

# 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:** 08:59:20.129 25.02.2017 ( week: 1937 sec: 550760.129 )  
**end:** 15:20:37.129 25.02.2017 ( week: 1937 sec: 573637.129 )  
**duration:** 06:21:17 ..

### quality

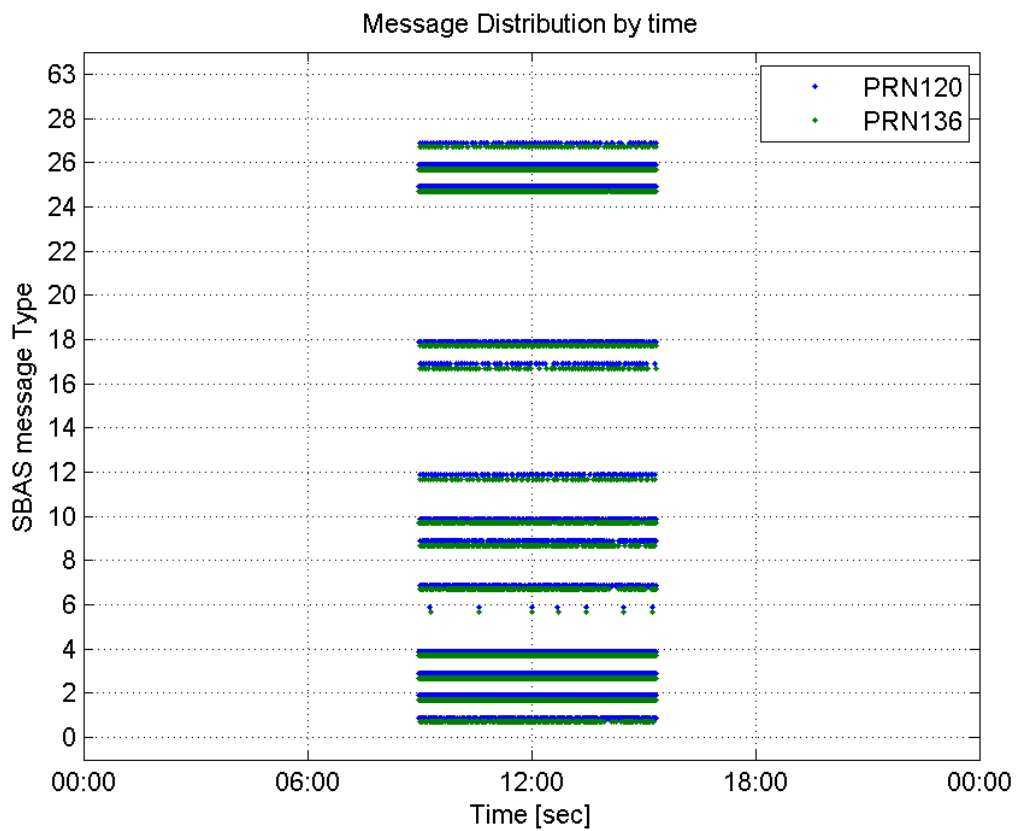
**valid samples** 35797  
**total samples** 35797  
**number of SBAS PRNs** 2

### SBAS SIS Overview

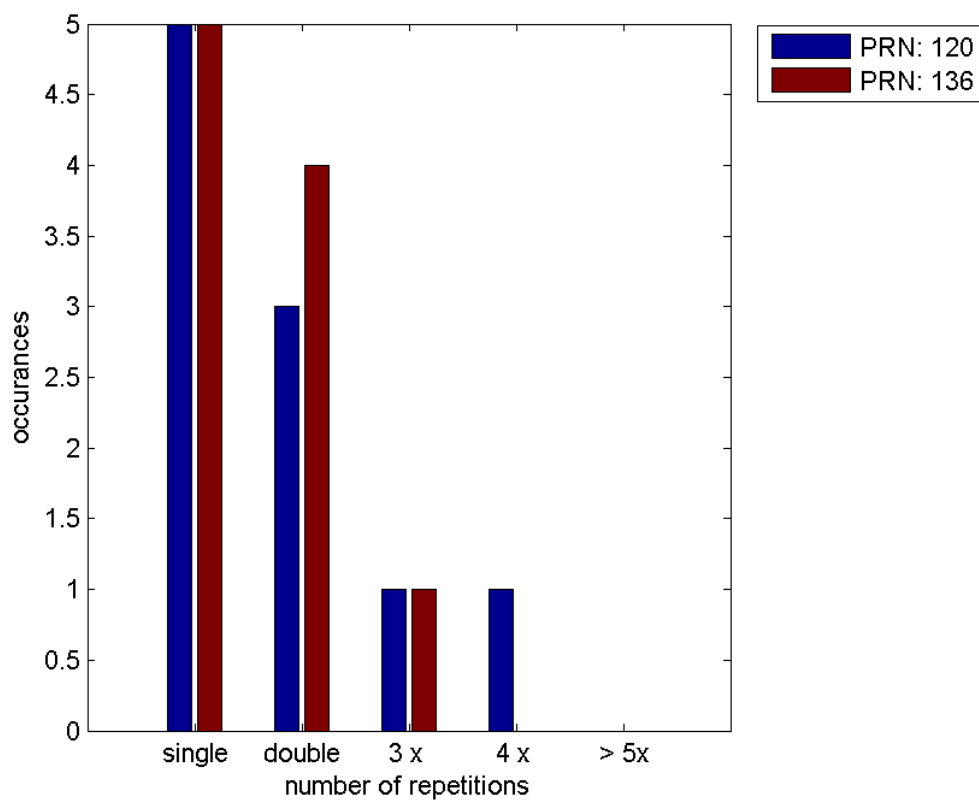
#### Message Type 6 repetitions :

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

#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

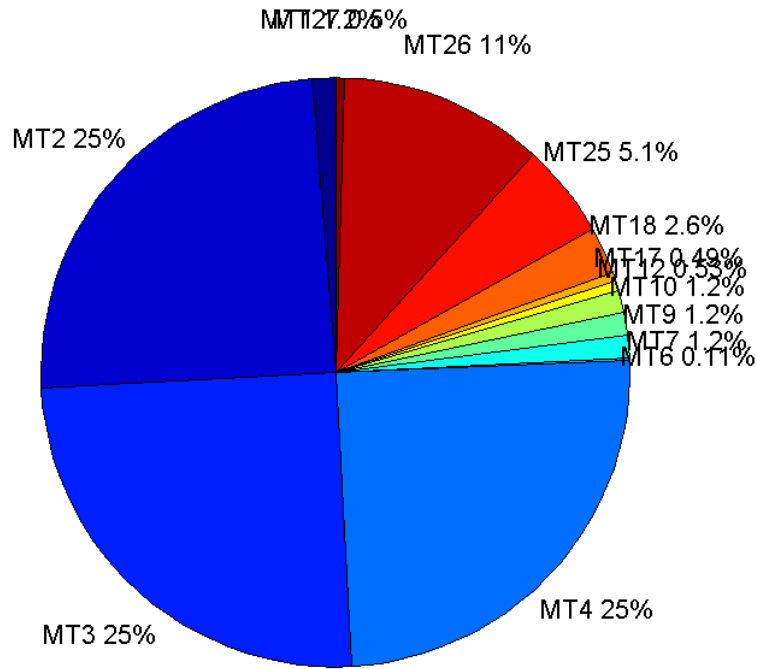
	number of messages	%
MT 0	0	0
MT 1	224	1.24438
MT 2	4427	24.5931
MT 3	4509	25.0486
MT 4	4460	24.7764
MT 5	0	0
MT 6	19	0.10555
MT 7	223	1.23882
MT 9	225	1.24993
MT 10	221	1.22771
MT 12	96	0.533304
MT 17	89	0.494417
MT 18	469	2.60541
MT 24	0	0
MT 25	927	5.14971
MT 26	2022	11.2327
MT 27	90	0.499972
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	18001	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	102.211	46	0	0
MT 2	4	24	5.16742	1167	2	7
MT 3	4	20	5.07409	1099	1	6
MT 4	4	20	5.12985	1144	2	6
MT 5	--	--	--	--	--	--
MT 6	1	5037	1188.5	6	6	6
MT 7	75	322	102.622	52	0	3
MT 9	74	560	101.688	0	0	0
MT 10	76	321	103.682	50	0	2
MT 12	184	588	238.547	95	20	20
MT 17	188	785	257.523	0	0	0
MT 18	4	197	48.7799	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	80	24.6836	0	0	0
MT 26	1	48	11.3157	0	0	0
MT						

27	190	788	254.629	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	208	1.1688
MT 2	4428	24.882
MT 3	4423	24.8539
MT 4	4420	24.837
MT 5	0	0
MT 6	17	0.0955271
MT 7	221	1.24185
MT 9	216	1.21376
MT 10	239	1.343
MT 12	88	0.494493
MT 17	89	0.500112

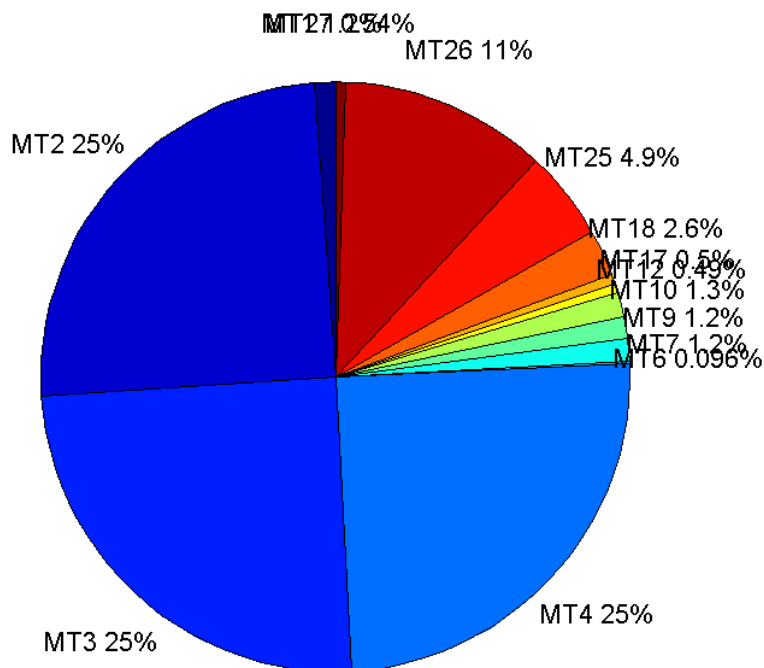
MT 18	456	2.56237
MT 24	0	0
MT 25	872	4.89998
MT 26	2023	11.3677
MT 27	96	0.539447
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	17796	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	75	720	108.981	43	1	1
MT 2	4	20	5.1667	1168	1	12
MT 3	4	20	5.17232	1189	1	6
MT 4	4	20	5.17493	1182	1	10
MT 5	--	--	--	--	--	--
MT 6	1	5037	1336.19	6	6	6
MT 7	76	961	103.614	39	2	4
MT 9	76	560	105.609	0	0	0
MT 10	76	320	96.0882	41	0	3
MT 12	182	587	259.115	87	24	24
MT 17	188	781	258.409	0	0	0
MT 18	4	193	50.0484	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	144	26.2537	0	0	0
MT 26	4	80	11.3032	0	0	0
MT 27	186	593	239.316	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

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Message Distribution PRN 136:



### Parameters

#### System

Name	Section	Value
Name	System	Convertor
Version	System	4.3
Inputfile	System	D:/PegasusDateJob/job/2017_02_25EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_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:** 08:59:20 25.02.2017 ( week: 1937 sec: 550760 )  
**end:** 15:20:38 25.02.2017 ( week: 1937 sec: 573638 )  
**duration:** 06:21:19 ..

#### quality

**valid samples** 41518  
**total samples** 42210

## Event tables

**Position discontinuity events type** long  
**APV-I discontinuity events type** independent  
**APV-35m discontinuity events type** too many (26)  
**LPV-200 discontinuity events type** too many (26)  
**CAT-I discontinuity events type** nothing

## extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	569510	1.5201	10.5684	0.143835	-0.119931	19.4671	0.0061607
<b>max normVer</b>	553833	1.43134	16.3131	0.0877415	-2.6544	23.4031	0.113421
<b>max HPE</b>	563191	4.18834	192.599	0.0217464	6.2105	374.242	0.0165949
<b>max VPE</b>	551797	3.70121	304.4	0.012159	-8.18083	501.696	0.0163064
<b>min HPL</b>	558988	1.19385	9.52778	0.125302	-0.737556	18.5599	0.0397392
<b>min VPL</b>	566771	1.03611	15.878	0.0652547	0.400843	14.5684	0.0275146

## Position discontinuity events :

#	Epoch	duration	stable period
1	554771	4.5	201.5
2	555458	69	520.5
3	555563	81.5	36
4	556681	8.5	170.5
5	560868	11.5	998
6	563061	5.5	130
7	565926	184.5	64
8	569635	176.5	893.5

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	552110	144.5	313.5
2	552870	5.5	182.5
3	553525	47.5	649.5
4	554771	8.5	201.5
5	555400	20	462.5
6	555458	1149.5	38
7	559998	61	33.5
8	560849	79.5	33.5
9	561249	79.5	64.5
10	562462	8.5	117.5
11	563061	9.5	122.5
12	564251	9.5	66
13	565001	5.5	131.5
14	565750	361.5	595
15	566139	80.5	27.5
16	567030	9.5	249.5
17	568811	81.5	69.5
18	569635	176.5	45.5
19	571251	5.5	77.5

## First Glance analysis

Duration	22879
Number of Samples	42210
Number of invalid sample	692
Number of no position solution samples	1073
Number of missing sample	3548
Logging Loss	7.7538
Processing Loss	1.6394
Number of Misleading Information	0
Data gaps	19
Discontinuities	66

## Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
40445	35397	31996	0	31996

## Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.85531	1.77209	1.77742	NaN	1.77742
HPEScale 95%	NaN	4.50594	4.54987	NaN	4.54987
VPE 95%	1.5473	1.41003	1.35841	NaN	1.35841
VPEscale 95%	NaN	3.15898	2.22114	NaN	2.22114

## Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.974156	0.85257	0.770654	0	0.770654
measurements	0.958185	0.838593	0.758019	0	0.758019
Operational	1.76778	1.54714	1.39849	0	1.39849

## Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	47	155	254	--	254
Long	8	37	80	--	80
Independent	8	19	26	--	26
P(disc.)	0.00296699	0.00805153	0.012189	NaN	0.012189
P(slide)	0.0165286	0.052674	0.0703682	NaN	0.0703682

## 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 :

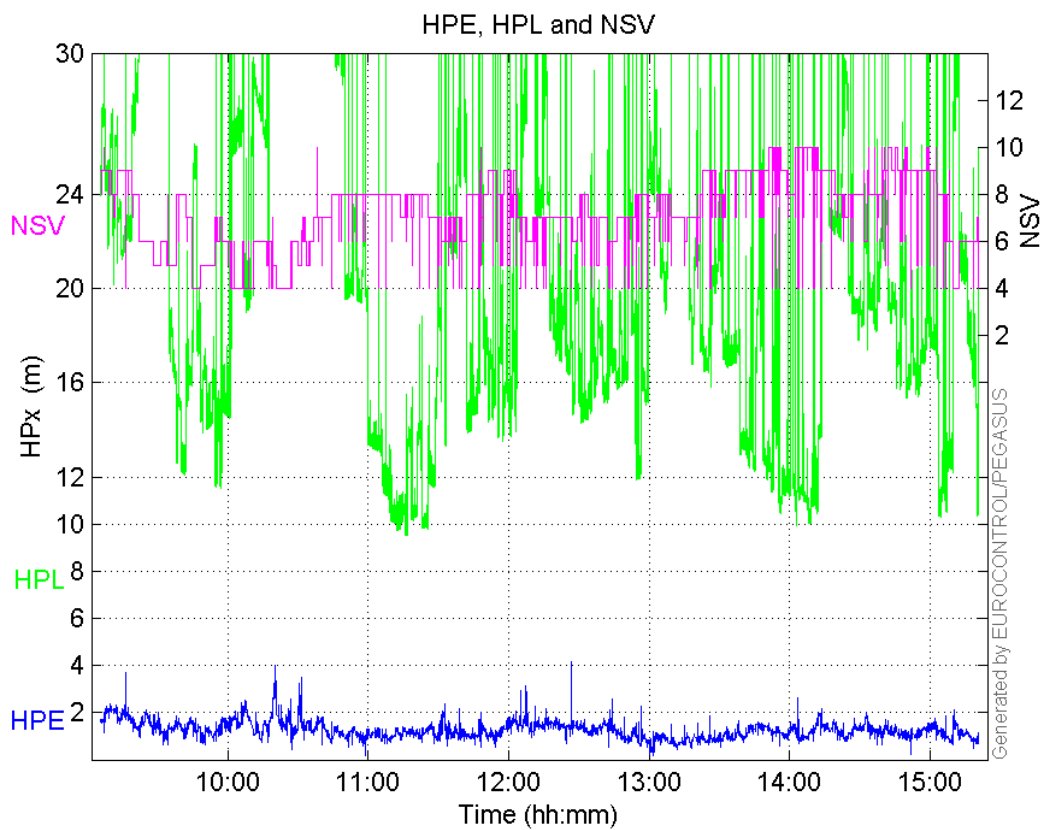
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	40445	35397	31996	0	31996
SIS Availability	0.974156	0.85257	0.770654	0	0.770654



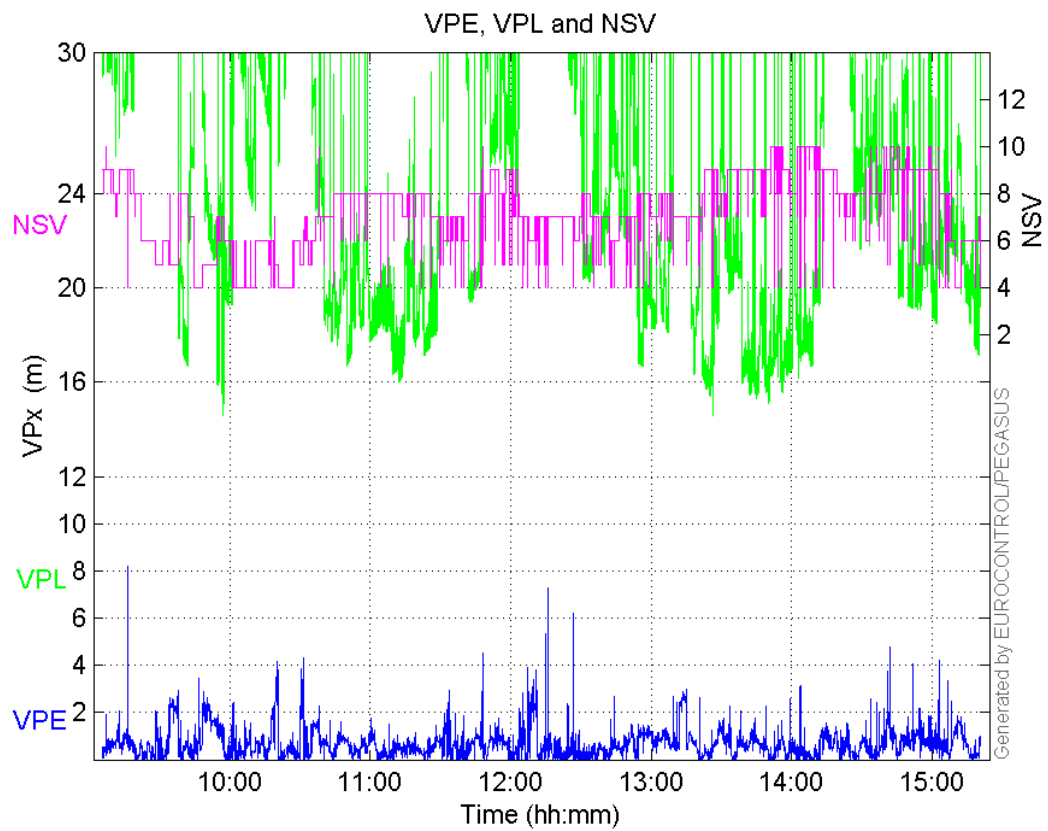
<b>Local Availability</b>	0.958185	0.838593	0.758019	0	0.758019
<b>Operational Availability</b>	1.76778	1.54714	1.39849	0	1.39849
<b>HPE 95%</b>	1.85531	1.77209	1.77742	NaN	1.77742
<b>HPEScale 95%</b>	NaN	4.50594	4.54987	NaN	4.54987
<b>VPE 95%</b>	1.5473	1.41003	1.35841	NaN	1.35841
<b>VPEscale 95%</b>	NaN	3.15898	2.22114	NaN	2.22114
<b>All Discontinuity Events</b>	47	155	254	--	254
<b>Long Discontinuity Events</b>	8	37	80	--	80
<b>Independent Discontinuity Events</b>	8	19	26	--	26
<b>P(discontinuity)</b>	0.00296699	0.00805153	0.012189	NaN	0.012189
<b>P(sliding window)</b>	0.0165286	0.052674	0.0703682	NaN	0.0703682
<b>All Integrity Events</b>	0	0	0	0	0
<b>Horizontal Integrity Events</b>	0	0	0	0	0
<b>Vertical Integrity Events</b>	0	0	0	0	0

Time Series

HPE, HPL and NSV:

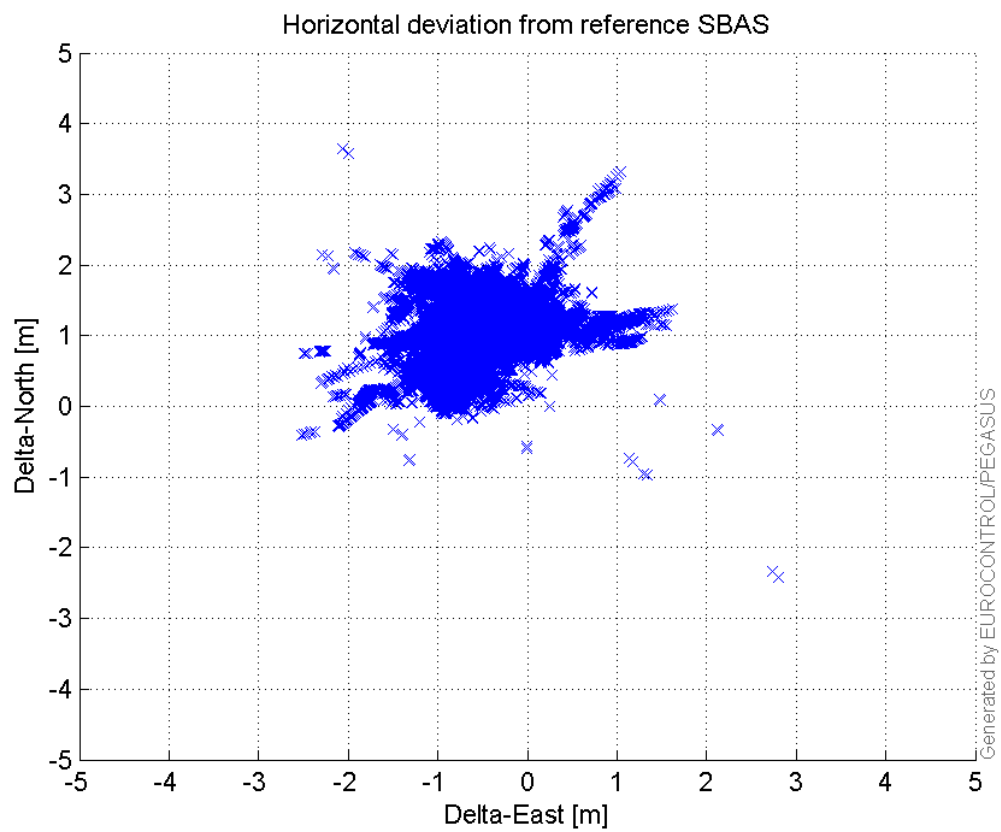


VPE, VPL and NSV:



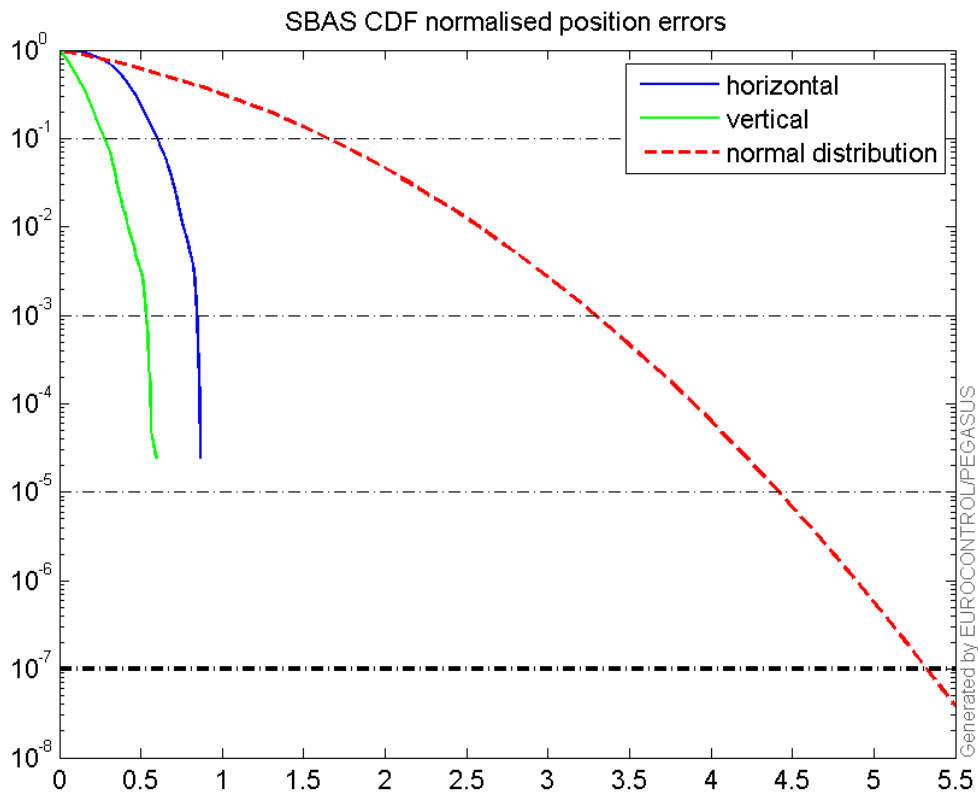
### Horizontal deviation

Horizontal deviation from reference SBAS:



## CDF position

SBAS CDF position domain:



## Statistics

```

number  35397
sum      43583.7
sum2     56989.638
prctile95  1.7720915
prctile99  2.1414903
number  35397
sum      21426.571
sum2     19908.429
prctile95  1.4100283
prctile99  2.2665786
number  35397
sum      667129.99
sum2     13833020
prctile95  30.11997
prctile99  36.254336
number  35397
sum      868777.08
sum2     23029148
prctile95  37.709325
prctile99  45.747107
number  35397
sum      2492.1736
sum2     194.41152
prctile95  0.11264839

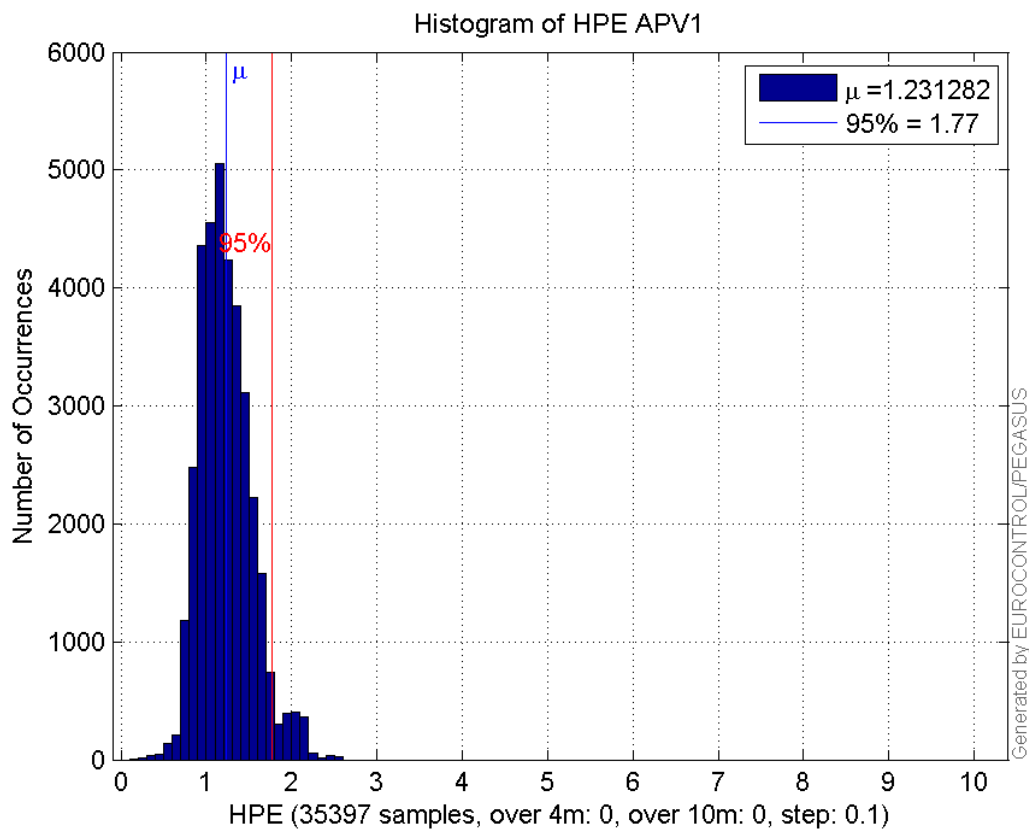
```

**prctile99** 0.12860141  
**number** 35397  
**sum** 926.88793  
**sum2** 37.05478  
**prctile95** 0.063179634  
**prctile99** 0.080614248  
**number** 31996  
**sum** 38978.129  
**sum2** 50518.762  
**prctile95** 1.7774167  
**prctile99** 2.152207  
**number** 31996  
**sum** 19294.282  
**sum2** 17382.684  
**prctile95** 1.3584066  
**prctile99** 2.1794334  
**number** 31996  
**sum** 579290.31  
**sum2** 11444415  
**prctile95** 28.53923  
**prctile99** 34.632564  
**number** 31996  
**sum** 734310.68  
**sum2** 17655053  
**prctile95** 32.35069  
**prctile99** 34.632986  
**number** 31996  
**sum** 2303.684  
**sum2** 183.06374  
**prctile95** 0.11374686  
**prctile99** 0.12963928  
**number** 31996  
**sum** 872.23669  
**sum2** 35.334762  
**prctile95** 0.063461022  
**prctile99** 0.081938961

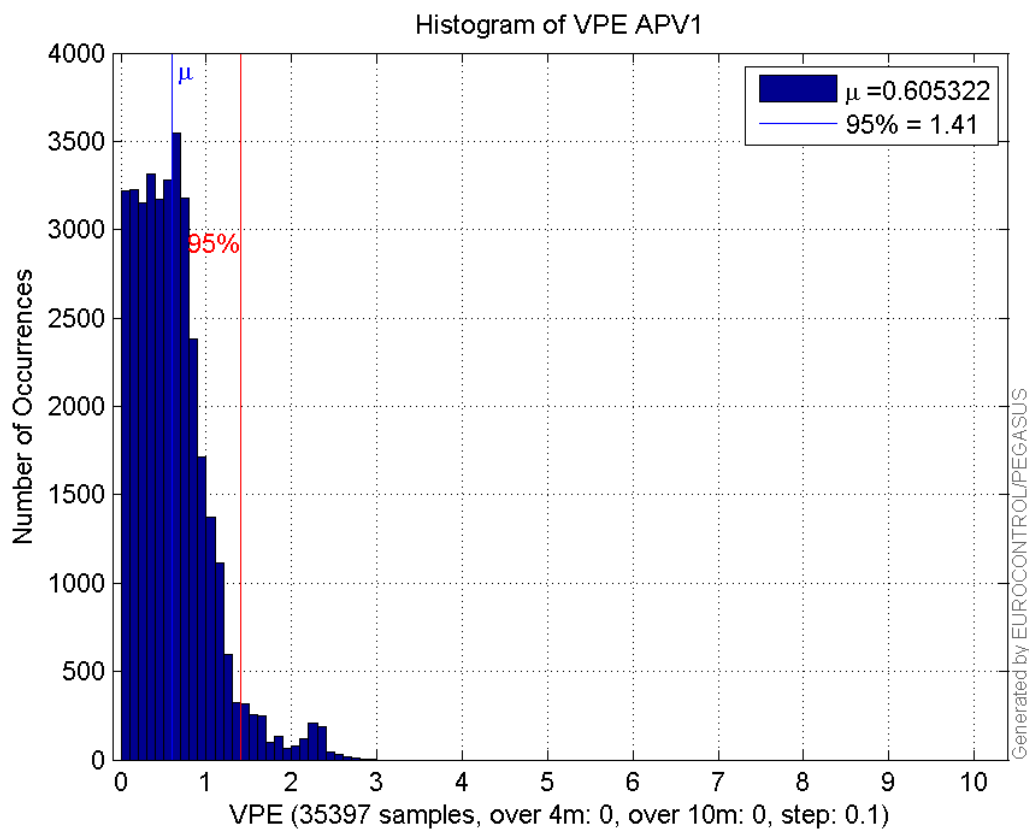
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.23128	0.306529	1.1922	1.77209	2.14149	1.26886
<b>HPL</b>	18.8471	5.96532	17.6358	30.12	36.2543	19.7686
<b>VPE</b>	0.605322	0.442746	0.550653	1.41003	2.26658	0.749955
<b>VPL</b>	24.5438	6.94255	22.281	37.7093	45.7471	25.5068

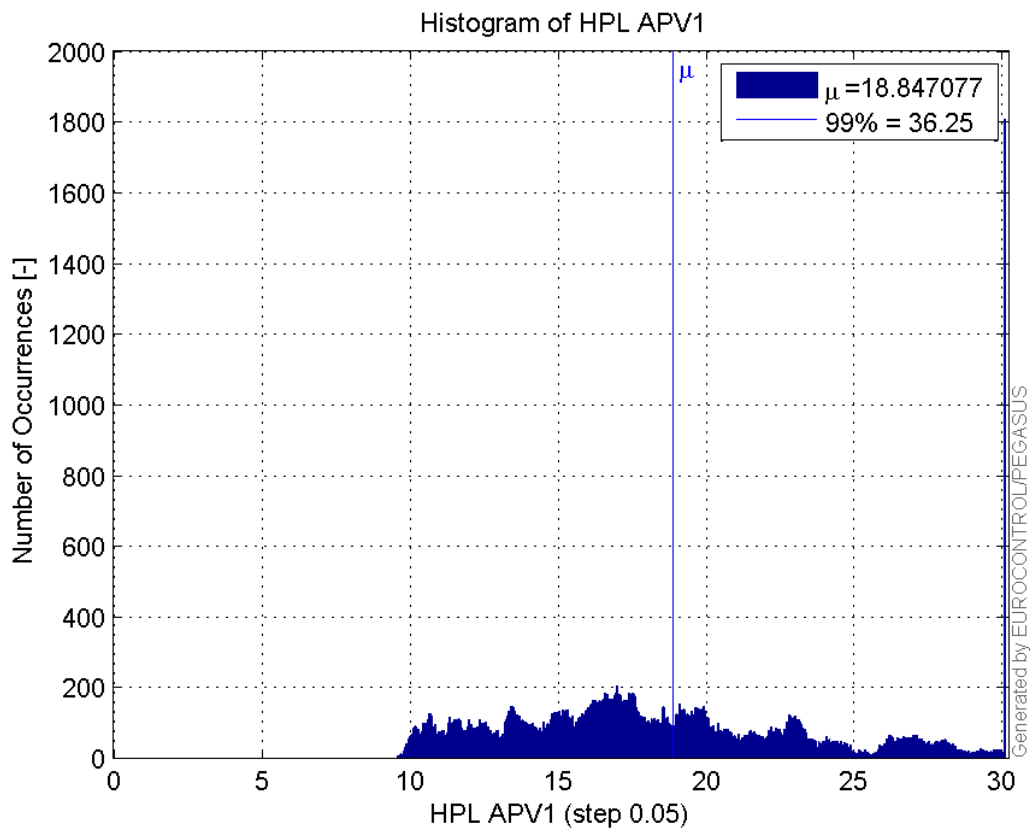
**Histogram of HPE APV1:**



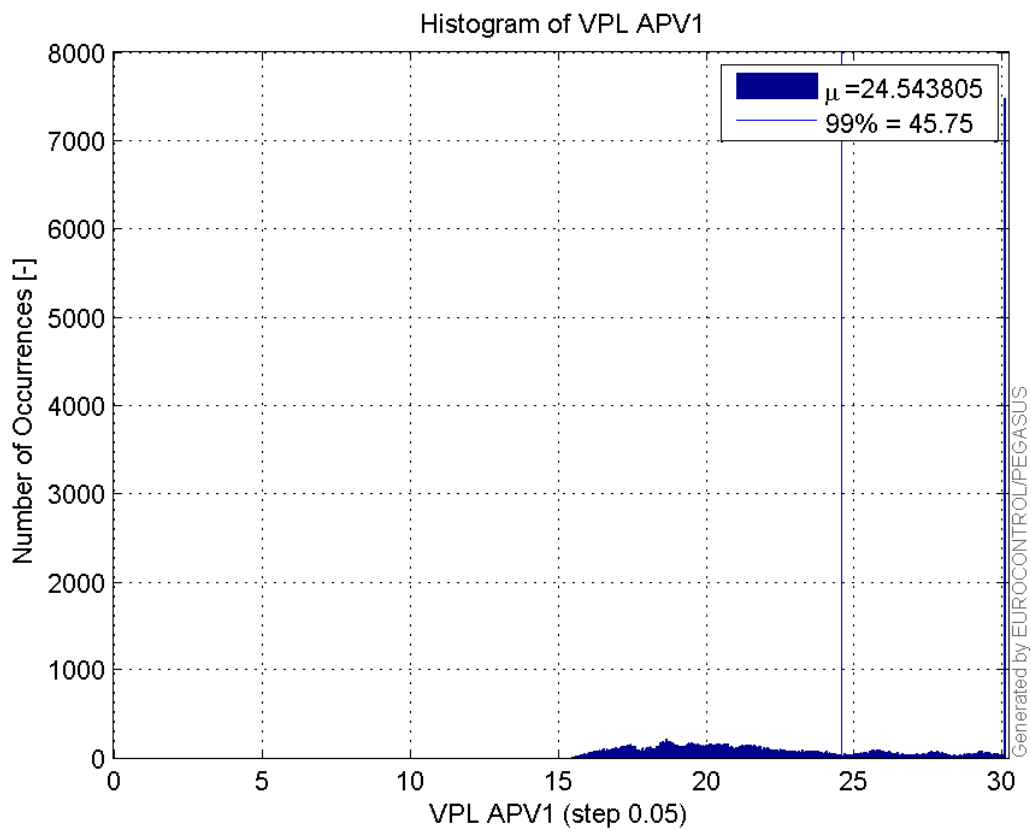
**Histogram of VPE APV1:**



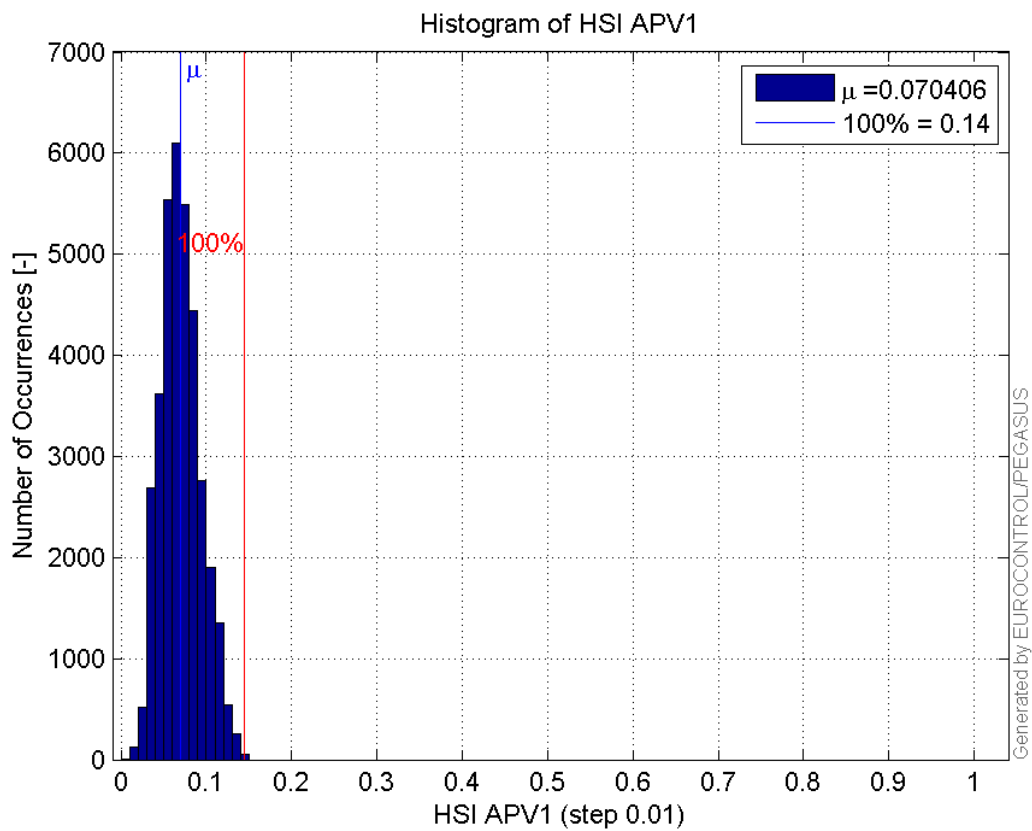
**Histogram of HPL APV1:**



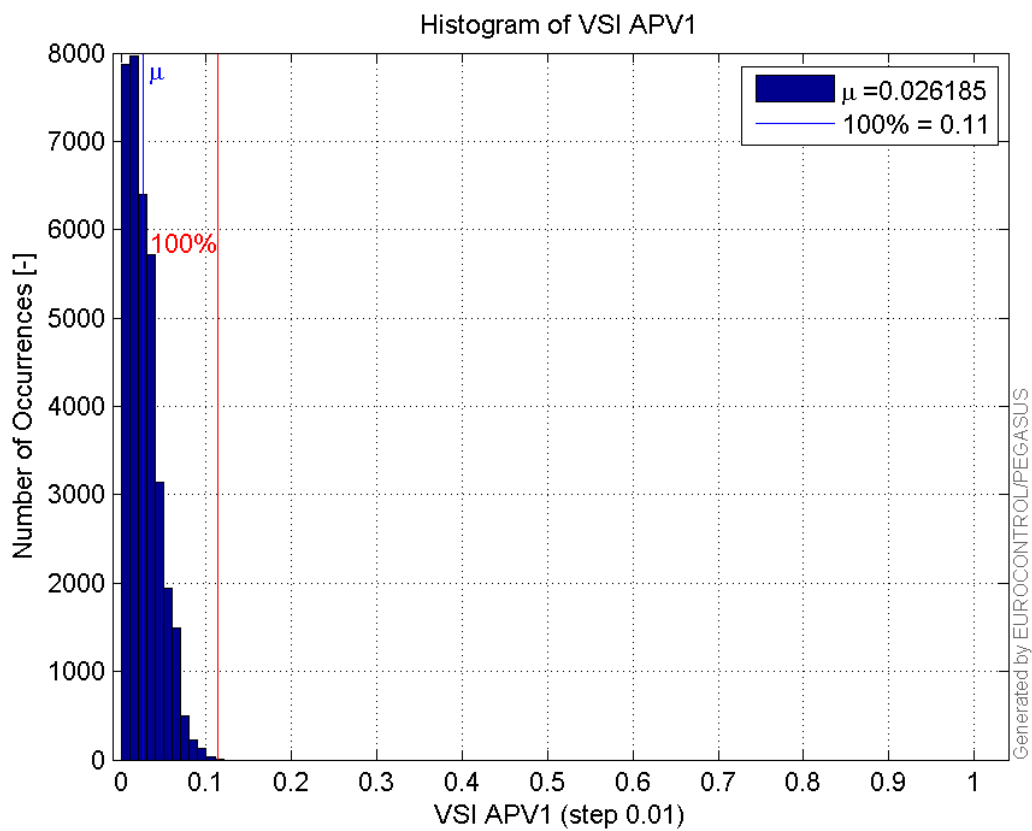
Histogram of VPL APV1:



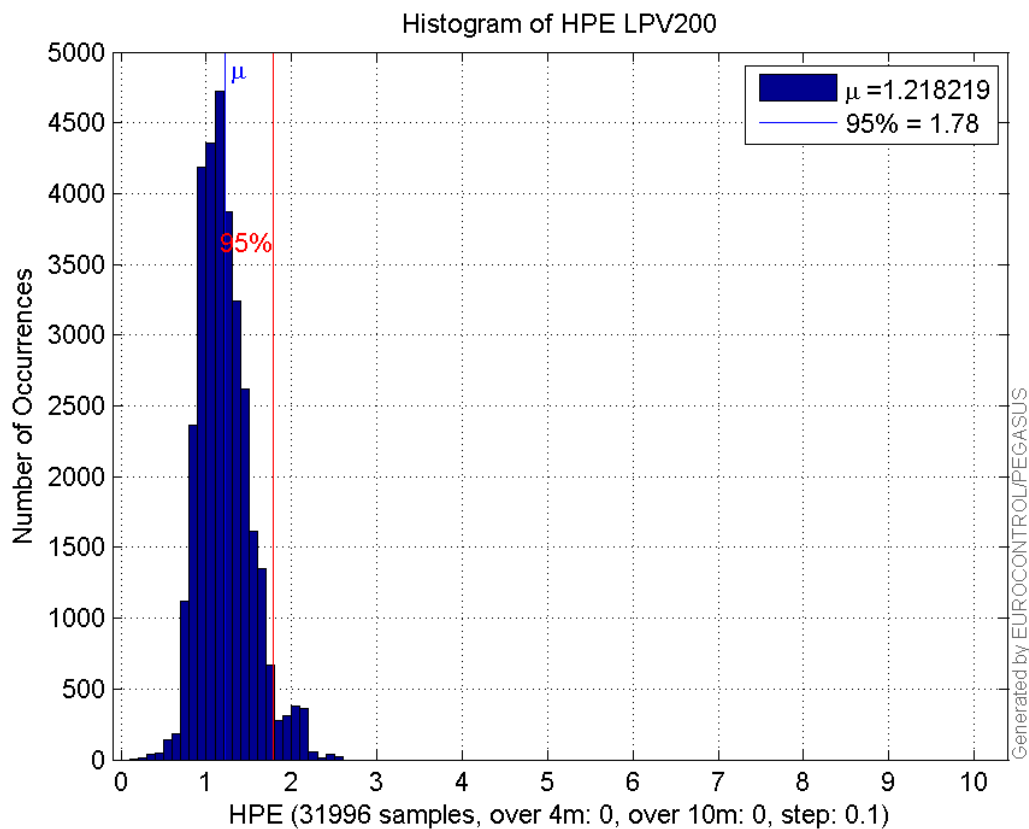
Histogram of HSI APV1:



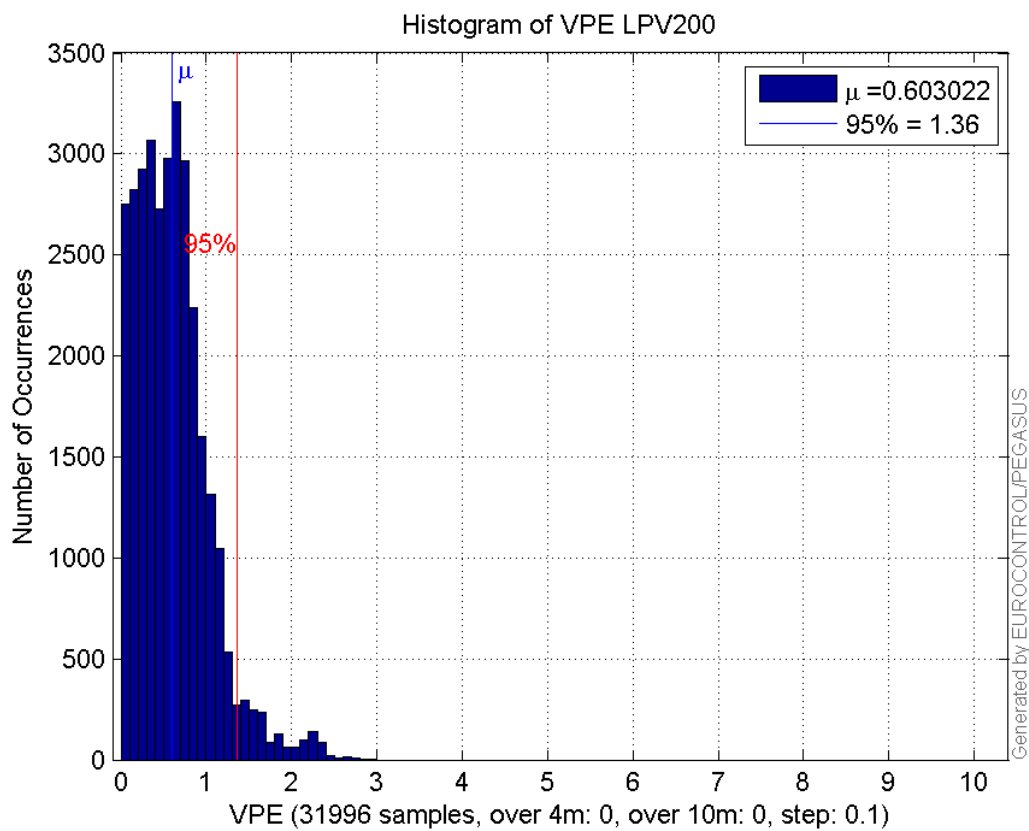
**Histogram of VSI APV1:**



**Histogram of HPE LPV200:**

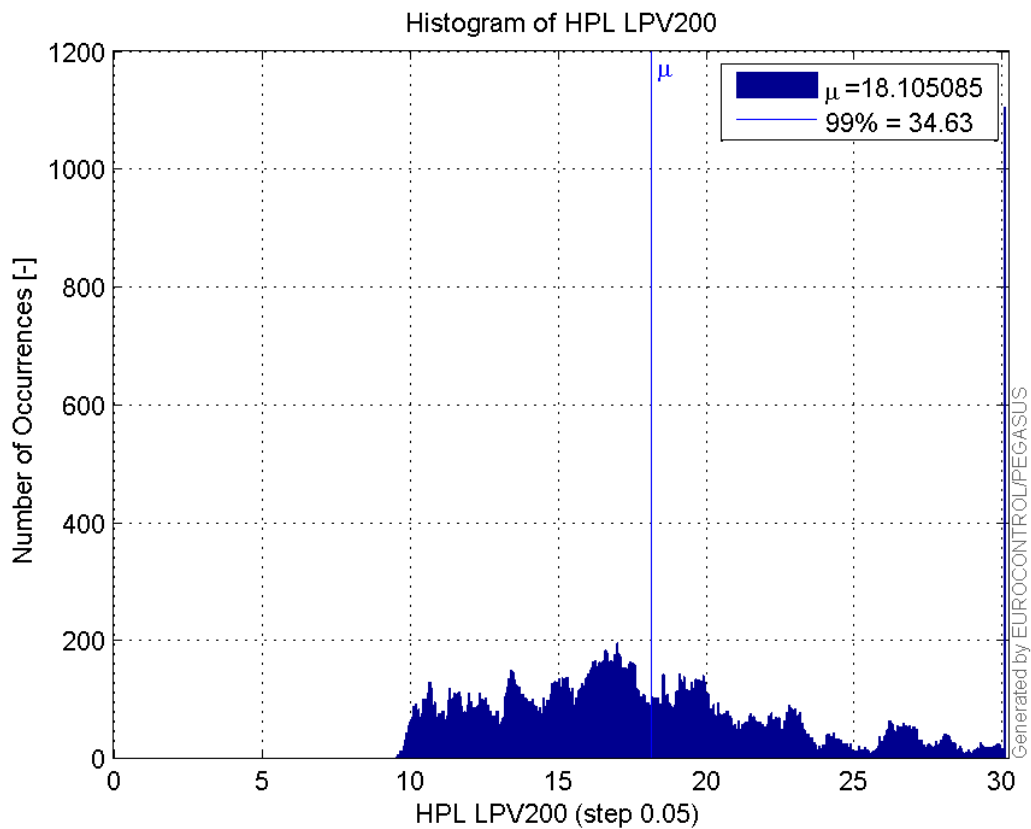


**Histogram of VPE LPV200:**



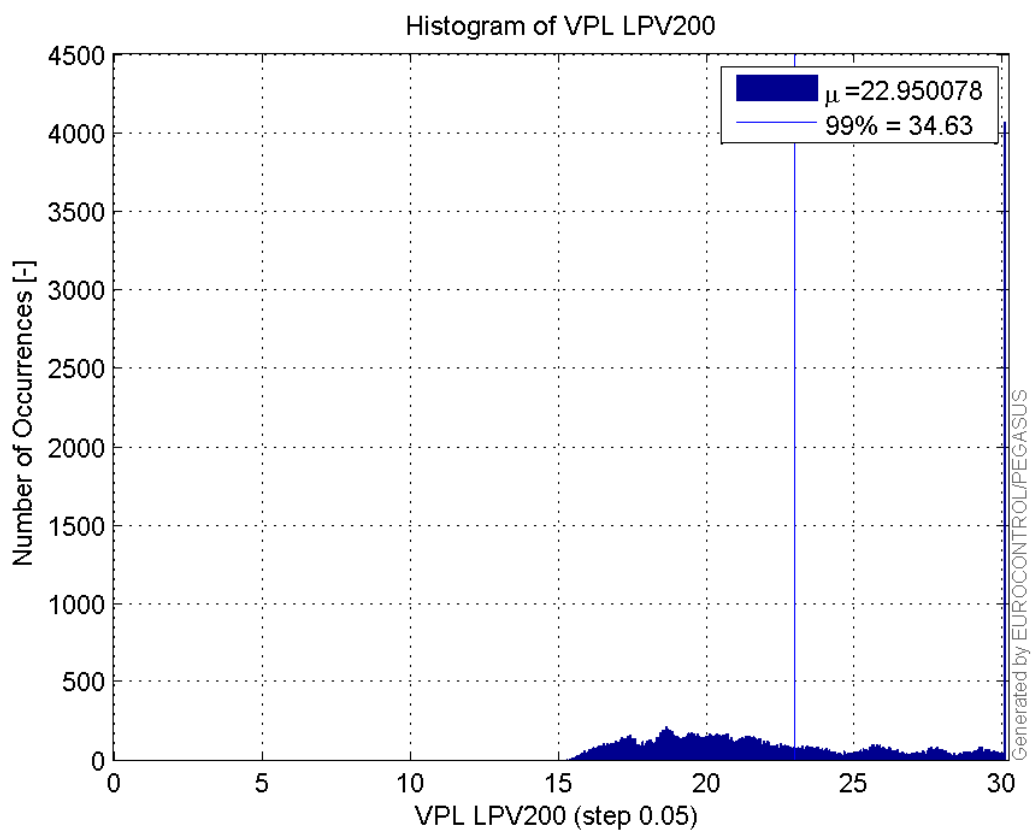
**Histogram of HPL LPV200:**





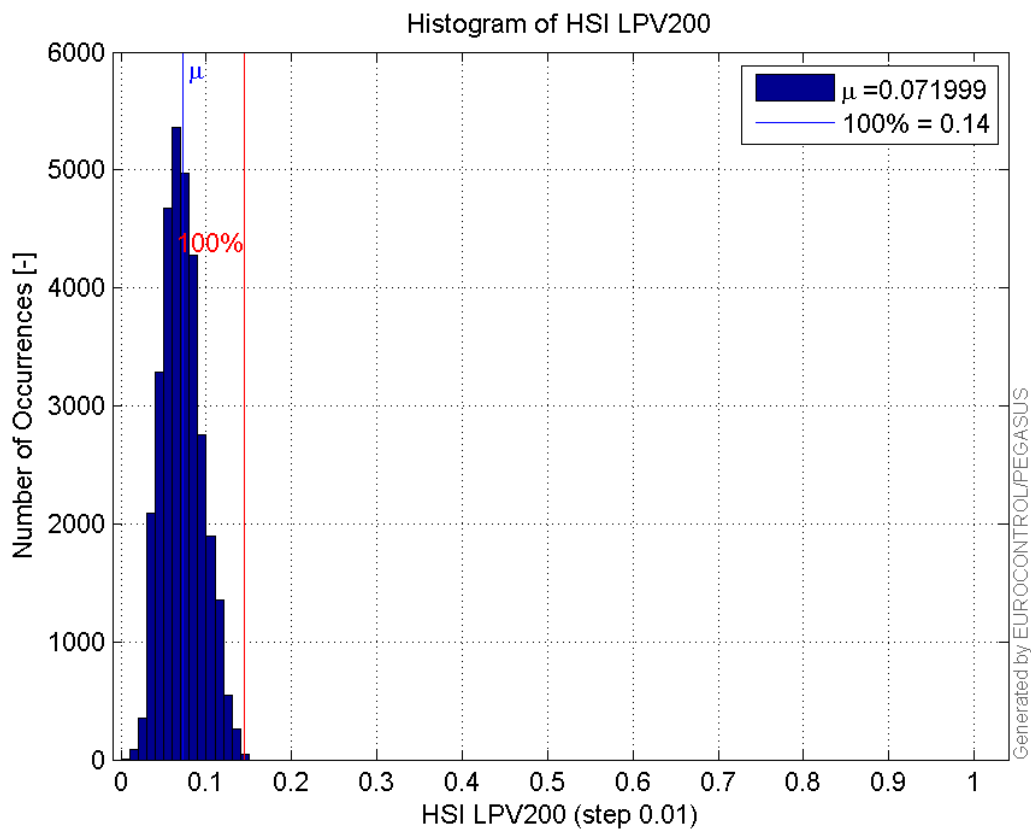
99'

**Histogram of VPL LPV200:**

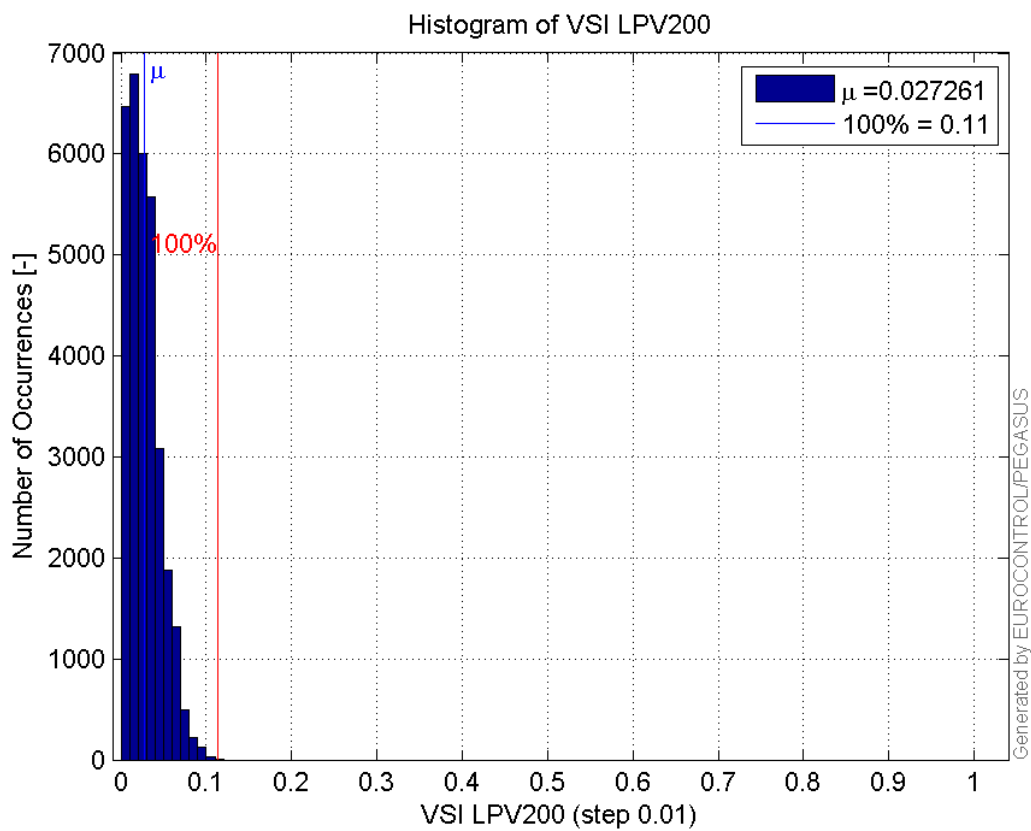


99'

**Histogram of HSI LPV200:**

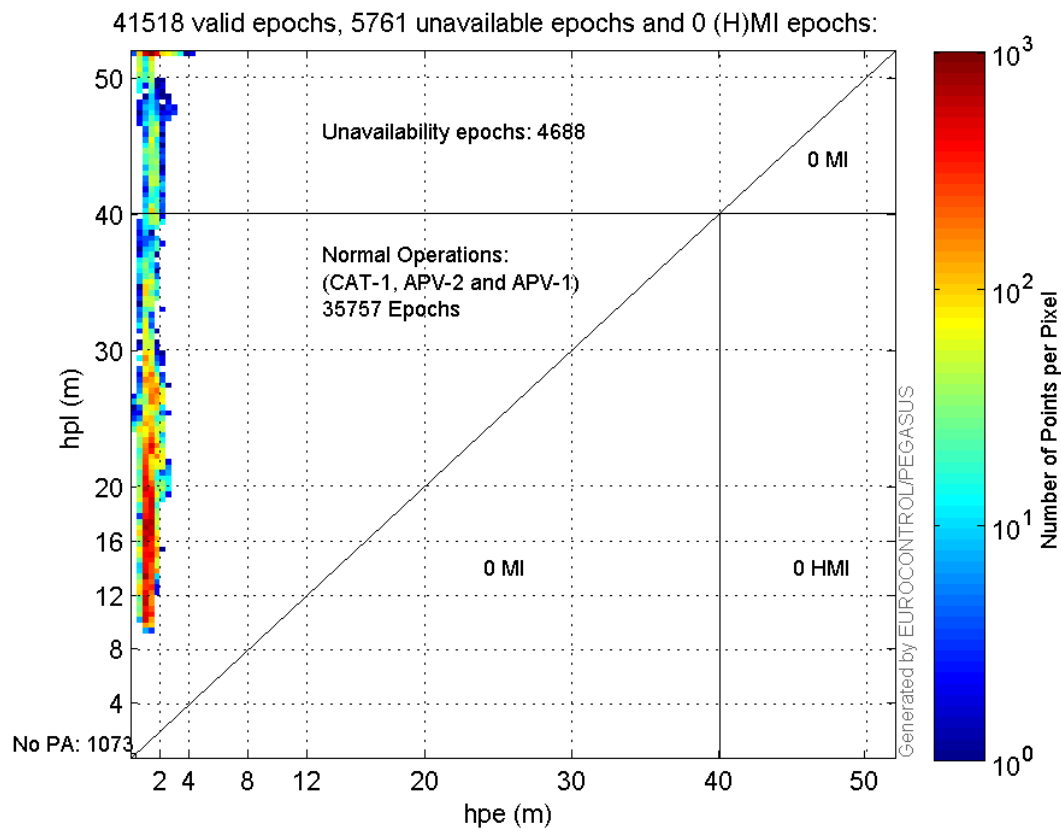


Histogram of VSI LPV200:

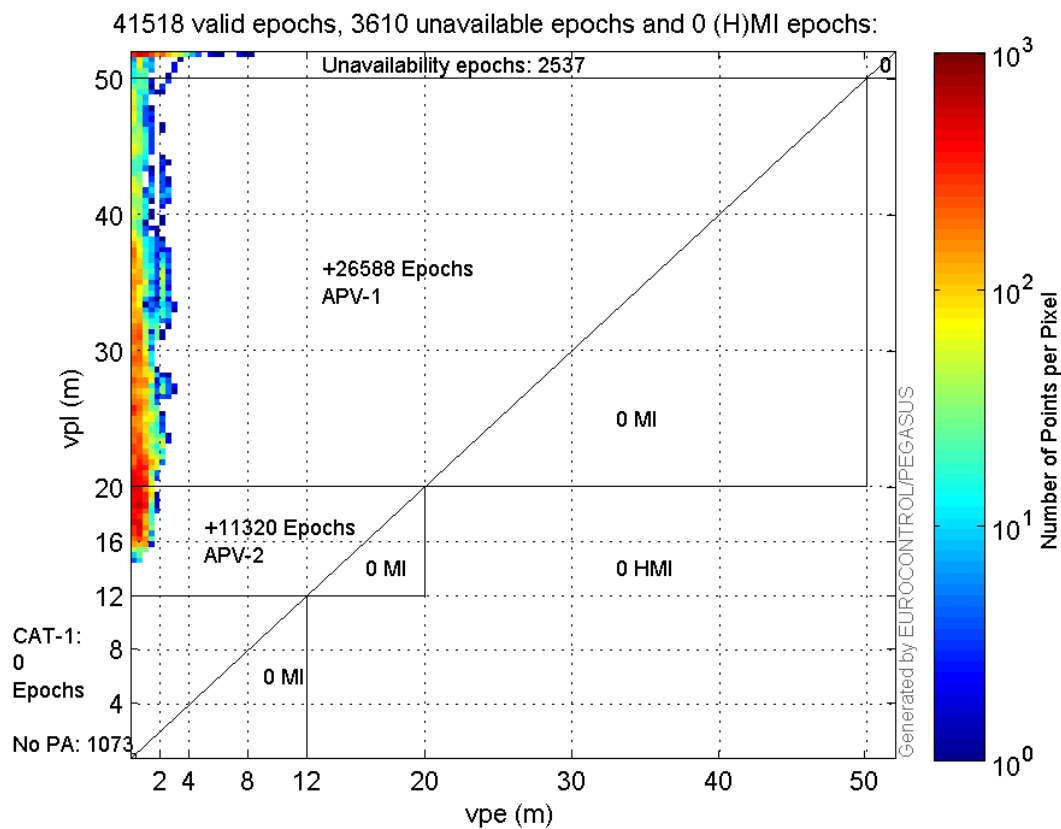


## Stanford Plots

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_02_25EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	50.439
init_lon	results	30.4297
init_alt	results	234.8497
mi_numbers	results	0

## Range Domain

**start:** 08:59:20 25.02.2017 ( week: 1937 sec: 550760 )  
**end:** 15:20:38 25.02.2017 ( week: 1937 sec: 573638 )  
**duration:** 06:21:19 ..

### quality

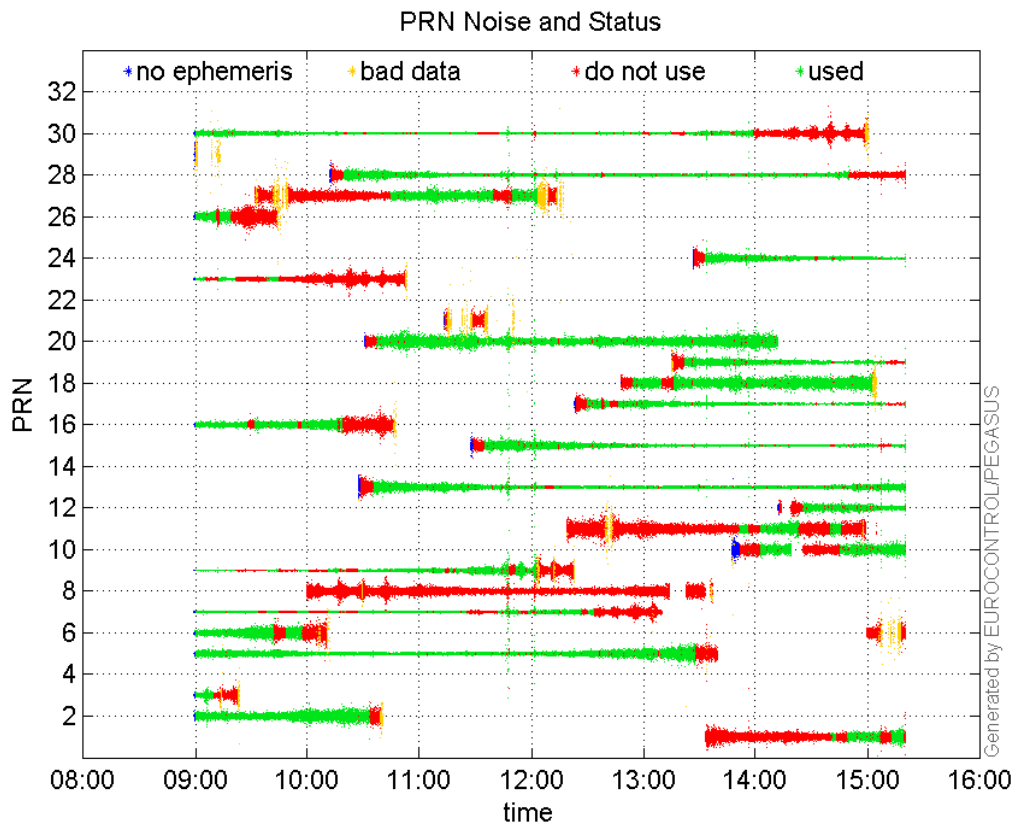
**valid samples** 42210  
**total samples** 42210

### PRN overview

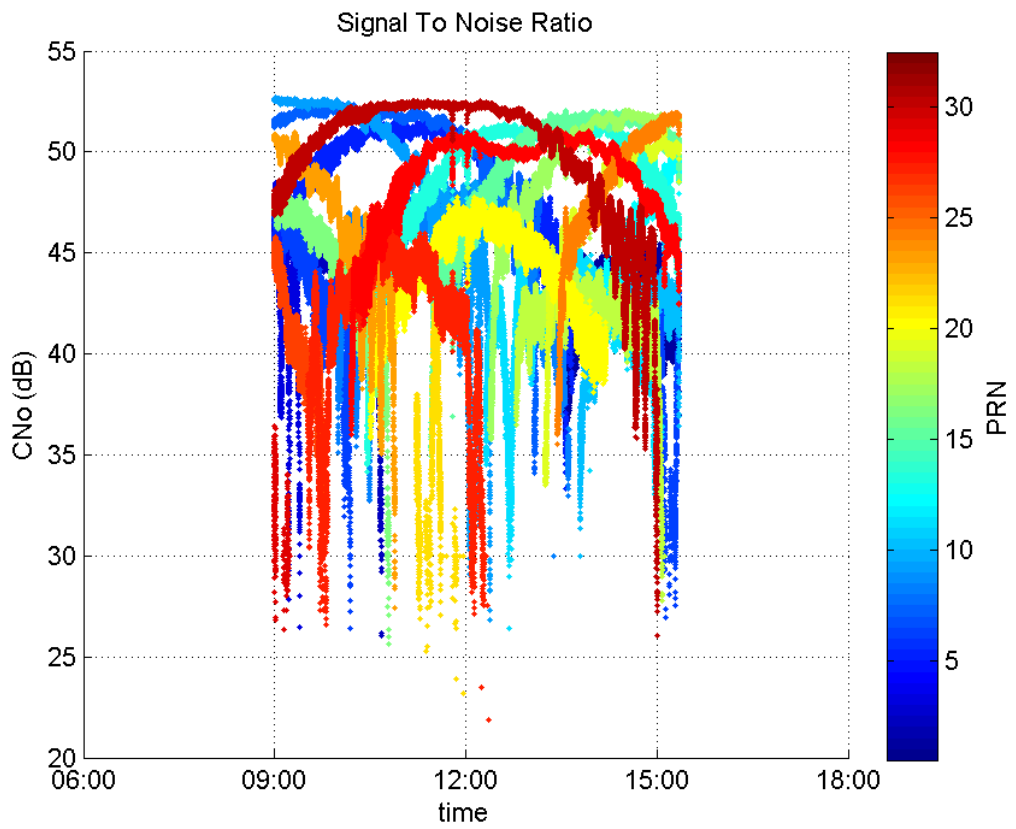
**Number of Visible GPS Satellites** 26  
**Number of Visible SBAS Satellites** 2

### signal quality and status

**PRN Noise and Status:**



**Signal To Noise Ratio:**



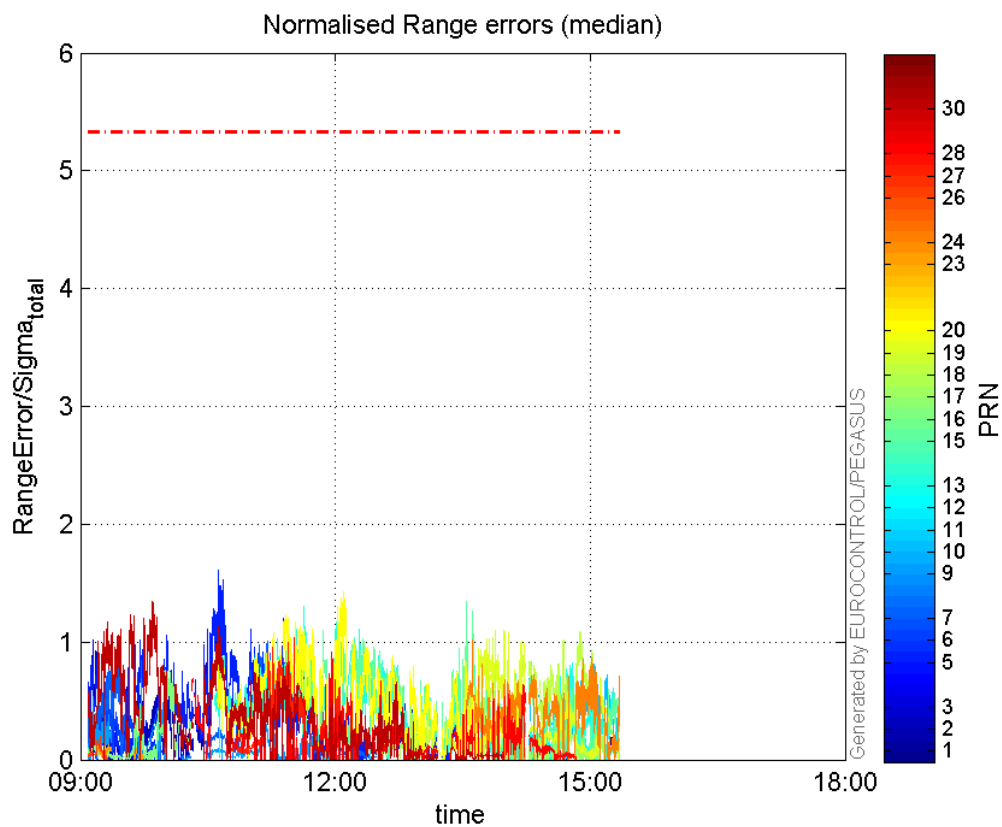
range errors

**Number of Overbounding Norm Errors 0**

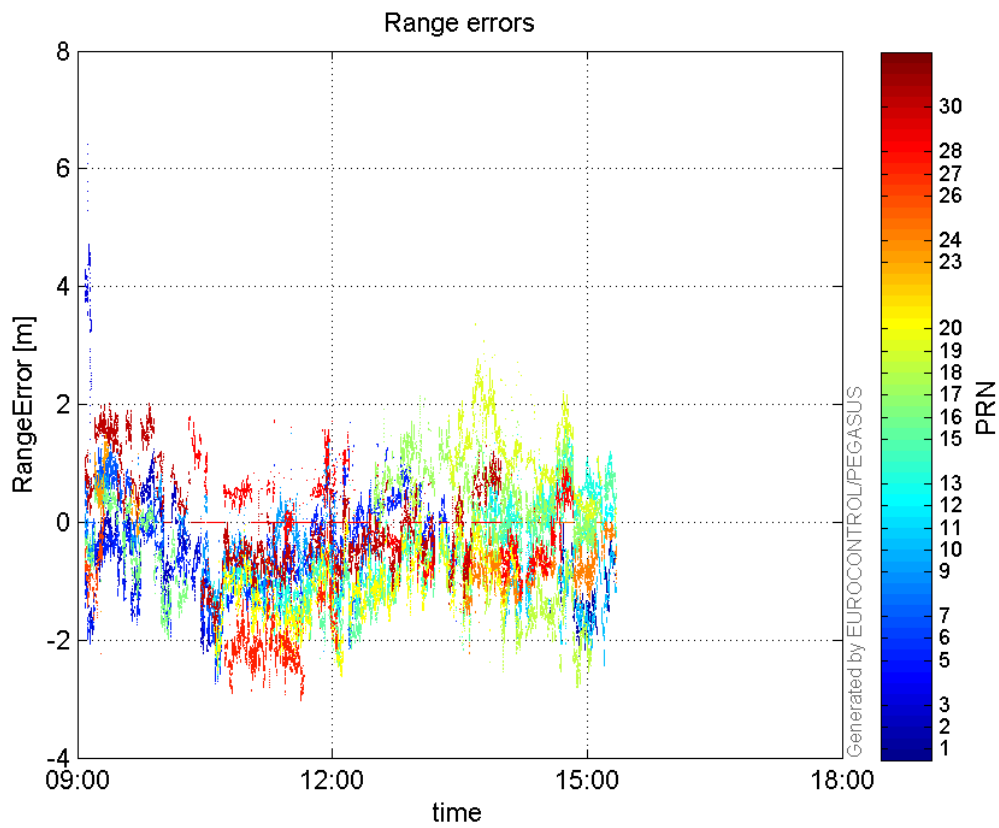
## Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1937	573571	1	0.229466	-0.899647	3.9206
1937	551321	2	1.01358	-1.87633	1.85118
1937	551253	3	0.162537	6.40819	39.4261
1937	556663	5	1.6094	-2.60528	1.61879
1937	551846	6	0.654837	1.47587	2.2538
1937	558756	7	1.00182	-1.55827	1.55543
1937	553370	9	0.686029	0.987765	1.43983
1937	572574	10	0.816491	-2.0884	2.55777
1937	569529	11	0.389911	-1.45239	3.72493
1937	571571	12	0.523147	1.03994	1.98784
1937	560286	13	1.30212	-2.04319	1.56912
1937	567129	15	1.3396	-2.06479	1.54135
1937	554380	16	0.76179	-1.75793	2.30763
1937	568759	17	0.812427	1.57677	1.94082
1937	571972	18	1.09108	-2.80037	2.5666
1937	568759	19	1.10303	2.41357	2.18812
1937	561965	20	1.42569	-2.52707	1.77253
1937	553370	23	0.167312	1.16277	6.94975
1937	567398	24	1.01209	-2.22792	2.20132
1937	551797	26	0.265466	-2.24145	8.44345
1937	559594	27	0.994012	-2.92277	2.94038
1937	559877	28	1.03463	1.61832	1.56416
1937	553832	30	1.34695	2.00744	1.49036

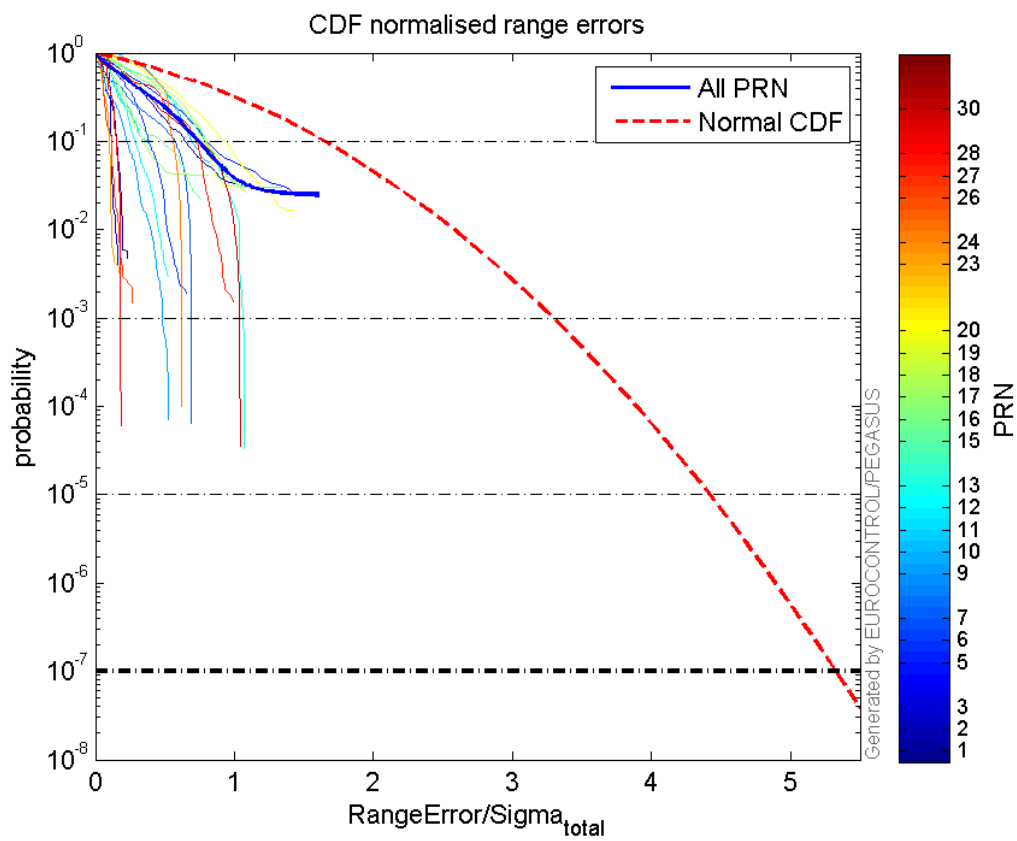
## Normalised Range errors (median):



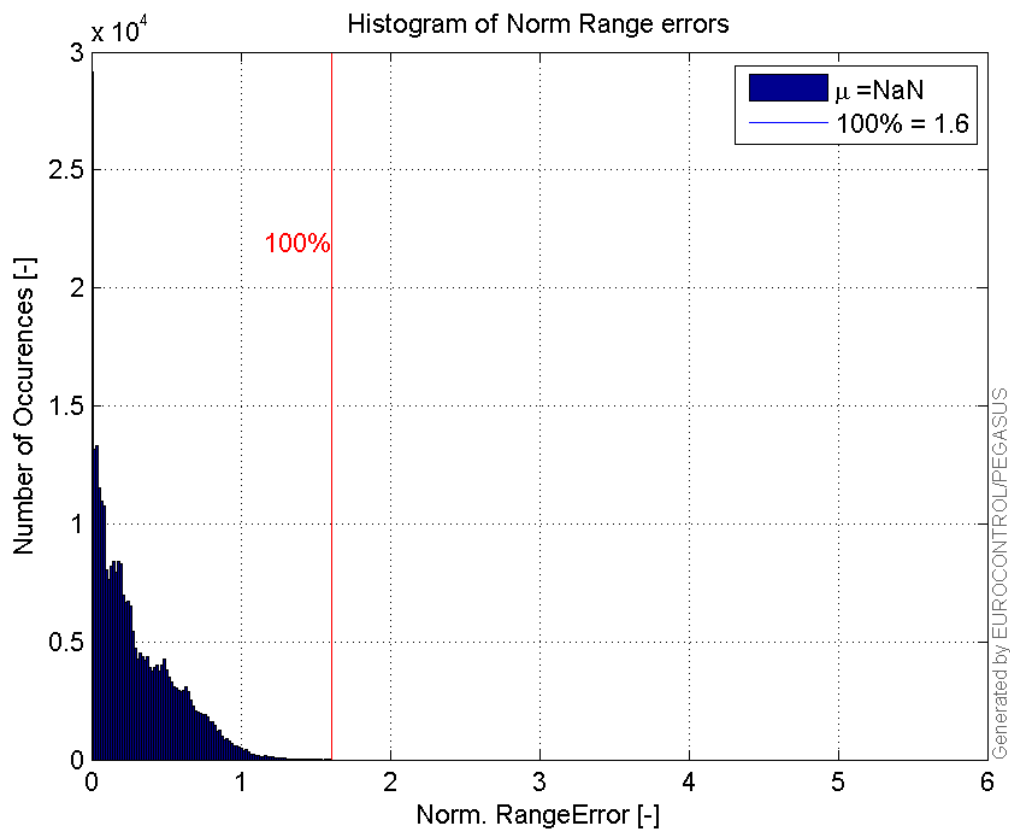
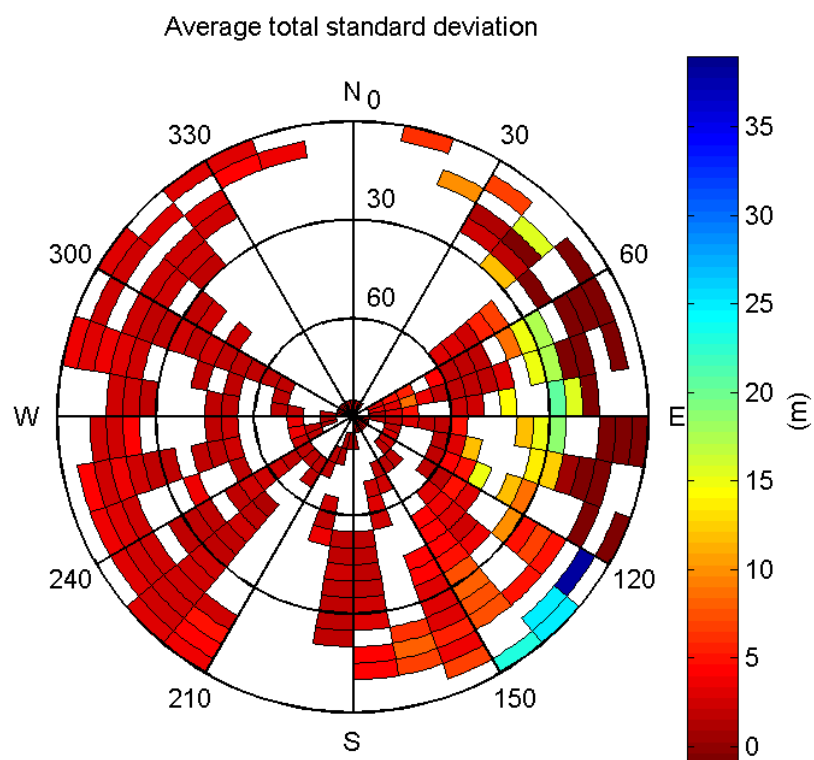
## Range errors:



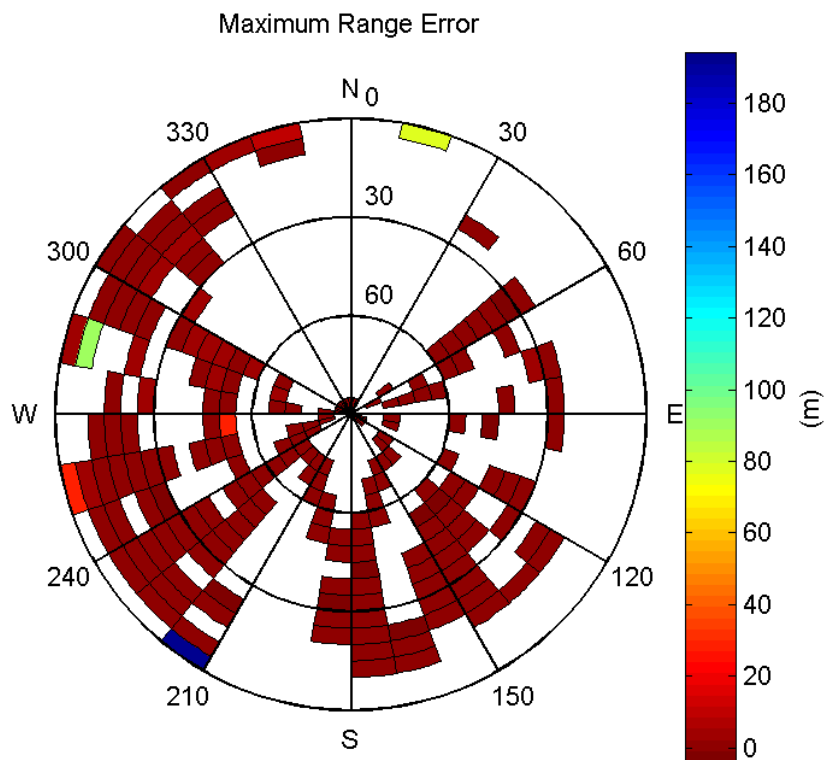
## CDF normalised range errors:



## Histogram of Norm Range errors:

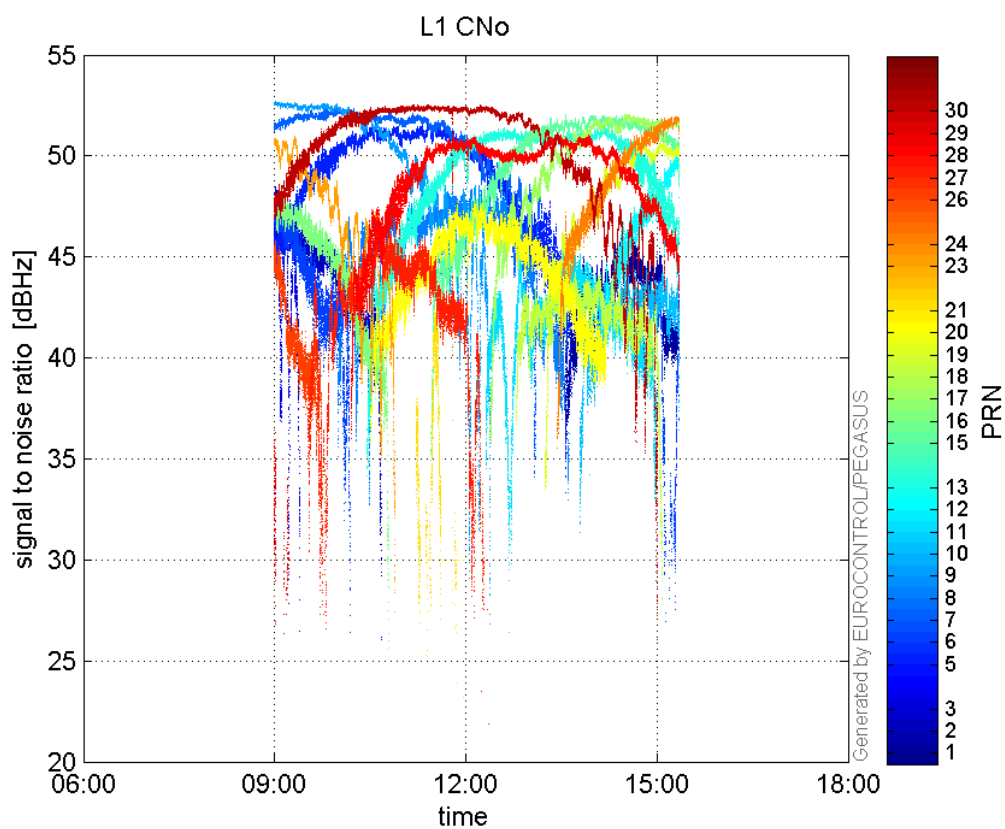
**Sigma Sky Plot:****Norm Error Sky Plot:**



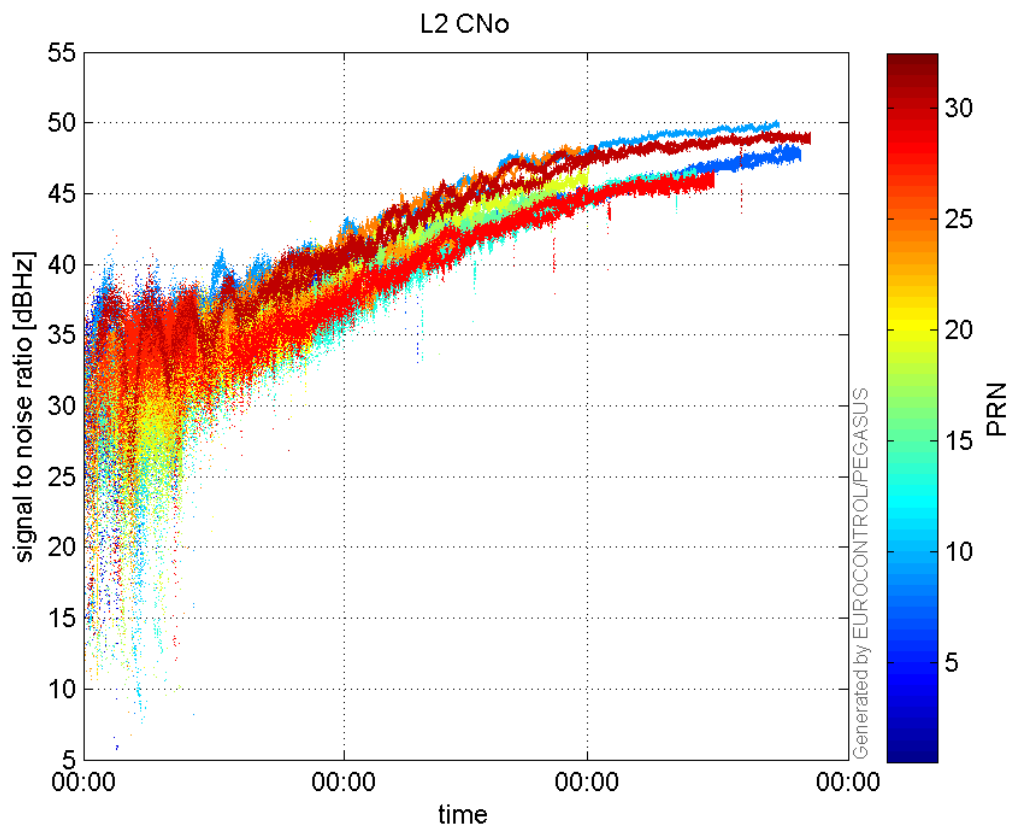


### signal quality

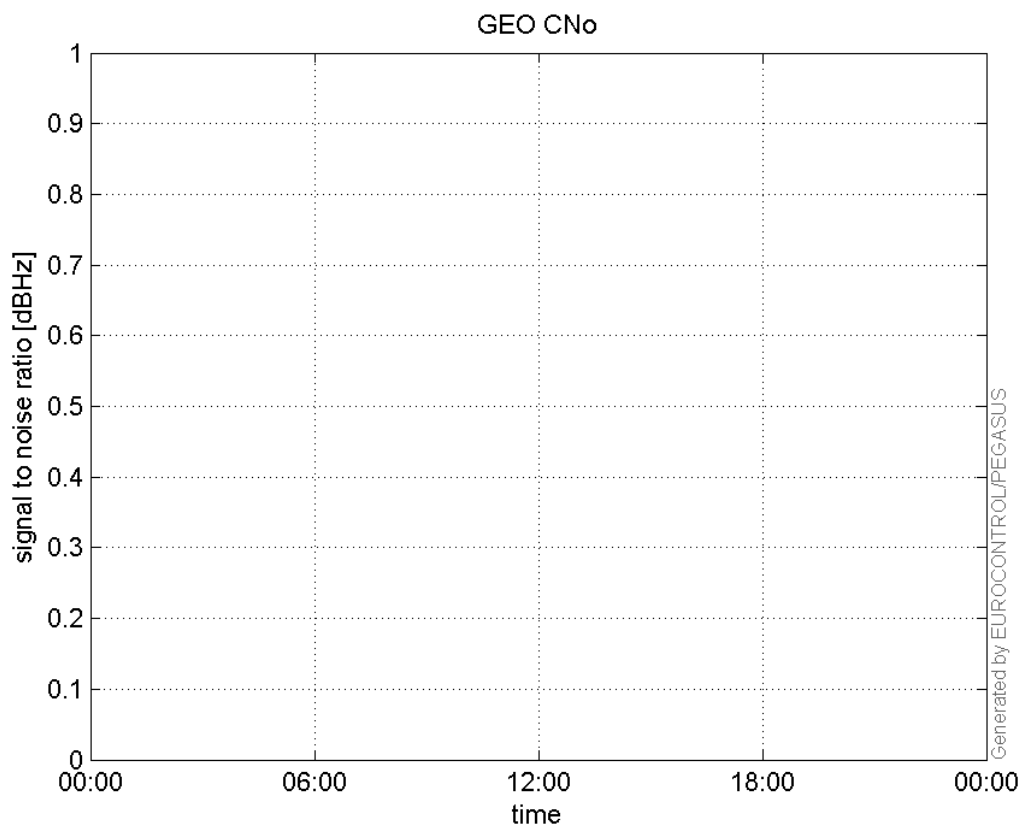
**L1 CNo:**



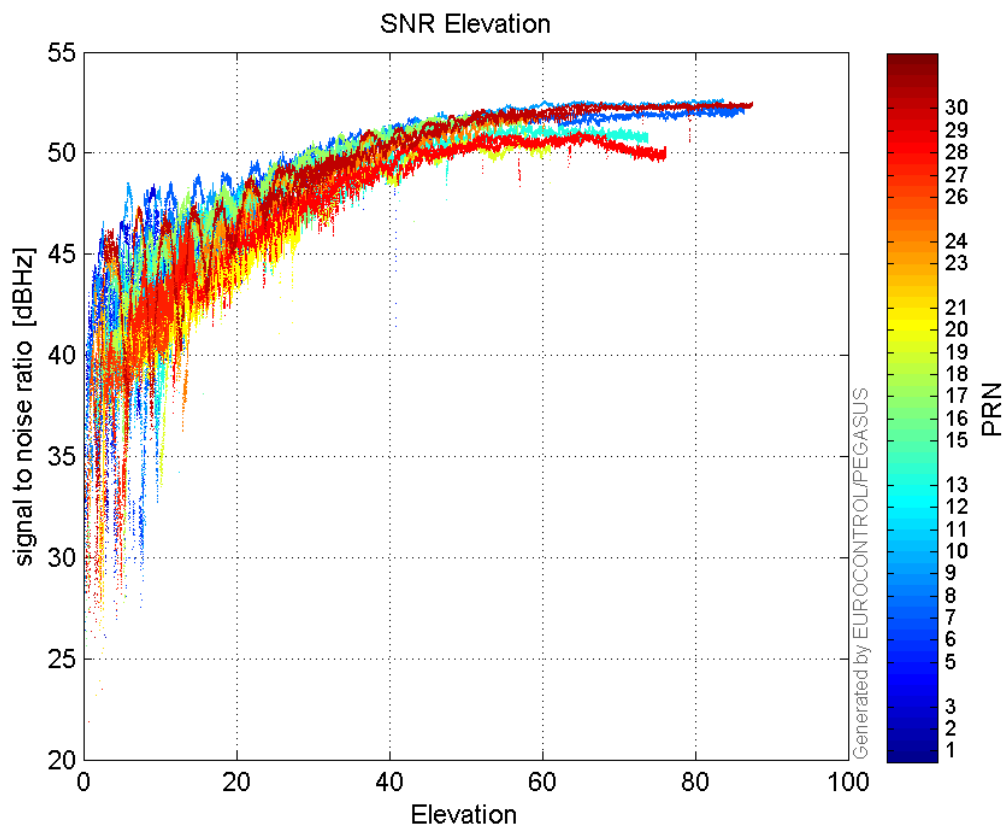
**L2 CNo:**



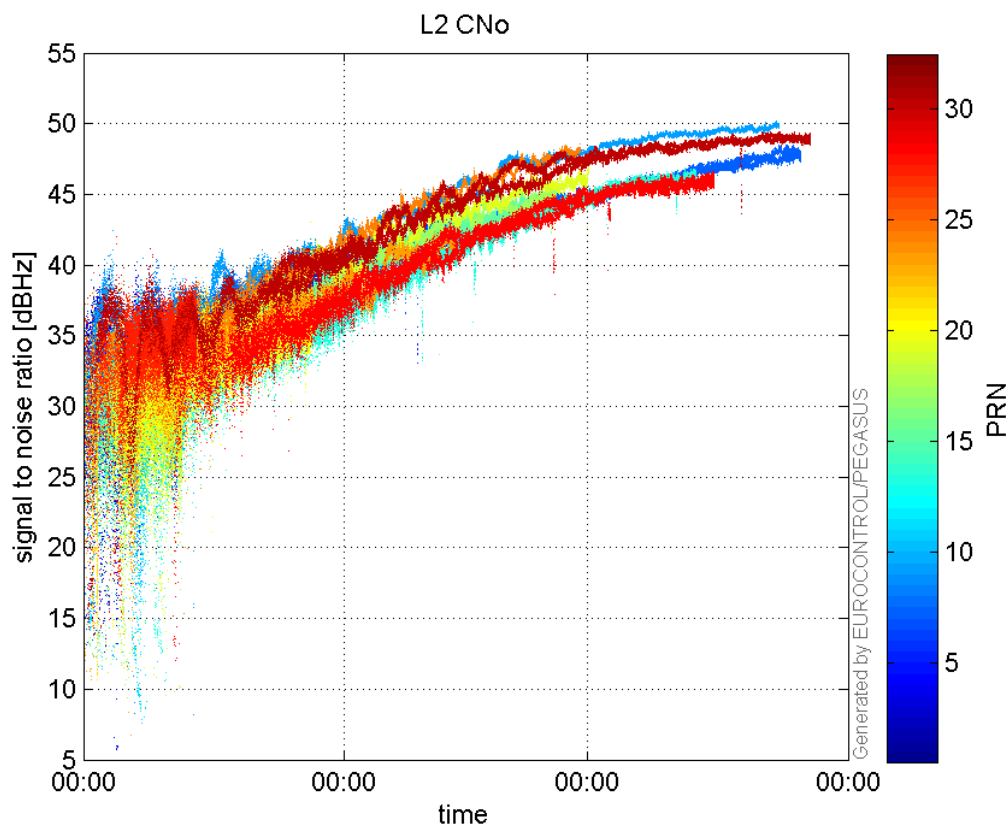
**GEO CNo:**



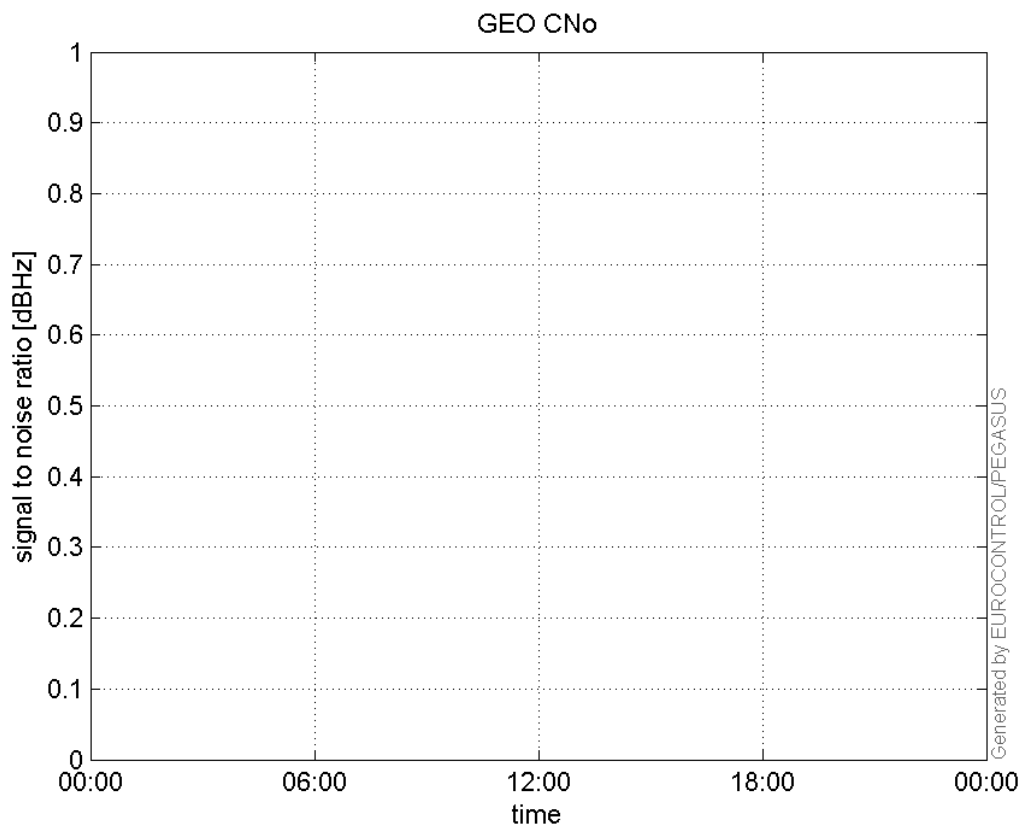
**SNR Elevation:**



L2 CNo:

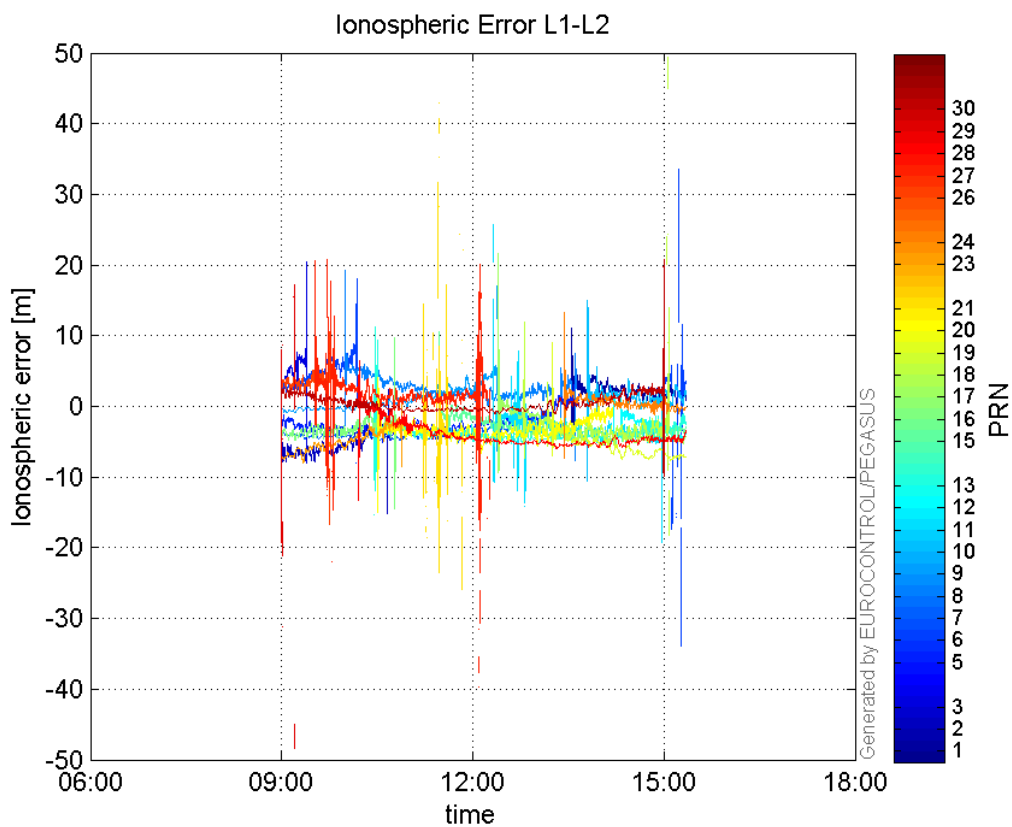


GEO CNo:



### 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_25EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_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	50.439
init_lon	results	30.4297
init_alt	results	234.8497
mi_numbers	results	0