

Global View

country Ukraine
 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
 date 29/01/2017

SBAS Messages

start: 10:47:43.129 25.01.2017 (week: 1933 sec: 298063.129)
end: 15:24:8.129 25.01.2017 (week: 1933 sec: 314648.129)
duration: 04:36:25 ..

quality

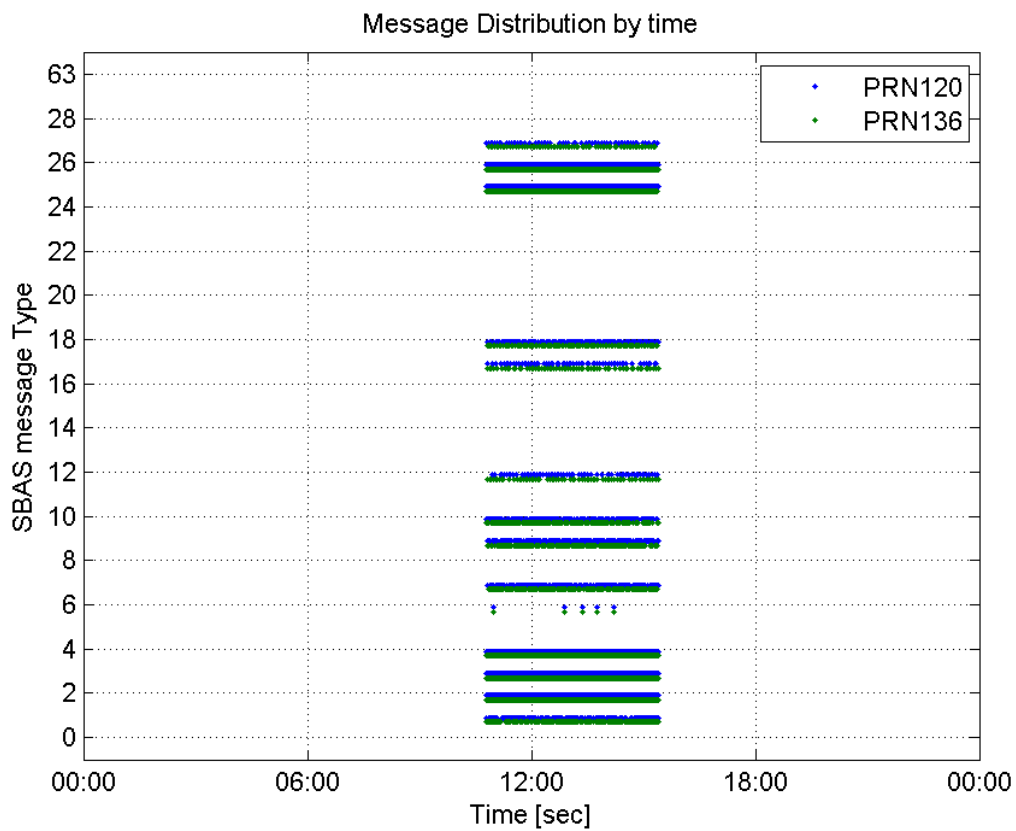
valid samples 26192
total samples 26192
number of SBAS PRNs 2

SBAS SIS Overview

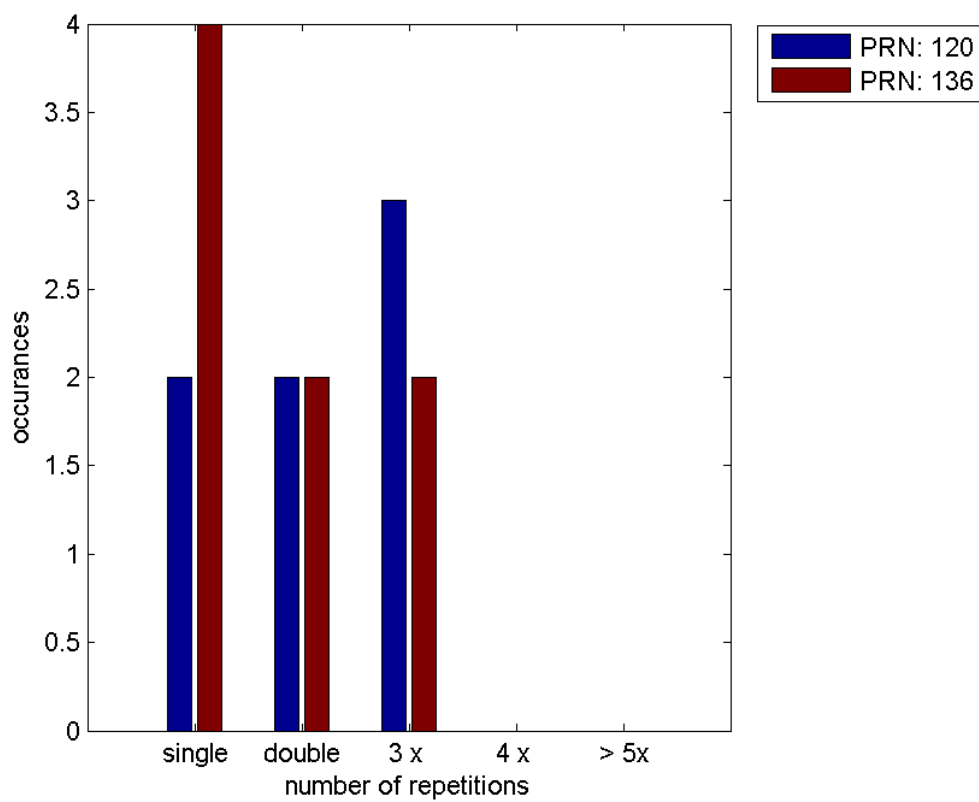
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	2	2	3	0	0
PRN 136	4	2	2	0	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

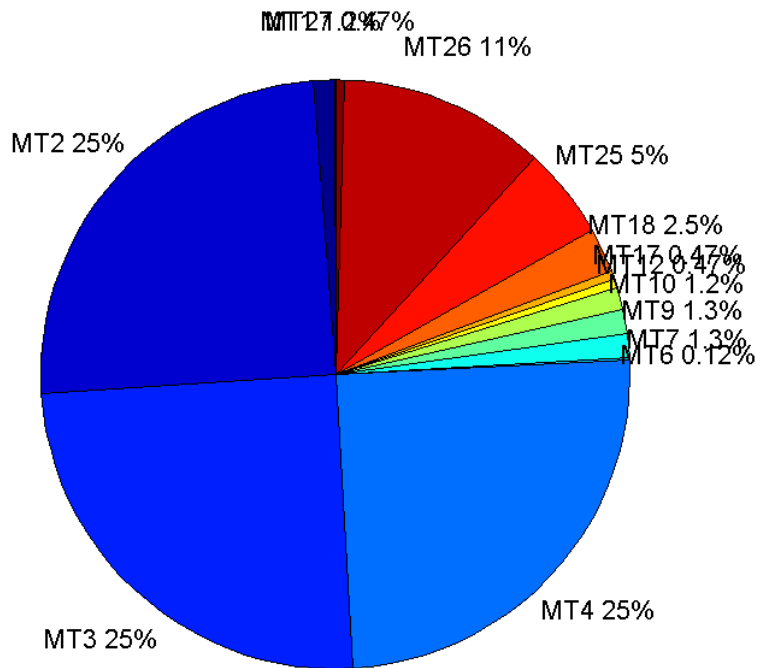
	number of messages	%
MT 0	0	0
MT 1	160	1.21988
MT 2	3257	24.8323
MT 3	3267	24.9085
MT 4	3256	24.8246
MT 5	0	0
MT 6	16	0.121988
MT 7	171	1.30375
MT 9	171	1.30375
MT 10	163	1.24276
MT 12	62	0.472705
MT 17	61	0.465081
MT 18	325	2.47789
MT 24	0	0
MT 25	651	4.9634
MT 26	1494	11.3907
MT 27	62	0.472705
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13116	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	104.038	31	0	0
MT 2	4	16	5.09214	812	0	6
MT 3	4	17	5.07624	811	0	6
MT 4	4	17	5.09462	819	0	5
MT 5	--	--	--	--	--	--
MT 6	1	6880	777.467	4	4	4
MT 7	76	319	96.7941	28	0	1
MT 9	75	320	97.1706	0	0	0
MT 10	76	321	101.623	35	0	3
MT 12	188	600	260.18	61	14	14
MT 17	188	780	271.217	0	0	0
MT 18	4	200	51.034	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	108	25.4677	0	0	0
MT 26	4	48	11.1011	0	0	0
MT						

27	188	976	269.885	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

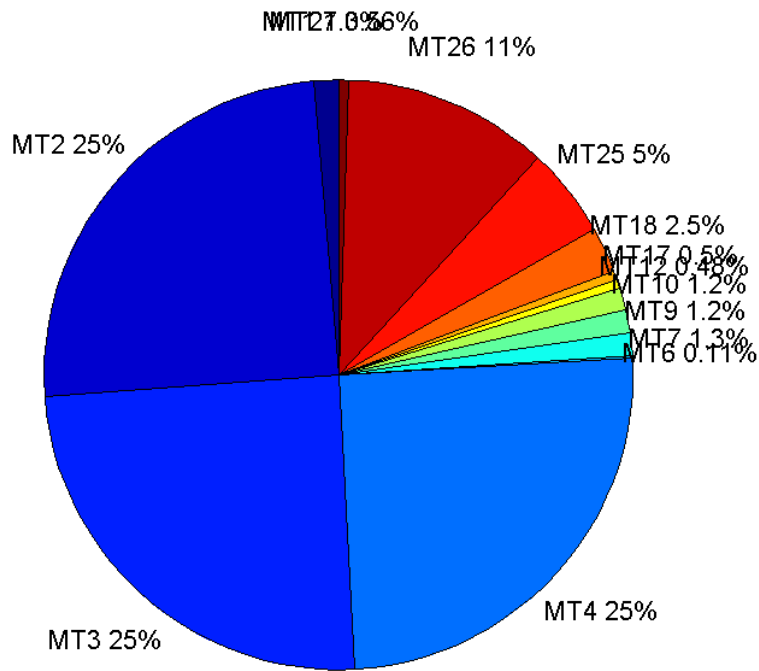
	number of messages	%
MT 0	0	0
MT 1	175	1.33833
MT 2	3245	24.8165
MT 3	3232	24.717
MT 4	3272	25.0229
MT 5	0	0
MT 6	15	0.114714
MT 7	166	1.2695
MT 9	161	1.23126
MT 10	159	1.21597
MT 12	63	0.481799
MT 17	66	0.504742

MT 18	326	2.49312
MT 24	0	0
MT 25	652	4.98623
MT 26	1471	11.2496
MT 27	73	0.558275
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13076	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	480	94.954	21	0	0
MT 2	4	17	5.11159	826	0	6
MT 3	4	15	5.13092	845	0	6
MT 4	4	17	5.0694	800	0	4
MT 5	--	--	--	--	--	--
MT 6	1	6880	833	4	4	4
MT 7	75	321	98.6788	29	0	5
MT 9	76	481	102.781	0	0	0
MT 10	76	399	104.62	33	3	5
MT 12	188	777	265.516	62	16	16
MT 17	188	600	253.308	0	0	0
MT 18	4	193	50.7108	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	112	25.3671	0	0	0
MT 26	3	76	11.2803	0	0	0
MT 27	188	584	223.194	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:/PegasusDateJob/job/2017_01_25EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_01_25EGNOS2Hz/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: 10:47:43.5 25.01.2017 (week: 1933 sec: 298063.5)
end: 15:24:8.5 25.01.2017 (week: 1933 sec: 314648.5)
duration: 04:36:26 ..

quality

valid samples 29952
total samples 30615

Event tables

Position discontinuity events type long
APV-I discontinuity events type independent
APV-35m discontinuity events type too many (30)
LPV-200 discontinuity events type too many (30)
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	307928	1.7672	9.91681	0.178202	0.909264	17.7026	0.0513633
max normVer	305768	1.74652	37.4684	0.0466132	1.86641	18.5259	0.100746
max HPE	305167	10.9618	423.861	0.0258619	-13.1196	430.332	0.0304872
max VPE	305167	10.9618	423.861	0.0258619	-13.1196	430.332	0.0304872
min HPL	307921	1.54236	9.68011	0.159333	0.150527	17.0863	0.00880979
min VPL	298742	1.10908	10.7265	0.103396	-0.0353606	13.4345	0.00263207

Position discontinuity events :

#	Epoch	duration	stable period
1	298431	4.5	7
2	304149	145.5	20.5
3	307370	5.5	307

APV-I discontinuity events :

#	Epoch	duration	stable period
1	298732	4.5	20.5
2	298905	4.5	168.5
3	299745	79.5	21.5
4	302511	5.5	51.5
5	303577	717.5	856.5
6	304345	809	50
7	305207	128	21.5
8	305372	6	36.5
9	305772	43.5	302.5
10	306176	7.5	94.5
11	307370	9.5	307
12	308313	37.5	875
13	310371	79.5	130.5
14	310663	9.5	41
15	312135	78.5	392.5
16	312937	80	317.5
17	313763	5.5	161
18	314065	9.5	59.5

First Glance analysis

Duration 16586
Number of Samples 30615
Number of invalid sample 663
Number of no position solution samples 354

Number of missing sample	2557
Logging Loss	7.7083
Processing Loss	2.1656
Number of Misleading Information	0
Data gaps	10
Discontinuities	42

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
29598	25528	22233	0	22233

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.79305	1.73398	1.73127	NaN	1.73127
HPEScale 95%	NaN	4.10888	4.2182	NaN	4.2182
VPE 95%	1.32452	1.27953	1.28831	NaN	1.28831
VPEscale 95%	NaN	2.89445	2.08257	NaN	2.08257

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.988181	0.852297	0.742288	0	0.742288
measurements	0.966781	0.83384	0.726213	0	0.726213
Operational	1.78452	1.53913	1.34047	0	1.34047

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	32	79	172	--	172
Long	3	23	56	--	56
Independent	2	18	30	--	30
P(disc.)	0.00101358	0.0105766	0.0202402	NaN	0.0202402
P(slide)	0.015947	0.0410334	0.075316	NaN	0.075316

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

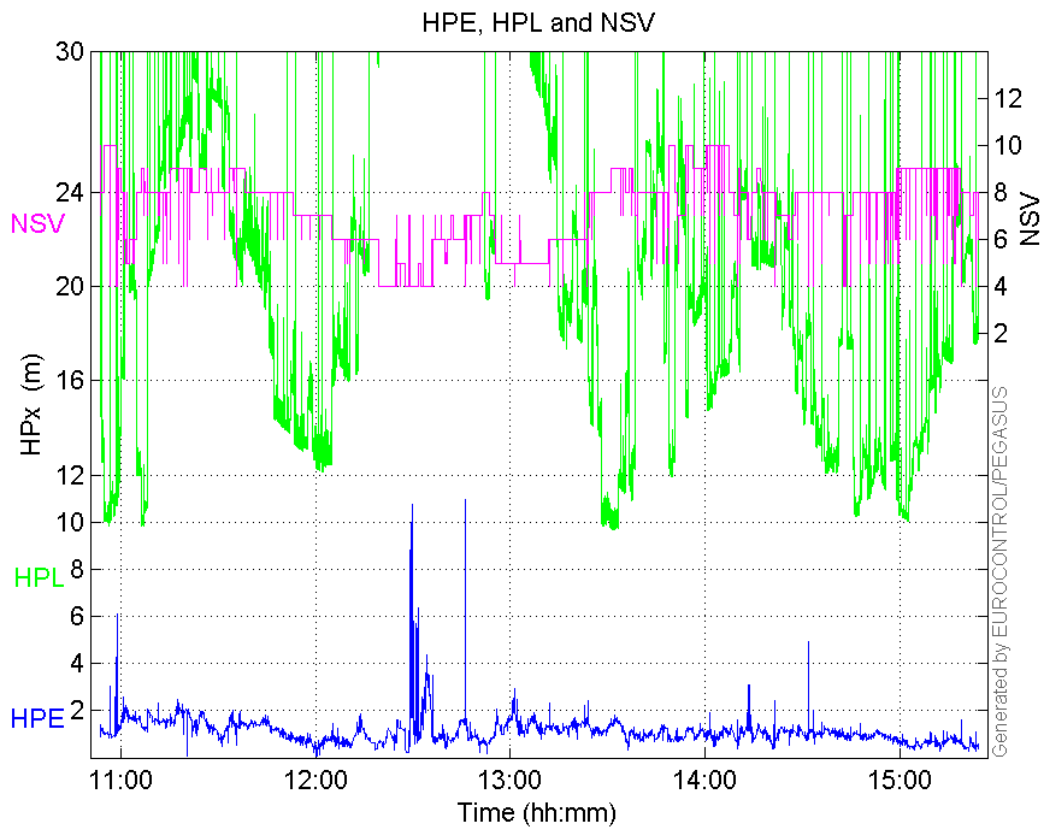
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	29598	25528	22233	0	22233
SIS Availability	0.988181	0.852297	0.742288	0	0.742288
Local Availability	0.966781	0.83384	0.726213	0	0.726213
Operational Availability	1.78452	1.53913	1.34047	0	1.34047
HPE 95%	1.79305	1.73398	1.73127	NaN	1.73127
HPEScale 95%	NaN	4.10888	4.2182	NaN	4.2182
VPE 95%	1.32452	1.27953	1.28831	NaN	1.28831
VPEscale 95%	NaN	2.89445	2.08257	NaN	2.08257

All Discontinuity Events	32	79	172	--	172
Long Discontinuity Events	3	23	56	--	56
Independent Discontinuity Events	2	18	30	--	30
P(discontinuity)	0.00101358	0.0105766	0.0202402	NaN	0.0202402
P(sliding window)	0.015947	0.0410334	0.075316	NaN	0.075316
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

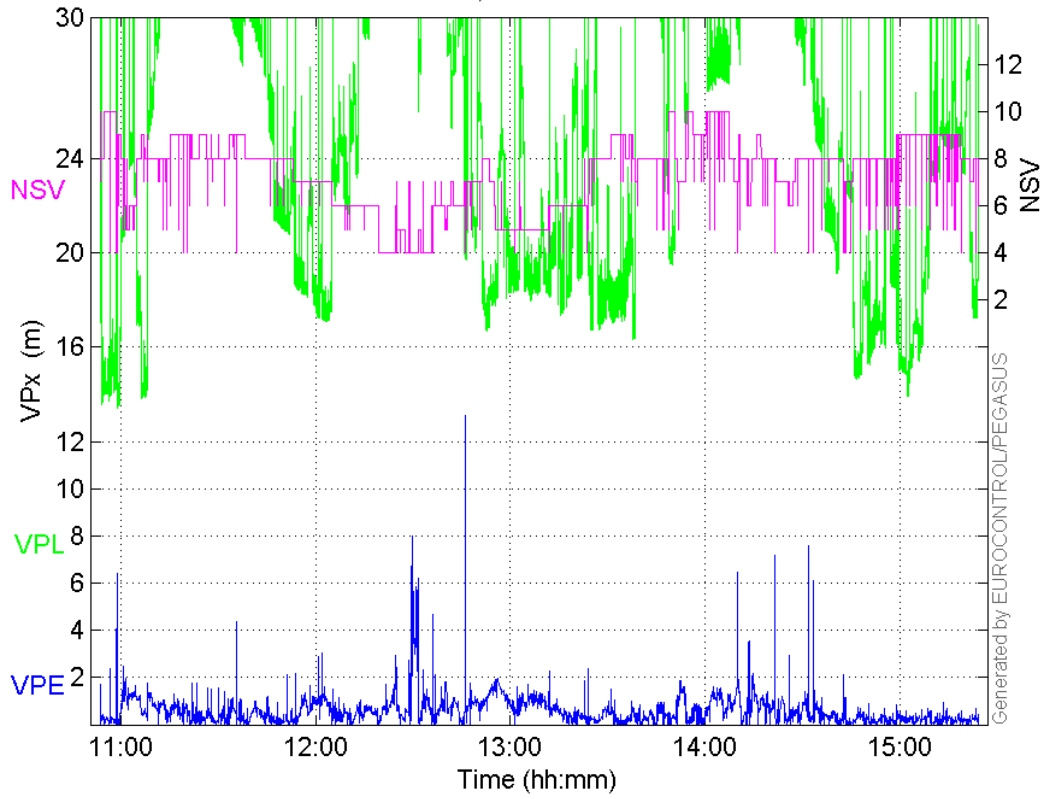
Time Series

HPE, HPL and NSV:



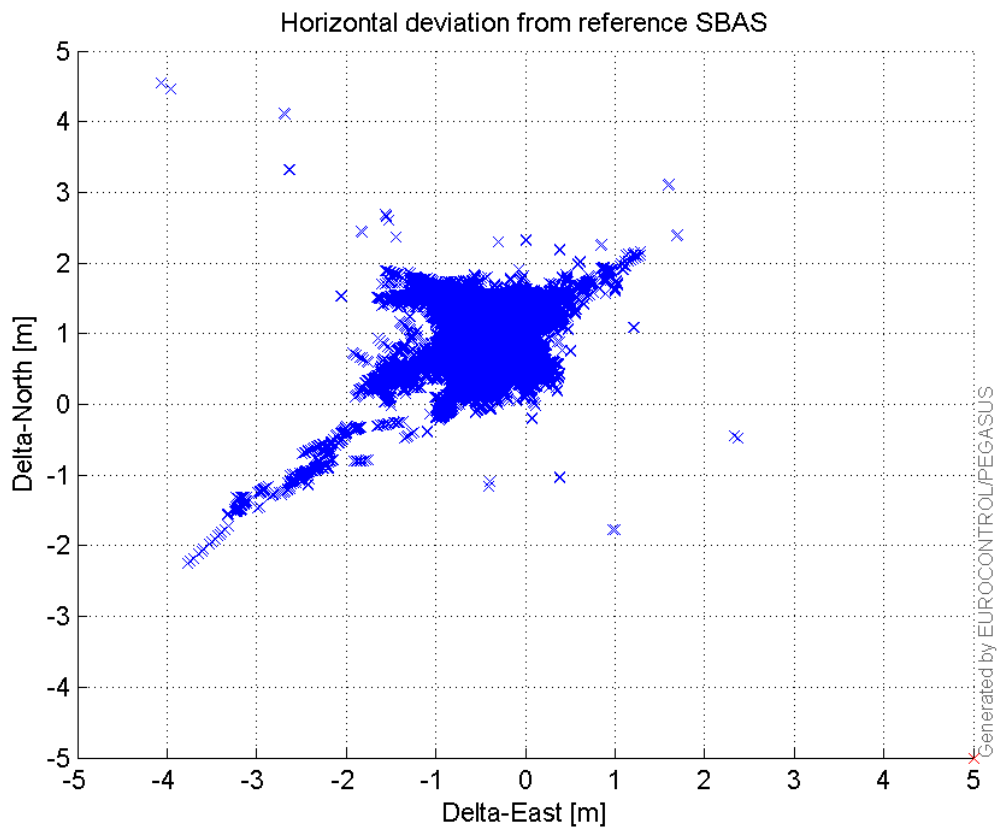
VPE, VPL and NSV:

VPE, VPL and NSV



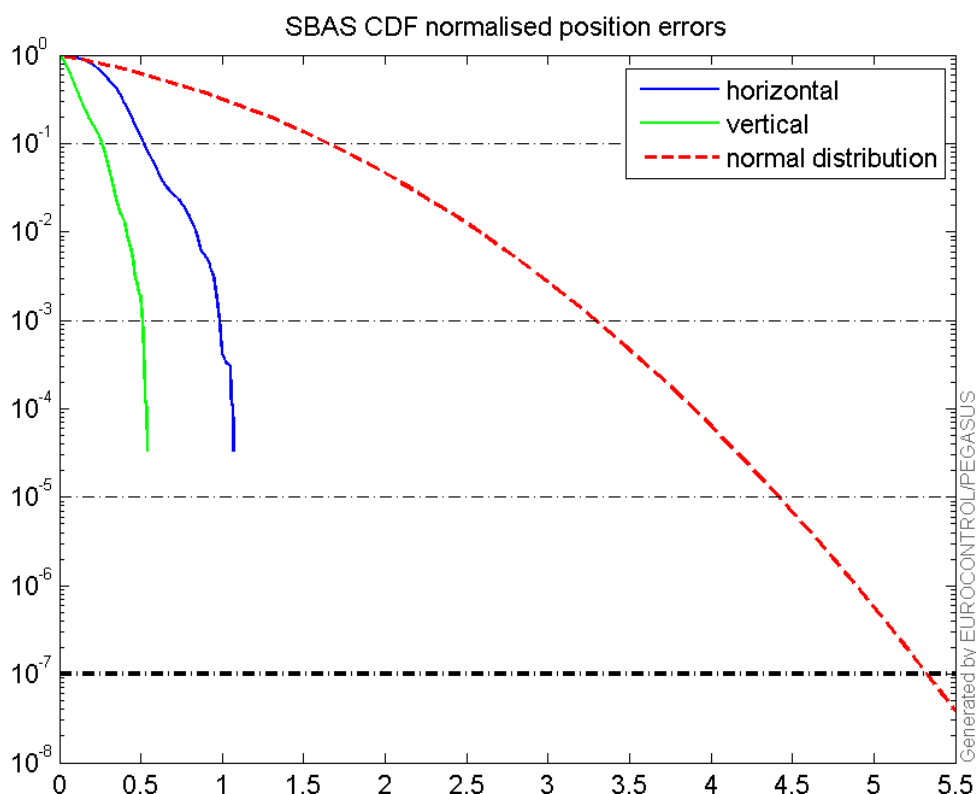
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

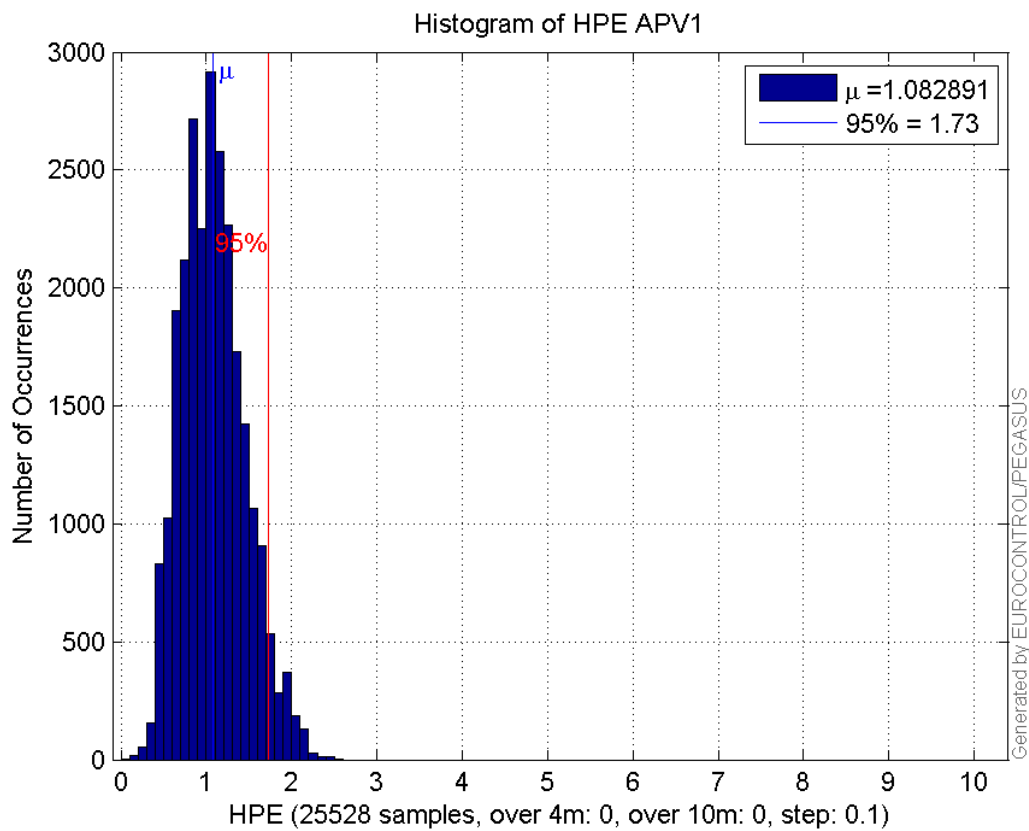
number	25528
sum	27644.053
sum2	33468.923
prctile95	1.7339829
prctile99	2.0602829
number	25528
sum	13127.466
sum2	10758.938
prctile95	1.2795274
prctile99	1.6228267
number	25528
sum	499186.49
sum2	10832363
prctile95	31.62477
prctile99	37.75985
number	25528
sum	652242.09
sum2	18125958
prctile95	38.23836
prctile99	44.637428
number	25528
sum	1521.7212
sum2	105.92299
prctile95	0.10272197

prctile99 0.14140911
number 25528
sum 550.47375
sum2 20.085737
prctile95 0.057889052
prctile99 0.077740955
number 22233
sum 23780.023
sum2 28677.105
prctile95 1.7312708
prctile99 2.0600856
number 22233
sum 11626.585
sum2 9640.1449
prctile95 1.2883115
prctile99 1.6190851
number 22233
sum 418852.01
sum2 8813420
prctile95 31.74461
prctile99 37.724729
number 22233
sum 525011.79
sum2 13172919
prctile95 33.743885
prctile99 34.690868
number 22233
sum 1361.1676
sum2 97.722999
prctile95 0.10545508
prctile99 0.14283134
number 22233
sum 511.06222
sum2 19.297171
prctile95 0.059501946
prctile99 0.079820848

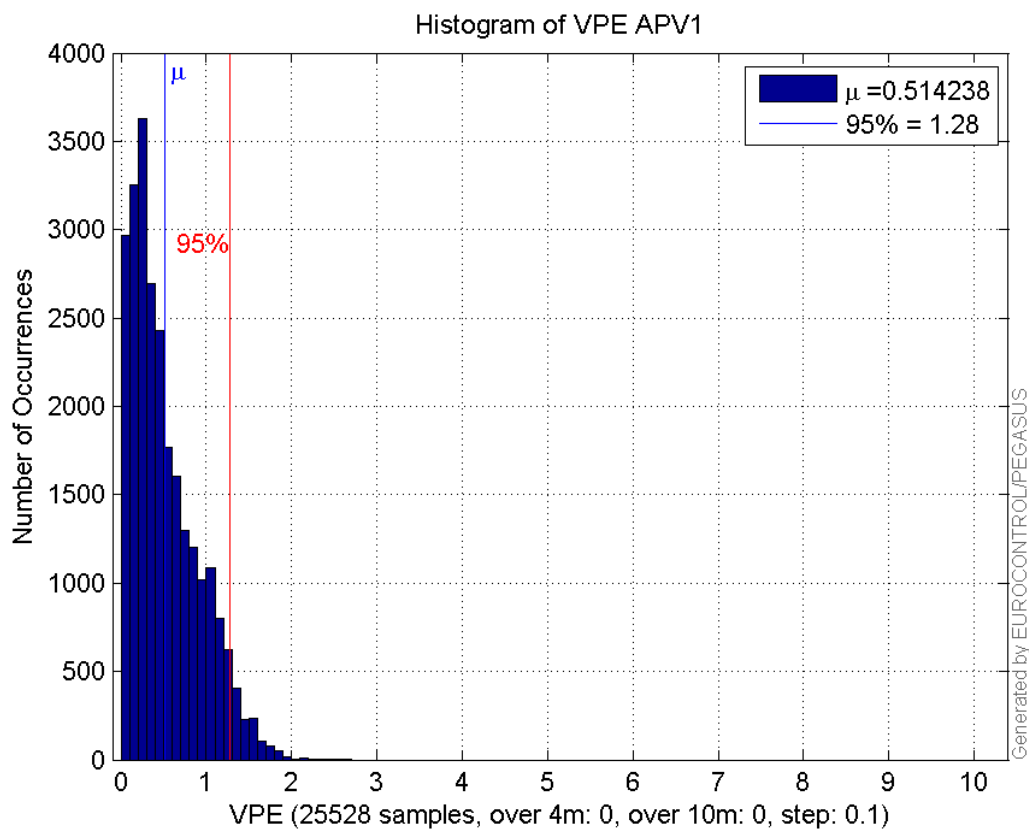
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.08289	0.372047	1.05548	1.73398	2.06028	1.14502
HPL	19.5545	6.47742	19.0272	31.6248	37.7599	20.5993
VPE	0.514238	0.39626	0.407128	1.27953	1.62283	0.649197
VPL	25.5501	7.56562	24.5171	38.2384	44.6374	26.6466

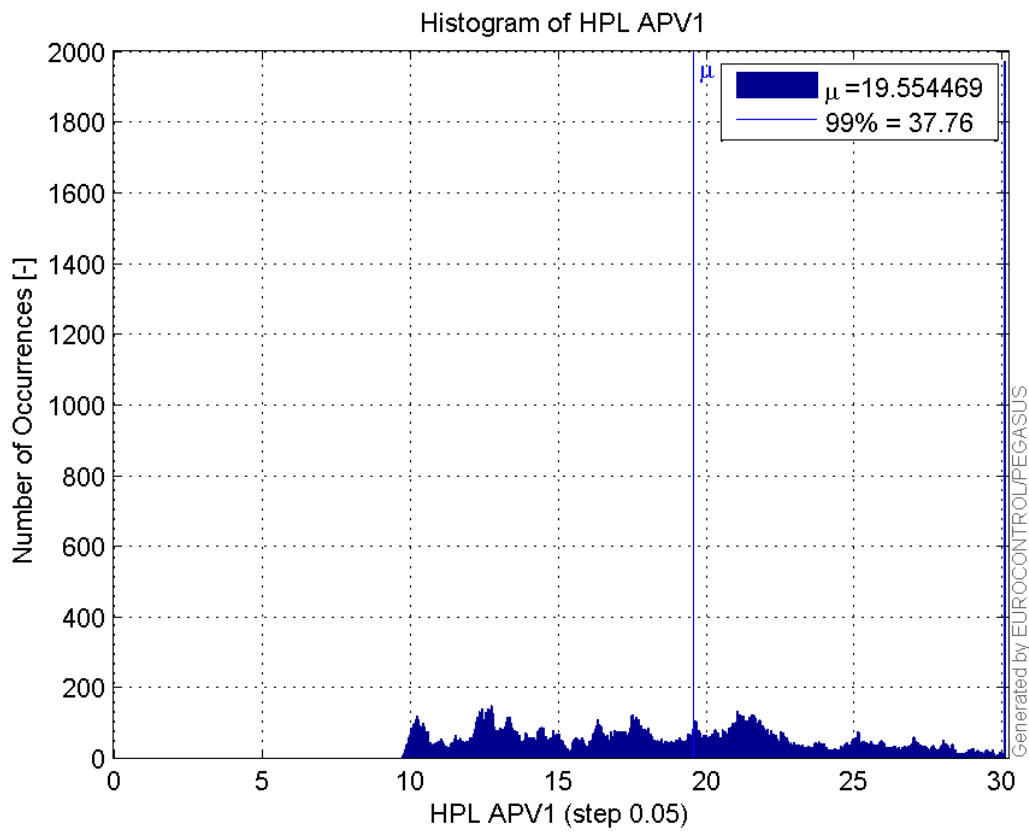
Histogram of HPE APV1:



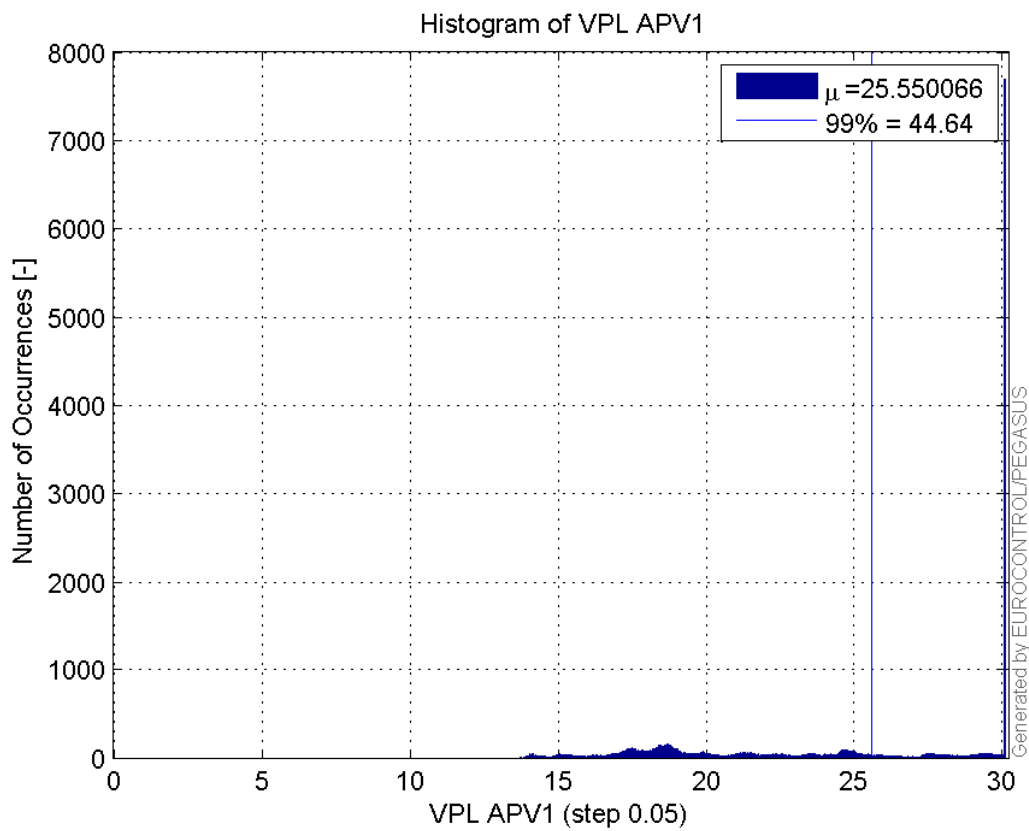
Histogram of VPE APV1:



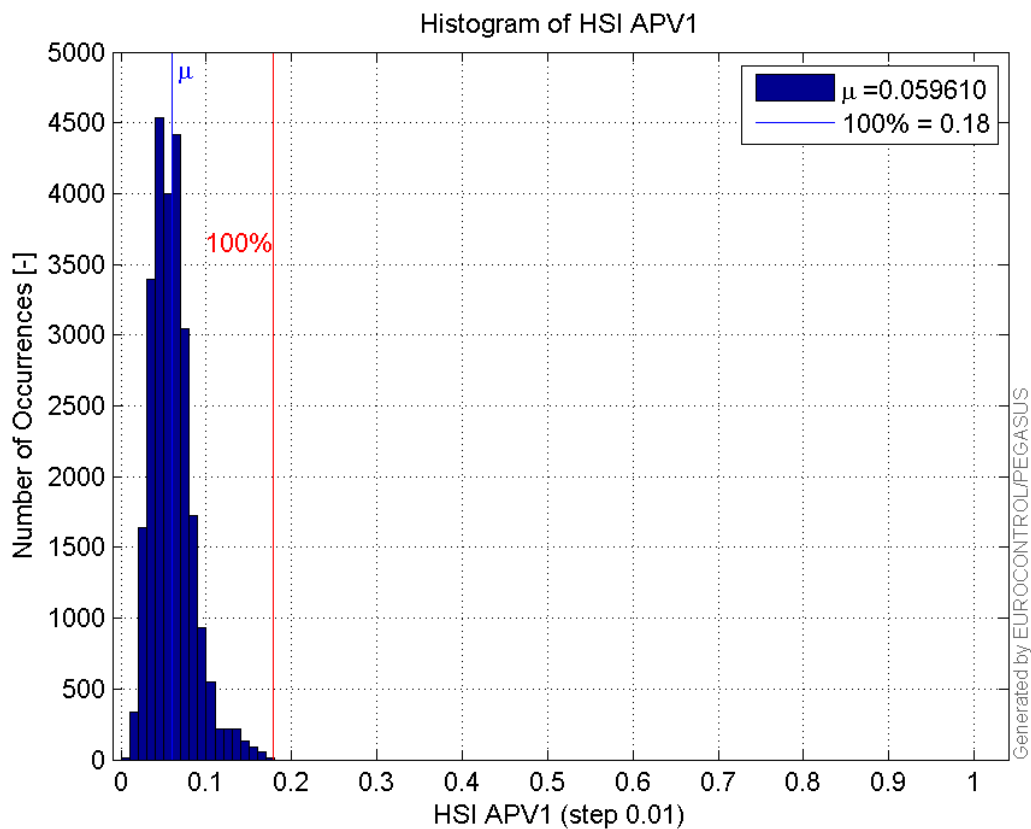
Histogram of HPL APV1:



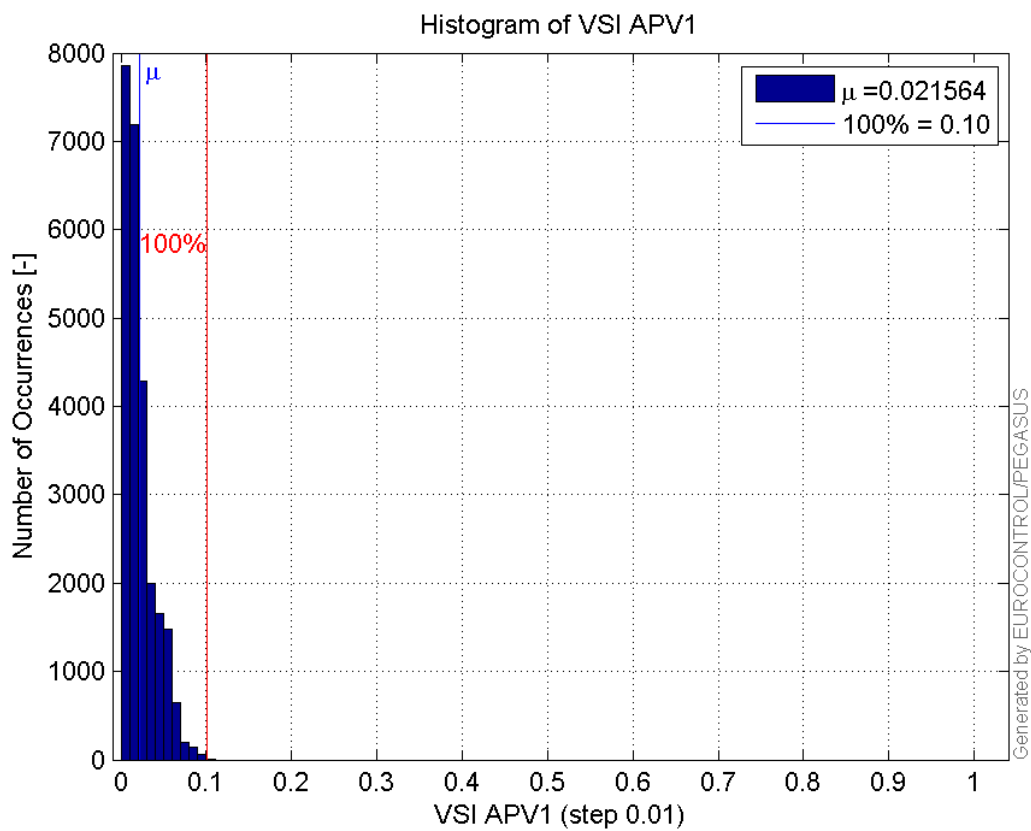
Histogram of VPL APV1:



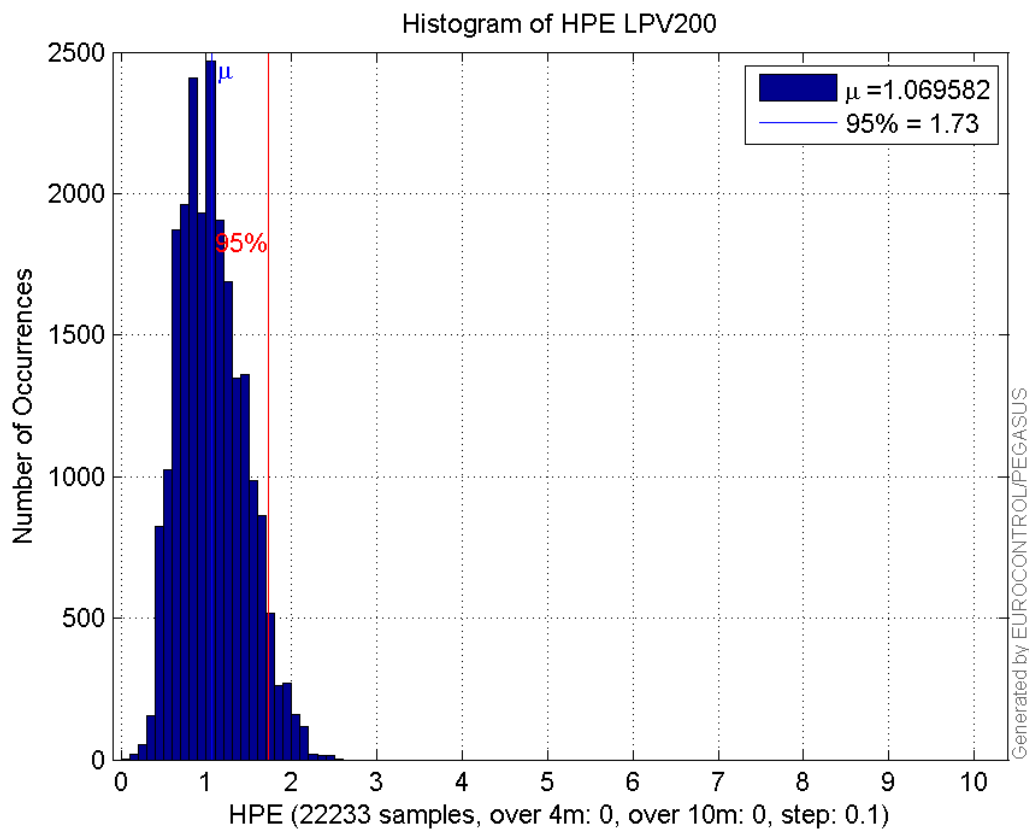
Histogram of HSI APV1:



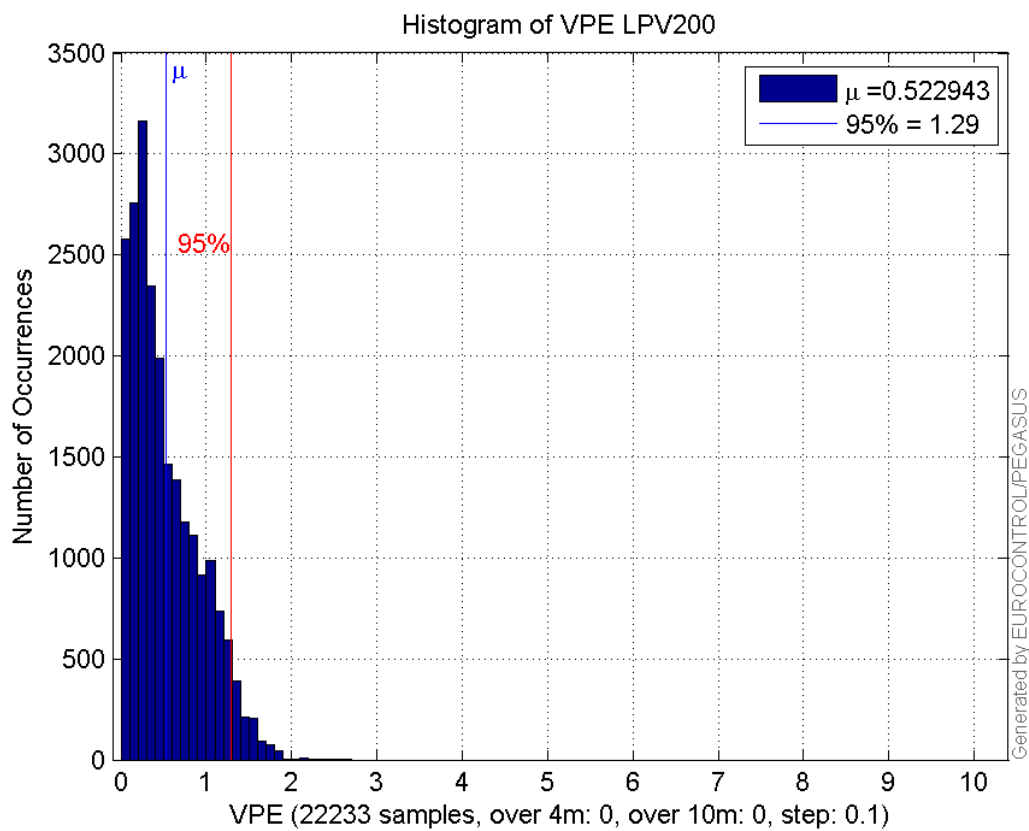
Histogram of VSI APV1:



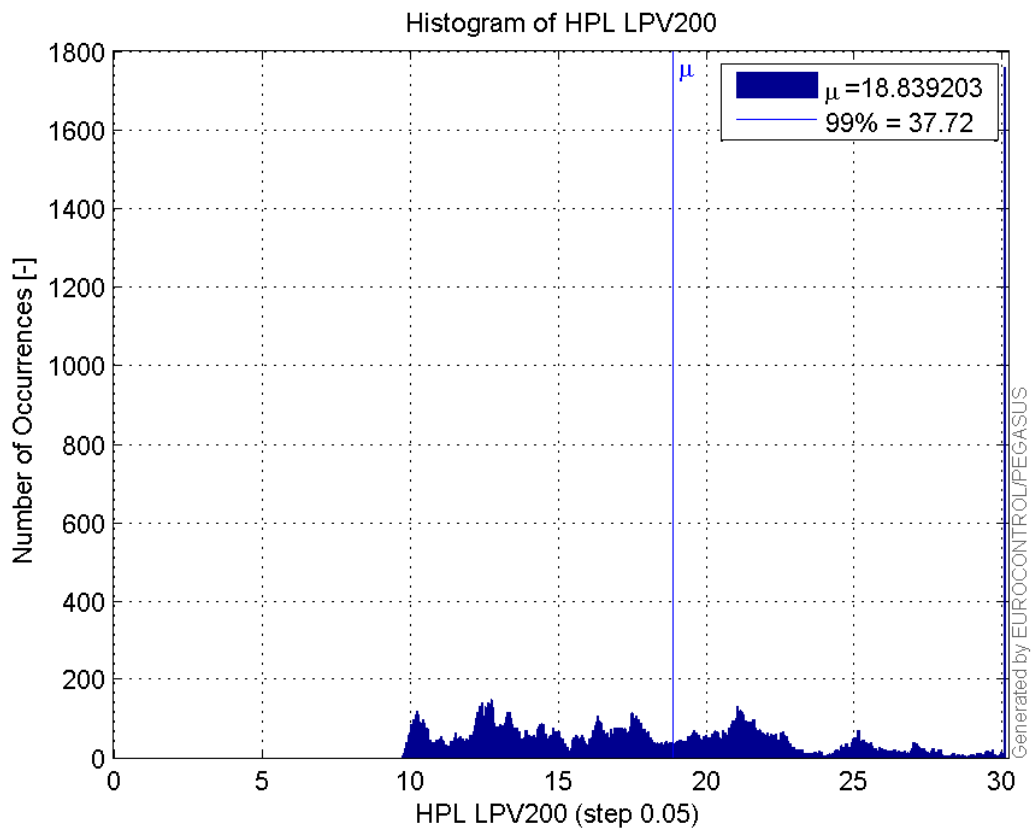
Histogram of HPE LPV200:



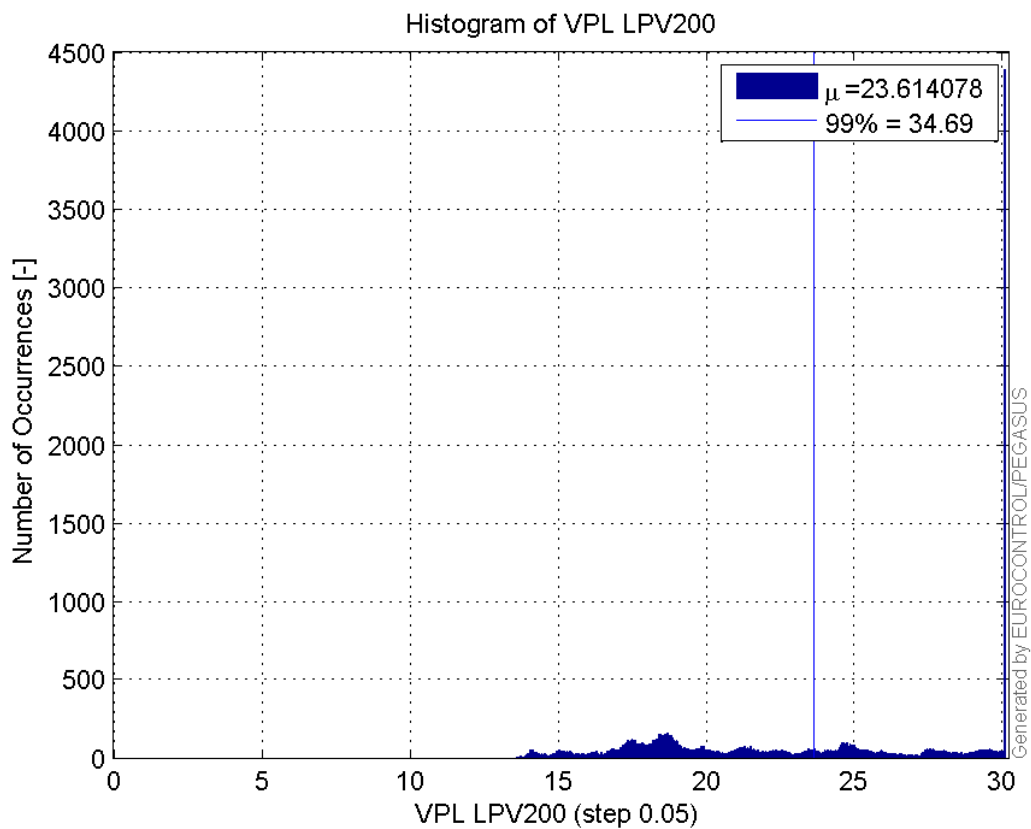
Histogram of VPE LPV200:



Histogram of HPL LPV200:

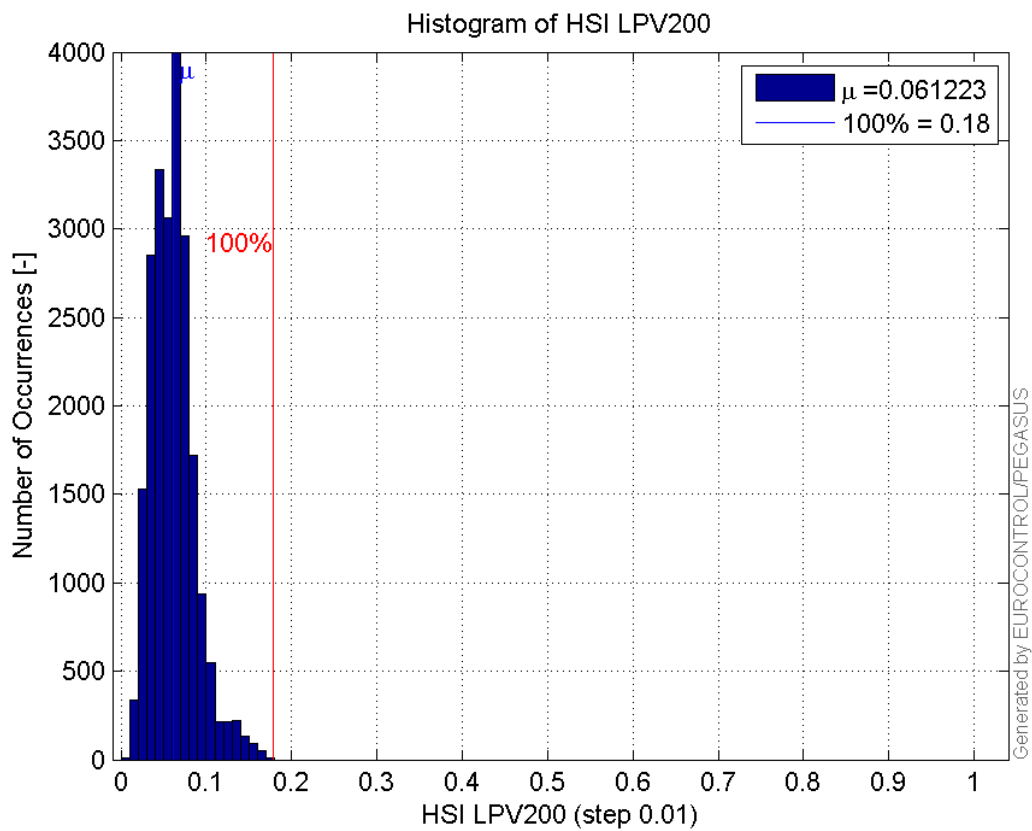


Histogram of VPL LPV200:

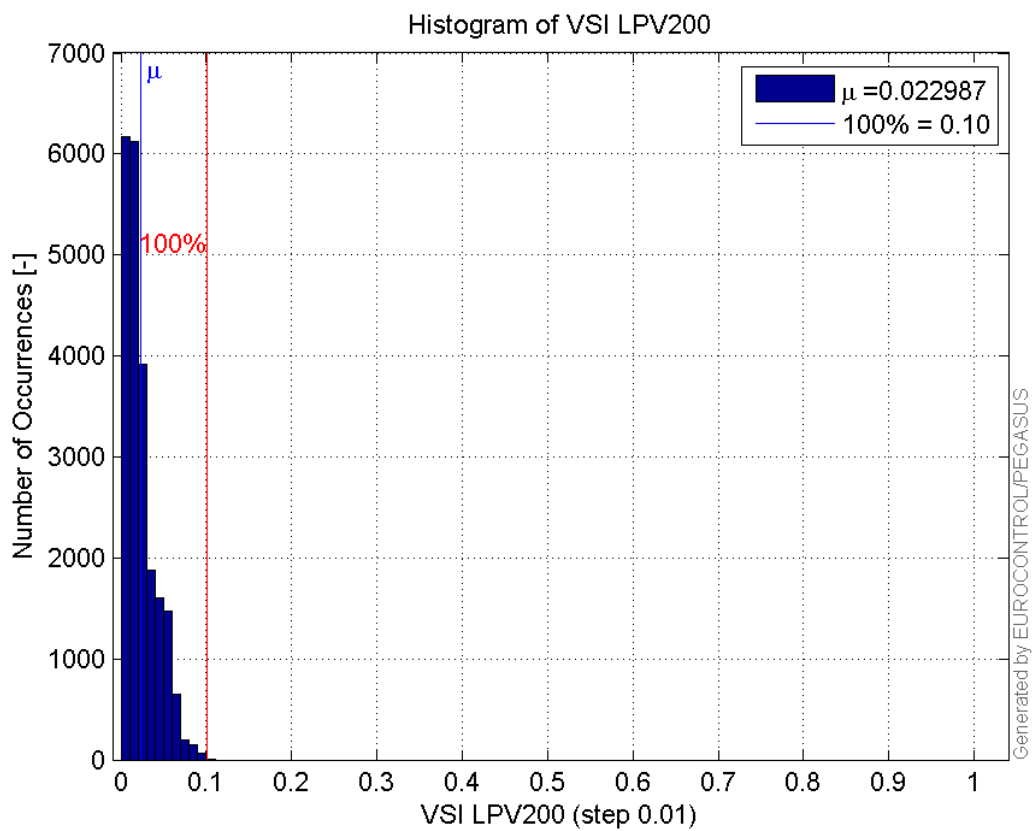


99

Histogram of HSI LPV200:

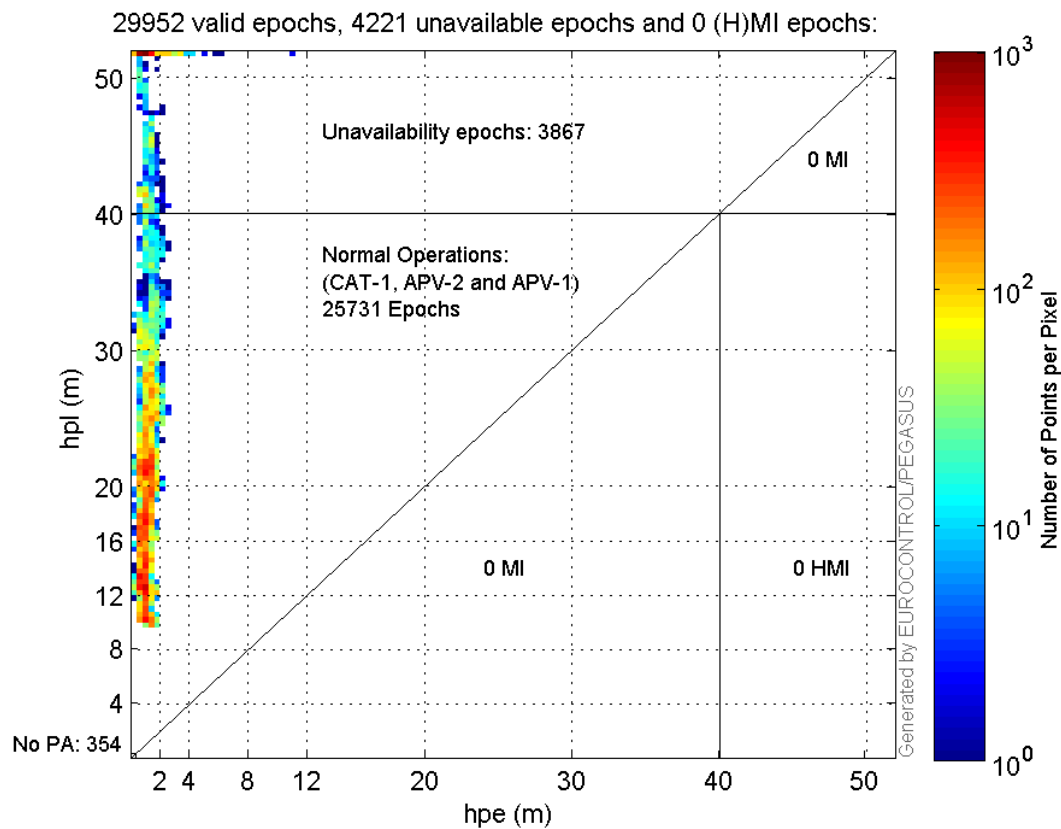


Histogram of VSI LPV200:

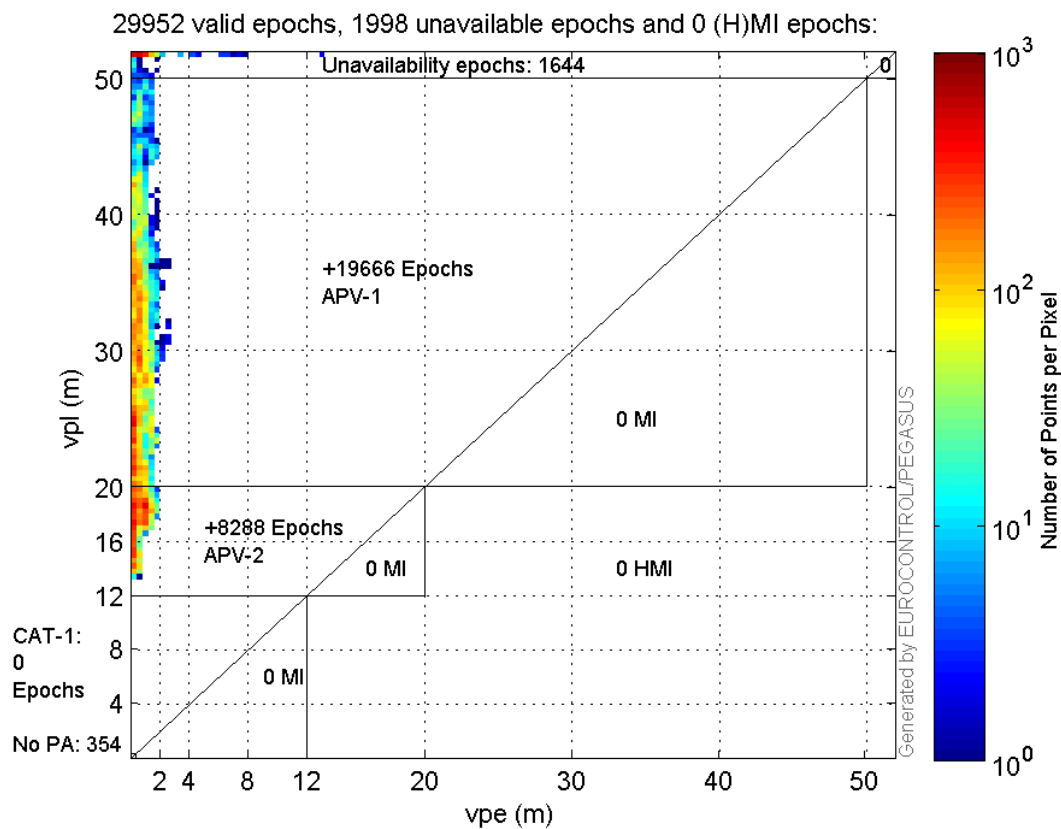


Stanford Plots

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:/PegasusDateJob/job/2017_01_25EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_25EGNOS2Hz/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	30.4296
init_alt	results	249.3479
mi_numbers	results	0

Range Domain

start: 10:47:43.5 25.01.2017 (week: 1933 sec: 298063.5)
end: 15:24:8.5 25.01.2017 (week: 1933 sec: 314648.5)
duration: 04:36:26 ..

quality

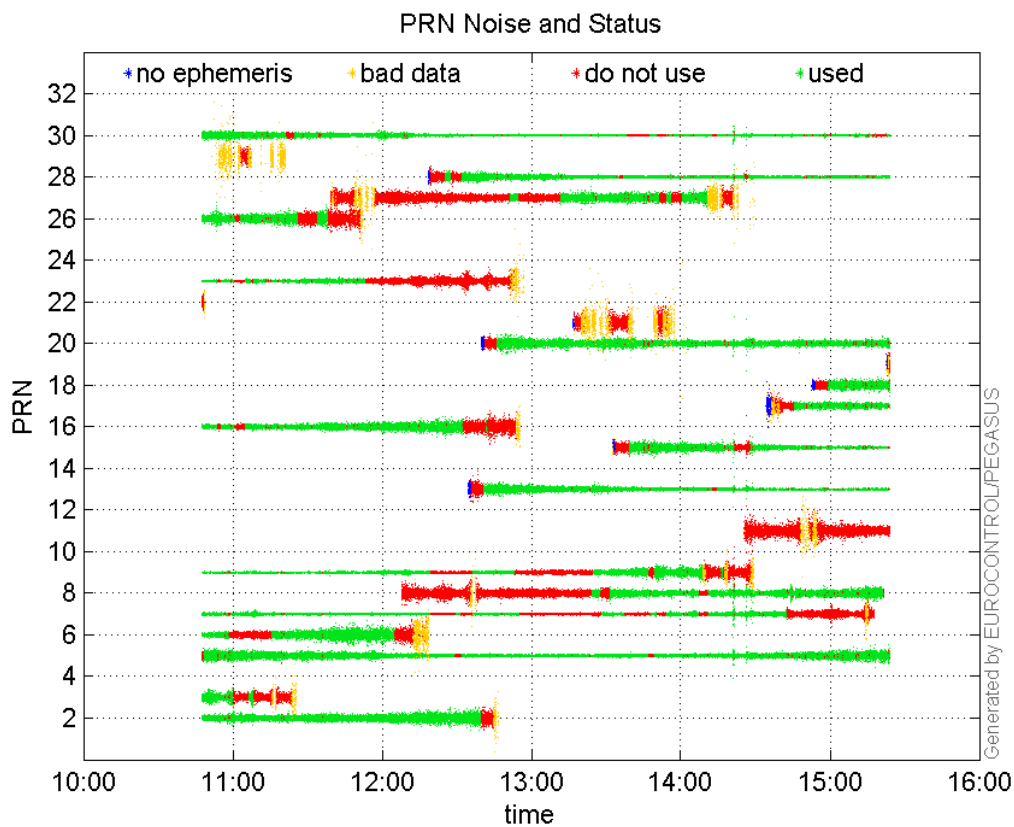
valid samples 30615
total samples 30615

PRN overview

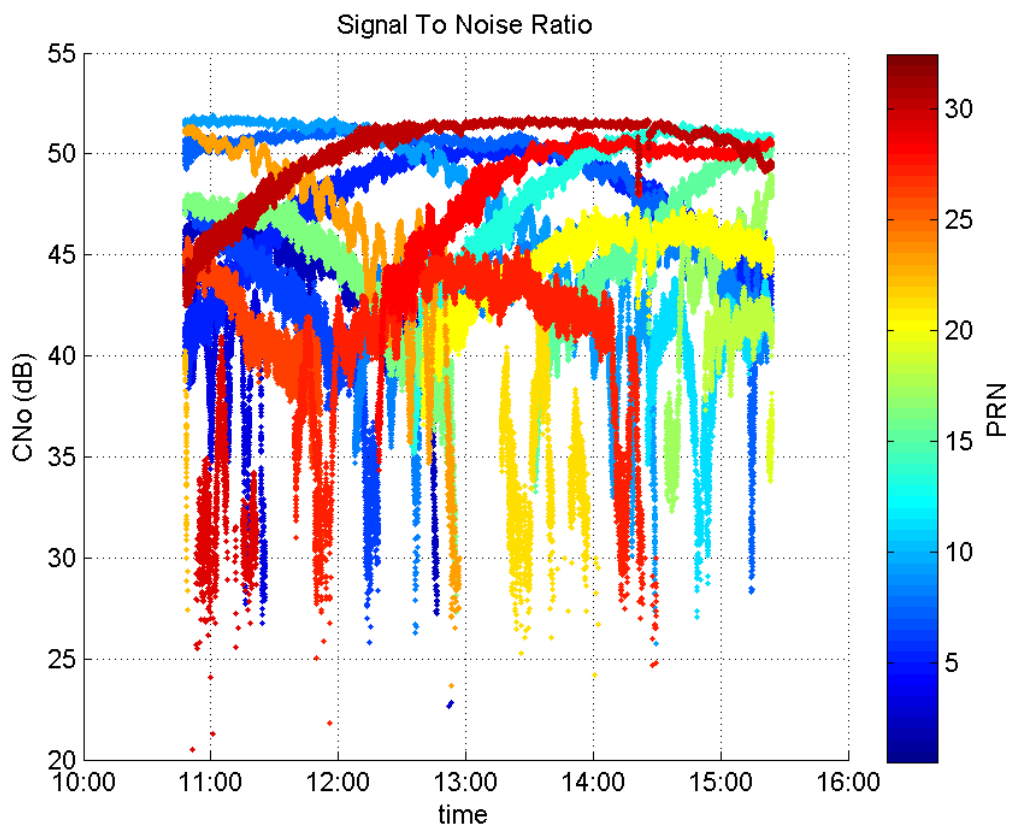
Number of Visible GPS Satellites 23
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



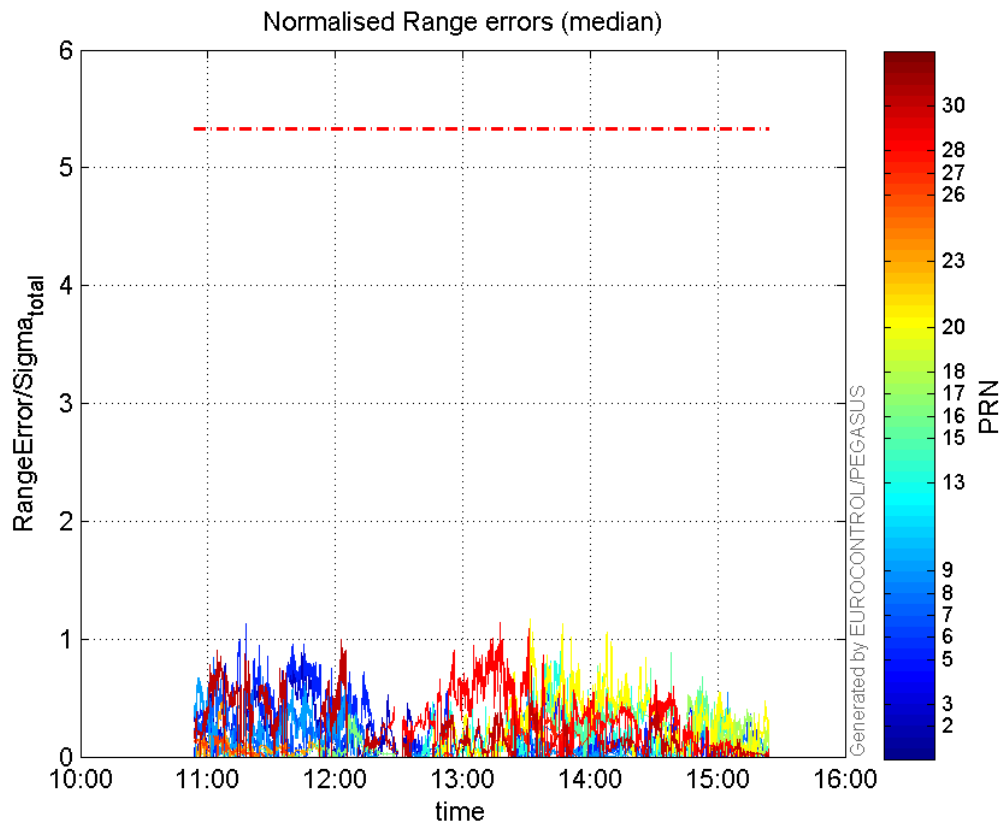
range errors

Number of Overbounding Norm Errors 0

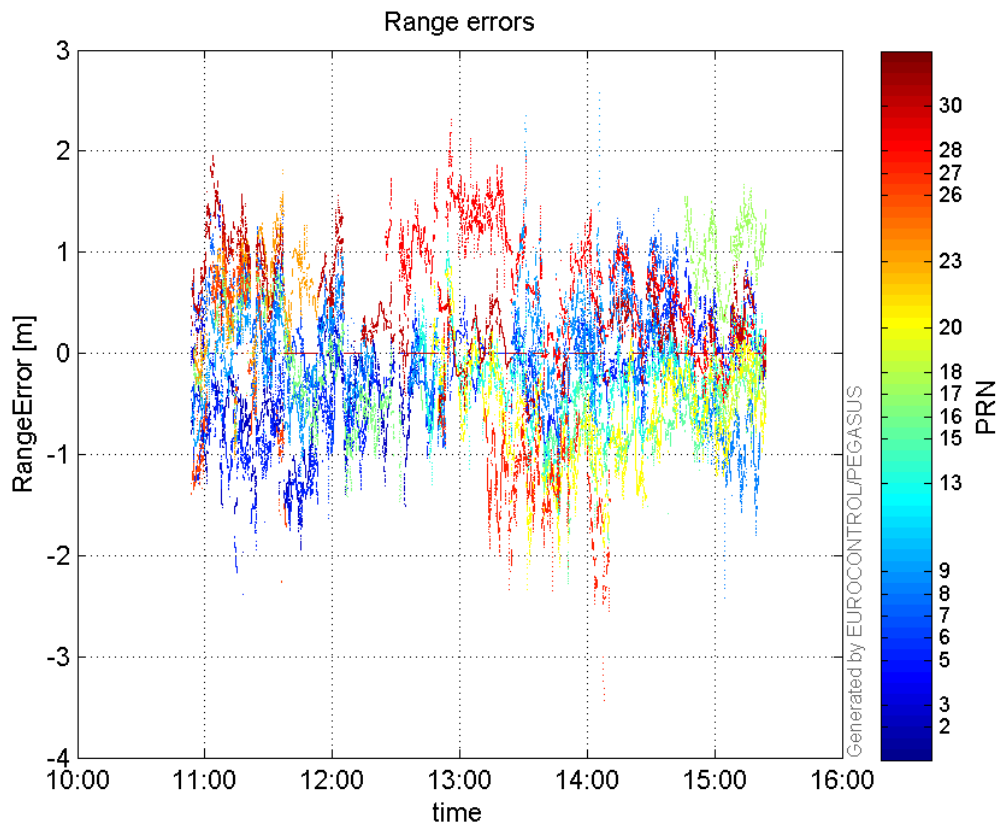
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1933	299885	2	1.05644	-1.96646	1.8614
1933	299240	3	0.430388	1.51025	3.50904
1933	299885	5	1.12814	-2.38297	2.11229
1933	300999	6	0.637901	1.48644	2.33021
1933	298963	7	0.842531	1.2795	1.51864
1933	313495	8	0.55002	-2.42053	4.40081
1933	307854	9	0.717202	2.34644	3.27166
1933	308785	13	1.03406	-1.58243	1.53031
1933	311883	15	0.887455	-1.58903	1.79055
1933	302820	16	0.366145	-1.42252	3.88512
1933	312373	17	0.524171	1.50795	2.87683
1933	314238	18	0.372478	-0.937627	2.51727
1933	307918	20	1.16853	-2.33481	1.99807
1933	299217	23	0.467727	1.03286	2.20824
1933	299012	26	0.183497	0.91127	4.96613
1933	310066	27	0.532788	-3.43651	6.45004
1933	307048	28	1.14237	1.86188	1.62984
1933	302570	30	1.00092	1.56272	1.56128

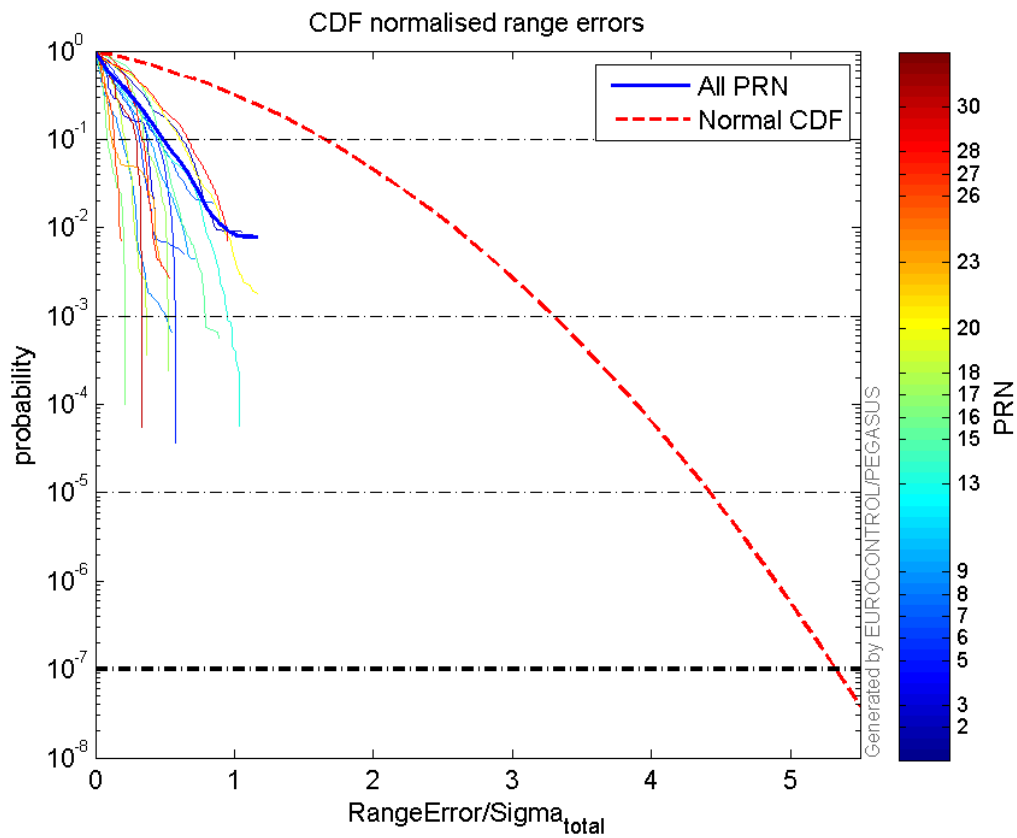
Normalised Range errors (median):



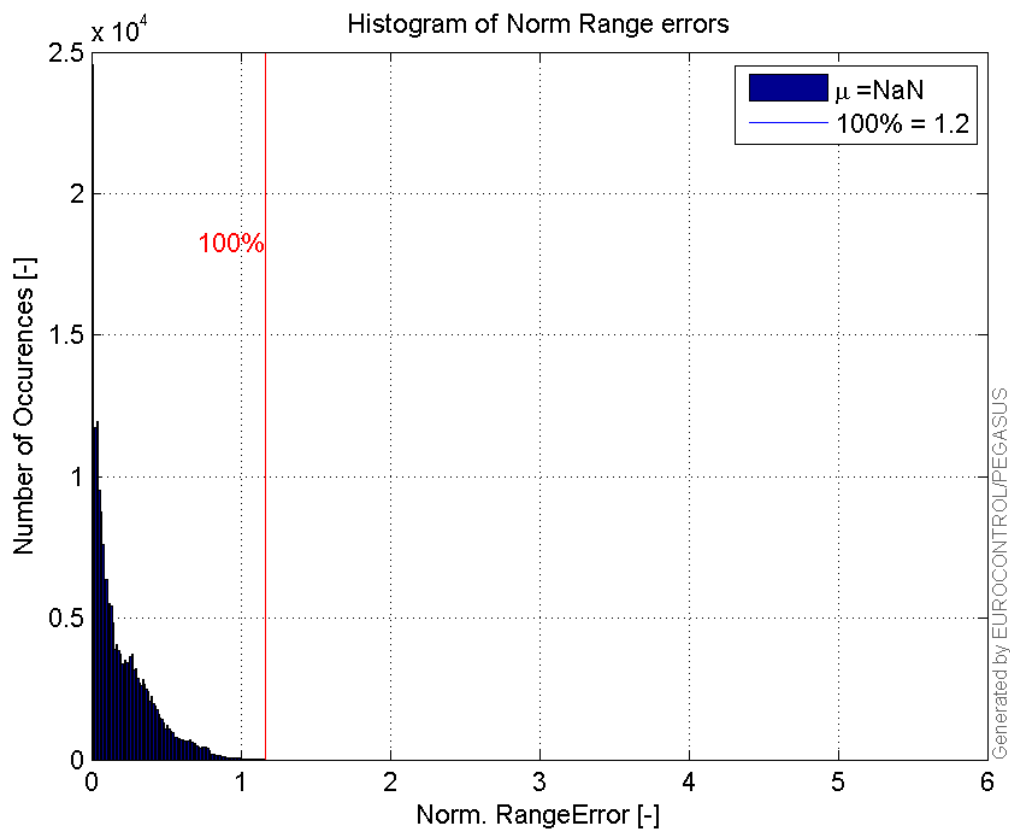
Range errors:



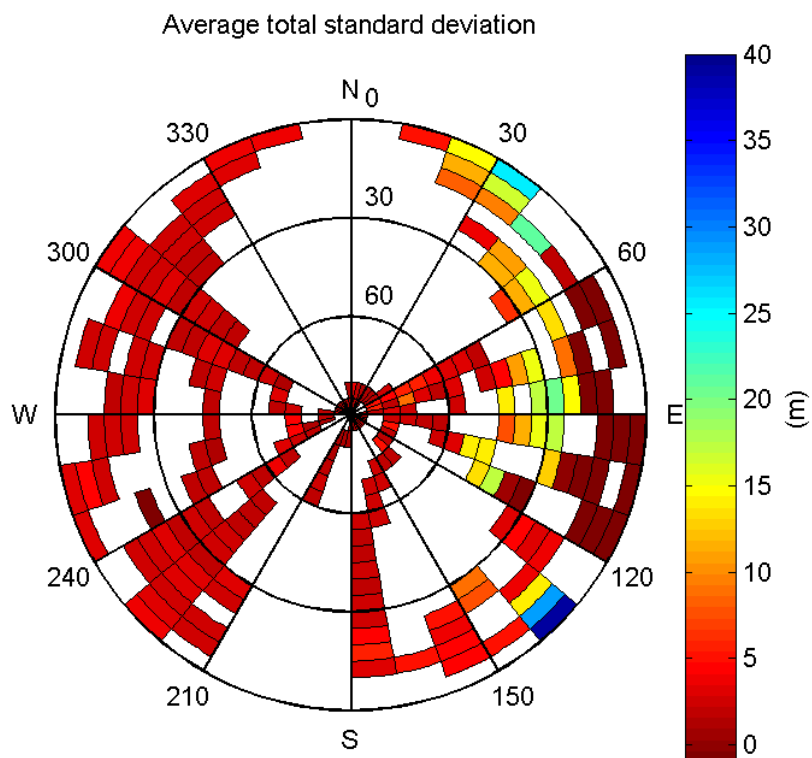
CDF normalised range errors:



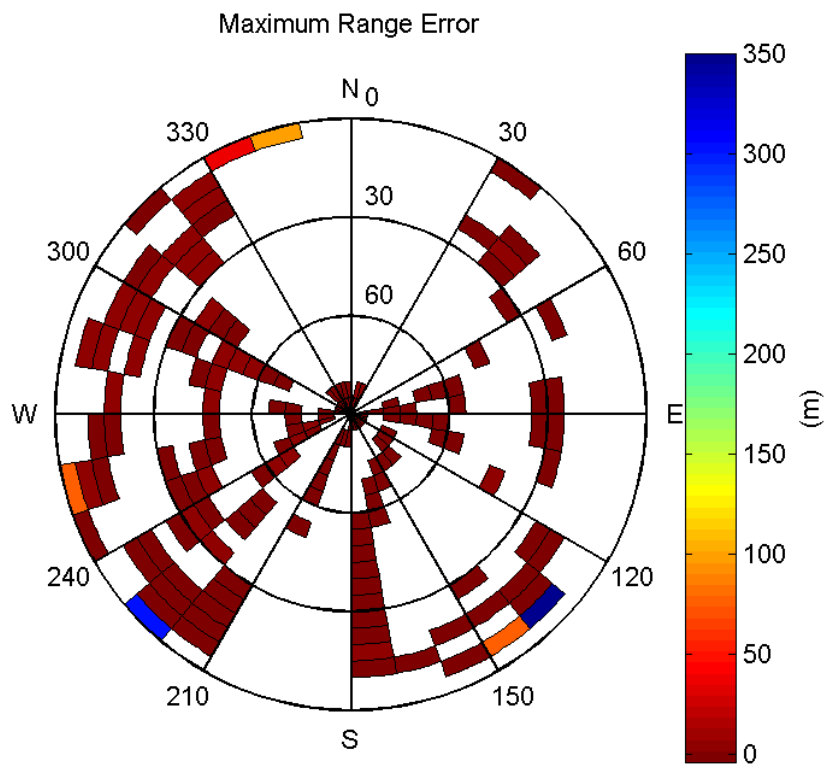
Histogram of Norm Range errors:



Sigma Sky Plot:

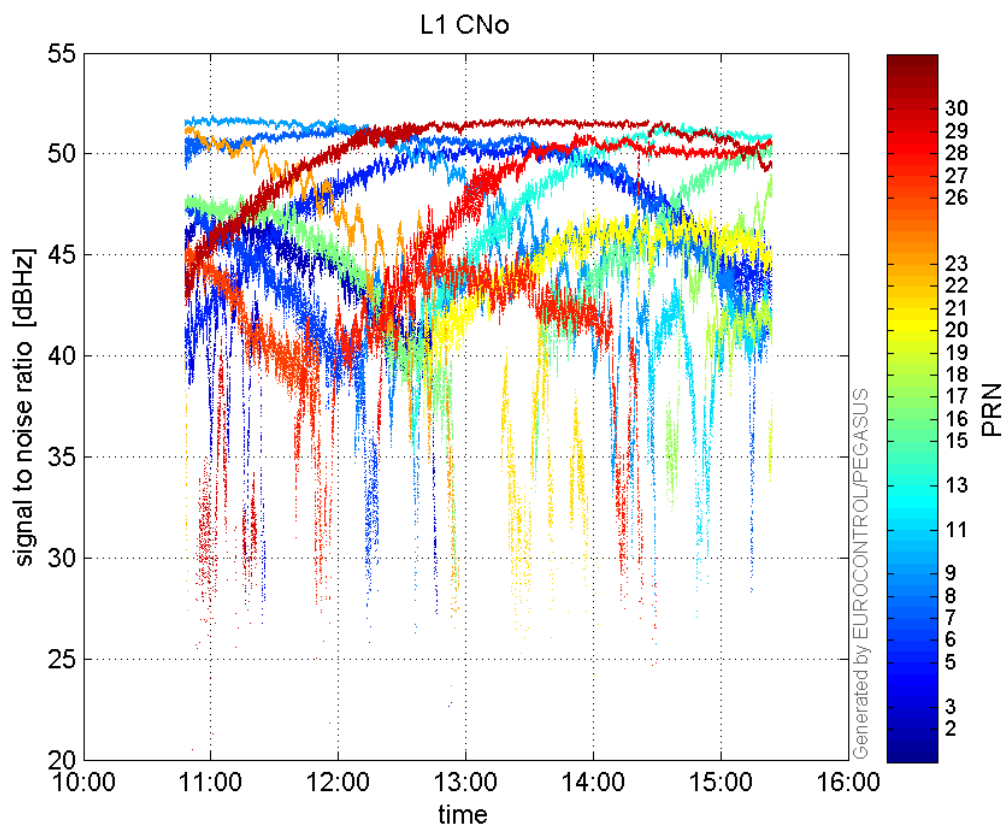


Norm Error Sky Plot:

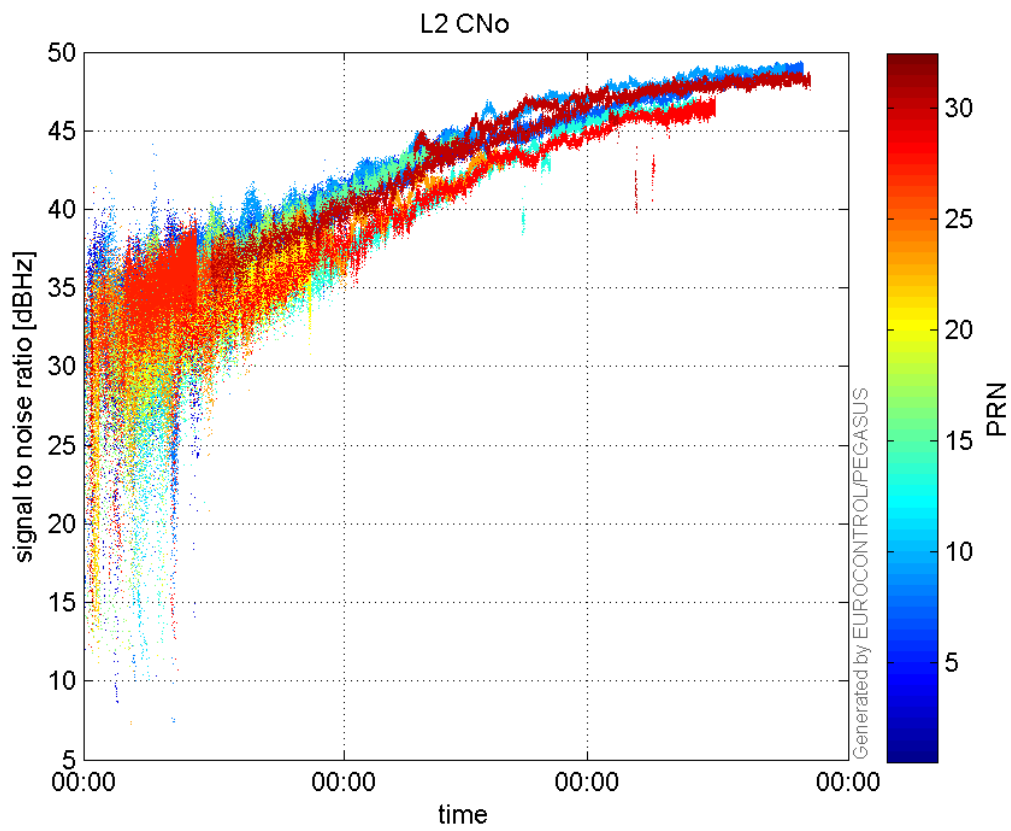


signal quality

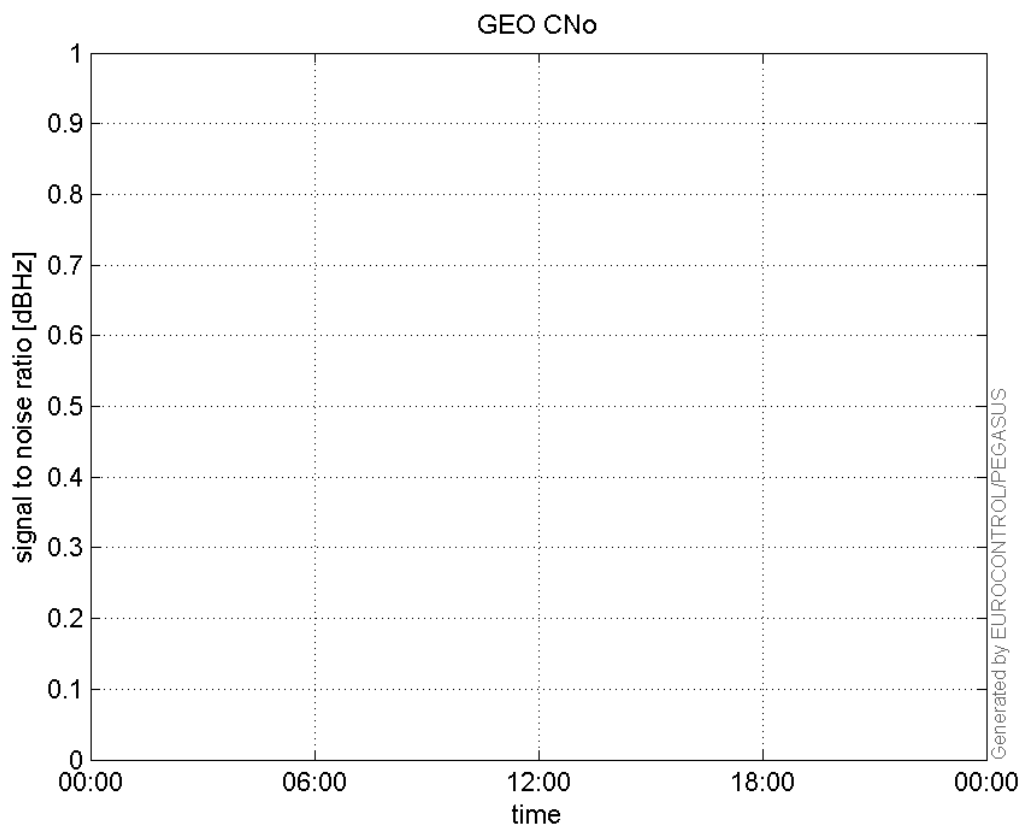
L1 CNo:



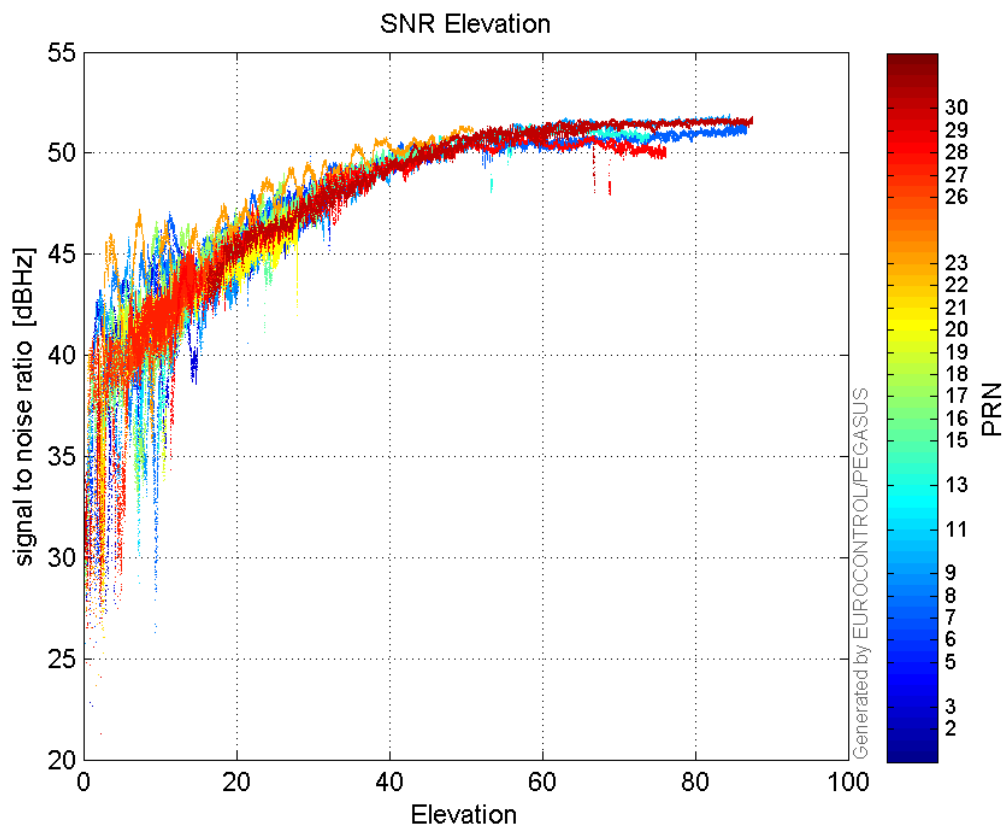
L2 CNo:



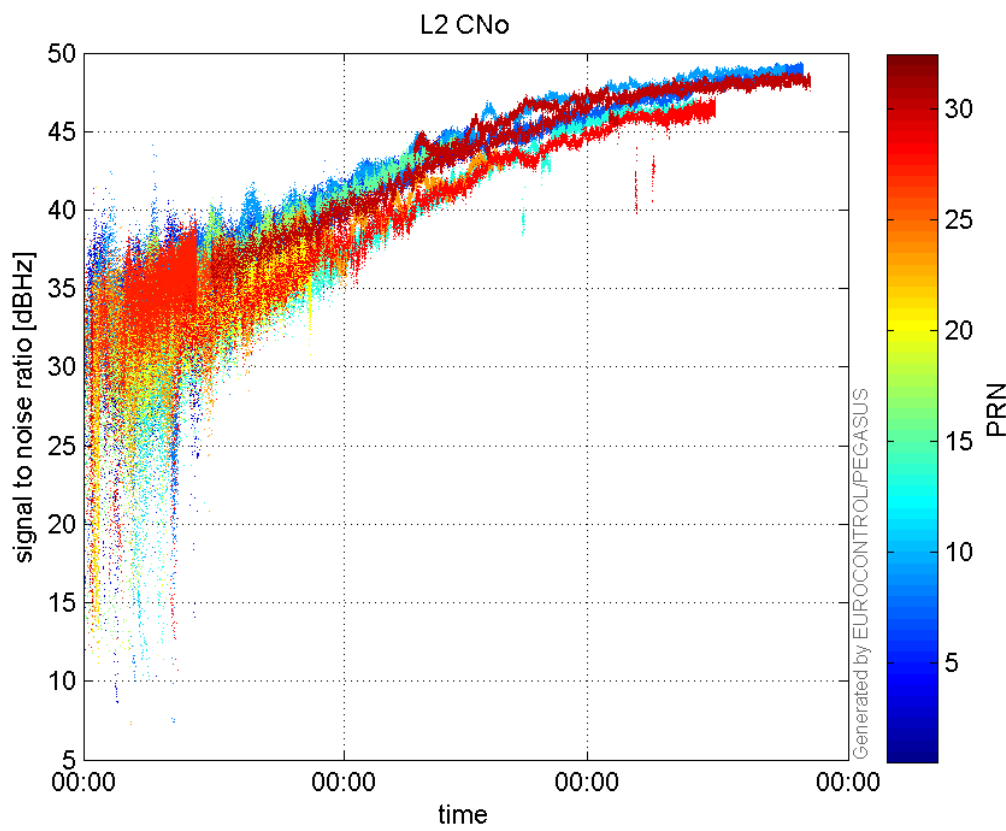
GEO CNo:



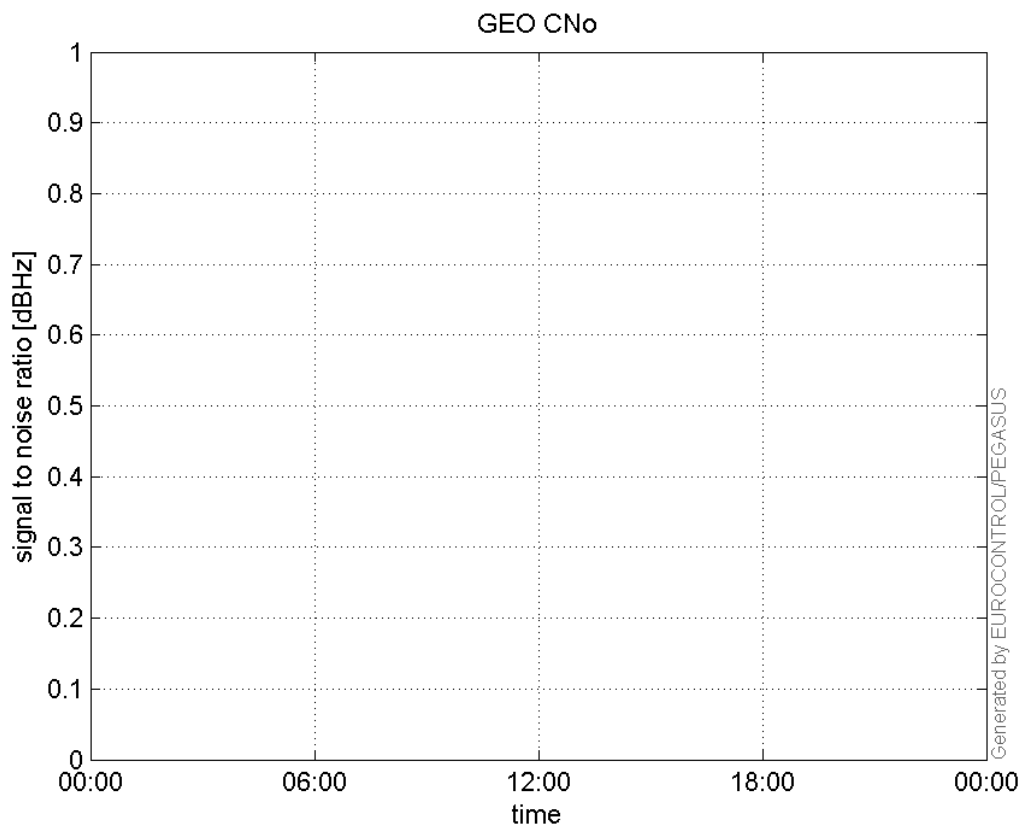
SNR Elevation:



L2 CNo:

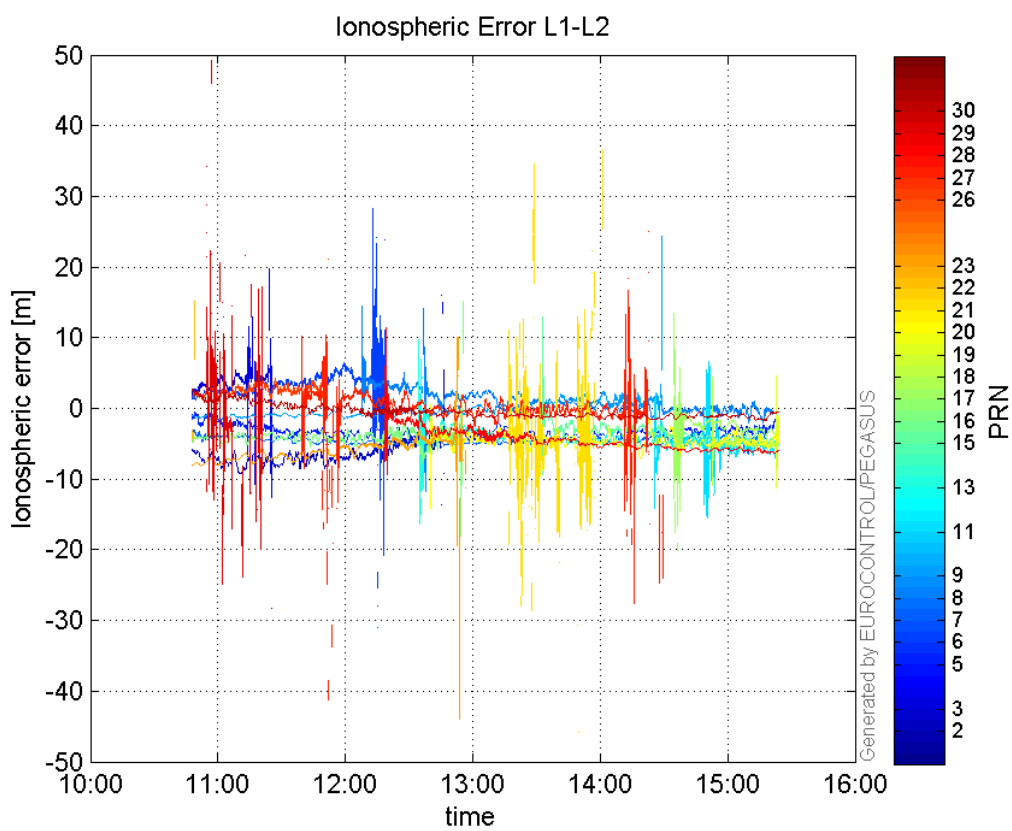


GEO CNo:



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/2017_01_25EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_01_25EGNOS2Hz/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	30.4296
init_alt	results	249.3479
mi_numbers	results	0