

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: 08:50:35 23.02.2016 (week: 1885 sec: 204635)
end: 15:13:04 23.02.2016 (week: 1885 sec: 227584)
duration: 06:22:30 ..

quality

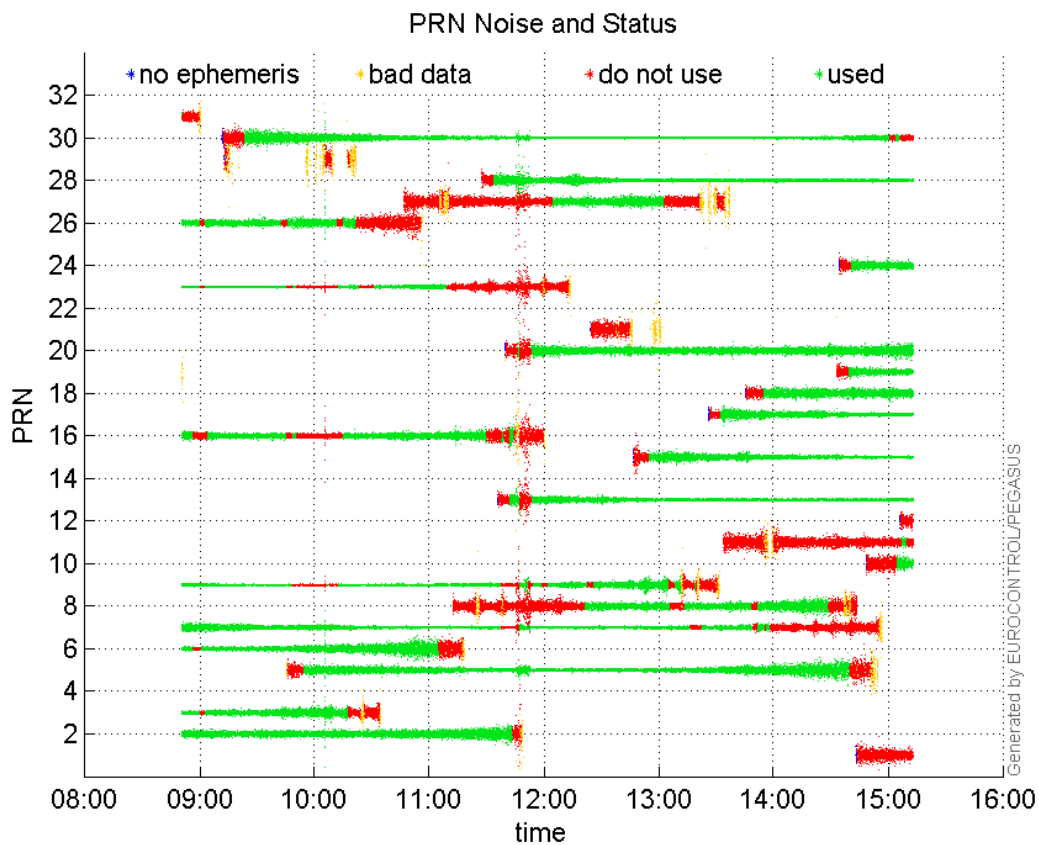
valid samples 22950
total samples 22950

PRN overview

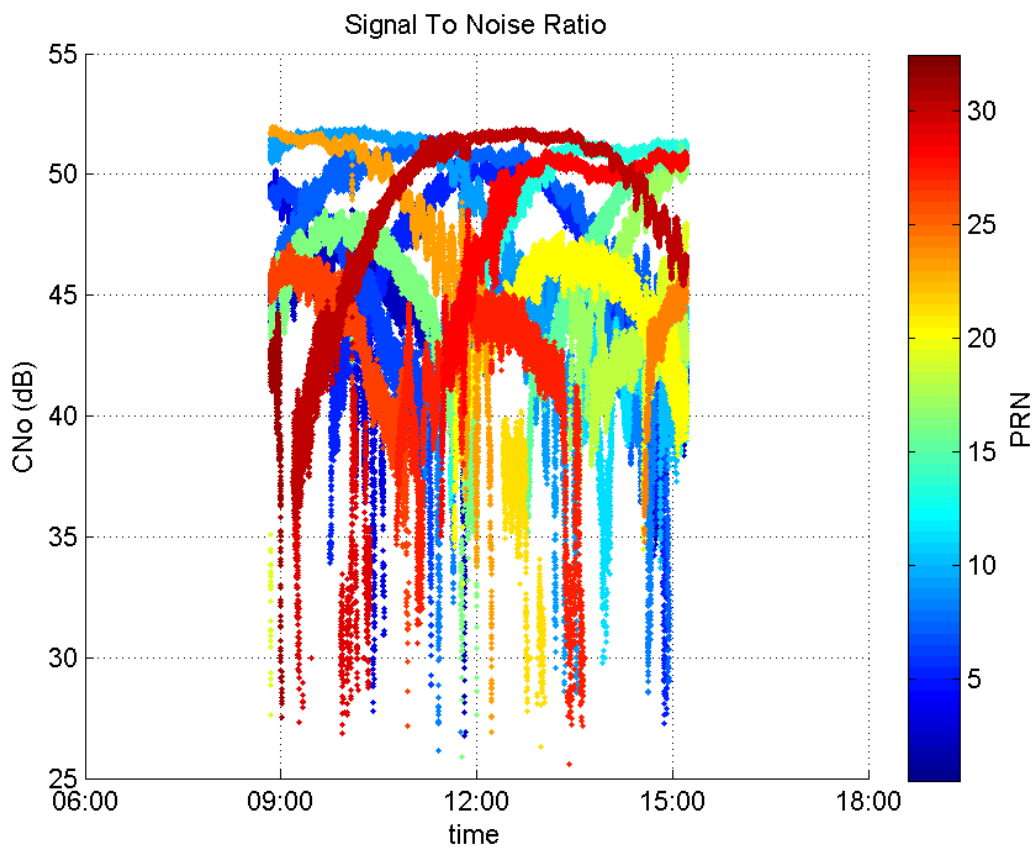
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



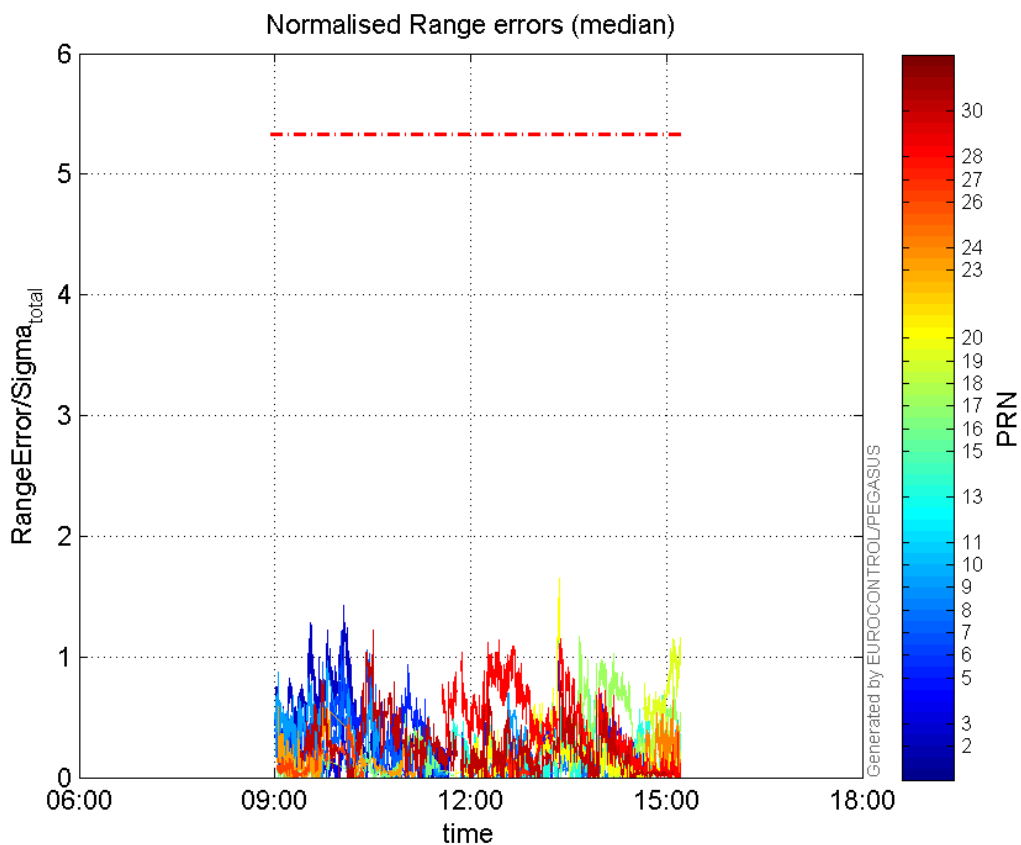
range errors

Number of Overbounding Norm Errors 0

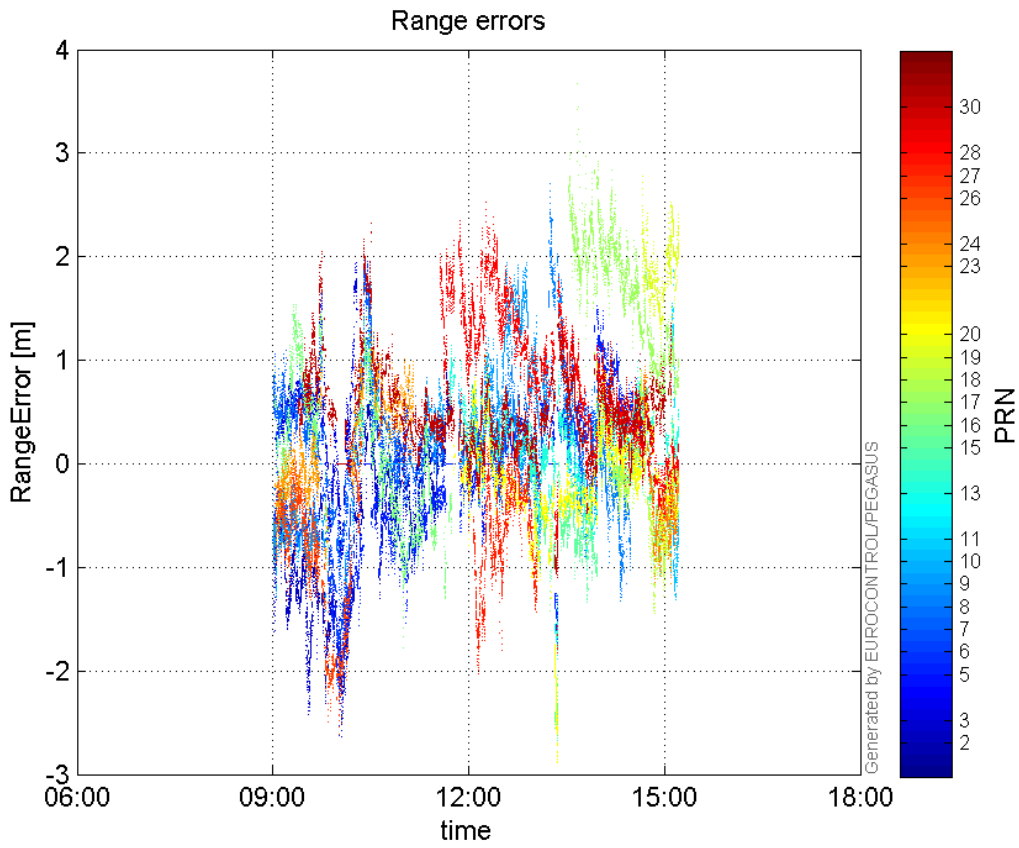
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1885	208993	2	1.4276	-2.63933	1.84878
1885	207880	3	0.719918	1.63628	2.27287
1885	220881	5	1.00128	-1.67178	1.66965
1885	208837	6	1.20673	-2.22387	1.84289
1885	210267	7	1.0596	1.90913	1.80175
1885	220460	8	0.515634	2.70417	5.24437
1885	208083	9	0.962245	-1.39229	1.44692
1885	227450	10	0.472521	-1.31462	2.78215
1885	227264	11	0.205236	1.87243	9.12332
1885	220882	13	1.26414	-1.8287	1.4466
1885	220884	15	1.18202	-2.66747	2.2567
1885	212412	16	0.523354	-1.77361	3.38892
1885	221990	17	1.16978	3.67787	3.14408
1885	226251	18	0.607515	-1.44869	2.38461
1885	227579	19	1.1631	2.41318	2.07478
1885	220883	20	1.65255	-2.85187	1.72574
1885	207880	23	0.610235	0.93811	1.53729
1885	227161	24	0.640768	-1.15827	1.80764
1885	209267	26	0.499663	-2.0832	4.16922
1885	220900	27	0.567942	-1.82231	3.20862
1885	220954	28	1.1455	1.73334	1.51317
1885	210632	30	1.21957	2.32987	1.91041

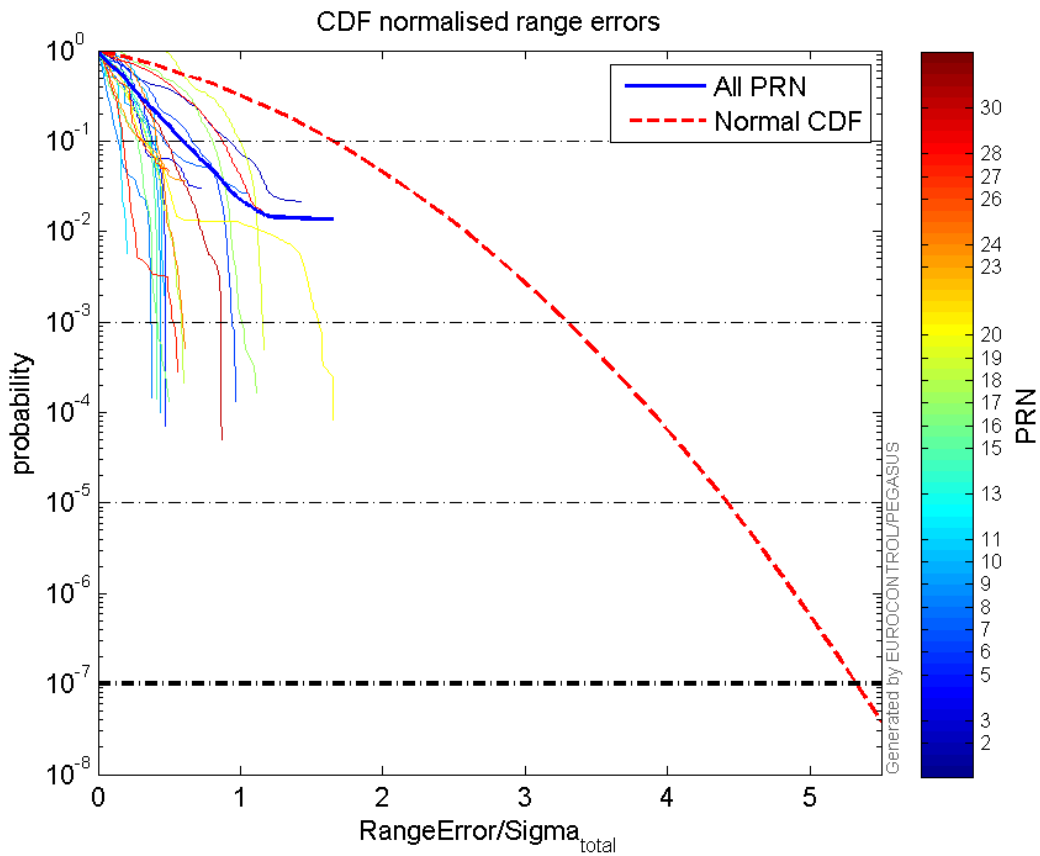
Normalised Range errors (median):



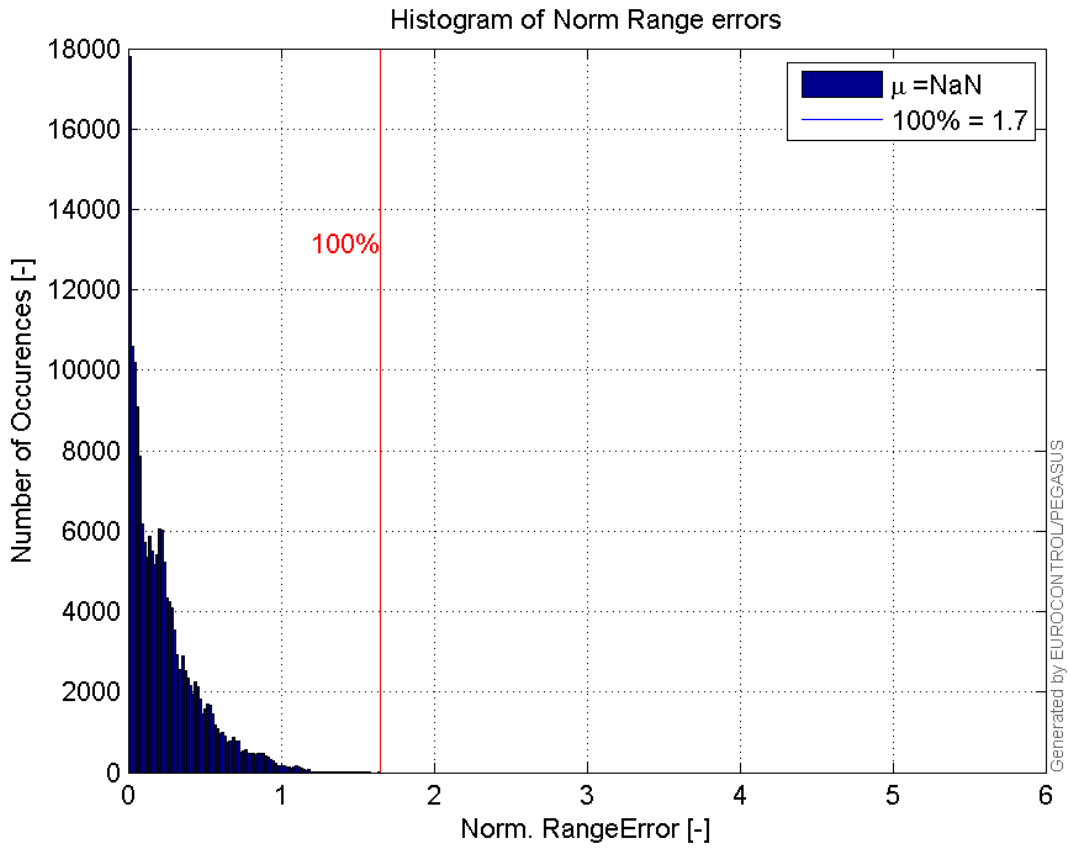
Range errors:



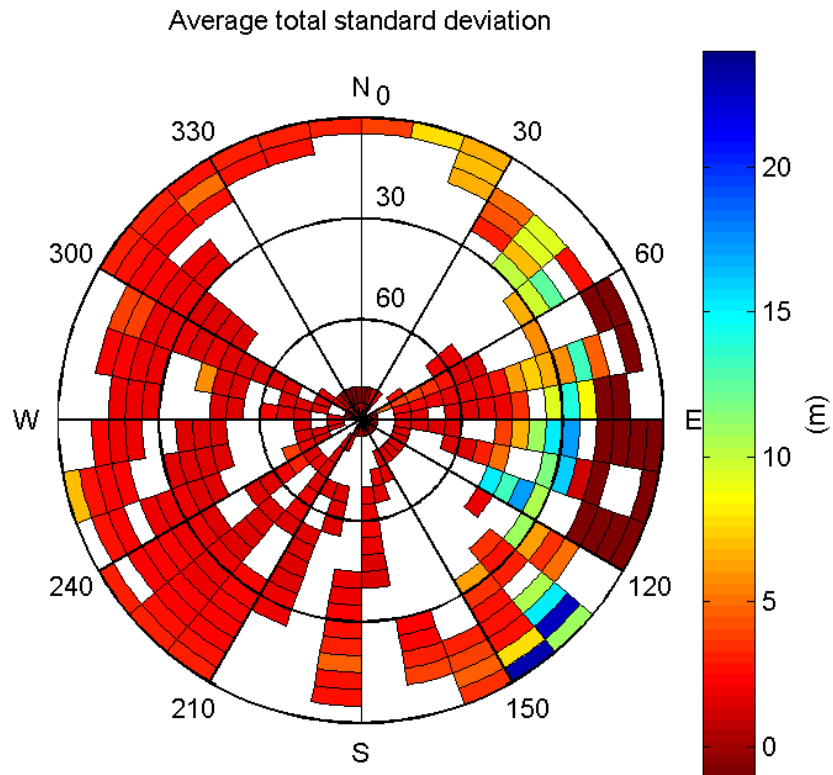
CDF normalised range errors:



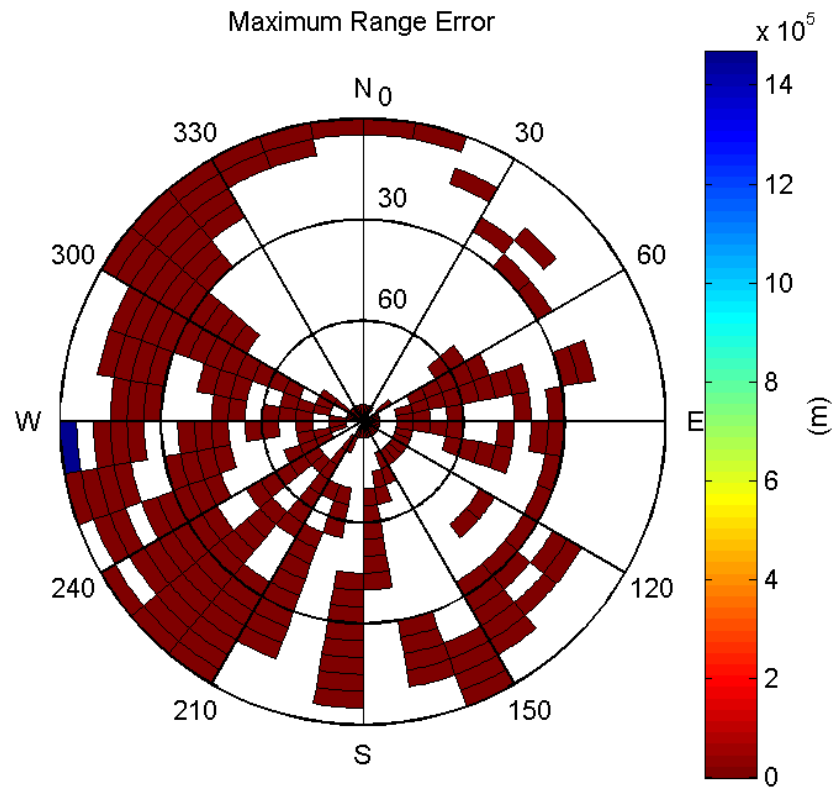
Histogram of Norm Range errors:



Sigma Sky Plot:

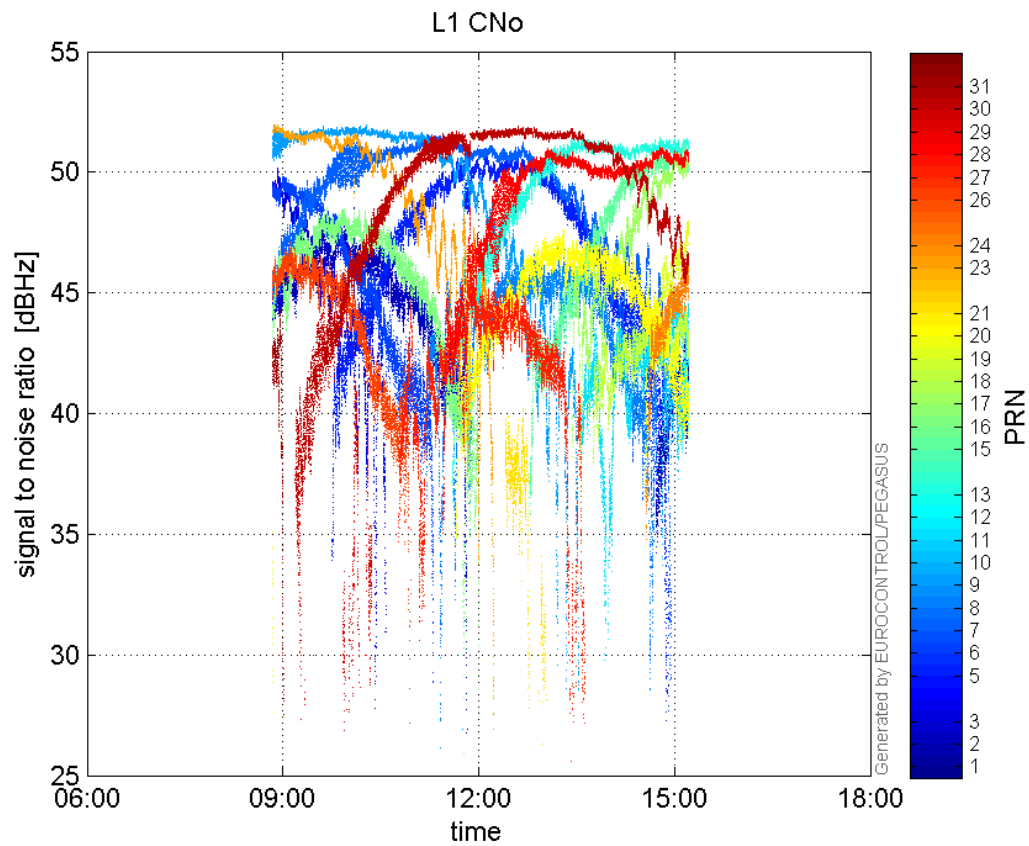


Norm Error Sky Plot:

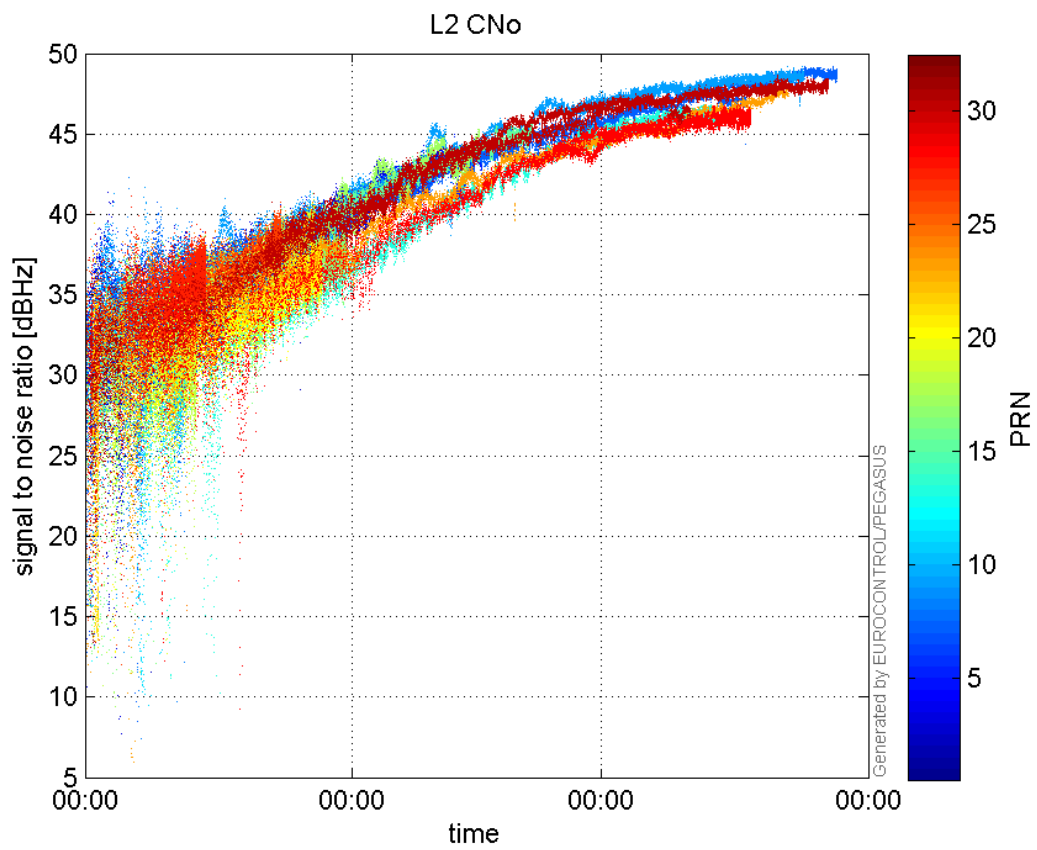


signal quality

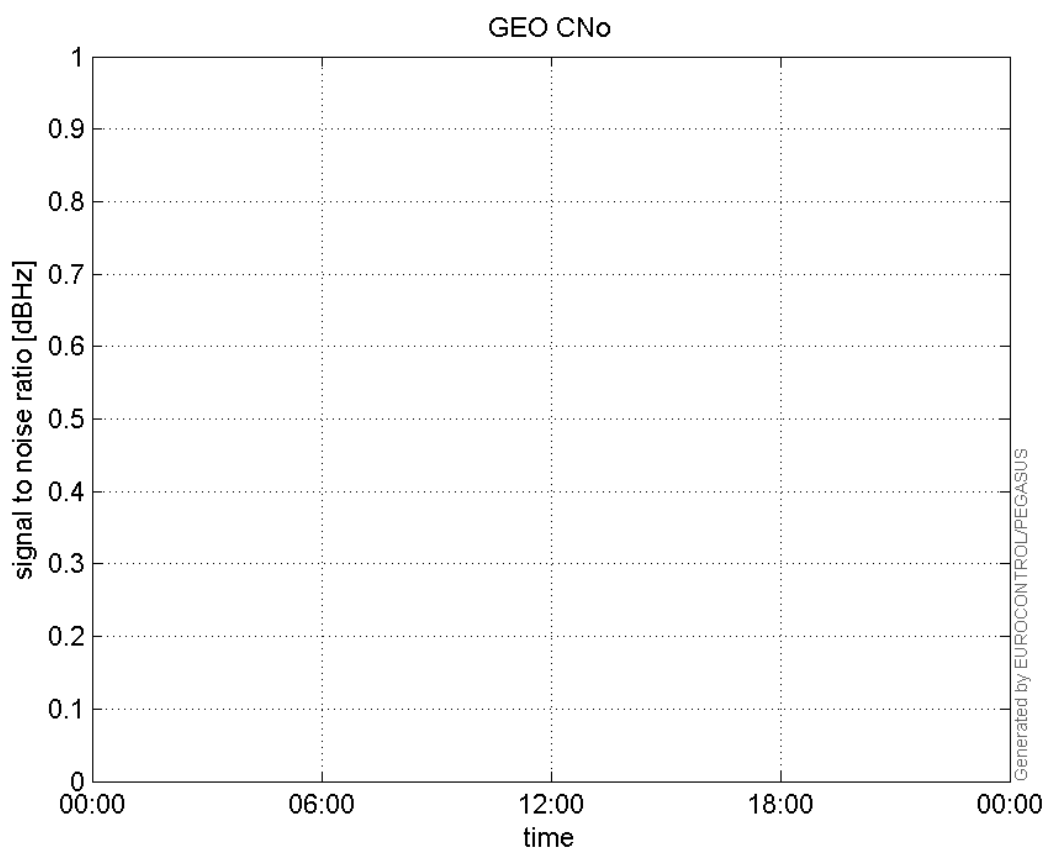
L1 CNo:



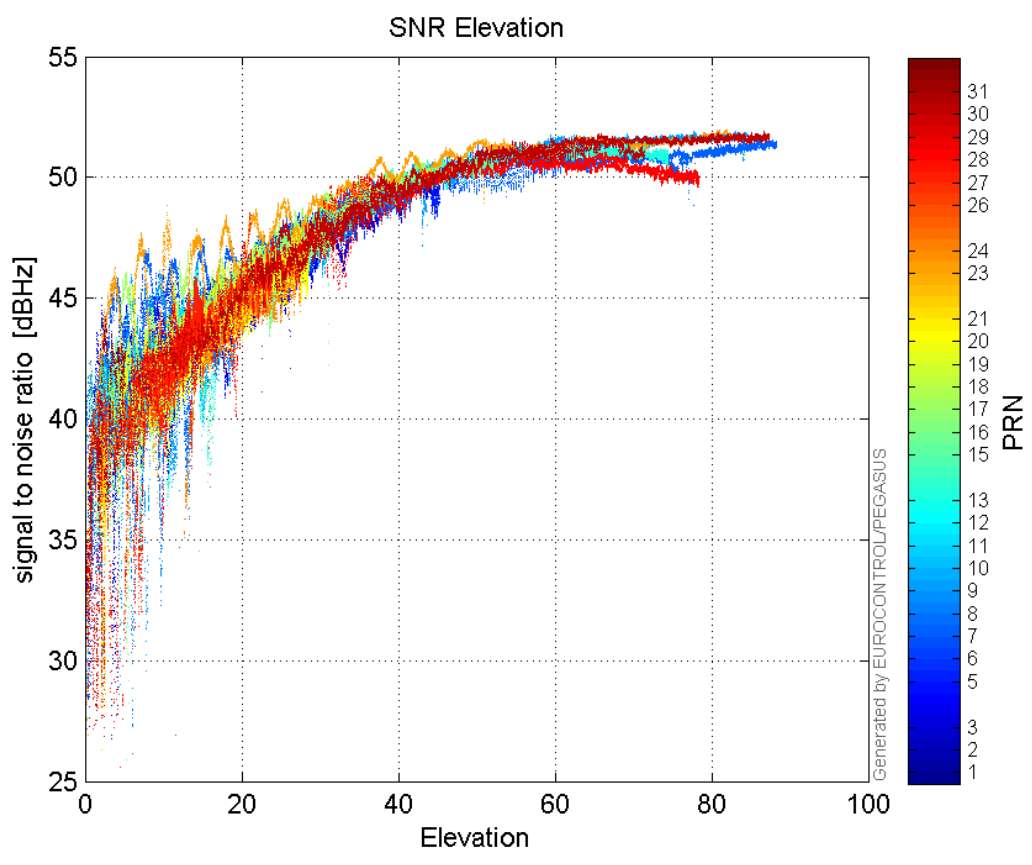
L2 CNo:



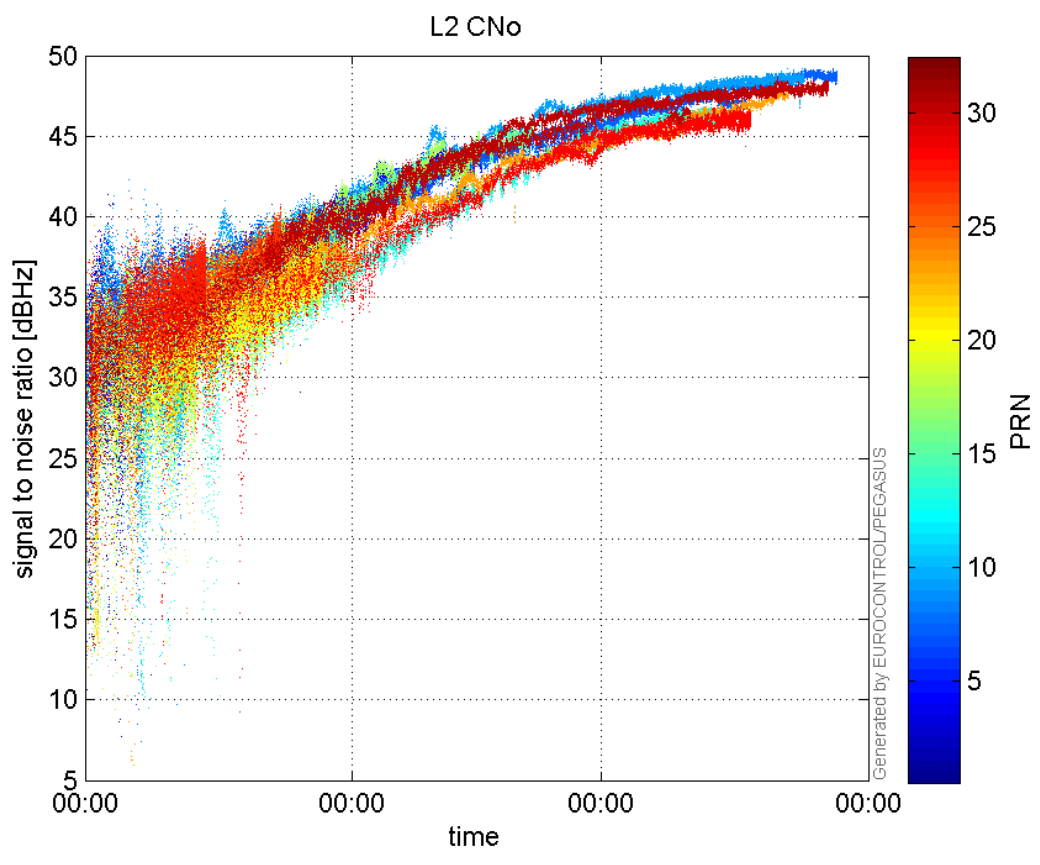
GEO CNo:



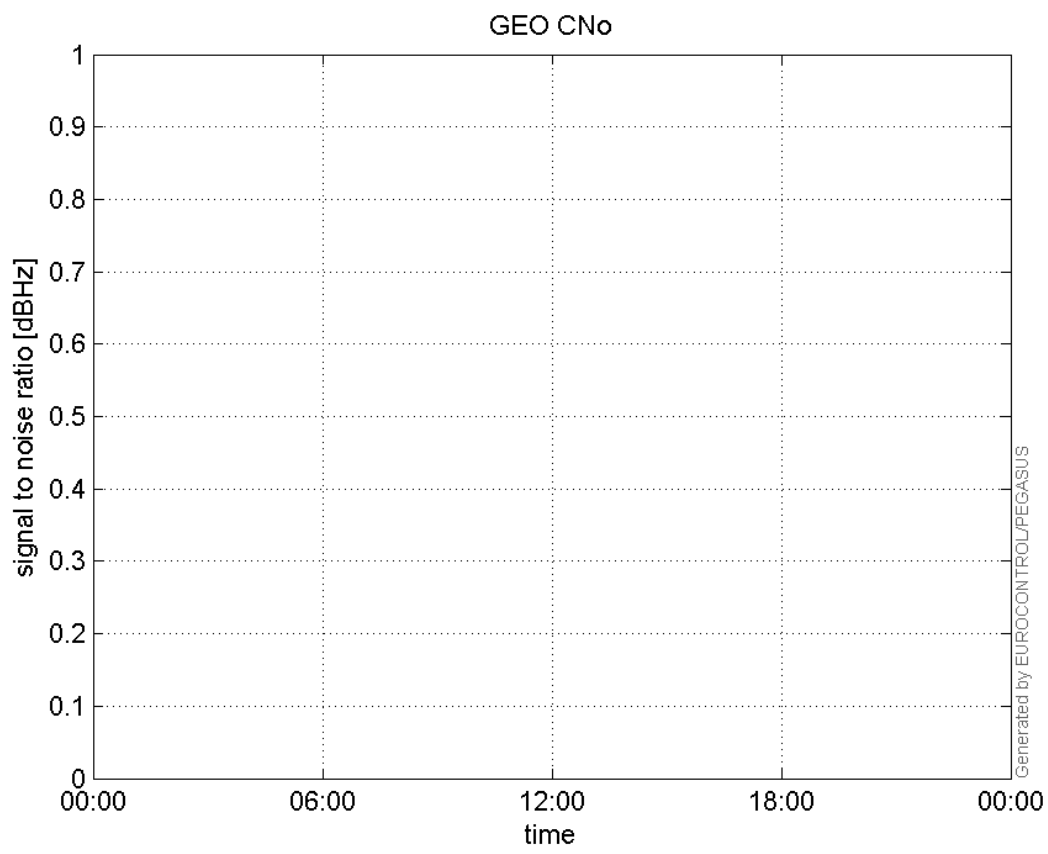
SNR Elevation:



L2 CNo:

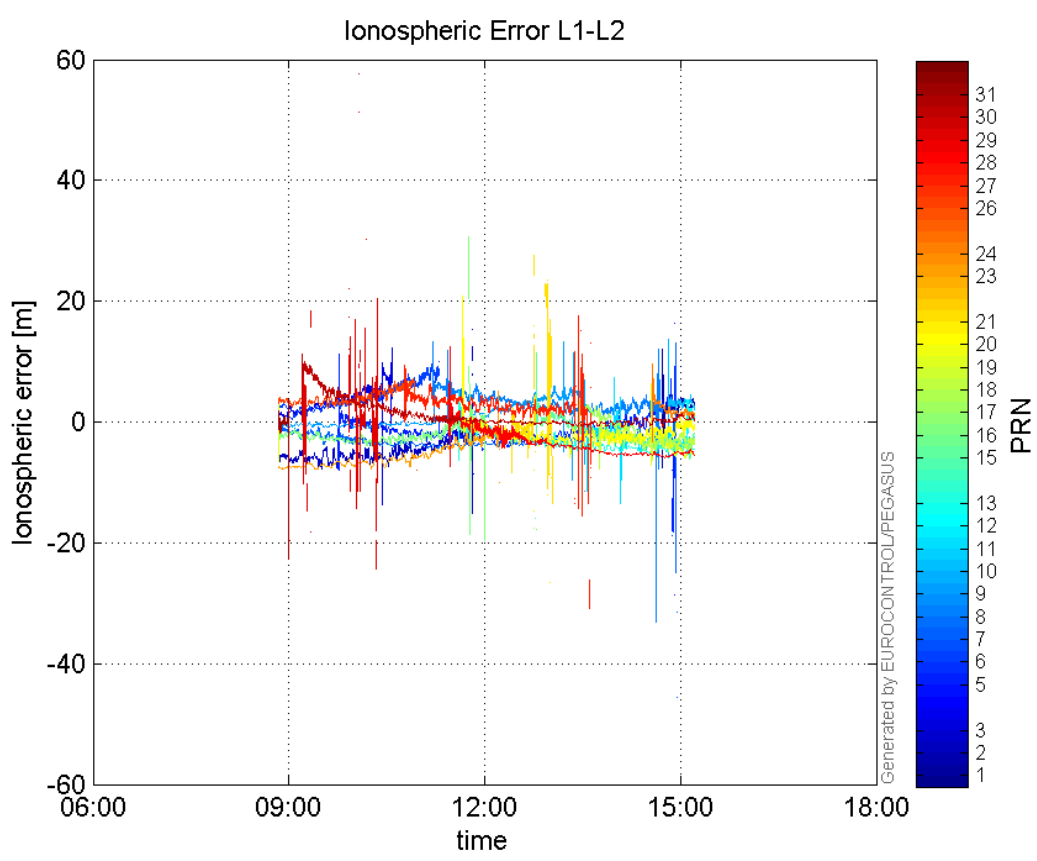


GEO CNo:



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_23EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_23EGNOS/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	30.4299
init_alt	results	257.7277
mi_numbers	results	0

SBAS Messages

start: 08:50:34.129 23.02.2016 (week: 1885 sec: 204634.129)
end: 15:13:4.129 23.02.2016 (week: 1885 sec: 227584.129)
duration: 06:22:30 ..

quality

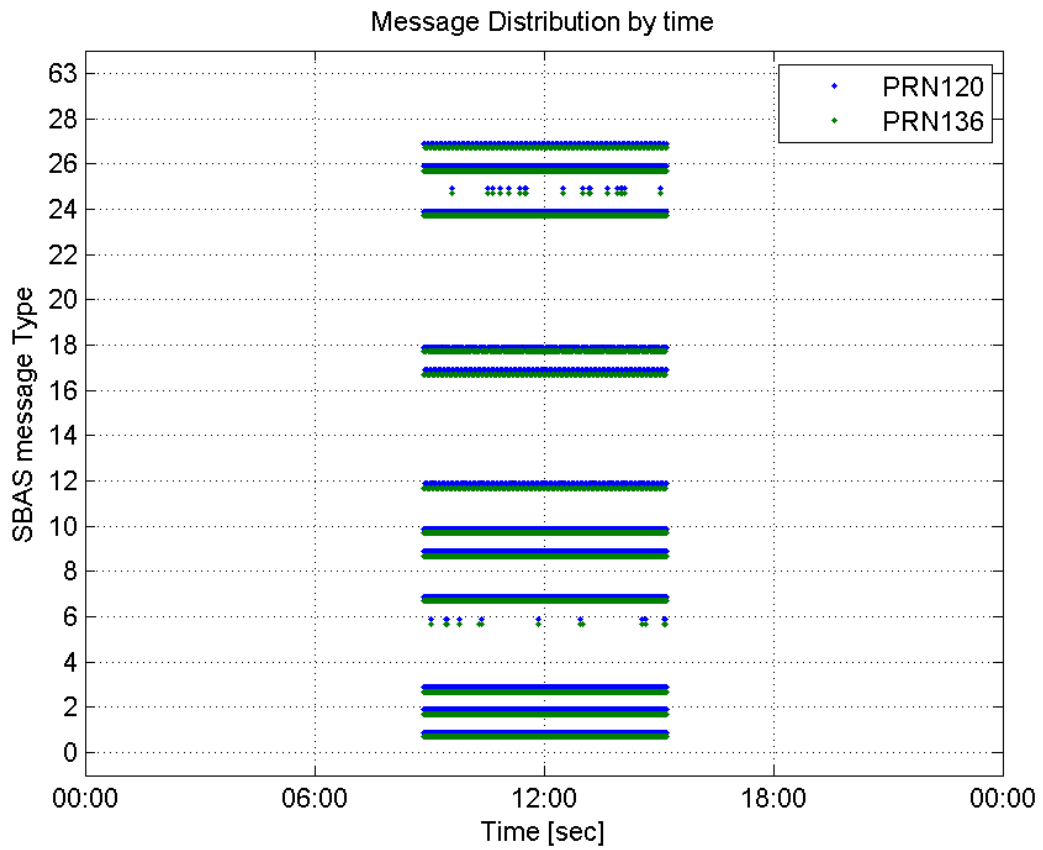
valid samples 45888
total samples 45888
number of SBAS PRNs 2

SBAS SIS Overview

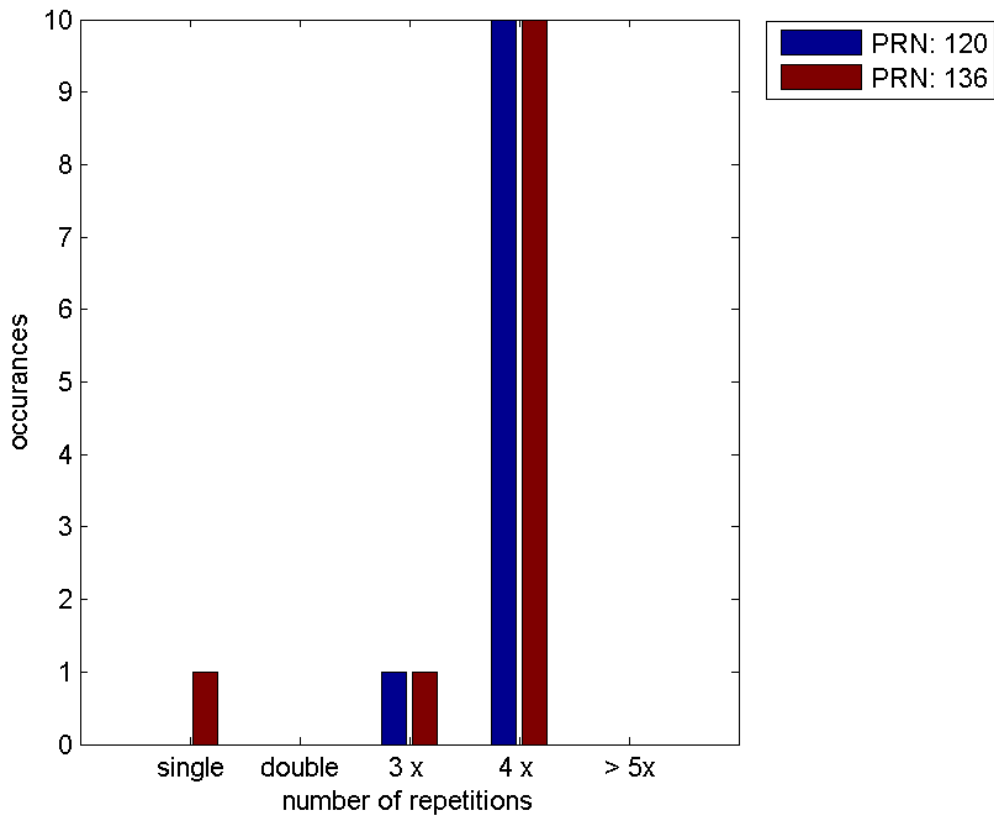
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	10	0

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

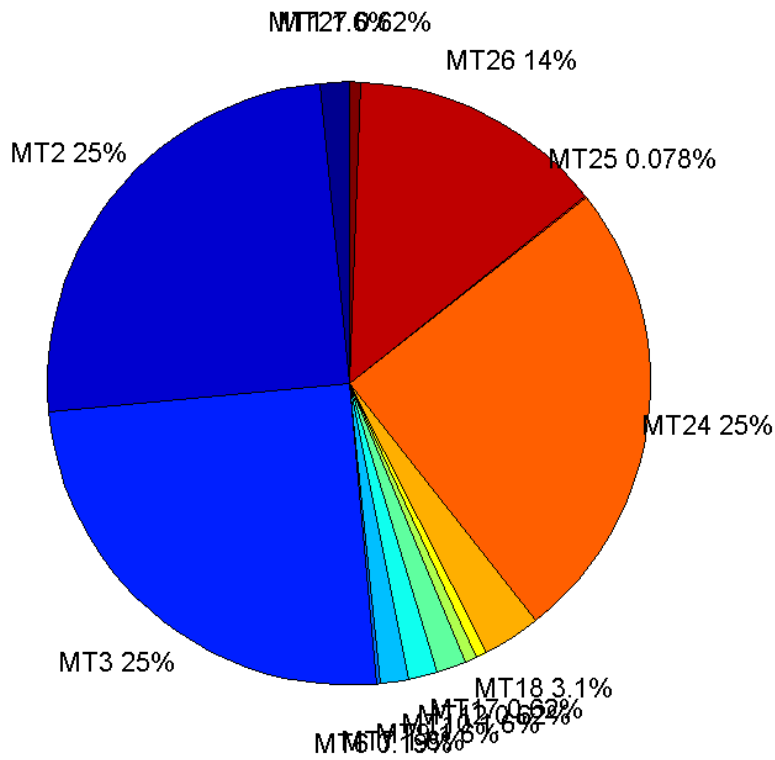
	number of messages	%
MT 0	0	0
MT 1	357	1.55556
MT 2	5726	24.9499
MT 3	5726	24.9499
MT 4	0	0
MT 5	0	0
MT 6	44	0.191721
MT 7	356	1.5512
MT 9	356	1.5512
MT 10	356	1.5512
MT 12	143	0.623094
MT 17	143	0.623094
MT 18	715	3.11547
MT 24	5726	24.9499
MT 25	18	0.0784314
MT 26	3141	13.6863
MT 27	143	0.623094
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	22950	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	71	64.4129	0	0	0
MT 2	4	8	4.00821	11	0	0
MT 3	4	8	4.00821	11	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5850	512.047	10	10	10
MT 7	64	73	64.4141	0	0	0
MT 9	64	71	64.4366	0	0	0
MT 10	64	73	64.4254	0	0	0
MT 12	156	171	160.669	142	0	0
MT 17	156	171	160.641	0	0	0
MT 18	4	139	31.993	0	0	0

MT 24	4	8	4.00821	0	0	0
MT 25	87	3482	1151.41	0	0	0
MT 26	4	29	7.30669	0	0	0
MT 27	156	173	160.641	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

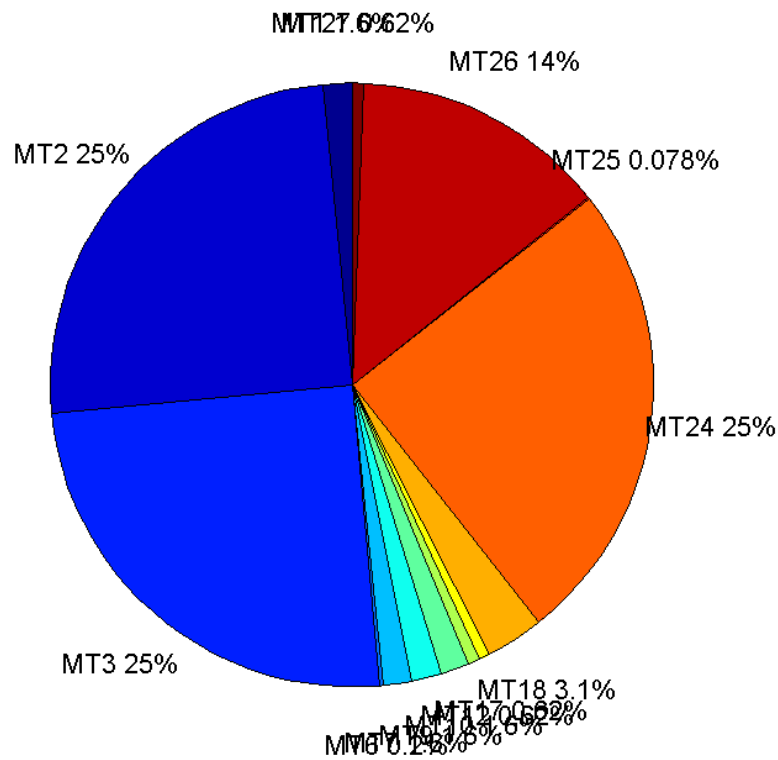
	number of messages	%
MT 0	0	0
MT 1	356	1.55201
MT 2	5724	24.9542
MT 3	5723	24.9499
MT 4	0	0
MT 5	0	0

MT 6	45	0.196181
MT 7	356	1.55201
MT 9	356	1.55201
MT 10	356	1.55201
MT 12	143	0.62342
MT 17	143	0.62342
MT 18	711	3.09966
MT 24	5723	24.9499
MT 25	18	0.0784724
MT 26	3141	13.6934
MT 27	143	0.62342
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	22938	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	71	64.4817	0	0	0
MT 2	4	14	4.00961	12	0	1
MT 3	4	18	4.01031	12	0	1
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5665	500.409	11	11	11
MT 7	64	74	64.4704	0	0	0
MT 9	64	71	64.4817	0	0	0
MT 10	64	73	64.4817	0	0	0
MT 12	152	173	160.754	142	0	0
MT 17	156	173	160.754	0	0	0
MT 18	4	137	32.1676	0	0	0
MT 24	4	18	4.01031	0	0	0
MT 25	87	3482	1151.41	0	0	0
MT 26	4	58	7.30669	0	0	0
MT 27	156	170	160.754	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_23EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_23EGNOS/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: 08:50:35 23.02.2016 (week: 1885 sec: 204635)
end: 15:13:04 23.02.2016 (week: 1885 sec: 227584)
duration: 06:22:30 ..

quality

valid samples 22589

total samples 22950

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	207165	1.98861	9.34537	0.212791	-0.112895	15.3494	0.007355
max normVer	227175	1.50228	10.3262	0.145482	1.5948	14.3493	0.111142
max HPE	215139	23.7467	674.375	0.035213	-5.49512	175.232	0.0313591
max VPE	215139	23.7467	674.375	0.035213	-5.49512	175.232	0.0313591
min HPL	218301	1.13542	8.79392	0.129114	0.367056	15.6191	0.0235005
min VPL	223359	1.13771	9.28715	0.122503	0.328648	12.5651	0.0261556

Position discontinuity events :

#	Epoch	duration	stable period
1	215223	229	10009

APV-I discontinuity events :

#	Epoch	duration	stable period
1	214332	78	8997
2	214420	738	10
3	215223	361	65

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	210197	39	4862
2	210239	1	3
3	210479	156	239
4	214332	78	3697
5	214420	738	10
6	215223	361	65

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	210197	39	4862
2	210239	1	3
3	210479	156	239
4	214332	78	3697
5	214420	738	10

6	215223	361	65
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First Glance analysis

Duration	22950
Number of Samples	22950
Number of invalid sample	361
Number of no position solution samples	447
Number of missing sample	0
Logging Loss	0
Processing Loss	1.573
Number of Misleading Information	0
Data gaps	0
Discontinuities	1

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
22142	21073	20877	0	20877

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.56754	1.5491	1.54445	NaN	1.54445
HPEScale 95%	NaN	5.45753	5.46522	NaN	5.46522
VPE 95%	1.26351	1.2204	1.22261	NaN	1.22261
VPEscale 95%	NaN	3.44712	2.41706	NaN	2.41706

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.980212	0.932888	0.924211	0	0.924211
measurements	0.964793	0.918214	0.909673	0	0.909673
Operational	0.964793	0.918214	0.909673	0	0.909673

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	1	3	6	--	6
Long	1	3	5	--	5
Independent	1	2	4	--	4
P(disc.)	0.000677446	0.00142362	0.00287398	NaN	0.00287398
P(slide)	0.000677446	0.00189816	0.00349667	NaN	0.00349667

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

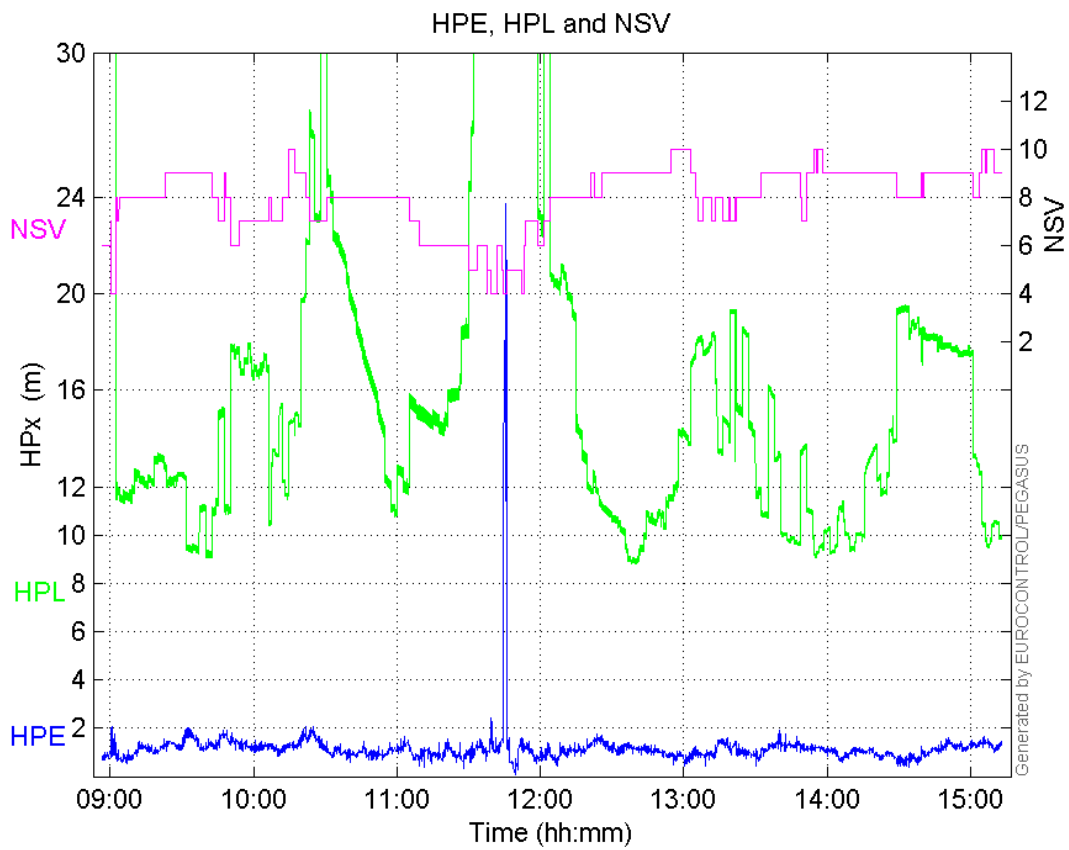
Performance Summary :

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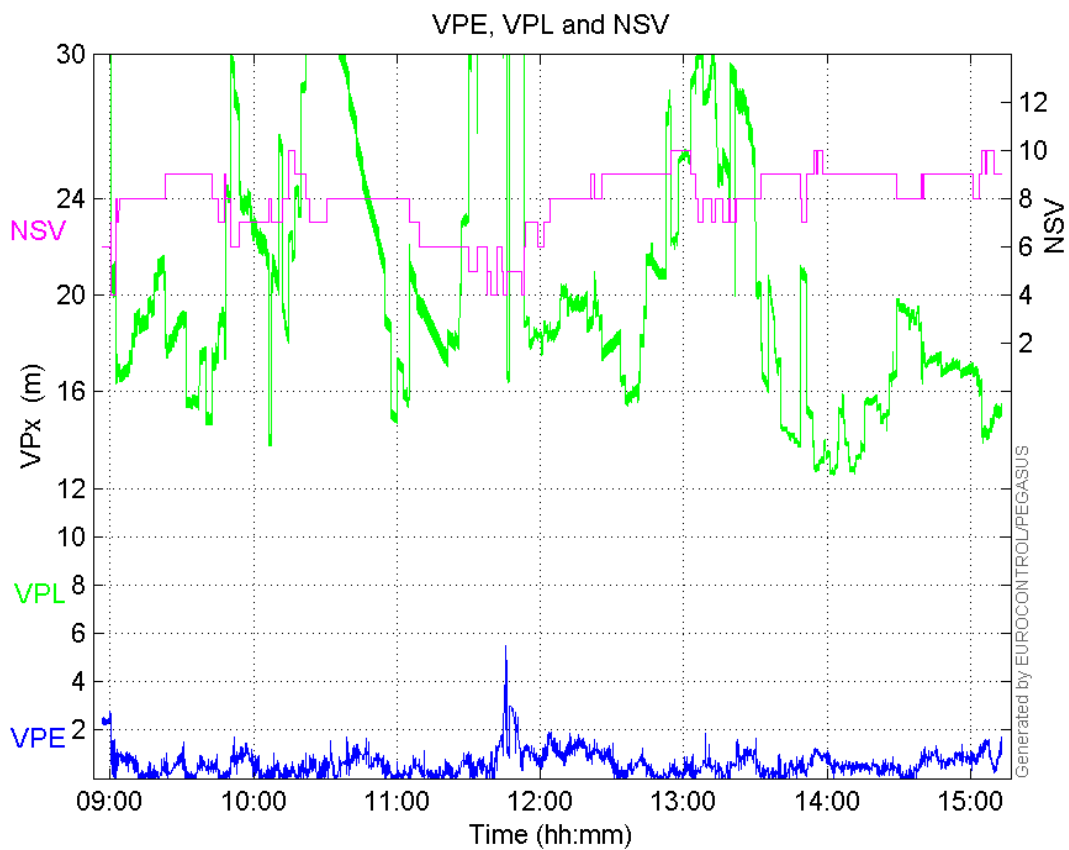
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	22142	21073	20877	0	20877
SIS Availability	0.980212	0.932888	0.924211	0	0.924211
Local Availability	0.964793	0.918214	0.909673	0	0.909673
Operational Availability	0.964793	0.918214	0.909673	0	0.909673
HPE 95%	1.56754	1.5491	1.54445	NaN	1.54445
HPEscale 95%	NaN	5.45753	5.46522	NaN	5.46522
VPE 95%	1.26351	1.2204	1.22261	NaN	1.22261
VPEscale 95%	NaN	3.44712	2.41706	NaN	2.41706
All Discontinuity Events	1	3	6	--	6
Long Discontinuity Events	1	3	5	--	5
Independent Discontinuity Events	1	2	4	--	4
P(discontinuity)	0.000677446	0.00142362	0.00287398	NaN	0.00287398
P(sliding window)	0.000677446	0.00189816	0.00349667	NaN	0.00349667
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:

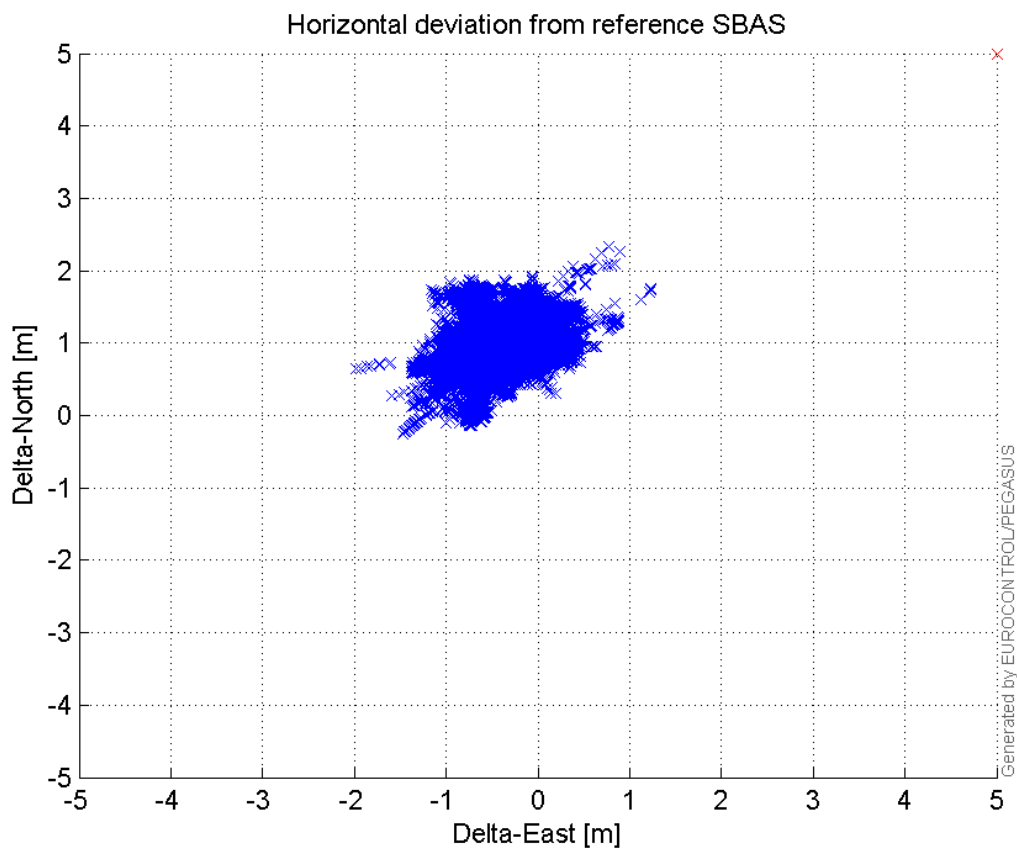


VPE, VPL and NSV:



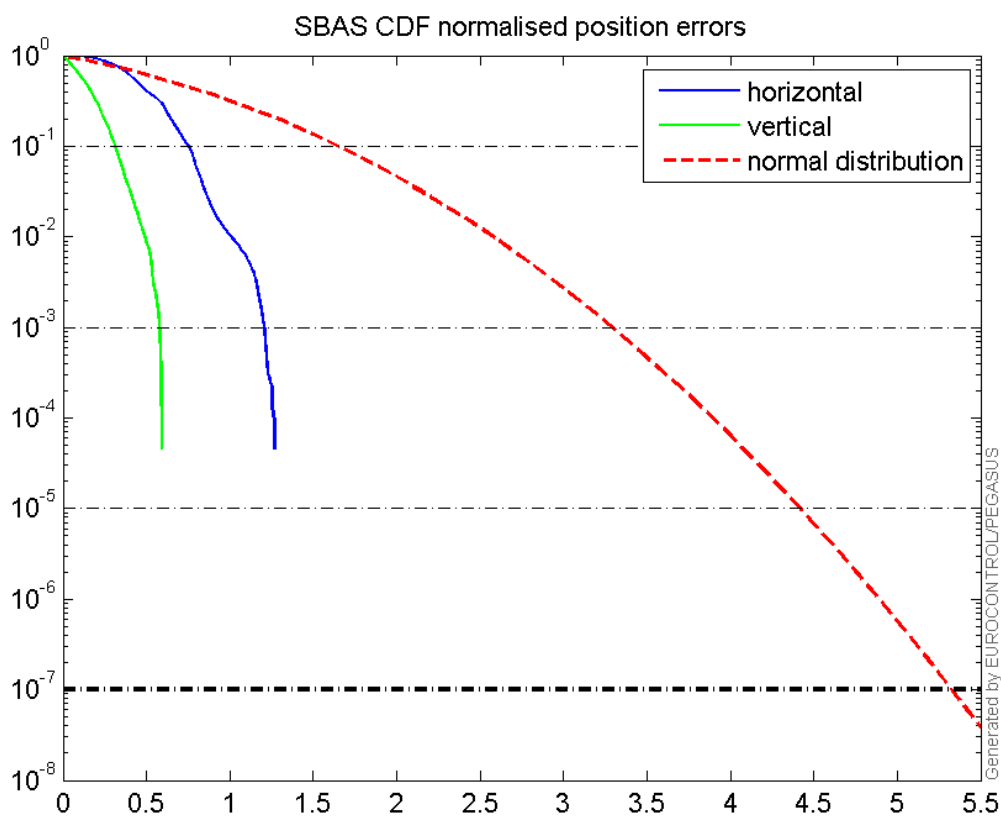
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

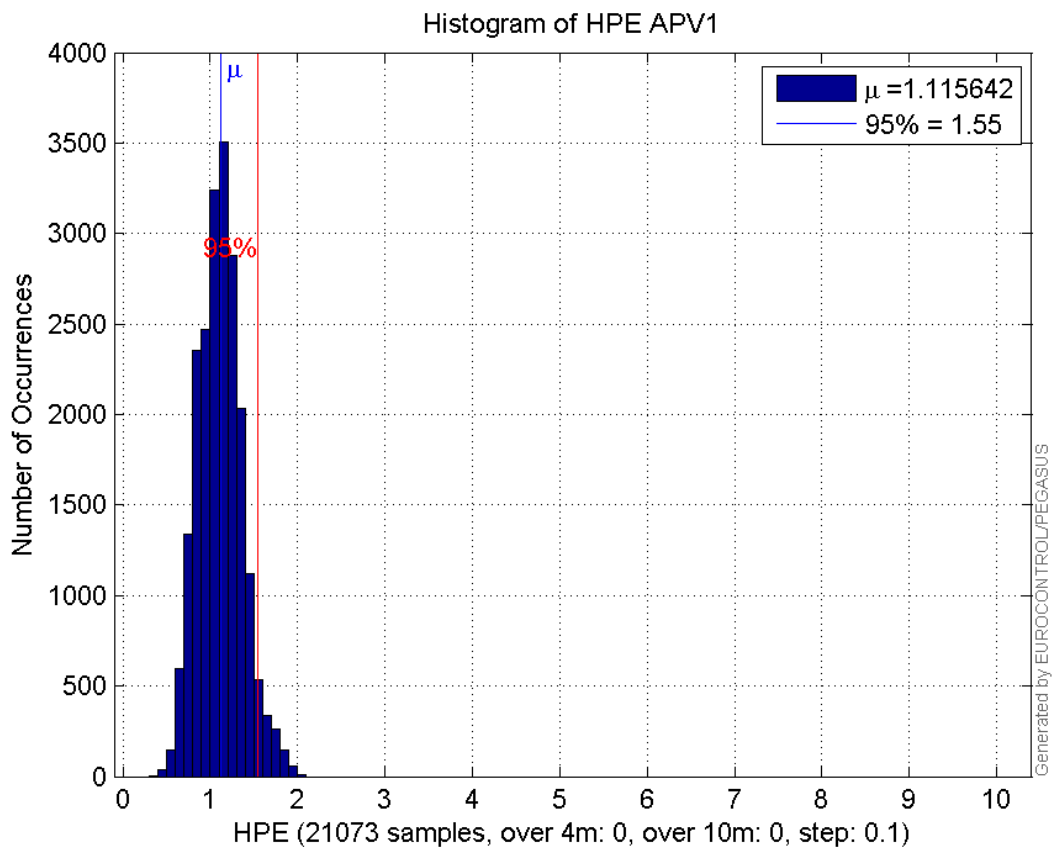
number	21073
sum	23509.922
sum2	27562.666
prctile95	1.5490965
prctile99	1.801238
number	21073
sum	11679.159
sum2	9532.9672
prctile95	1.2204013
prctile99	1.524555
number	21073
sum	317814.67
sum2	5337278.5
prctile95	24.444
prctile99	32.069931
number	21073
sum	425181.87
sum2	9140692.8
prctile95	29.974815
prctile99	34.36947
number	21073
sum	1725.4178
sum2	162.6534
prctile95	0.13643829
prctile99	0.17000972
number	21073
sum	616.22894
sum2	27.889218
prctile95	0.068942302
prctile99	0.092464441
number	20877
sum	23245.99
sum2	27194.163
prctile95	1.5444485
prctile99	1.7921165
number	20877
sum	11593.108
sum2	9483.4915
prctile95	1.2226136
prctile99	1.524746
number	20877
sum	311734.56
sum2	5147975
prctile95	23.267155
prctile99	31.849773
number	20877
sum	417339.44
sum2	8825716.9
prctile95	29.683495

prctile99 32.298549
number 20877
sum 1716.7824
sum2 162.24647
prctile95 0.13663046
prctile99 0.17031329
number 20877
sum 614.03141
sum2 27.856022
prctile95 0.069058922
prctile99 0.09257802

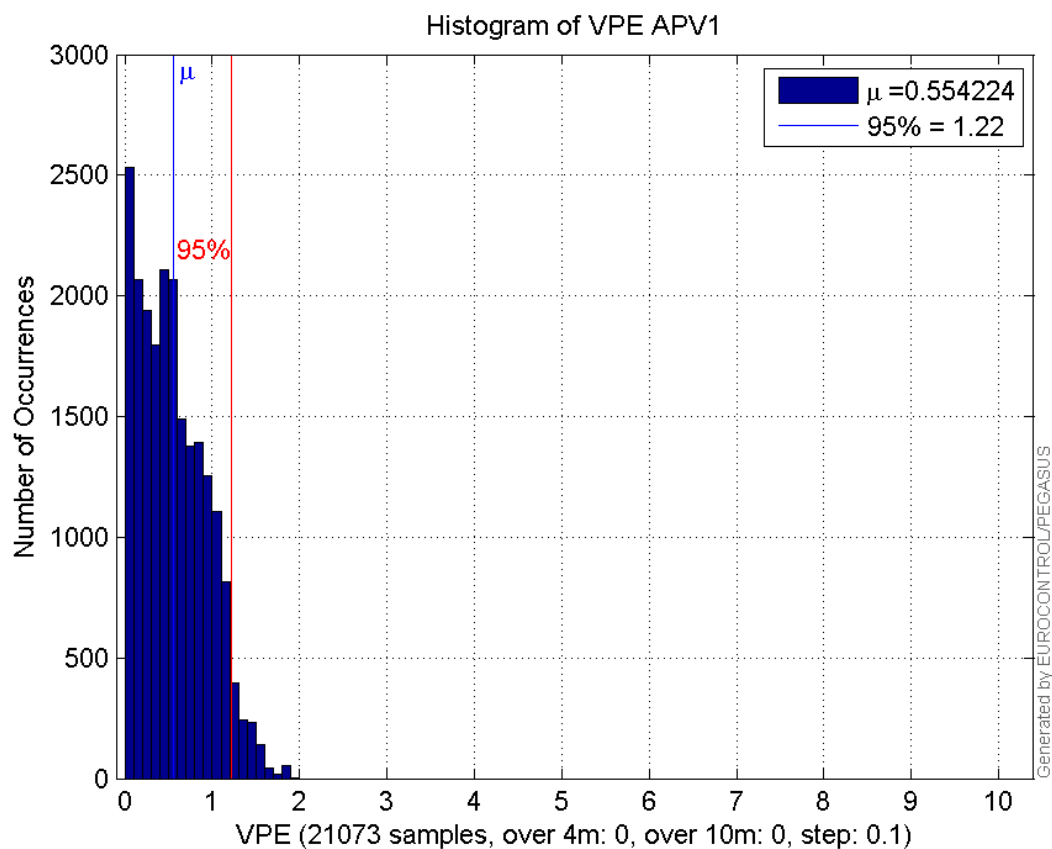
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.11564	0.251609	1.10982	1.5491	1.80124	1.14366
HPL	15.0816	5.08154	14.0792	24.444	32.0699	15.9146
VPE	0.554224	0.381079	0.504357	1.2204	1.52456	0.672591
VPL	20.1766	5.16416	18.8185	29.9748	34.3695	20.827

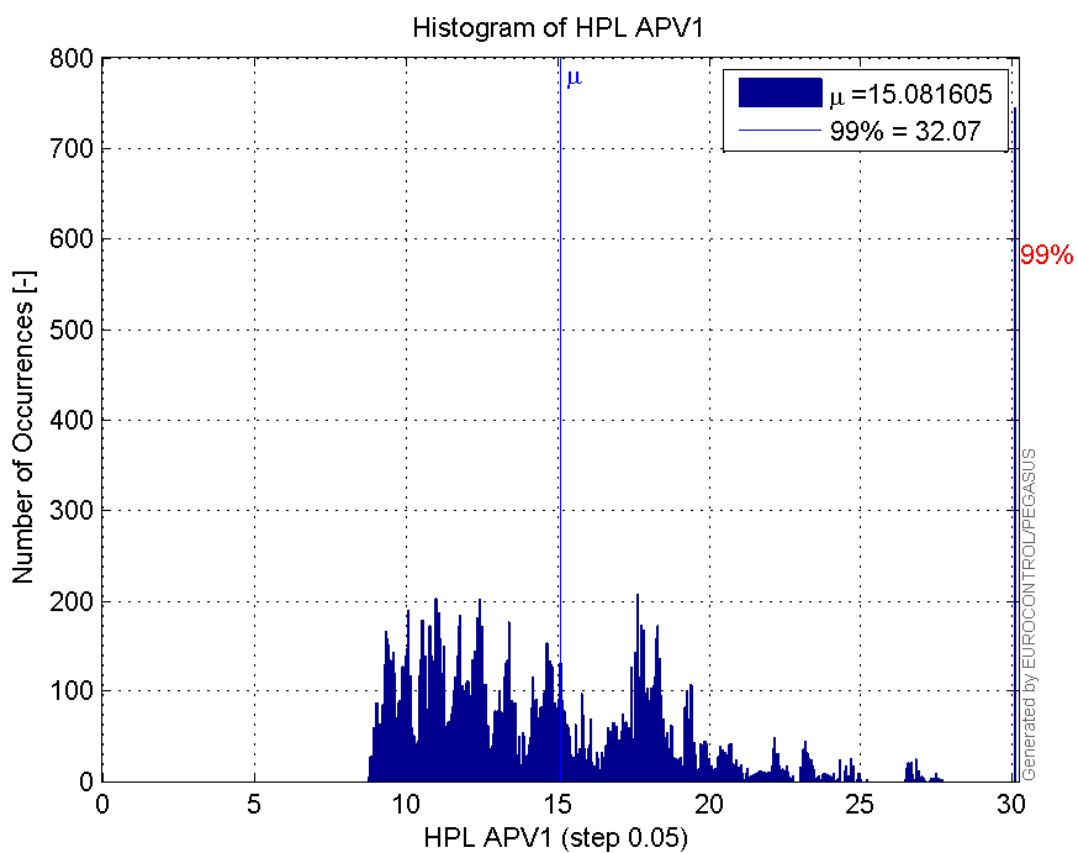
Histogram of HPE APV1:



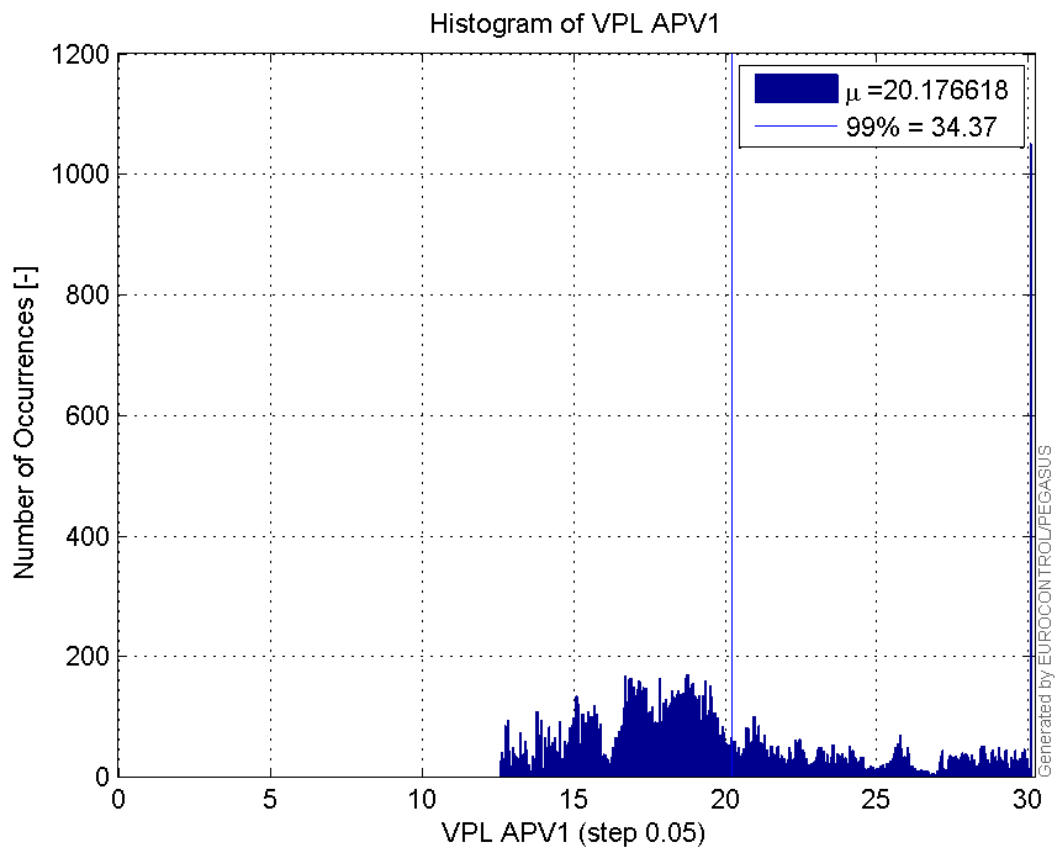
Histogram of VPE APV1:



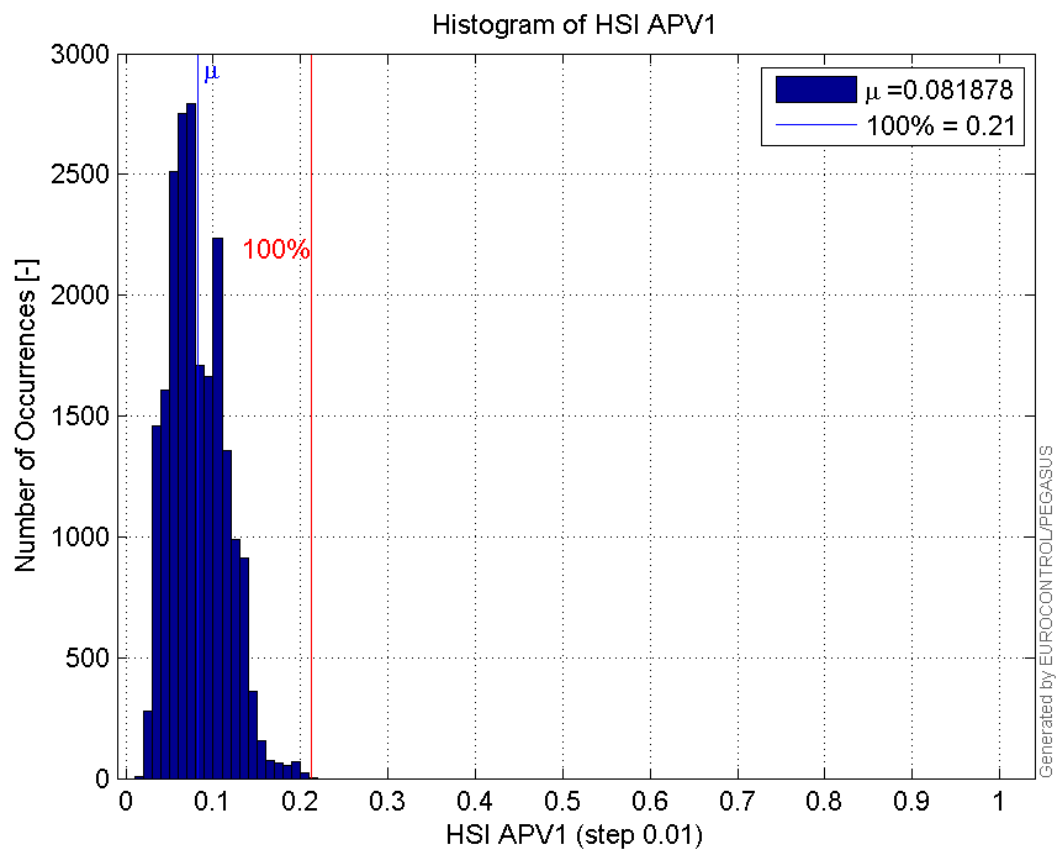
Histogram of HPL APV1:



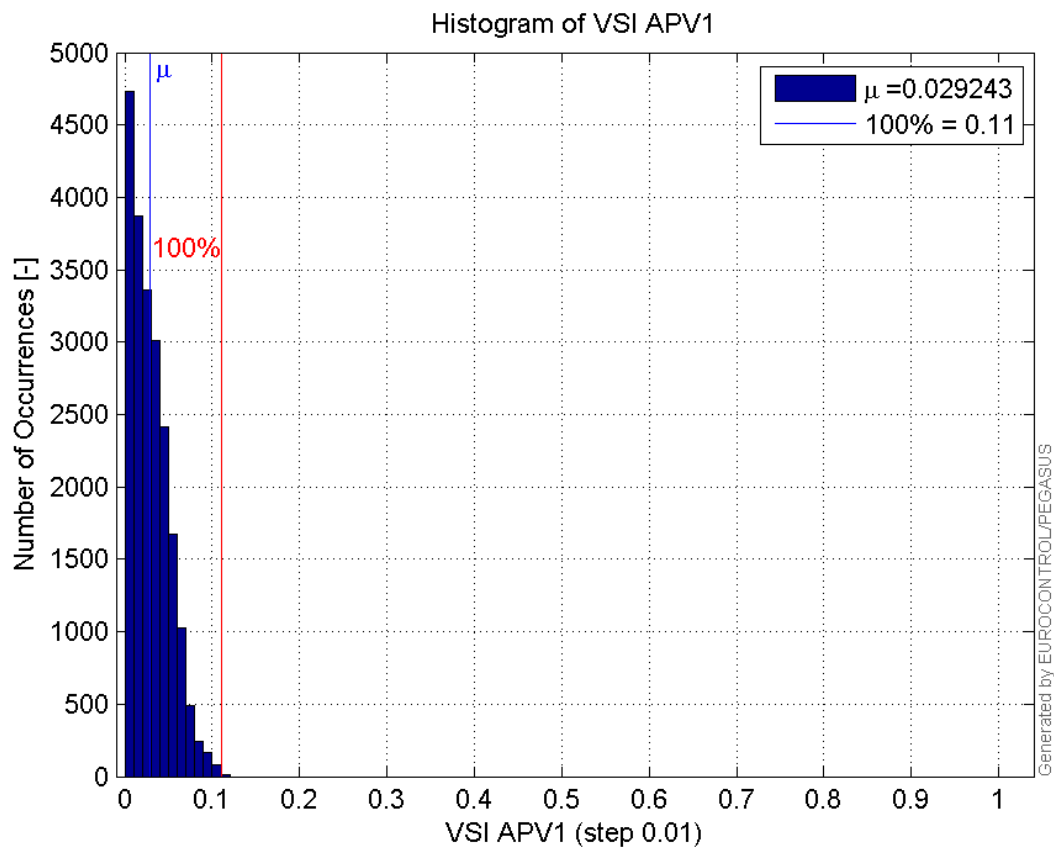
Histogram of VPL APV1:



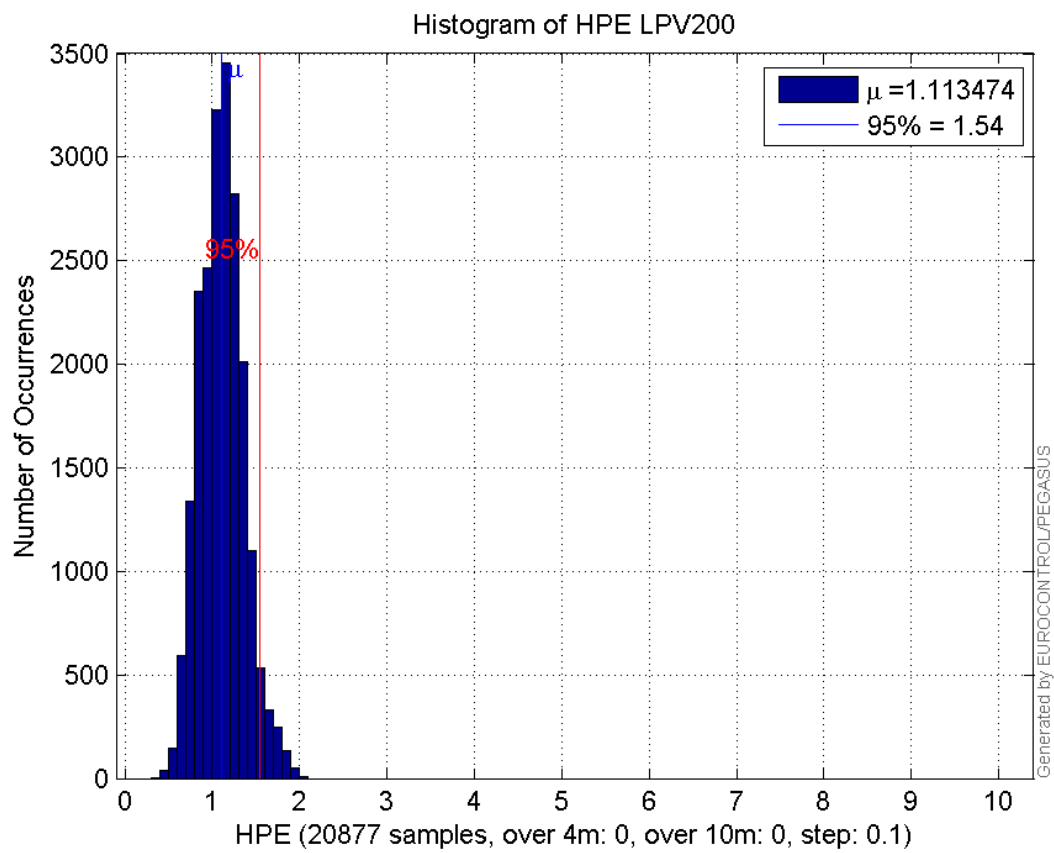
Histogram of HSI APV1:



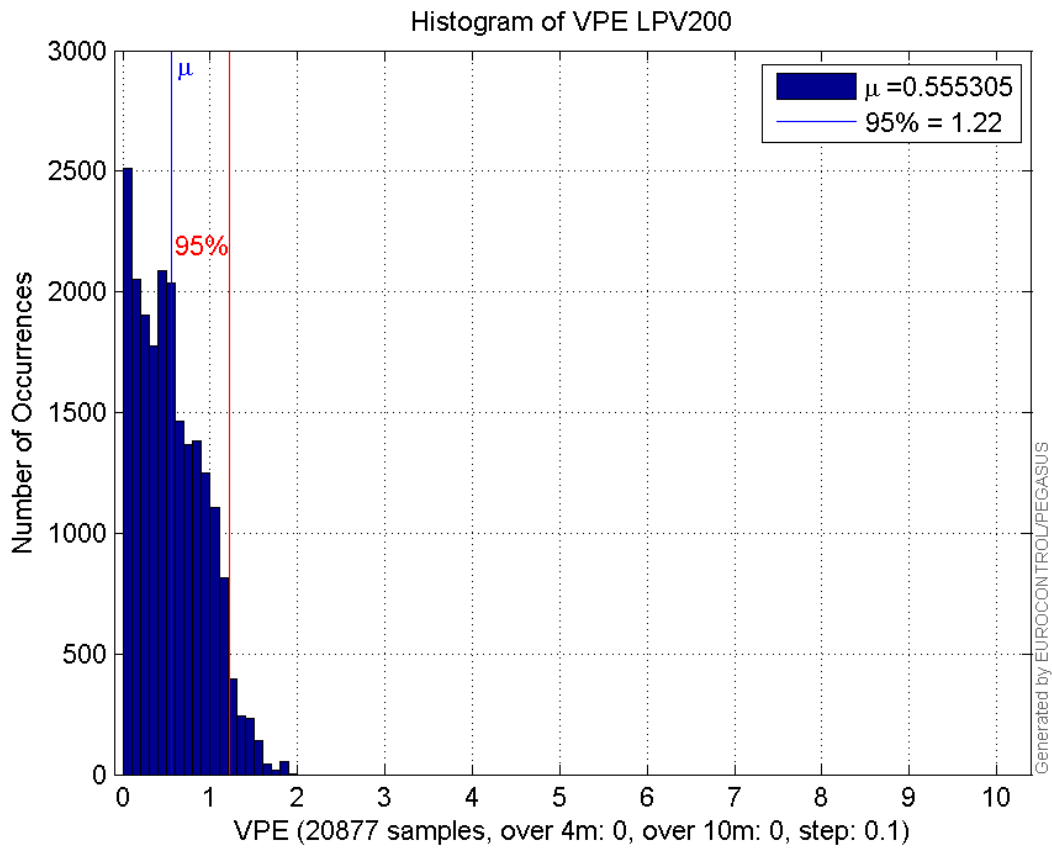
Histogram of VSI APV1:



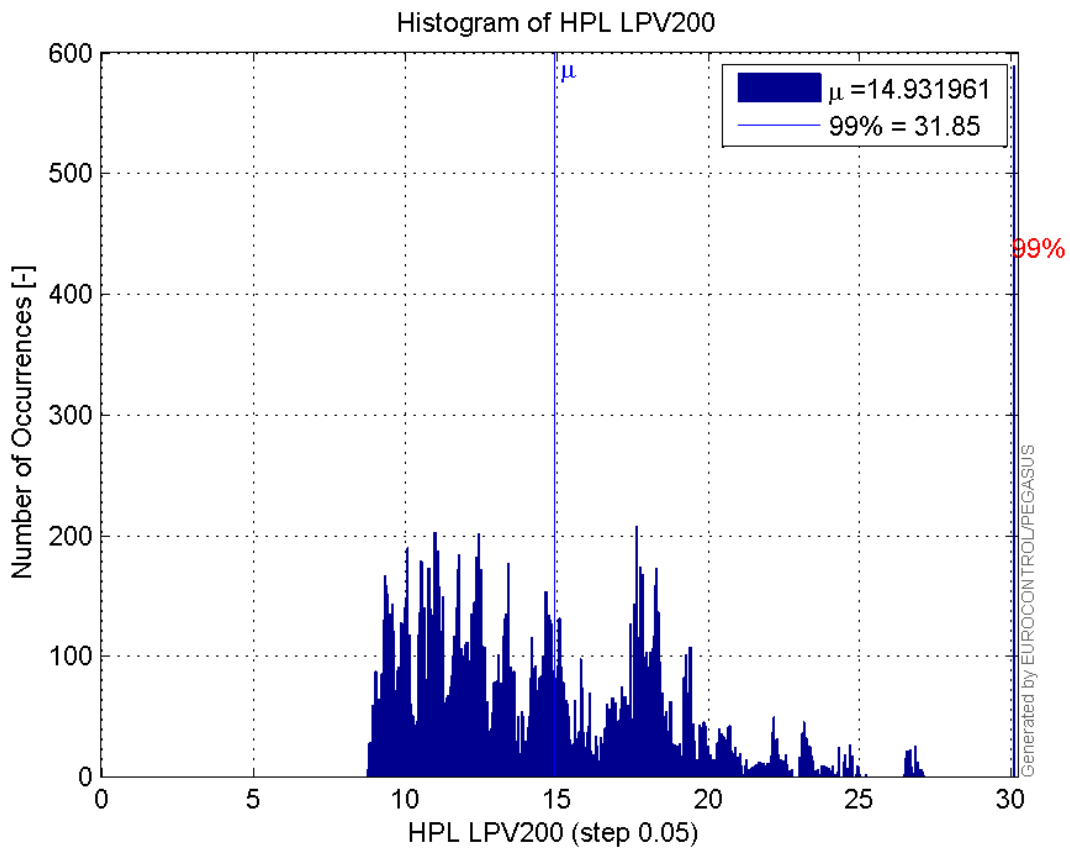
Histogram of HPE LPV200:



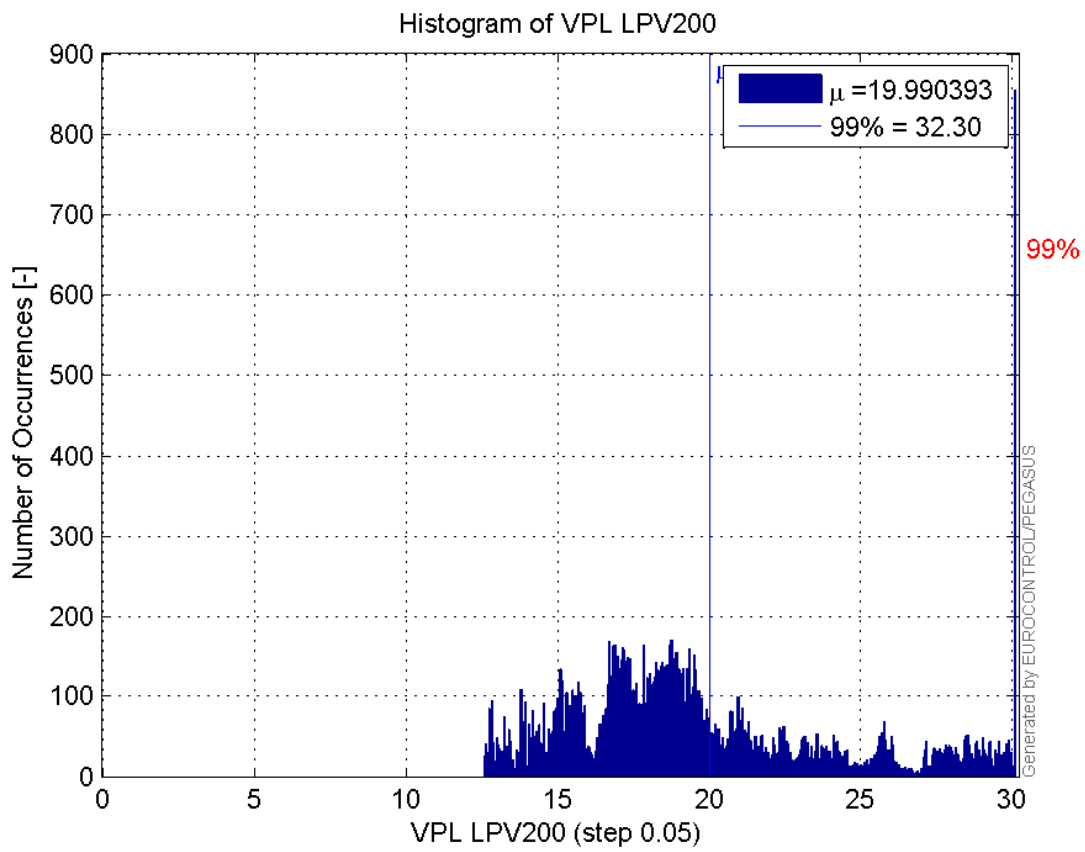
Histogram of VPE LPV200:



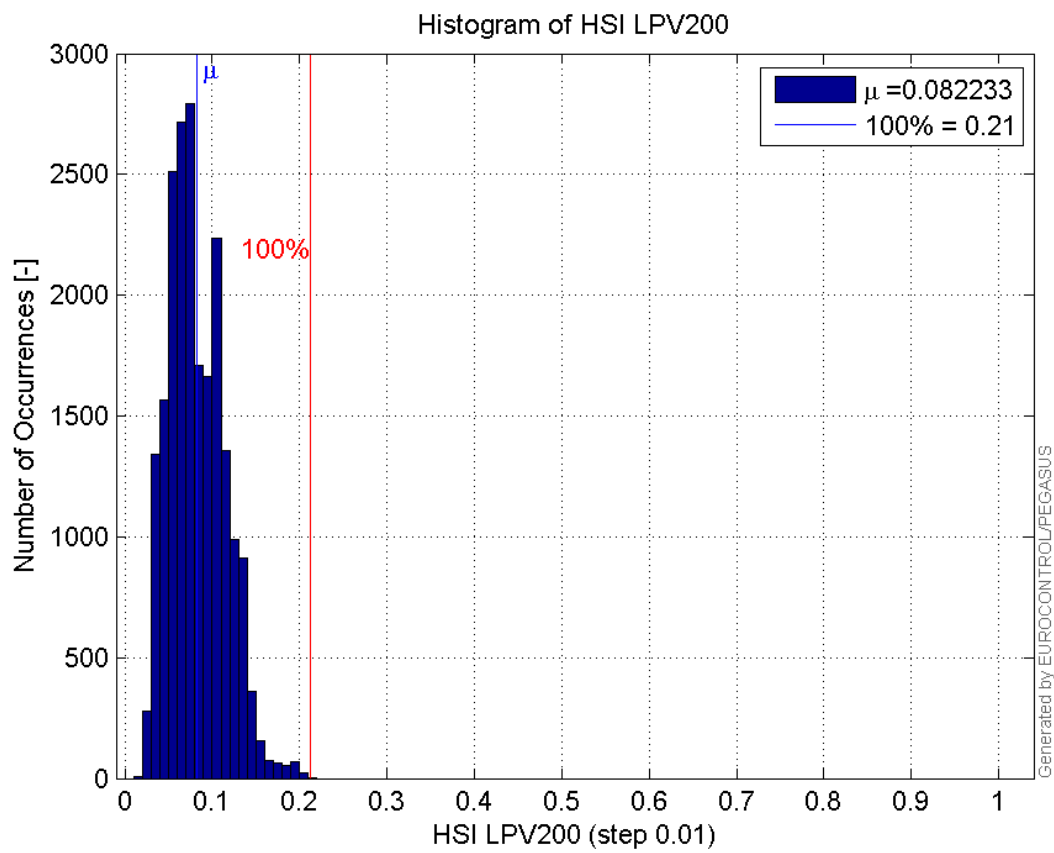
Histogram of HPL LPV200:



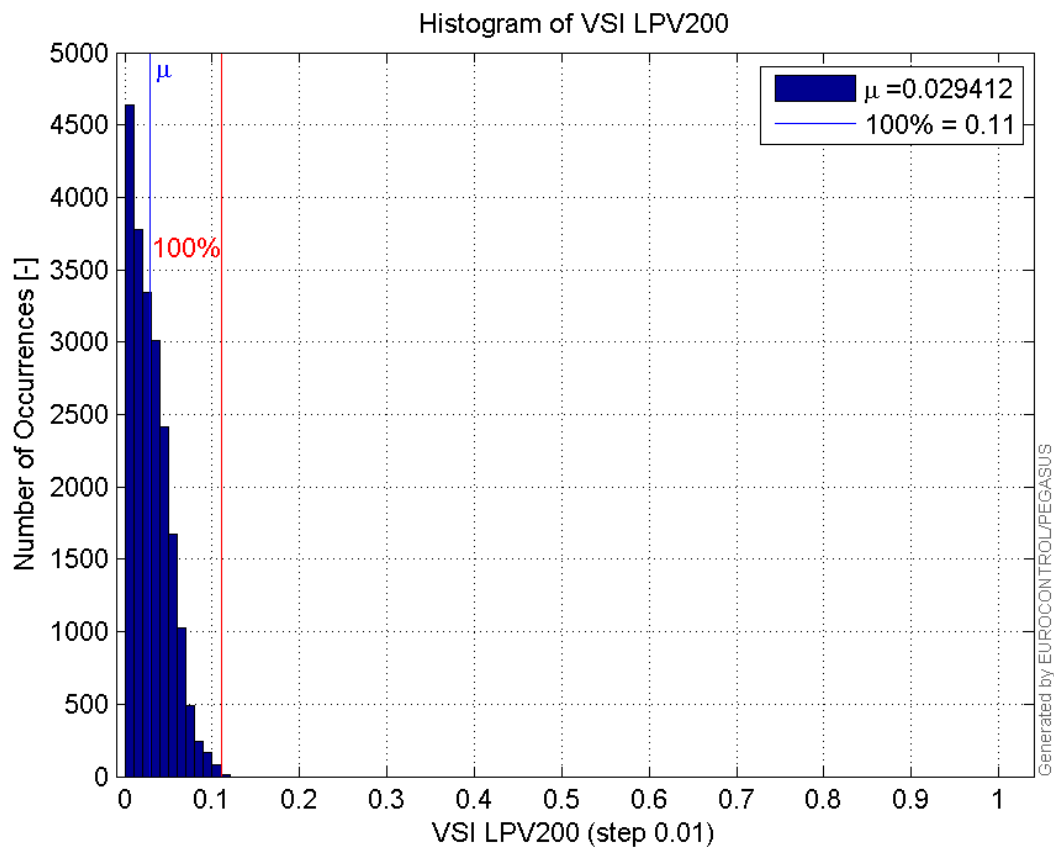
Histogram of VPL LPV200:



Histogram of HSI LPV200:

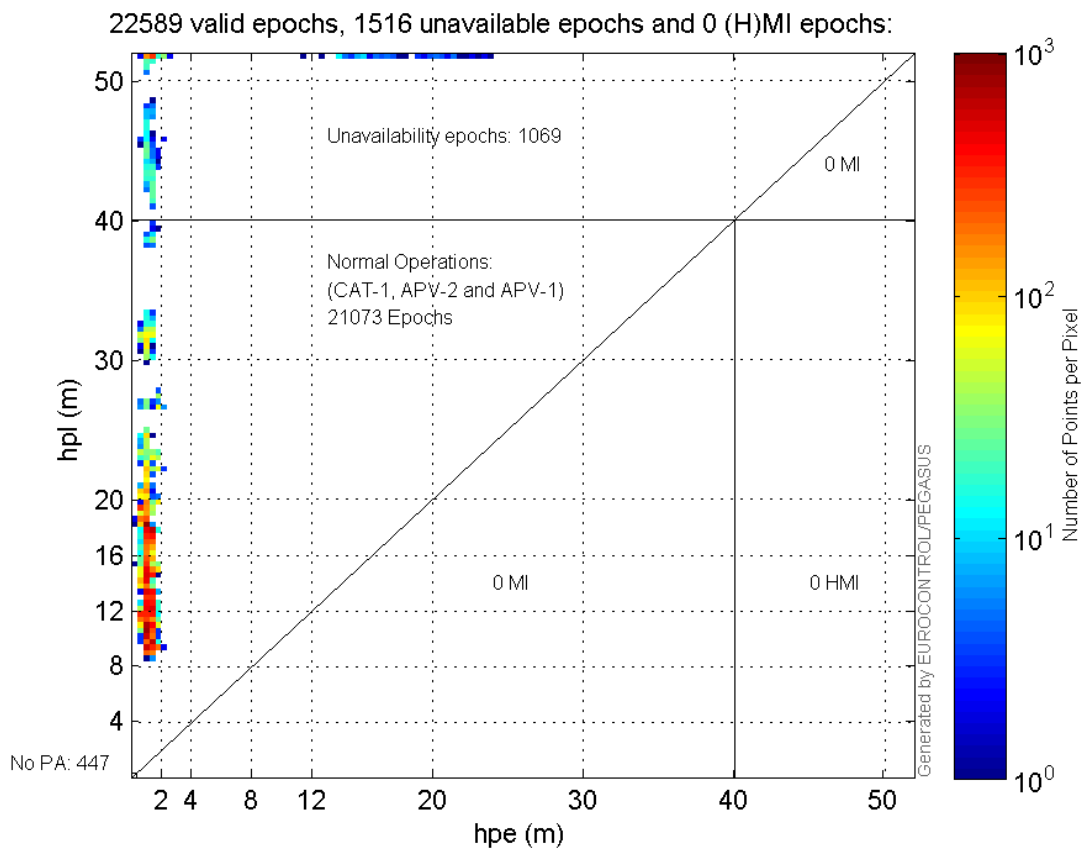


Histogram of VSI LPV200:

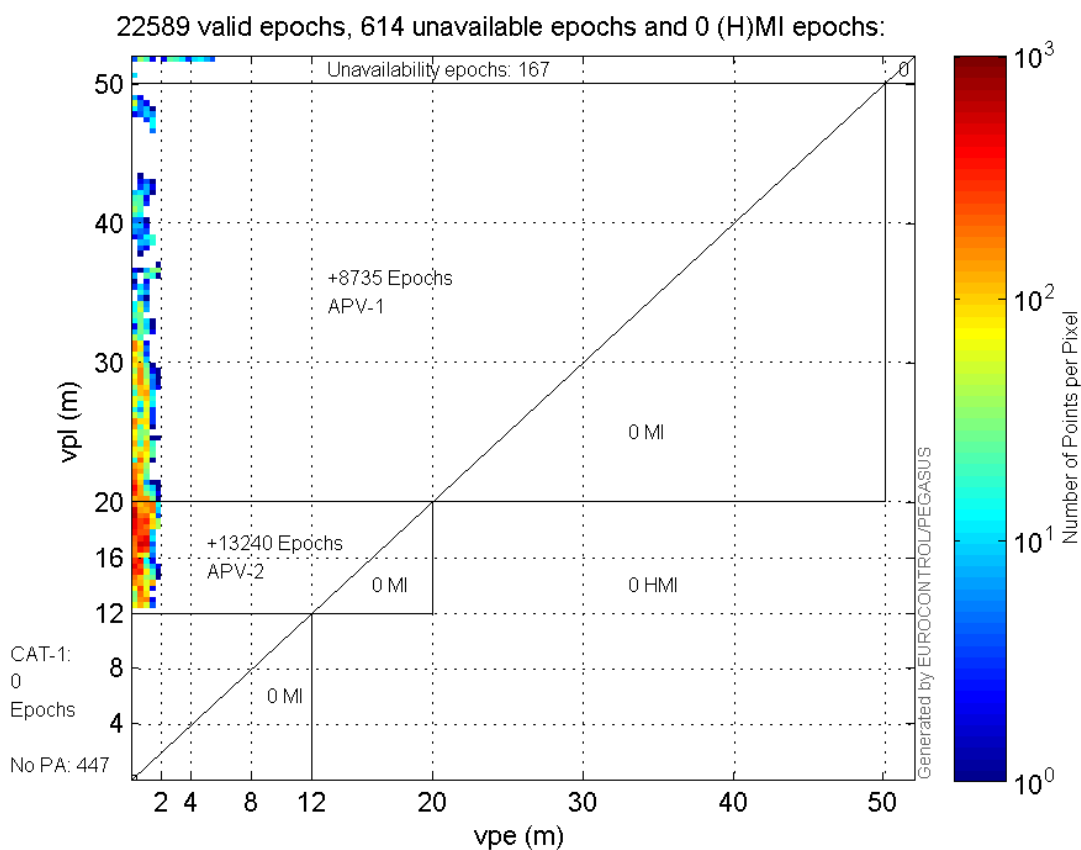


Stanford Plots

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:/PegasusDateGob/job/2016_02_23EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_23EGNOS/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	30.4299
init_alt	results	257.7277
mi_numbers	results	0