

# Global View

program Pegasus  
 version 4.8.4  
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,  
 P.50 - 54  
 city Kiev  
 country Ukraine  
 abbreviation NAU  
 site Laboratory satellite systems  
 date 26/12/2015

## Position Domain

**start:** 08:00:38 18.12.2015 ( week: 1875 sec: 460838 )  
**end:** 14:07:19 18.12.2015 ( week: 1875 sec: 482839 )  
**duration:** 06:06:42 ..

### quality

**valid samples** 21641  
**total samples** 22002

### Event tables

**Position discontinuity events type** all  
**APV-I discontinuity events type** all  
**APV-35m discontinuity events type** long  
**LPV-200 discontinuity events type** long  
**CAT-I discontinuity events type** all

#### extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	473843	1.77627	11.4033	0.155768	0.496345	16.5155	0.0300533
<b>max normVer</b>	461378	1.11635	15.4102	0.0724426	2.78401	27.3342	0.101851
<b>max HPE</b>	471769	3.55151	34.8248	0.101982	-3.45019	39.4043	0.0875588
<b>max VPE</b>	471972	3.43564	34.235	0.100355	-4.05607	40.2516	0.100768
<b>min HPL</b>	475087	1.12116	8.50334	0.131849	-0.55068	12.6787	0.0434335
<b>min VPL</b>	467406	0.828791	12.1418	0.0682593	0.251907	11.7235	0.0214874

#### Position discontinuity events :

#	Epoch	duration	stable period
1	475061	17	13862

#### APV-I discontinuity events :

#	Epoch	duration	stable period
1	475060	22	13861
2	480225	324	5143

**APV-35m discontinuity events :**

#	Epoch	duration	stable period
1	471353	1177	1
2	475060	22	2530
3	480225	324	5143

**LPV-200 discontinuity events :**

#	Epoch	duration	stable period
1	471353	1177	1
2	475060	22	2530
3	480225	324	5143

**CAT-I discontinuity events :**

#	Epoch	duration	stable period
1	467435	2	32
2	467439	2	2
3	467443	2	2
4	467447	2	2
5	467451	2	2
6	467455	2	2

**First Glance analysis**

<b>Duration</b>	22002
<b>Number of Samples</b>	22002
<b>Number of invalid sample</b>	361
<b>Number of no position solution samples</b>	17
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.6408
<b>Number of Misleading Information</b>	0
<b>Data gaps</b>	0
<b>Discontinuities</b>	1

**Number of Samples :**

Valid	APV-1	LPV-200	CAT-1	APV-35m
21624	21295	20020	45	20020

**Accuracy statistics :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	2.22351	2.22787	1.86199	0.906398	1.86199
<b>HPEscale 95%</b>	NaN	4.90206	4.92714	2.9209	4.92714
<b>VPE 95%</b>	1.92611	1.93847	1.44906	0.53172	1.44906
<b>VPEscale 95%</b>	NaN	3.62623	2.48346	0.539709	2.48346

**Availability :**

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

<b>Signal in Space</b>	0.999214	0.984012	0.925096	0.00207939	0.925096
<b>measurements</b>	0.98282	0.967867	0.909917	0.00204527	0.909917
<b>Operational</b>	0.98282	0.967867	0.909917	0.00204527	0.909917

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	1	2	53	6	53
<b>Long</b>	1	2	3	0	3
<b>Independent</b>	1	2	2	0	2
<b>P(disc.)</b>	0.000693674	0.00140878	0.0014985	0	0.0014985
<b>P(slide)</b>	0.000693674	0.00140878	0.00504496	0.555556	0.00504496

**Integrity events :**

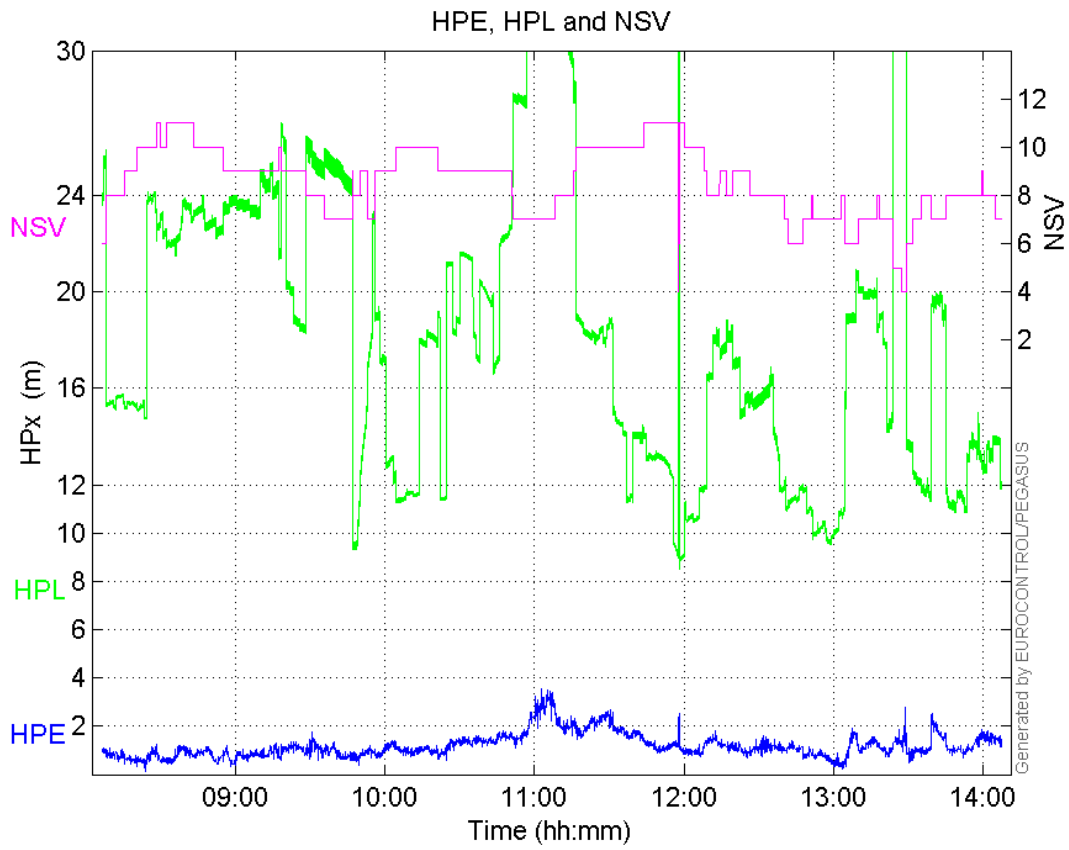
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

**Performance Summary :**

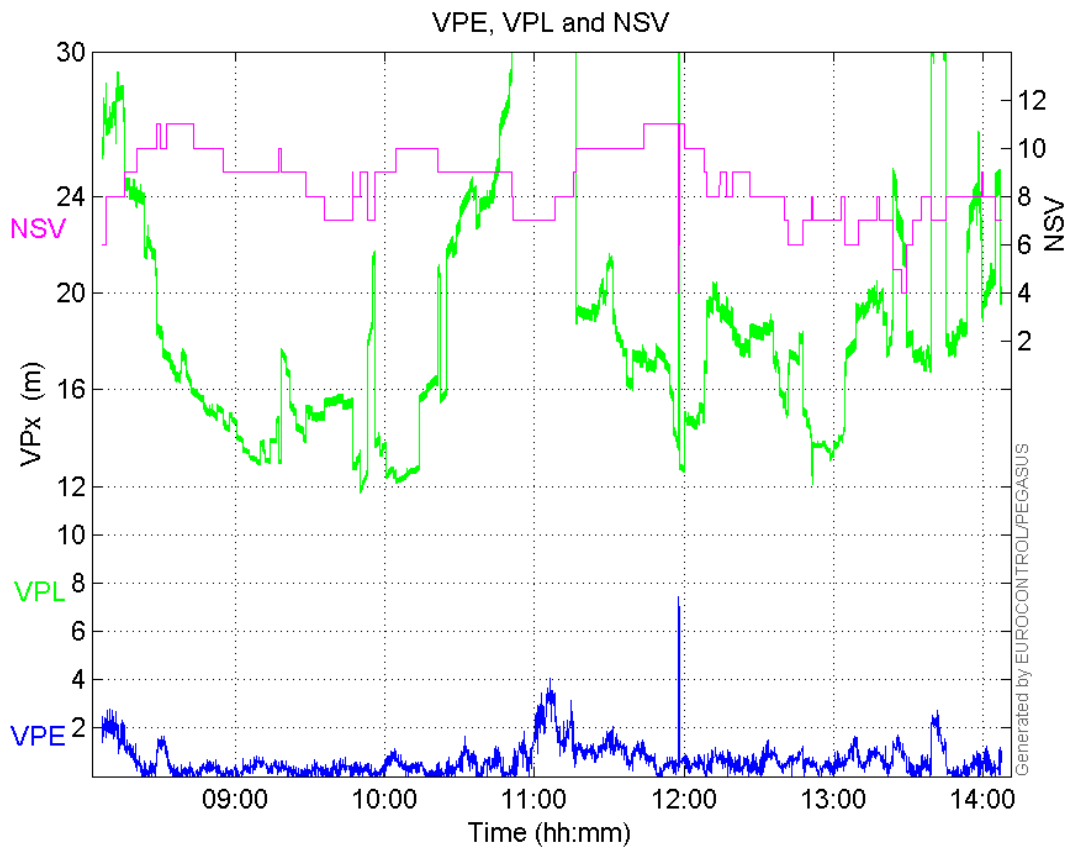
	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	21624	21295	20020	45	20020
<b>SIS Availability</b>	0.999214	0.984012	0.925096	0.00207939	0.925096
<b>Local Availability</b>	0.98282	0.967867	0.909917	0.00204527	0.909917
<b>Operational Availability</b>	0.98282	0.967867	0.909917	0.00204527	0.909917
<b>HPE 95%</b>	2.22351	2.22787	1.86199	0.906398	1.86199
<b>HPEscale 95%</b>	NaN	4.90206	4.92714	2.9209	4.92714
<b>VPE 95%</b>	1.92611	1.93847	1.44906	0.53172	1.44906
<b>VPEscale 95%</b>	NaN	3.62623	2.48346	0.539709	2.48346
<b>All Discontinuity Events</b>	1	2	53	6	53
<b>Long Discontinuity Events</b>	1	2	3	0	3
<b>Independent Discontinuity Events</b>	1	2	2	0	2
<b>P(discontinuity)</b>	0.000693674	0.00140878	0.0014985	0	0.0014985
<b>P(sliding window)</b>	0.000693674	0.00140878	0.00504496	0.555556	0.00504496
<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:

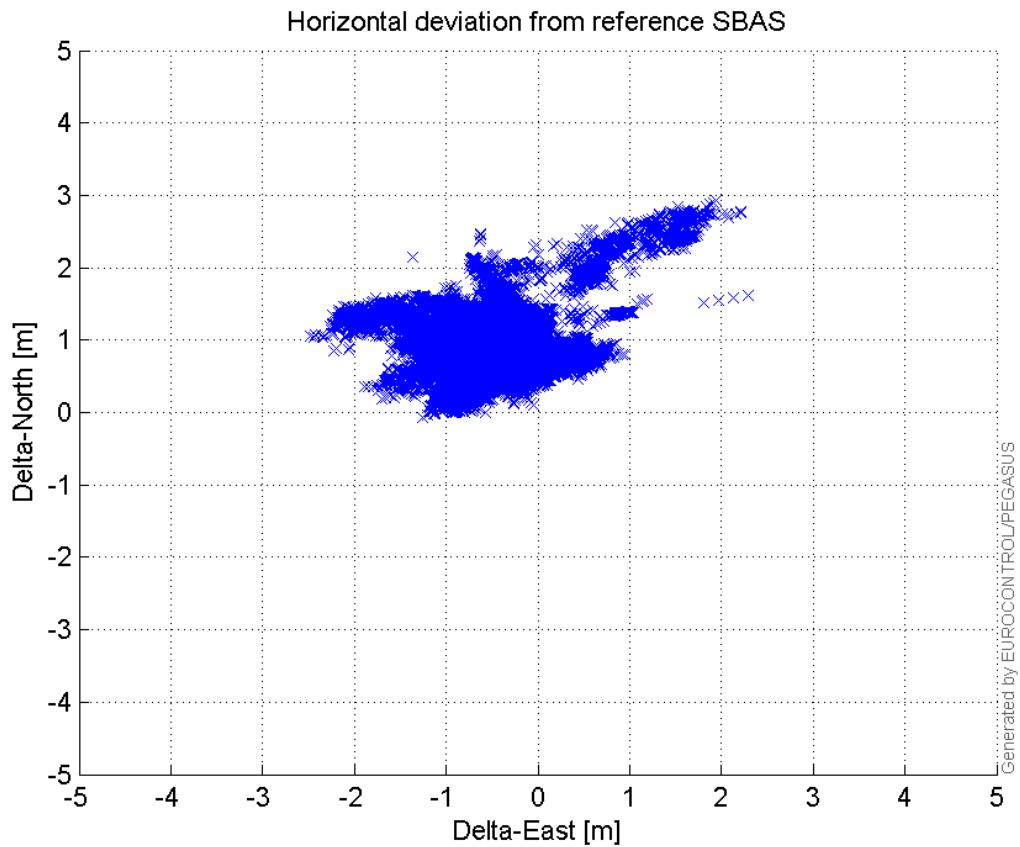


**VPE, VPL and NSV:**



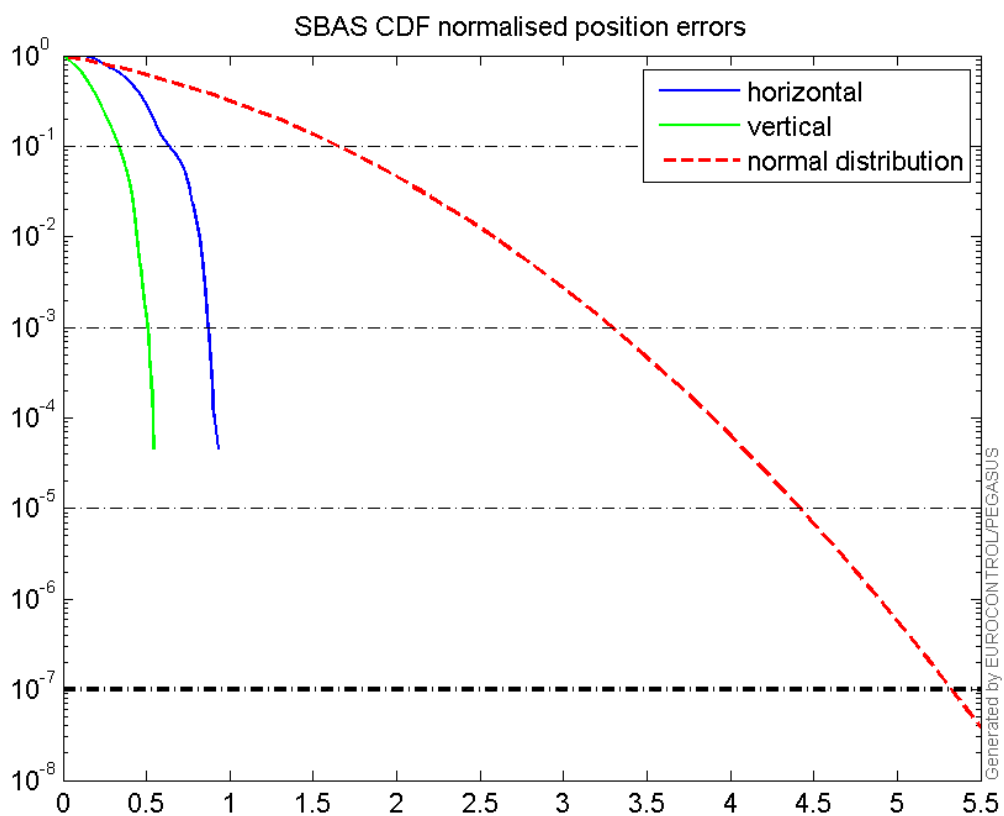
Horizontal deviation

## Horizontal deviation from reference SBAS:



## CDF position

## SBAS CDF position domain:



## Statistics

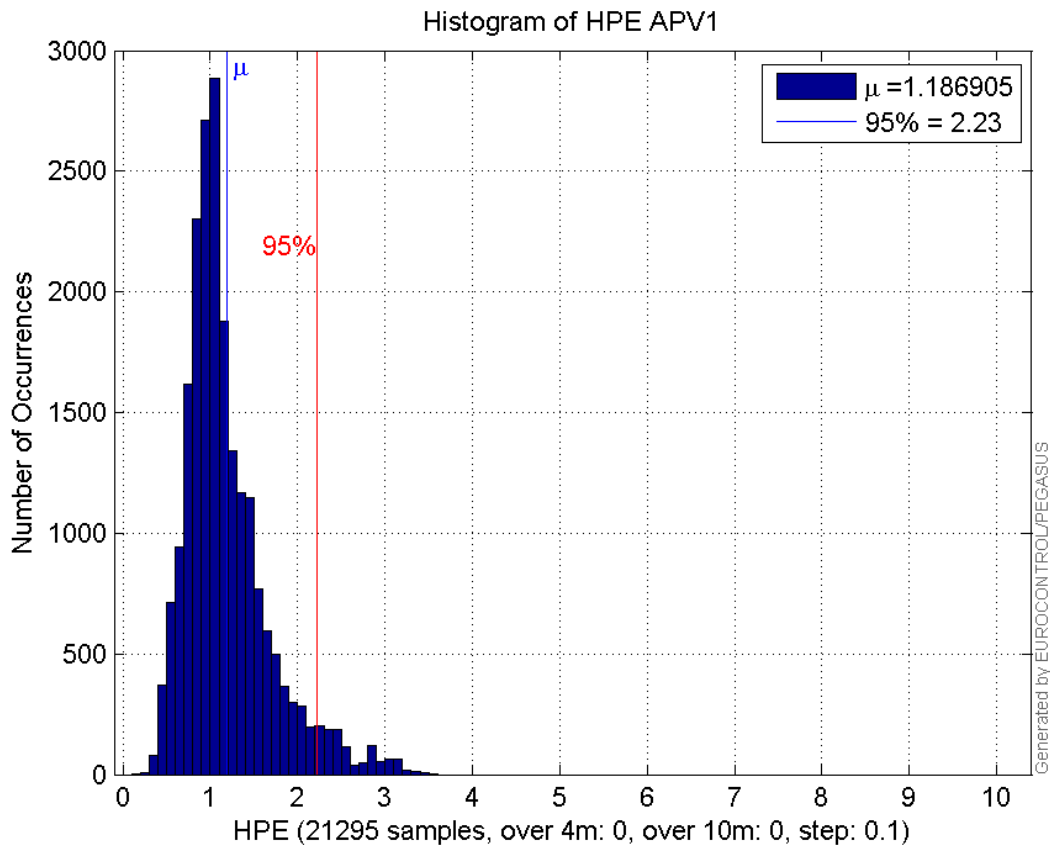
<b>number</b>	21295
<b>sum</b>	25275.133
<b>sum2</b>	35159.258
<b>prctile95</b>	2.2278686
<b>prctile99</b>	2.9092706
<b>number</b>	21295
<b>sum</b>	13826.188
<b>sum2</b>	16247.777
<b>prctile95</b>	1.9384666
<b>prctile99</b>	2.8070797
<b>number</b>	21295
<b>sum</b>	389987.64
<b>sum2</b>	7933158.2
<b>prctile95</b>	29.902675
<b>prctile99</b>	36.391175
<b>number</b>	21295
<b>sum</b>	414251.72
<b>sum2</b>	8969831.3
<b>prctile95</b>	36.0632
<b>prctile99</b>	41.01053
<b>number</b>	21295
<b>sum</b>	1470.9599
<b>sum2</b>	117.61055
<b>prctile95</b>	0.1225515
<b>prctile99</b>	0.13631878
<b>number</b>	21295
<b>sum</b>	671.75896
<b>sum2</b>	30.568025
<b>prctile95</b>	0.072524608
<b>prctile99</b>	0.082957007
<b>number</b>	20020
<b>sum</b>	22285.143
<b>sum2</b>	27816.516
<b>prctile95</b>	1.8619908
<b>prctile99</b>	2.3638037
<b>number</b>	20020
<b>sum</b>	11369.708
<b>sum2</b>	10628.356
<b>prctile95</b>	1.4490581
<b>prctile99</b>	2.1832147
<b>number</b>	20020
<b>sum</b>	347945.49
<b>sum2</b>	6534909.4
<b>prctile95</b>	25.1971
<b>prctile99</b>	27.91123
<b>number</b>	20020
<b>sum</b>	365006.39
<b>sum2</b>	7061690.9
<b>prctile95</b>	27.60555

**prctile99** 31.47145  
**number** 20020  
**sum** 1380.6147  
**sum2** 111.00635  
**prctile95** 0.12317839  
**prctile99** 0.13666466  
**number** 20020  
**sum** 608.19044  
**sum2** 26.848578  
**prctile95** 0.070956031  
**prctile99** 0.081023994

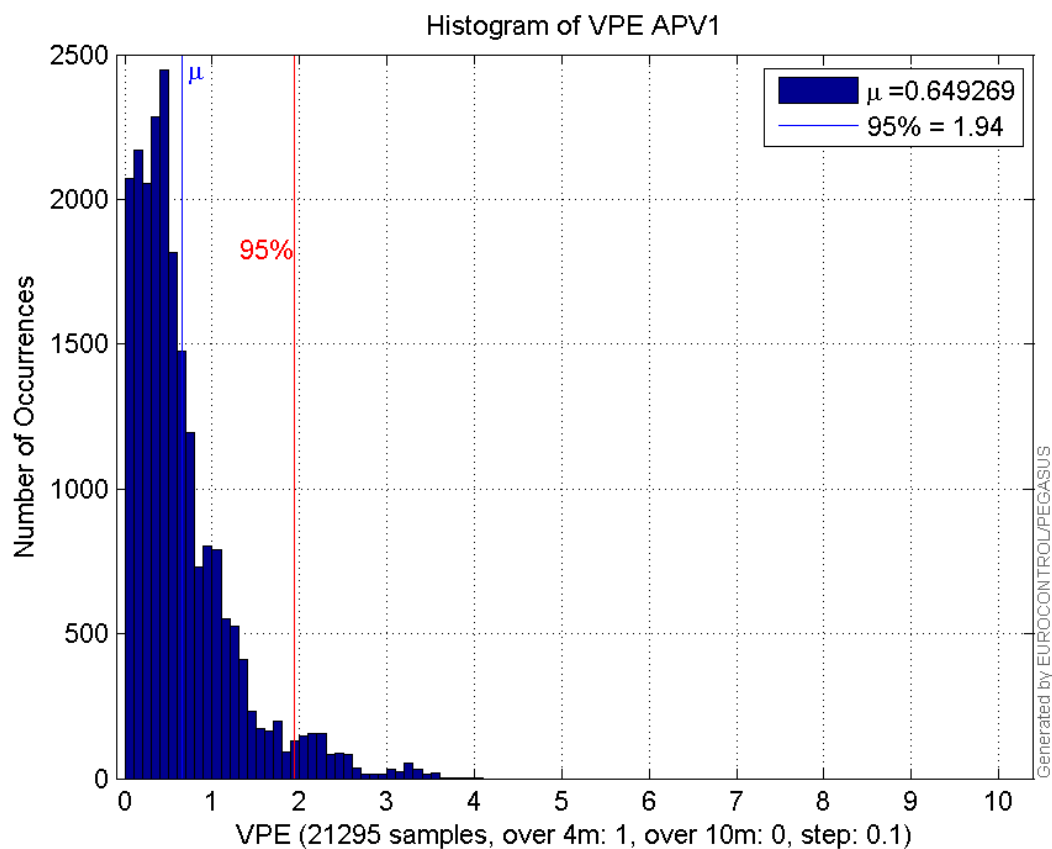
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.1869	0.492266	1.06259	2.22787	2.90927	1.28493
<b>HPL</b>	18.3136	6.09515	18.0478	29.9027	36.3912	19.3012
<b>VPE</b>	0.649269	0.584338	0.481856	1.93847	2.80708	0.87349
<b>VPL</b>	19.453	6.5422	17.6035	36.0632	41.0105	20.5236

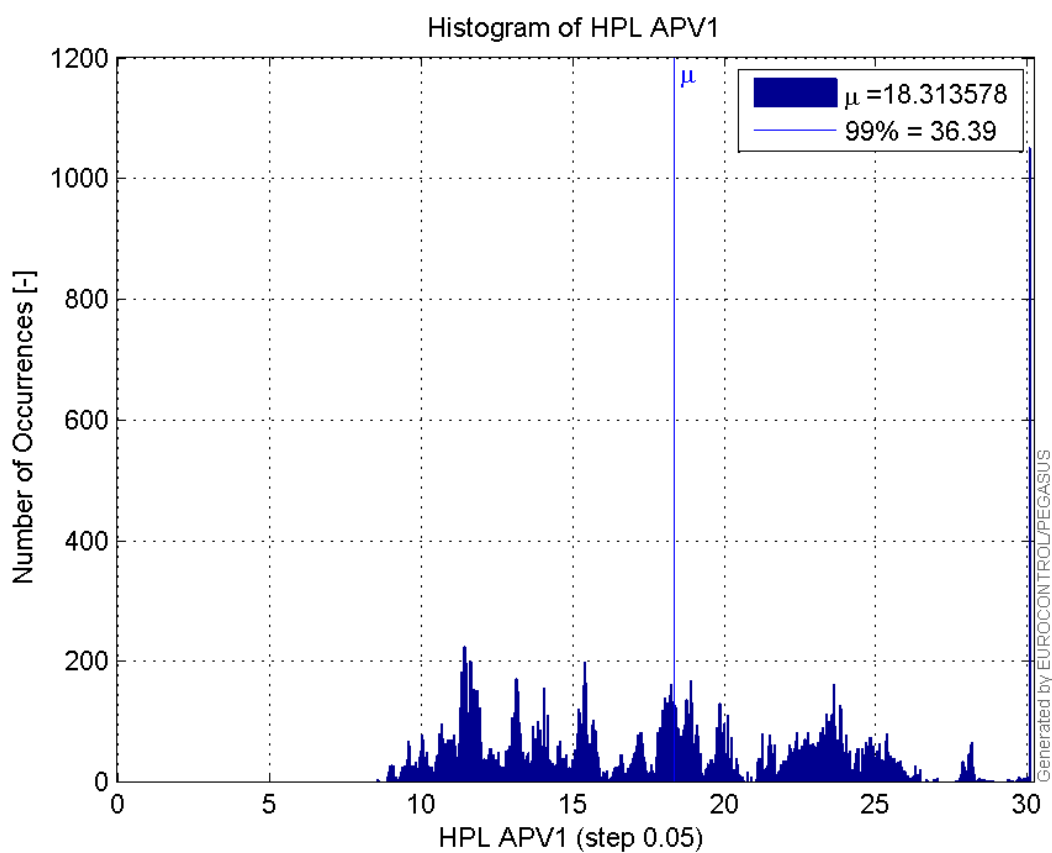
**Histogram of HPE APV1:**



**Histogram of VPE APV1:**

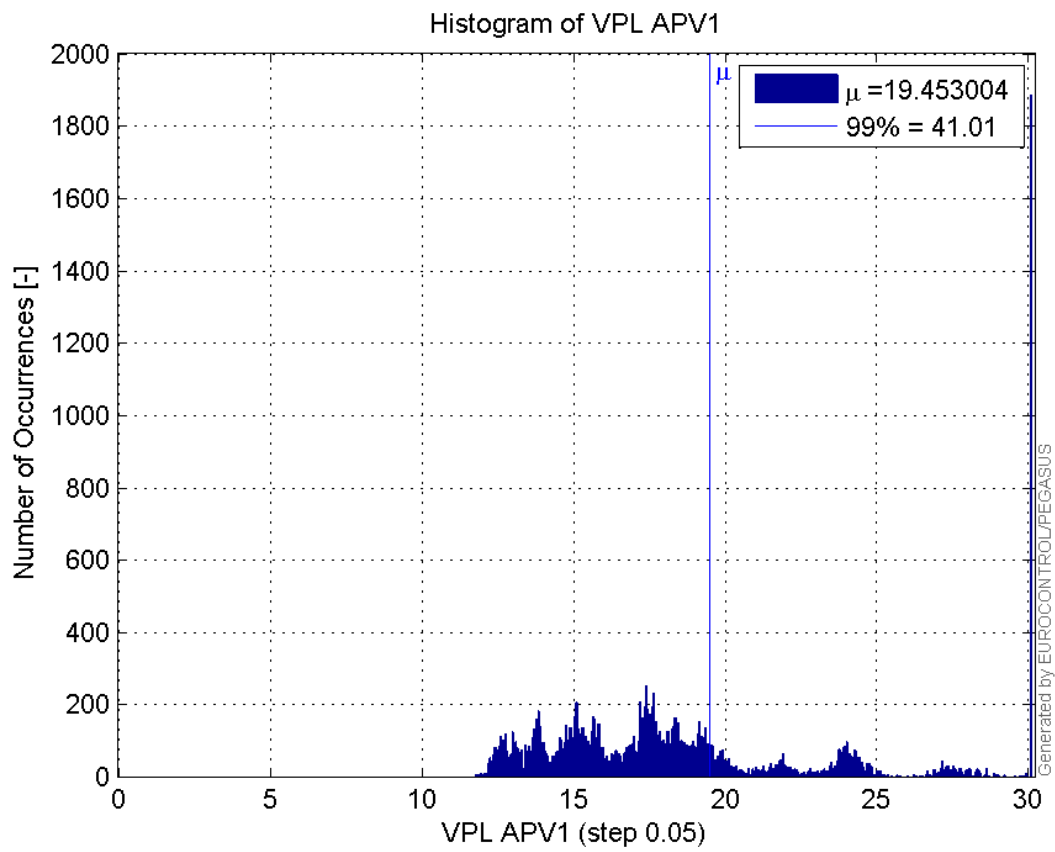


Histogram of HPL APV1:

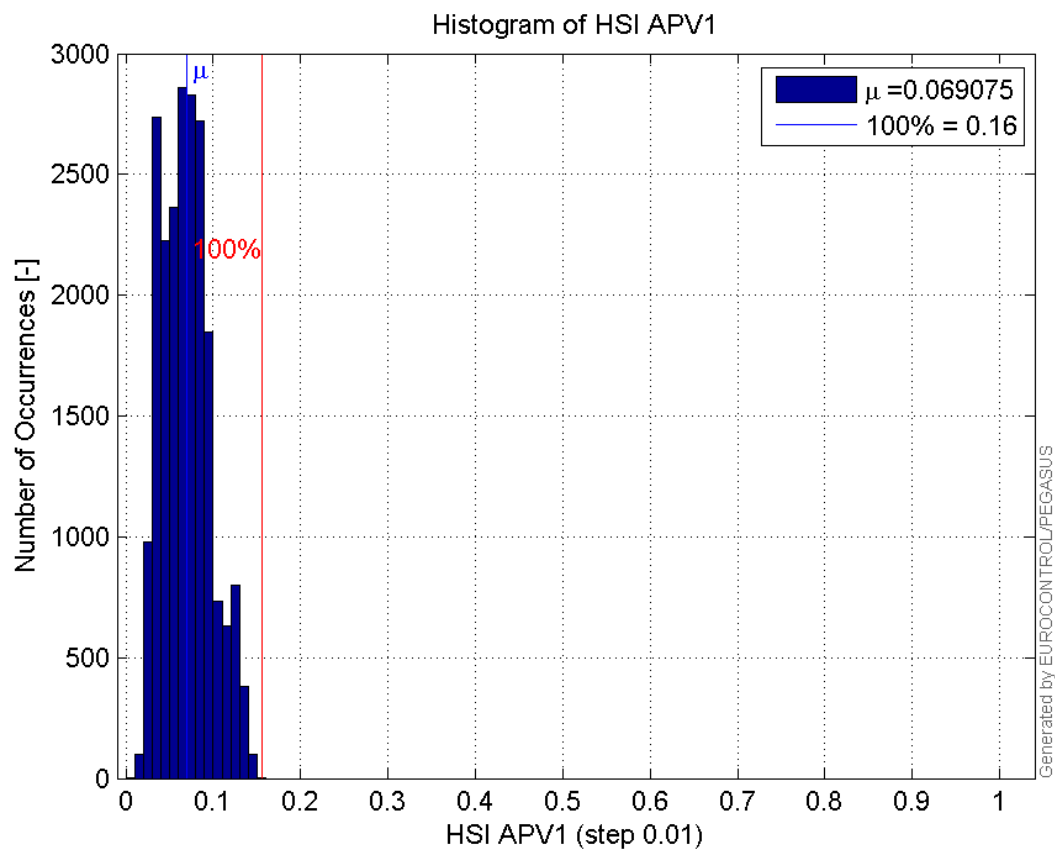


Histogram of VPL APV1:

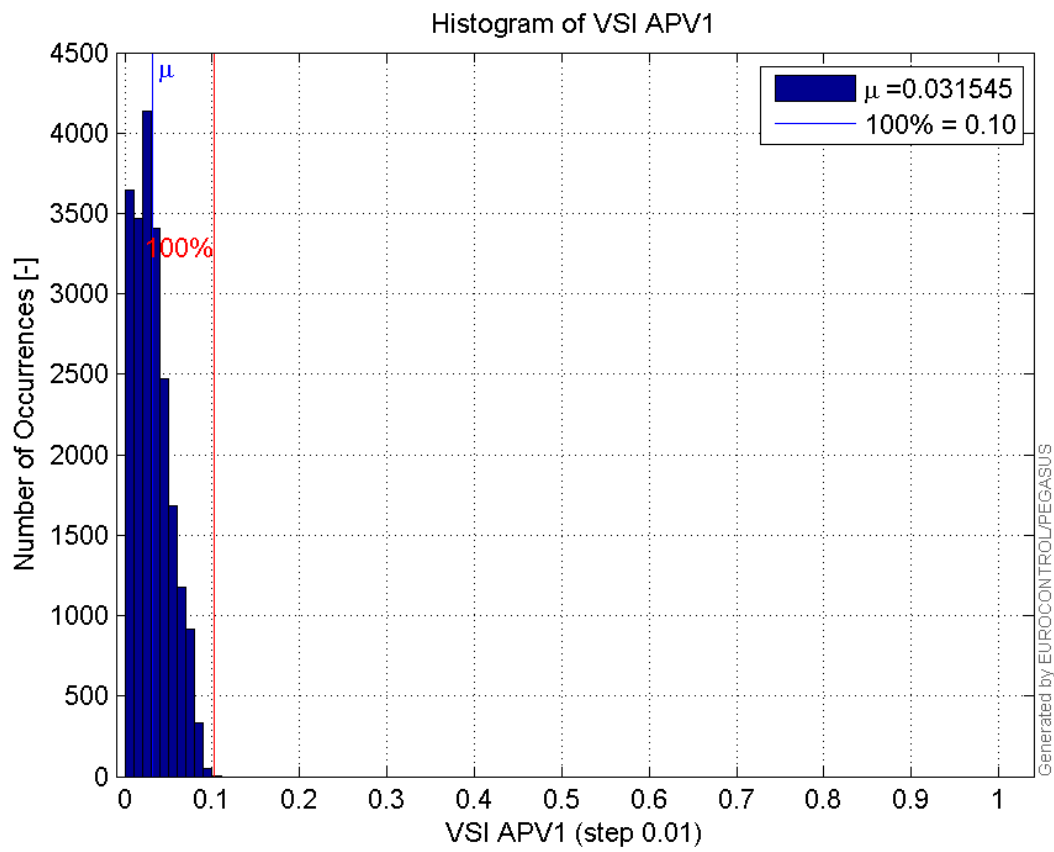




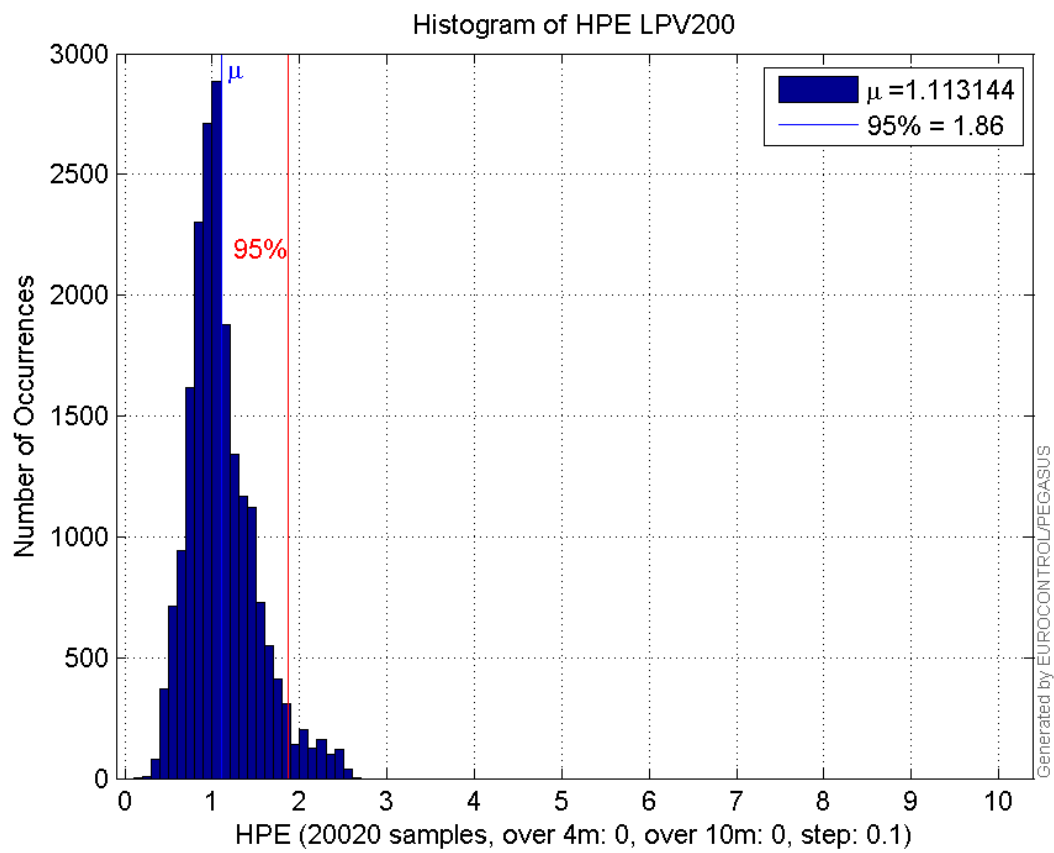
**Histogram of HSI APV1:**



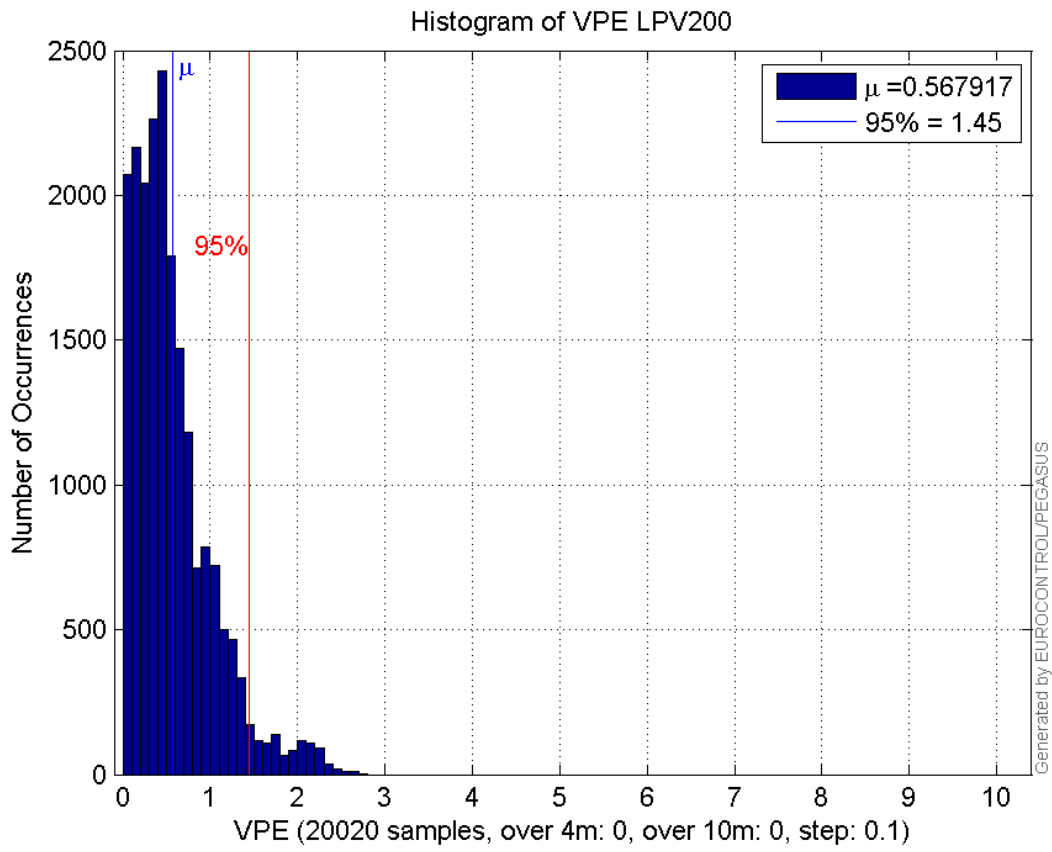
**Histogram of VSI APV1:**



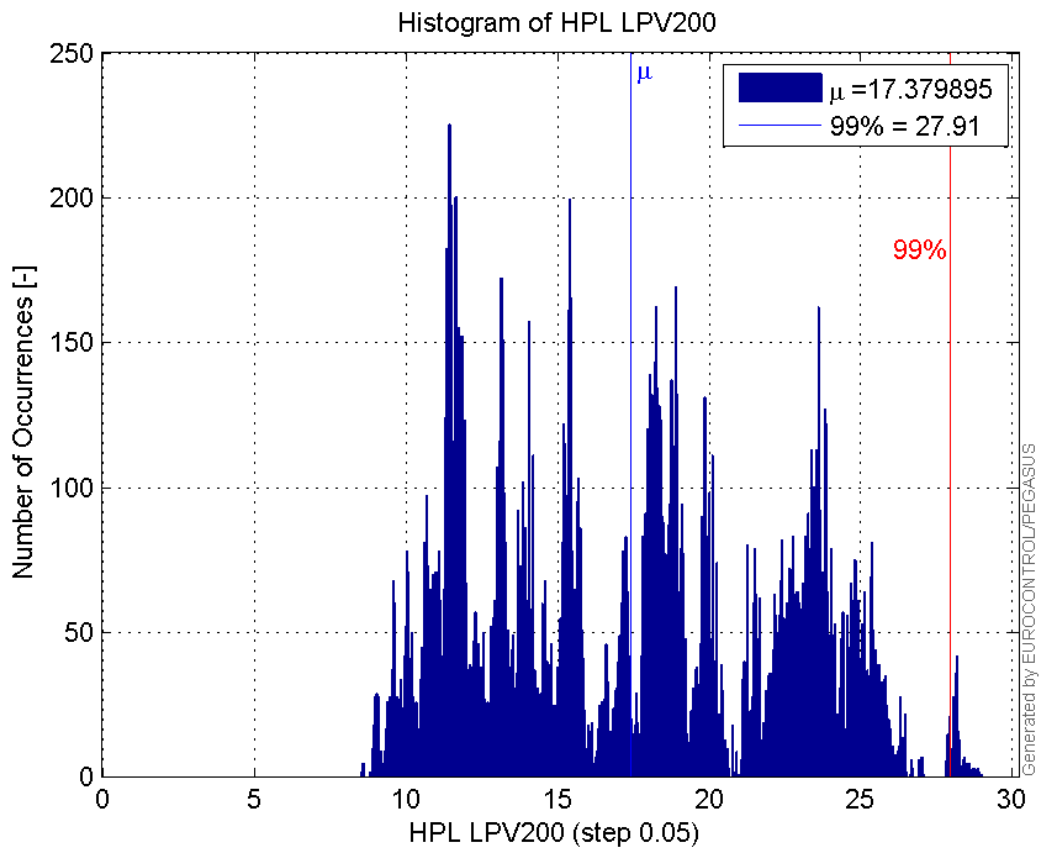
**Histogram of HPE LPV200:**



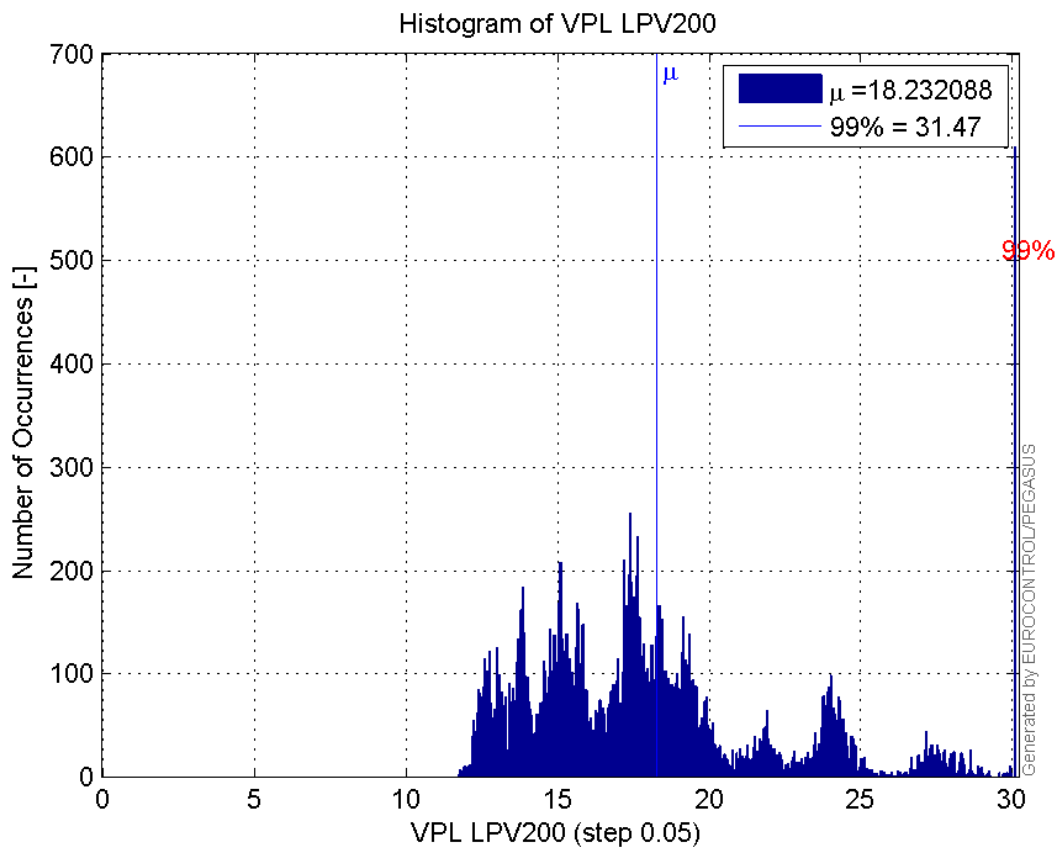
**Histogram of VPE LPV200:**



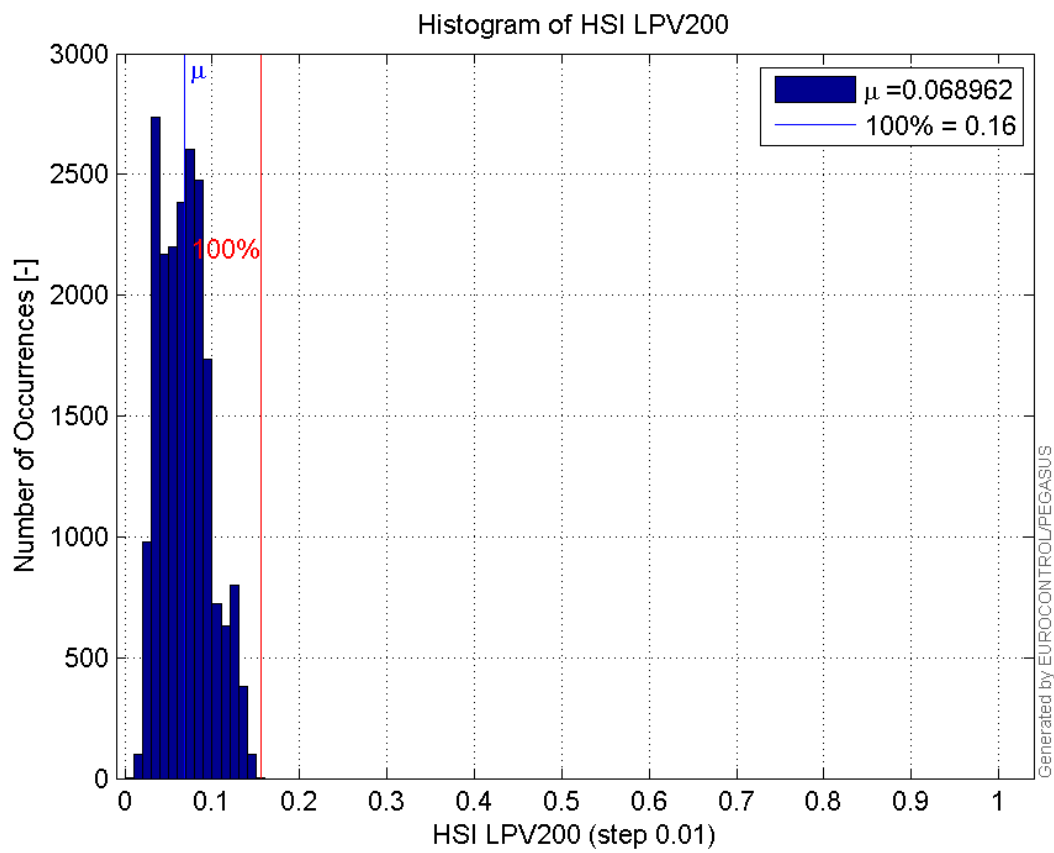
**Histogram of HPL LPV200:**



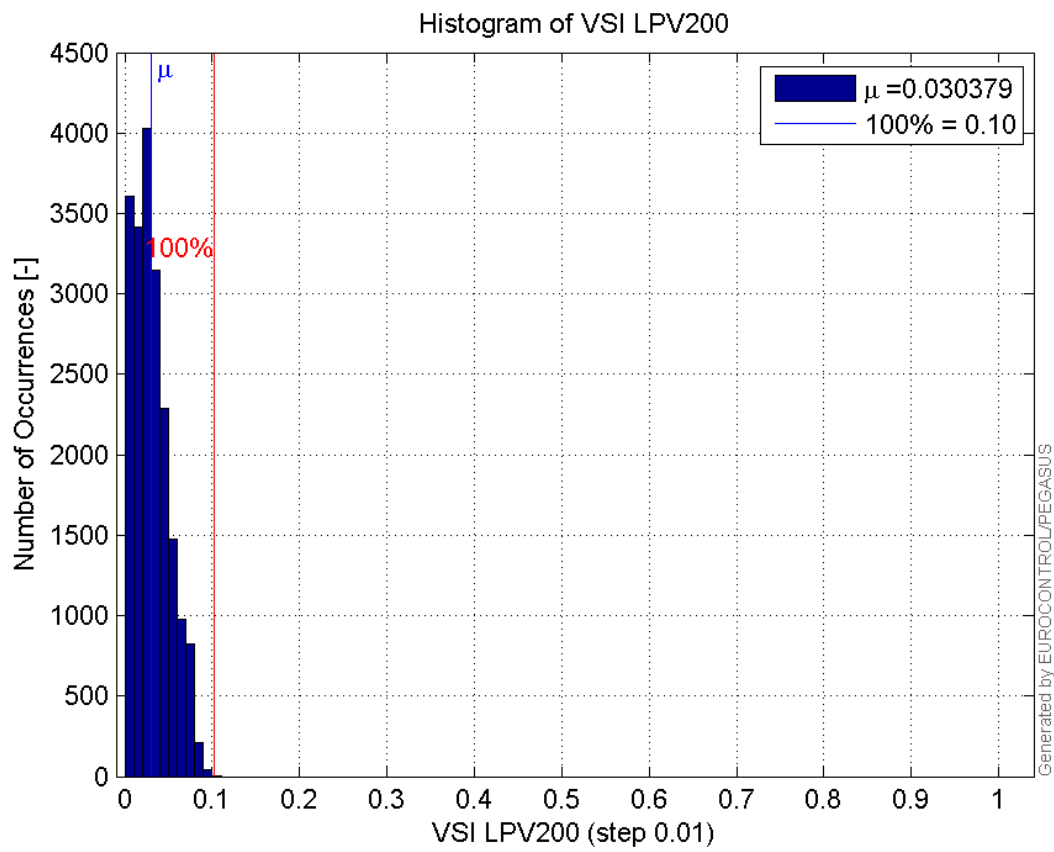
**Histogram of VPL LPV200:**



**Histogram of HSI LPV200:**

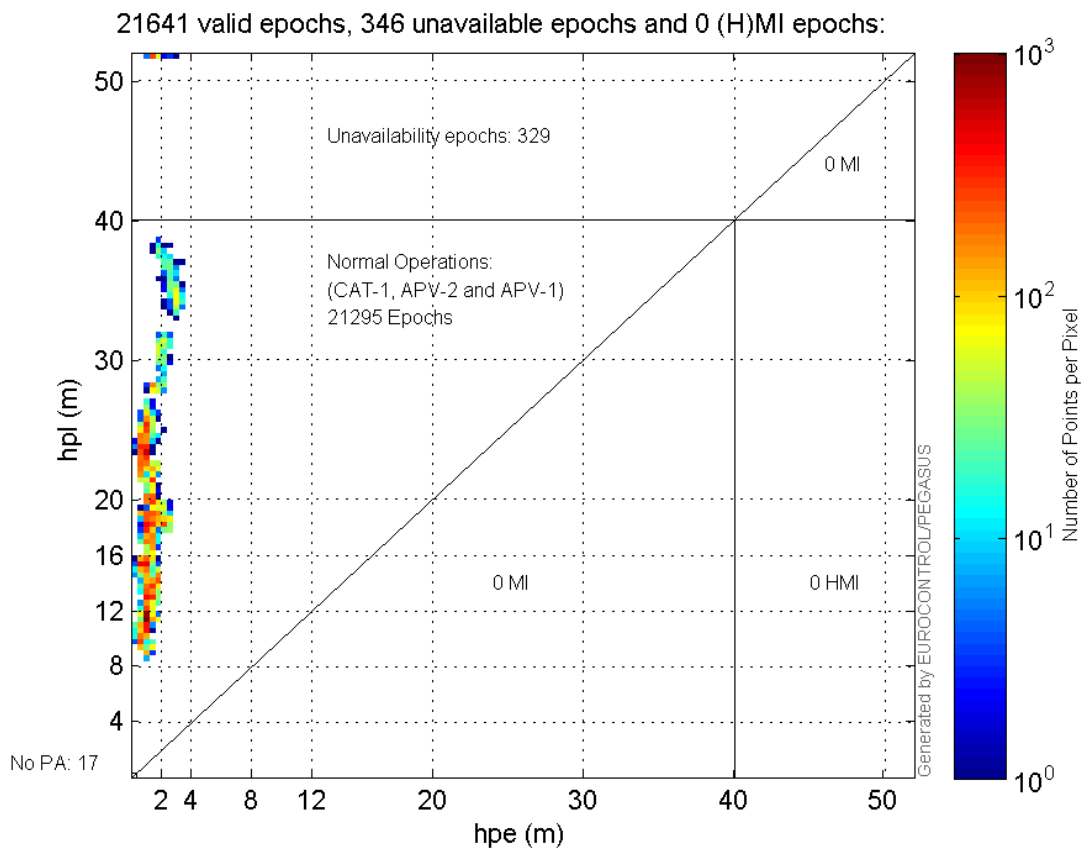


**Histogram of VSI LPV200:**

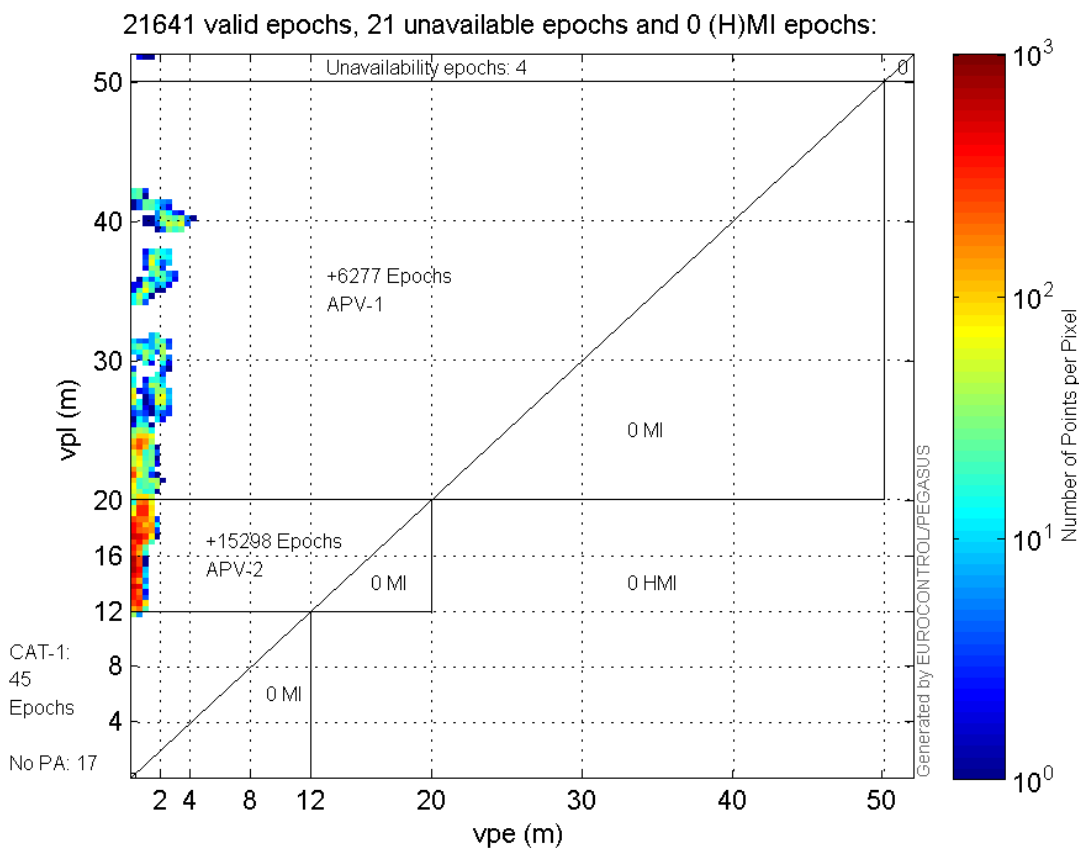


### Stanford Plots

#### 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:/PegasusDateGob/job/2015_12_18EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_18EGNOS/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	50.4391
init_lon	results	30.4297
init_alt	results	237.9111
mi_numbers	results	0

## SBAS Messages

**start:** 08:00:37.129 18.12.2015 ( week: 1875 sec: 460837.129 )  
**end:** 14:07:18.129 18.12.2015 ( week: 1875 sec: 482838.129 )  
**duration:** 06:06:41 ..

## quality

**valid samples** 43978  
**total samples** 43978  
**number of SBAS PRNs** 2

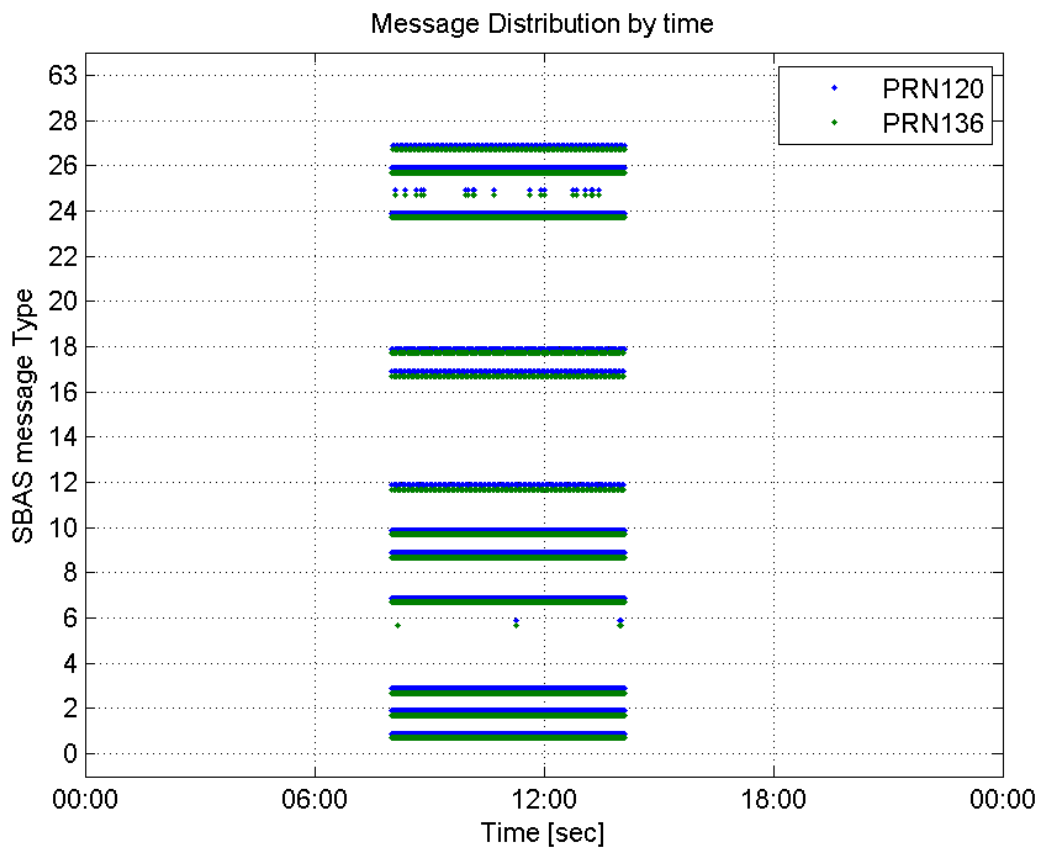
## SBAS SIS Overview

## Message Type 6 repetitions :

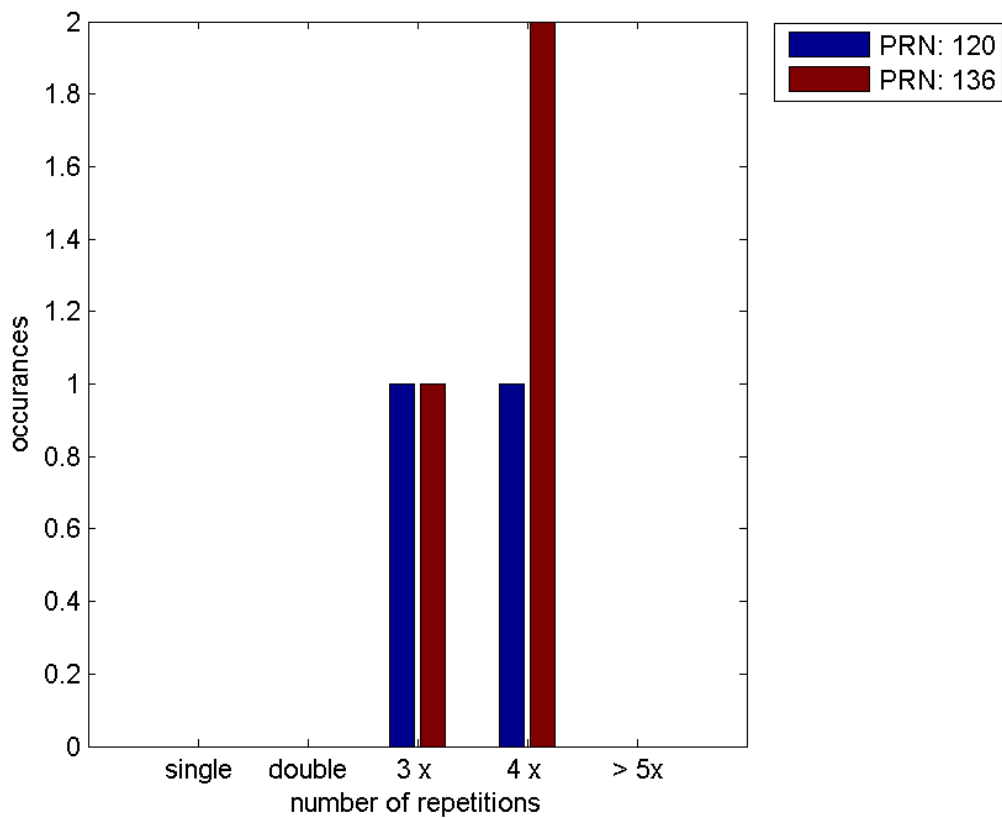
	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	1	0
PRN 136	0	0	1	2	0

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 Message Distribution by time:



**Message Type 6 repetitions:**





## Broadcast SBAS Messages :

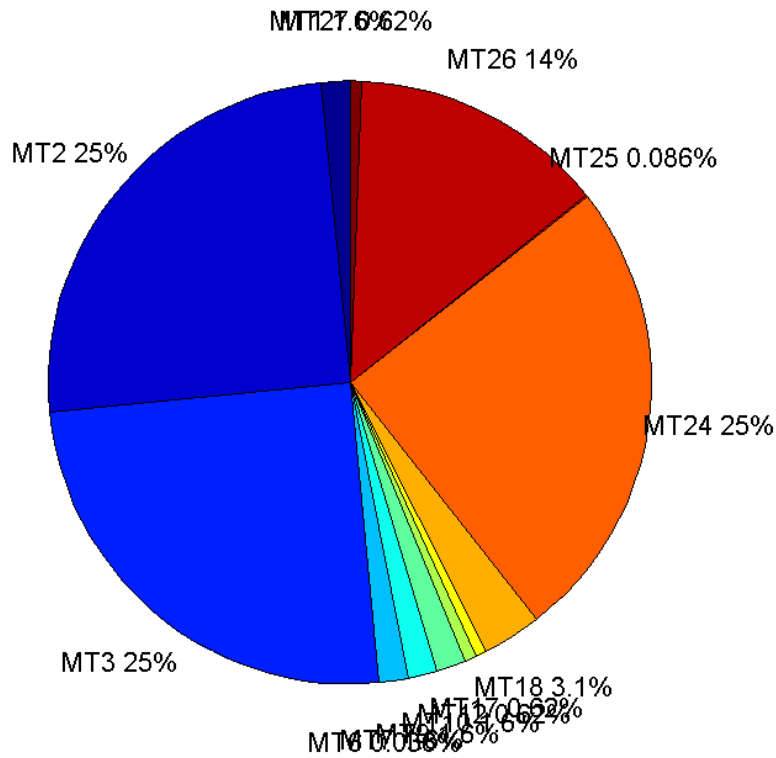
	number of messages	%
MT 0	0	0
MT 1	343	1.56072
MT 2	5490	24.9807
MT 3	5490	24.9807
MT 4	0	0
MT 5	0	0
MT 6	8	0.0364017
MT 7	342	1.55617
MT 9	342	1.55617
MT 10	343	1.56072
MT 12	137	0.623379
MT 17	137	0.623379
MT 18	688	3.13055
MT 24	5490	24.9807
MT 25	19	0.086454
MT 26	3011	13.7007
MT 27	137	0.623379
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	21977	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	68	64.1901	0	0	0
MT 2	4	32	4.0082	3	1	1
MT 3	4	28	4.00747	3	1	1
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	9843	1407	1	1	1
MT 7	64	68	64.1789	0	0	0
MT 9	64	128	64.39	0	0	0
MT 10	64	68	64.2018	0	0	0
MT 12	156	167	160.39	136	0	0
MT 17	160	167	160.419	0	0	0
MT 18	4	143	32.0073	0	0	0
MT 24	4	28	4.00747	0	0	0
MT 25	65	4017	1060.94	0	0	0
MT						

26	4	32	7.30532	0	0	0
MT 27	157	167	160.419	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	343	1.55902
MT 2	5495	24.9761
MT 3	5496	24.9807
MT 4	0	0
MT 5	0	0
MT 6	12	0.054543
MT 7	343	1.55902
MT 9	343	1.55902

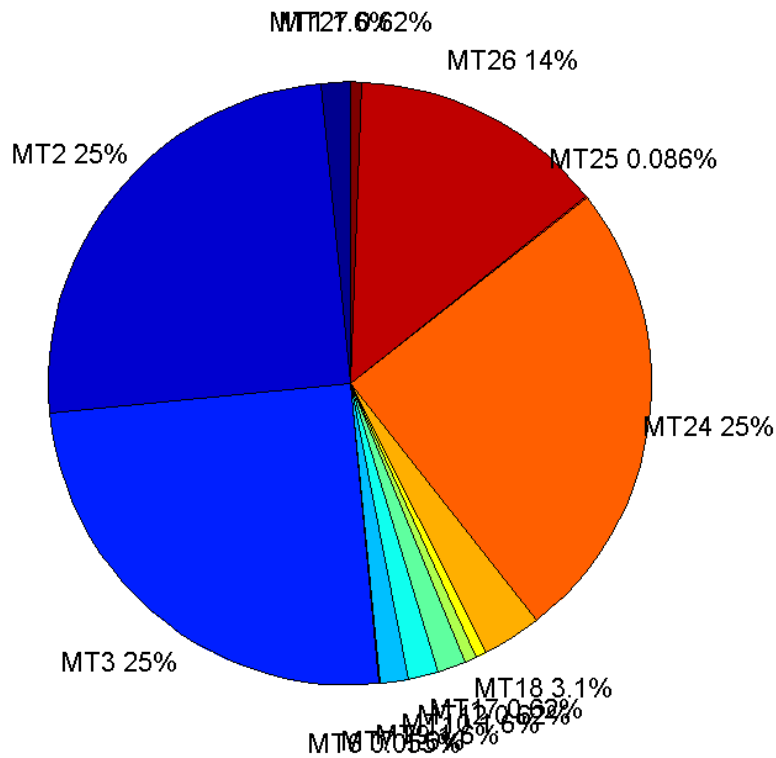
MT 10	342	1.55447
MT 12	137	0.622699
MT 17	137	0.622699
MT 18	685	3.11349
MT 24	5495	24.9761
MT 25	19	0.0863597
MT 26	3017	13.713
MT 27	137	0.622699
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	22001	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	68	64.2135	0	0	0
MT 2	4	7	4.00346	3	0	0
MT 3	4	7	4.00364	3	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	11088	1903.64	2	2	2
MT 7	64	68	64.2135	0	0	0
MT 9	64	68	64.2135	0	0	0
MT 10	64	68	64.2141	0	0	0
MT 12	156	171	160.449	136	0	0
MT 17	156	167	160.478	0	0	0
MT 18	4	143	31.943	0	0	0
MT 24	4	7	4.00364	0	0	0
MT 25	65	4017	1060.94	0	0	0
MT 26	4	47	7.29211	0	0	0
MT 27	156	171	160.449	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:/PegasusDateGob/job/2015_12_18EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_12_18EGNOS/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

### Range Domain

**start:** 08:00:38 18.12.2015 ( week: 1875 sec: 460838 )  
**end:** 14:07:19 18.12.2015 ( week: 1875 sec: 482839 )  
**duration:** 06:06:42 ..

### quality

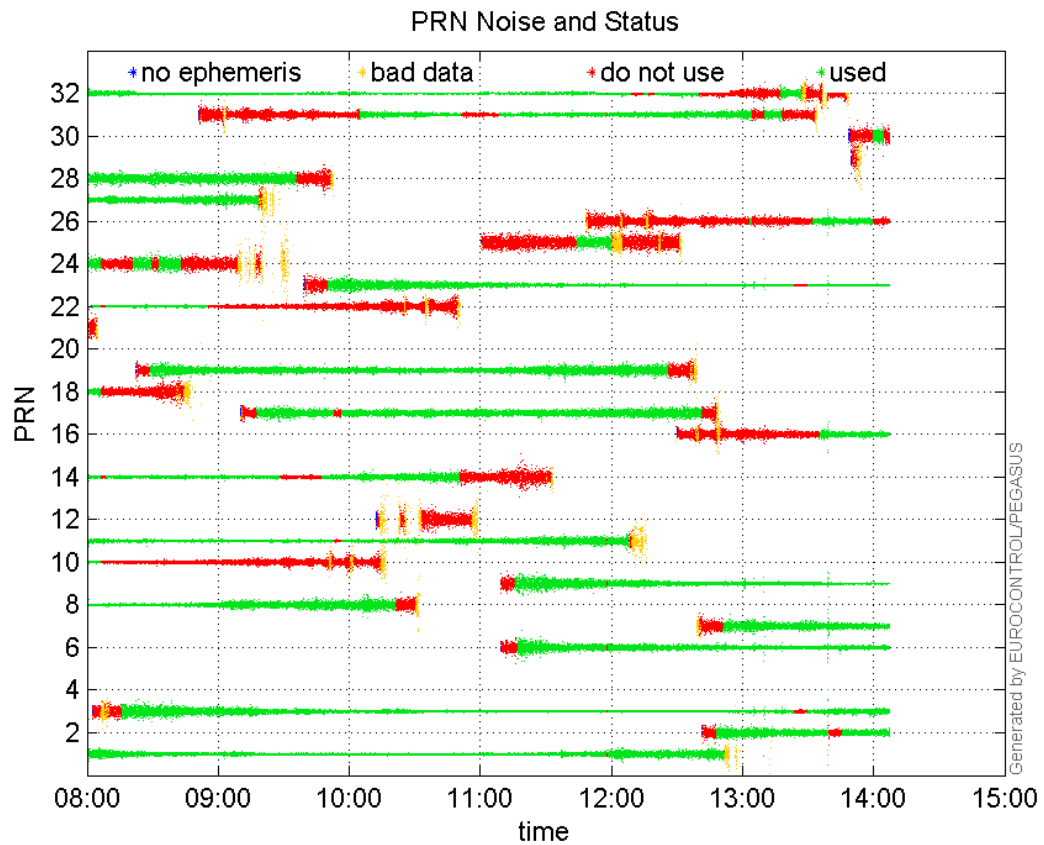
**valid samples** 22002  
**total samples** 22002

## PRN overview

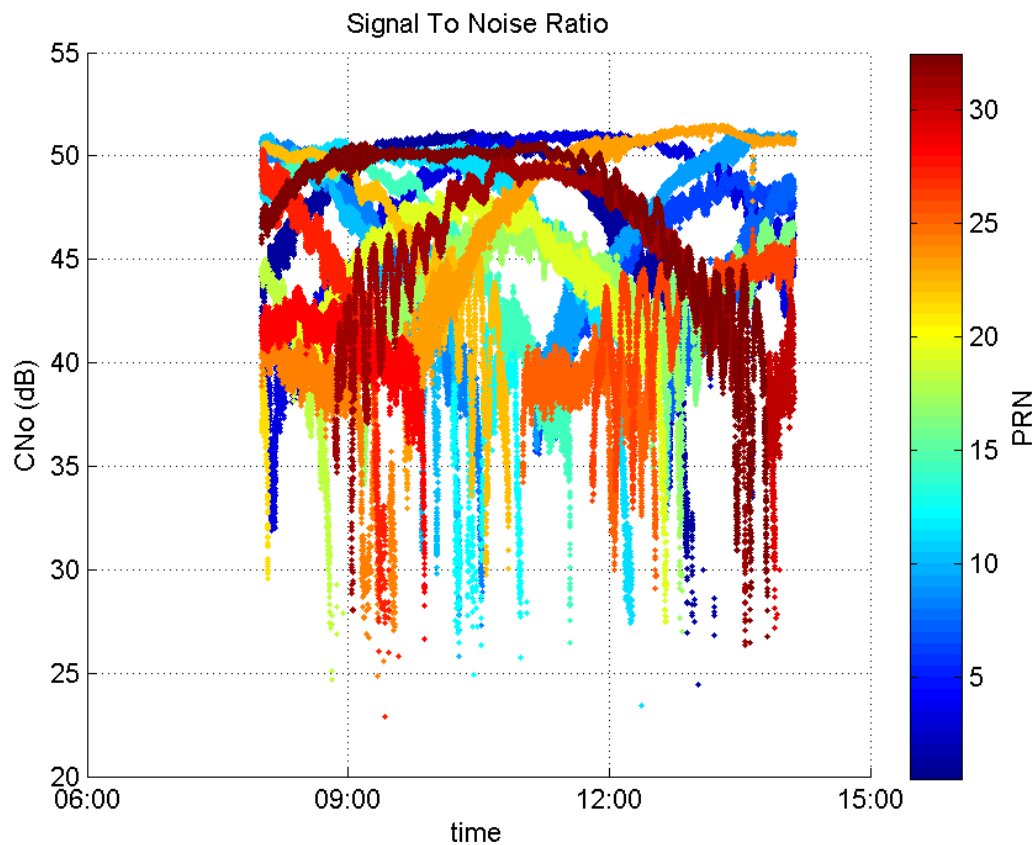
Number of Visible GPS Satellites 27  
Number of Visible SBAS Satellites 2

## signal quality and status

## PRN Noise and Status:



## Signal To Noise Ratio:



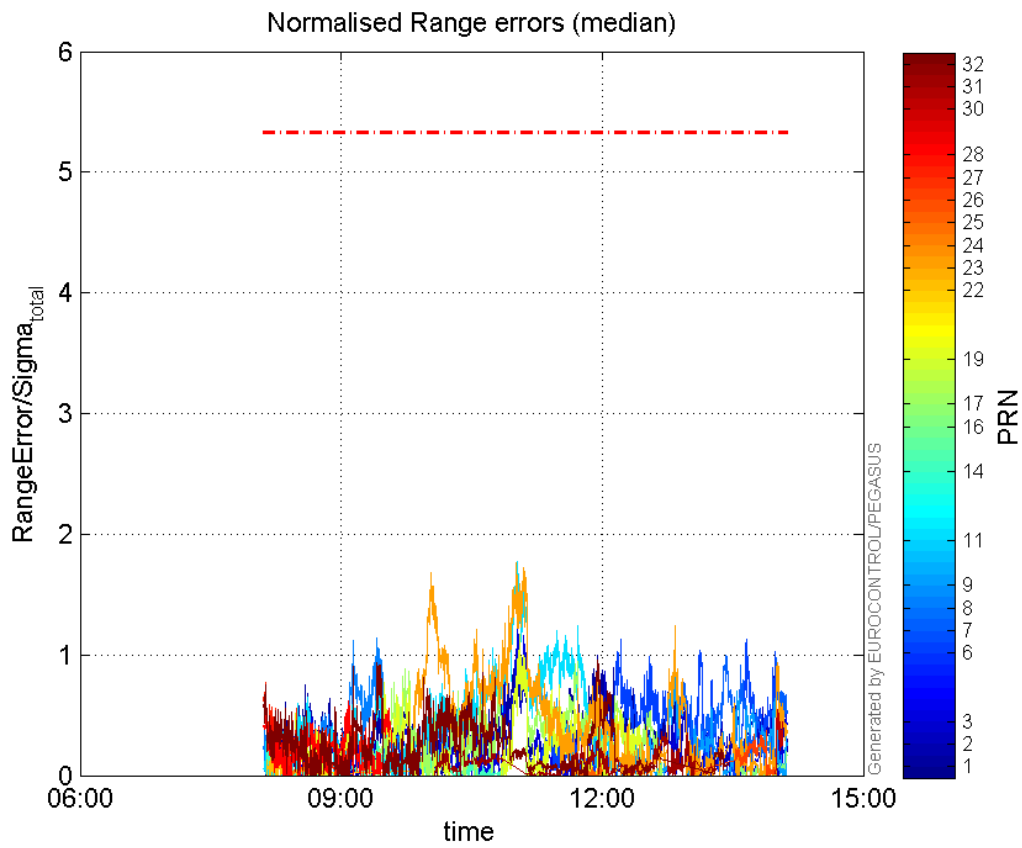
## range errors

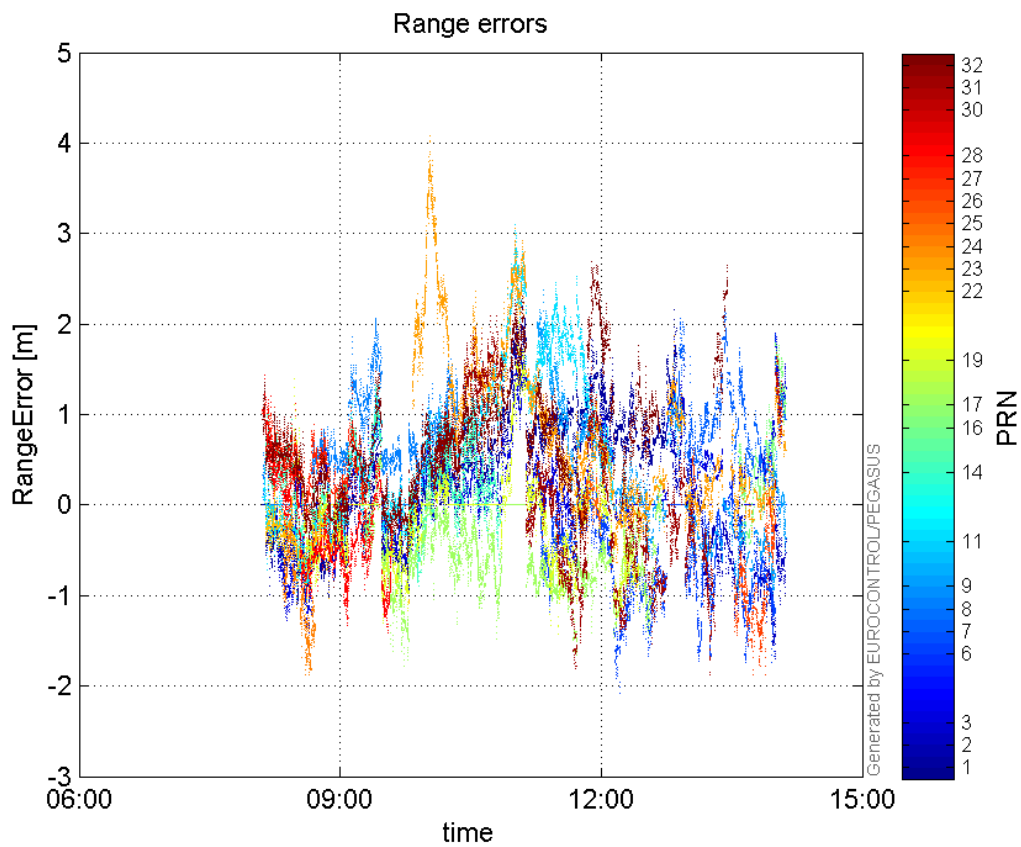
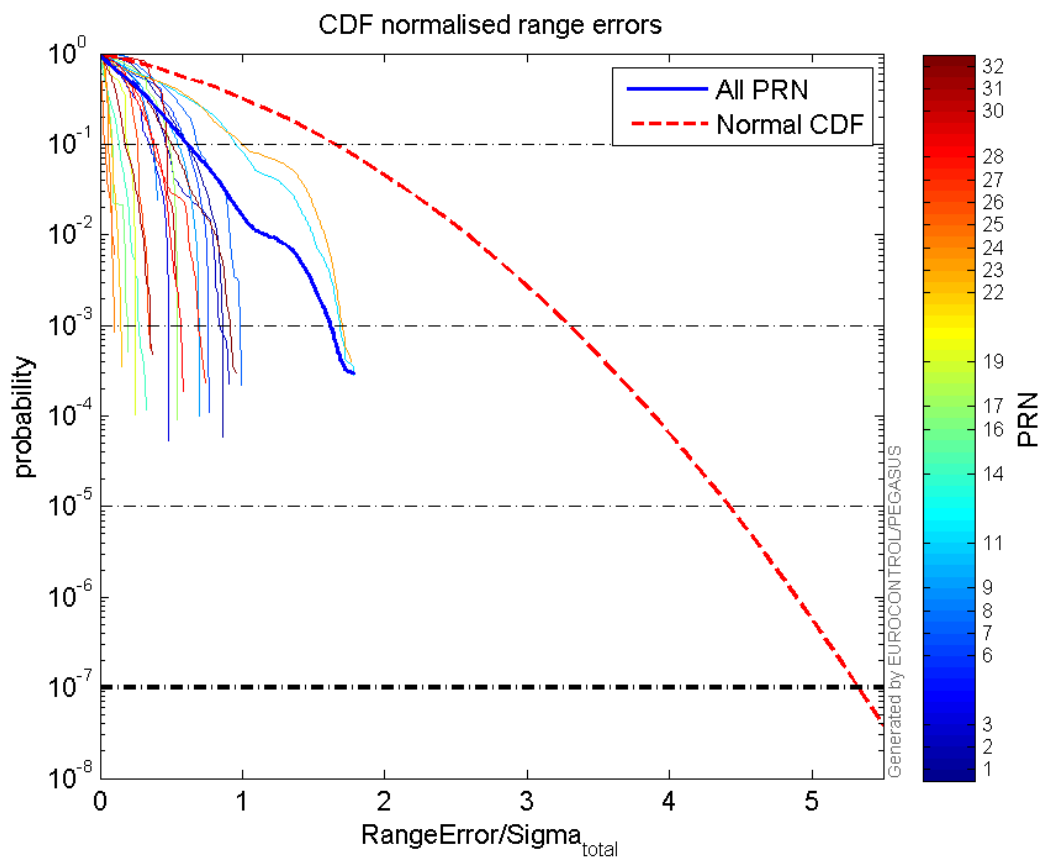
Number of Overbounding Norm Errors 0

Max Norm Errors :

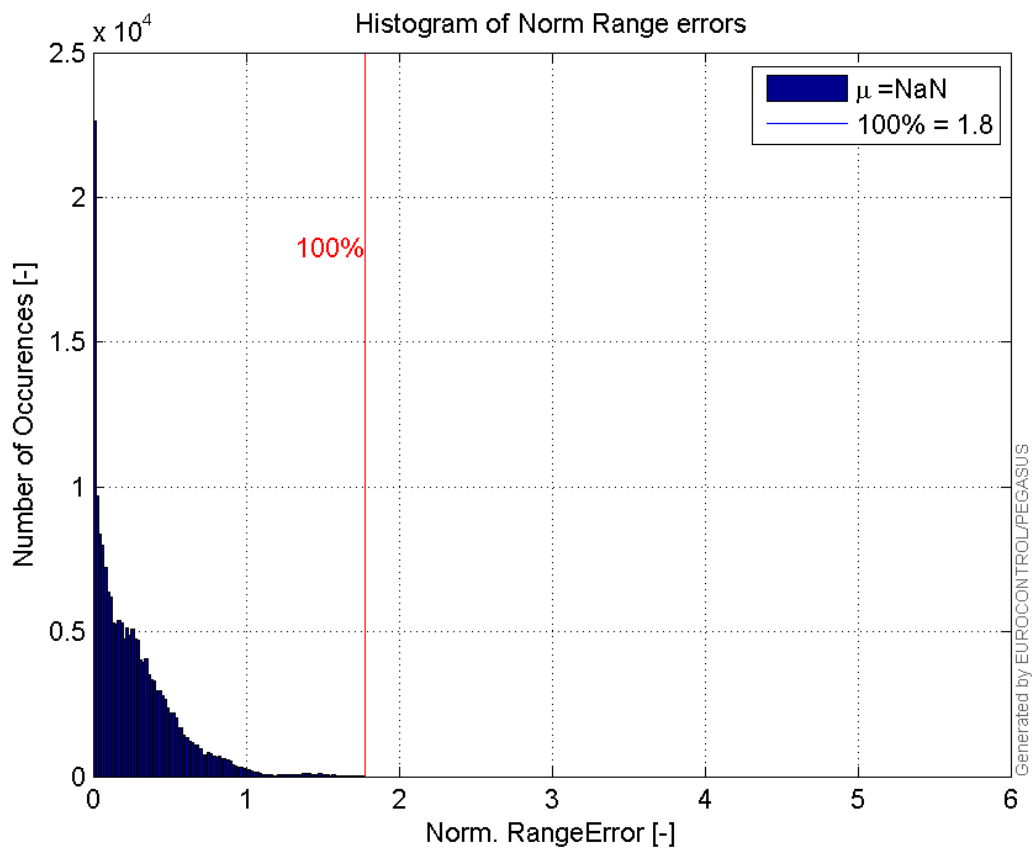
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1875	475022	1	0.999106	1.69683	1.69835
1875	482387	2	0.904108	-1.69783	1.87791
1875	471678	3	1.20666	1.7054	1.41332
1875	481168	6	1.13239	-1.70485	1.50554
1875	480311	7	0.992101	2.14032	2.15736
1875	465876	8	1.13705	2.04166	1.79558
1875	478216	9	1.08434	1.7531	1.61675
1875	471677	11	1.77672	2.97277	1.67318
1875	467300	14	0.32731	-0.605817	1.8509
1875	482813	16	0.199938	1.32493	6.62669
1875	474167	17	0.944613	-1.66003	1.75737
1875	471769	19	1.17435	2.00724	1.70923
1875	461486	22	0.156521	-0.56127	3.5859
1875	471618	23	1.76062	3.05584	1.73566
1875	462970	24	0.105101	-1.88079	17.895
1875	475179	25	0.100105	-0.328721	3.28377
1875	481974	26	0.36941	-1.87195	5.06739
1875	461278	27	0.769512	1.25937	1.63658
1875	464713	28	0.613346	-1.32671	2.16307
1875	482459	30	0.54195	1.68114	3.10203

1875	477674	31	0.365645	-1.13312	3.09897
1875	475022	32	0.955907	2.65505	2.77752

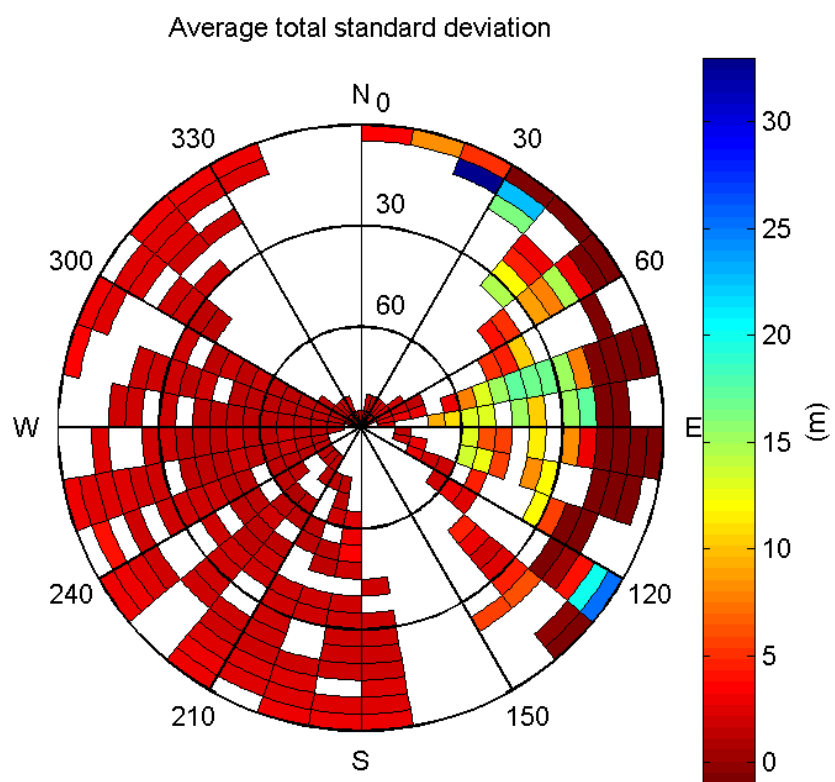
**Normalised Range errors (median):****Range errors:**

**CDF normalised range errors:****Histogram of Norm Range errors:**

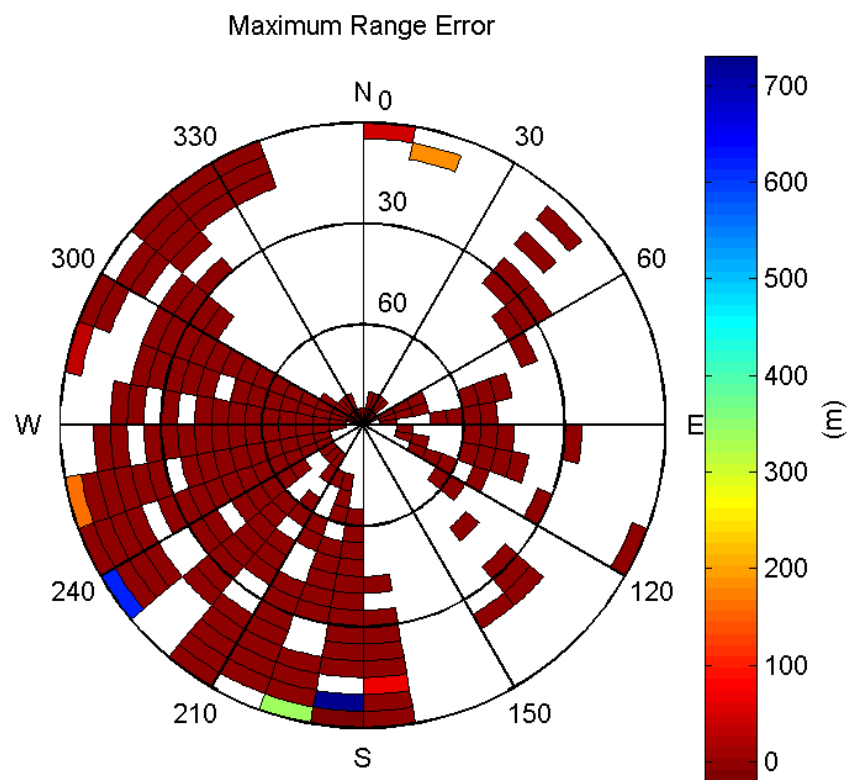




**Sigma Sky Plot:**

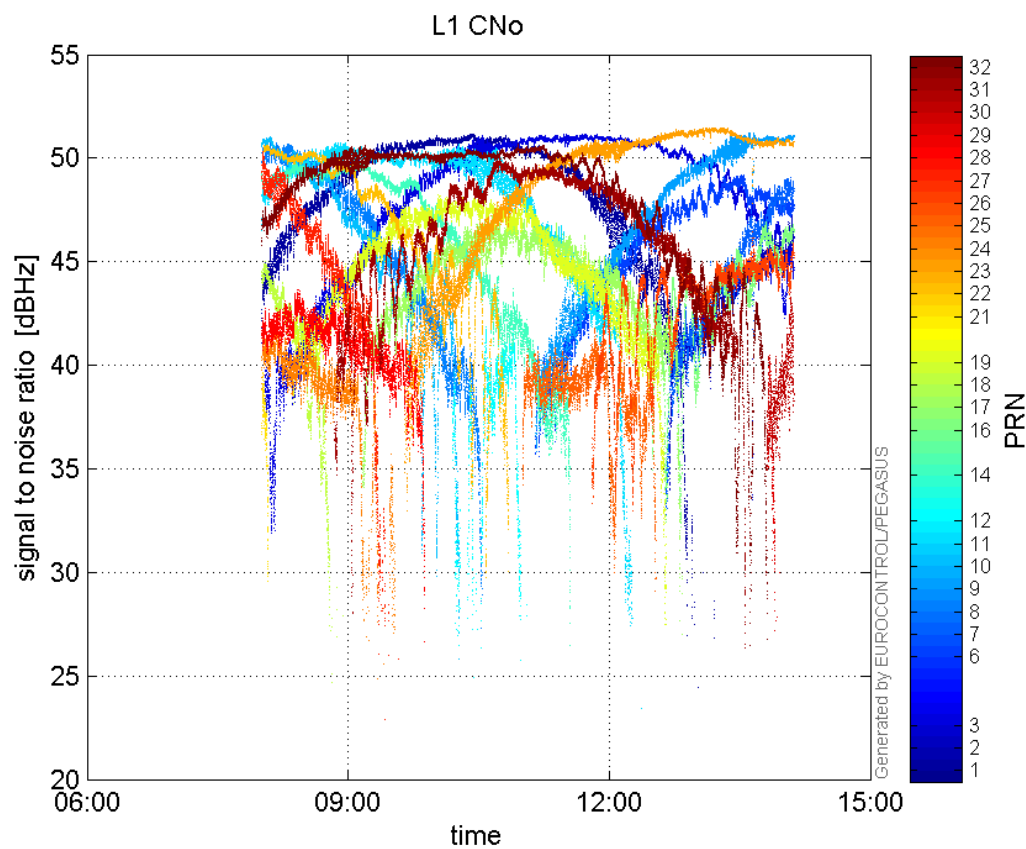


**Norm Error Sky Plot:**

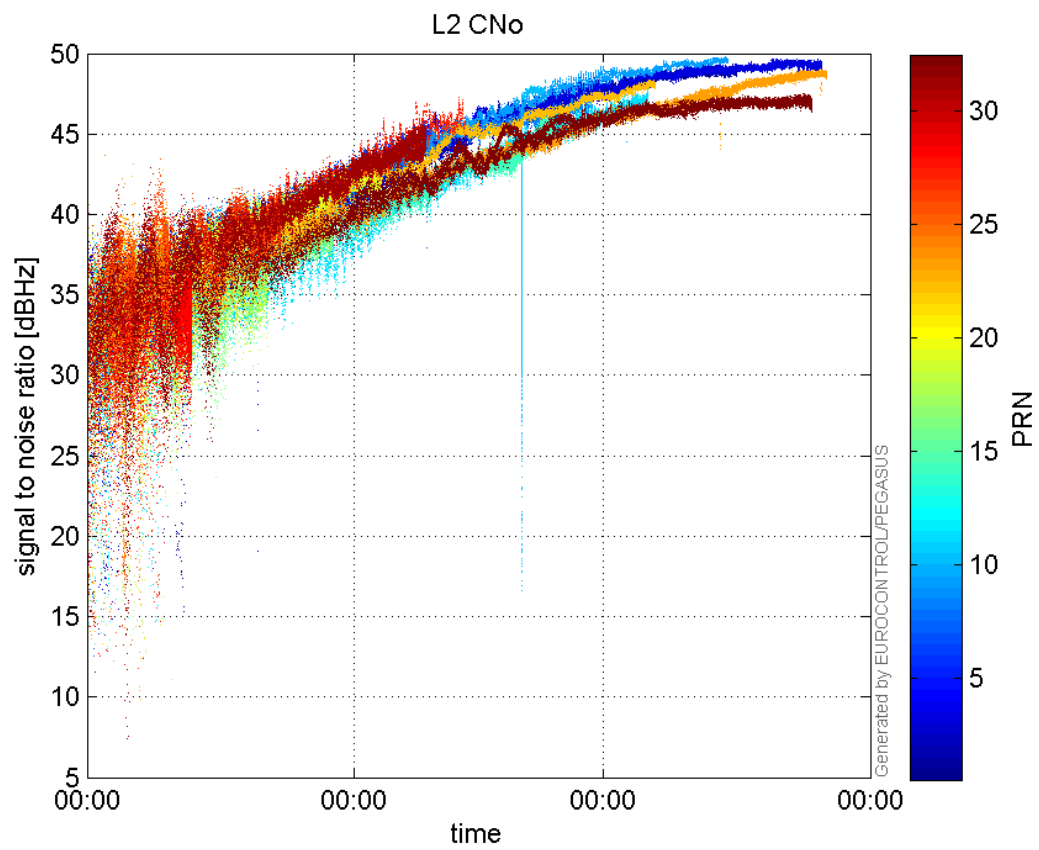


### signal quality

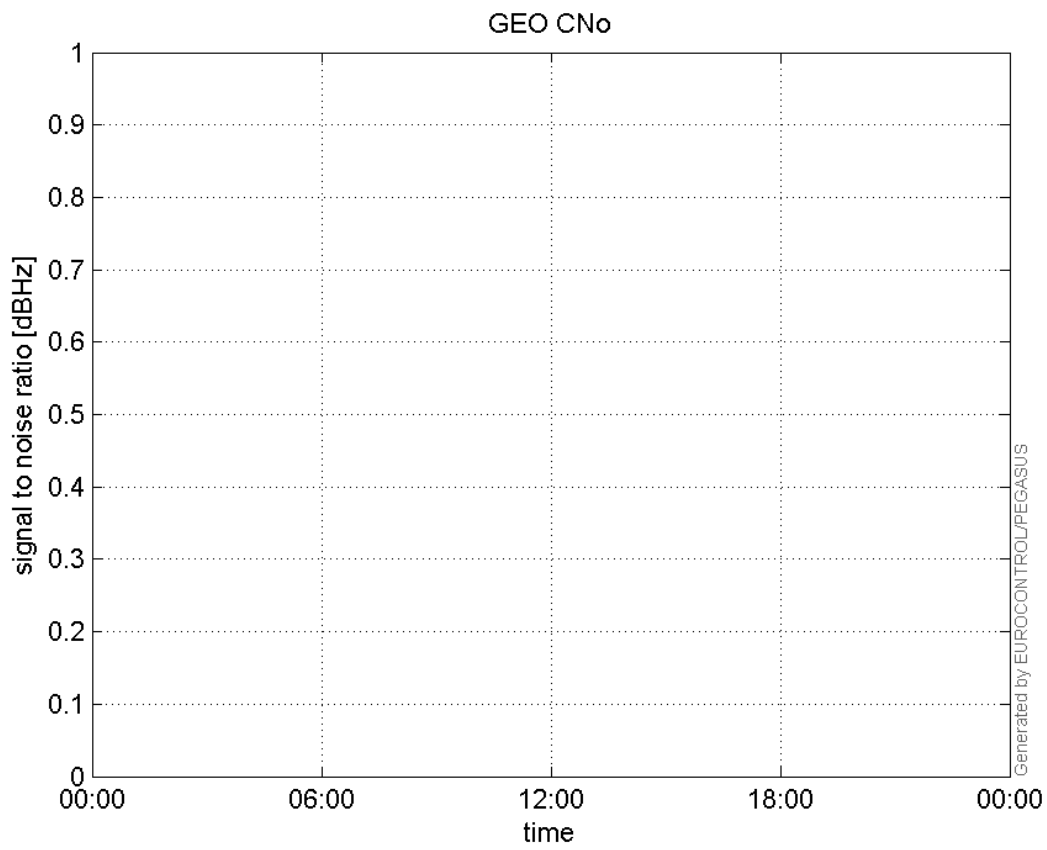
L1 CNo:



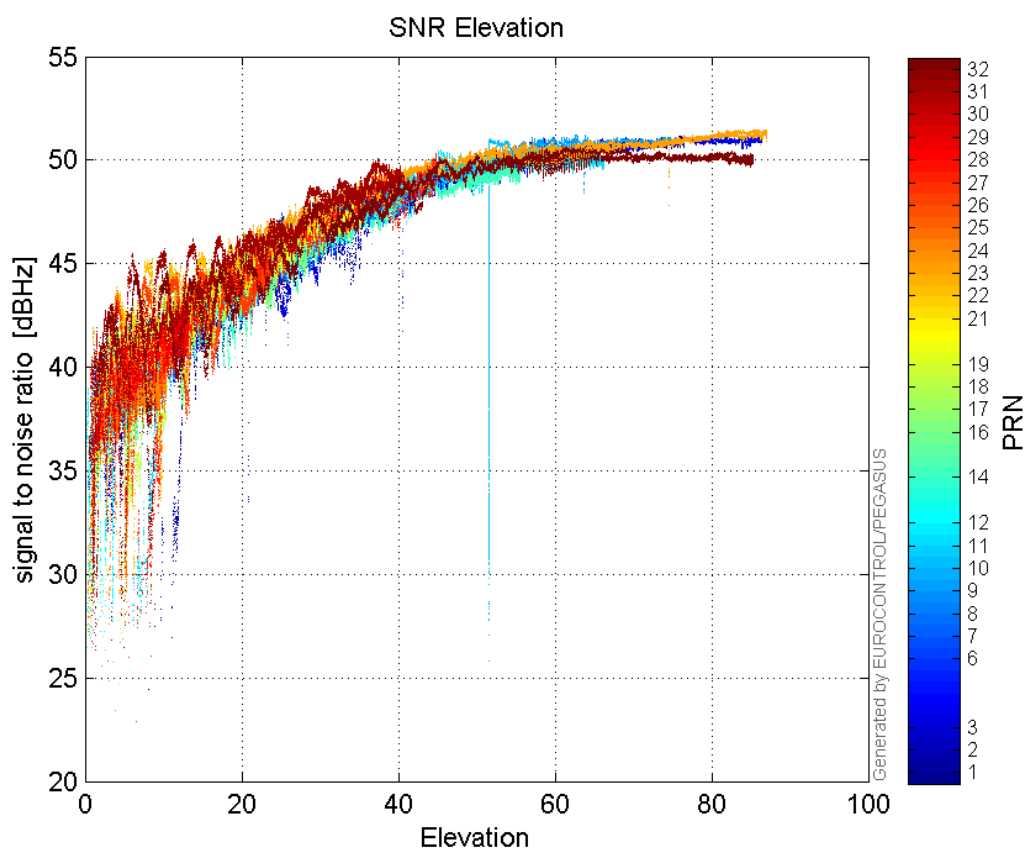
**L2 CNo:**



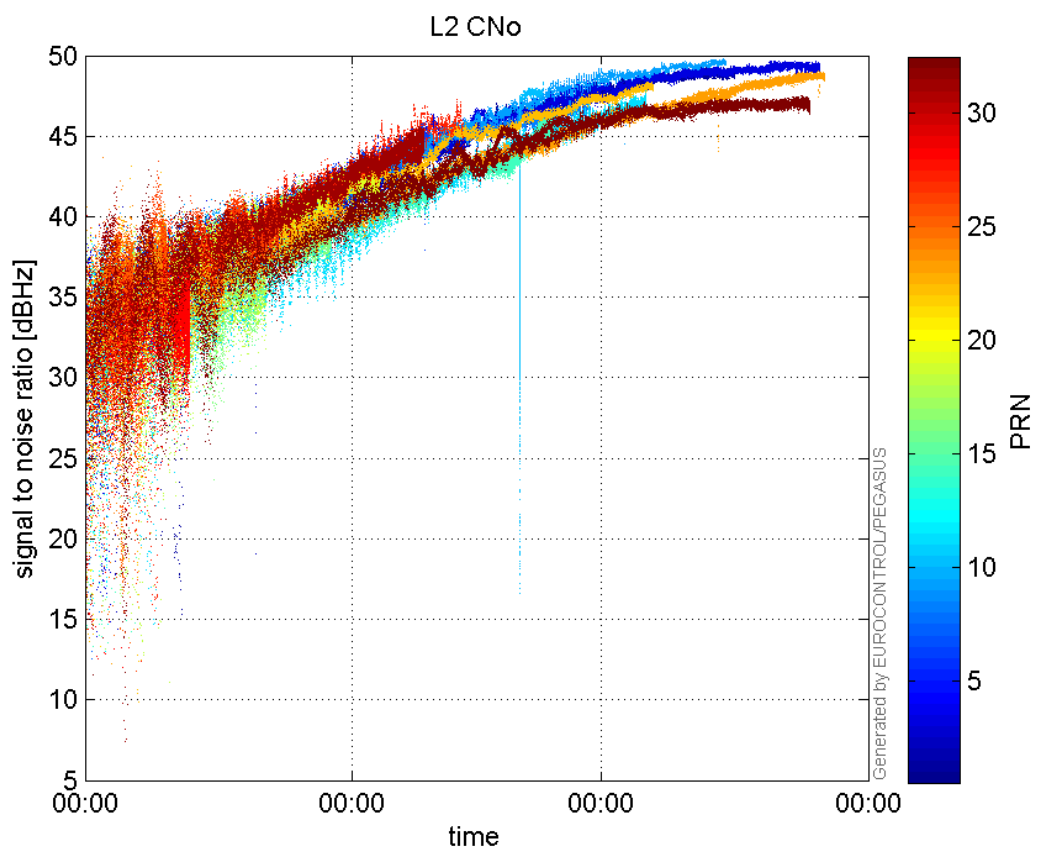
**GEO CNo:**



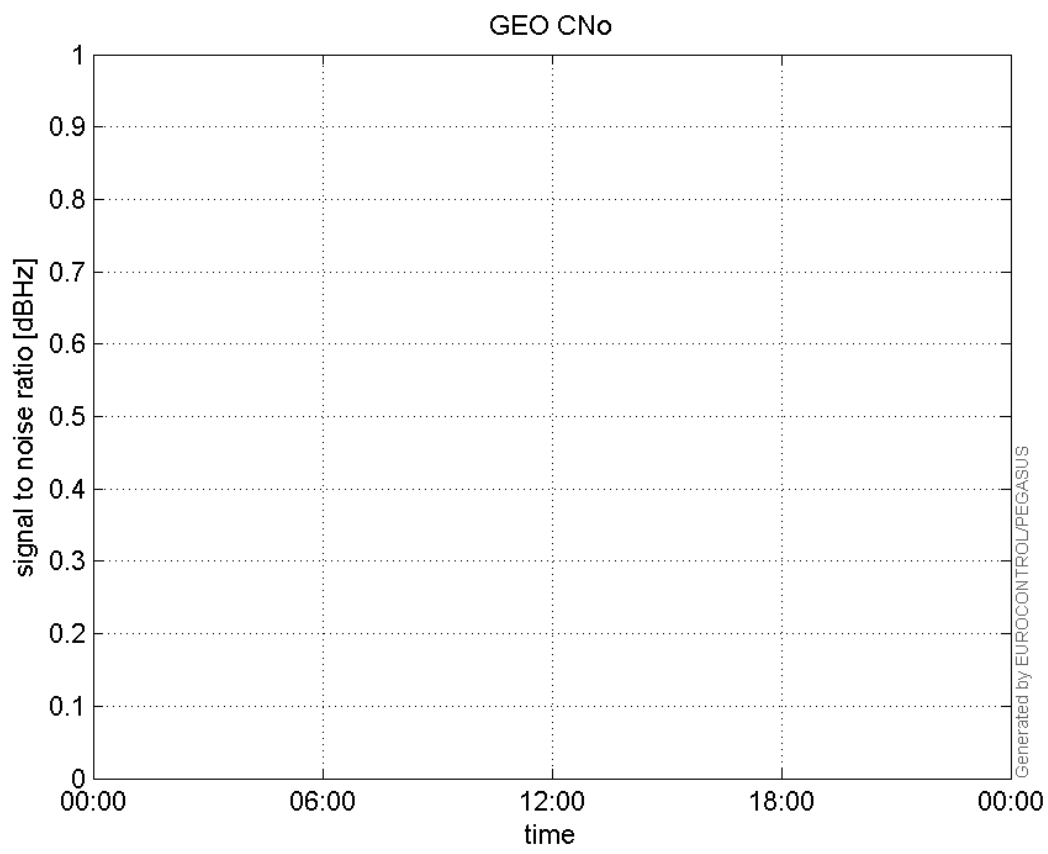
**SNR Elevation:**



**L2 CNo:**

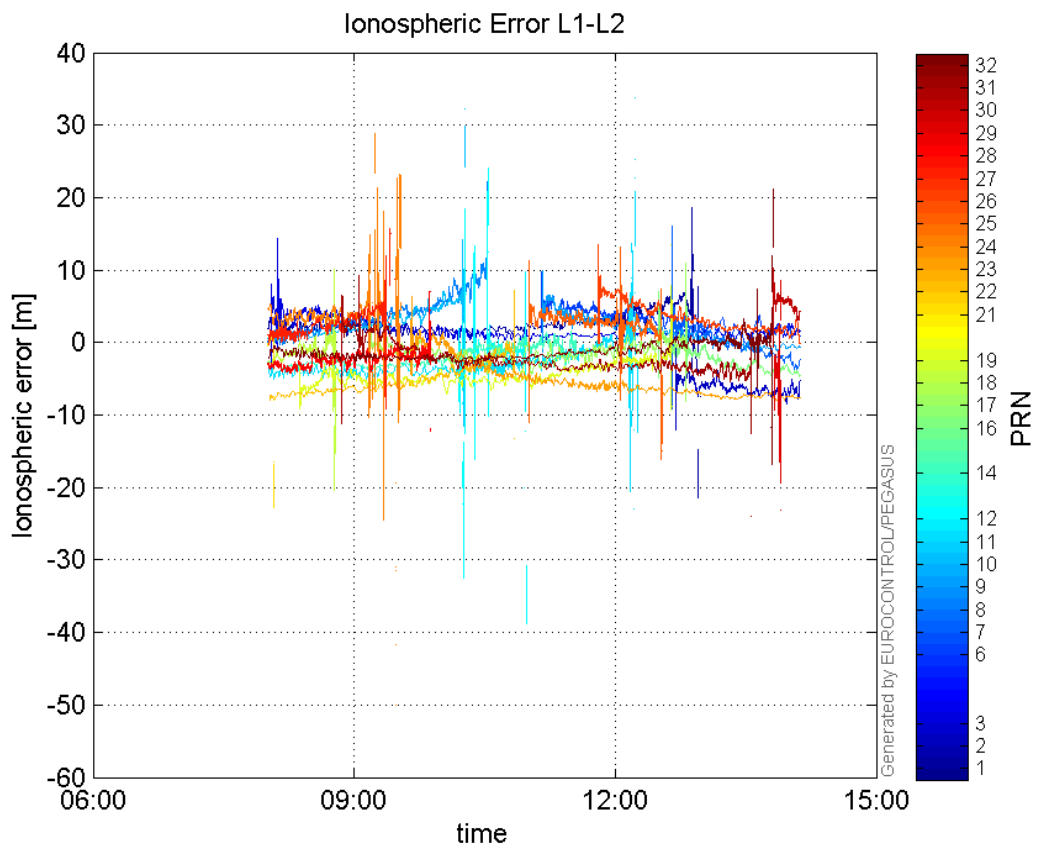


**GEO CNo:**



### 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:/PegasusDateGob/job/2015_12_18EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_18EGNOS/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	50.4391
init_lon	results	30.4297
init_alt	results	237.9111
mi_numbers	results	0