

Global View

program Pegasus
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
date 16/11/2015

Range Domain

start: 08:13:16 13.11.2015 (week: 1870 sec: 461596)
end: 13:45:45 13.11.2015 (week: 1870 sec: 481545)
duration: 05:32:30 ..

quality

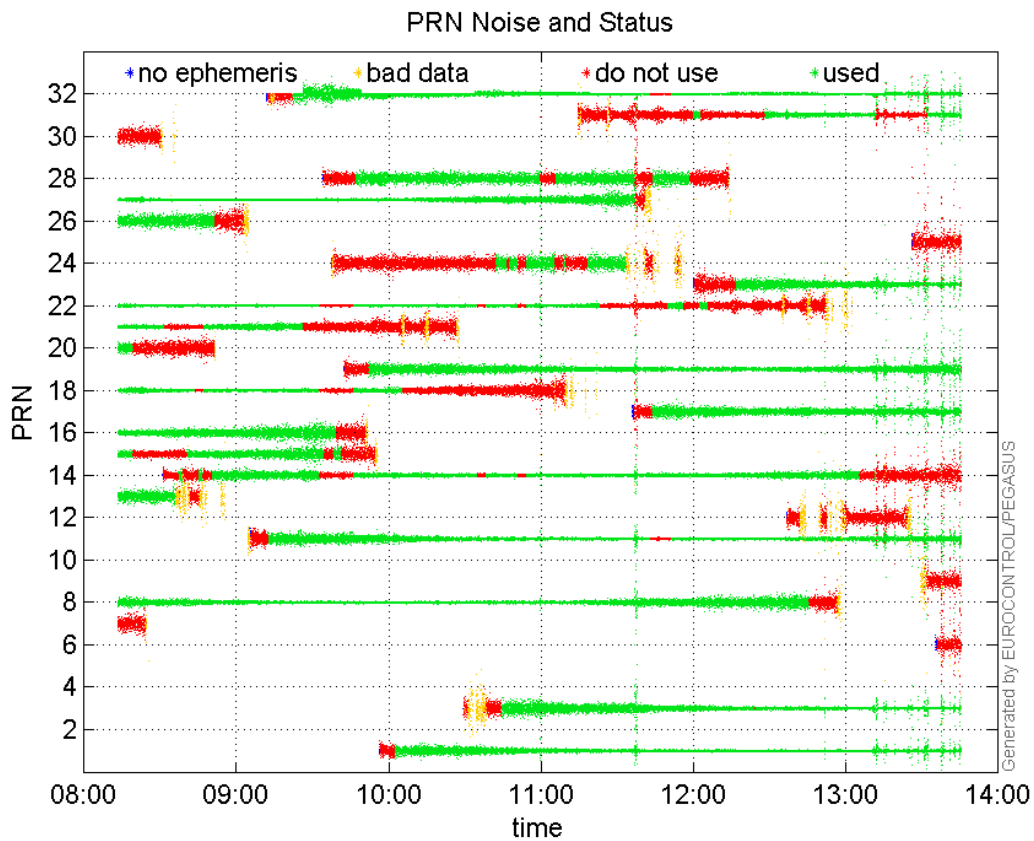
valid samples 19950
total samples 19950

PRN overview

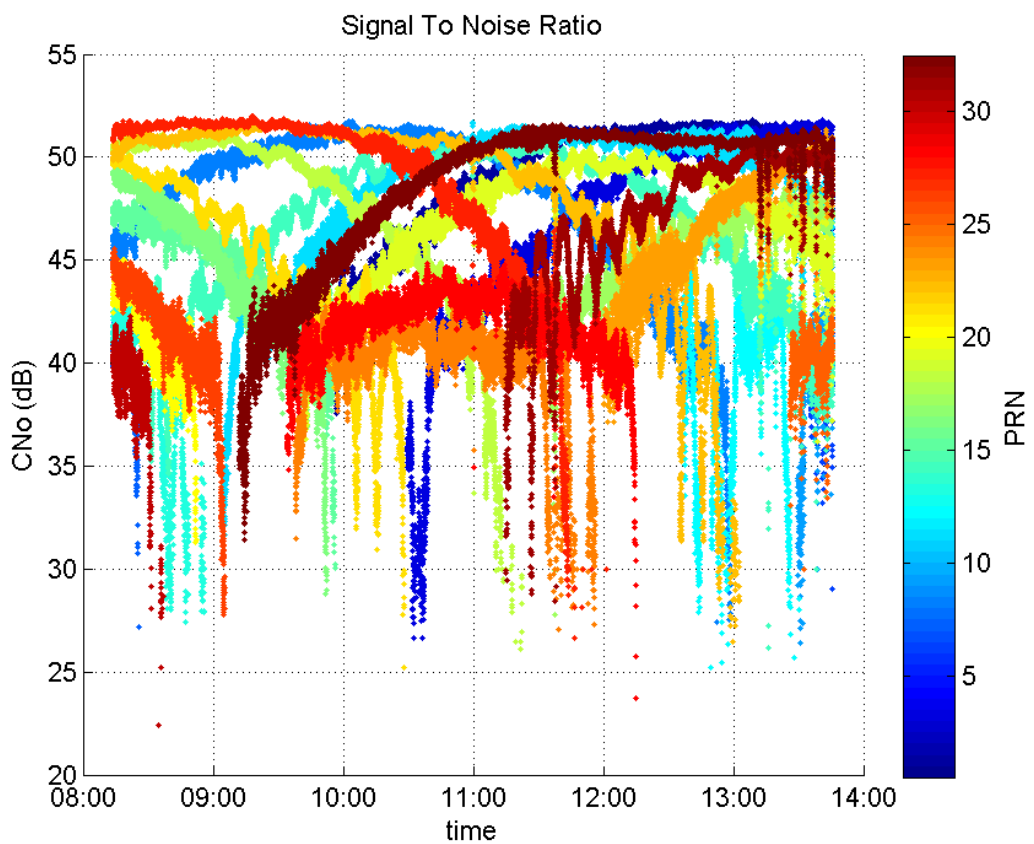
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



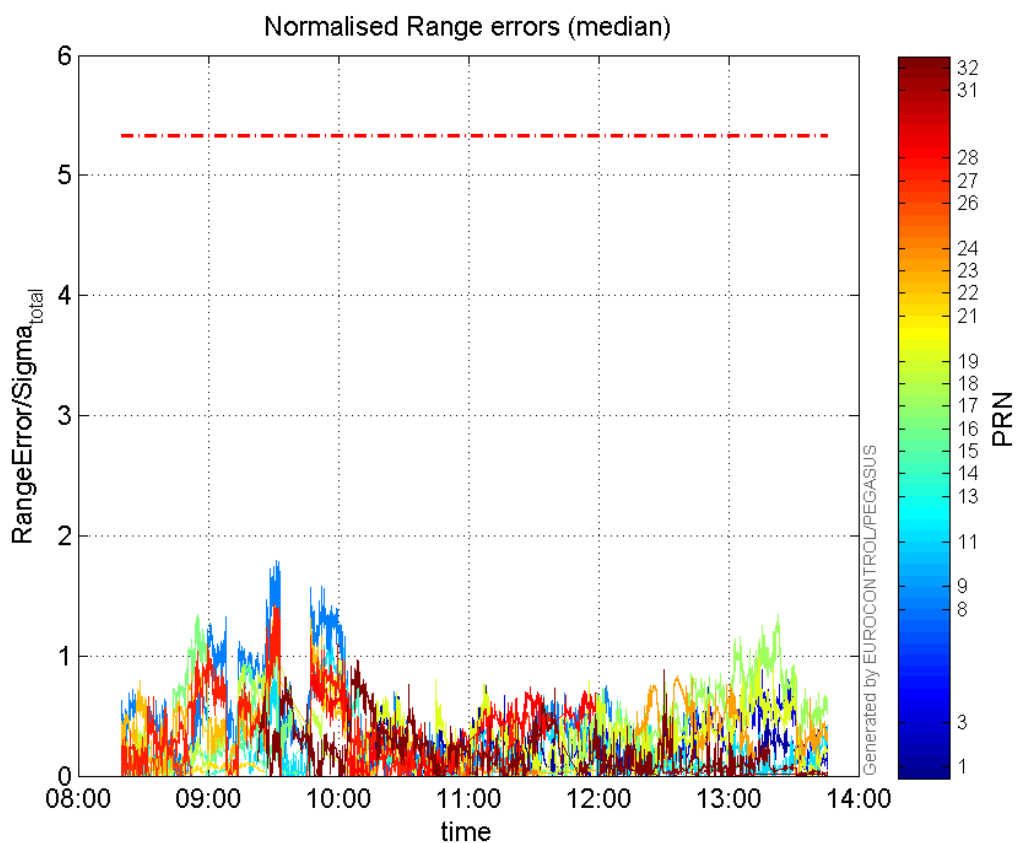
range errors

Number of Overbounding Norm Errors 0

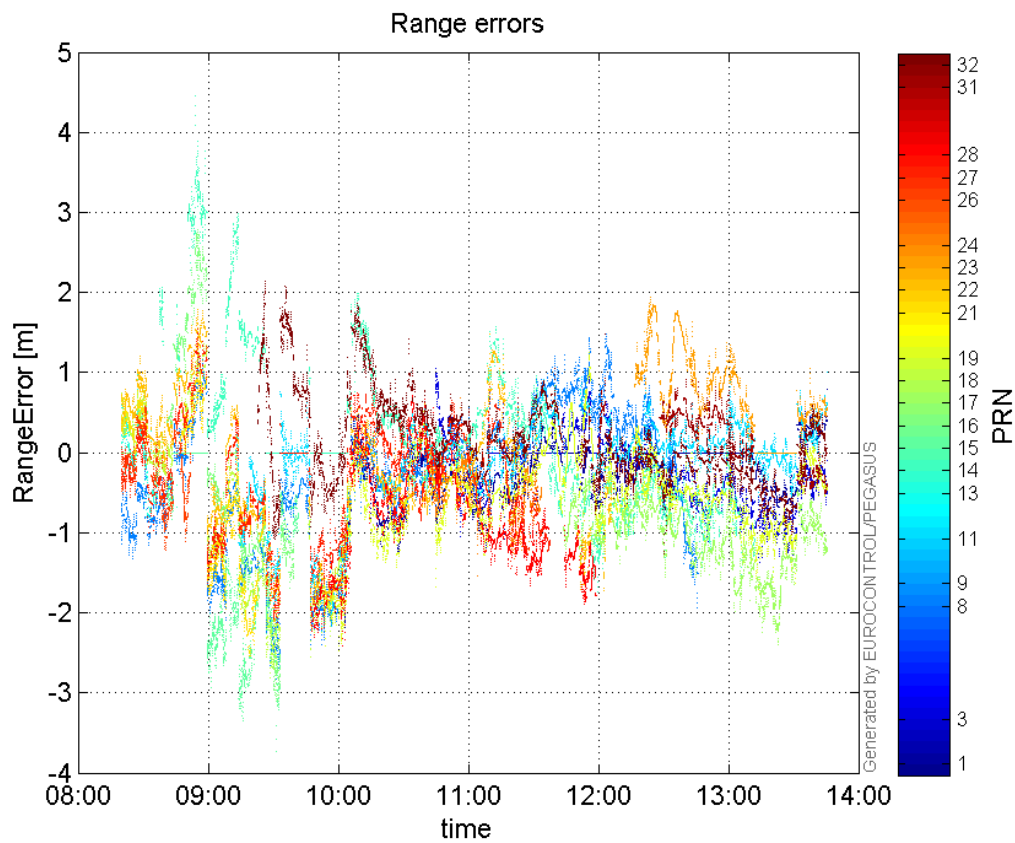
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1870	468178	1	0.980162	-2.18264	2.22682
1870	479645	3	0.948512	-1.37616	1.45087
1870	466254	8	1.79157	-2.82957	1.57938
1870	481102	9	0.183883	0.545925	2.96887
1870	467789	11	1.13494	-2.13398	1.88026
1870	462415	13	0.32892	0.981294	2.98338
1870	468521	14	0.763699	1.99286	2.60949
1870	466306	15	1.07061	-2.70612	2.52764
1870	464088	16	1.34506	2.78514	2.07065
1870	480166	17	1.34581	-2.34578	1.74302
1870	466189	18	1.36989	-2.69441	1.96688
1870	479645	19	0.997642	-1.76187	1.76603
1870	461964	21	0.373373	0.732146	1.9609
1870	466211	22	1.41072	-2.1972	1.55751
1870	477370	23	0.829869	1.76955	2.13232
1870	470892	24	0.156819	-0.693004	4.41913
1870	463198	26	0.409132	-1.22416	2.99209
1870	466188	27	1.42438	-2.0448	1.43557
1870	468105	28	0.948844	-2.41373	2.54387
1870	475380	31	0.0934419	1.47781	15.8152
1870	468521	32	0.969503	1.87058	1.92942

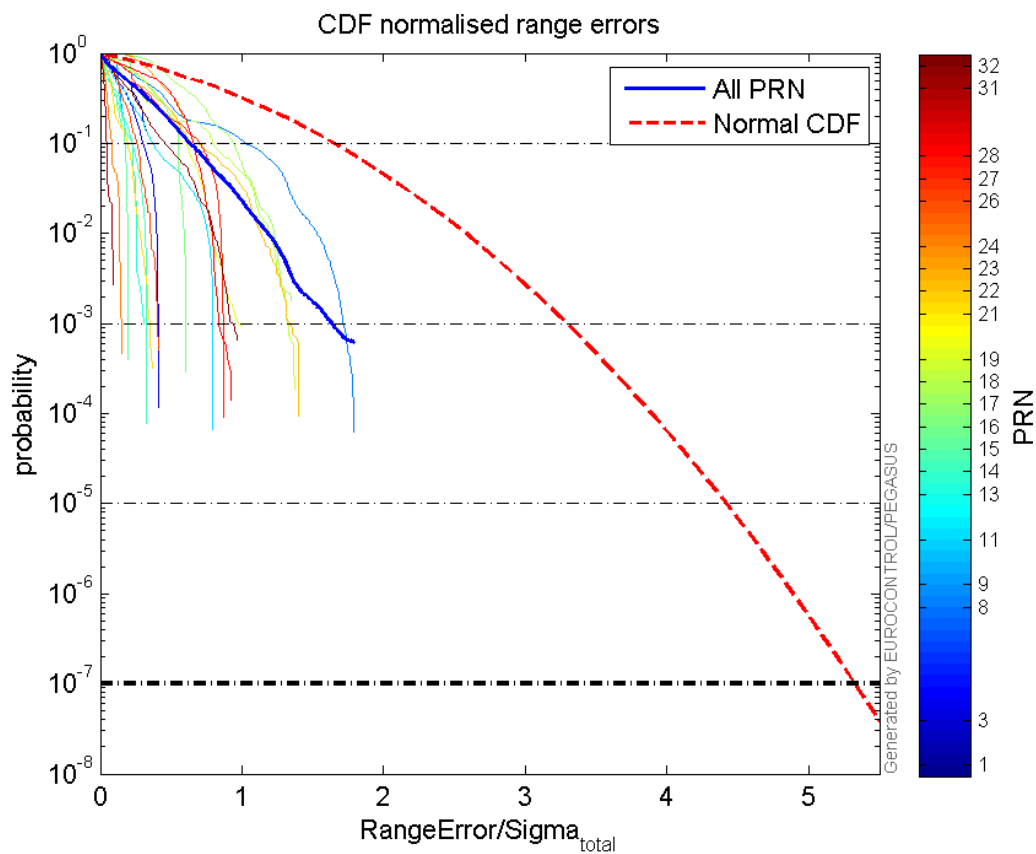
Normalised Range errors (median):



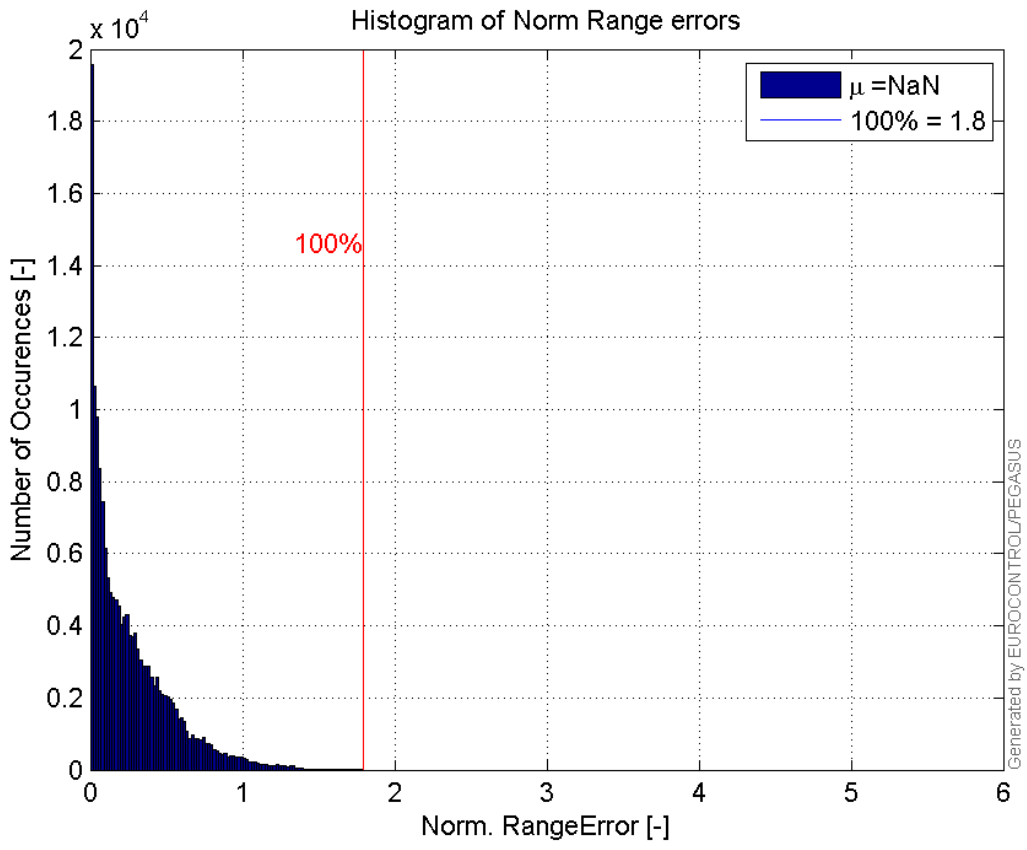
Range errors:



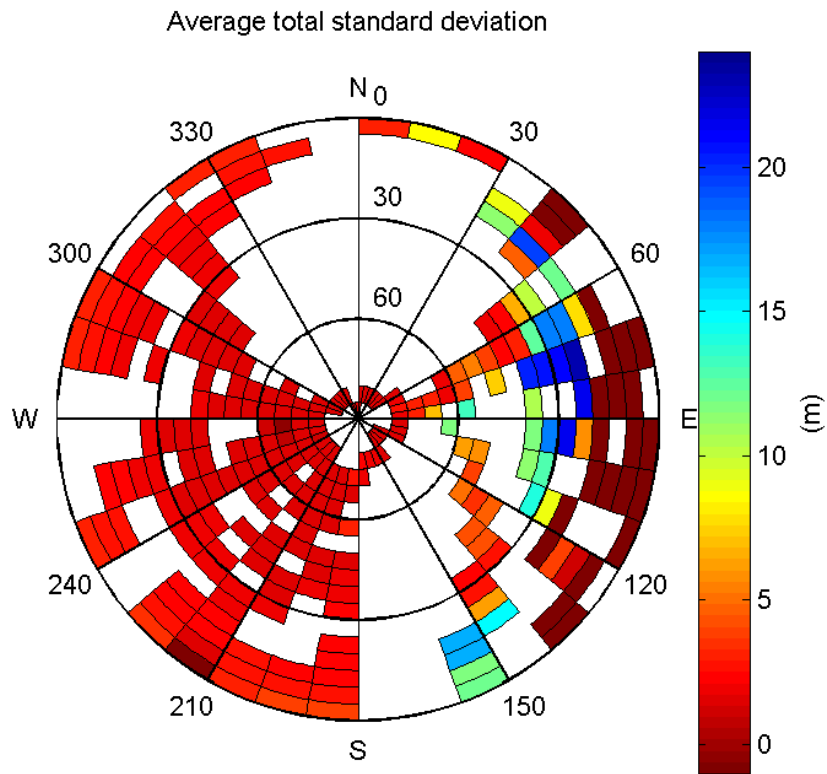
CDF normalised range errors:



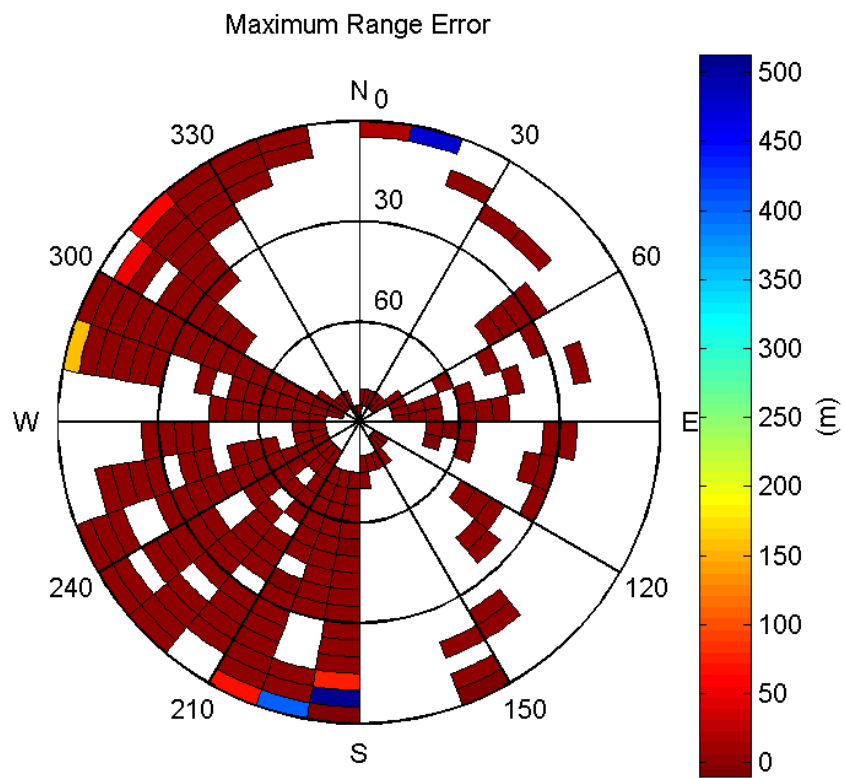
Histogram of Norm Range errors:



Sigma Sky Plot:

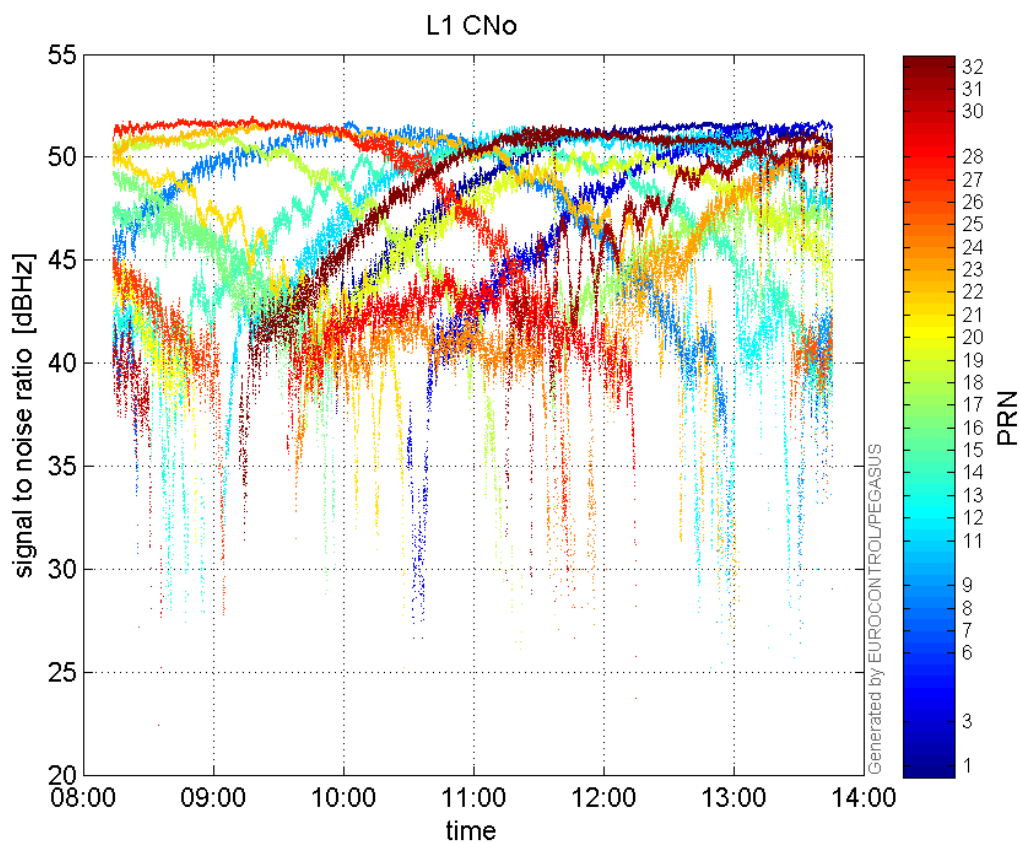


Norm Error Sky Plot:

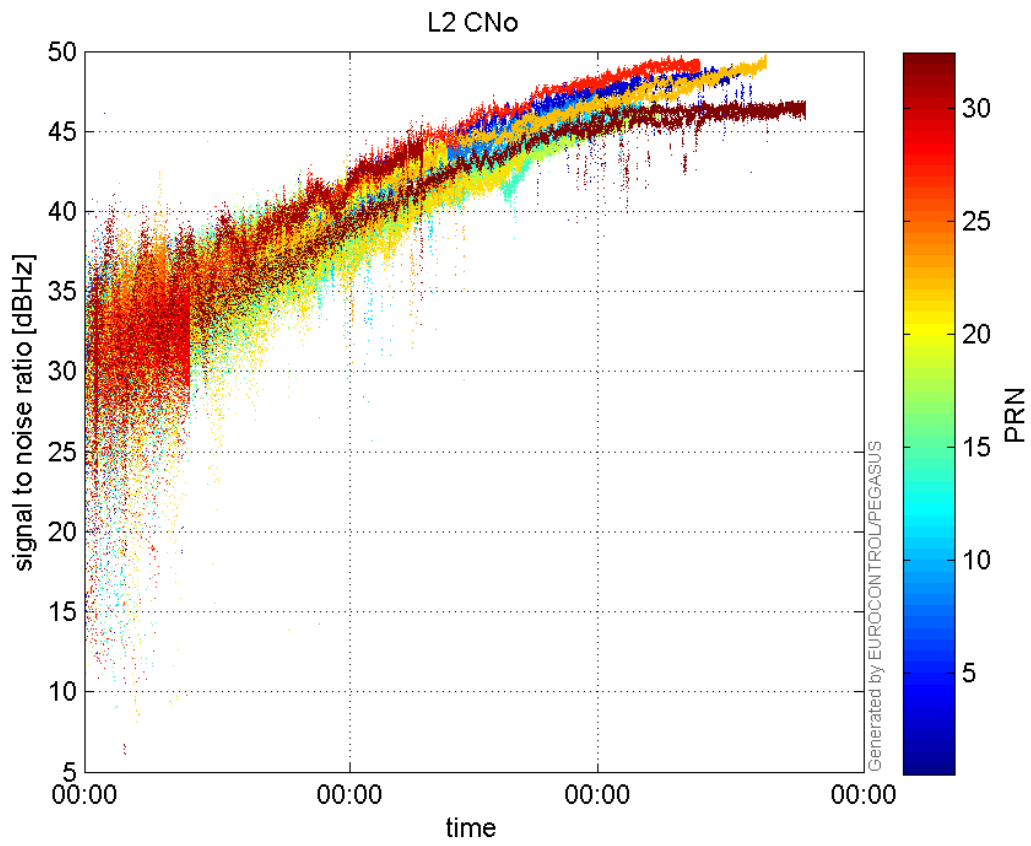


signal quality

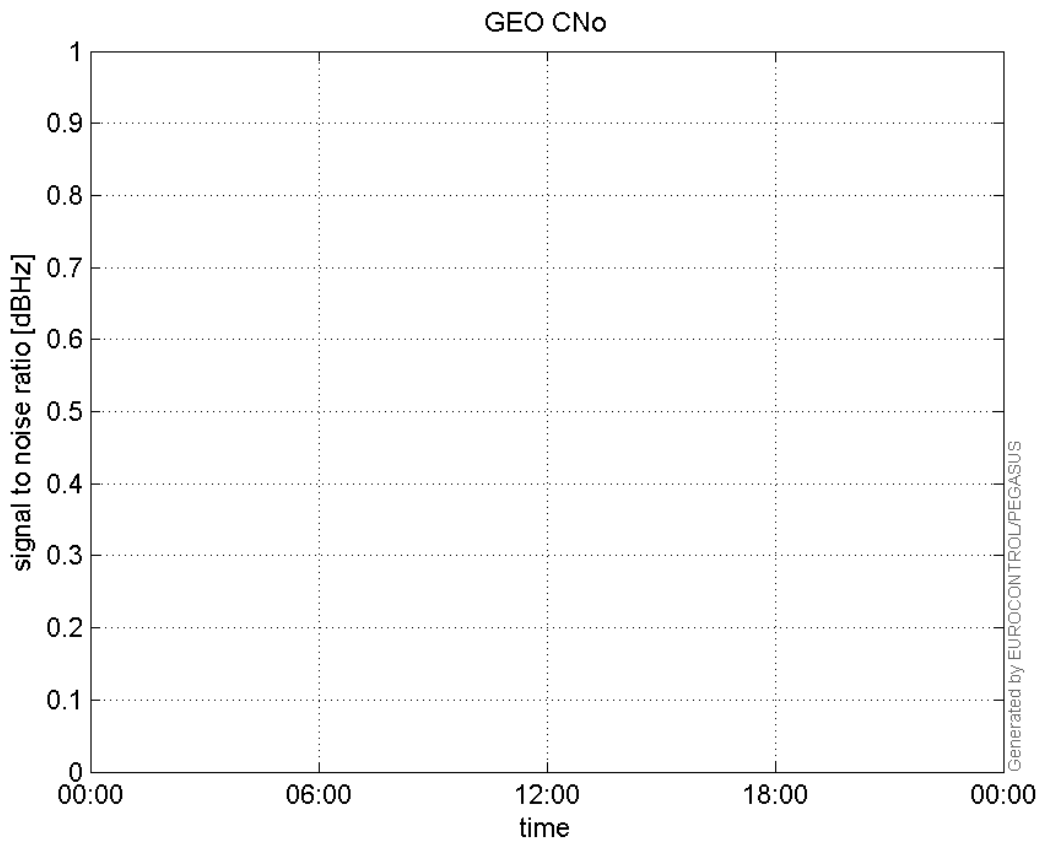
L1 CNo:



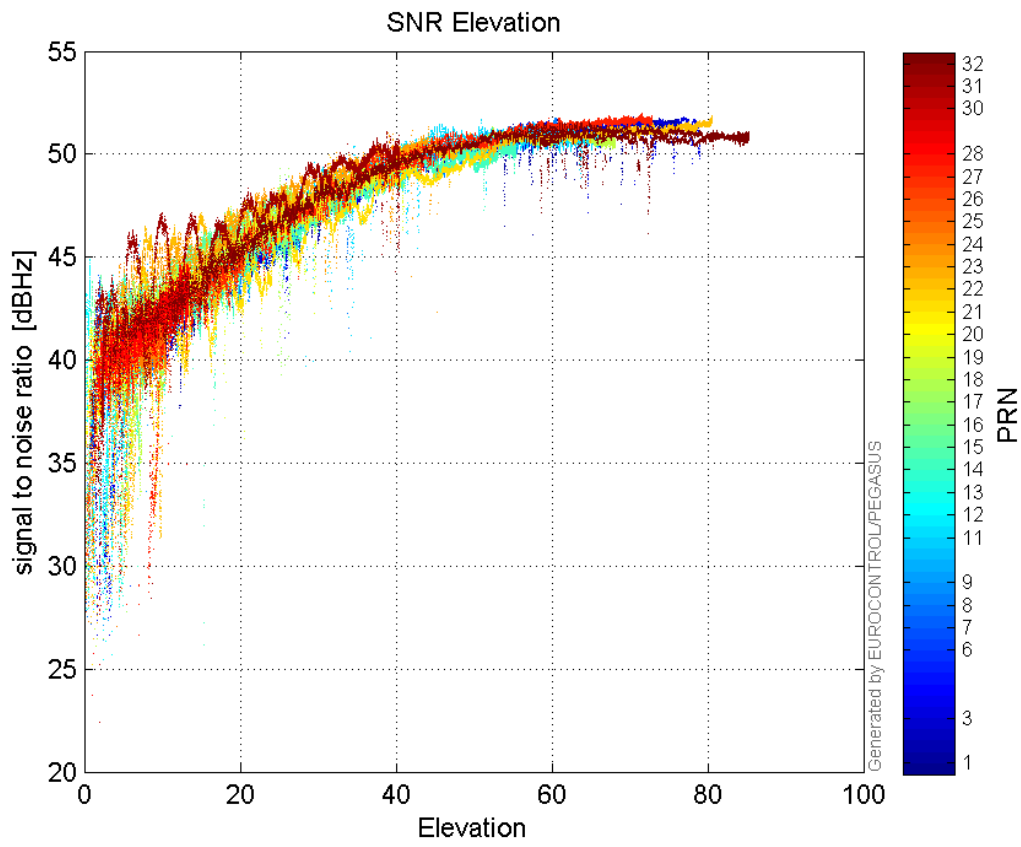
L2 CNo:



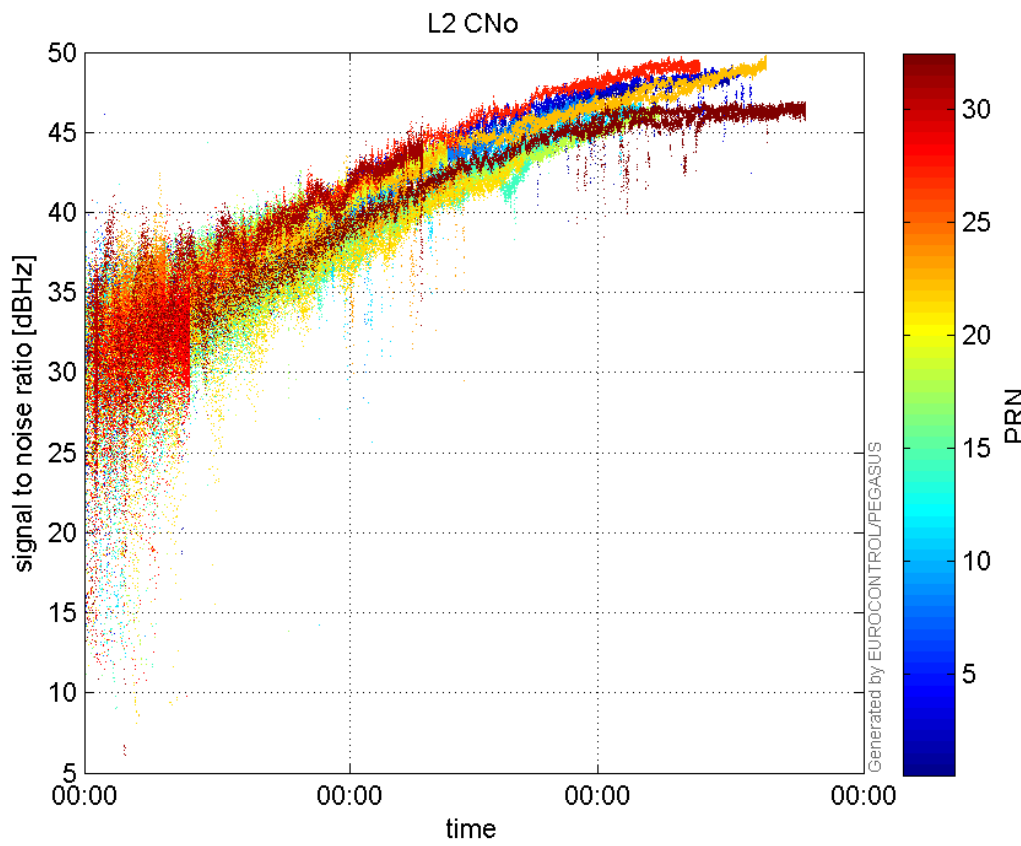
GEO CNo:



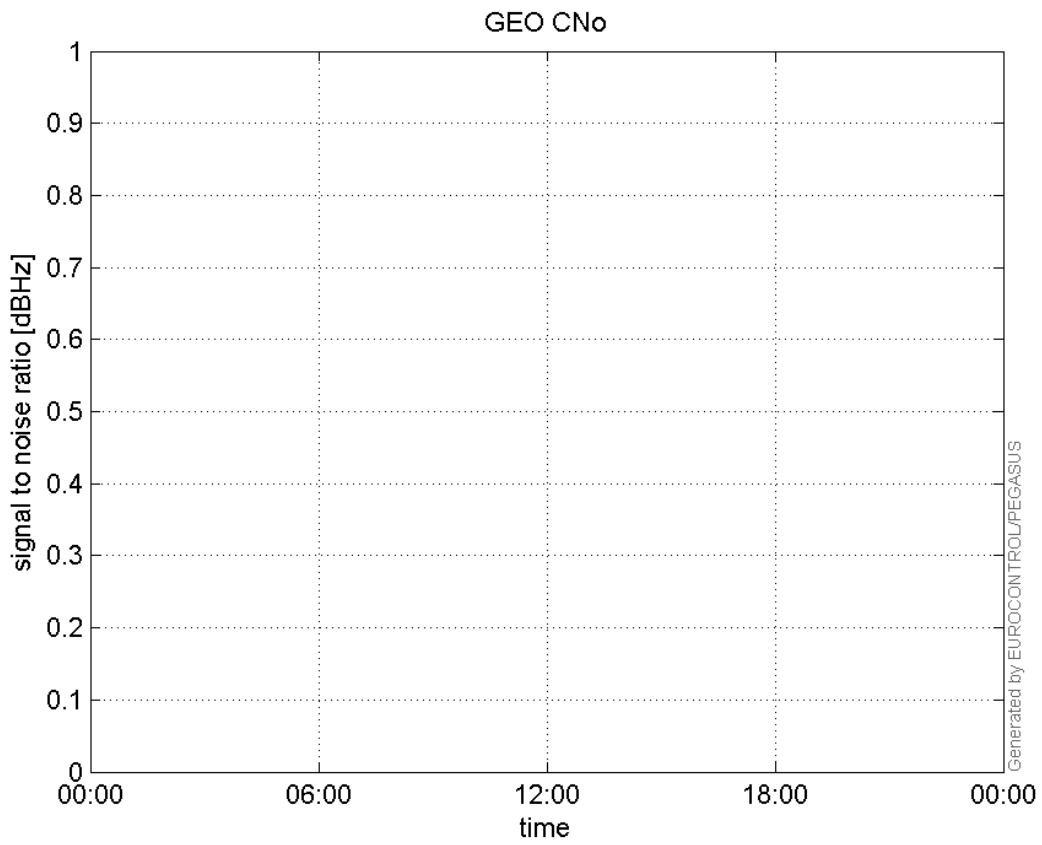
SNR Elevation:



L2 CNo:

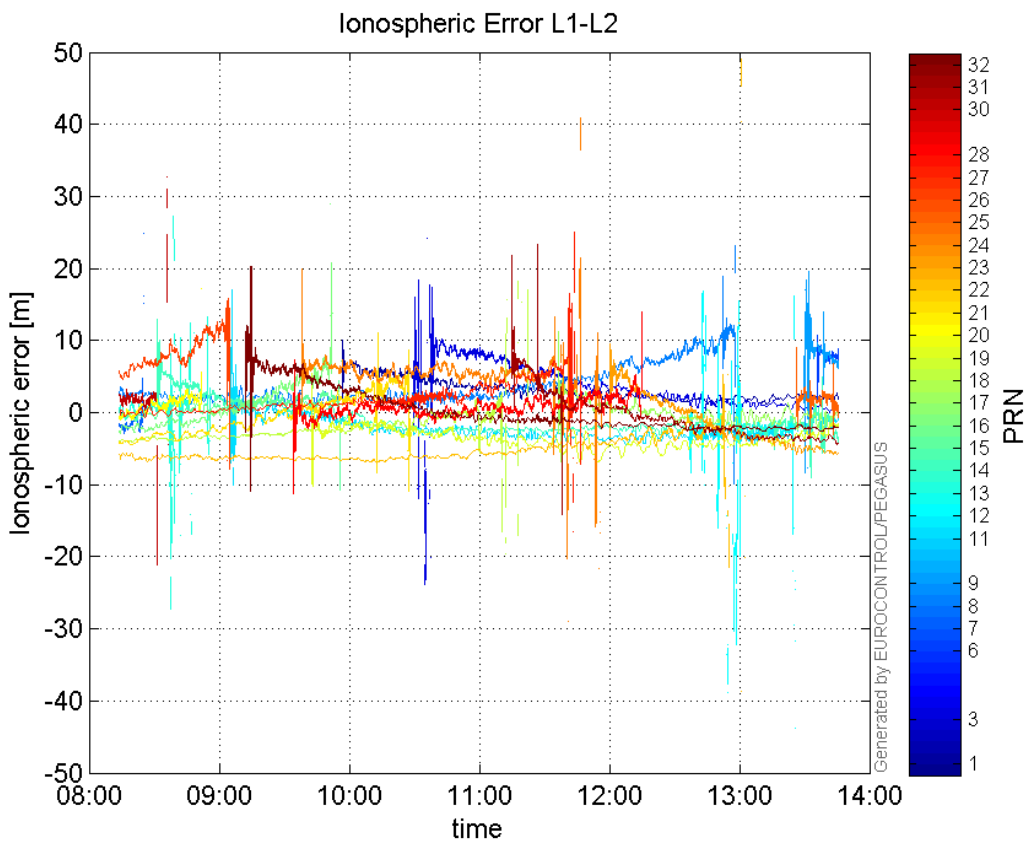


GEO CNo:



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_13EGNOS./02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_13EGNOS./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	30.4298
init_alt	results	234.5119
mi_numbers	results	0

Position Domain

start: 08:13:16 13.11.2015 (week: 1870 sec: 461596)
end: 13:45:45 13.11.2015 (week: 1870 sec: 481545)
duration: 05:32:30 ..

quality

valid samples 19589
total samples 19950

Event tables

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

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	467517	1.6207	11.1132	0.145836	1.90572	15.8879	0.119948
max normVer	473669	1.47259	26.1273	0.0563621	-2.93155	15.3147	0.191421
max HPE	466531	9.07342	91.3883	0.0992842	-5.20572	53.4342	0.0974231
max VPE	466531	9.07342	91.3883	0.0992842	-5.20572	53.4342	0.0974231
min HPL	471049	0.486084	8.44071	0.057588	0.0716581	18.3118	0.00391322
min VPL	466306	0.877444	9.38918	0.0934526	0.0252538	11.0193	0.00229178

Position discontinuity events :

#	Epoch	duration	stable period
1	480739	12	18782

APV-I discontinuity events :

#	Epoch	duration	stable period
1	464205	196	2248
2	466368	789	1967
3	473847	375	6690
4	480737	16	6515

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	464205	196	2248
2	466368	789	1967
3	473847	375	6690
4	479929	936	5707

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	464205	196	2248
2	466368	789	1967
3	473847	375	6690
4	479929	936	5707

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	466306	10353	12

First Glance analysis

Duration

19950

Number of Samples	19950
Number of invalid sample	361
Number of no position solution samples	25
Number of missing sample	0
Logging Loss	0
Processing Loss	1.8095
Number of Misleading Information	0
Data gaps	0
Discontinuities	1

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
19564	18199	17222	19	17222

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.6827	1.5928	1.57968	0.977987	1.57968
HPEscale 95%	NaN	4.27439	4.30089	4.11152	4.30089
VPE 95%	2.08281	1.99398	2.00752	0.351848	2.00752
VPEscale 95%	NaN	5.18013	3.68226	0.35368	3.68226

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.998724	0.929042	0.879167	0.000969932	0.879167
measurements	0.980652	0.912231	0.863258	0.000952381	0.863258
Operational	0.980652	0.912231	0.863258	0.000952381	0.863258

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	1	4	31	1	31
Long	1	4	4	1	4
Independent	1	4	4	0	4
P(disc.)	0.000766714	0.00329688	0.00348392	0	0.00348392
P(slide)	0.000766714	0.00329688	0.00644524	0.631579	0.00644524

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

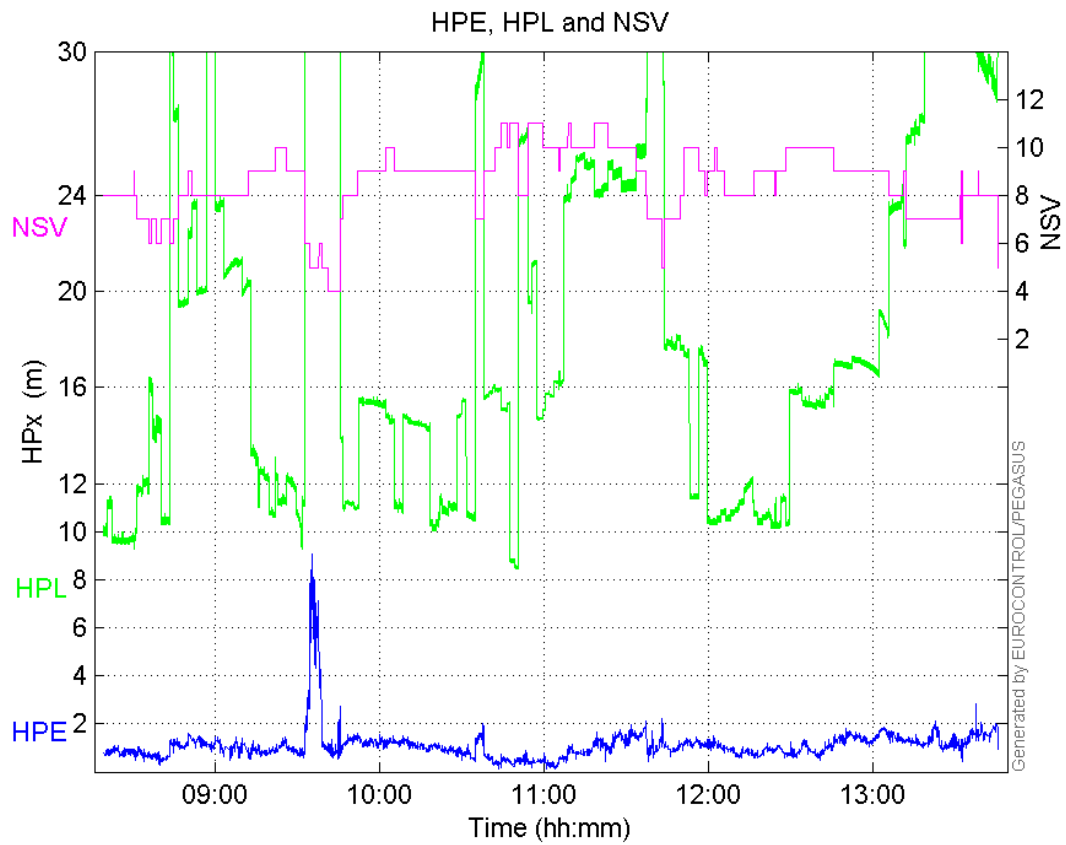
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	19564	18199	17222	19	17222
SIS Availability	0.998724	0.929042	0.879167	0.000969932	0.879167
Local Availability	0.980652	0.912231	0.863258	0.000952381	0.863258
Operational Availability	0.980652	0.912231	0.863258	0.000952381	0.863258

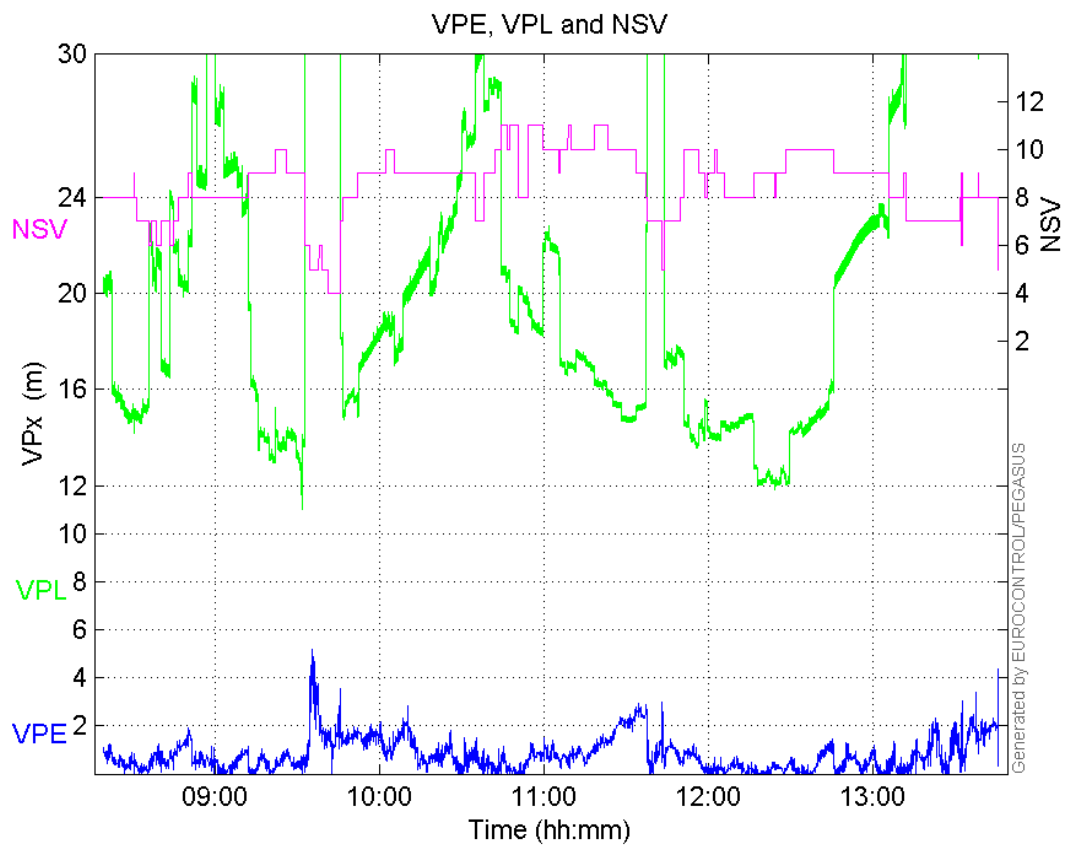
HPE 95%	1.6827	1.5928	1.57968	0.977987	1.57968
HPEscale 95%	NaN	4.27439	4.30089	4.11152	4.30089
VPE 95%	2.08281	1.99398	2.00752	0.351848	2.00752
VPEscale 95%	NaN	5.18013	3.68226	0.35368	3.68226
All Discontinuity Events	1	4	31	1	31
Long Discontinuity Events	1	4	4	1	4
Independent Discontinuity Events	1	4	4	0	4
P(discontinuity)	0.000766714	0.00329688	0.00348392	0	0.00348392
P(sliding window)	0.000766714	0.00329688	0.00644524	0.631579	0.00644524
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:

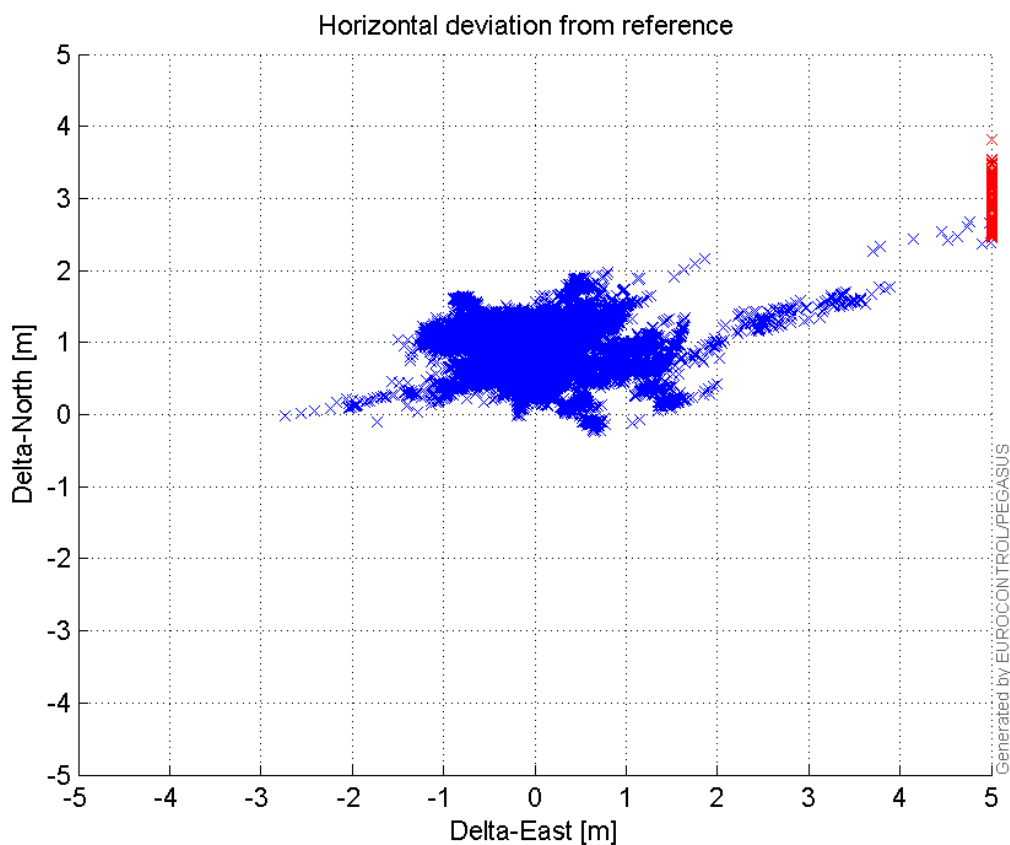


VPE, VPL and NSV:



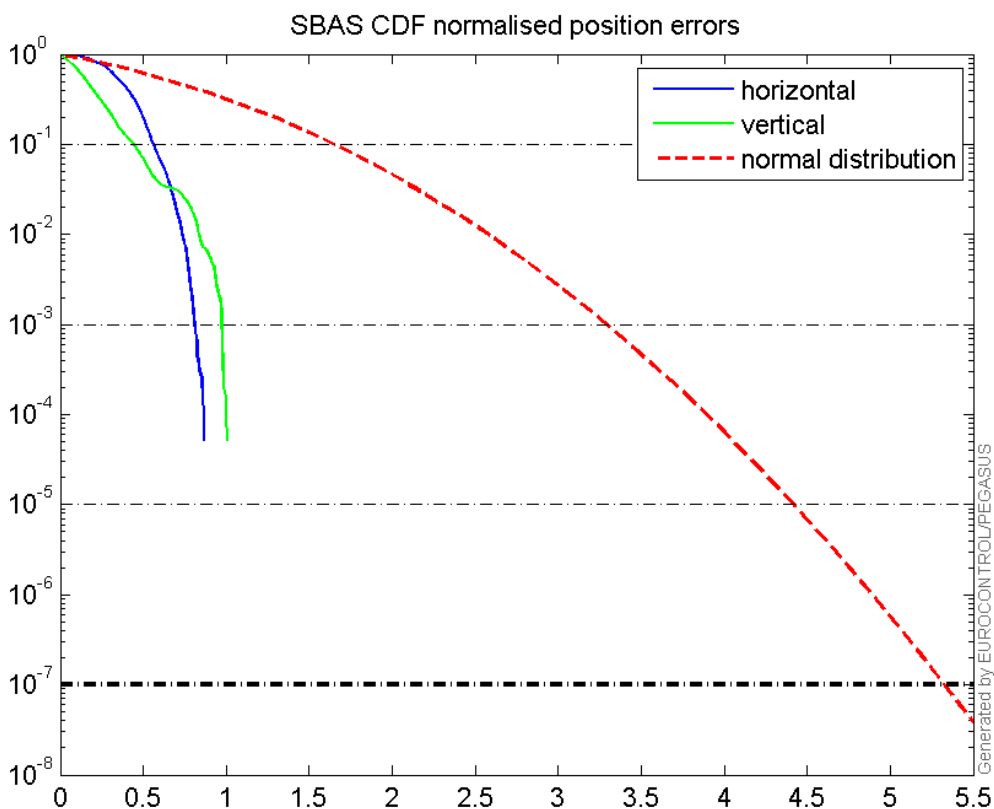
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

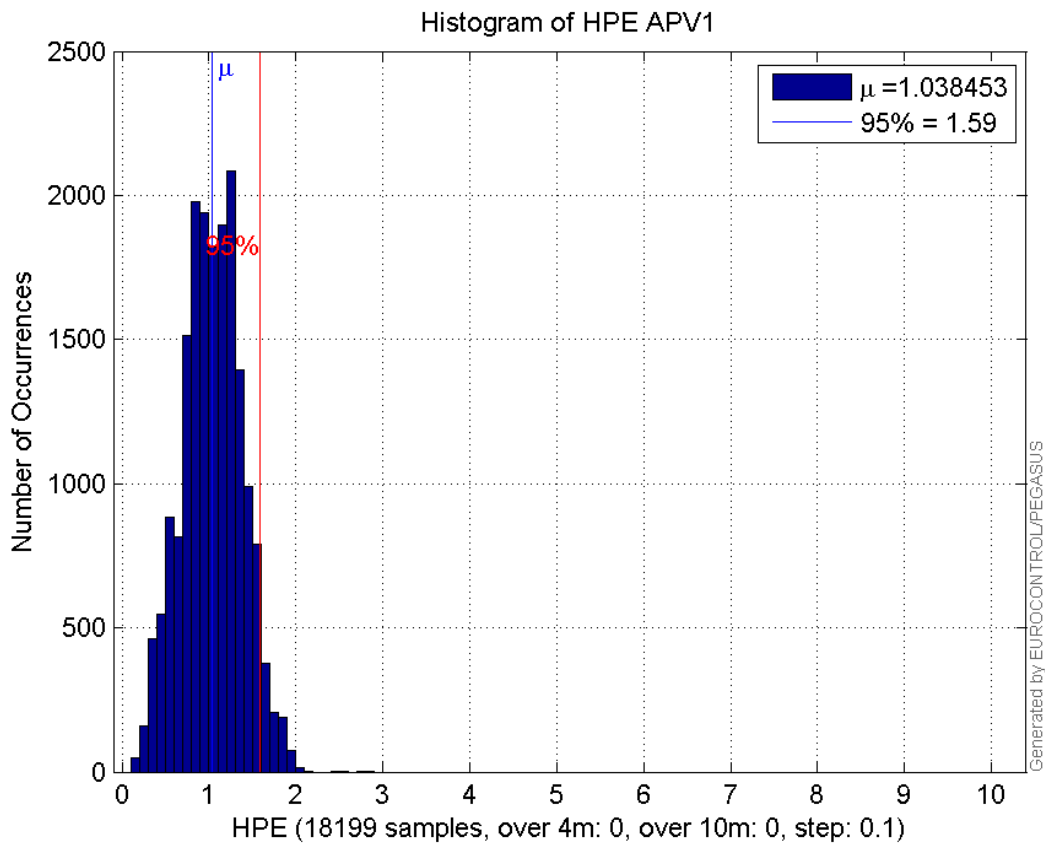
number	18199
sum	18898.814
sum2	21785.436
prctile95	1.5927957
prctile99	1.8377897
number	18199
sum	13768.953
sum2	16982.608
prctile95	1.9939786
prctile99	2.434757
number	18199
sum	327419.46
sum2	6845862.3
prctile95	32.03586
prctile99	38.458351
number	18199
sum	375341.48
sum2	8657109.5
prctile95	35.523375
prctile99	42.354175
number	18199
sum	1154.0209
sum2	83.984933

prctile95 0.10685973
prctile99 0.12307151
number 18199
sum 710.44991
sum2 48.66097
prctile95 0.10360257
prctile99 0.15758685
number 17222
sum 17672.729
sum2 20183.419
prctile95 1.5796835
prctile99 1.8169106
number 17222
sum 12751.724
sum2 15594.645
prctile95 2.0075244
prctile99 2.4539741
number 17222
sum 291994.88
sum2 5556429.8
prctile95 28.02938
prctile99 30.328008
number 17222
sum 336431.91
sum2 7102410.9
prctile95 31.66598
prctile99 33.73326
number 17222
sum 1120.2011
sum2 82.772119
prctile95 0.10752231
prctile99 0.12377329
number 17222
sum 684.86227
sum2 47.780835
prctile95 0.10520747
prctile99 0.15831147

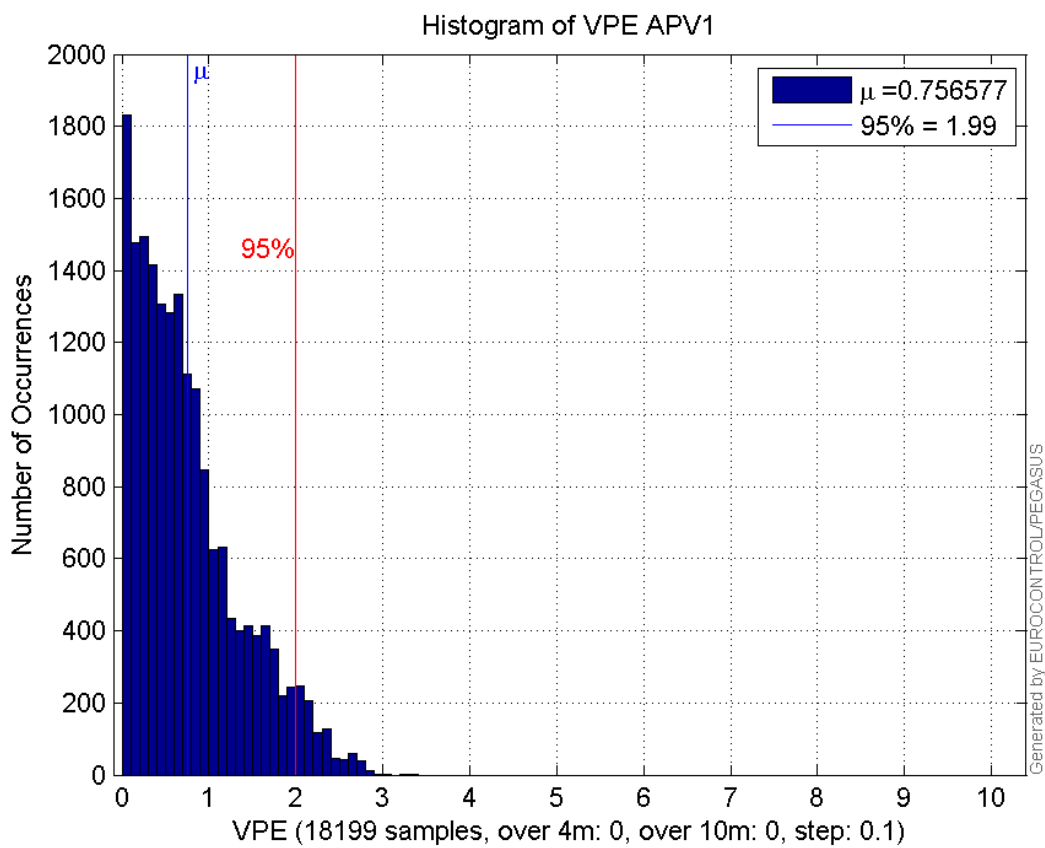
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.03845	0.344512	1.03501	1.5928	1.83779	1.09411
HPL	17.9911	7.24509	15.7761	32.0359	38.4584	19.395
VPE	0.756577	0.600643	0.622989	1.99398	2.43476	0.966003
VPL	20.6243	7.09457	18.5236	35.5234	42.3542	21.8104

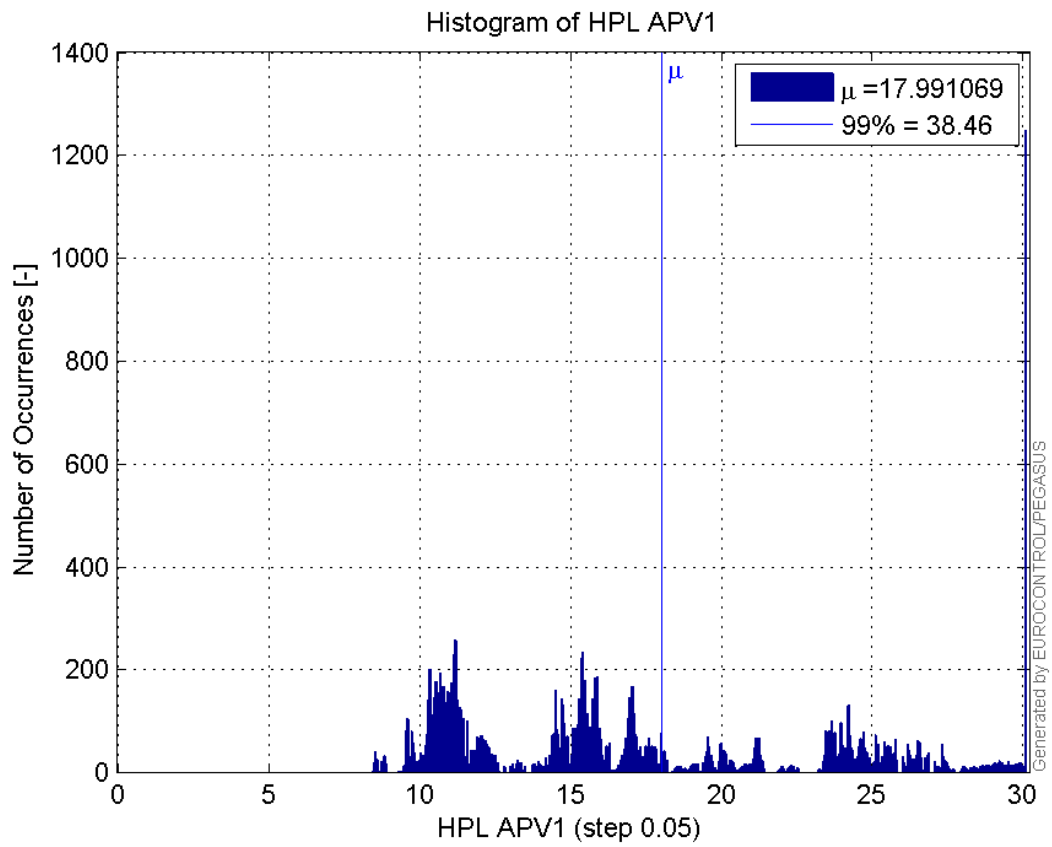
Histogram of HPE APV1:



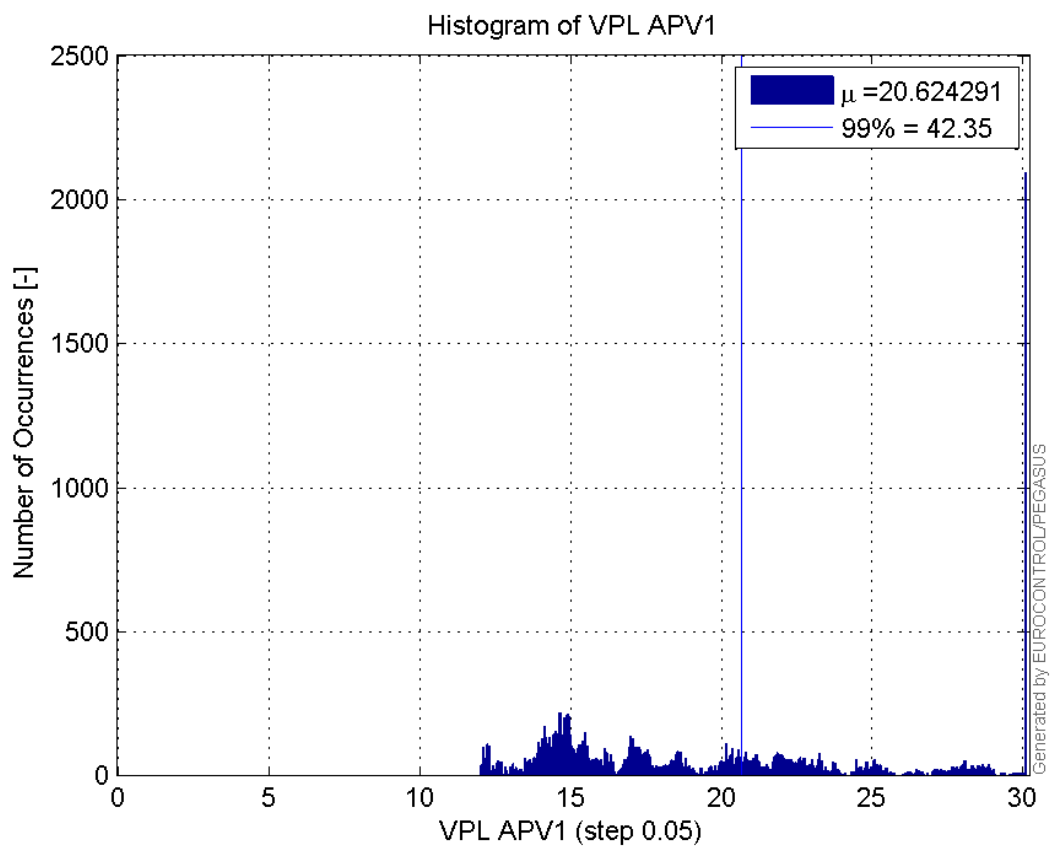
Histogram of VPE APV1:



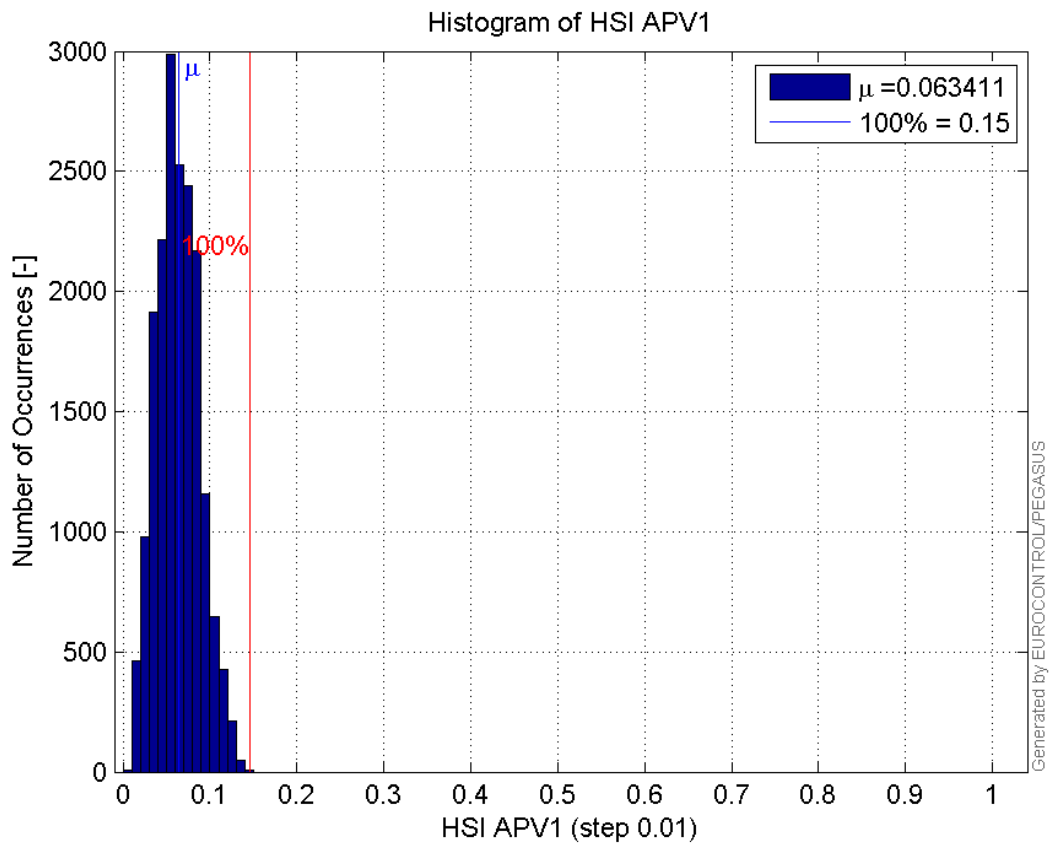
Histogram of HPL APV1:



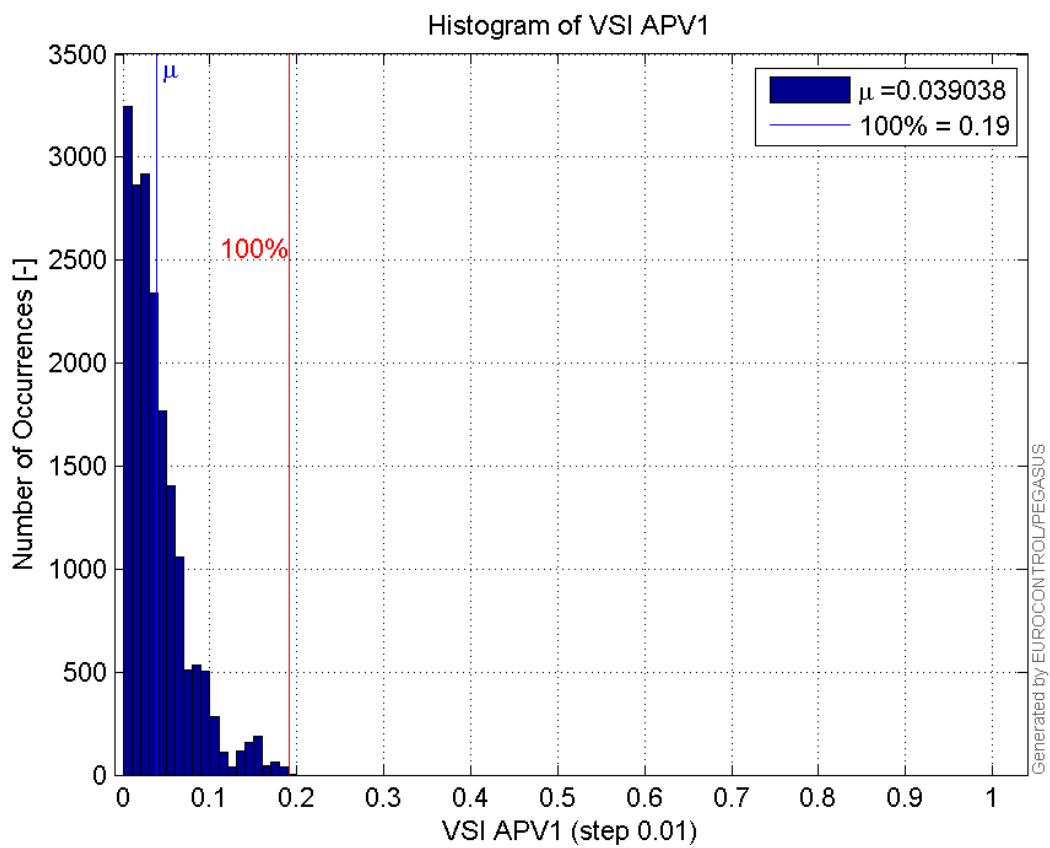
Histogram of VPL APV1:



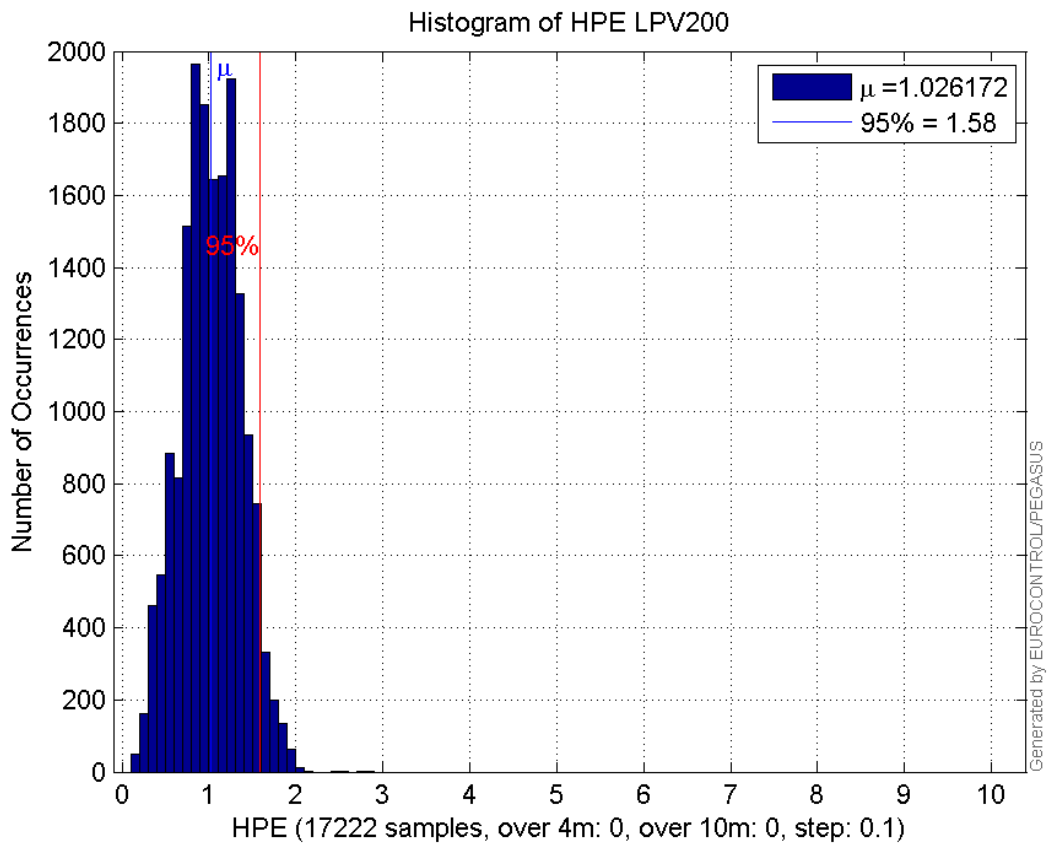
Histogram of HSI APV1:



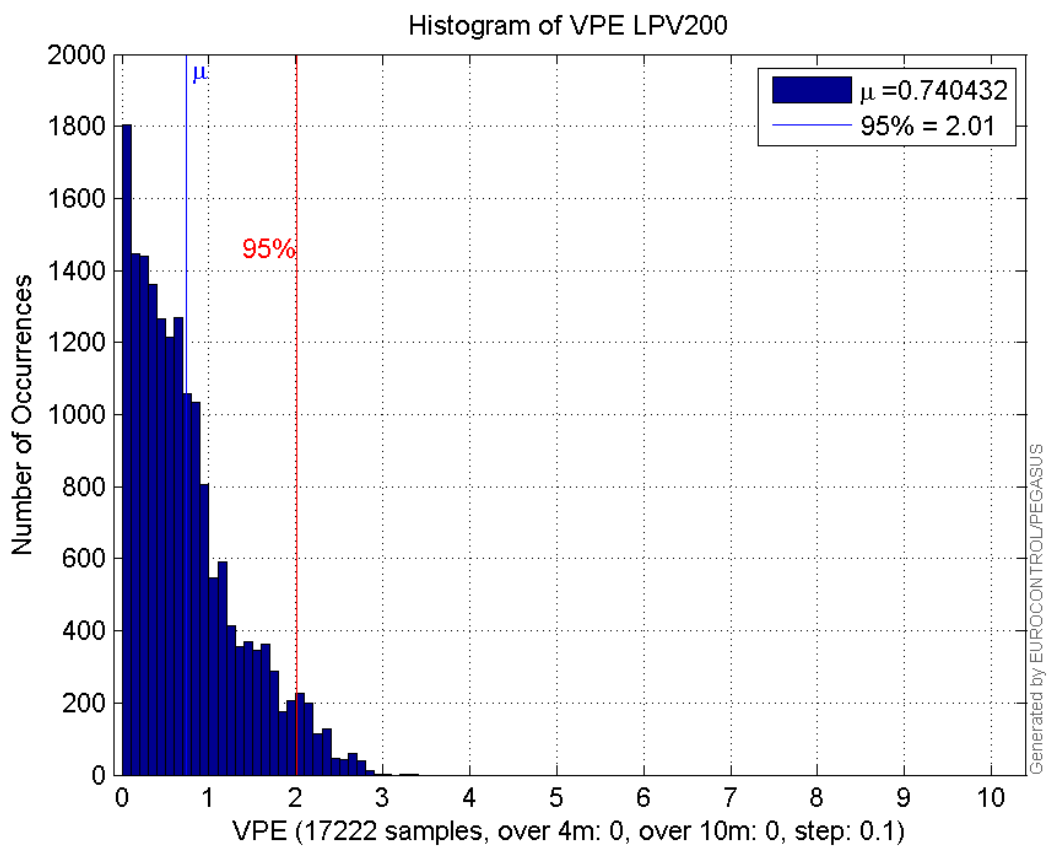
Histogram of VSI APV1:



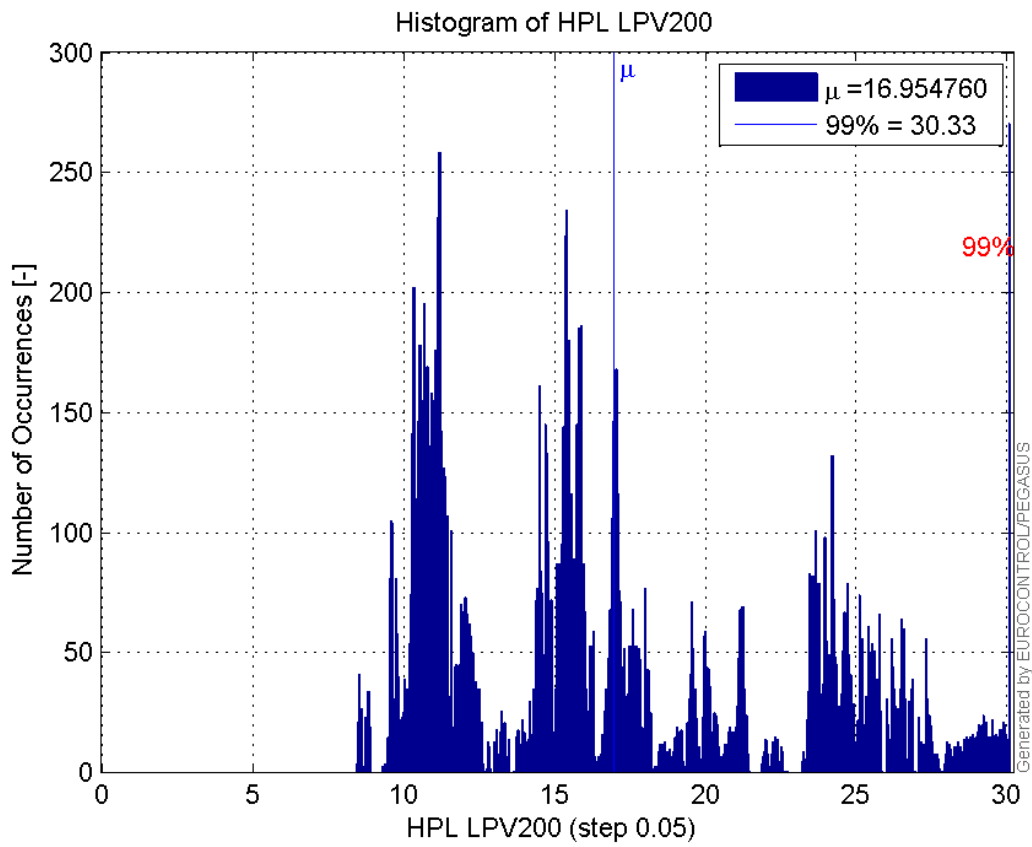
Histogram of HPE LPV200:



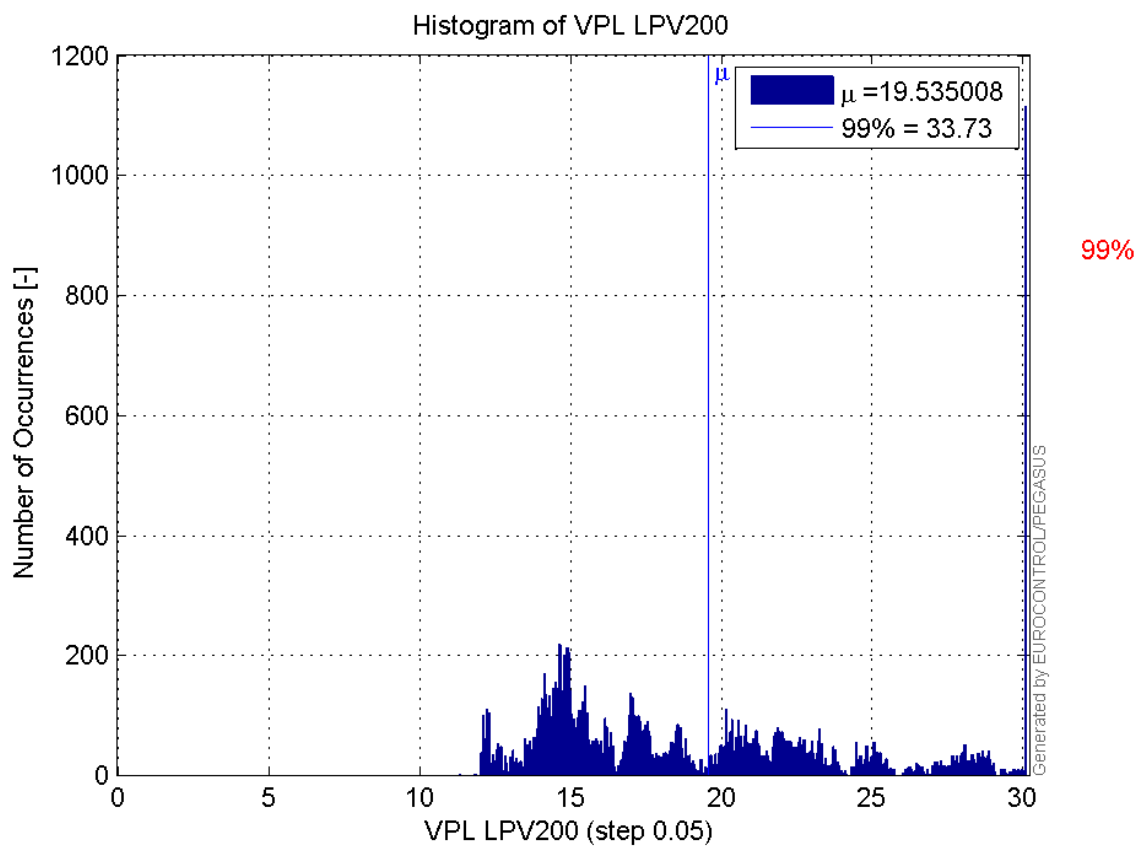
Histogram of VPE LPV200:



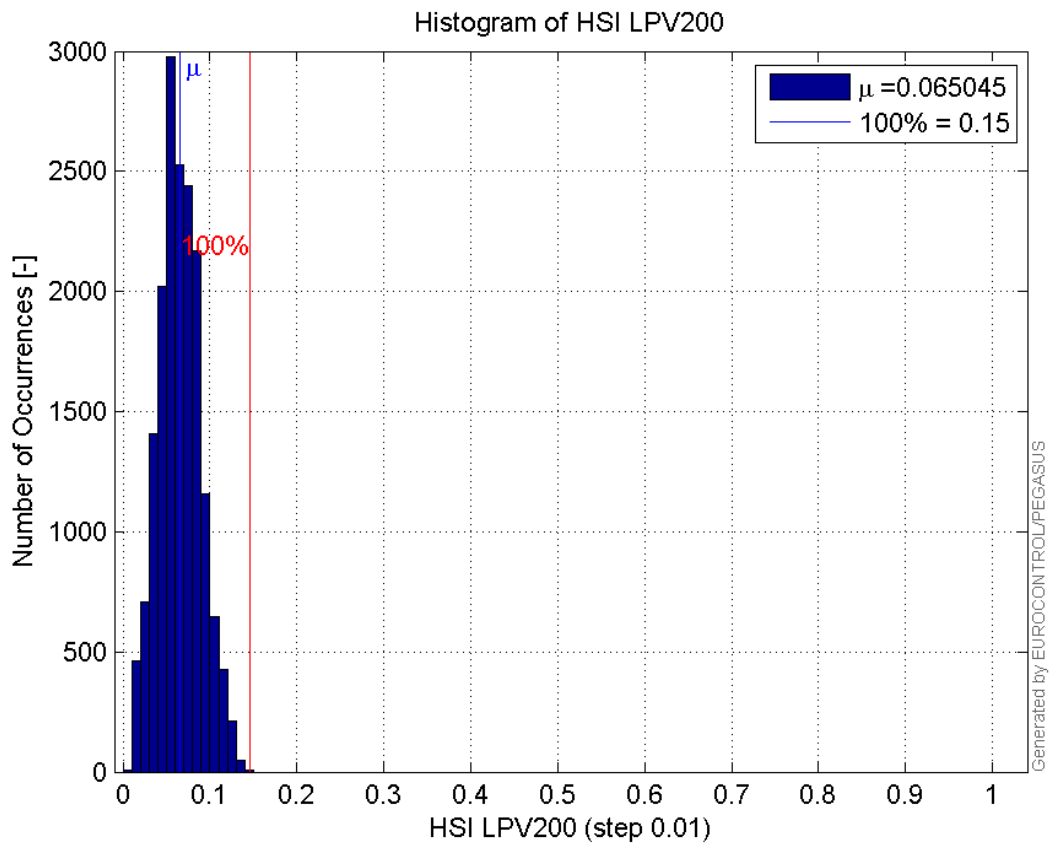
Histogram of HPL LPV200:



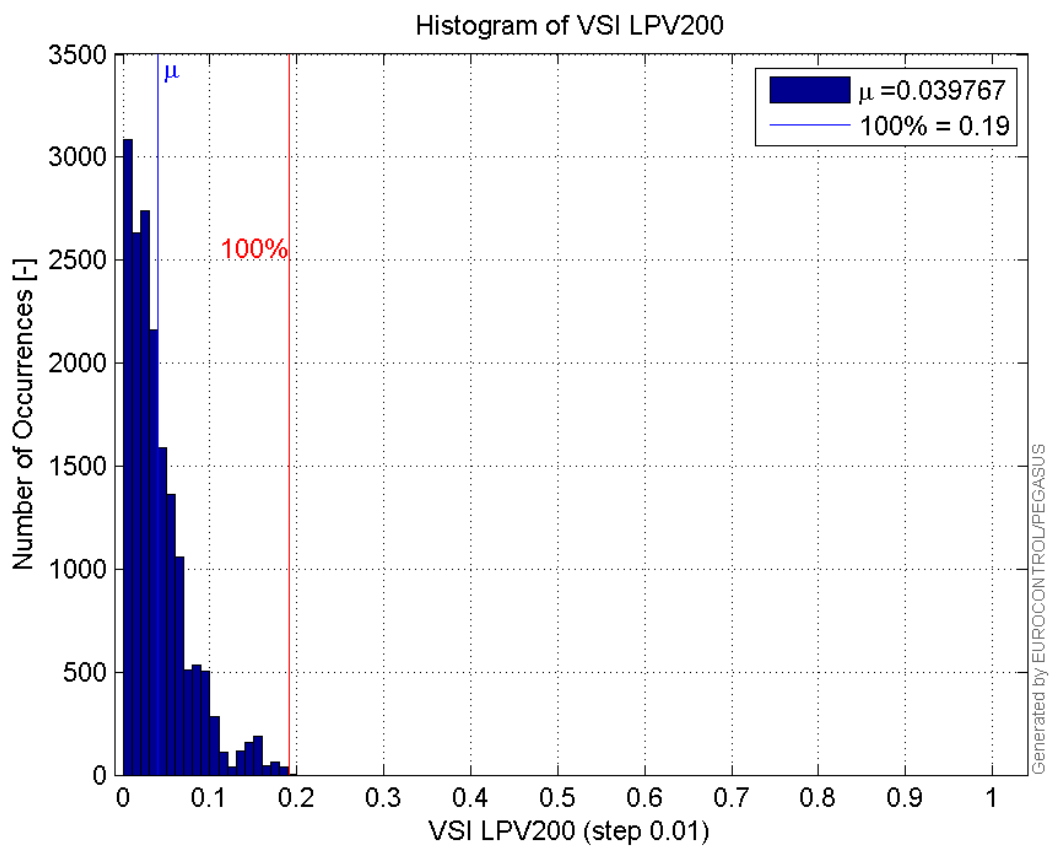
Histogram of VPL LPV200:



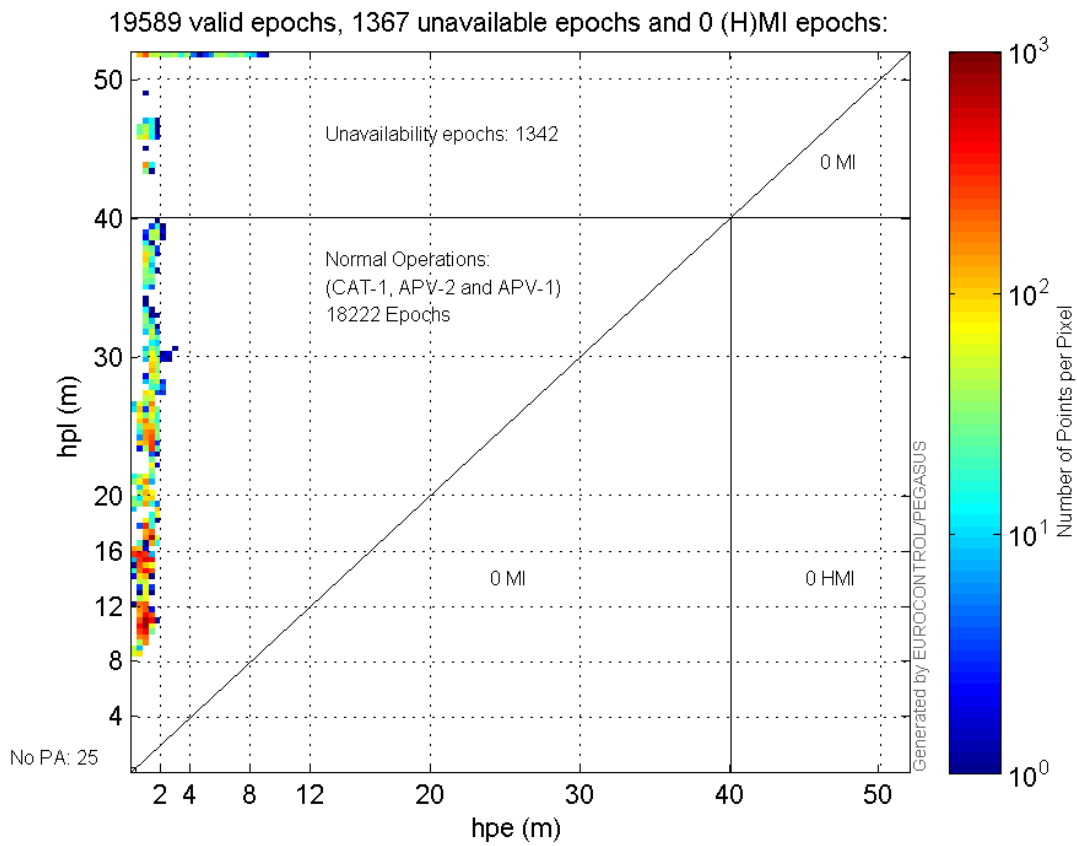
Histogram of HSI LPV200:



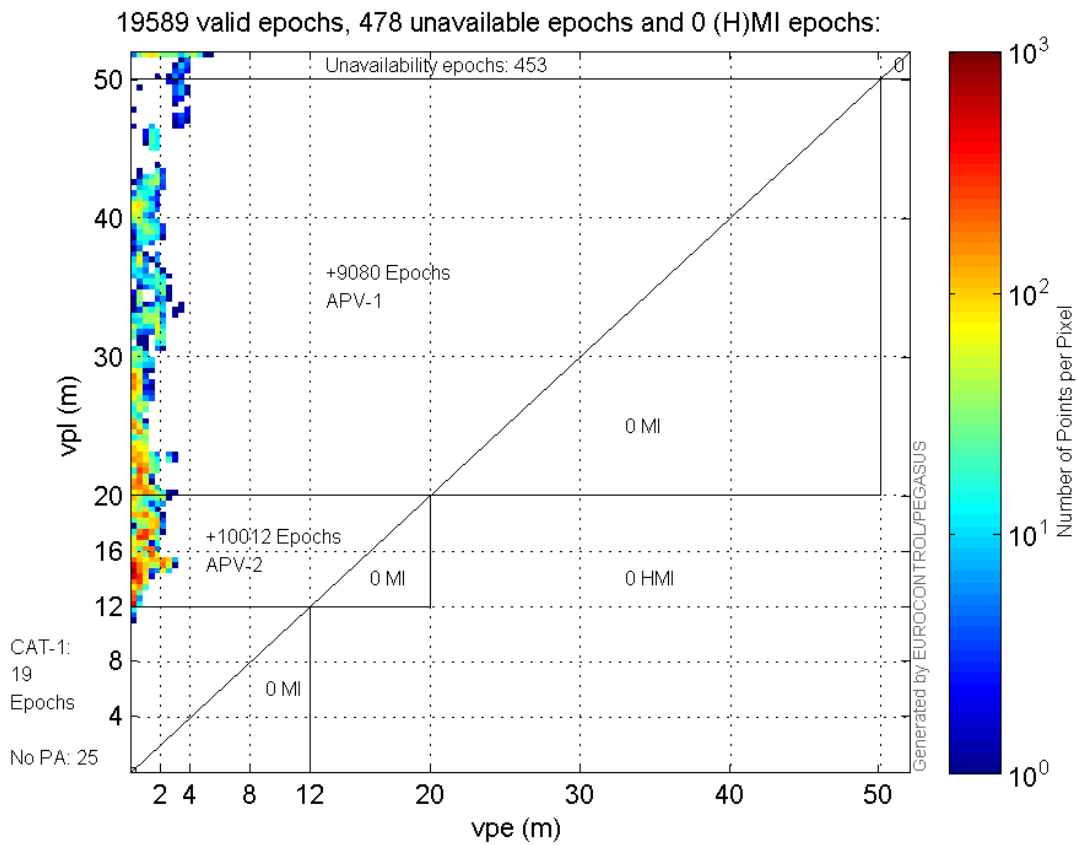
Histogram of VSI LPV200:



Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_11_13EGNOS./02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_13EGNOS./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	30.4298
init_alt	results	234.5119
mi_numbers	results	0

SBAS Messages

start: 08:13:15.129 13.11.2015 (week: 1870 sec: 461595.129)
end: 13:45:44.129 13.11.2015 (week: 1870 sec: 481544.129)
duration: 05:32:29 ..

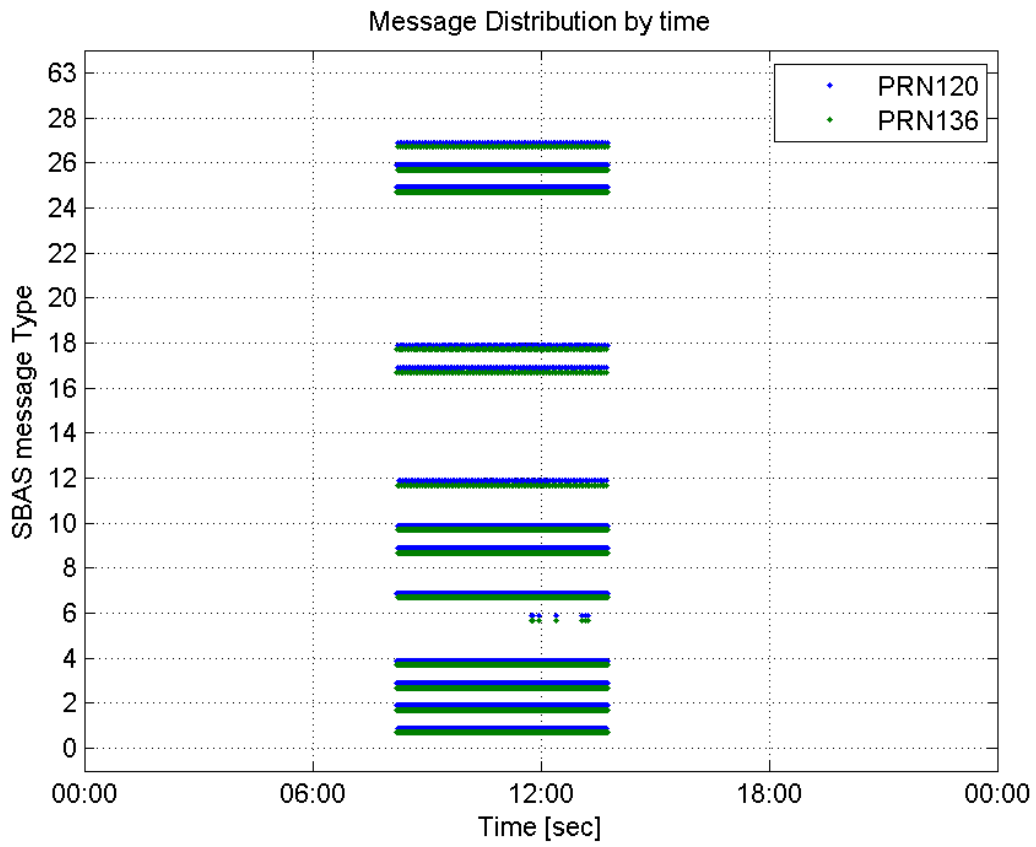
quality

valid samples 39862
total samples 39862
number of SBAS PRNs 2

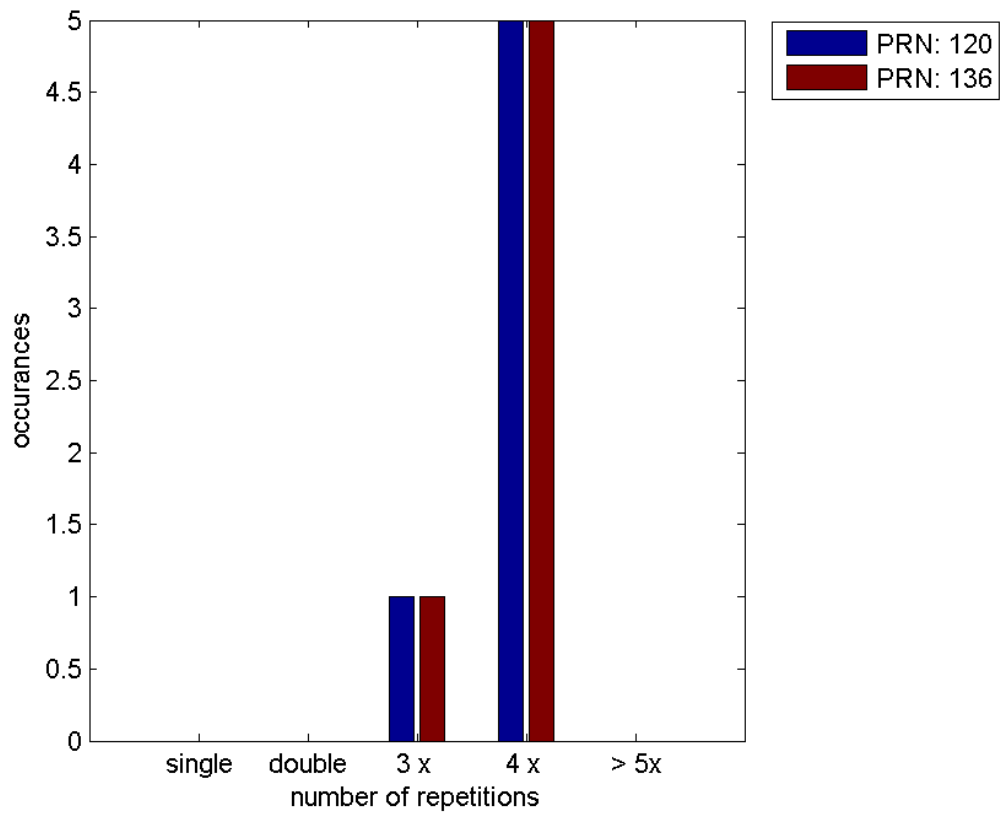
SBAS SIS Overview**Message Type 6 repetitions :**

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

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

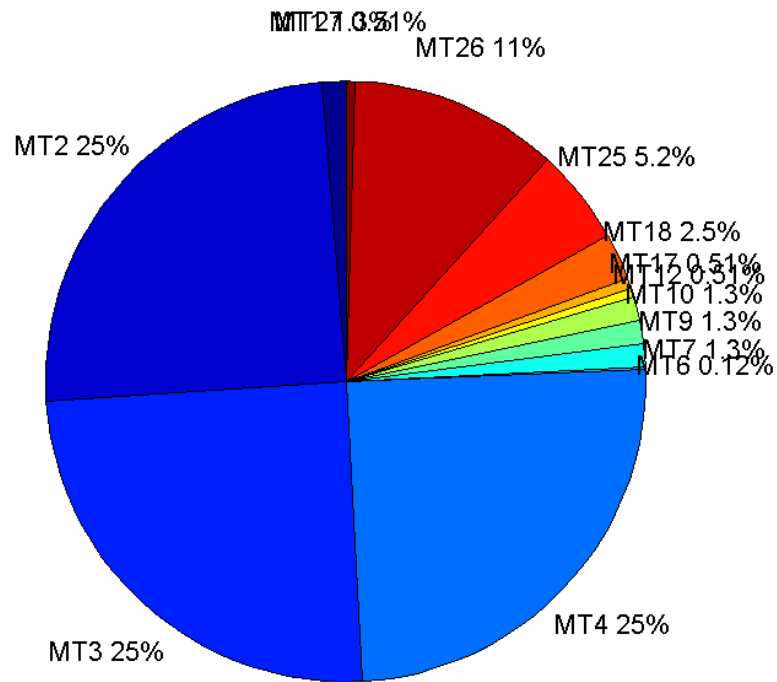
	number of messages	%
MT 0	0	0
MT 1	250	1.25552
MT 2	4938	24.7991
MT 3	4937	24.7941
MT 4	4937	24.7941
MT 5	0	0
MT 6	24	0.12053
MT 7	251	1.26055
MT 9	250	1.25552
MT 10	251	1.26055
MT 12	101	0.507232
MT 17	101	0.507232
MT 18	505	2.53616
MT 24	0	0
MT 25	1032	5.1828
MT 26	2233	11.2143
MT 27	102	0.512254
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19912	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	83	79.6104	0	0	0
MT 2	4	20	4.03585	7	1	1
MT 3	4	20	4.03606	7	1	1
MT 4	4	25	4.03687	7	1	1
MT 5	--	--	--	--	--	--
MT 6	1	2472	231.696	5	5	5
MT 7	76	82	79.612	0	0	0
MT 9	76	81	79.6426	0	0	0
MT 10	75	83	79.544	0	0	0
MT 12	188	202	196.44	100	0	0
MT 17	188	202	196.4	0	0	0
MT 18	4	176	39.3631	0	0	0
MT 24	--	--	--	--	--	--
MT						

25	2	47	19.3201	0	0	0
MT 26	1	55	8.9207	0	0	0
MT 27	185	208	196.347	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

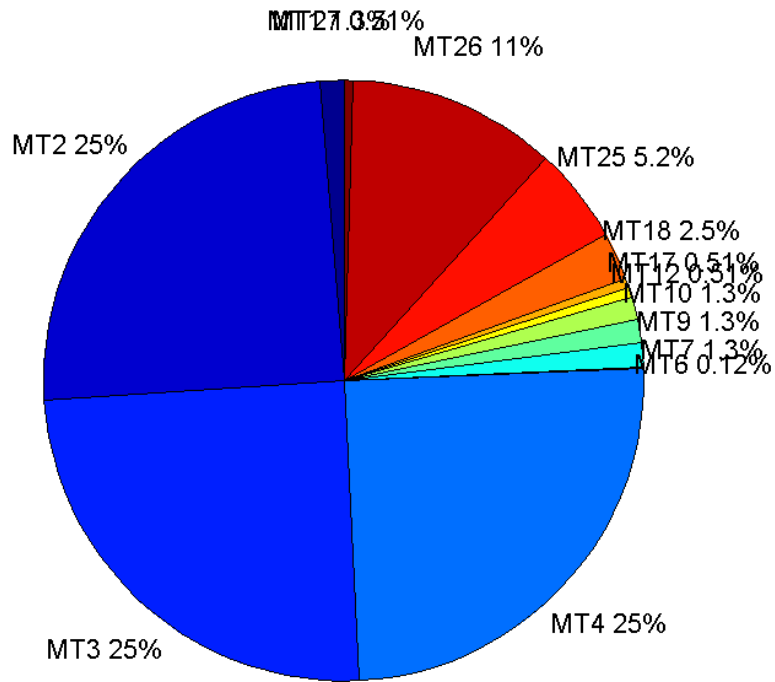
	number of messages	%
MT 0	0	0
MT 1	251	1.25815
MT 2	4946	24.792
MT 3	4945	24.787
MT 4	4945	24.787
MT 5	0	0
MT 6	24	0.120301
MT 7	250	1.25313

MT 9	251	1.25815
MT 10	251	1.25815
MT 12	102	0.511278
MT 17	102	0.511278
MT 18	506	2.53634
MT 24	0	0
MT 25	1034	5.18296
MT 26	2241	11.2331
MT 27	102	0.511278
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19950	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	83	79.536	0	0	0
MT 2	4	8	4.03418	6	0	0
MT 3	4	8	4.03418	6	0	0
MT 4	4	9	4.03418	6	0	0
MT 5	--	--	--	--	--	--
MT 6	1	2471	231.652	5	5	5
MT 7	75	81	79.6145	0	0	0
MT 9	76	87	79.616	0	0	0
MT 10	74	86	79.552	0	0	0
MT 12	185	201	196	101	0	0
MT 17	188	201	196.05	0	0	0
MT 18	4	169	39.2099	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	48	19.2846	0	0	0
MT 26	2	52	8.89286	0	0	0
MT 27	188	205	196.069	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_13EGNOS./01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_11_13EGNOS./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