

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 23/02/2016

Range Domain

start: 08:50:34 22.02.2016 (week: 1885 sec: 118234)
end: 14:17:17 22.02.2016 (week: 1885 sec: 137837)
duration: 05:26:44 ..

quality

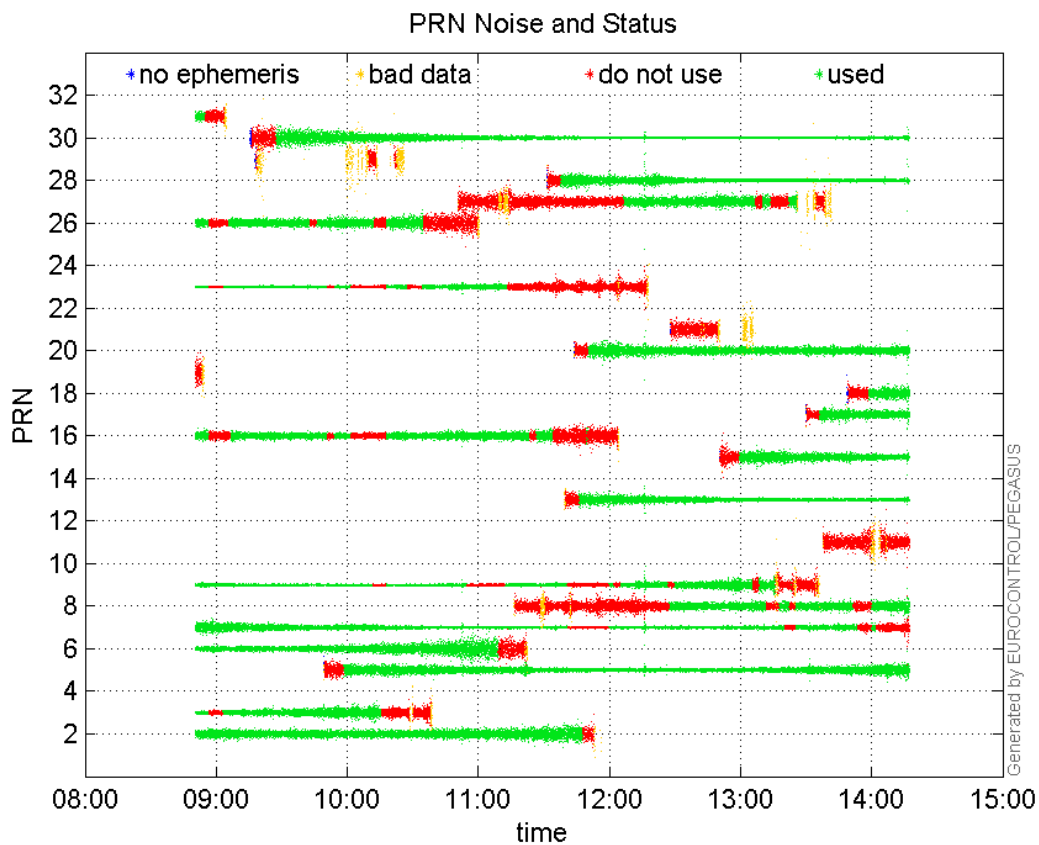
valid samples 19604
total samples 19604

PRN overview

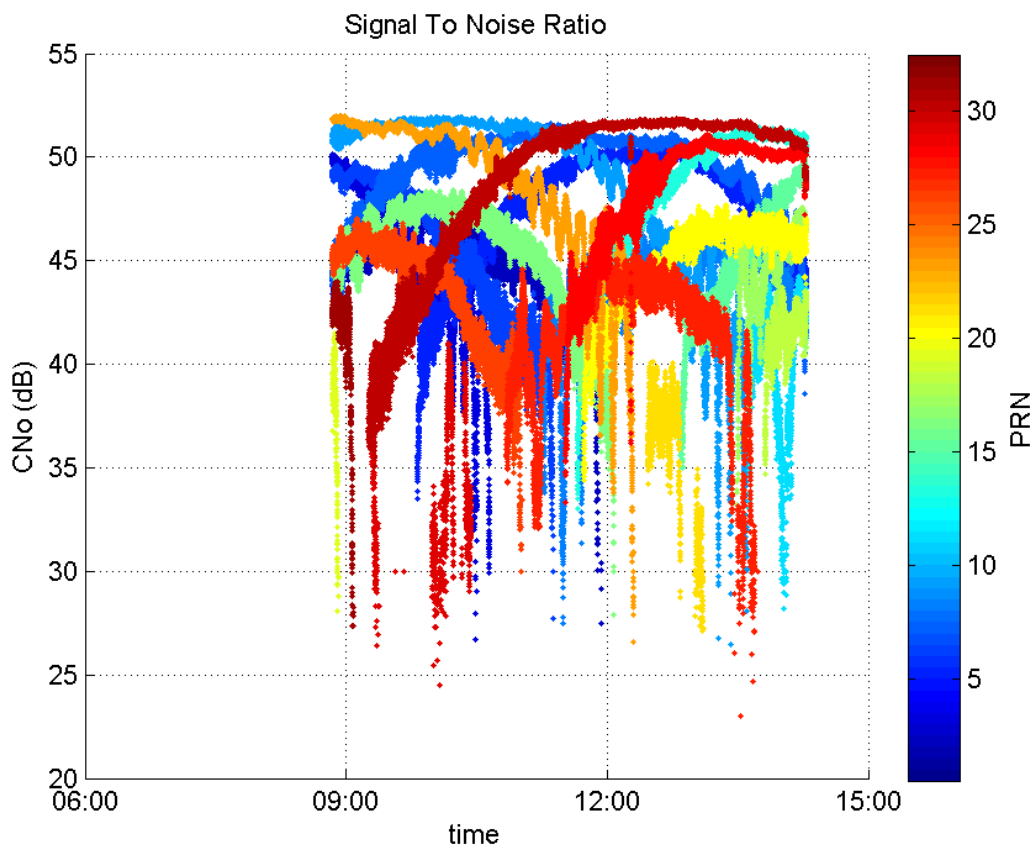
Number of Visible GPS Satellites 23
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



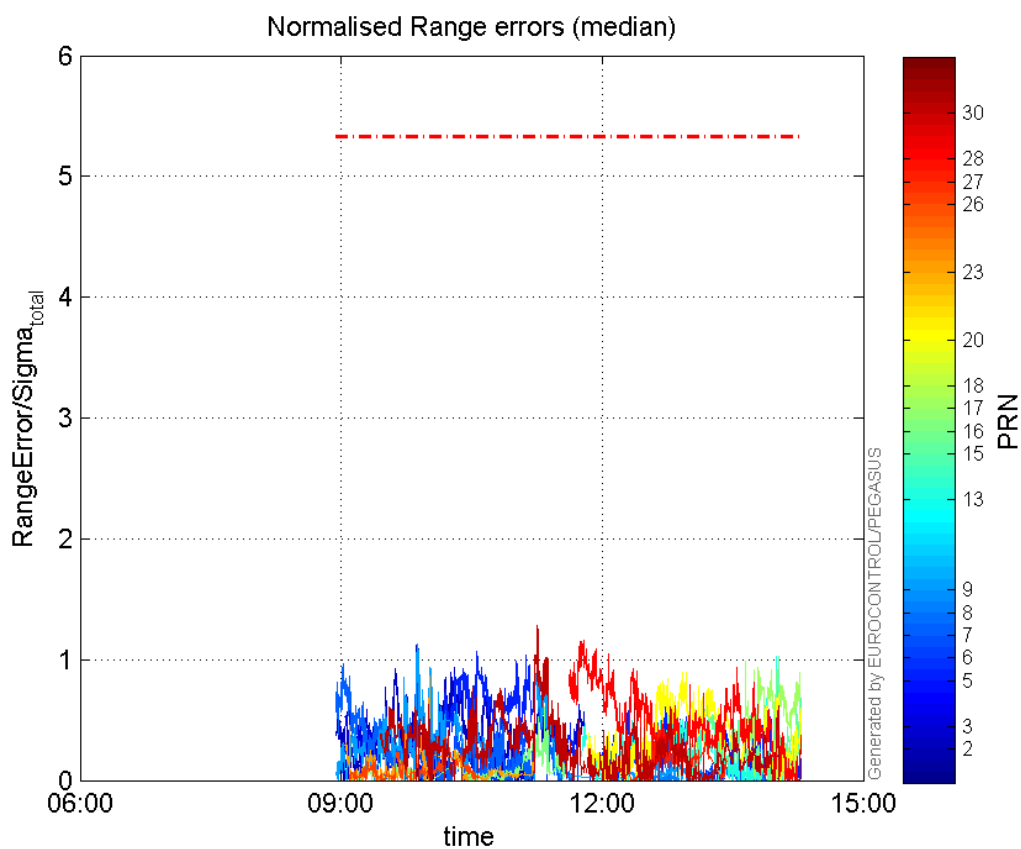
range errors

Number of Overbounding Norm Errors 0

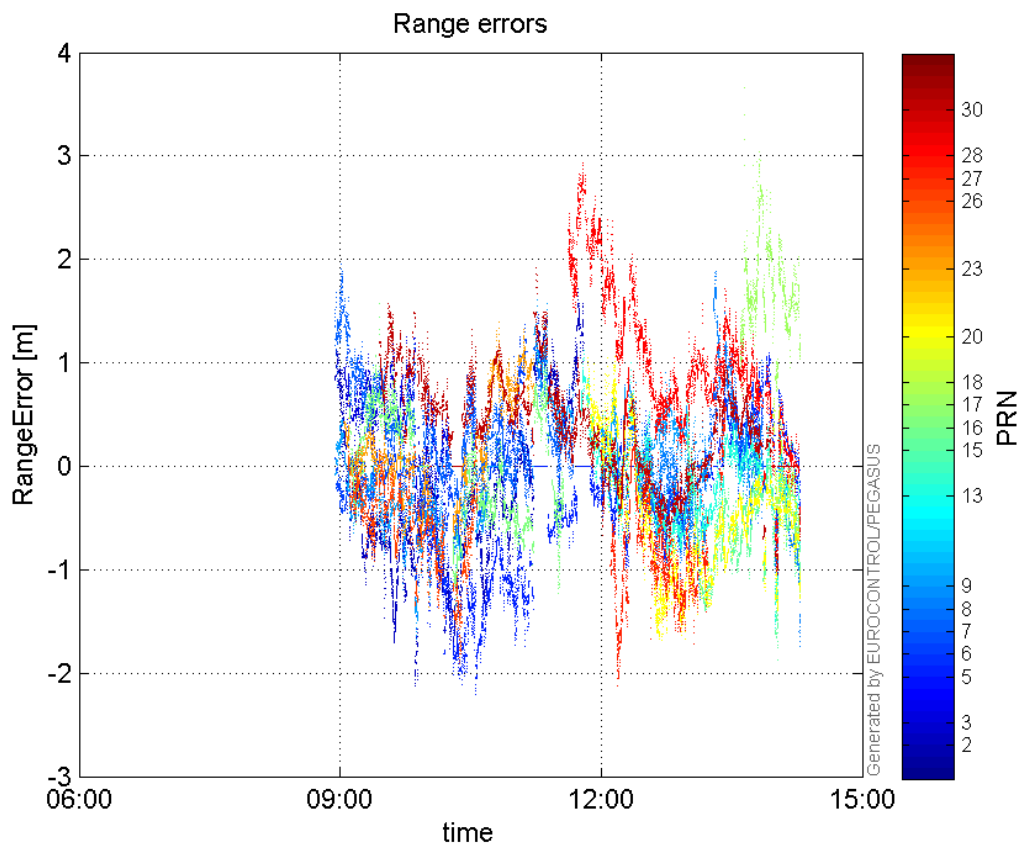
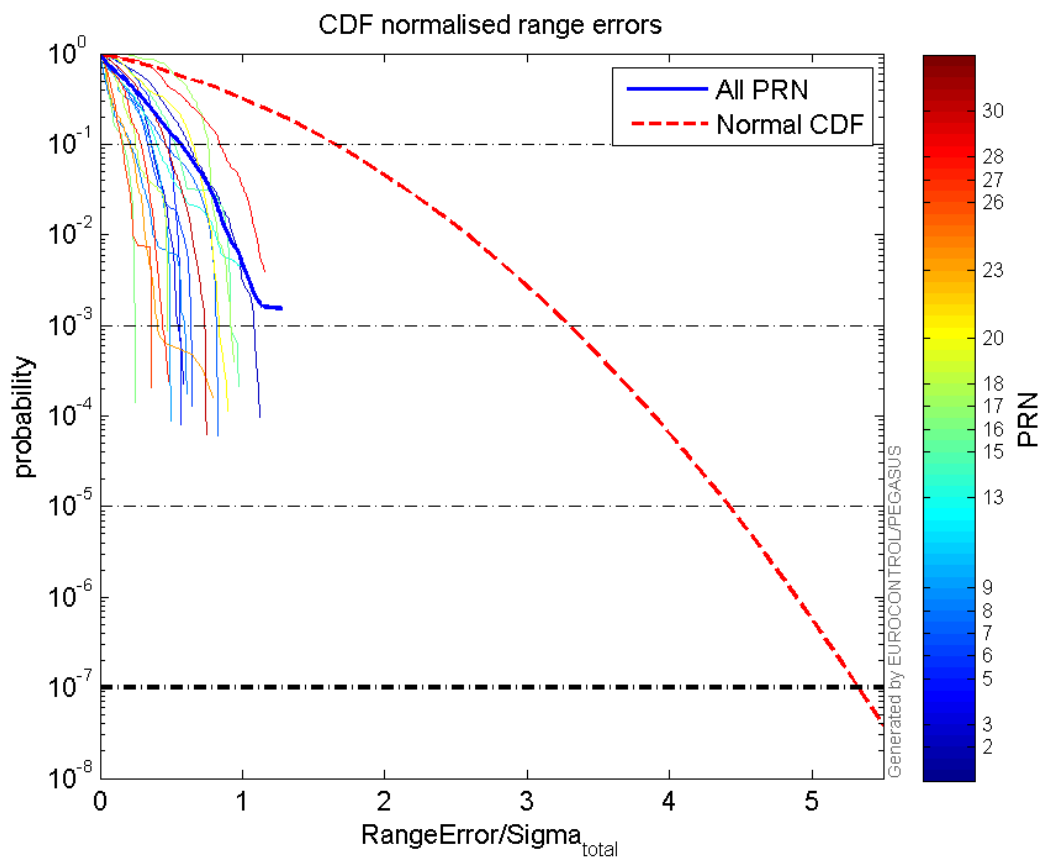
Max Norm Errors :

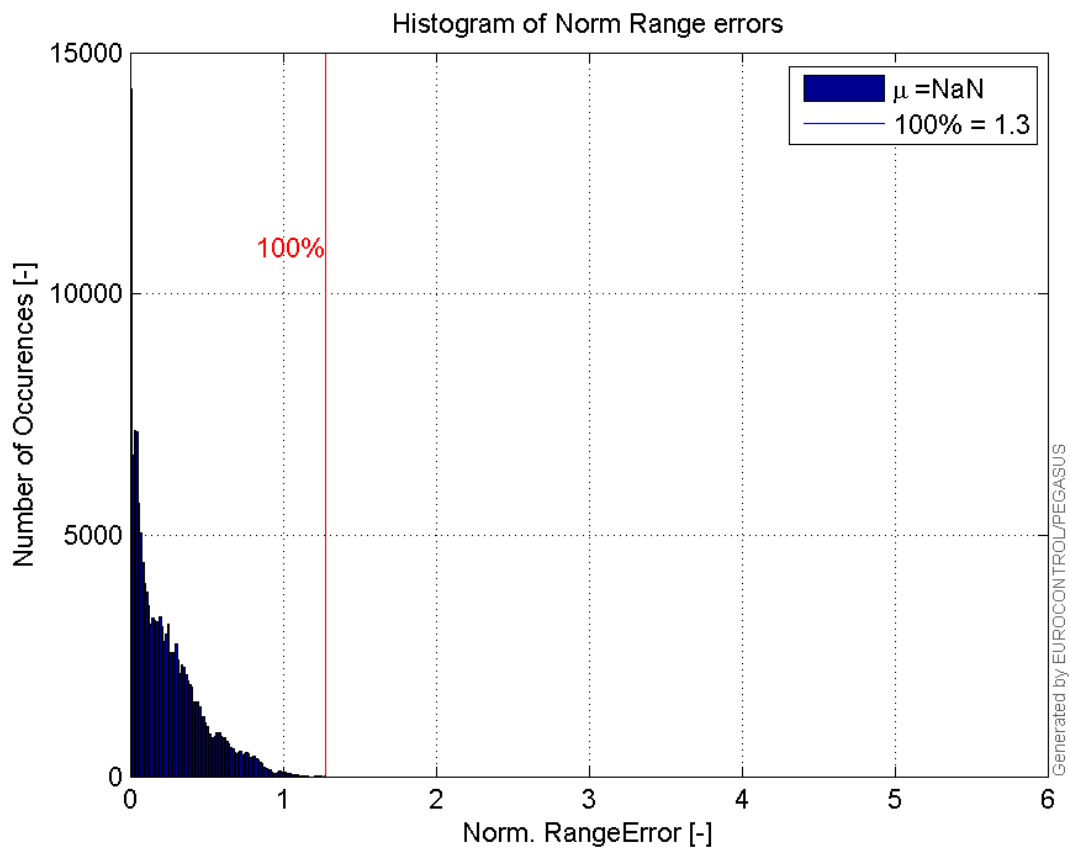
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1885	121907	2	1.12318	-2.12843	1.89501
1885	119131	3	0.587278	1.1268	1.91868
1885	124427	5	1.0713	-2.20609	2.05927
1885	121963	6	0.898342	-1.64237	1.82822
1885	126968	7	1.07416	1.49366	1.39054
1885	137829	8	0.642494	-1.73653	2.7028
1885	121954	9	1.13311	-1.63122	1.4396
1885	136784	13	1.02321	-1.6253	1.58844
1885	136906	15	1.02228	-1.86893	1.82819
1885	127214	16	0.607419	1.44364	2.37667
1885	135530	17	0.988898	3.65826	3.69933
1885	137837	18	0.489096	-1.25633	2.56868
1885	133060	20	0.895454	-1.66541	1.85985
1885	122442	23	0.859629	-1.35825	1.58004
1885	123135	26	0.360888	-1.46368	4.05578
1885	133949	27	0.498166	-1.4047	2.81974
1885	128821	28	1.16035	2.93867	2.53257
1885	126905	30	1.28	1.92264	1.50207

Normalised Range errors (median):

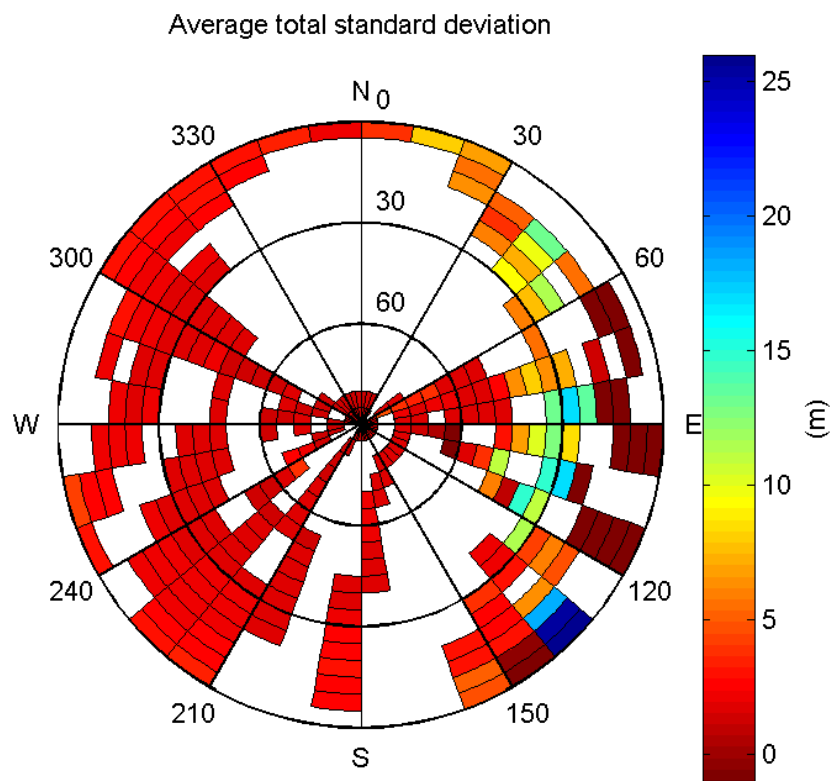


Range errors:

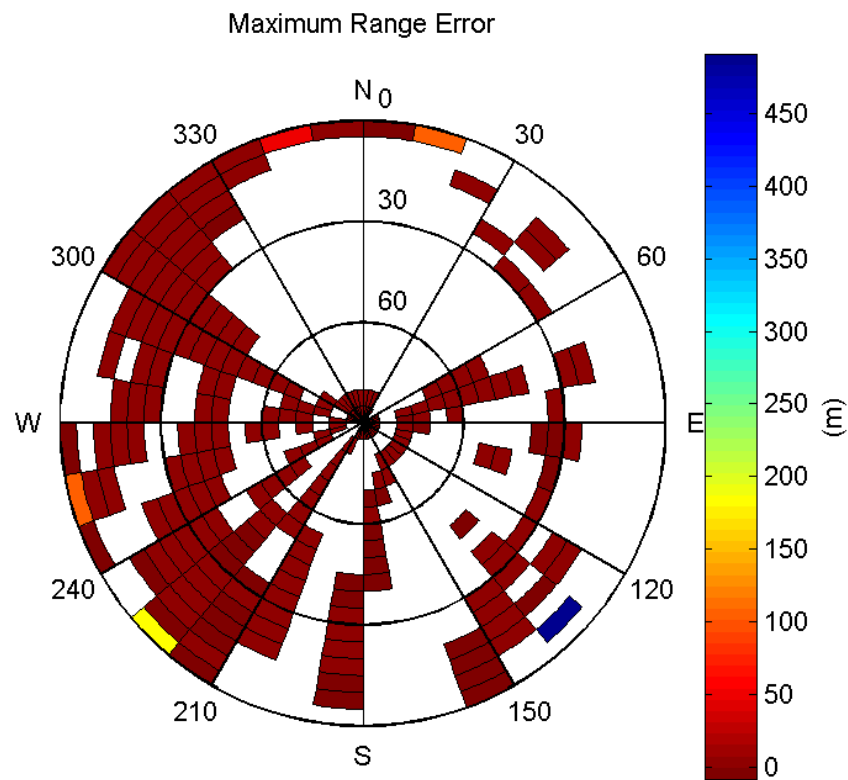
**CDF normalised range errors:****Histogram of Norm Range errors:**



Sigma Sky Plot:

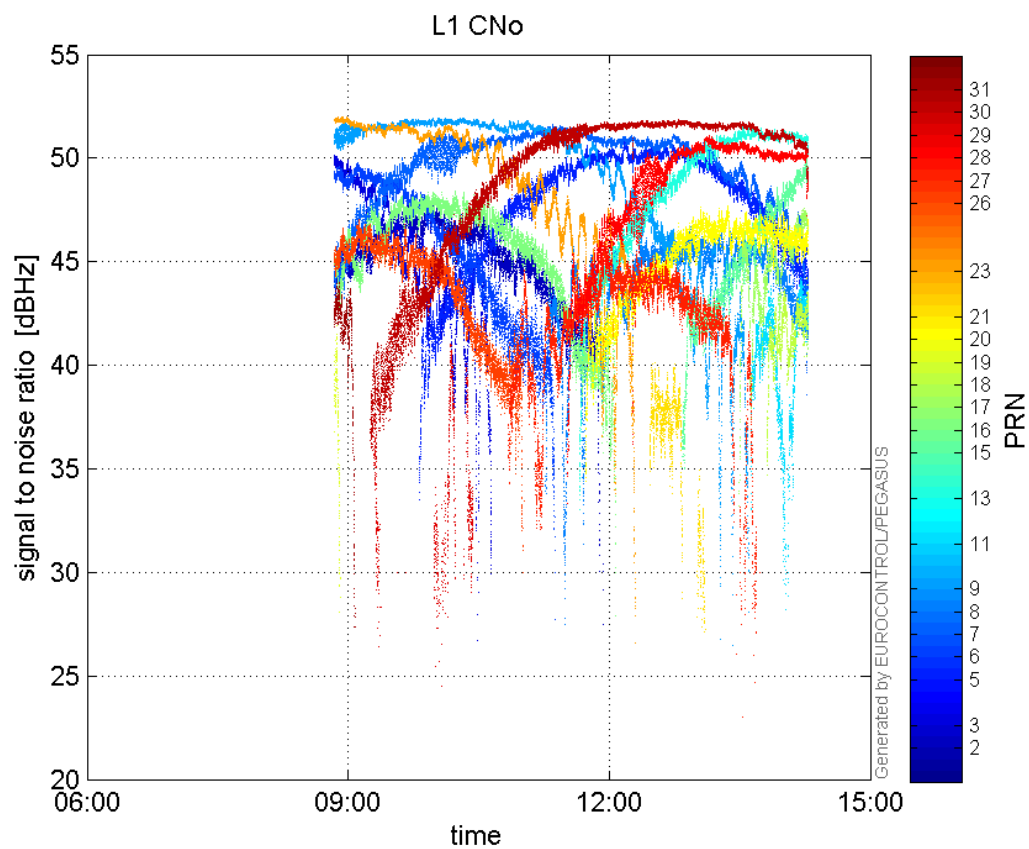


Norm Error Sky Plot:

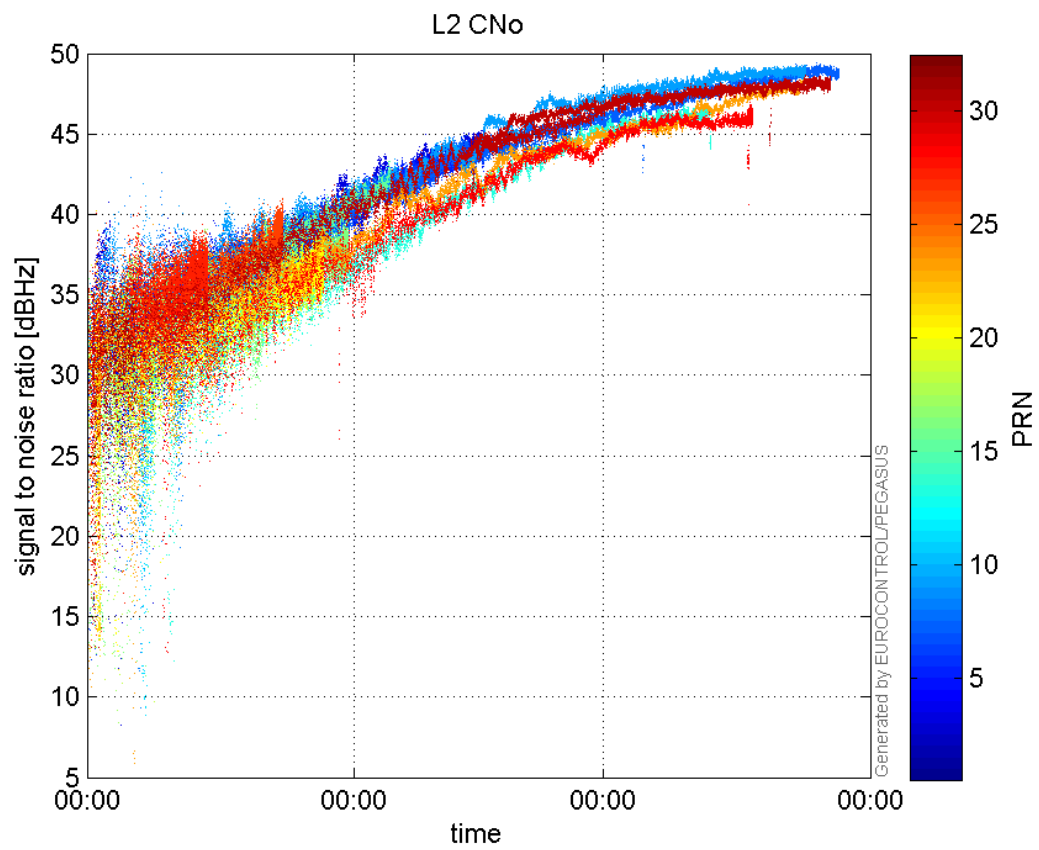


signal quality

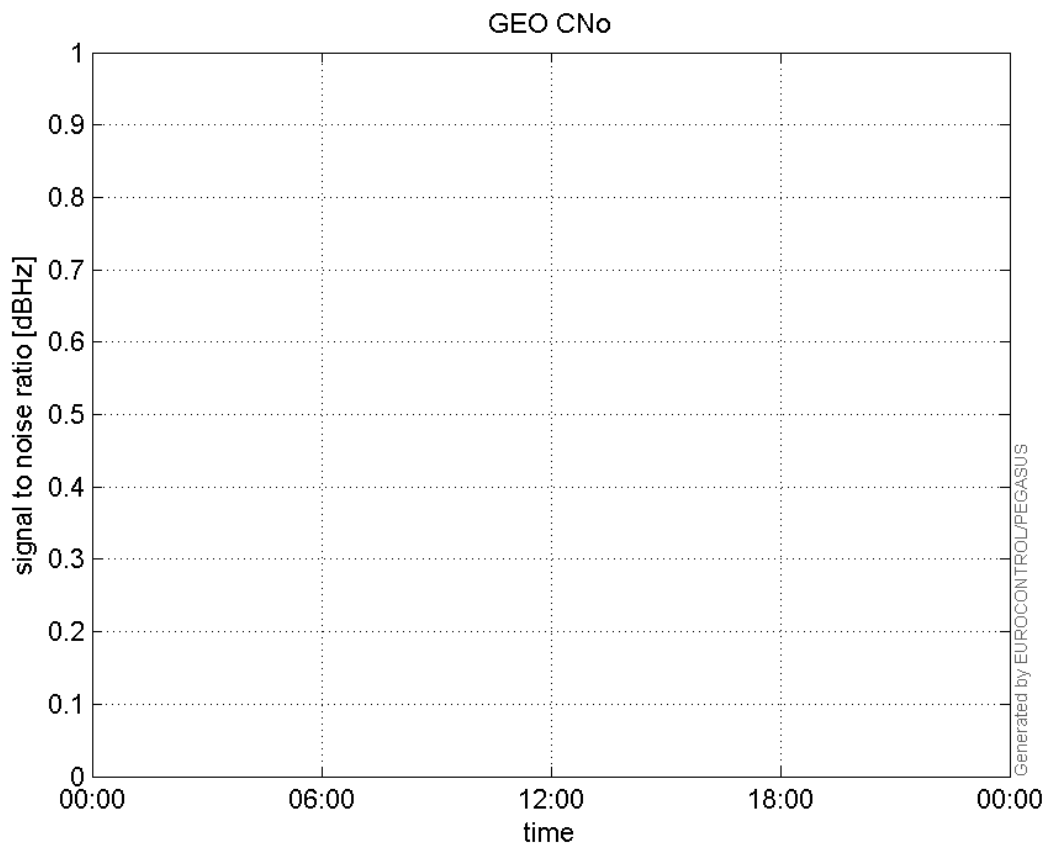
L1 CNo:



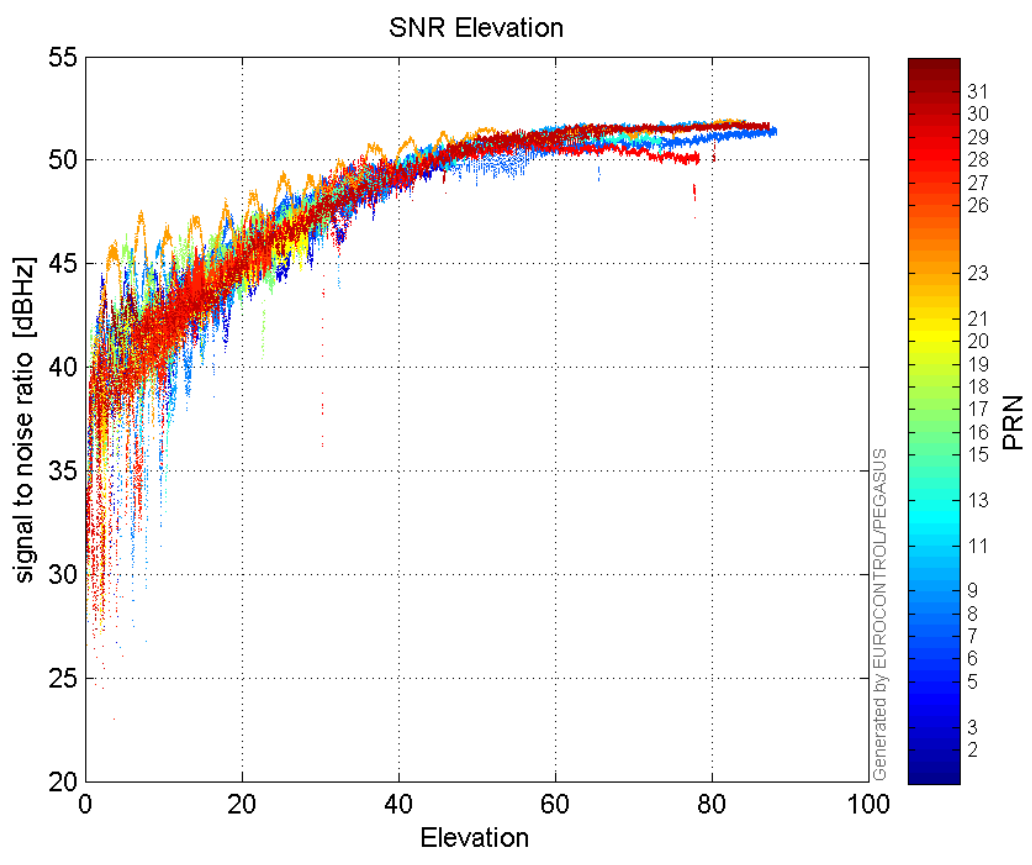
L2 CNo:



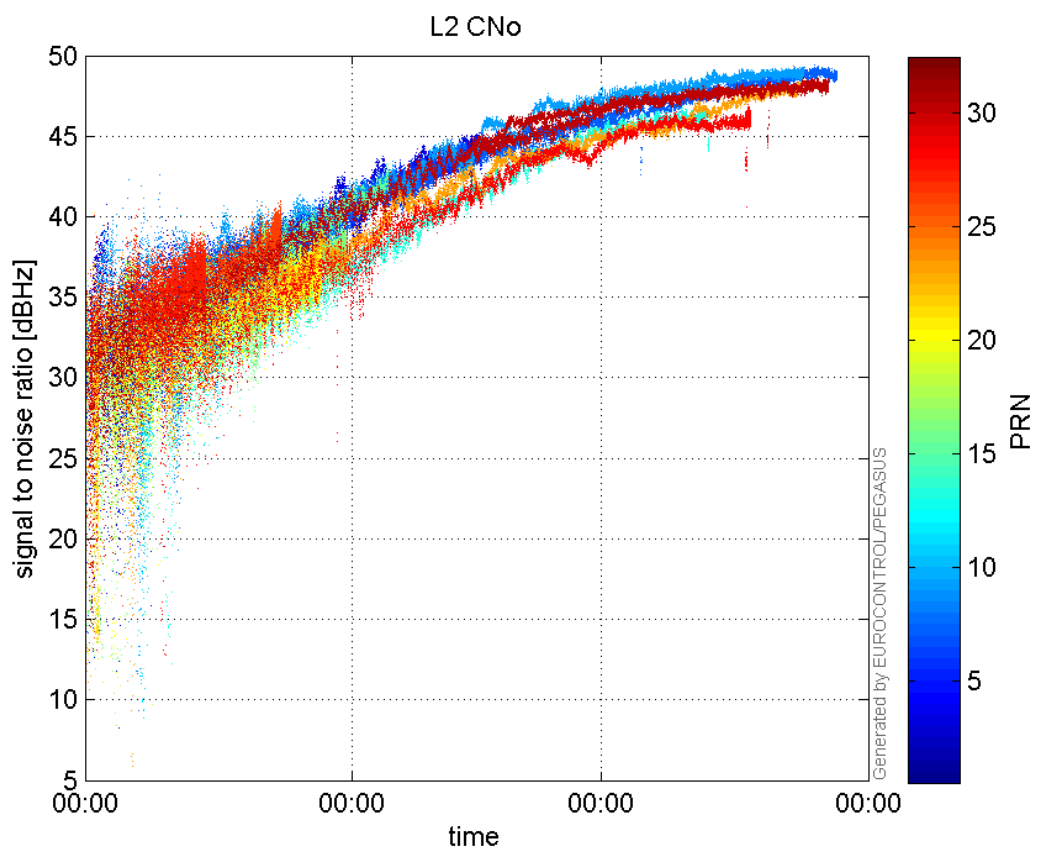
GEO CNo:



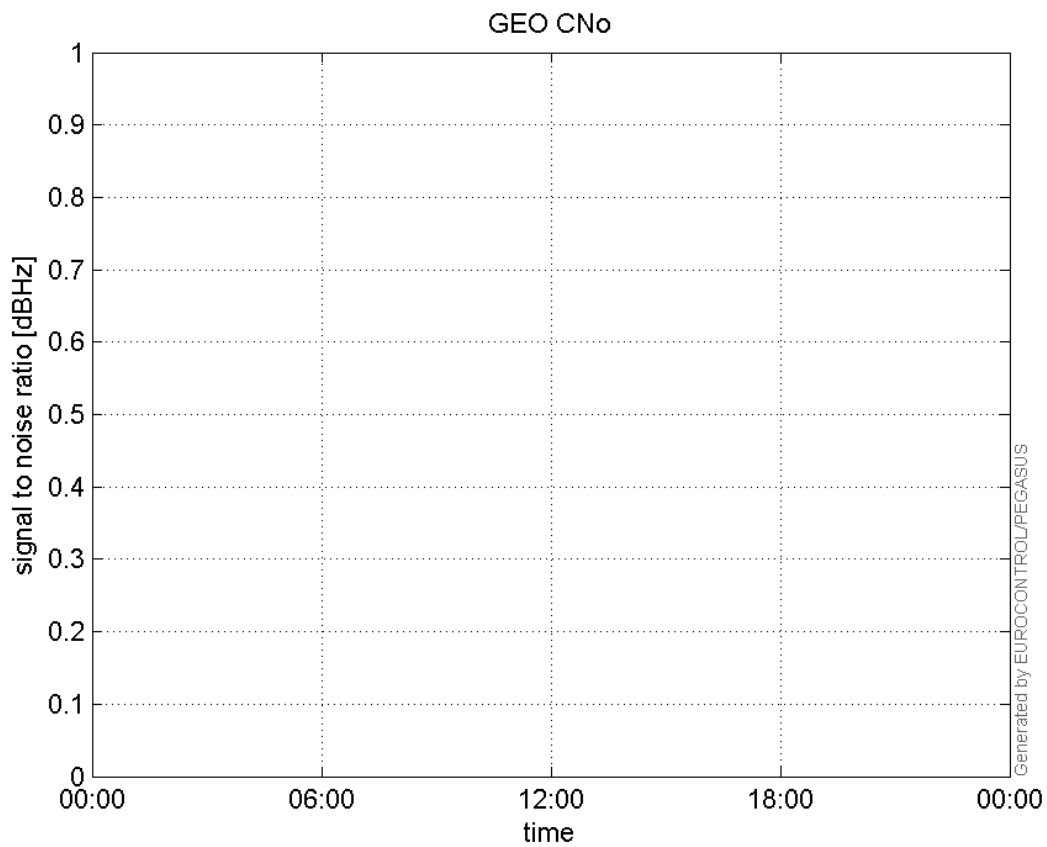
SNR Elevation:



L2 CNo:

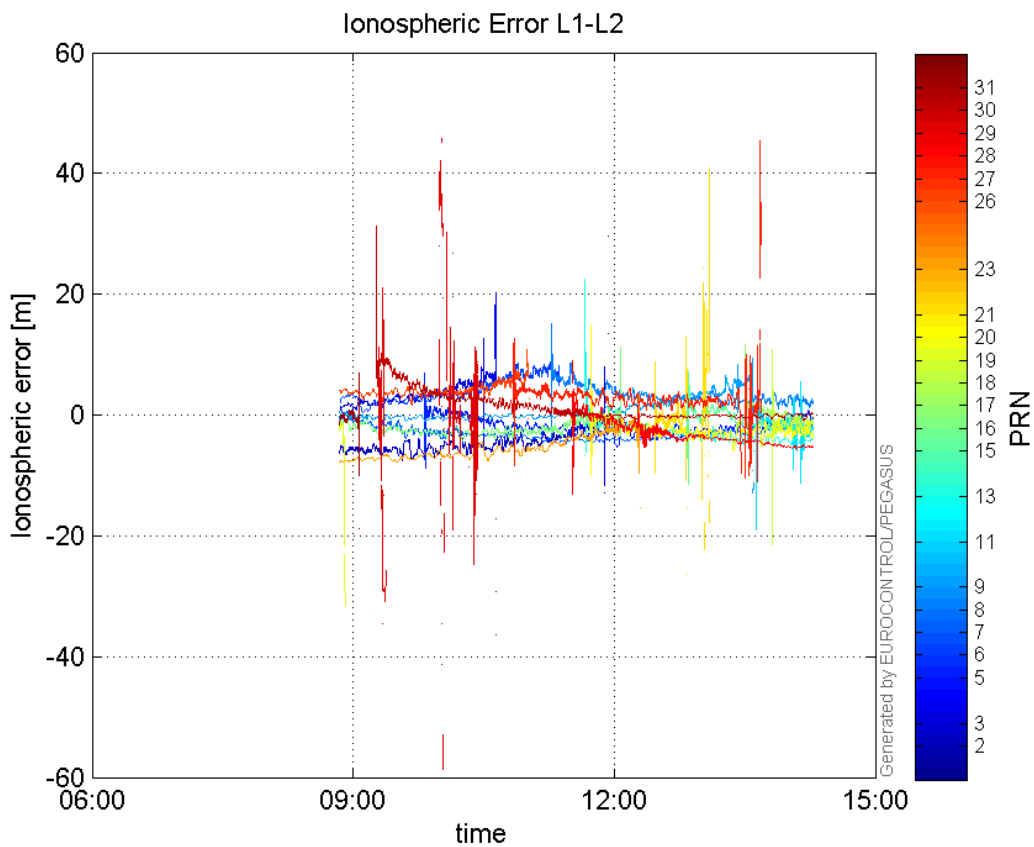


GEO CNo:



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:/PegasusDateGob/job/2016_02_22EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_22EGNOS/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	246.4388
mi_numbers	results	0

SBAS Messages

start: 08:50:34.129 22.02.2016 (week: 1885 sec: 118234.129)
end: 14:17:16.129 22.02.2016 (week: 1885 sec: 137836.129)
duration: 05:26:42 ..

quality

valid samples 39206
total samples 39206
number of SBAS PRNs 2

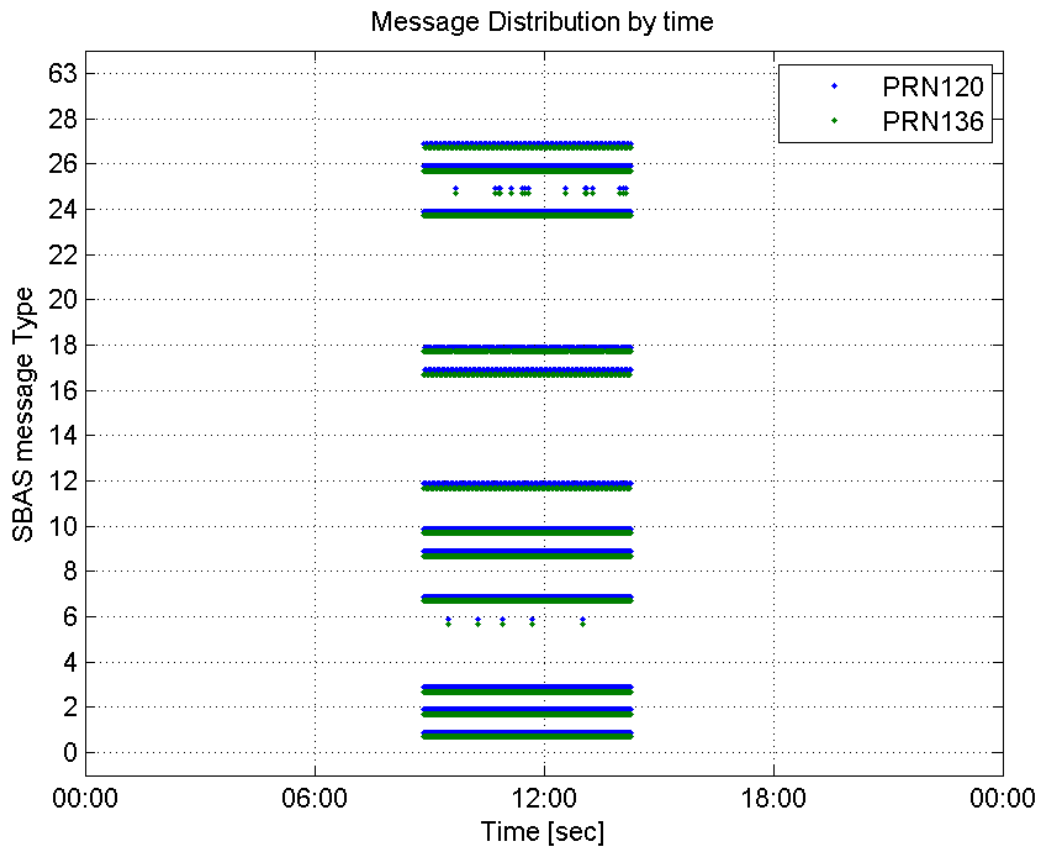
SBAS SIS Overview

Message Type 6 repetitions :

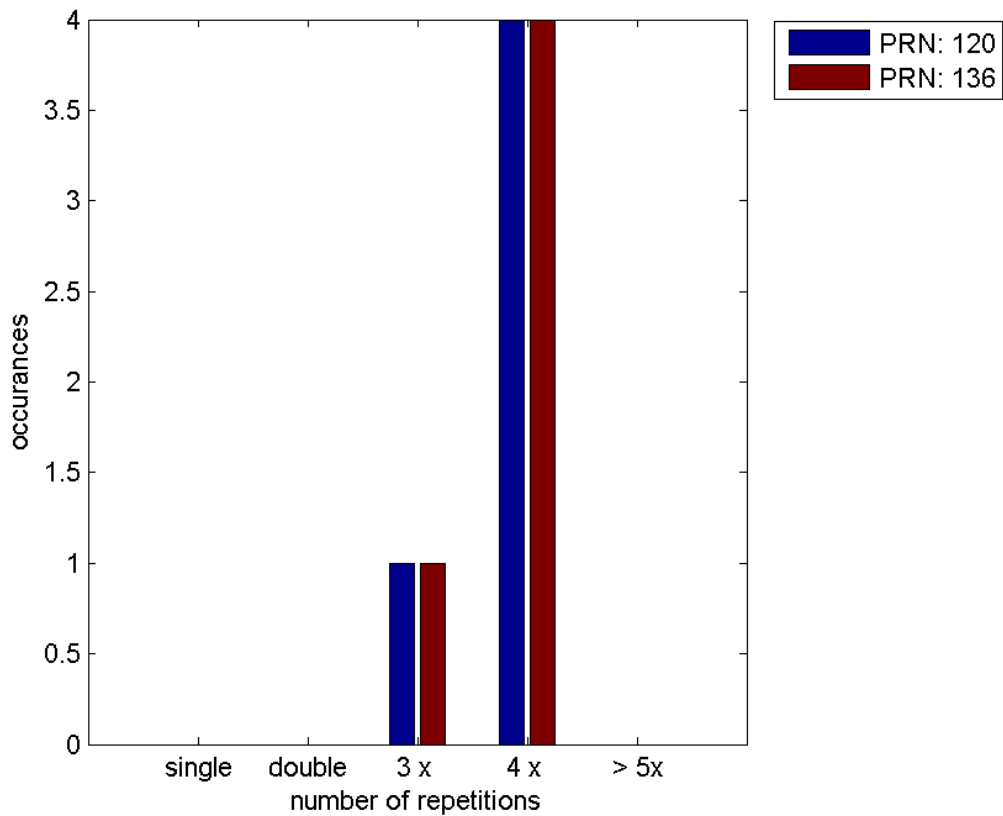
	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	4	0

PRN 136	0	0	1	4	0
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Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

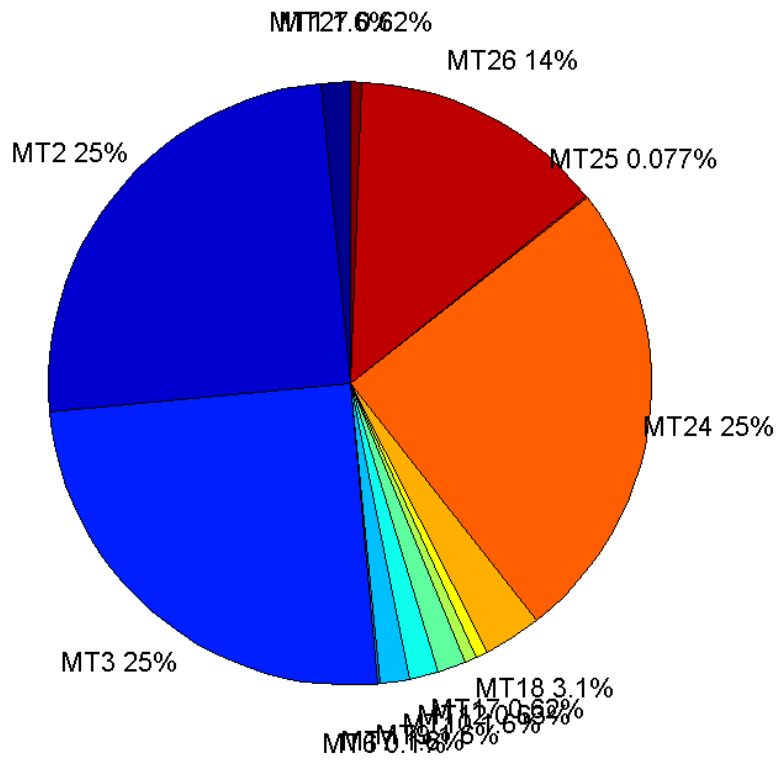
	number of messages	%
MT 0	0	0
MT 1	305	1.55588
MT 2	4894	24.9656
MT 3	4895	24.9707
MT 4	0	0
MT 5	0	0
MT 6	20	0.102025
MT 7	305	1.55588
MT 9	305	1.55588
MT 10	305	1.55588
MT 12	123	0.627455
MT 17	122	0.622354
MT 18	610	3.11177
MT 24	4894	24.9656
MT 25	15	0.0765189
MT 26	2688	13.7122
MT 27	122	0.622354
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19603	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	71	64.2961	0	0	0
MT 2	4	8	4.00531	5	0	0
MT 3	4	8	4.00531	5	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	4773	663.211	4	4	4
MT 7	64	70	64.2961	0	0	0
MT 9	64	70	64.2829	0	0	0
MT 10	64	70	64.2829	0	0	0
MT 12	157	167	160.443	122	0	0
MT 17	156	167	160.446	0	0	0
MT 18	4	135	31.931	0	0	0

MT 24	4	8	4.00531	0	0	0
MT 25	108	3750	1144.43	0	0	0
MT 26	4	28	7.29066	0	0	0
MT 27	156	167	160.446	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

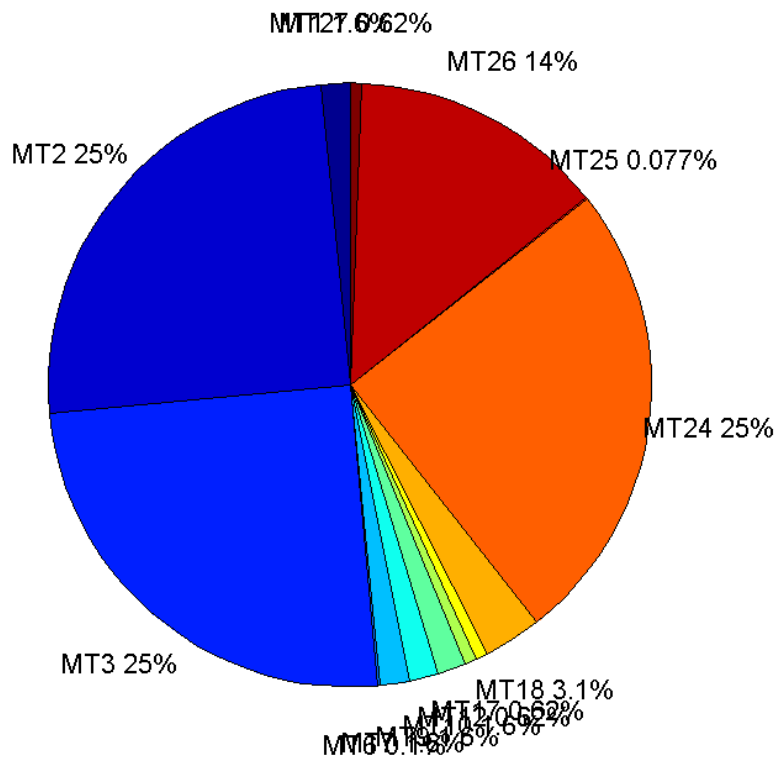
	number of messages	%
MT 0	0	0
MT 1	305	1.55588
MT 2	4894	24.9656
MT 3	4895	24.9707
MT 4	0	0
MT 5	0	0

MT 6	20	0.102025
MT 7	305	1.55588
MT 9	305	1.55588
MT 10	305	1.55588
MT 12	122	0.622354
MT 17	122	0.622354
MT 18	612	3.12197
MT 24	4894	24.9656
MT 25	15	0.0765189
MT 26	2687	13.7071
MT 27	122	0.622354
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19603	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	70	64.2829	0	0	0
MT 2	4	8	4.00531	5	0	0
MT 3	4	8	4.00531	5	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	4773	663.211	4	4	4
MT 7	64	70	64.2961	0	0	0
MT 9	64	71	64.2961	0	0	0
MT 10	64	70	64.2829	0	0	0
MT 12	156	167	160.446	121	0	0
MT 17	160	167	160.446	0	0	0
MT 18	4	130	32.0622	0	0	0
MT 24	4	8	4.00531	0	0	0
MT 25	108	3750	1144.43	0	0	0
MT 26	4	30	7.29486	0	0	0
MT 27	156	167	160.446	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_02_22EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_22EGNOS/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: 08:50:34 22.02.2016 (week: 1885 sec: 118234)
end: 14:17:17 22.02.2016 (week: 1885 sec: 137837)
duration: 05:26:44 ..

quality

valid samples 19243

total samples 19604

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 long

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	121111	1.52847	9.52435	0.160481	-0.24792	15.7865	0.0157045
max normVer	129642	1.2086	30.2148	0.0400004	2.33012	17.2222	0.135298
max HPE	128946	8.99186	903.567	0.00995152	- 0.708805	248.221	0.00285554
max VPE	128849	3.16194	63.0644	0.0501382	3.05455	41.4164	0.0737522
min HPL	137590	0.956455	8.59923	0.111226	0.589019	11.9521	0.0492816
min VPL	137655	1.07545	8.64962	0.124334	0.444873	11.9069	0.0373626

Position discontinuity events :

#	Epoch	duration	stable period
1	128960	38	10365

APV-I discontinuity events :

#	Epoch	duration	stable period
1	123338	123	4368
2	128122	125	4661
3	128367	646	120
4	129332	160	175

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	123338	123	4368
2	128122	125	4661
3	128367	646	120
4	129332	160	175

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	123338	123	4368
2	128122	125	4661

3	128367	646	120
4	129332	160	175

First Glance analysis

Duration	19604
Number of Samples	19604
Number of invalid sample	361
Number of no position solution samples	38
Number of missing sample	0
Logging Loss	0
Processing Loss	1.8415
Number of Misleading Information	0
Data gaps	0
Discontinuities	1

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
19205	17796	17796	61	17796

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.91722	1.67397	1.67397	1.13143	1.67397
HPEscale 95%	NaN	4.90945	4.90945	5.18807	4.90945
VPE 95%	1.73165	1.46859	1.46859	0.601849	1.46859
VPEscale 95%	NaN	4.35359	3.04751	0.604501	3.04751

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.998025	0.924804	0.924804	0.00316998	0.924804
measurements	0.979647	0.907774	0.907774	0.00311161	0.907774
Operational	0.979647	0.907774	0.907774	0.00311161	0.907774

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	1	22	22	39	22
Long	1	4	4	0	4
Independent	1	4	4	0	4
P(disc.)	0.000781047	0.00337154	0.00337154	0	0.00337154
P(slide)	0.000781047	0.00674309	0.00674309	0.967213	0.00674309

Integrity events :

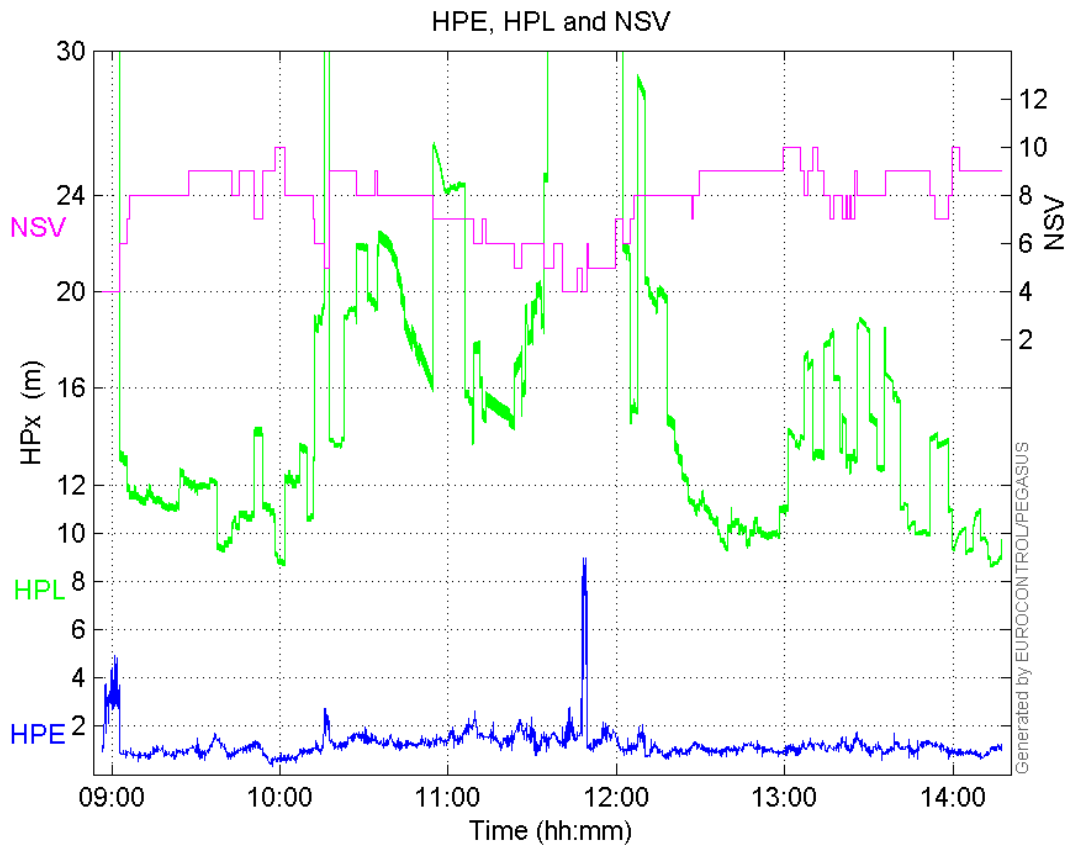
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

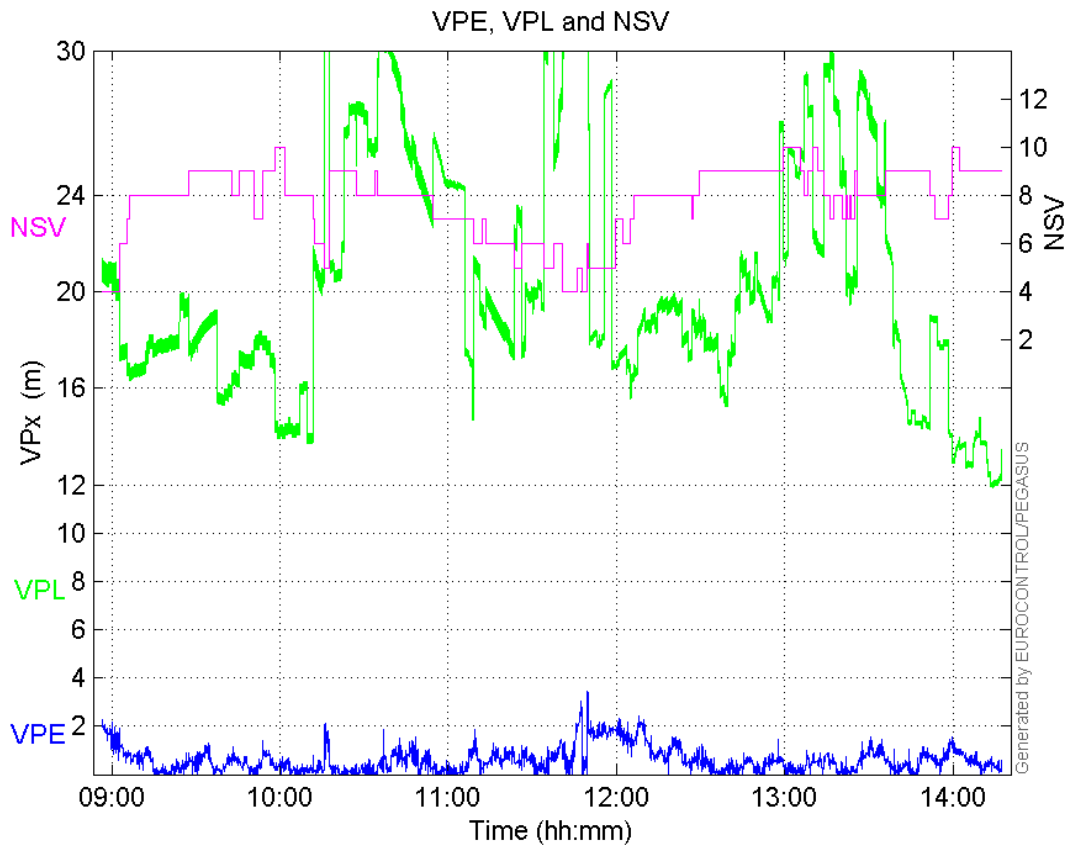
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	19205	17796	17796	61	17796
SIS Availability	0.998025	0.924804	0.924804	0.00316998	0.924804
Local Availability	0.979647	0.907774	0.907774	0.00311161	0.907774
Operational Availability	0.979647	0.907774	0.907774	0.00311161	0.907774
HPE 95%	1.91722	1.67397	1.67397	1.13143	1.67397
HPEscale 95%	NaN	4.90945	4.90945	5.18807	4.90945
VPE 95%	1.73165	1.46859	1.46859	0.601849	1.46859
VPEscale 95%	NaN	4.35359	3.04751	0.604501	3.04751
All Discontinuity Events	1	22	22	39	22
Long Discontinuity Events	1	4	4	0	4
Independent Discontinuity Events	1	4	4	0	4
P(discontinuity)	0.000781047	0.00337154	0.00337154	0	0.00337154
P(sliding window)	0.000781047	0.00674309	0.00674309	0.967213	0.00674309
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:

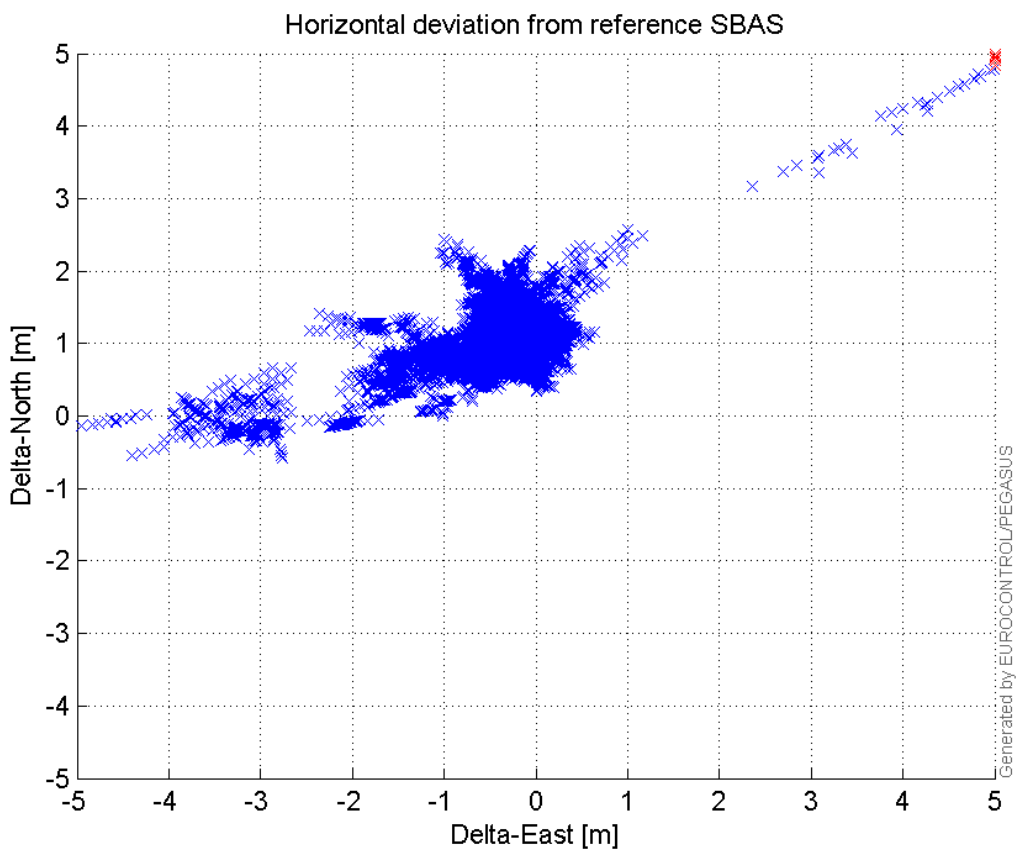


VPE, VPL and NSV:



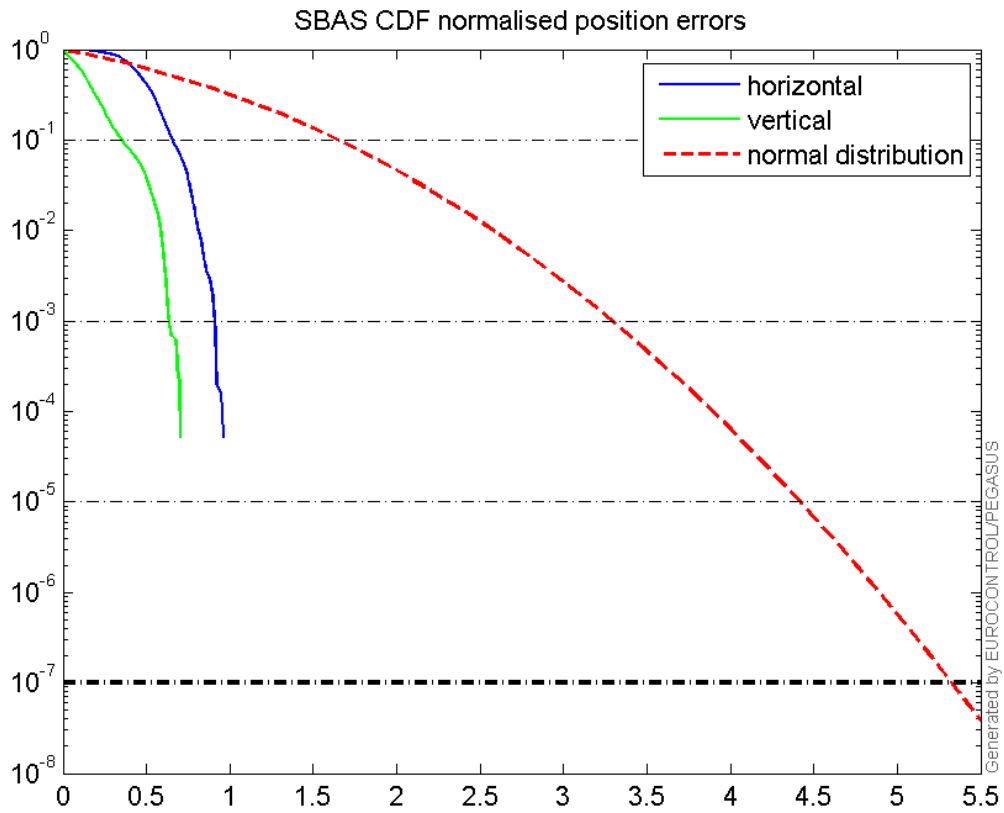
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

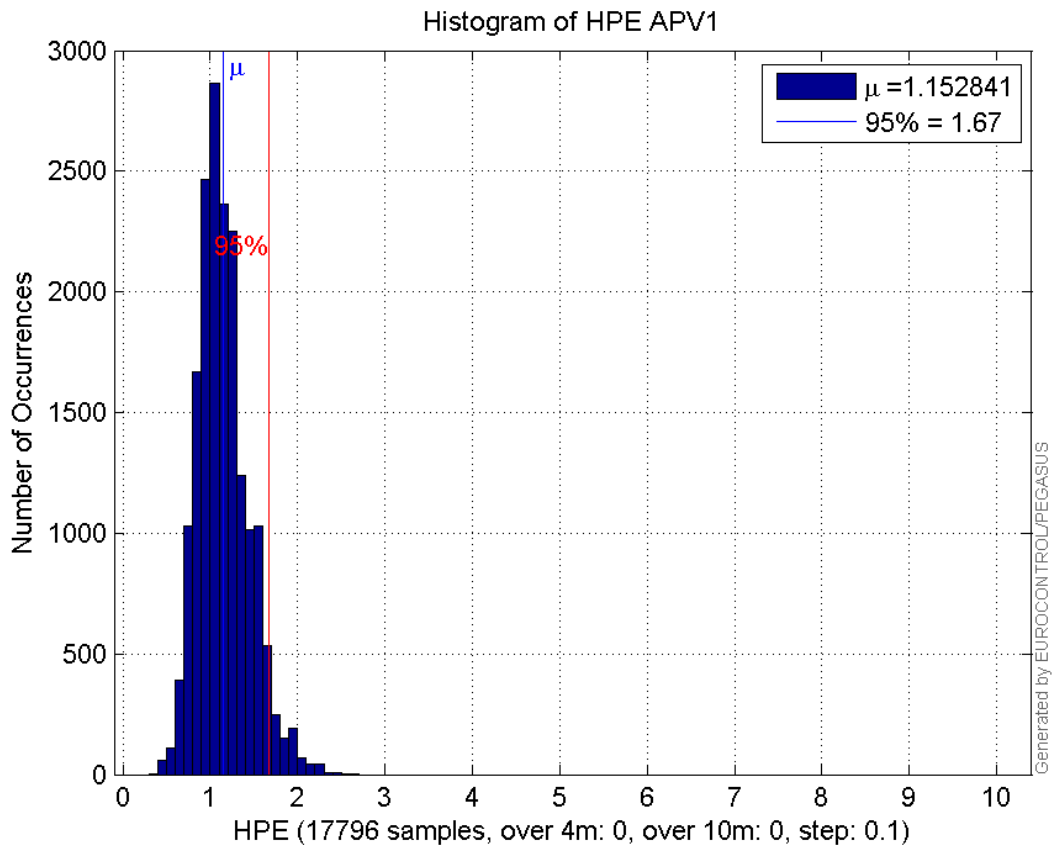
number	17796
sum	20515.954
sum2	25182.886
prctile95	1.6739679
prctile99	1.9956933
number	17796
sum	9784.2755
sum2	8752.1806
prctile95	1.4685861
prctile99	1.9593772
number	17796
sum	271466.8
sum2	4789920.3
prctile95	25.71598
prctile99	39.176878
number	17796
sum	355236.77
sum2	7446948.1
prctile95	28.68185
prctile99	30.203978
number	17796

sum 1444.8031
sum2 126.33123
prctile95 0.12273632
prctile99 0.13608407
number 17796
sum 522.39301
sum2 26.277358
prctile95 0.087071825
prctile99 0.11006241
number 17796
sum 20515.954
sum2 25182.886
prctile95 1.6739679
prctile99 1.9956933
number 17796
sum 9784.2755
sum2 8752.1806
prctile95 1.4685861
prctile99 1.9593772
number 17796
sum 271466.8
sum2 4789920.3
prctile95 25.71598
prctile99 39.176878
number 17796
sum 355236.77
sum2 7446948.1
prctile95 28.68185
prctile99 30.203978
number 17796
sum 1444.8031
sum2 126.33123
prctile95 0.12273632
prctile99 0.13608407
number 17796
sum 522.39301
sum2 26.277358
prctile95 0.087071825
prctile99 0.11006241

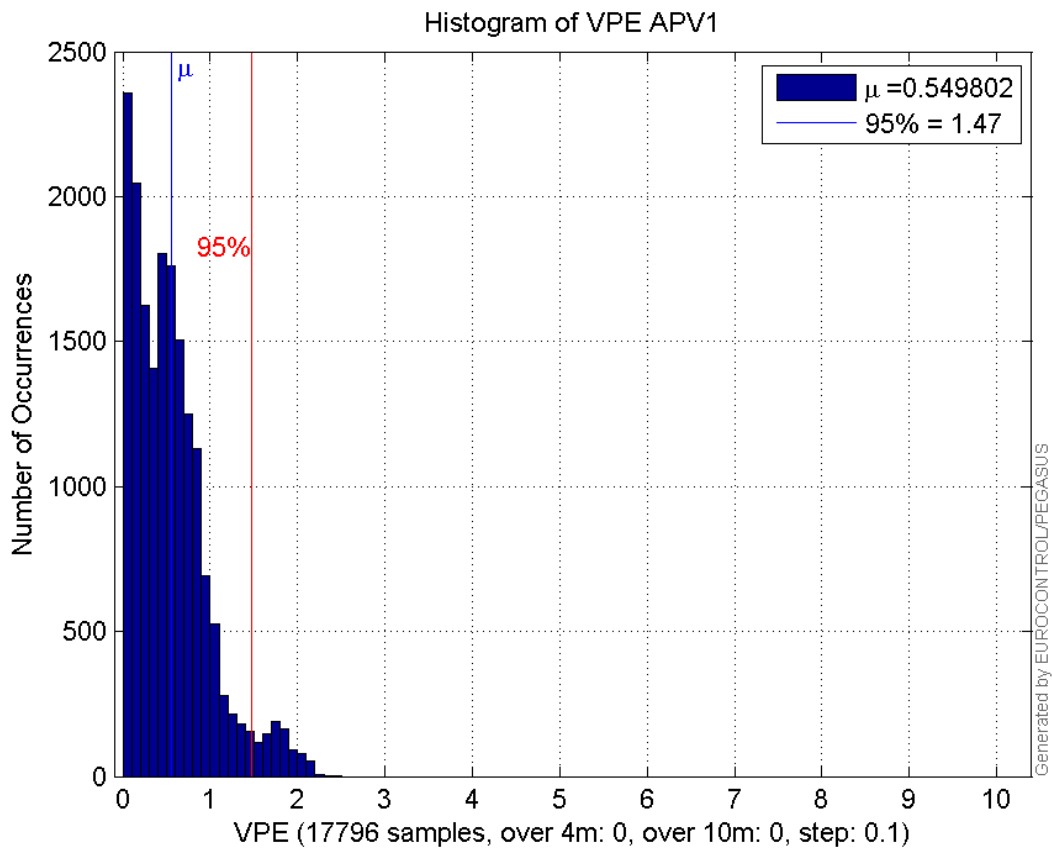
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.15284	0.293343	1.11244	1.67397	1.99569	1.18957
HPL	15.2544	6.03849	13.5984	25.716	39.1769	16.406
VPE	0.549802	0.435356	0.48042	1.46859	1.95938	0.701289
VPL	19.9616	4.47183	18.7804	28.6818	30.204	20.4563

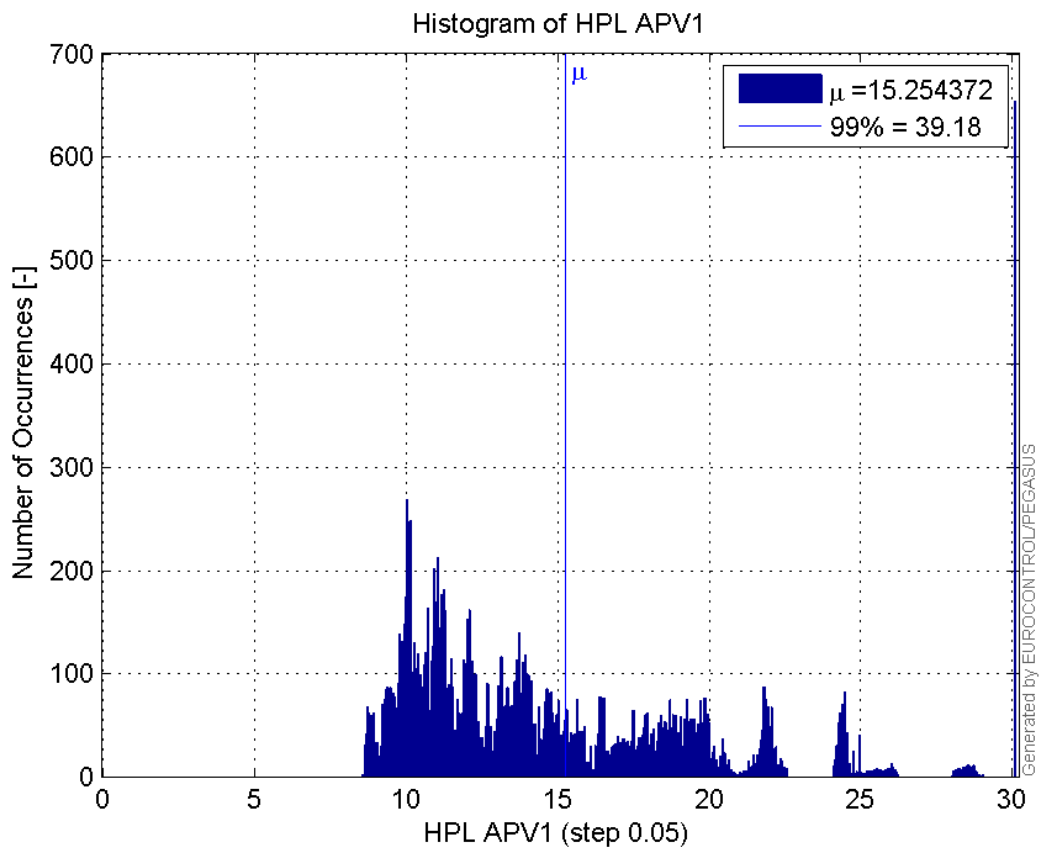
Histogram of HPE APV1:



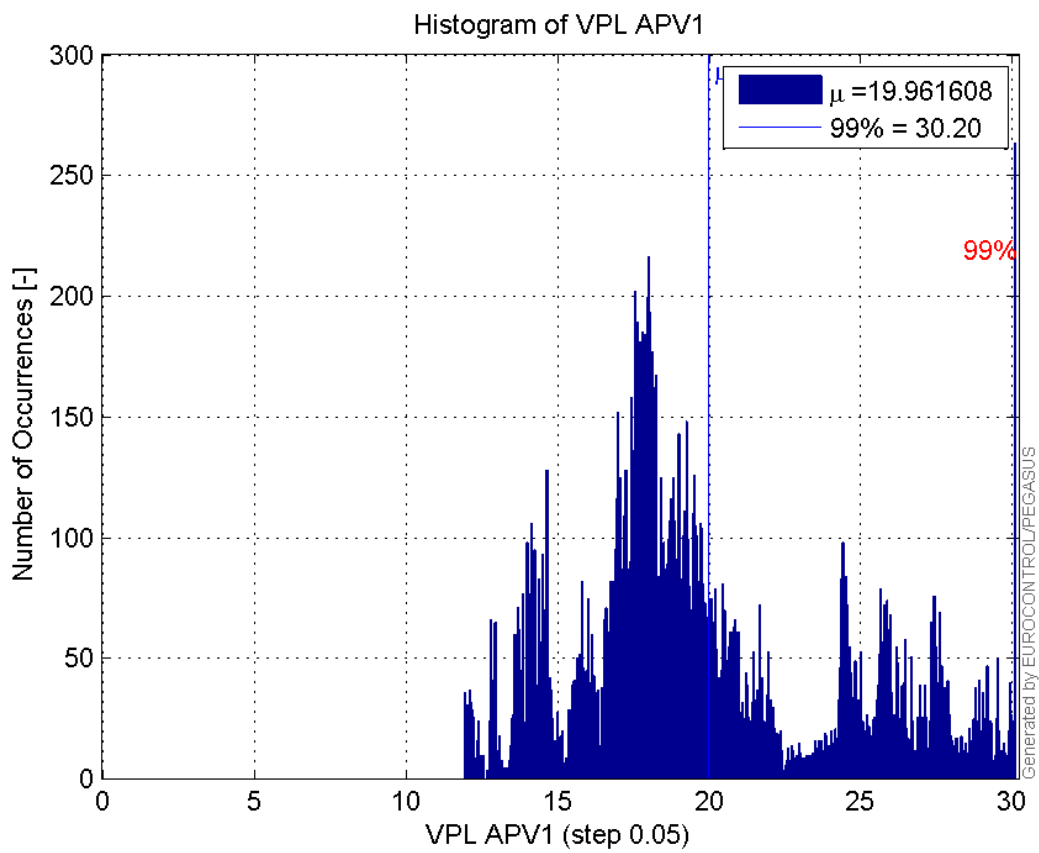
Histogram of VPE APV1:



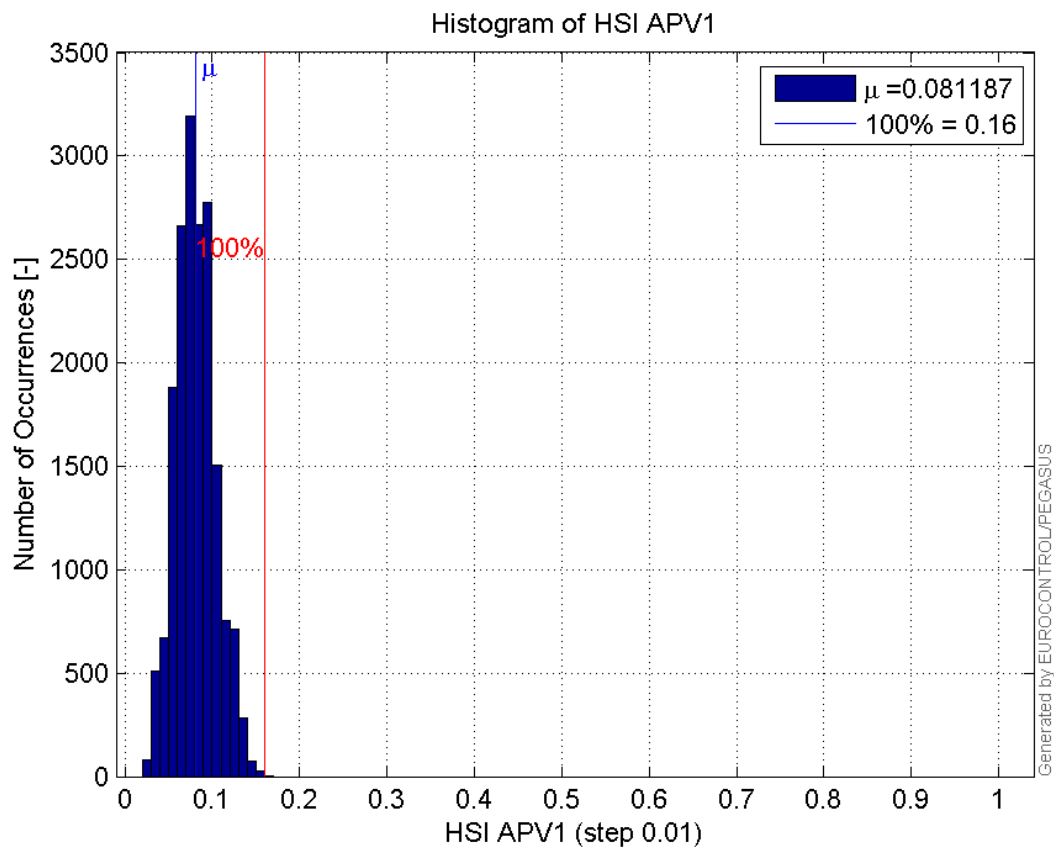
Histogram of HPL APV1:



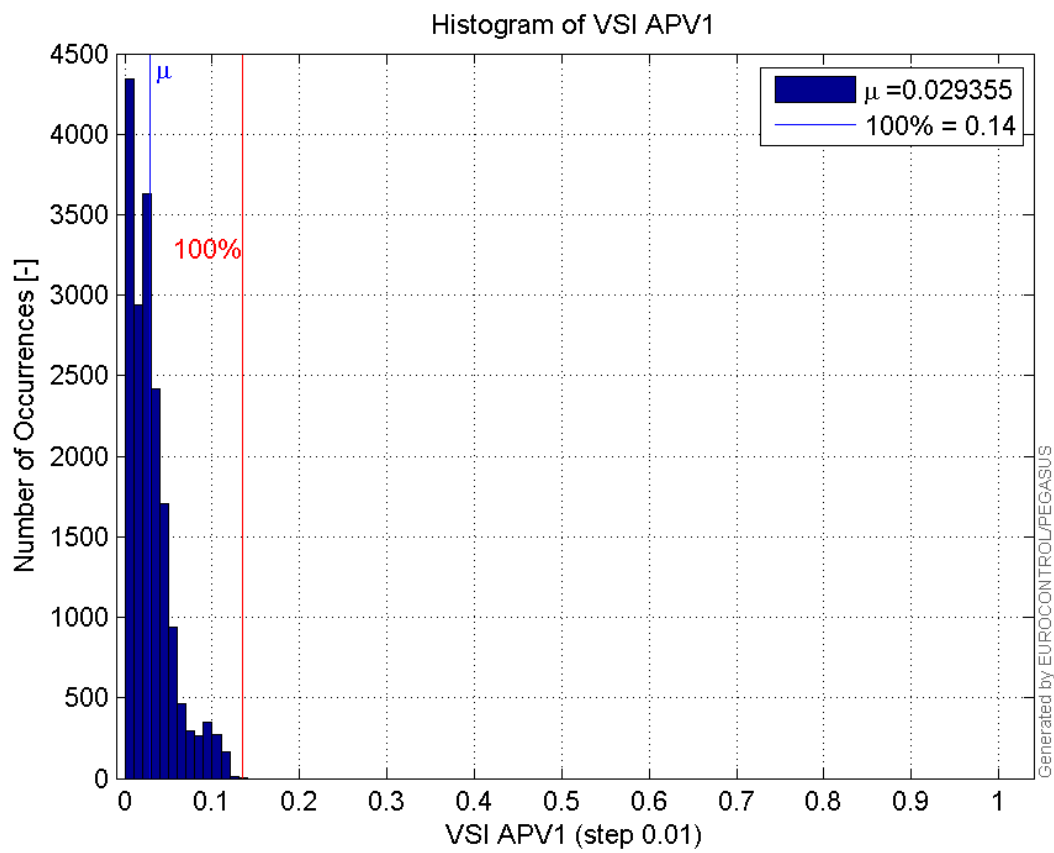
Histogram of VPL APV1:



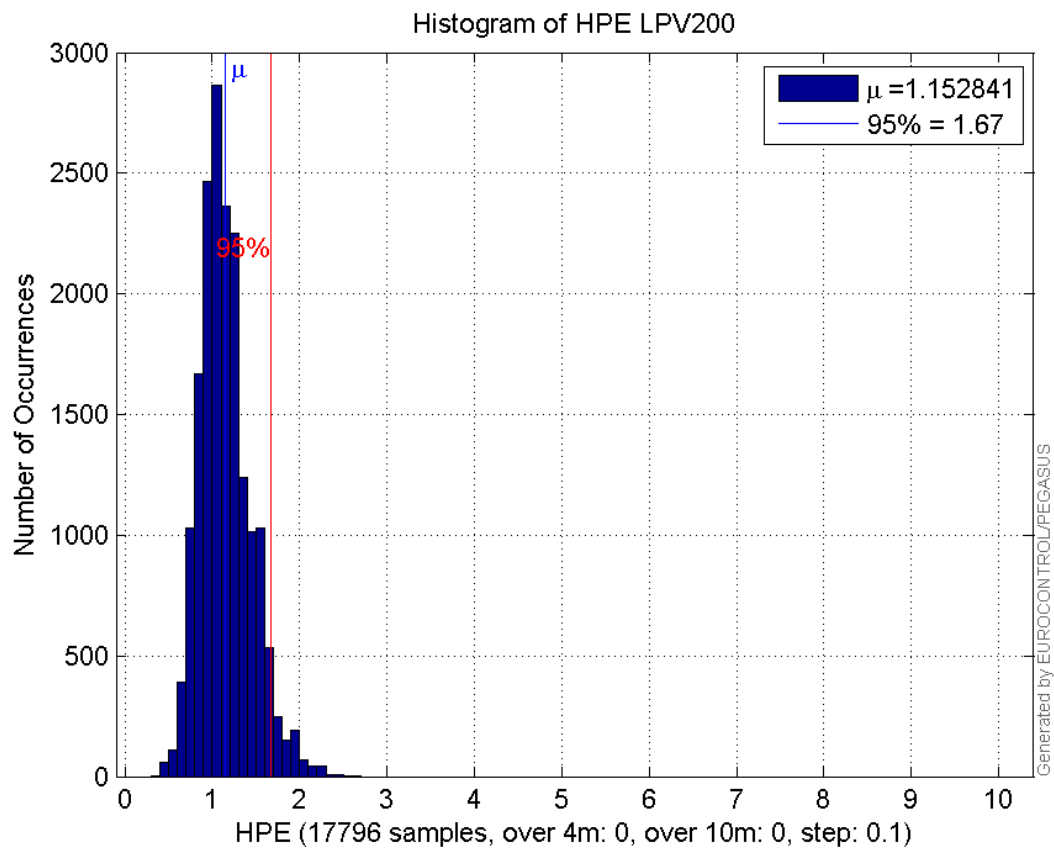
Histogram of HSI APV1:



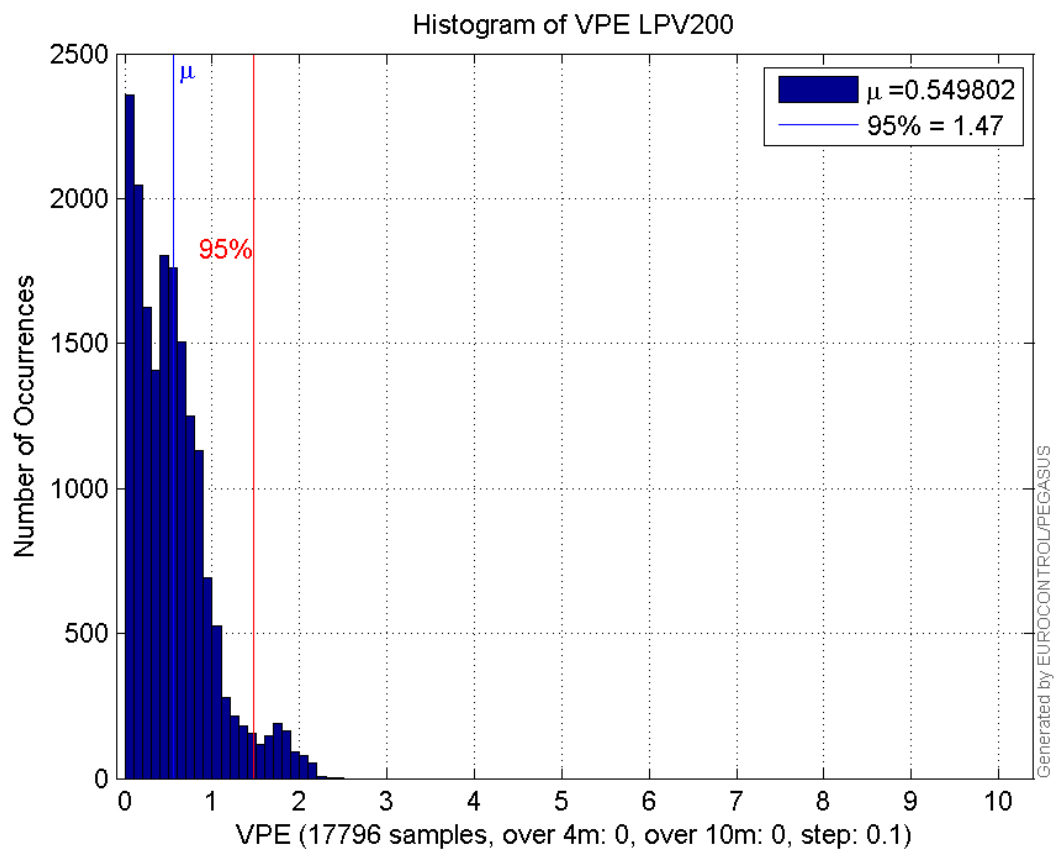
Histogram of VSI APV1:



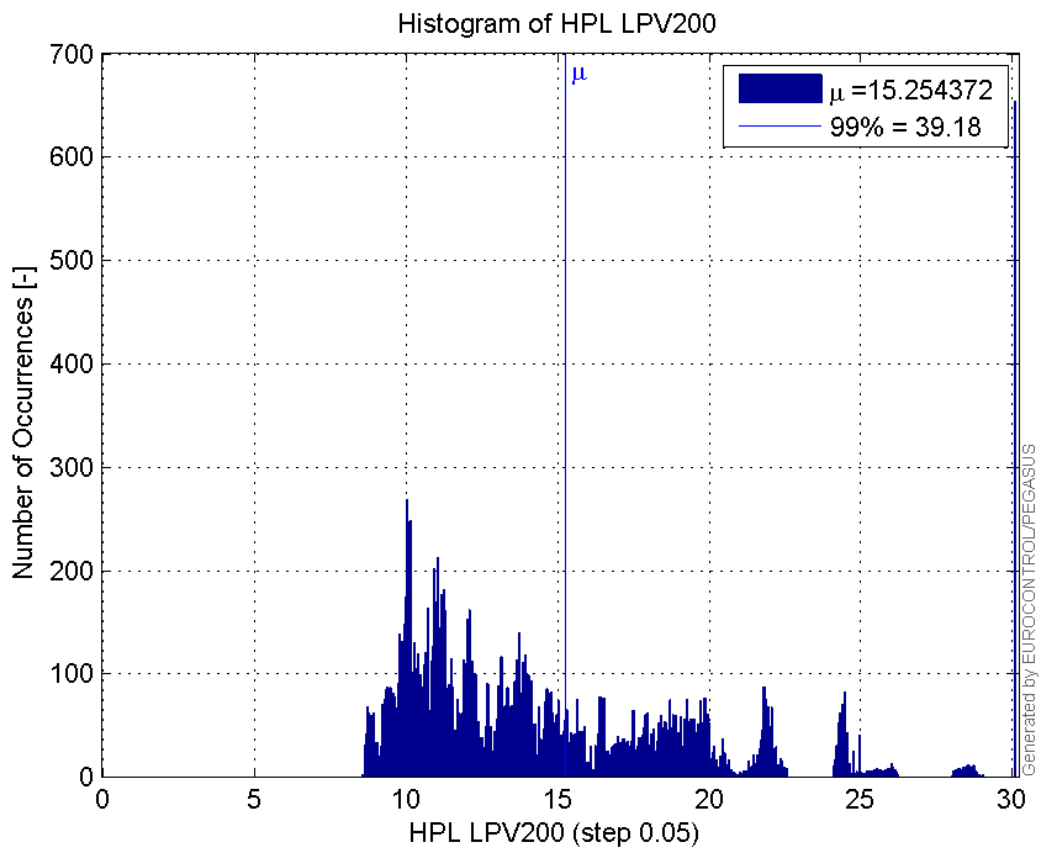
Histogram of HPE LPV200:



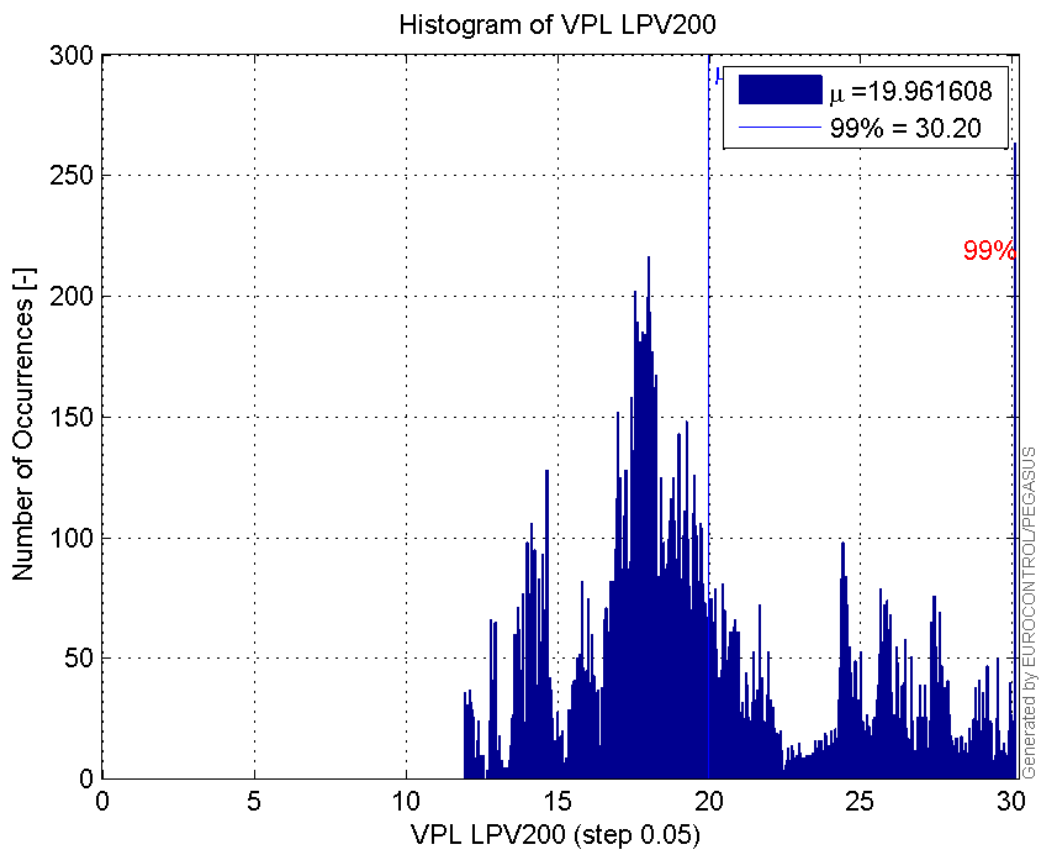
Histogram of VPE LPV200:



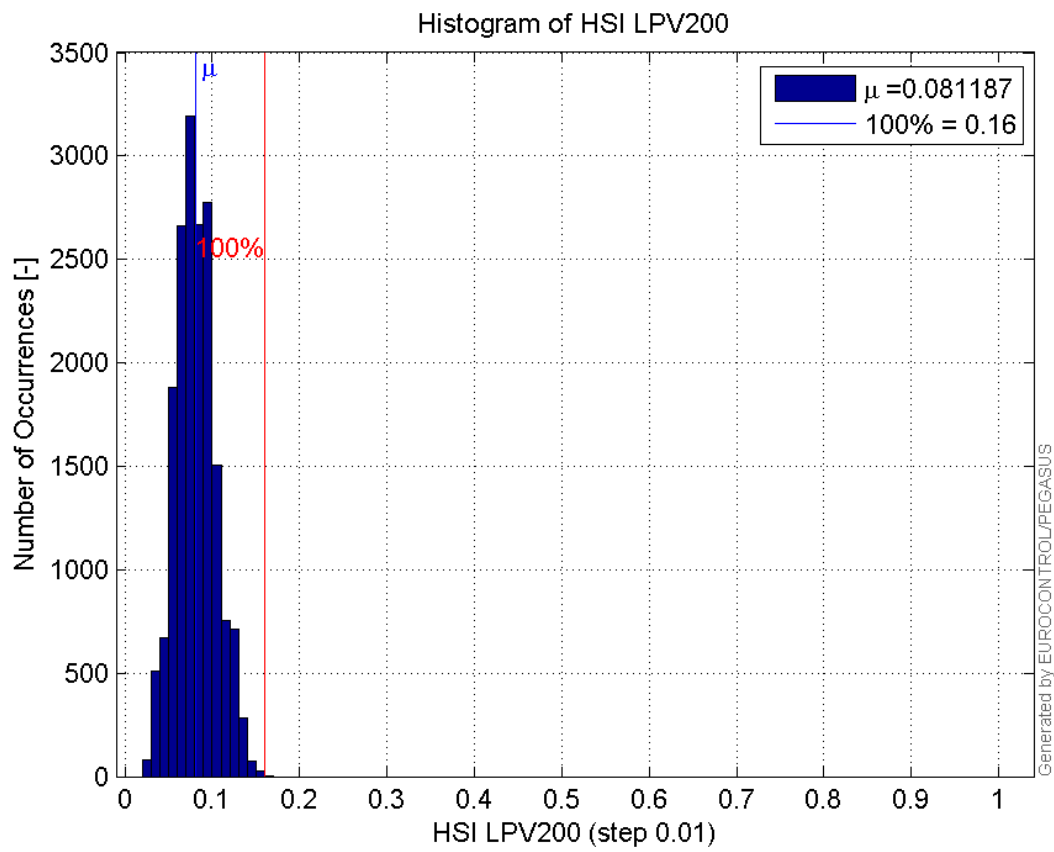
Histogram of HPL LPV200:



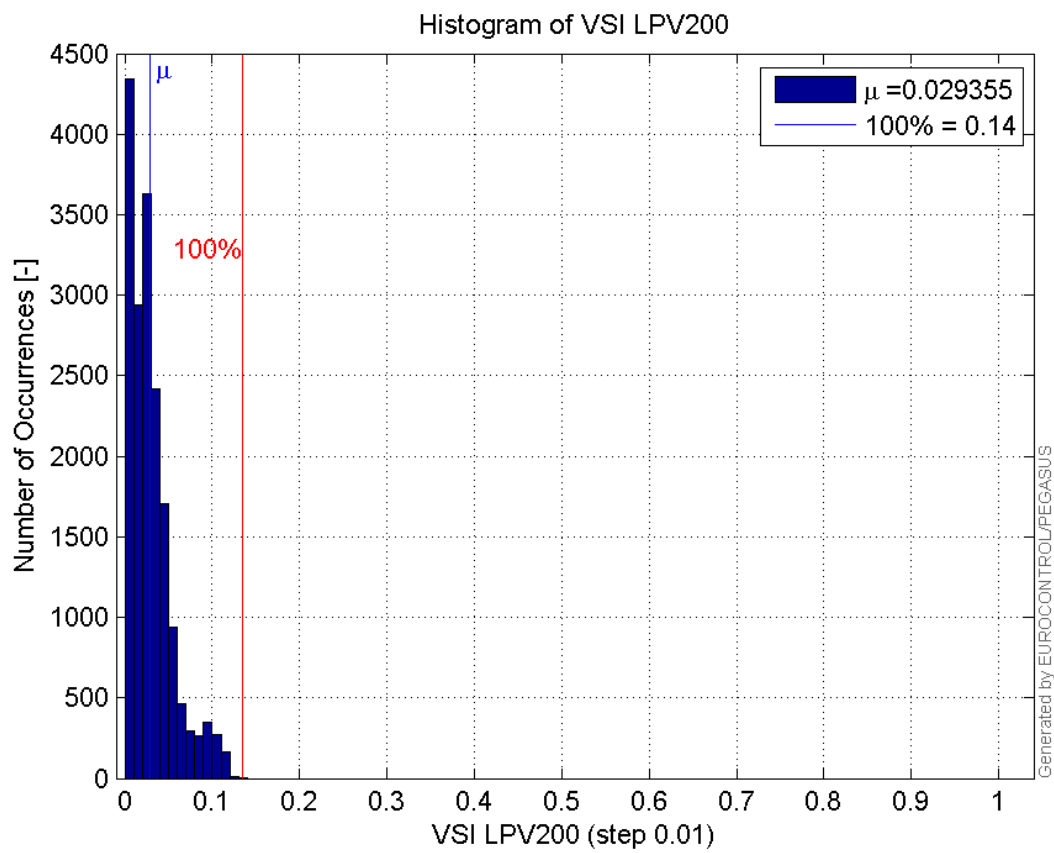
Histogram of VPL LPV200:



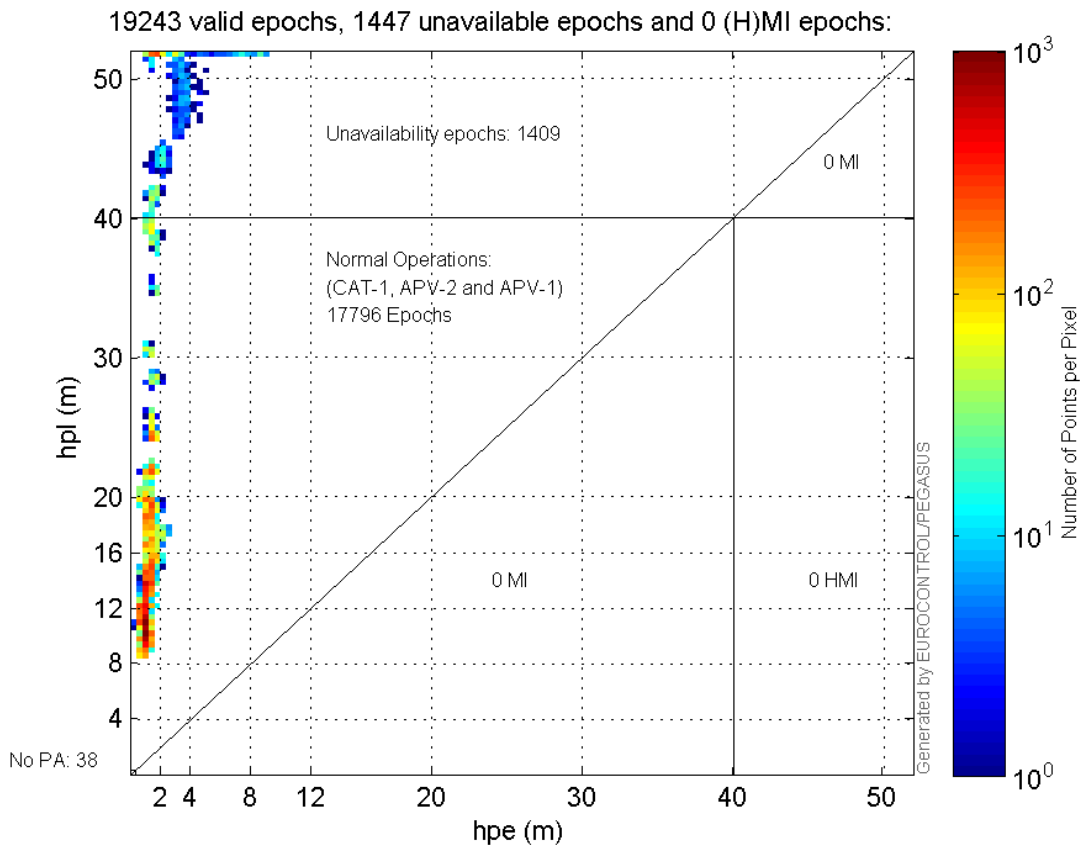
Histogram of HSI LPV200:



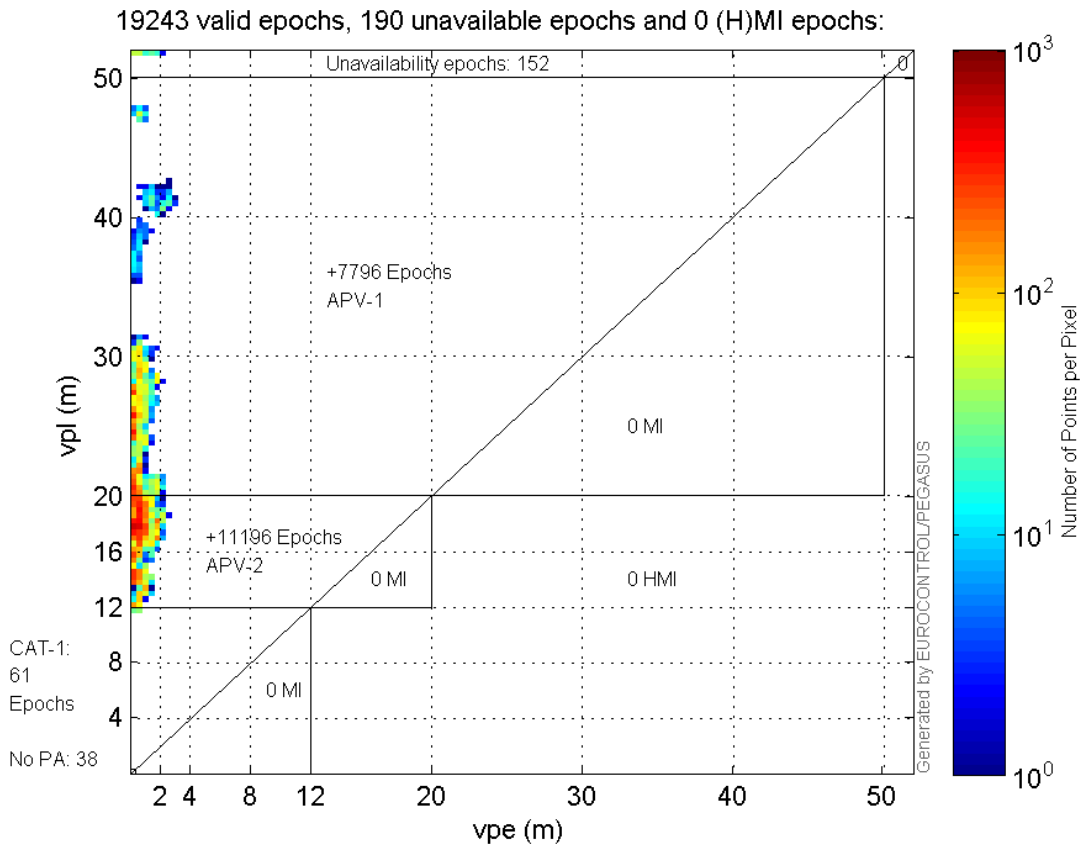
Histogram of VSI LPV200:



Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateGob/job/2016_02_22EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_22EGNOS/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	246.4388
mi_numbers	results	0