

# 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:** 07:06:6.129 10.06.2016 ( week: 1900 sec: 457566.129 )  
**end:** 11:40:26.129 10.06.2016 ( week: 1900 sec: 474026.129 )  
**duration:** 04:34:20 ..

### quality

**valid samples** 32920  
**total samples** 32920  
**number of SBAS PRNs** 2

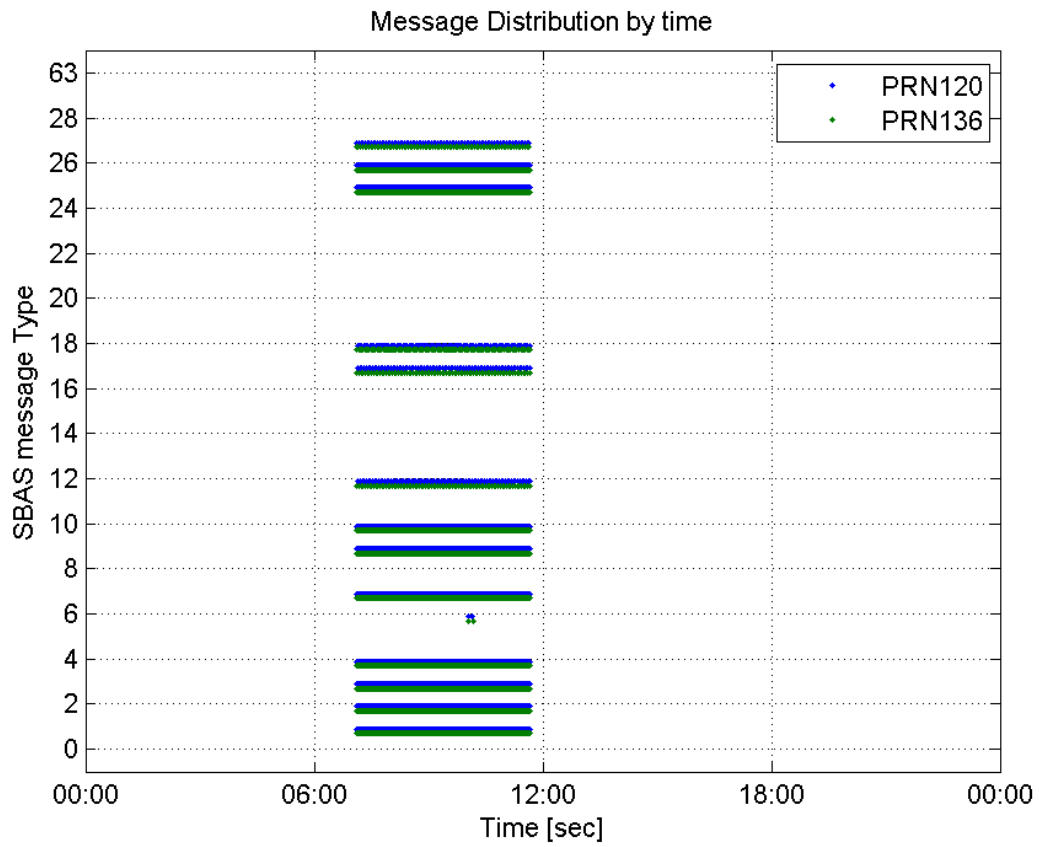
### SBAS SIS Overview

#### Message Type 6 repetitions :

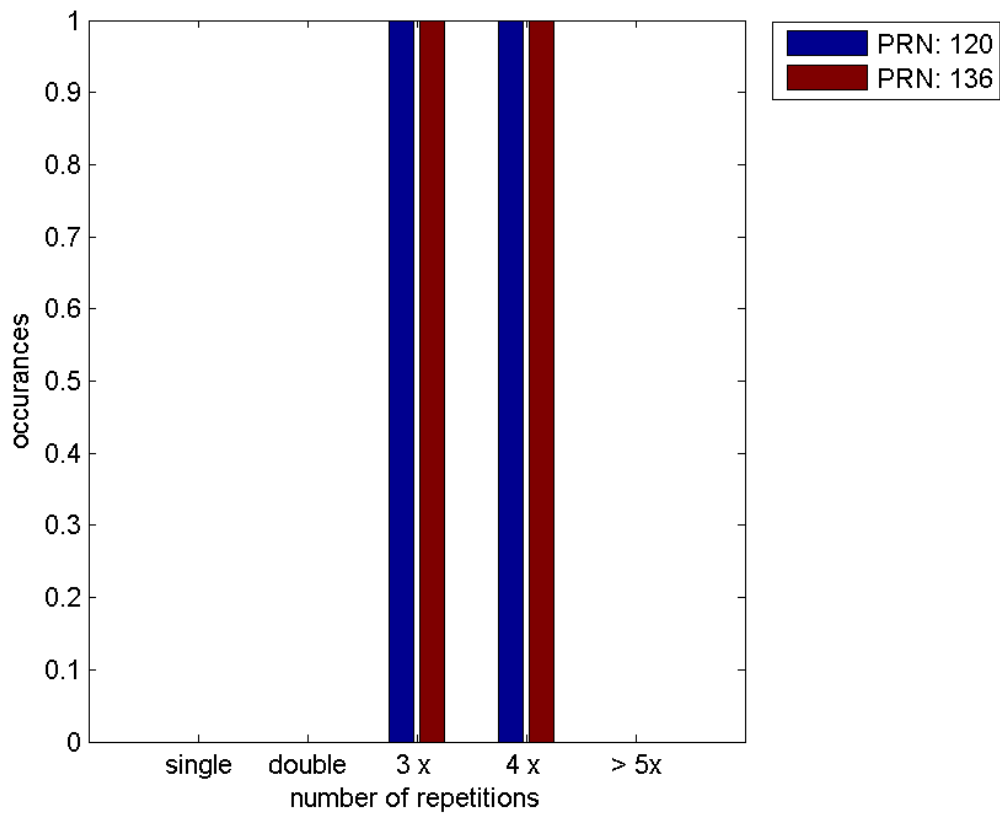
	single	double	3 x	4 x	> 5x
<b>PRN 120</b>	0	0	1	1	0
<b>PRN 136</b>	0	0	1	1	0

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#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

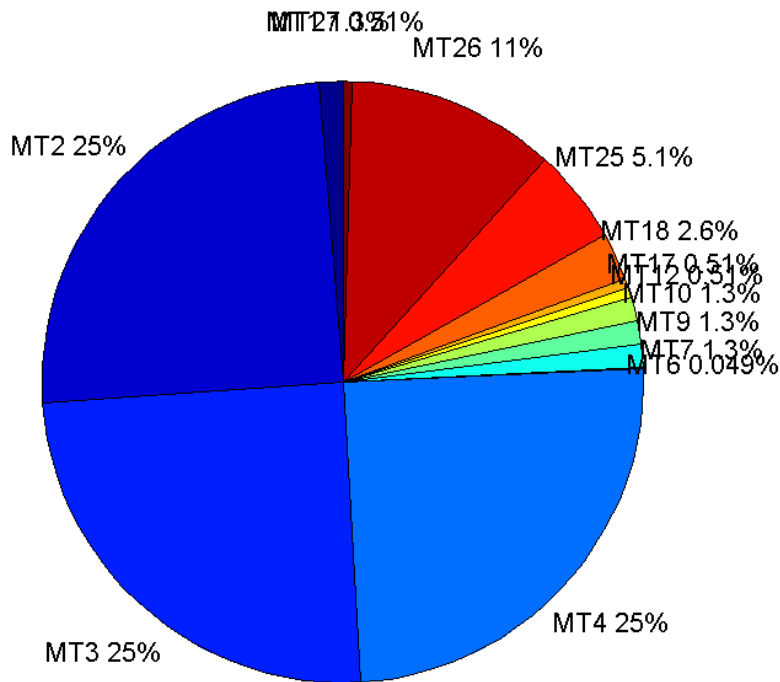
	number of messages	%
MT 0	0	0
MT 1	206	1.25159
MT 2	4087	24.8314
MT 3	4087	24.8314
MT 4	4087	24.8314
MT 5	0	0
MT 6	8	0.0486056
MT 7	207	1.25767
MT 9	207	1.25767
MT 10	206	1.25159
MT 12	84	0.510359
MT 17	84	0.510359
MT 18	420	2.5518
MT 24	0	0
MT 25	843	5.12182
MT 26	1849	11.234
MT 27	84	0.510359
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	16459	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	80	79.7171	0	0	0
MT 2	4	8	4.02717	2	0	0
MT 3	4	7	4.02717	2	0	0
MT 4	4	8	4.02839	3	0	0
MT 5	--	--	--	--	--	--
MT 6	1	431	62.4286	1	1	1
MT 7	76	81	79.7767	0	0	0
MT 9	76	81	79.8544	0	0	0
MT 10	76	81	79.7756	0	0	0
MT 12	191	201	195.831	83	0	0
MT 17	191	201	195.831	0	0	0
MT 18	4	163	38.8783	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	52	19.5178	0	0	0
MT	4	33	8.89935	0	0	0

26						
MT 27	189	201	195.831	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	207	1.25752
MT 2	4089	24.8405
MT 3	4090	24.8466
MT 4	4090	24.8466
MT 5	0	0
MT 6	8	0.0485997
MT 7	206	1.25144
MT 9	206	1.25144
MT 10	206	1.25144

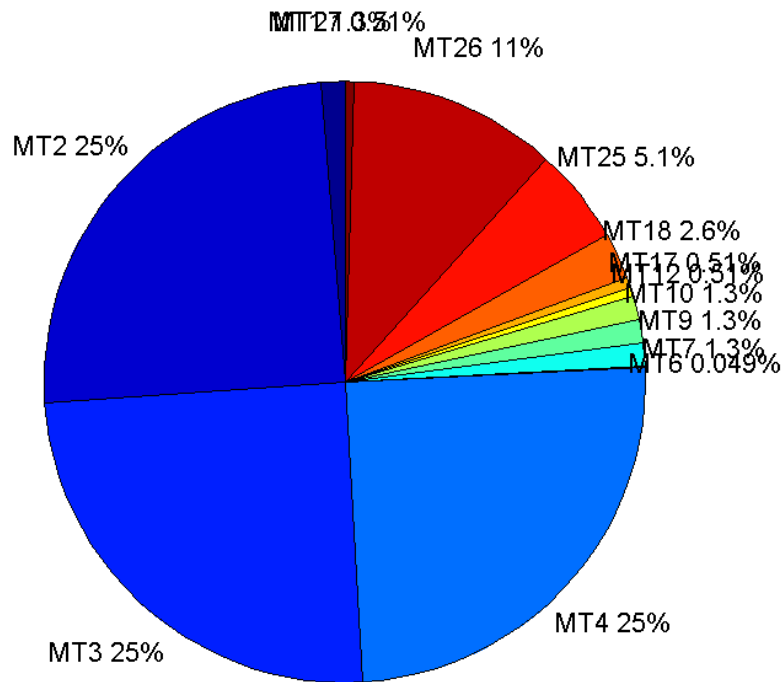
MT 12	84	0.510297
MT 17	84	0.510297
MT 18	420	2.55149
MT 24	0	0
MT 25	846	5.13942
MT 26	1841	11.184
MT 27	84	0.510297
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	16461	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.7184	0	0	0
MT 2	4	8	4.02495	2	0	0
MT 3	4	8	4.02519	2	0	0
MT 4	4	7	4.02494	2	0	0
MT 5	--	--	--	--	--	--
MT 6	1	443	64.1429	1	1	1
MT 7	76	87	79.7951	0	0	0
MT 9	76	81	79.7366	0	0	0
MT 10	75	81	79.7561	0	0	0
MT 12	189	201	196.554	83	0	0
MT 17	189	201	196.554	0	0	0
MT 18	4	157	39.0501	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	40	19.4663	0	0	0
MT 26	3	34	8.94402	0	0	0
MT 27	189	201	196.542	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/2016_06_10_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_06_10_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:** 07:06:07 10.06.2016 ( week: 1900 sec: 457567 )  
**end:** 11:40:27 10.06.2016 ( week: 1900 sec: 474027 )  
**duration:** 04:34:21 ..

#### quality

**valid samples** 16100  
**total samples** 16461

## 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	460561	1.73808	8.92489	0.194745	1.26578	15.6364	0.0809511
max normVer	460863	1.67237	10.9985	0.152054	2.53655	20.8792	0.121487
max HPE	470471	1.83498	10.7615	0.170513	0.649465	16.9962	0.0382124
max VPE	460863	1.67237	10.9985	0.152054	2.53655	20.8792	0.121487
min HPL	460410	1.32785	7.88961	0.168304	0.247321	13.7128	0.0180358
min VPL	469612	0.92481	9.37765	0.0986185	-0.153864	12.8722	0.0119532

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	466039	83	8111

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	466039	83	8111

## LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	466039	83	8111

## First Glance analysis

Duration 16461  
 Number of Samples 16461  
 Number of invalid sample 361  
 Number of no position solution samples 0  
 Number of missing sample 0  
 Logging Loss 0  
 Processing Loss 2.1931  
 Number of Misleading Information 0  
 Data gaps 0  
 Discontinuities 0

## Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
16100	16017	16017	0	16017

## Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m

<b>HPE 95%</b>	1.57066	1.57101	1.57101	NaN	1.57101
<b>HPEscale 95%</b>	NaN	6.05419	6.05419	NaN	6.05419
<b>VPE 95%</b>	1.00394	1.00554	1.00554	NaN	1.00554
<b>VPEscale 95%</b>	NaN	2.7637	1.93459	NaN	1.93459

**Availability :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	1	0.994845	0.994845	0	0.994845
<b>measurements</b>	0.978069	0.973027	0.973027	0	0.973027
<b>Operational</b>	0.978069	0.973027	0.973027	0	0.973027

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	--	1	1	--	1
<b>Long</b>	--	1	1	--	1
<b>Independent</b>	--	1	1	--	1
<b>P(disc.)</b>	NaN	0.000936505	0.000936505	NaN	0.000936505
<b>P(slide)</b>	NaN	0.000936505	0.000936505	NaN	0.000936505

**Integrity events :**

	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

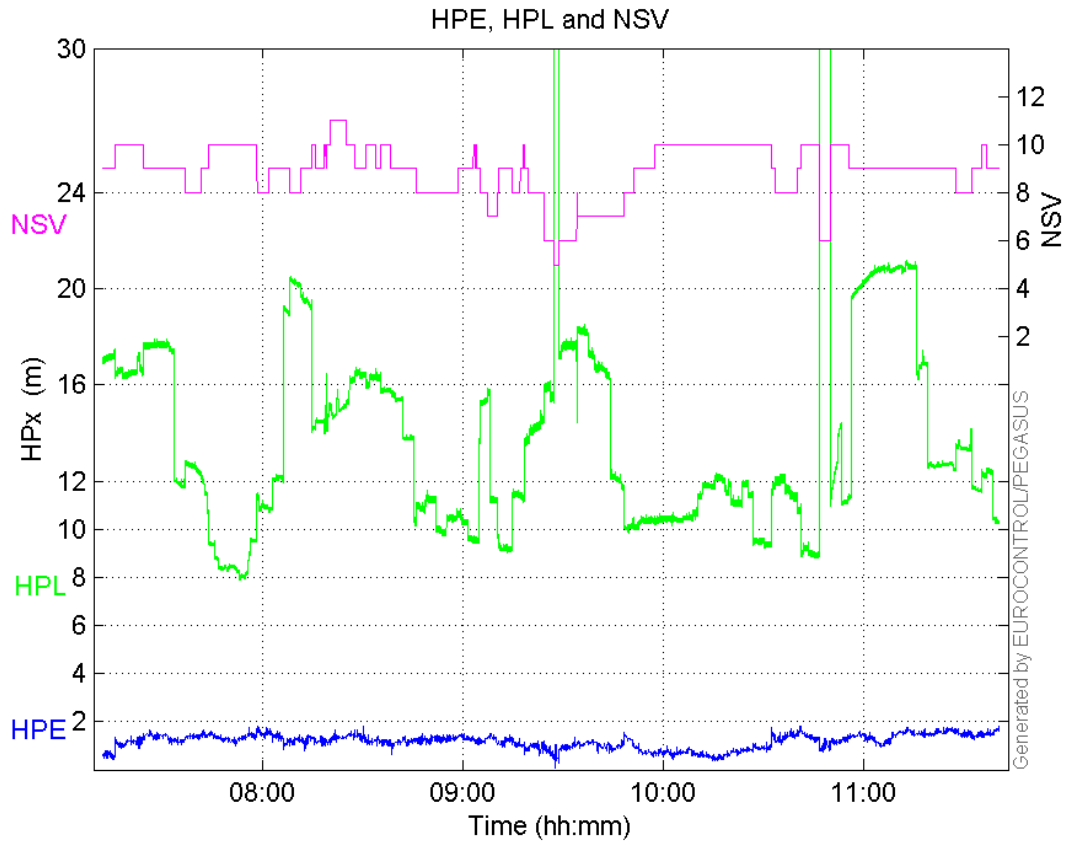
**Performance Summary :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	16100	16017	16017	0	16017
<b>SIS Availability</b>	1	0.994845	0.994845	0	0.994845
<b>Local Availability</b>	0.978069	0.973027	0.973027	0	0.973027
<b>Operational Availability</b>	0.978069	0.973027	0.973027	0	0.973027
<b>HPE 95%</b>	1.57066	1.57101	1.57101	NaN	1.57101
<b>HPEscale 95%</b>	NaN	6.05419	6.05419	NaN	6.05419
<b>VPE 95%</b>	1.00394	1.00554	1.00554	NaN	1.00554
<b>VPEscale 95%</b>	NaN	2.7637	1.93459	NaN	1.93459
<b>All Discontinuity Events</b>	--	1	1	--	1
<b>Long Discontinuity Events</b>	--	1	1	--	1
<b>Independent Discontinuity Events</b>	--	1	1	--	1
<b>P(discontinuity)</b>	NaN	0.000936505	0.000936505	NaN	0.000936505
<b>P(sliding window)</b>	NaN	0.000936505	0.000936505	NaN	0.000936505
<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

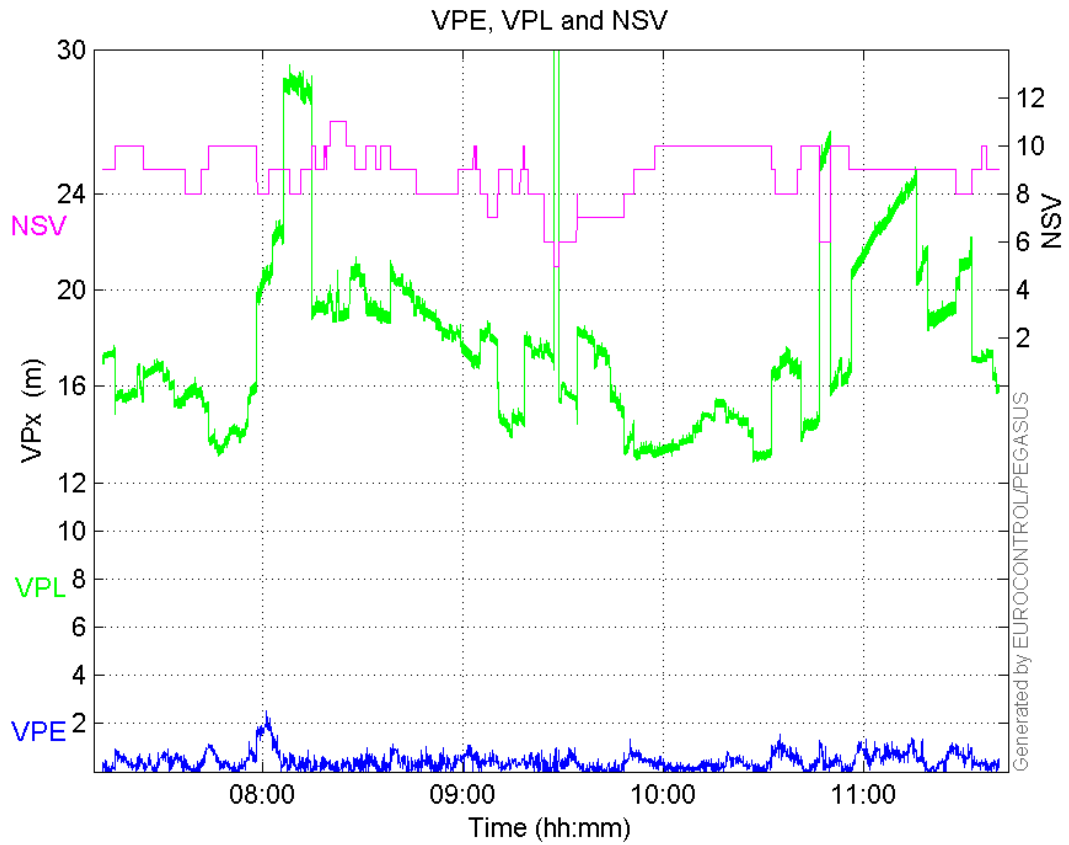


Time Series

HPE, HPL and NSV:

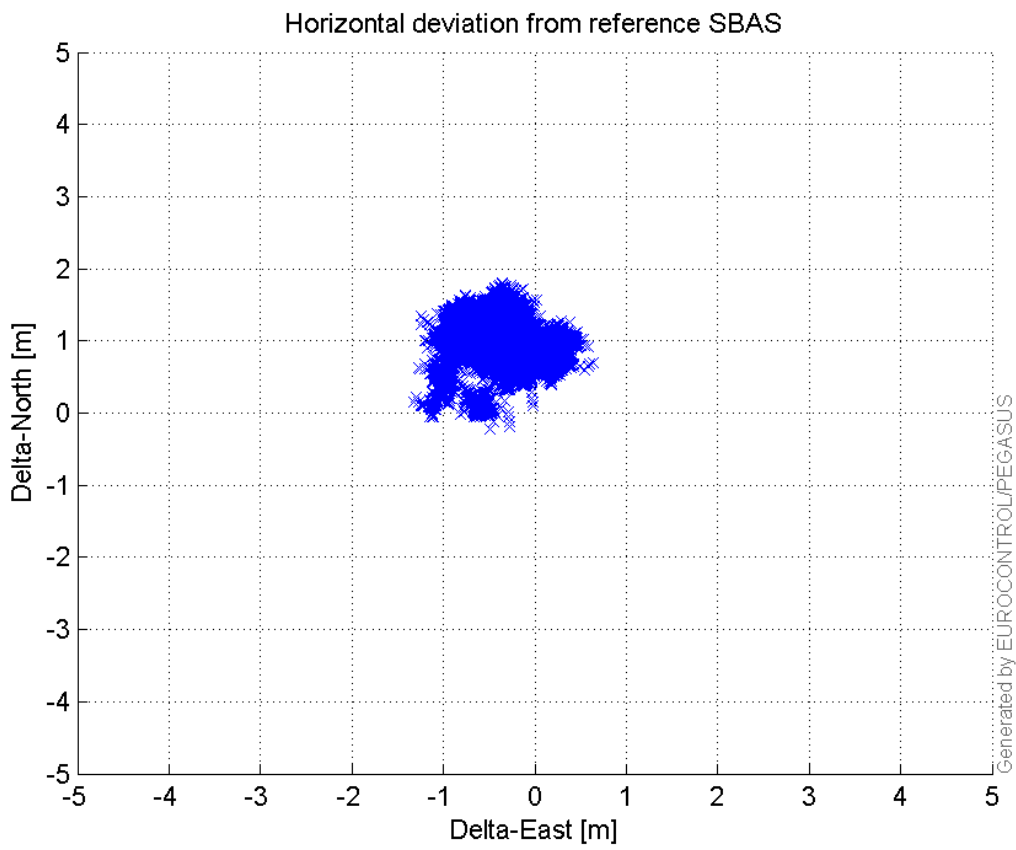


VPE, VPL and NSV:



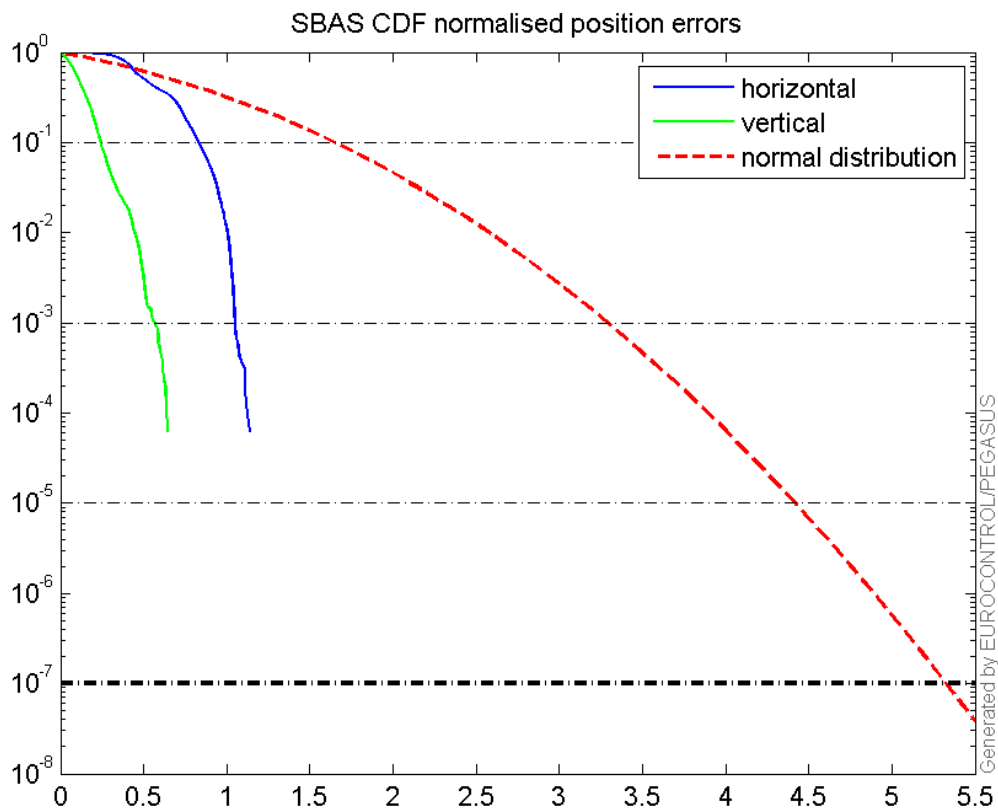
### Horizontal deviation

Horizontal deviation from reference SBAS:



### CDF position

SBAS CDF position domain:



### Statistics

```

number 16017
sum 18939.808
sum2 23697.437
prctile95 1.571011
prctile99 1.6802074
number 16017
sum 6769.7826
sum2 4608.1846
prctile95 1.0055419
prctile99 1.7065232
number 16017
sum 220542.58
sum2 3292439.1
prctile95 20.761575
prctile99 30.519956
number 16017
sum 283102.47
sum2 5195531.1
prctile95 24.3623
prctile99 28.5682
number 16017
sum 1475.3734
sum2 153.19643
prctile95 0.15135468
prctile99 0.16710258
number 16017
sum 381.09403

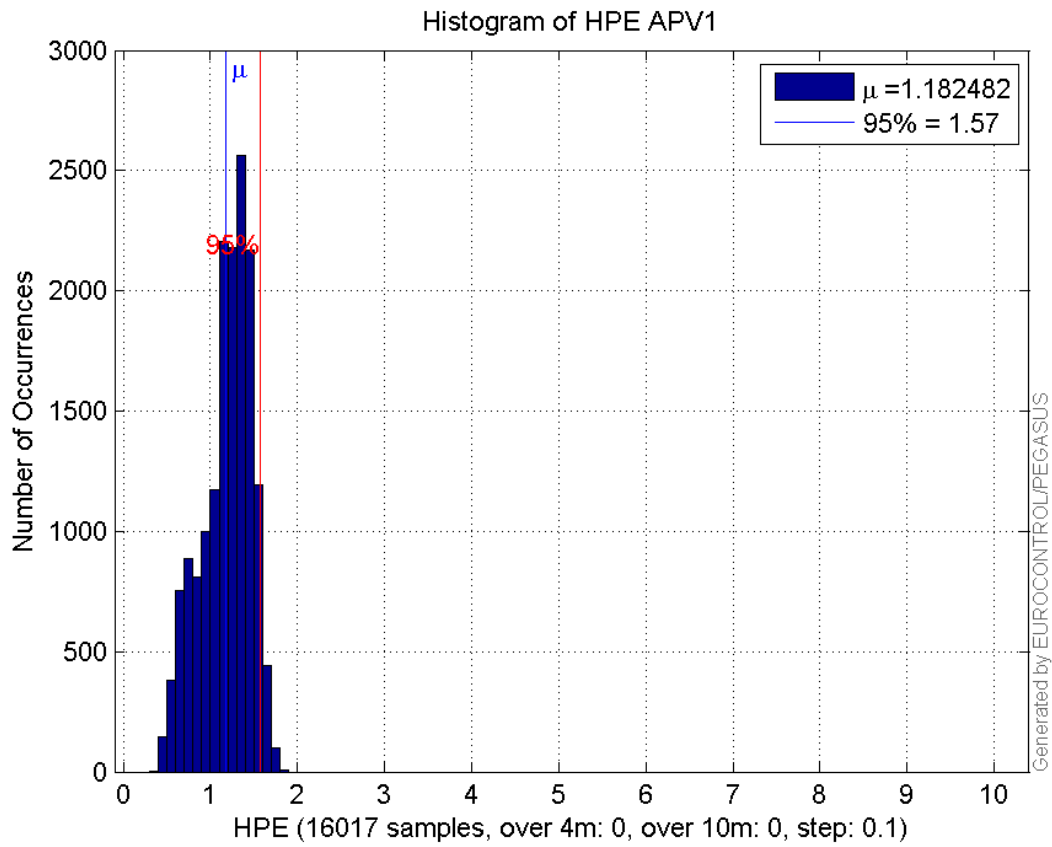
```

**sum2** 13.912877  
**prctile95** 0.055273958  
**prctile99** 0.084033885  
**number** 16017  
**sum** 18939.808  
**sum2** 23697.437  
**prctile95** 1.571011  
**prctile99** 1.6802074  
**number** 16017  
**sum** 6769.7826  
**sum2** 4608.1846  
**prctile95** 1.0055419  
**prctile99** 1.7065232  
**number** 16017  
**sum** 220542.58  
**sum2** 3292439.1  
**prctile95** 20.761575  
**prctile99** 30.519956  
**number** 16017  
**sum** 283102.47  
**sum2** 5195531.1  
**prctile95** 24.3623  
**prctile99** 28.5682  
**number** 16017  
**sum** 1475.3734  
**sum2** 153.19643  
**prctile95** 0.15135468  
**prctile99** 0.16710258  
**number** 16017  
**sum** 381.09403  
**sum2** 13.912877  
**prctile95** 0.055273958  
**prctile99** 0.084033885

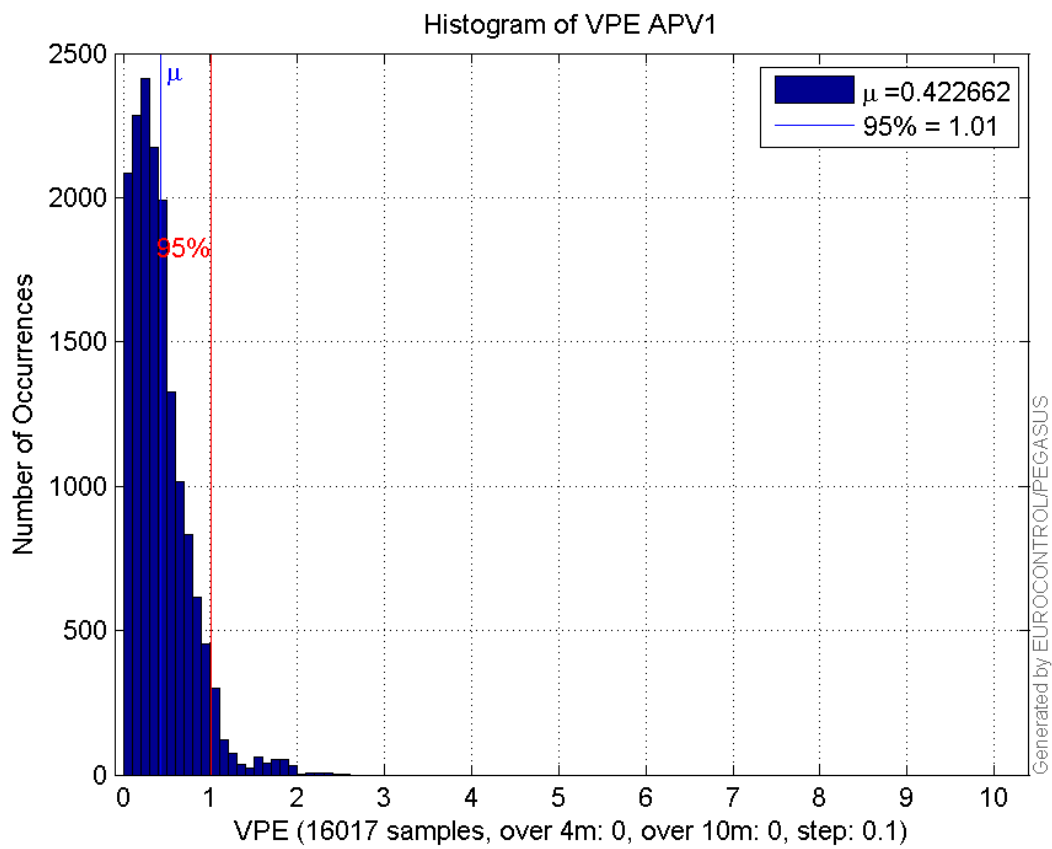
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.18248	0.285062	1.22796	1.57101	1.68021	1.21635
<b>HPL</b>	13.7693	3.99586	12.4511	20.7616	30.52	14.3373
<b>VPE</b>	0.422662	0.330256	0.352248	1.00554	1.70652	0.536382
<b>VPL</b>	17.6751	3.4593	17.1743	24.3623	28.5682	18.0104

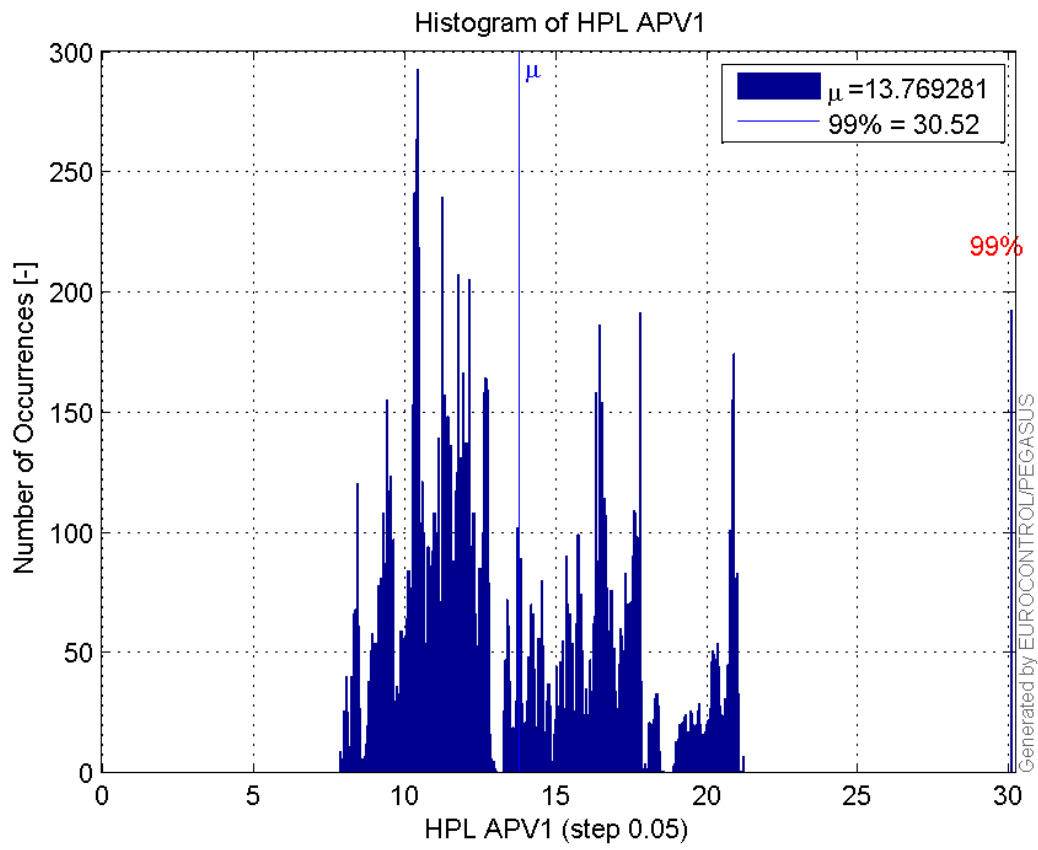
**Histogram of HPE APV1:**



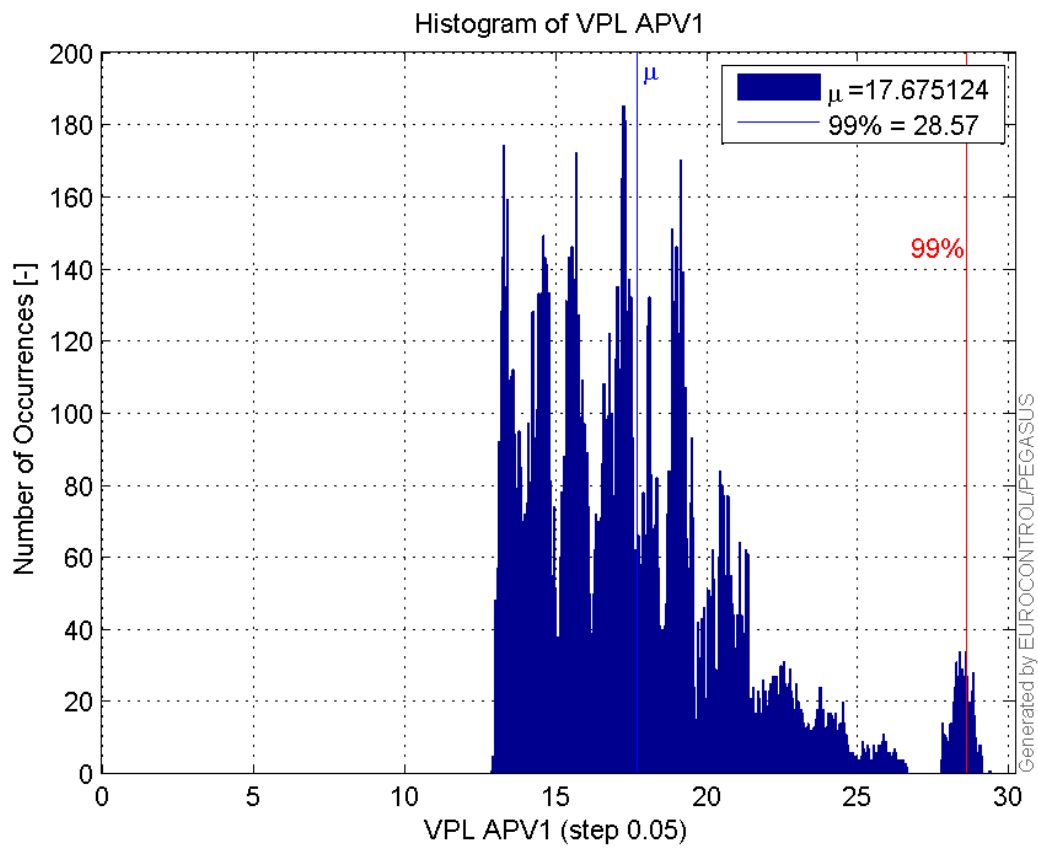
**Histogram of VPE APV1:**



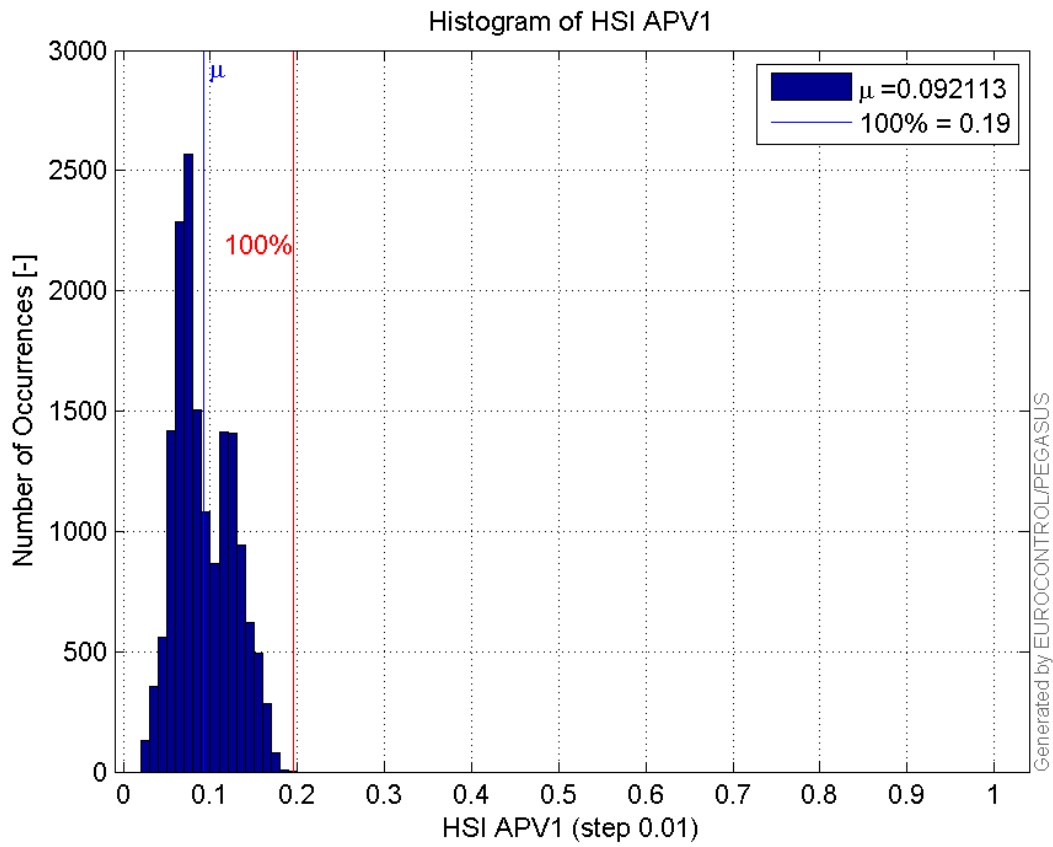
**Histogram of HPL APV1:**



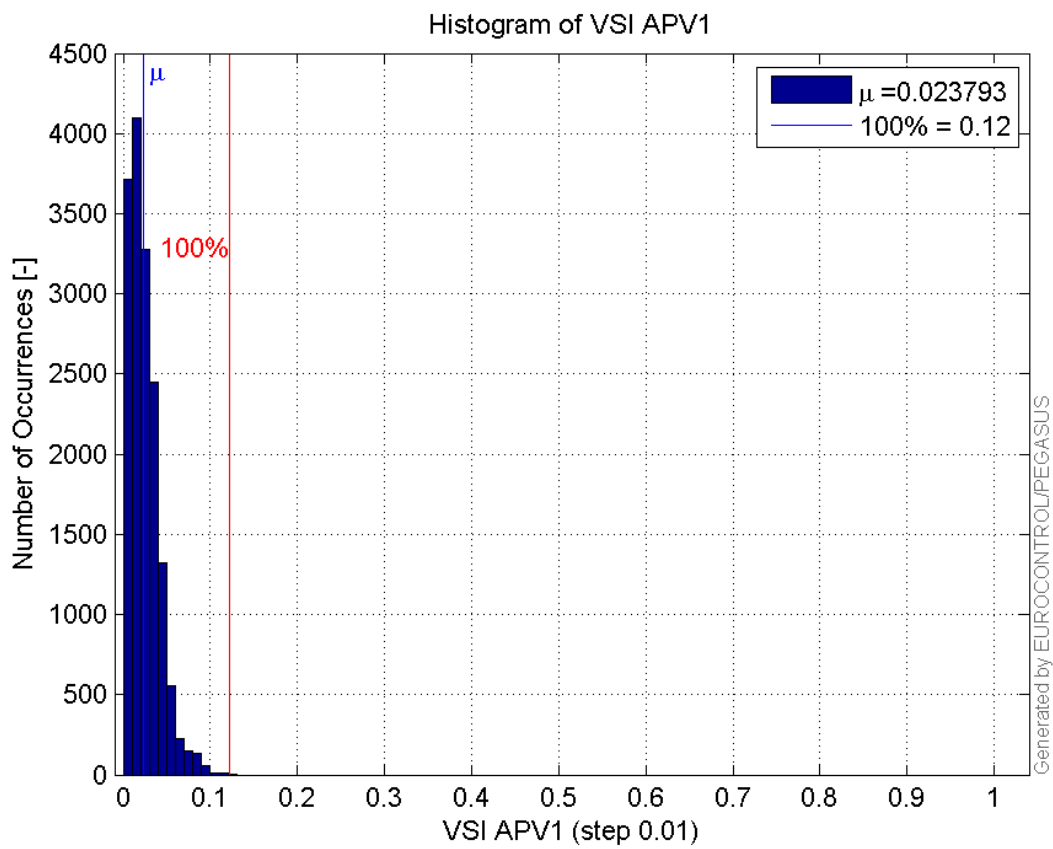
**Histogram of VPL APV1:**



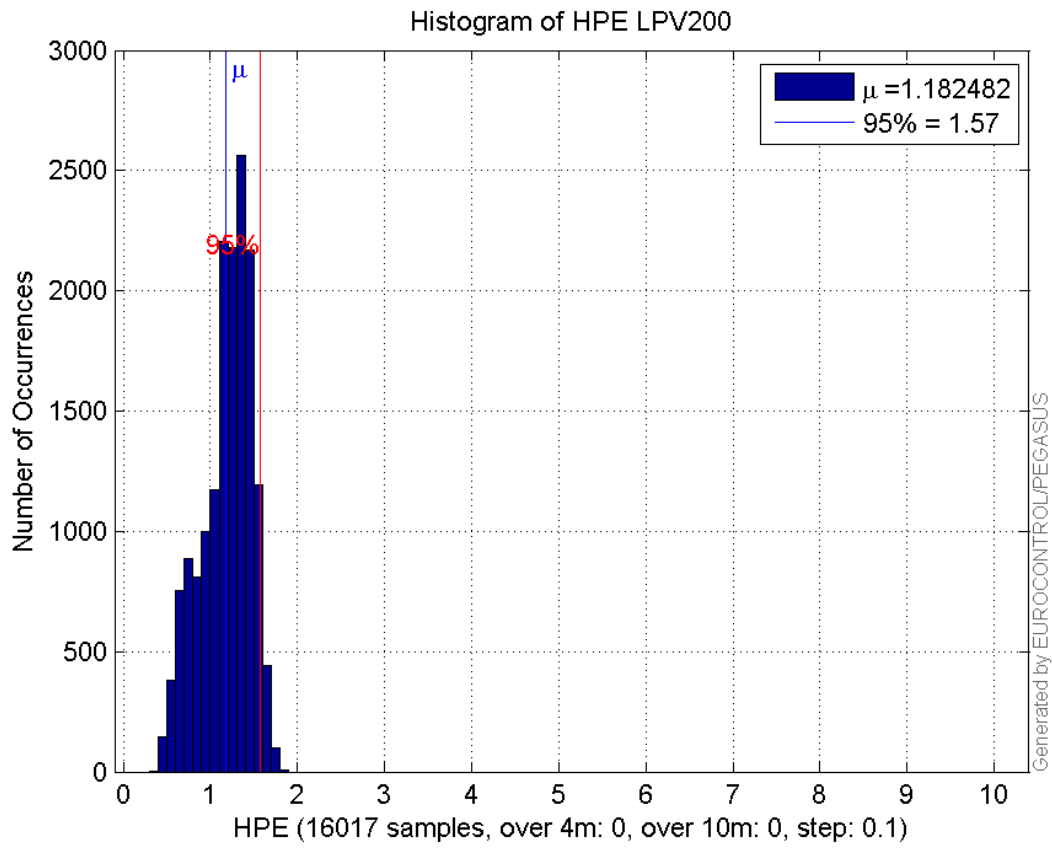
**Histogram of HSI APV1:**



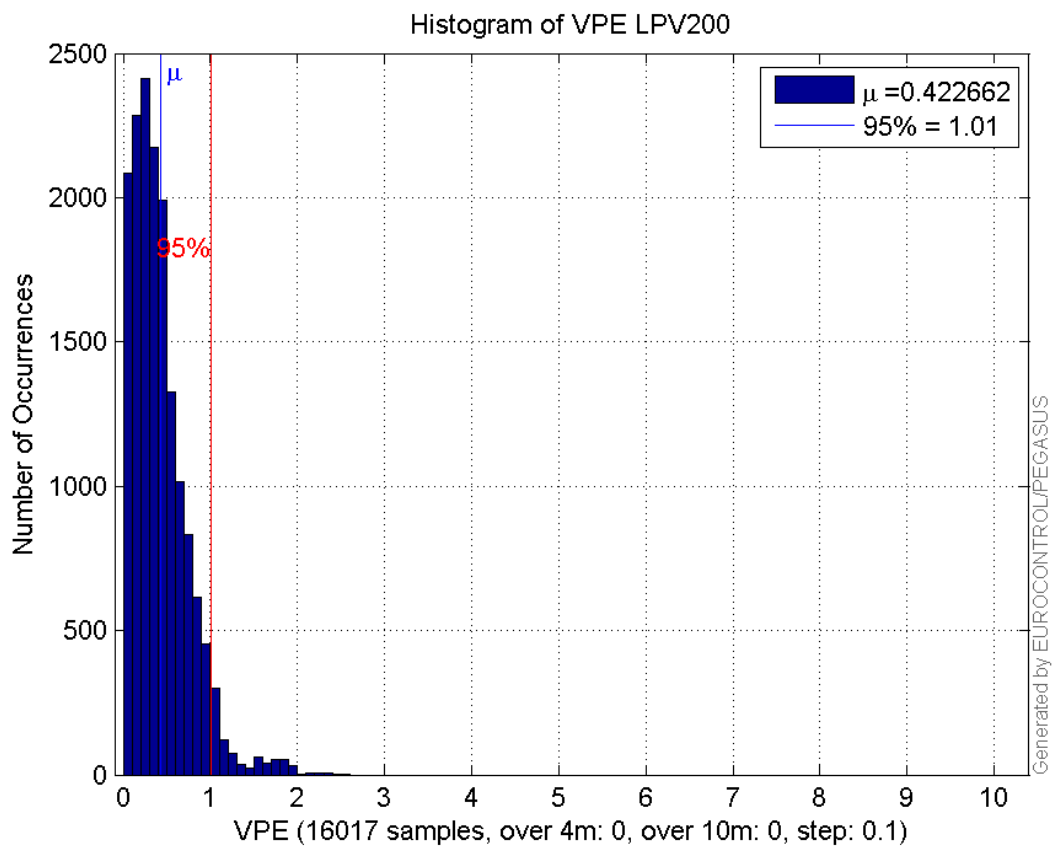
**Histogram of VSI APV1:**



**Histogram of HPE LPV200:**

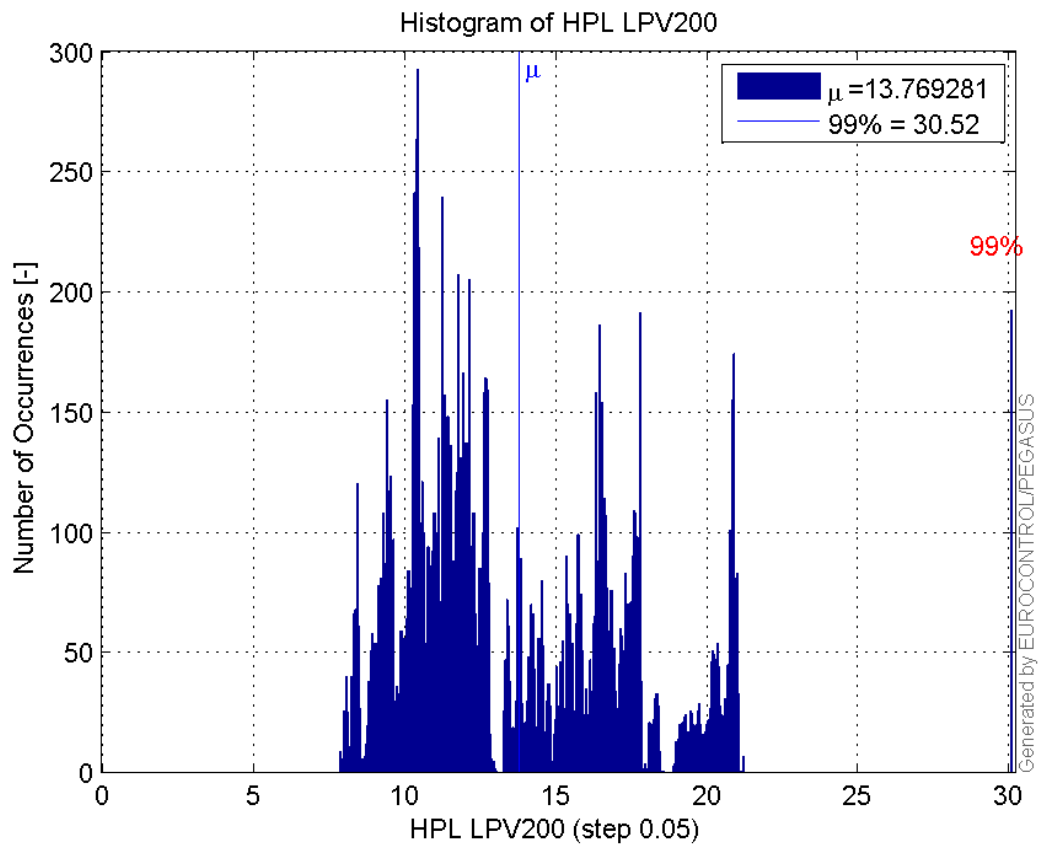


**Histogram of VPE LPV200:**

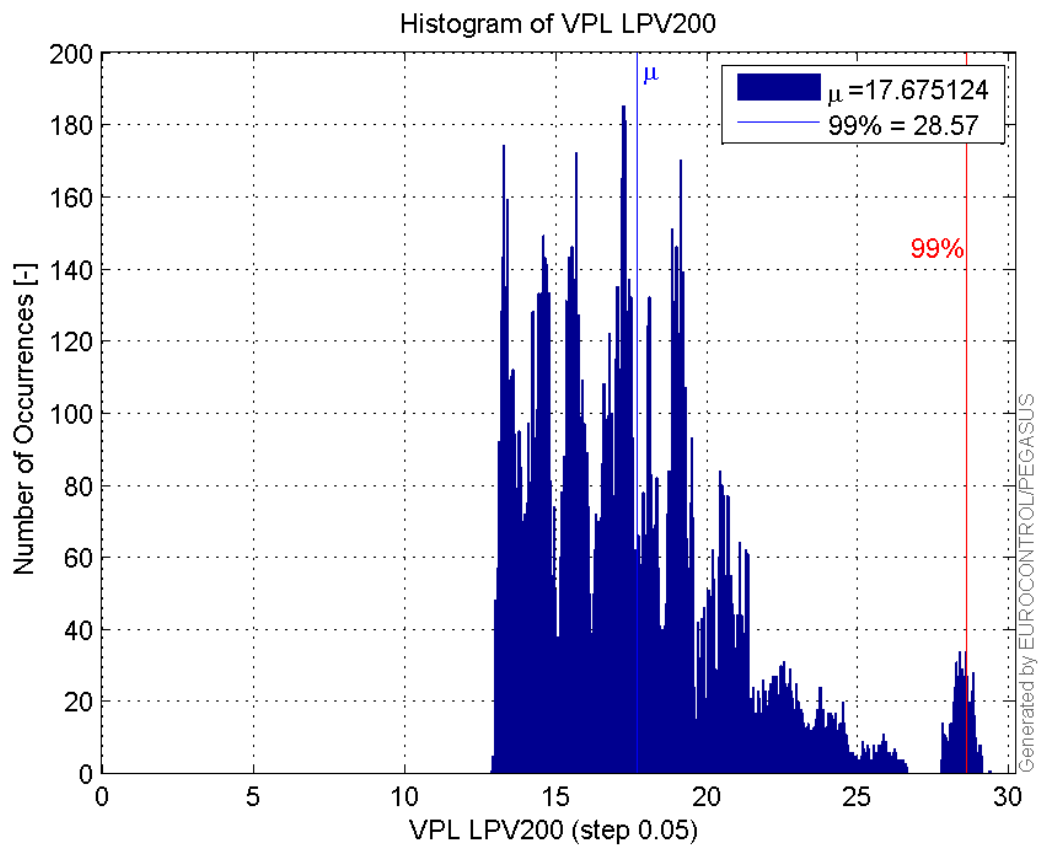


**Histogram of HPL LPV200:**

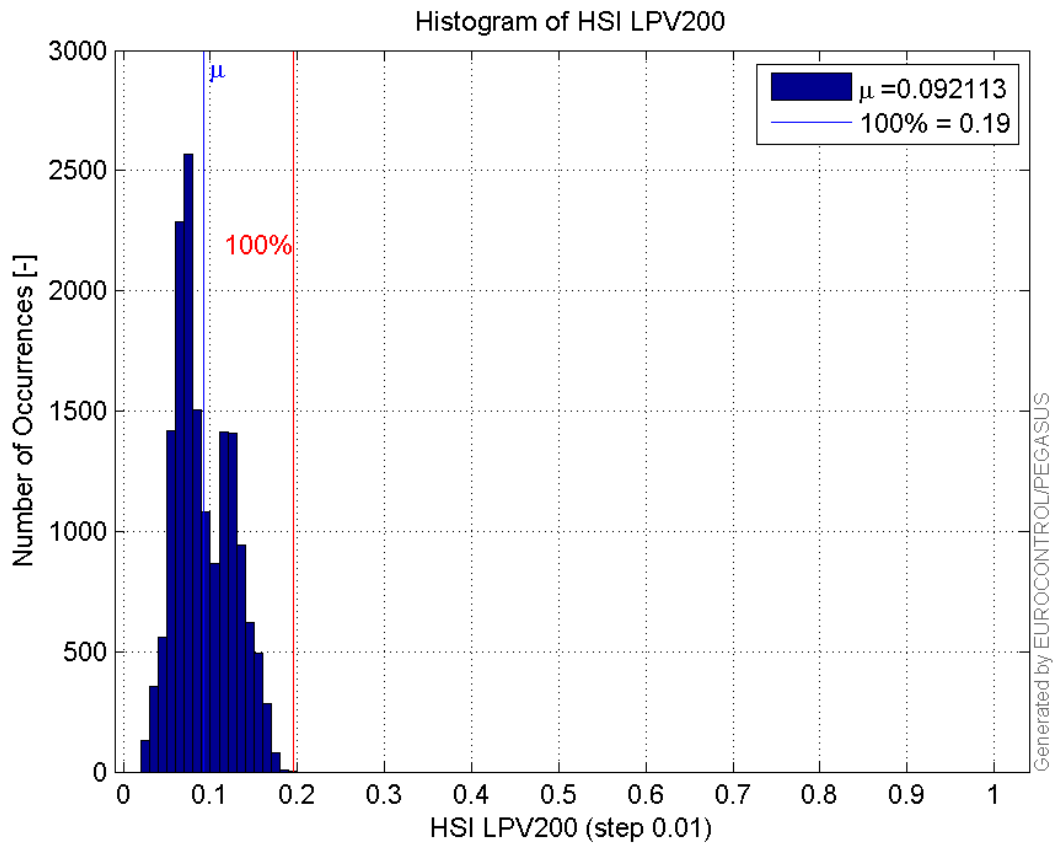




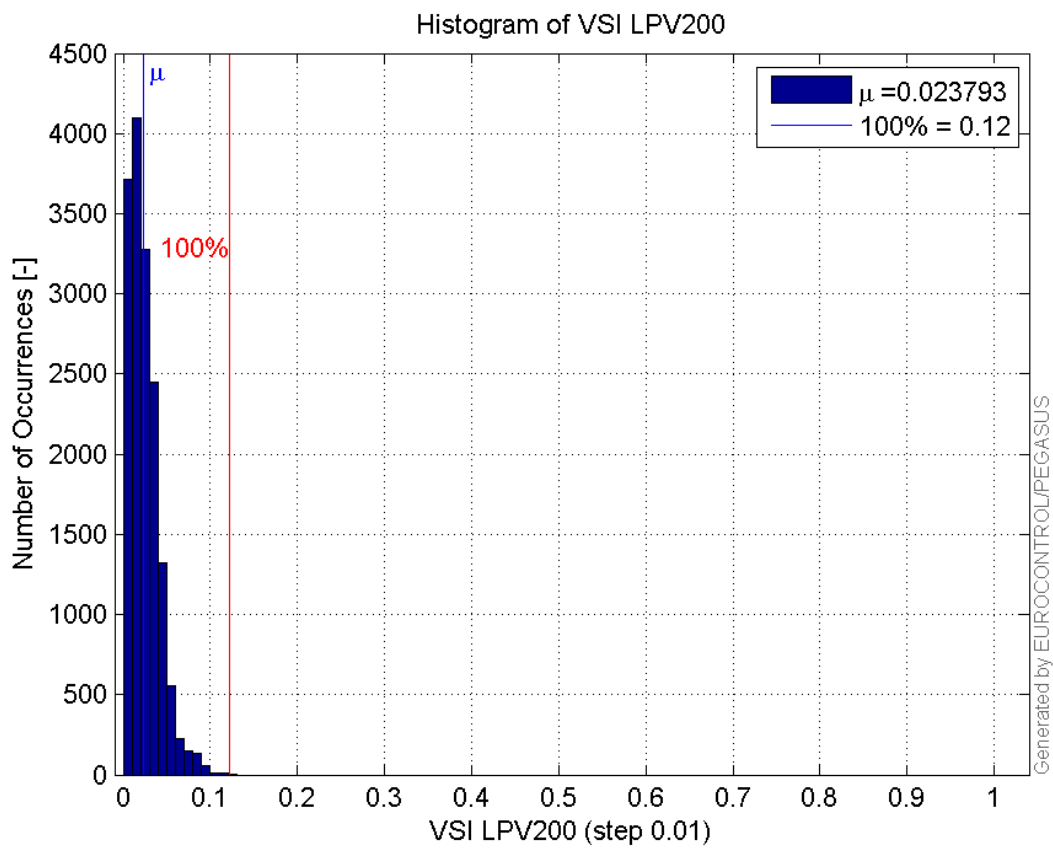
**Histogram of VPL LPV200:**



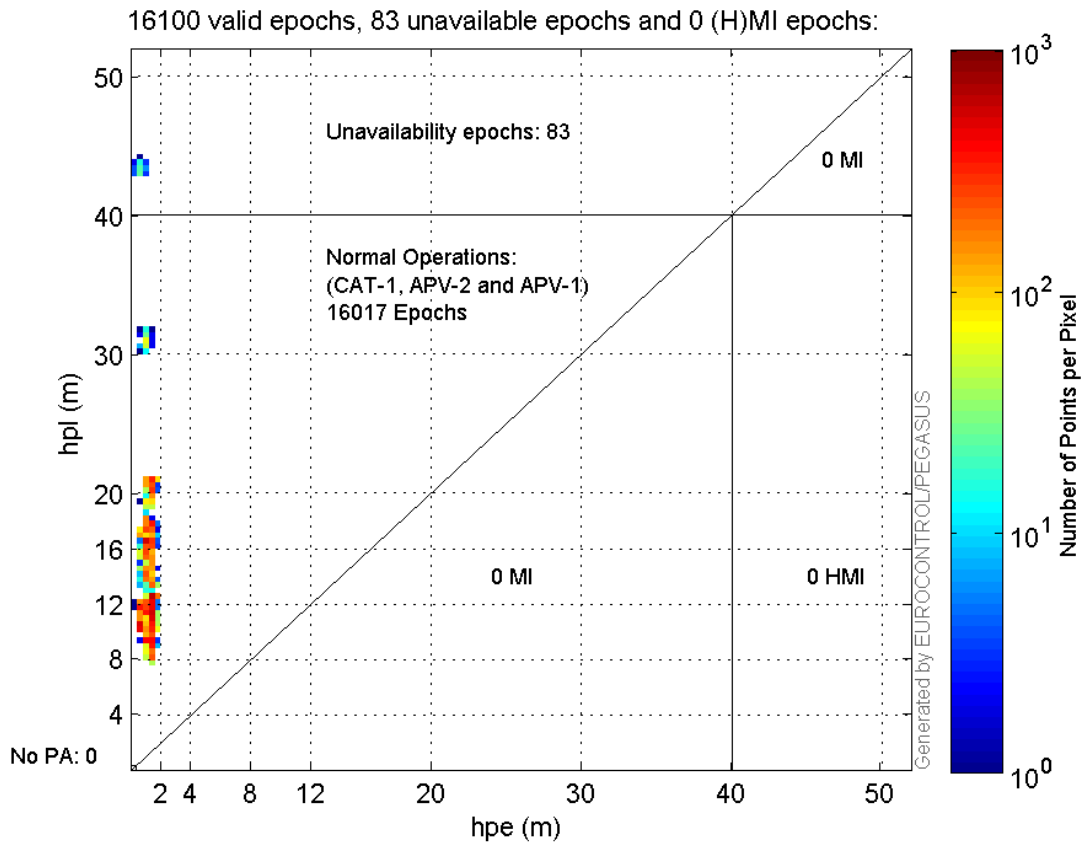
**Histogram of HSI LPV200:**



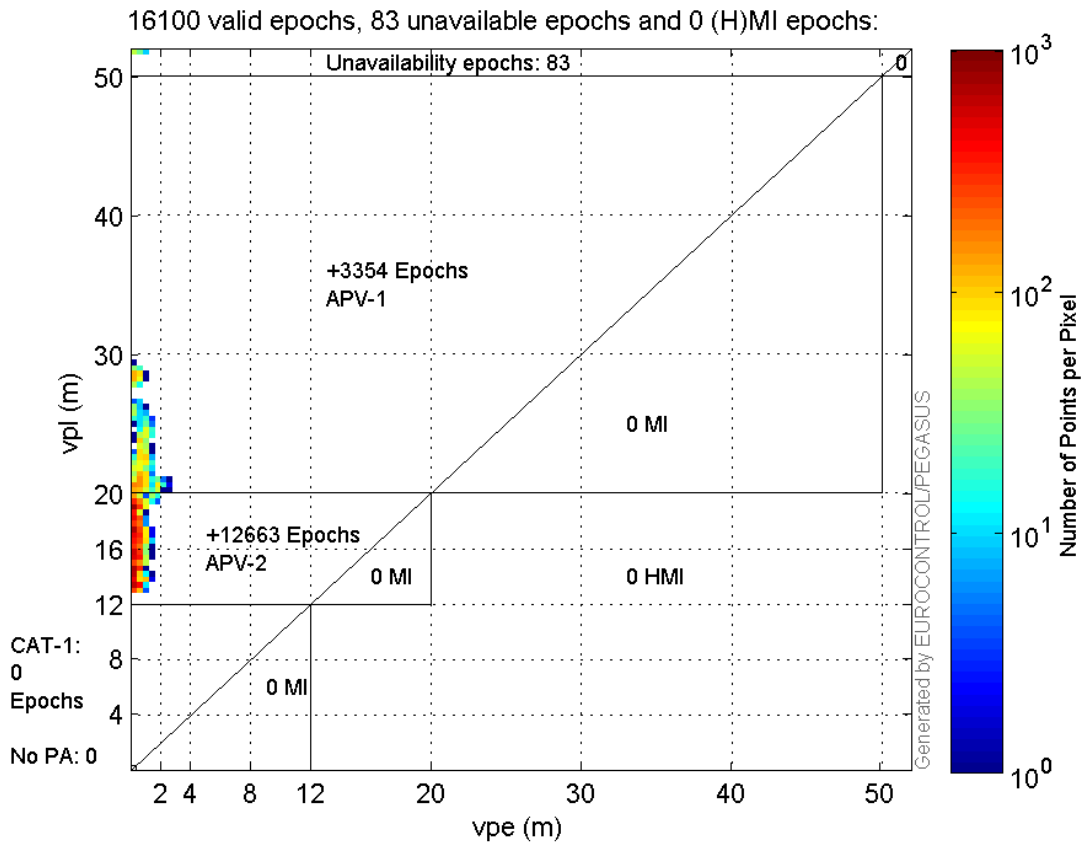
**Histogram of VSI LPV200:**



**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_06_10_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_06_10_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	229.3032
mi_numbers	results	0

## Range Domain

**start:** 07:06:07 10.06.2016 ( week: 1900 sec: 457567 )  
**end:** 11:40:27 10.06.2016 ( week: 1900 sec: 474027 )  
**duration:** 04:34:21 ..

## quality

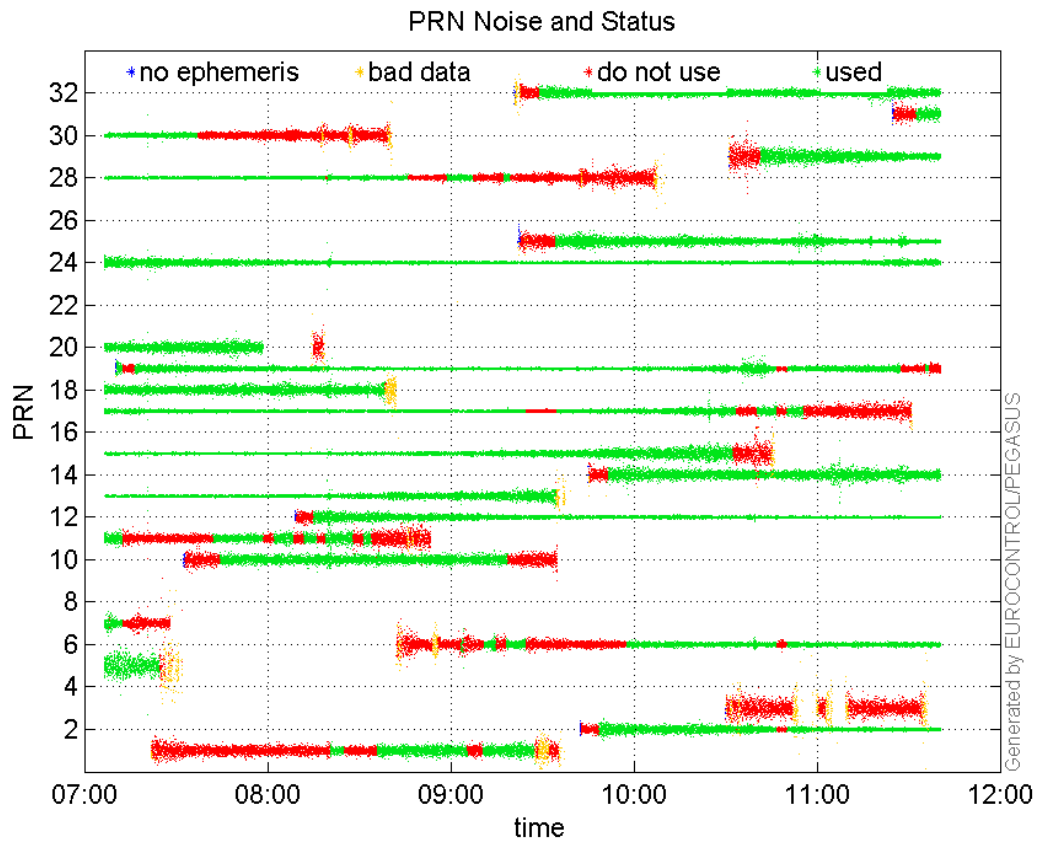
**valid samples** 16461  
**total samples** 16461

## PRN overview

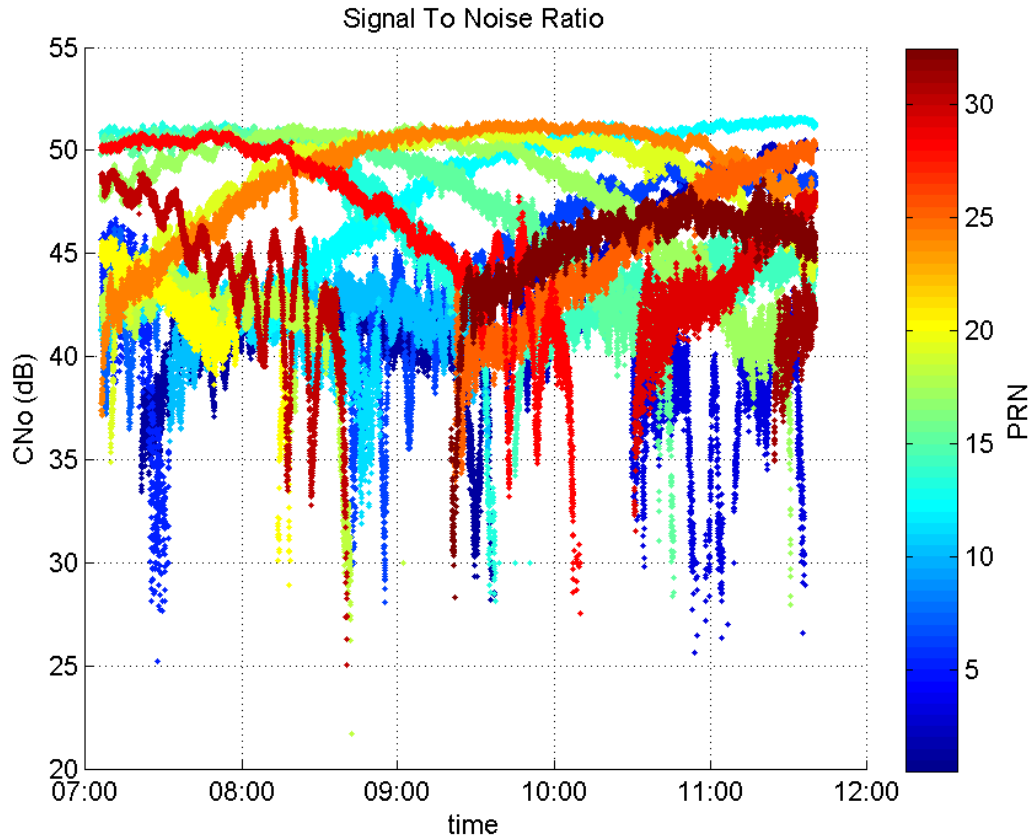
**Number of Visible GPS Satellites** 23  
**Number of Visible SBAS Satellites** 2

## signal quality and status

**PRN Noise and Status:**



### Signal To Noise Ratio:



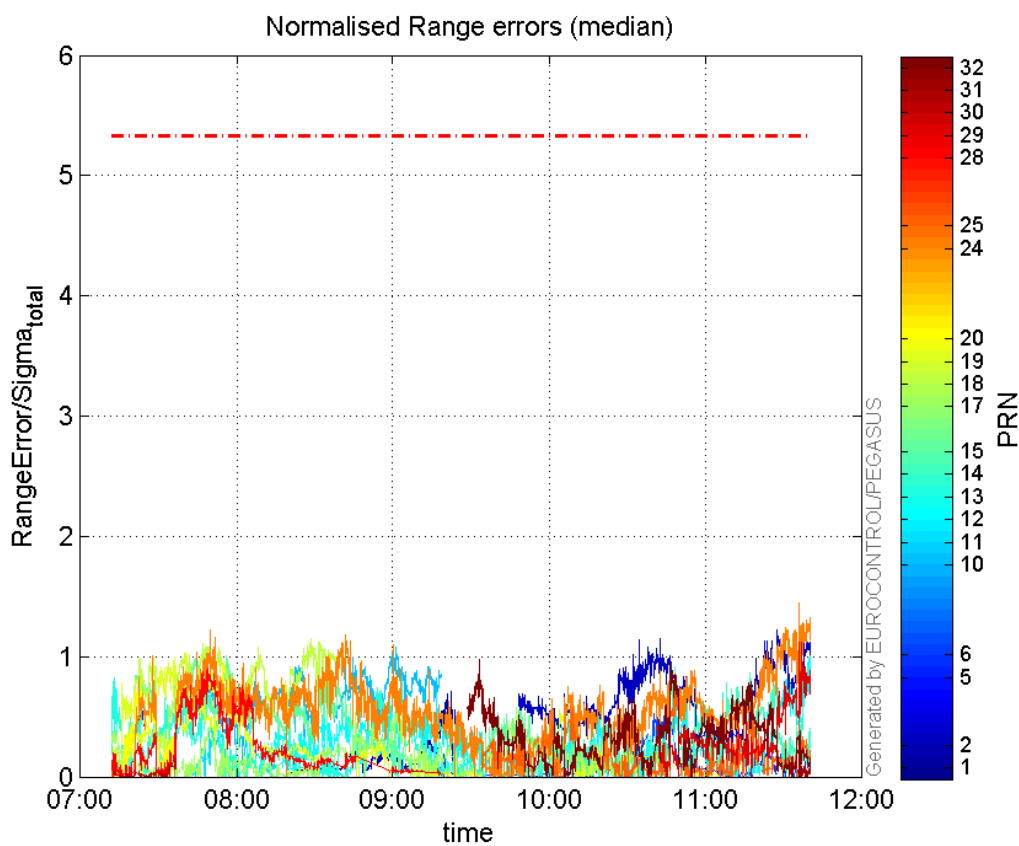
range errors

Number of Overbounding Norm Errors 0

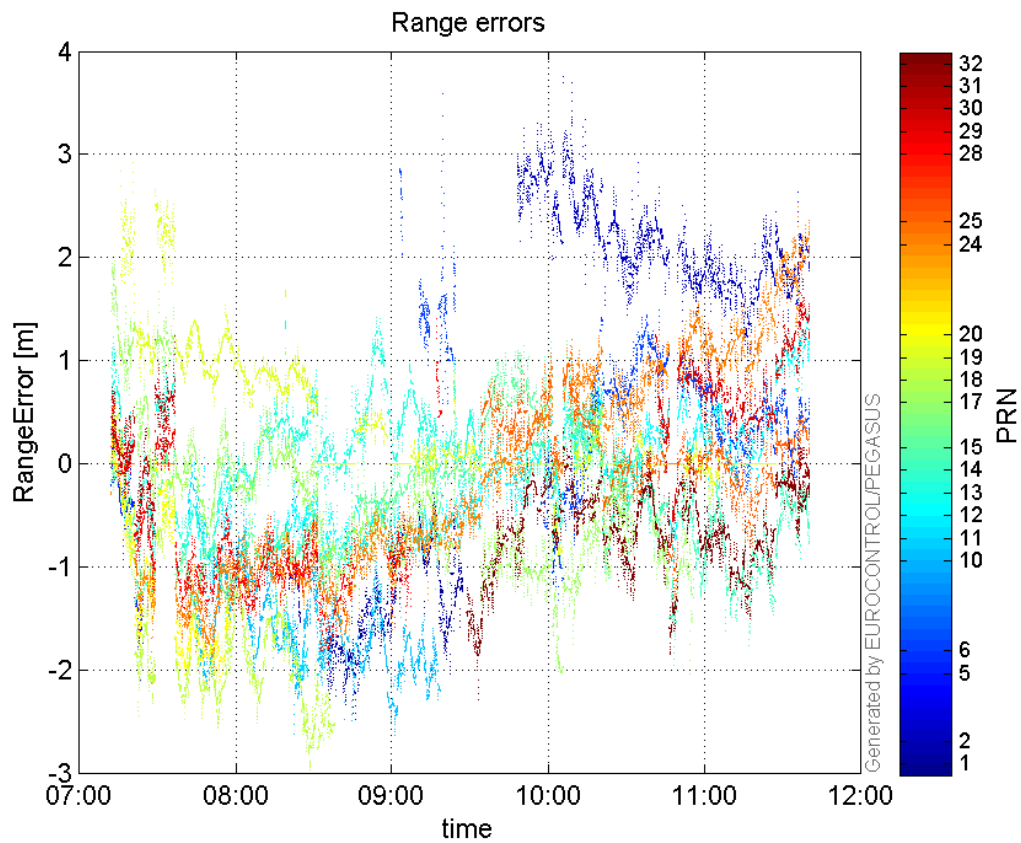
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1900	465754	1	0.705369	-2.03875	2.89033
1900	473782	2	1.38604	2.6345	1.90074
1900	458590	5	0.675104	-2.09403	3.10179
1900	470575	6	0.62973	1.48756	2.36223
1900	464467	10	1.07838	-2.63293	2.44156
1900	460209	11	0.487913	-1.79865	3.68642
1900	473782	12	1.10644	1.76979	1.59953
1900	457972	13	0.822424	1.22715	1.49212
1900	470903	14	0.918046	-1.95808	2.13288
1900	460561	15	1.00843	-1.53308	1.52027
1900	459378	17	0.732102	1.5157	2.07034
1900	462501	18	1.15436	-2.91189	2.52252
1900	459378	19	0.992791	2.5094	2.52762
1900	459620	20	1.02236	-2.48706	2.43266
1900	473782	24	1.44808	2.49213	1.72099
1900	470974	25	0.762336	-1.30074	1.70626
1900	460133	28	0.900248	-1.47601	1.63956
1900	473832	29	1.12436	2.01037	1.78802
1900	459390	30	0.158713	1.24106	7.81954
1900	473772	31	0.265892	-0.712858	2.68101
1900	466407	32	0.976723	-2.2918	2.34642

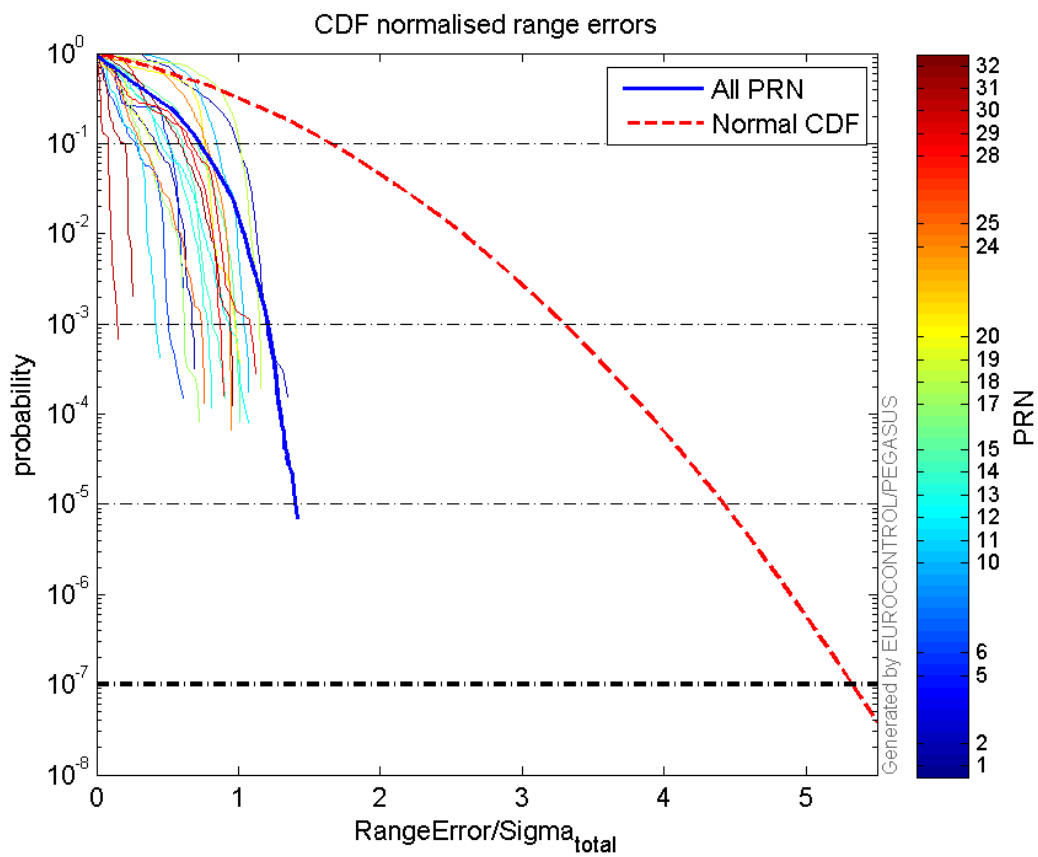
Normalised Range errors (median):



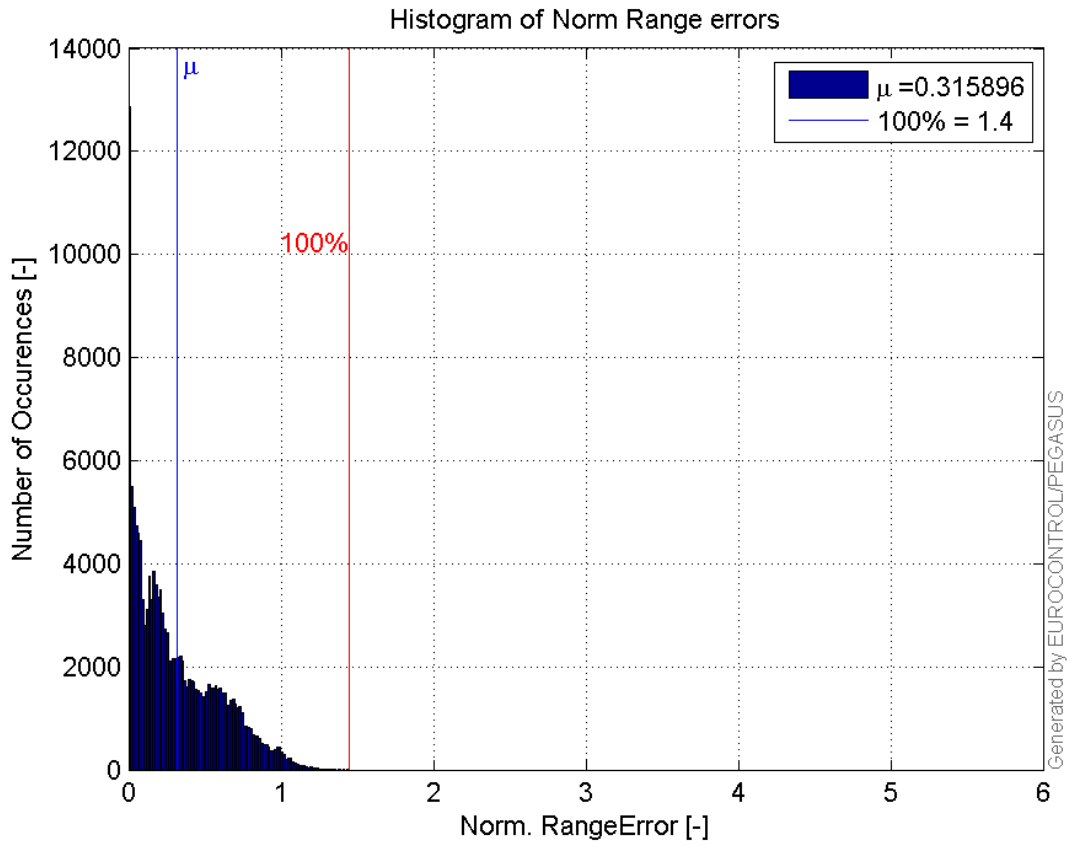
## Range errors:



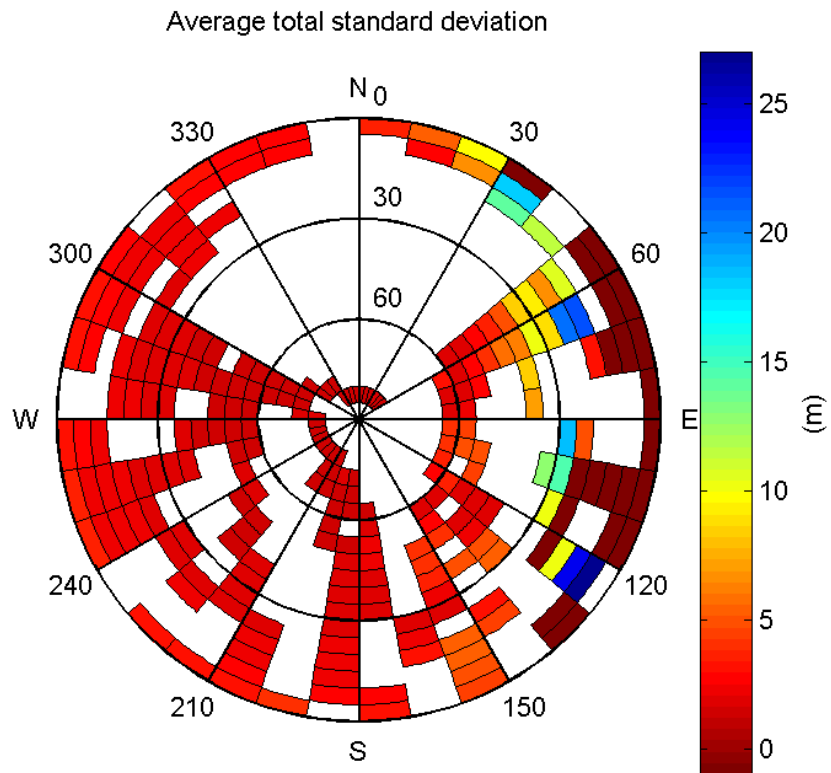
## CDF normalised range errors:



**Histogram of Norm Range errors:**

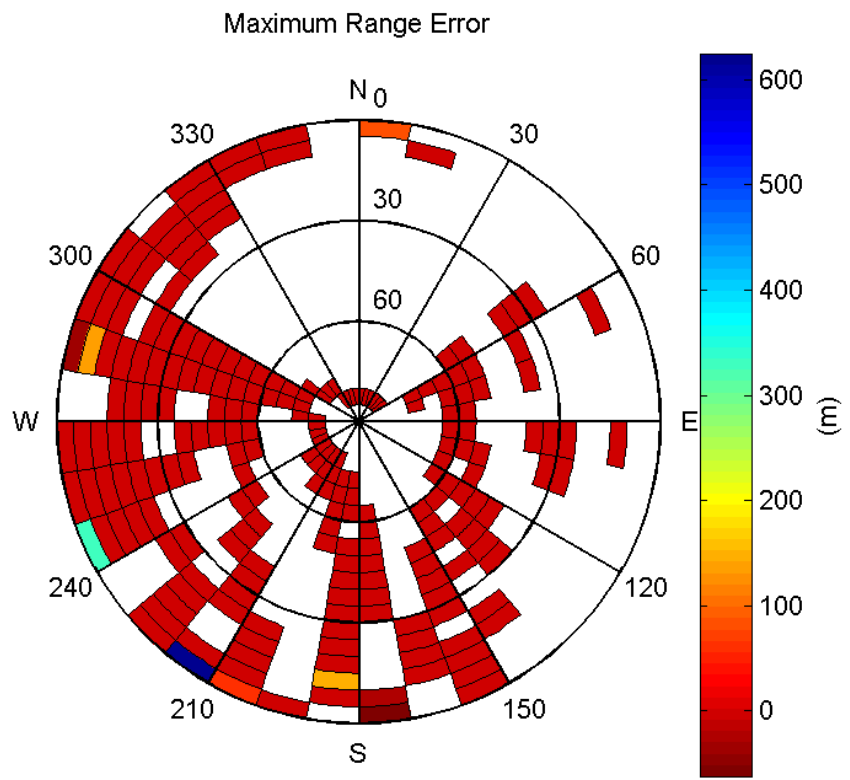


**Sigma Sky Plot:**



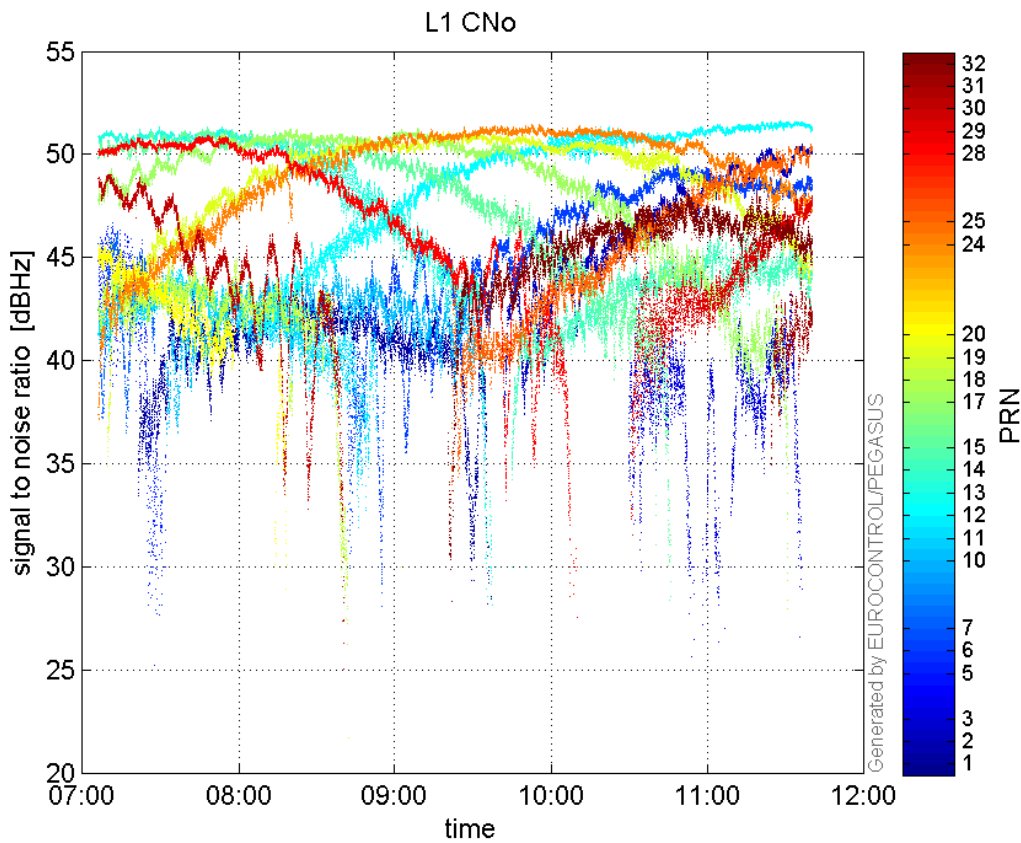
**Norm Error Sky Plot:**



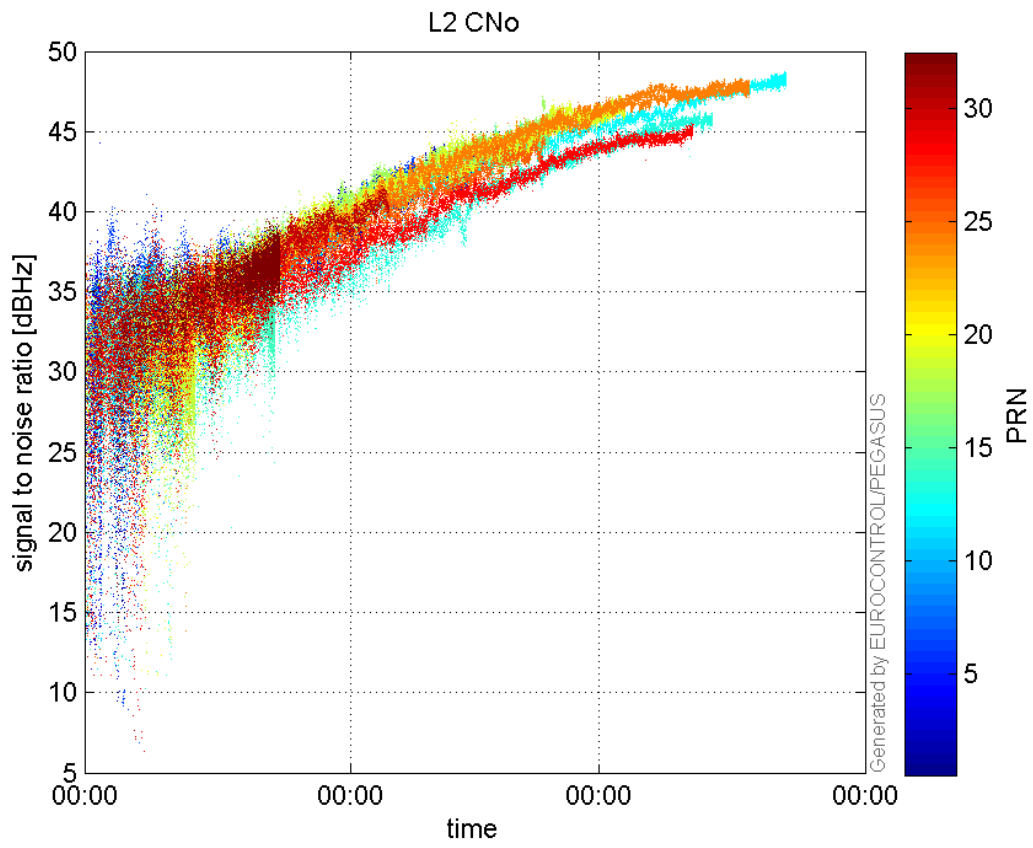


### signal quality

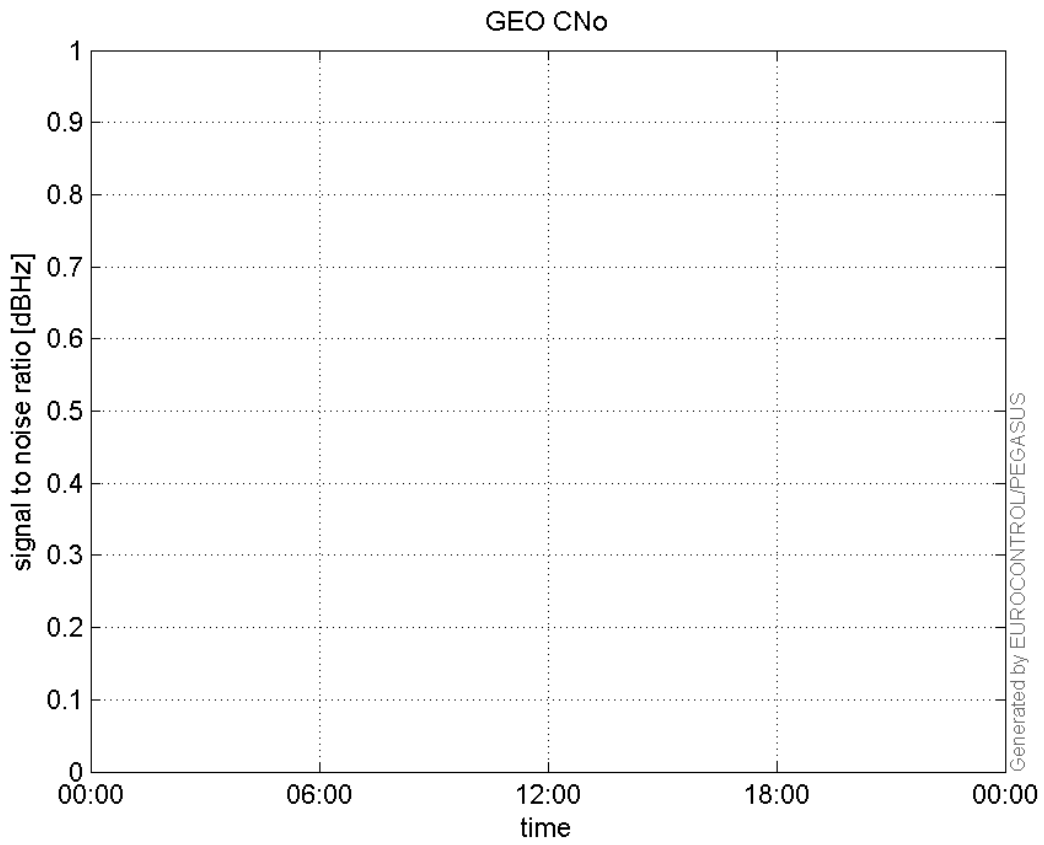
L1 CNo:



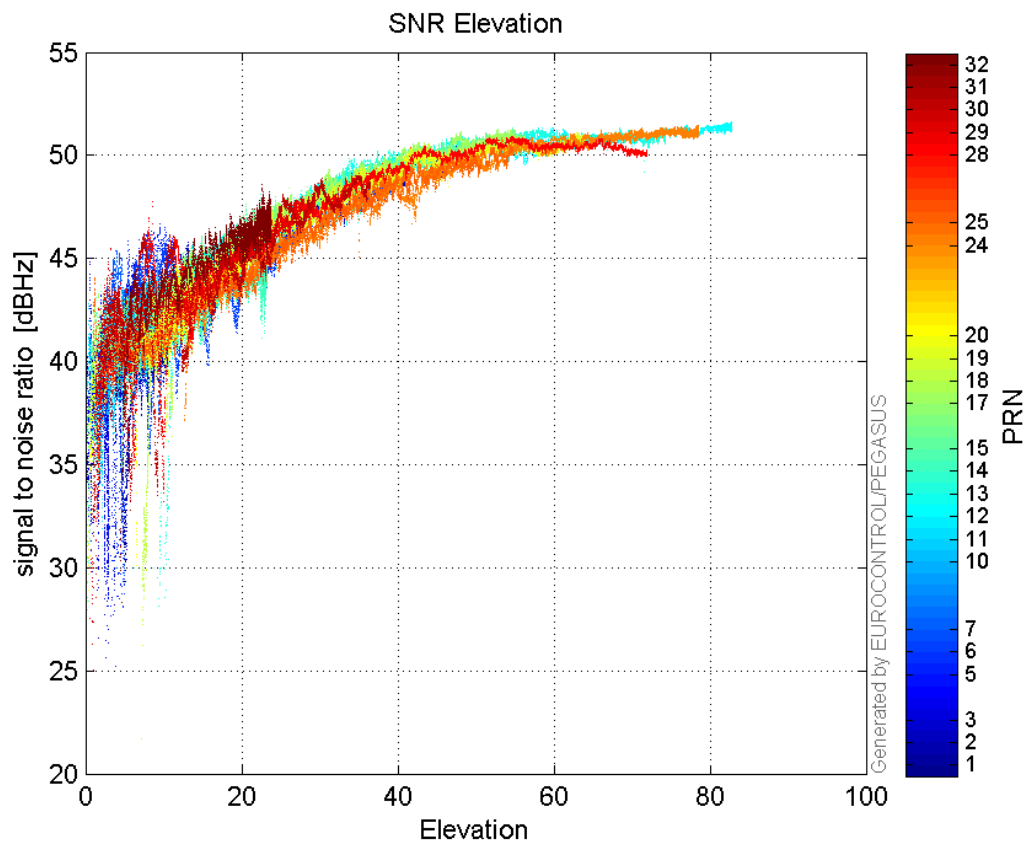
**L2 CNo:**



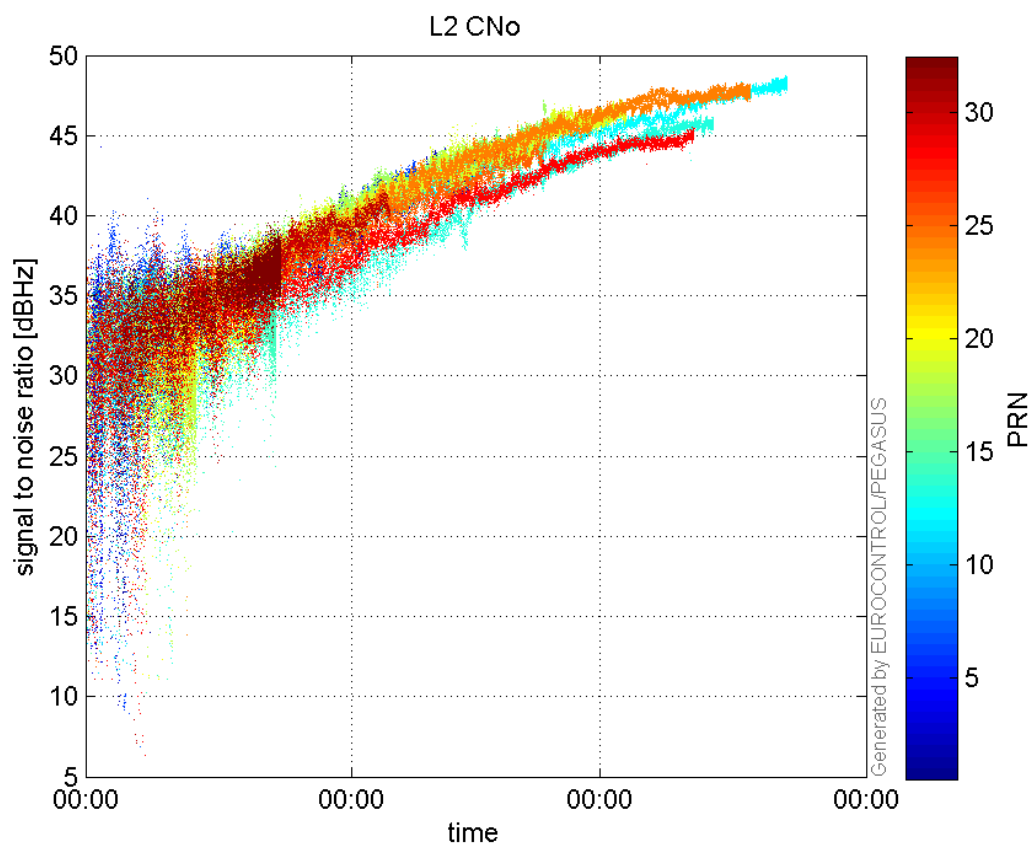
**GEO CNo:**



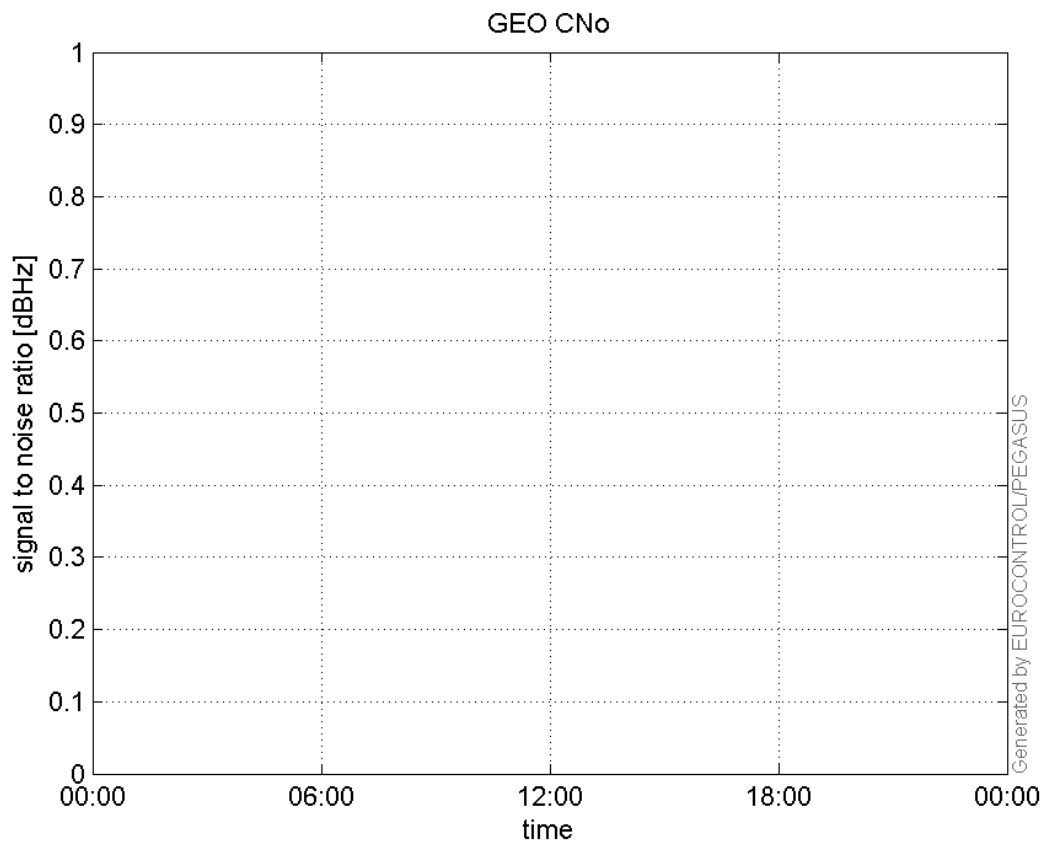
**SNR Elevation:**



**L2 CNo:**

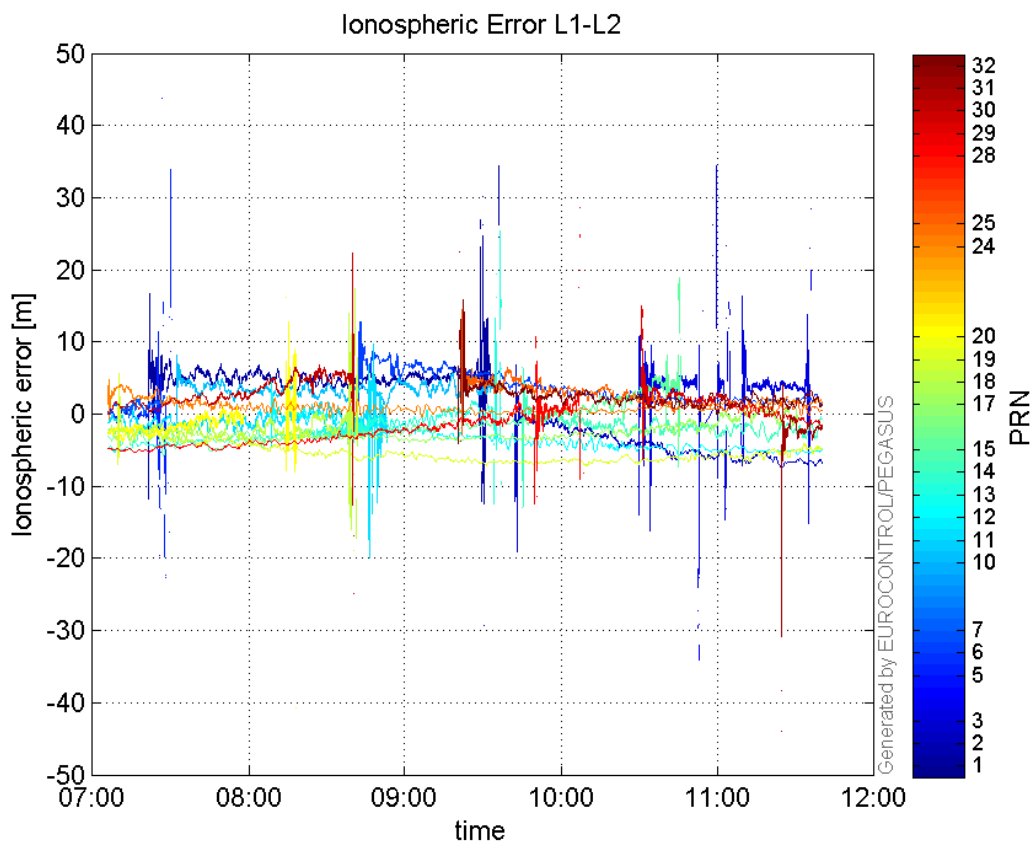


**GEO CNo:**



### 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_06_10_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_06_10_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	229.3032
mi_numbers	results	0