

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 16/03/2017

SBAS Messages

start: 10:52:41.129 03.03.2017 (week: 1938 sec: 471161.129)
end: 12:31:10.129 03.03.2017 (week: 1938 sec: 477070.129)
duration: 01:38:29 ..

quality

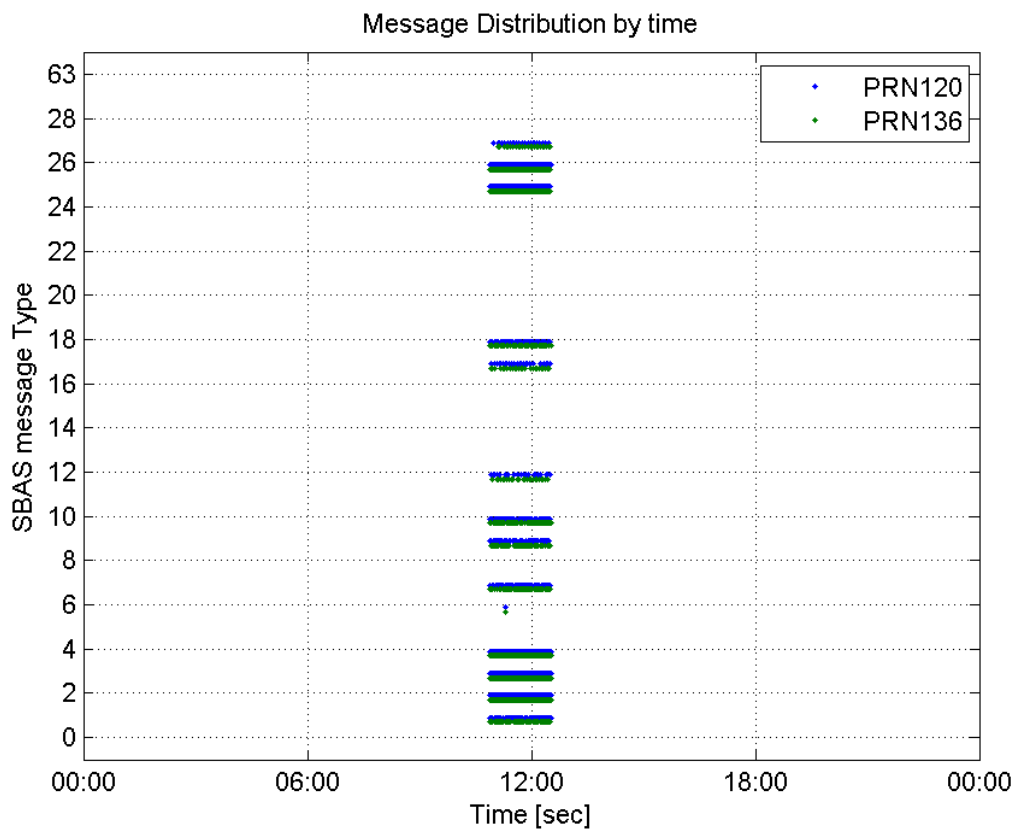
valid samples 9284
total samples 9284
number of SBAS PRNs 2

SBAS SIS Overview

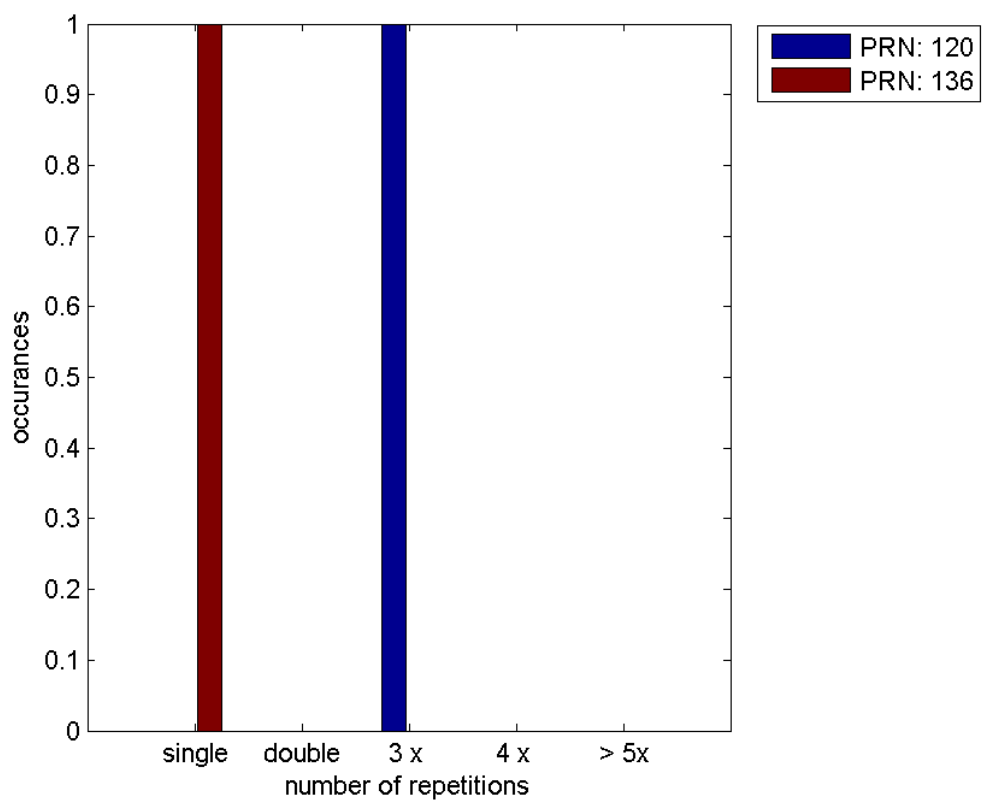
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

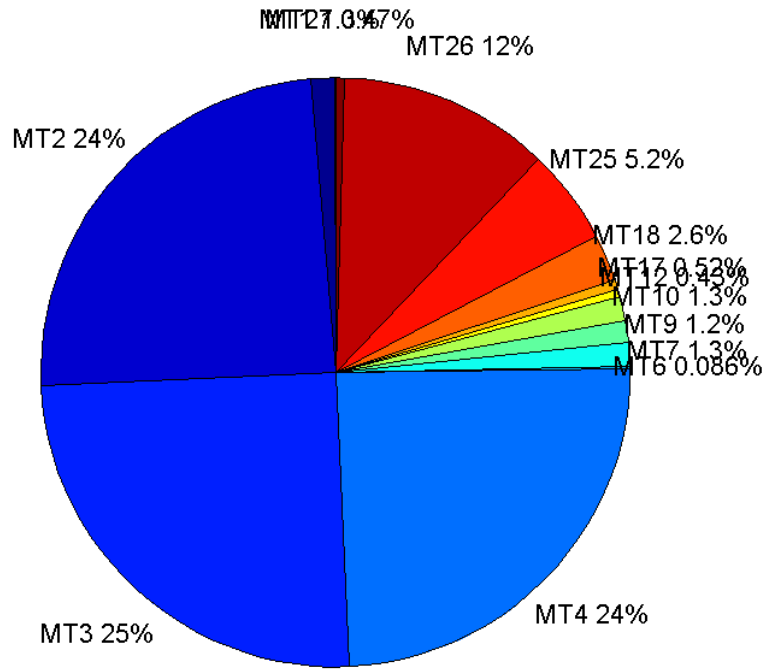
	number of messages	%
MT 0	0	0
MT 1	62	1.33333
MT 2	1133	24.3656
MT 3	1165	25.0538
MT 4	1138	24.4731
MT 5	0	0
MT 6	4	0.0860215
MT 7	60	1.29032
MT 9	55	1.1828
MT 10	62	1.33333
MT 12	20	0.430108
MT 17	24	0.516129
MT 18	121	2.60215
MT 24	0	0
MT 25	244	5.24731
MT 26	540	11.6129
MT 27	22	0.473118
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	4650	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	239	96.7049	10	0	0
MT 2	4	17	5.21908	309	0	6
MT 3	4	17	5.0756	287	0	2
MT 4	4	13	5.18997	311	0	2
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	77	240	98.5593	13	0	0
MT 9	76	398	106.204	0	0	0
MT 10	75	161	95.3279	12	0	0
MT 12	193	600	300.579	19	6	6
MT 17	189	587	248.478	0	0	0
MT 18	4	160	47.8583	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	78	24.0617	0	0	0
MT 26	4	68	10.9443	0	0	0
MT						

27	189	400	253.381	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

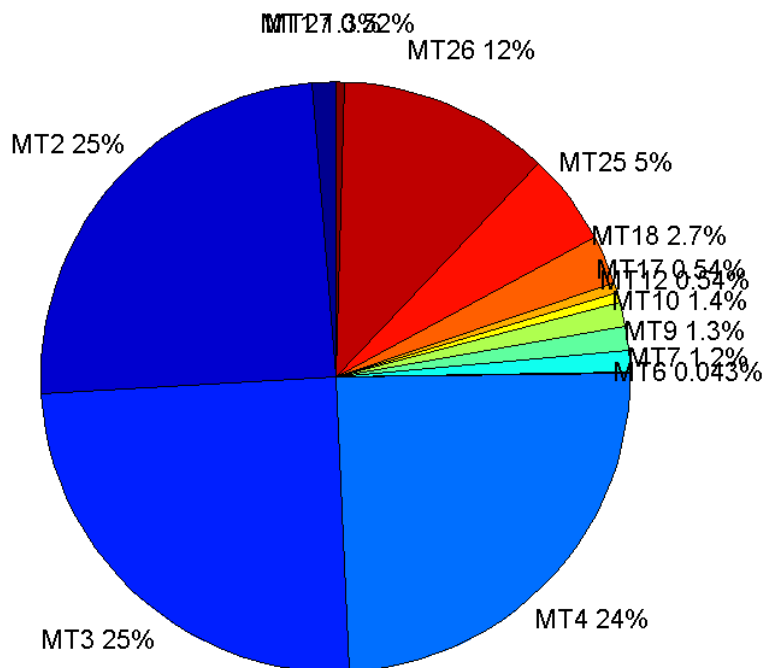
	number of messages	%
MT 0	0	0
MT 1	58	1.25162
MT 2	1144	24.6871
MT 3	1149	24.795
MT 4	1134	24.4713
MT 5	0	0
MT 6	2	0.0431593
MT 7	55	1.18688
MT 9	60	1.29478
MT 10	64	1.3811
MT 12	25	0.539491
MT 17	25	0.539491

MT 18	125	2.69745
MT 24	0	0
MT 25	232	5.00647
MT 26	537	11.5883
MT 27	24	0.517911
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	4634	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	101.982	12	0	0
MT 2	4	16	5.1671	308	0	4
MT 3	4	17	5.14547	301	0	2
MT 4	4	17	5.21006	308	0	5
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	76	320	107.667	15	0	1
MT 9	76	400	97.1186	0	0	0
MT 10	76	162	93.5397	11	0	0
MT 12	183	397	219.542	24	3	3
MT 17	183	584	235.208	0	0	0
MT 18	4	186	47.1129	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	122	25.2641	0	0	0
MT 26	4	65	10.9925	0	0	0
MT 27	186	392	220.043	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_03_03EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_03_03EGNOS2Hz/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: 10:52:41.5 03.03.2017 (week: 1938 sec: 471161.5)
end: 12:31:11 03.03.2017 (week: 1938 sec: 477071)
duration: 01:38:31 ..

quality

valid samples 10293
total samples 10969

Event tables

Position discontinuity events type all
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	475852	1.68857	10.0243	0.168447	1.58781	14.4621	0.109791
max normVer	475852	1.68857	10.0243	0.168447	1.58781	14.4621	0.109791
max HPE	474025	3.40464	48.663	0.0699636	5.30392	85.7242	0.061872
max VPE	471523	1.1346	139.429	0.00813746	-10.3793	717.185	0.0144722
min HPL	475822	1.06667	9.74741	0.109431	1.12071	13.8579	0.0808715
min VPL	475823	1.08602	9.77838	0.111063	1.14611	13.8069	0.0830099

Position discontinuity events :

#	Epoch	duration	stable period
1	471656	0.5	134
2	471670	0.5	13.5
3	472486	0.5	815.5
4	472670	1.5	183.5
5	472785	0.5	113.5
6	472902	0.5	116.5
7	475090	0.5	186

APV-I discontinuity events :

#	Epoch	duration	stable period
1	472166	6.5	90.5
2	472476	10.5	1.5
3	472490	5	3
4	472670	9.5	168
5	473638	9.5	316.5

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	472166	87.5	90.5
2	472413	125.5	34.5
3	472566	5	27.5
4	472764	87.5	84.5
5	473080	7.5	43.5
6	473616	12.5	275.5
7	473802	6	154
8	473937	13.5	46.5
9	474101	4	48
10	474178	9.5	20.5
11	474323	3.5	135.5
12	474488	3.5	161.5

13	474584	84.5	92.5
14	476864	5.5	441.5

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	472166	87.5	90.5
2	472413	125.5	34.5
3	472566	5	27.5
4	472764	87.5	84.5
5	473080	7.5	43.5
6	473616	12.5	275.5
7	473802	6	154
8	473937	13.5	46.5
9	474101	4	48
10	474178	9.5	20.5
11	474323	3.5	135.5
12	474488	3.5	161.5
13	474584	84.5	92.5
14	476864	5.5	441.5

First Glance analysis

Duration	5911
Number of Samples	10969
Number of invalid sample	676
Number of no position solution samples	15
Number of missing sample	853
Logging Loss	7.2154
Processing Loss	6.1628
Number of Misleading Information	0
Data gaps	3
Discontinuities	10

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
10278	9798	8534	0	8534

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.30391	1.30418	1.31911	NaN	1.31911
HPEScale 95%	NaN	4.57576	4.63444	NaN	4.63444
VPE 95%	1.3456	1.11665	1.11062	NaN	1.11062
VPEscale 95%	NaN	3.2078	2.35377	NaN	2.35377

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.998543	0.951909	0.829107	0	0.829107
measurements	0.937004	0.893245	0.778011	0	0.778011
Operational	1.73879	1.65759	1.44375	0	1.44375

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	7	28	61	--	61
Long	0	5	24	--	24
Independent	0	3	14	--	14
P(disc.)	0	0.00459277	0.0246075	NaN	0.0246075
P(slide)	0.0100701	0.0335273	0.0687837	NaN	0.0687837

Integrity events :

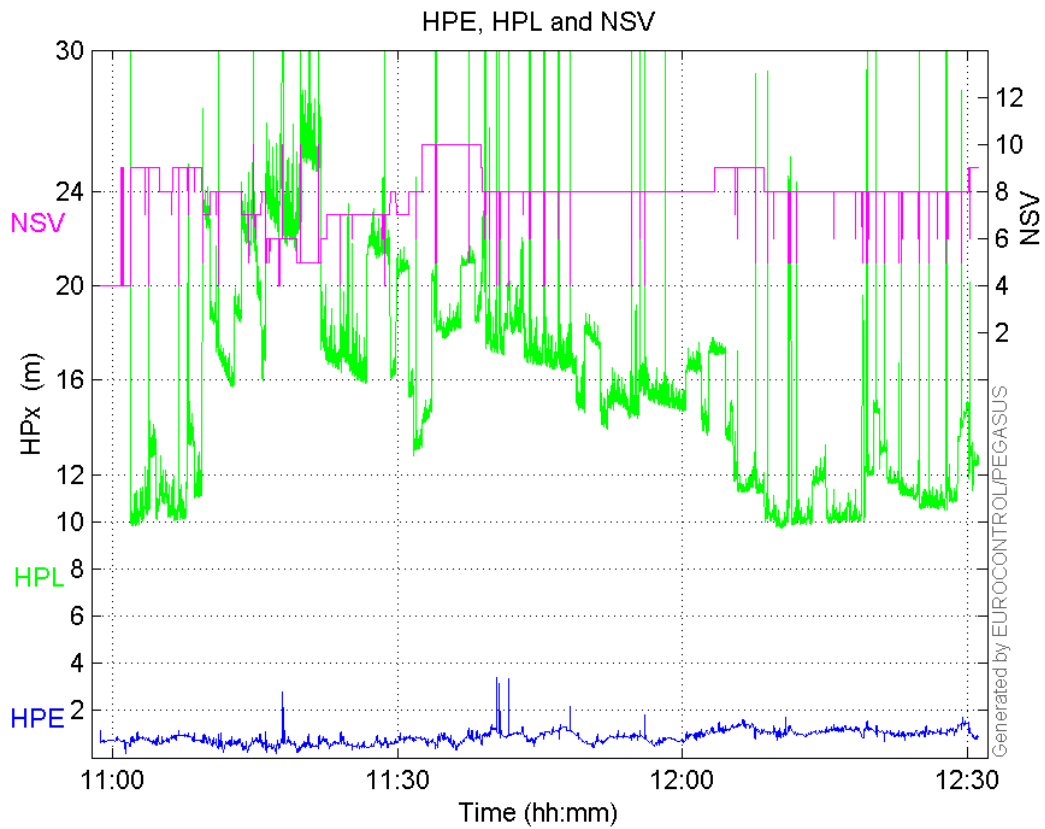
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

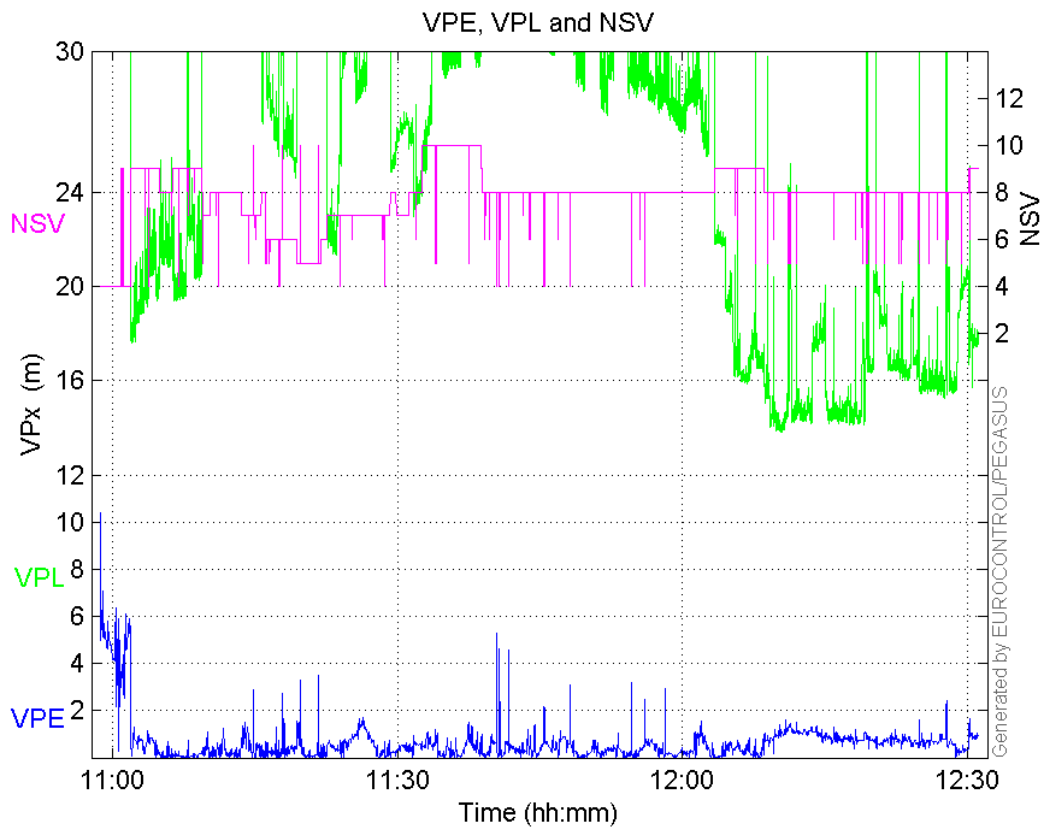
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	10278	9798	8534	0	8534
SIS Availability	0.998543	0.951909	0.829107	0	0.829107
Local Availability	0.937004	0.893245	0.778011	0	0.778011
Operational Availability	1.73879	1.65759	1.44375	0	1.44375
HPE 95%	1.30391	1.30418	1.31911	NaN	1.31911
HPEScale 95%	NaN	4.57576	4.63444	NaN	4.63444
VPE 95%	1.3456	1.11665	1.11062	NaN	1.11062
VPEscale 95%	NaN	3.2078	2.35377	NaN	2.35377
All Discontinuity Events	7	28	61	--	61
Long Discontinuity Events	0	5	24	--	24
Independent Discontinuity Events	0	3	14	--	14
P(discontinuity)	0	0.00459277	0.0246075	NaN	0.0246075
P(sliding window)	0.0100701	0.0335273	0.0687837	NaN	0.0687837
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:

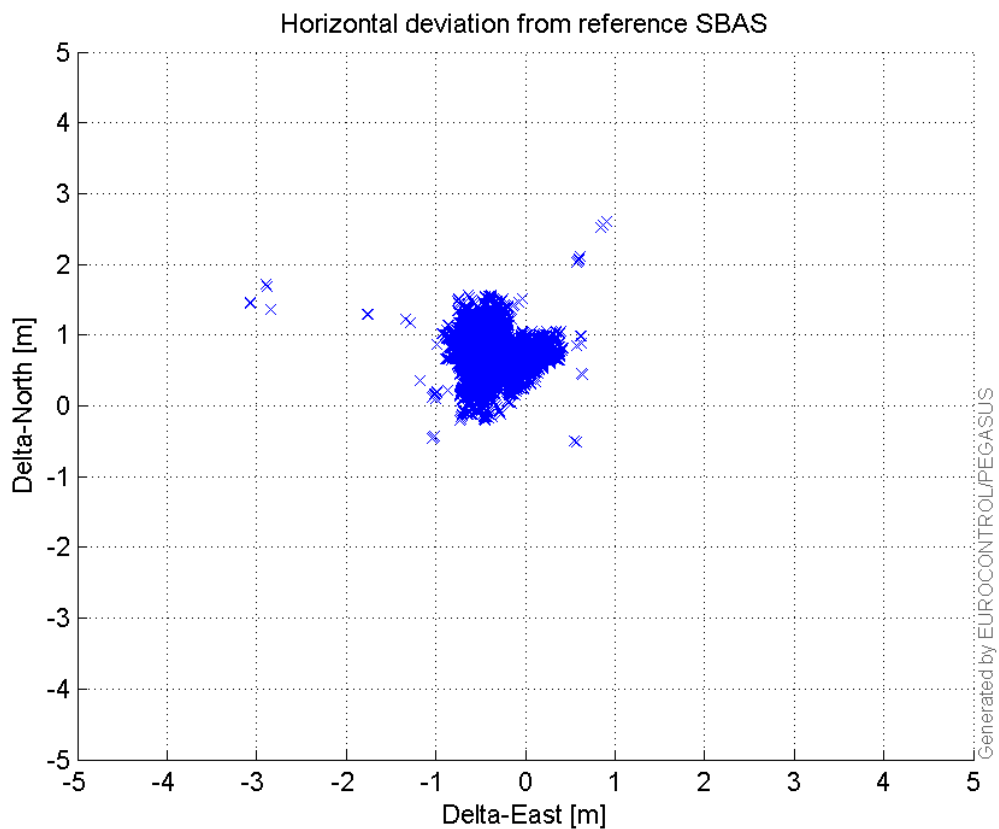


VPE, VPL and NSV:



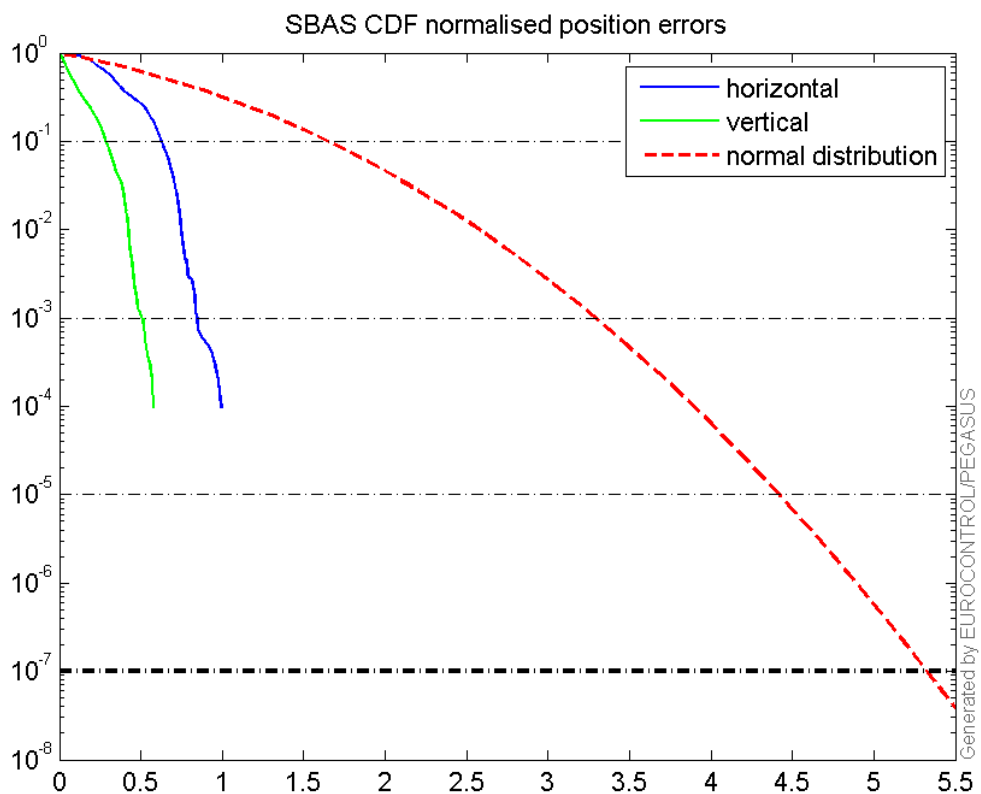
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

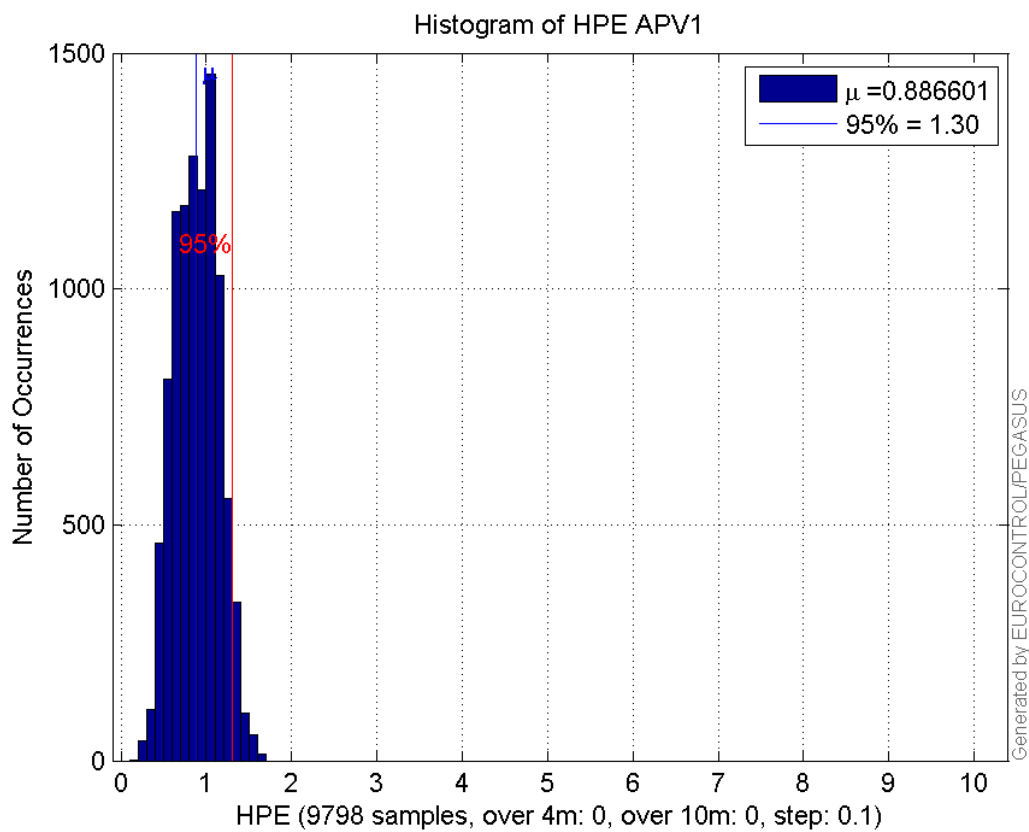
number	9798
sum	8686.921
sum2	8332.3816
prctile95	1.3041773
prctile99	1.4515268
number	9798
sum	4854.3666
sum2	3609.2495
prctile95	1.1166494
prctile99	1.4243127
number	9798
sum	154778.77
sum2	2636578.2
prctile95	23.4498
prctile99	27.184484
number	9798
sum	255441.99
sum2	7289588.3
prctile95	38.21614
prctile99	48.307368
number	9798
sum	615.26986
sum2	46.949228
prctile95	0.114394
prctile99	0.12450269
number	9798
sum	225.64365
sum2	9.3342242
prctile95	0.064155955
prctile99	0.079275869
number	8534
sum	7841.2372
sum2	7715.8467
prctile95	1.3191088
prctile99	1.4551471
number	8534
sum	4308.9323
sum2	3187.235
prctile95	1.1106191
prctile99	1.3873251
number	8534
sum	127293.62
sum2	2027901.1
prctile95	22.17198
prctile99	25.706432
number	8534
sum	206255.91
sum2	5351070.1
prctile95	33.26744
prctile99	34.66636
number	8534
sum	575.51697
sum2	45.561207

prctile95 0.11586096
prctile99 0.12504437
number 8534
sum 211.59554
sum2 9.0541746
prctile95 0.067250579
prctile99 0.079700106

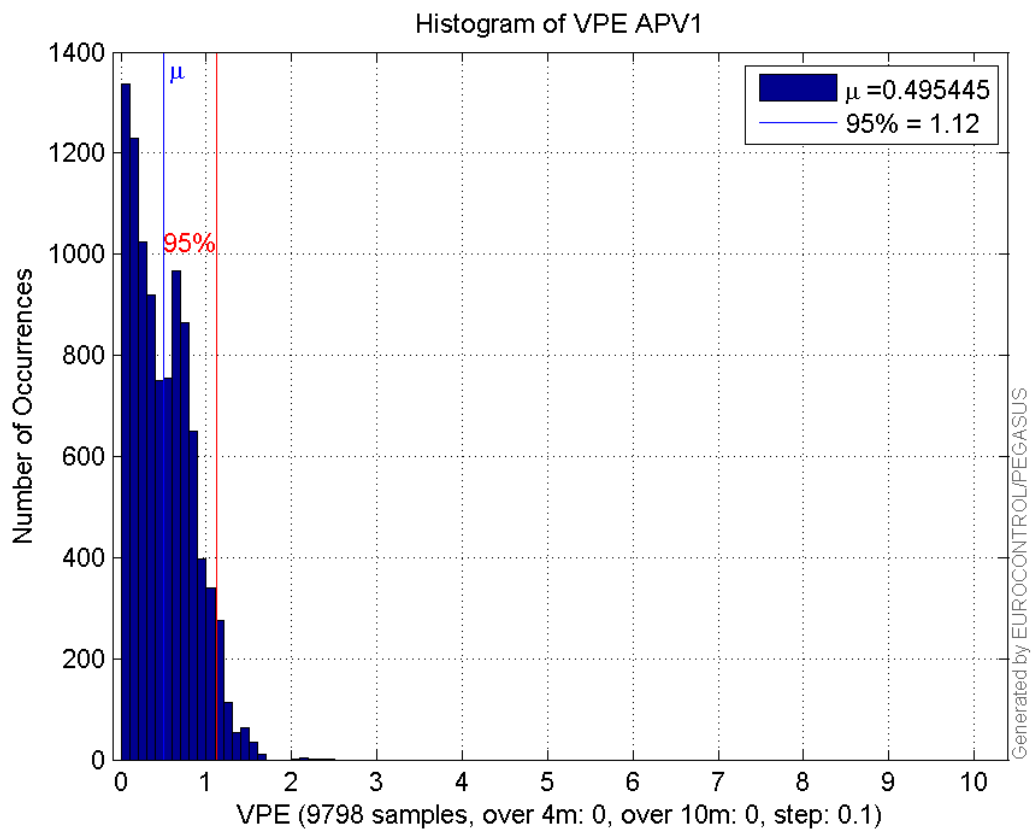
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.886601	0.253695	0.88843	1.30418	1.45153	0.92218
HPL	15.797	4.42166	15.6233	23.4498	27.1845	16.4041
VPE	0.495445	0.35059	0.451324	1.11665	1.42431	0.606932
VPL	26.0708	8.01909	27.3299	38.2161	48.3074	27.2761

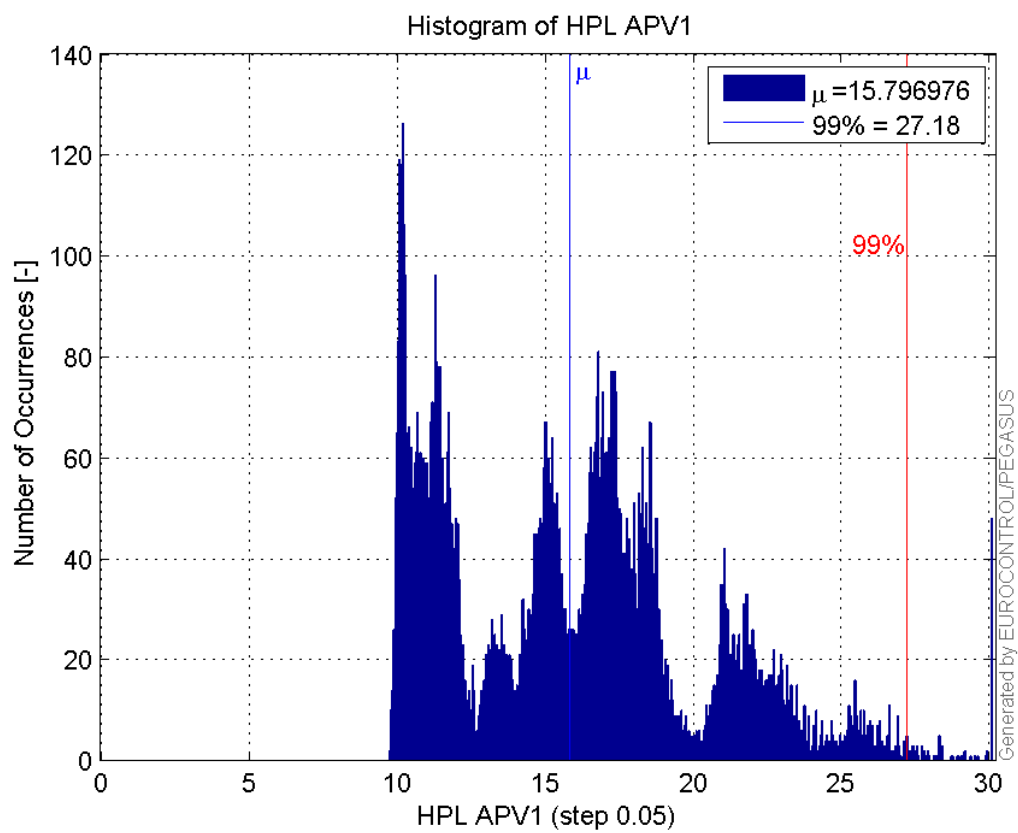
Histogram of HPE APV1:



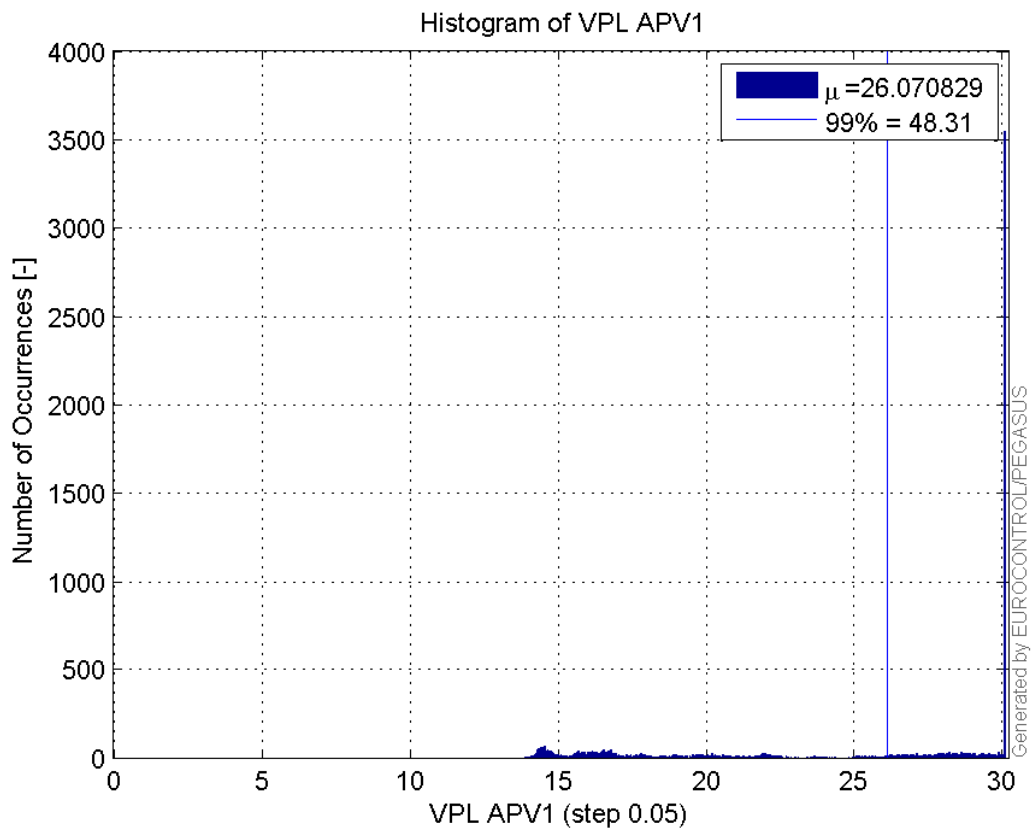
Histogram of VPE APV1:



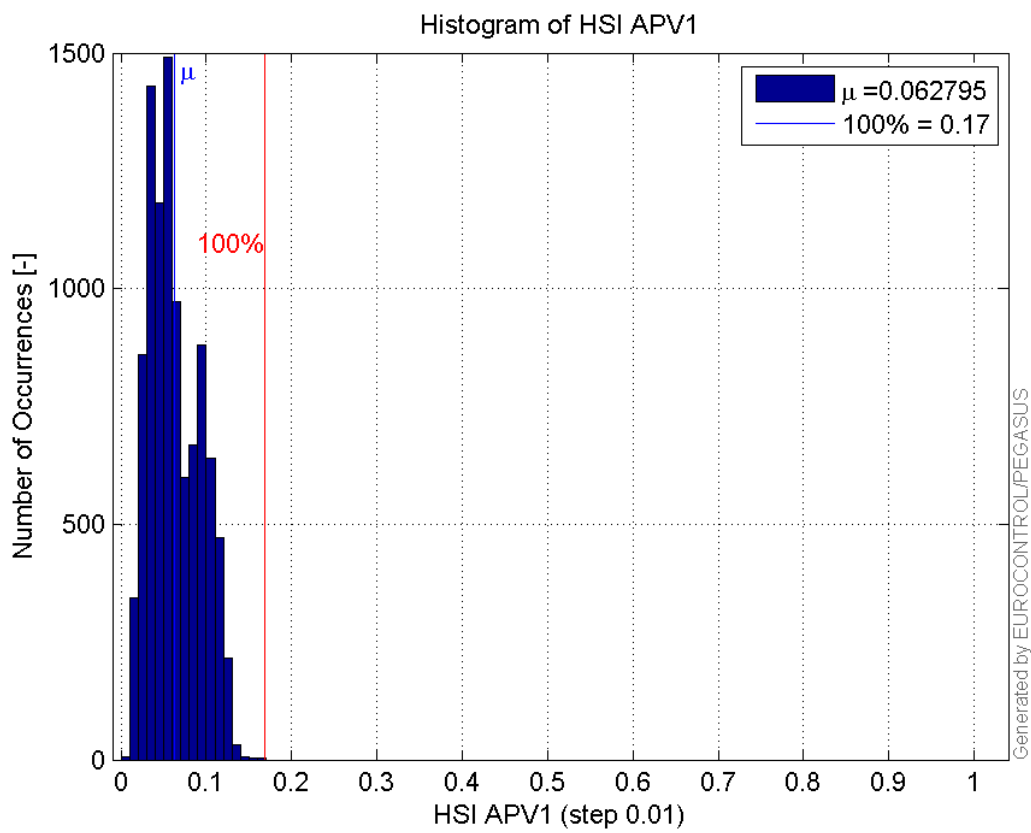
Histogram of HPL APV1:



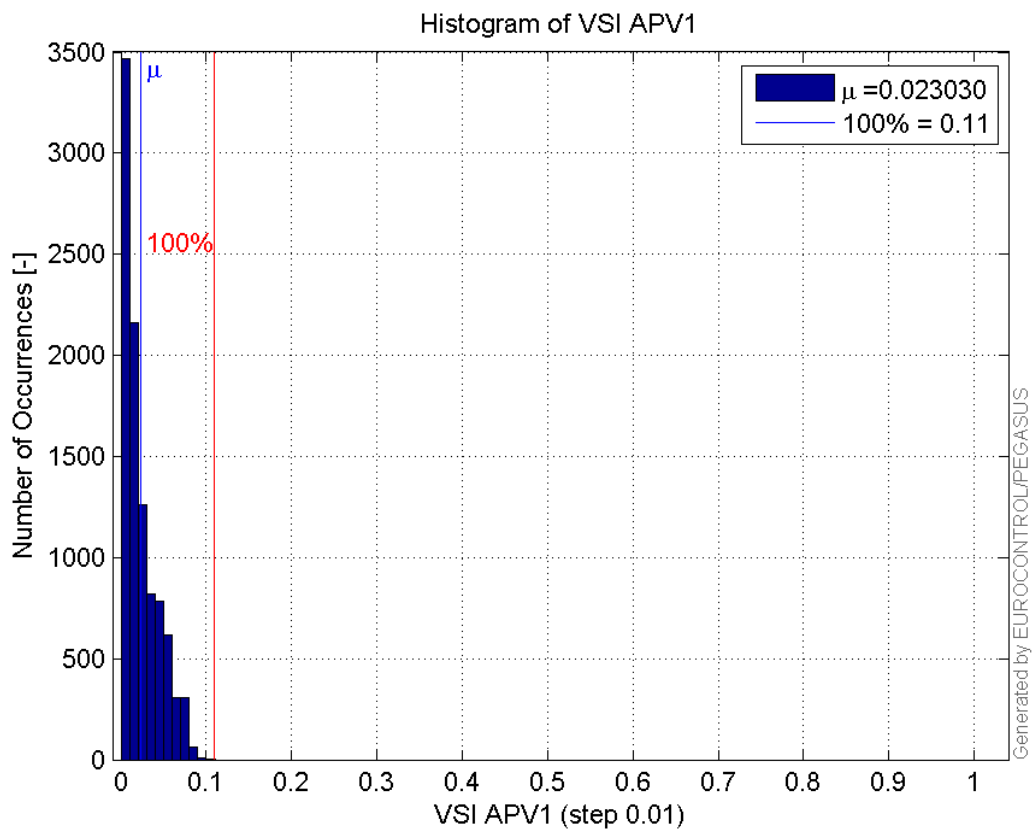
Histogram of VPL APV1:



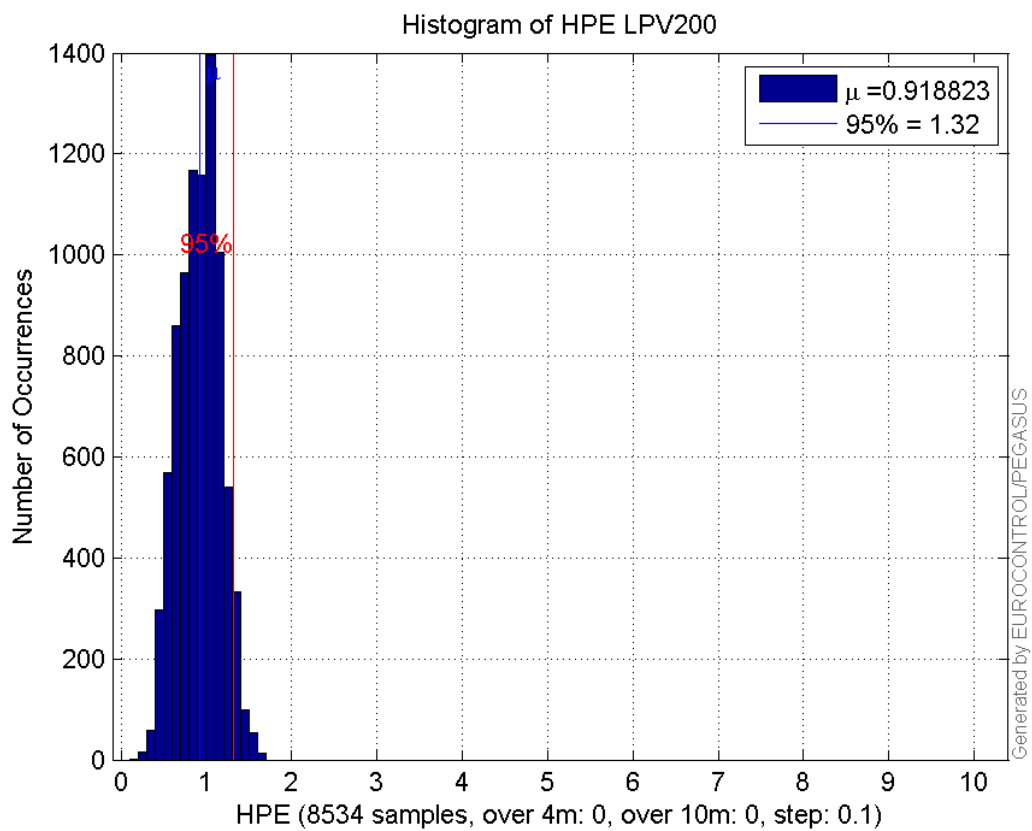
Histogram of HSI APV1:



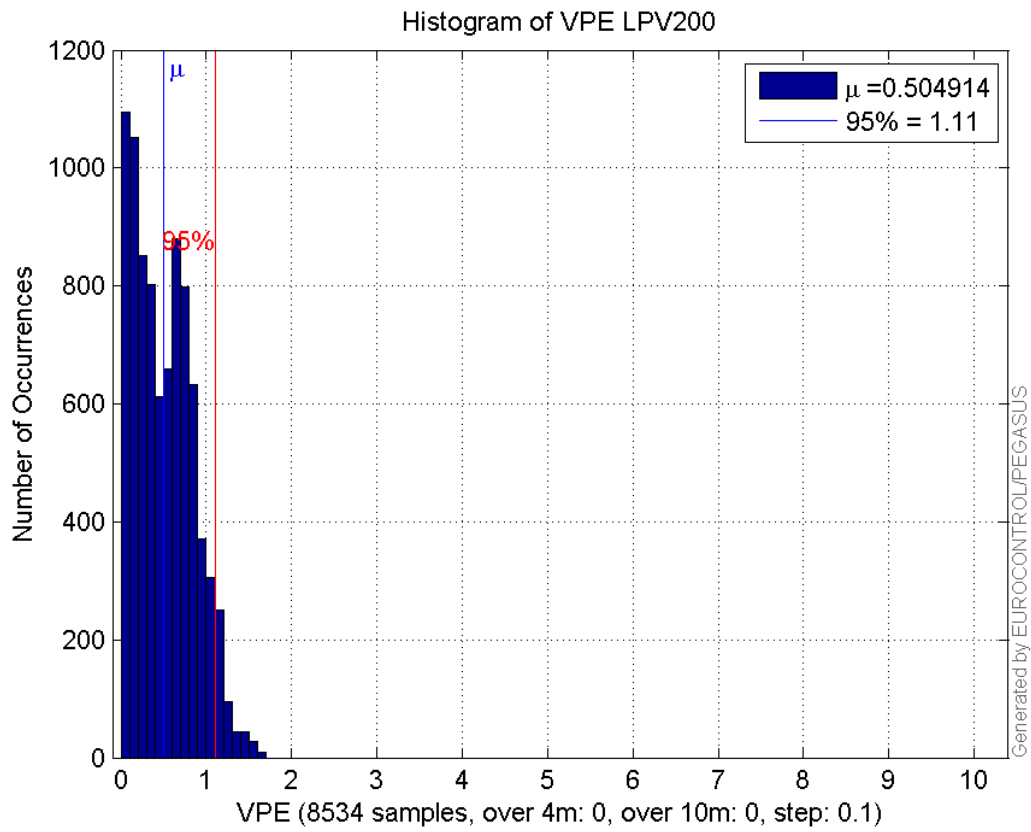
Histogram of VSI APV1:



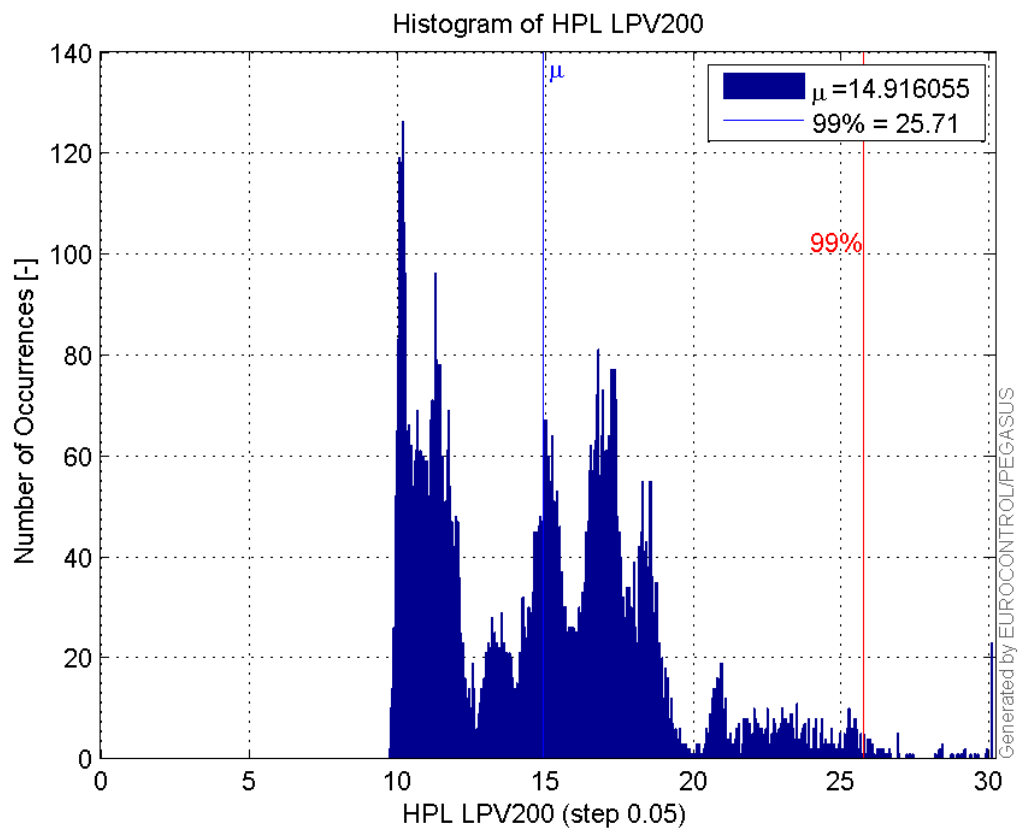
Histogram of HPE LPV200:



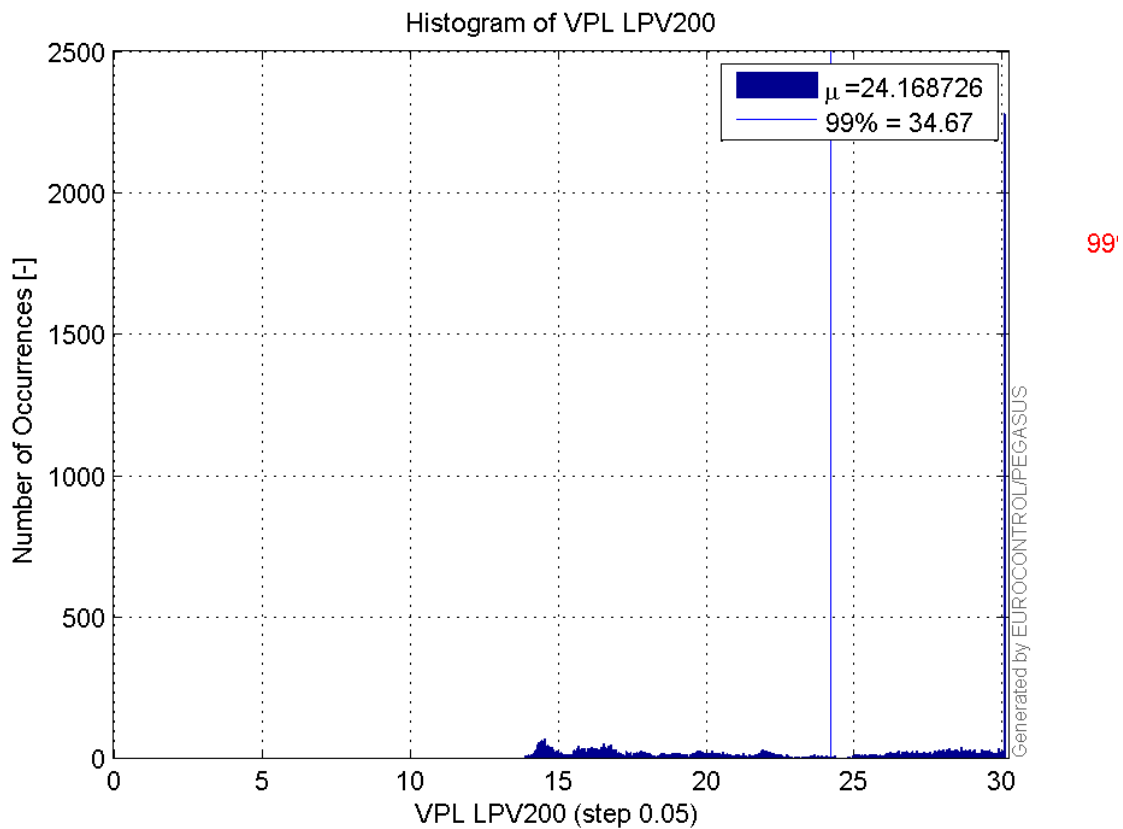
Histogram of VPE LPV200:



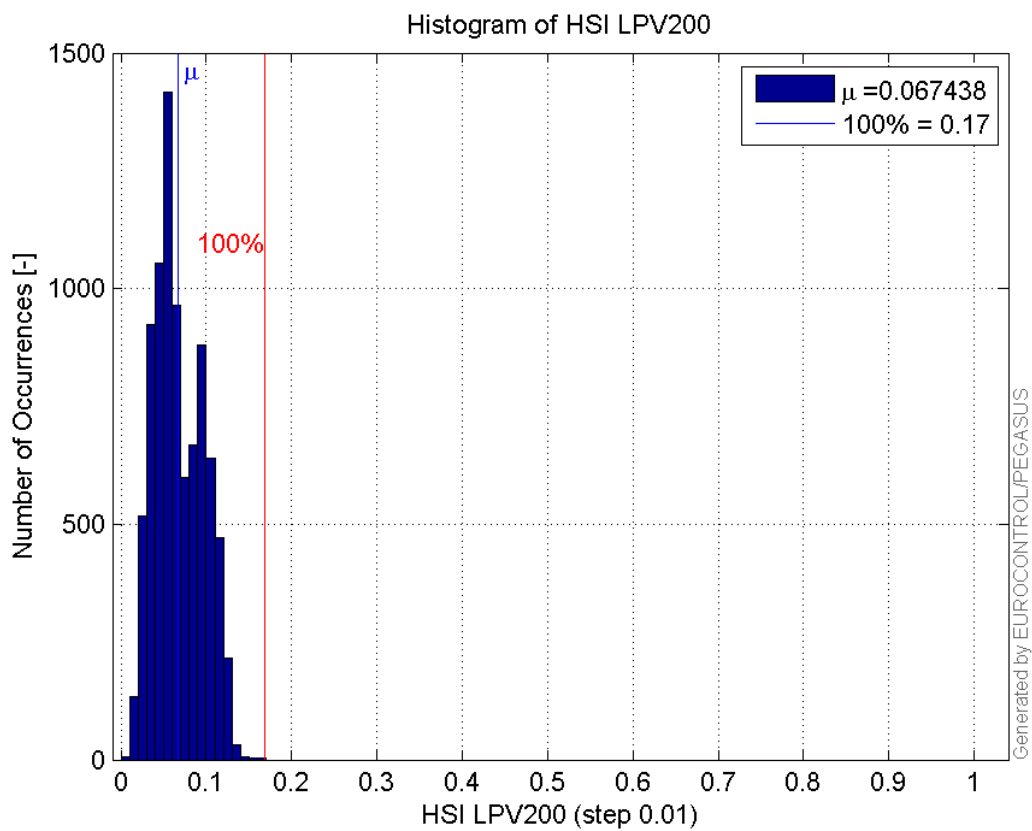
Histogram of HPL LPV200:



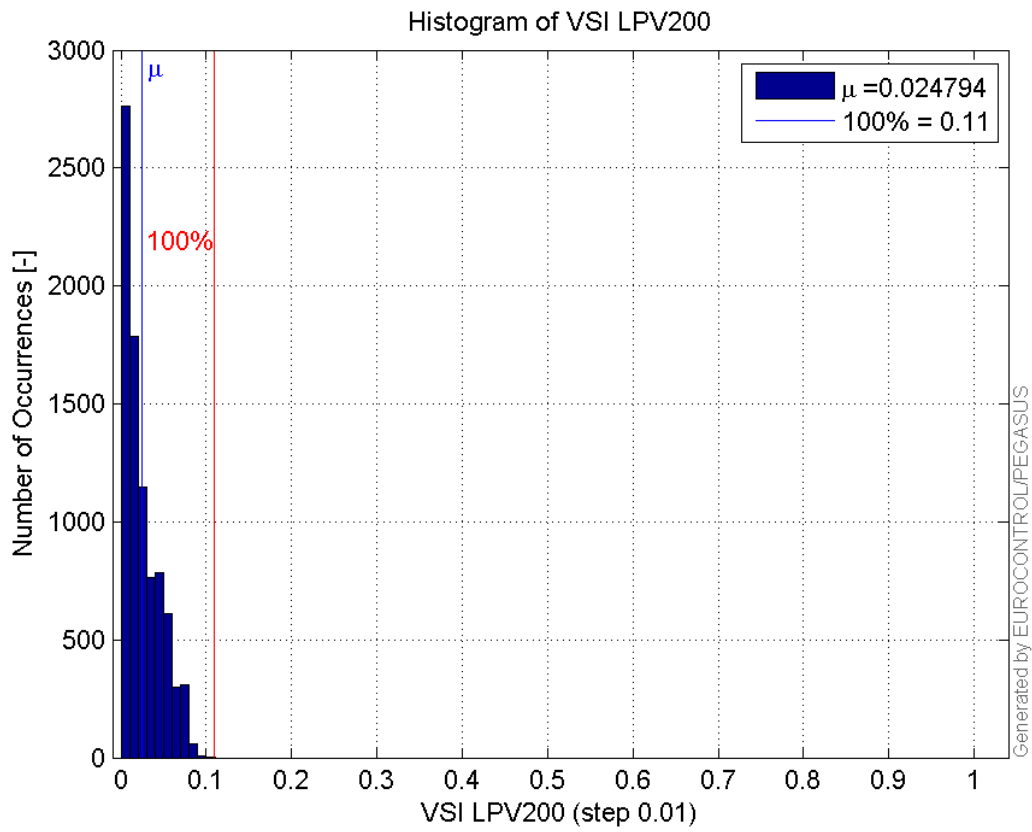
Histogram of VPL LPV200:



Histogram of HSI LPV200:

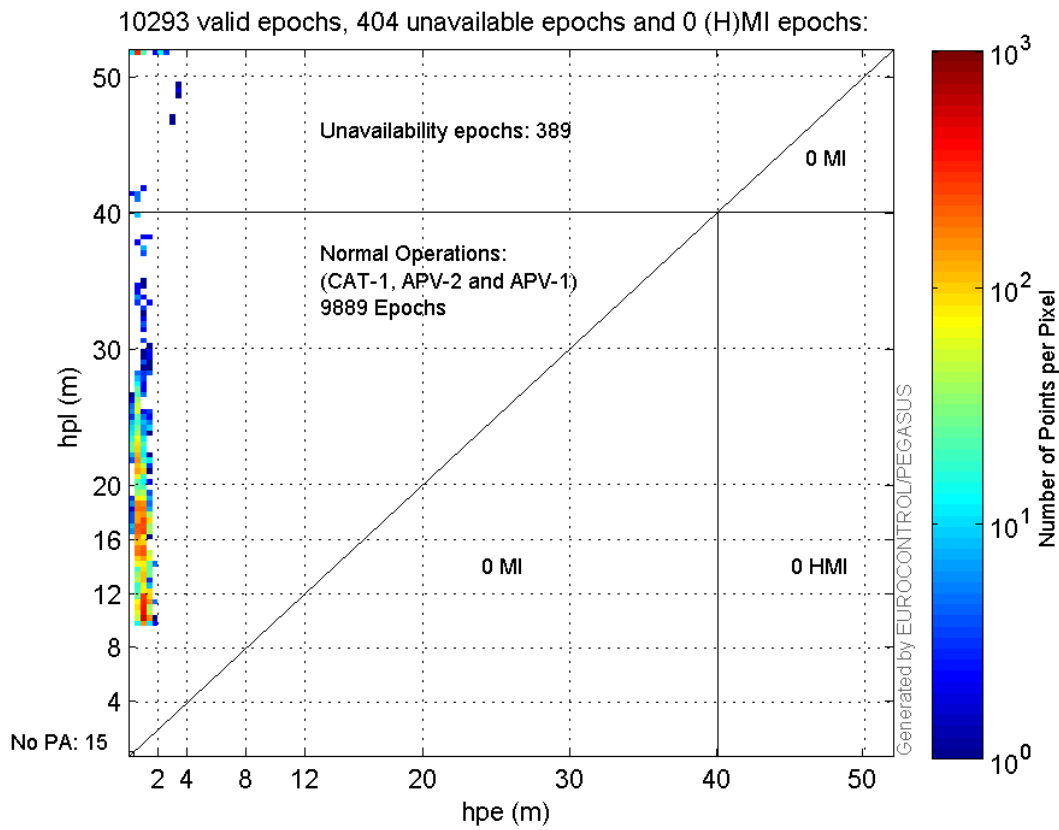


Histogram of VSI LPV200:

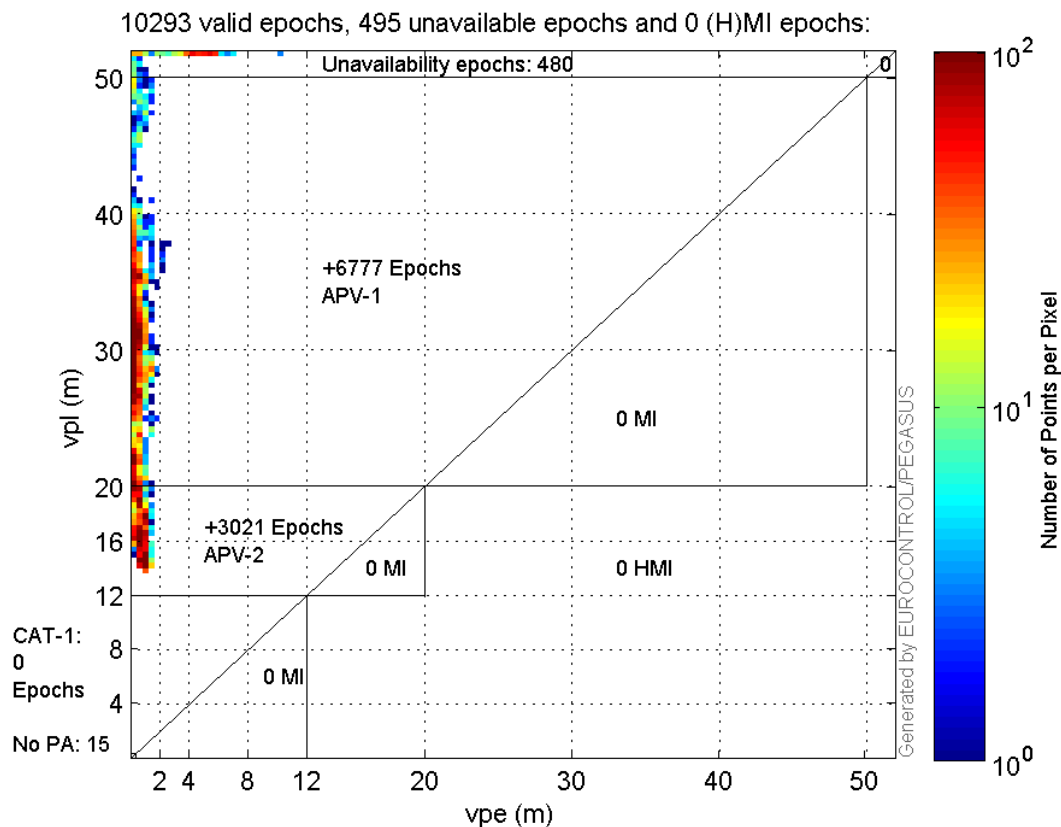


Stanford Plots

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:/PegasusDataJob/job/2017_03_03EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDataJob/job/2017_03_03EGNOS2Hz/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	30.4298
init_alt	results	239.79
mi_numbers	results	0

Range Domain

start: 10:52:41.5 03.03.2017 (week: 1938 sec: 471161.5)
end: 12:31:11 03.03.2017 (week: 1938 sec: 477071)
duration: 01:38:31 ..

quality

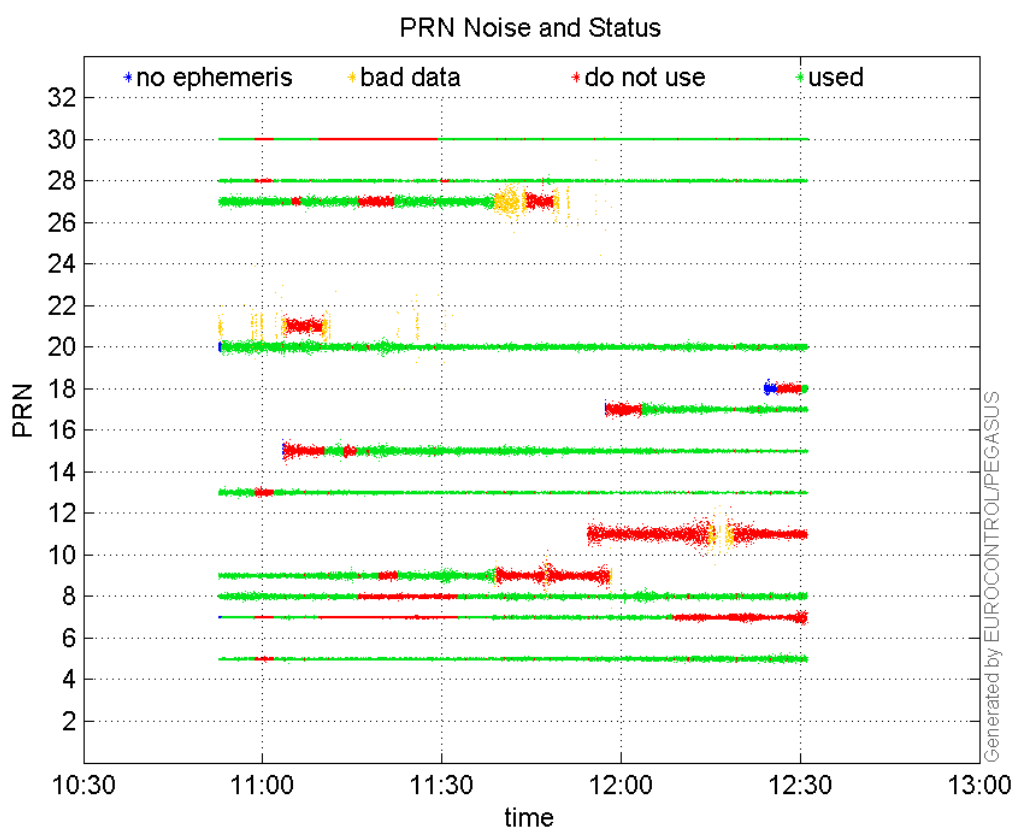
valid samples 10969
total samples 10969

PRN overview

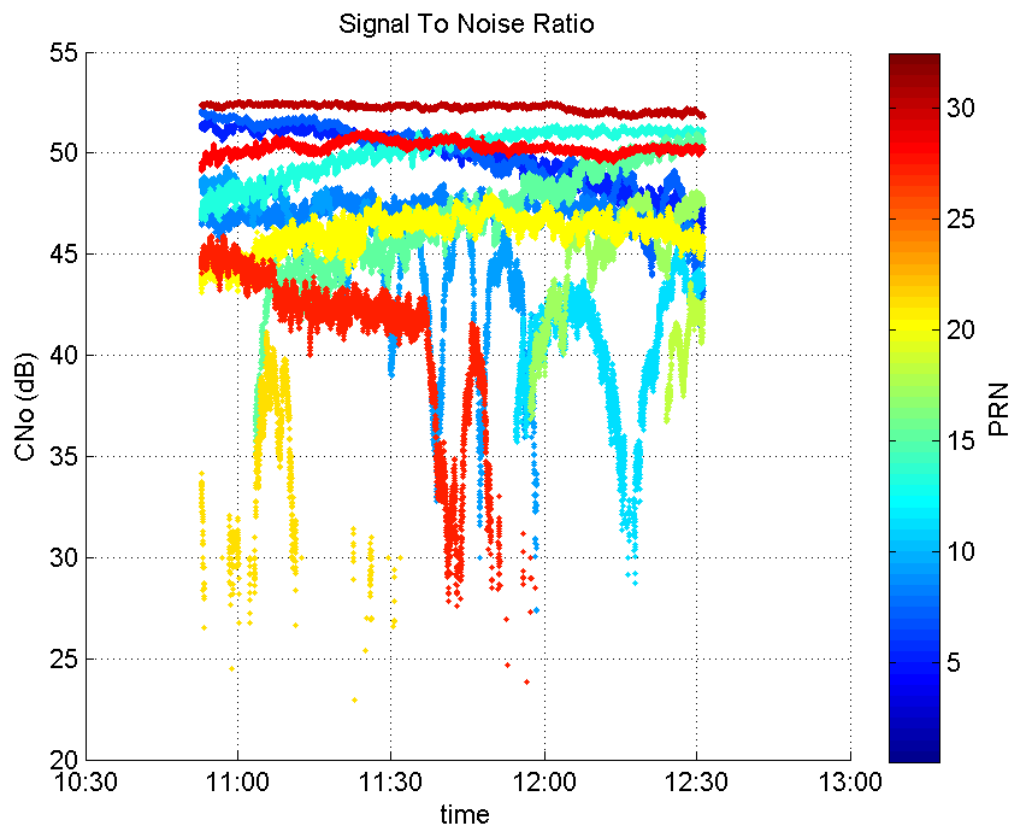
Number of Visible GPS Satellites 14
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



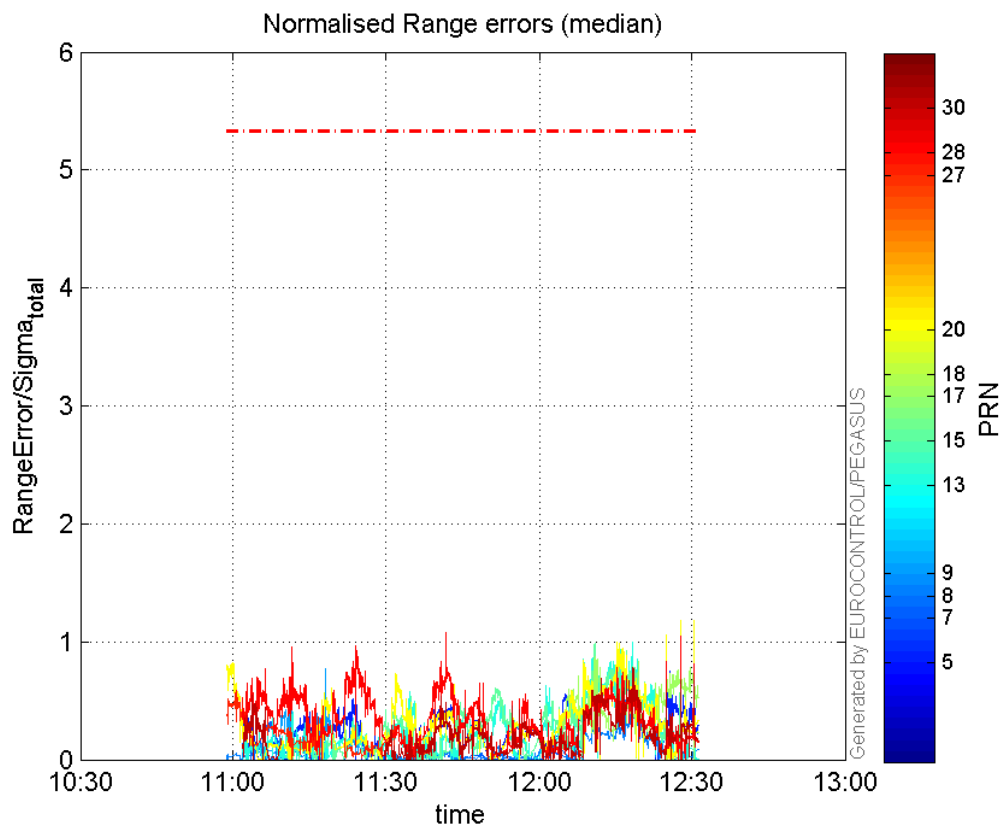
range errors

Number of Overbounding Norm Errors 0

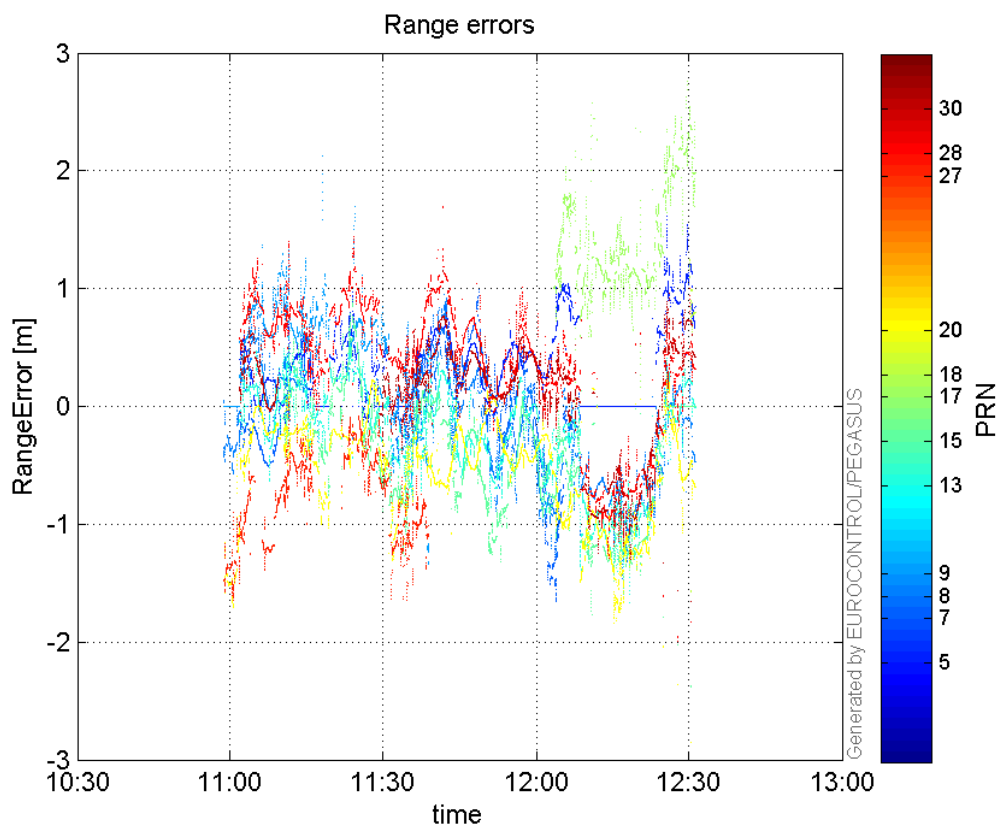
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1938	476739	5	0.752887	1.61421	2.14403
1938	472052	7	0.323718	-0.505766	1.56237
1938	476213	8	0.501712	-1.45913	2.90831
1938	472688	9	0.767483	2.12833	2.77313
1938	476297	13	0.99283	-1.66306	1.67507
1938	476865	15	1.16652	-2.02828	1.73874
1938	475852	17	0.872055	2.57163	2.94893
1938	477018	18	0.451358	-1.57432	3.48797
1938	476865	20	1.18398	-2.35774	1.99136
1938	471637	27	0.584969	-1.64421	2.81077
1938	474105	28	1.0789	1.69733	1.5732
1938	476297	30	0.777509	-1.29116	1.66064

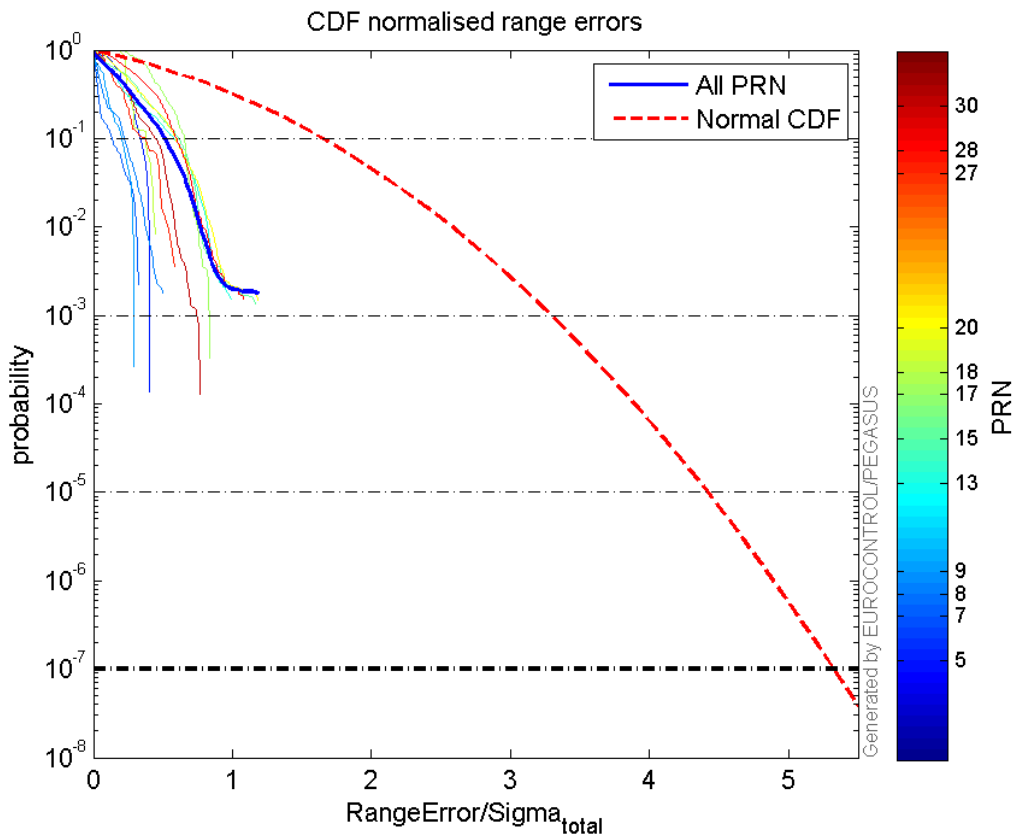
Normalised Range errors (median):



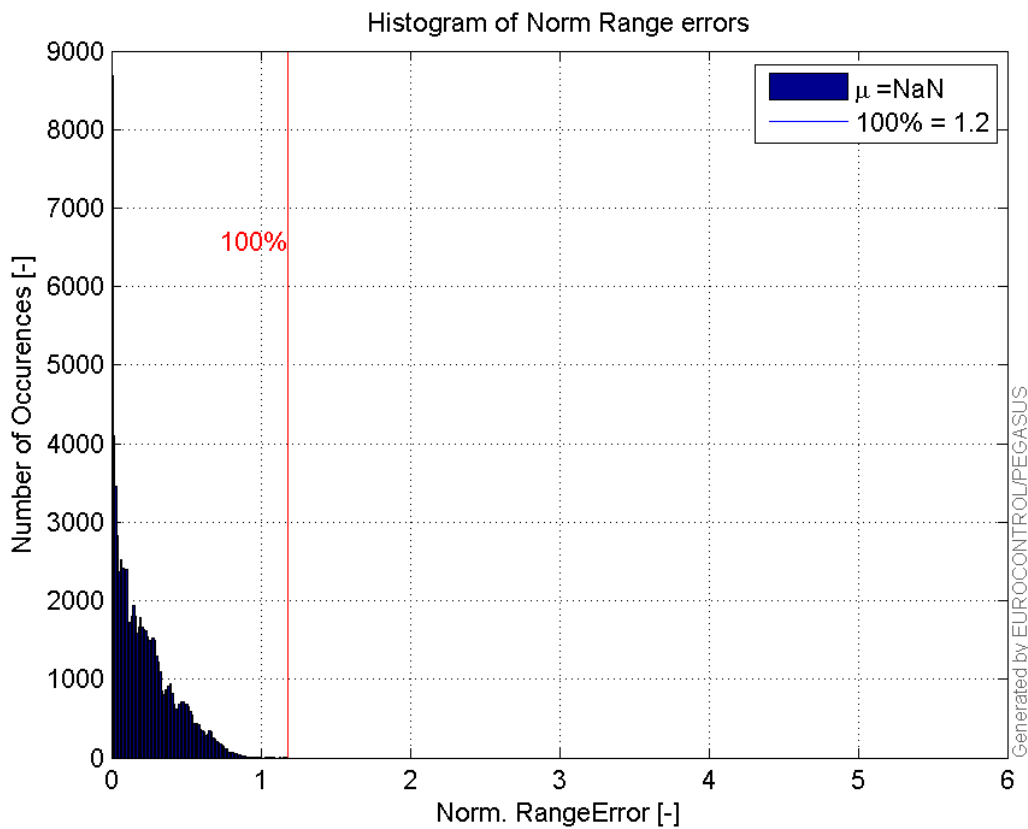
Range errors:



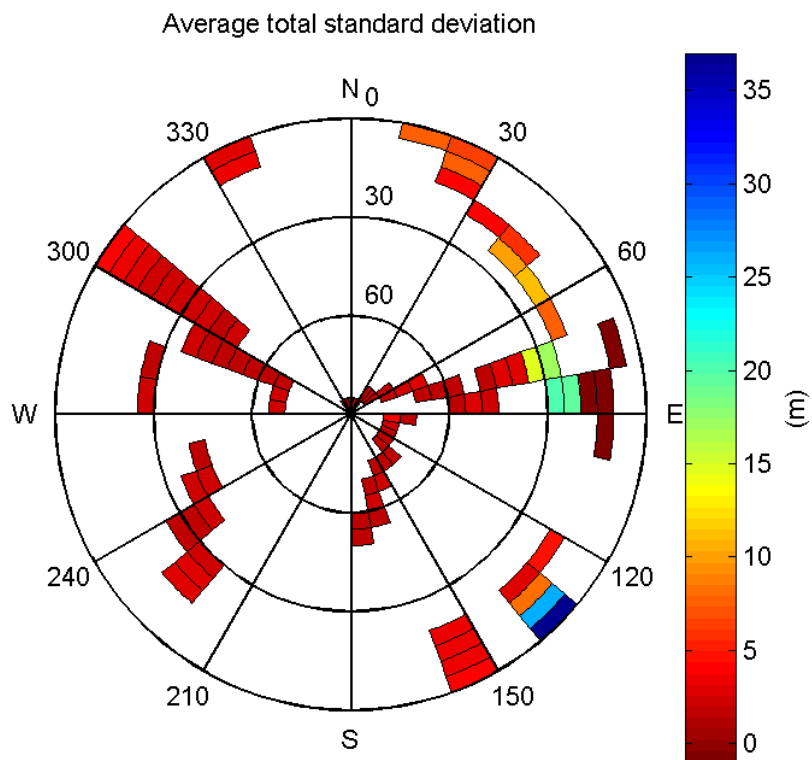
CDF normalised range errors:



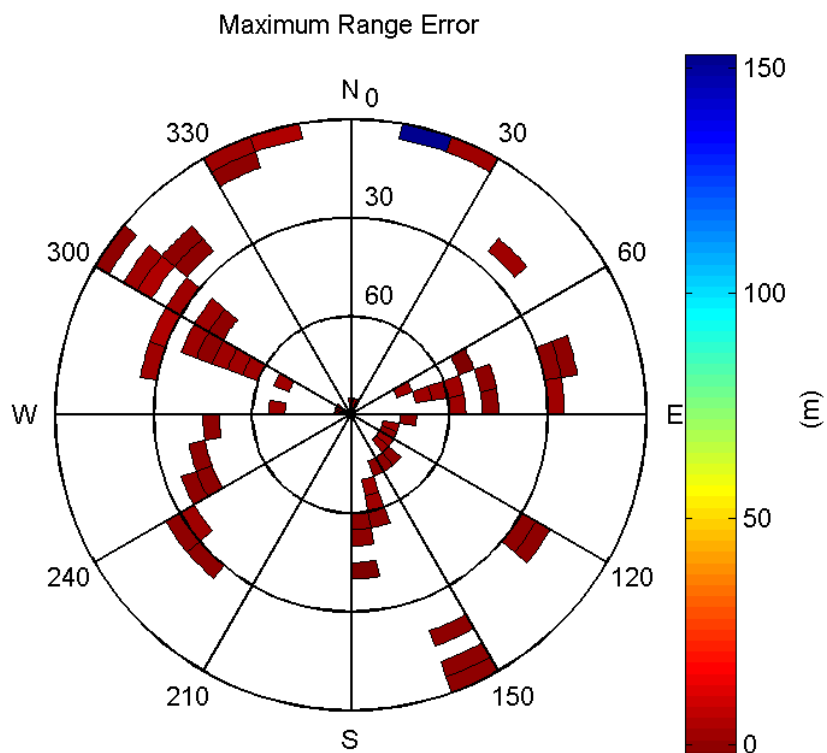
Histogram of Norm Range errors:



Sigma Sky Plot:

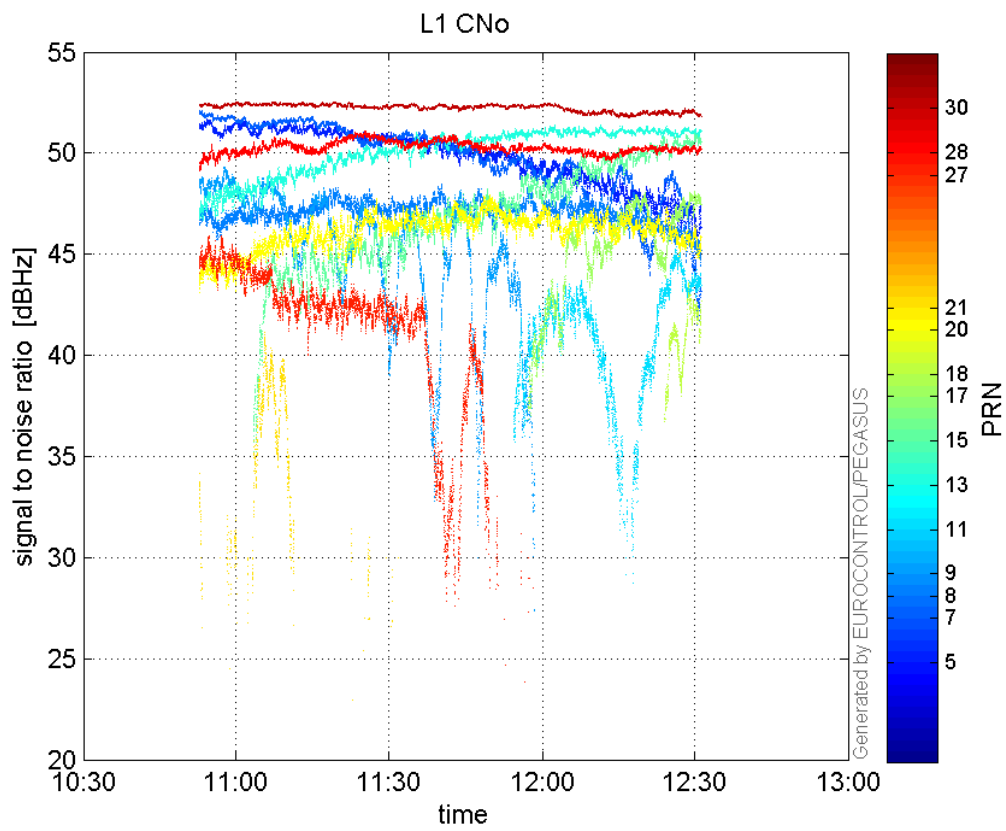


Norm Error Sky Plot:

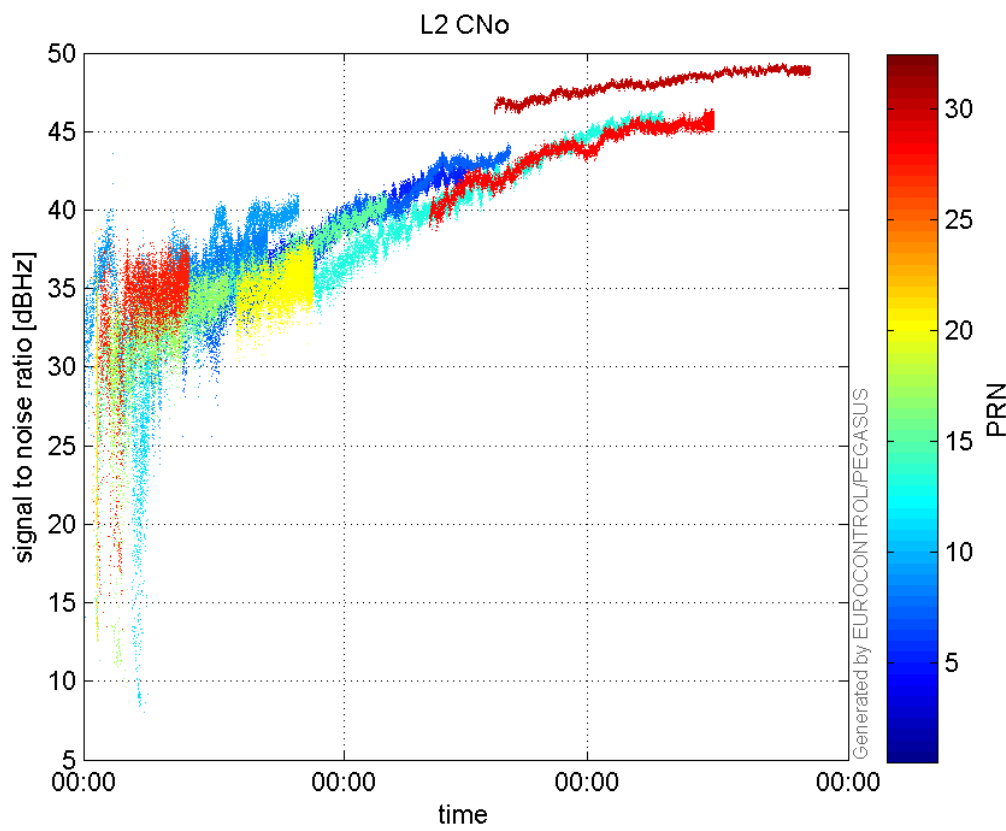


signal quality

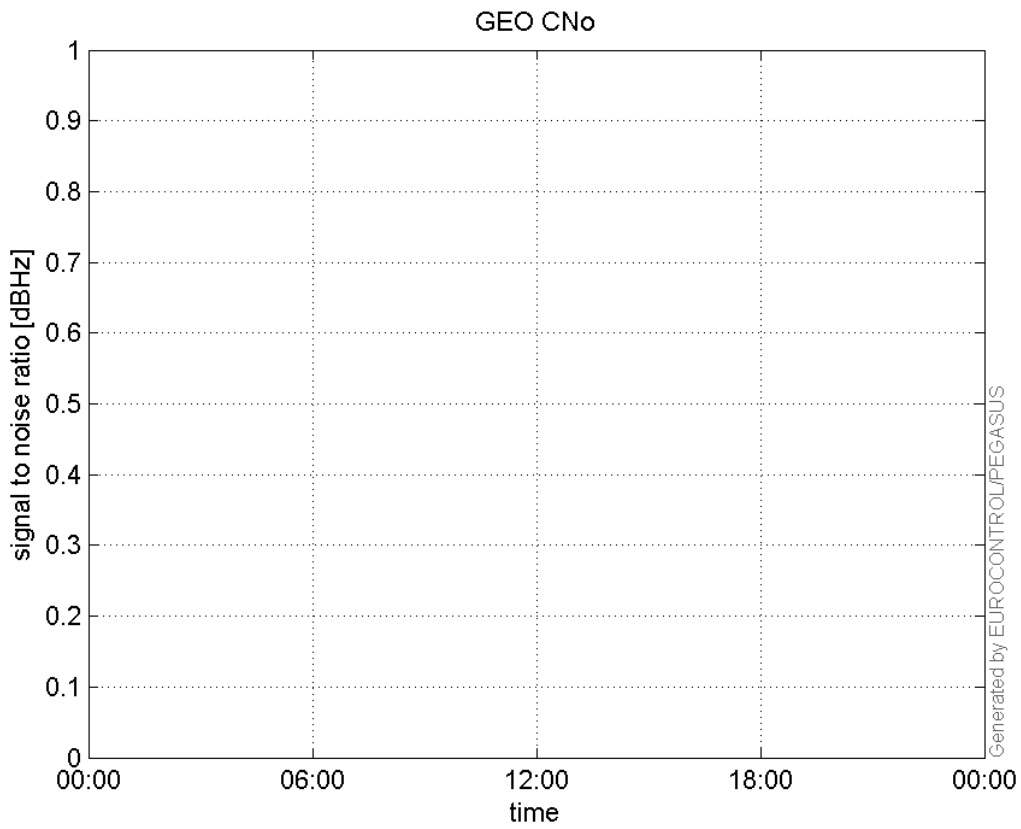
L1 CNo:



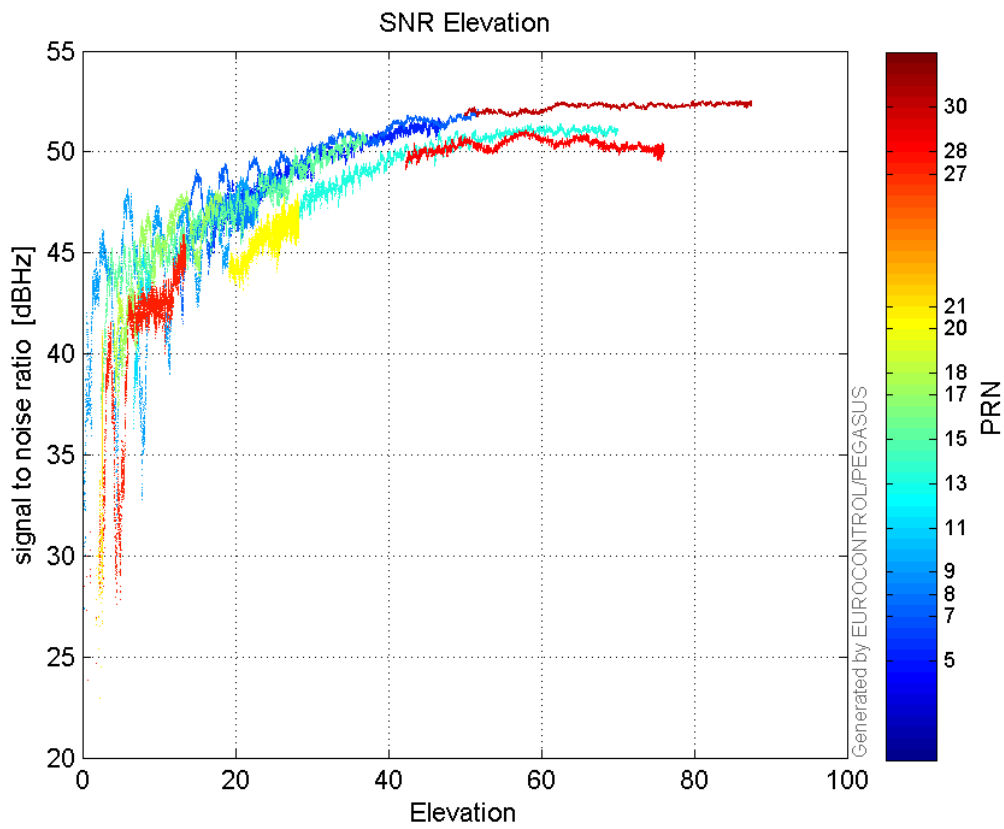
L2 CNo:



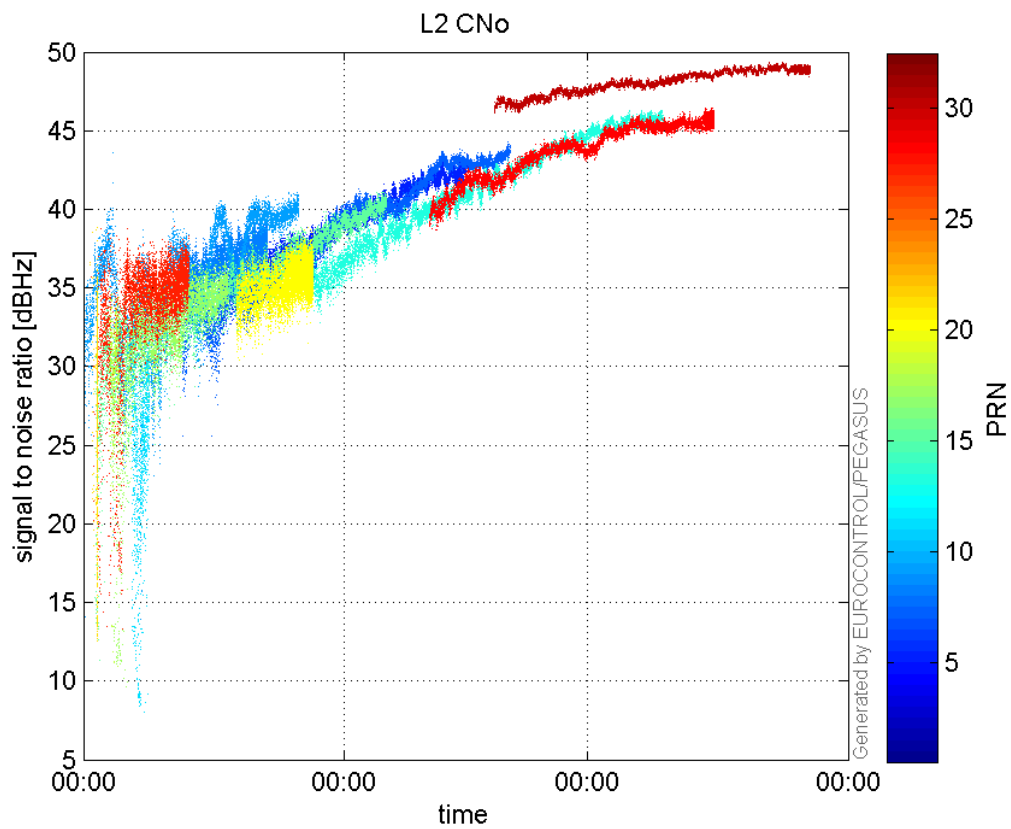
GEO CNo:



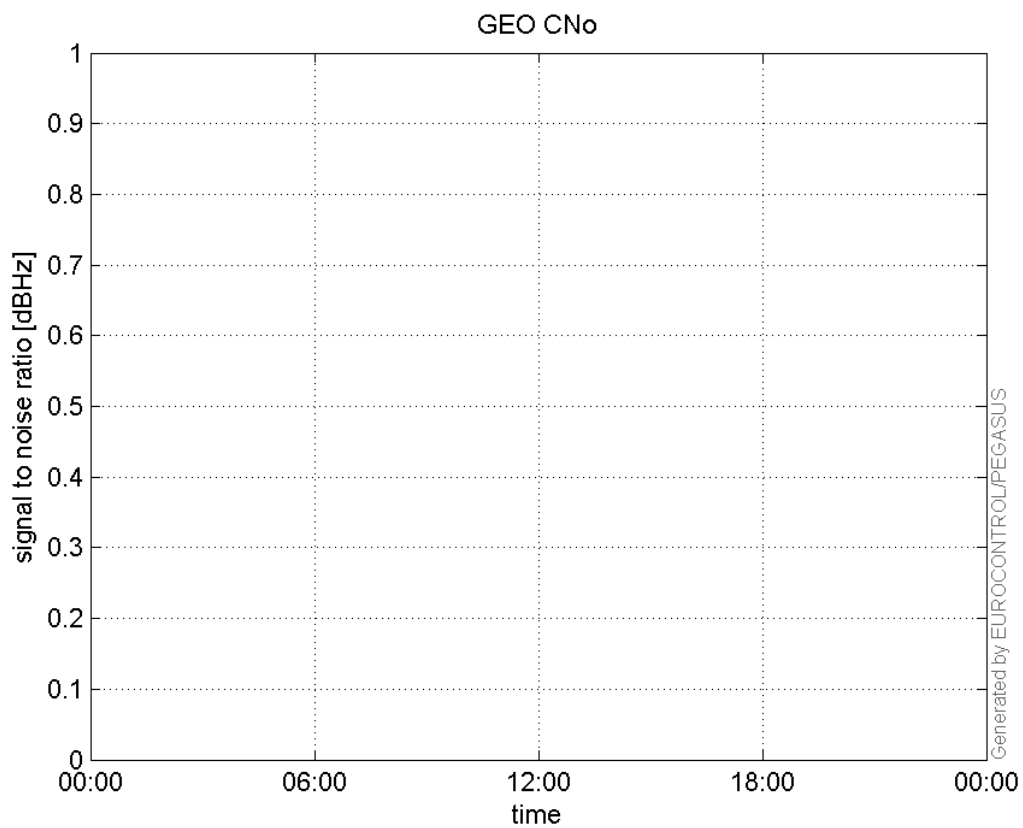
SNR Elevation:



L2 CNo:

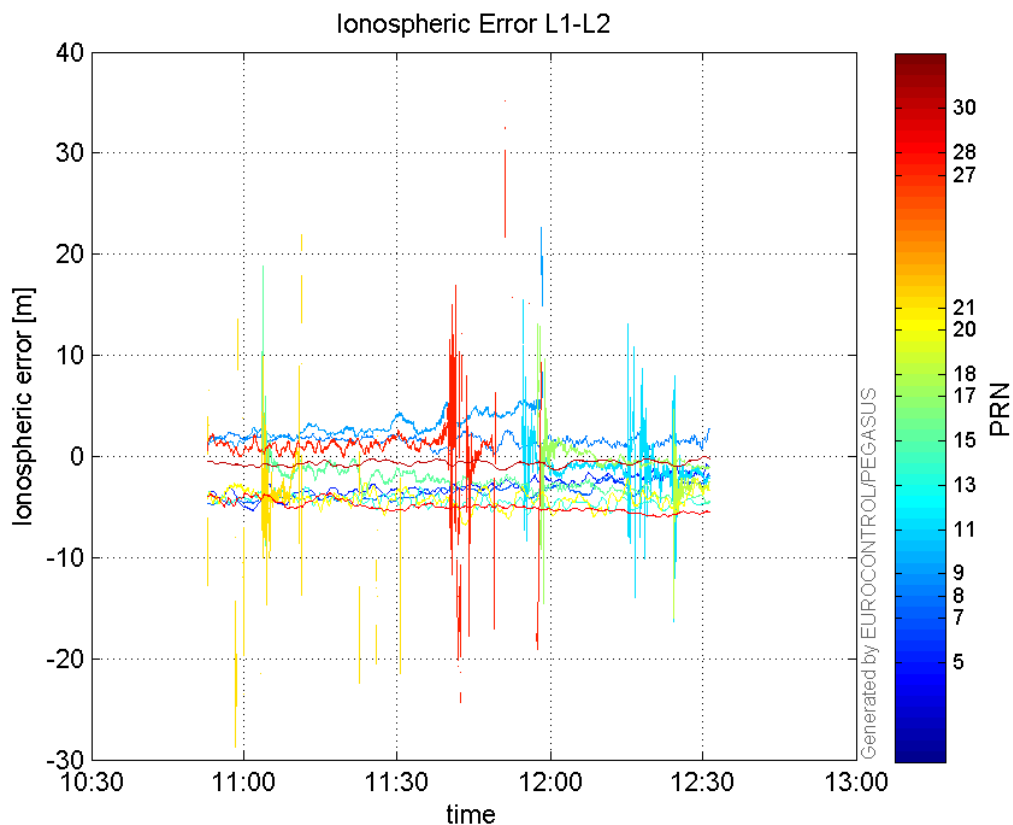


GEO CNo:



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_03_03EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_03_03EGNOS2Hz/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	30.4298
init_alt	results	239.79
mi_numbers	results	0