

Global View

program Pegasus
 version 4.8.4
 site Laboratory satellite systems
 abbreviation NAU
 country Ukraine
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 date 17/12/2016

SBAS Messages

start: 07:09:4.129 22.11.2016 (week: 1924 sec: 198544.129)
end: 14:19:40.129 22.11.2016 (week: 1924 sec: 224380.129)
duration: 07:10:36 ..

quality

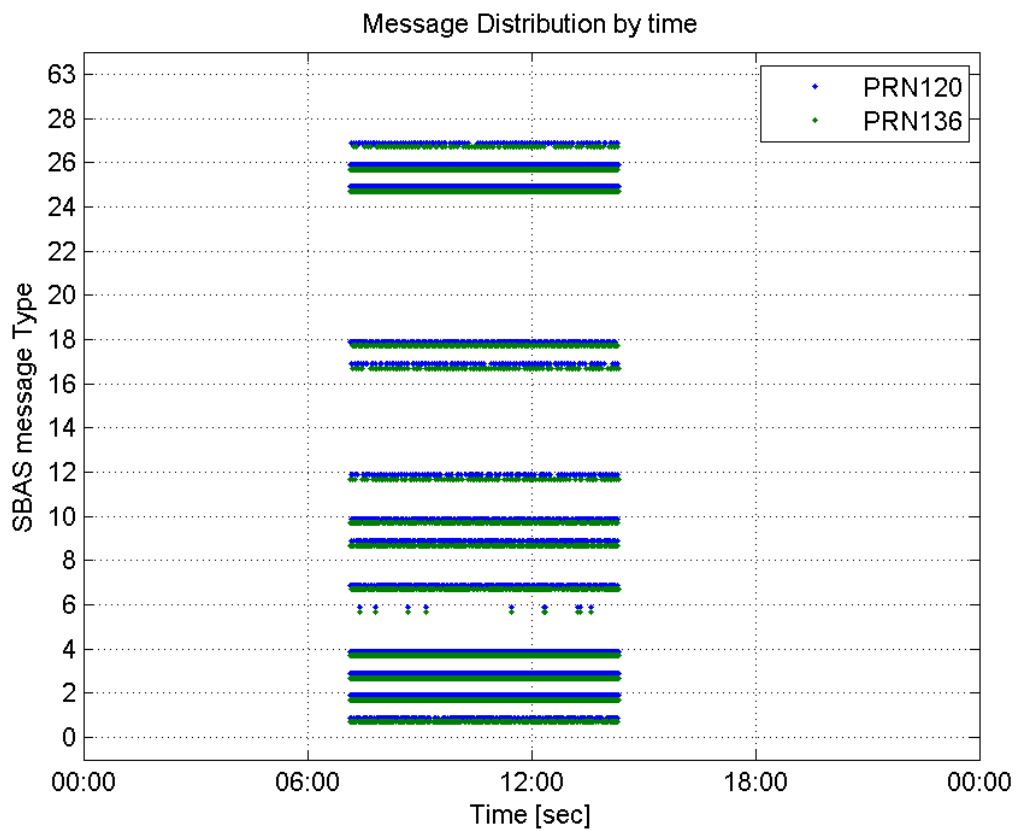
valid samples 39685
total samples 39685
number of SBAS PRNs 2

SBAS SIS Overview

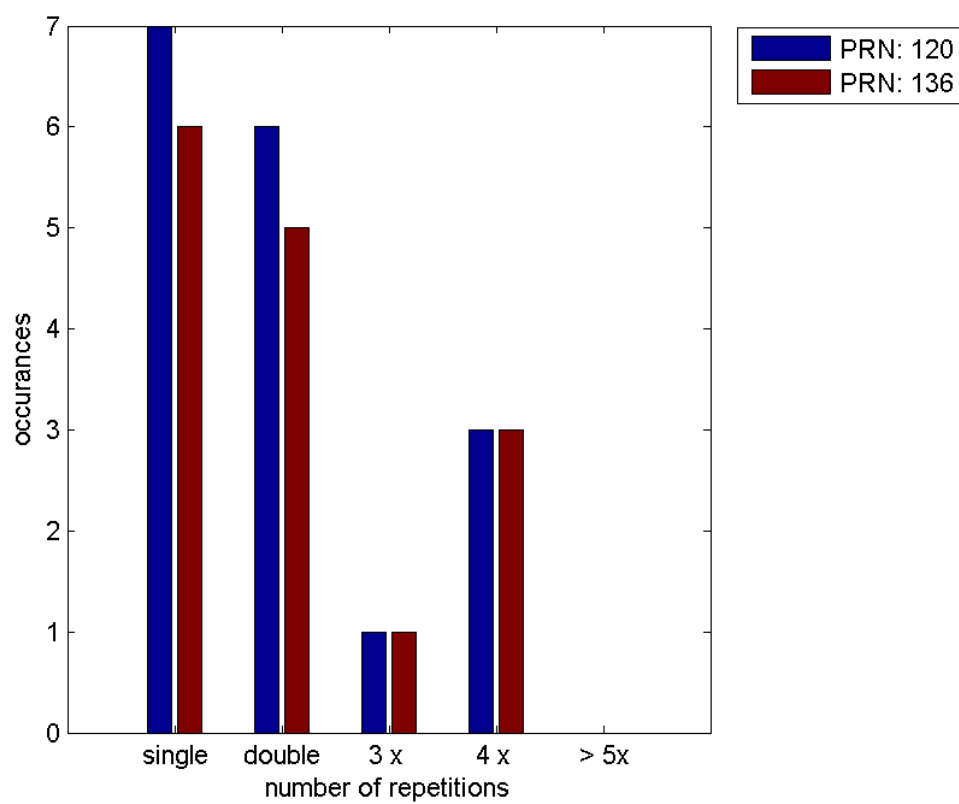
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	7	6	1	3	0
PRN 136	6	5	1	3	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

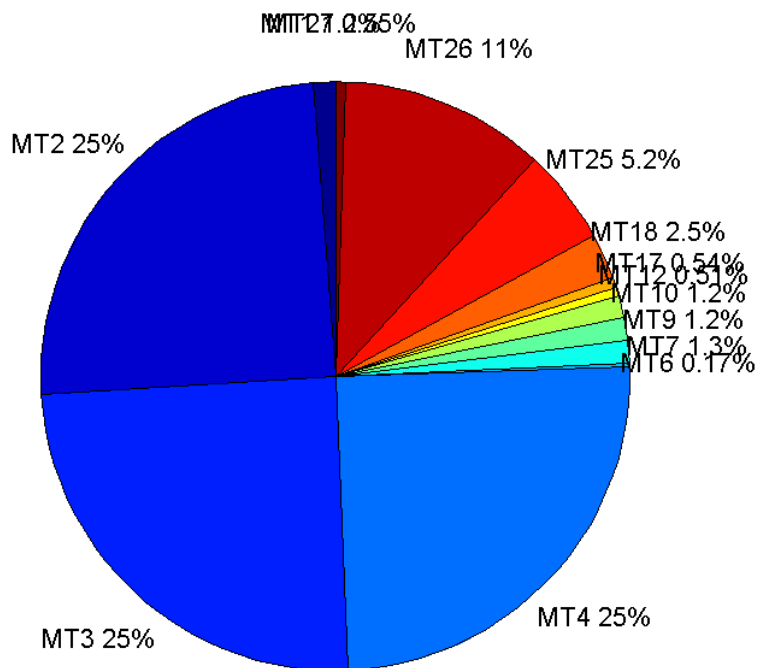
	number of messages	%
MT 0	0	0
MT 1	244	1.22398
MT 2	4932	24.7404
MT 3	4922	24.6902
MT 4	4957	24.8658
MT 5	0	0
MT 6	34	0.170554
MT 7	256	1.28417
MT 9	243	1.21896
MT 10	239	1.1989
MT 12	101	0.506647
MT 17	108	0.541761
MT 18	492	2.46802
MT 24	0	0
MT 25	1044	5.23702
MT 26	2254	11.3067
MT 27	109	0.546777
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19935	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	480	106.058	50	0	0
MT 2	4	56	5.23809	1347	1	12
MT 3	4	53	5.24954	1356	1	21
MT 4	4	57	5.21308	1342	1	17
MT 5	--	--	--	--	--	--
MT 6	1	8232	672.636	10	9	10
MT 7	75	319	101.071	60	0	2
MT 9	76	400	106.19	0	0	0
MT 10	75	321	107.975	56	0	10
MT 12	188	778	256.65	100	24	24
MT 17	185	786	239.86	0	0	0
MT 18	4	192	51.9308	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	132	24.7651	0	0	0
MT 26	1	70	11.4558	0	0	0
MT						

27	188	979	237.611	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

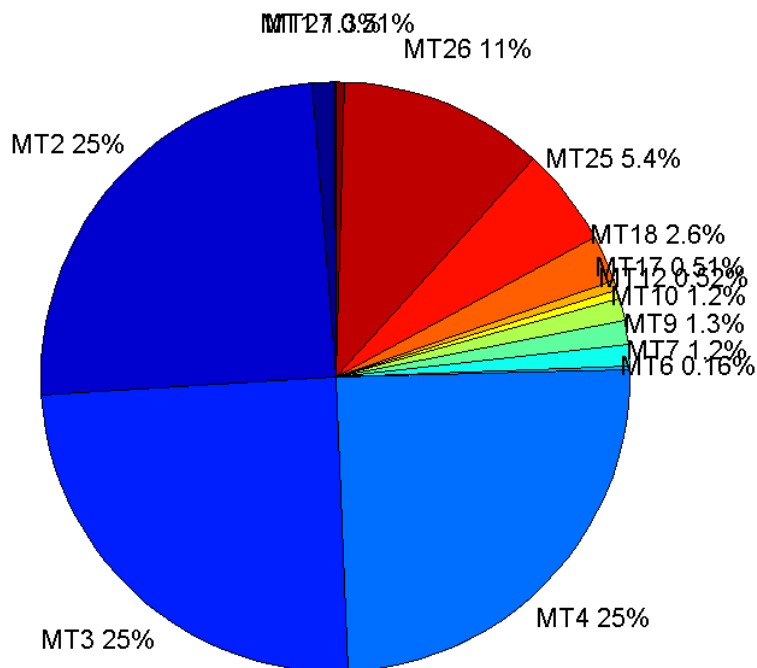
	number of messages	%
MT 0	0	0
MT 1	250	1.26582
MT 2	4874	24.6785
MT 3	4885	24.7342
MT 4	4886	24.7392
MT 5	0	0
MT 6	32	0.162025
MT 7	235	1.18987
MT 9	254	1.28608
MT 10	238	1.20506
MT 12	103	0.521519
MT 17	100	0.506329

MT 18	509	2.57722
MT 24	0	0
MT 25	1058	5.35696
MT 26	2225	11.2658
MT 27	101	0.511392
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19750	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	103.486	50	0	0
MT 2	4	17	5.30002	1400	0	20
MT 3	4	17	5.28993	1413	0	17
MT 4	4	20	5.28762	1417	1	9
MT 5	--	--	--	--	--	--
MT 6	1	8232	716	10	9	10
MT 7	76	322	109.782	64	0	7
MT 9	76	320	101.909	0	0	0
MT 10	75	320	108.722	65	0	7
MT 12	186	797	253.147	102	21	21
MT 17	190	788	258.879	0	0	0
MT 18	4	196	50.4783	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	140	24.4314	0	0	0
MT 26	1	80	11.598	0	0	0
MT 27	184	975	254.31	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:/PegasusDataJob/job/2016_11_22EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDataJob/job/2016_11_22EGNOS2Hz/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: 07:09:04 22.11.2016 (week: 1924 sec: 198544)
end: 14:19:41 22.11.2016 (week: 1924 sec: 224381)
duration: 07:10:38 ..

quality

valid samples 46662
total samples 47328

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (33)
APV-35m discontinuity events type too many (39)
LPV-200 discontinuity events type too many (39)
CAT-I discontinuity events type independent

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	213388	1.73224	9.21996	0.187879	0.49306	13.7112	0.0359604
max normVer	201578	1.1017	21.4514	0.0513579	2.15891	13.2188	0.163321
max HPE	200032	17.5112	339.35	0.0516022	13.4399	213.391	0.0629824
max VPE	200032	17.5112	339.35	0.0516022	13.4399	213.391	0.0629824
min HPL	218029	1.01605	7.96767	0.127521	-0.395209	14.6826	0.0269168
min VPL	213043	1.03964	8.5697	0.121316	-0.0806227	11.2277	0.00718069

Position discontinuity events :

#	Epoch	duration	stable period
1	199381	5.5	476
2	201789	5.5	102.5
3	202497	5.5	65
4	211596	182.5	106
5	223349	30.5	174
6	224199	48.5	407.5

First Glance analysis

Duration 25838
Number of Samples 47328
Number of invalid sample 666
Number of no position solution samples 762
Number of missing sample 4348
Logging Loss 8.414
Processing Loss 1.4072
Number of Misleading Information 0
Data gaps 14
Discontinuities 61

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
45900	40583	39718	723	39718

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.87513	1.78309	1.78093	1.21283	1.78093
HPEscale 95%	NaN	5.48009	5.50946	4.66506	5.50946
VPE 95%	1.8438	1.64633	1.64917	0.340293	1.64917
VPEscale 95%	NaN	4.31162	3.03591	0.346667	3.03591

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.98367	0.869723	0.851185	0.0154944	0.851185
measurements	0.969828	0.857484	0.839207	0.0152764	0.839207
Operational	1.77645	1.57067	1.53719	0.027982	1.53719

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	47	144	203	102	203
Long	6	42	58	37	58
Independent	6	33	39	0	39
P(disc.)	0.00196078	0.0121972	0.0147288	0	0.0147288
P(slide)	0.0152614	0.0474337	0.062201	0.571923	0.062201

Integrity events :

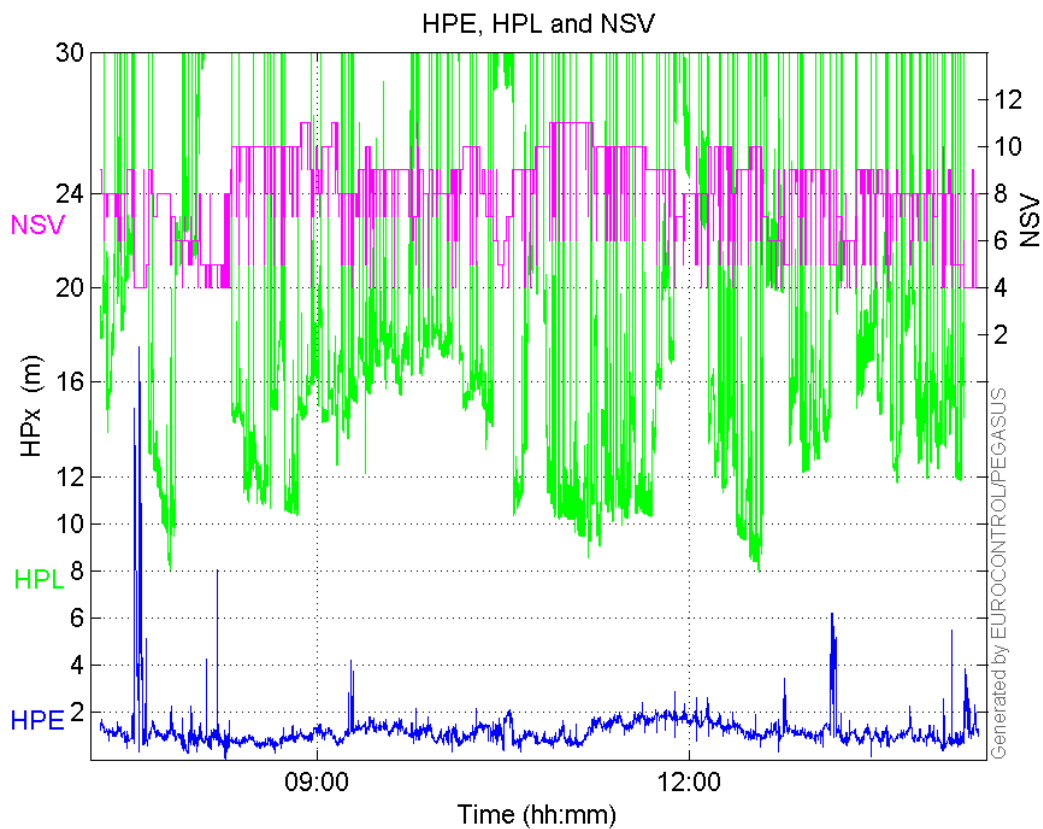
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

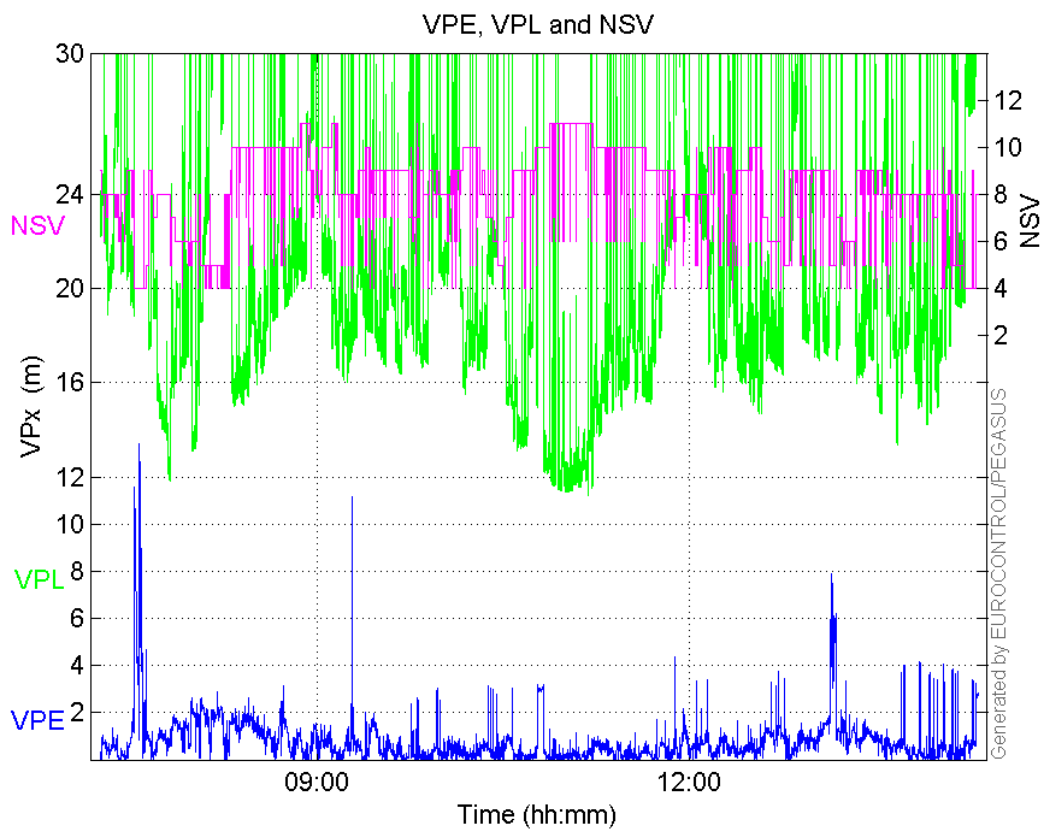
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	45900	40583	39718	723	39718
SIS Availability	0.98367	0.869723	0.851185	0.0154944	0.851185
Local Availability	0.969828	0.857484	0.839207	0.0152764	0.839207
Operational Availability	1.77645	1.57067	1.53719	0.027982	1.53719
HPE 95%	1.87513	1.78309	1.78093	1.21283	1.78093
HPEScale 95%	NaN	5.48009	5.50946	4.66506	5.50946
VPE 95%	1.8438	1.64633	1.64917	0.340293	1.64917
VPEscale 95%	NaN	4.31162	3.03591	0.346667	3.03591
All Discontinuity Events	47	144	203	102	203
Long Discontinuity Events	6	42	58	37	58
Independent Discontinuity Events	6	33	39	0	39
P(discontinuity)	0.00196078	0.0121972	0.0147288	0	0.0147288
P(sliding window)	0.0152614	0.0474337	0.062201	0.571923	0.062201
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:

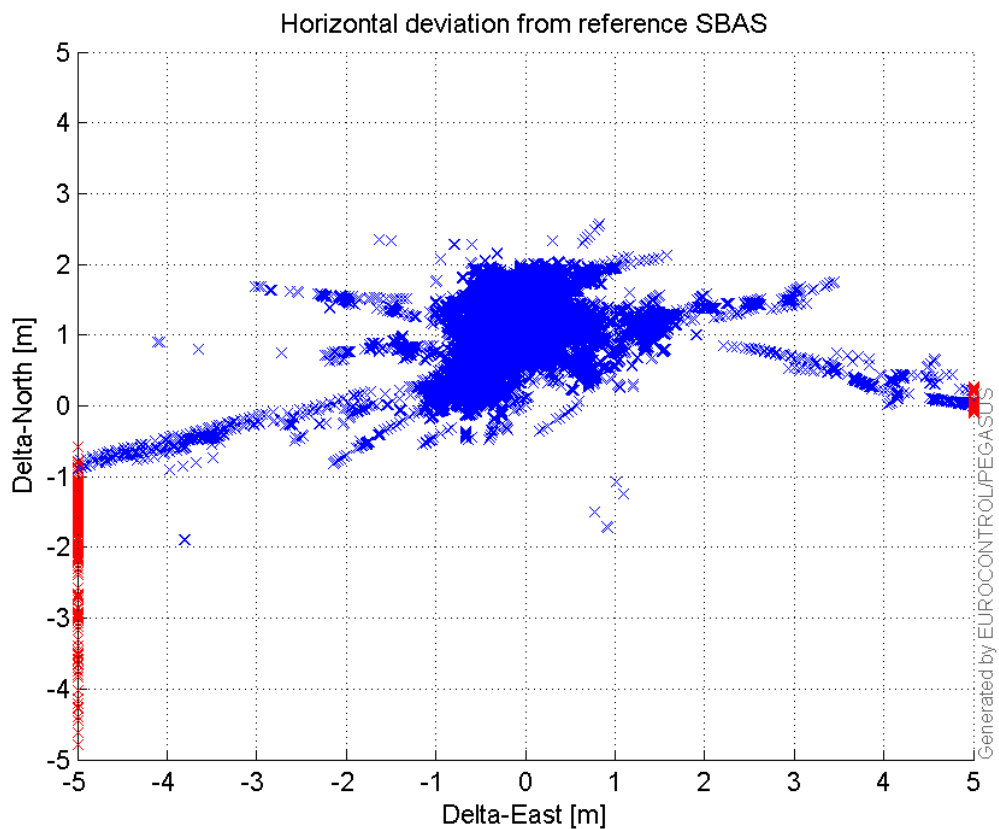


VPE, VPL and NSV:



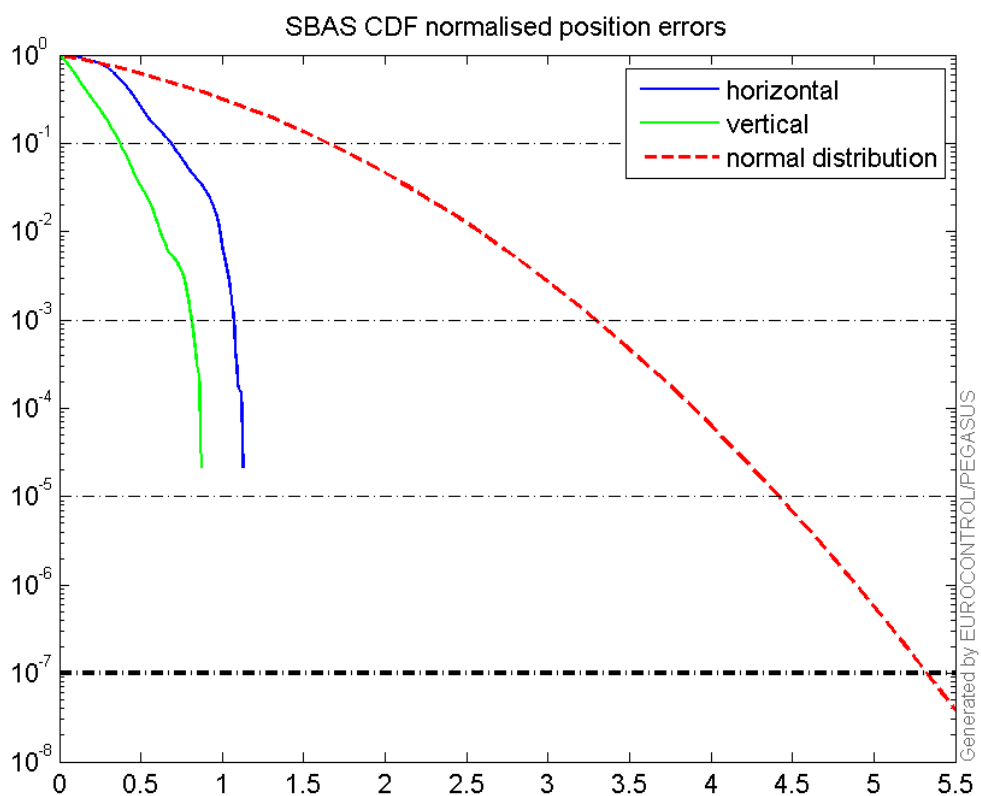
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

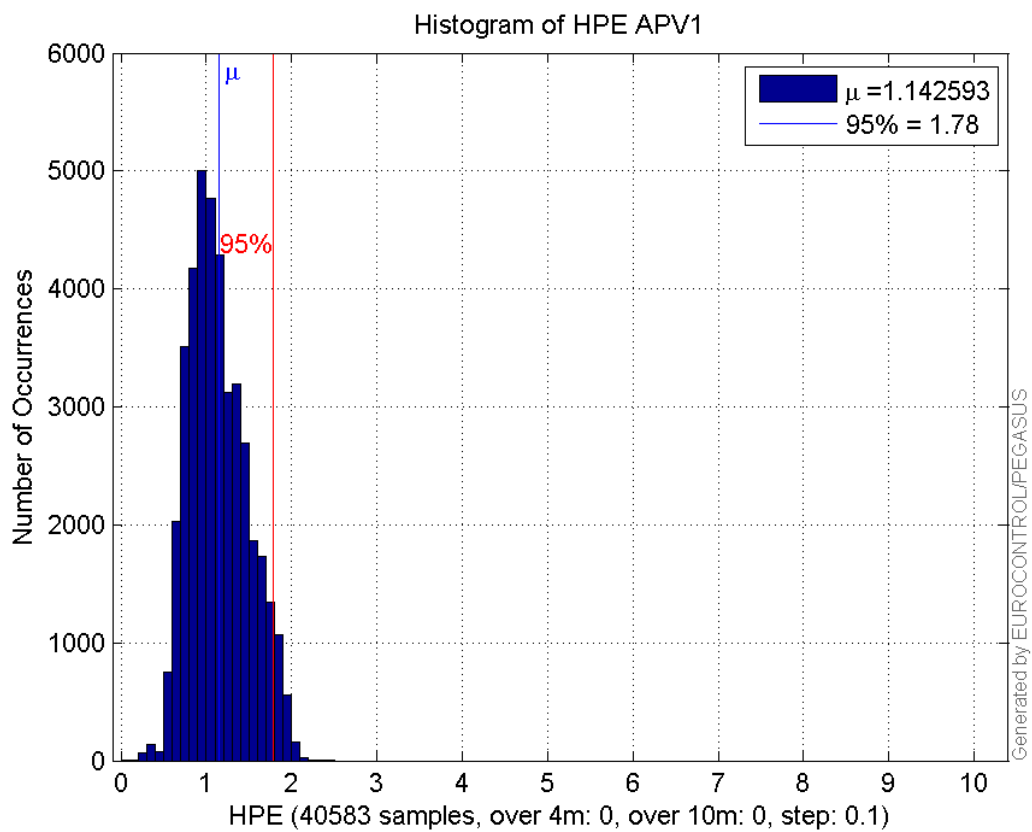
number	40583
sum	46369.838
sum2	57748.118
prctile95	1.78309
prctile99	1.9428031
number	40583
sum	25411.761
sum2	26163.886
prctile95	1.646335
prctile99	2.0951983
number	40583
sum	698347.45
sum2	13750775
prctile95	31.96328
prctile99	38.187535
number	40583
sum	799011.84
sum2	16767191
prctile95	30.59998
prctile99	37.138048
number	40583
sum	2987.9936
sum2	258.74122
prctile95	0.1370022
prctile99	0.16501957
number	40583
sum	1333.7519
sum2	74.297967
prctile95	0.086232463
prctile99	0.11664695
number	39718
sum	45348.253
sum2	56302.641
prctile95	1.780932
prctile99	1.9404757
number	39718
sum	24936.637
sum2	25757.428
prctile95	1.6491665
prctile99	2.0971869
number	39718
sum	670094.67
sum2	12781472
prctile95	30.66102
prctile99	37.058004
number	39718
sum	766221.67
sum2	15517220
prctile95	27.41726
prctile99	33.370692
number	39718
sum	2954.4212
sum2	257.12434

prctile95 0.13773645
prctile99 0.16511276
number 39718
sum 1321.3223
sum2 74.03062
prctile95 0.086740216
prctile99 0.11695474

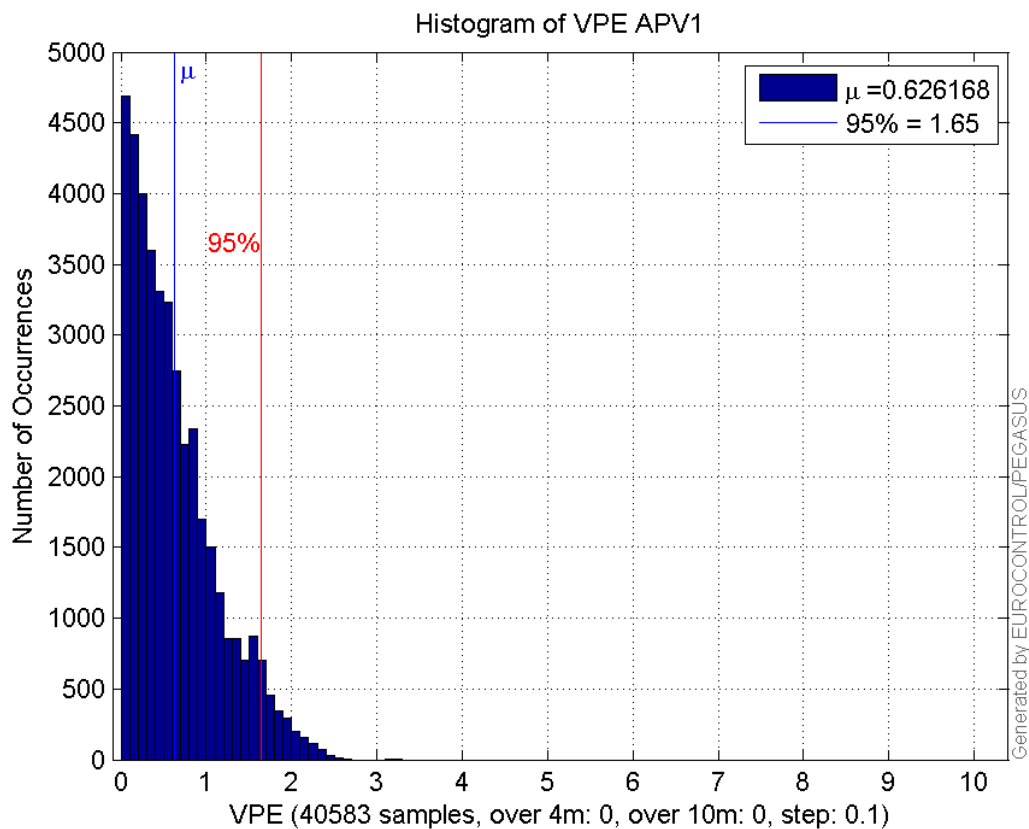
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.14259	0.342707	1.09456	1.78309	1.9428	1.19288
HPL	17.2079	6.53611	15.7279	31.9633	38.1875	18.4074
VPE	0.626168	0.502614	0.508156	1.64633	2.0952	0.802933
VPL	19.6883	5.05252	18.6238	30.6	37.138	20.3263

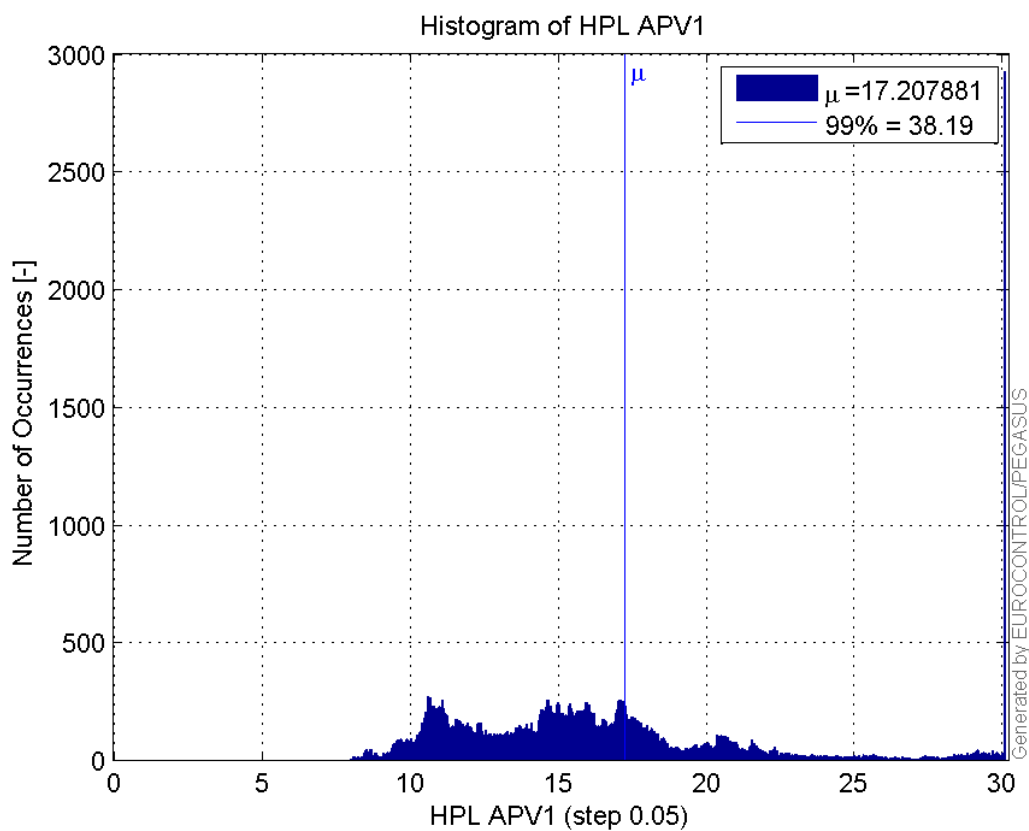
Histogram of HPE APV1:



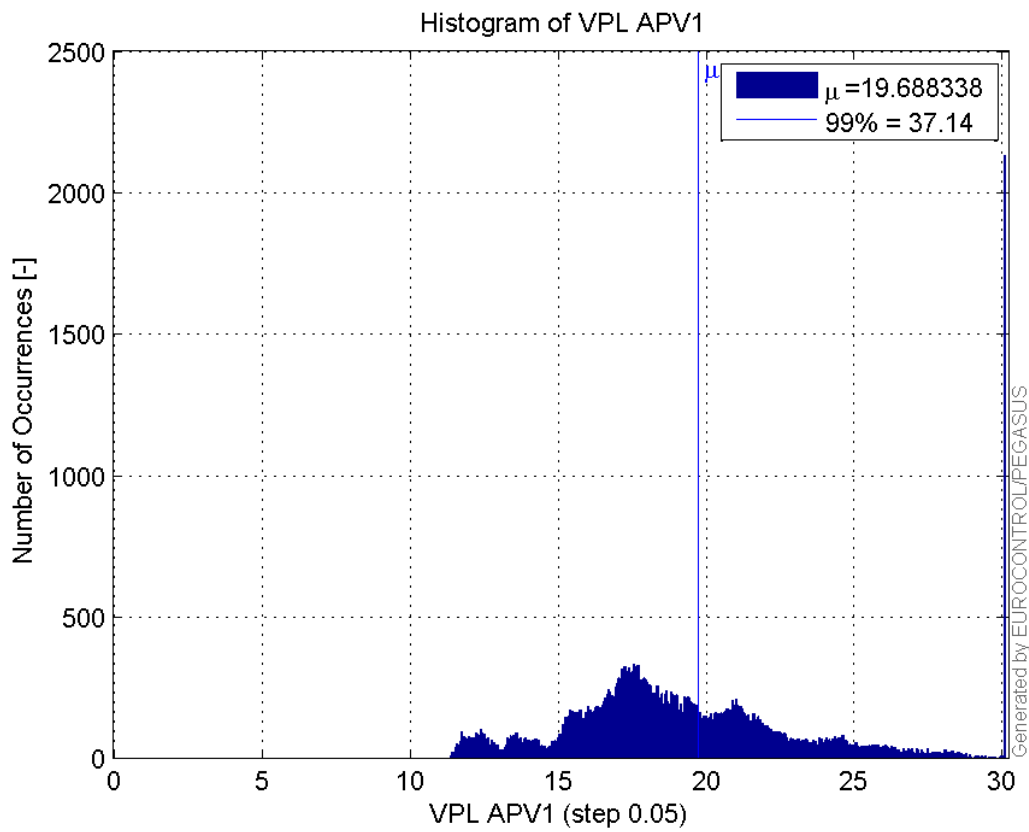
Histogram of VPE APV1:



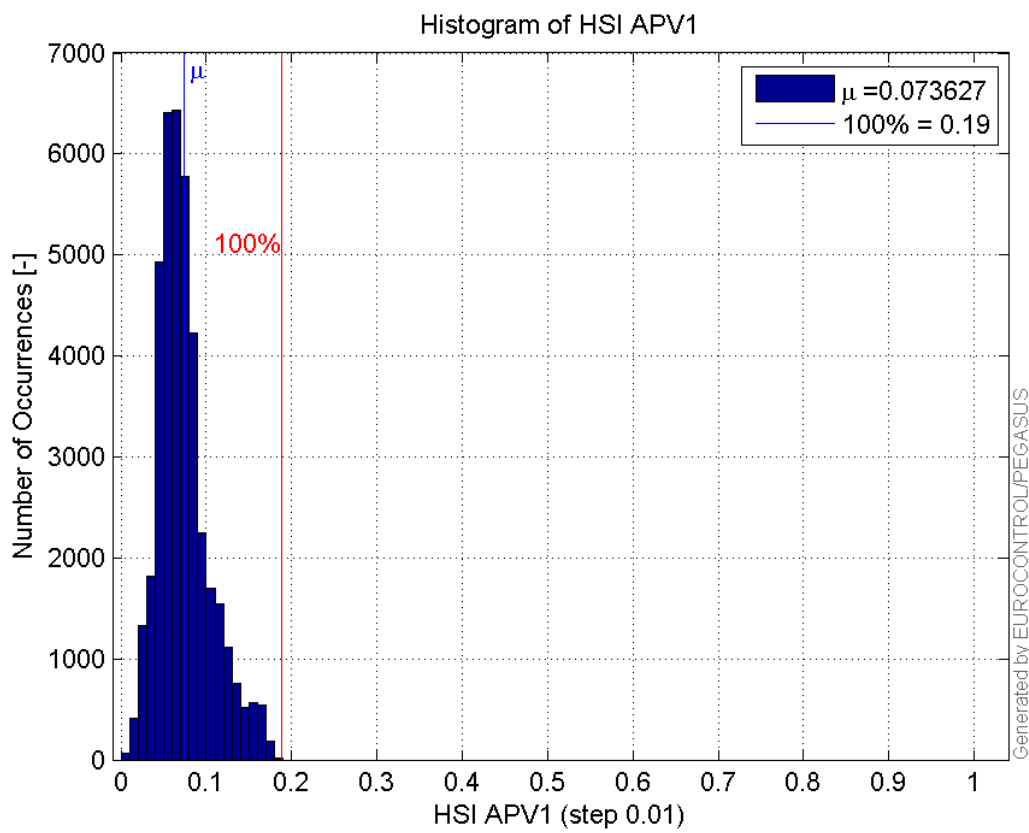
Histogram of HPL APV1:



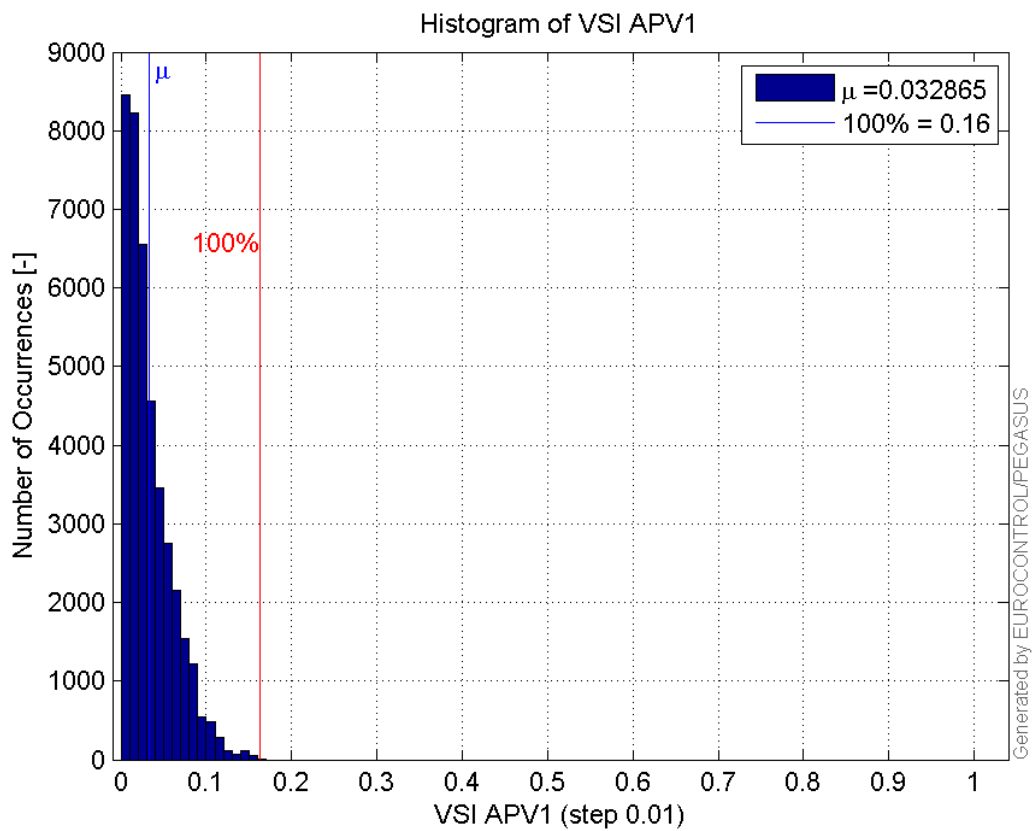
Histogram of VPL APV1:



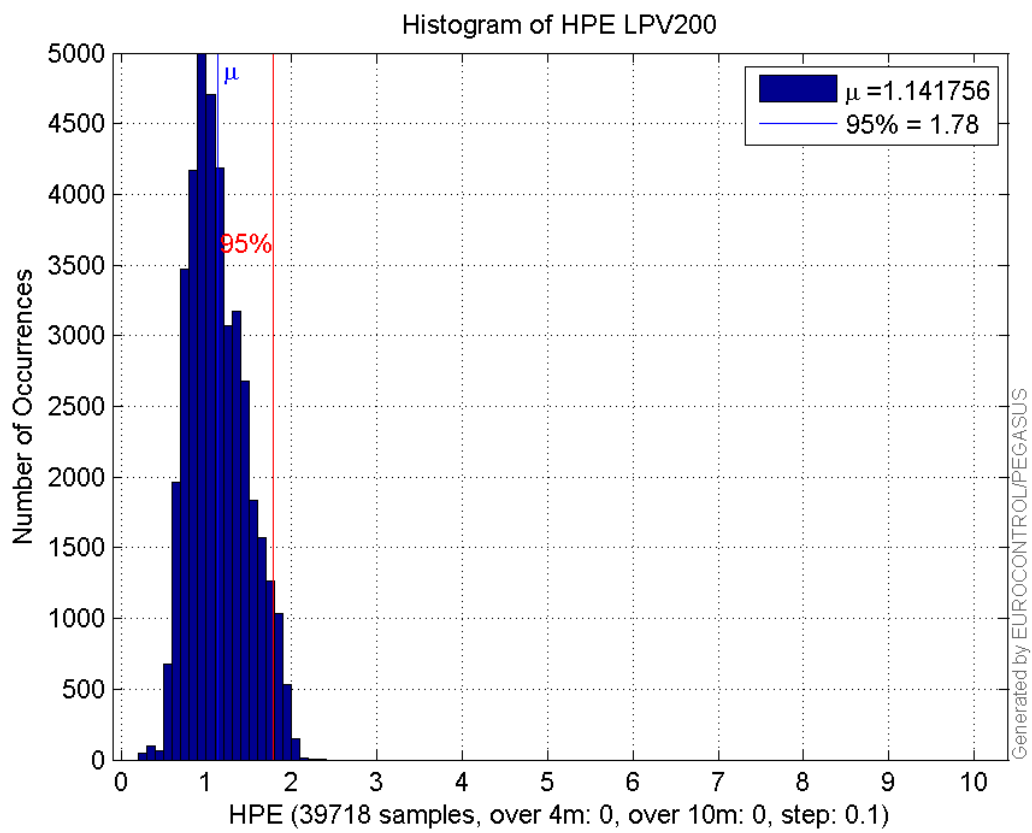
Histogram of HSI APV1:



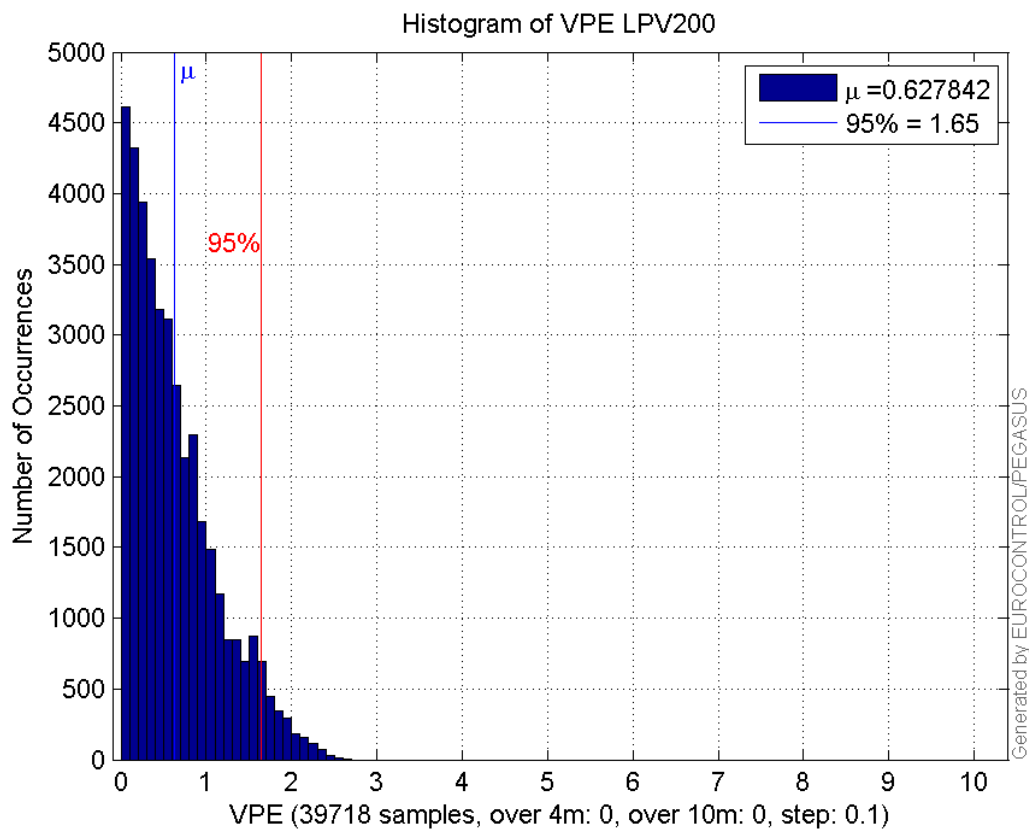
Histogram of VSI APV1:



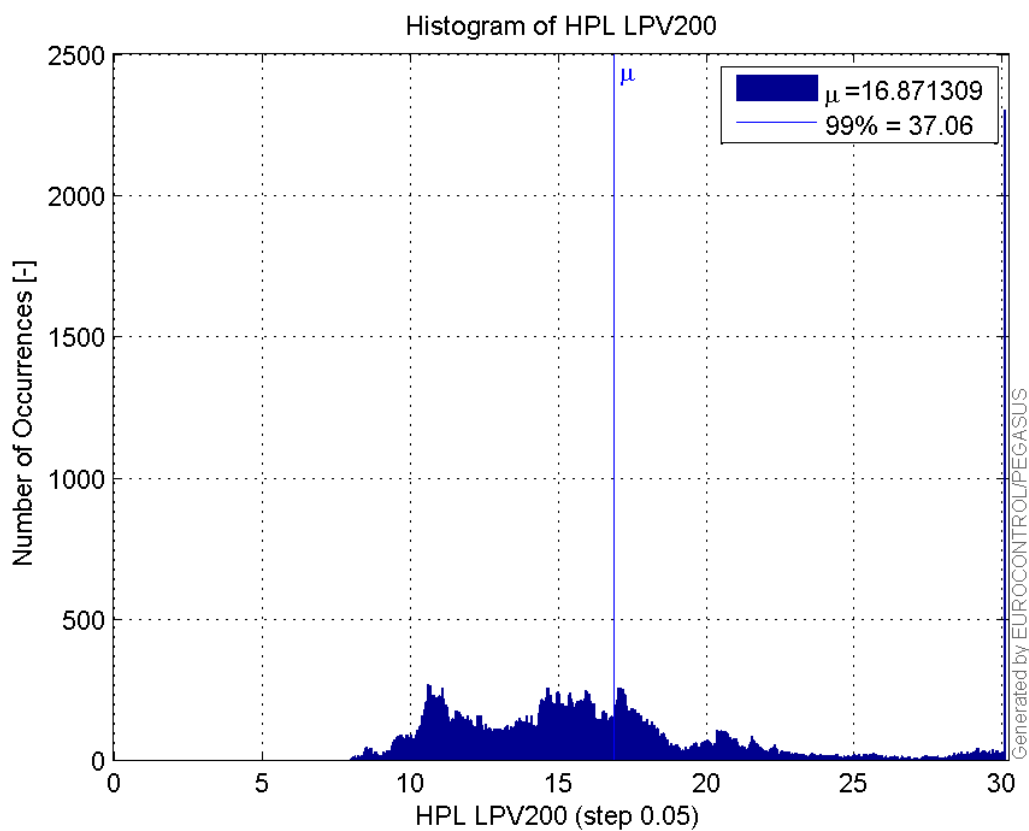
Histogram of HPE LPV200:



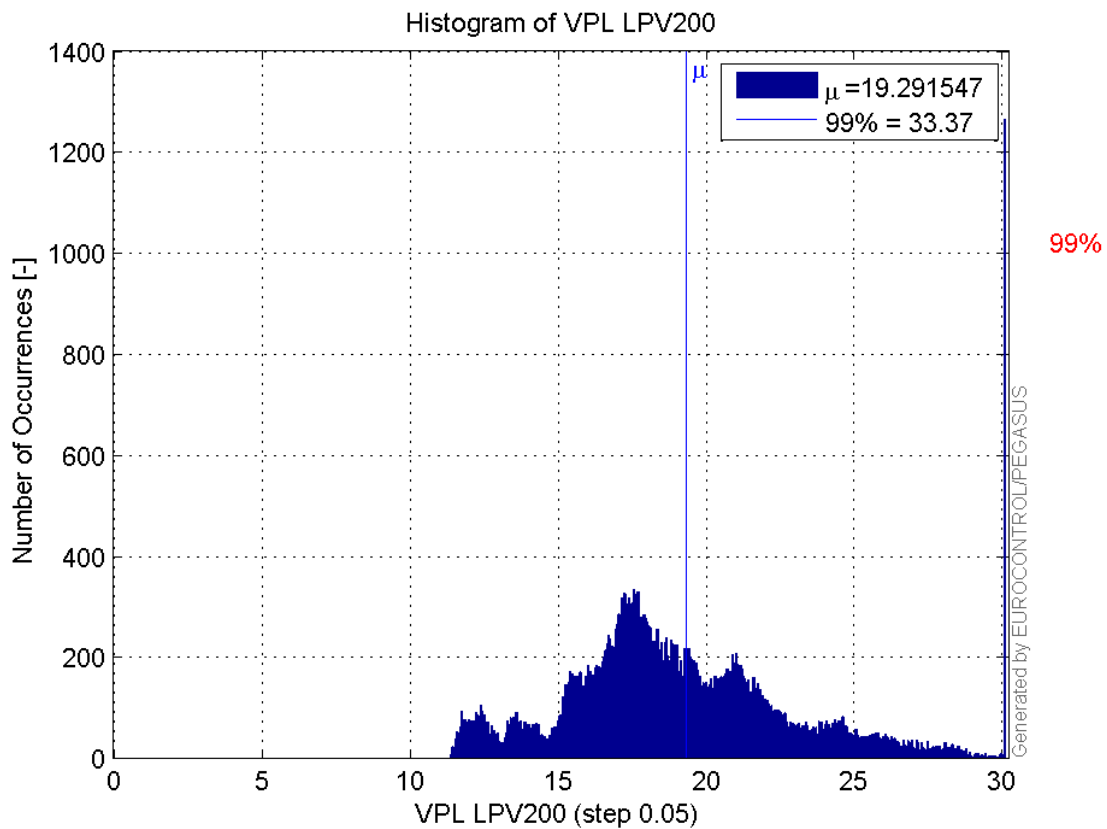
Histogram of VPE LPV200:



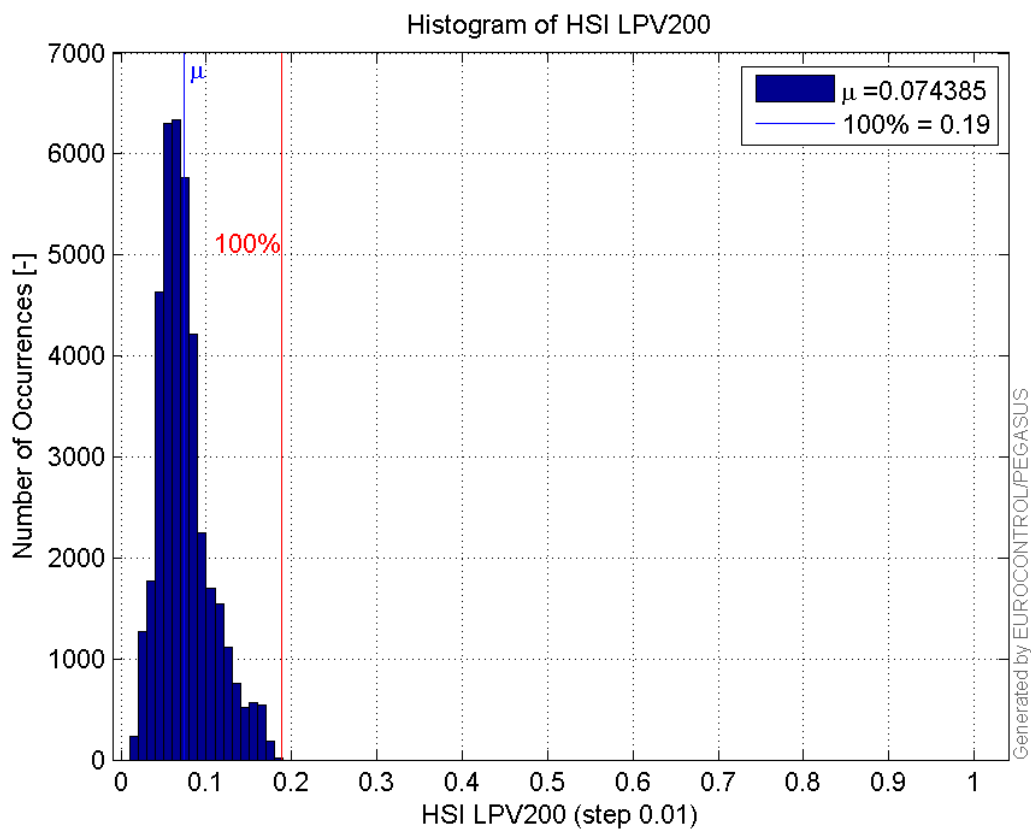
Histogram of HPL LPV200:



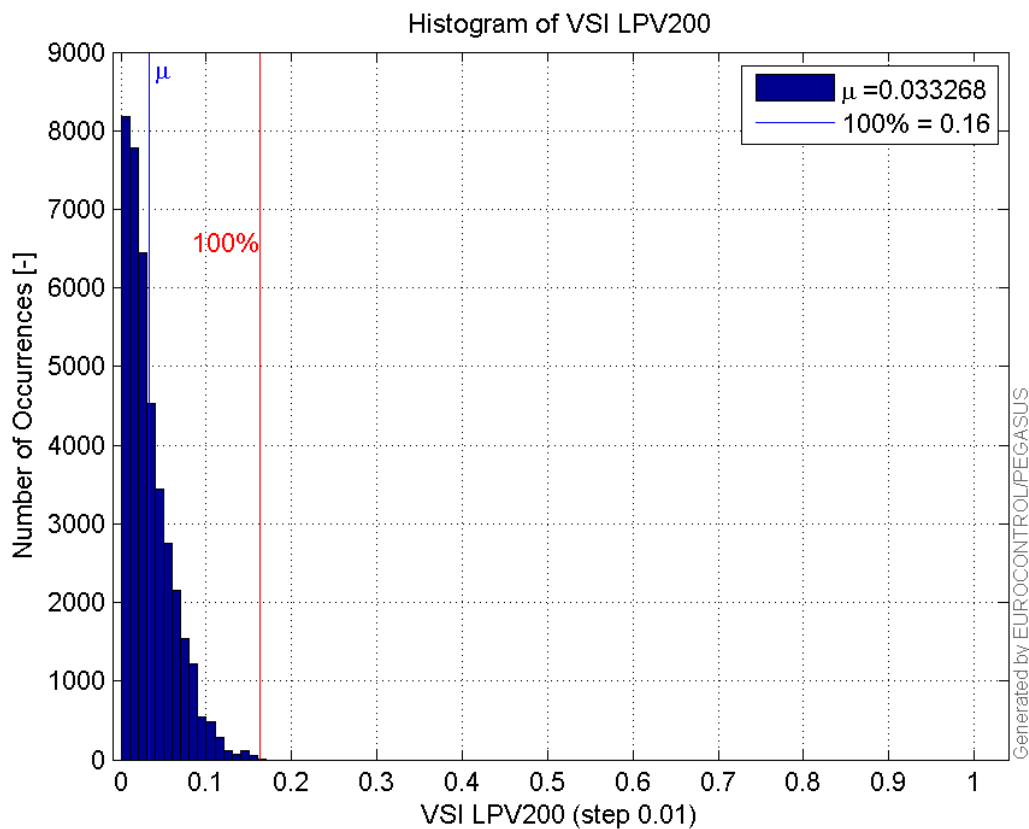
Histogram of VPL LPV200:



Histogram of HSI LPV200:

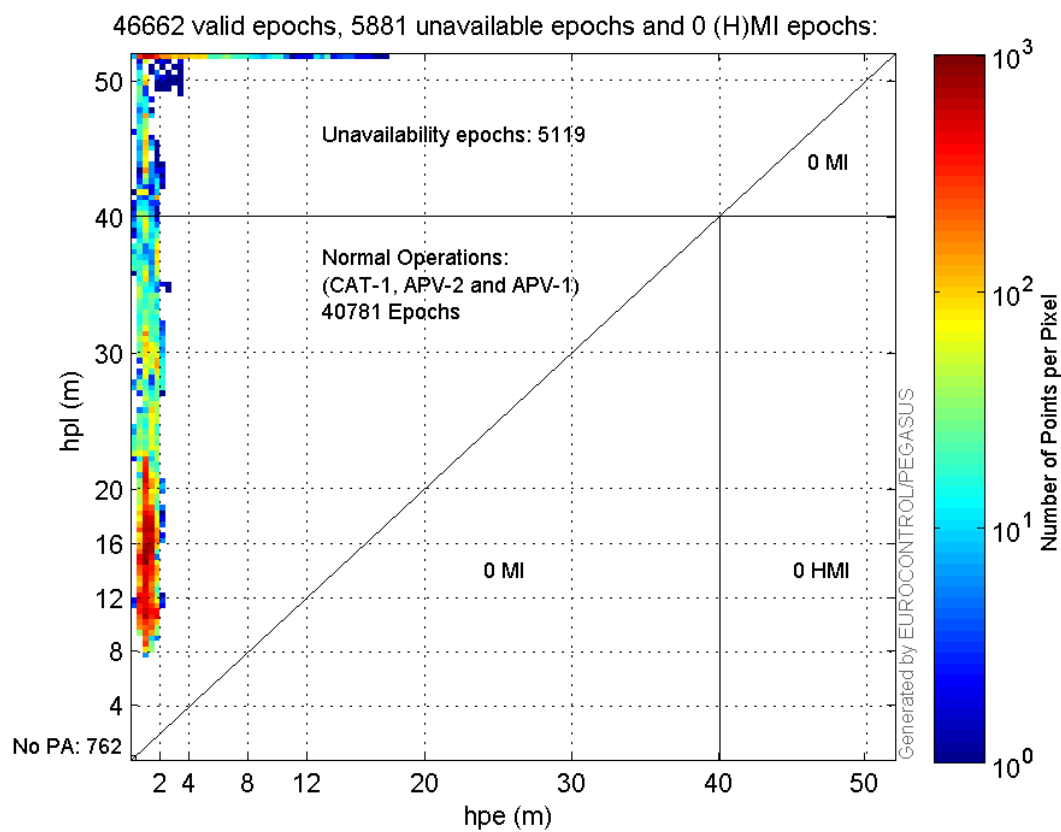


Histogram of VSI LPV200:



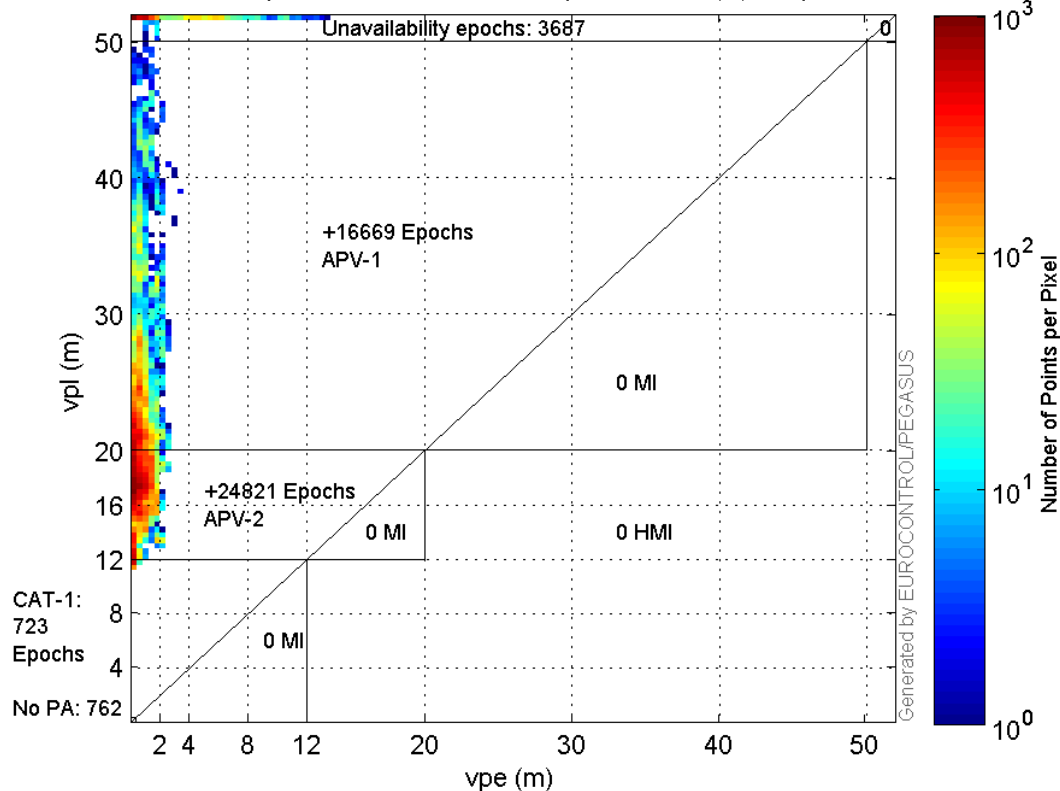
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

46662 valid epochs, 4449 unavailable epochs and 0 (H)MI epochs:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_11_22EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_11_22EGNOS2Hz/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	30.4296
init_alt	results	233.8548
mi_numbers	results	0

Range Domain

start: 07:09:04 22.11.2016 (week: 1924 sec: 198544)
end: 14:19:41 22.11.2016 (week: 1924 sec: 224381)
duration: 07:10:38 ..

quality

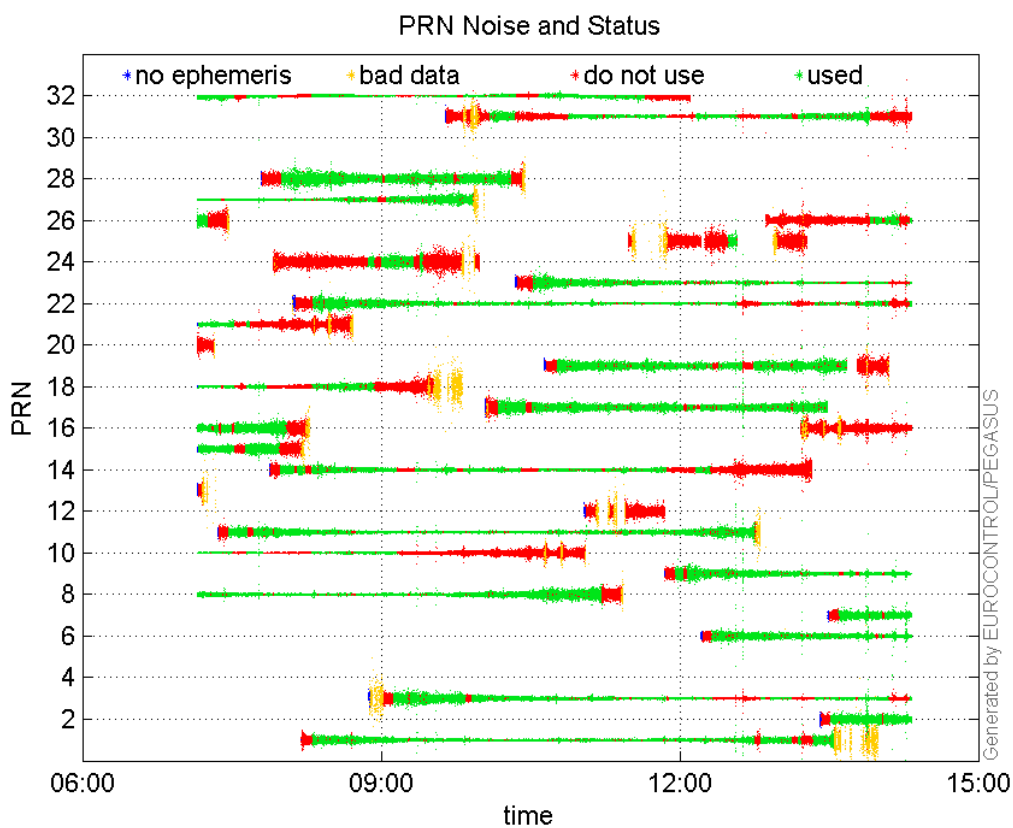
valid samples 47328
total samples 47328

PRN overview

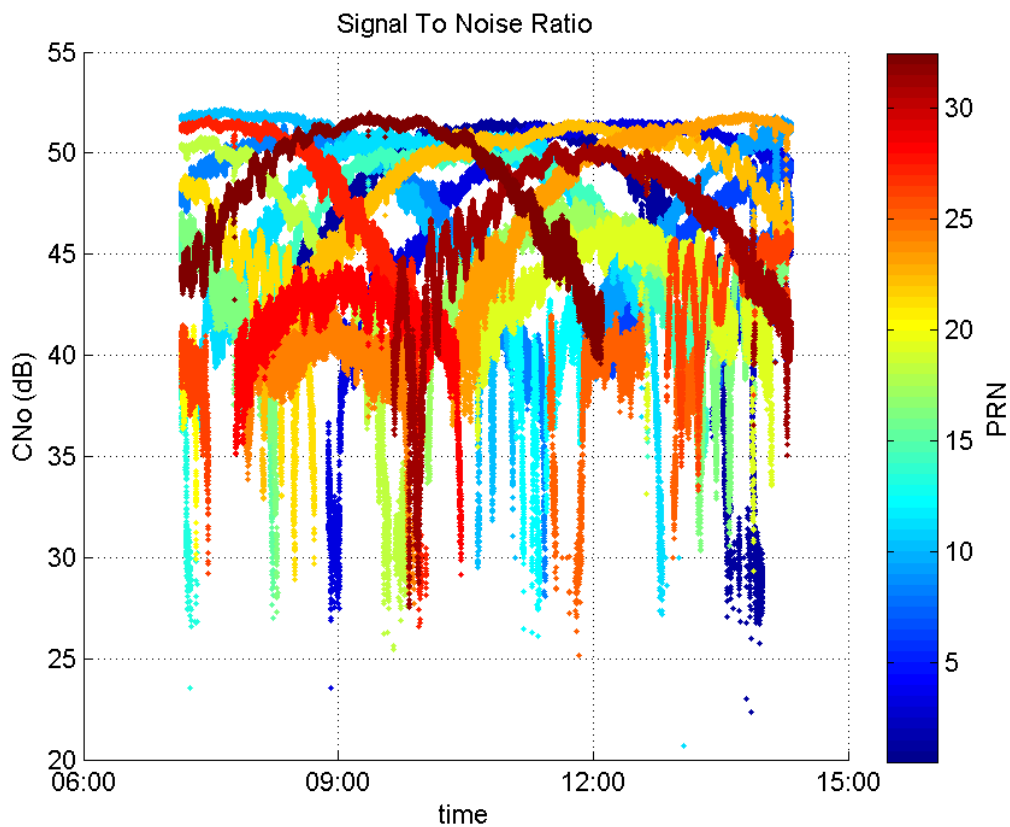
Number of Visible GPS Satellites 28
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



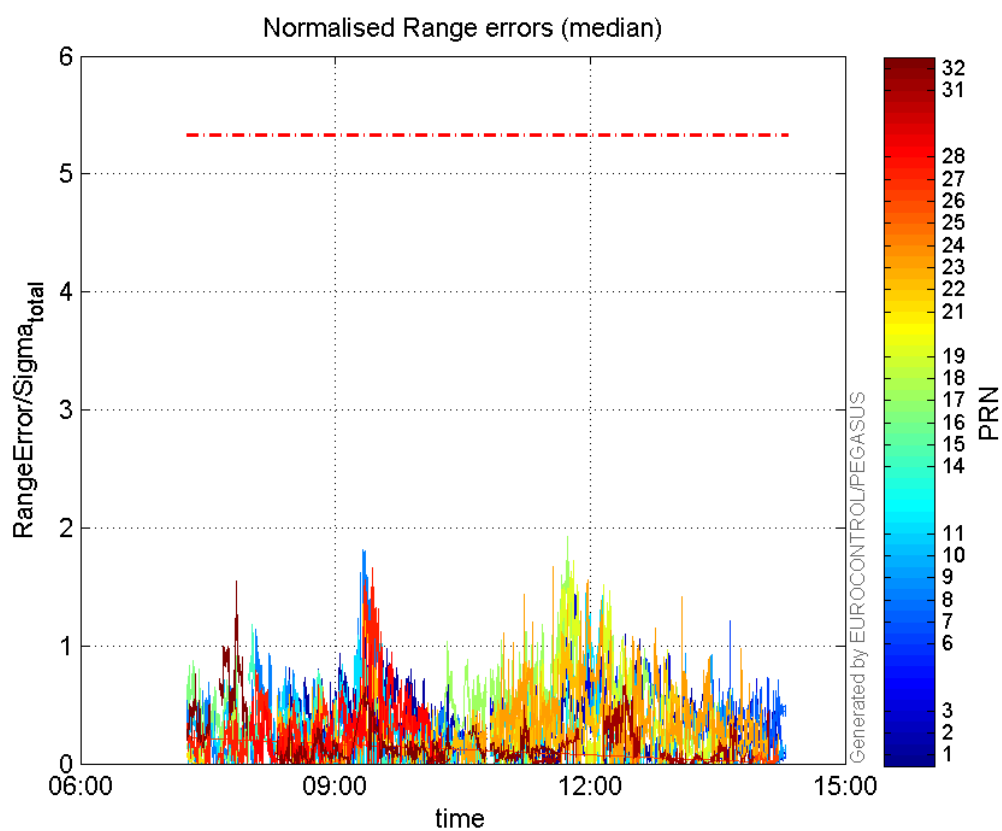
range errors

Number of Overbounding Norm Errors 0

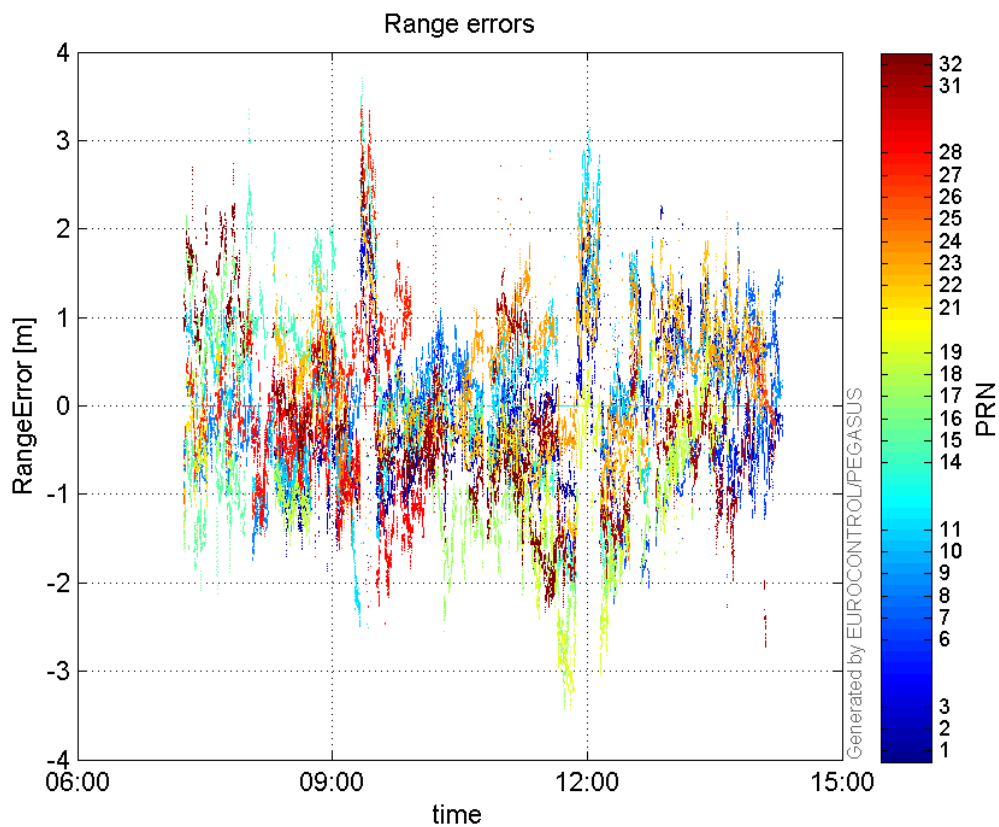
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1924	214407	1	1.34259	1.98548	1.47885
1924	221904	2	0.916938	-2.27759	2.48391
1924	215370	3	1.43867	-2.01785	1.40258
1924	221904	6	1.20707	-1.9305	1.59933
1924	222395	7	0.869333	2.07556	2.38753
1924	206391	8	1.80988	2.55221	1.41015
1924	218749	9	1.03228	1.9098	1.85008
1924	203456	10	0.733369	-1.42368	1.94129
1924	214407	11	1.59767	2.88569	1.80619
1924	201696	14	1.17653	3.35639	2.85279
1924	200849	15	0.490143	-1.87876	3.83309
1924	201001	16	0.91631	2.26432	2.47113
1924	215025	17	1.9248	-3.41611	1.77478
1924	200745	18	0.58752	-0.904273	1.53913
1924	215305	19	1.72124	-3.39623	1.97313
1924	198956	21	0.103532	-1.6465	15.9033
1924	206446	22	1.4225	2.61407	1.83766
1924	214407	23	1.66875	2.79975	1.67775
1924	206023	24	0.38698	-1.58455	4.09466
1924	217950	25	0.328554	1.50983	4.59538
1924	198905	26	0.308465	-1.06191	3.44256
1924	206764	27	1.66505	3.33762	2.00452

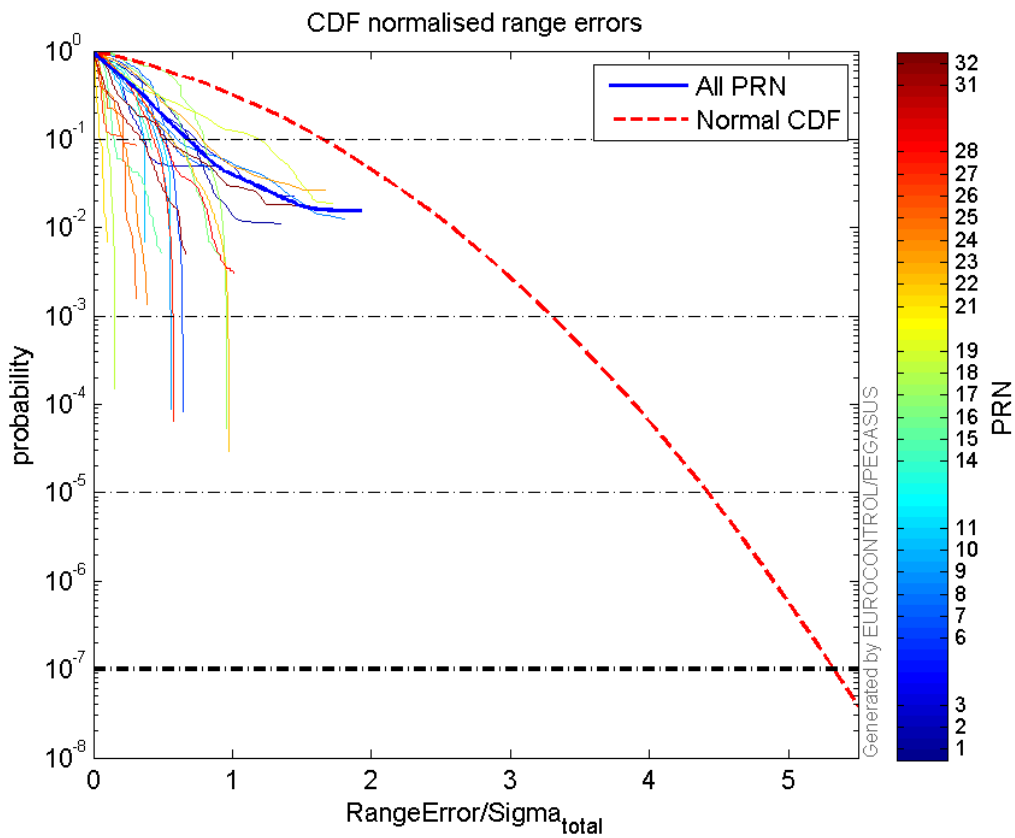
1924	206744	28	1.01022	-2.2674	2.24445
1924	217464	31	0.666443	-1.52527	2.28867
1924	201001	32	1.55071	2.73819	1.76576

Normalised Range errors (median):

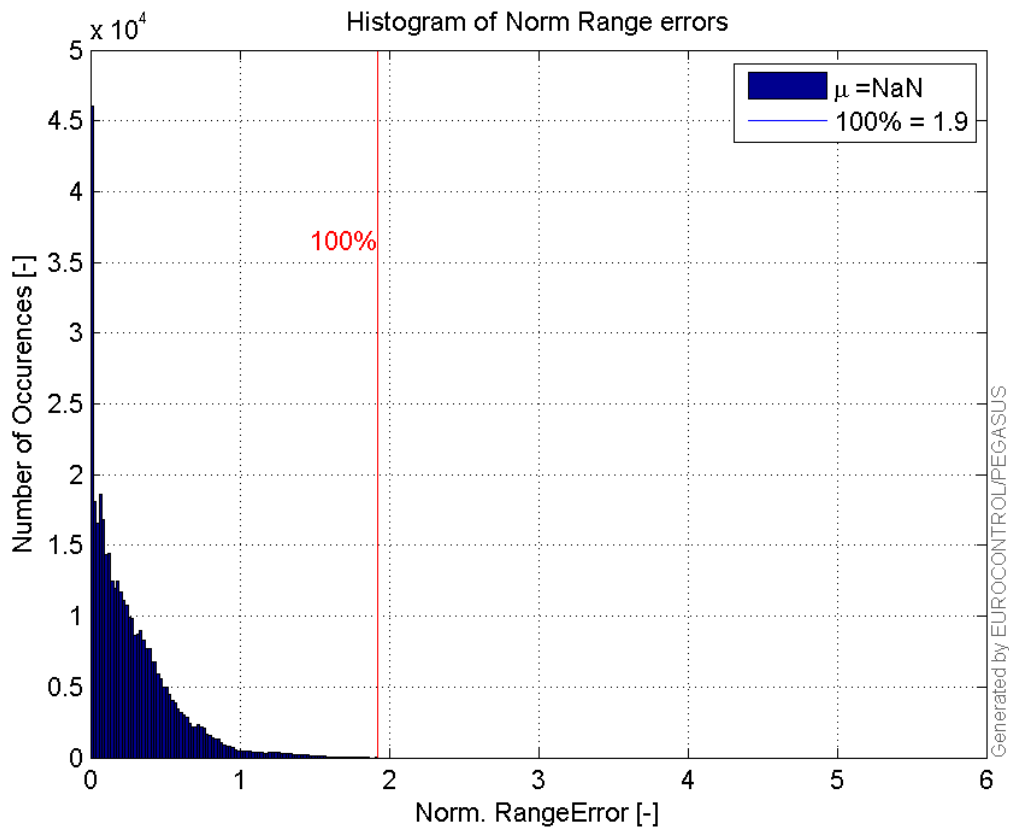
Range errors:



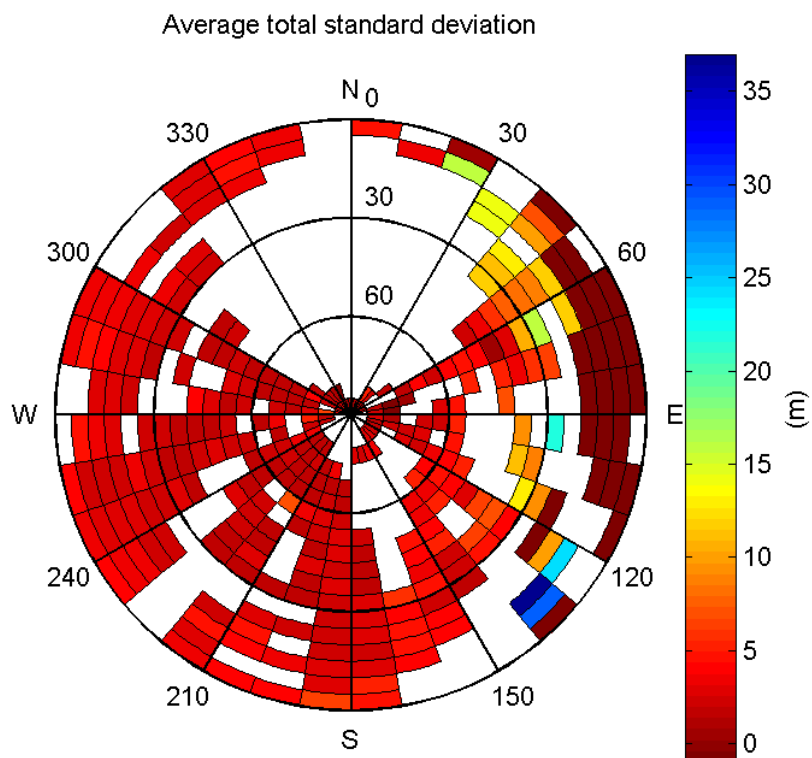
CDF normalised range errors:



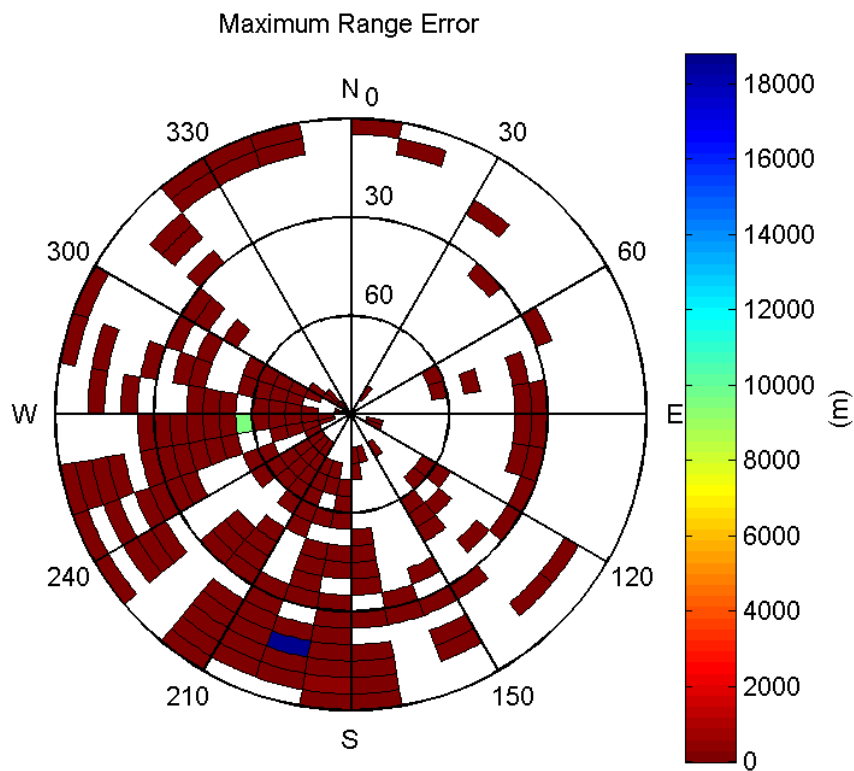
Histogram of Norm Range errors:



Sigma Sky Plot:

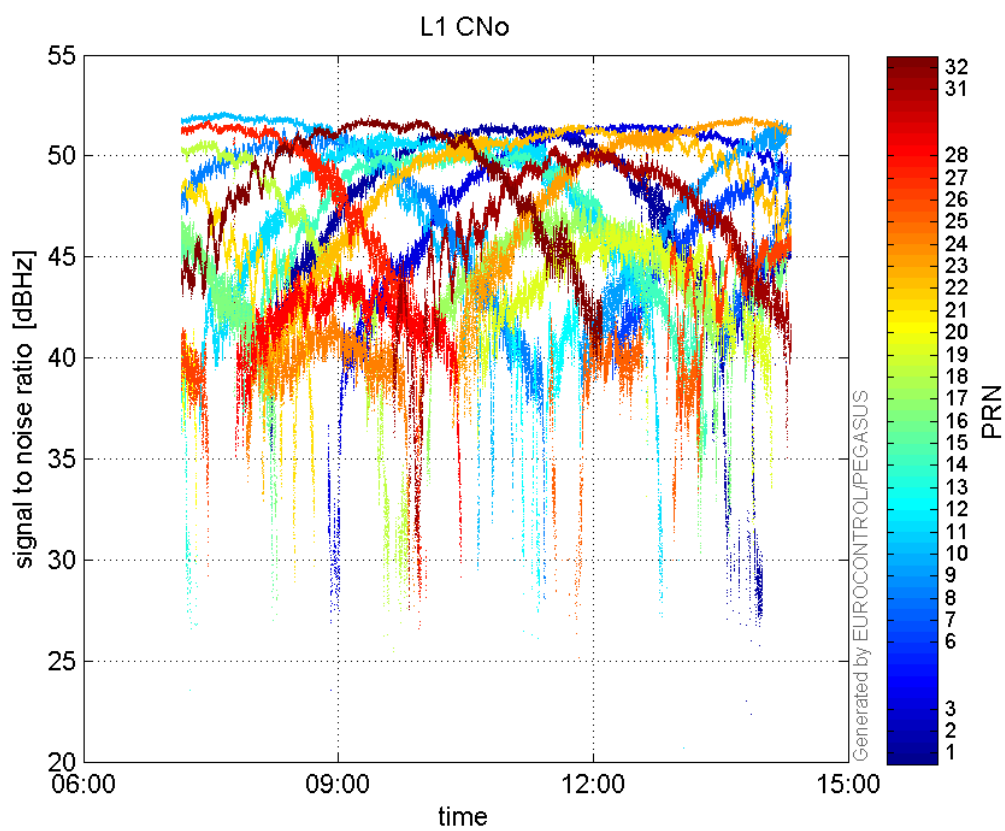


Norm Error Sky Plot:

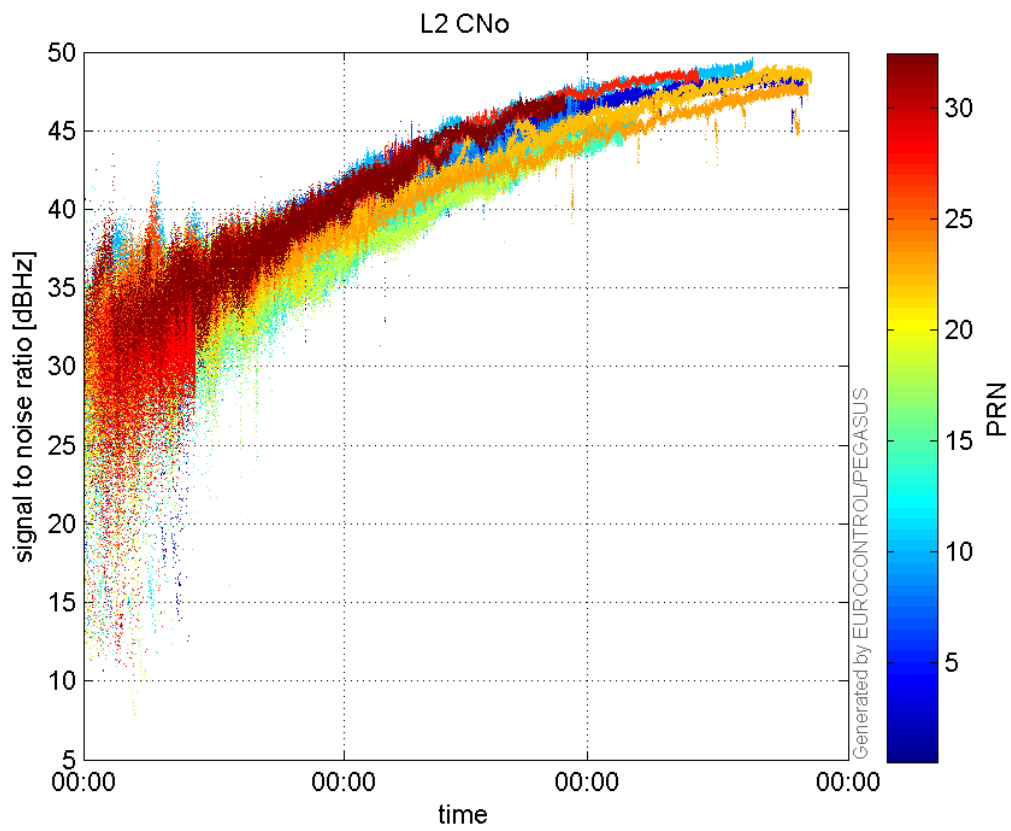


signal quality

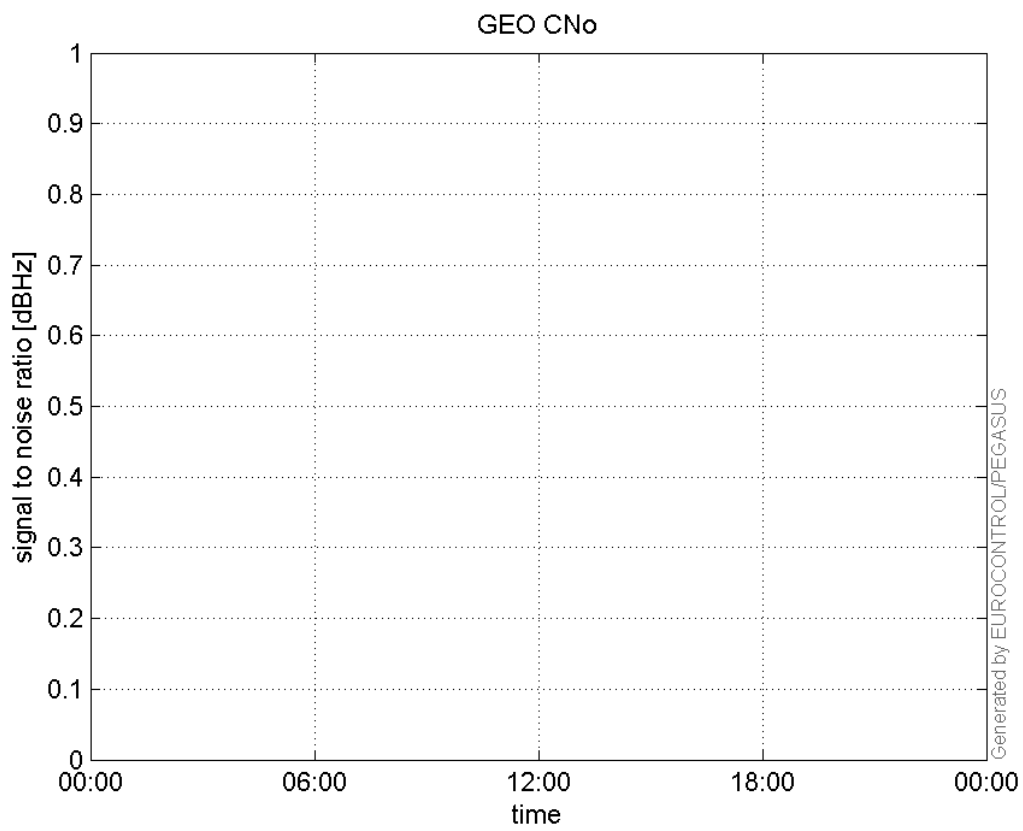
L1 CNo:



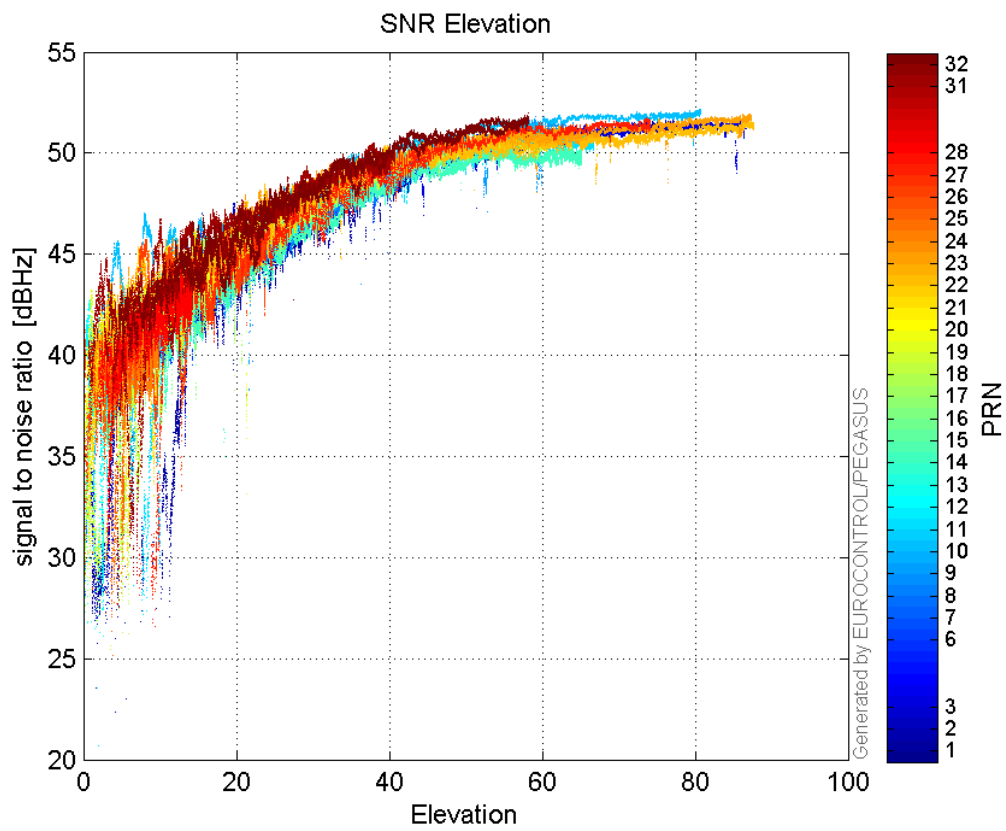
L2 CNo:



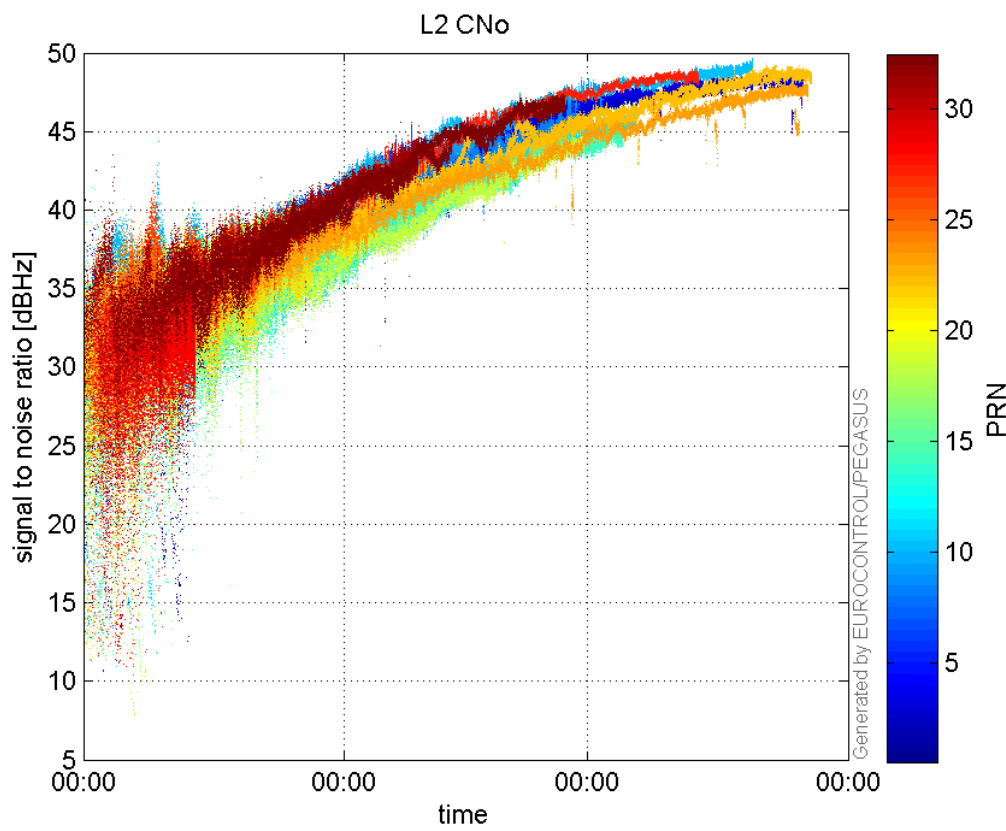
GEO CNo:



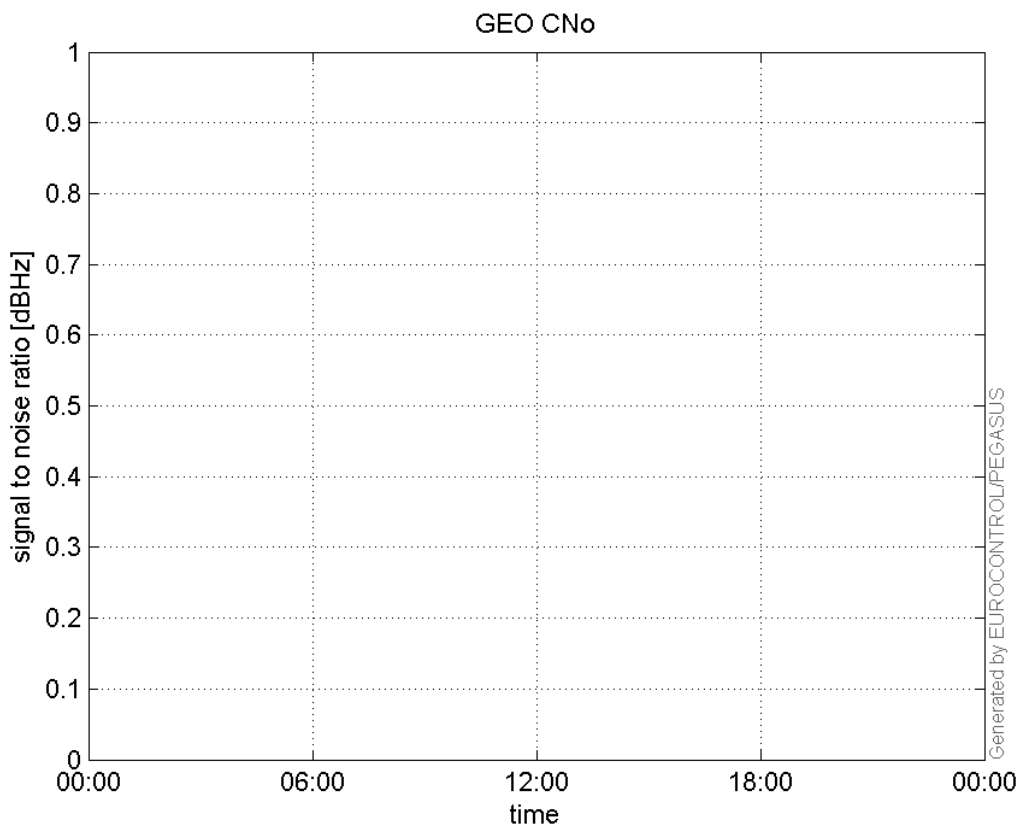
SNR Elevation:



L2 CNo:

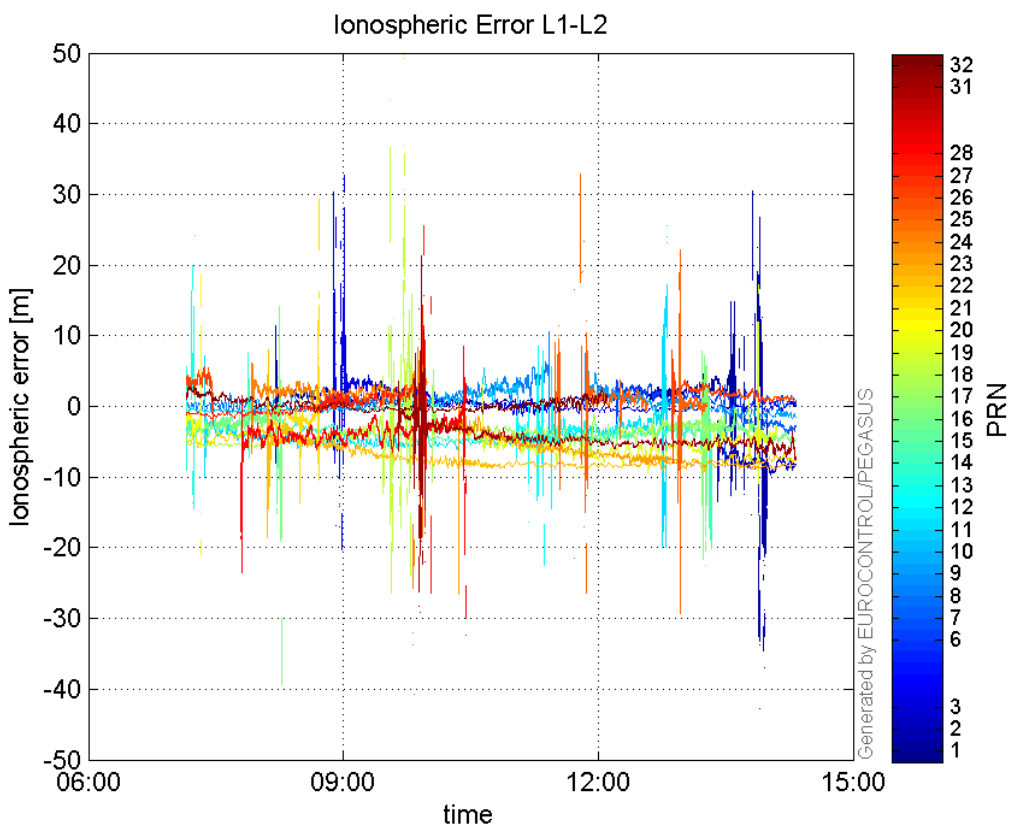


GEO CNo:



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:/PegasusDateJob/job/2016_11_22EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_11_22EGNOS2Hz/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	30.4296
init_alt	results	233.8548
mi_numbers	results	0