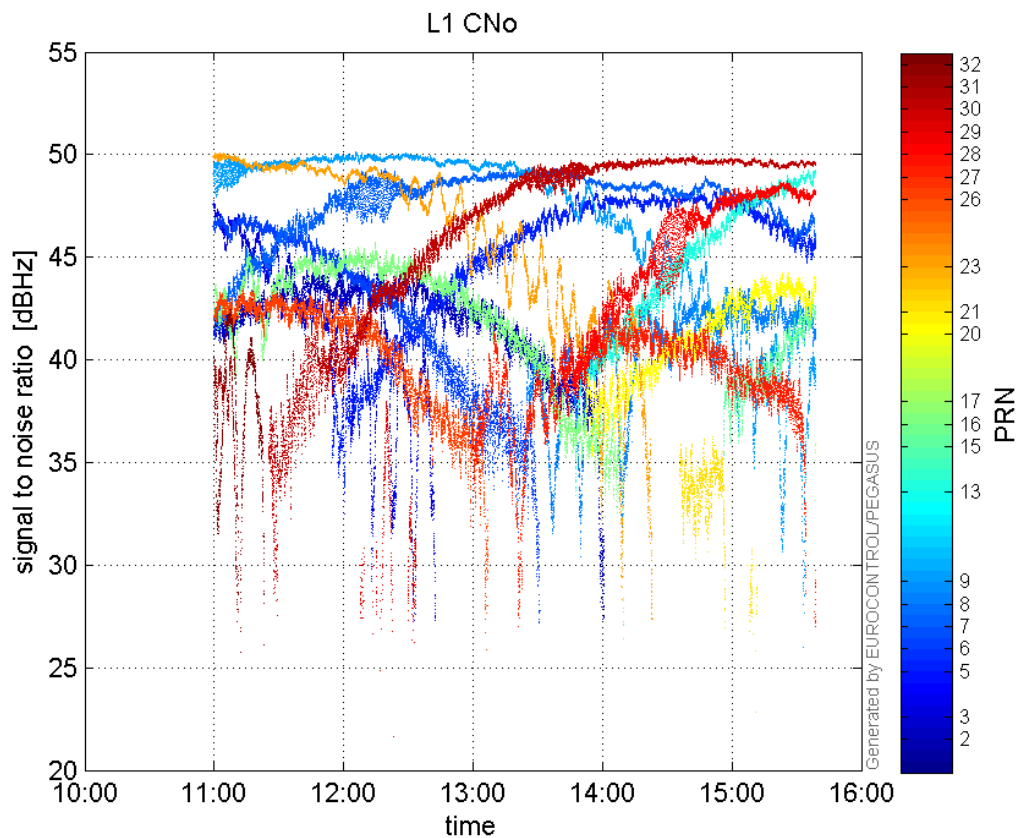


Norm Error Sky Plot:

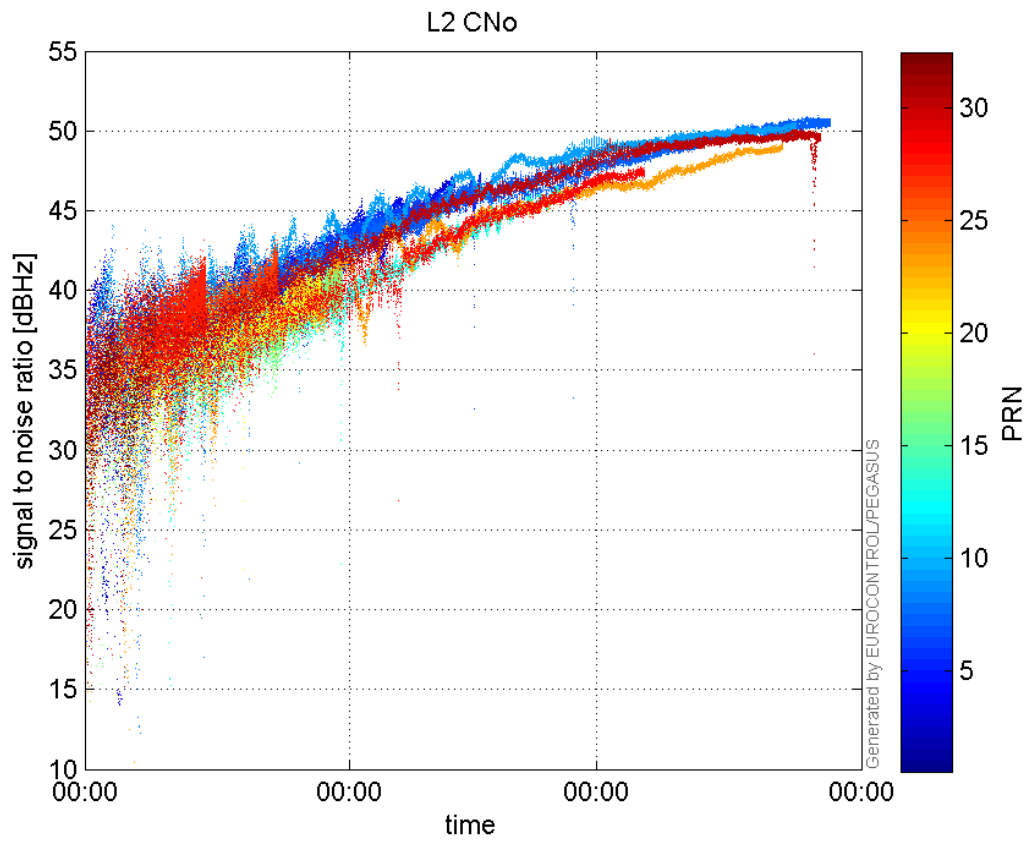


signal quality

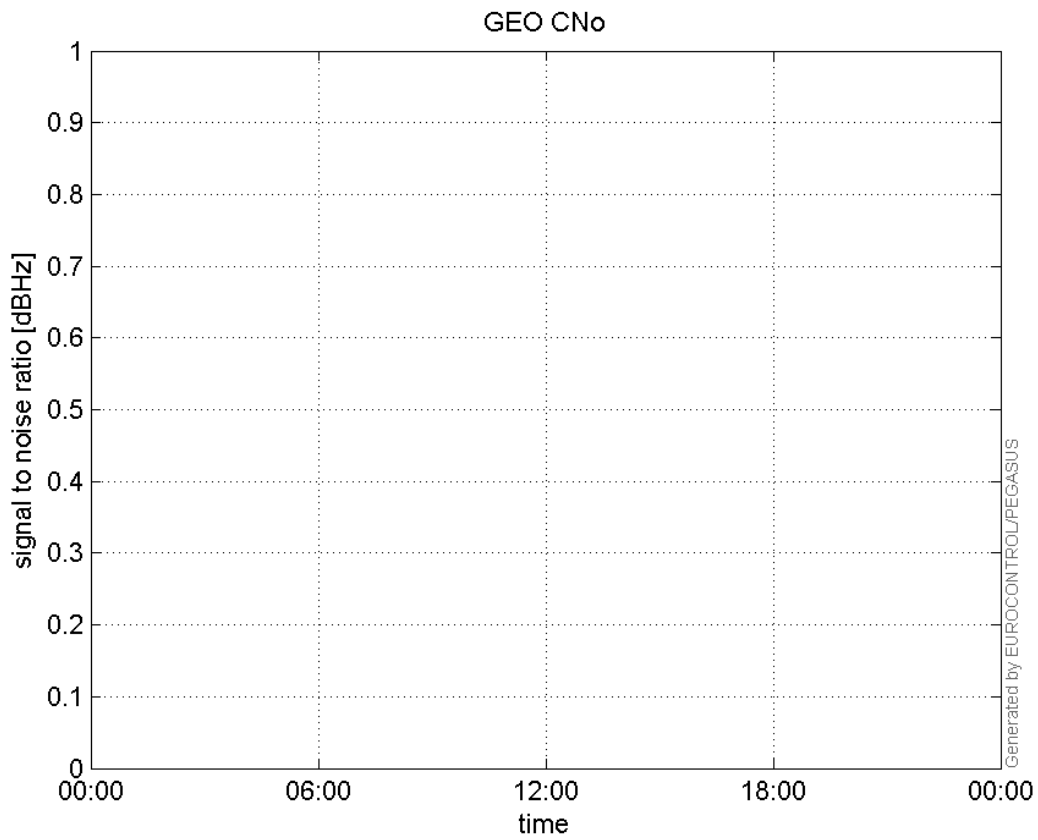
L1 CNo:



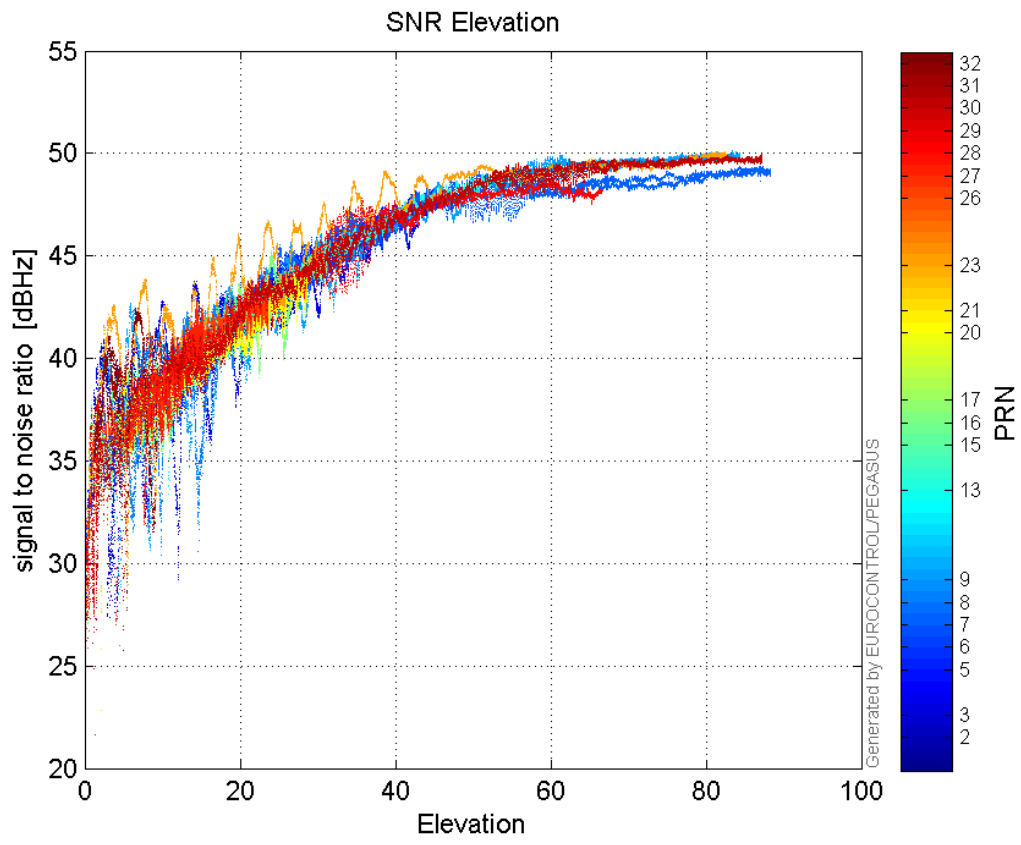
L2 CNo:



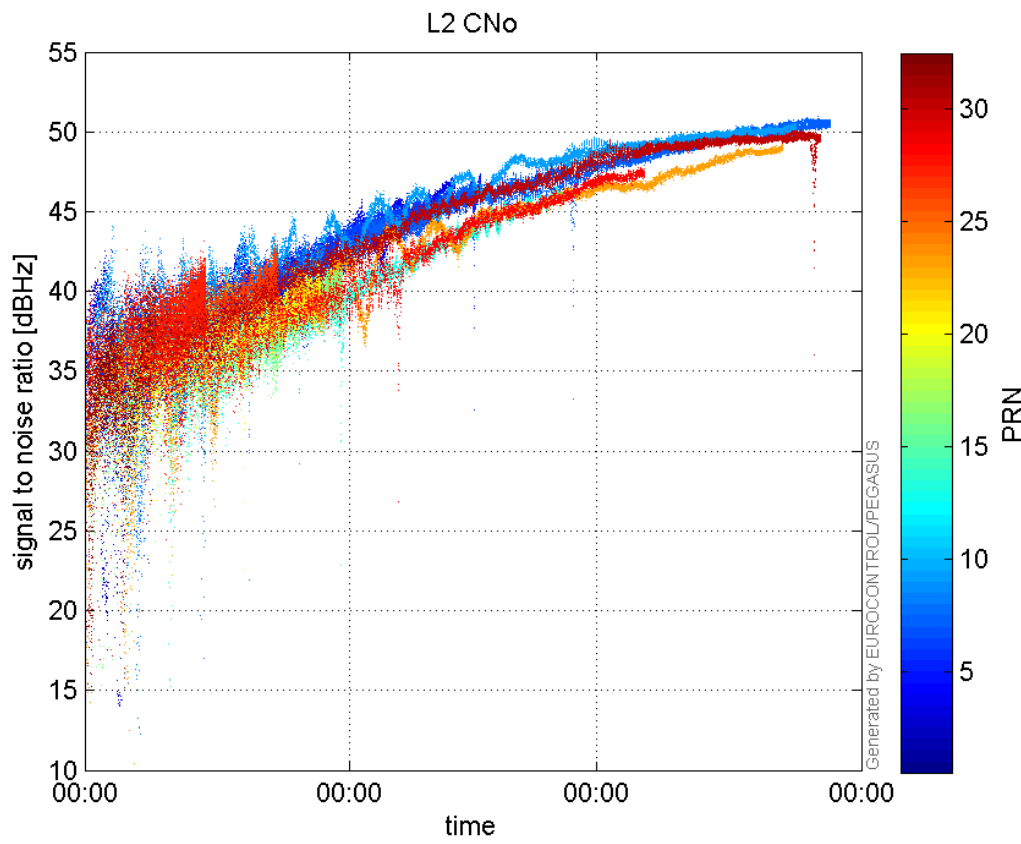
GEO CNo:



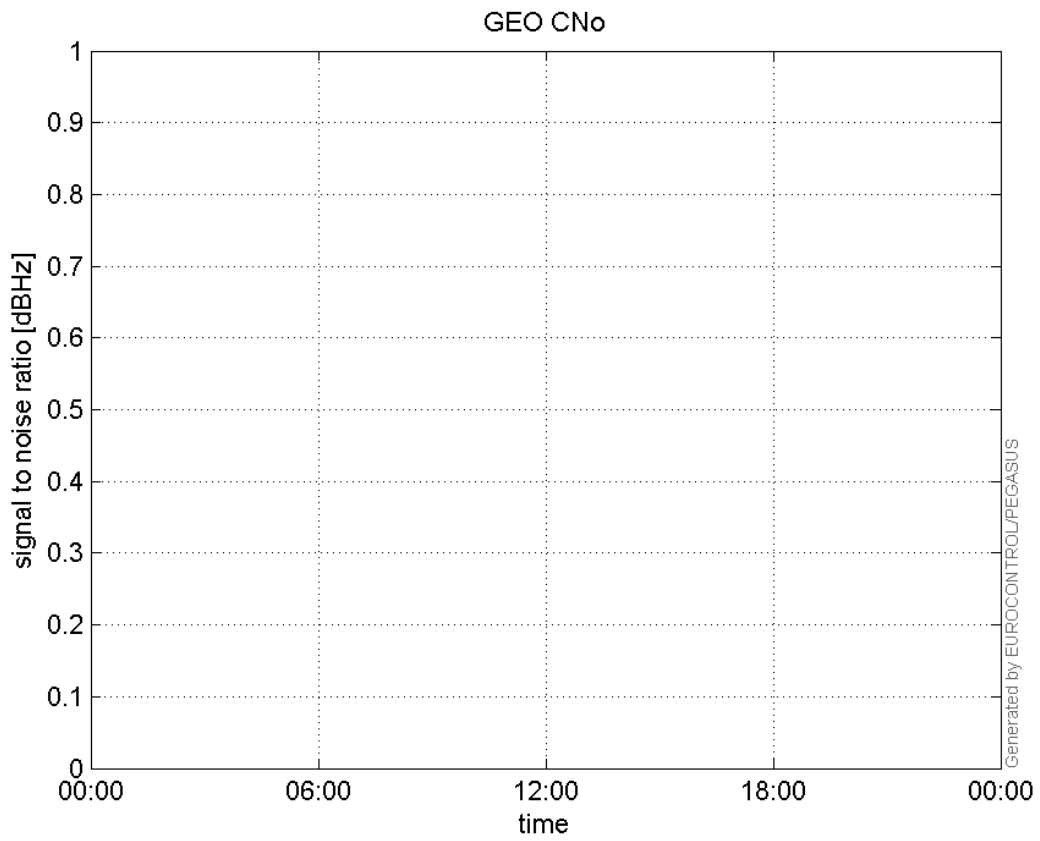
SNR Elevation:



L2 CNo:

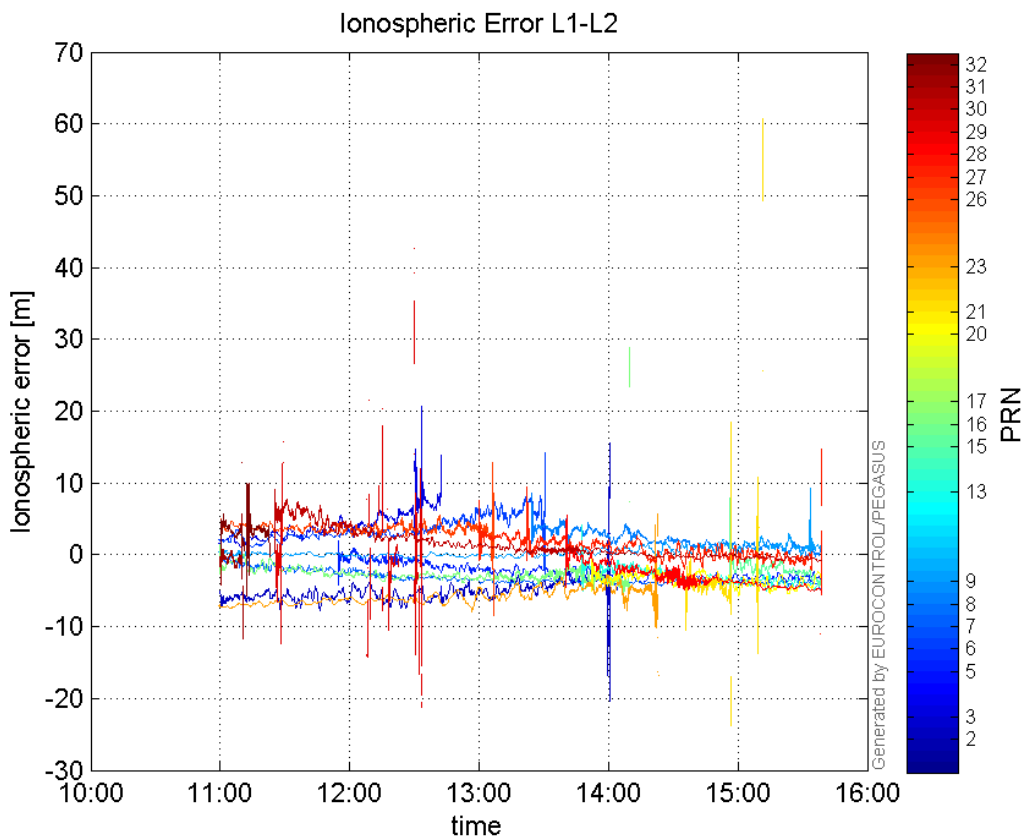


GEO CNo:



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/2016_01_22_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_22_EGNOS/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	214.0605
mi_numbers	results	0

Position Domain

start: 10:59:31 22.01.2016 (week: 1880 sec: 471571)
end: 15:38:49 22.01.2016 (week: 1880 sec: 488329)
duration: 04:39:19 ..

quality

valid samples 16398
total samples 16759

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	474952	1.64689	11.6839	0.140954	-0.398865	18.5041	0.0215555
max normVer	482988	1.63444	30.8547	0.0529721	2.16672	16.8336	0.128714
max HPE	482208	27.5815	998.046	0.0276355	-5.86783	254.455	0.0230604
max VPE	482208	27.5815	998.046	0.0276355	-5.86783	254.455	0.0230604
min HPL	485174	1.11227	8.97742	0.123897	-0.106044	16.9675	0.00624985
min VPL	474499	0.784957	10.1506	0.0773311	0.491577	15.8931	0.0309302

Position discontinuity events :

#	Epoch	duration	stable period
1	471955	10	23
2	481497	74	9532
3	482206	1	635
4	482208	71	1

APV-I discontinuity events :

#	Epoch	duration	stable period
1	480919	1391	3875
2	482328	4	1
3	482392	195	3
4	485980	146	3393

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	476838	14	2
2	476952	663	100
3	478578	10	963
4	479021	527	356
5	480919	1391	1371
6	482328	4	1
7	482392	195	3
8	485980	146	3393

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	476838	14	2
2	476952	663	100
3	478578	10	963
4	479021	527	356
5	480919	1391	1371
6	482328	4	1
7	482392	195	3
8	485980	146	3393

First Glance analysis

Duration	16759
Number of Samples	16759
Number of invalid sample	361
Number of no position solution samples	156
Number of missing sample	0
Logging Loss	0
Processing Loss	2.1541
Number of Misleading Information	0
Data gaps	0
Discontinuities	4

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
16242	14211	12941	0	12941

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.79883	1.58642	1.59897	NaN	1.59897
HPEscale 95%	NaN	4.09456	4.13825	NaN	4.13825
VPE 95%	1.75821	1.65219	1.6071	NaN	1.6071
VPEscale 95%	NaN	4.00921	2.87124	NaN	2.87124

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.990487	0.86663	0.789182	0	0.789182
measurements	0.969151	0.847962	0.772182	0	0.772182
Operational	0.969151	0.847962	0.772182	0	0.772182

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	4	26	63	--	63
Long	3	4	8	--	8
Independent	2	2	5	--	5
P(disc.)	0.00184706	0.00211104	0.00579553	NaN	0.00579553
P(slide)	0.00283216	0.00759975	0.0179275	NaN	0.0179275

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

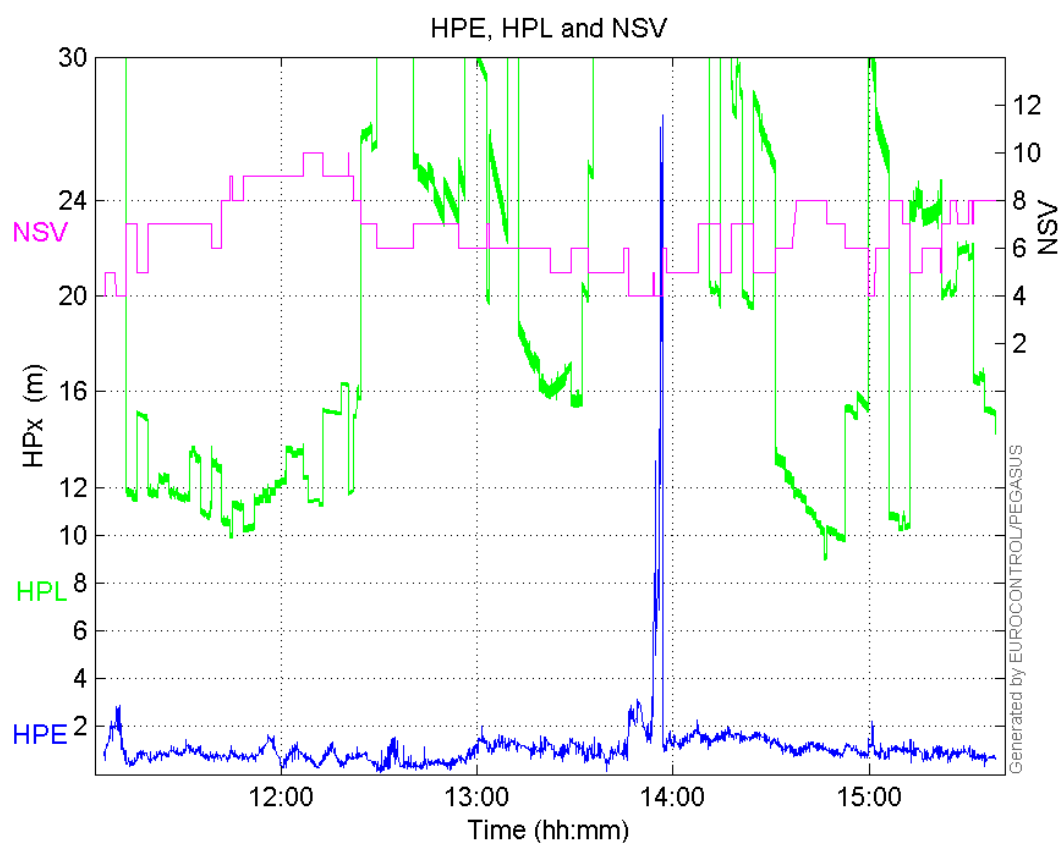
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	16242	14211	12941	0	12941
SIS Availability	0.990487	0.86663	0.789182	0	0.789182
Local Availability	0.969151	0.847962	0.772182	0	0.772182

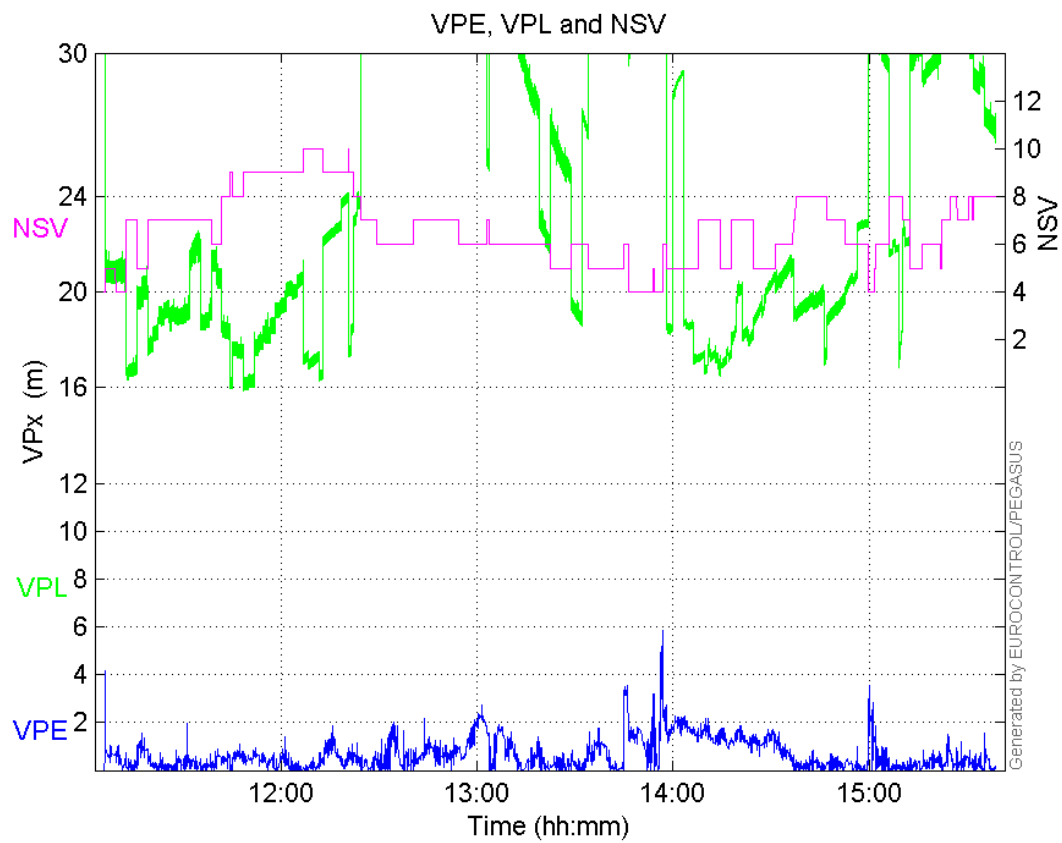
Operational Availability	0.969151	0.847962	0.772182	0	0.772182
HPE 95%	1.79883	1.58642	1.59897	NaN	1.59897
HPscale 95%	NaN	4.09456	4.13825	NaN	4.13825
VPE 95%	1.75821	1.65219	1.6071	NaN	1.6071
VPscale 95%	NaN	4.00921	2.87124	NaN	2.87124
All Discontinuity Events	4	26	63	--	63
Long Discontinuity Events	3	4	8	--	8
Independent Discontinuity Events	2	2	5	--	5
P(discontinuity)	0.00184706	0.00211104	0.00579553	NaN	0.00579553
P(sliding window)	0.00283216	0.00759975	0.0179275	NaN	0.0179275
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:

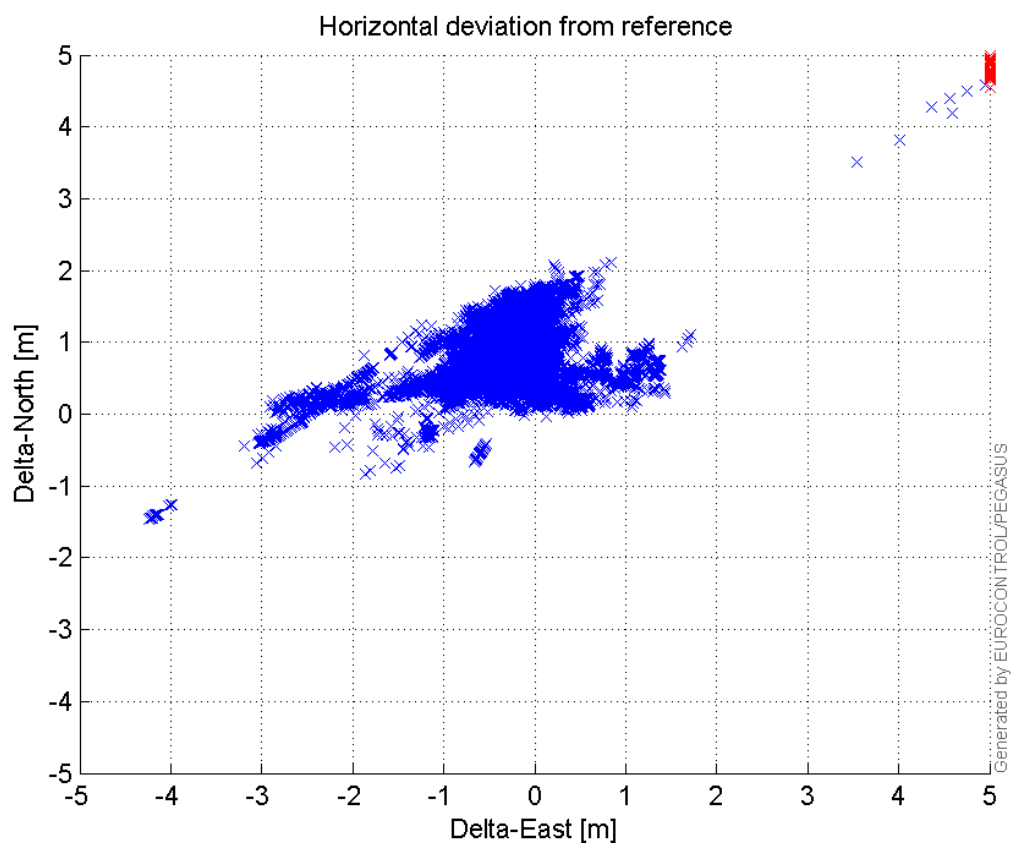


VPE, VPL and NSV:



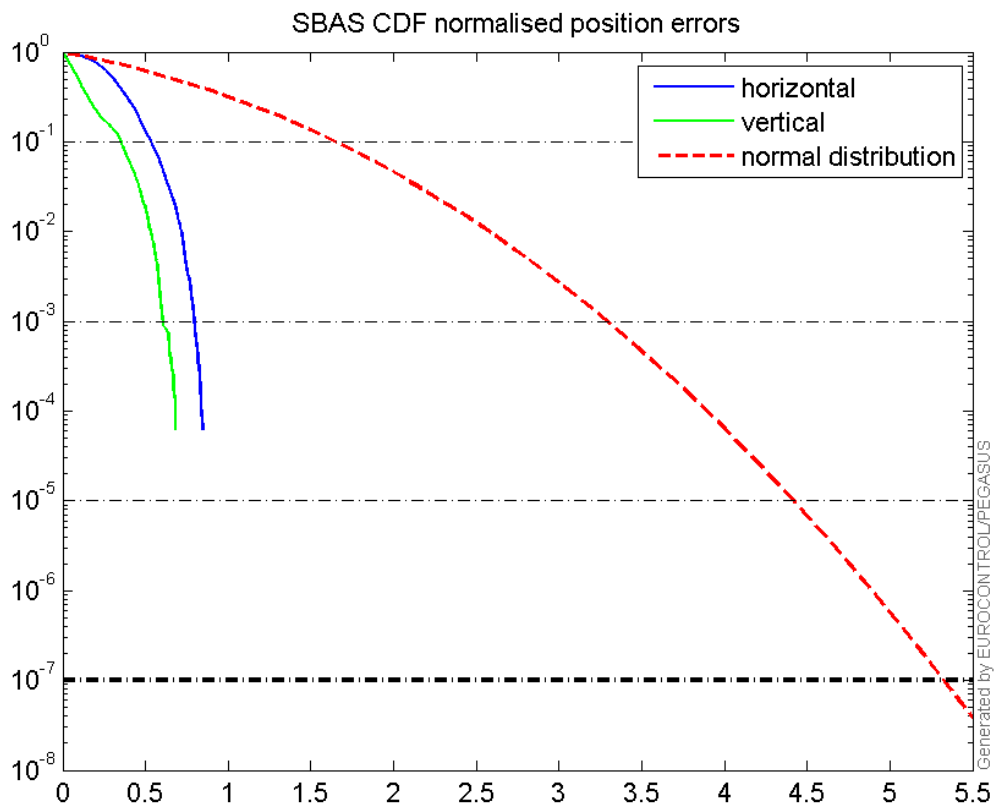
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

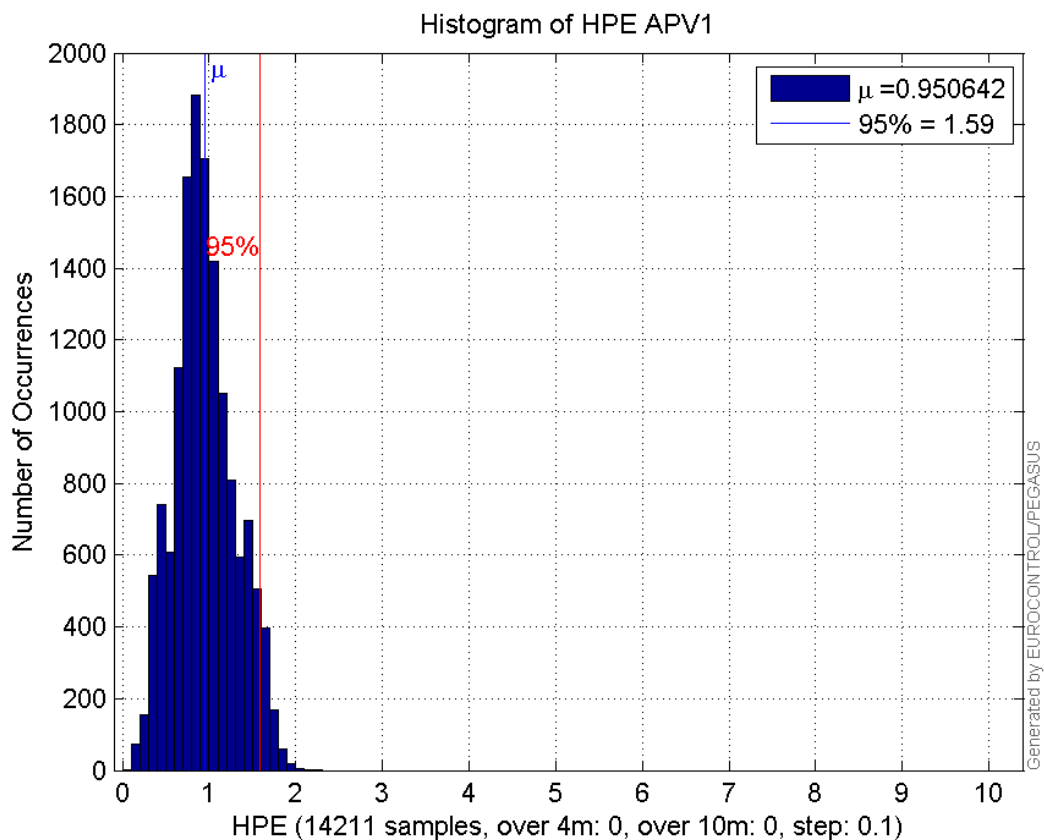
number	14211
sum	13509.579
sum2	14583.494
prctile95	1.5864178
prctile99	1.7483005
number	14211
sum	8183.9104
sum2	8481.29
prctile95	1.6521931
prctile99	2.0698917
number	14211
sum	274845.13
sum2	6256909.3
prctile95	35.94749
prctile99	39.272892
number	14211
sum	352688.24
sum2	9590884.9
prctile95	42.75248
prctile99	46.040729
number	14211
sum	803.0985
sum2	54.769693

prctile95 0.10236398
prctile99 0.12036168
number 14211
sum 355.93507
sum2 17.454922
prctile95 0.080184257
prctile99 0.099785865
number 12941
sum 12431.127
sum2 13423.968
prctile95 1.5989729
prctile99 1.7527465
number 12941
sum 7218.7184
sum2 7358.3006
prctile95 1.6070956
prctile99 2.0876093
number 12941
sum 233386.87
sum2 4865714.6
prctile95 31.26108
prctile99 39.128706
number 12941
sum 299013.17
sum2 7307274.1
prctile95 32.85369
prctile99 34.36307
number 12941
sum 766.93385
sum2 53.343238
prctile95 0.10345633
prctile99 0.12086949
number 12941
sum 332.5313
sum2 16.773016
prctile95 0.082035446
prctile99 0.10071665

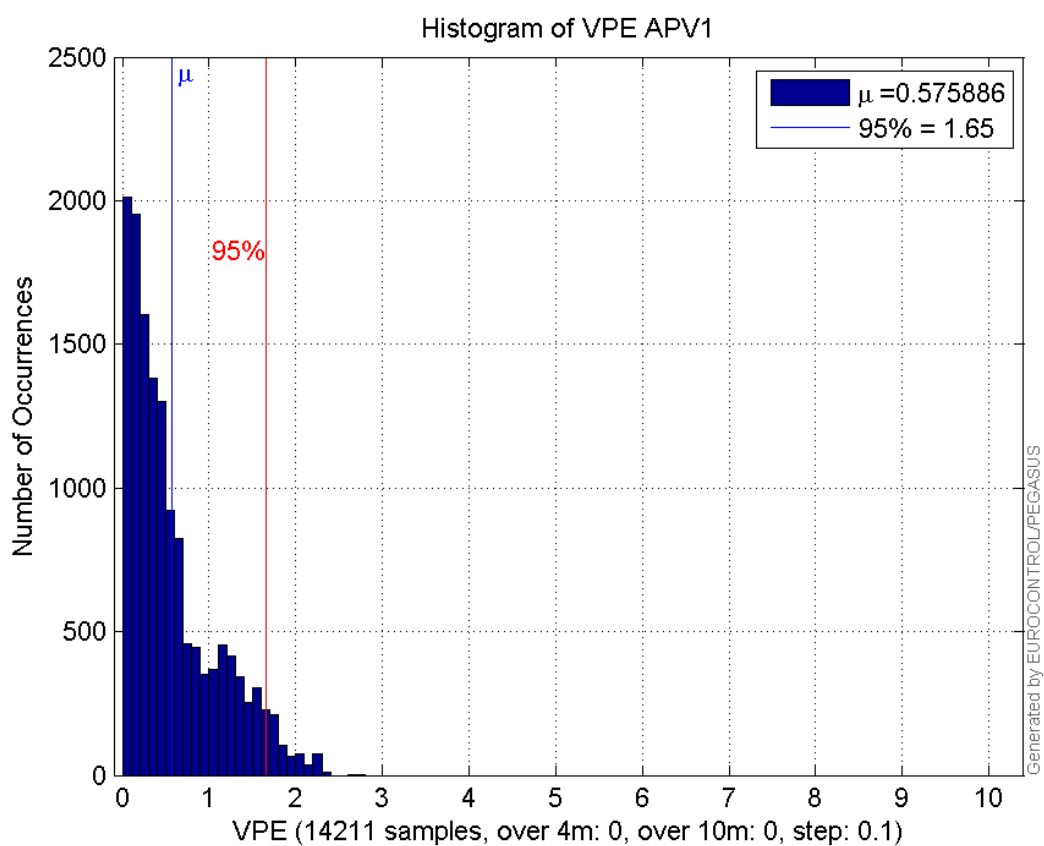
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.950642	0.349999	0.919506	1.58642	1.7483	1.01302
HPL	19.3403	8.13901	16.3287	35.9475	39.2729	20.983
VPE	0.575886	0.514962	0.410182	1.65219	2.06989	0.772536
VPL	24.818	7.6788	21.5943	42.7525	46.0407	25.9787

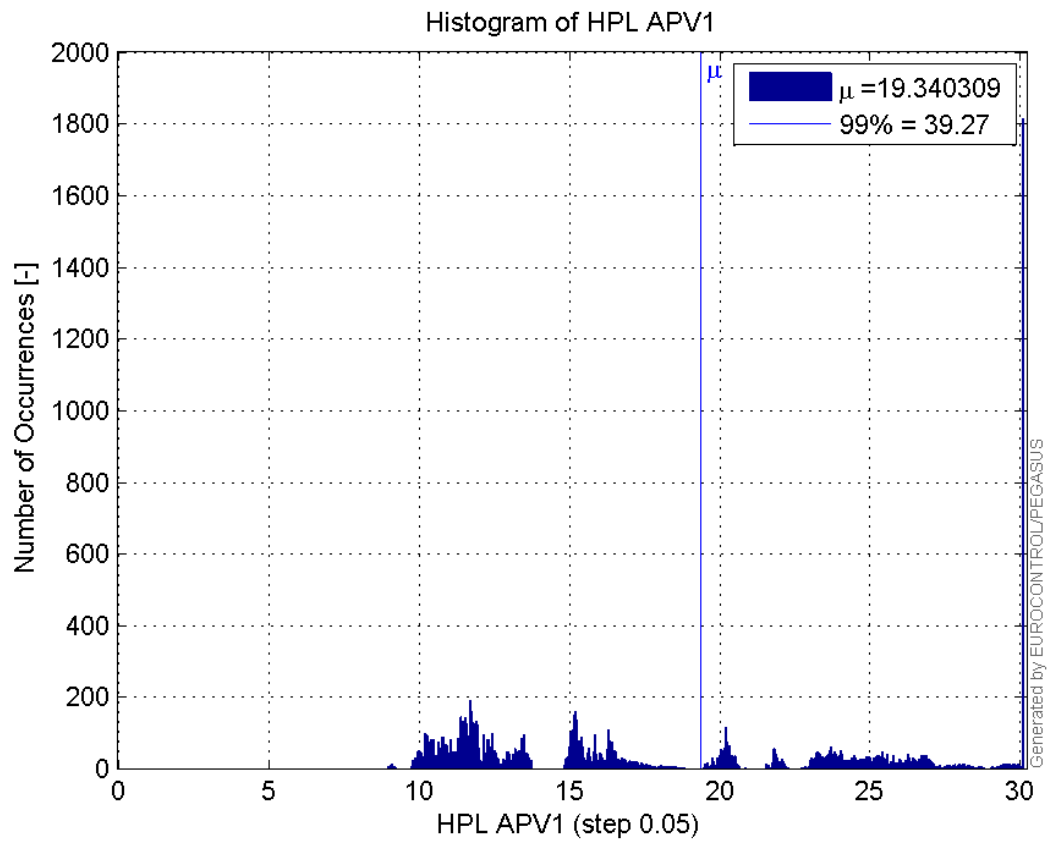
Histogram of HPE APV1:



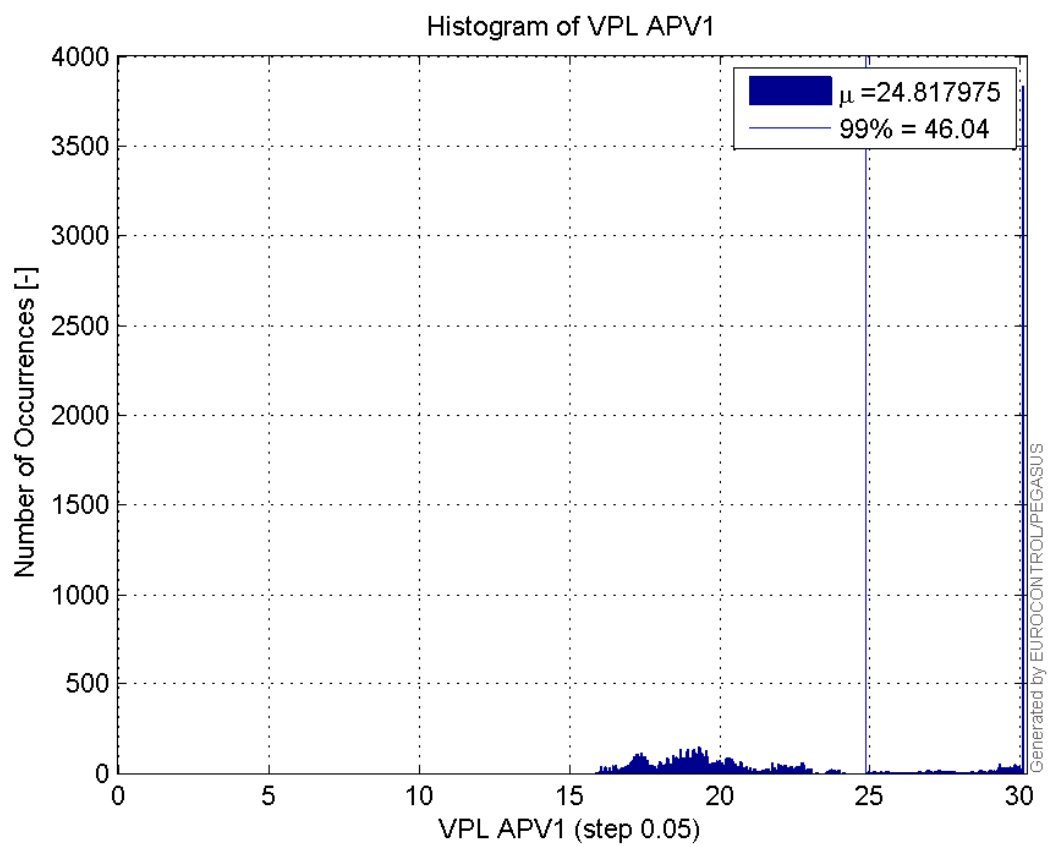
Histogram of VPE APV1:



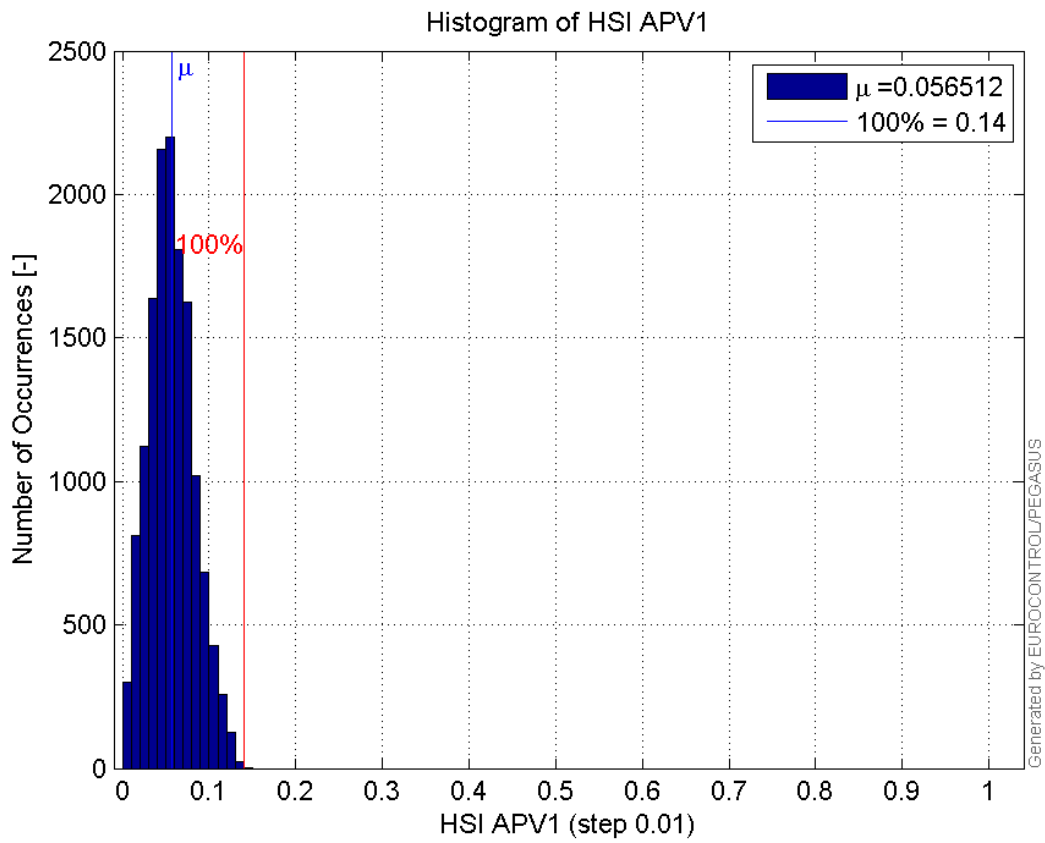
Histogram of HPL APV1:



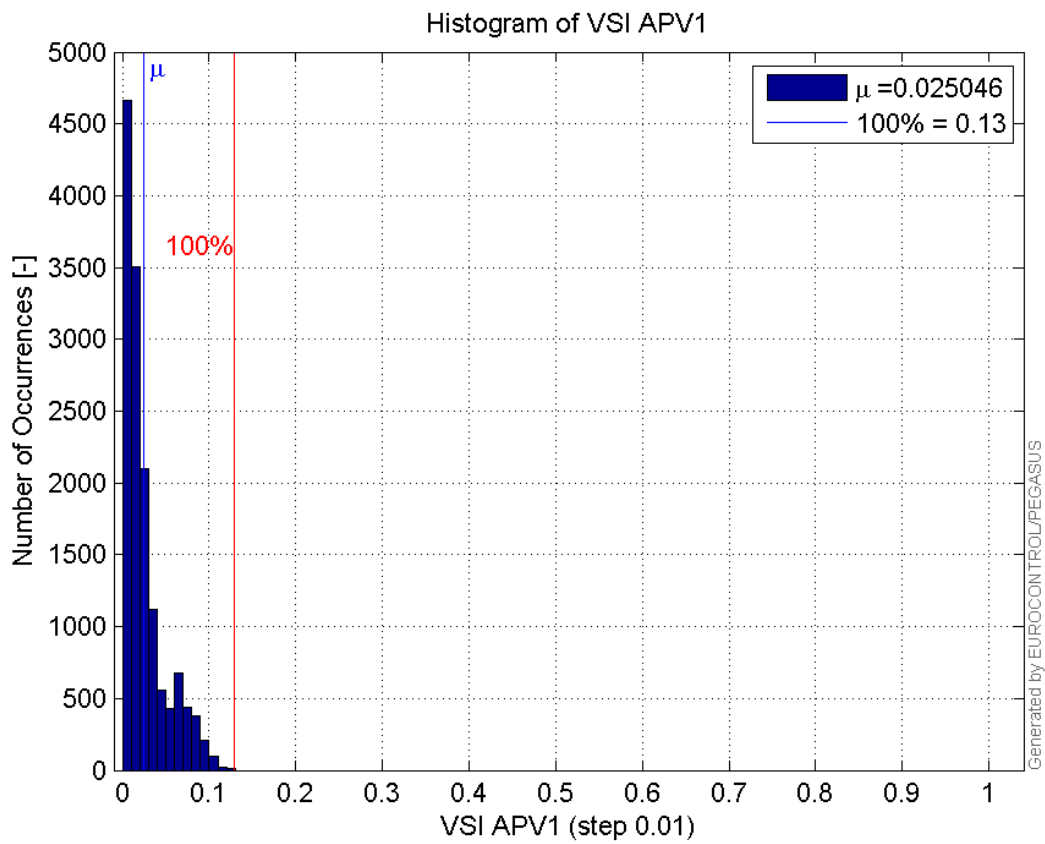
Histogram of VPL APV1:



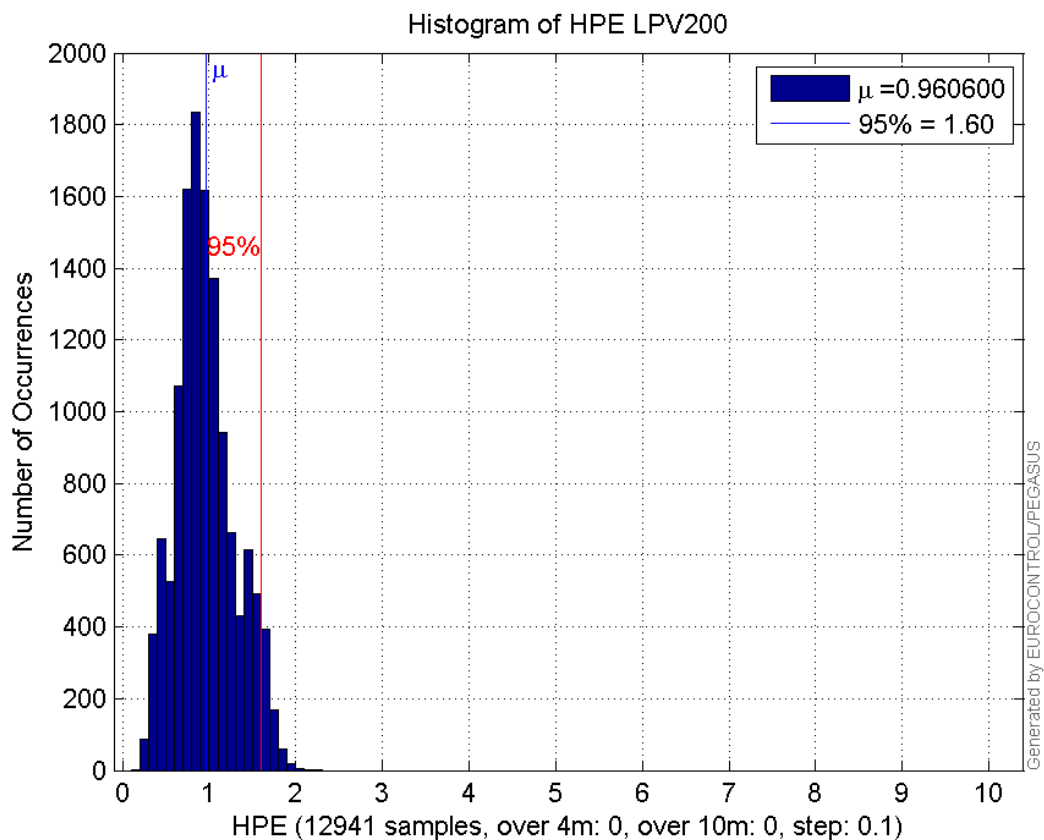
Histogram of HSI APV1:



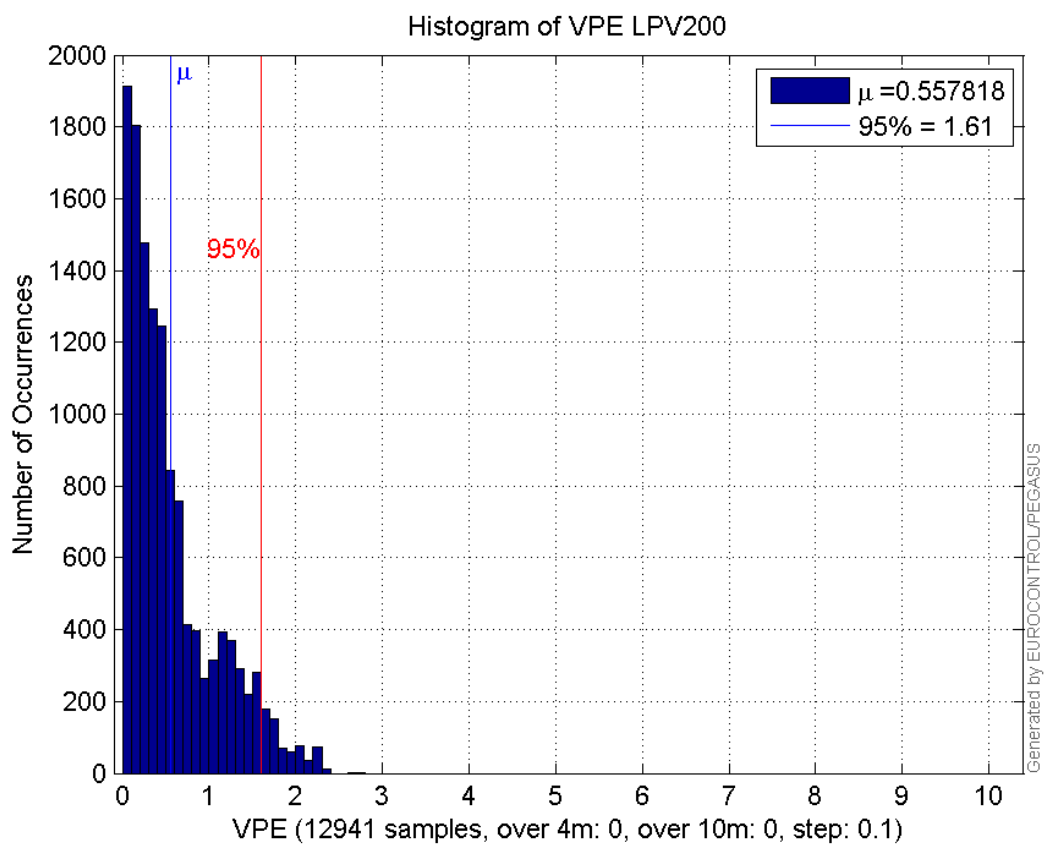
Histogram of VSI APV1:



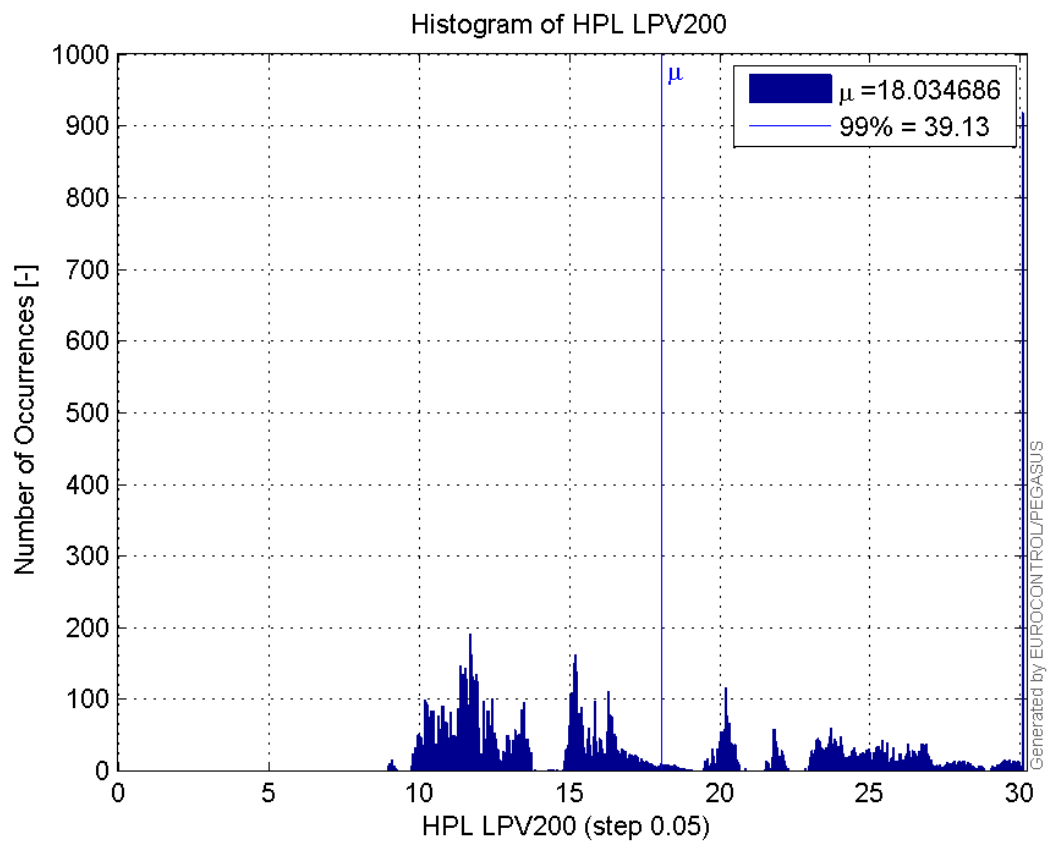
Histogram of HPE LPV200:



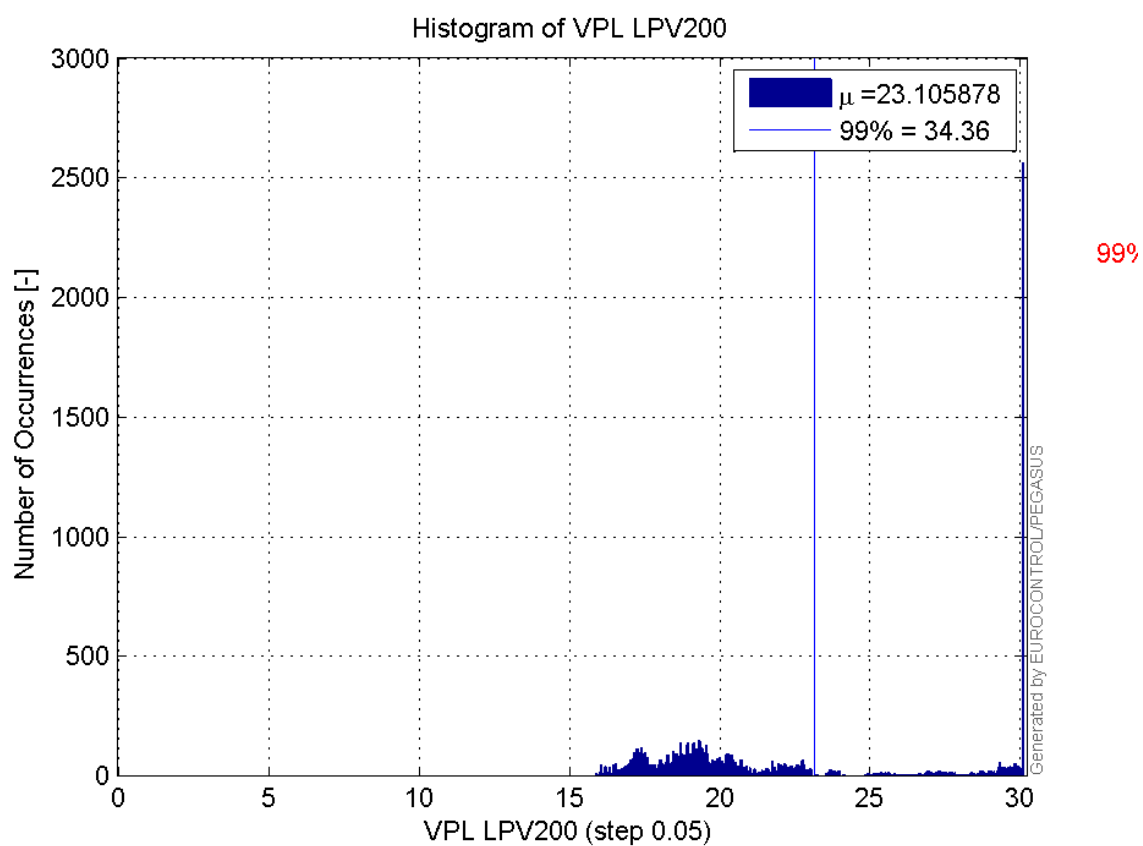
Histogram of VPE LPV200:



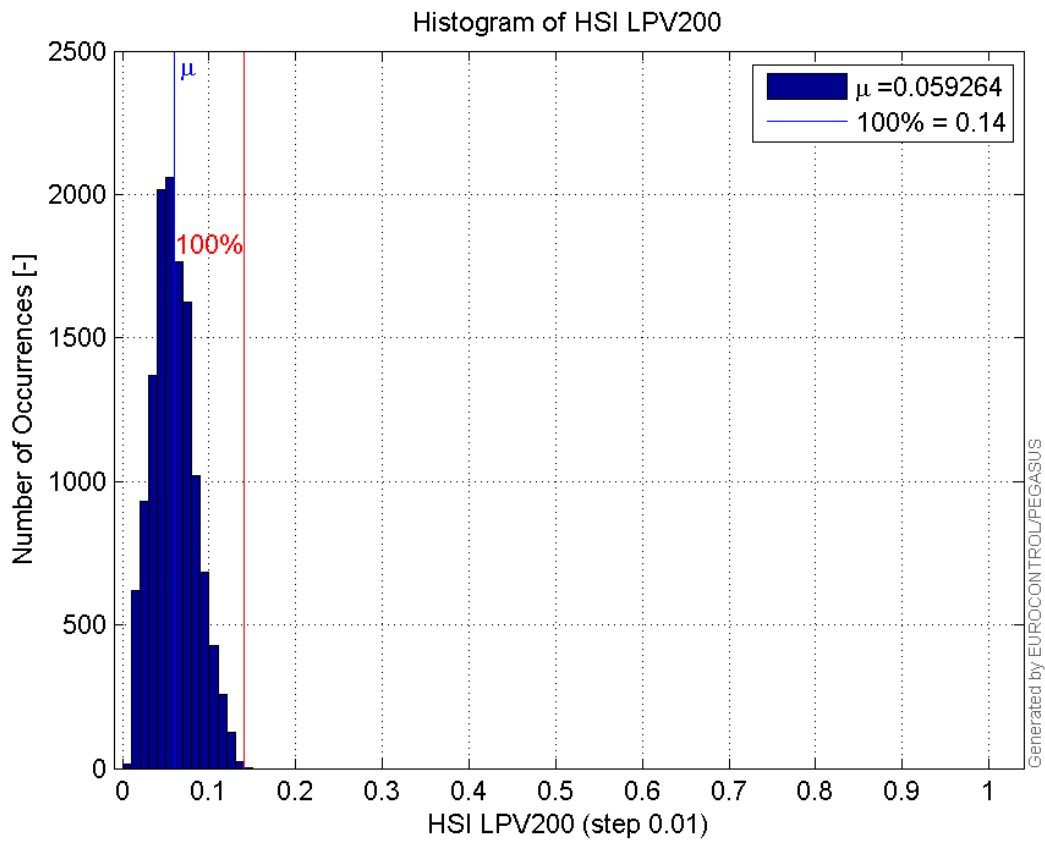
Histogram of HPL LPV200:



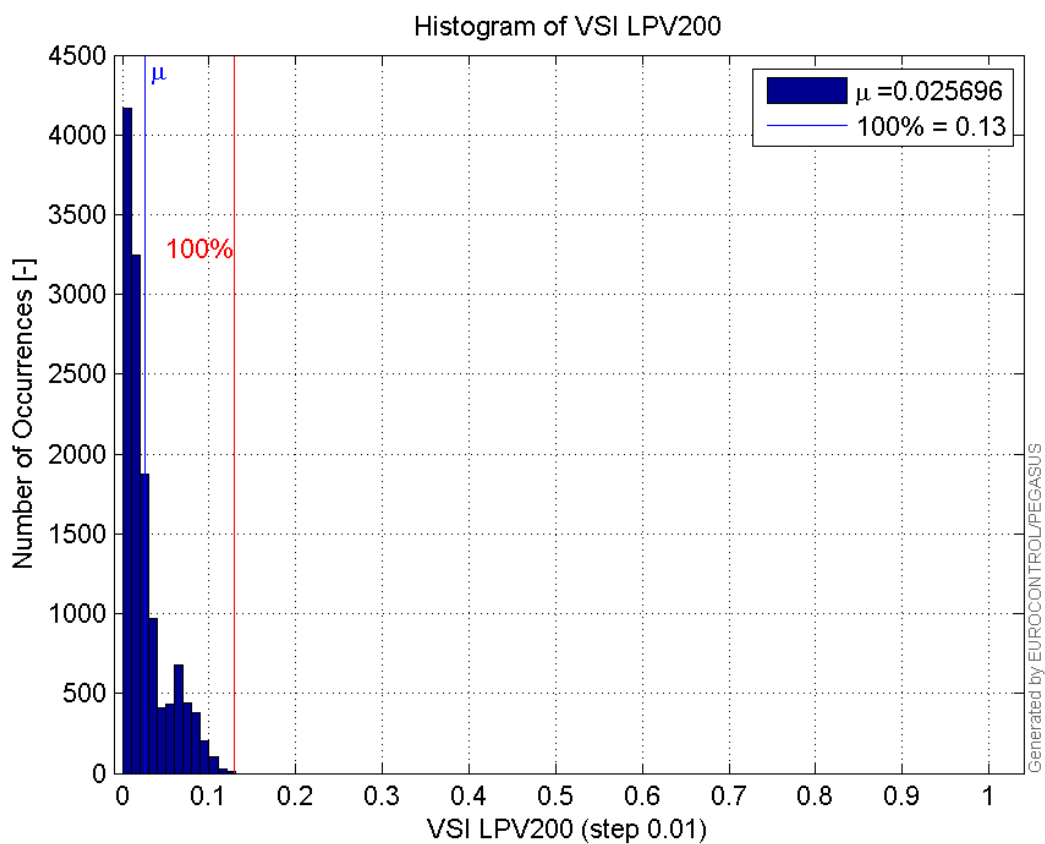
Histogram of VPL LPV200:



Histogram of HSI LPV200:

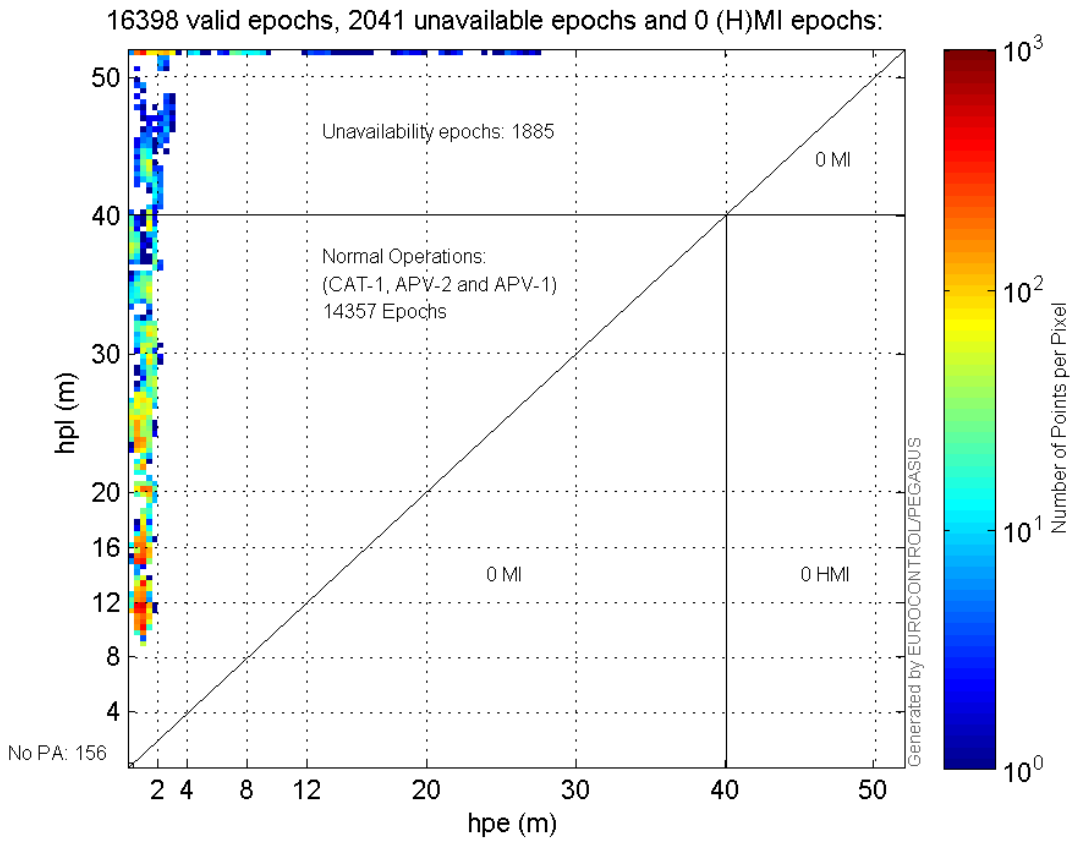


Histogram of VSI LPV200:

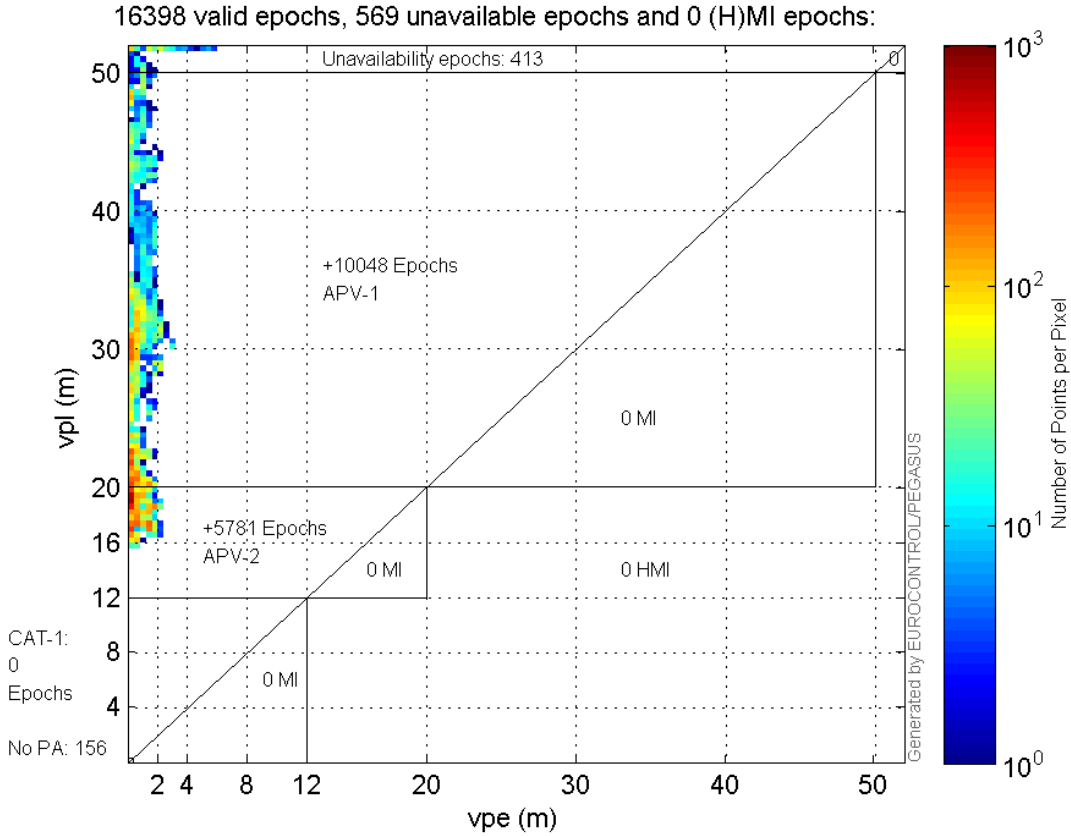


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2016_01_22_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_22_EGNOS/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	214.0605
mi_numbers	results	0

SBAS Messages

start: 10:59:31.129 22.01.2016 (week: 1880 sec: 471571.129)
end: 15:38:48.129 22.01.2016 (week: 1880 sec: 488328.129)
duration: 04:39:17 ..

quality

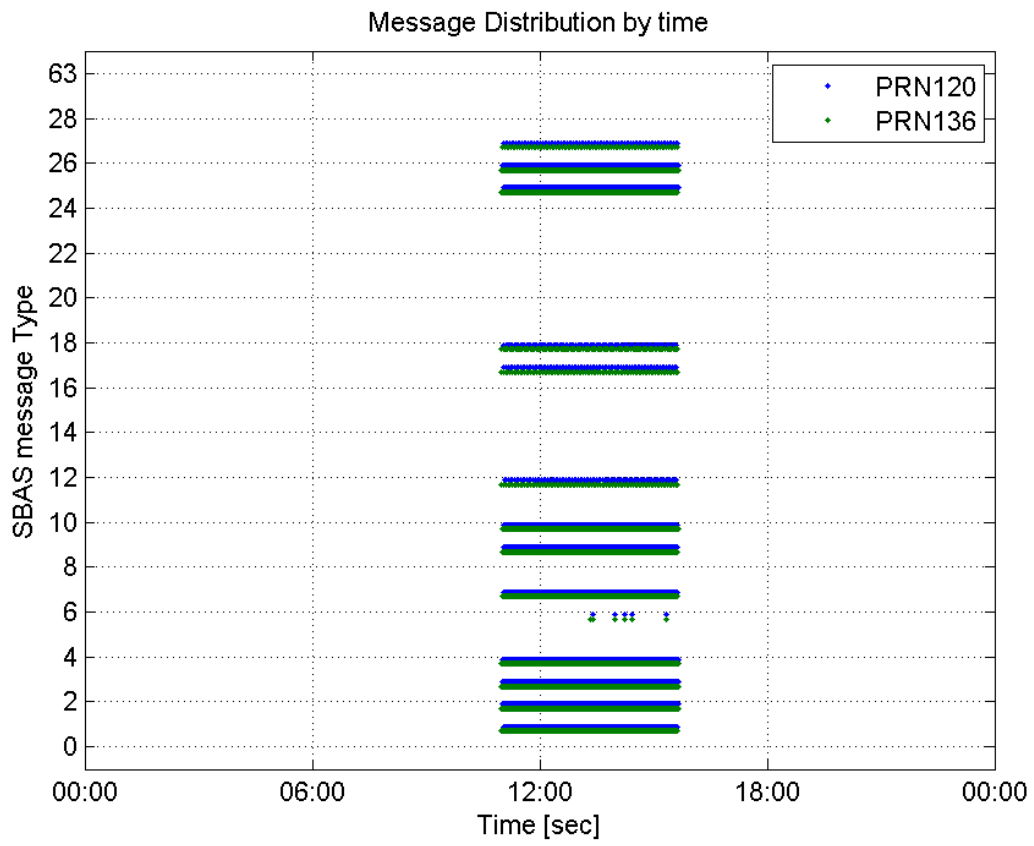
valid samples 33375
total samples 33375
number of SBAS PRNs 2

SBAS SIS Overview

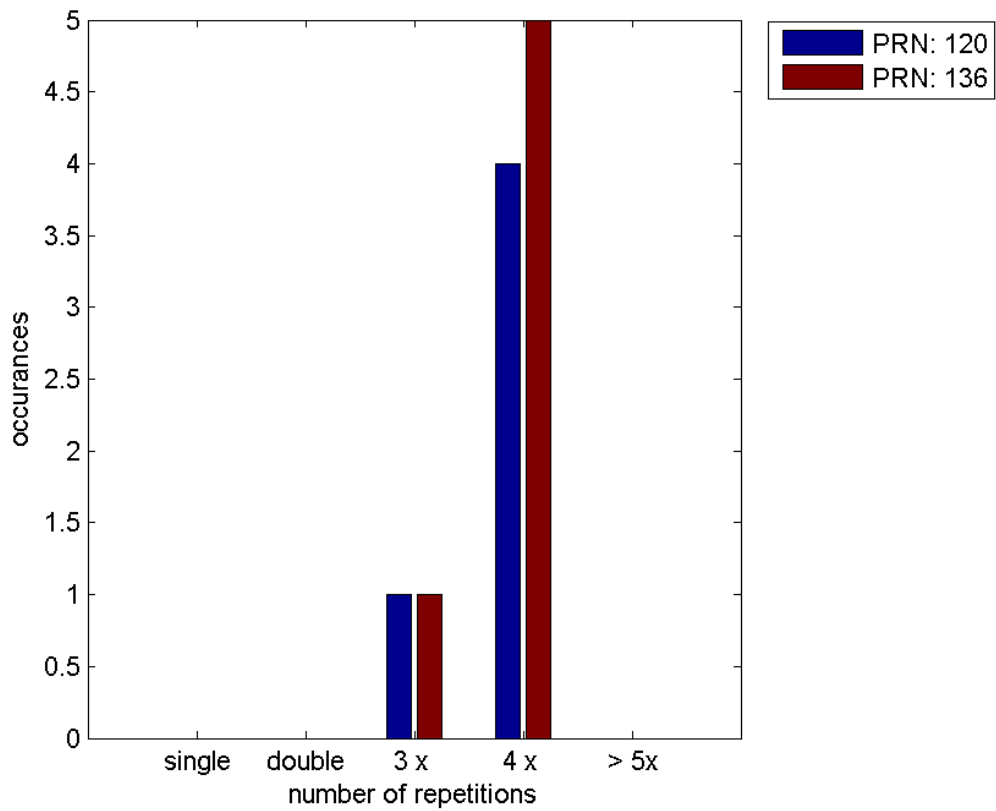
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

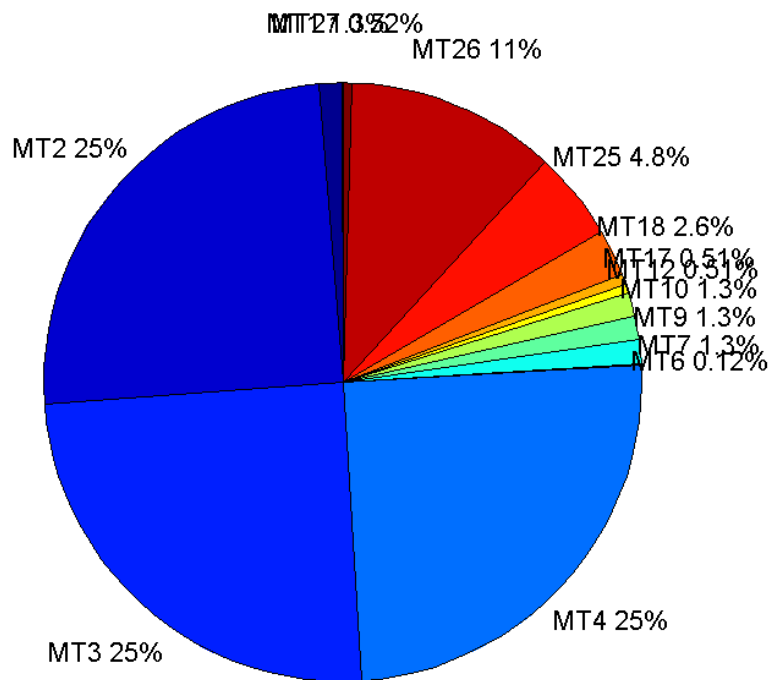
	number of messages	%
MT 0	0	0
MT 1	211	1.26978
MT 2	4133	24.8721
MT 3	4133	24.8721
MT 4	4133	24.8721
MT 5	0	0
MT 6	20	0.120359
MT 7	211	1.26978
MT 9	211	1.26978
MT 10	211	1.26978
MT 12	85	0.511524
MT 17	85	0.511524
MT 18	425	2.55762
MT 24	0	0
MT 25	794	4.77824
MT 26	1879	11.3077
MT 27	86	0.517542
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	16617	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	80	78.8	0	0	0
MT 2	4	8	4.02033	5	0	0
MT 3	4	8	4.02057	5	0	0
MT 4	4	8	4.02033	5	0	0
MT 5	--	--	--	--	--	--
MT 6	1	3233	368.579	4	4	4
MT 7	76	81	78.6476	0	0	0
MT 9	76	81	78.8048	0	0	0
MT 10	76	81	78.6857	0	0	0
MT 12	188	201	194.714	84	0	0
MT 17	188	201	194.762	0	0	0
MT 18	4	162	38.6627	0	0	0
MT 24	--	--	--	--	--	--
MT 25	3	48	20.9281	0	0	0

MT 26	2	32	8.84718	0	0	0
MT 27	184	201	194.776	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

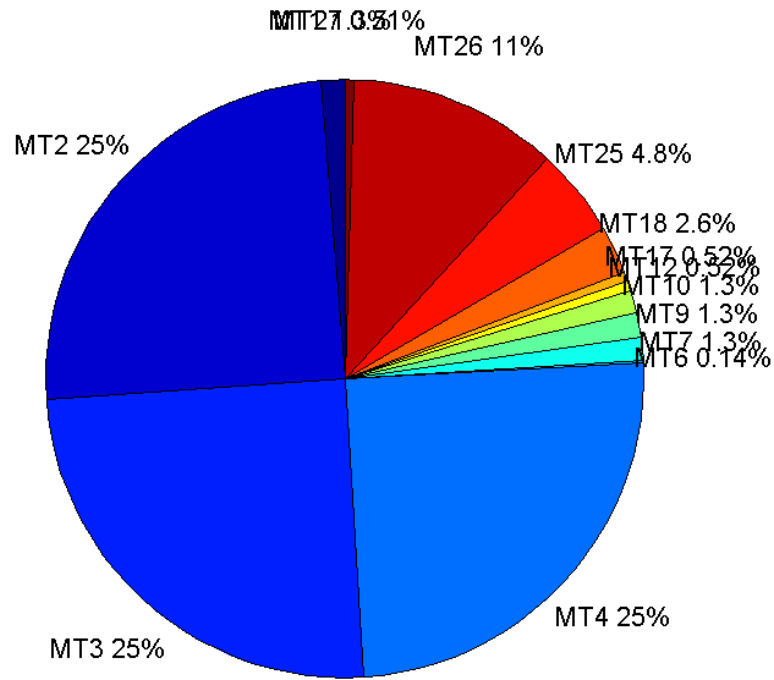
	number of messages	%
MT 0	0	0
MT 1	213	1.27103
MT 2	4165	24.8538
MT 3	4165	24.8538
MT 4	4165	24.8538
MT 5	0	0
MT 6	24	0.143215
MT 7	213	1.27103
MT 9	212	1.26507
MT 10	213	1.27103

MT 12	87	0.519155
MT 17	87	0.519155
MT 18	432	2.57787
MT 24	0	0
MT 25	801	4.77981
MT 26	1895	11.308
MT 27	86	0.513188
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	16758	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	78.783	0	0	0
MT 2	4	8	4.02329	6	0	0
MT 3	4	8	4.02329	6	0	0
MT 4	4	8	4.02329	6	0	0
MT 5	--	--	--	--	--	--
MT 6	1	3233	315.391	5	5	5
MT 7	76	81	78.7453	0	0	0
MT 9	76	83	78.8436	0	0	0
MT 10	76	81	78.75	0	0	0
MT 12	184	201	194.349	86	0	0
MT 17	188	203	194.395	0	0	0
MT 18	4	168	38.8121	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	48	20.9263	0	0	0
MT 26	4	32	8.84319	0	0	0
MT 27	188	201	194.365	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_01_22_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_01_22_EGNOS/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