

# Global View

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

## Position Domain

**start:** 09:06:30 17.12.2015 ( week: 1875 sec: 378390 )  
**end:** 14:31:50 17.12.2015 ( week: 1875 sec: 397910 )  
**duration:** 05:25:21 ..

### quality

**valid samples** 19160  
**total samples** 19521

### Event tables

**Position discontinuity events type** no (0)  
**APV-I discontinuity events type** all  
**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>	397444	1.78722	10.8423	0.164838	- 0.853428	17.015	0.0501574
<b>max normVer</b>	382484	1.52574	19.0671	0.0800194	2.16123	18.4736	0.11699
<b>max HPE</b>	380251	5.50596	772.719	0.00712543	4.37097	670.771	0.00651634
<b>max VPE</b>	380221	5.37816	745.651	0.0072127	4.49008	650.851	0.00689879
<b>min HPL</b>	392572	0.737438	8.78981	0.0838969	- 0.141878	12.4542	0.011392
<b>min VPL</b>	392573	0.715429	8.85041	0.0808357	- 0.168606	12.2695	0.0137419

#### APV-I discontinuity events :

#	Epoch	duration	stable period
1	379328	28	577
2	379967	736	611
3	385197	1	4494

4	385201	1	3
5	385205	1	3
6	394379	115	9173

**APV-35m discontinuity events :**

#	Epoch	duration	stable period
1	379328	28	577
2	379667	293	311
3	379966	737	2
4	384948	15	1
5	385068	1091	1
6	394379	115	8153

**LPV-200 discontinuity events :**

#	Epoch	duration	stable period
1	379328	28	577
2	379667	293	311
3	379966	737	2
4	384948	15	1
5	385068	1091	1
6	394379	115	8153

**First Glance analysis**

<b>Duration</b>	19521
<b>Number of Samples</b>	19521
<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>	1.8493
<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
19160	18278	16733	0	16733

**Accuracy statistics :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	2.03166	1.88392	1.70966	NaN	1.70966
<b>HPEscale 95%</b>	NaN	5.27076	5.34188	NaN	5.34188
<b>VPE 95%</b>	1.79986	1.63944	1.37804	NaN	1.37804
<b>VPEscale 95%</b>	NaN	4.0249	2.85439	NaN	2.85439

**Availability :**

--	--	--	--	--	--

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	1	0.953967	0.87333	0	0.87333
<b>measurements</b>	0.981507	0.936325	0.857179	0	0.857179
<b>Operational</b>	0.981507	0.936325	0.857179	0	0.857179

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	--	6	68	--	68
<b>Long</b>	--	3	6	--	6
<b>Independent</b>	--	3	3	--	3
<b>P(disc.)</b>	NaN	0.00246198	0.0026893	NaN	0.0026893
<b>P(slide)</b>	NaN	0.0036109	0.00962171	NaN	0.00962171

**Integrity events :**

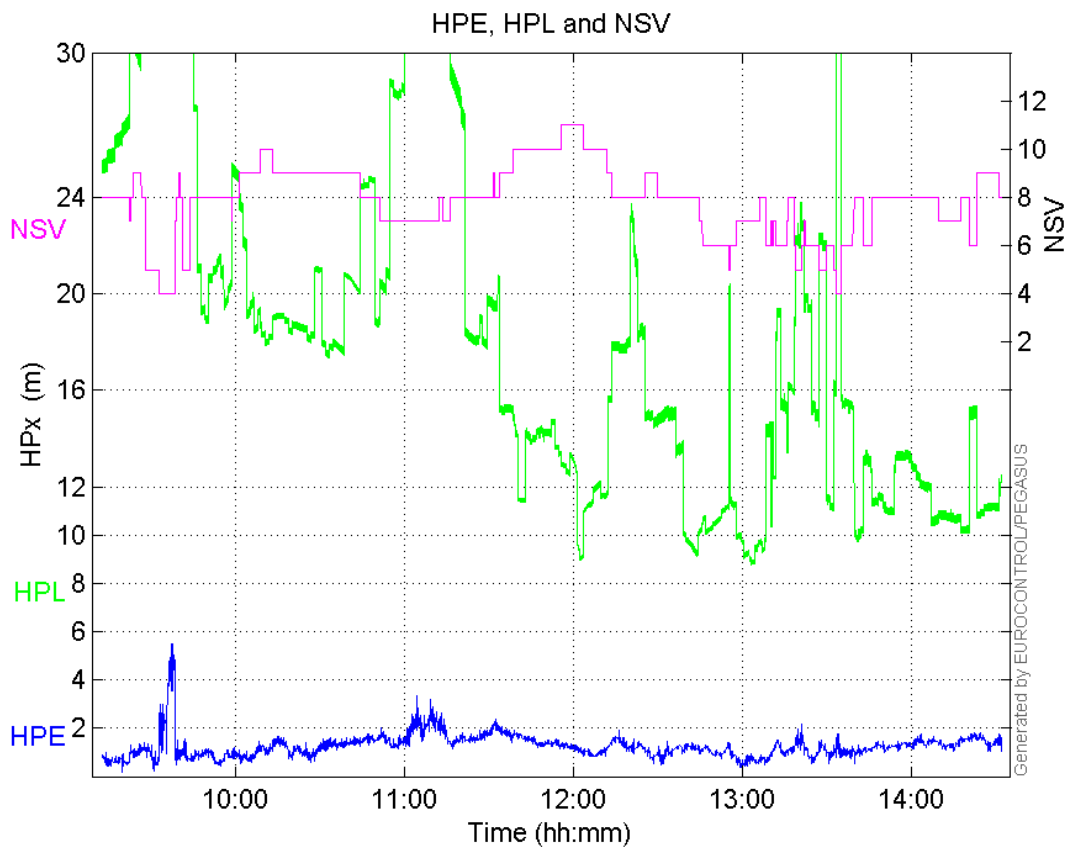
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

**Performance Summary :**

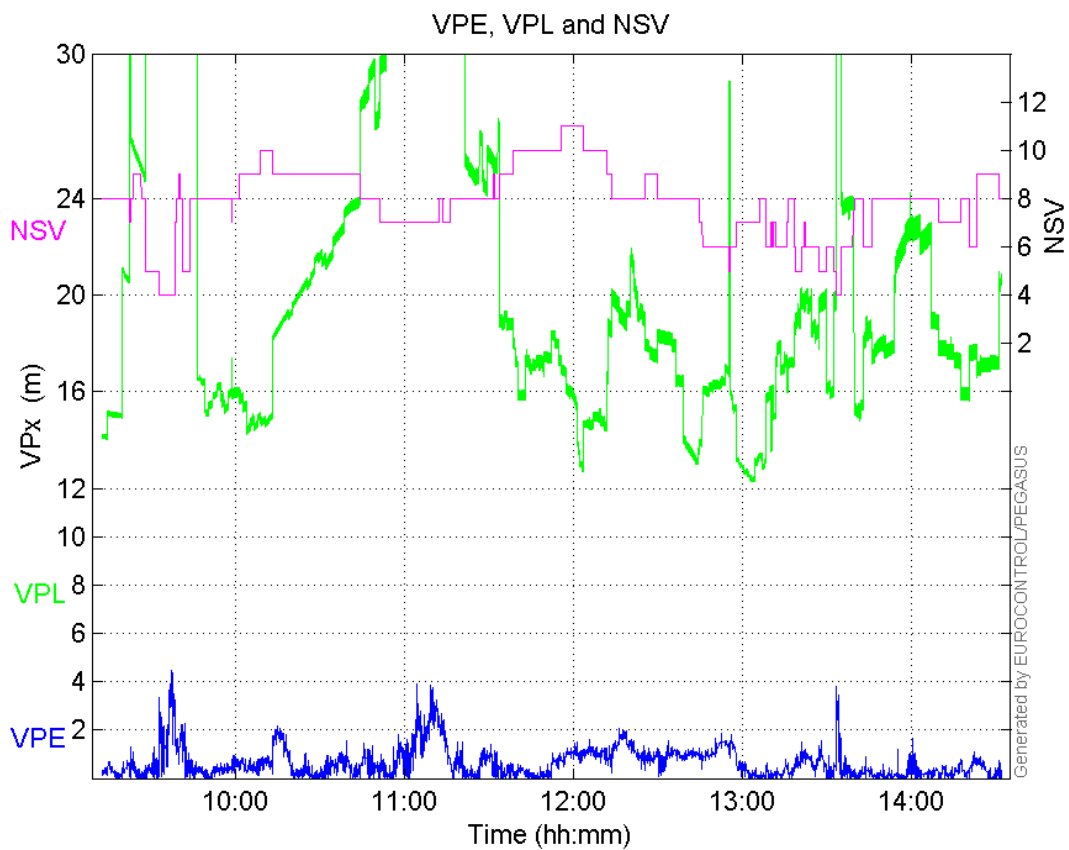
	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	19160	18278	16733	0	16733
<b>SIS Availability</b>	1	0.953967	0.87333	0	0.87333
<b>Local Availability</b>	0.981507	0.936325	0.857179	0	0.857179
<b>Operational Availability</b>	0.981507	0.936325	0.857179	0	0.857179
<b>HPE 95%</b>	2.03166	1.88392	1.70966	NaN	1.70966
<b>HPEScale 95%</b>	NaN	5.27076	5.34188	NaN	5.34188
<b>VPE 95%</b>	1.79986	1.63944	1.37804	NaN	1.37804
<b>VPEscale 95%</b>	NaN	4.0249	2.85439	NaN	2.85439
<b>All Discontinuity Events</b>	--	6	68	--	68
<b>Long Discontinuity Events</b>	--	3	6	--	6
<b>Independent Discontinuity Events</b>	--	3	3	--	3
<b>P(discontinuity)</b>	NaN	0.00246198	0.0026893	NaN	0.0026893
<b>P(sliding window)</b>	NaN	0.0036109	0.00962171	NaN	0.00962171
<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:**

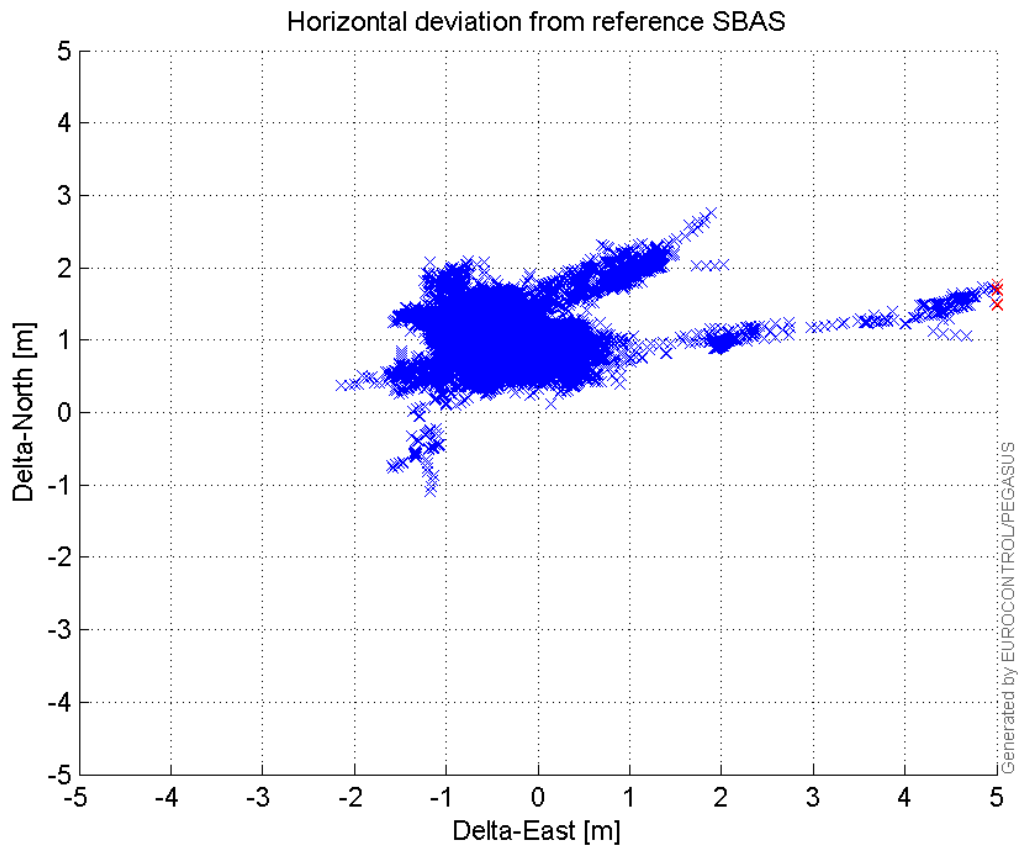


**VPE, VPL and NSV:**



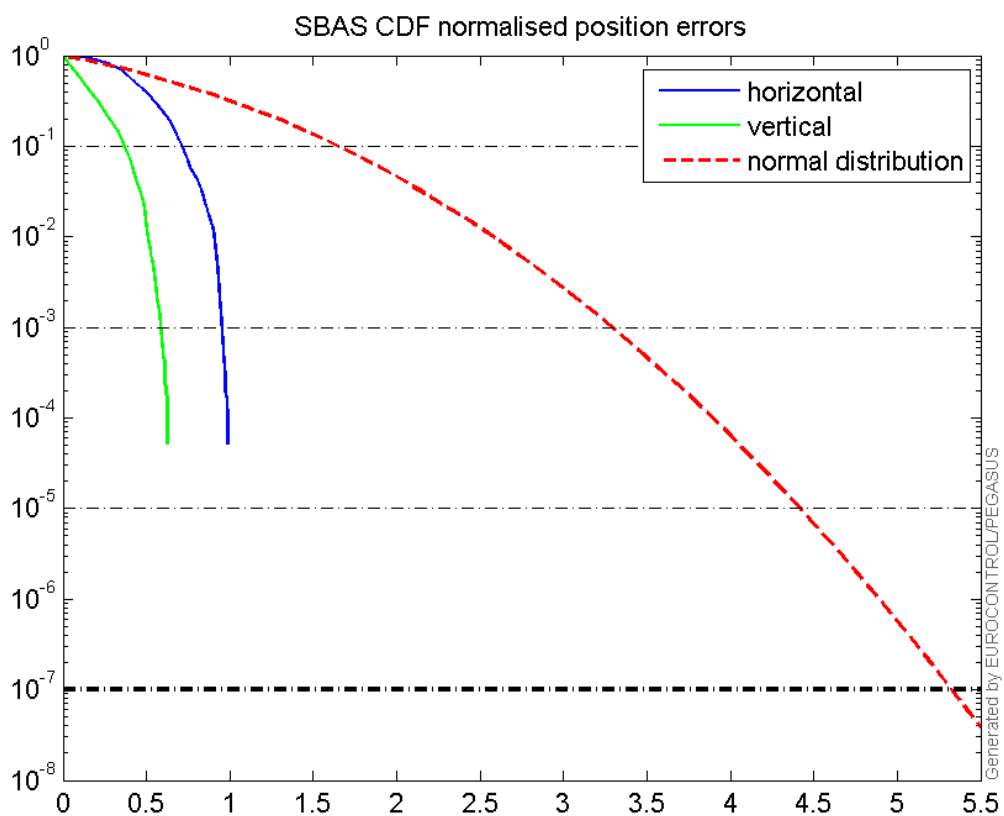
Horizontal deviation

## Horizontal deviation from reference SBAS:



## CDF position

## SBAS CDF position domain:



## Statistics

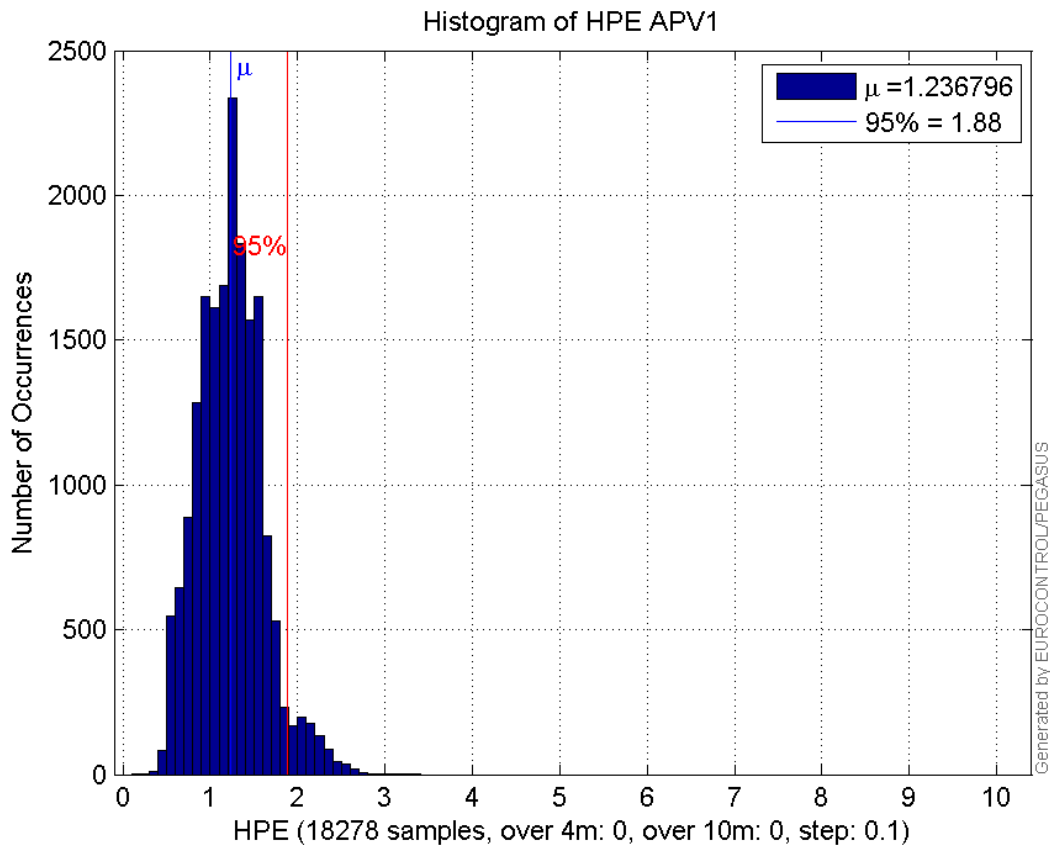
<b>number</b>	18278
<b>sum</b>	22606.152
<b>sum2</b>	30551.19
<b>prctile95</b>	1.8839226
<b>prctile99</b>	2.3196533
<b>number</b>	18278
<b>sum</b>	11142.731
<b>sum2</b>	12021.033
<b>prctile95</b>	1.6394382
<b>prctile99</b>	2.5778101
<b>number</b>	18278
<b>sum</b>	324700.26
<b>sum2</b>	6638470.9
<b>prctile95</b>	31.97098
<b>prctile99</b>	37.325252
<b>number</b>	18278
<b>sum</b>	377699.35
<b>sum2</b>	8686657.6
<b>prctile95</b>	37.55322
<b>prctile99</b>	41.626372
<b>number</b>	18278
<b>sum</b>	1421.6395
<b>sum2</b>	127.83043
<b>prctile95</b>	0.13176891
<b>prctile99</b>	0.15130767
<b>number</b>	18278
<b>sum</b>	561.96877
<b>sum2</b>	29.045988
<b>prctile95</b>	0.080497984
<b>prctile99</b>	0.095631066
<b>number</b>	16733
<b>sum</b>	20011.199
<b>sum2</b>	25695.538
<b>prctile95</b>	1.7096605
<b>prctile99</b>	1.9728904
<b>number</b>	16733
<b>sum</b>	9131.3745
<b>sum2</b>	8116.615
<b>prctile95</b>	1.3780397
<b>prctile99</b>	1.7722704
<b>number</b>	16733
<b>sum</b>	273898.26
<b>sum2</b>	4952844.2
<b>prctile95</b>	26.837195
<b>prctile99</b>	30.397426
<b>number</b>	16733
<b>sum</b>	318352.25
<b>sum2</b>	6398471.8
<b>prctile95</b>	28.37991

**prctile99** 34.187678  
**number** 16733  
**sum** 1343.1193  
**sum2** 123.45391  
**prctile95** 0.13354708  
**prctile99** 0.15152894  
**number** 16733  
**sum** 509.96173  
**sum2** 26.453965  
**prctile95** 0.081554043  
**prctile99** 0.096094429

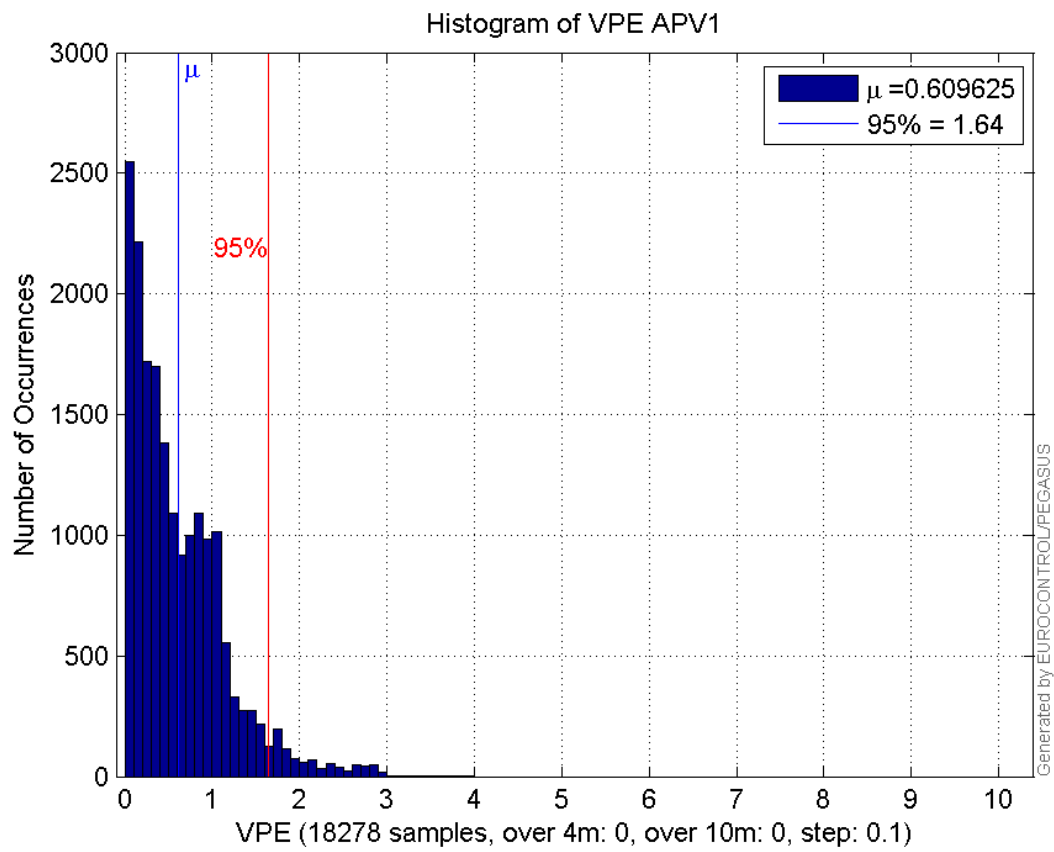
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.2368	0.376587	1.23154	1.88392	2.31965	1.29285
<b>HPL</b>	17.7645	6.9006	16.1034	31.971	37.3253	19.0577
<b>VPE</b>	0.609625	0.534837	0.464132	1.63944	2.57781	0.810973
<b>VPL</b>	20.6642	6.94605	18.2129	37.5532	41.6264	21.8003

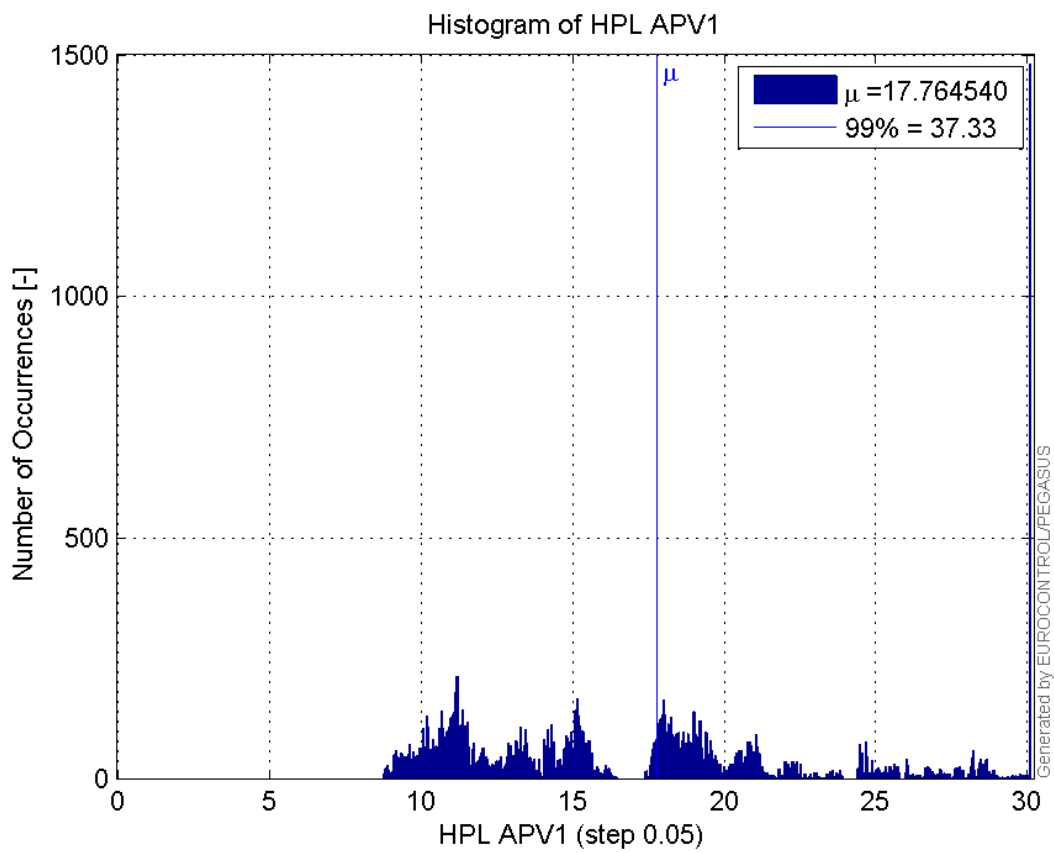
**Histogram of HPE APV1:**



**Histogram of VPE APV1:**

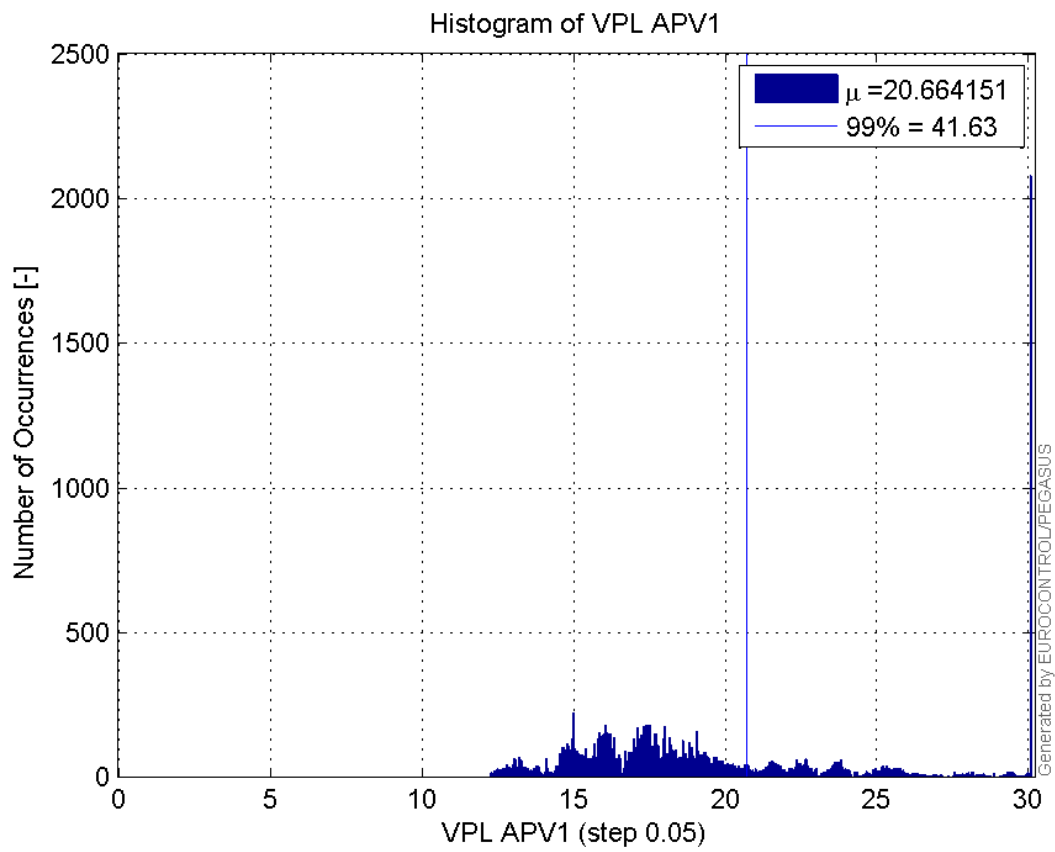


**Histogram of HPL APV1:**

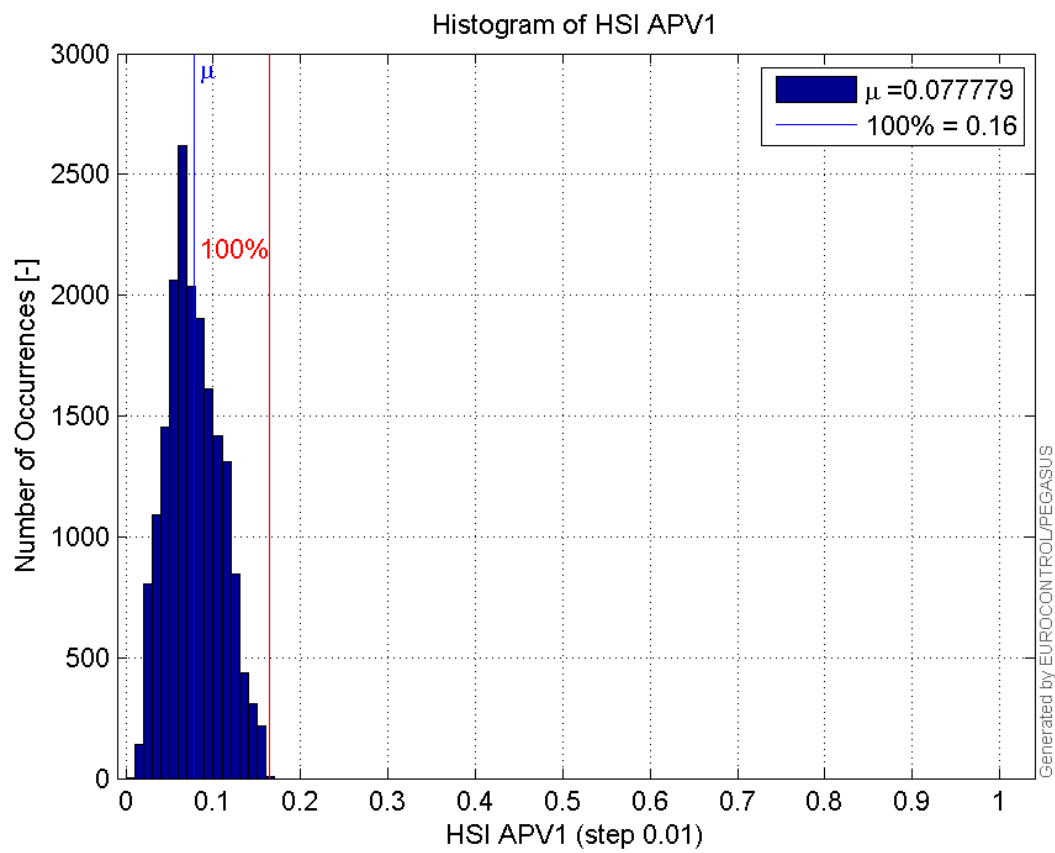


**Histogram of VPL APV1:**

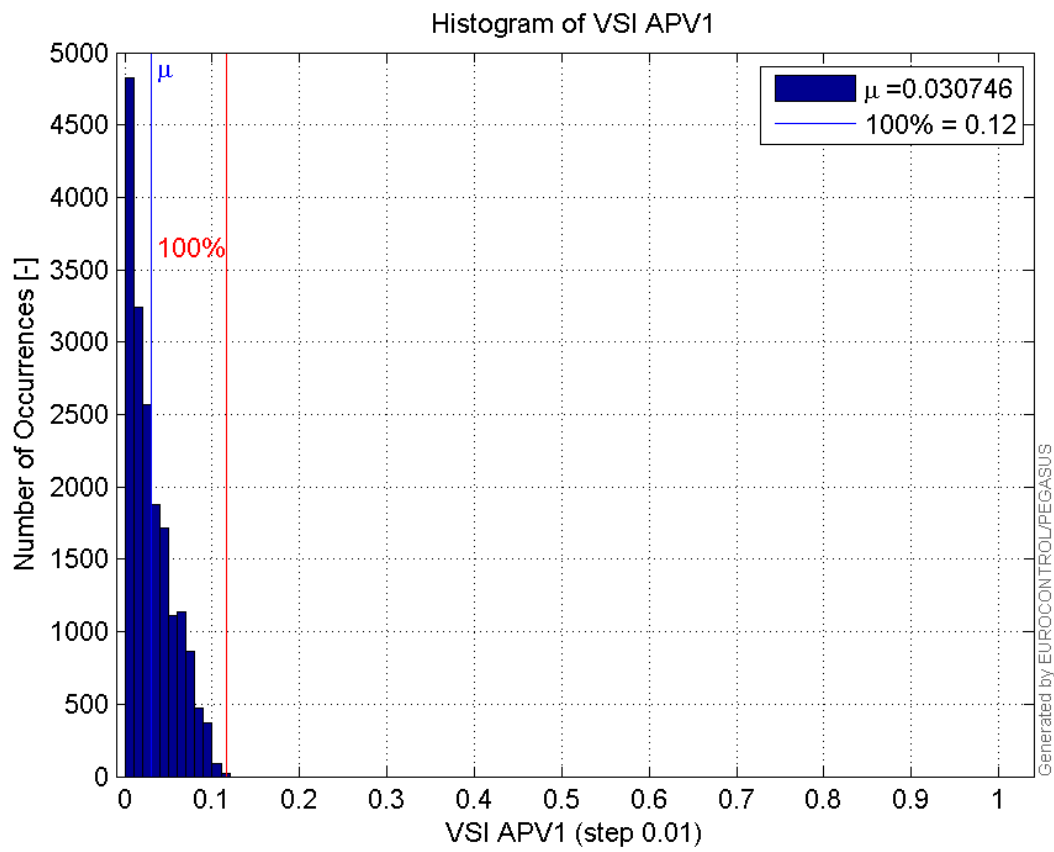




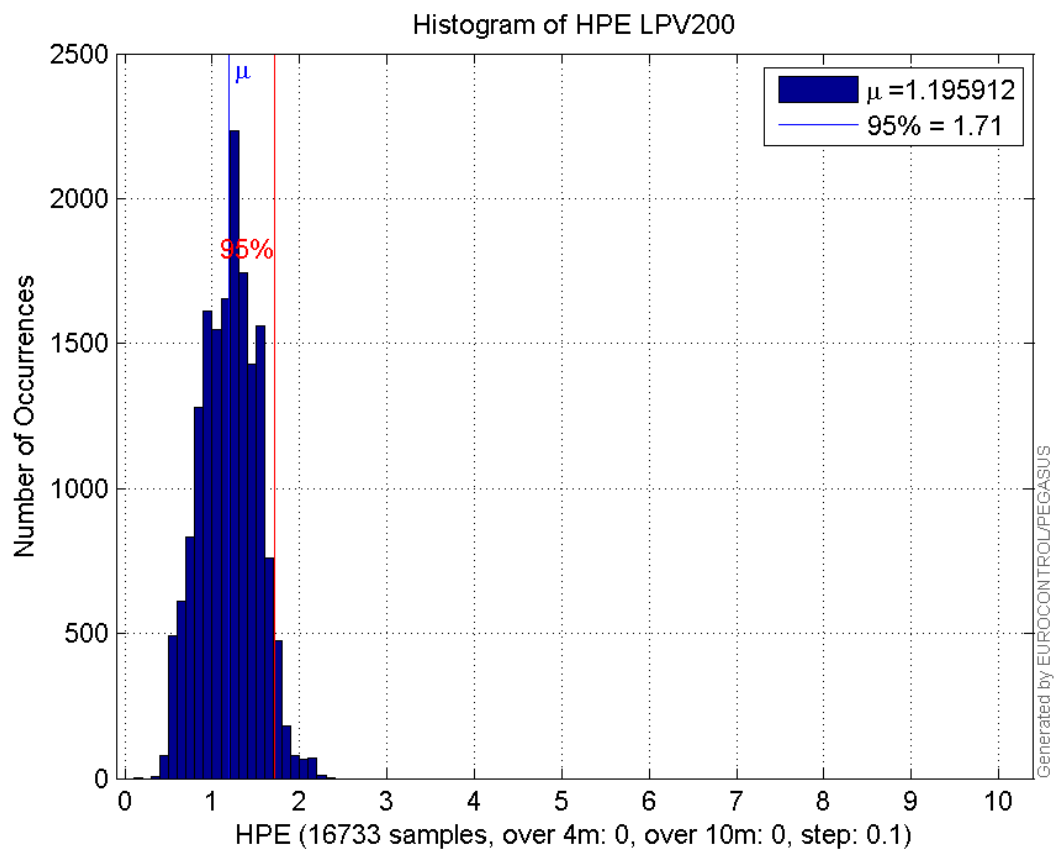
**Histogram of HSI APV1:**



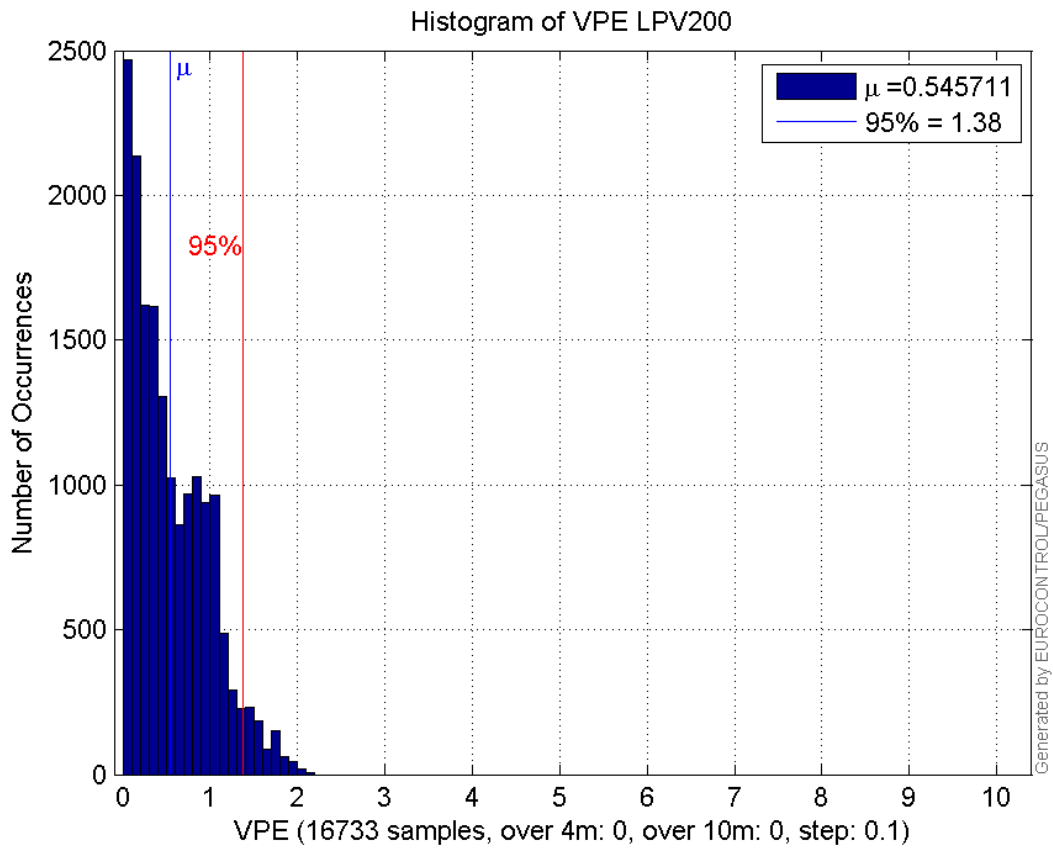
**Histogram of VSI APV1:**



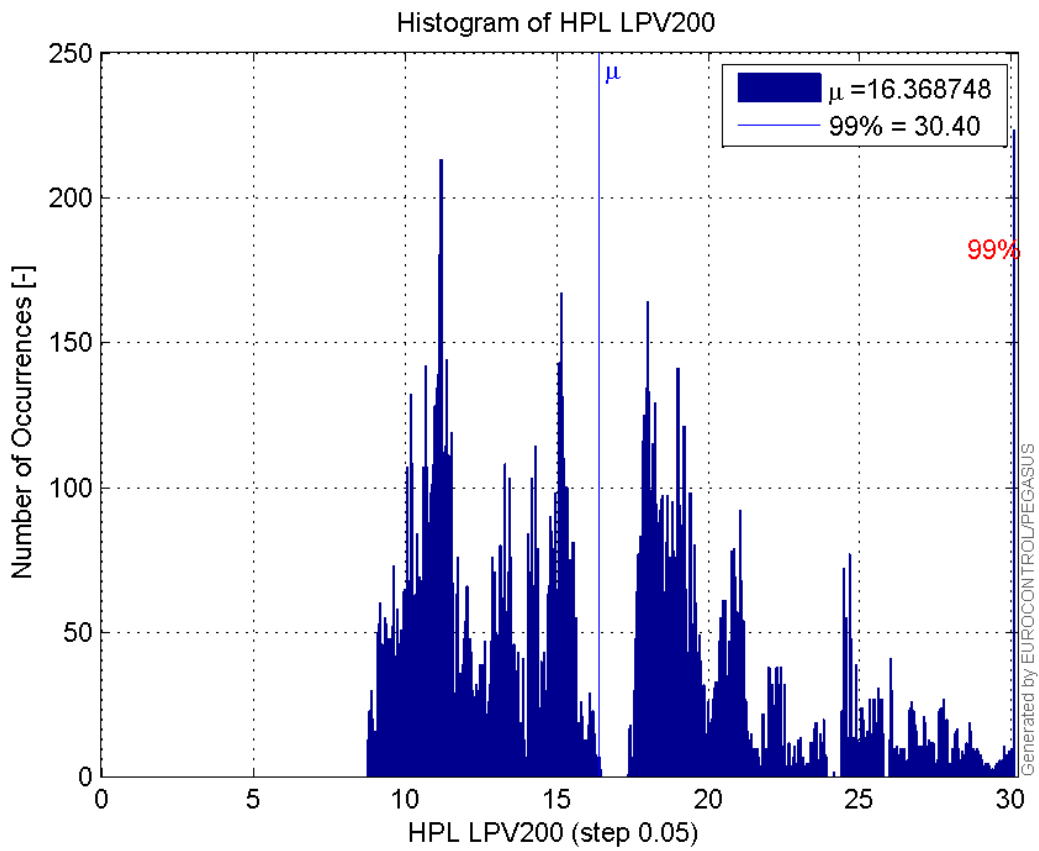
**Histogram of HPE LPV200:**



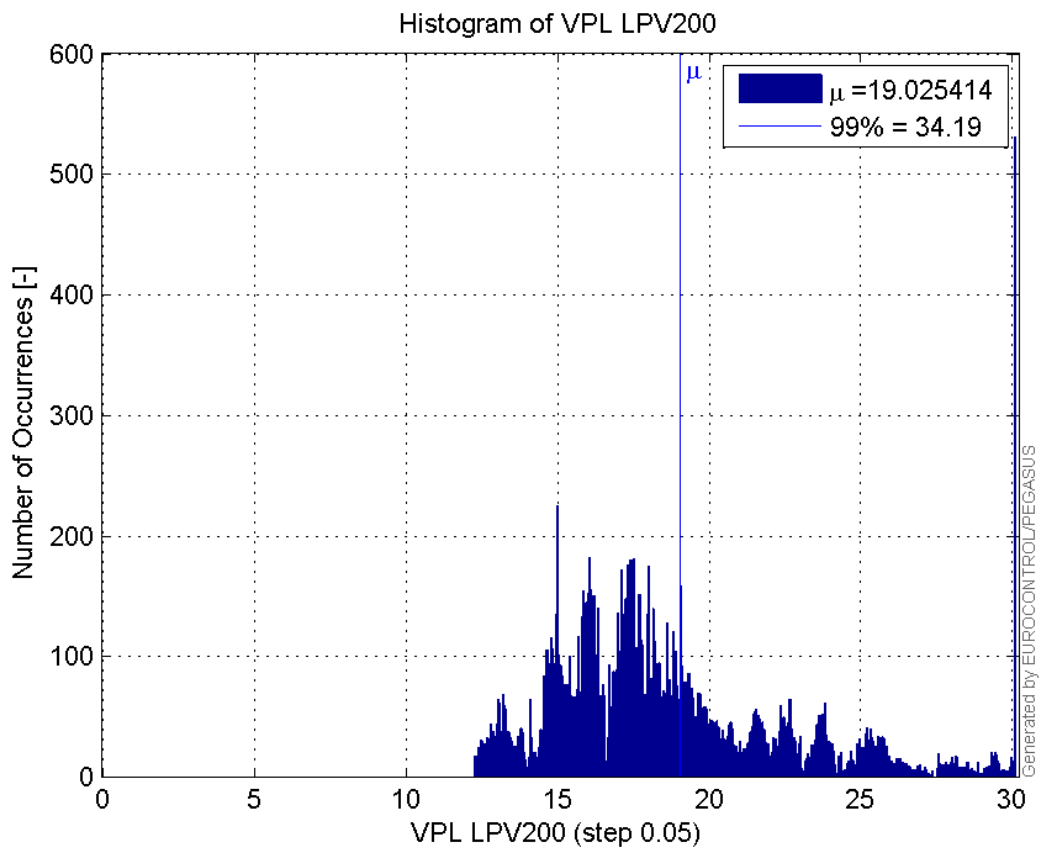
**Histogram of VPE LPV200:**



**Histogram of HPL LPV200:**

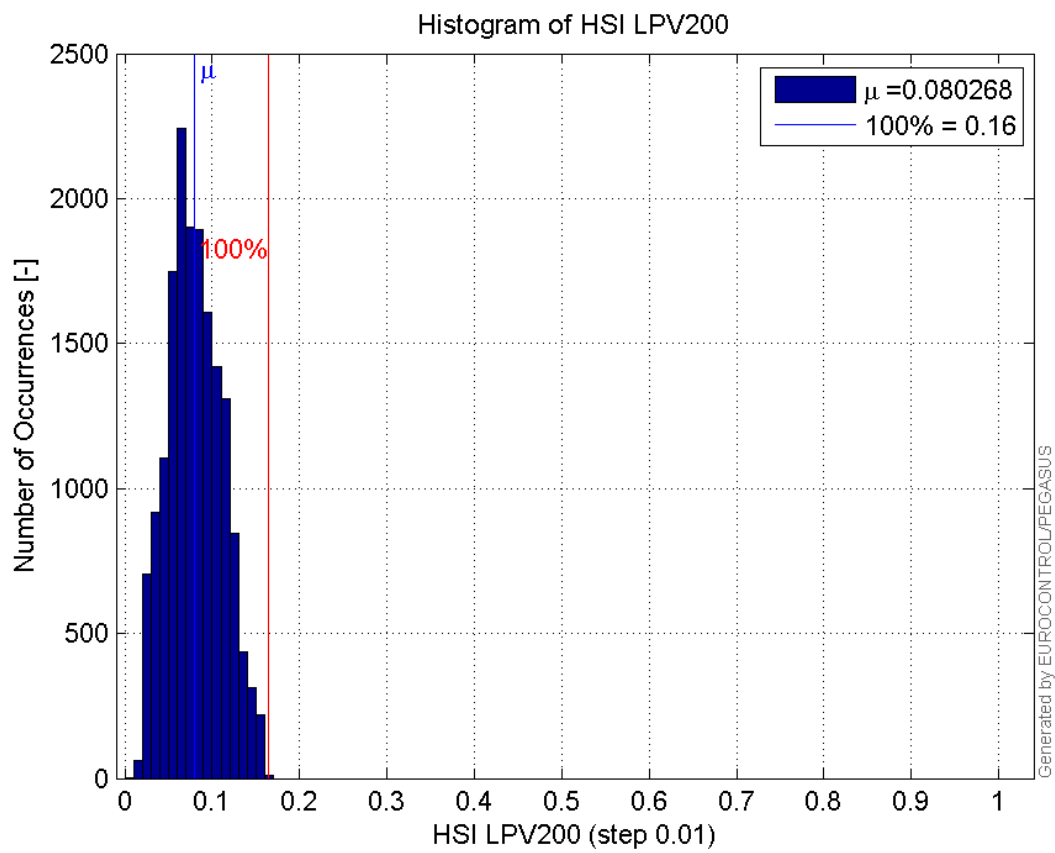


**Histogram of VPL LPV200:**

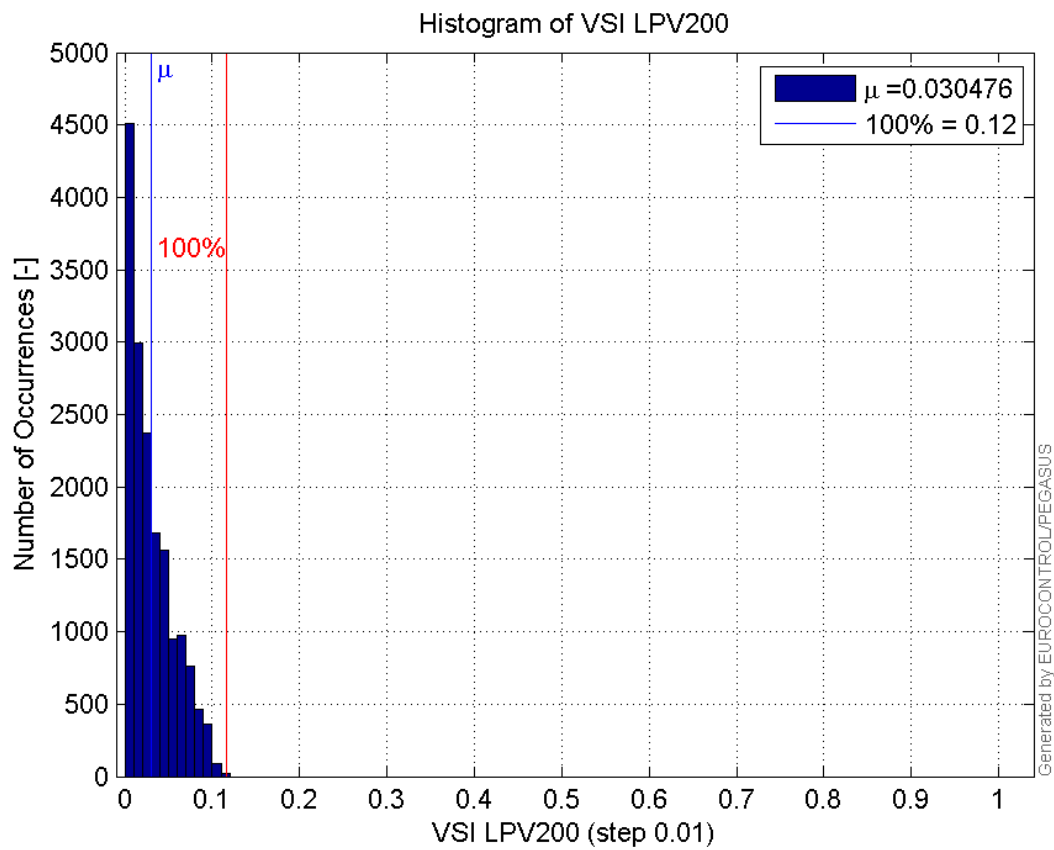


99%

**Histogram of HSI LPV200:**

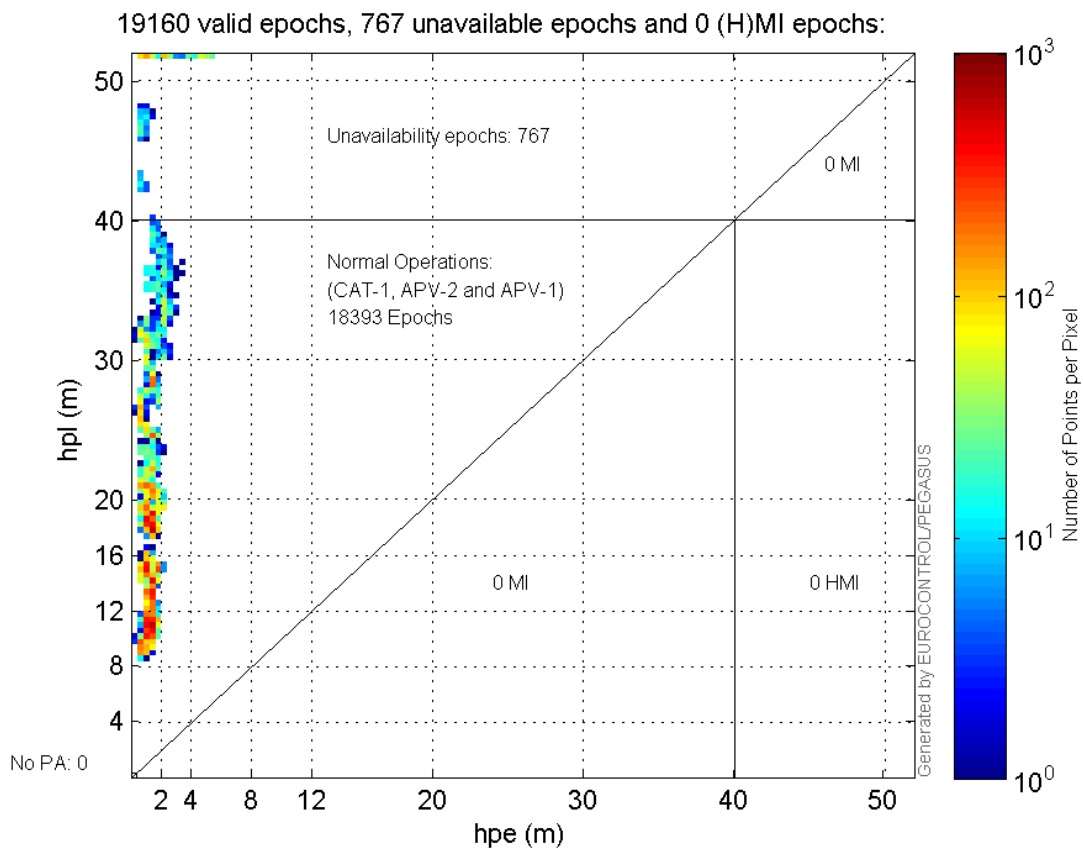


**Histogram of VSI LPV200:**

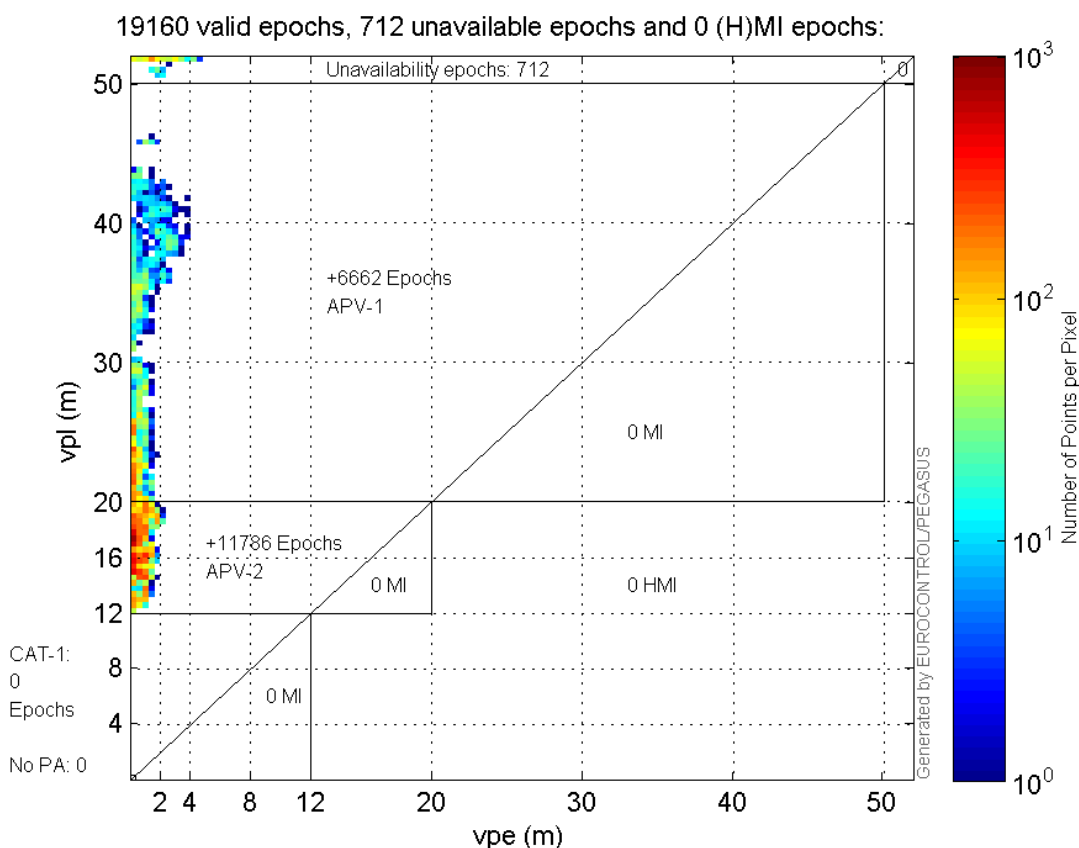


### Stanford Plots

#### 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:/PegasusDateGob/job/2015_12_17EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_17EGNOS/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	223.3114
mi_numbers	results	0

## SBAS Messages

**start:** 09:06:29.129 17.12.2015 ( week: 1875 sec: 378389.129 )  
**end:** 14:31:50.129 17.12.2015 ( week: 1875 sec: 397910.129 )  
**duration:** 05:25:21 ..

## quality

**valid samples** 39042  
**total samples** 39042  
**number of SBAS PRNs** 2

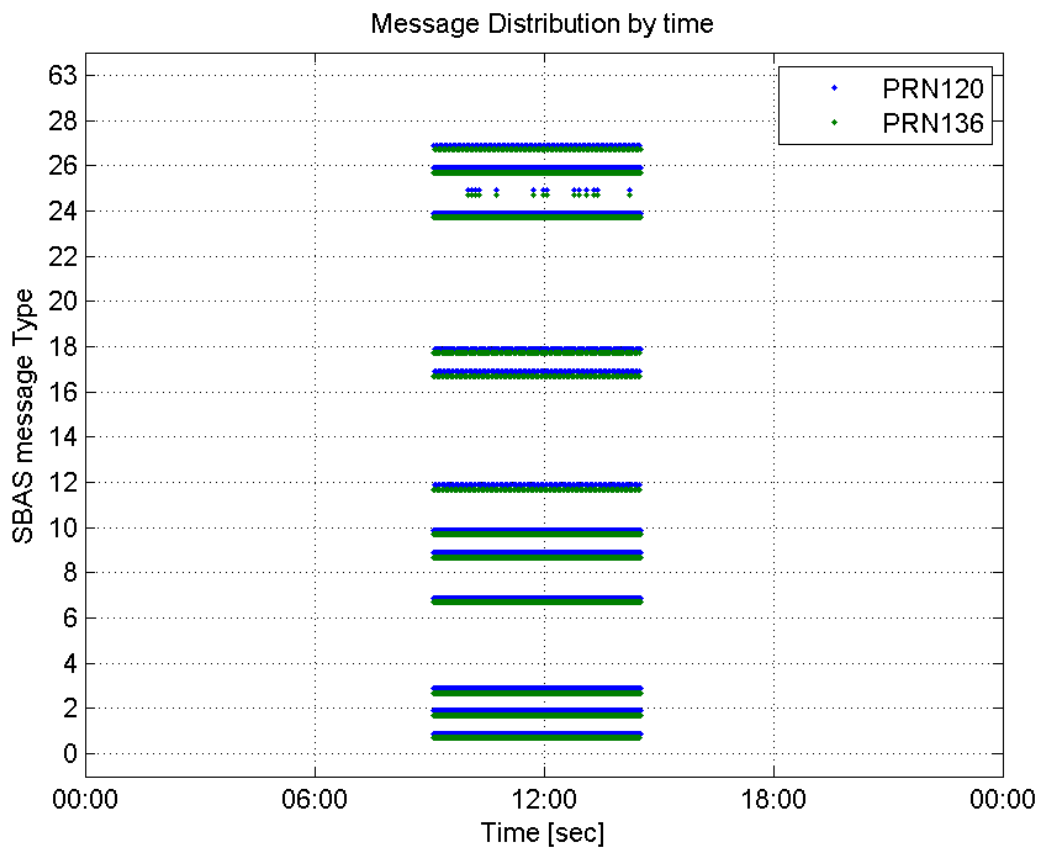
## SBAS SIS Overview

## Message Type 6 repetitions :

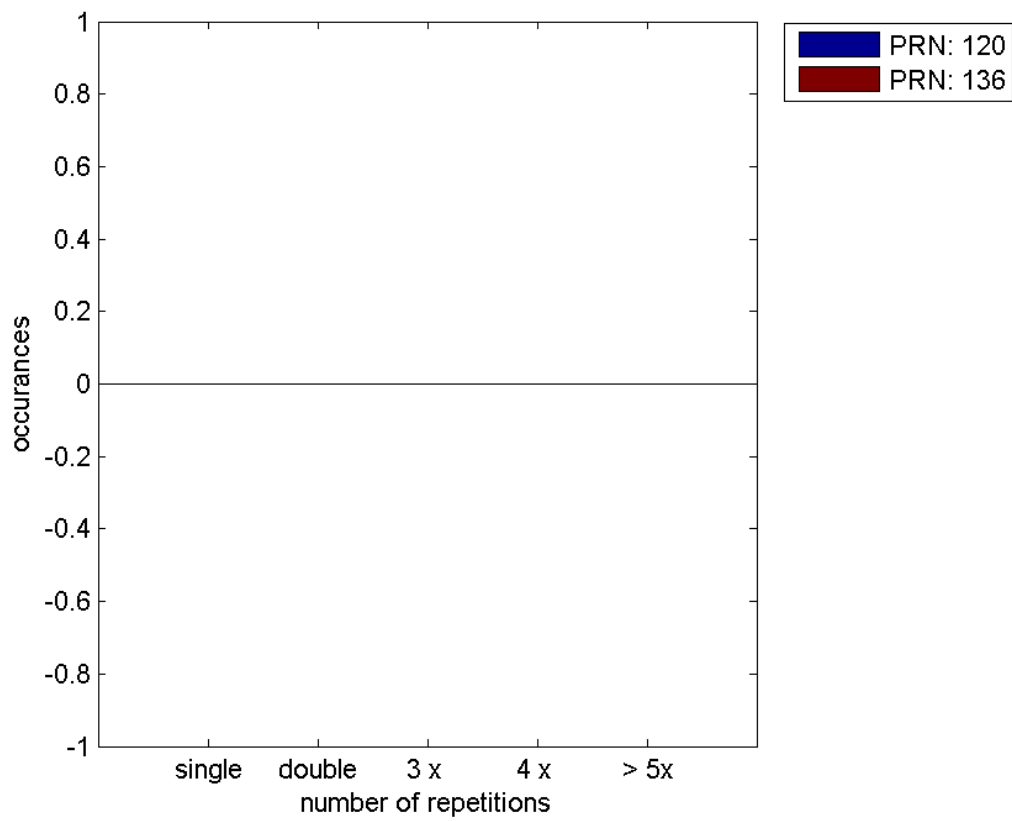
	single	double	3 x	4 x	> 5x
PRN 120	0	0	0	0	0
PRN 136	0	0	0	0	0

---

 Message Distribution by time:



**Message Type 6 repetitions:**





## Broadcast SBAS Messages :

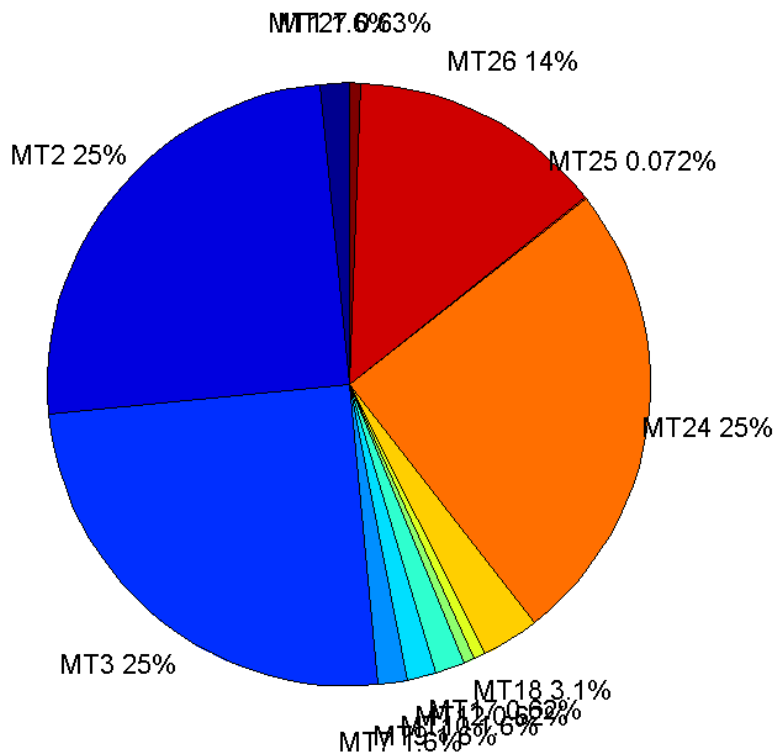
	number of messages	%
MT 0	0	0
MT 1	304	1.55738
MT 2	4878	24.9898
MT 3	4877	24.9846
MT 4	0	0
MT 5	0	0
MT 6	0	0
MT 7	305	1.5625
MT 9	305	1.5625
MT 10	304	1.55738
MT 12	121	0.619877
MT 17	121	0.619877
MT 18	610	3.125
MT 24	4879	24.9949
MT 25	14	0.0717213
MT 26	2680	13.7295
MT 27	122	0.625
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19520	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	68	64.1089	0	0	0
MT 2	4	8	4.00246	1	0	0
MT 3	4	8	4.00226	1	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	64	68	64.1086	0	0	0
MT 9	64	68	64.1086	0	0	0
MT 10	64	68	64.1089	0	0	0
MT 12	160	164	160.275	120	0	0
MT 17	160	164	160.275	0	0	0
MT 18	4	136	31.89	0	0	0
MT 24	4	5	4.00164	0	0	0
MT 25	262	3469	1163.08	0	0	0
MT						

26	4	31	7.27772	0	0	0
MT 27	160	164	160.273	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	304	1.55722
MT 2	4879	24.9923
MT 3	4879	24.9923
MT 4	0	0
MT 5	0	0
MT 6	0	0
MT 7	305	1.56234
MT 9	304	1.55722

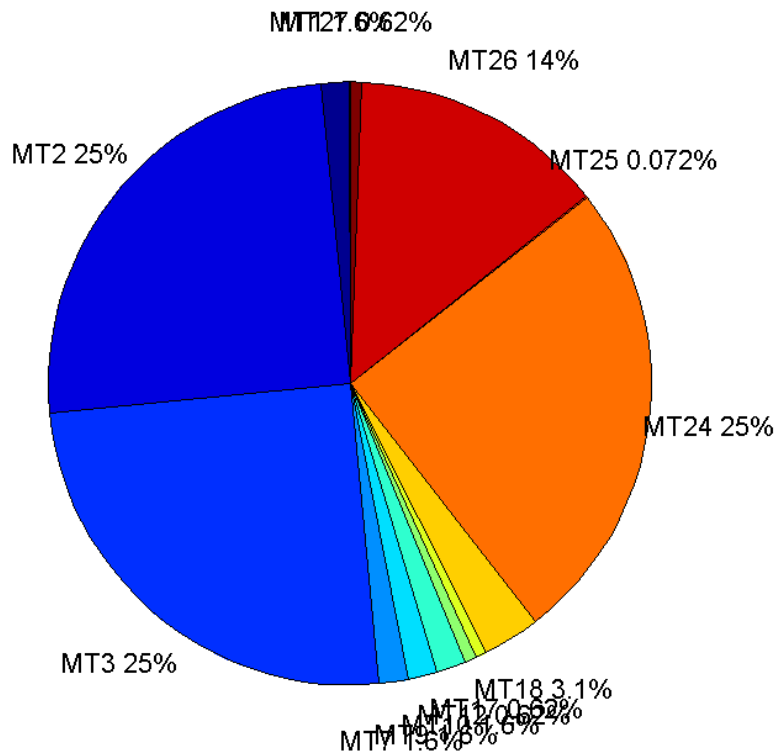
MT 10	305	1.56234
MT 12	122	0.624936
MT 17	122	0.624936
MT 18	606	3.10419
MT 24	4878	24.9872
MT 25	14	0.071714
MT 26	2682	13.7383
MT 27	122	0.624936
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19522	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	68	64.1089	0	0	0
MT 2	4	5	4.00164	0	0	0
MT 3	4	5	4.00164	0	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	--	--	--	--	--	--
MT 7	64	68	64.1086	0	0	0
MT 9	64	68	64.1089	0	0	0
MT 10	64	68	64.1086	0	0	0
MT 12	160	164	160.273	121	0	0
MT 17	160	164	160.273	0	0	0
MT 18	4	140	32.0545	0	0	0
MT 24	4	5	4.00144	0	0	0
MT 25	262	3469	1163.08	0	0	0
MT 26	4	40	7.27378	0	0	0
MT 27	160	164	160.273	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_17EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_12_17EGNOS/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

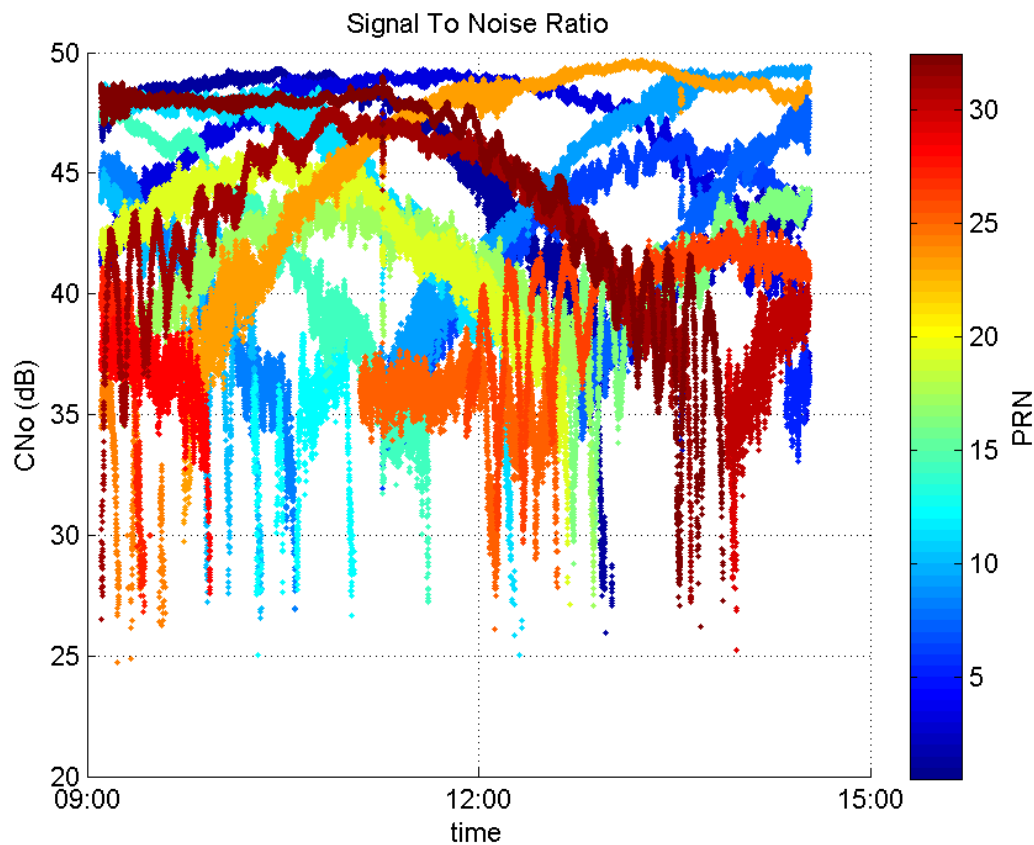
### Range Domain

**start:** 09:06:30 17.12.2015 ( week: 1875 sec: 378390 )  
**end:** 14:31:50 17.12.2015 ( week: 1875 sec: 397910 )  
**duration:** 05:25:21 ..

### quality

**valid samples** 19521  
**total samples** 19521



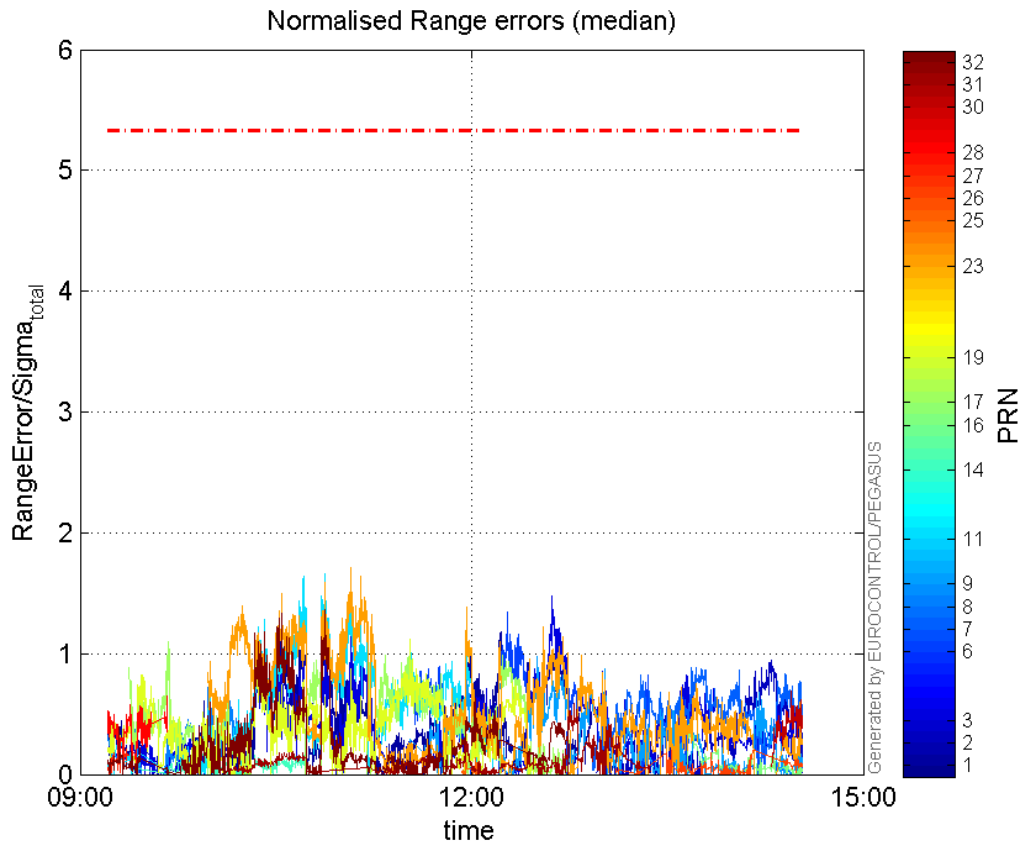
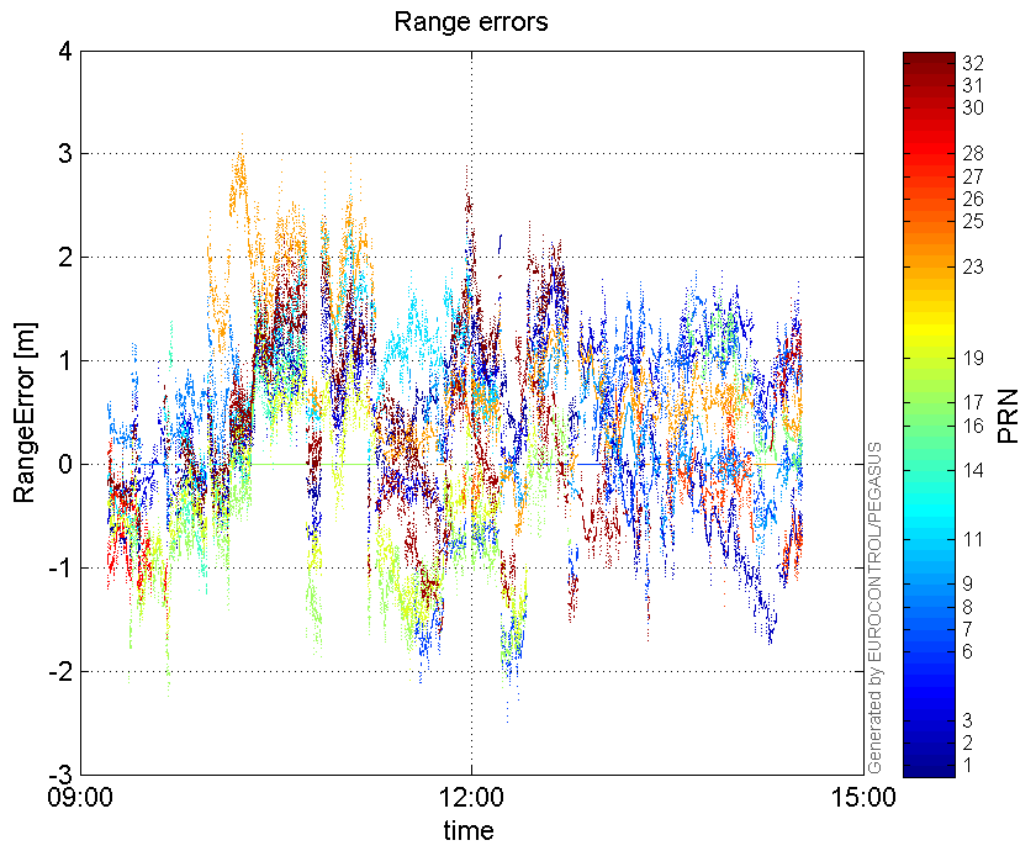


## range errors

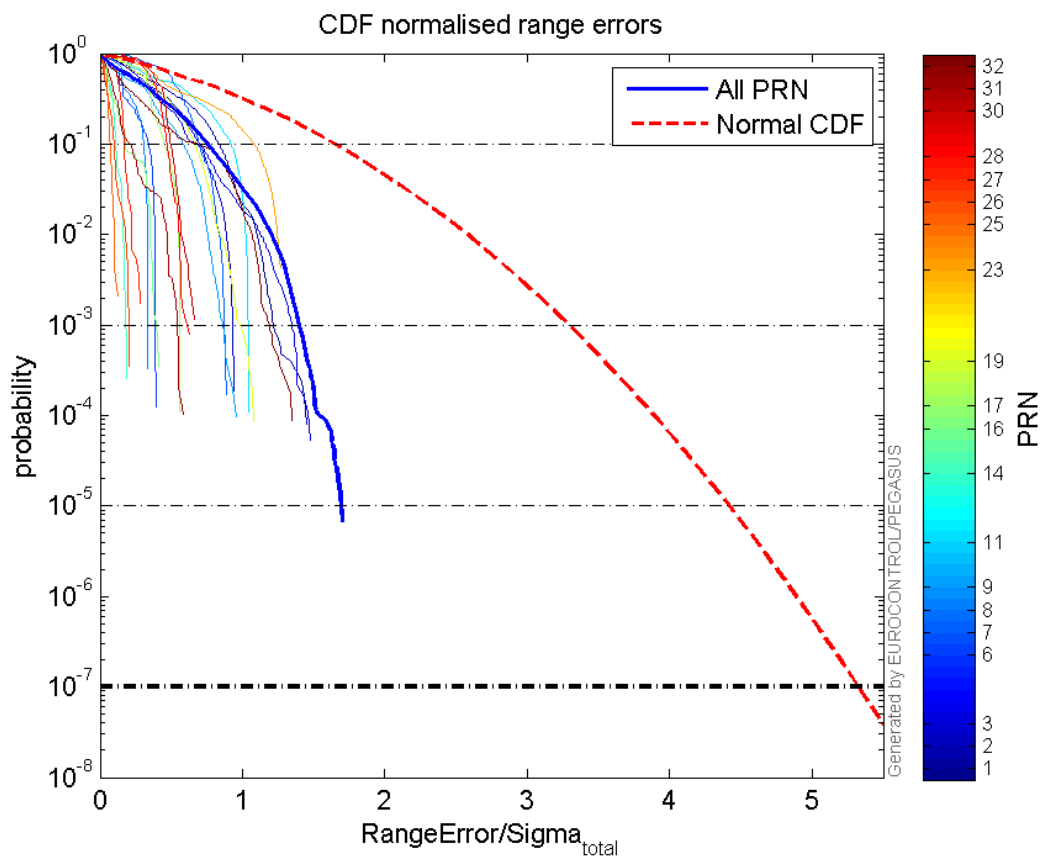
Number of Overbounding Norm Errors 0

Max Norm Errors :

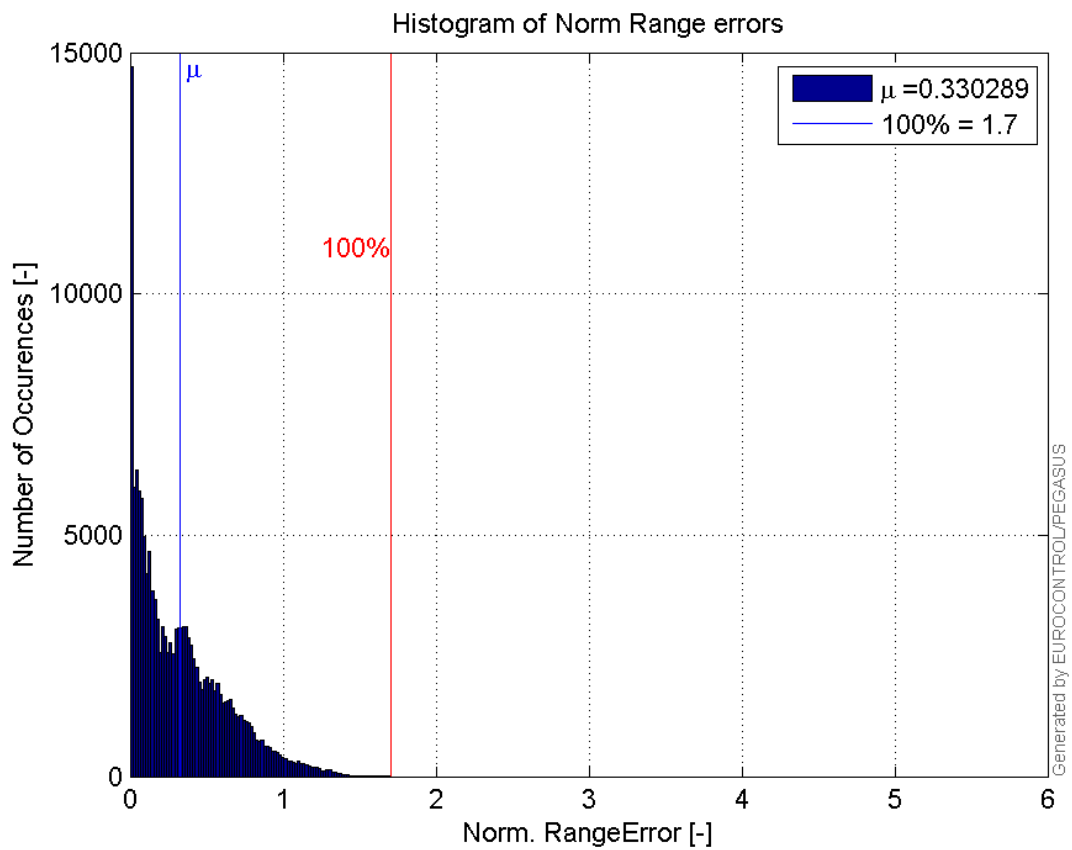
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1875	384754	1	1.46784	2.15915	1.47098
1875	397070	2	0.944135	-1.72635	1.8285
1875	391023	3	1.48045	2.08612	1.40911
1875	389773	6	1.34453	-2.4884	1.85076
1875	395000	7	0.886471	1.87329	2.1132
1875	381580	8	0.769645	1.74435	2.26643
1875	390609	9	0.974231	1.61594	1.65868
1875	384754	11	1.65908	2.65646	1.60117
1875	382095	14	0.190648	-1.30043	6.82111
1875	394779	16	0.415889	1.62784	3.91411
1875	380441	17	1.09397	-2.24354	2.05083
1875	387110	19	1.11467	-2.08258	1.86833
1875	385458	23	1.70832	2.96531	1.7358
1875	388899	25	0.139383	-0.716648	5.14157
1875	396572	26	0.203113	-0.748477	3.68504
1875	379209	27	0.283125	-0.674232	2.38139
1875	380385	28	0.650348	-1.6784	2.58077
1875	397610	30	0.687102	1.60719	2.33908
1875	391613	31	0.584972	-1.48099	2.53172
1875	384754	32	1.36637	2.40074	1.75702

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

## CDF normalised range errors:

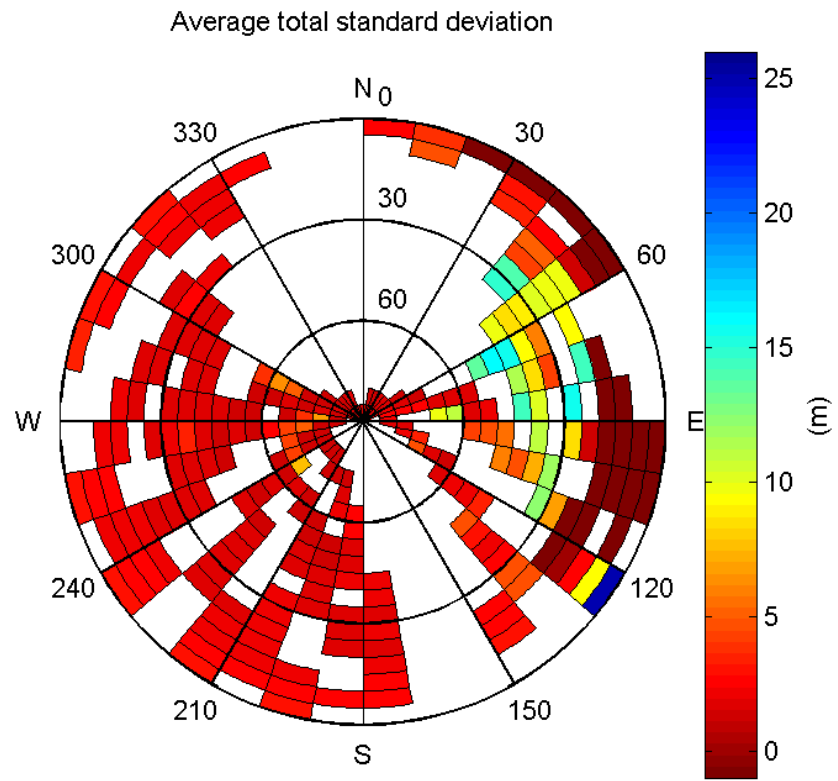


## Histogram of Norm Range errors:

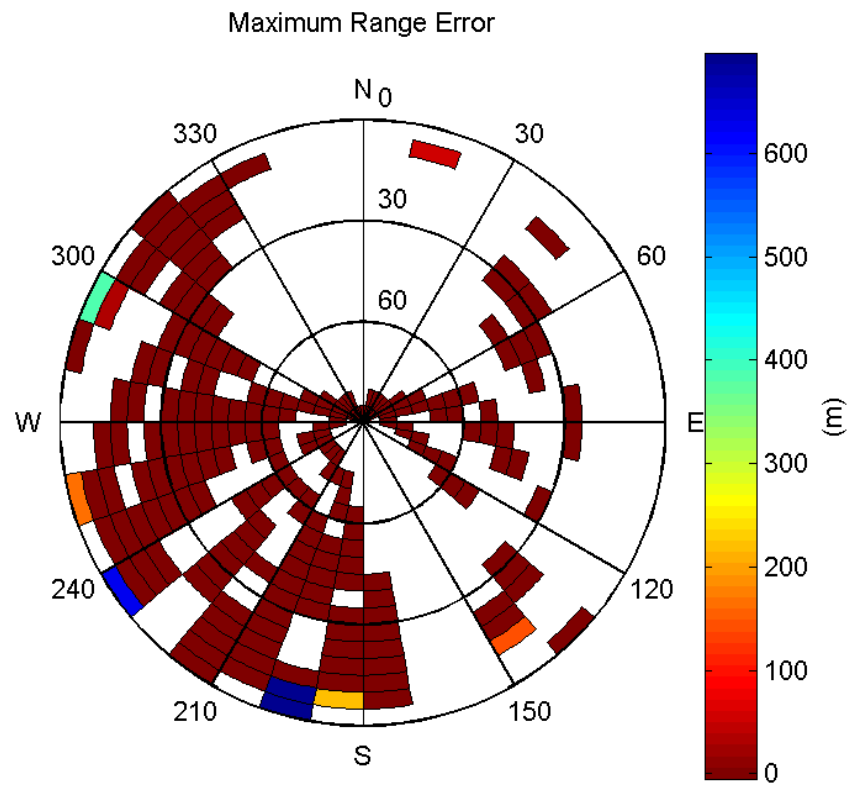


## Sigma Sky Plot:



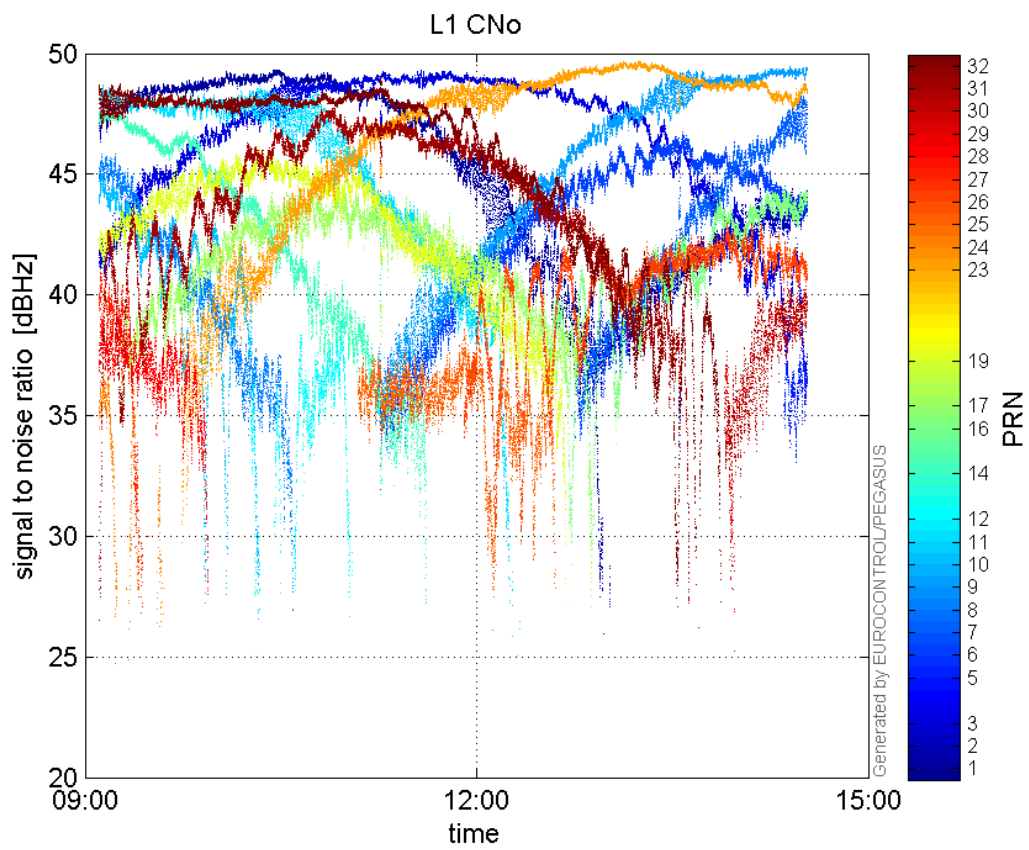


Norm Error Sky Plot:

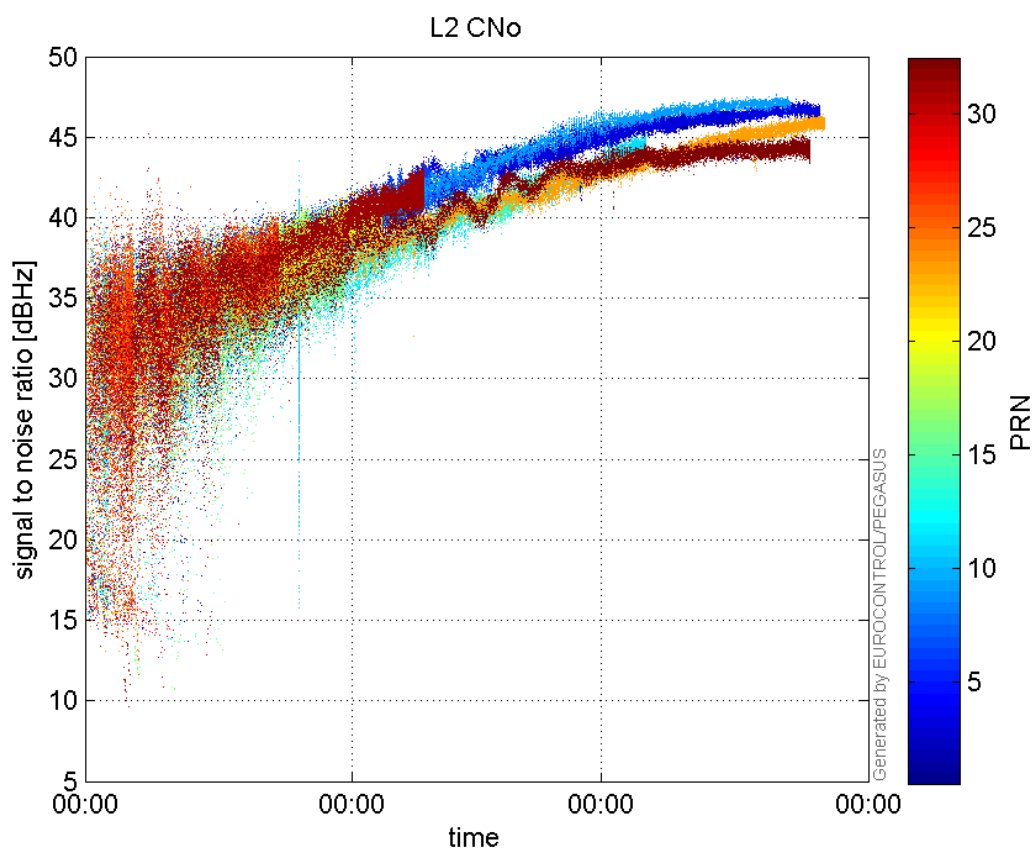


signal quality

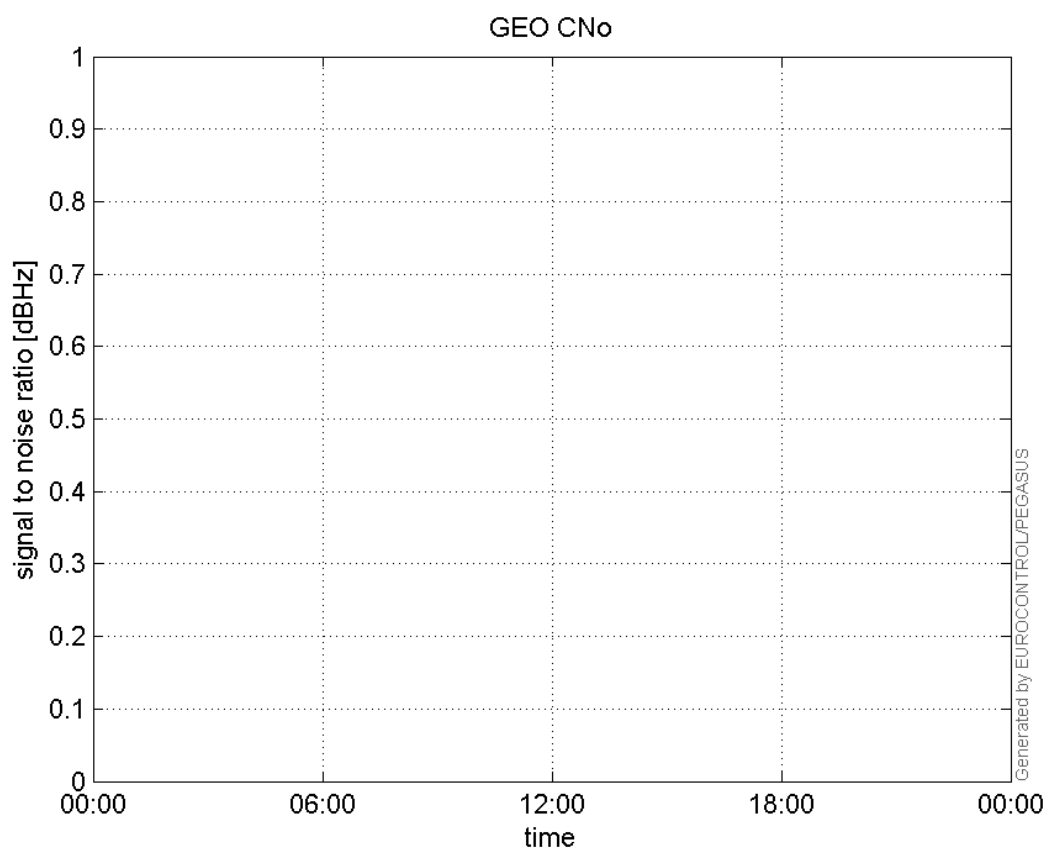
L1 CNo:



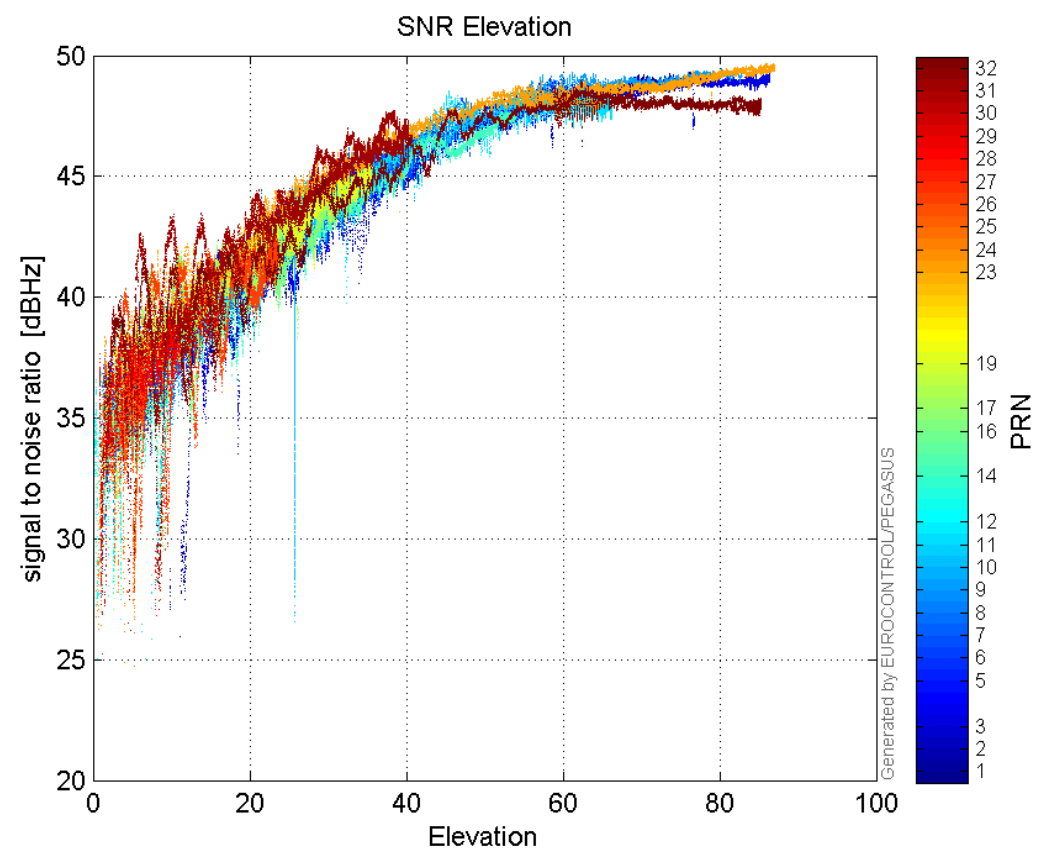
L2 CNo:



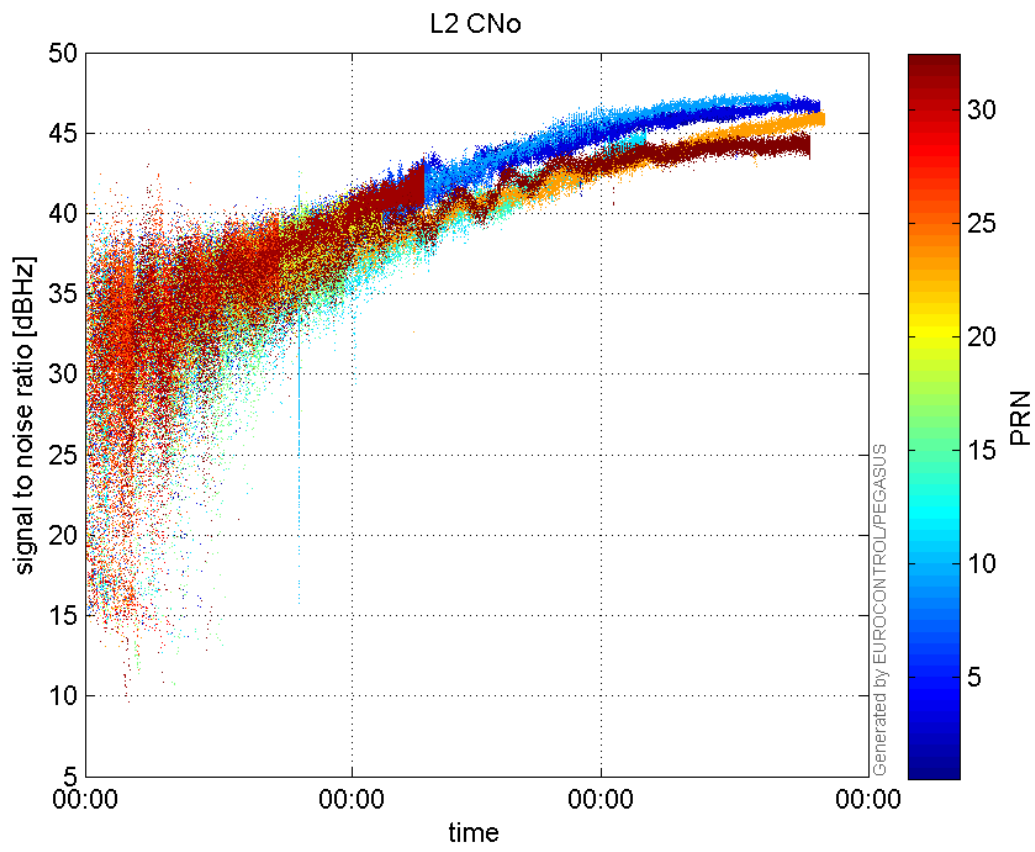
GEO CNo:



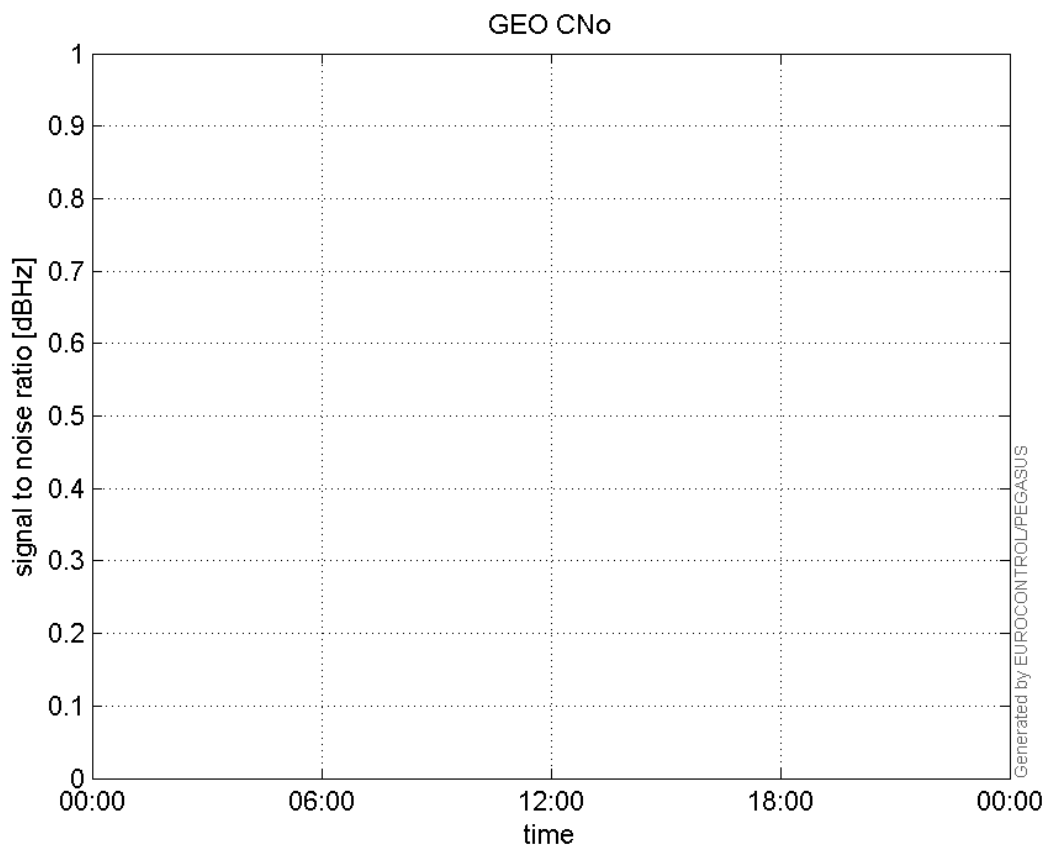
**SNR Elevation:**



**L2 CNo:**

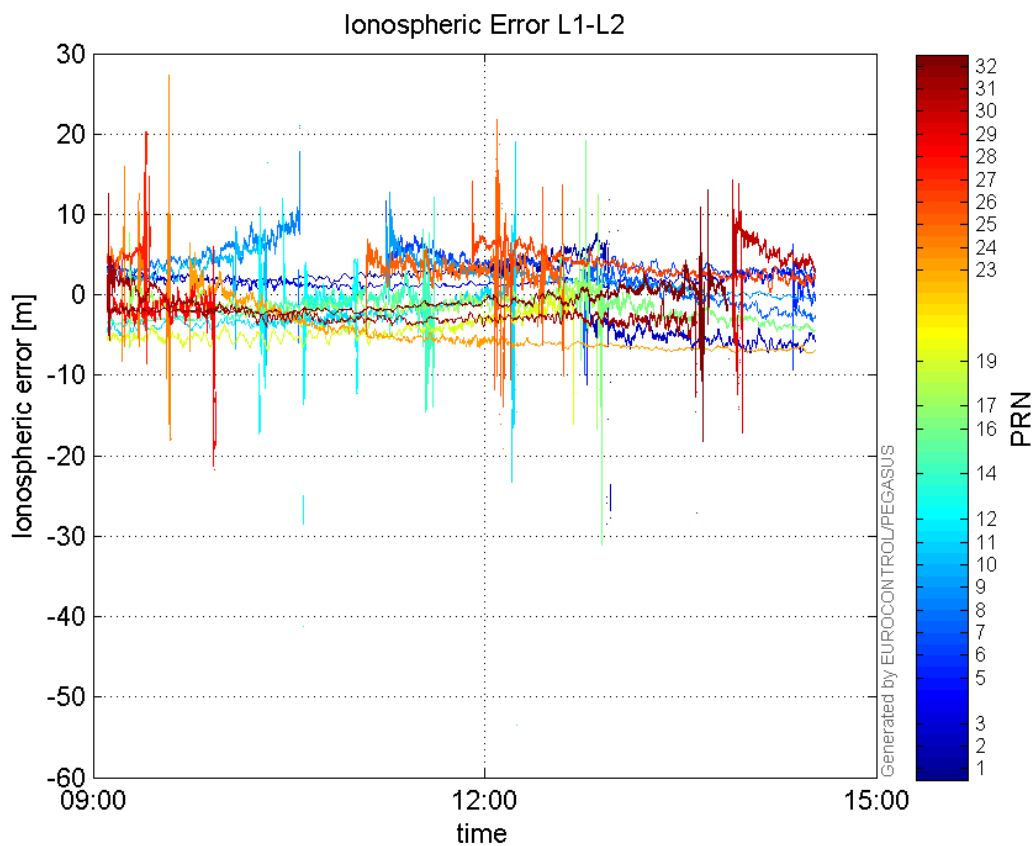


**GEO CNo:**



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_17EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_17EGNOS/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	223.3114
mi_numbers	results	0