

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 15/03/2017

SBAS Messages

start: 09:12:35.129 14.02.2017 (week: 1936 sec: 205955.129)
end: 14:03:36.129 14.02.2017 (week: 1936 sec: 223416.129)
duration: 04:51:01 ..

quality

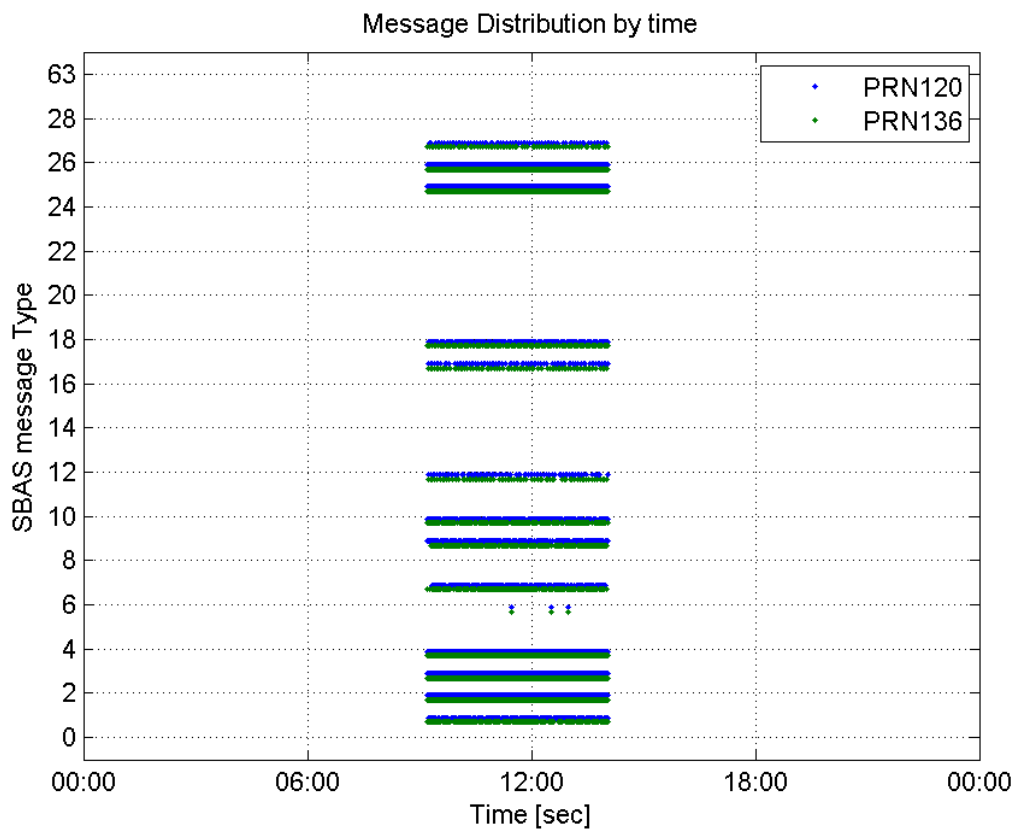
valid samples 27589
total samples 27589
number of SBAS PRNs 2

SBAS SIS Overview

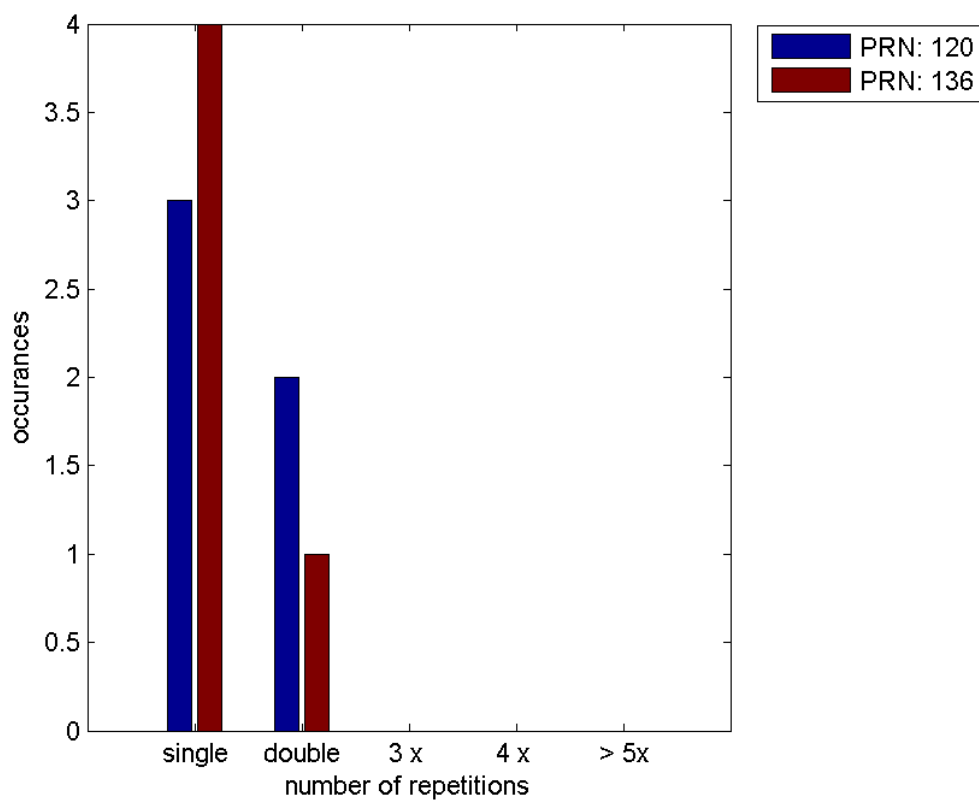
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	3	2	0	0	0
PRN 136	4	1	0	0	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

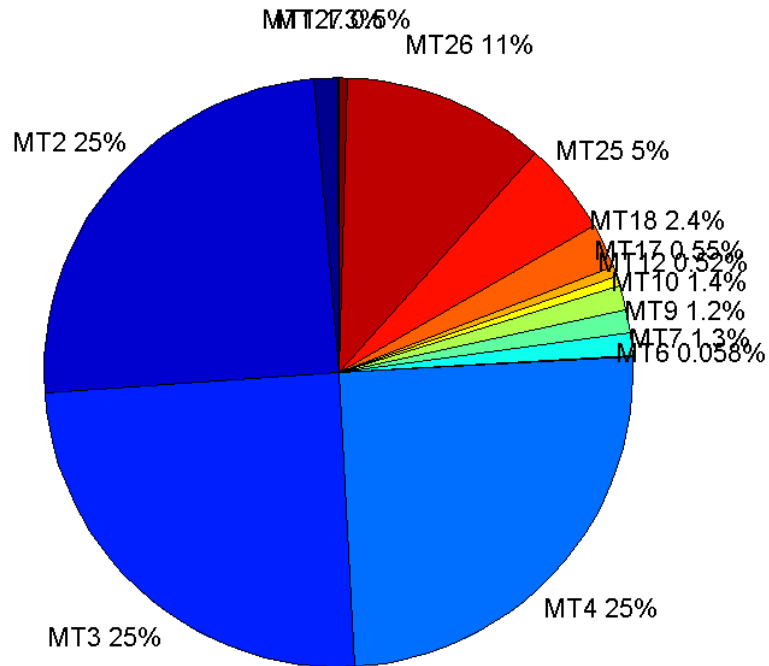
	number of messages	%
MT 0	0	0
MT 1	180	1.30624
MT 2	3419	24.8113
MT 3	3416	24.7896
MT 4	3434	24.9202
MT 5	0	0
MT 6	8	0.0580552
MT 7	177	1.28447
MT 9	172	1.24819
MT 10	188	1.3643
MT 12	72	0.522496
MT 17	76	0.551524
MT 18	334	2.4238
MT 24	0	0
MT 25	695	5.04354
MT 26	1540	11.1756
MT 27	69	0.500726
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13780	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	97.0503	29	0	0
MT 2	4	48	5.10796	865	1	4
MT 3	4	24	5.11245	871	2	5
MT 4	4	28	5.08535	858	1	5
MT 5	--	--	--	--	--	--
MT 6	1	3732	765.714	2	2	2
MT 7	75	320	95.017	19	0	4
MT 9	76	320	101.52	0	0	0
MT 10	76	398	92.8128	23	1	4
MT 12	186	793	243.887	71	13	13
MT 17	187	601	230.827	0	0	0
MT 18	4	200	52.048	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	112	25.1297	0	0	0
MT 26	4	52	11.3372	0	0	0
MT						

27	192	585	251.706	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

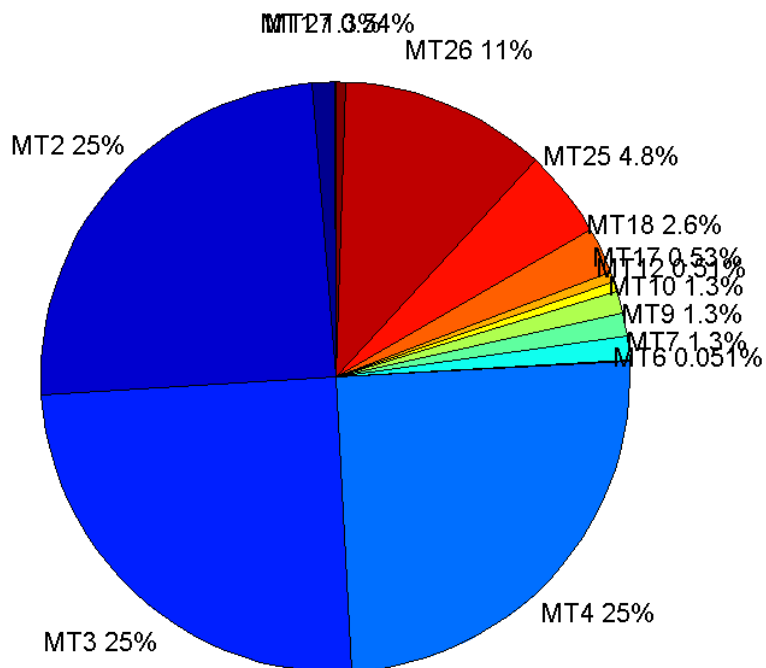
	number of messages	%
MT 0	0	0
MT 1	176	1.27453
MT 2	3414	24.723
MT 3	3439	24.904
MT 4	3447	24.962
MT 5	0	0
MT 6	7	0.0506916
MT 7	177	1.28177
MT 9	175	1.26729
MT 10	173	1.25281
MT 12	71	0.514157
MT 17	73	0.528641

MT 18	356	2.57803
MT 24	0	0
MT 25	661	4.78673
MT 26	1566	11.3404
MT 27	74	0.535882
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	13809	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	399	99.1486	25	0	0
MT 2	4	17	5.11544	867	0	7
MT 3	4	17	5.07795	845	0	5
MT 4	4	13	5.06616	841	0	4
MT 5	--	--	--	--	--	--
MT 6	1	3732	893.167	2	2	2
MT 7	76	321	98.0341	35	0	2
MT 9	76	318	97.4425	0	0	0
MT 10	76	322	100.831	30	0	4
MT 12	188	777	245.529	70	14	14
MT 17	188	581	238.764	0	0	0
MT 18	4	196	49.0085	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	80	26.4273	0	0	0
MT 26	4	60	11.1546	0	0	0
MT 27	191	584	238.055	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/2017_02_14EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDataJob/job/2017_02_14EGNOS2Hz/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: 09:12:35 14.02.2017 (week: 1936 sec: 205955)
end: 14:03:36.5 14.02.2017 (week: 1936 sec: 223416.5)
duration: 04:51:02 ..

quality

valid samples 31710
total samples 32374

Event tables

Position discontinuity events type long
APV-I discontinuity events type long
APV-35m discontinuity events type independent
LPV-200 discontinuity events type independent
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	220935	1.60308	9.74206	0.164553	-0.99948	13.8289	0.0722747
max normVer	214392	1.62053	20.3447	0.0796538	1.88185	18.9164	0.0994826
max HPE	223124	4.93731	534.2	0.00924243	-4.56125	672.461	0.00678292
max VPE	213145	4.30593	783.979	0.0054924	5.07539	783.897	0.00647456
min HPL	221939	0.741803	9.11862	0.0813504	0.667978	13.1321	0.050866
min VPL	221939	0.741803	9.11862	0.0813504	0.667978	13.1321	0.050866

Position discontinuity events :

#	Epoch	duration	stable period
1	207619	36.5	11.5
2	208491	4.5	103.5
3	212463	140	11.5

APV-I discontinuity events :

#	Epoch	duration	stable period
1	207619	44.5	11.5
2	207991	79.5	167.5
3	208491	12.5	49.5
4	212271	731.5	512.5
5	213007	743	4
6	213885	94	1
7	214006	80.5	27.5
8	214488	6.5	1.5
9	214496	7.5	1.5
10	214505	11	1
11	214517	35	1
12	215632	80.5	535.5
13	215780	79.5	67.5
14	216390	9.5	396.5
15	219379	77.5	29.5
16	221130	79.5	337
17	221218	79.5	8.5
18	222411	157.5	1113.5

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	207772	11.5	108.5
2	207991	79.5	167.5
3	209049	30	89

4	209111	5	29
5	214006	80.5	27.5
6	214478	73.5	31.5
7	215632	80.5	535.5
8	215780	79.5	67.5
9	216390	9.5	35.5
10	217149	143.5	26.5
11	218989	299.5	126.5
12	219646	38.5	20.5
13	221130	79.5	337
14	222411	157.5	573.5
15	223261	10.5	18.5

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	207772	11.5	108.5
2	207991	79.5	167.5
3	209049	30	89
4	209111	5	29
5	214006	80.5	27.5
6	214478	73.5	31.5
7	215632	80.5	535.5
8	215780	79.5	67.5
9	216390	9.5	35.5
10	217149	143.5	26.5
11	218989	299.5	126.5
12	219646	38.5	20.5
13	221130	79.5	337
14	222411	157.5	573.5
15	223261	10.5	18.5

First Glance analysis

Duration	17462
Number of Samples	32374
Number of invalid sample	664
Number of no position solution samples	696
Number of missing sample	2550
Logging Loss	7.3016
Processing Loss	2.051
Number of Misleading Information	0
Data gaps	12
Discontinuities	44

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
31014	26808	25100	0	25100

Accuracy statistics :

--	--	--	--	--	--

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.64513	1.63959	1.63975	NaN	1.63975
HPEscale 95%	NaN	5.45872	5.48923	NaN	5.48923
VPE 95%	1.44714	1.43093	1.42149	NaN	1.42149
VPEscale 95%	NaN	2.95401	2.08999	NaN	2.08999

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.978051	0.845412	0.791548	0	0.791548
measurements	0.957991	0.828072	0.775314	0	0.775314
Operational	1.77609	1.53522	1.43741	0	1.43741

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	32	77	119	--	119
Long	3	18	35	--	35
Independent	1	10	15	--	15
P(disc.)	0.000483653	0.00559534	0.00896414	NaN	0.00896414
P(slide)	0.0143322	0.0372836	0.0586056	NaN	0.0586056

Integrity events :

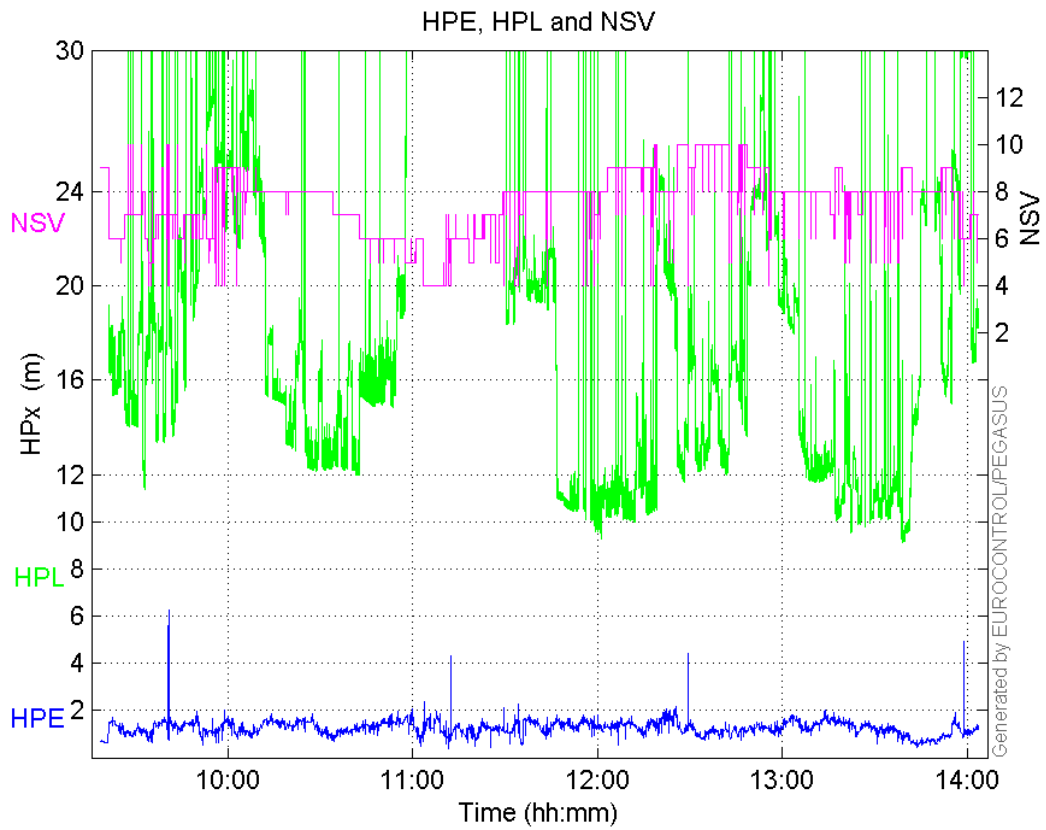
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

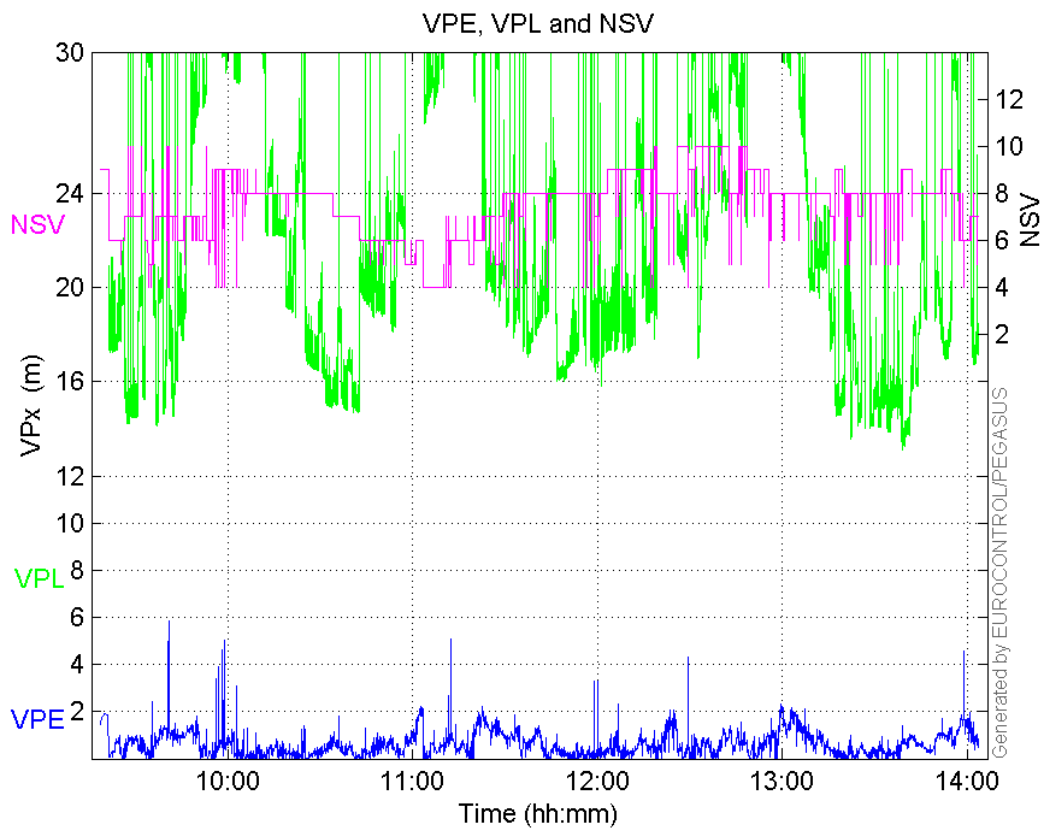
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	31014	26808	25100	0	25100
SIS Availability	0.978051	0.845412	0.791548	0	0.791548
Local Availability	0.957991	0.828072	0.775314	0	0.775314
Operational Availability	1.77609	1.53522	1.43741	0	1.43741
HPE 95%	1.64513	1.63959	1.63975	NaN	1.63975
HPEscale 95%	NaN	5.45872	5.48923	NaN	5.48923
VPE 95%	1.44714	1.43093	1.42149	NaN	1.42149
VPEscale 95%	NaN	2.95401	2.08999	NaN	2.08999
All Discontinuity Events	32	77	119	--	119
Long Discontinuity Events	3	18	35	--	35
Independent Discontinuity Events	1	10	15	--	15
P(discontinuity)	0.000483653	0.00559534	0.00896414	NaN	0.00896414
P(sliding window)	0.0143322	0.0372836	0.0586056	NaN	0.0586056
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:

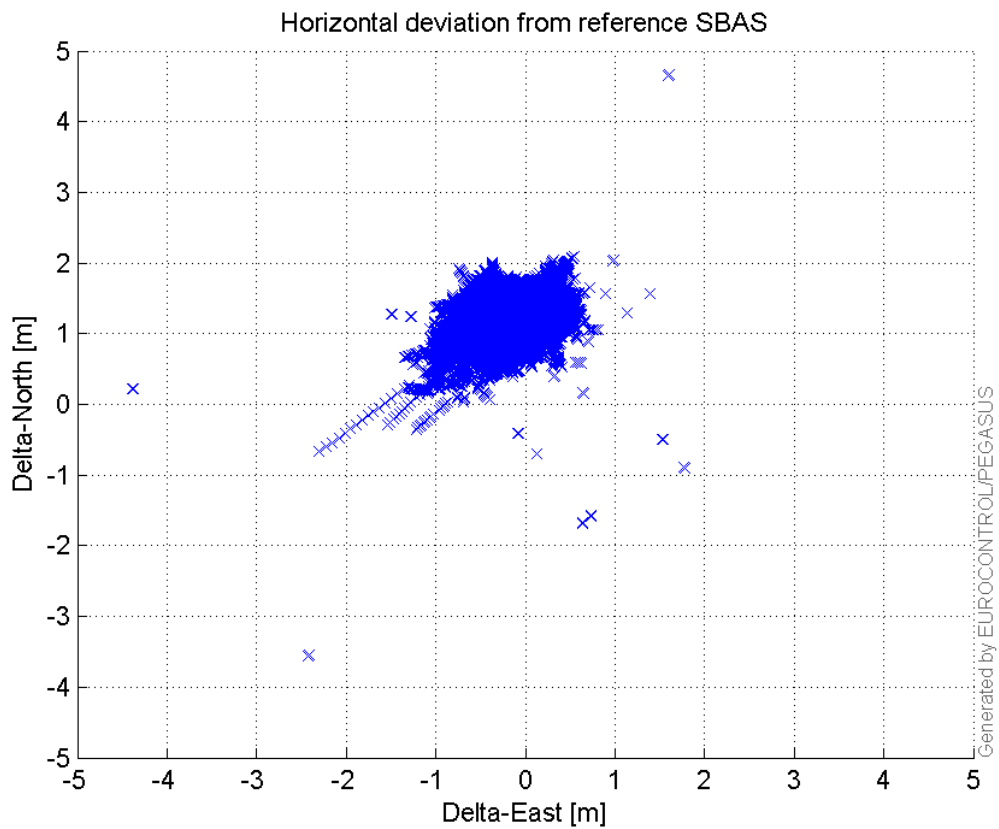


VPE, VPL and NSV:



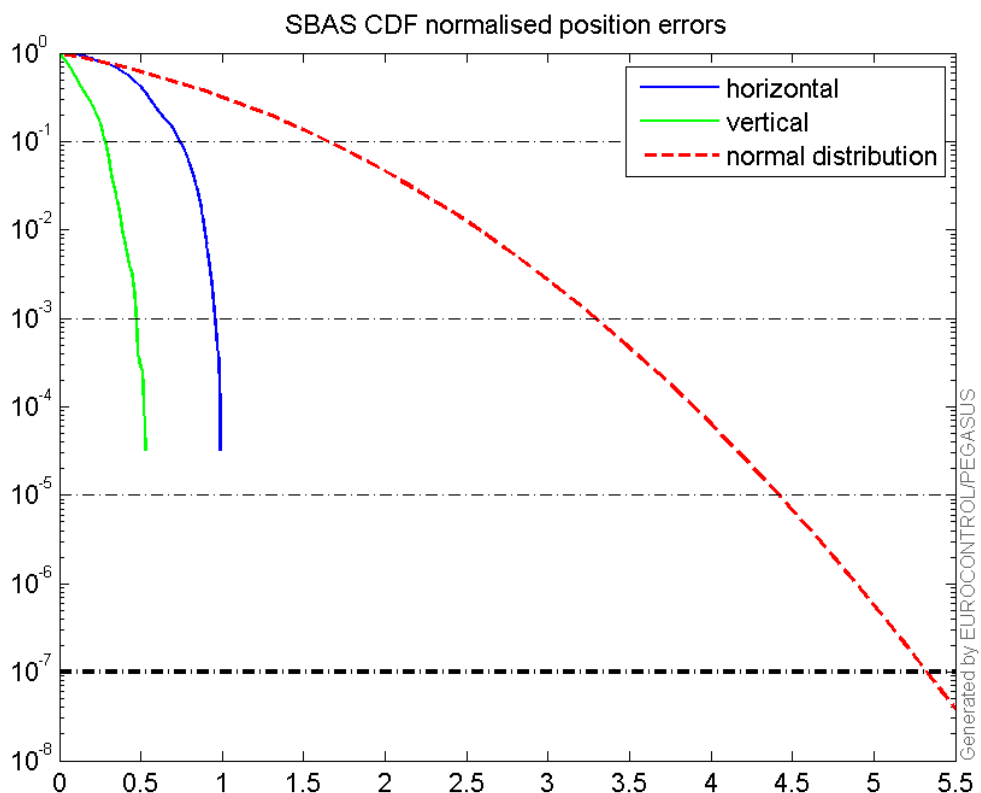
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

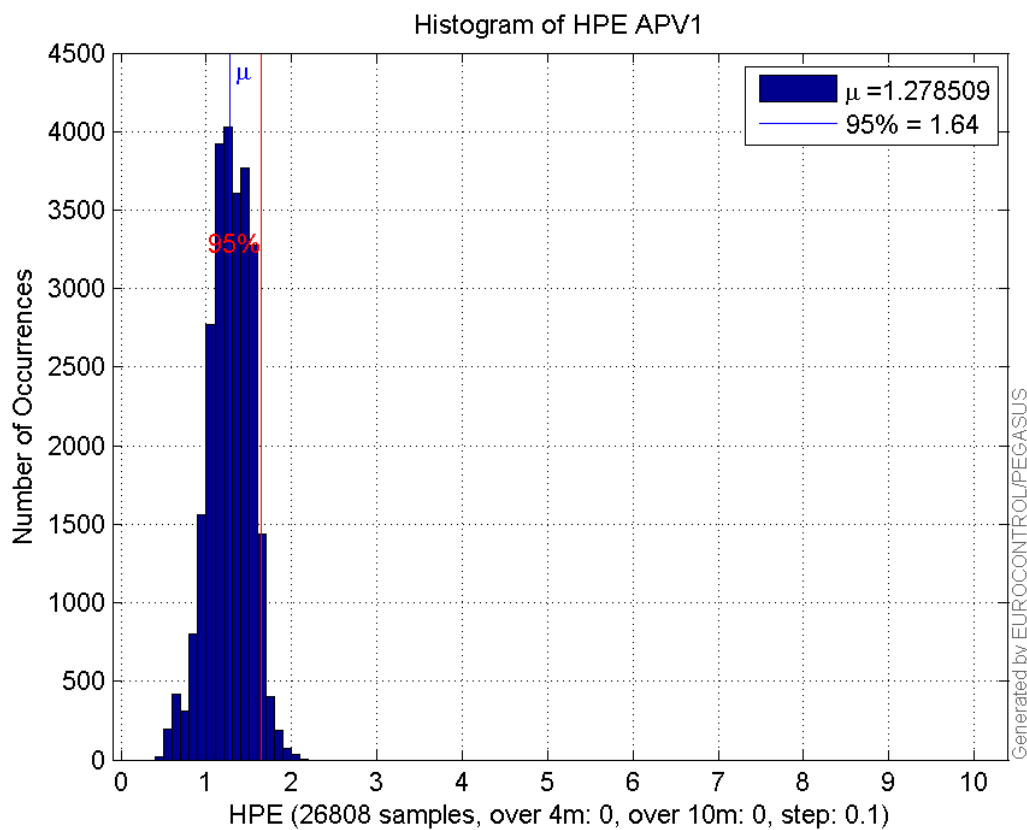
number	26808
sum	34274.279
sum2	45473.514
prctile95	1.6395911
prctile99	1.811921
number	26808
sum	15373.159
sum2	13818.355
prctile95	1.4309276
prctile99	1.8544125
number	26808
sum	455777.41
sum2	8619929.6
prctile95	27.37039
prctile99	35.579042
number	26808
sum	610735.64
sum2	15171711
prctile95	36.53079
prctile99	40.176672
number	26808
sum	2228.3026
sum2	208.73705
prctile95	0.13646799
prctile99	0.14942272
number	26808
sum	701.74159
sum2	27.753461
prctile95	0.059080237
prctile99	0.073558726
number	25100
sum	32165.157
sum2	42782.123
prctile95	1.6397502
prctile99	1.8005819
number	25100
sum	14567.588
sum2	13100.283
prctile95	1.4214872
prctile99	1.8611498
number	25100
sum	411134.12
sum2	7428837.7
prctile95	25.2762
prctile99	34.884
number	25100
sum	544862.02
sum2	12621603
prctile95	32.57495
prctile99	34.35895

number 25100
sum 2145.2729
sum2 204.42741
prctile95 0.13723066
prctile99 0.14976209
number 25100
sum 681.0887
sum2 27.289136
prctile95 0.059714076
prctile99 0.074343628

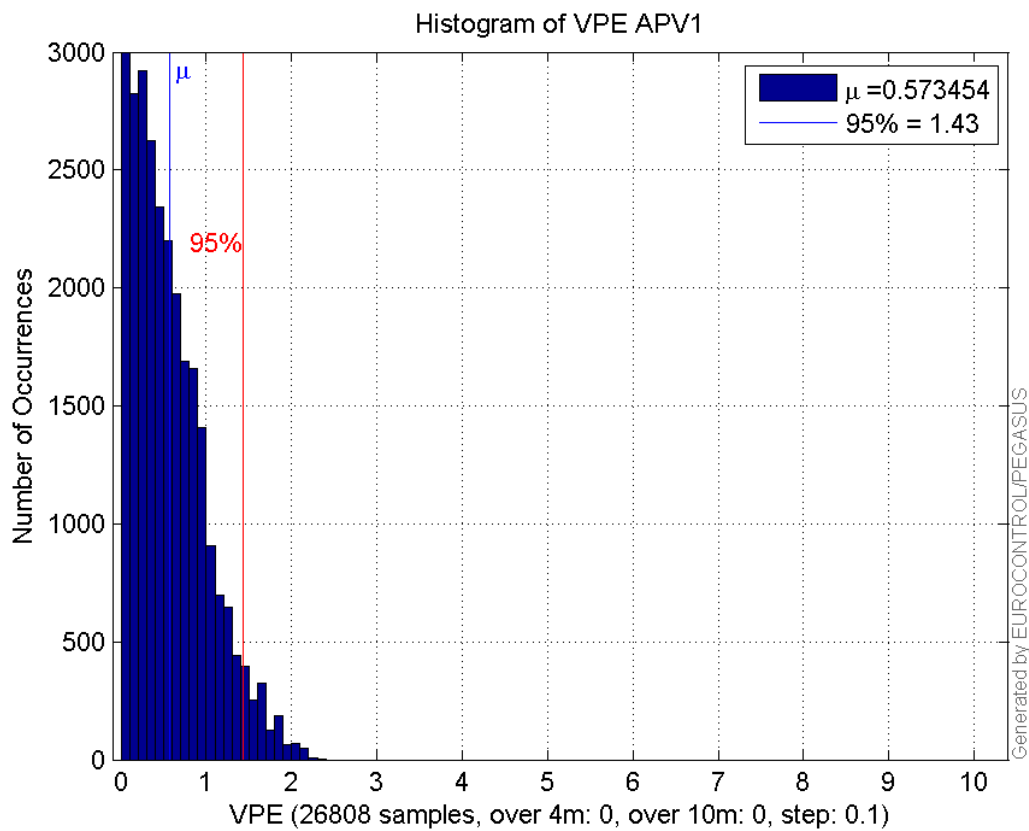
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.27851	0.24836	1.28396	1.63959	1.81192	1.30241
HPL	17.0015	5.70016	15.7968	27.3704	35.579	17.9316
VPE	0.573454	0.431988	0.485978	1.43093	1.85441	0.717953
VPL	22.7818	6.85048	20.3737	36.5308	40.1767	23.7895

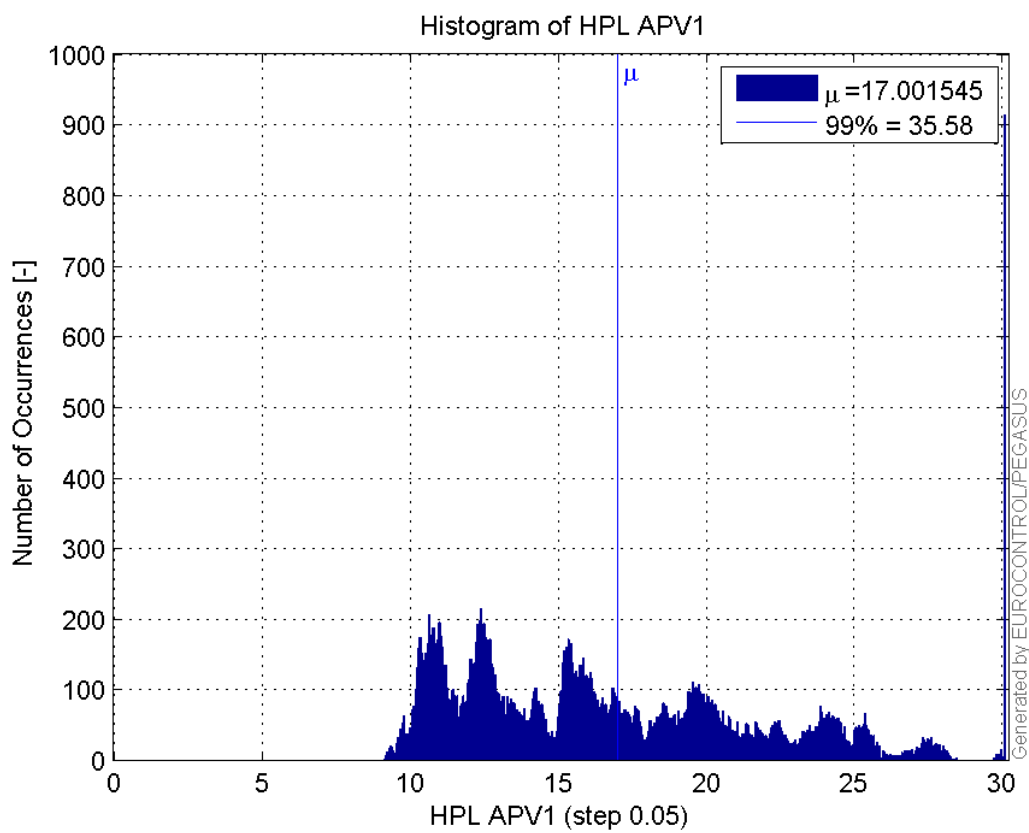
Histogram of HPE APV1:



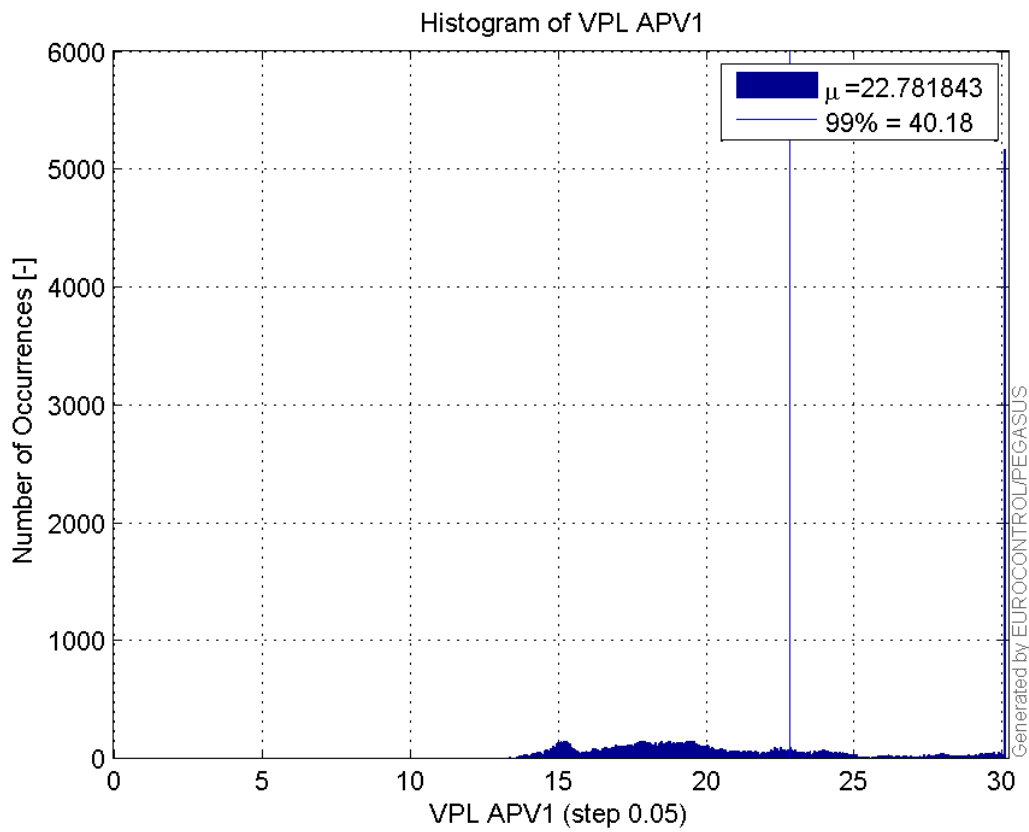
Histogram of VPE APV1:



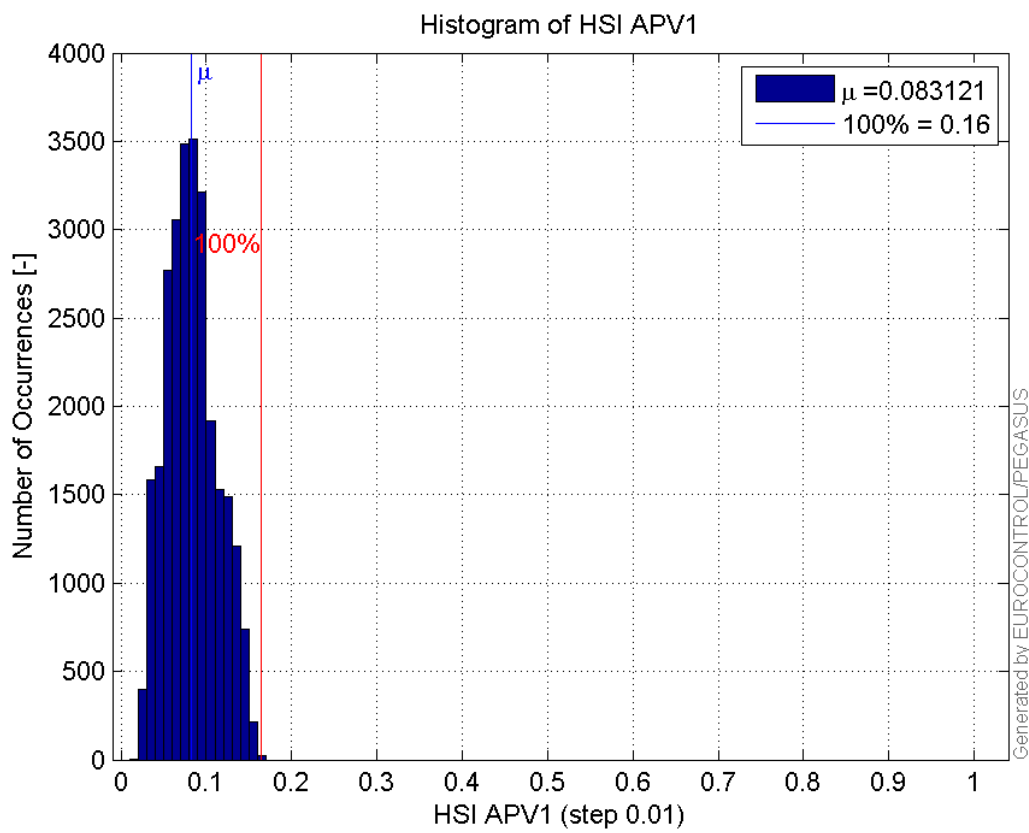
Histogram of HPL APV1:



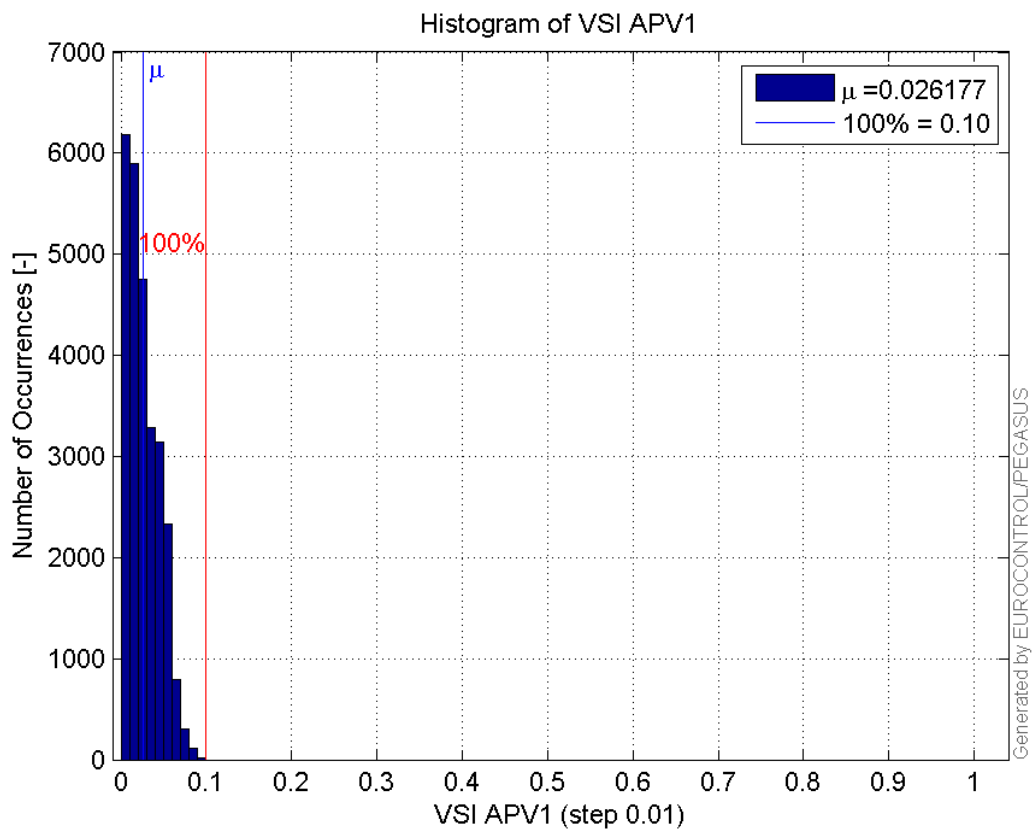
Histogram of VPL APV1:



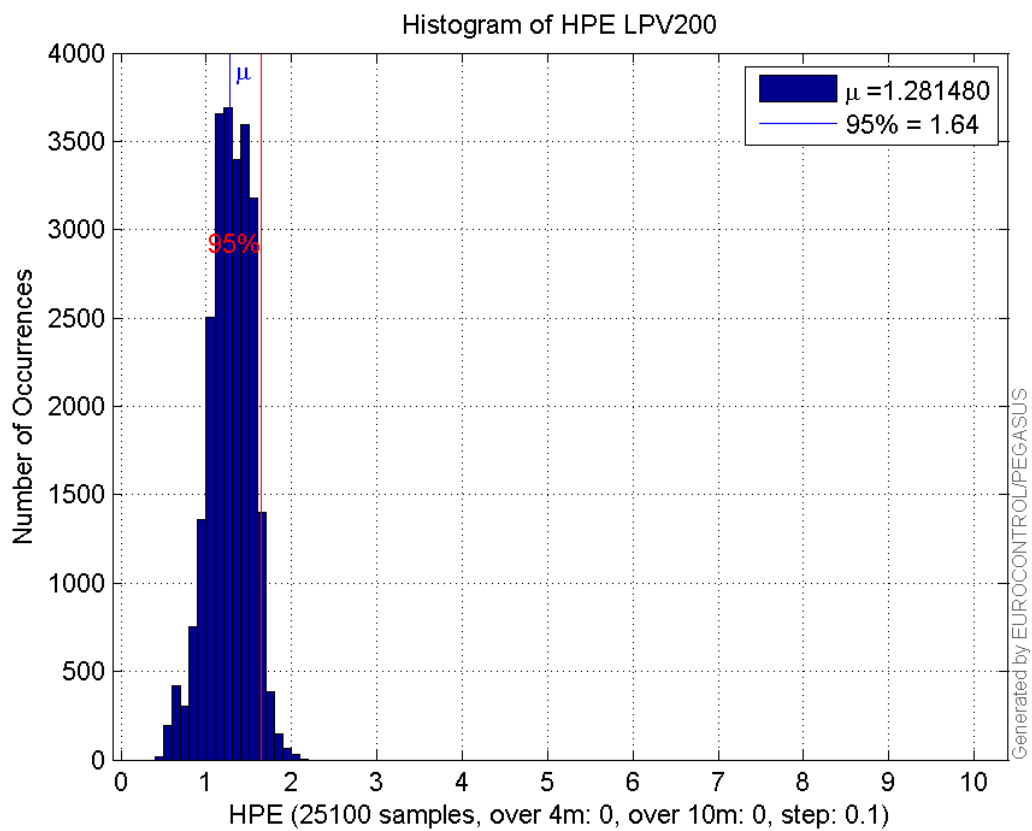
Histogram of HSI APV1:



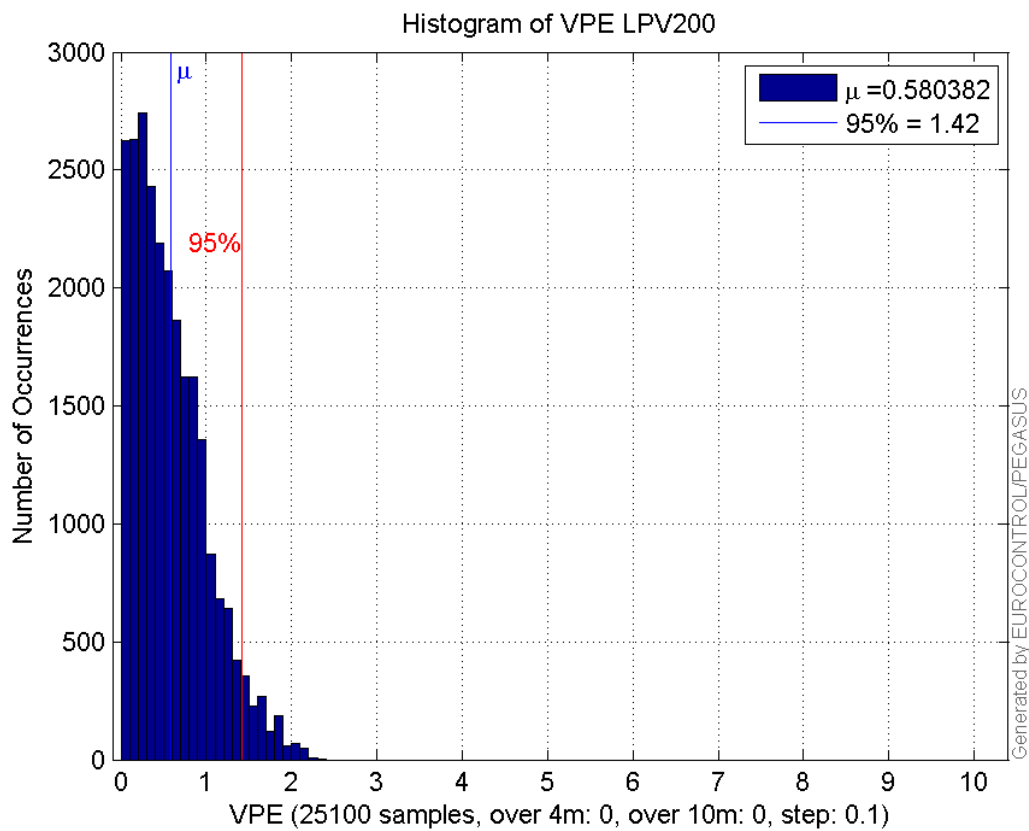
Histogram of VSI APV1:



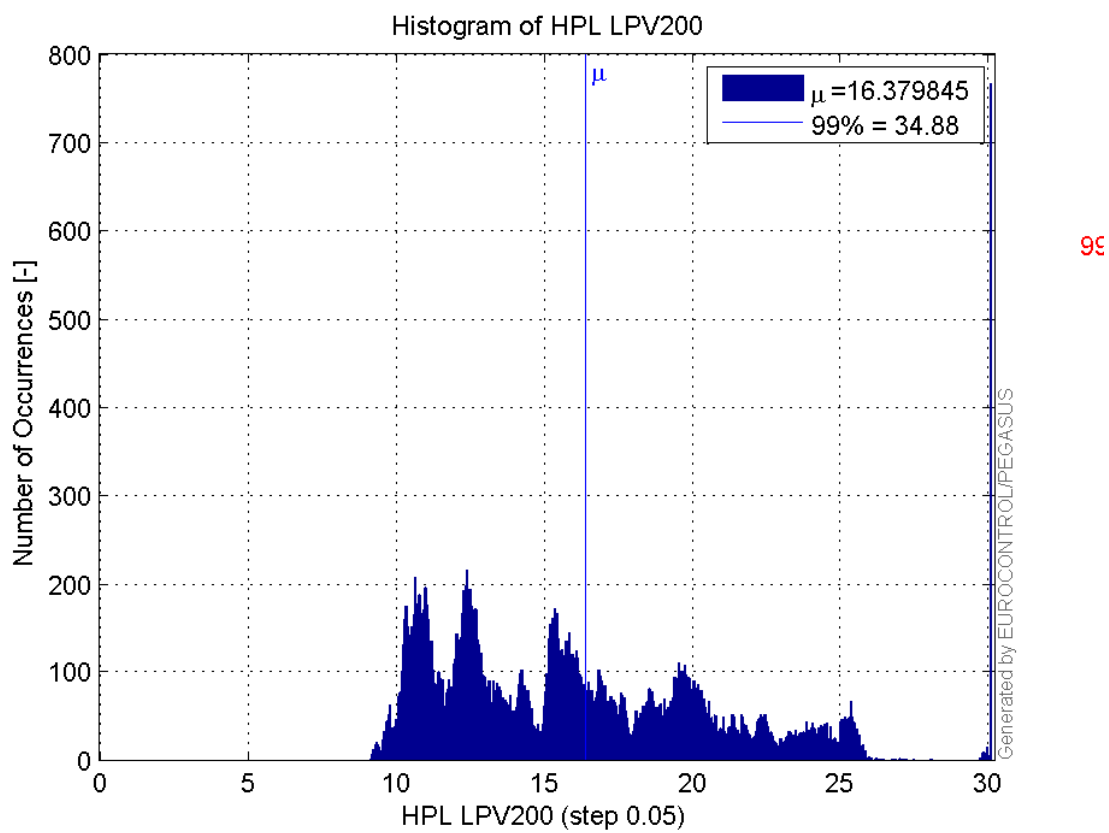
Histogram of HPE LPV200:



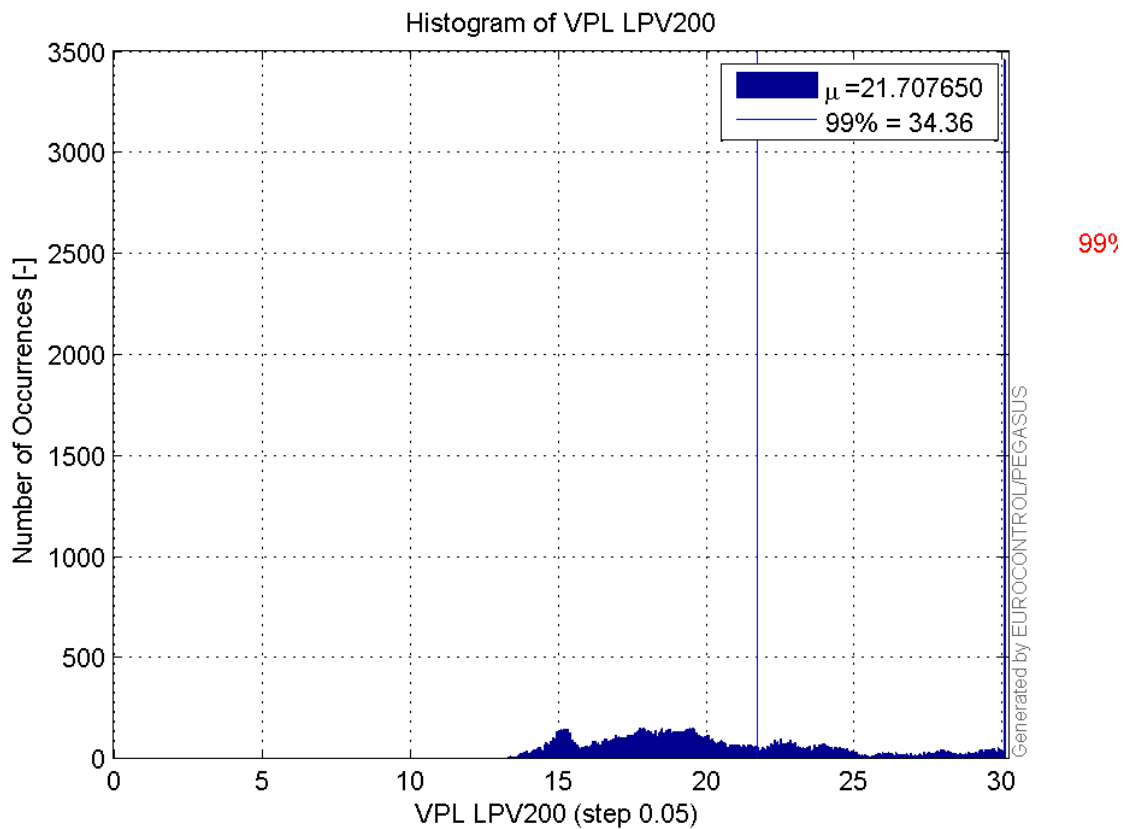
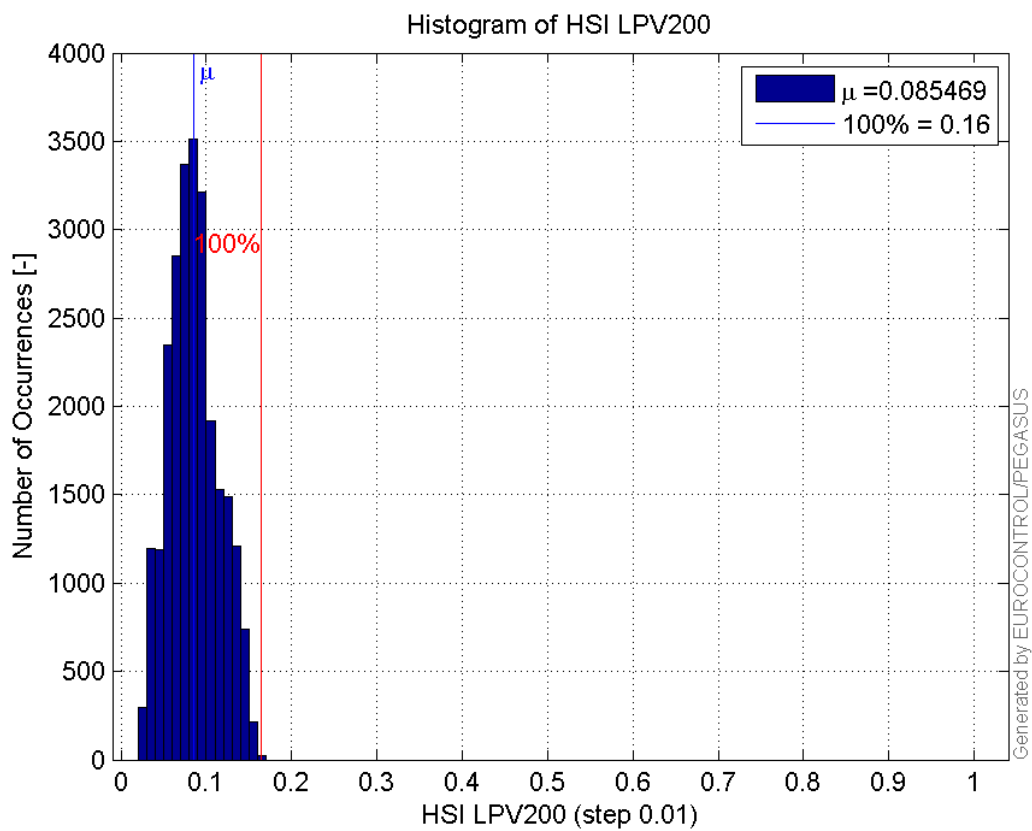
Histogram of VPE LPV200:

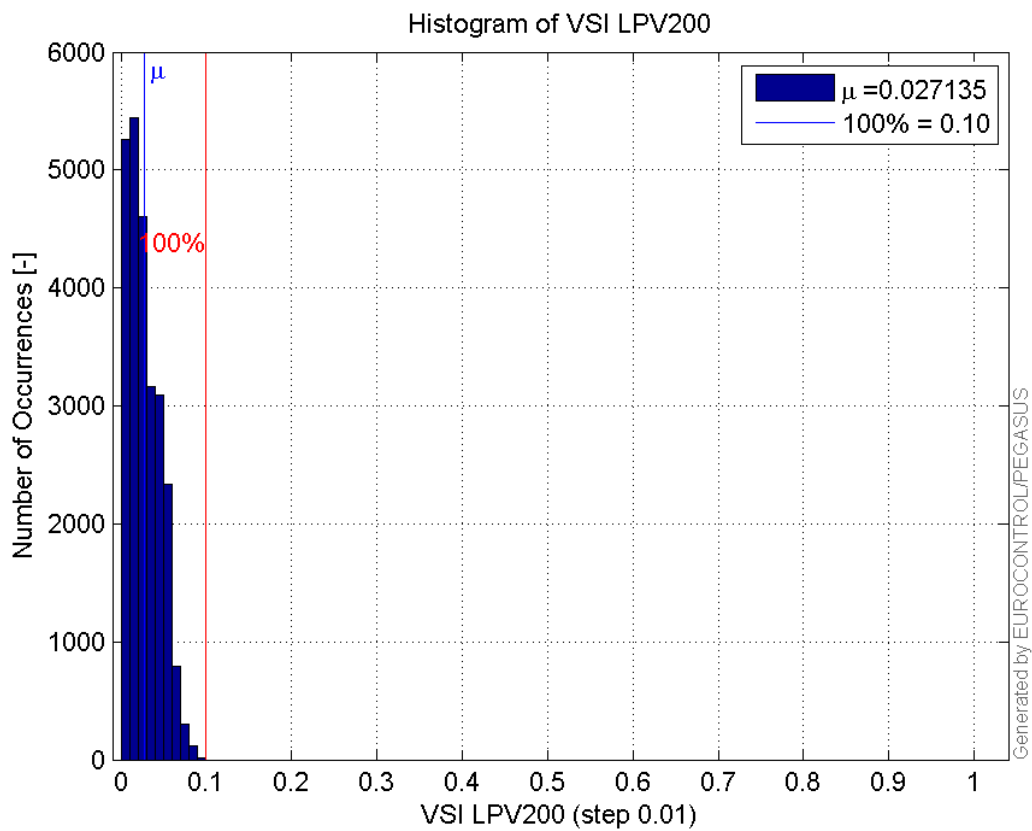


Histogram of HPL LPV200:



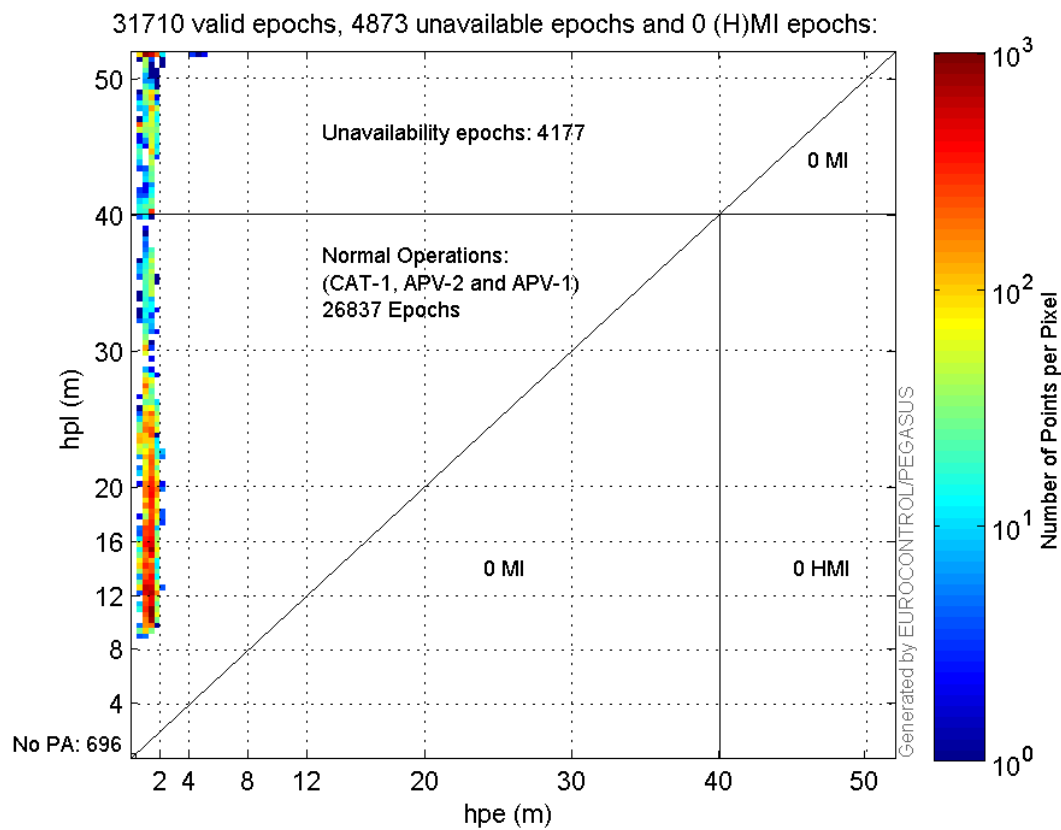
Histogram of VPL LPV200:

**Histogram of HSI LPV200:****Histogram of VSI LPV200:**



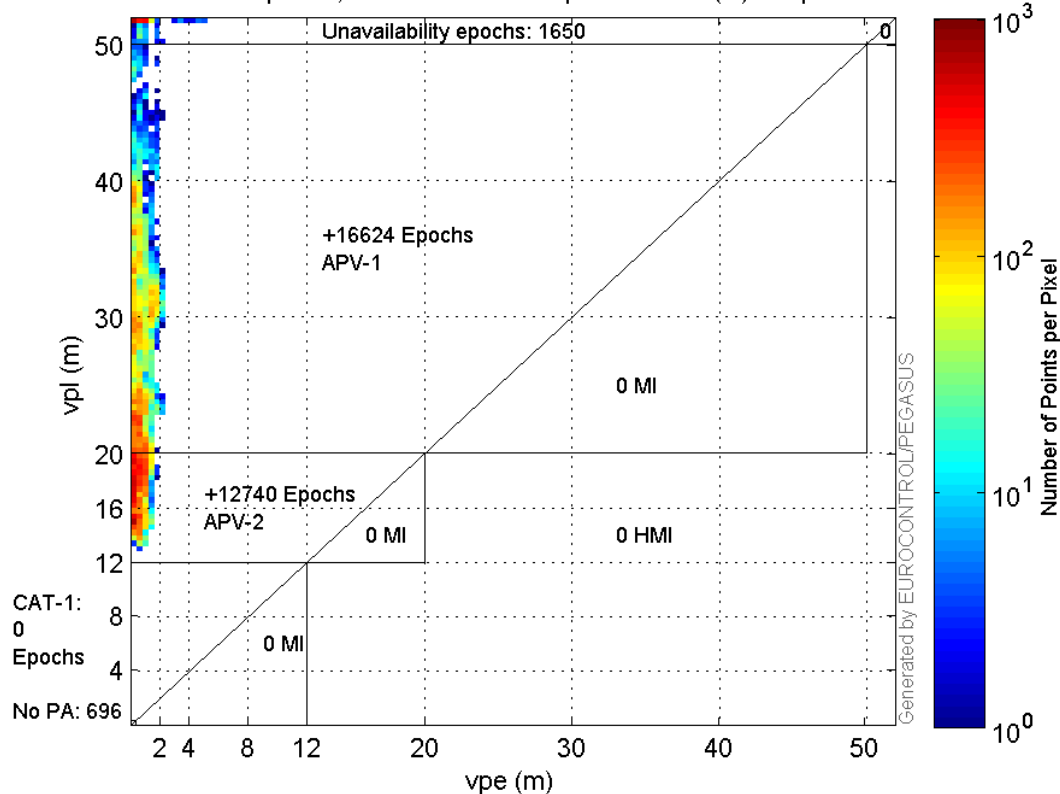
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

31710 valid epochs, 2346 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/2017_02_14EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_14EGNOS2Hz/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	30.4297
init_alt	results	229.3541
mi_numbers	results	0

Range Domain

start: 09:12:35 14.02.2017 (week: 1936 sec: 205955)
end: 14:03:36.5 14.02.2017 (week: 1936 sec: 223416.5)
duration: 04:51:02 ..

quality

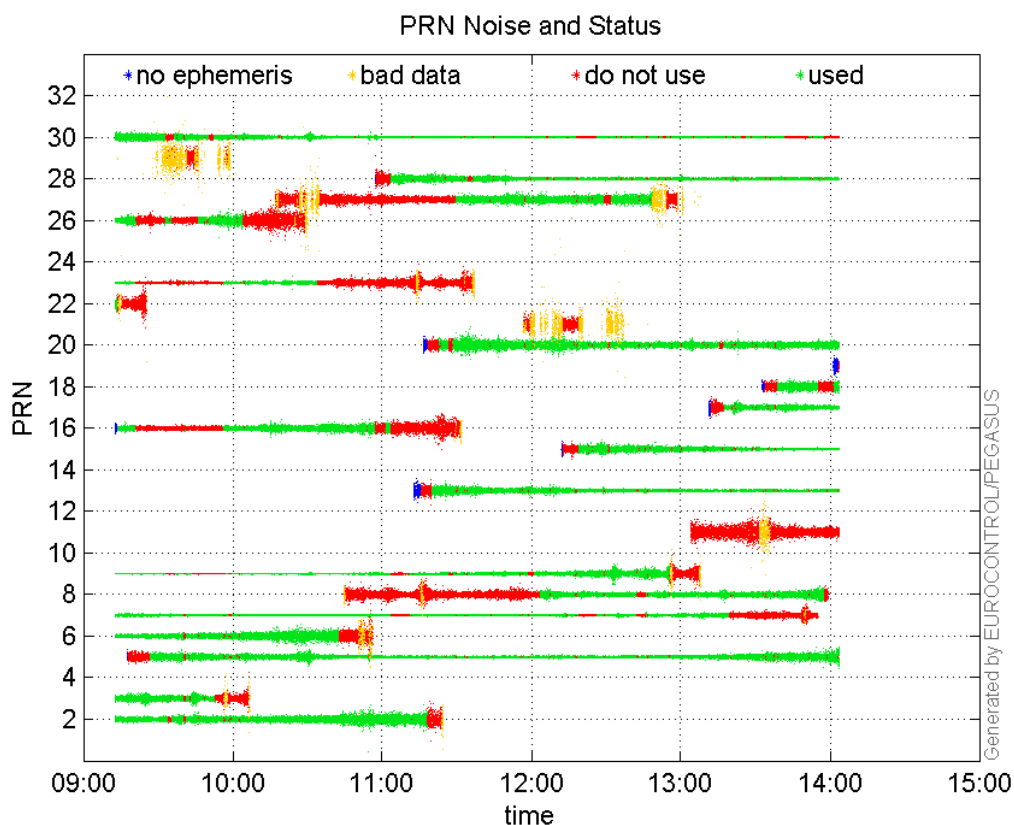
valid samples 32374
total samples 32374

PRN overview

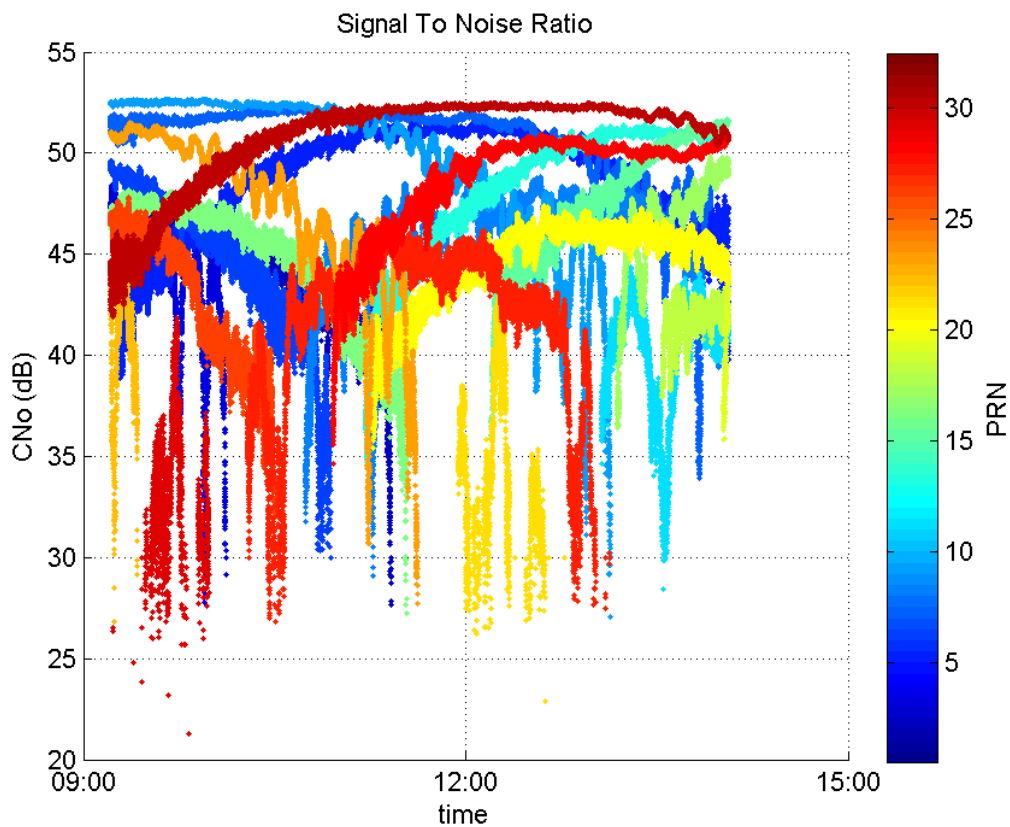
Number of Visible GPS Satellites 23
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



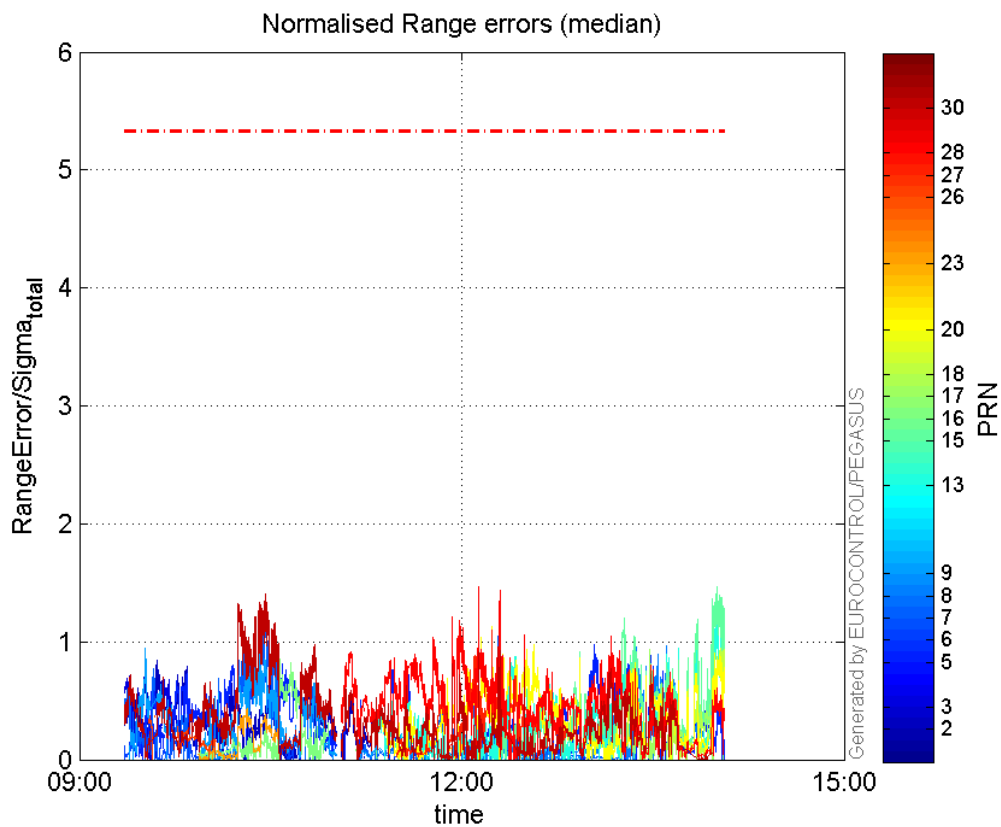
range errors

Number of Overbounding Norm Errors 0

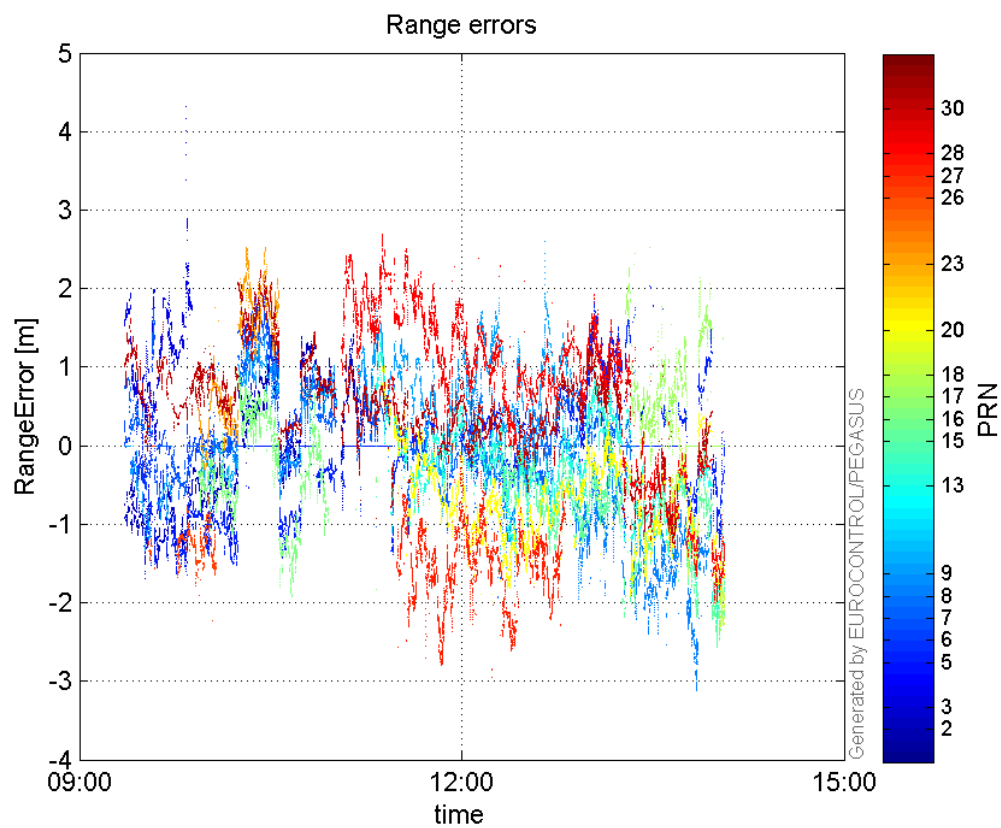
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1936	207040	2	0.892211	-1.69375	1.89837
1936	206631	3	0.725606	1.94315	2.67796
1936	219746	5	0.978624	1.83376	1.87382
1936	210152	6	0.810302	1.89882	2.34335
1936	210434	7	1.22535	1.63143	1.3314
1936	221769	8	0.969637	-2.52973	2.60894
1936	210281	9	0.945074	1.34909	1.4275
1936	223214	13	1.32499	-2.27787	1.71916
1936	223208	15	1.46805	-2.38483	1.62449
1936	210875	16	0.849732	-1.79573	2.11329
1936	221299	17	0.932126	2.5189	2.70232
1936	223311	18	0.942546	-2.34562	2.4886
1936	216848	20	1.12513	-1.98501	1.76424
1936	209959	23	0.436302	2.51227	5.75811
1936	207180	26	0.375473	-1.46672	3.90633
1936	216848	27	1.10101	-2.85296	2.59122
1936	216463	28	1.4694	2.38253	1.62143
1936	210440	30	1.40367	2.15262	1.53356

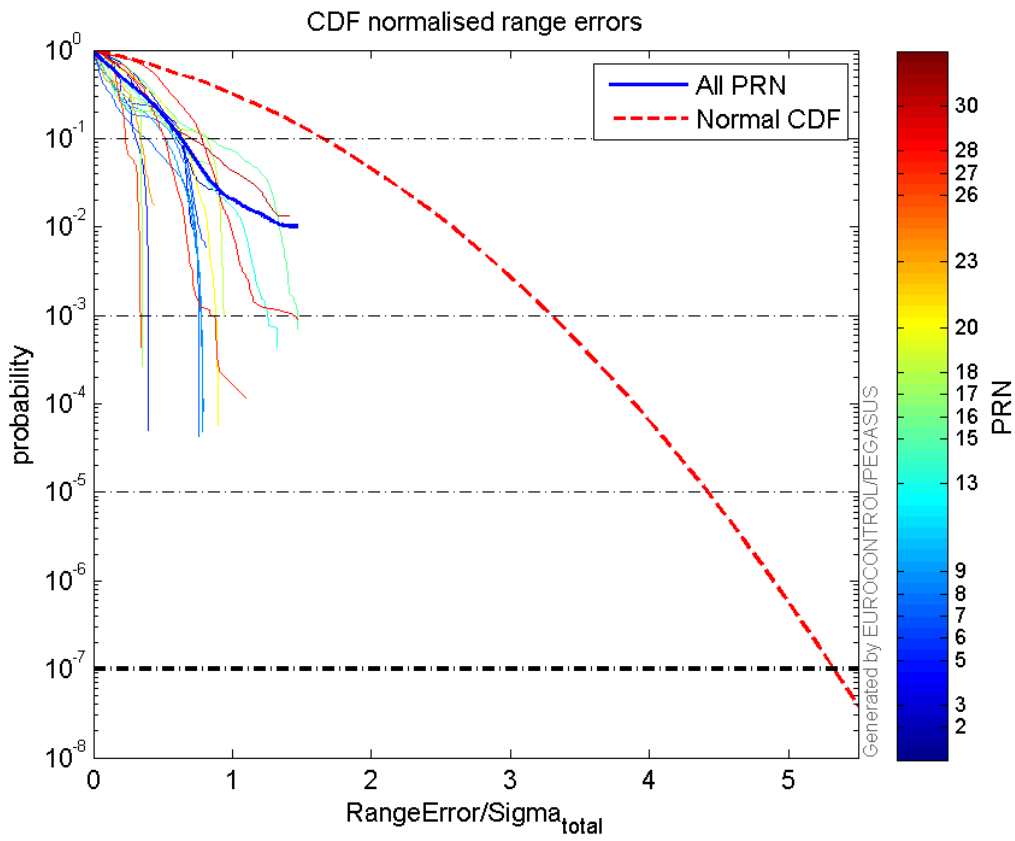
Normalised Range errors (median):



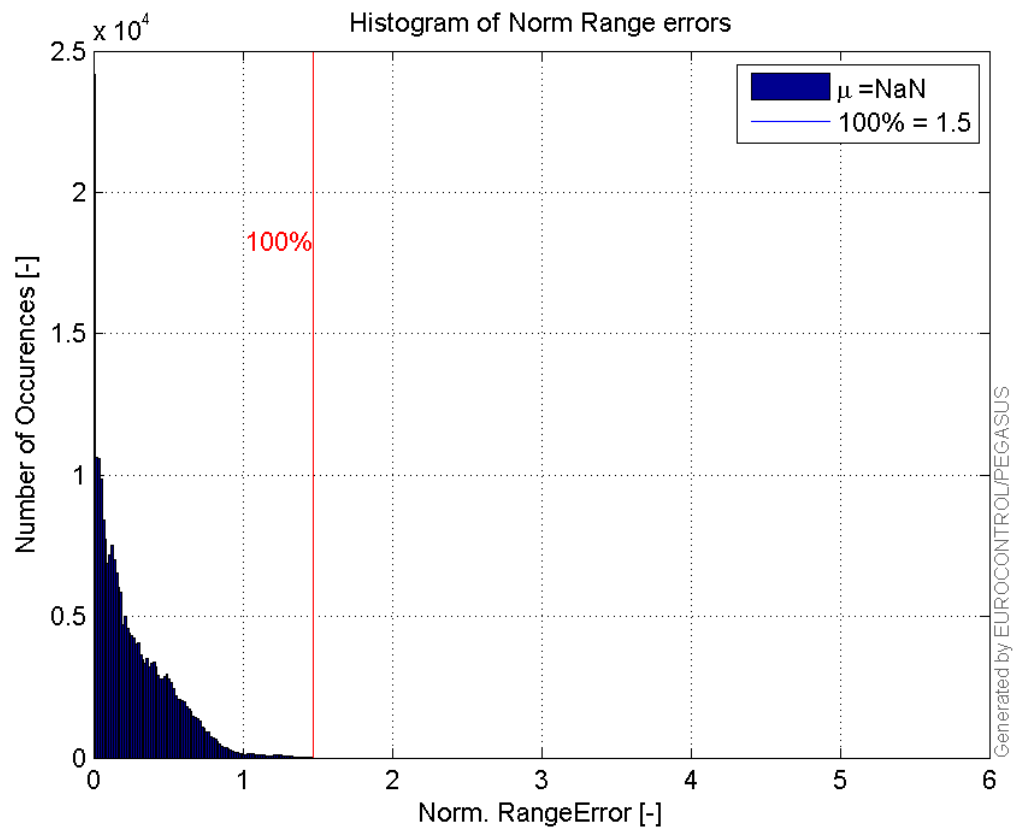
Range errors:



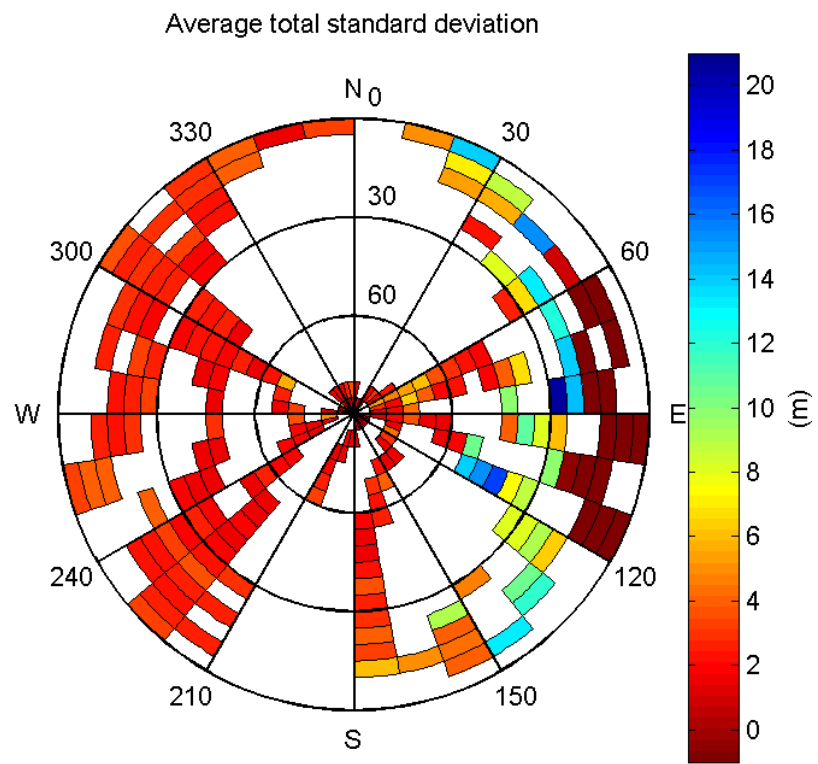
CDF normalised range errors:



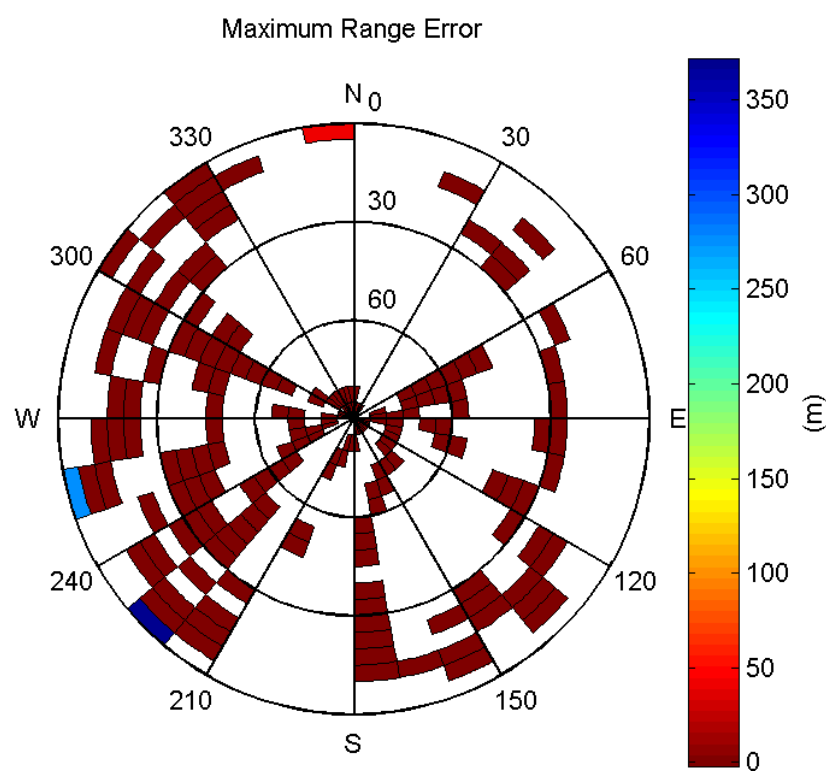
Histogram of Norm Range errors:



Sigma Sky Plot:

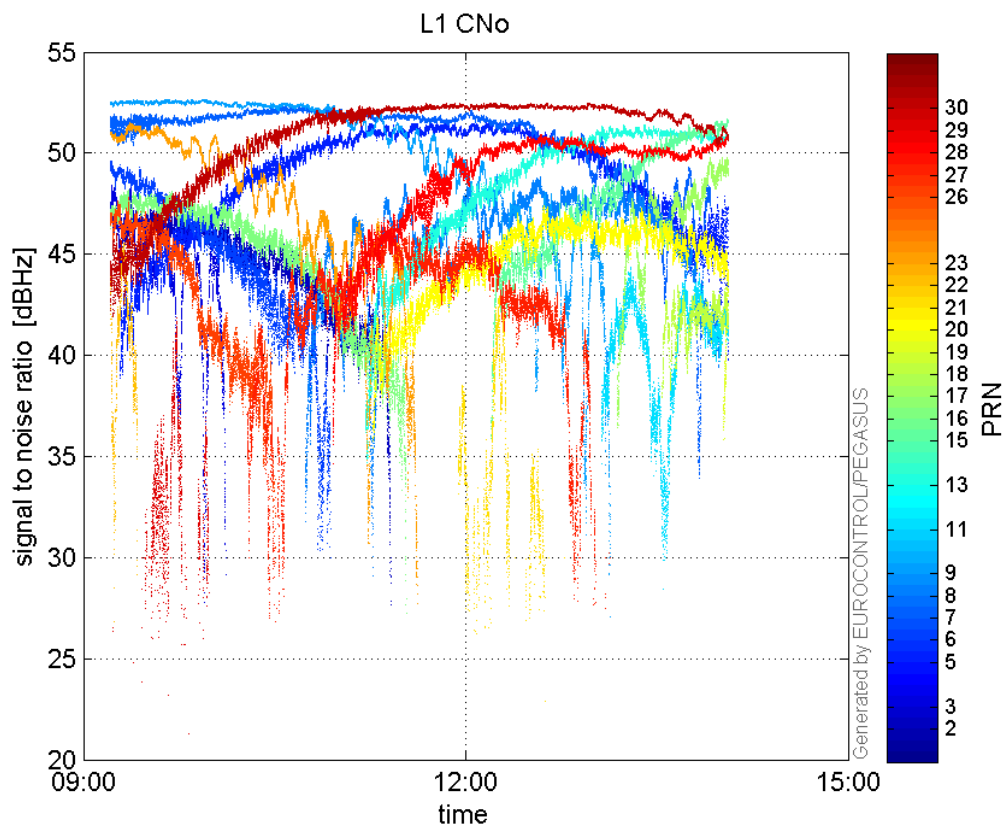


Norm Error Sky Plot:

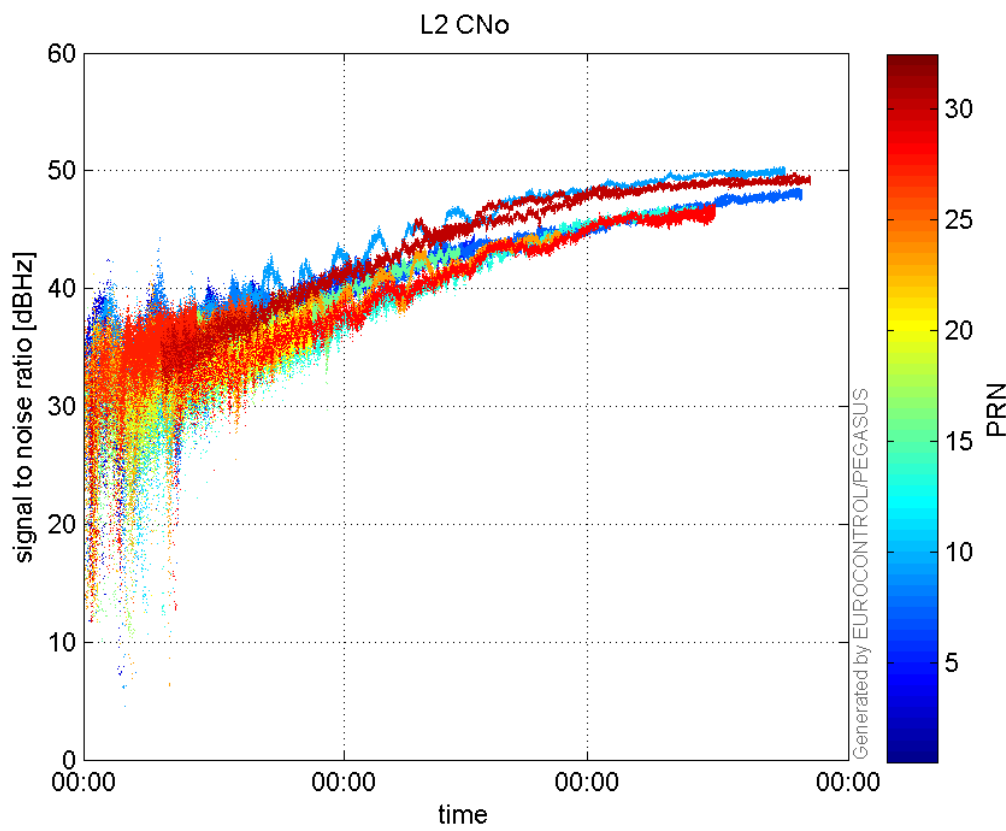


signal quality

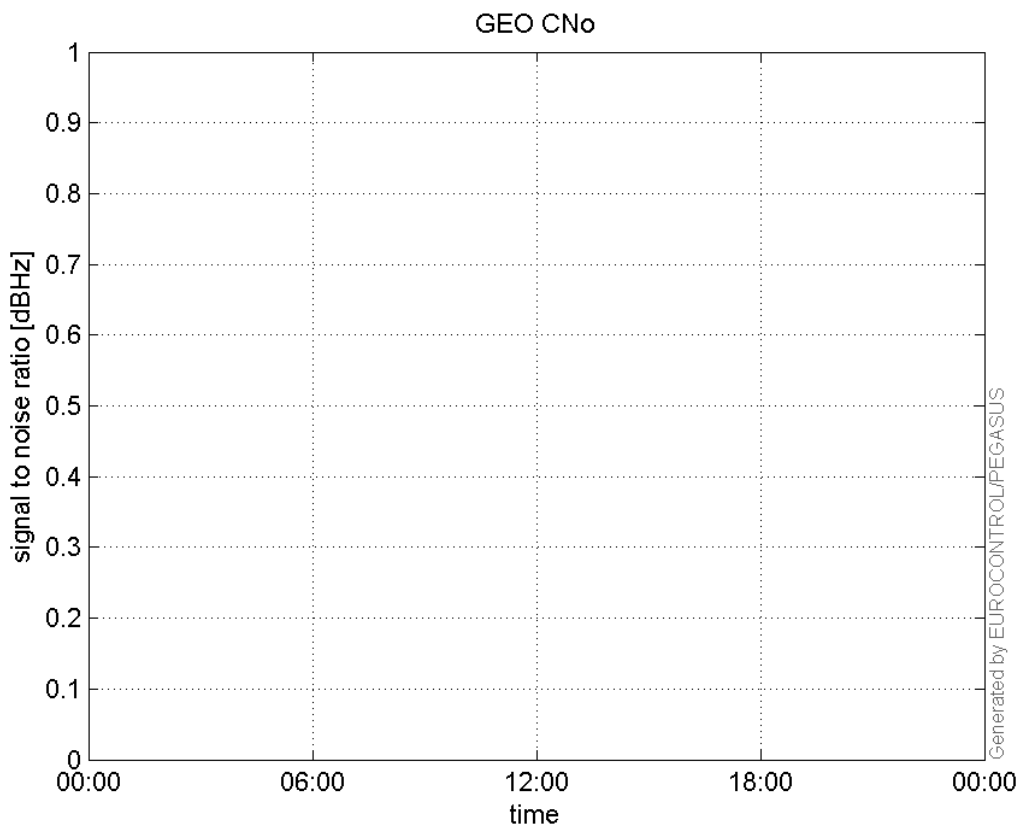
L1 CNo:



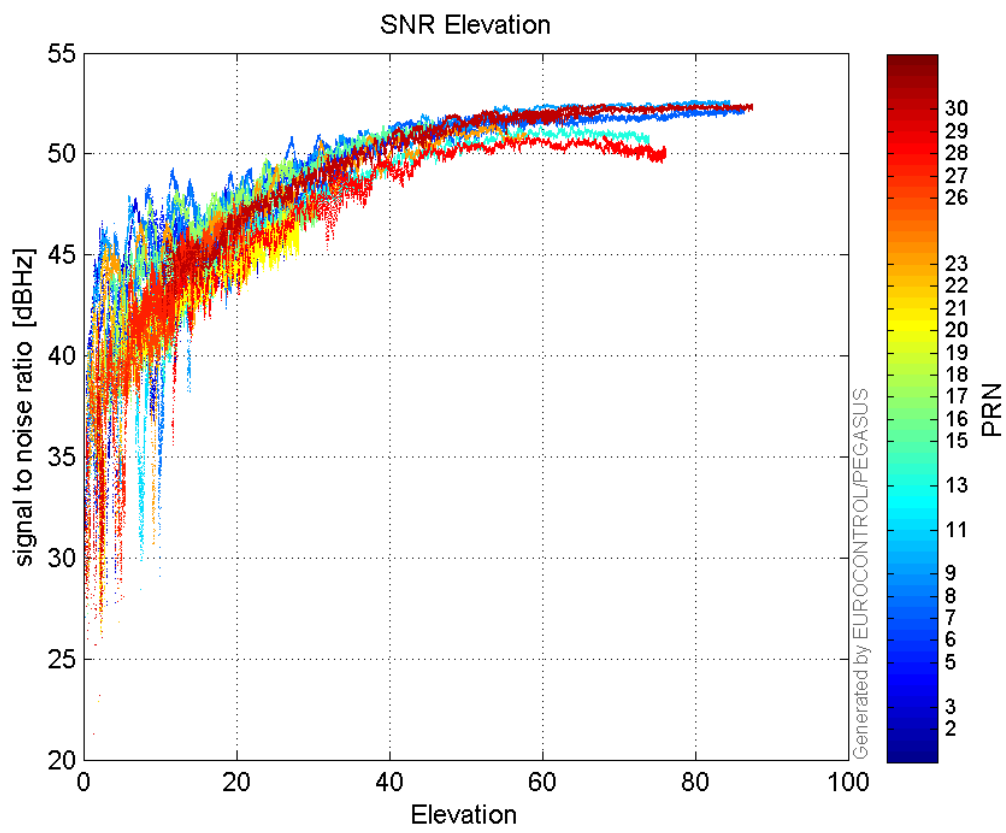
L2 CNo:



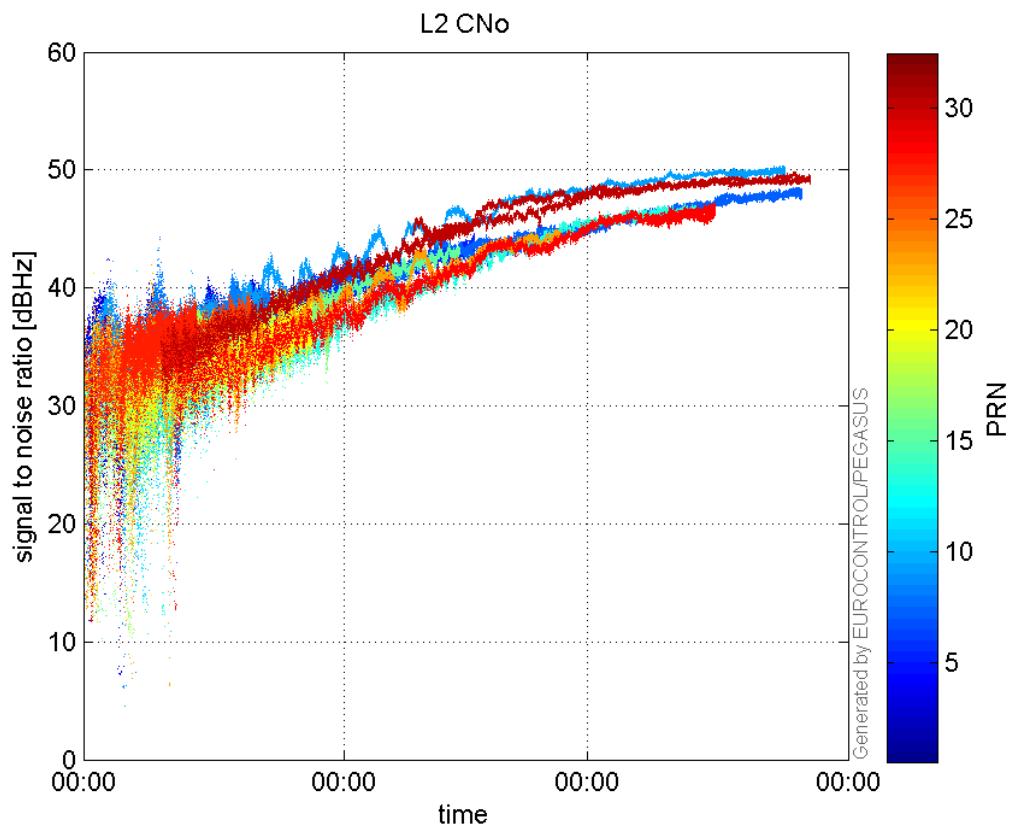
GEO CNo:



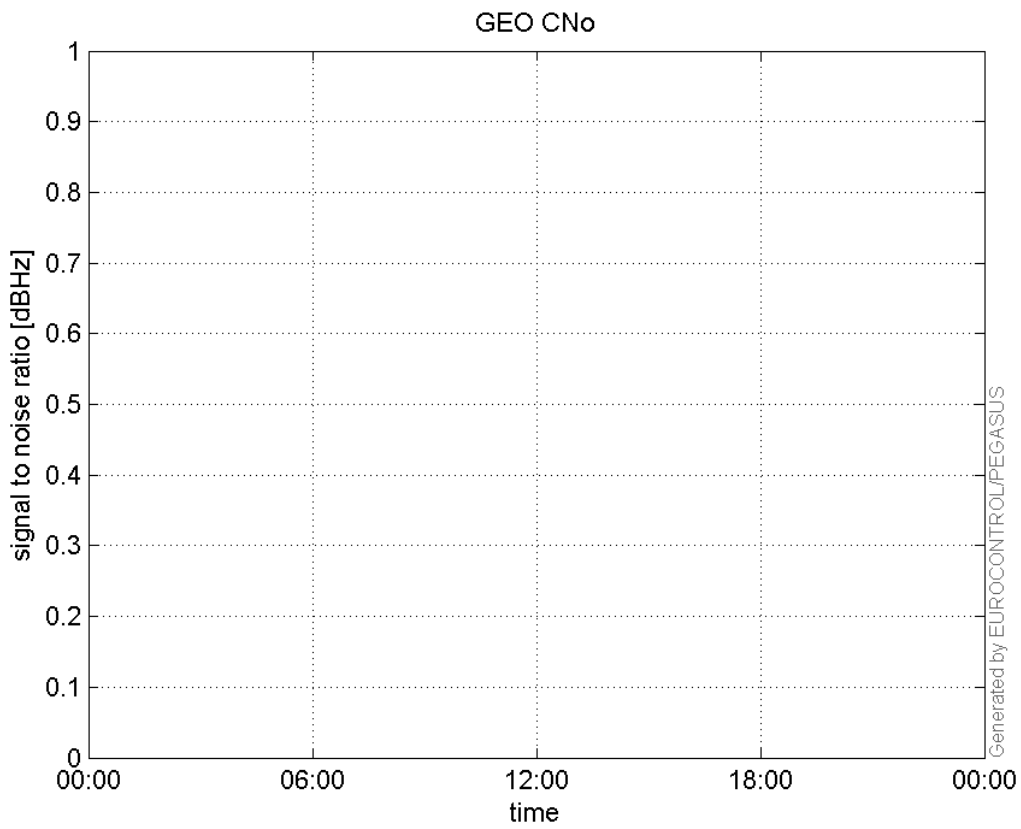
SNR Elevation:



L2 CNo:

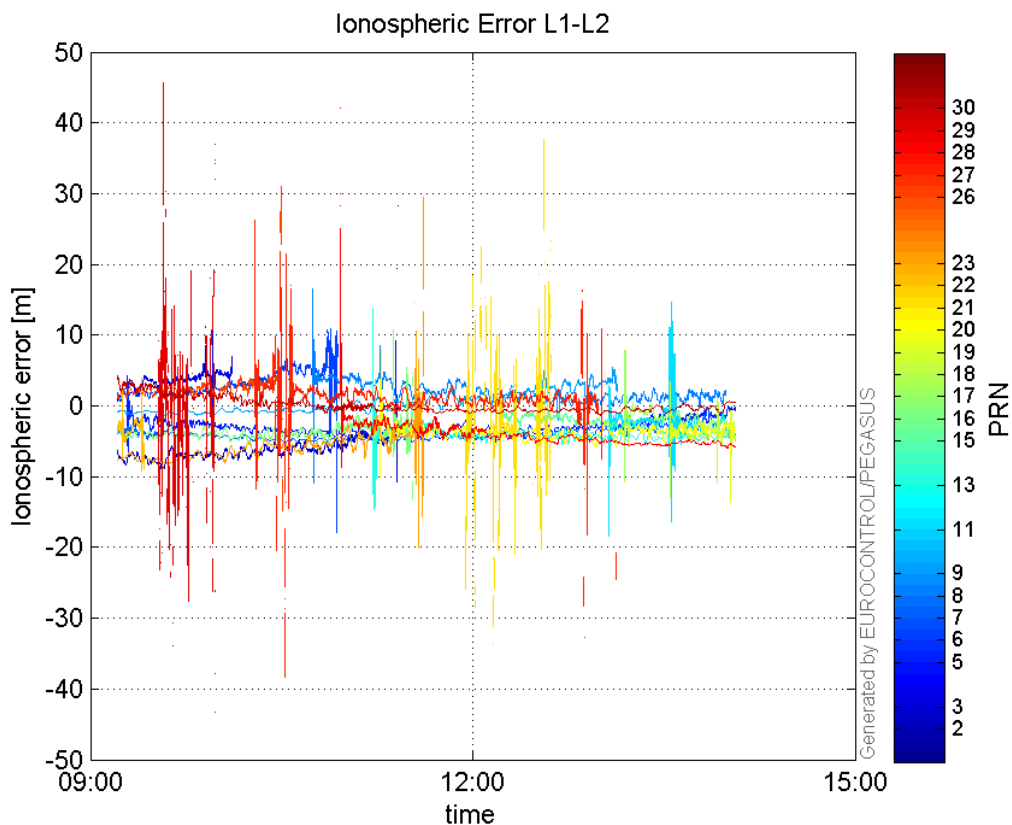


GEO CNo:



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_02_14EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_14EGNOS2Hz/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	30.4297
init_alt	results	229.3541
mi_numbers	results	0