

# 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 11/02/2016

## SBAS Messages

**start:** 06:44:53.129 11.02.2016 ( week: 1883 sec: 369893.129 )  
**end:** 13:21:11.129 11.02.2016 ( week: 1883 sec: 393671.129 )  
**duration:** 06:36:18 ..

### quality

**valid samples** 47558  
**total samples** 47558  
**number of SBAS PRNs** 2

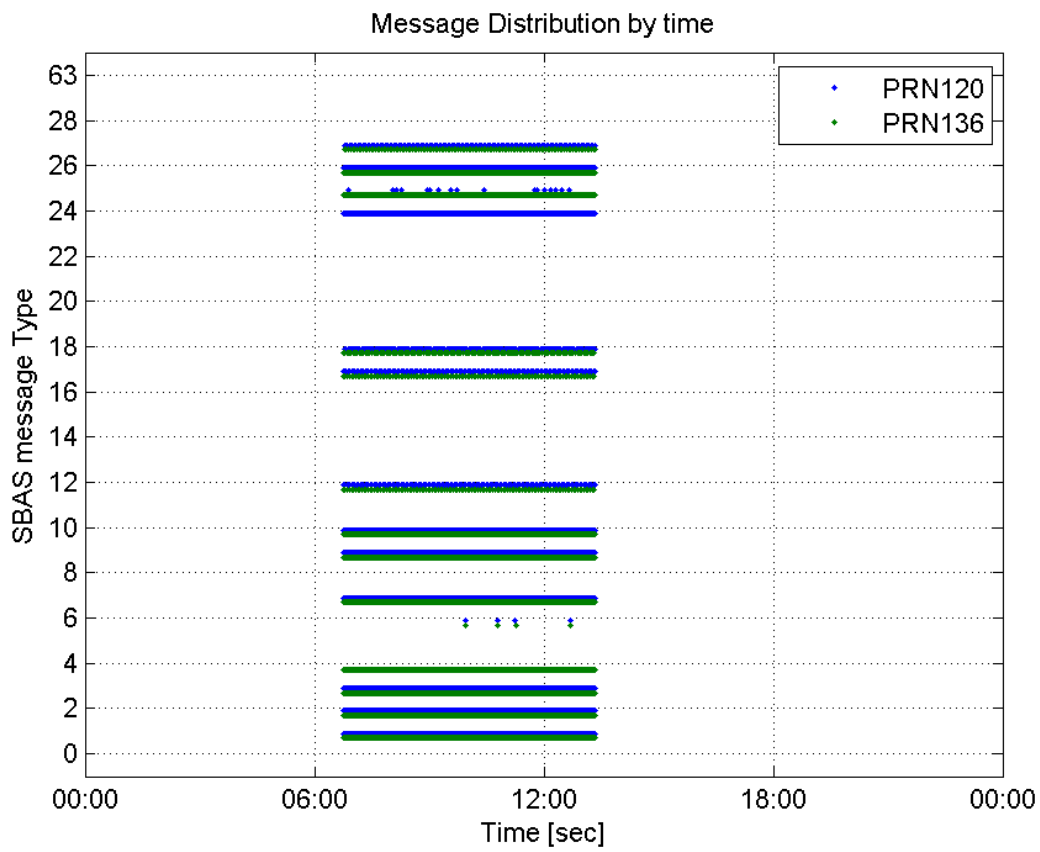
### SBAS SIS Overview

#### Message Type 6 repetitions :

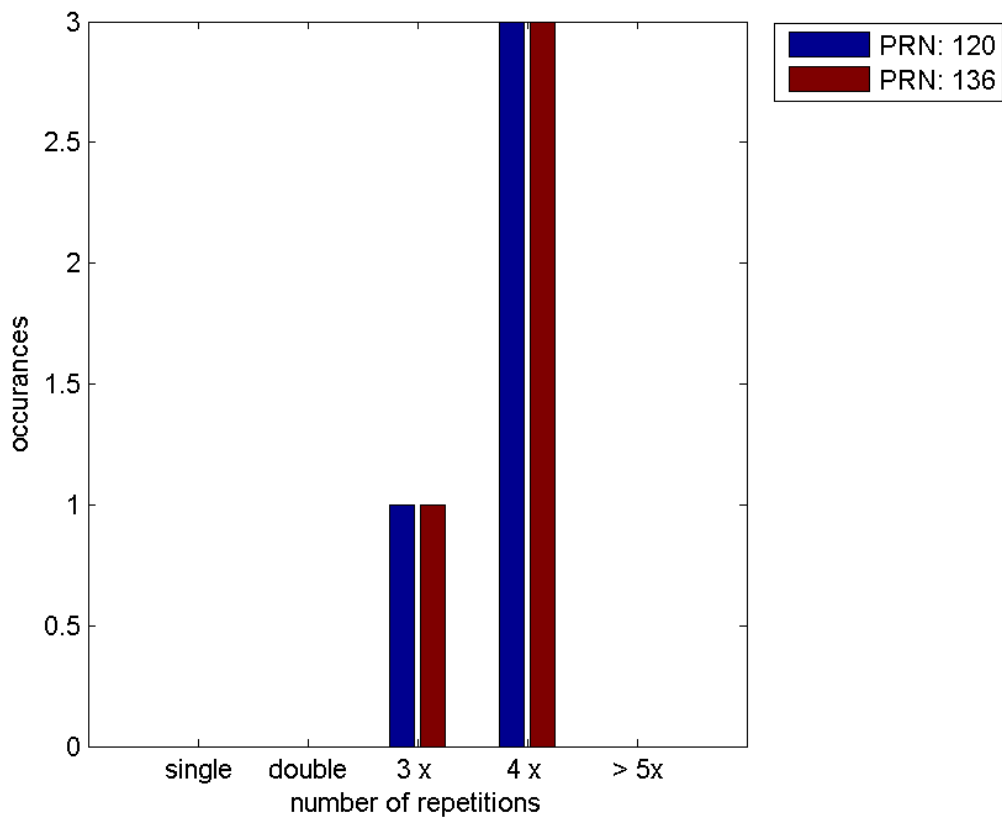
	single	double	3 x	4 x	> 5x
<b>PRN 120</b>	0	0	1	3	0
<b>PRN 136</b>	0	0	1	3	0

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#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

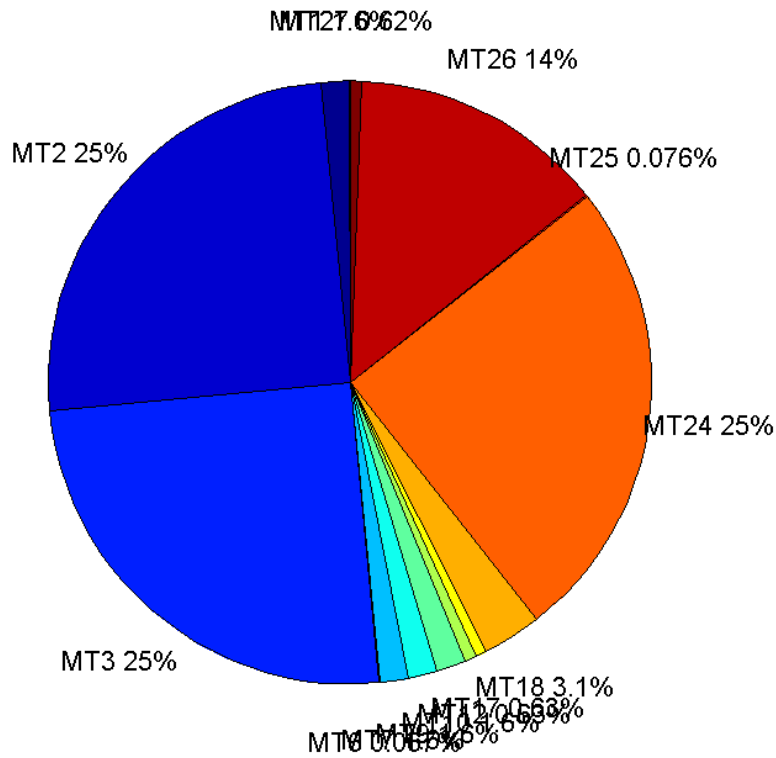
	number of messages	%
MT 0	0	0
MT 1	370	1.55599
MT 2	5938	24.9716
MT 3	5939	24.9758
MT 4	0	0
MT 5	0	0
MT 6	16	0.0672863
MT 7	370	1.55599
MT 9	371	1.5602
MT 10	370	1.55599
MT 12	149	0.626603
MT 17	149	0.626603
MT 18	740	3.11199
MT 24	5938	24.9716
MT 25	18	0.075697
MT 26	3263	13.7222
MT 27	148	0.622398
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	23779	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	70	64.2168	0	0	0
MT 2	4	8	4.00421	4	0	0
MT 3	4	8	4.00421	4	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5114	657.467	3	3	3
MT 7	64	70	64.206	0	0	0
MT 9	64	70	64.2162	0	0	0
MT 10	64	70	64.2276	0	0	0
MT 12	160	166	160.351	148	0	0
MT 17	156	166	160.351	0	0	0
MT 18	4	134	31.9405	0	0	0
MT 24	4	8	4.00438	0	0	0
MT 25	47	4782	1220.41	0	0	0
MT						

26	4	27	7.28633	0	0	0
MT 27	156	165	160.354	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	299	1.25741
MT 2	5913	24.8665
MT 3	5913	24.8665
MT 4	5914	24.8707
MT 5	0	0
MT 6	16	0.0672863
MT 7	300	1.26162
MT 9	299	1.25741

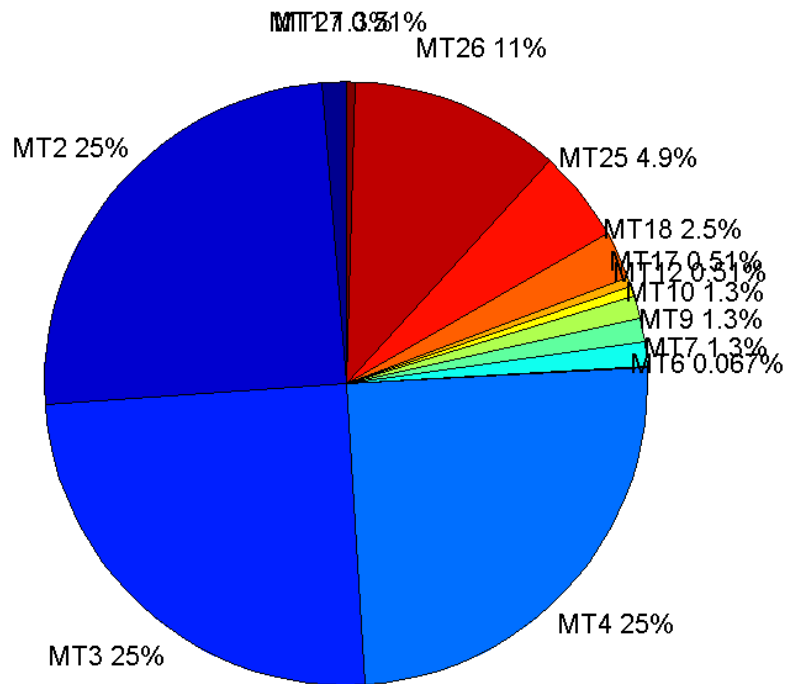
MT 10	299	1.25741
MT 12	122	0.513058
MT 17	122	0.513058
MT 18	606	2.54847
MT 24	0	0
MT 25	1173	4.93292
MT 26	2681	11.2747
MT 27	122	0.513058
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>23779</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.4396	0	0	0
MT 2	4	8	4.02114	4	0	0
MT 3	4	8	4.02114	4	0	0
MT 4	4	8	4.02114	4	0	0
MT 5	--	--	--	--	--	--
MT 6	1	5031	657.333	3	3	3
MT 7	76	83	79.4415	0	0	0
MT 9	75	87	79.453	0	0	0
MT 10	73	81	79.4664	0	0	0
MT 12	186	204	195.355	121	0	0
MT 17	186	204	195.355	0	0	0
MT 18	4	164	39.0777	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	60	20.2705	0	0	0
MT 26	1	34	8.86306	0	0	0
MT 27	186	201	195.322	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/2016_02_11EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_11EGNOS/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:** 06:44:54 11.02.2016 ( week: 1883 sec: 369894 )  
**end:** 13:21:12 11.02.2016 ( week: 1883 sec: 393672 )  
**duration:** 06:36:19 ..

#### quality

**valid samples** 23412  
**total samples** 23779

## Event tables

**Position discontinuity events type** no (0)  
**APV-I discontinuity events type** long  
**APV-35m discontinuity events type** long  
**LPV-200 discontinuity events type** long  
**CAT-I discontinuity events type** nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	382962	1.62656	9.78612	0.166211	0.305279	15.8017	0.0193194
<b>max normVer</b>	391518	1.21307	30.0403	0.0403814	2.85879	16.3649	0.17469
<b>max HPE</b>	390854	14.4497	637.278	0.0226742	-2.49616	166.016	0.0150356
<b>max VPE</b>	379230	11.1948	184.913	0.0605408	5.91973	62.5258	0.0946766
<b>min HPL</b>	373765	1.19915	8.24488	0.145442	0.599417	14.0353	0.0427078
<b>min VPL</b>	373652	1.12836	8.35496	0.135053	0.643688	13.7552	0.046796

APV-I discontinuity events :

#	Epoch	duration	stable period
1	379135	160	8874
2	380418	322	1123
3	389968	936	8629
4	390929	235	1

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	379135	160	8874
2	380418	322	1123
3	386358	154	135
4	389719	160	3207
5	389968	936	89
6	390929	235	1

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	379135	160	8874
2	380418	322	1123
3	386358	154	135
4	389719	160	3207
5	389968	936	89
6	390929	235	1

## First Glance analysis

**Duration** 23779  
**Number of Samples** 23779  
**Number of invalid sample** 367

Number of no position solution samples	0
Number of missing sample	0
Logging Loss	0
Processing Loss	1.5434
Number of Misleading Information	0
Data gaps	0
Discontinuities	0

## Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
23412	21698	21364	0	21364

## Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.86495	1.70876	1.70964	NaN	1.70964
HPEscale 95%	NaN	5.39207	5.40217	NaN	5.40217
VPE 95%	2.22171	2.10659	2.08958	NaN	2.08958
VPEscale 95%	NaN	5.25196	3.69928	NaN	3.69928

## Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	1	0.92679	0.912523	0	0.912523
measurements	0.984566	0.912486	0.89844	0	0.89844
Operational	0.984566	0.912486	0.89844	0	0.89844

## Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	--	40	58	--	58
Long	--	4	6	--	6
Independent	--	3	5	--	5
P(disc.)	NaN	0.00207392	0.00351058	NaN	0.00351058
P(slide)	NaN	0.00659047	0.0113275	NaN	0.0113275

## 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 :

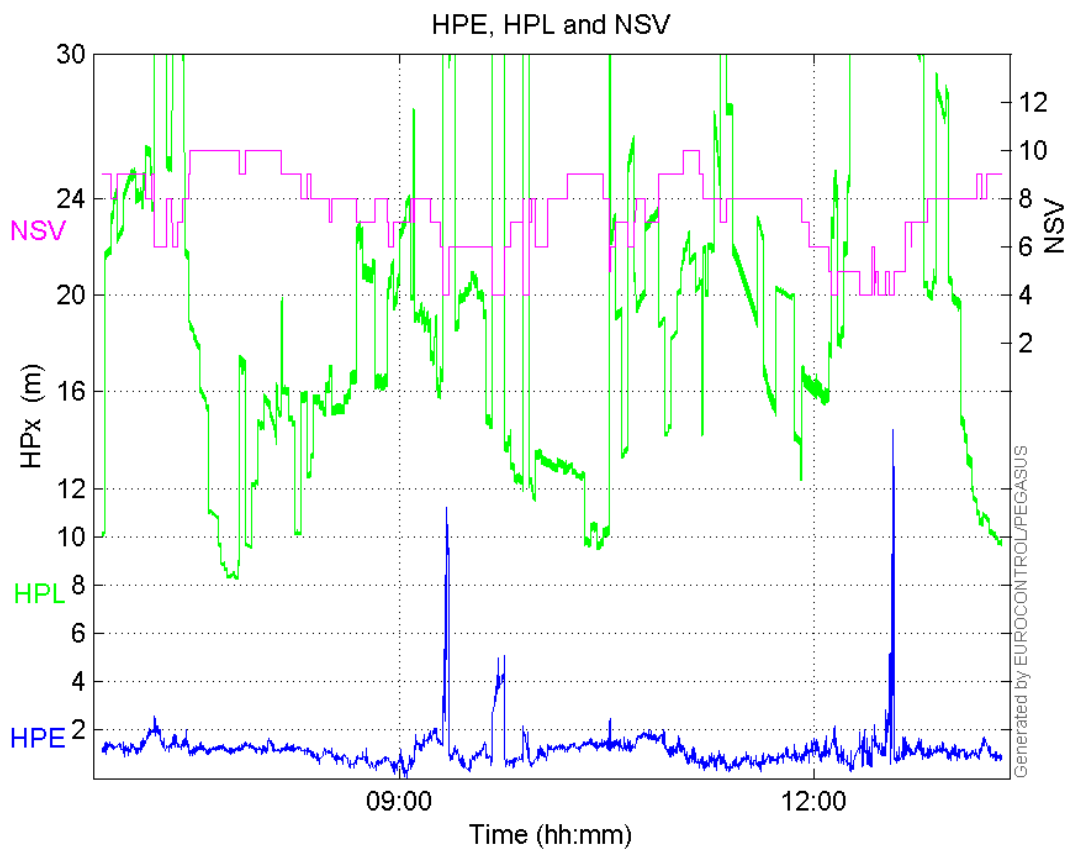
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	23412	21698	21364	0	21364
SIS Availability	1	0.92679	0.912523	0	0.912523
Local Availability	0.984566	0.912486	0.89844	0	0.89844
Operational Availability	0.984566	0.912486	0.89844	0	0.89844
HPE 95%	1.86495	1.70876	1.70964	NaN	1.70964
HPEscale 95%	NaN	5.39207	5.40217	NaN	5.40217



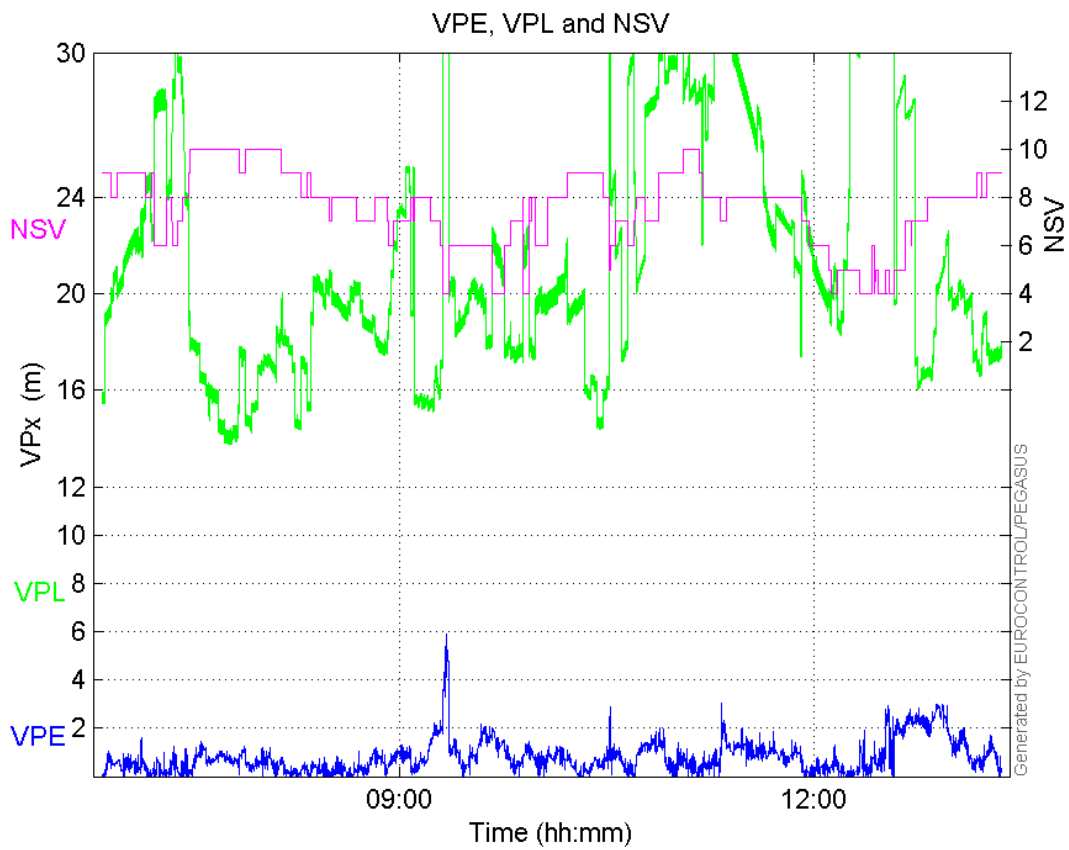
VPE 95%	2.22171	2.10659	2.08958	NaN	2.08958
VPEscale 95%	NaN	5.25196	3.69928	NaN	3.69928
All Discontinuity Events	--	40	58	--	58
Long Discontinuity Events	--	4	6	--	6
Independent Discontinuity Events	--	3	5	--	5
P(discontinuity)	NaN	0.00207392	0.00351058	NaN	0.00351058
P(sliding window)	NaN	0.00659047	0.0113275	NaN	0.0113275
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:

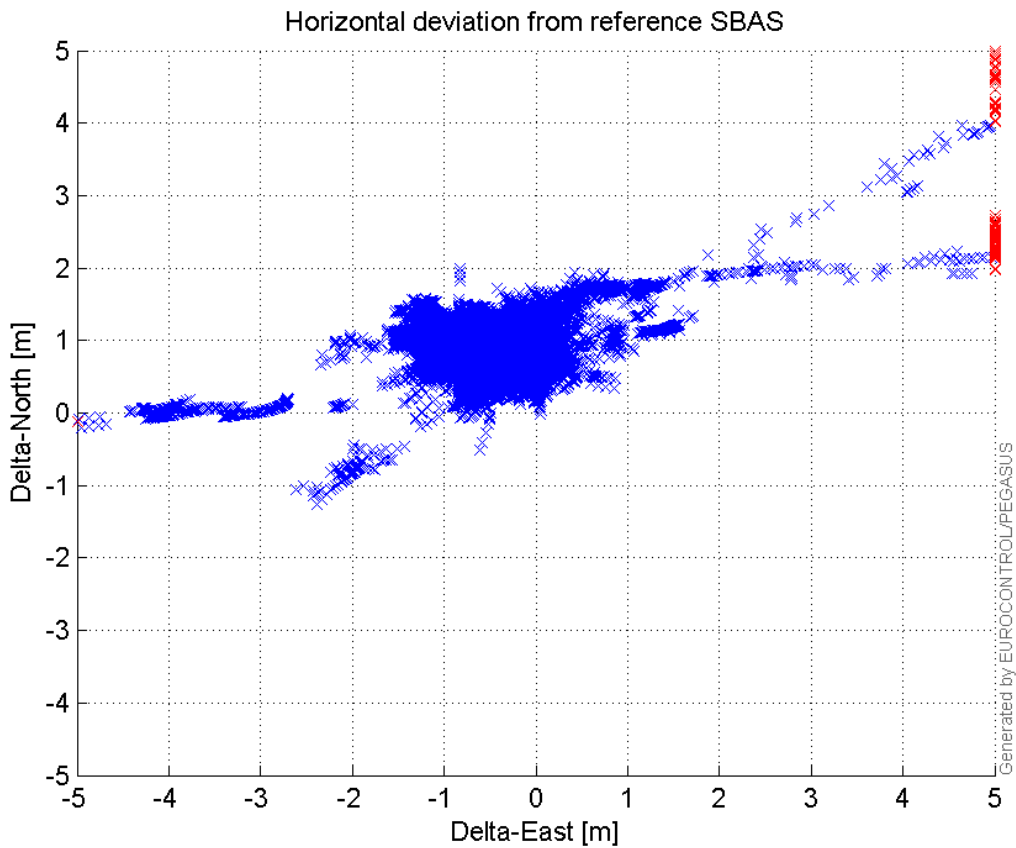


VPE, VPL and NSV:



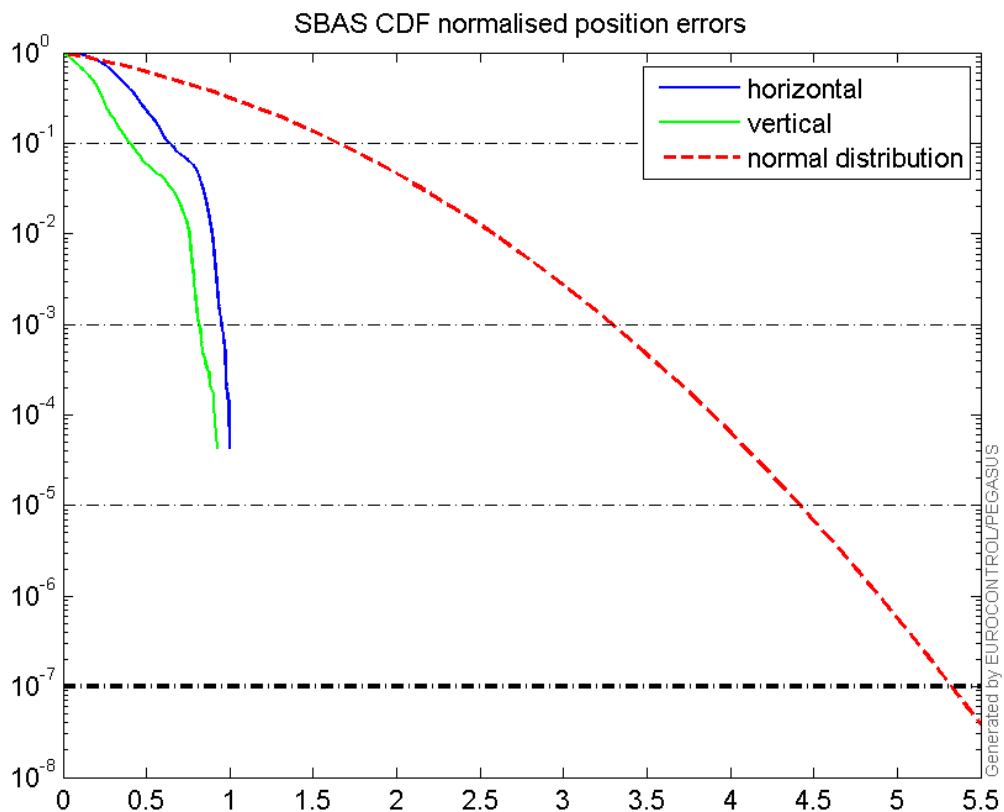
### Horizontal deviation

**Horizontal deviation from reference SBAS:**



## CDF position

SBAS CDF position domain:



## Statistics

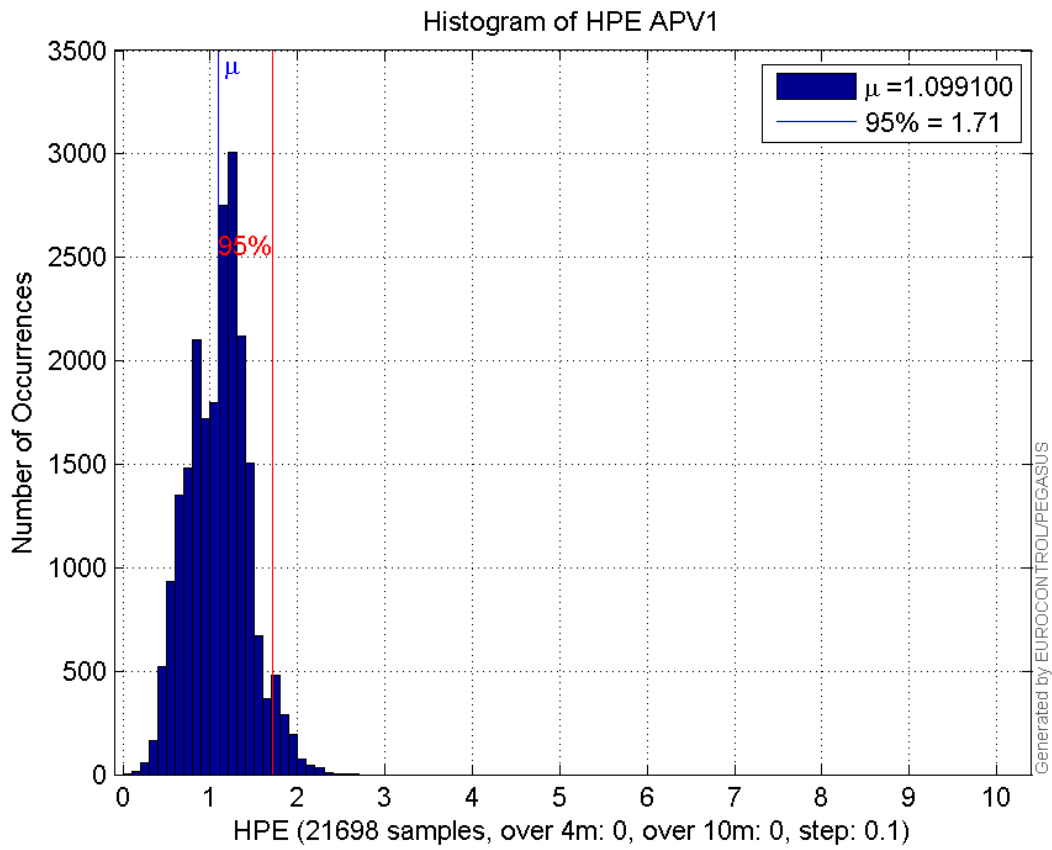
<b>number</b>	21698
<b>sum</b>	23848.276
<b>sum2</b>	28808.938
<b>prctile95</b>	1.7087576
<b>prctile99</b>	1.9650707
<b>number</b>	21698
<b>sum</b>	16561.358
<b>sum2</b>	19986.317
<b>prctile95</b>	2.1065906
<b>prctile99</b>	2.603498
<b>number</b>	21698
<b>sum</b>	410102.21
<b>sum2</b>	8654892.8
<b>prctile95</b>	32.88292
<b>prctile99</b>	37.425528
<b>number</b>	21698
<b>sum</b>	461077.81
<b>sum2</b>	10343416
<b>prctile95</b>	29.97928
<b>prctile99</b>	37.5743
<b>number</b>	21698
<b>sum</b>	1422.8843

**sum2** 114.64014  
**prctile95** 0.13480178  
**prctile99** 0.14925678  
**number** 21698  
**sum** 813.15364  
**sum2** 49.760306  
**prctile95** 0.10503911  
**prctile99** 0.14235607  
**number** 21364  
**sum** 23615.846  
**sum2** 28614.759  
**prctile95** 1.7096386  
**prctile99** 1.9608303  
**number** 21364  
**sum** 16246.237  
**sum2** 19432.445  
**prctile95** 2.0895781  
**prctile99** 2.6033282  
**number** 21364  
**sum** 398406.11  
**sum2** 8243458.5  
**prctile95** 31.59836  
**prctile99** 35.967302  
**number** 21364  
**sum** 448438.17  
**sum2** 9864459.1  
**prctile95** 29.61906  
**prctile99** 33.447916  
**number** 21364  
**sum** 1416.2172  
**sum2** 114.48173  
**prctile95** 0.13505436  
**prctile99** 0.14927871  
**number** 21364  
**sum** 804.97543  
**sum2** 49.388047  
**prctile95** 0.10569371  
**prctile99** 0.14240779

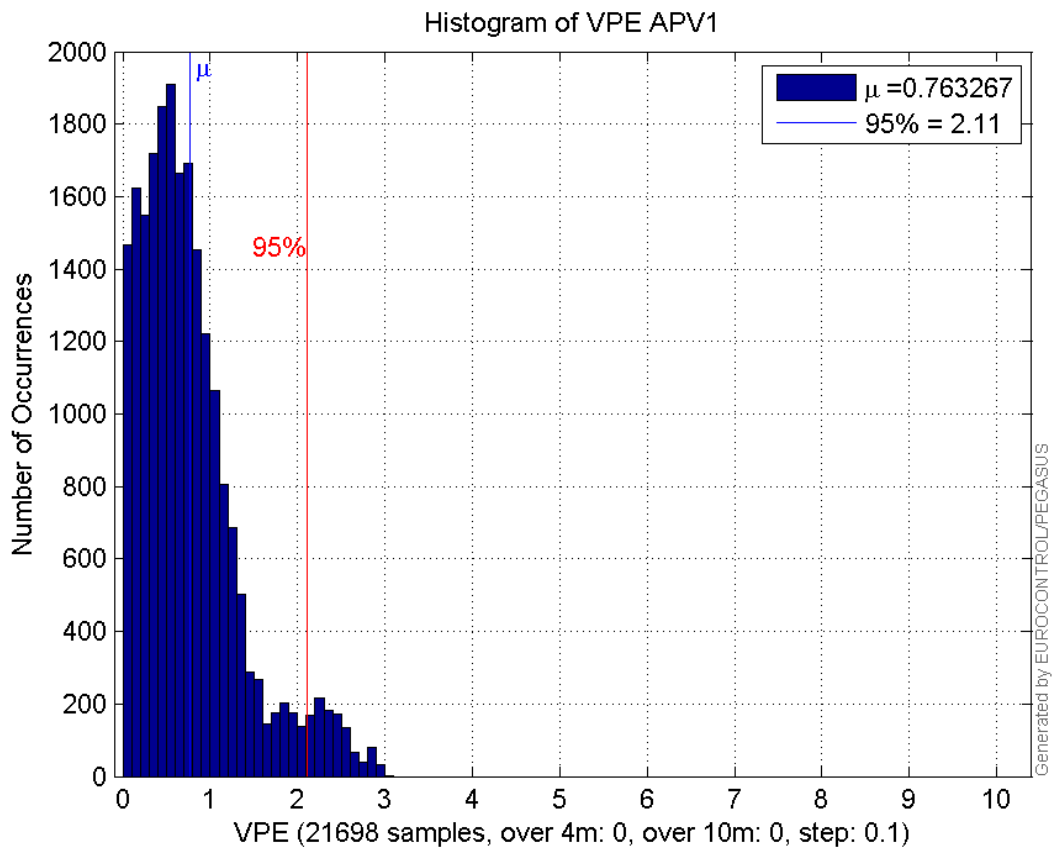
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.0991	0.345988	1.13177	1.70876	1.96507	1.15227
<b>HPL</b>	18.9005	6.45401	18.7758	32.8829	37.4255	19.972
<b>VPE</b>	0.763267	0.581853	0.647268	2.10659	2.6035	0.959746
<b>VPL</b>	21.2498	5.01467	19.9409	29.9793	37.5743	21.8334

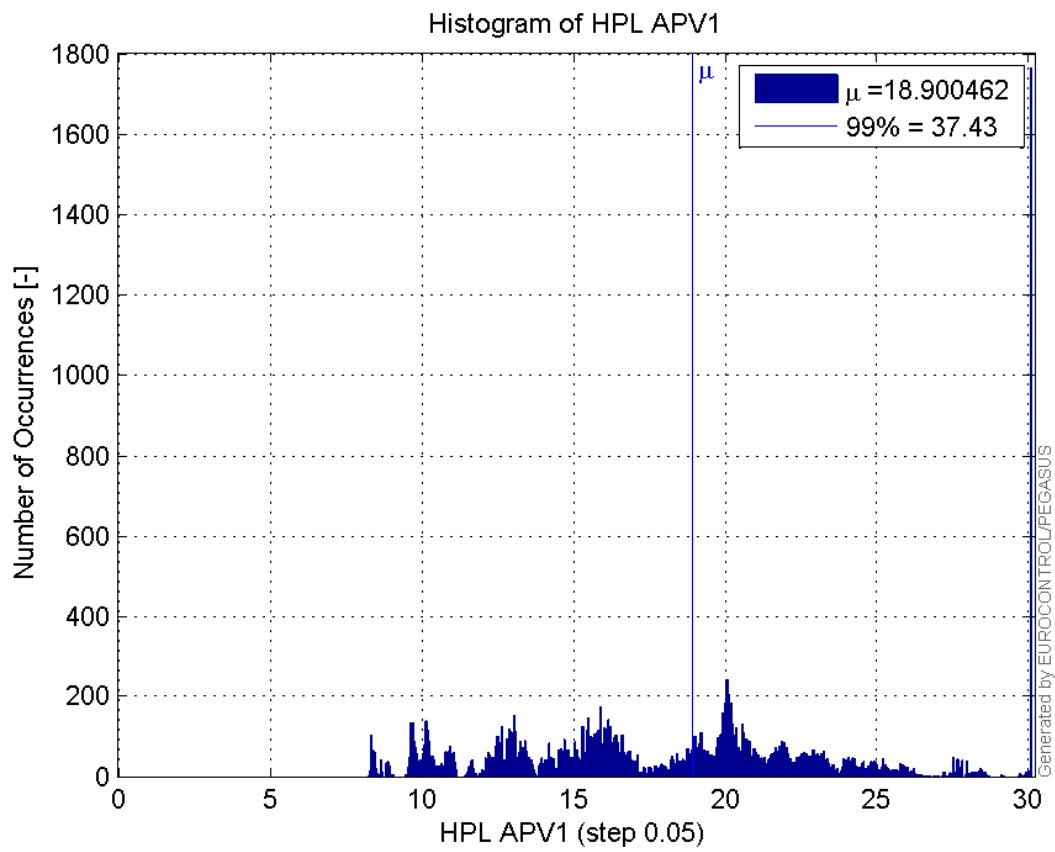
**Histogram of HPE APV1:**



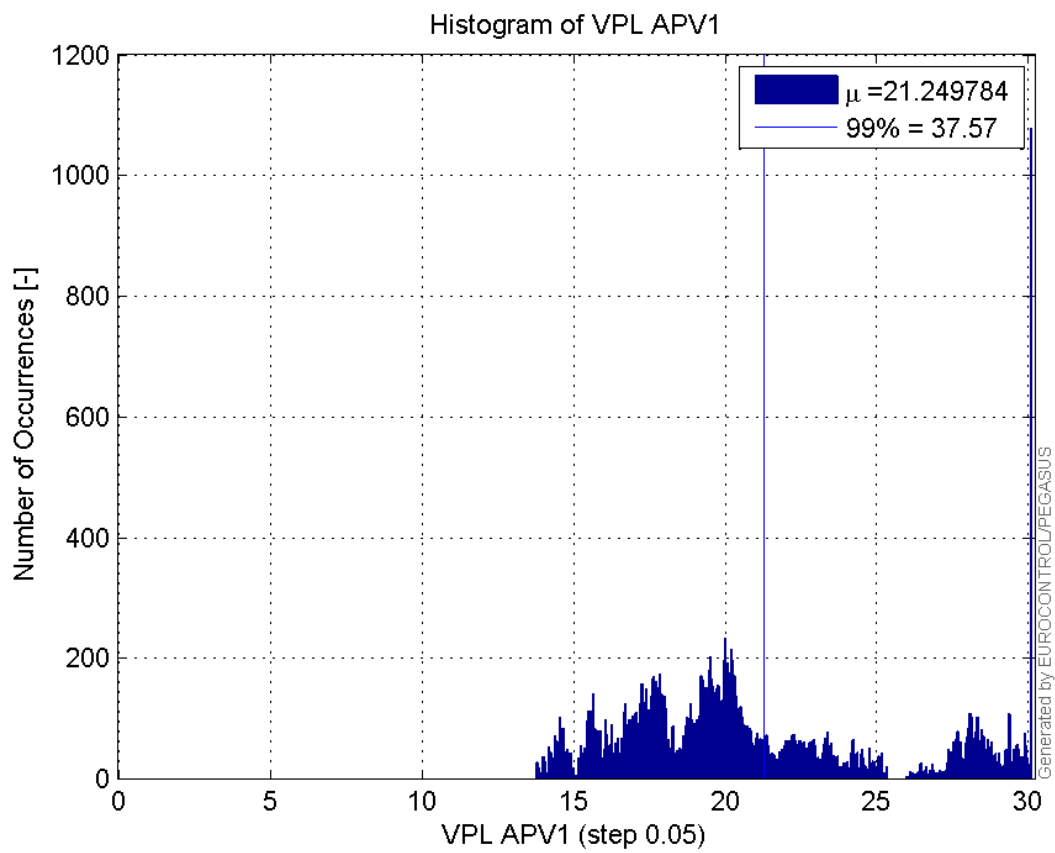
**Histogram of VPE APV1:**



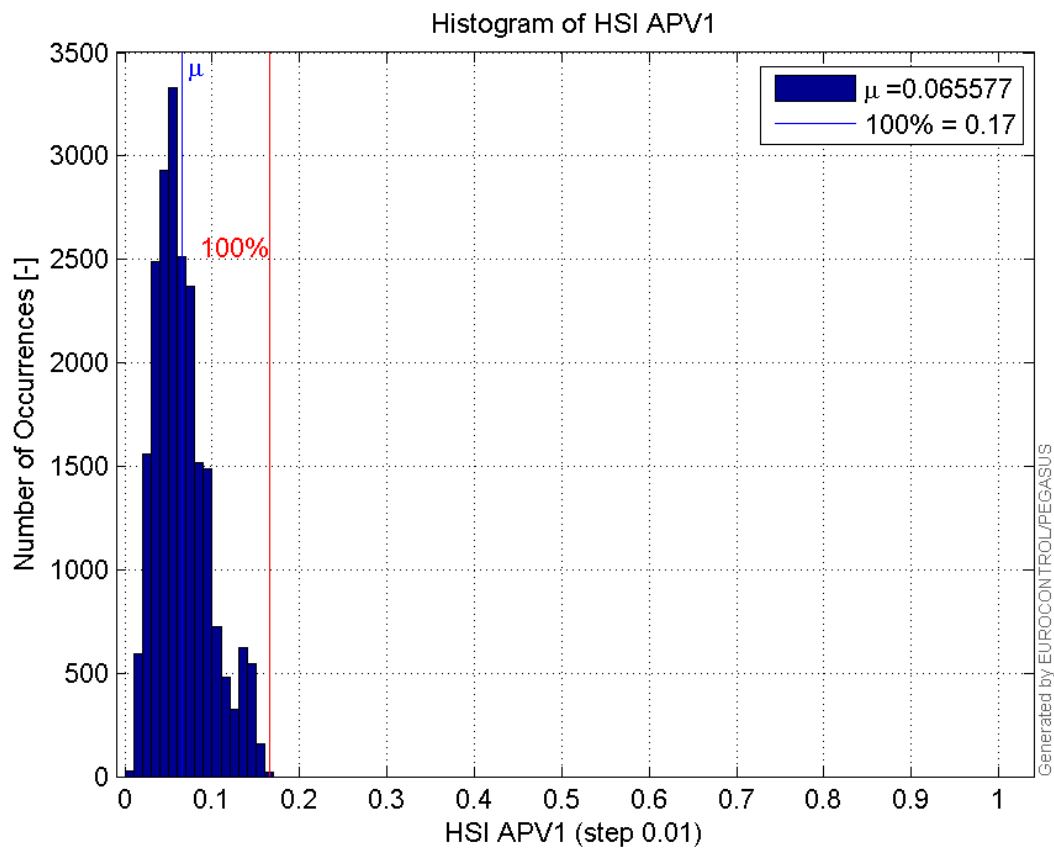
**Histogram of HPL APV1:**



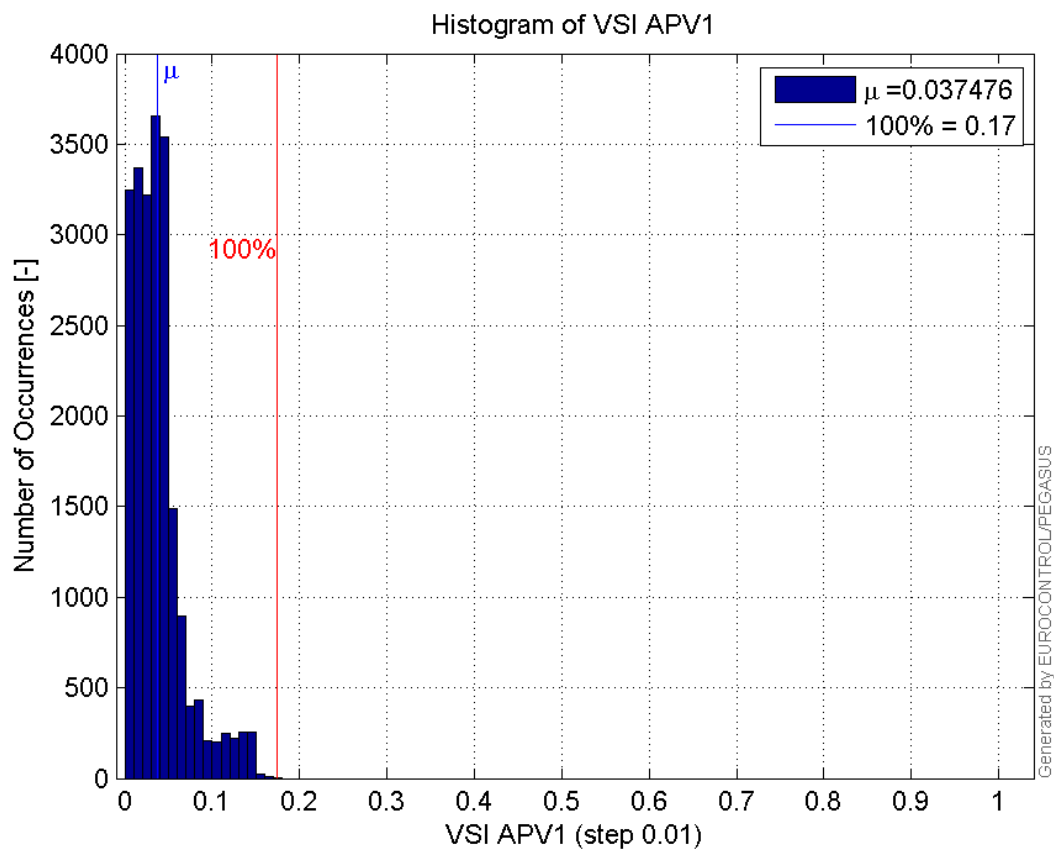
**Histogram of VPL APV1:**



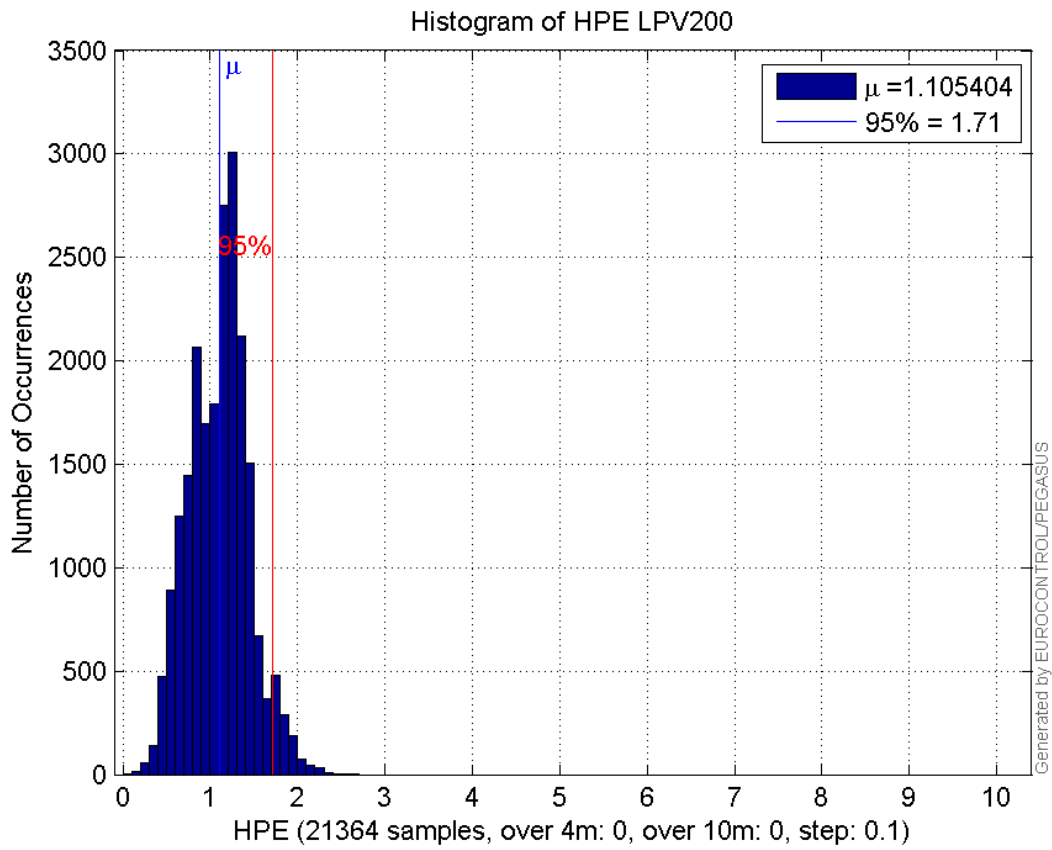
**Histogram of HSI APV1:**



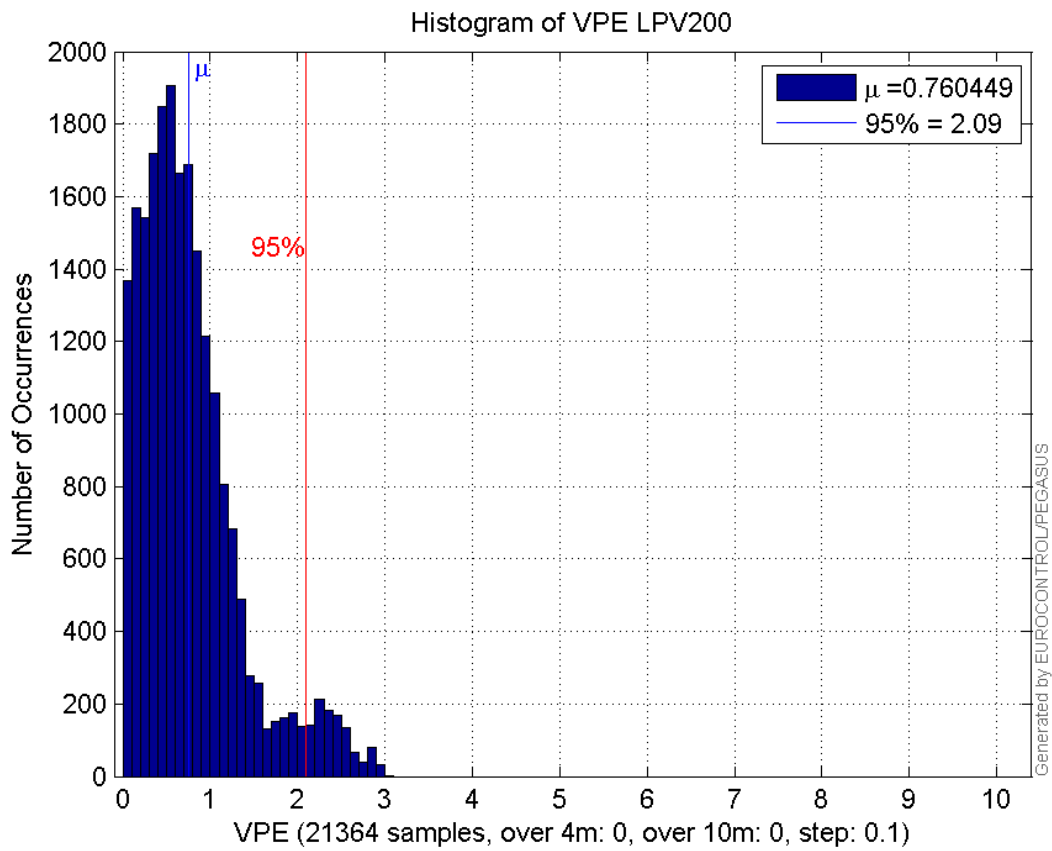
**Histogram of VSI APV1:**



**Histogram of HPE LPV200:**

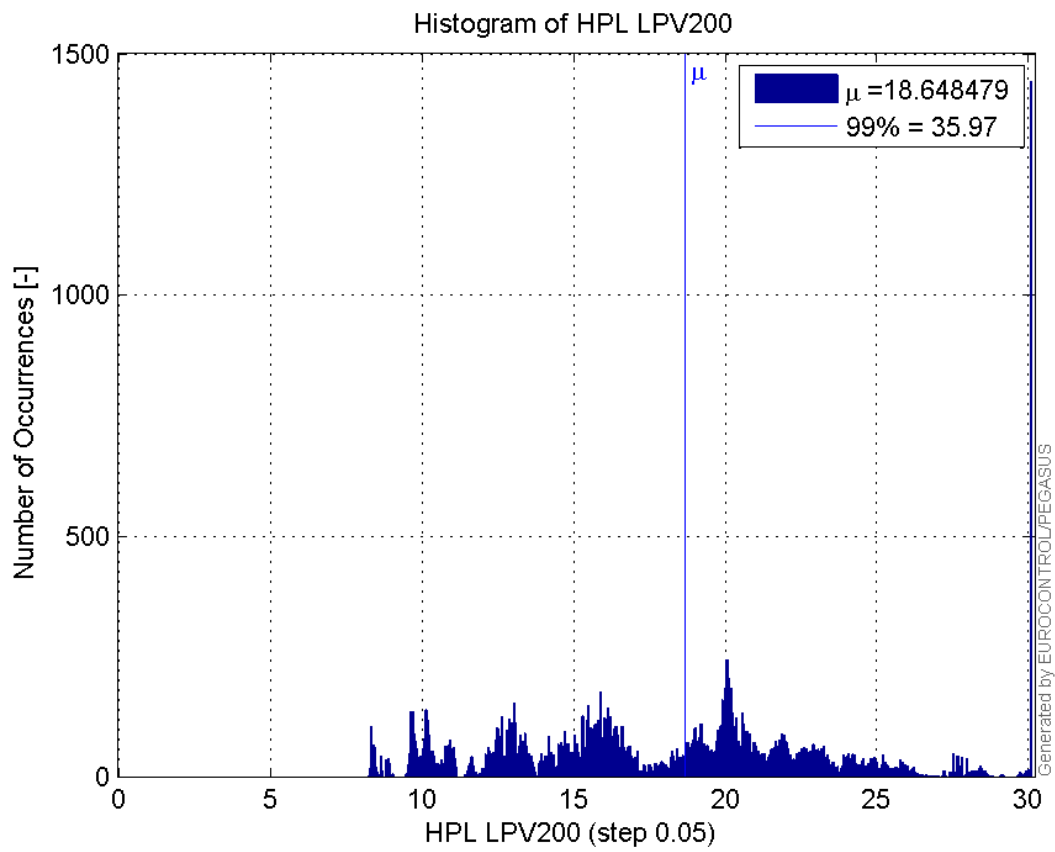


**Histogram of VPE LPV200:**

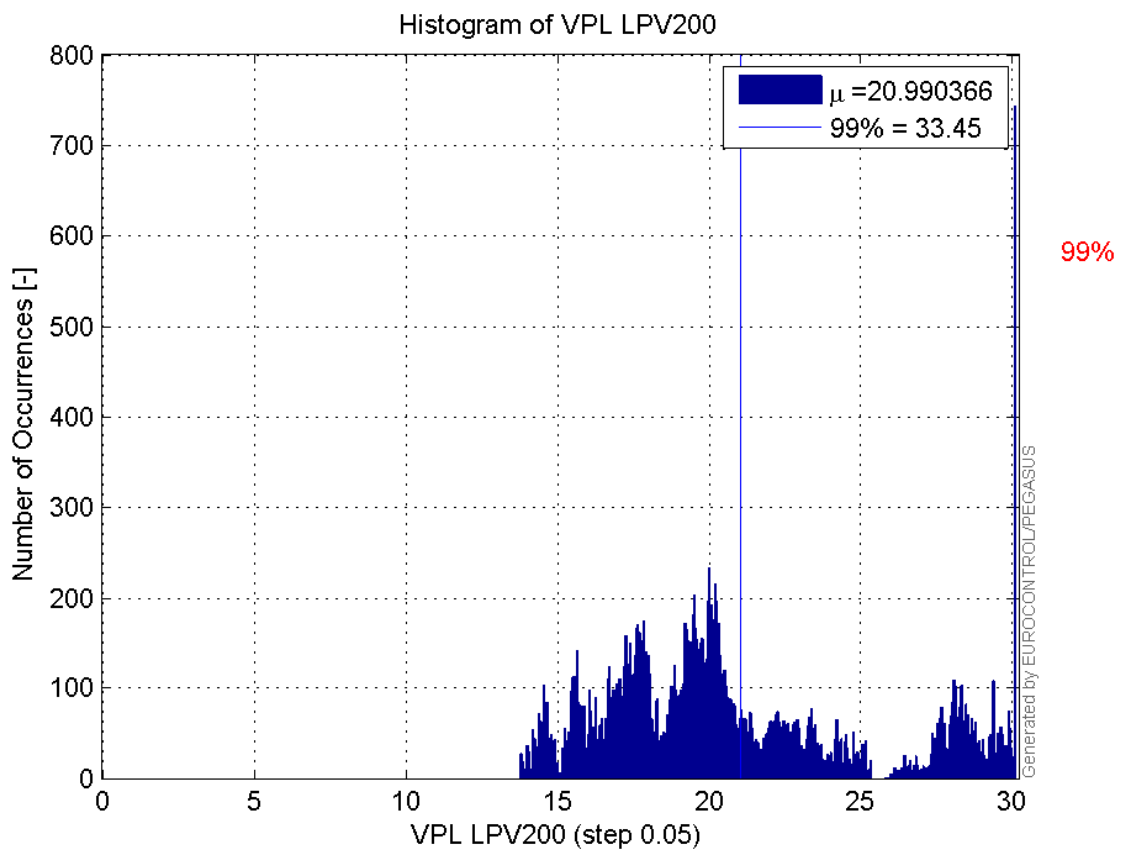


**Histogram of HPL LPV200:**

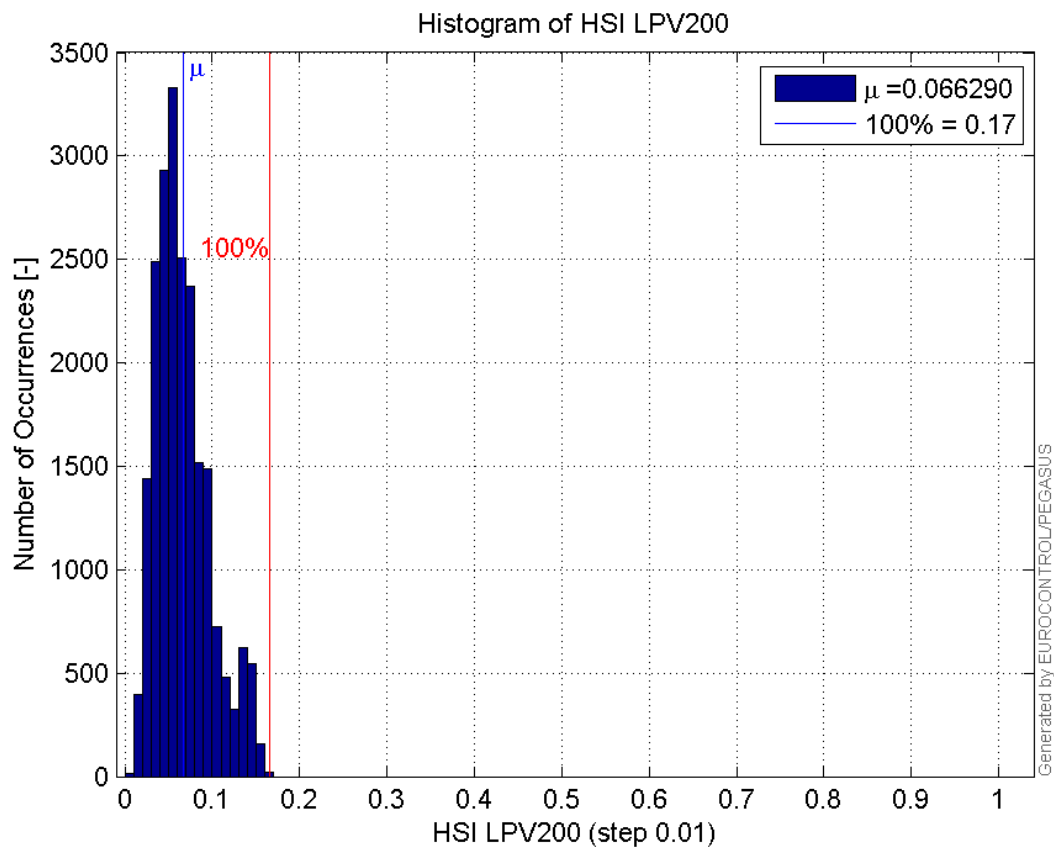




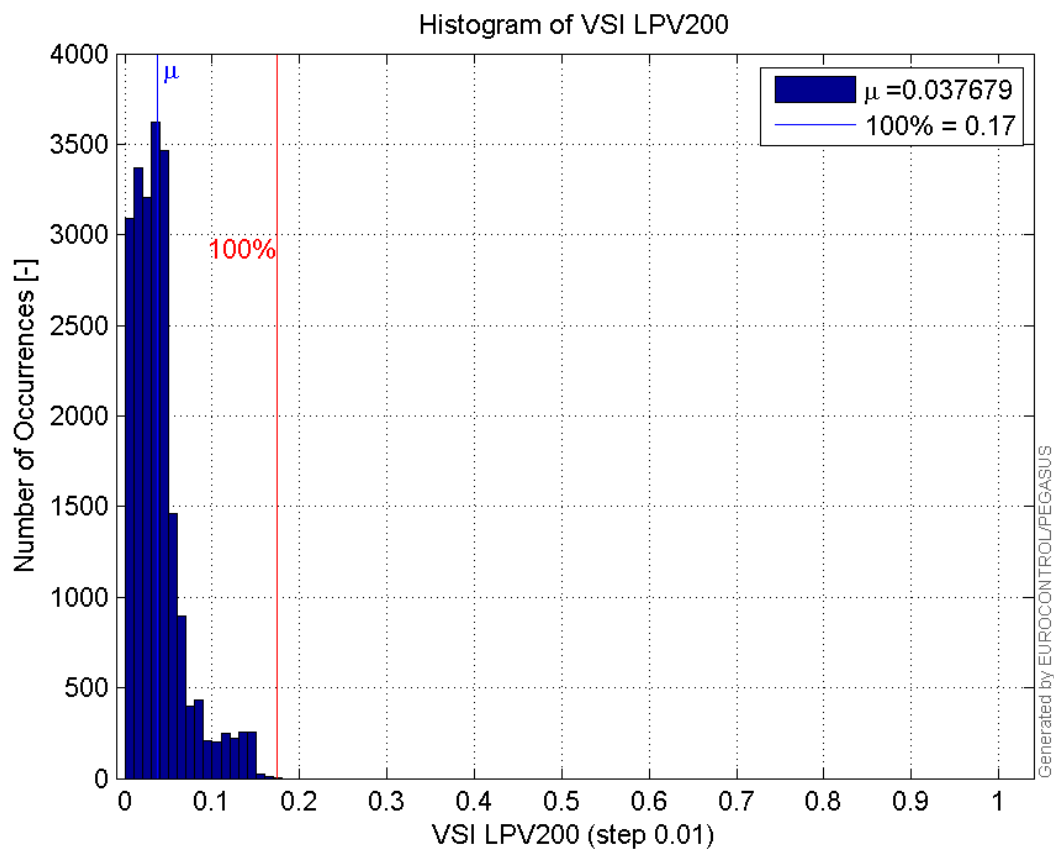
**Histogram of VPL LPV200:**



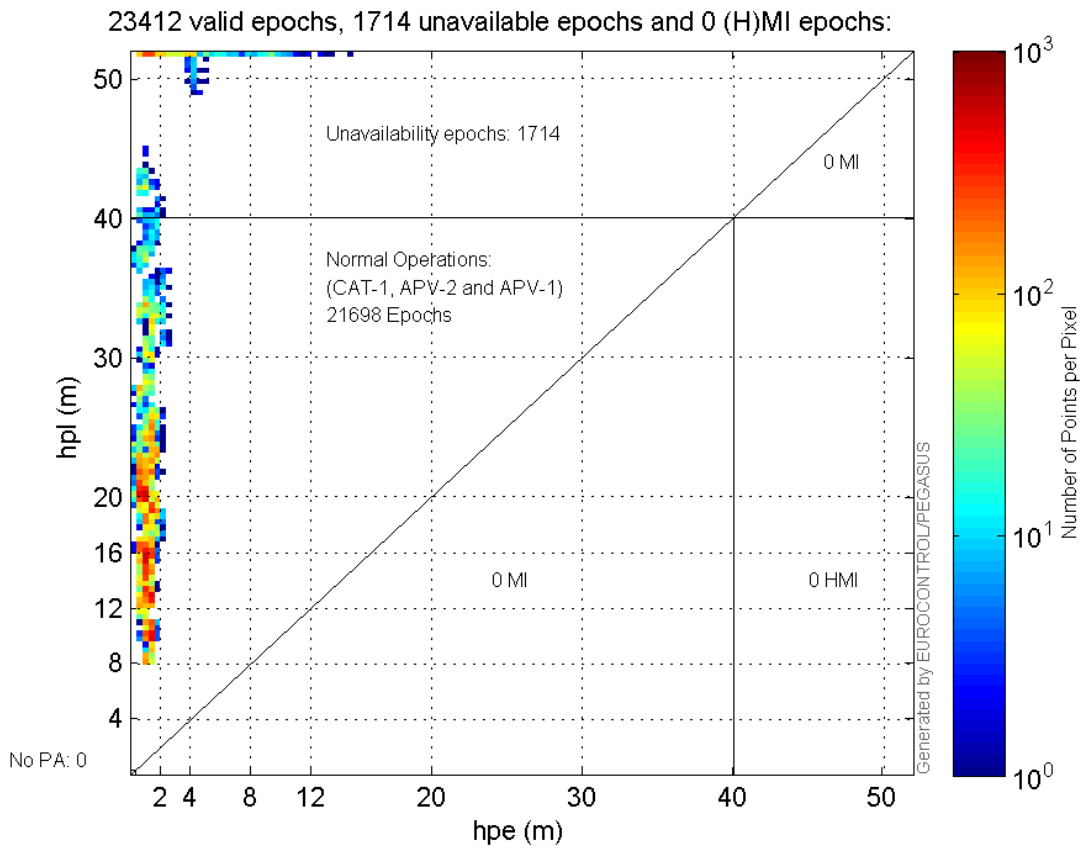
**Histogram of HSI LPV200:**



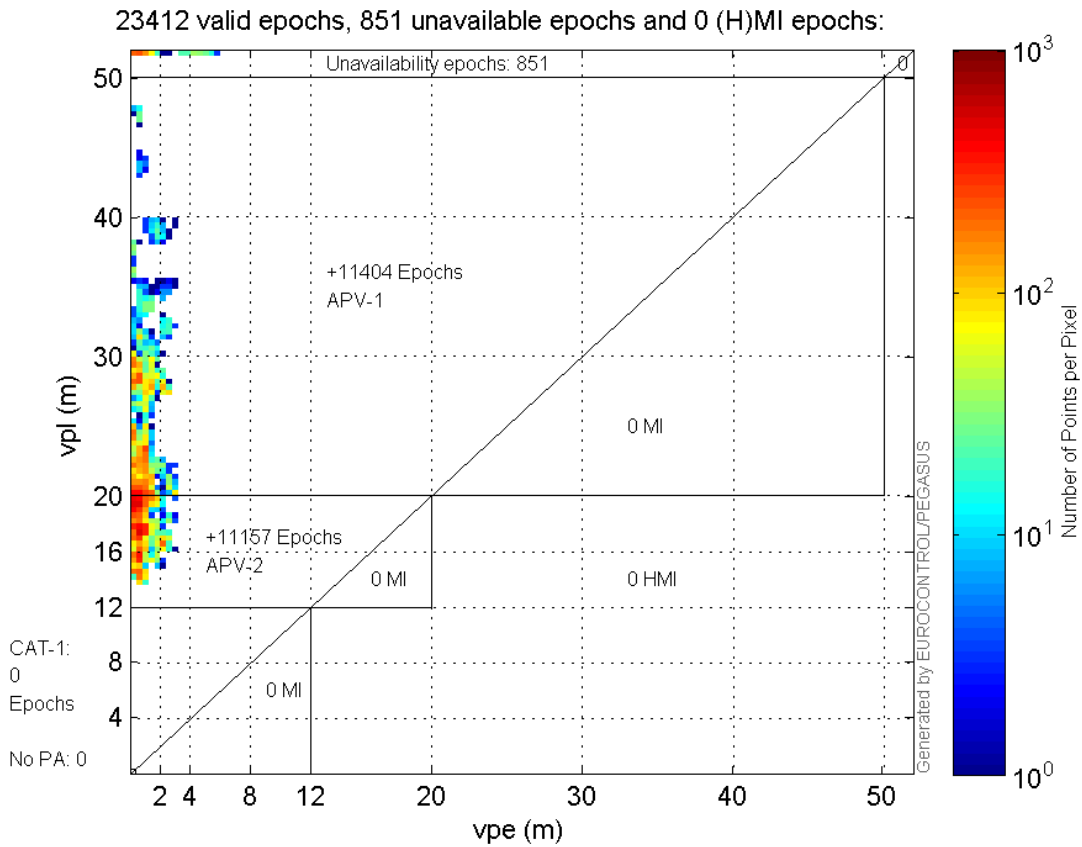
Histogram of VSI LPV200:



### 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:/PegasusDateGob/job/2016_02_11EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_11EGNOS/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	30.4296
init_alt	results	237.3229
mi_numbers	results	0

## Range Domain

**start:** 06:44:54 11.02.2016 ( week: 1883 sec: 369894 )  
**end:** 13:21:12 11.02.2016 ( week: 1883 sec: 393672 )  
**duration:** 06:36:19 ..

## quality

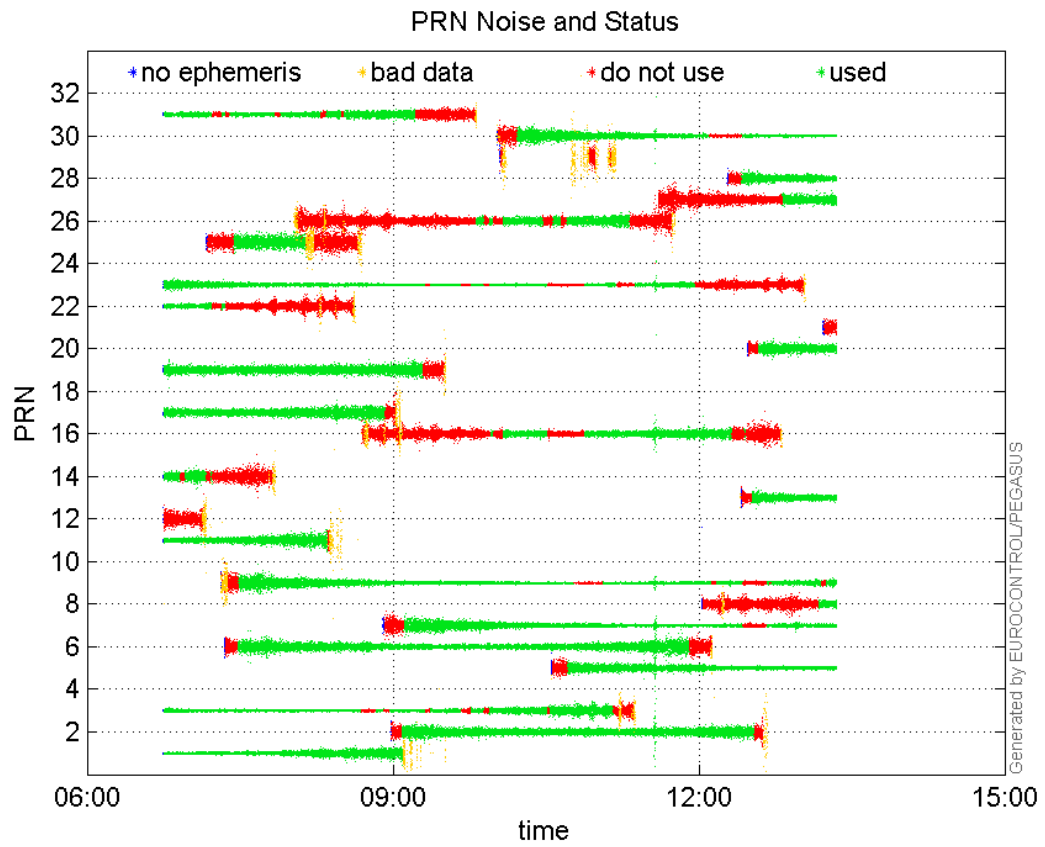
**valid samples** 23779  
**total samples** 23779

## PRN overview

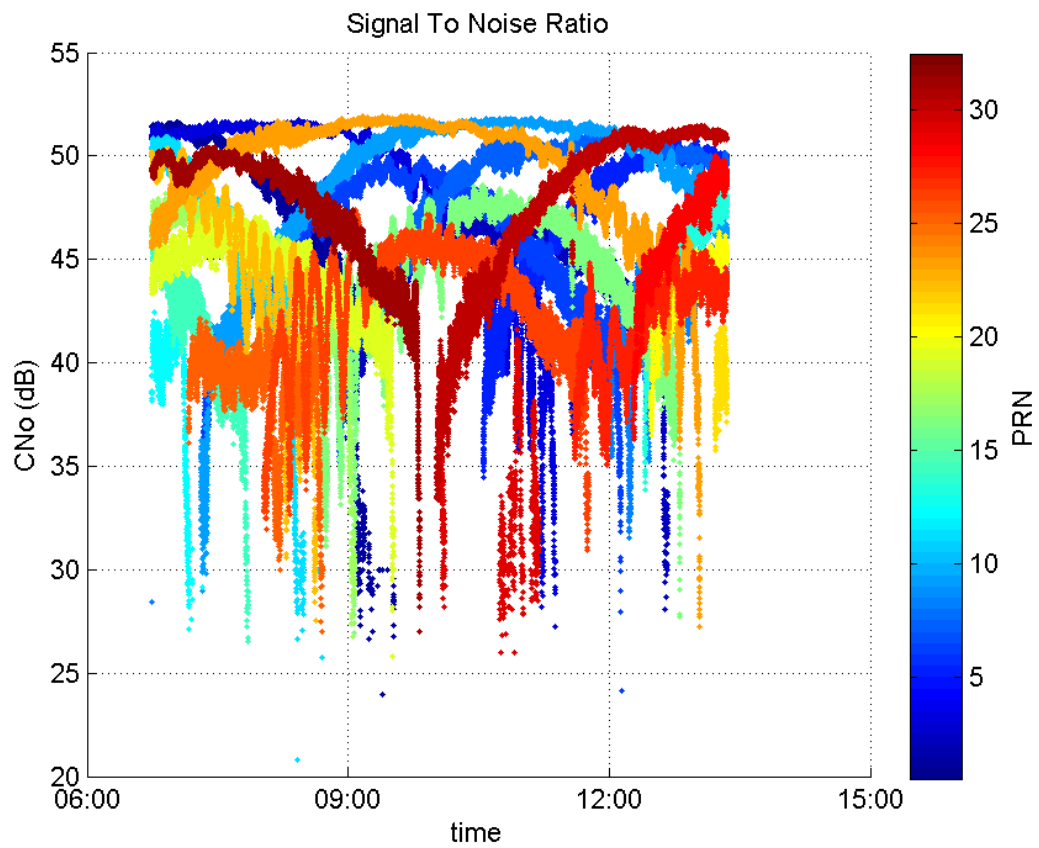
**Number of Visible GPS Satellites** 26  
**Number of Visible SBAS Satellites** 2

## signal quality and status

### PRN Noise and Status:



### Signal To Noise Ratio:



## range errors

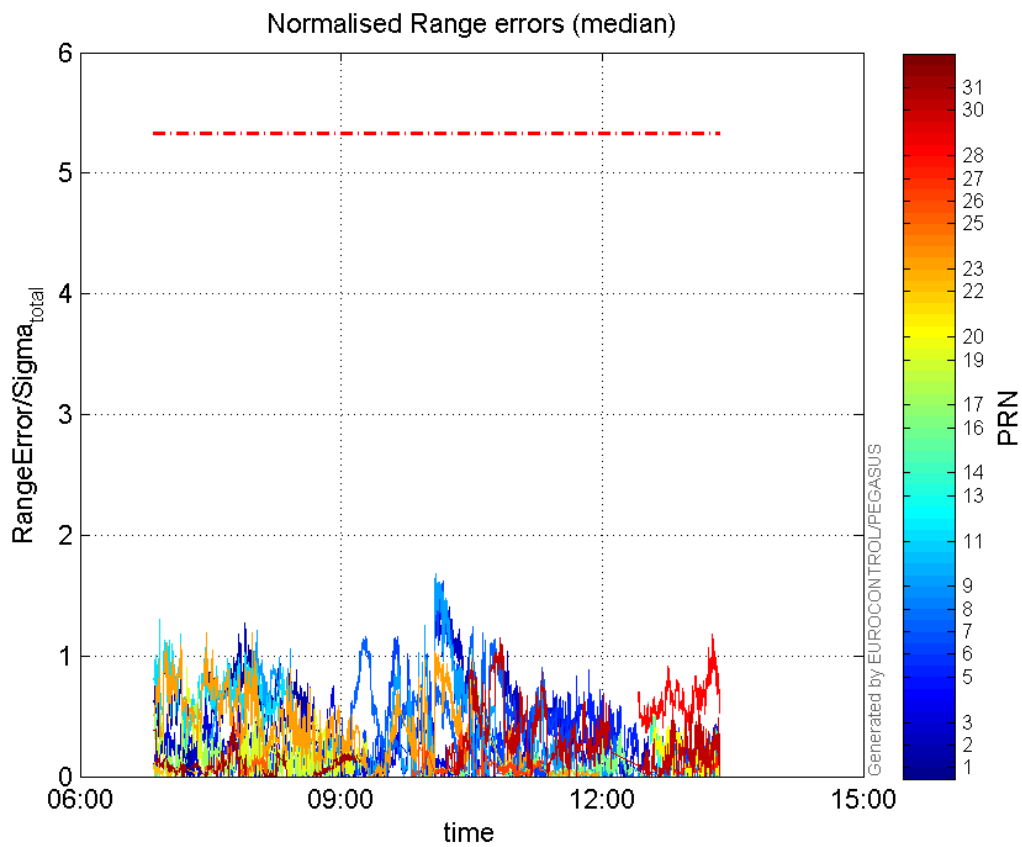
Number of Overbounding Norm Errors 0

Max Norm Errors :

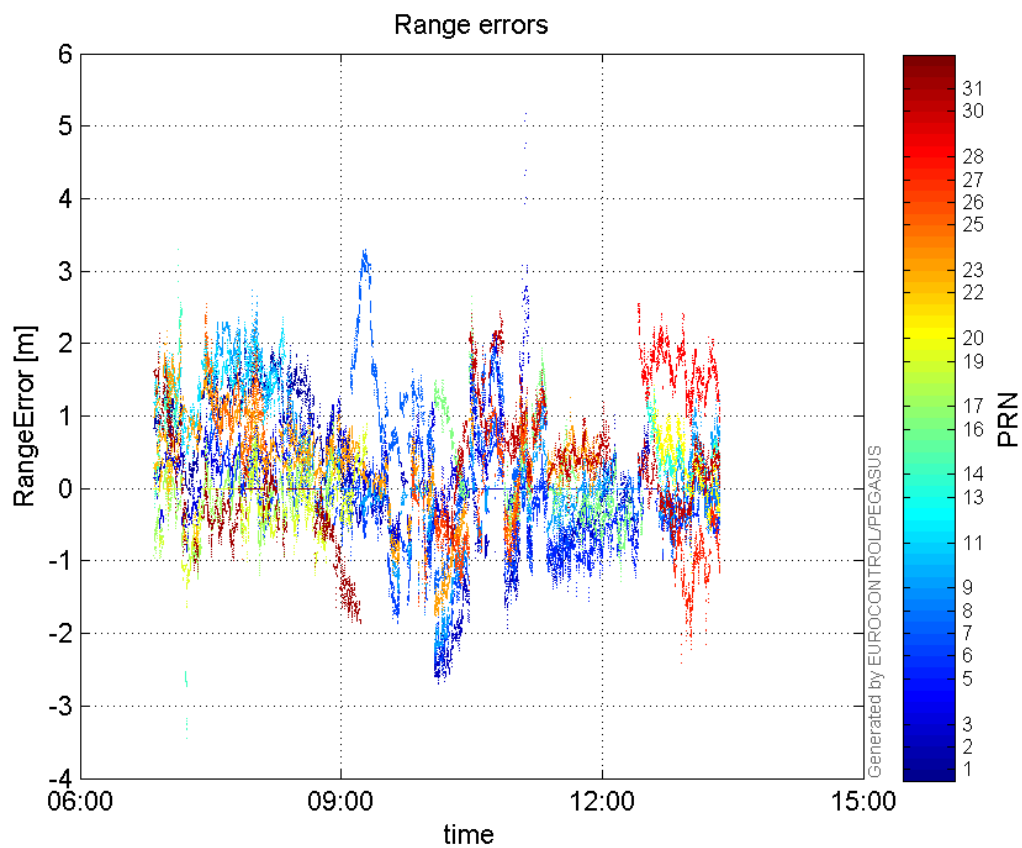
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1883	374025	1	1.27643	2.02739	1.58832
1883	382293	2	1.435	-2.66137	1.85461
1883	375906	3	0.883424	1.43044	1.6192
1883	388269	5	0.888736	-1.56291	1.75858
1883	382205	6	1.61709	-2.52002	1.55837
1883	383452	7	1.24332	1.98931	1.6
1883	393452	8	0.0453523	-0.607092	13.3861
1883	381904	9	1.67783	-2.27398	1.35531
1883	370481	11	1.29991	1.95206	1.50168
1883	390680	13	0.623171	1.445	2.31878
1883	371271	14	0.161461	3.30218	20.4518
1883	383424	16	1.05848	2.46306	2.32699
1883	372065	17	0.727056	-1.23529	1.69903
1883	371610	19	0.904174	-1.64673	1.82125
1883	390931	20	0.511221	1.42295	2.78343
1883	370481	22	0.132356	1.24209	9.38448
1883	374332	23	1.1915	1.73821	1.45884
1883	373690	25	0.547878	2.13166	3.89076
1883	383290	26	0.46082	-1.39854	3.0349
1883	393095	27	0.396904	-2.14895	5.41429
1883	393344	28	1.1788	2.06339	1.75042
1883	384564	30	1.15381	2.45563	2.12828
1883	373532	31	0.496308	-0.995339	2.00549

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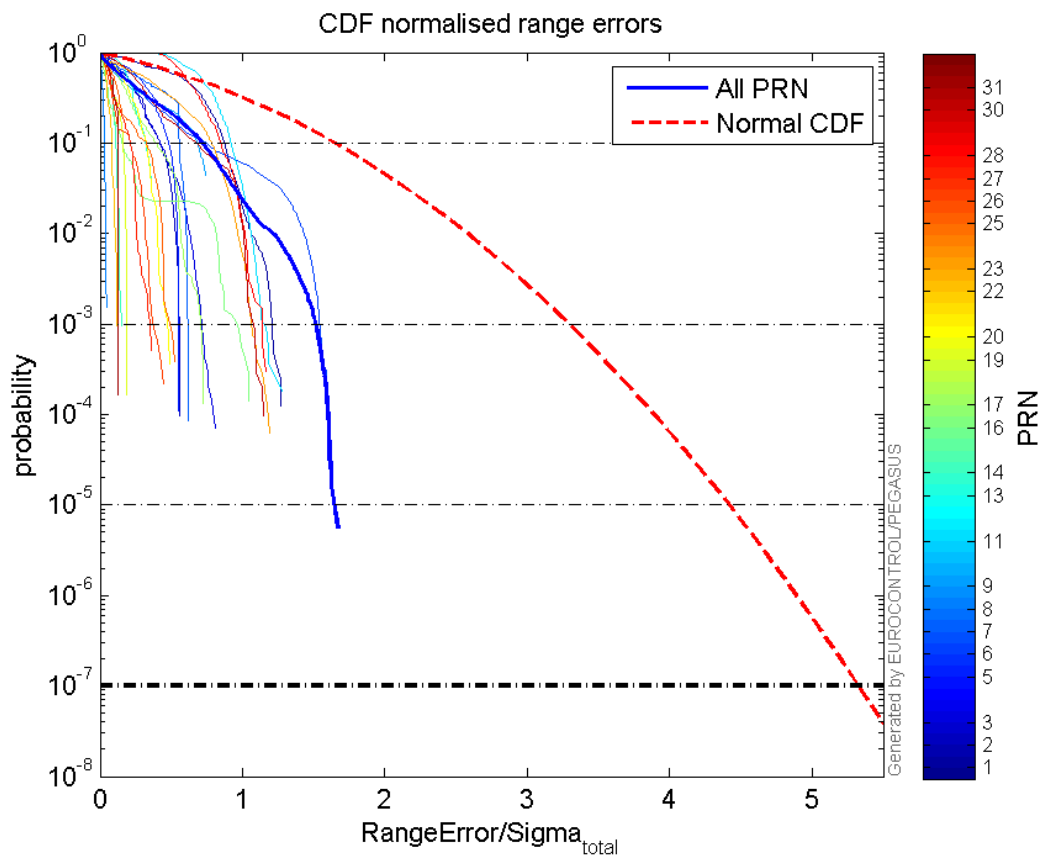
 Normalised Range errors (median):



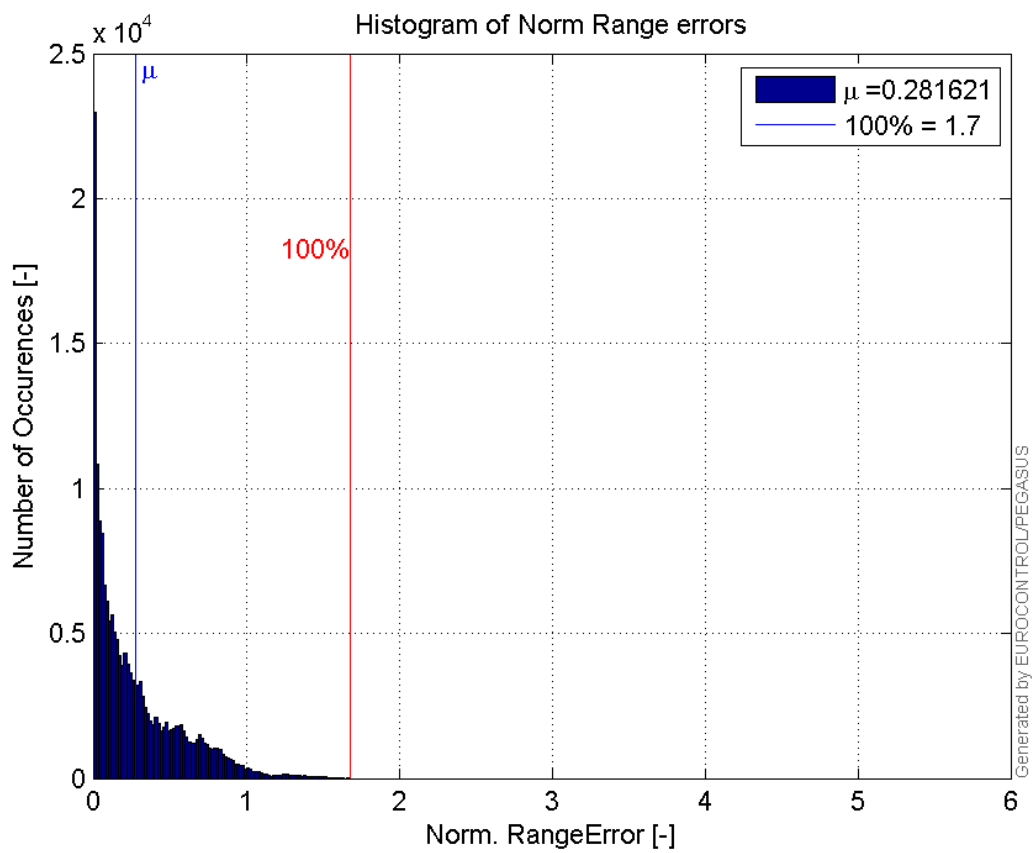
Range errors:



CDF normalised range errors:

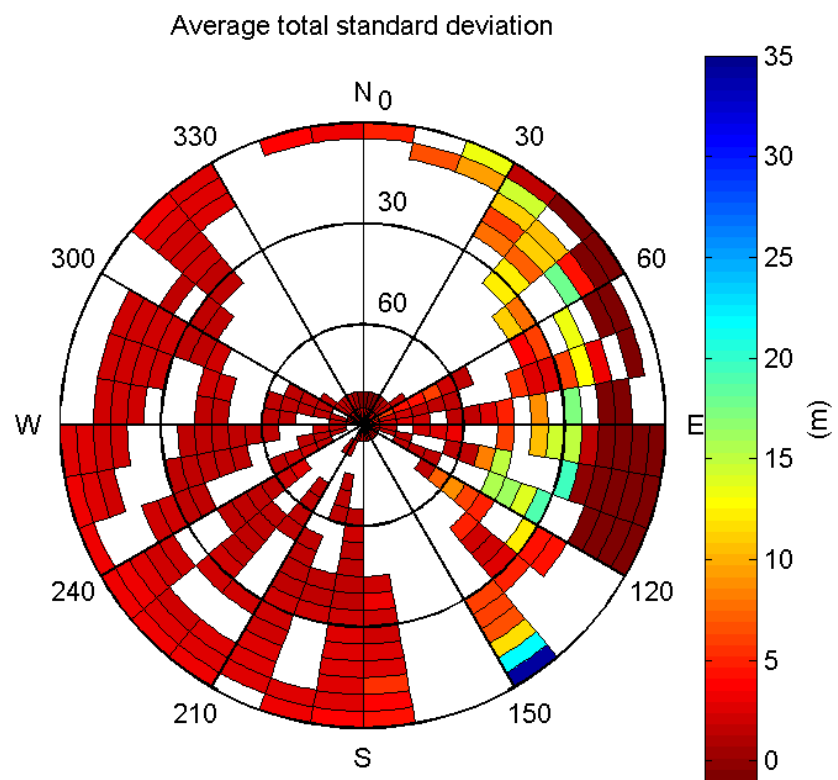


Histogram of Norm Range errors:

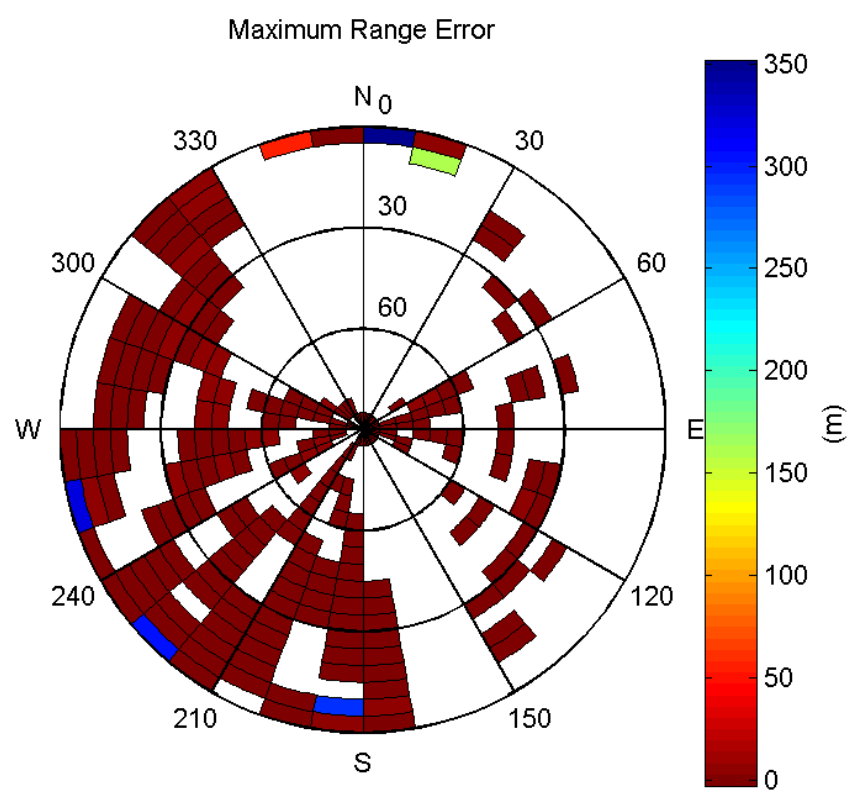


Sigma Sky Plot:



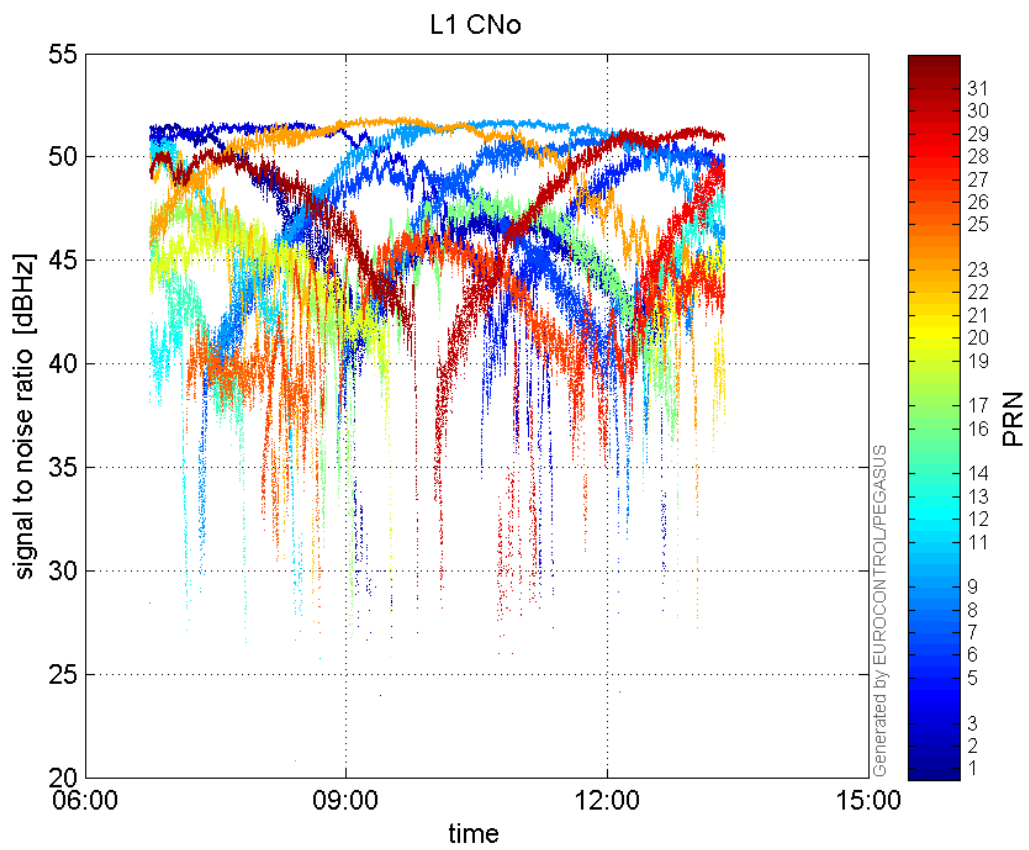


Norm Error Sky Plot:

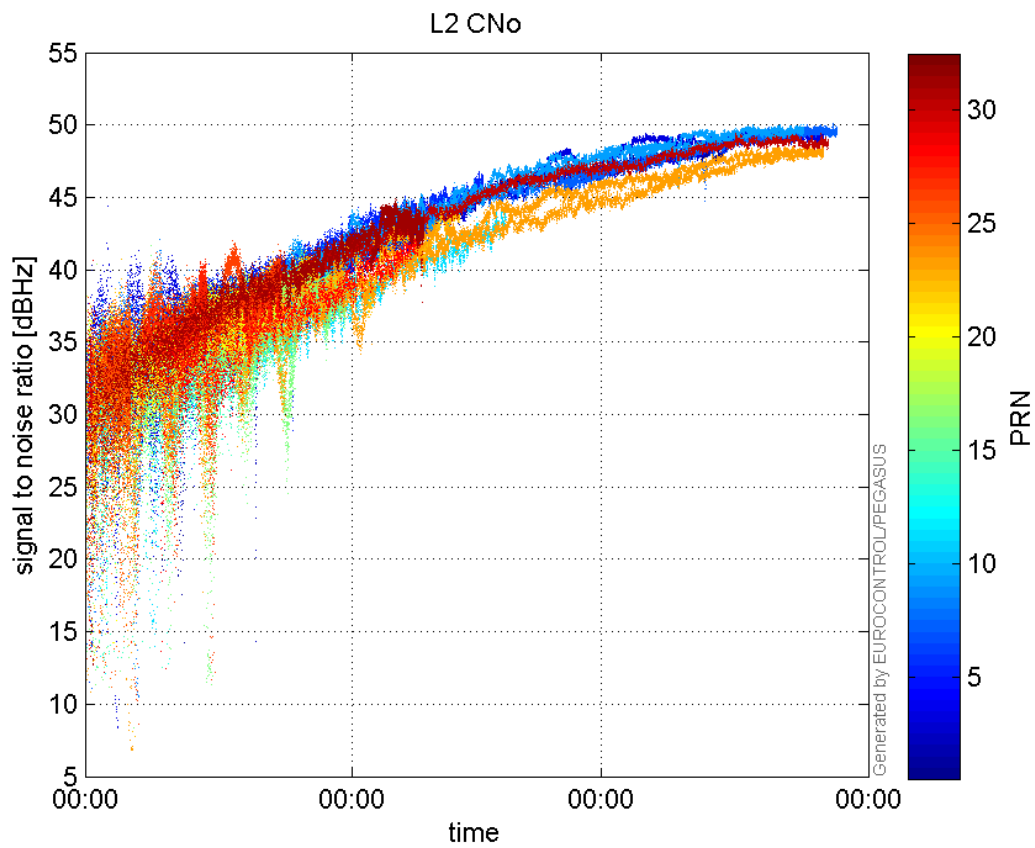


signal quality

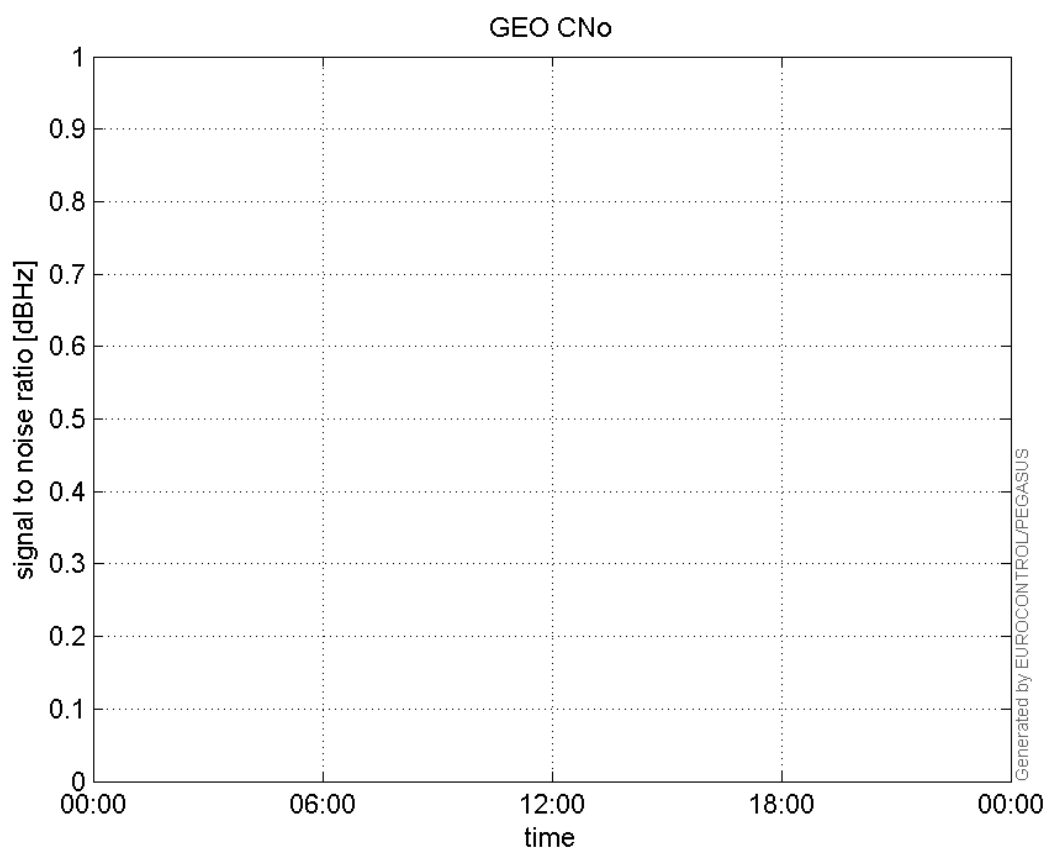
**L1 CNo:**



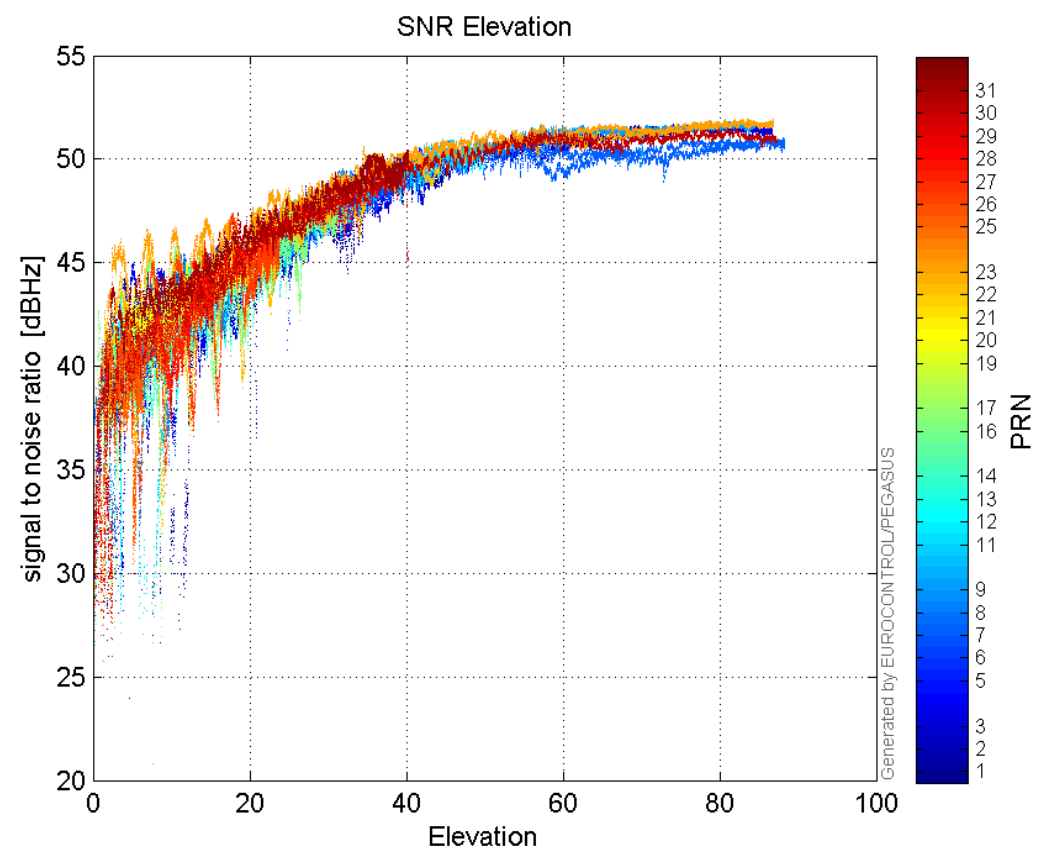
**L2 CNo:**



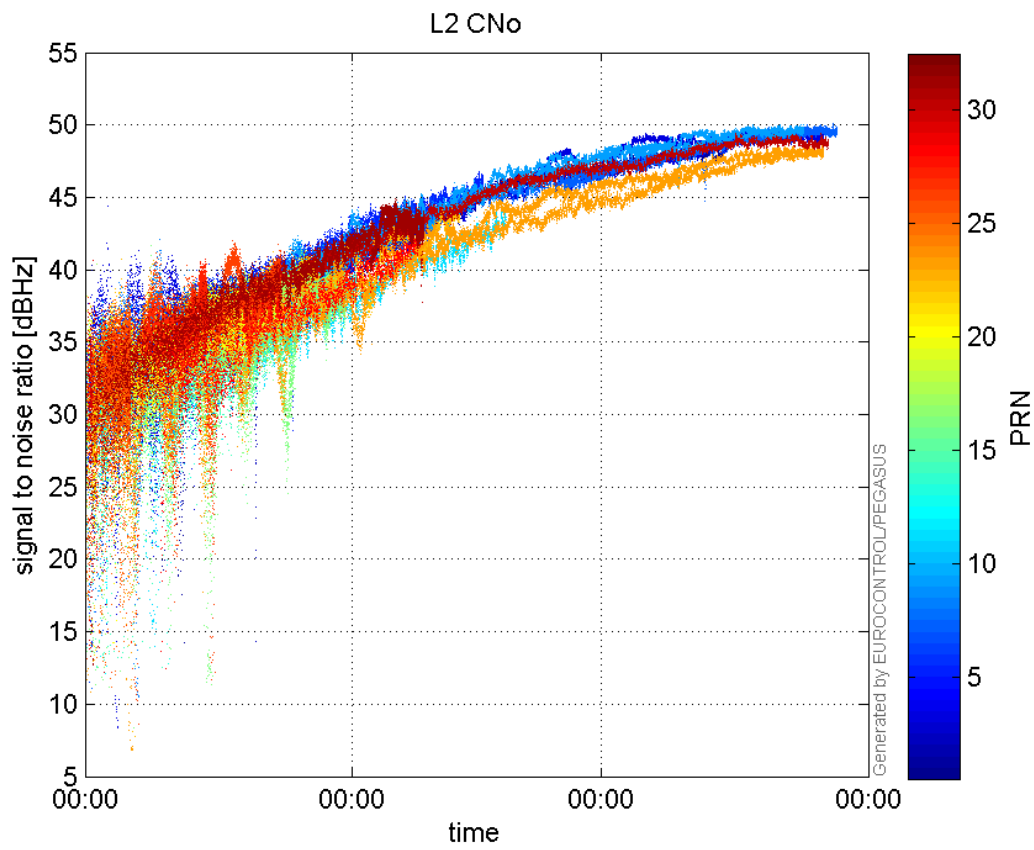
**GEO CNo:**



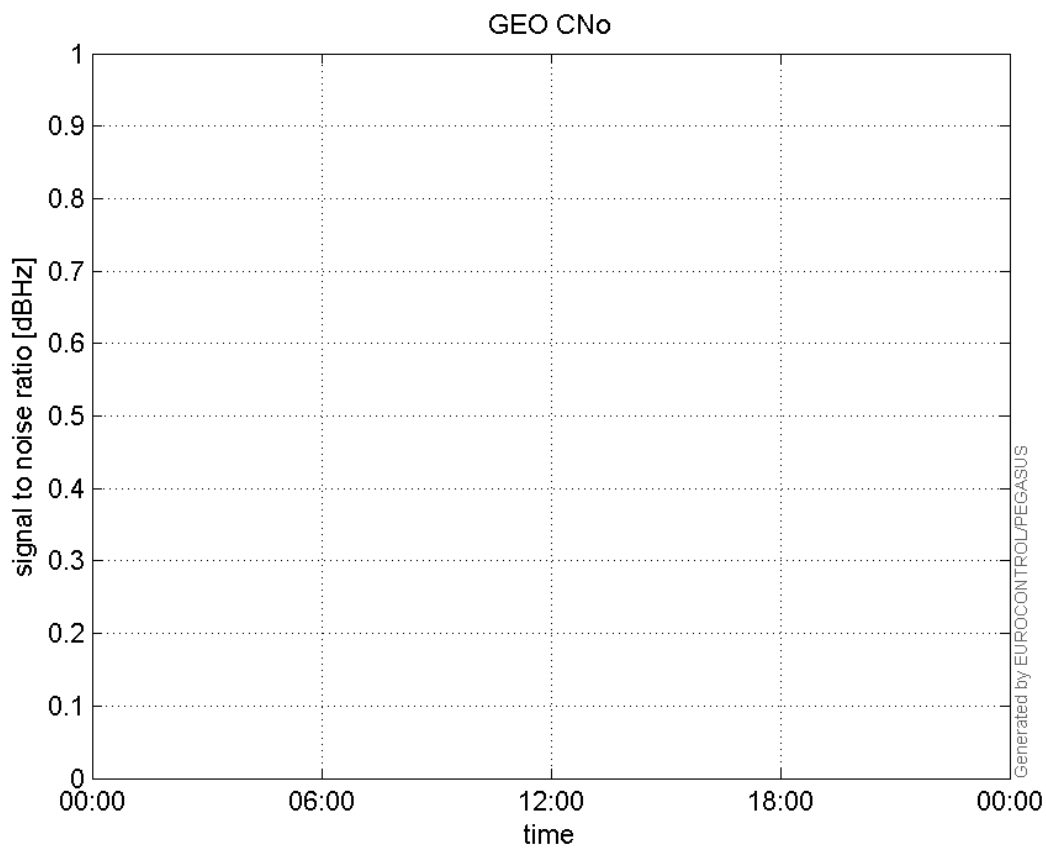
**SNR Elevation:**



**L2 CNo:**

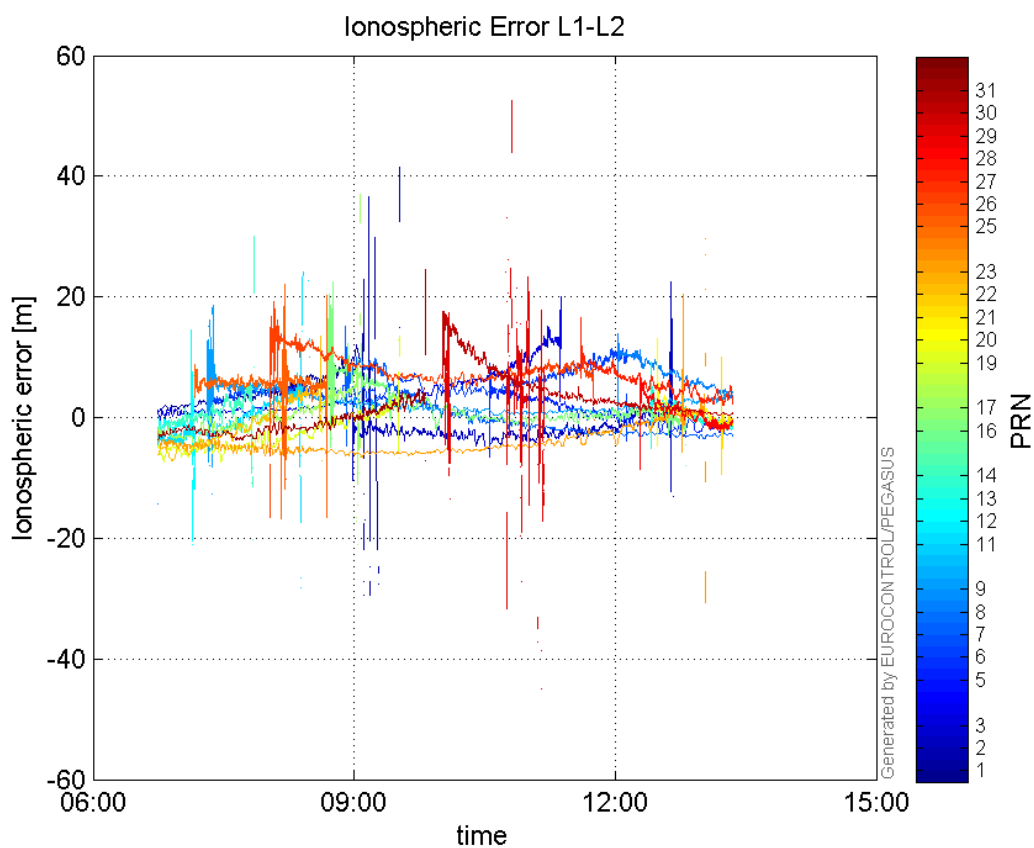


**GEO CNo:**



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/2016_02_11EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_11EGNOS/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	30.4296
init_alt	results	237.3229
mi_numbers	results	0