

Global View

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
city Kiev
date 05/07/2016

SBAS Messages

start: 08:35:43.129 04.07.2016 (week: 1904 sec: 117343.129)
end: 13:38:37.129 04.07.2016 (week: 1904 sec: 135517.129)
duration: 05:02:54 ..

quality

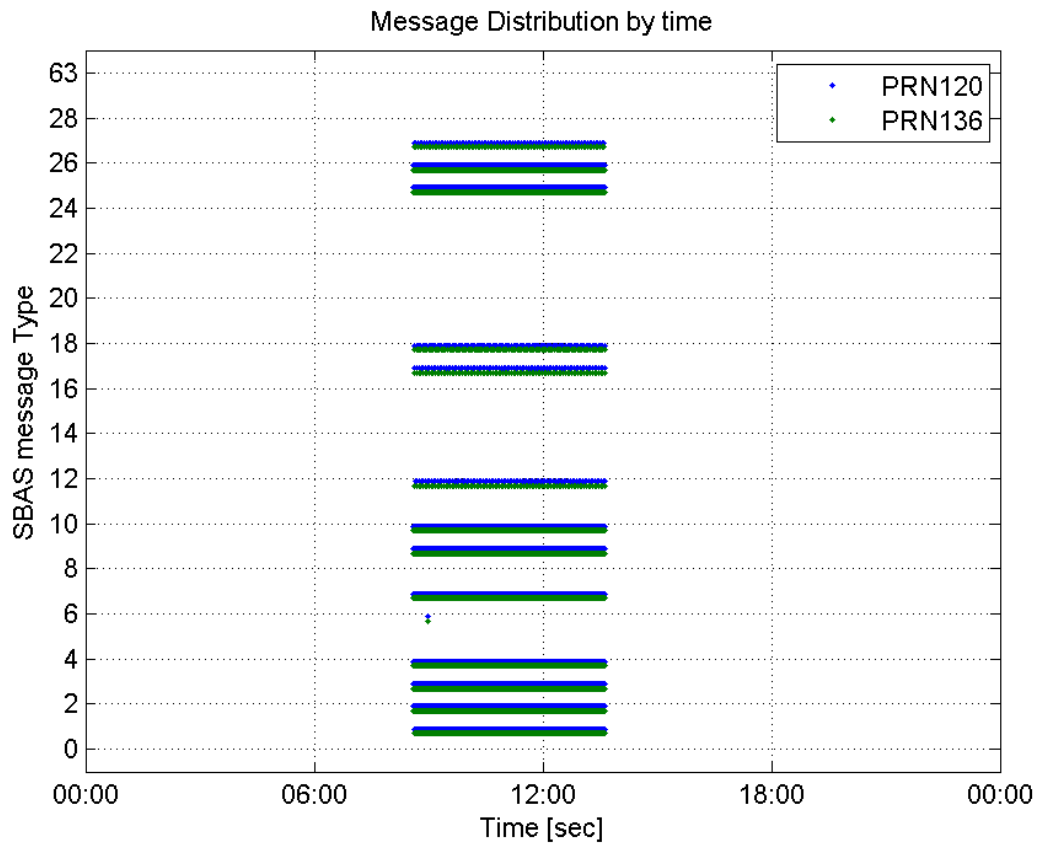
valid samples 36350
total samples 36350
number of SBAS PRNs 2

SBAS SIS Overview

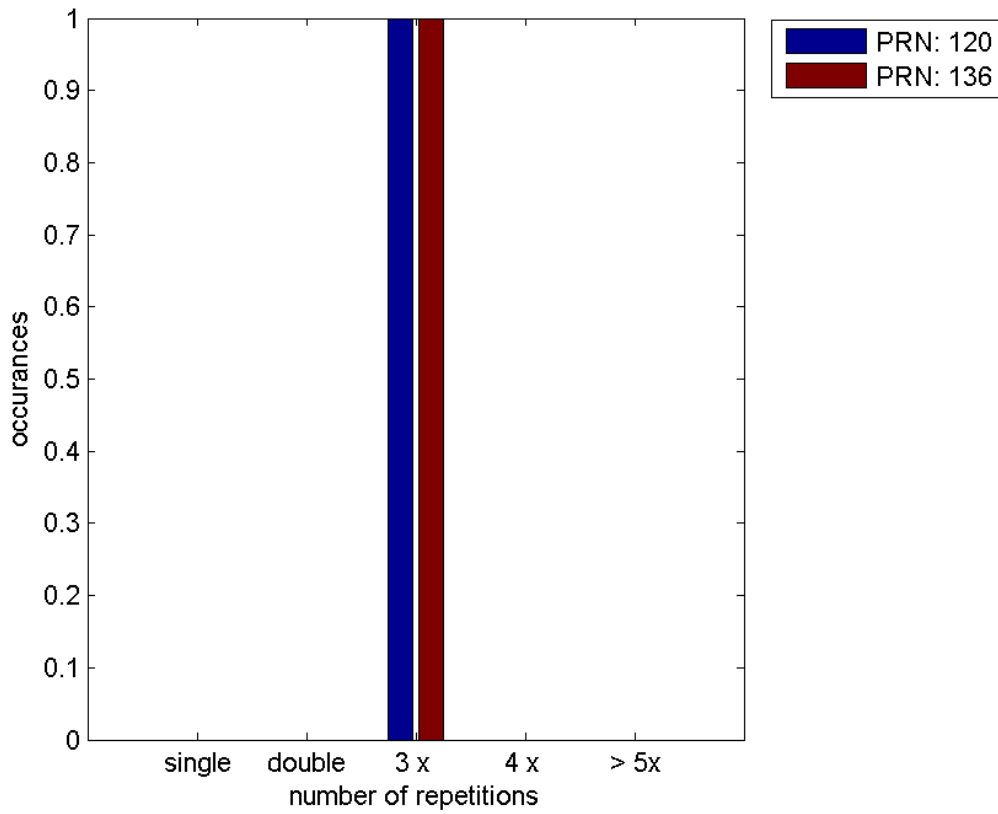
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

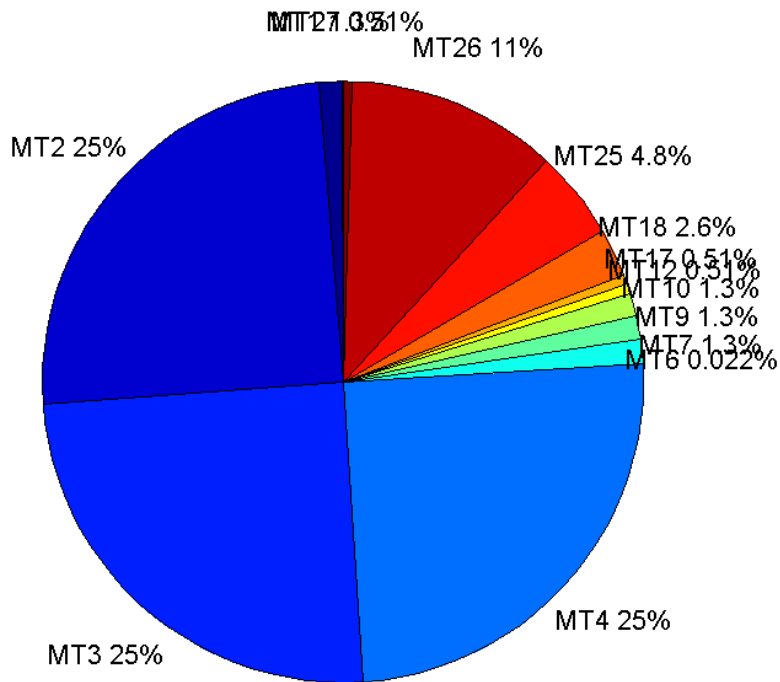
	number of messages	%
MT 0	0	0
MT 1	229	1.25997
MT 2	4526	24.9023
MT 3	4526	24.9023
MT 4	4527	24.9078
MT 5	0	0
MT 6	4	0.0220083
MT 7	230	1.26547
MT 9	230	1.26547
MT 10	229	1.25997
MT 12	93	0.511692
MT 17	93	0.511692
MT 18	465	2.55846
MT 24	0	0
MT 25	880	4.84182
MT 26	2050	11.2792
MT 27	93	0.511692
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18175	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	87	79.2368	0	0	0
MT 2	4	8	4.01547	1	0	0
MT 3	4	8	4.01547	1	0	0
MT 4	4	8	4.01547	1	0	0
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	75	81	79.1179	0	0	0
MT 9	76	81	79.1354	0	0	0
MT 10	76	81	79.1842	0	0	0
MT 12	188	202	195.239	92	0	0
MT 17	188	201	195.239	0	0	0
MT 18	4	164	38.7866	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	54	20.6576	0	0	0
MT	4	36	8.86774	0	0	0

26						
MT 27	188	201	195.239	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

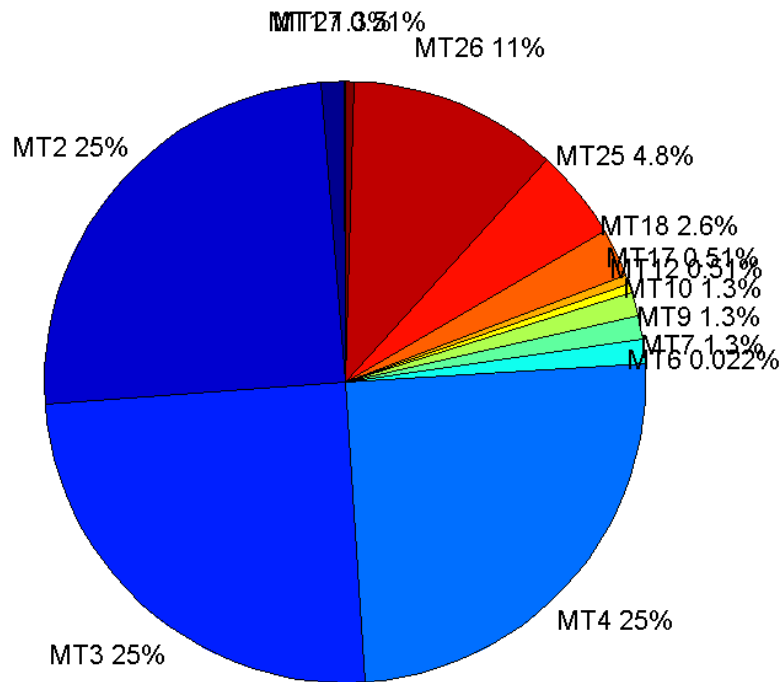
	number of messages	%
MT 0	0	0
MT 1	229	1.25997
MT 2	4527	24.9078
MT 3	4527	24.9078
MT 4	4526	24.9023
MT 5	0	0
MT 6	4	0.0220083
MT 7	230	1.26547
MT 9	230	1.26547
MT 10	230	1.26547

MT 12	93	0.511692
MT 17	93	0.511692
MT 18	465	2.55846
MT 24	0	0
MT 25	881	4.84732
MT 26	2047	11.2627
MT 27	93	0.511692
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18175	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.1447	0	0	0
MT 2	4	7	4.01525	1	0	0
MT 3	4	7	4.01525	1	0	0
MT 4	4	7	4.01525	1	0	0
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	75	81	79.0611	0	0	0
MT 9	75	81	79.0262	0	0	0
MT 10	75	81	79.0437	0	0	0
MT 12	184	201	195.359	92	0	0
MT 17	184	201	195.359	0	0	0
MT 18	4	161	38.8082	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	60	20.642	0	0	0
MT 26	4	36	8.8783	0	0	0
MT 27	188	201	195.315	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/2016_07_04_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_07_04_EGNOS/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: 08:35:44 04.07.2016 (week: 1904 sec: 117344)
end: 13:38:37 04.07.2016 (week: 1904 sec: 135517)
duration: 05:02:54 ..

quality

valid samples 17797
total samples 18174

Event tables

Position discontinuity events type no (0)
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	134910	1.82537	10.2978	0.177258	-0.175356	16.5579	0.0105905
max normVer	125712	1.47538	20.2478	0.0728661	-2.64006	15.7655	0.167458
max HPE	127525	3.08391	137.527	0.022424	0.920446	170.297	0.00540494
max VPE	125765	2.30088	68.1417	0.0337661	-3.40845	55.9294	0.060942
min HPL	134842	1.68256	10.2752	0.16375	0.11551	16.5515	0.00697881
min VPL	128953	1.97566	12.428	0.158968	-0.0923766	13.2283	0.00698326

APV-I discontinuity events :

#	Epoch	duration	stable period
1	125749	59	8028
2	126001	382	193
3	126980	1574	597

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	125749	59	8028
2	126001	382	193
3	126980	1574	597

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	125749	59	8028
2	126001	382	193
3	126980	1574	597

First Glance analysis

Duration 18174
Number of Samples 18174
Number of invalid sample 377
Number of no position solution samples 0
Number of missing sample 0
Logging Loss 0
Processing Loss 2.0744
Number of Misleading Information 0
Data gaps 0
Discontinuities 0

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
17797	15782	15782	0	15782

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	2.01935	2.03468	2.03468	NaN	2.03468
HPEscale 95%	NaN	5.75793	5.75793	NaN	5.75793
VPE 95%	1.79764	1.67046	1.67046	NaN	1.67046
VPEscale 95%	NaN	5.37	3.759	NaN	3.759

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	1	0.886779	0.886779	0	0.886779
measurements	0.979256	0.868383	0.868383	0	0.868383
Operational	0.979256	0.868383	0.868383	0	0.868383

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	--	3	3	--	3
Long	--	3	3	--	3
Independent	--	3	3	--	3
P(disc.)	NaN	0.00285135	0.00285135	NaN	0.00285135
P(slide)	NaN	0.00285135	0.00285135	NaN	0.00285135

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

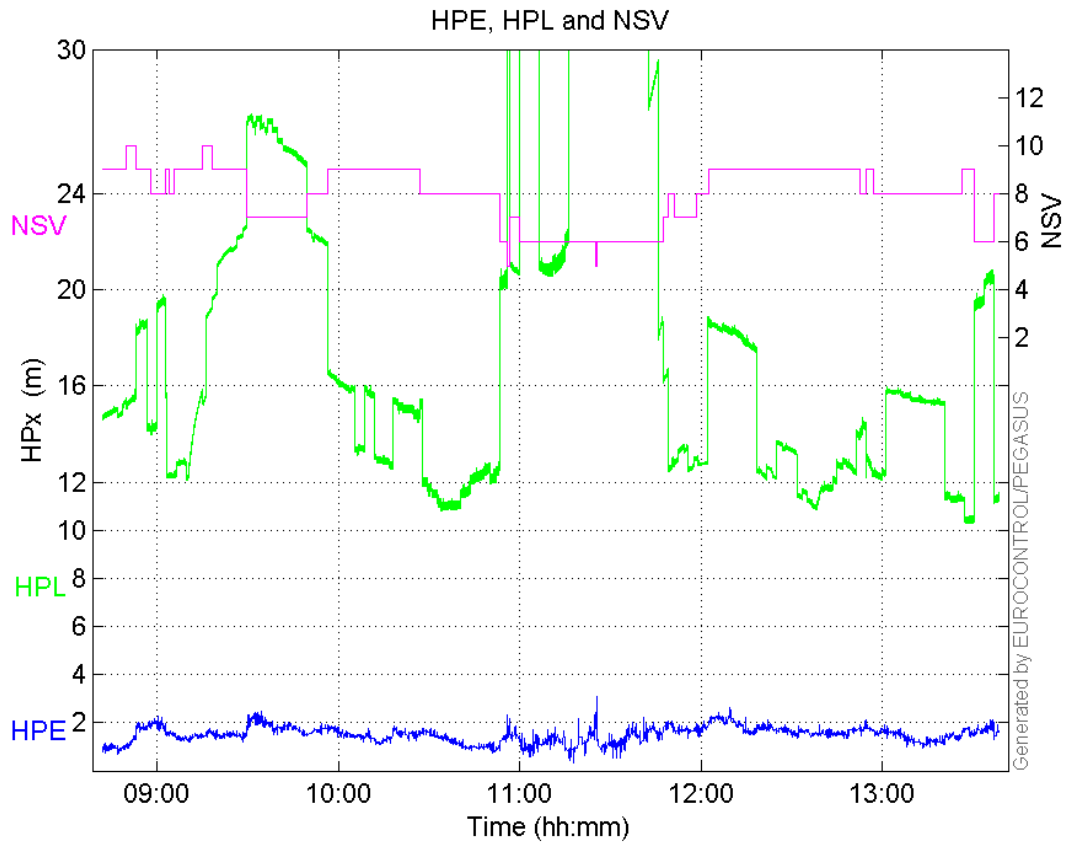
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	17797	15782	15782	0	15782
SIS Availability	1	0.886779	0.886779	0	0.886779
Local Availability	0.979256	0.868383	0.868383	0	0.868383
Operational Availability	0.979256	0.868383	0.868383	0	0.868383
HPE 95%	2.01935	2.03468	2.03468	NaN	2.03468
HPEscale 95%	NaN	5.75793	5.75793	NaN	5.75793
VPE 95%	1.79764	1.67046	1.67046	NaN	1.67046
VPEscale 95%	NaN	5.37	3.759	NaN	3.759
All Discontinuity Events	--	3	3	--	3
Long Discontinuity Events	--	3	3	--	3
Independent Discontinuity Events	--	3	3	--	3
P(discontinuity)	NaN	0.00285135	0.00285135	NaN	0.00285135
P(sliding window)	NaN	0.00285135	0.00285135	NaN	0.00285135

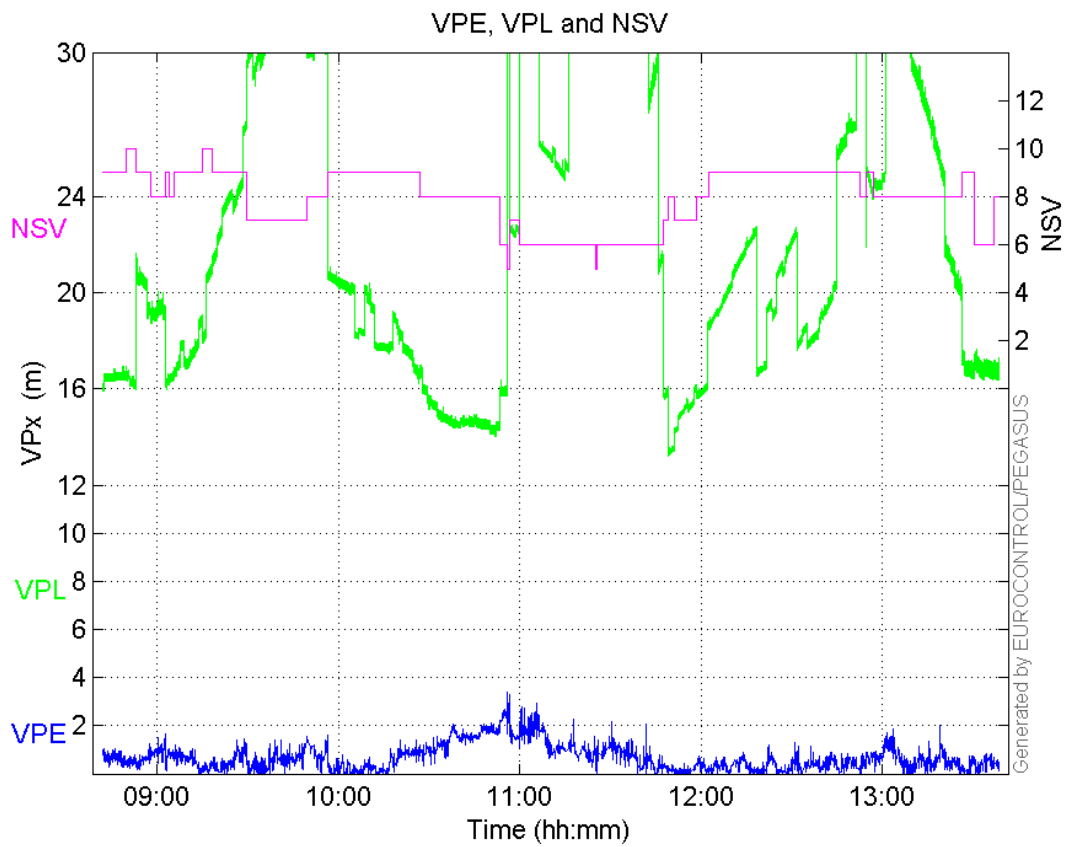
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series

HPE, HPL and NSV:

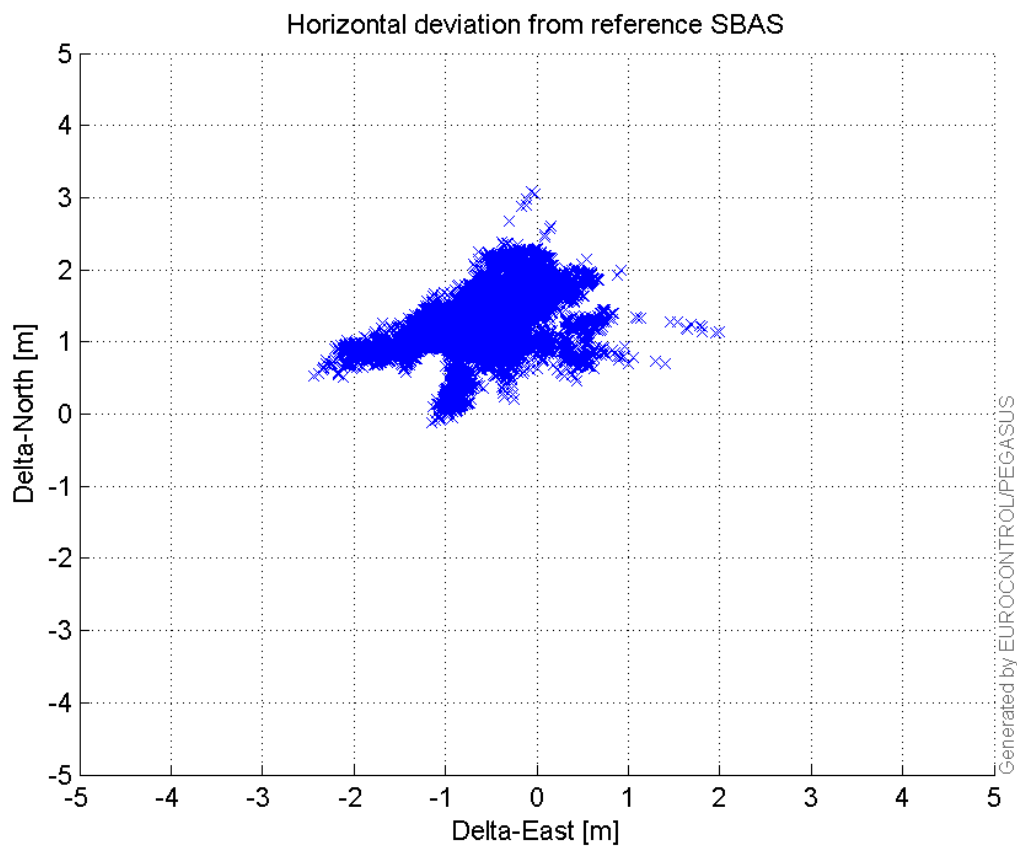


VPE, VPL and NSV:



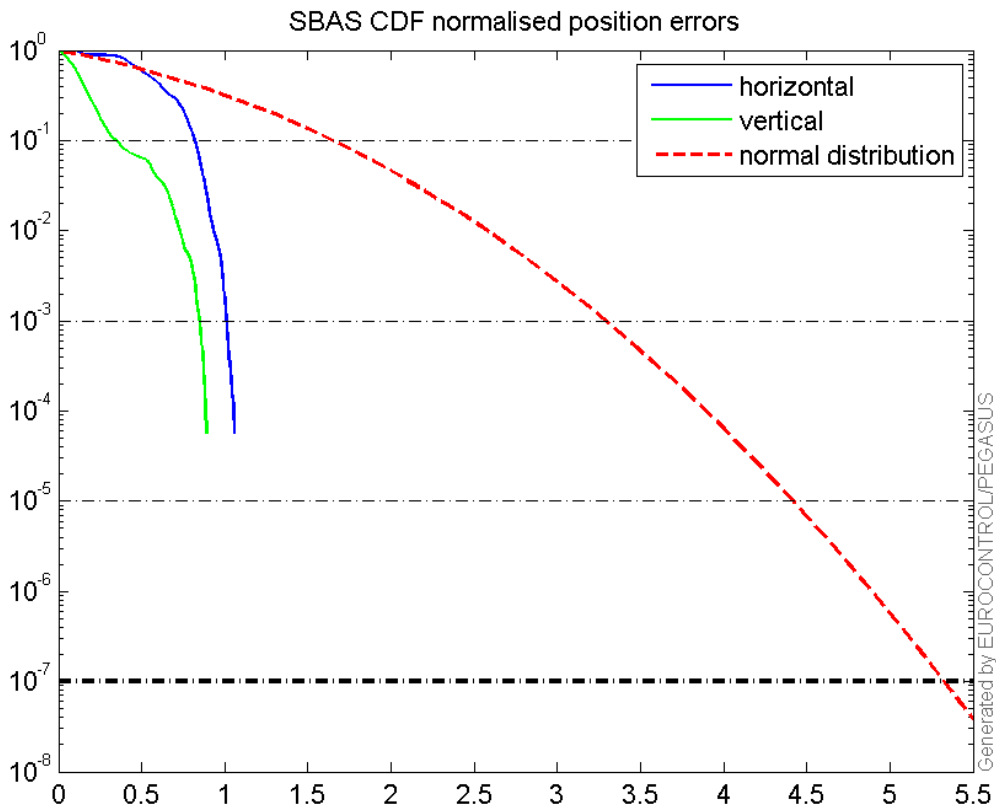
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

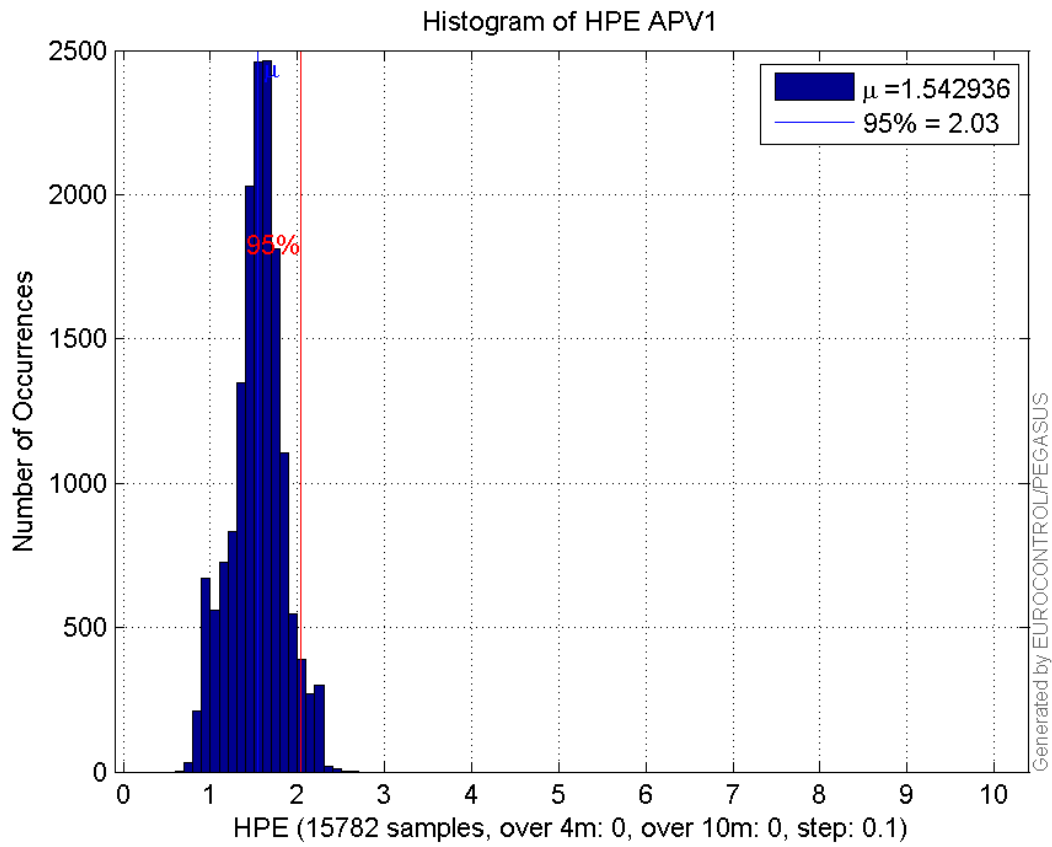
number	15782
sum	24350.611
sum2	38974.197
prctile95	2.0346764
prctile99	2.2413719
number	15782
sum	9917.9774
sum2	10018.14
prctile95	1.6704649
prctile99	2.0385423
number	15782
sum	256540.03
sum2	4504583.5
prctile95	26.55208
prctile99	27.920736
number	15782
sum	335886.24
sum2	7607634.3
prctile95	31.36832
prctile99	32.052816
number	15782
sum	1583.7093
sum2	170.84492

prctile95 0.14394818
prctile99 0.15734922
number 15782
sum 510.16554
sum2 31.214801
prctile95 0.10740008
prctile99 0.1386669
number 15782
sum 24350.611
sum2 38974.197
prctile95 2.0346764
prctile99 2.2413719
number 15782
sum 9917.9774
sum2 10018.14
prctile95 1.6704649
prctile99 2.0385423
number 15782
sum 256540.03
sum2 4504583.5
prctile95 26.55208
prctile99 27.920736
number 15782
sum 335886.24
sum2 7607634.3
prctile95 31.36832
prctile99 32.052816
number 15782
sum 1583.7093
sum2 170.84492
prctile95 0.14394818
prctile99 0.15734922
number 15782
sum 510.16554
sum2 31.214801
prctile95 0.10740008
prctile99 0.1386669

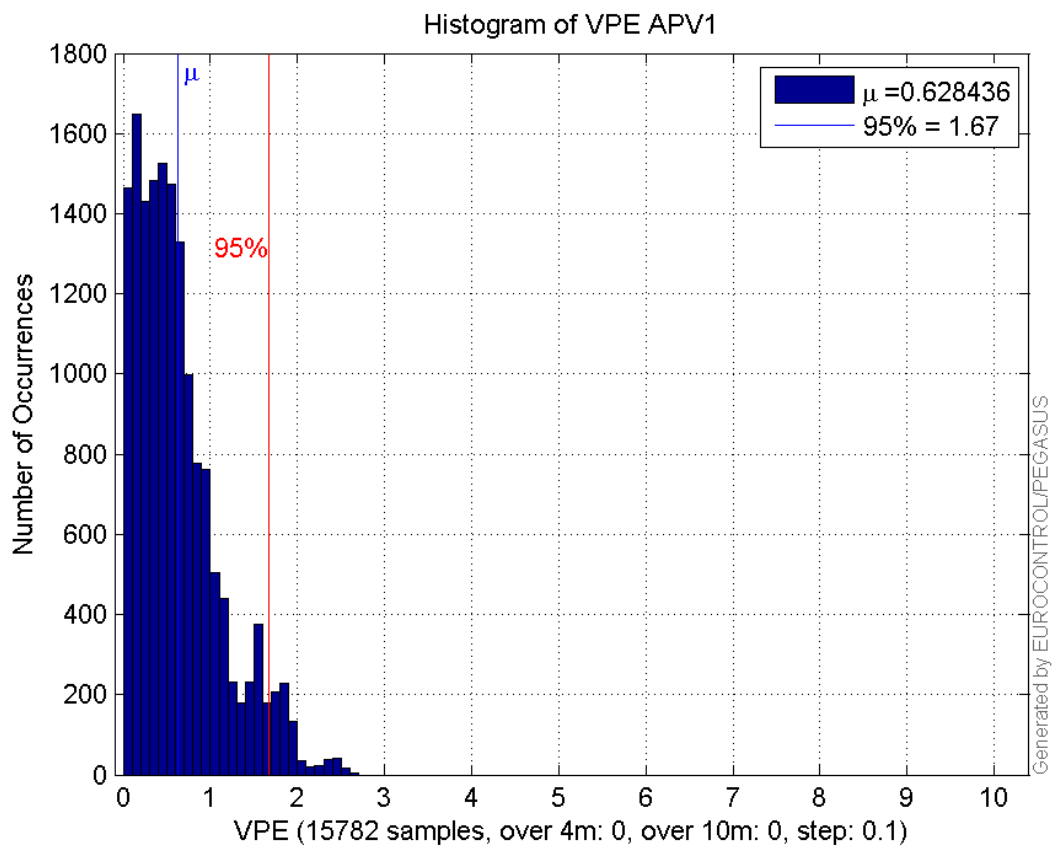
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.54294	0.298144	1.55778	2.03468	2.24137	1.57148
HPL	16.2552	4.60372	15.2132	26.5521	27.9207	16.8945
VPE	0.628436	0.489761	0.520107	1.67046	2.03854	0.796732
VPL	21.2829	5.39317	19.9179	31.3683	32.0528	21.9555

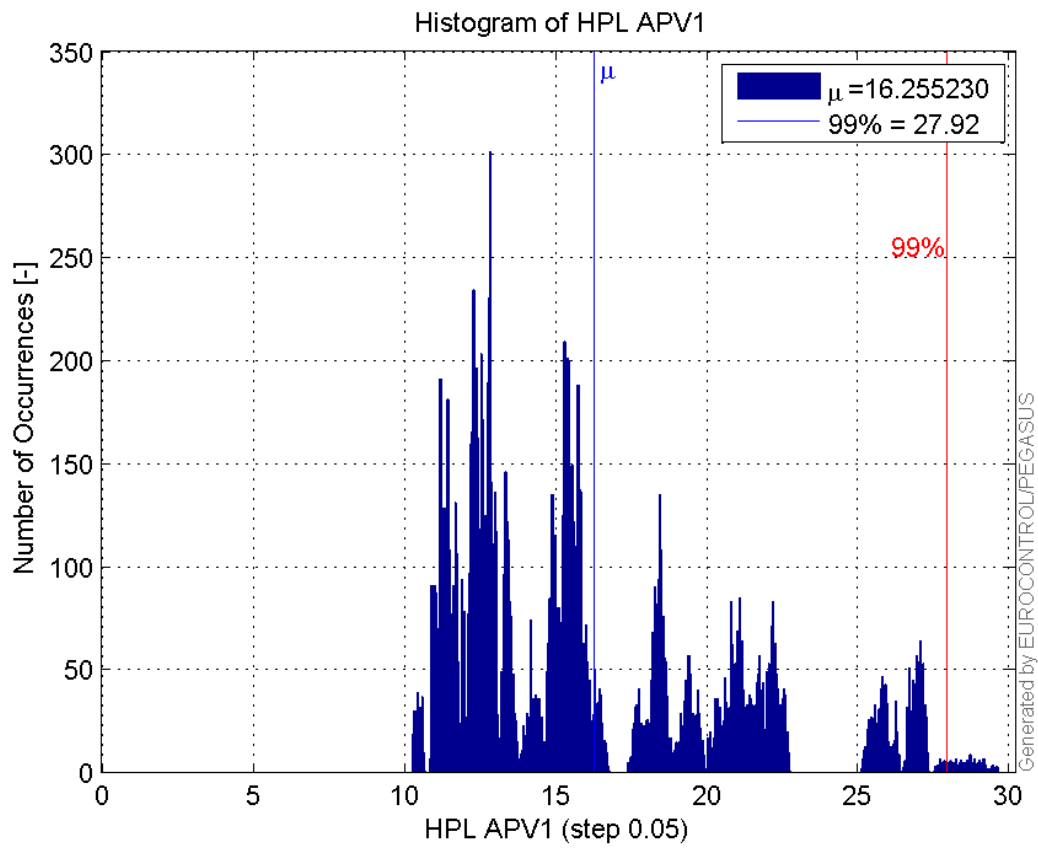
Histogram of HPE APV1:



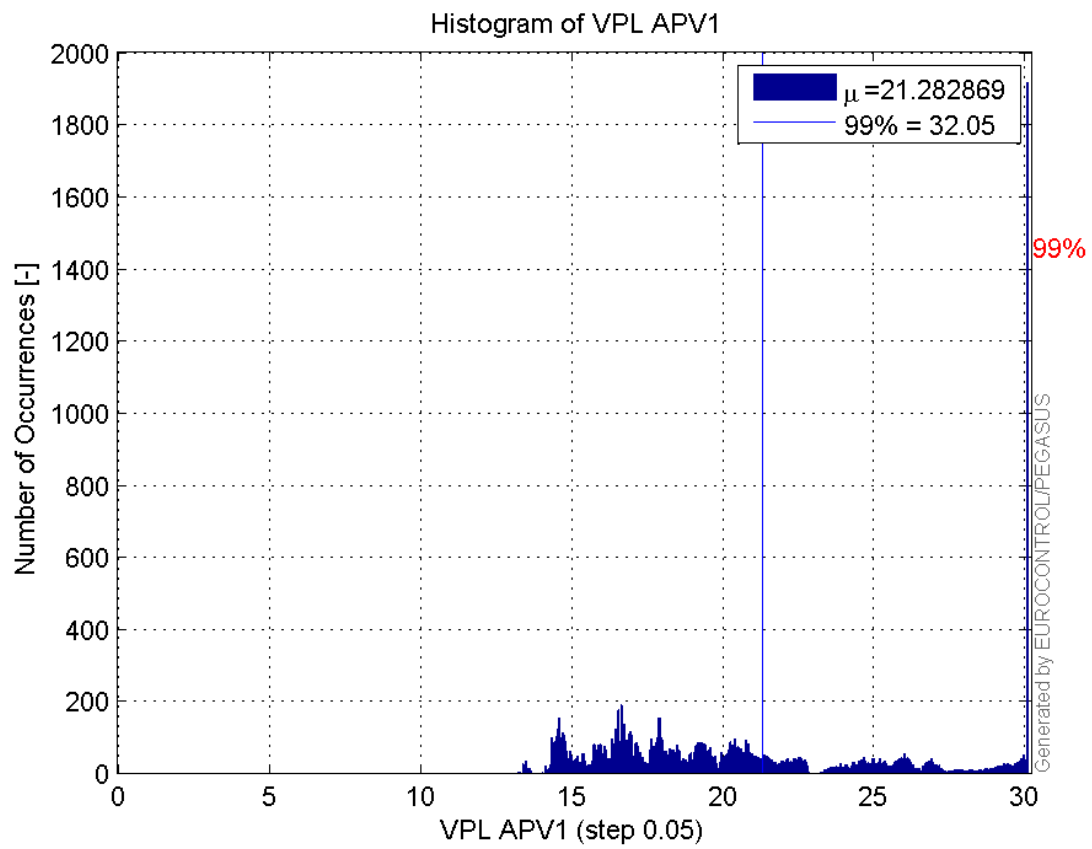
Histogram of VPE APV1:



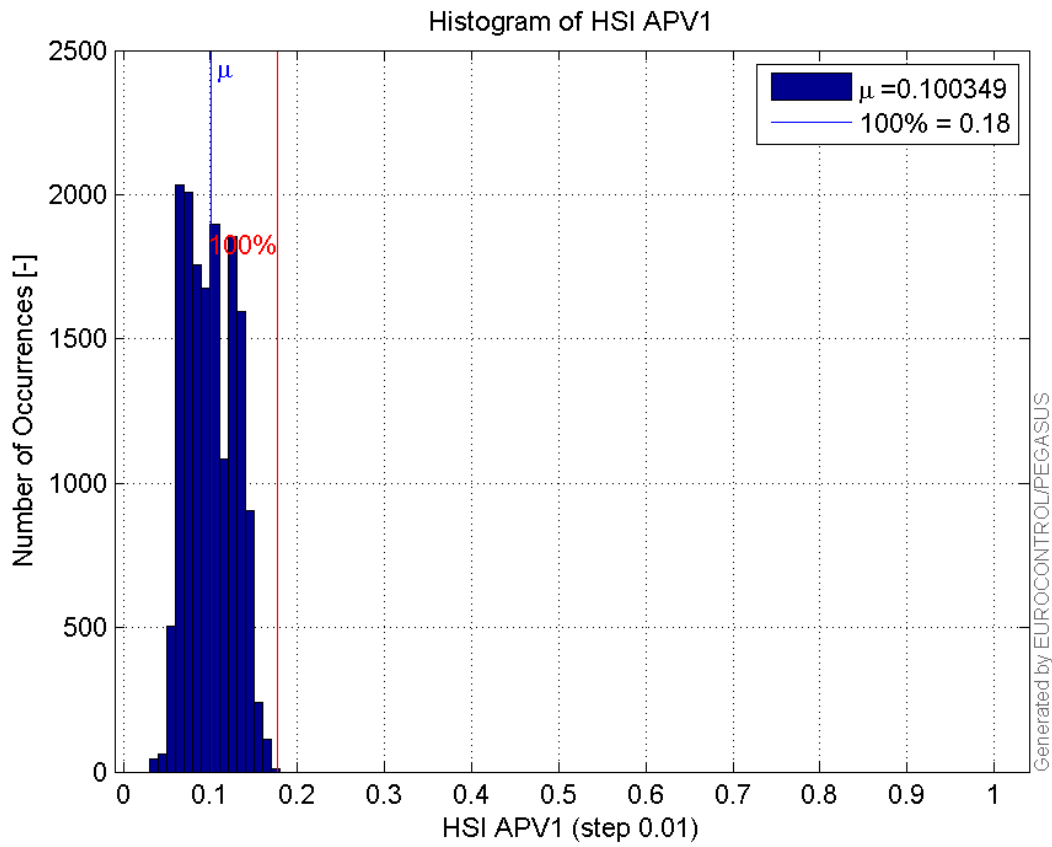
Histogram of HPL APV1:



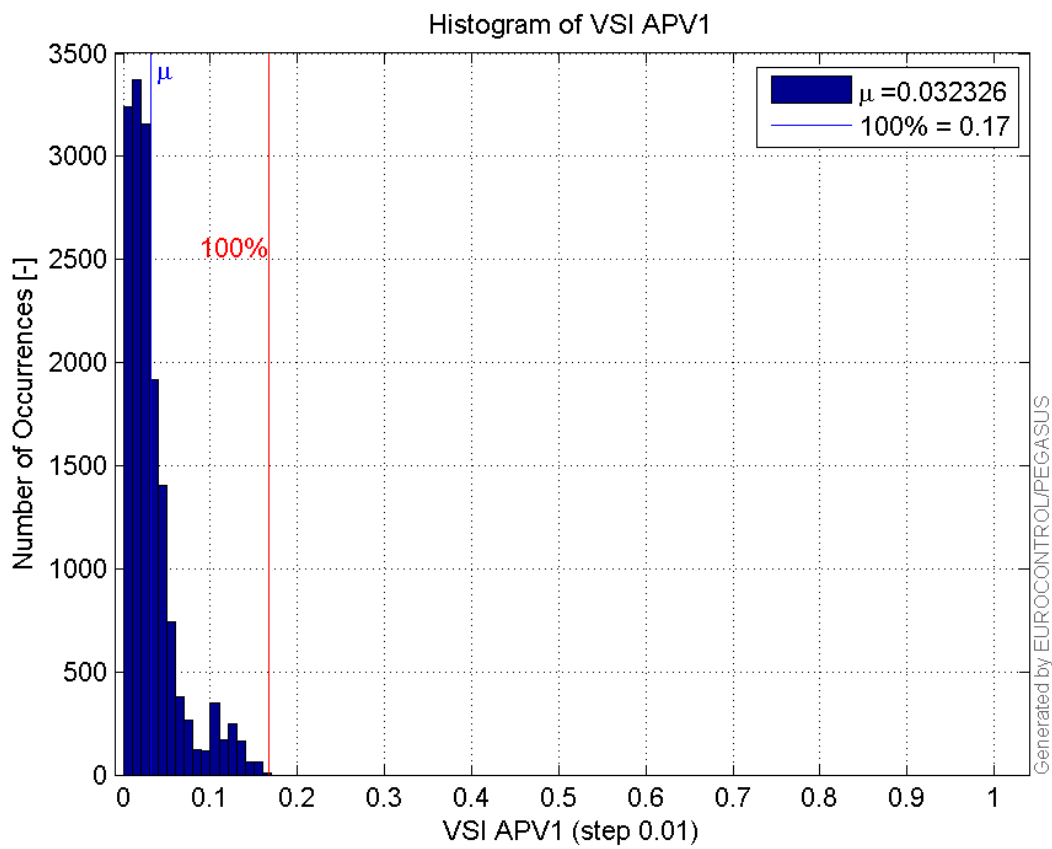
Histogram of VPL APV1:



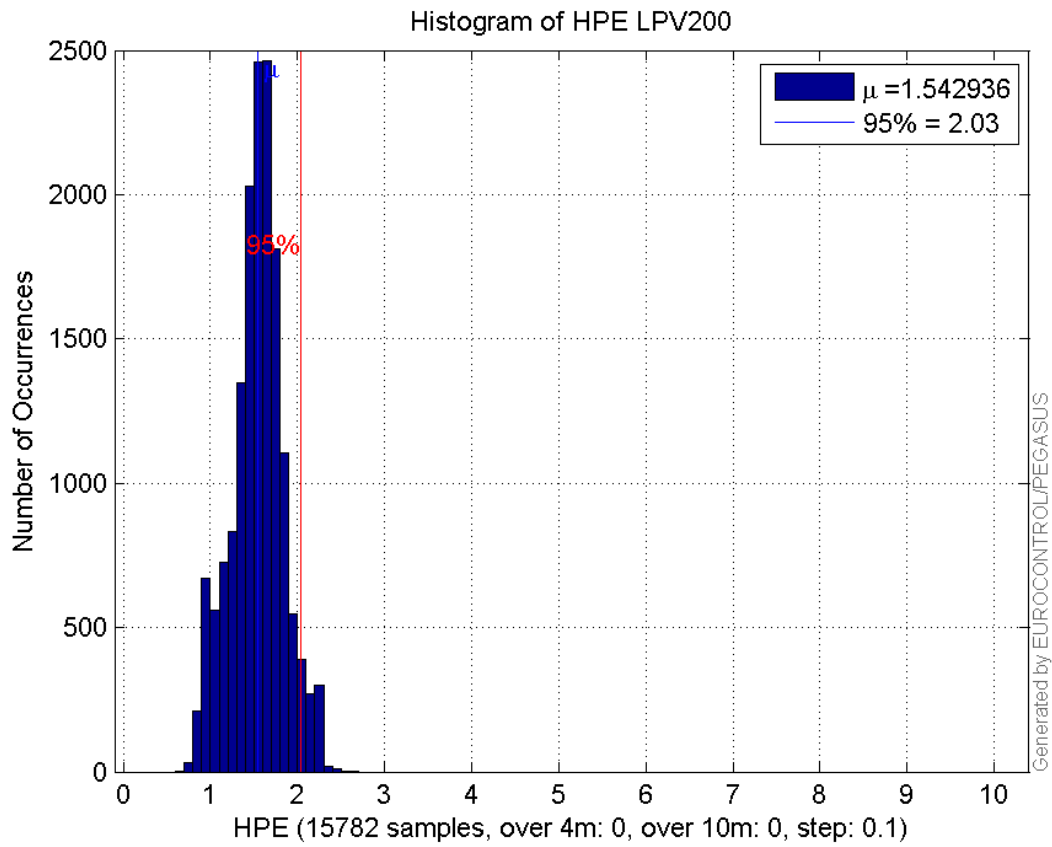
Histogram of HSI APV1:



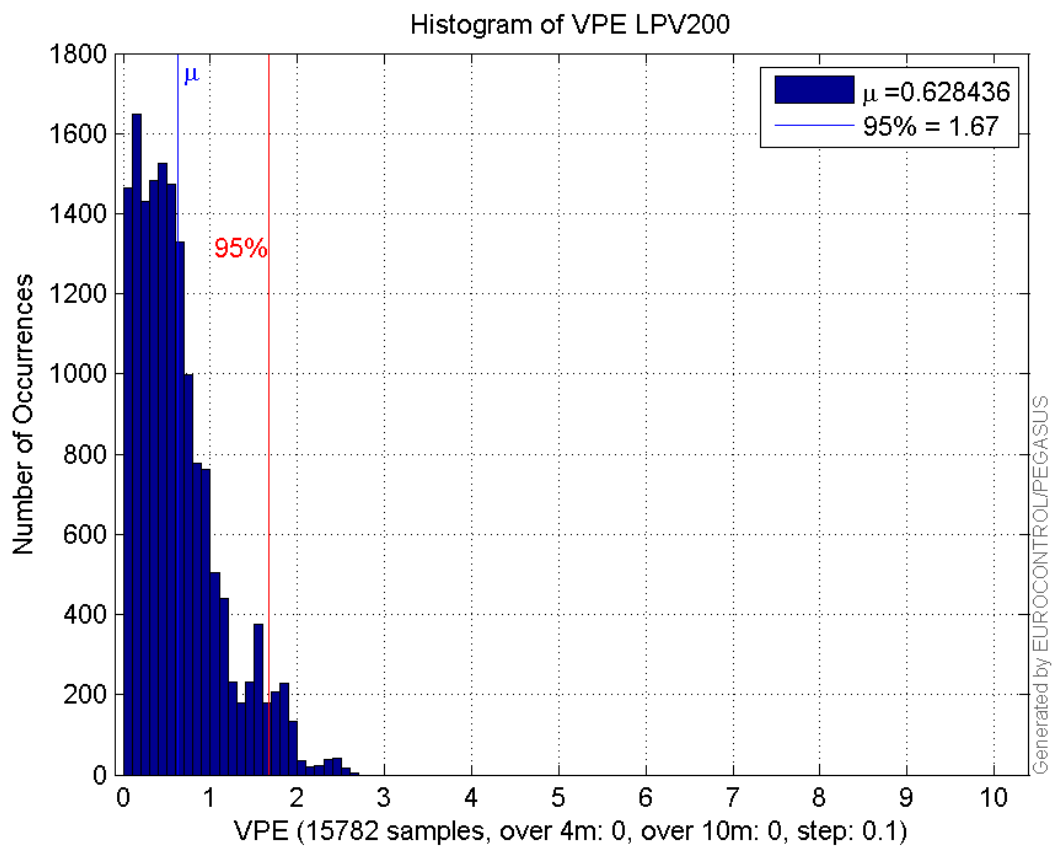
Histogram of VSI APV1:



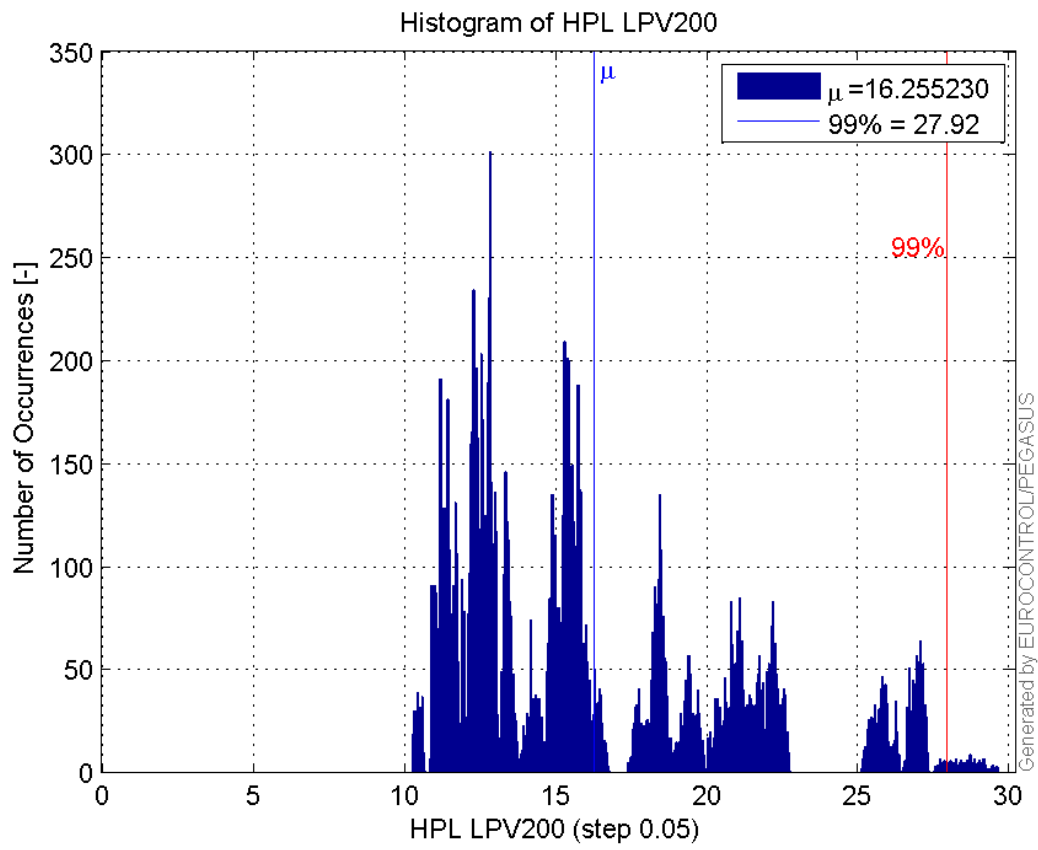
Histogram of HPE LPV200:



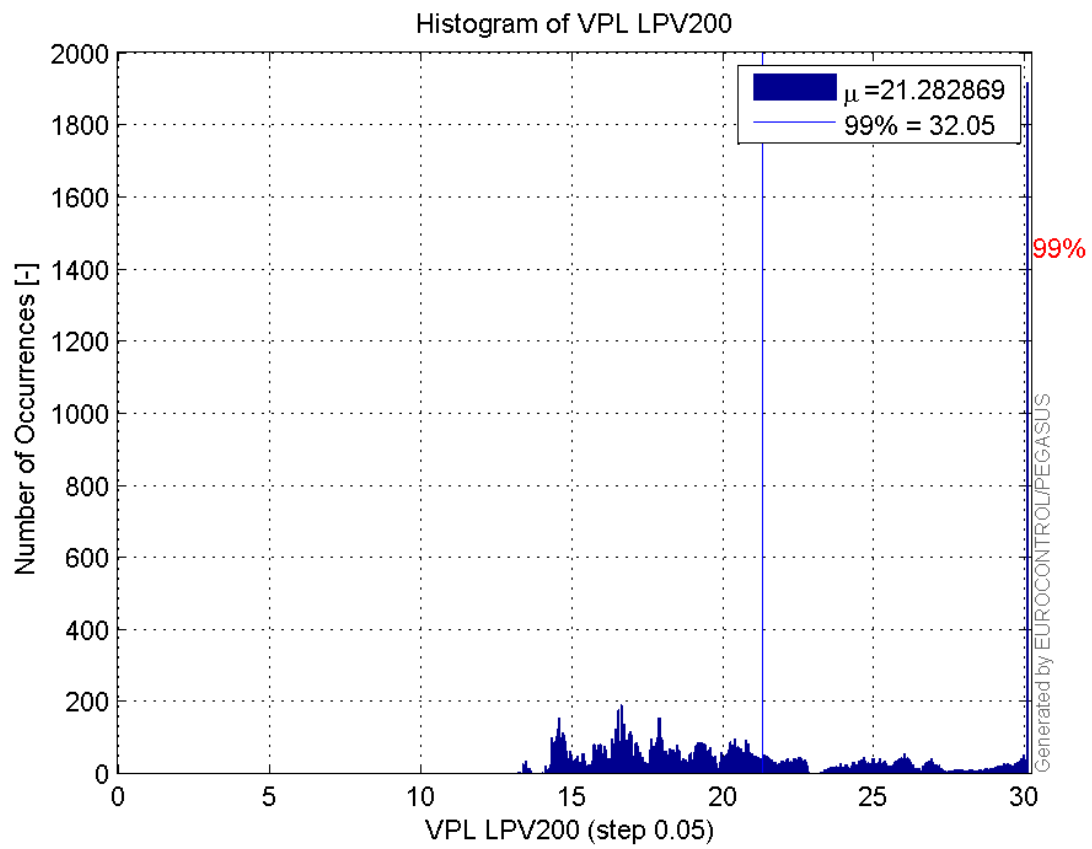
Histogram of VPE LPV200:



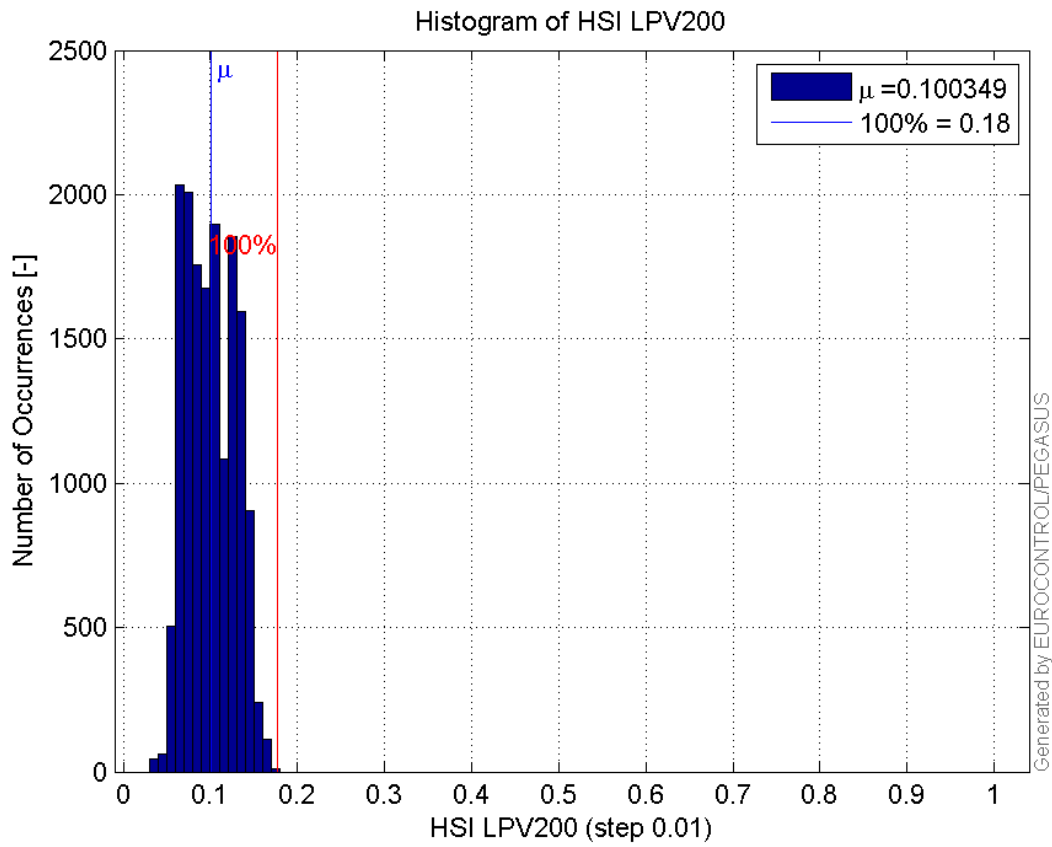
Histogram of HPL LPV200:



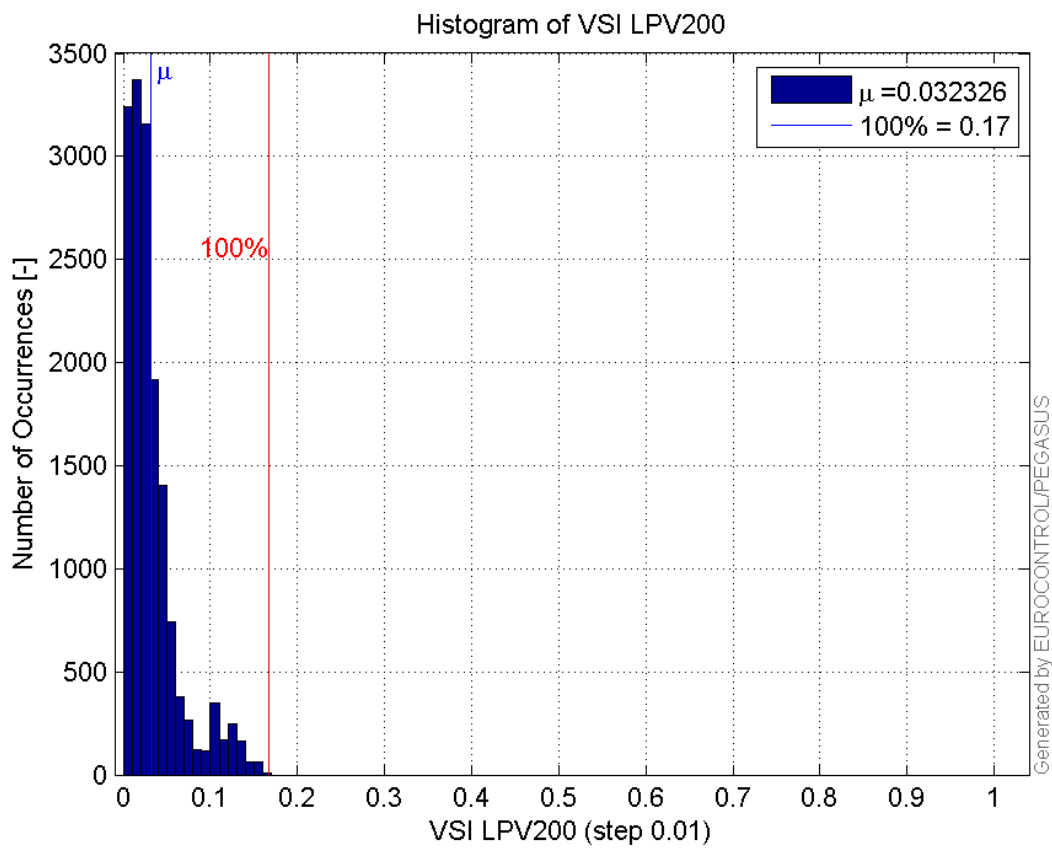
Histogram of VPL LPV200:



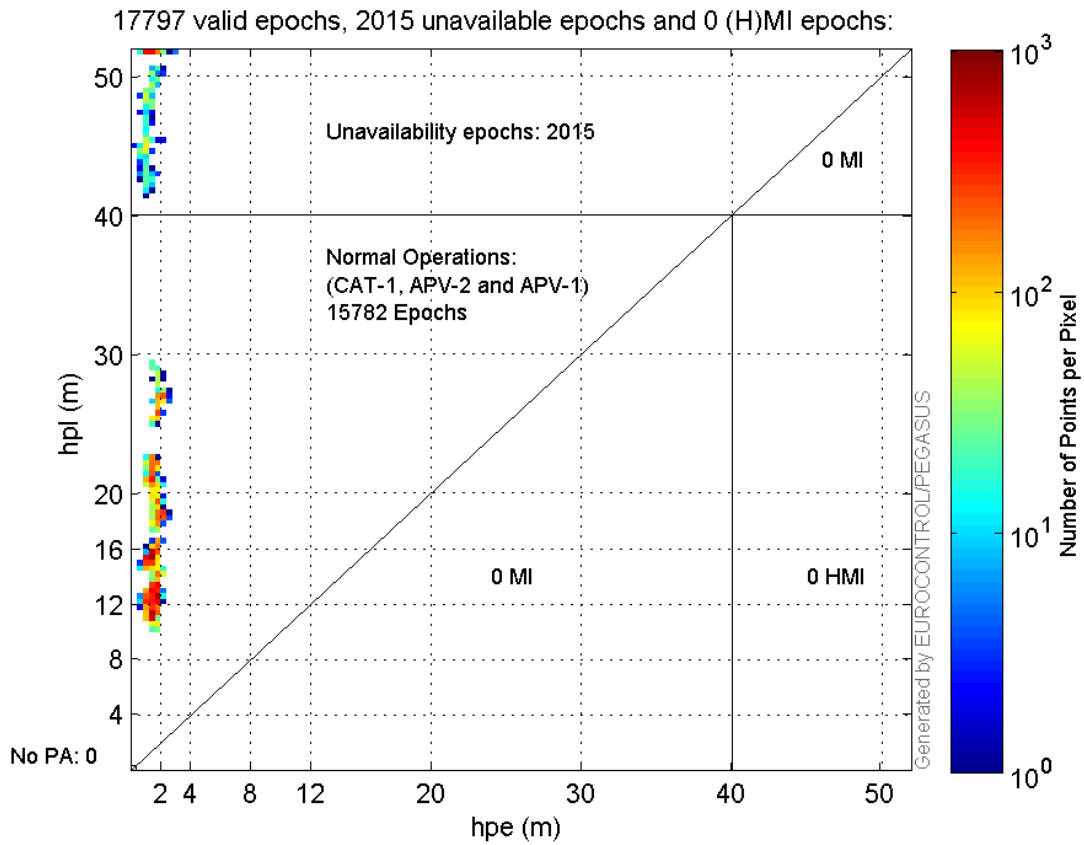
Histogram of HSI LPV200:



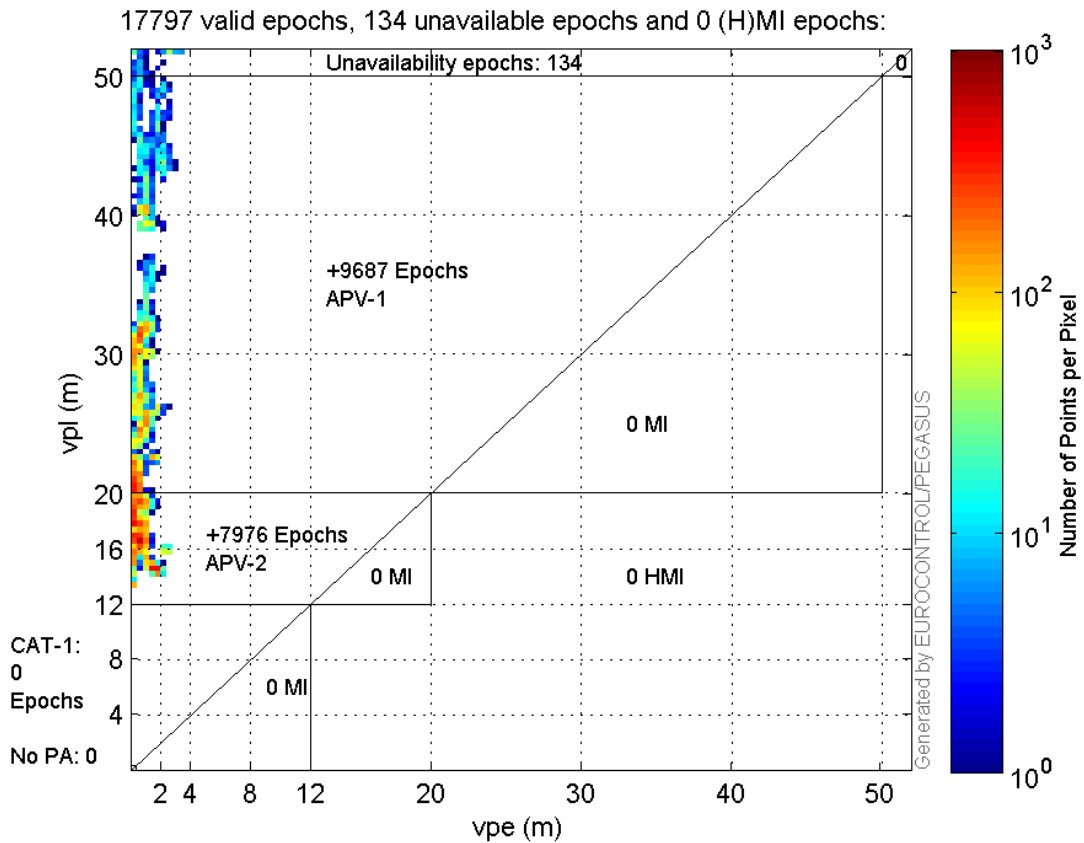
Histogram of VSI LPV200:



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:/PegasusDateJob/job/2016_07_04_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_07_04_EGNOS/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	30.4297
init_alt	results	225.1404
mi_numbers	results	0

Range Domain

start: 08:35:44 04.07.2016 (week: 1904 sec: 117344)
end: 13:38:37 04.07.2016 (week: 1904 sec: 135517)
duration: 05:02:54 ..

quality

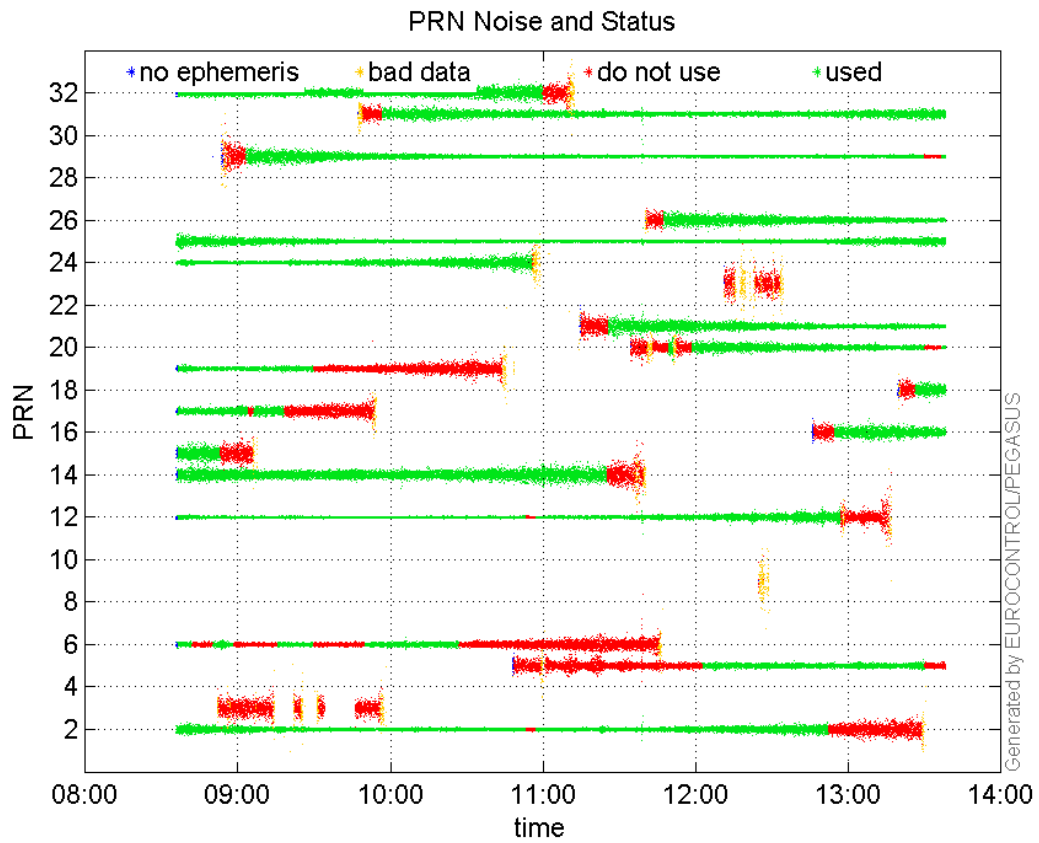
valid samples 18174
total samples 18174

PRN overview

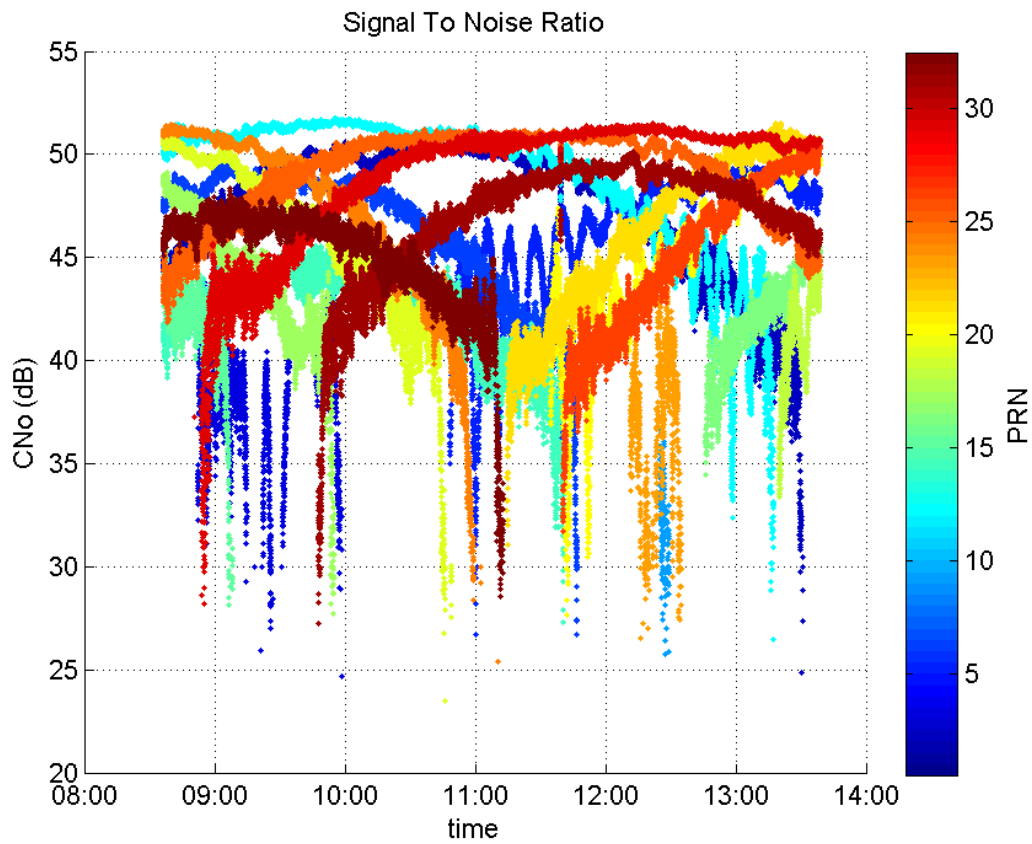
Number of Visible GPS Satellites 21
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



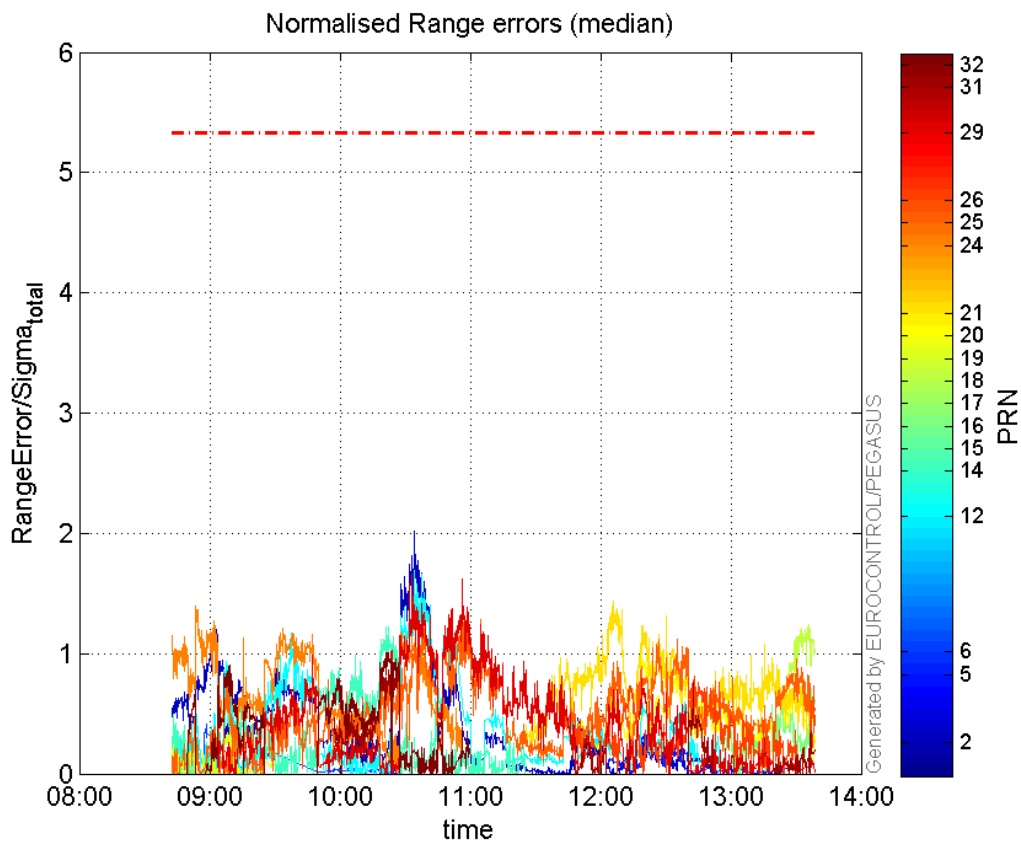
range errors

Number of Overbounding Norm Errors 0

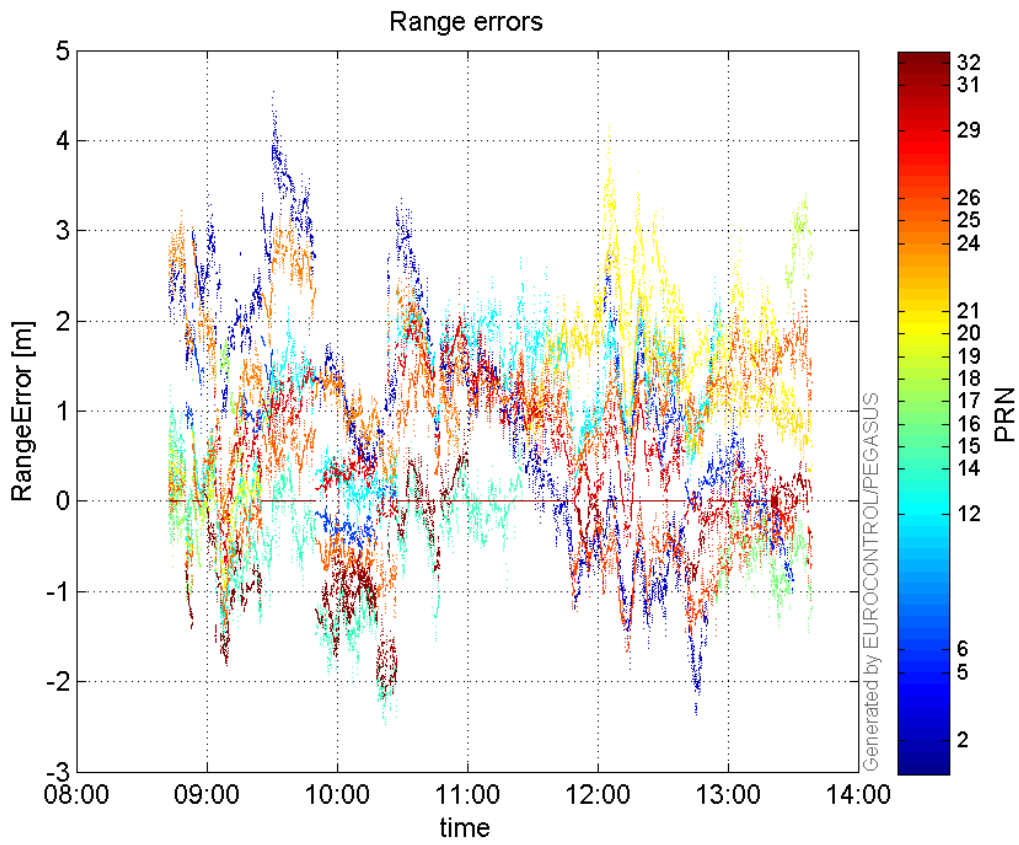
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1904	124450	2	2.01948	3.20317	1.58614
1904	130792	5	0.328723	2.11739	6.44125
1904	118679	6	0.417976	1.76293	4.21779
1904	124450	12	1.69558	2.51088	1.48084
1904	123729	14	1.22245	-2.45295	2.00659
1904	118379	15	0.456373	1.35087	2.96001
1904	135410	16	0.714922	-1.4484	2.02595
1904	119321	17	0.108405	1.82394	16.8251
1904	135370	18	1.24049	3.4182	2.75551
1904	119330	19	0.369281	-1.05829	2.8658
1904	130742	20	1.11646	3.65301	3.27197
1904	129932	21	1.43889	3.01809	2.09751
1904	118384	24	1.39152	2.88079	2.07025
1904	125761	25	1.47997	2.18594	1.47702
1904	132201	26	0.807638	-1.49102	1.84615
1904	124367	29	1.664	2.59819	1.56141
1904	123999	31	0.92815	-1.96015	2.11189
1904	123646	32	1.01054	-2.18311	2.16034

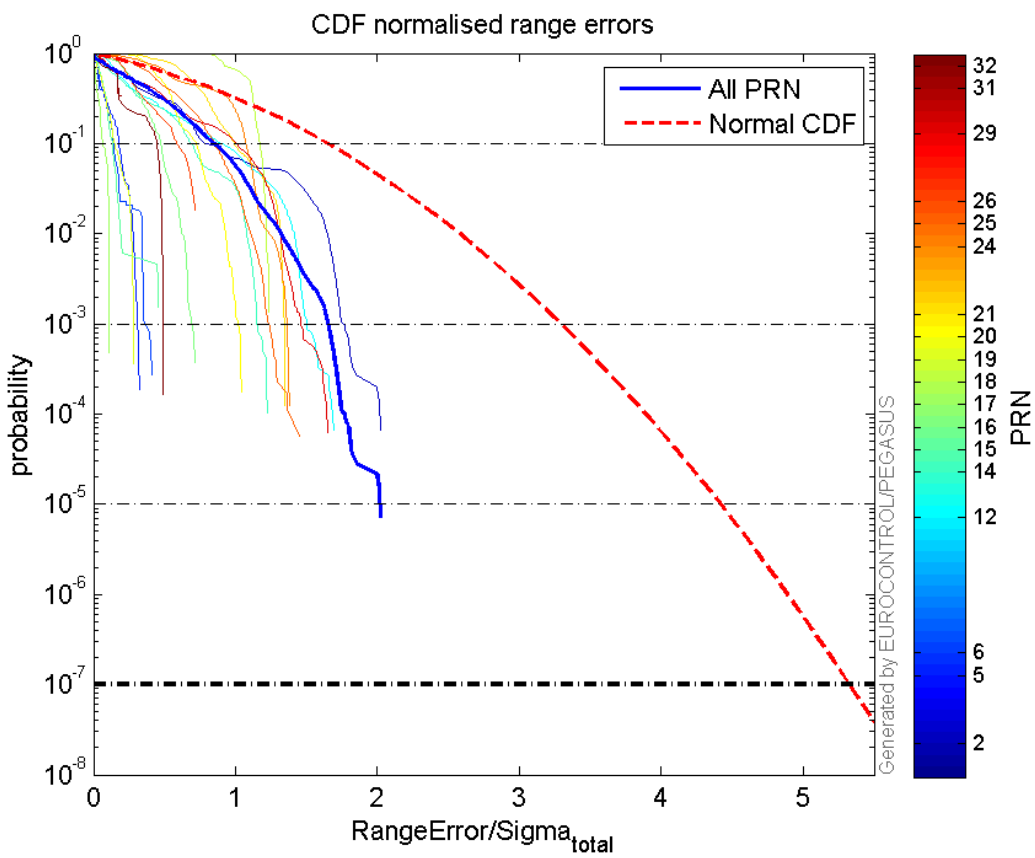
Normalised Range errors (median):



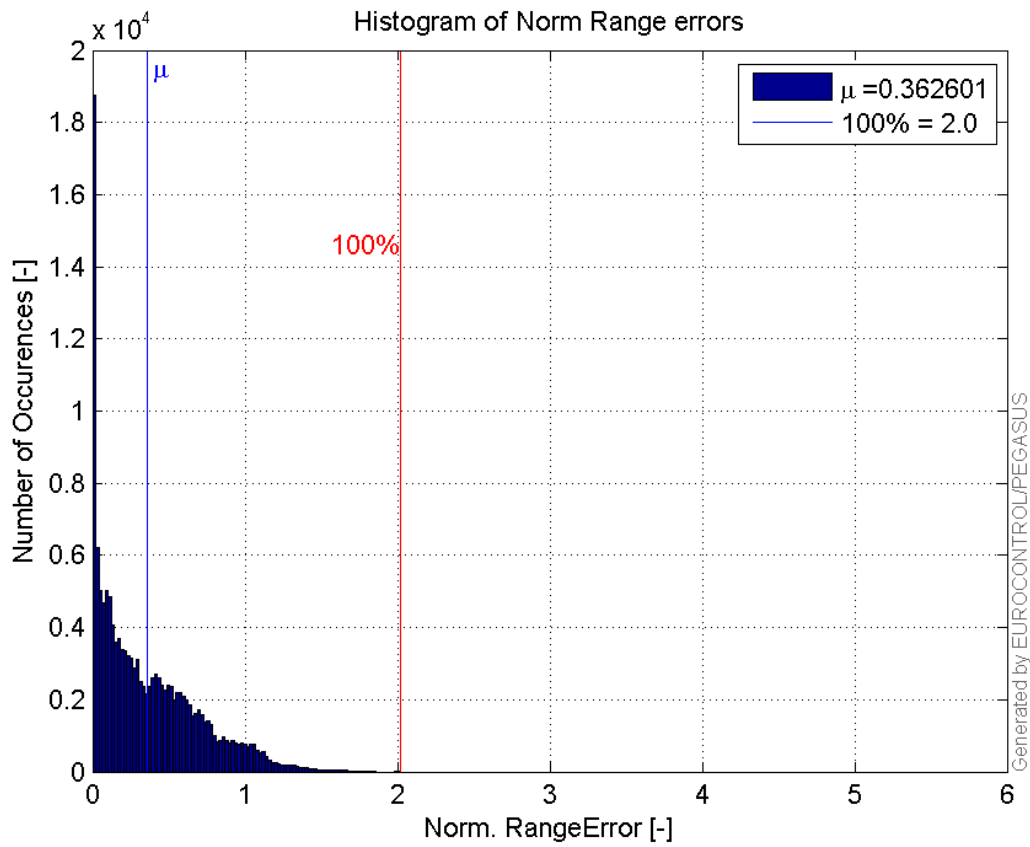
Range errors:



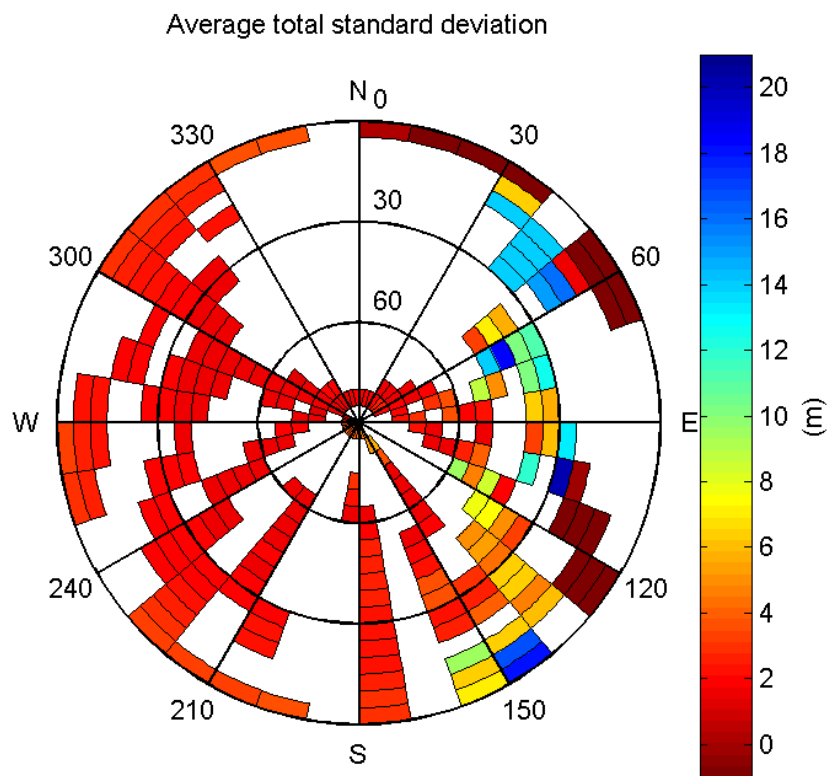
CDF normalised range errors:



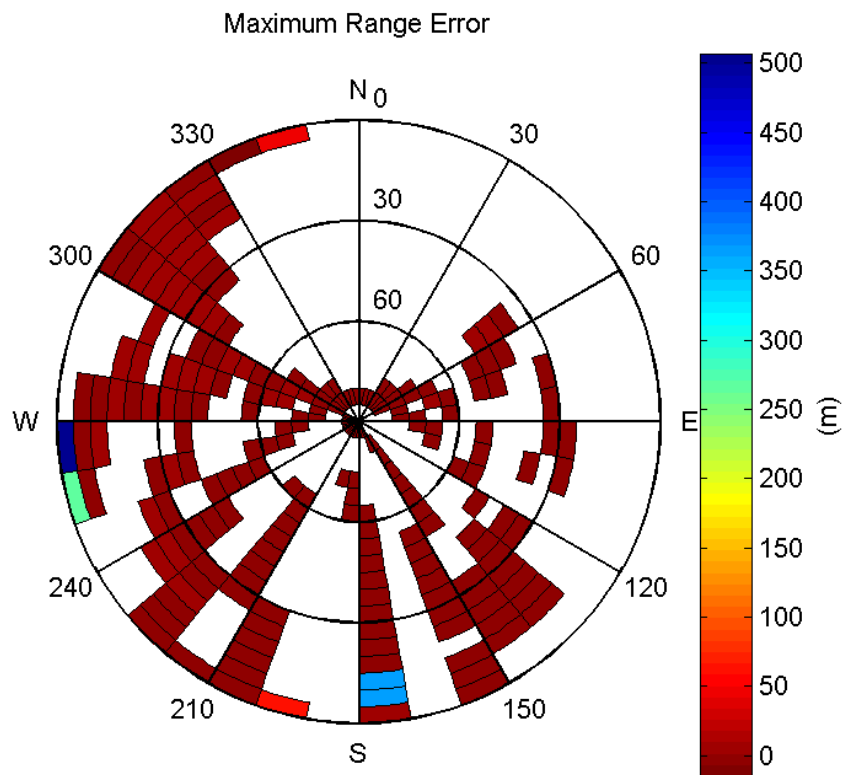
Histogram of Norm Range errors:



Sigma Sky Plot:

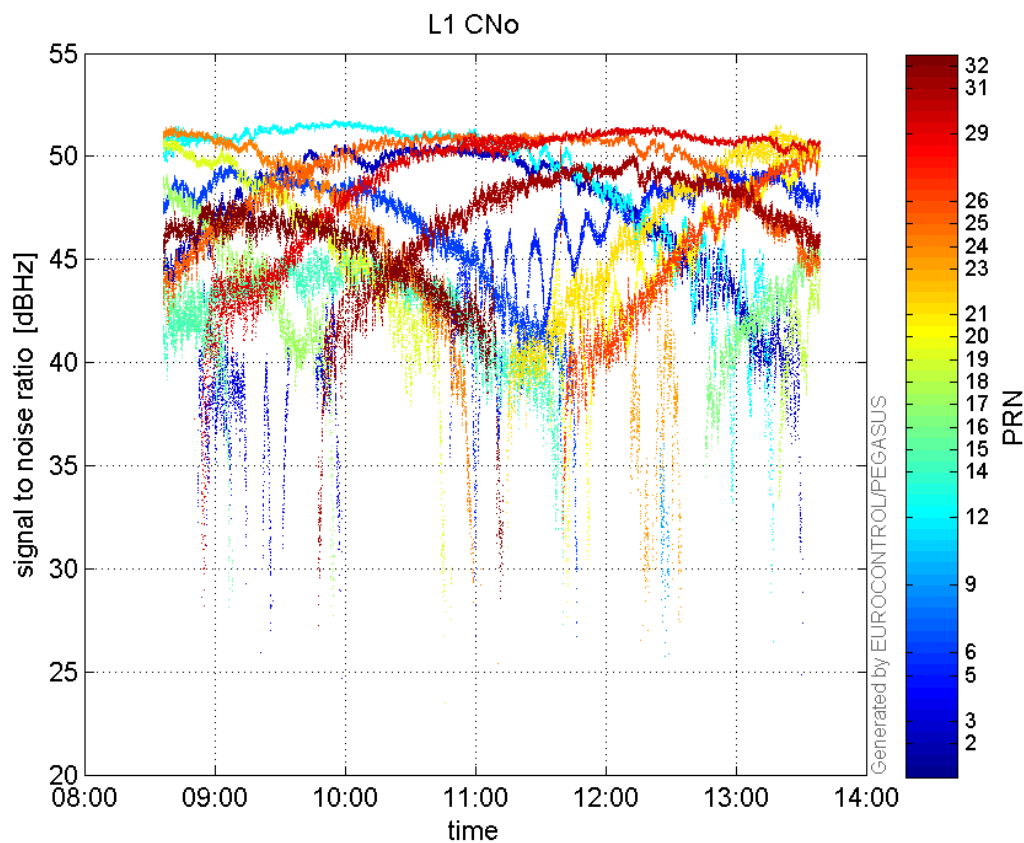


Norm Error Sky Plot:

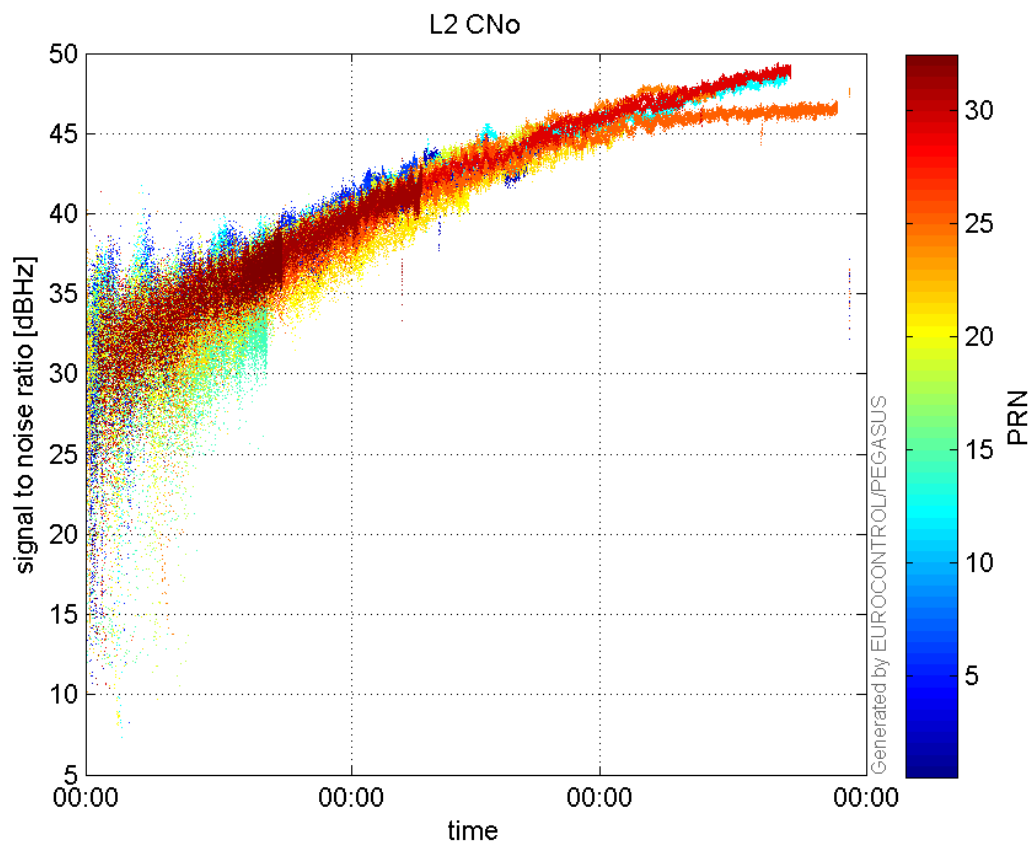


signal quality

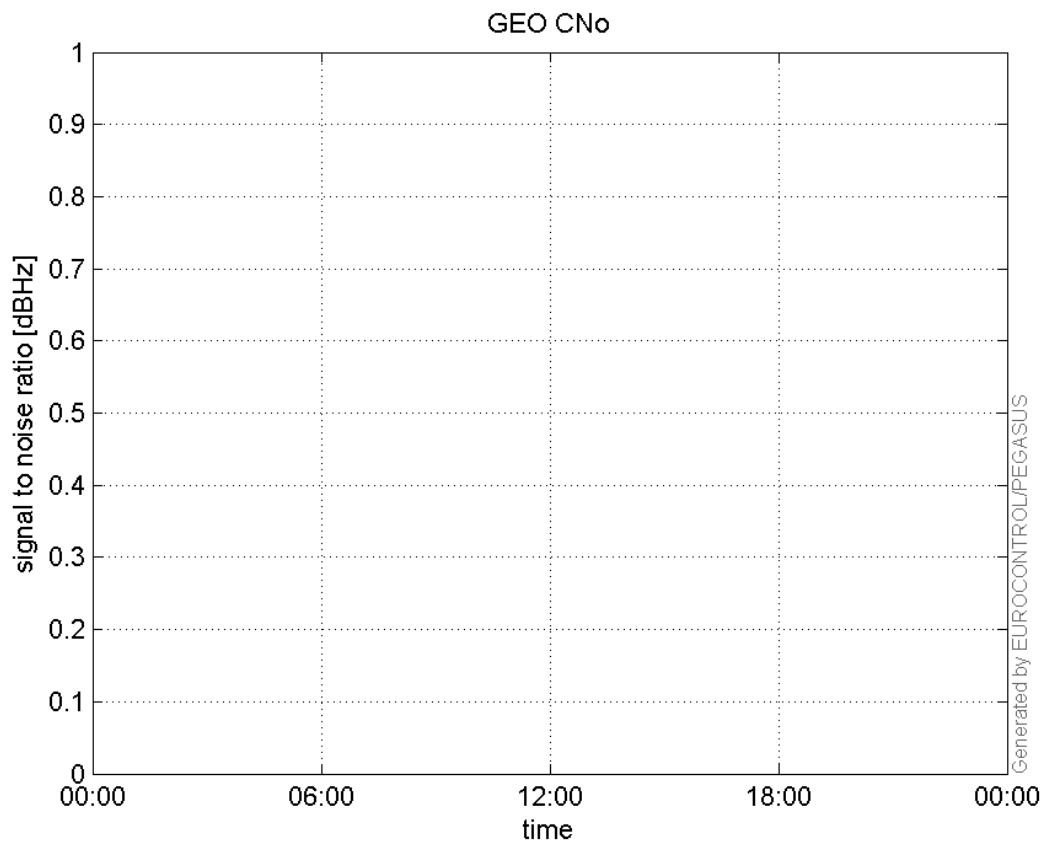
L1 CNo:



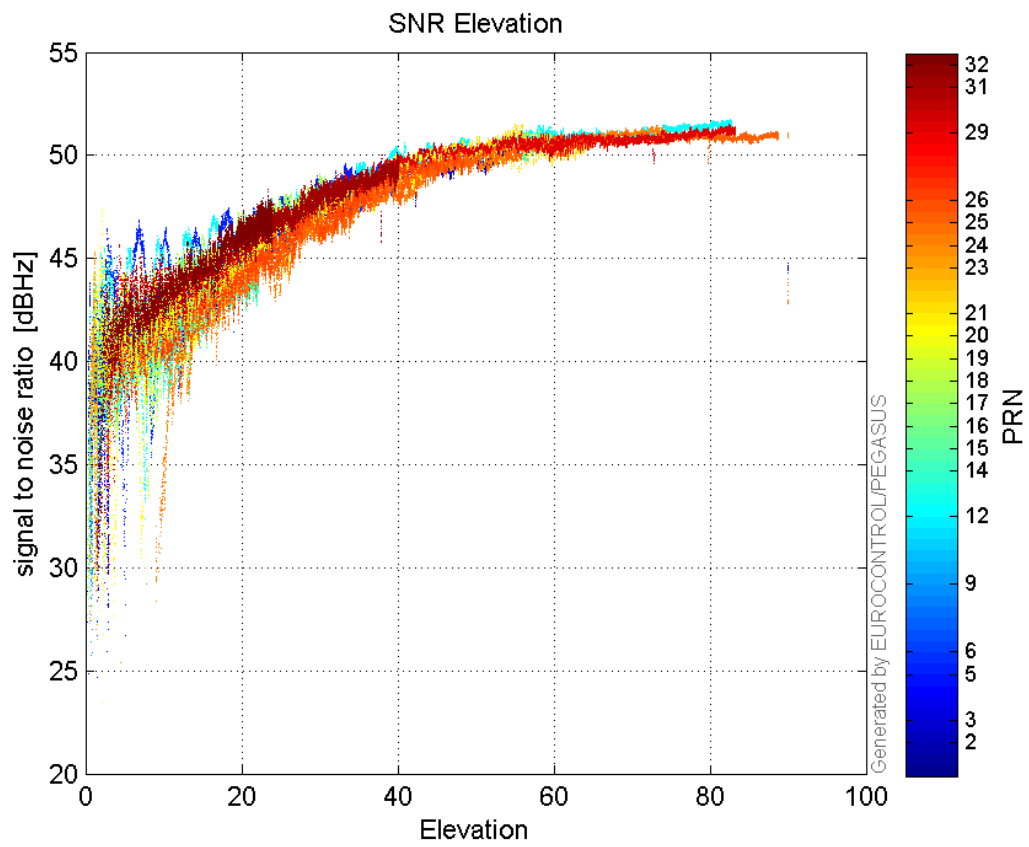
L2 CNo:



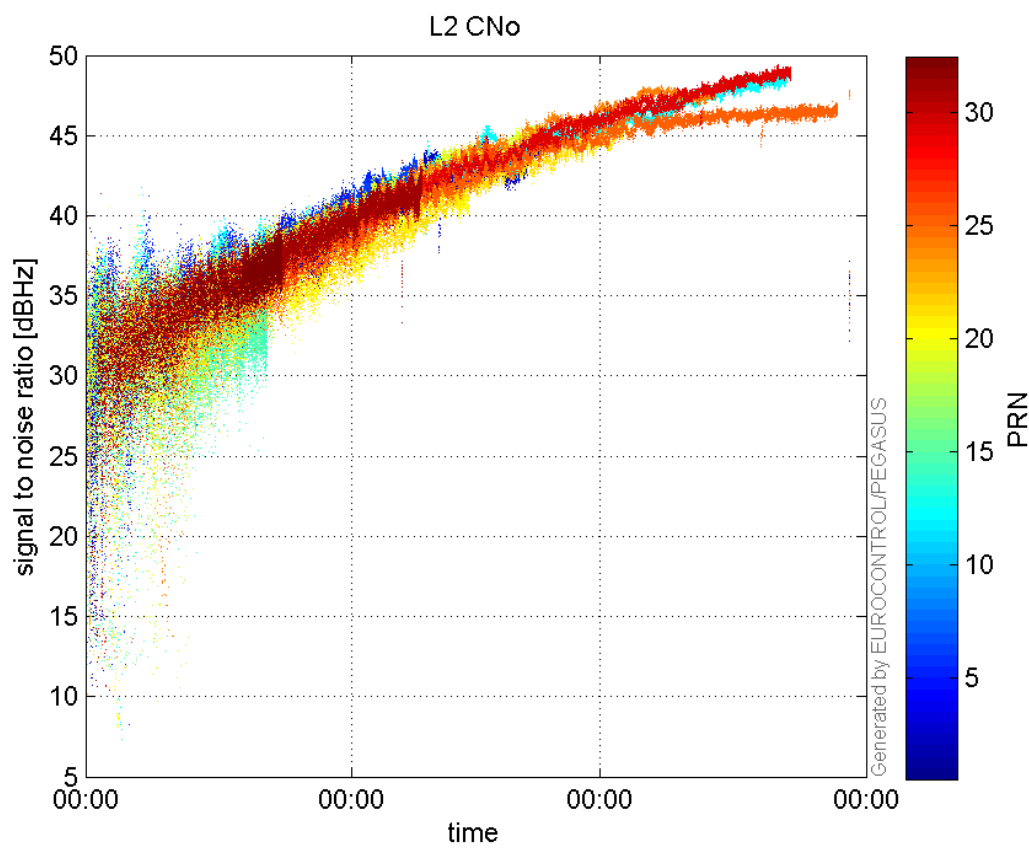
GEO CNo:



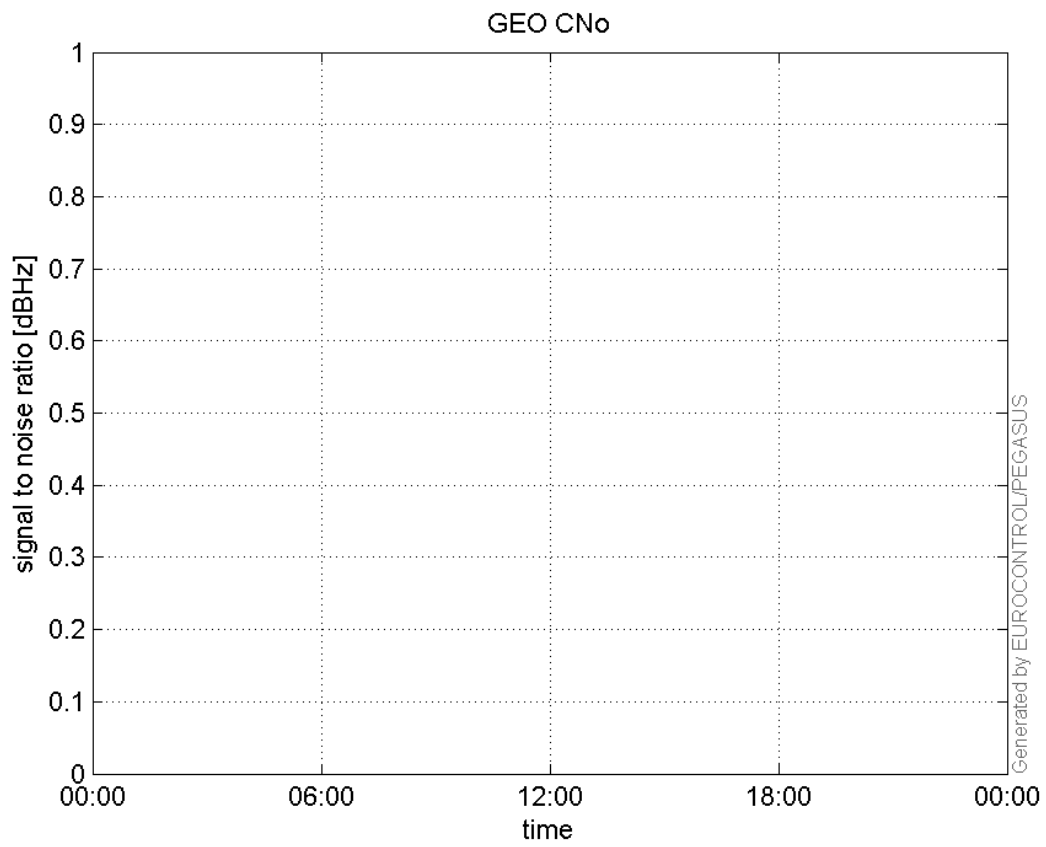
SNR Elevation:



L2 CNo:

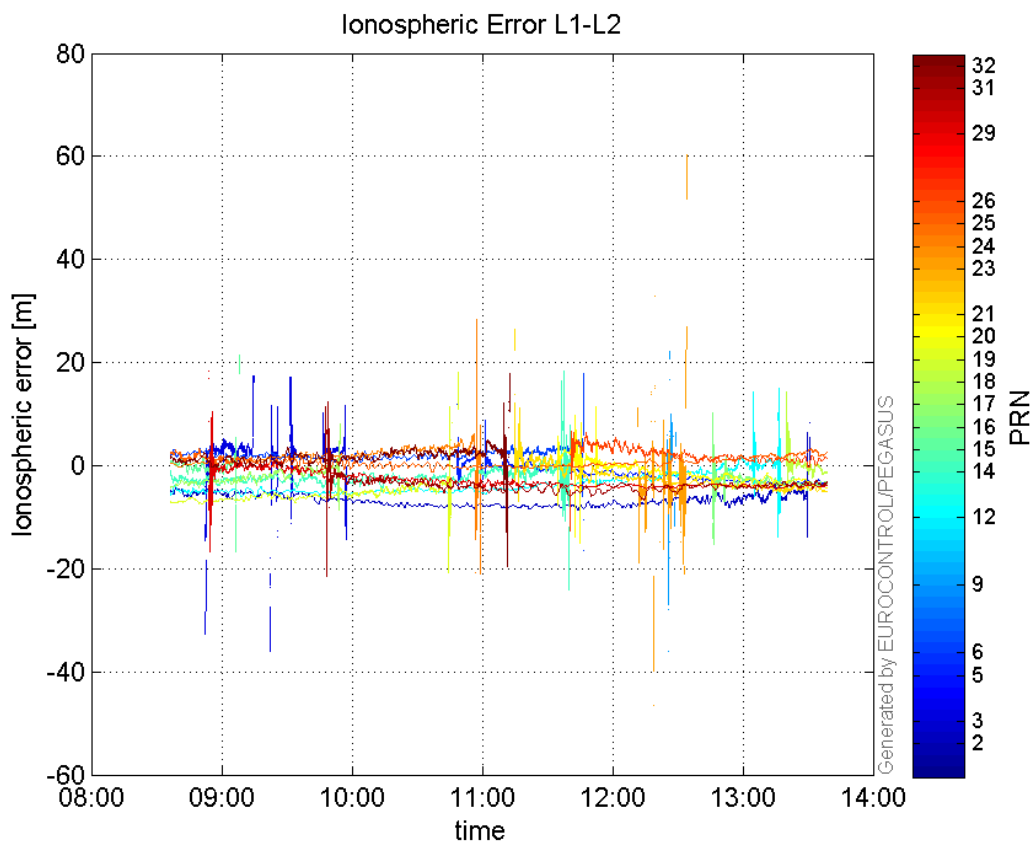


GEO CNo:



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_07_04_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_07_04_EGNOS/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	30.4297
init_alt	results	225.1404
mi_numbers	results	0