

# 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 28/09/2016

## SBAS Messages

**start:** 05:42:5.129 27.09.2016 ( week: 1916 sec: 193325.129 )  
**end:** 11:55:59.129 27.09.2016 ( week: 1916 sec: 215759.129 )  
**duration:** 06:13:54 ..

### quality

**valid samples** 44870  
**total samples** 44870  
**number of SBAS PRNs** 2

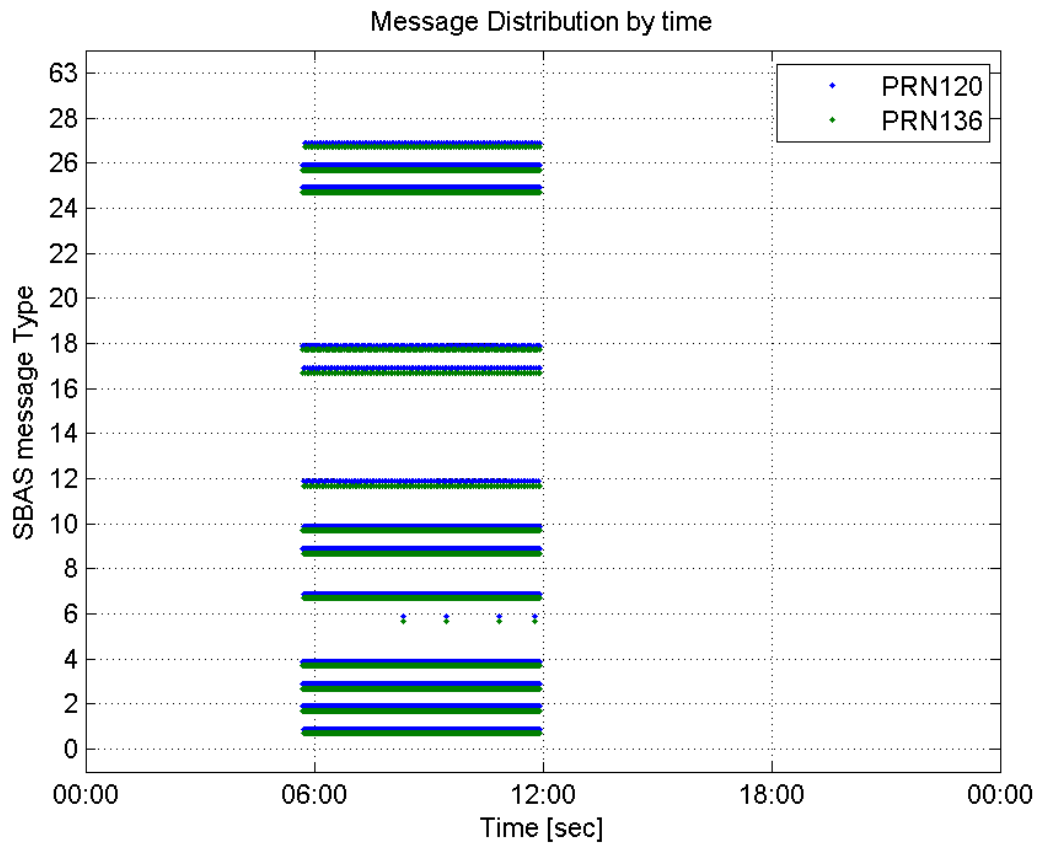
### SBAS SIS Overview

#### Message Type 6 repetitions :

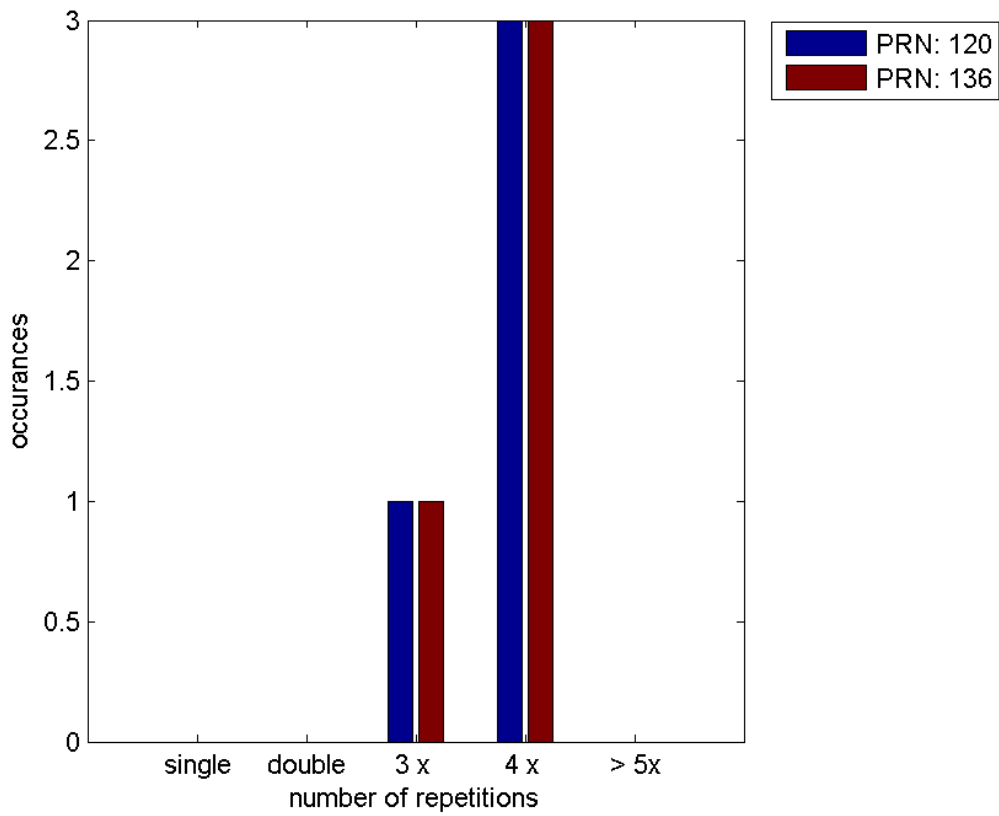
	single	double	3 x	4 x	> 5x
<b>PRN 120</b>	0	0	1	3	0
<b>PRN 136</b>	0	0	1	3	0

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#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

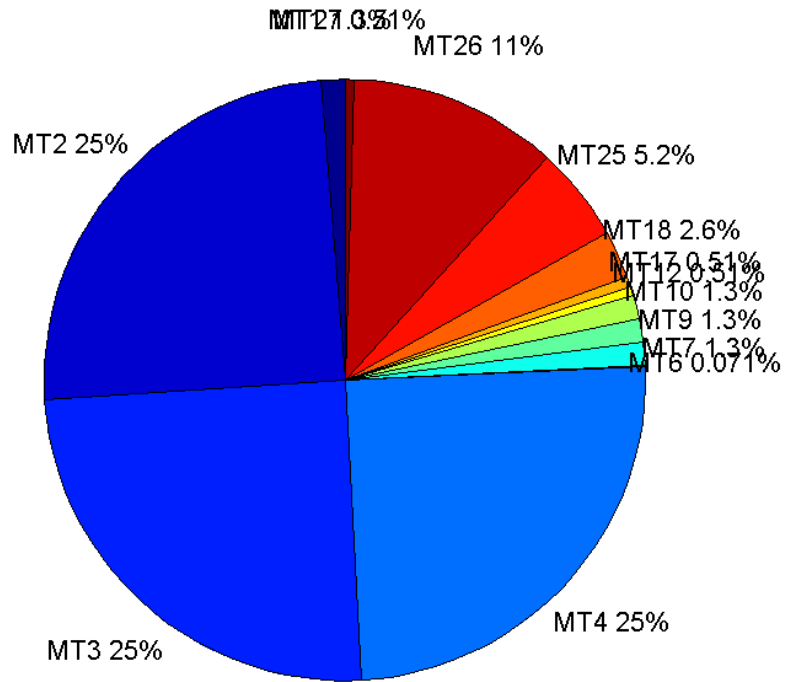
	number of messages	%
MT 0	0	0
MT 1	281	1.25251
MT 2	5568	24.8184
MT 3	5568	24.8184
MT 4	5568	24.8184
MT 5	0	0
MT 6	16	0.0713171
MT 7	282	1.25696
MT 9	282	1.25696
MT 10	281	1.25251
MT 12	114	0.508135
MT 17	115	0.512592
MT 18	575	2.56296
MT 24	0	0
MT 25	1158	5.16158
MT 26	2513	11.2012
MT 27	114	0.508135
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>22435</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	84	79.6679	0	0	0
MT 2	4	8	4.02928	4	0	0
MT 3	4	8	4.0291	4	0	0
MT 4	4	8	4.02928	4	0	0
MT 5	--	--	--	--	--	--
MT 6	1	4896	834.133	3	3	3
MT 7	76	81	79.7153	0	0	0
MT 9	76	81	79.6904	0	0	0
MT 10	76	81	79.7429	0	0	0
MT 12	188	201	196.15	113	0	0
MT 17	188	201	196.175	0	0	0
MT 18	4	164	39.0383	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	40	19.3682	0	0	0
MT	1	32	8.92994	0	0	0

26						
MT 27	188	201	196.204	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	281	1.25251
MT 2	5569	24.8228
MT 3	5570	24.8273
MT 4	5569	24.8228
MT 5	0	0
MT 6	16	0.0713171
MT 7	281	1.25251
MT 9	281	1.25251
MT 10	281	1.25251

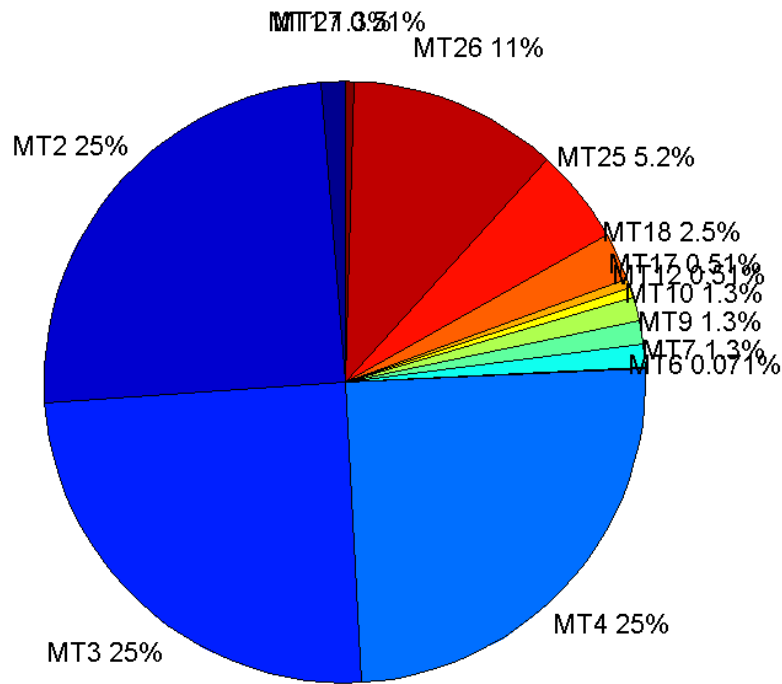
MT 12	115	0.512592
MT 17	115	0.512592
MT 18	571	2.54513
MT 24	0	0
MT 25	1161	5.17495
MT 26	2511	11.1923
MT 27	114	0.508135
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>22435</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.7964	0	0	0
MT 2	4	8	4.02838	4	0	0
MT 3	4	8	4.02819	4	0	0
MT 4	4	8	4.0282	4	0	0
MT 5	--	--	--	--	--	--
MT 6	1	4896	834.133	3	3	3
MT 7	76	81	79.8321	0	0	0
MT 9	76	85	79.7679	0	0	0
MT 10	75	82	79.8143	0	0	0
MT 12	191	202	196.491	114	0	0
MT 17	188	204	196.43	0	0	0
MT 18	4	172	39.2789	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	64	19.331	0	0	0
MT 26	4	40	8.93546	0	0	0
MT 27	188	208	196.425	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_09_27_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_09_27_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:** 05:42:05 27.09.2016 ( week: 1916 sec: 193325 )  
**end:** 11:56:00 27.09.2016 ( week: 1916 sec: 215760 )  
**duration:** 06:13:56 ..

#### quality

**valid samples** 22075  
**total samples** 22436

## Event tables

**Position discontinuity events type** no (0)  
**APV-I discontinuity events type** no (0)  
**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
<b>max normHor</b>	196229	1.81833	11.8142	0.15391	1.05174	15.4084	0.0682574
<b>max normVer</b>	206532	1.16039	8.64502	0.134226	1.96018	17.8182	0.11001
<b>max HPE</b>	203936	2.18246	28.9491	0.0753896	0.195861	28.5112	0.00686963
<b>max VPE</b>	207542	1.14069	17.7339	0.0643224	2.469	24.3088	0.101568
<b>min HPL</b>	206511	1.1296	8.55027	0.132112	1.82093	17.9317	0.101548
<b>min VPL</b>	214659	1.01539	9.82701	0.103326	-0.149669	13.0673	0.0114537

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	198029	194	4343
2	203770	1	5547
3	203774	1	3
4	203778	1	3
5	203782	1	3
6	203786	1	3
7	203789	1	2
8	203803	1	13
9	203863	1	59
10	203867	1	3
11	203871	1	3
12	203875	1	3
13	203879	1	3
14	203883	1	3
15	203886	2	2
16	203890	2	2
17	204086	34	194

## LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	198029	194	4343
2	203770	1	5547
3	203774	1	3
4	203778	1	3
5	203782	1	3
6	203786	1	3
7	203789	1	2
8	203803	1	13
9	203863	1	59

10	203867	1	3
11	203871	1	3
12	203875	1	3
13	203879	1	3
14	203883	1	3
15	203886	2	2
16	203890	2	2
17	204086	34	194

### First Glance analysis

<b>Duration</b>	22436
<b>Number of Samples</b>	22436
<b>Number of invalid sample</b>	361
<b>Number of no position solution samples</b>	0
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.609
<b>Number of Misleading Information</b>	0
<b>Data gaps</b>	0
<b>Discontinuities</b>	0

#### Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
22075	22075	21830	0	21830

#### Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	1.38251	1.38251	1.37605	NaN	1.37605
<b>HPEscale 95%</b>	NaN	4.64882	4.65336	NaN	4.65336
<b>VPE 95%</b>	1.27633	1.27633	1.28007	NaN	1.28007
<b>VPEscale 95%</b>	NaN	3.07865	2.15846	NaN	2.15846

#### Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	1	1	0.988901	0	0.988901
<b>measurements</b>	0.98391	0.98391	0.97299	0	0.97299
<b>Operational</b>	0.98391	0.98391	0.97299	0	0.97299

#### Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	--	--	17	--	17
<b>Long</b>	--	--	2	--	2
<b>Independent</b>	--	--	2	--	2
<b>P(disc.)</b>	NaN	NaN	0.00137426	NaN	0.00137426
<b>P(slide)</b>	NaN	NaN	0.0048557	NaN	0.0048557



**Integrity events :**

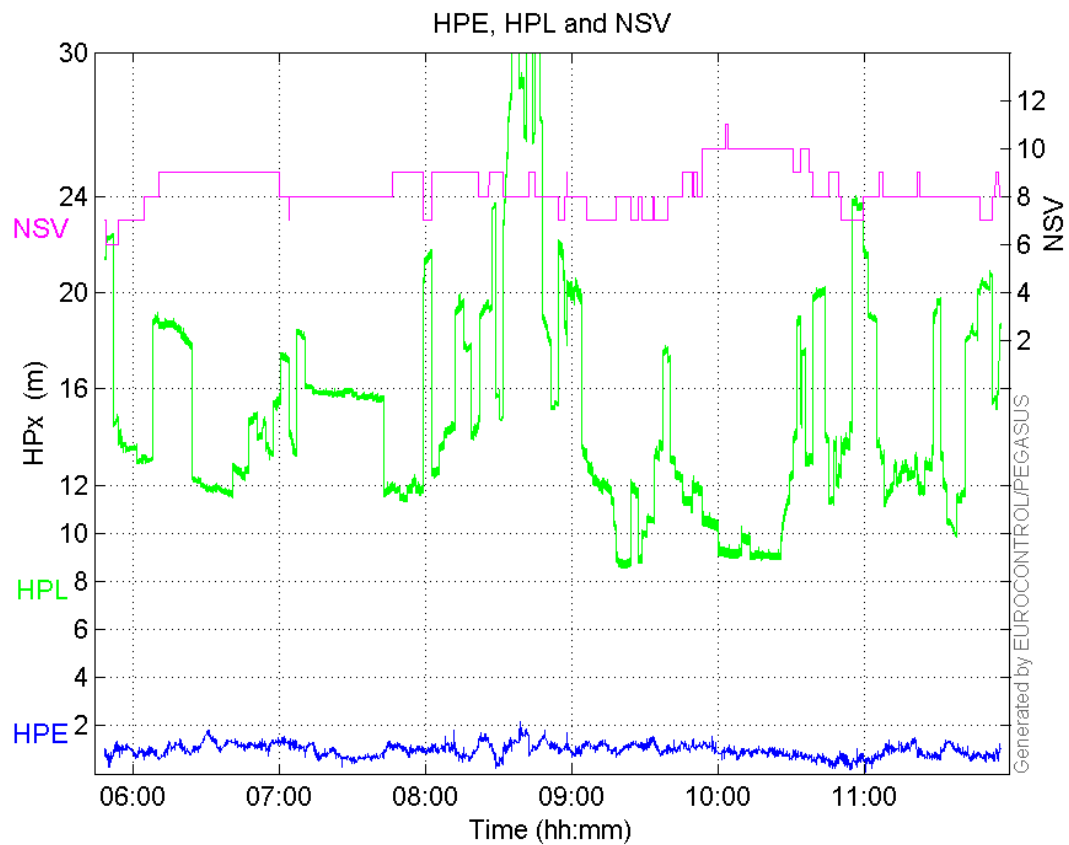
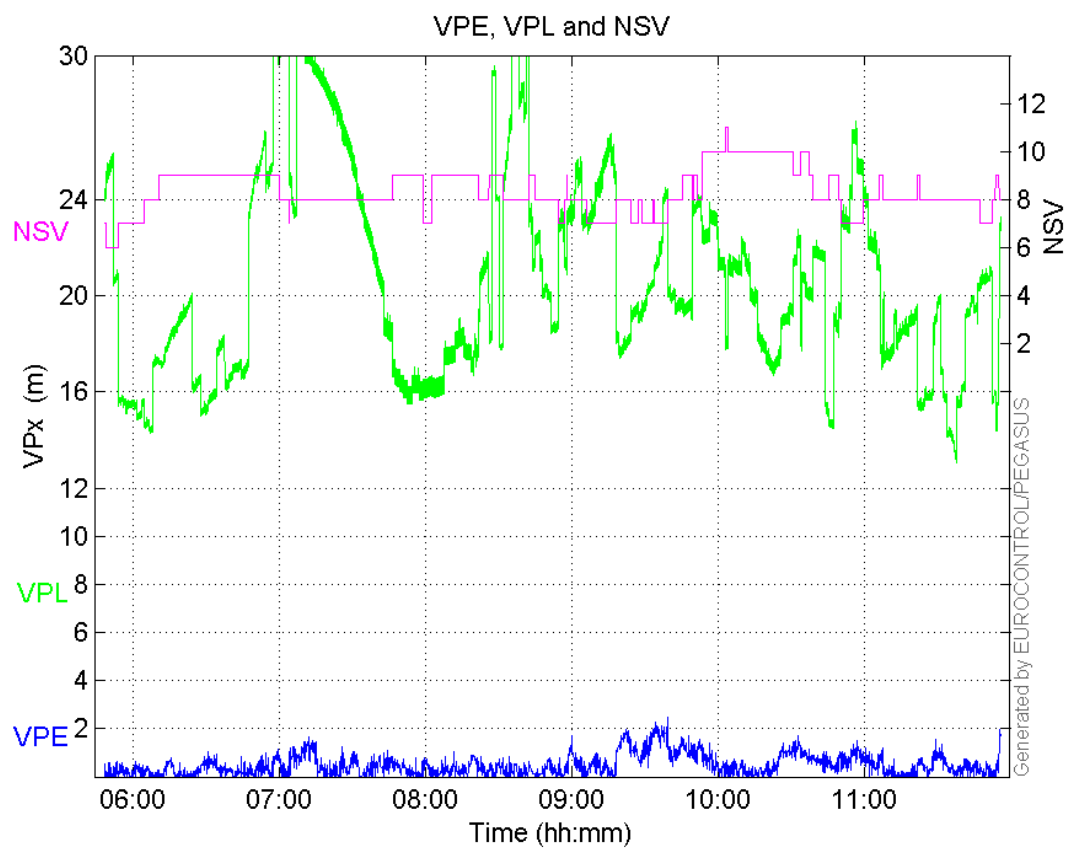
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

**Performance Summary :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	22075	22075	21830	0	21830
<b>SIS Availability</b>	1	1	0.988901	0	0.988901
<b>Local Availability</b>	0.98391	0.98391	0.97299	0	0.97299
<b>Operational Availability</b>	0.98391	0.98391	0.97299	0	0.97299
<b>HPE 95%</b>	1.38251	1.38251	1.37605	NaN	1.37605
<b>HPEscale 95%</b>	NaN	4.64882	4.65336	NaN	4.65336
<b>VPE 95%</b>	1.27633	1.27633	1.28007	NaN	1.28007
<b>VPEscale 95%</b>	NaN	3.07865	2.15846	NaN	2.15846
<b>All Discontinuity Events</b>	--	--	17	--	17
<b>Long Discontinuity Events</b>	--	--	2	--	2
<b>Independent Discontinuity Events</b>	--	--	2	--	2
<b>P(discontinuity)</b>	NaN	NaN	0.00137426	NaN	0.00137426
<b>P(sliding window)</b>	NaN	NaN	0.0048557	NaN	0.0048557
<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

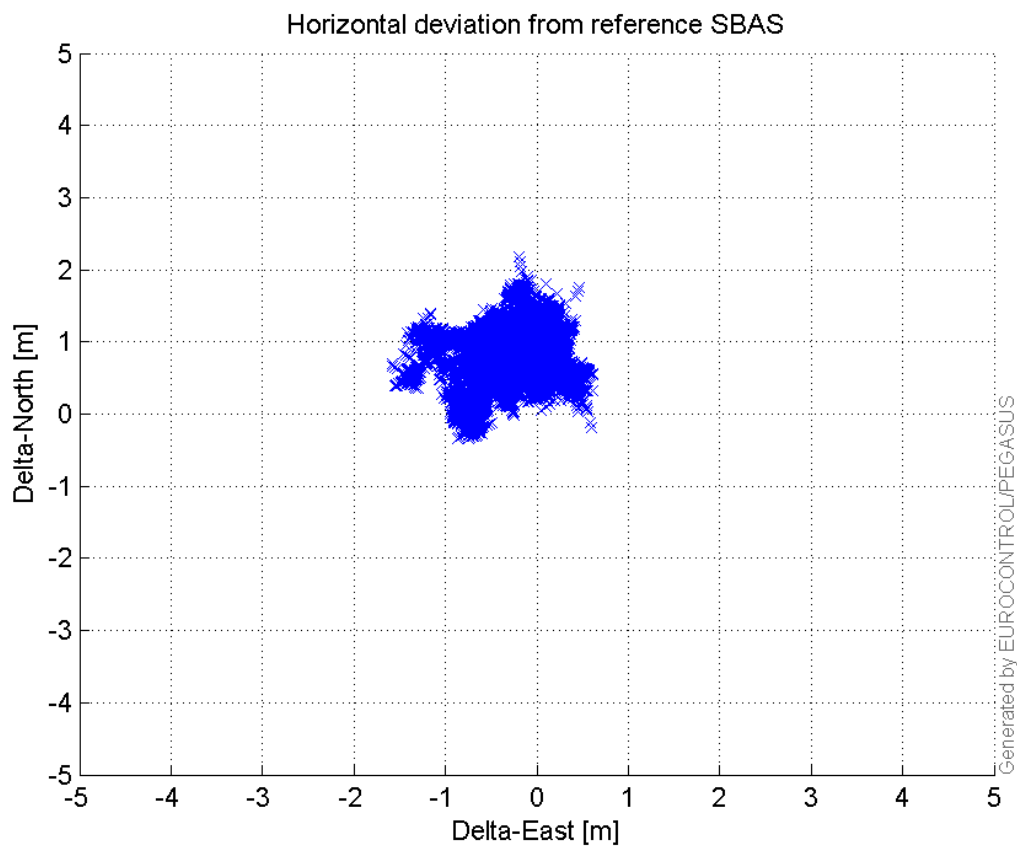
**Time Series**

**HPE, HPL and NSV:**

**VPE, VPL and NSV:**

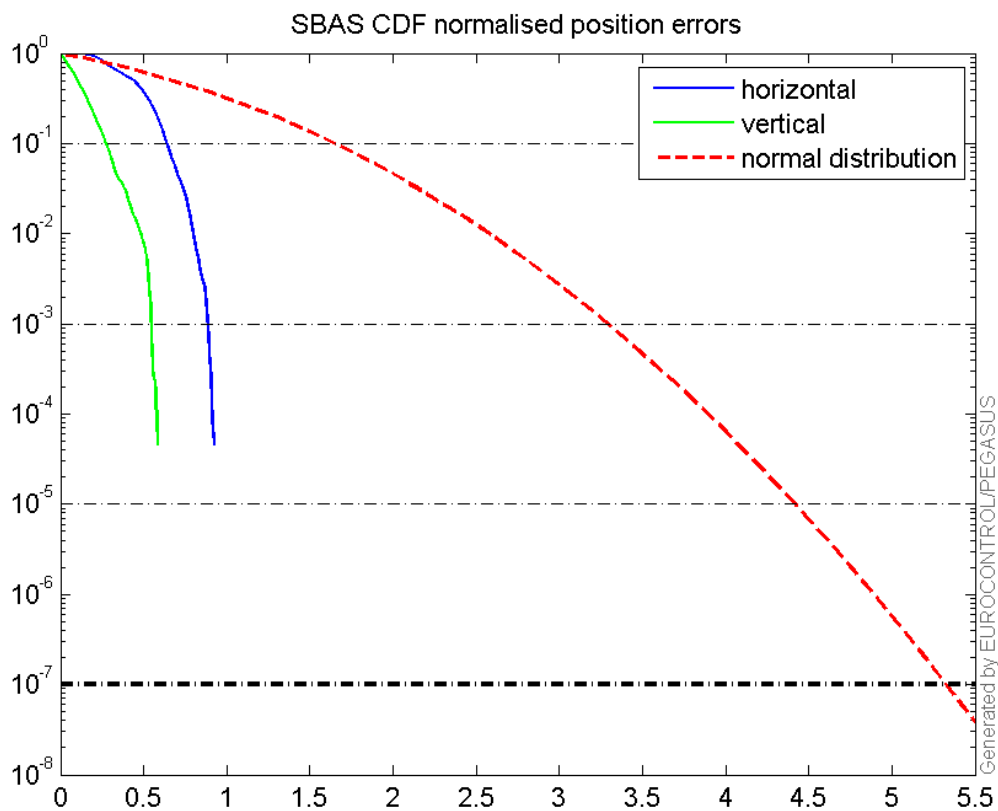
Horizontal deviation

## Horizontal deviation from reference SBAS:



## CDF position

## SBAS CDF position domain:



## Statistics

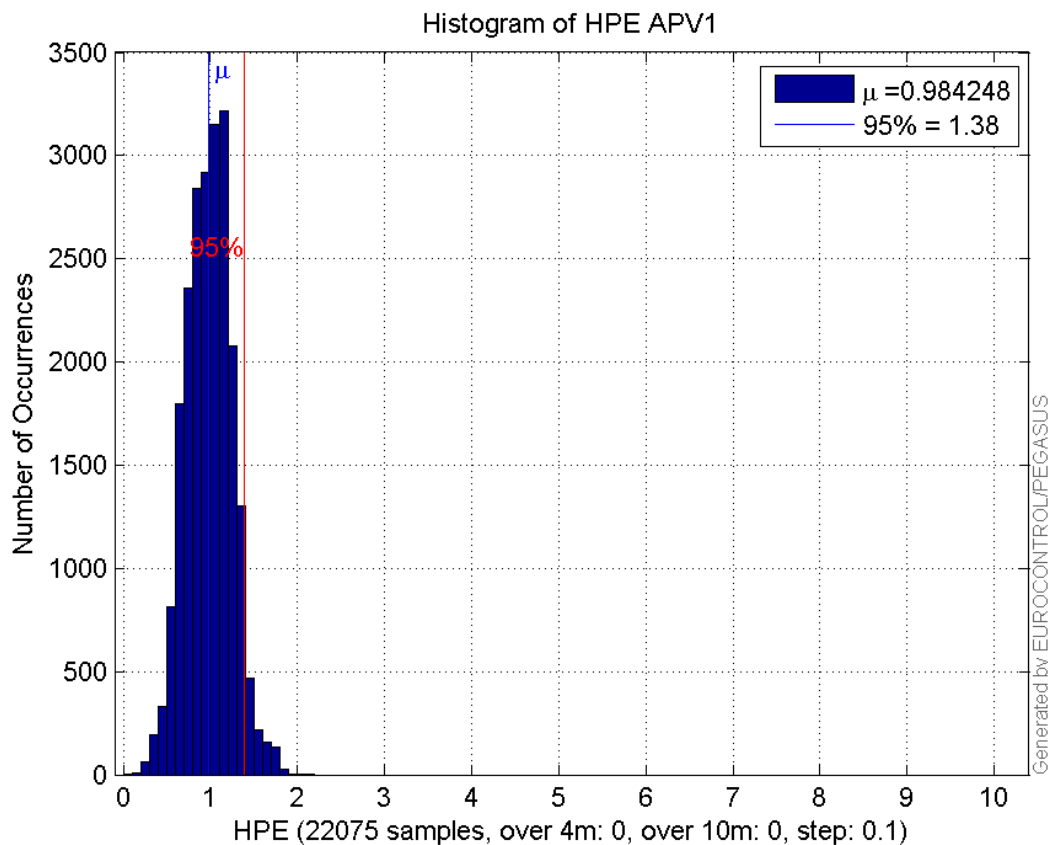
<b>number</b>	22075
<b>sum</b>	21727.284
<b>sum2</b>	22884.8
<b>prctile95</b>	1.3825127
<b>prctile99</b>	1.6580595
<b>number</b>	22075
<b>sum</b>	10820.614
<b>sum2</b>	9060.4247
<b>prctile95</b>	1.276334
<b>prctile99</b>	1.8112504
<b>number</b>	22075
<b>sum</b>	334188.28
<b>sum2</b>	5626581.6
<b>prctile95</b>	23.63415
<b>prctile99</b>	37.530675
<b>number</b>	22075
<b>sum</b>	459686.45
<b>sum2</b>	10029402
<b>prctile95</b>	29.403025
<b>prctile99</b>	35.809025
<b>number</b>	22075
<b>sum</b>	1575.6276
<b>sum2</b>	129.37809
<b>prctile95</b>	0.11622055
<b>prctile99</b>	0.13298878
<b>number</b>	22075
<b>sum</b>	528.2519
<b>sum2</b>	21.38017
<b>prctile95</b>	0.06157309
<b>prctile99</b>	0.090491768
<b>number</b>	21830
<b>sum</b>	21389.431
<b>sum2</b>	22415.471
<b>prctile95</b>	1.3760479
<b>prctile99</b>	1.6548654
<b>number</b>	21830
<b>sum</b>	10771.117
<b>sum2</b>	9044.7973
<b>prctile95</b>	1.2800731
<b>prctile99</b>	1.8118332
<b>number</b>	21830
<b>sum</b>	328896.53
<b>sum2</b>	5495091.6
<b>prctile95</b>	23.6073
<b>prctile99</b>	37.37156
<b>number</b>	21830
<b>sum</b>	450449.11
<b>sum2</b>	9680852.4
<b>prctile95</b>	28.9661
<b>prctile99</b>	33.00878

**number** 21830  
**sum** 1558.574  
**sum2** 128.13403  
**prctile95** 0.11633397  
**prctile99** 0.13306795  
**number** 21830  
**sum** 526.94195  
**sum2** 21.369183  
**prctile95** 0.061670307  
**prctile99** 0.090611703

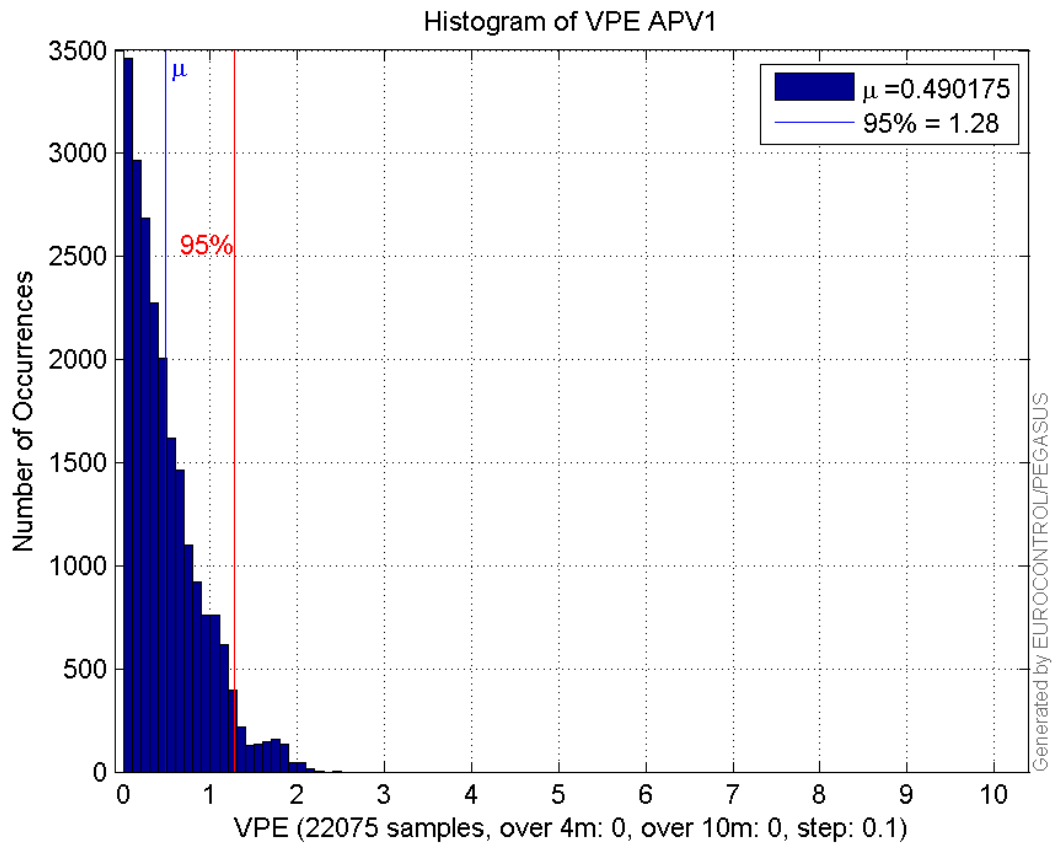
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.984248	0.260657	0.991024	1.38251	1.65806	1.01818
HPL	15.1388	5.06988	13.6479	23.6341	37.5307	15.9651
VPE	0.490175	0.412522	0.385101	1.27633	1.81125	0.640655
VPL	20.8238	4.54987	19.8329	29.403	35.809	21.3151

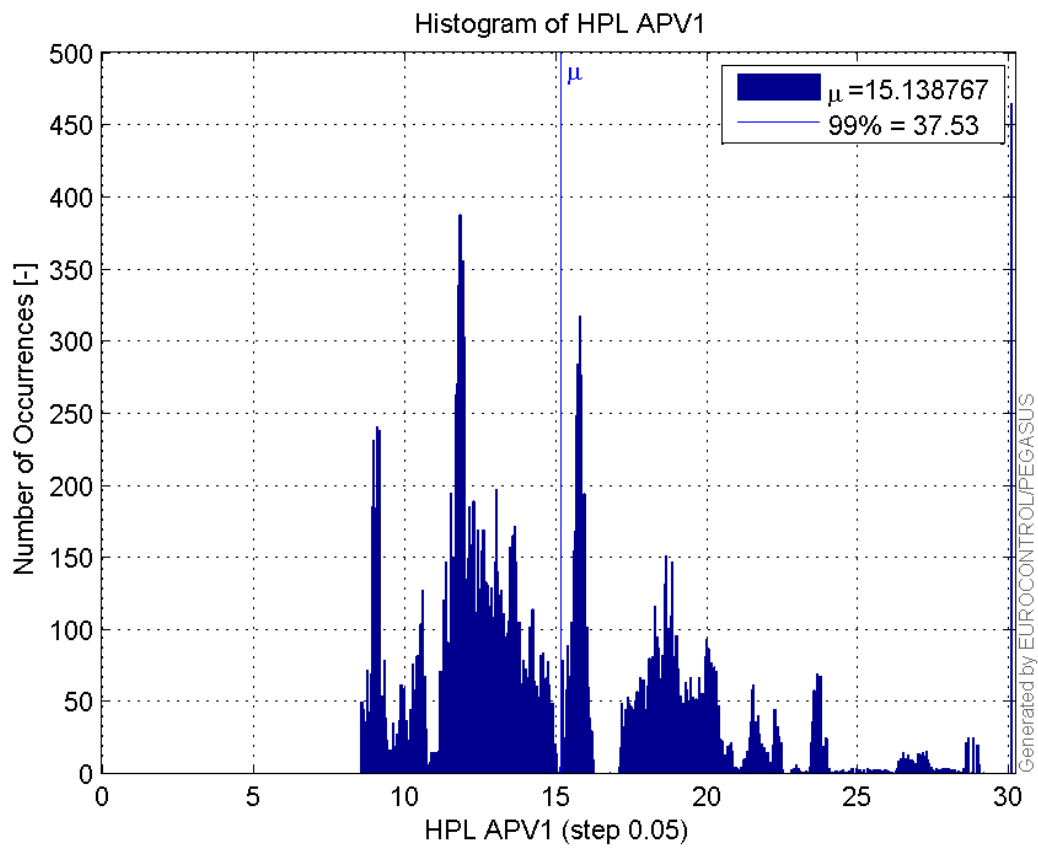
**Histogram of HPE APV1:**



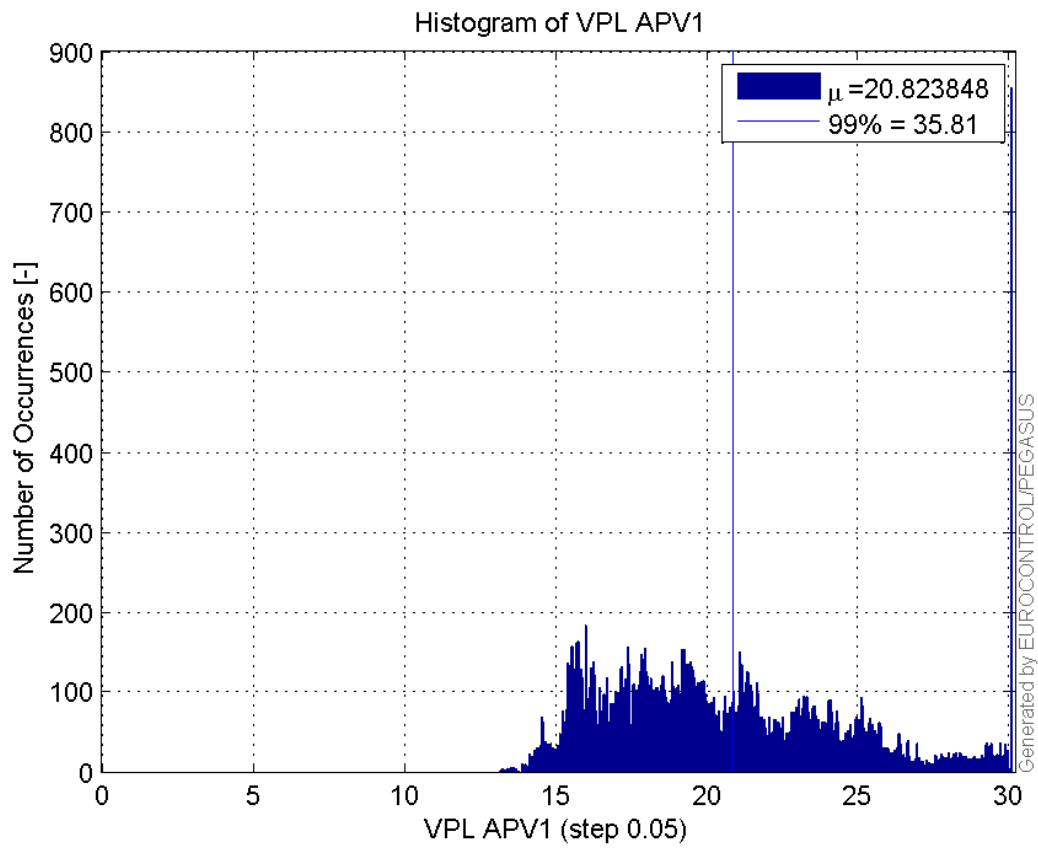
**Histogram of VPE APV1:**



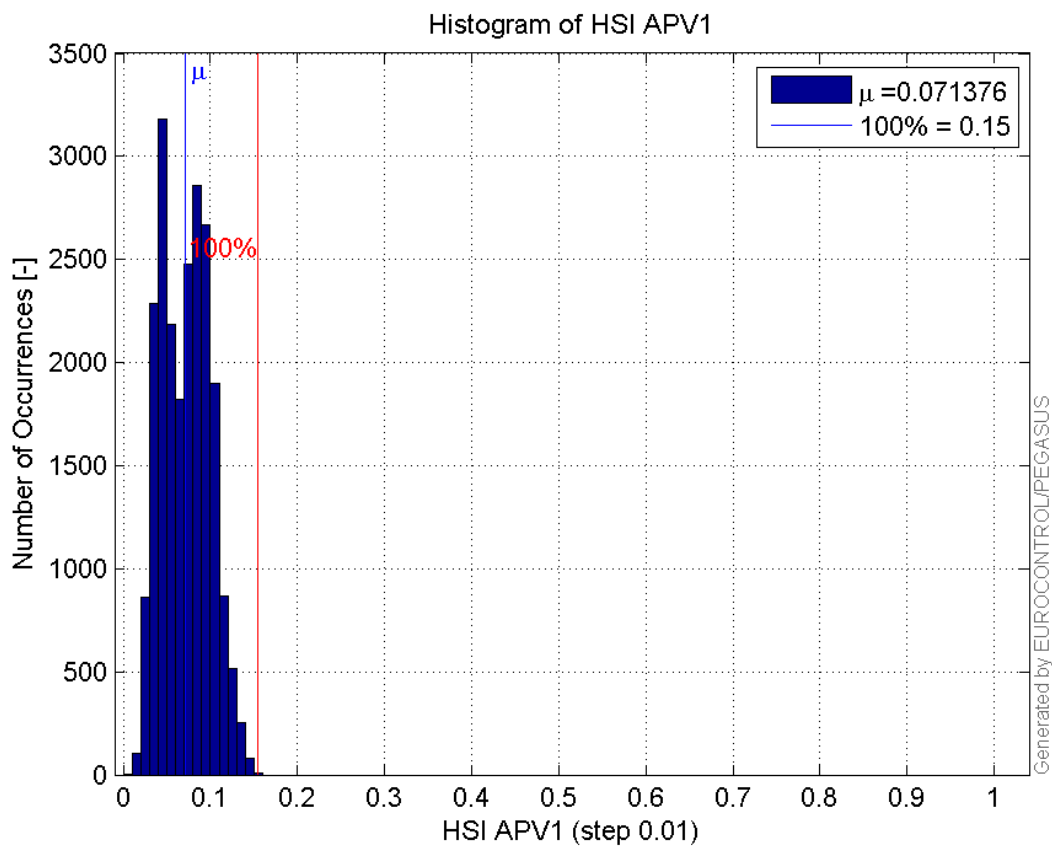
**Histogram of HPL APV1:**



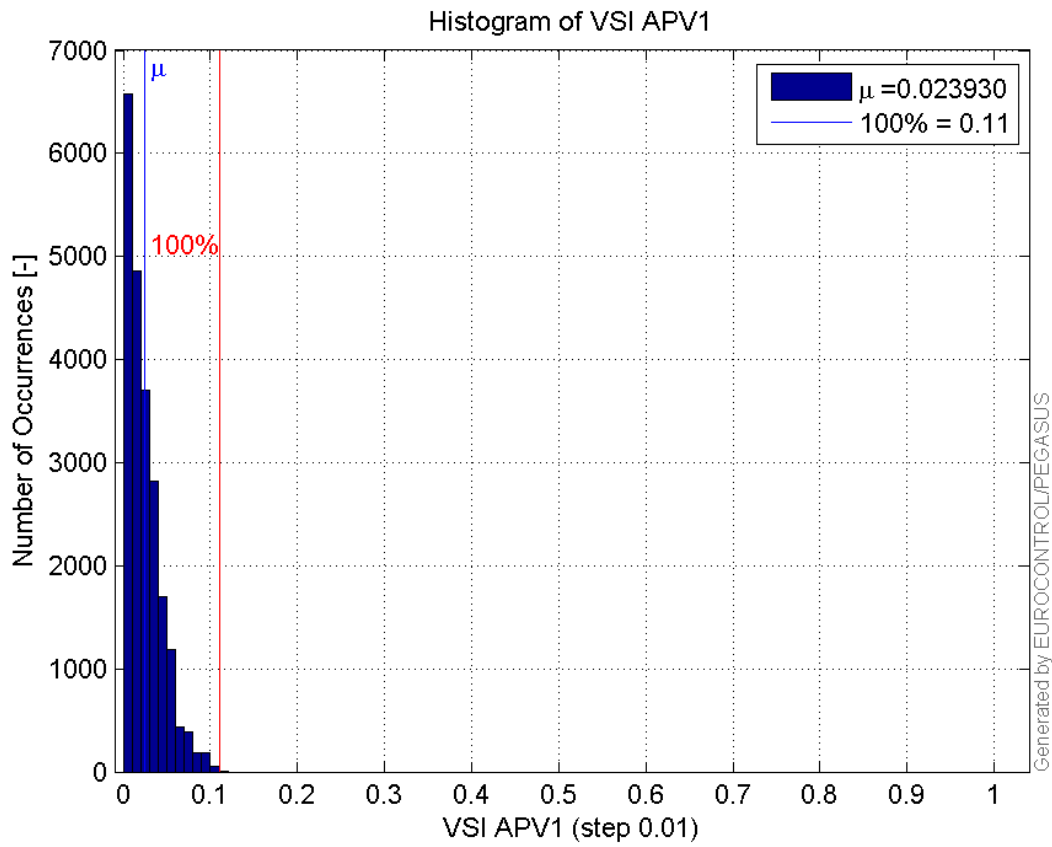
**Histogram of VPL APV1:**



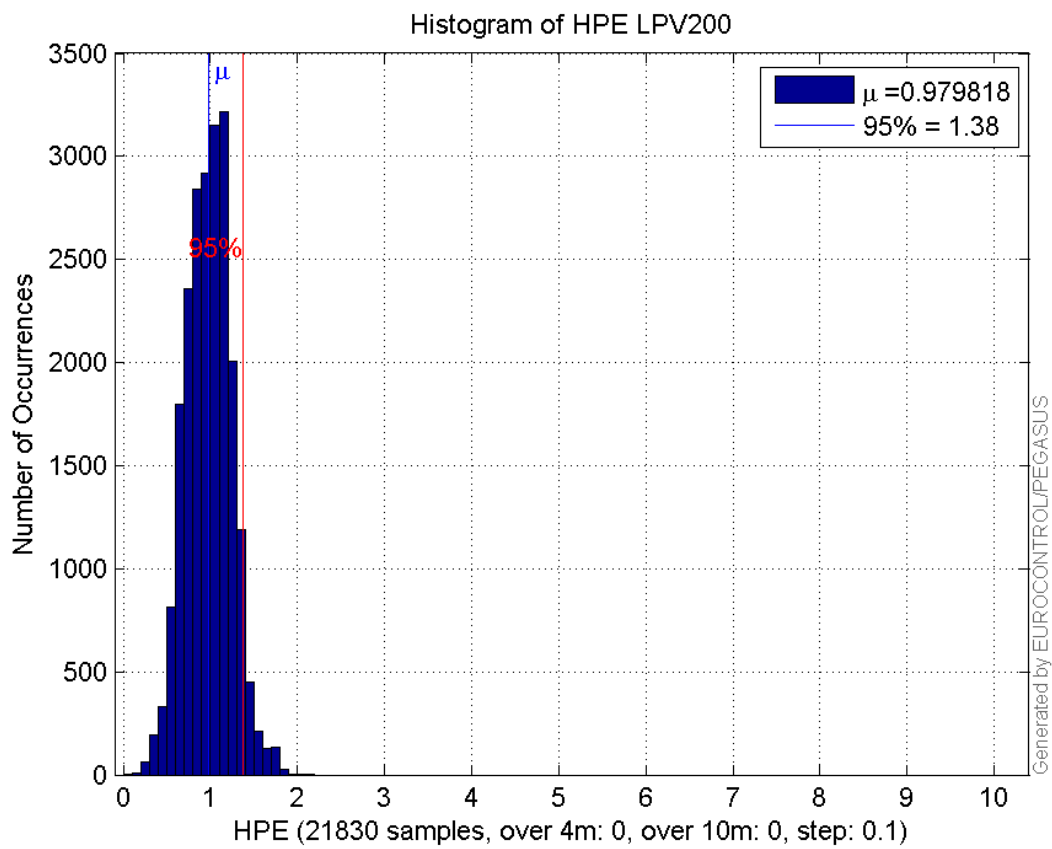
**Histogram of HSI APV1:**



**Histogram of VSI APV1:**

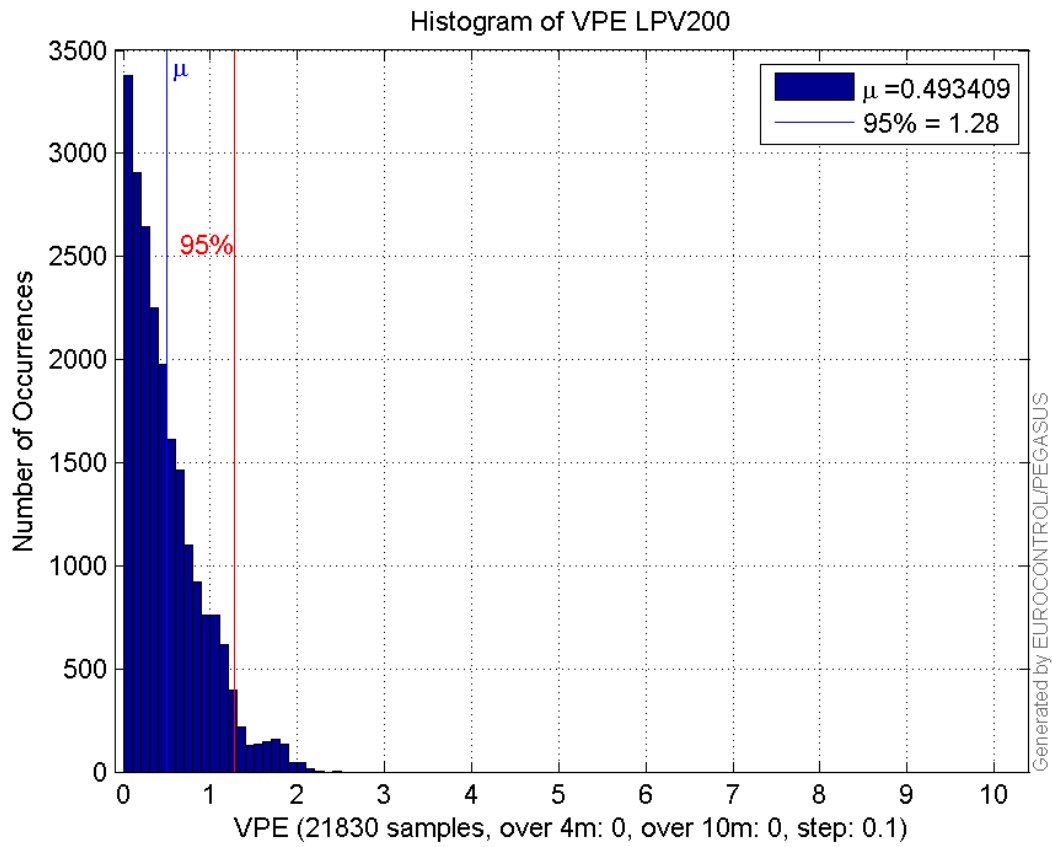


**Histogram of HPE LPV200:**

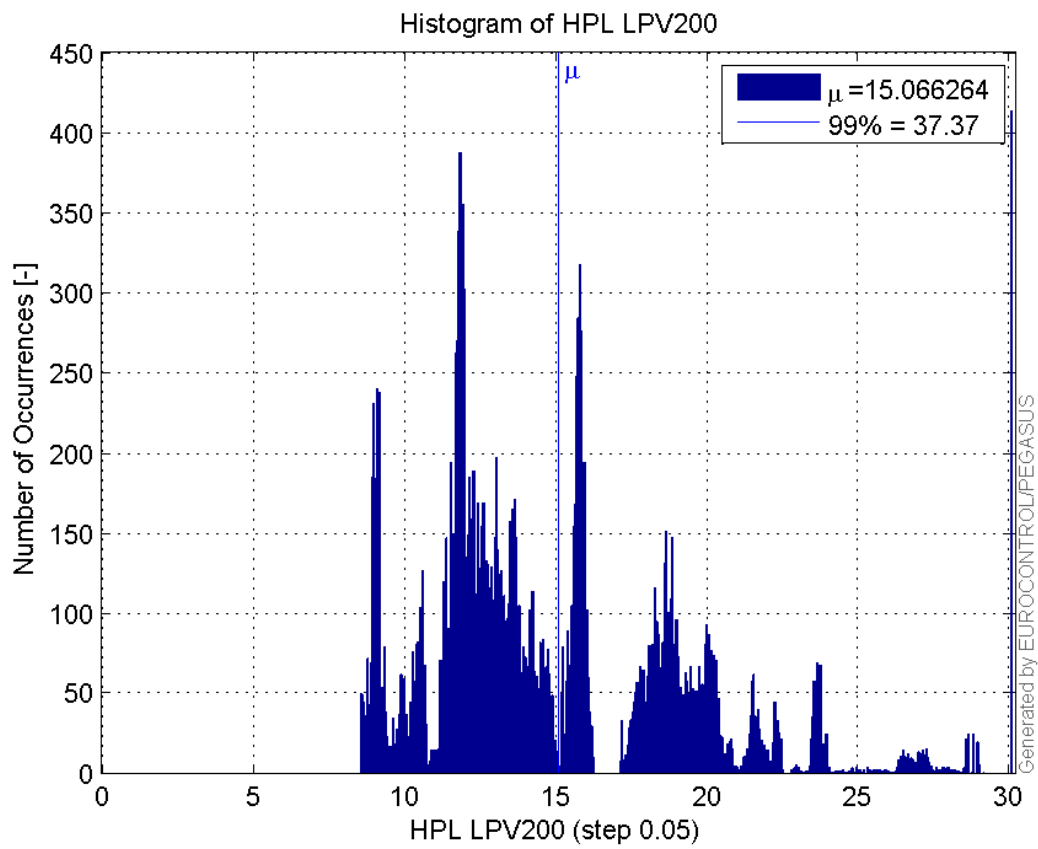


**Histogram of VPE LPV200:**

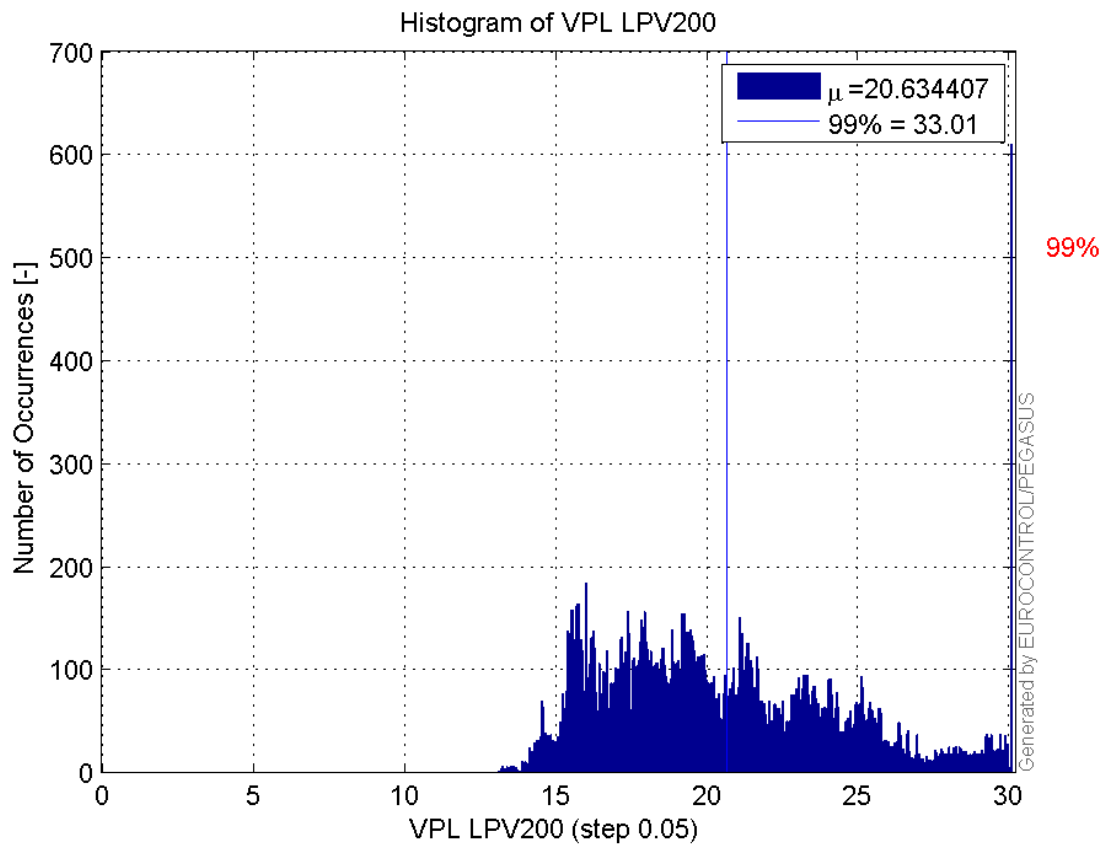




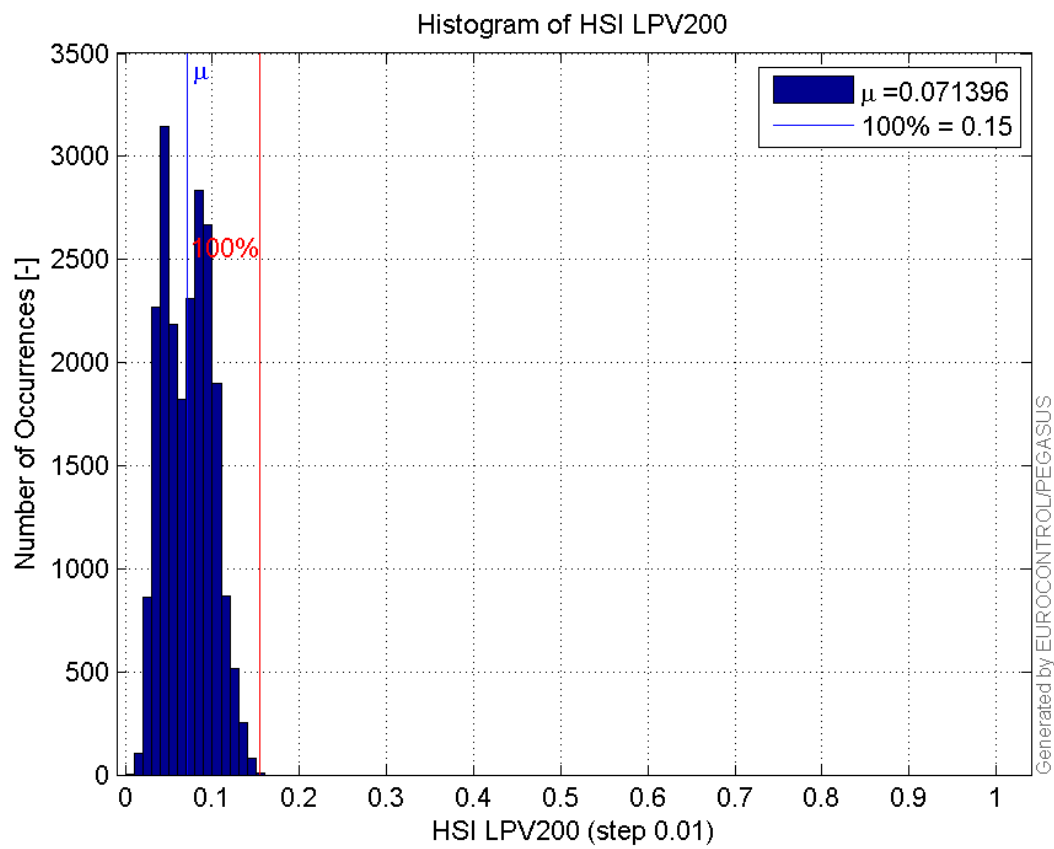
**Histogram of HPL LPV200:**



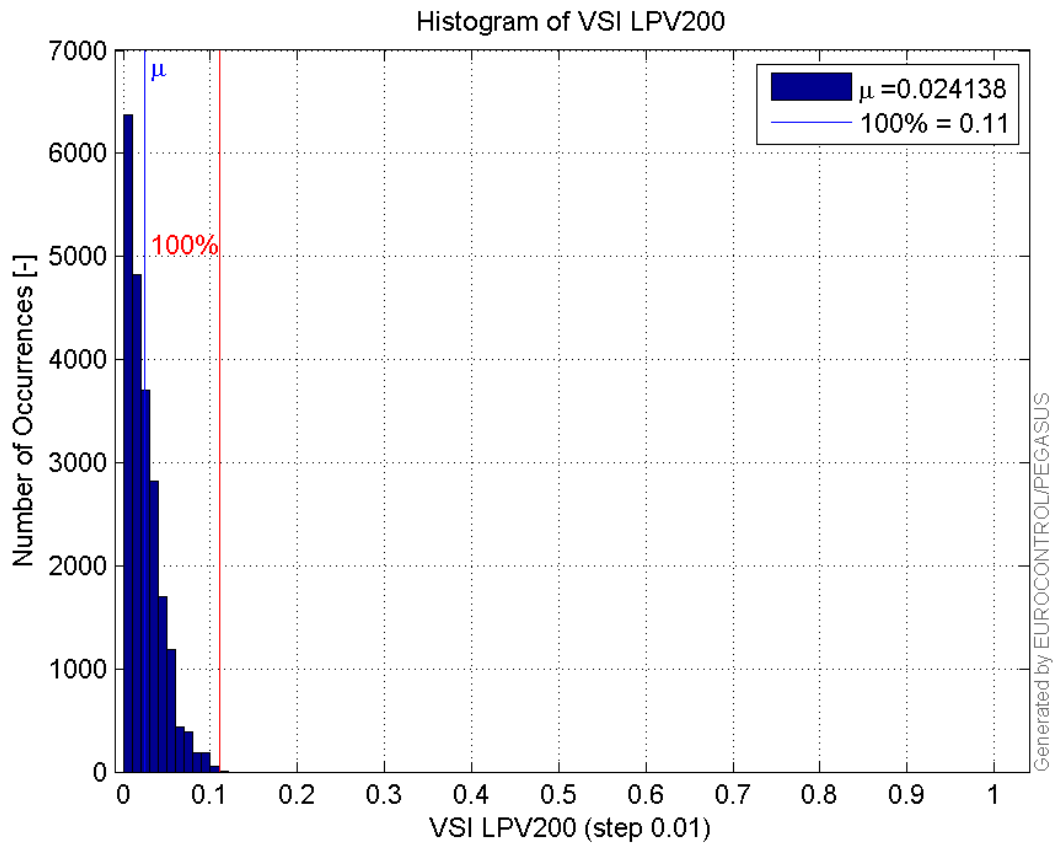
**Histogram of VPL LPV200:**



**Histogram of HSI LPV200:**

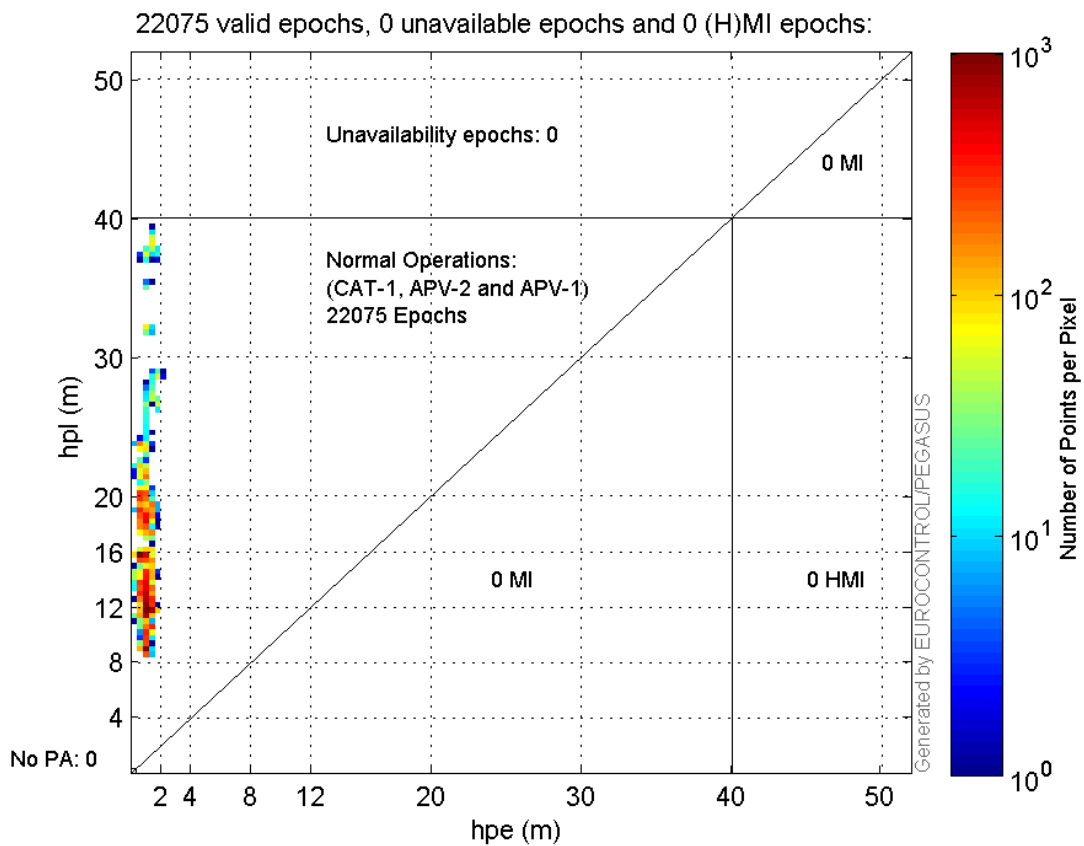


**Histogram of VSI LPV200:**

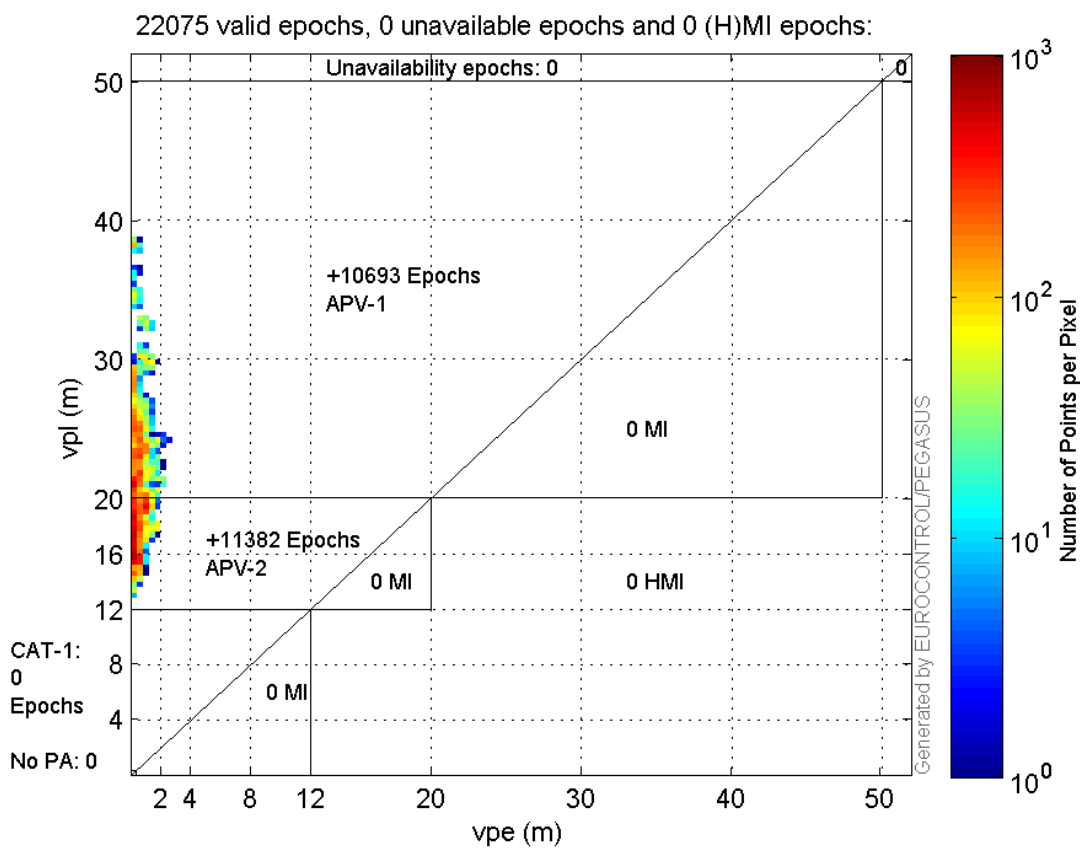


### Stanford Plots

#### 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:/PegasusDateJob/job/2016_09_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_09_27_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	227.302
mi_numbers	results	0

## Range Domain

**start:** 05:42:05 27.09.2016 ( week: 1916 sec: 193325 )

**end:** 11:56:00 27.09.2016 ( week: 1916 sec: 215760 )

**duration:** 06:13:56 ..

### quality

**valid samples** 22436

**total samples** 22436

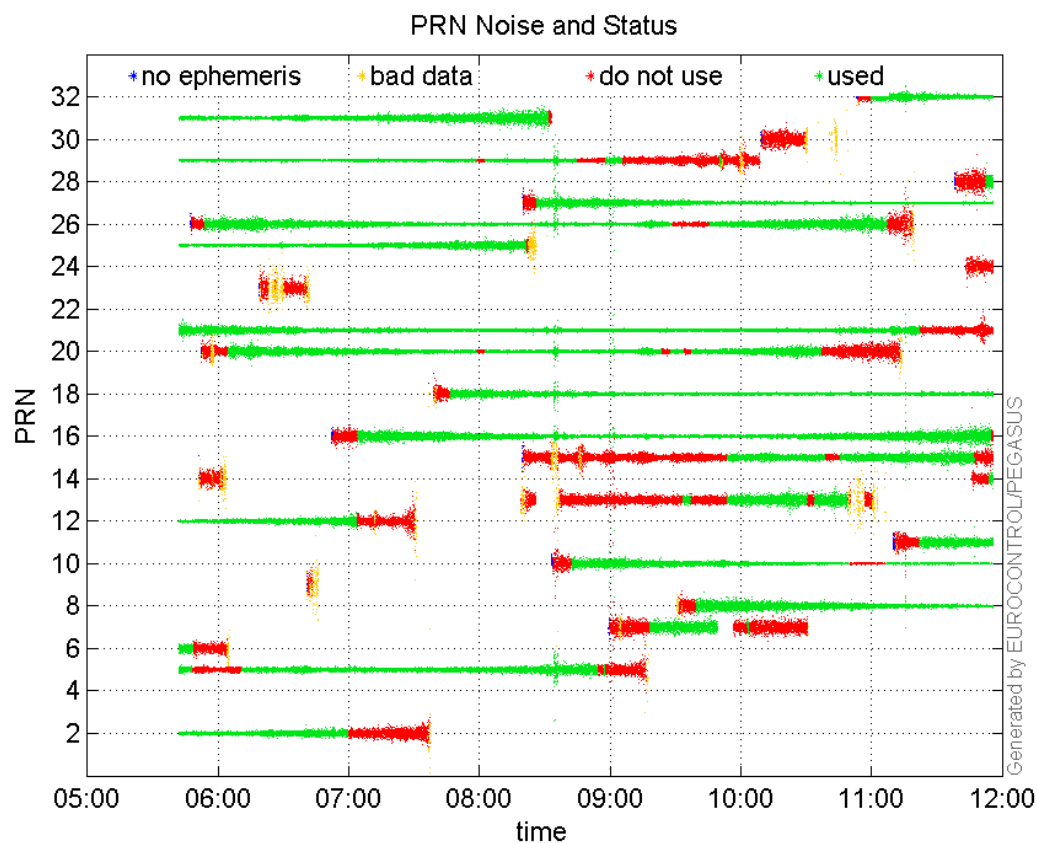
### PRN overview

**Number of Visible GPS Satellites** 26

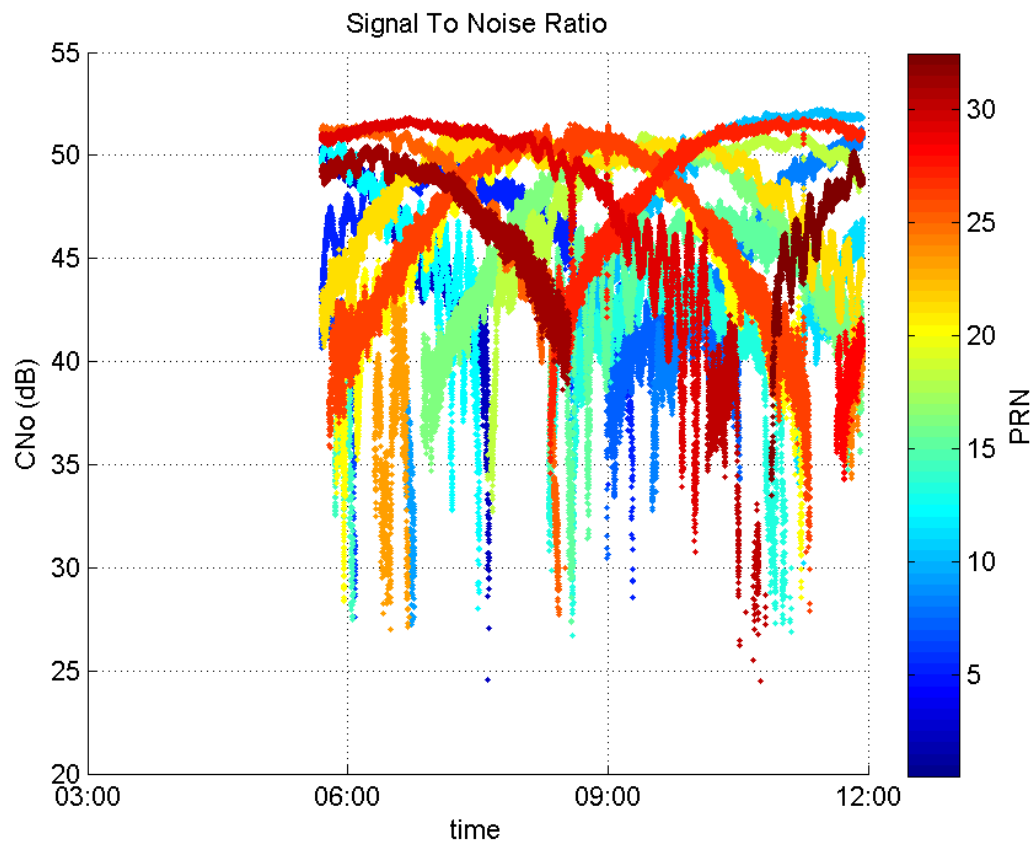
**Number of Visible SBAS Satellites** 2

### signal quality and status

#### PRN Noise and Status:



#### Signal To Noise Ratio:



## range errors

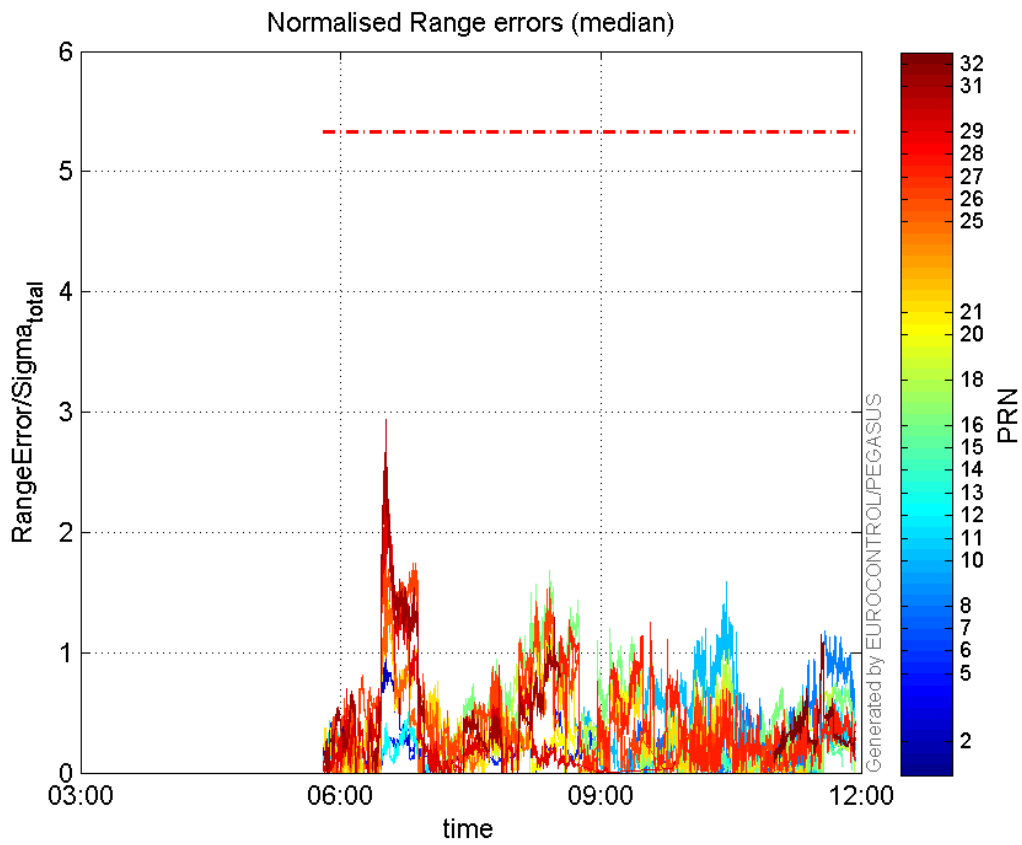
Number of Overbounding Norm Errors 0

## Max Norm Errors :

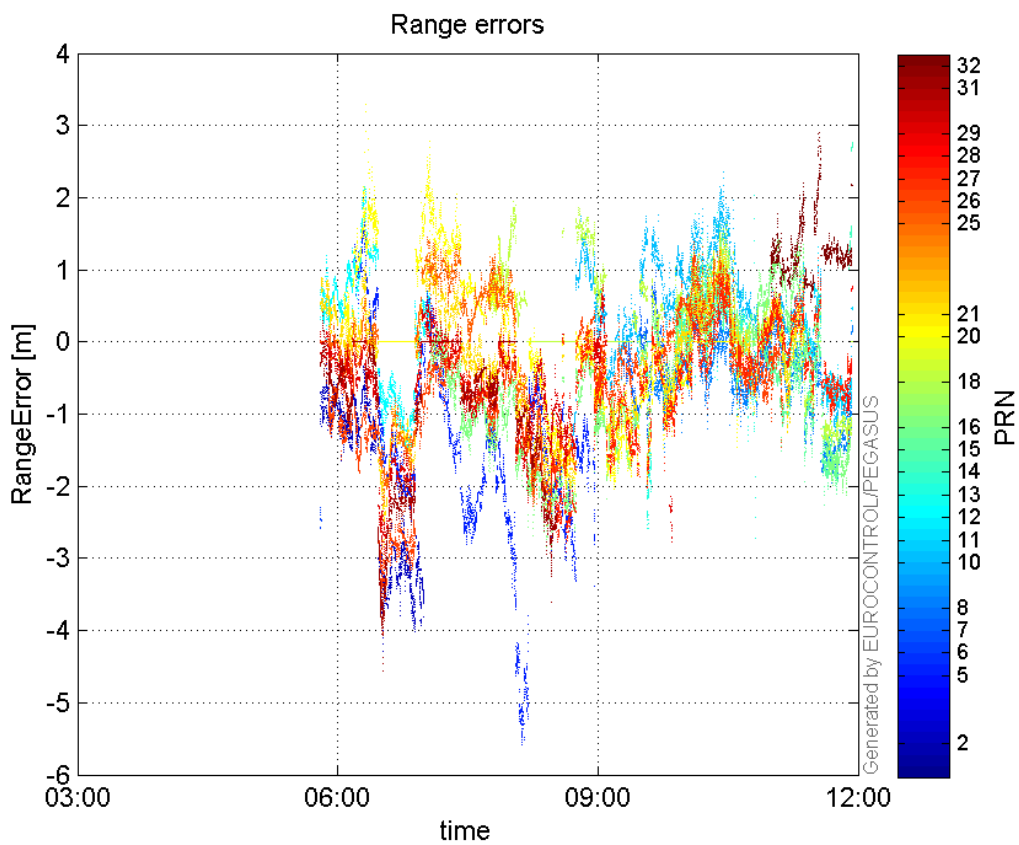
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1916	196267	2	1.00413	-4.28554	4.26791
1916	203402	5	0.548892	-2.30219	4.19425
1916	193688	6	0.102259	-2.57933	25.2235
1916	207258	7	0.467332	-1.32174	2.82826
1916	214490	8	1.17652	-1.80695	1.53585
1916	210406	10	1.58928	2.35866	1.4841
1916	215193	11	0.719049	-1.509	2.0986
1916	197185	12	0.503039	-1.51173	3.00519
1916	211445	13	0.368899	-1.28243	3.47638
1916	215758	14	0.435157	2.75851	6.33911
1916	214602	15	0.653475	-2.26242	3.46213
1916	203083	16	1.68083	-2.89744	1.72381
1916	210511	18	1.02582	1.7	1.65721
1916	206590	20	0.889735	-1.87692	2.10953
1916	196267	21	1.68052	-2.94548	1.75272
1916	196267	25	1.62847	-2.48474	1.52582
1916	196267	26	1.86732	-4.03953	2.16328
1916	203880	27	1.27019	-2.9135	2.29375
1916	215606	28	0.509949	-1.40225	2.74978
1916	196267	29	2.59277	-3.36685	1.29856
1916	196267	31	2.93904	-4.45633	1.51625

1916	214335	32	1.15387	2.89263	2.5069
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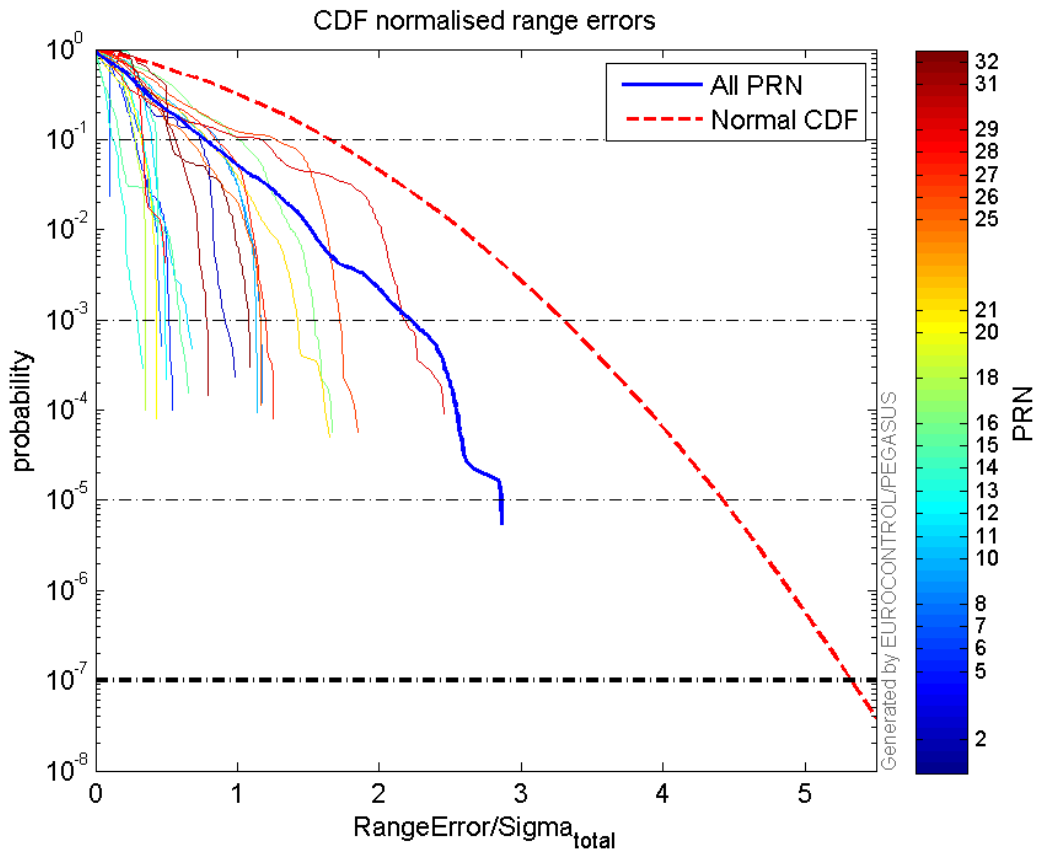
**Normalised Range errors (median):**



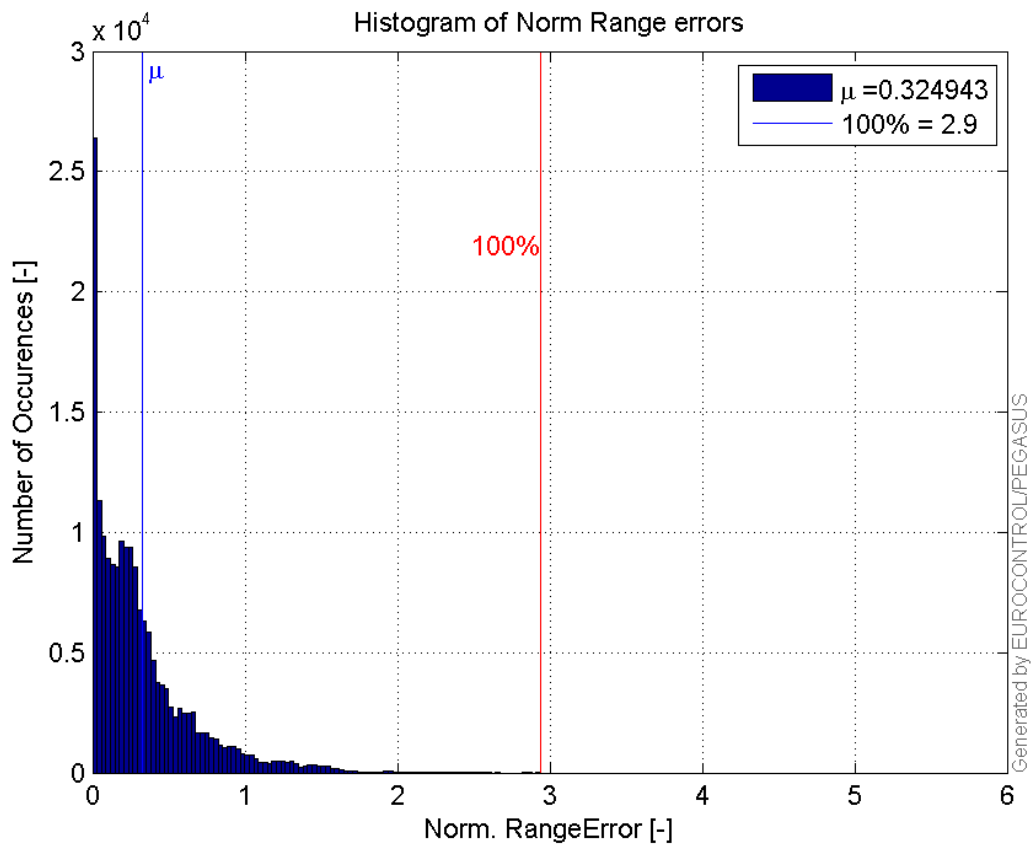
**Range errors:**



CDF normalised range errors:

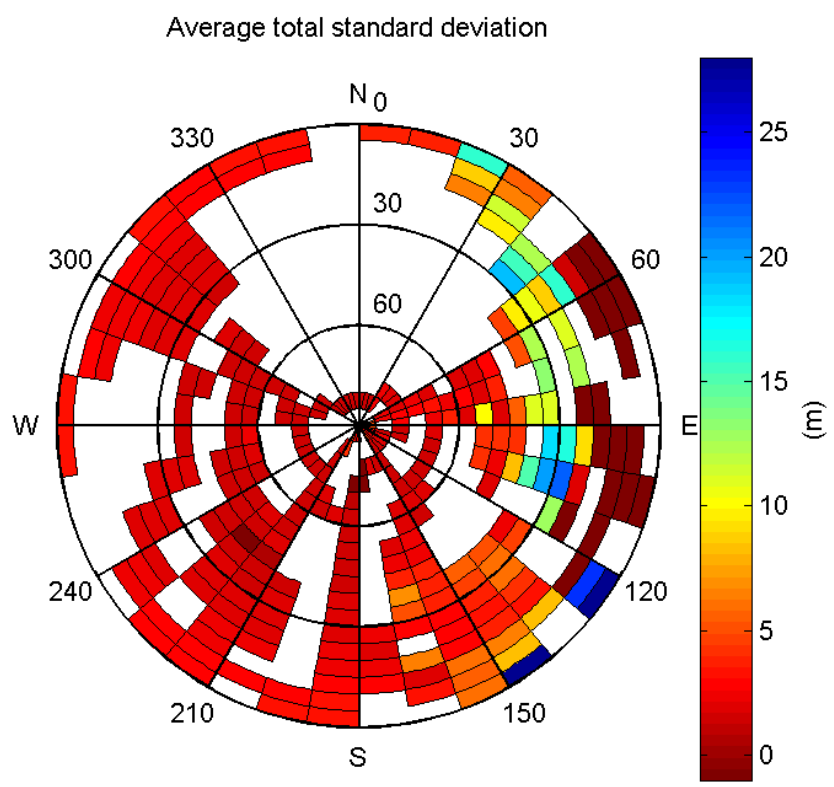


Histogram of Norm Range errors:

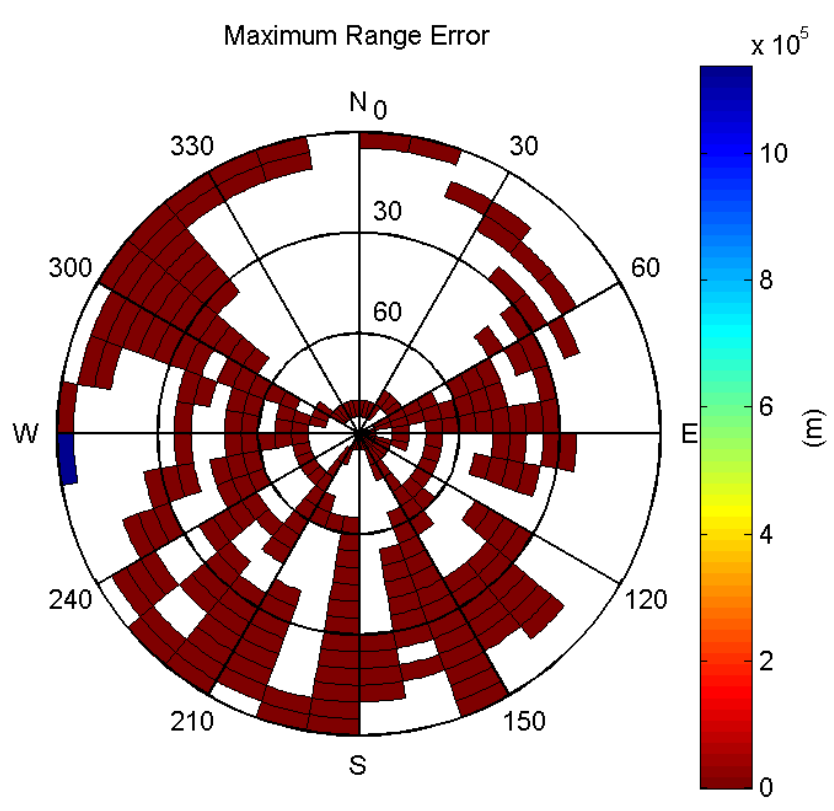


Sigma Sky Plot:



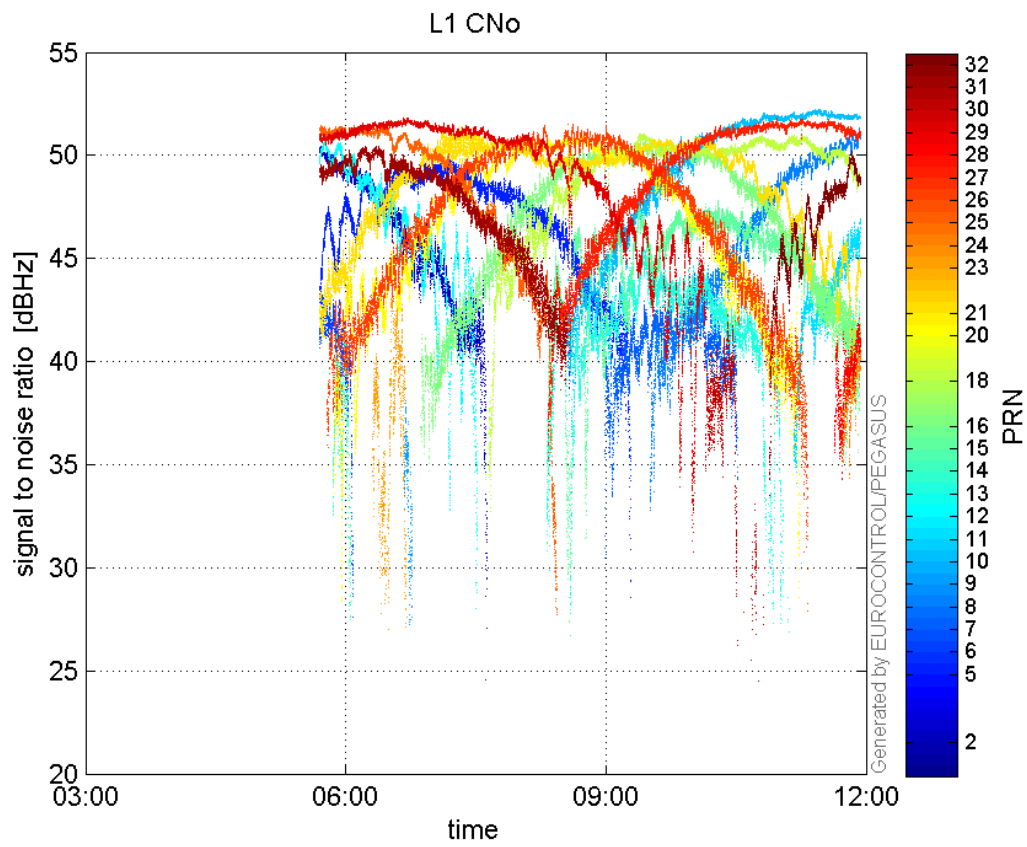


Norm Error Sky Plot:

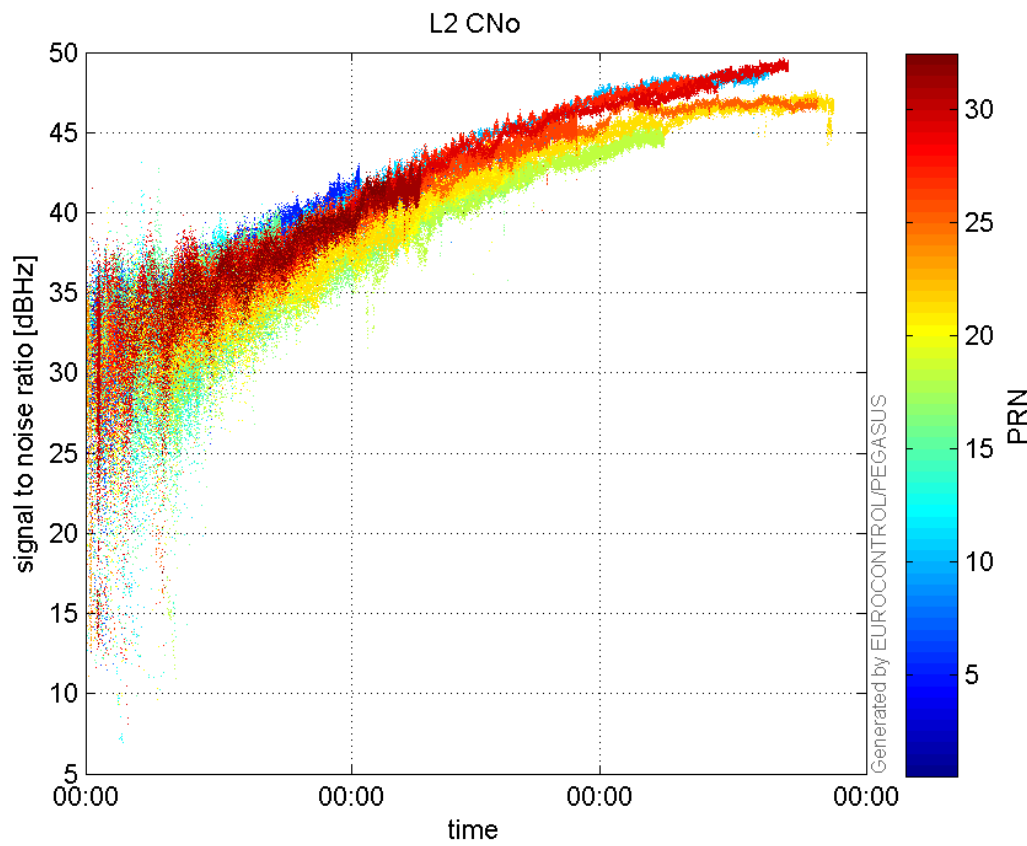


signal quality

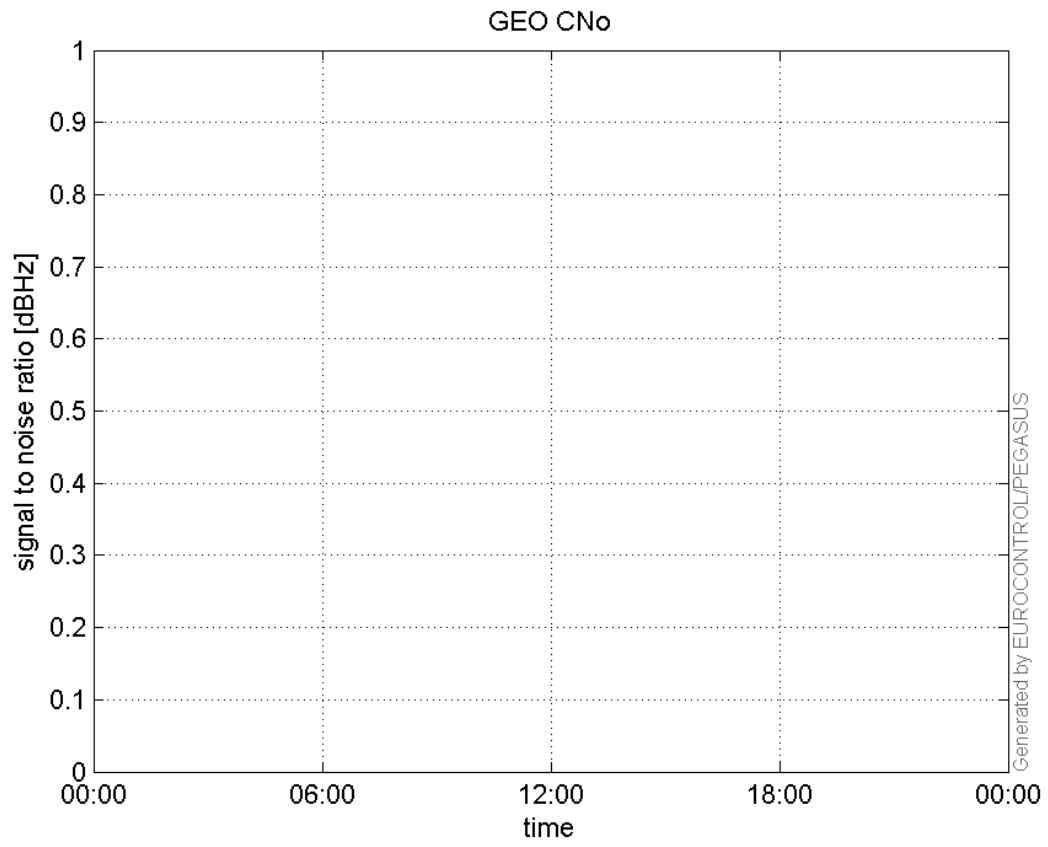
**L1 CNo:**



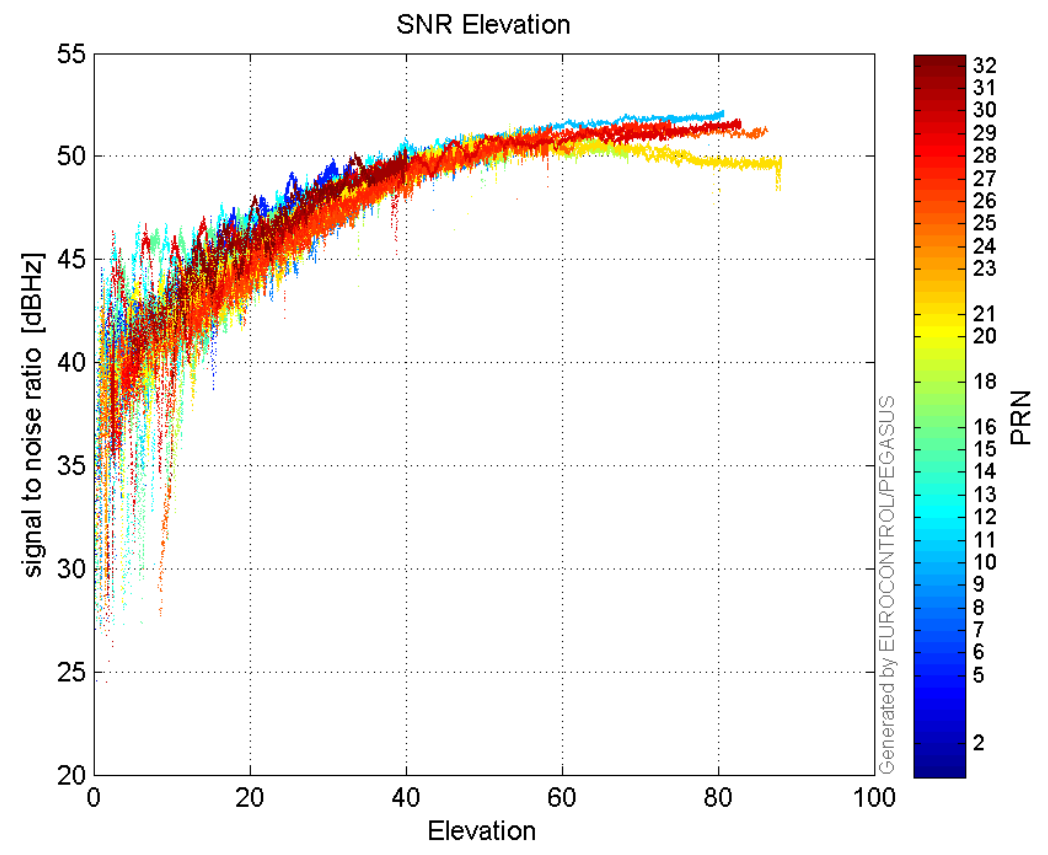
**L2 CNo:**



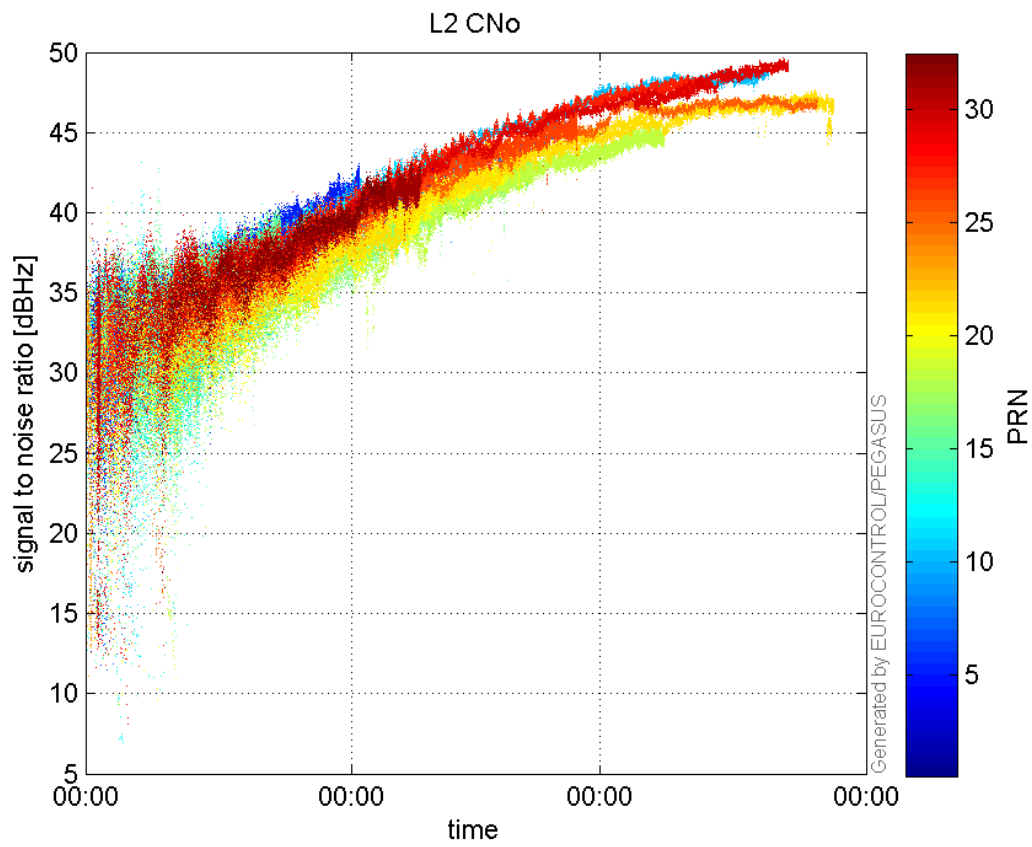
**GEO CNo:**



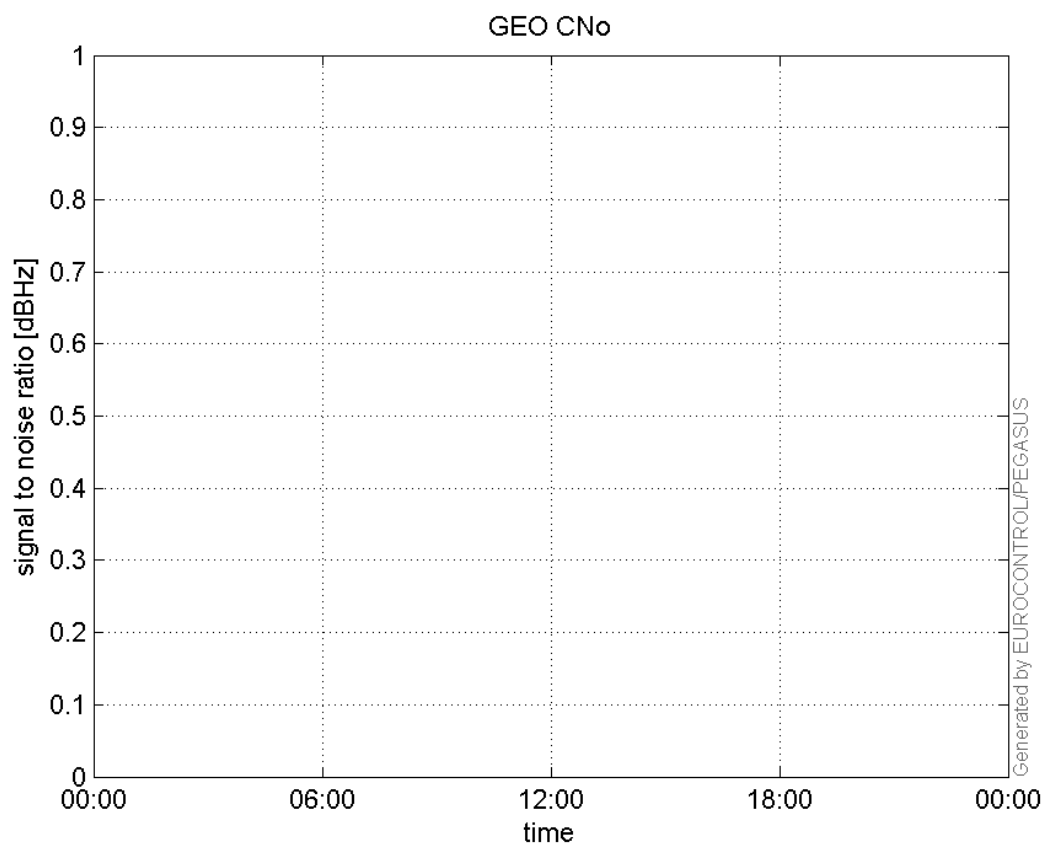
**SNR Elevation:**



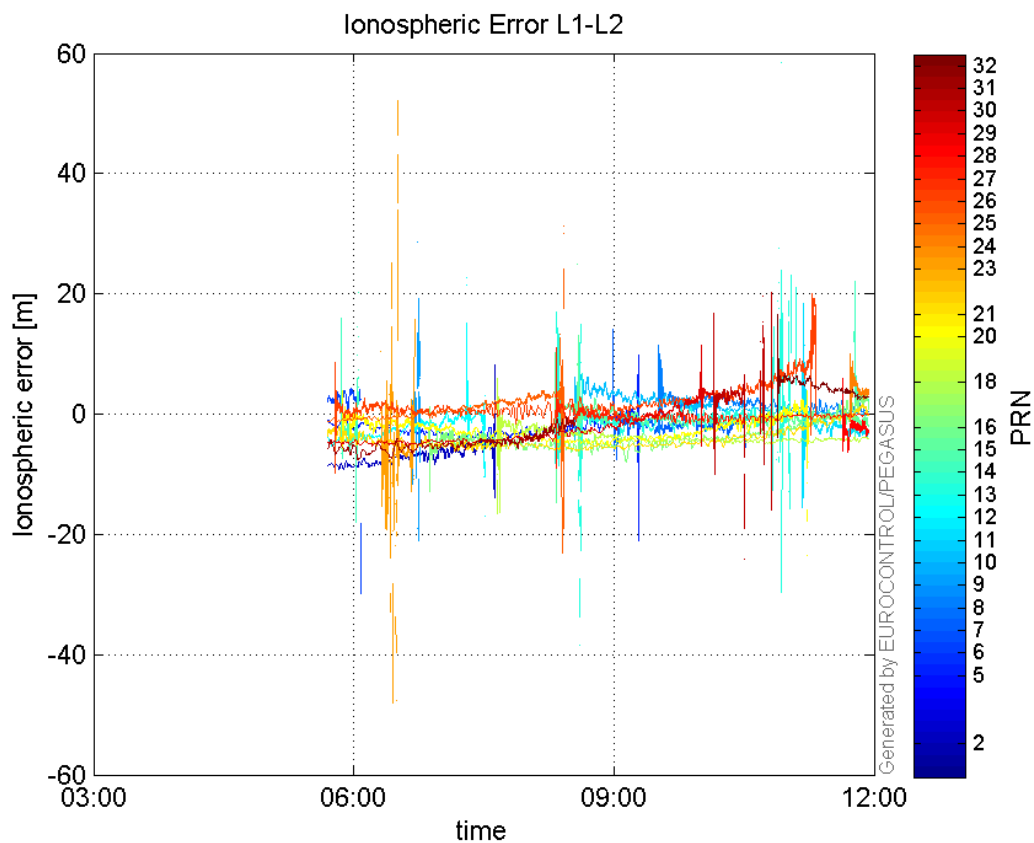
**L2 CNo:**



**GEO CNo:**



## 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_09_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_09_27_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	227.302
mi_numbers	results	0