

# Global View

site Laboratory satellite systems  
abbreviation NAU  
country Ukraine  
city Kiev  
program Pegasus  
comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,  
P.50 - 54  
version 4.8.2  
date 17/12/2015

## Range Domain

**start:** 05:52:20 16.12.2015 ( week: 1875 sec: 280340 )  
**end:** 14:04:53 16.12.2015 ( week: 1875 sec: 309893 )  
**duration:** 08:12:34 ..

### quality

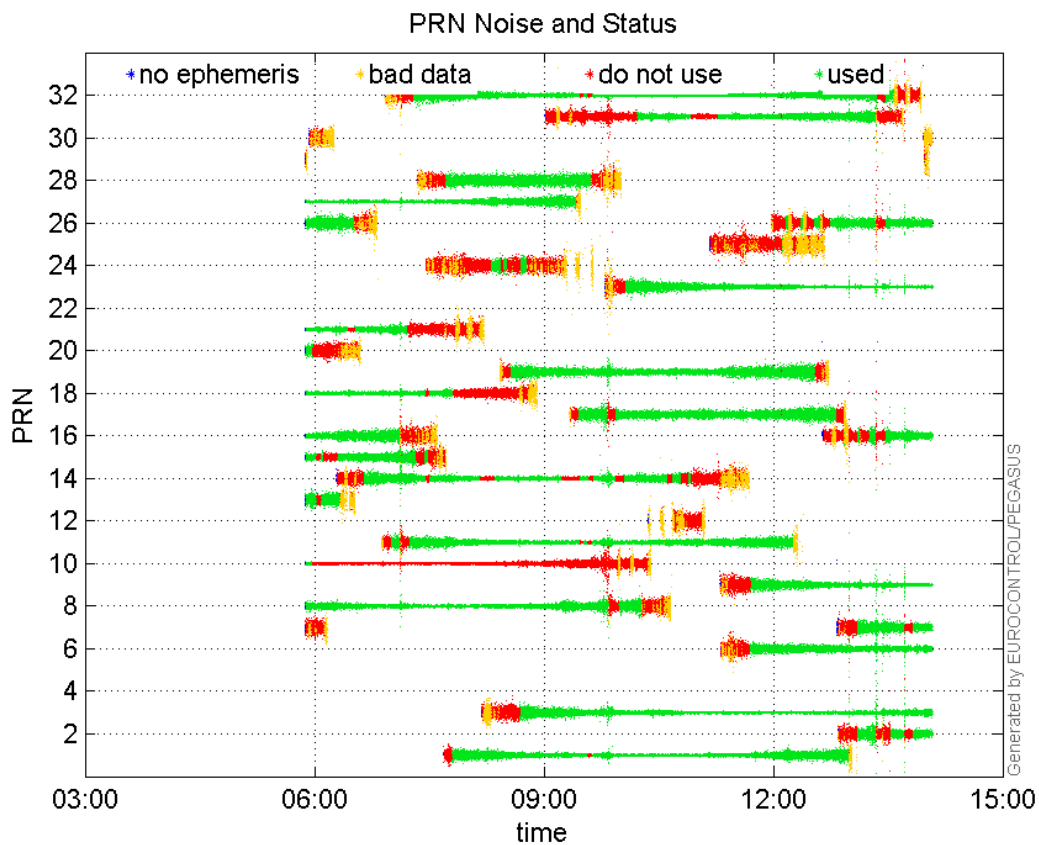
**valid samples** 29554  
**total samples** 29554

### PRN overview

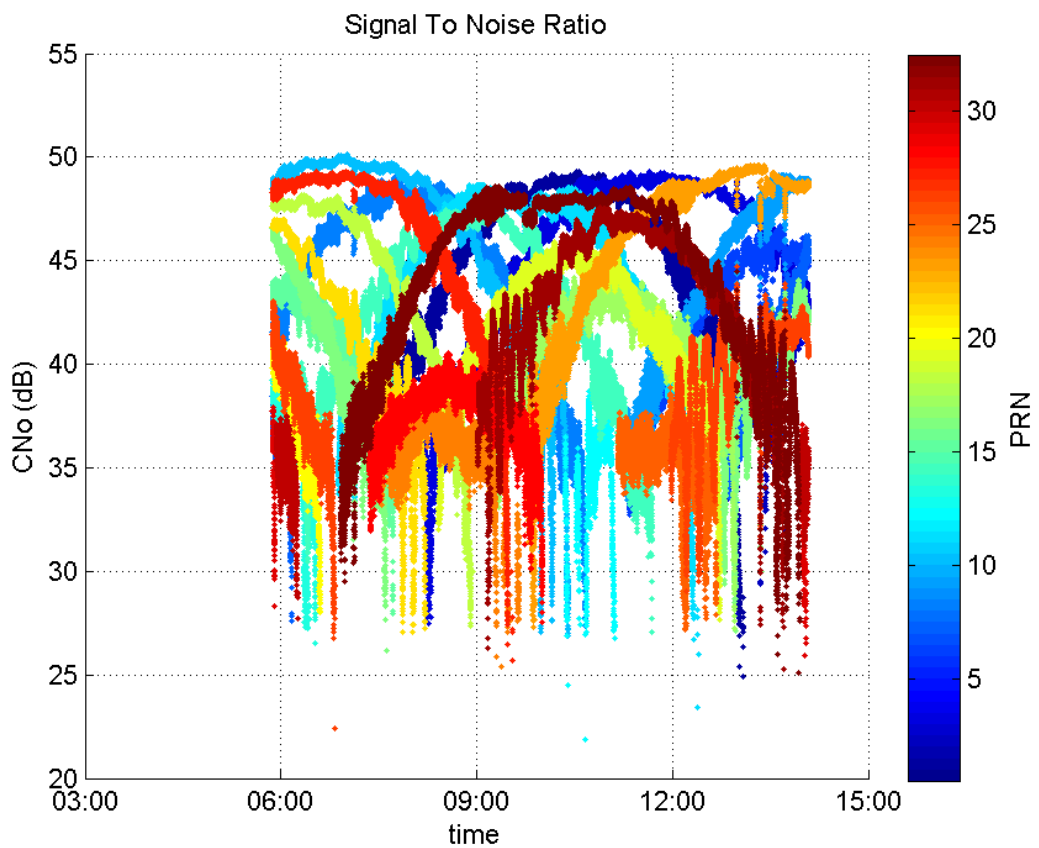
**Number of Visible GPS Satellites** 29  
**Number of Visible SBAS Satellites** 2

### signal quality and status

**PRN Noise and Status:**



**Signal To Noise Ratio:**



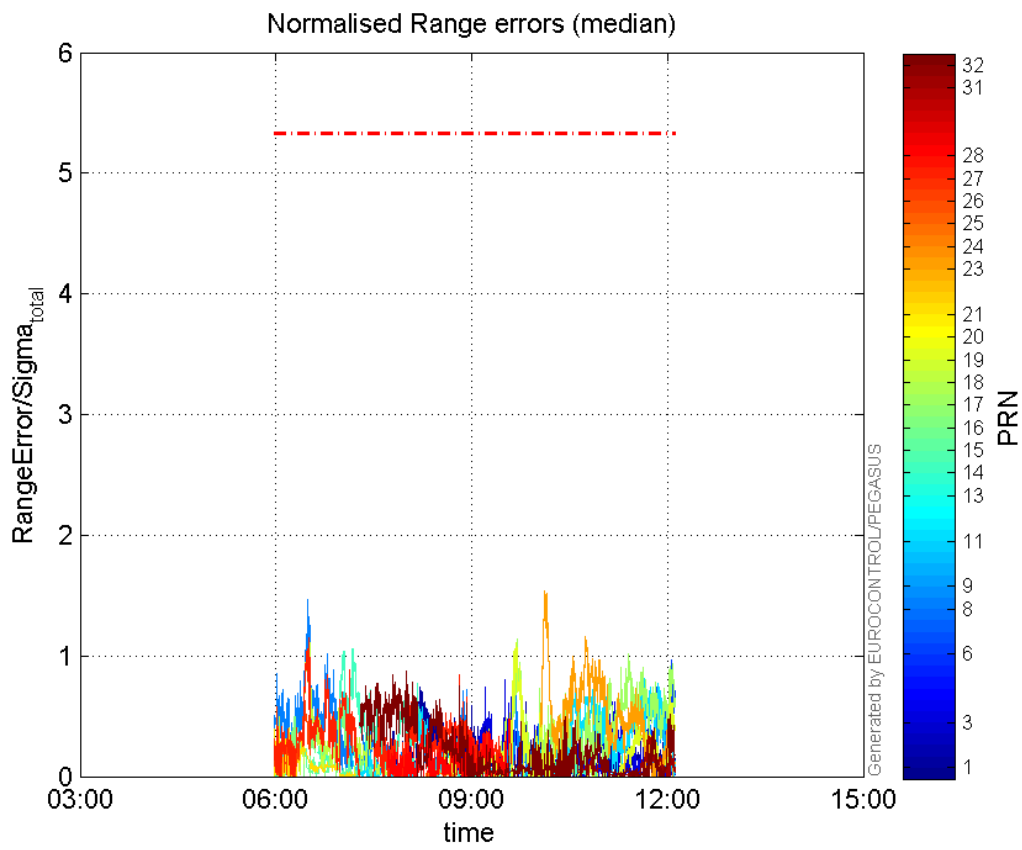
range errors

Number of Overbounding Norm Errors 0

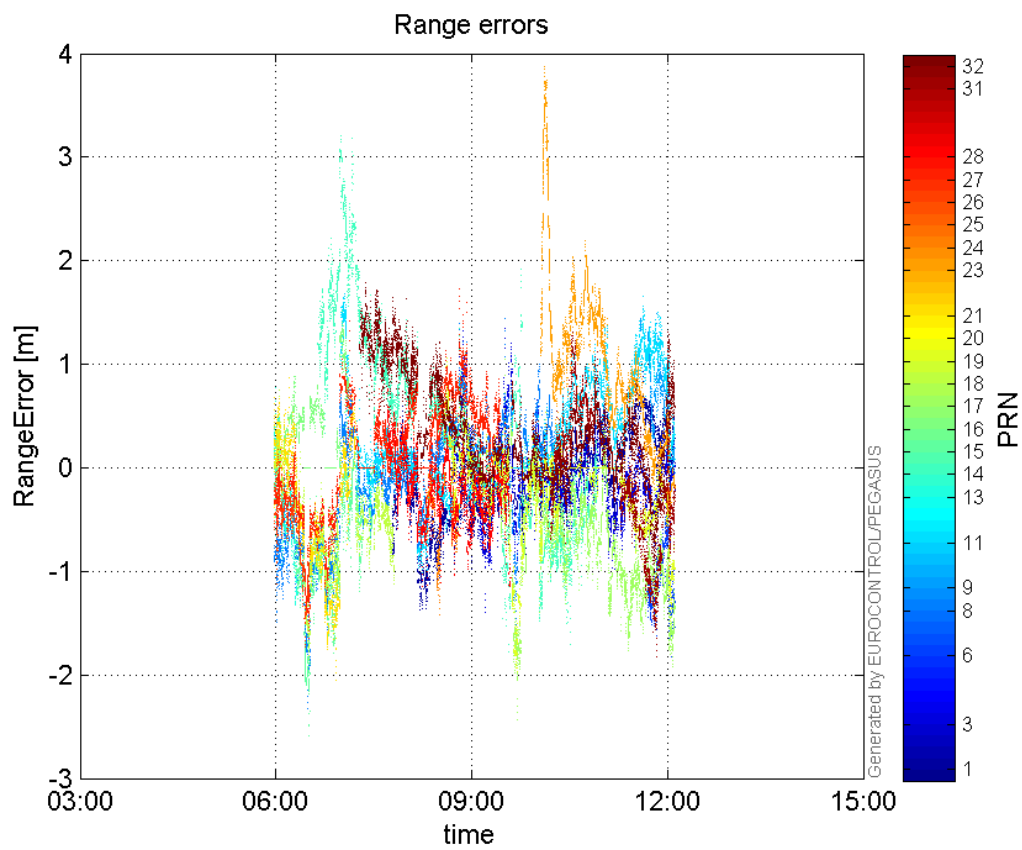
**Max Norm Errors :**

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1875	288718	1	0.745086	-1.37086	1.83986
1875	293422	3	0.799324	1.44183	1.80381
1875	302605	6	0.968649	-1.81976	1.87866
1875	282524	8	1.47119	-2.32974	1.58357
1875	301797	9	0.607115	1.49065	2.45531
1875	301056	11	0.893097	1.66245	1.86144
1875	281869	13	0.40921	-1.31906	3.22342
1875	284998	14	1.05512	3.1787	3.01265
1875	282144	15	0.34316	-1.35156	3.93856
1875	284485	16	0.664067	1.51904	2.28748
1875	294117	17	1.13641	-2.42981	2.13815
1875	282610	18	1.15303	-1.81537	1.57443
1875	294085	19	1.11052	-1.96392	1.76847
1875	280714	20	0.0190707	-0.47563	24.9404
1875	281511	21	0.401618	0.870996	2.16872
1875	295641	23	1.53373	3.88041	2.53005
1875	289820	24	0.0747344	-1.41473	18.9301
1875	302481	25	0.0985199	-1.05201	10.6781
1875	282399	26	0.625328	-1.73332	2.77186
1875	282639	27	1.14592	-1.64718	1.43743
1875	293678	28	0.477518	-1.1355	2.37793
1875	301318	31	0.342508	-1.248	3.64372
1875	288024	32	0.878947	1.6343	1.85939

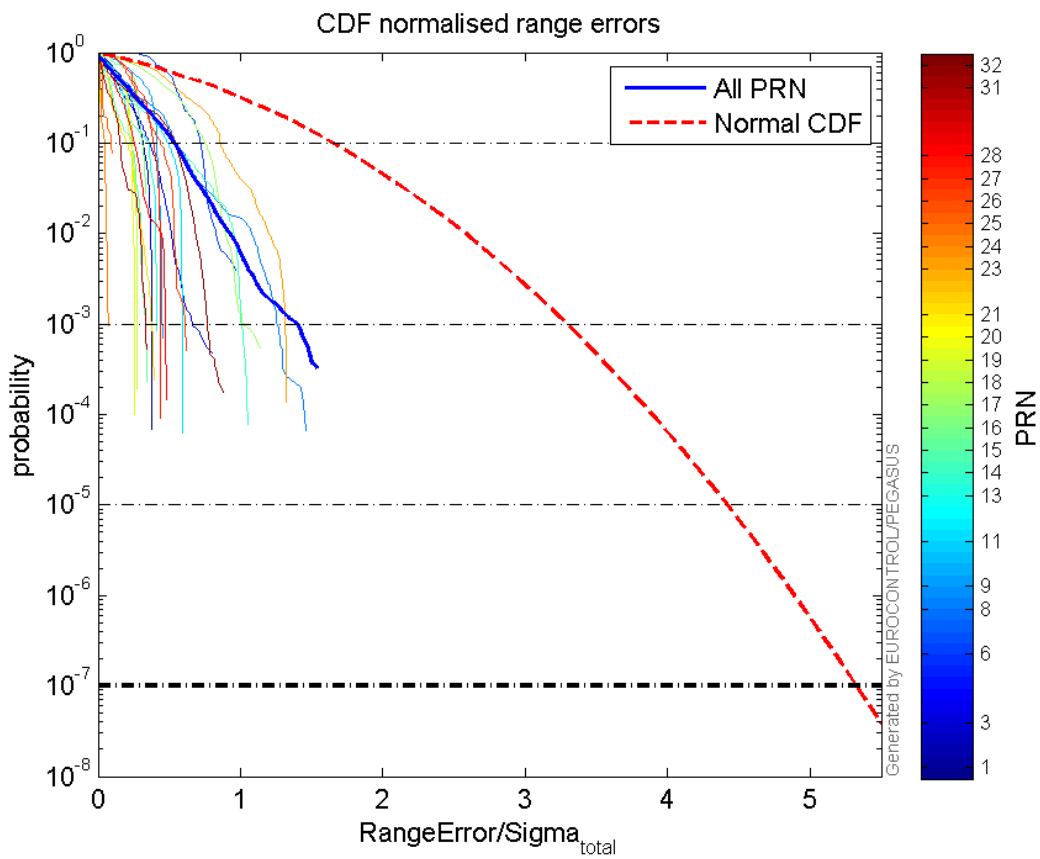
**Normalised Range errors (median):**



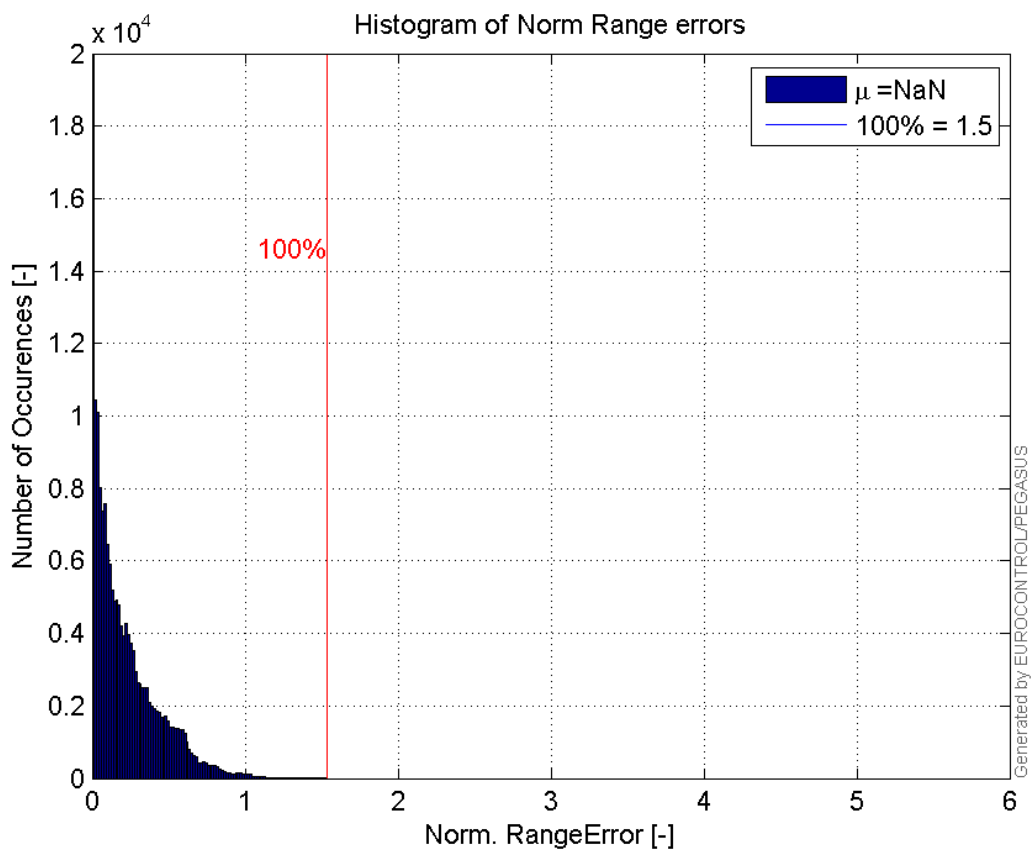
Range errors:



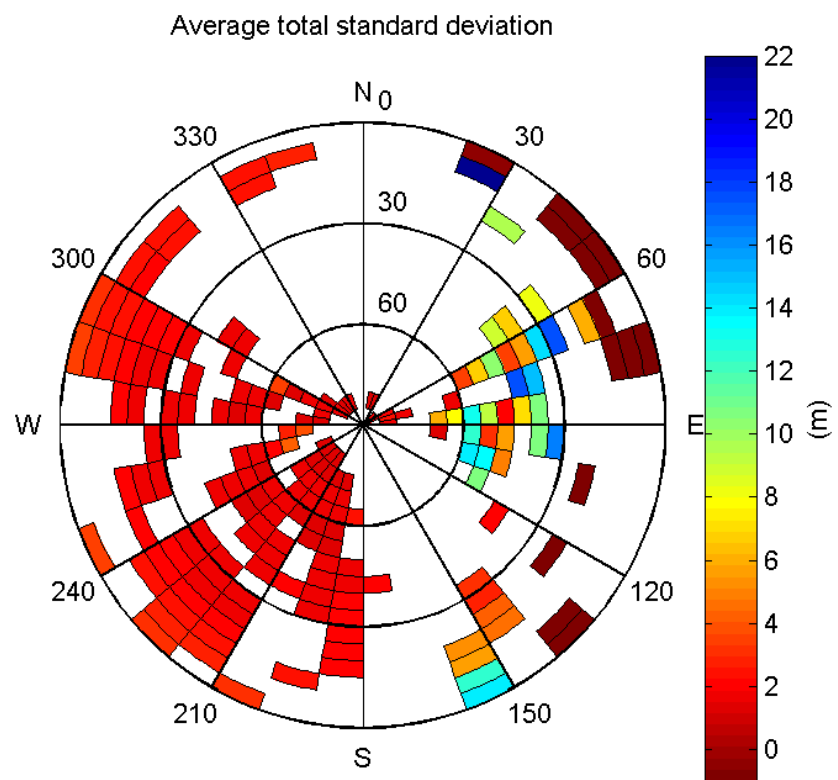
CDF normalised range errors:



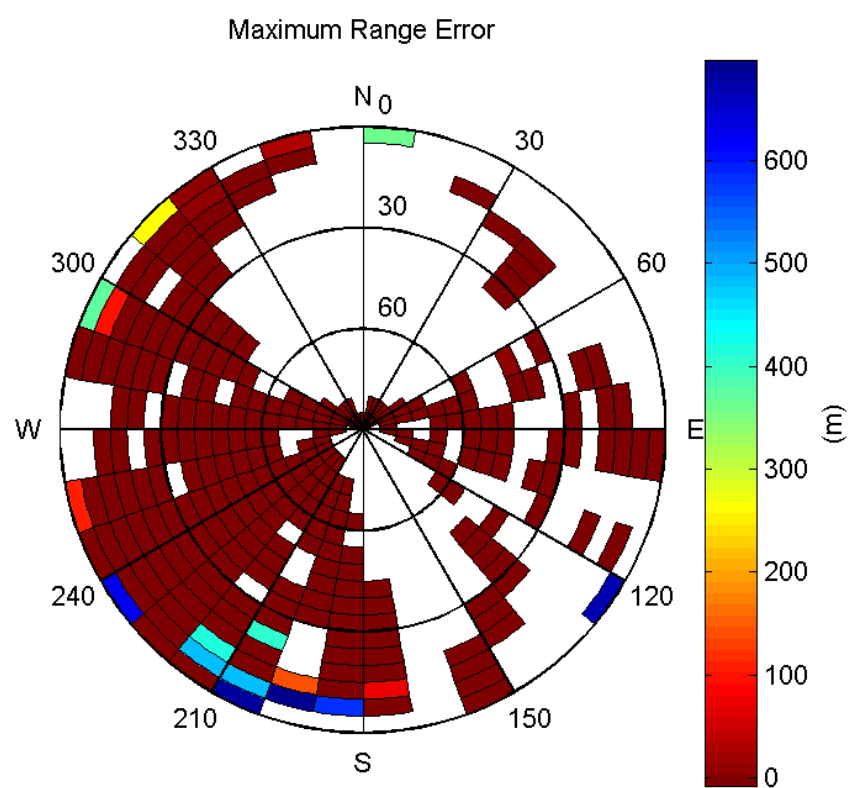
**Histogram of Norm Range errors:**



**Sigma Sky Plot:**

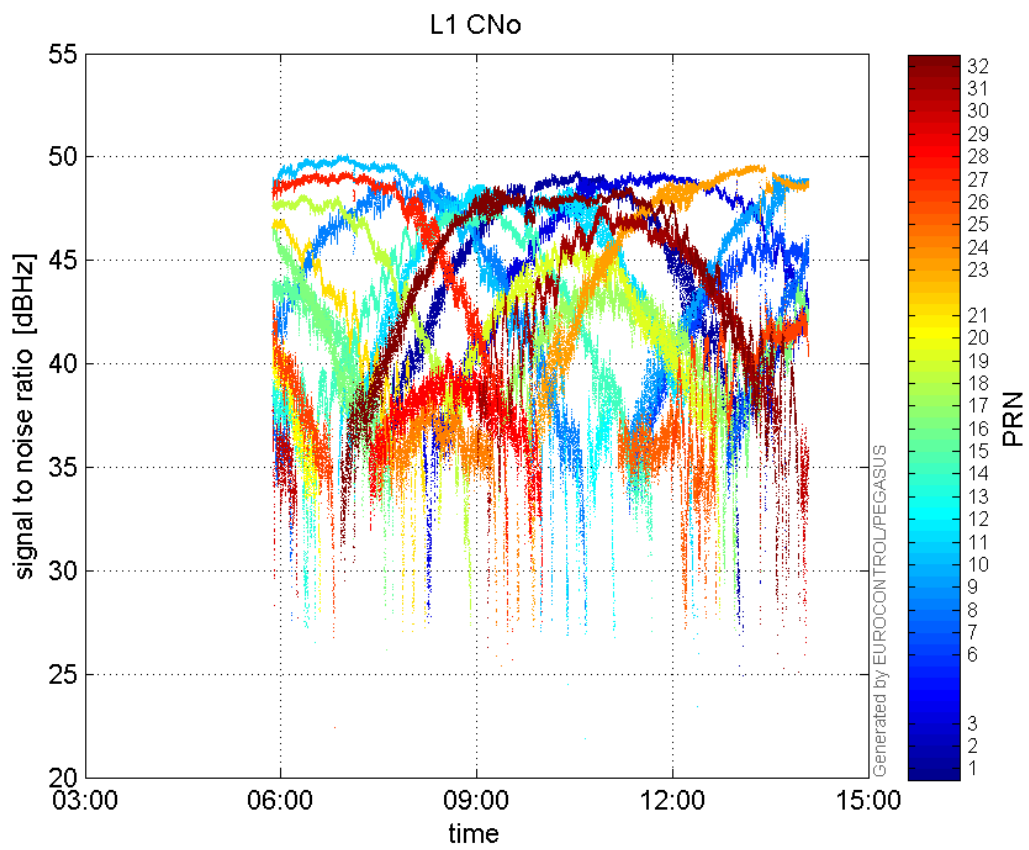


Norm Error Sky Plot:

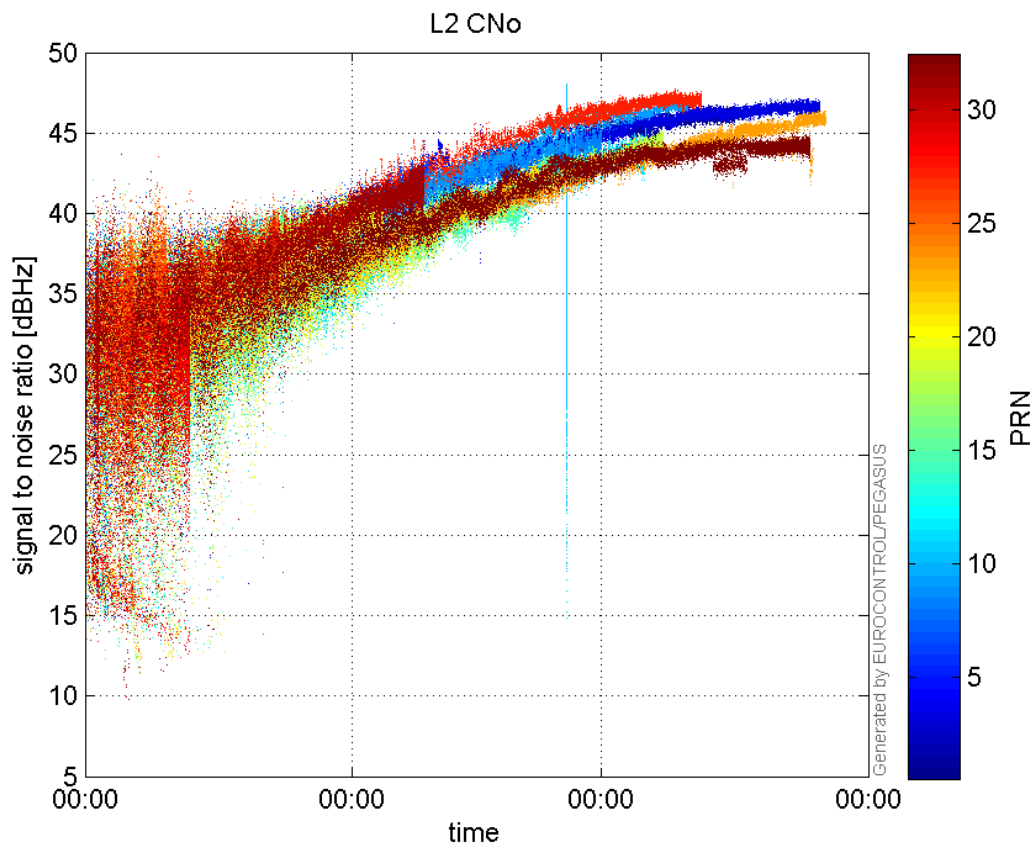


signal quality

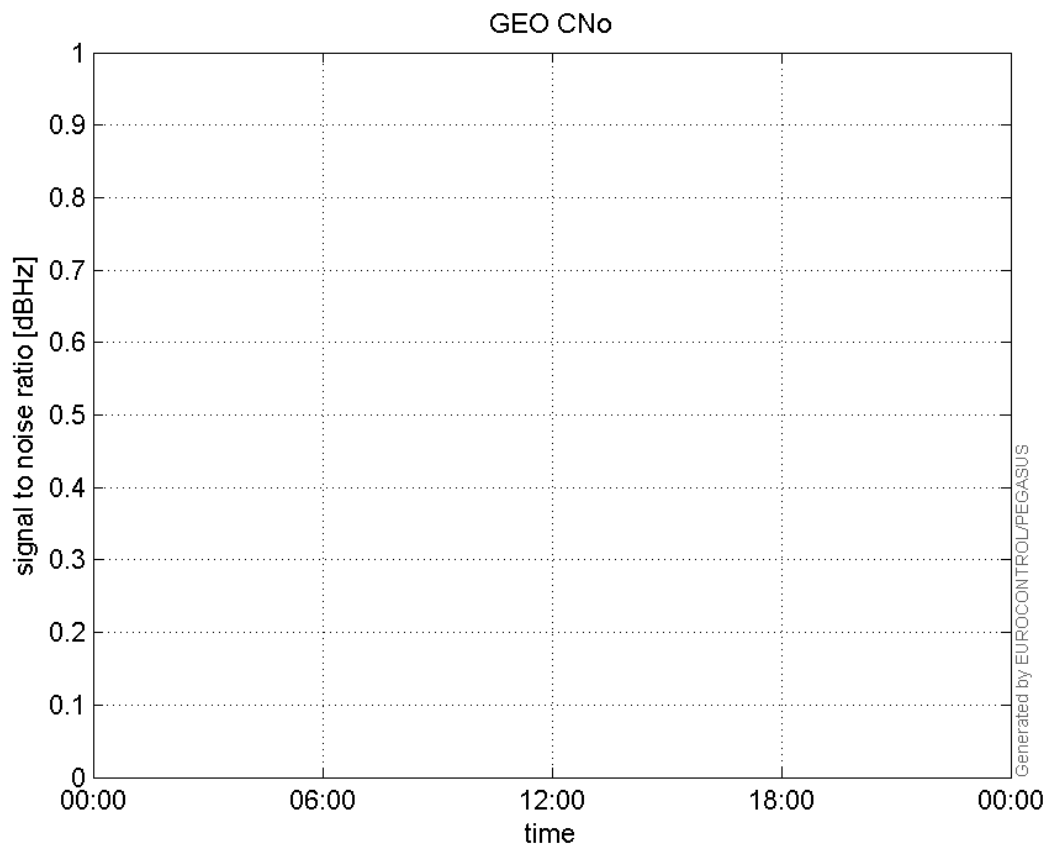
**L1 CNo:**



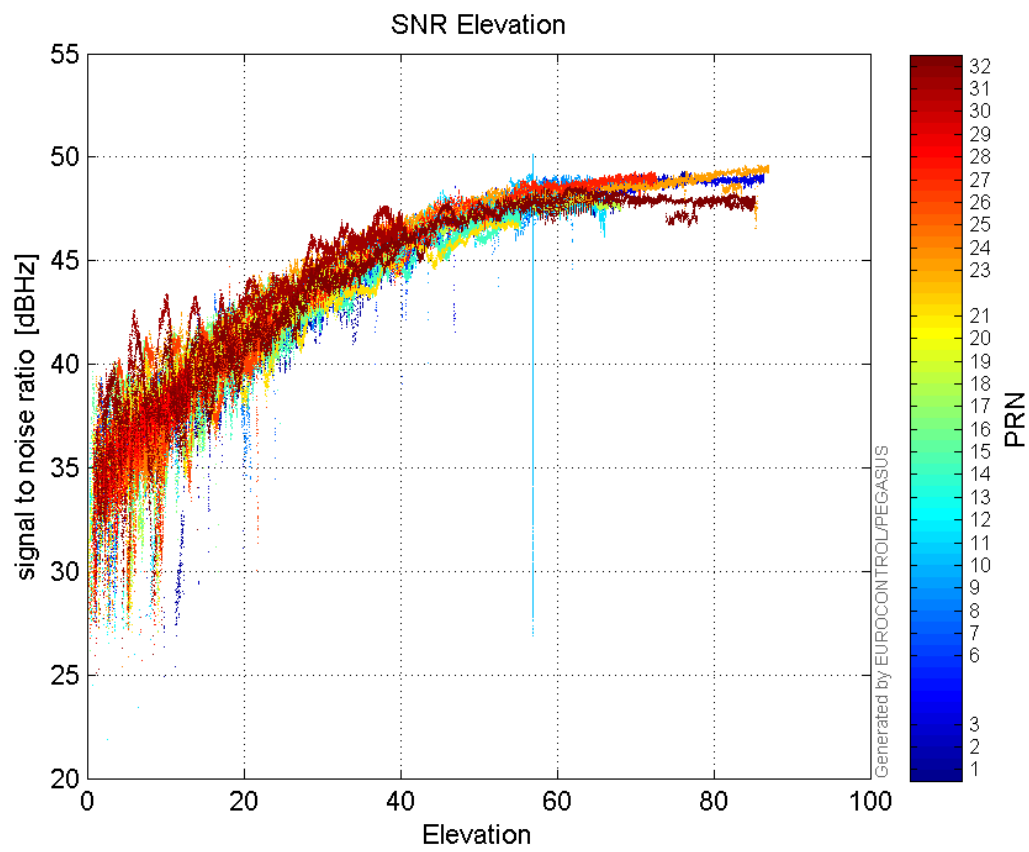
**L2 CNo:**



**GEO CNo:**

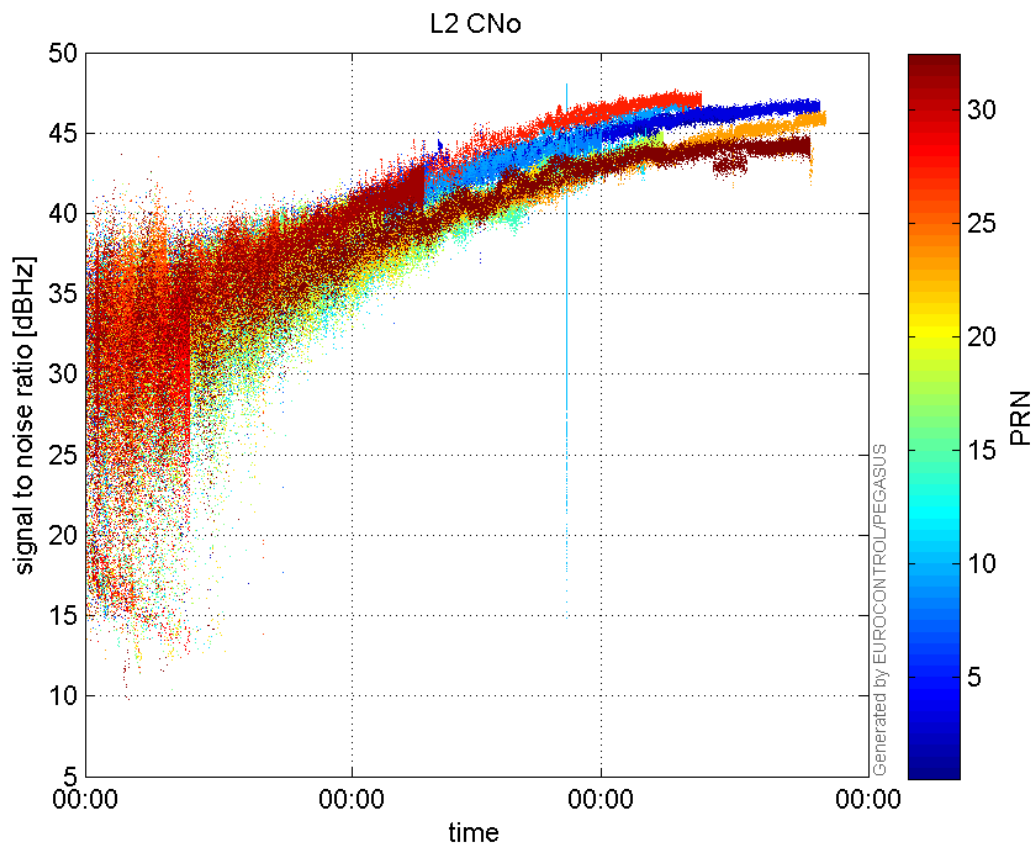


**SNR Elevation:**

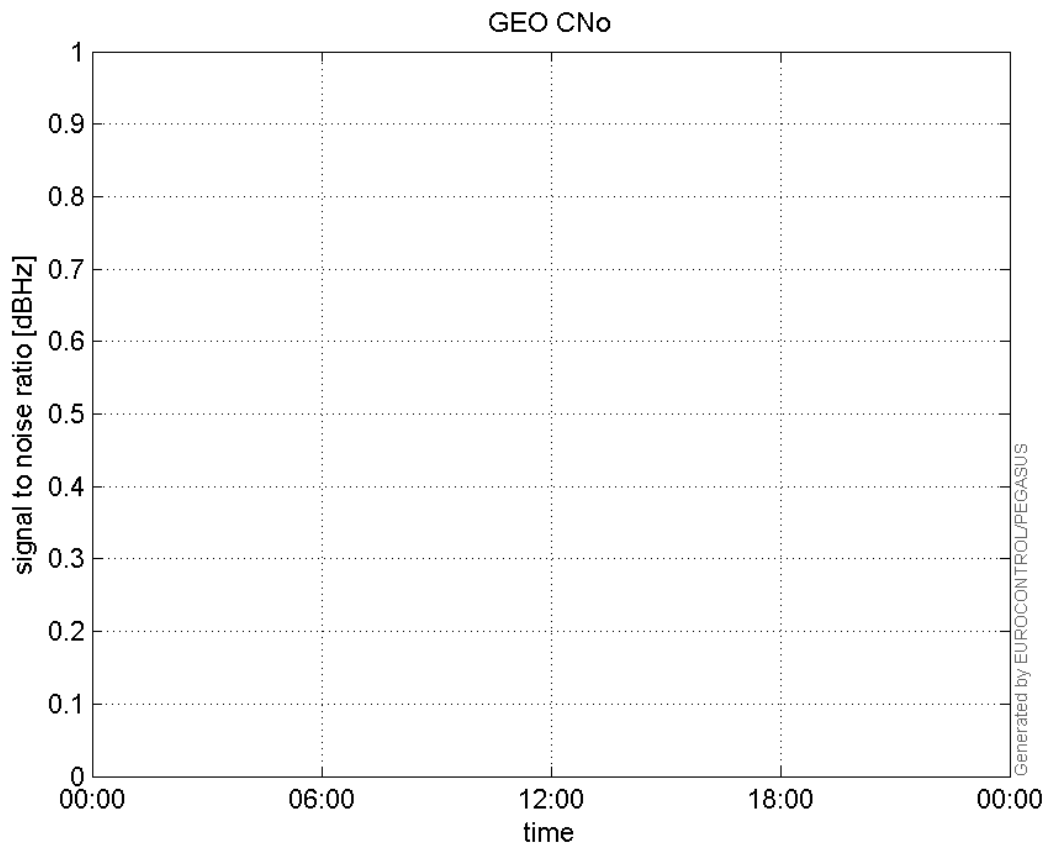


**L2 CNo:**



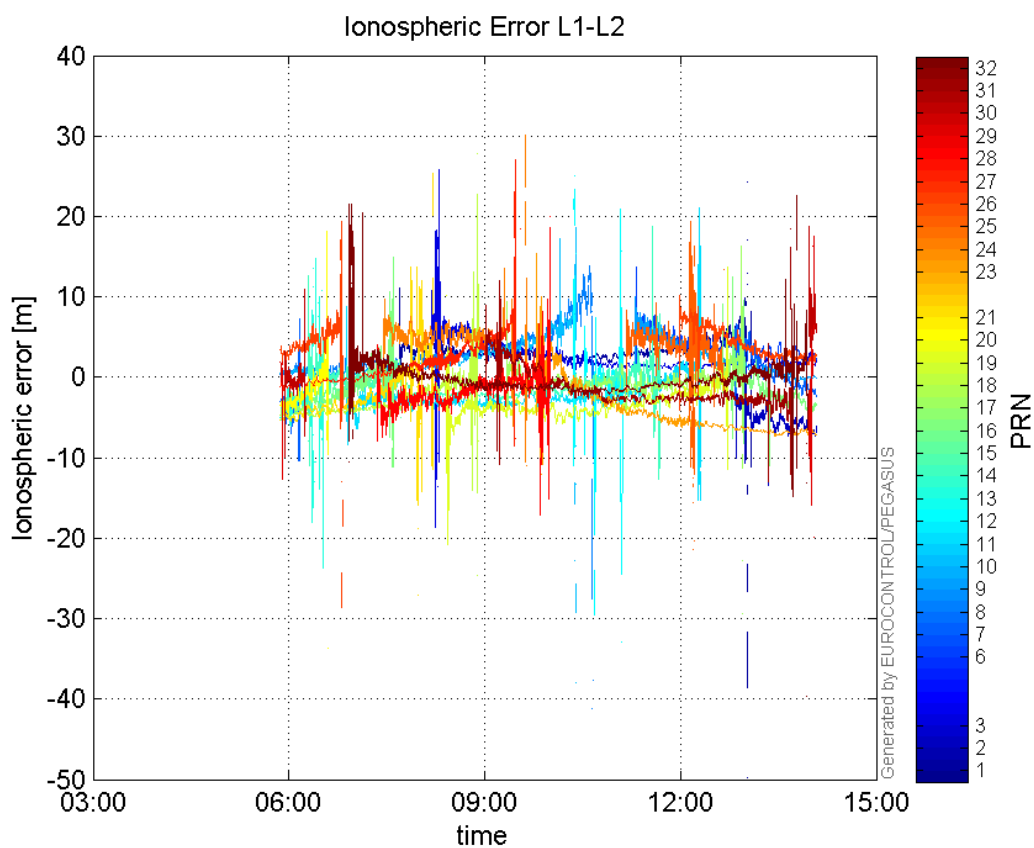


**GEO CNo:**



dual frequency

## Ionospheric Error L1-L2:



## Parameters

## system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_12_16EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_16EGNOS/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	247.7876
mi_numbers	results	0

## Position Domain

**start:** 05:52:20 16.12.2015 ( week: 1875 sec: 280340 )  
**end:** 14:04:53 16.12.2015 ( week: 1875 sec: 309893 )  
**duration:** 08:12:34 ..

## quality

**valid samples** 29183  
**total samples** 29554

## 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>	301384	1.60079	9.98744	0.16028	0.167663	15.3363	0.0109324
<b>max normVer</b>	294174	0.894168	25.0334	0.035719	-2.08791	16.3272	0.12788
<b>max HPE</b>	293822	3.7466	66.4297	0.0563994	3.85773	83.4548	0.0462254
<b>max VPE</b>	293817	3.30533	66.6661	0.0495804	4.42314	85.6462	0.0516443
<b>min HPL</b>	281113	0.477466	8.6888	0.0549519	-0.651338	15.7931	0.041242
<b>min VPL</b>	292383	1.47868	23.8348	0.0620386	0.251899	13.7028	0.018383

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	286149	47	5438
2	286840	115	644
3	290126	324	3171
4	293139	62	2689
5	293811	173	610

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	284880	351	4169
2	286149	47	918
3	286840	115	644
4	290126	324	3171

5	293139	62	2689
6	293664	33	463
7	293744	17	3
8	293811	173	2
9	294647	450	663
10	299193	771	1

**LPV-200 discontinuity events :**

#	Epoch	duration	stable period
1	284880	351	4169
2	286149	47	918
3	286840	115	644
4	290126	324	3171
5	293139	62	2689
6	293664	33	463
7	293744	17	3
8	293811	173	2
9	294647	450	663
10	299193	771	1

**First Glance analysis**

<b>Duration</b>	29554
<b>Number of Samples</b>	29554
<b>Number of invalid sample</b>	371
<b>Number of no position solution samples</b>	7093
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.2553
<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
22090	21369	19590	0	19590

**Accuracy statistics :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	2.04735	2.05192	1.90025	NaN	1.90025
<b>HPEScale 95%</b>	NaN	4.40004	4.45669	NaN	4.45669
<b>VPE 95%</b>	2.07602	2.03826	1.87113	NaN	1.87113
<b>VPEscale 95%</b>	NaN	3.87784	2.74507	NaN	2.74507

**Availability :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	0.756948	0.732241	0.671281	0	0.671281

<b>measurements</b>	0.747445	0.723049	0.662854	0	0.662854
<b>Operational</b>	0.747445	0.723049	0.662854	0	0.662854

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	--	5	93	--	93
<b>Long</b>	--	5	10	--	10
<b>Independent</b>	--	5	7	--	7
<b>P(disc.)</b>	NaN	0.00350976	0.00535988	NaN	0.00535988
<b>P(slide)</b>	NaN	0.00350976	0.0152118	NaN	0.0152118

**Integrity events :**

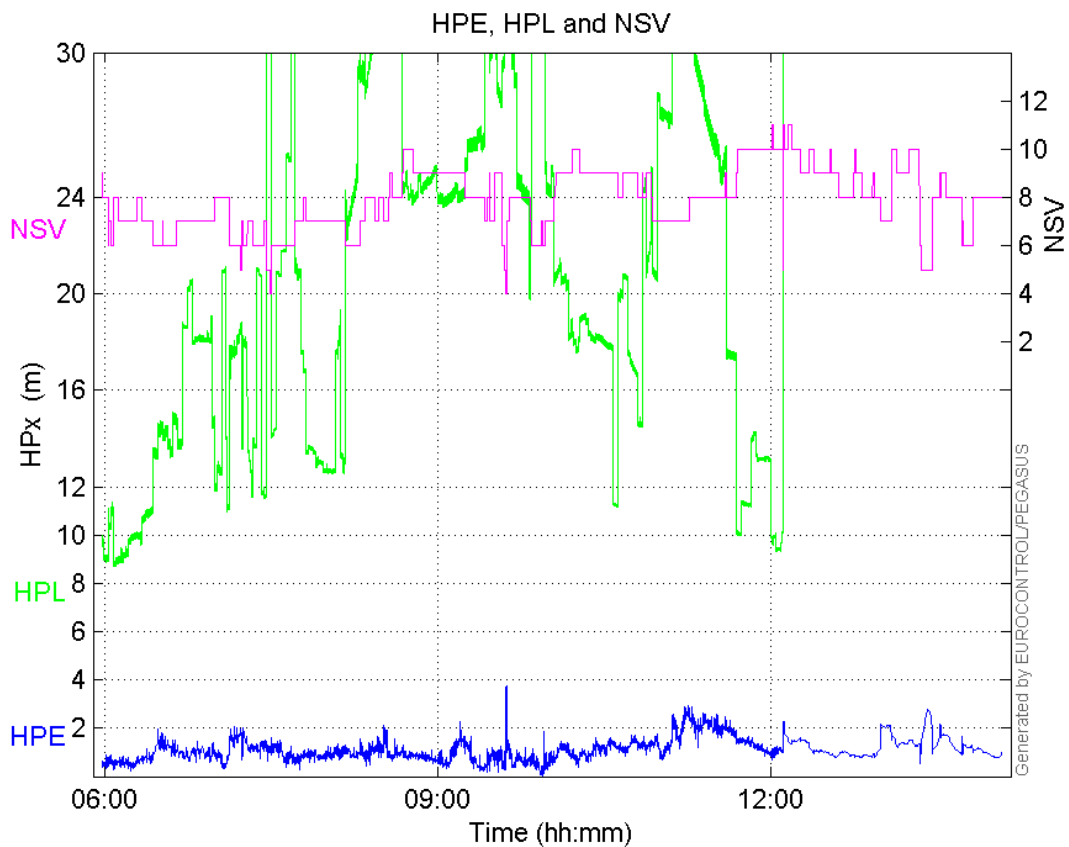
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

**Performance Summary :**

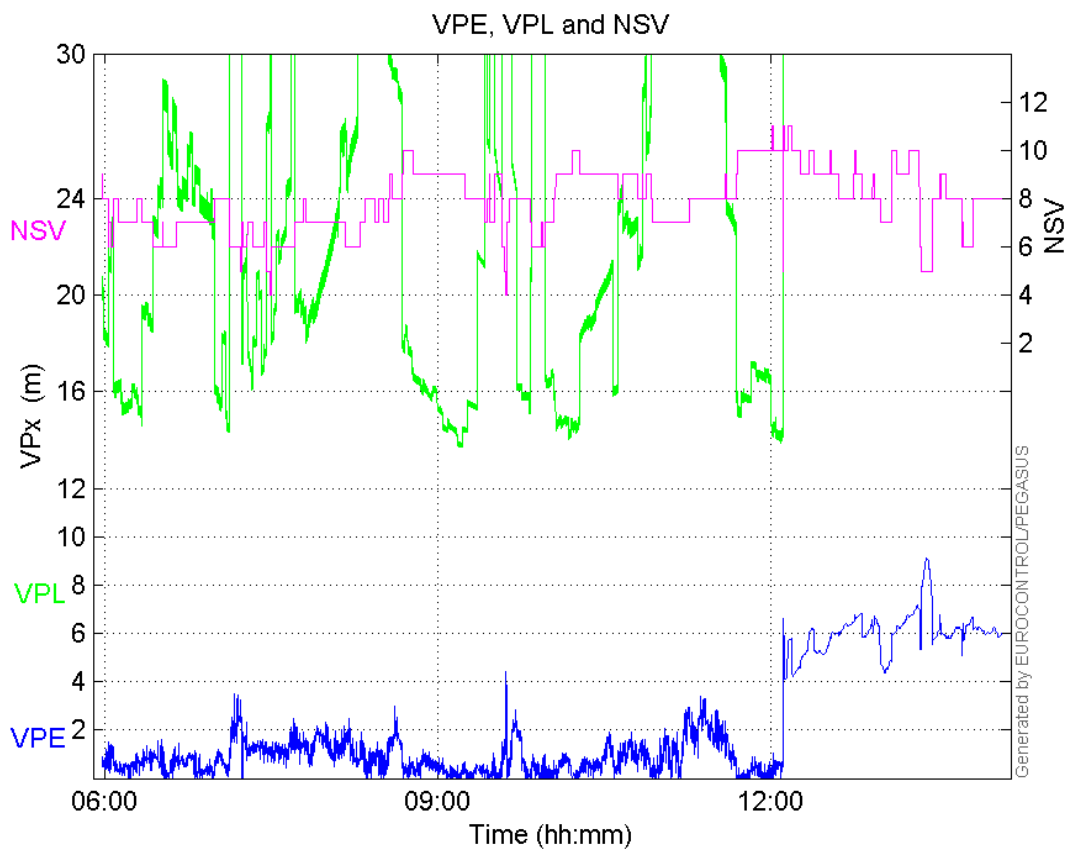
	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	22090	21369	19590	0	19590
<b>SIS Availability</b>	0.756948	0.732241	0.671281	0	0.671281
<b>Local Availability</b>	0.747445	0.723049	0.662854	0	0.662854
<b>Operational Availability</b>	0.747445	0.723049	0.662854	0	0.662854
<b>HPE 95%</b>	2.04735	2.05192	1.90025	NaN	1.90025
<b>HPEScale 95%</b>	NaN	4.40004	4.45669	NaN	4.45669
<b>VPE 95%</b>	2.07602	2.03826	1.87113	NaN	1.87113
<b>VPEscale 95%</b>	NaN	3.87784	2.74507	NaN	2.74507
<b>All Discontinuity Events</b>	--	5	93	--	93
<b>Long Discontinuity Events</b>	--	5	10	--	10
<b>Independent Discontinuity Events</b>	--	5	7	--	7
<b>P(discontinuity)</b>	NaN	0.00350976	0.00535988	NaN	0.00535988
<b>P(sliding window)</b>	NaN	0.00350976	0.0152118	NaN	0.0152118
<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:**

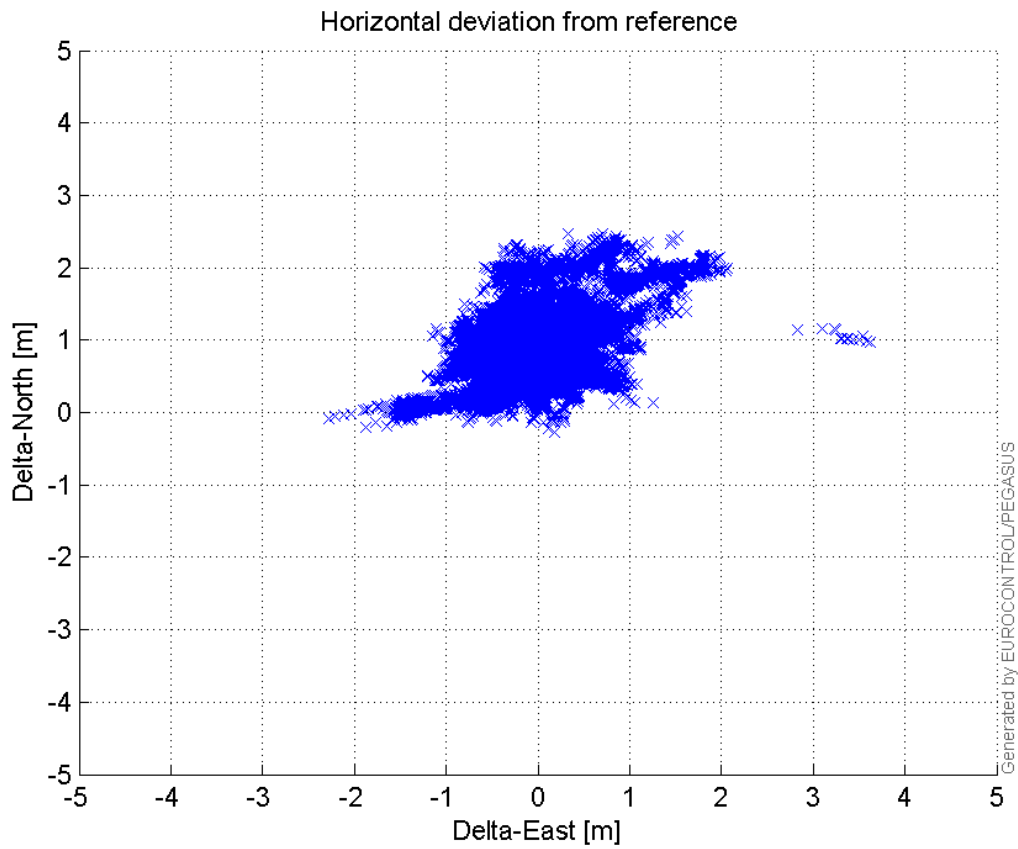


**VPE, VPL and NSV:**



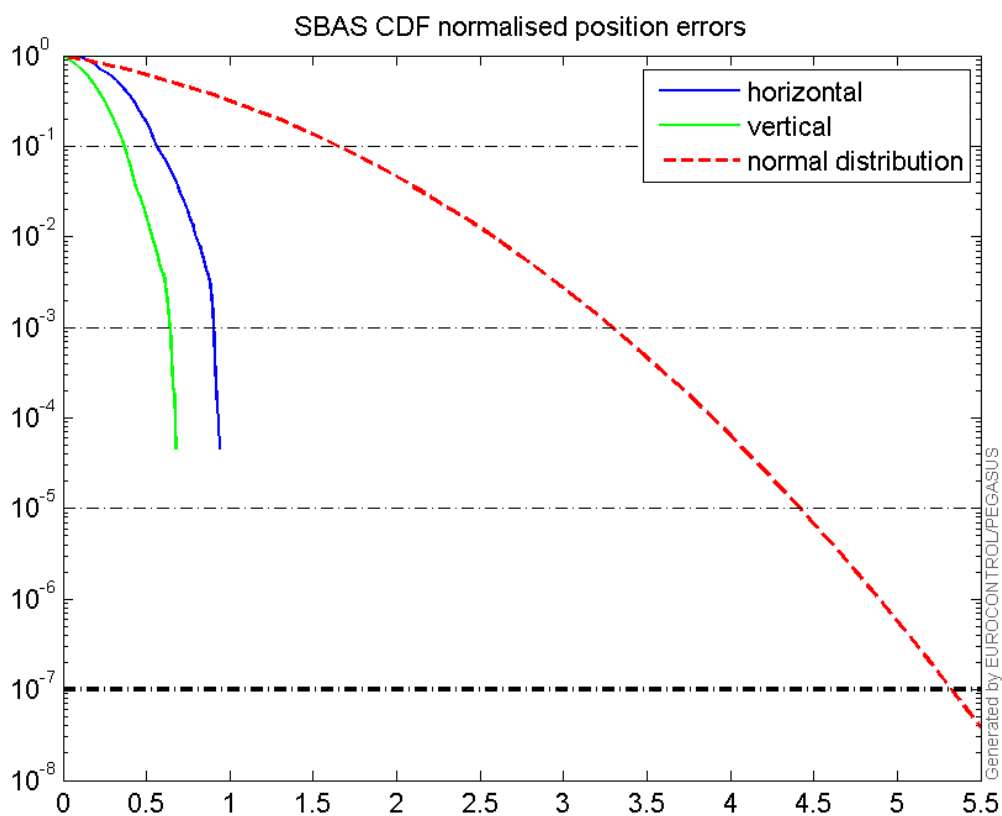
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



## Statistics

<b>number</b>	21369
<b>sum</b>	23090.405
<b>sum2</b>	29486.866
<b>prctile95</b>	2.0519153
<b>prctile99</b>	2.4716297
<b>number</b>	21369
<b>sum</b>	17894.998
<b>sum2</b>	23265.566
<b>prctile95</b>	2.0382569
<b>prctile99</b>	2.6516321
<b>number</b>	21369
<b>sum</b>	438062.72
<b>sum2</b>	10127954
<b>prctile95</b>	33.61084
<b>prctile99</b>	38.322648
<b>number</b>	21369
<b>sum</b>	491021.68
<b>sum2</b>	12555690
<b>prctile95</b>	39.705545
<b>prctile99</b>	44.372863
<b>number</b>	21369
<b>sum</b>	1255.3436
<b>sum2</b>	90.287469
<b>prctile95</b>	0.110001
<b>prctile99</b>	0.13347023
<b>number</b>	21369
<b>sum</b>	773.93268
<b>sum2</b>	39.825095
<b>prctile95</b>	0.077556752
<b>prctile99</b>	0.10084211
<b>number</b>	19590
<b>sum</b>	20372.419
<b>sum2</b>	24244.252
<b>prctile95</b>	1.9002516
<b>prctile99</b>	2.2558571
<b>number</b>	19590
<b>sum</b>	15460.2
<b>sum2</b>	18552.877
<b>prctile95</b>	1.8711338
<b>prctile99</b>	2.4590399
<b>number</b>	19590
<b>sum</b>	384831.48
<b>sum2</b>	8461633.5
<b>prctile95</b>	30.2692
<b>prctile99</b>	37.96048
<b>number</b>	19590
<b>sum</b>	419498.55
<b>sum2</b>	9663330.5
<b>prctile95</b>	33.1498

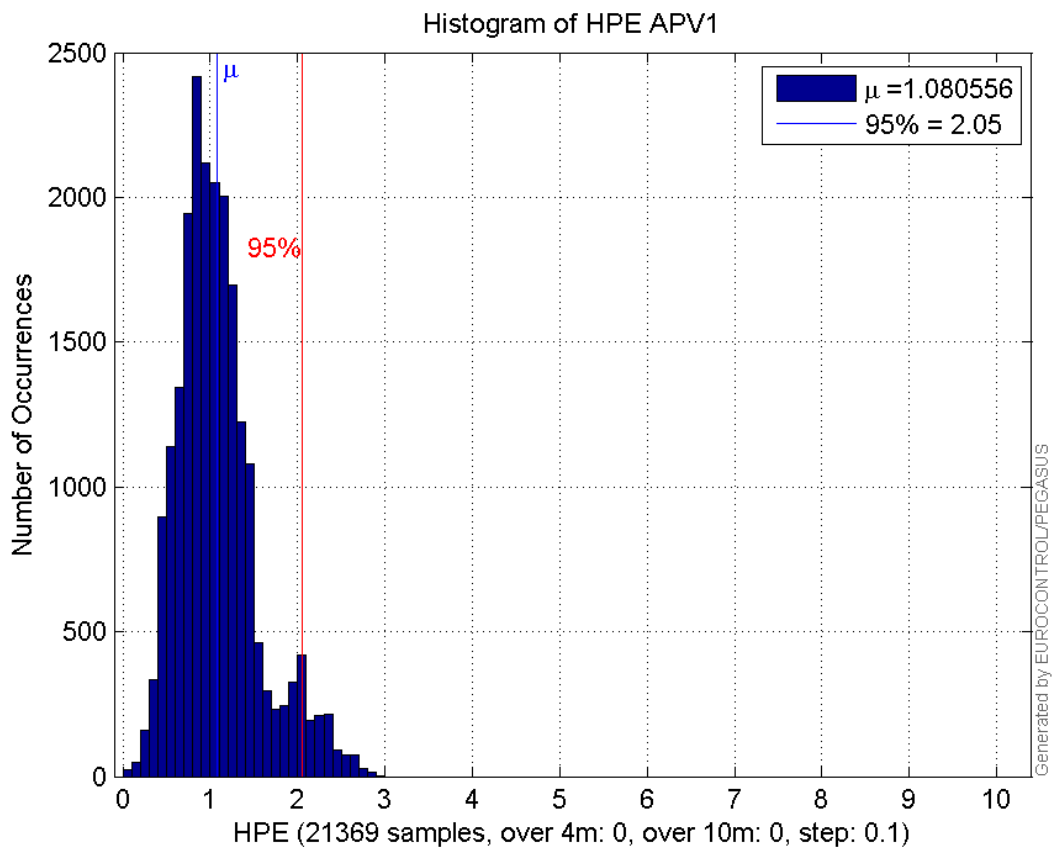


**prctile99** 34.52342  
**number** 19590  
**sum** 1158.392  
**sum2** 83.440534  
**prctile95** 0.11141733  
**prctile99** 0.13486199  
**number** 19590  
**sum** 711.95286  
**sum2** 36.755132  
**prctile95** 0.078430477  
**prctile99** 0.10188767

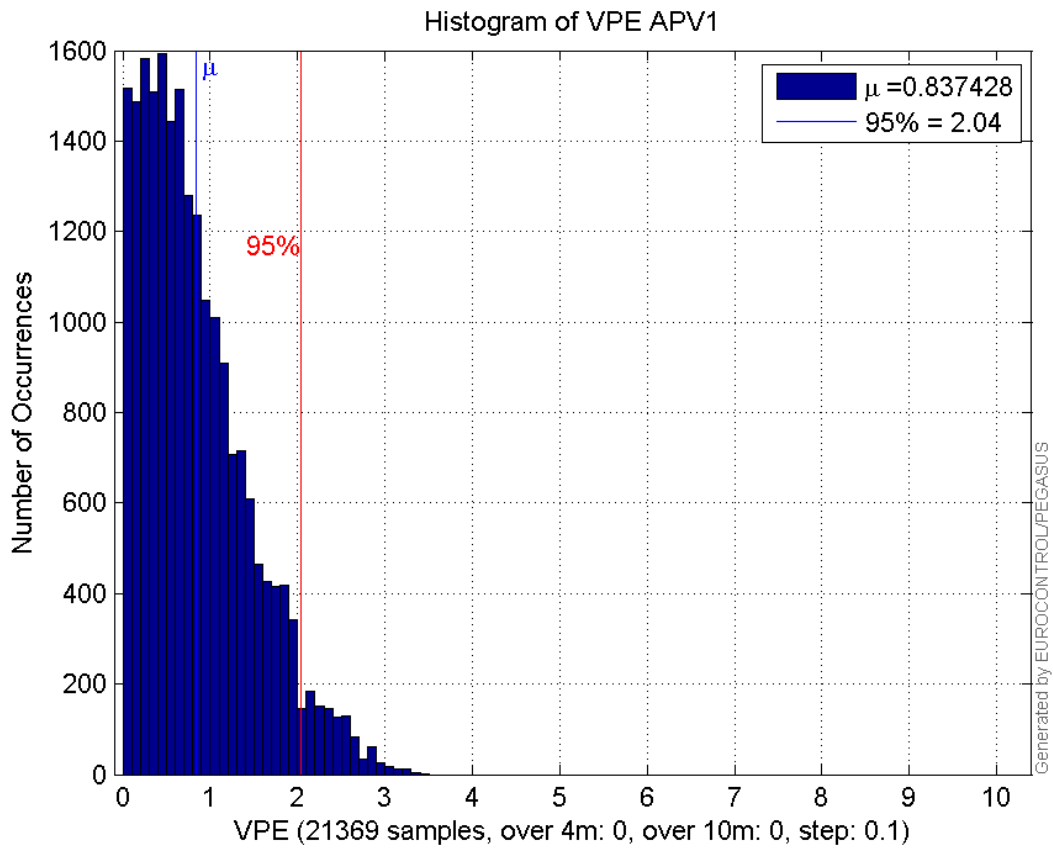
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.08056	0.460758	1.01414	2.05192	2.47163	1.17469
<b>HPL</b>	20.4999	7.3288	20.1582	33.6108	38.3226	21.7705
<b>VPE</b>	0.837428	0.622484	0.702423	2.03826	2.65163	1.04343
<b>VPL</b>	22.9782	7.71814	21.2046	39.7055	44.3729	24.2398

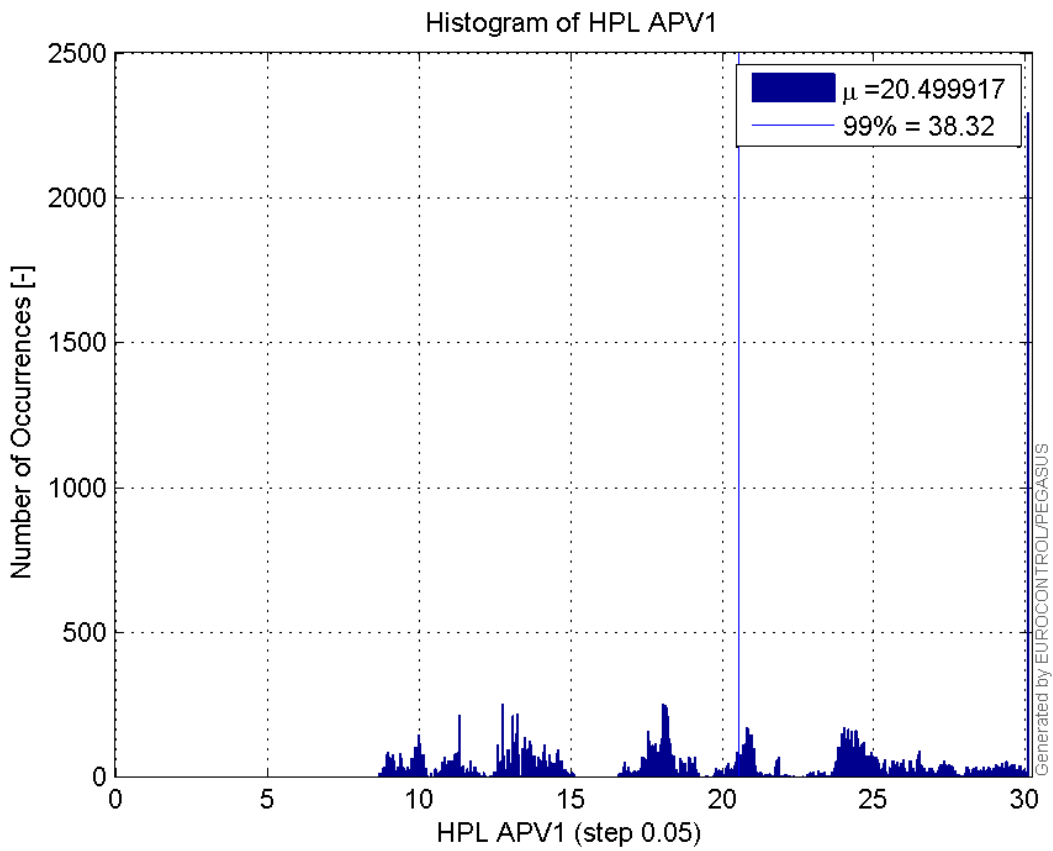
**Histogram of HPE APV1:**



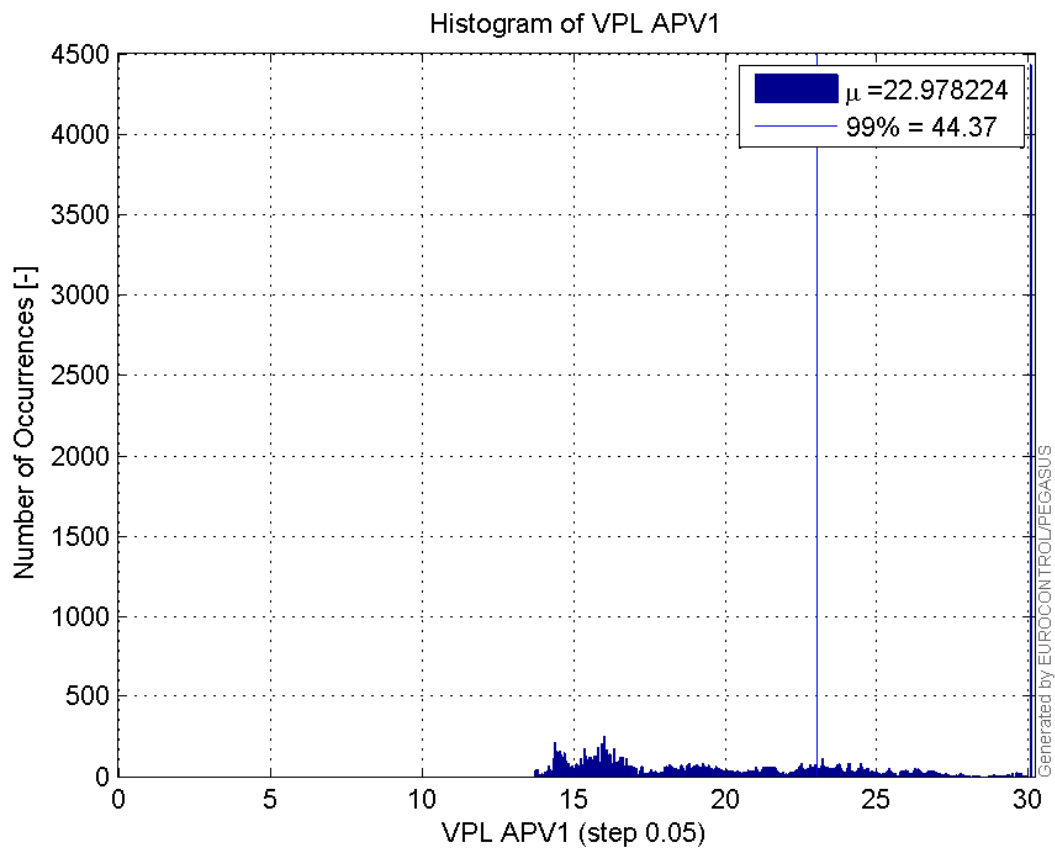
**Histogram of VPE APV1:**



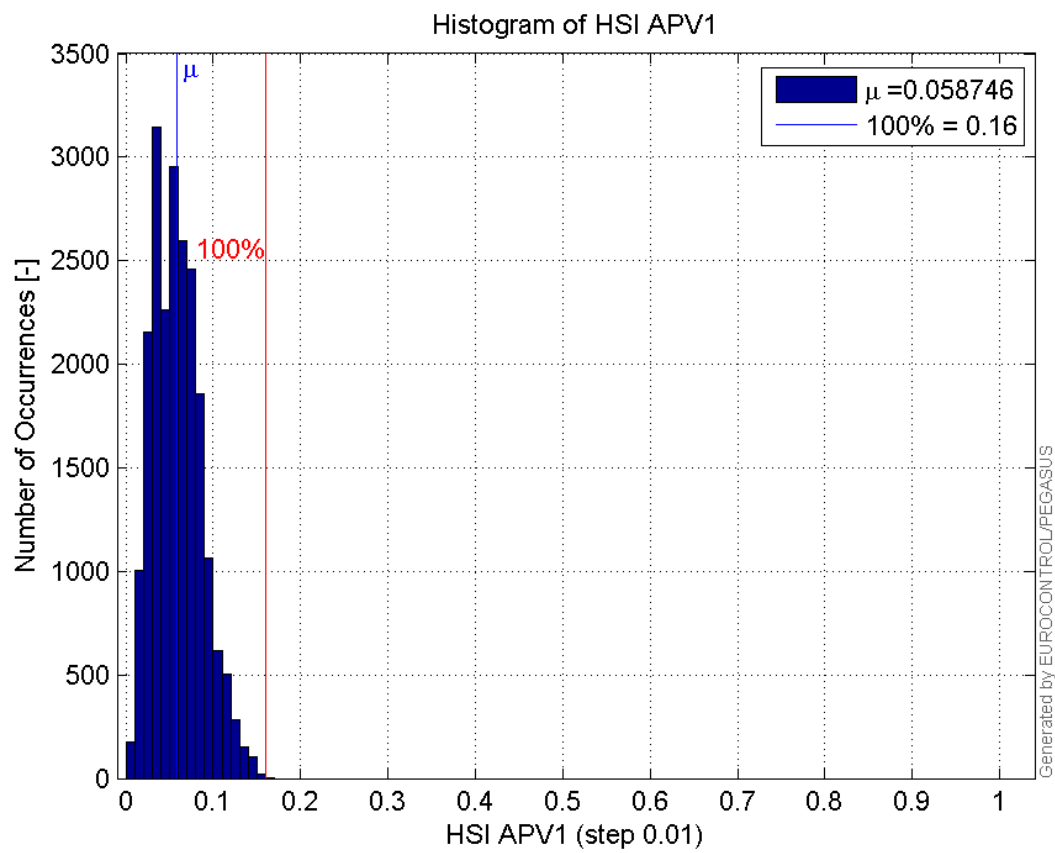
**Histogram of HPL APV1:**



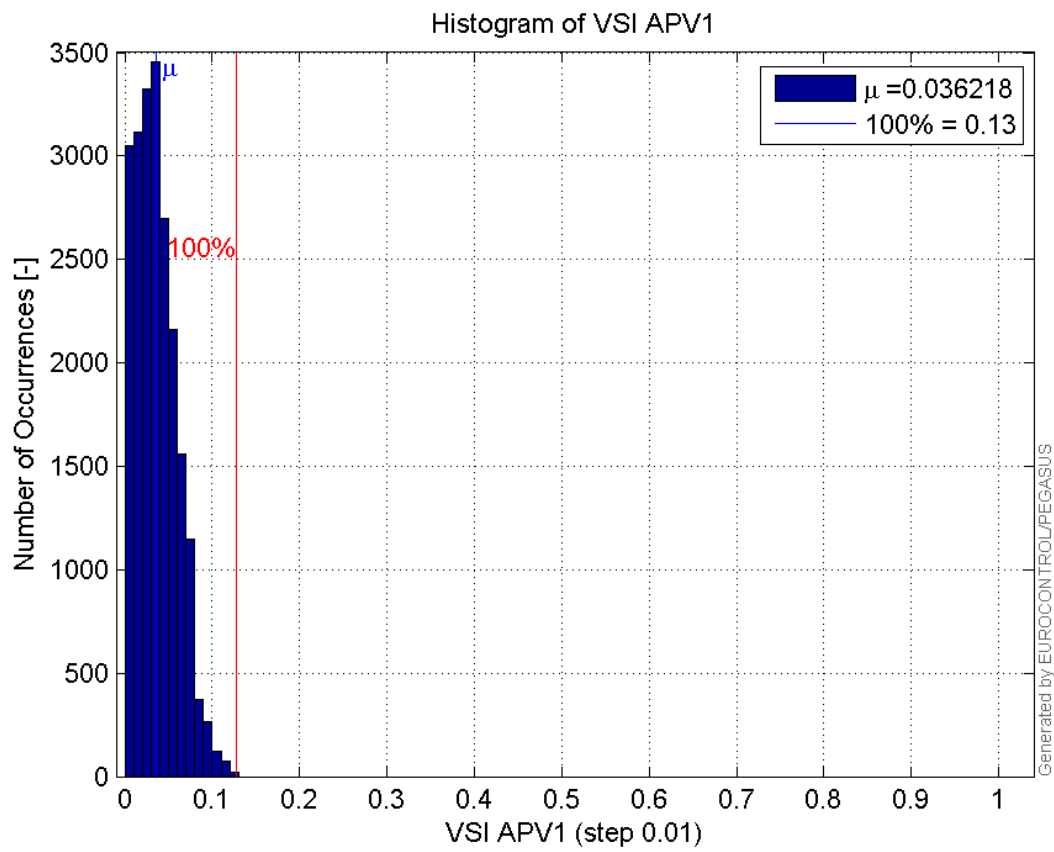
**Histogram of VPL APV1:**



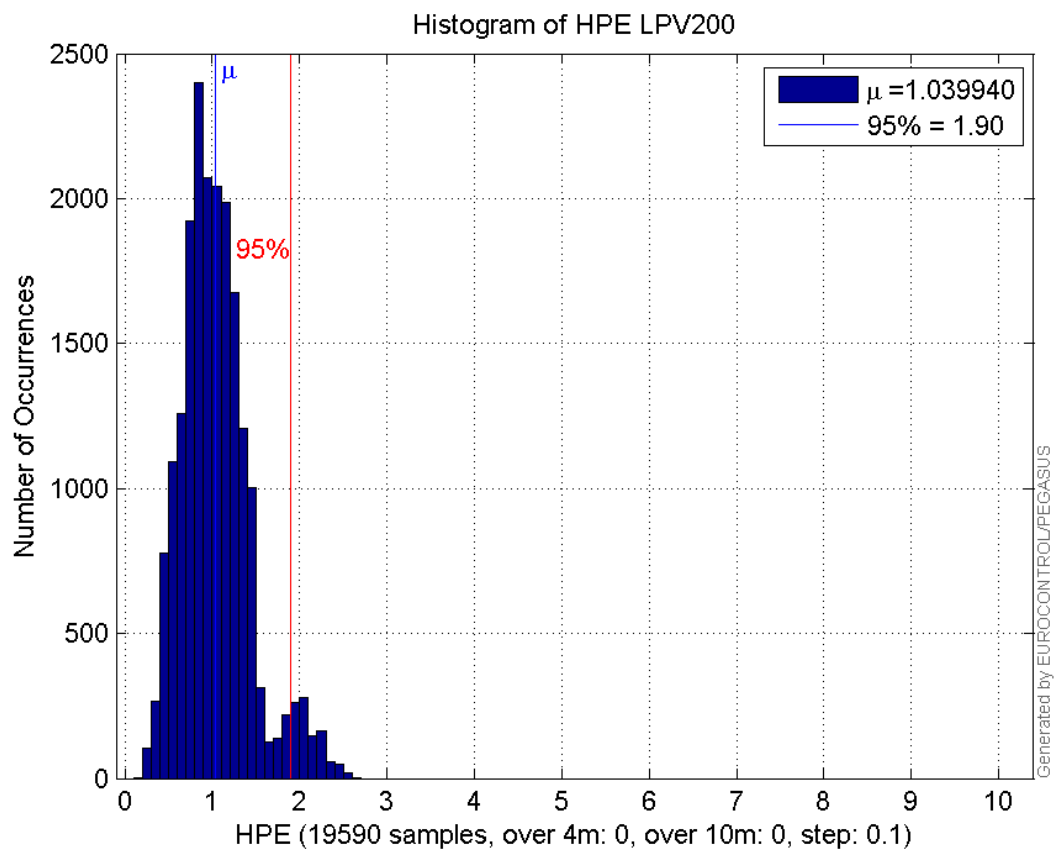
**Histogram of HSI APV1:**



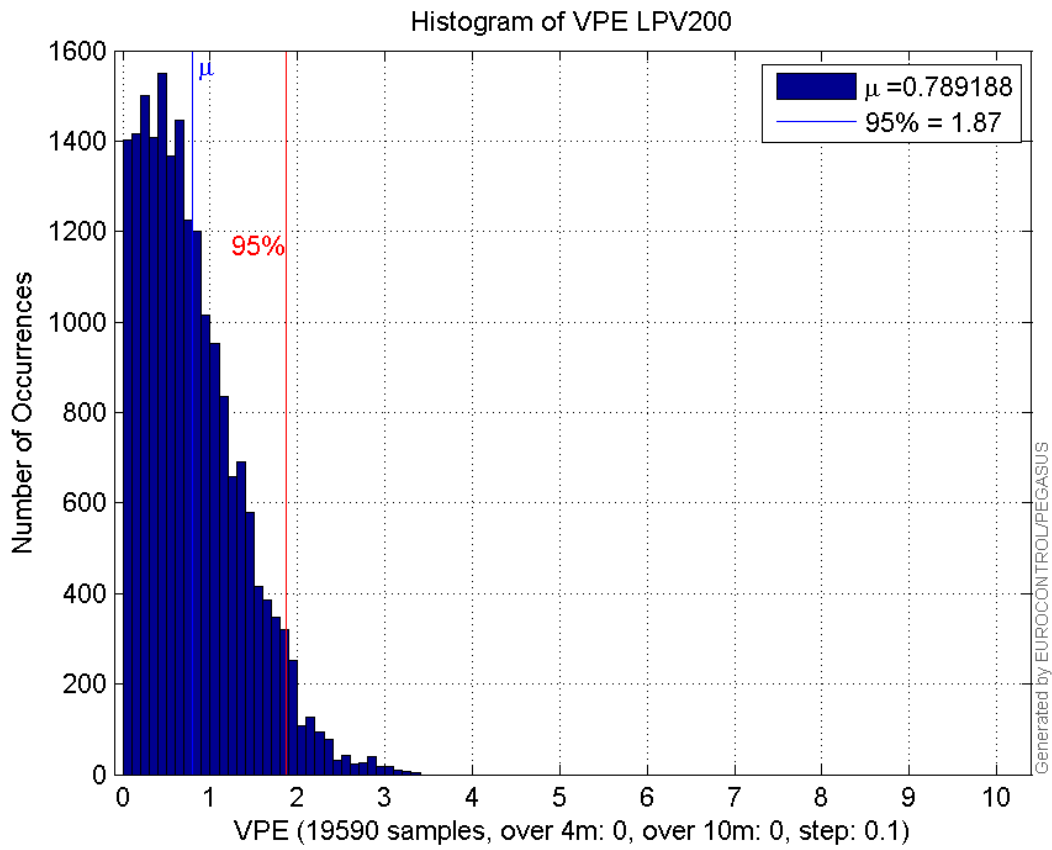
**Histogram of VSI APV1:**



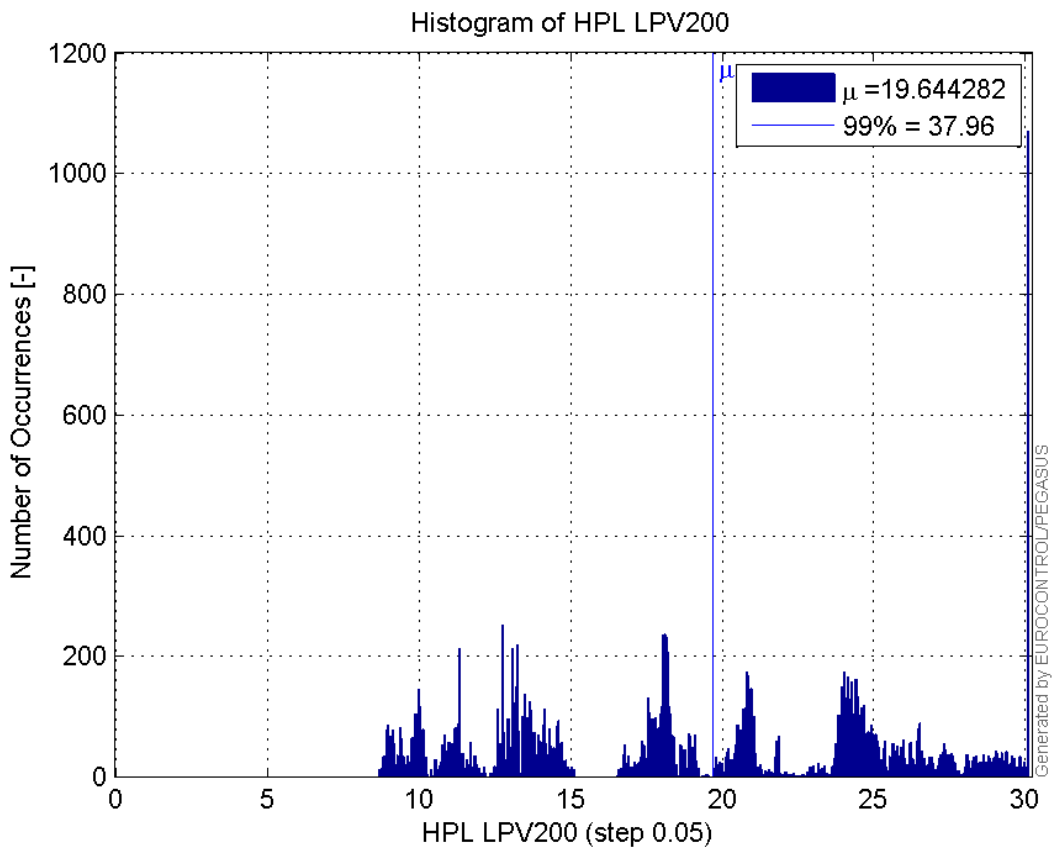
**Histogram of HPE LPV200:**



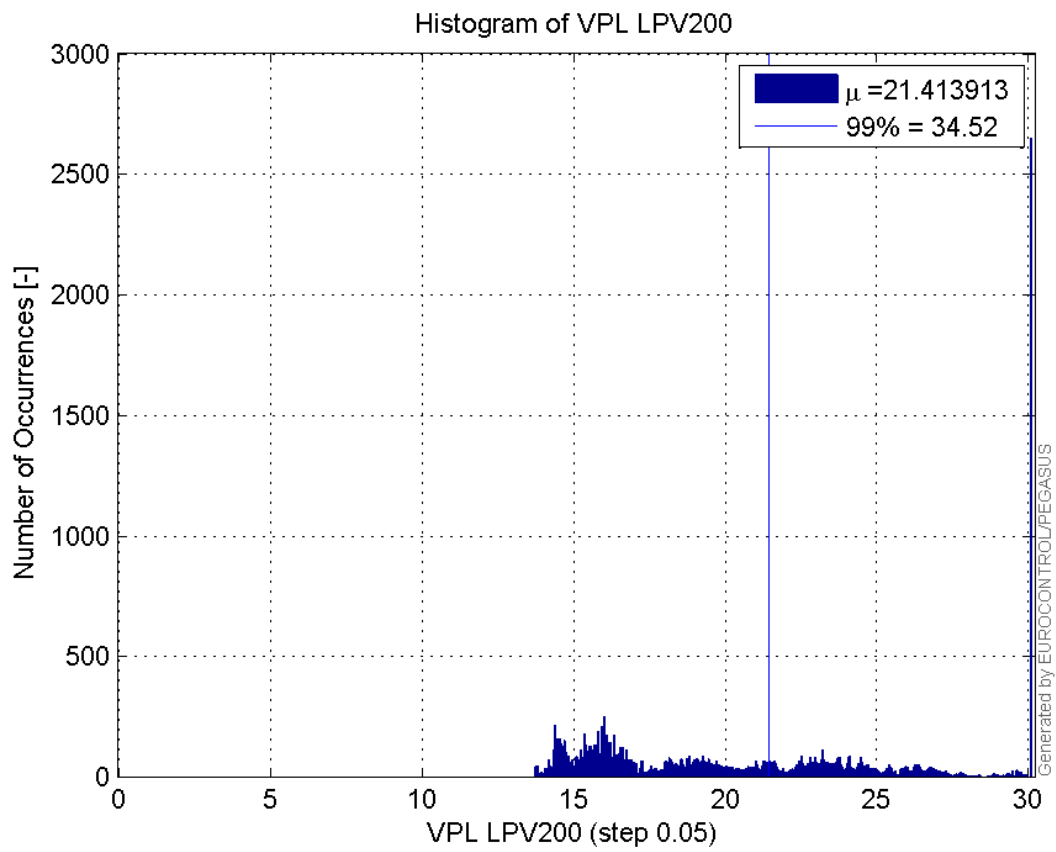
**Histogram of VPE LPV200:**



**Histogram of HPL LPV200:**

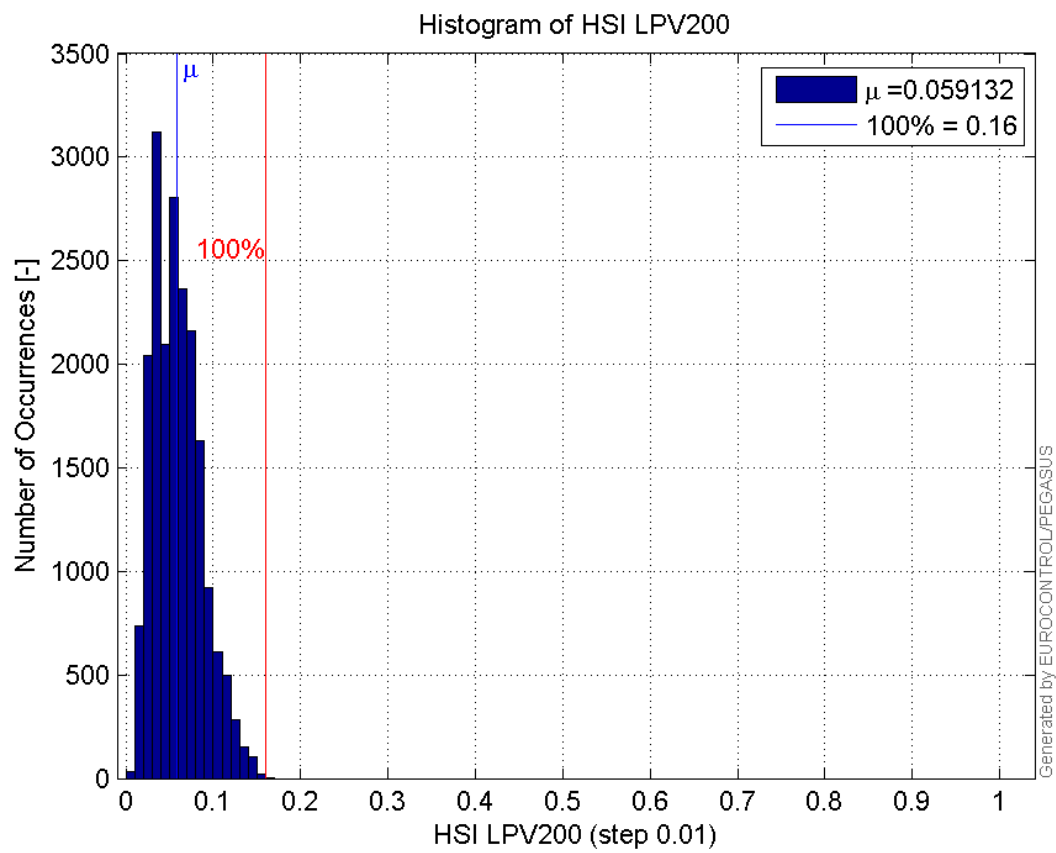


**Histogram of VPL LPV200:**

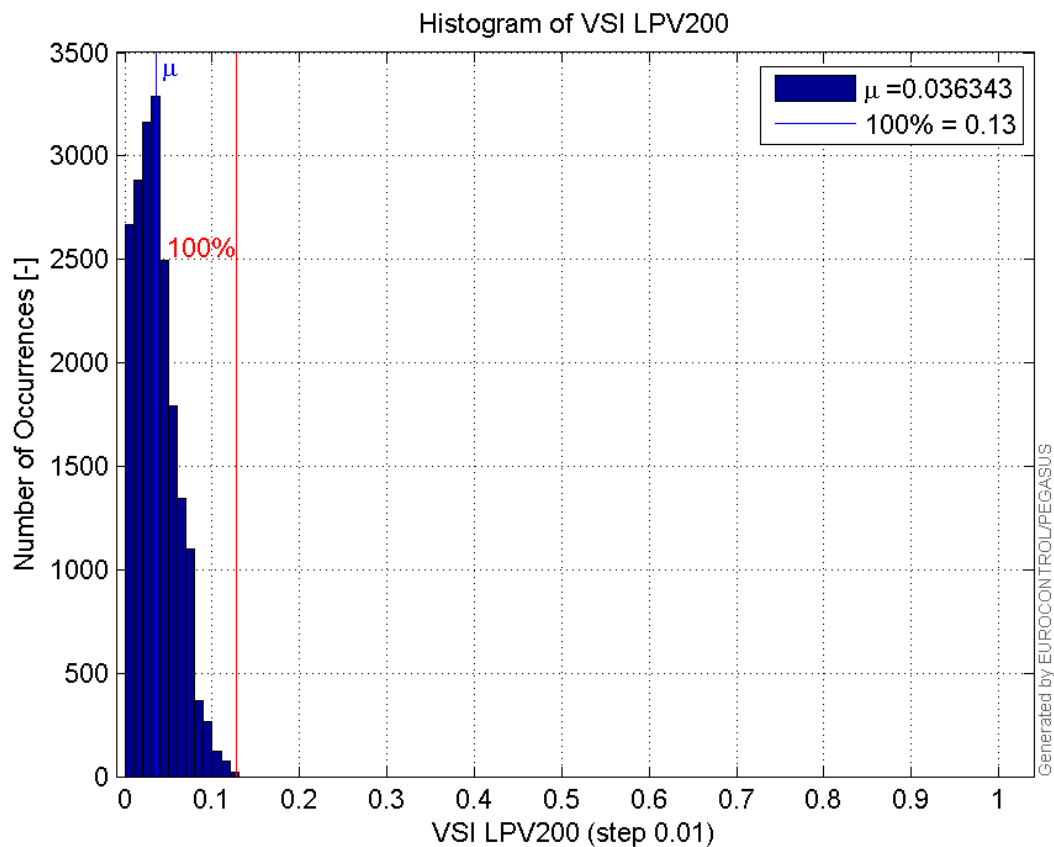


99%

**Histogram of HSI LPV200:**

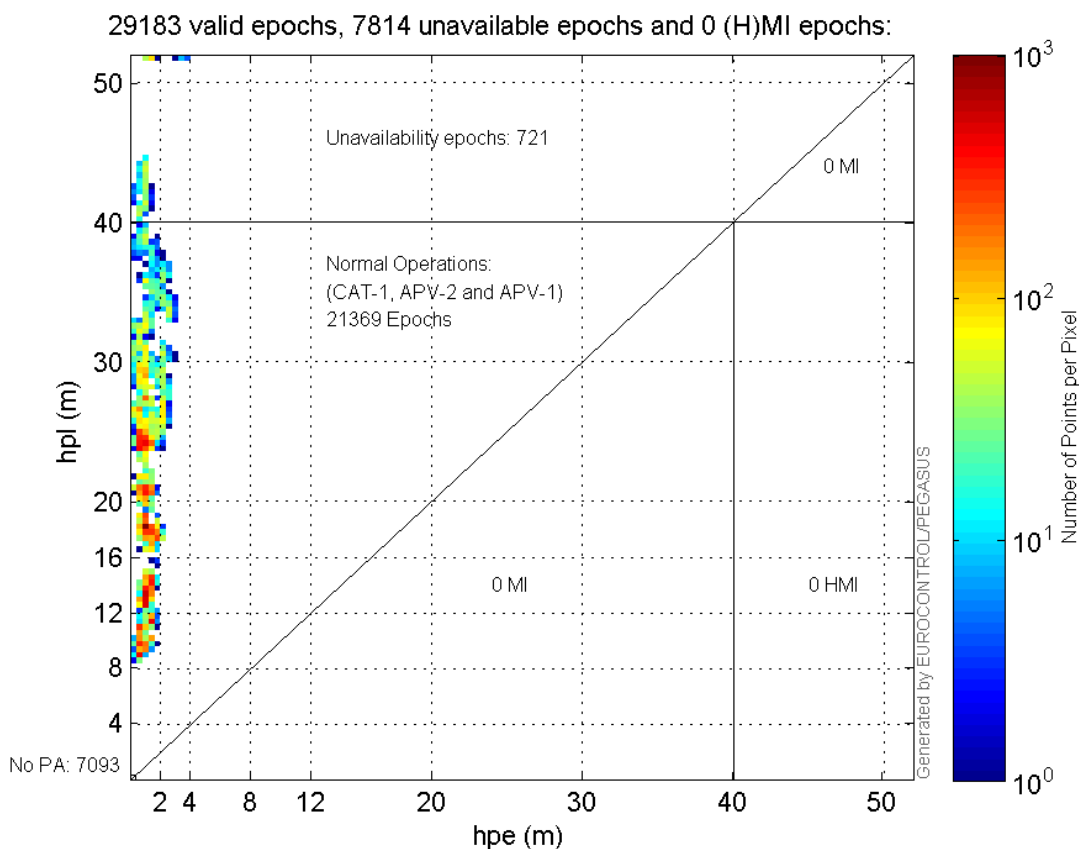


**Histogram of VSI LPV200:**

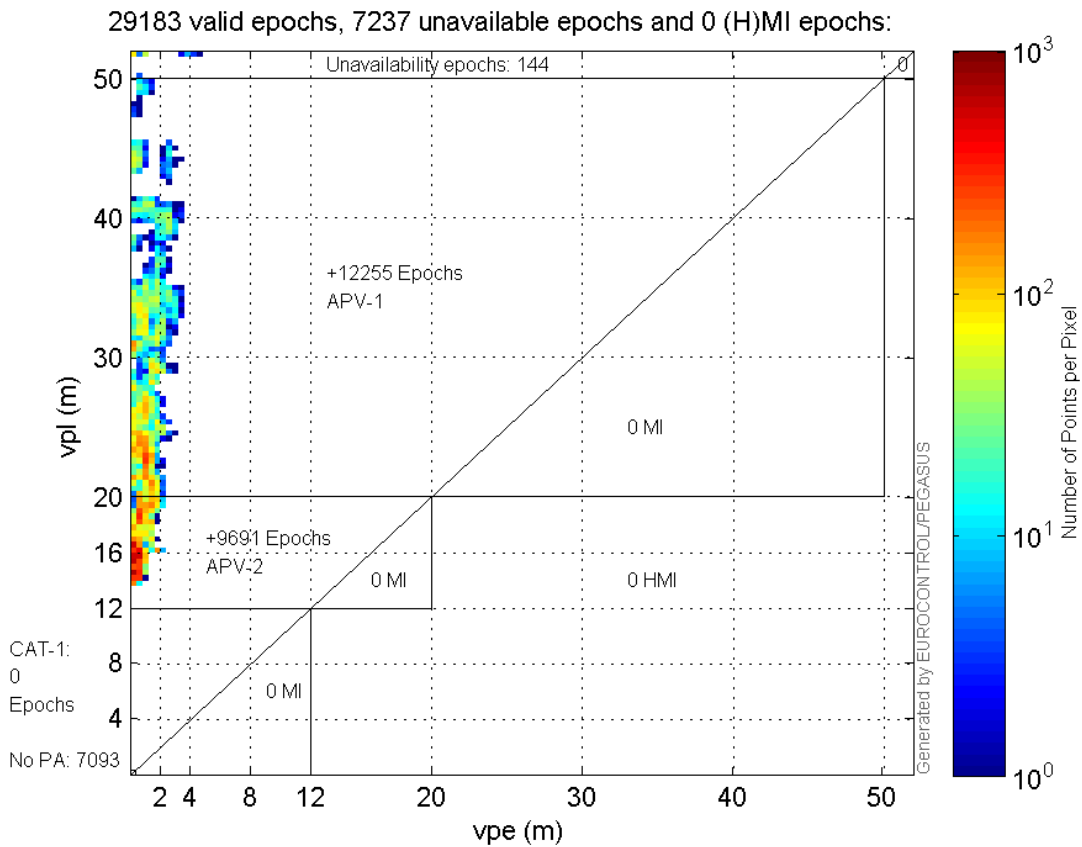


### Stanford Plots

#### Horizontal\_Stanford\_Plot\_SBAS:



**Vertical\_Stanford\_Plot\_SBAS:**



**Parameters**

**system**

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_12_16EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_16EGNOS/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	247.7876
mi_numbers	results	0

**SBAS Messages**

**start:** 05:52:19.129 16.12.2015 ( week: 1875 sec: 280339.129 )  
**end:** 14:04:52.129 16.12.2015 ( week: 1875 sec: 309892.129 )  
**duration:** 08:12:33 ..

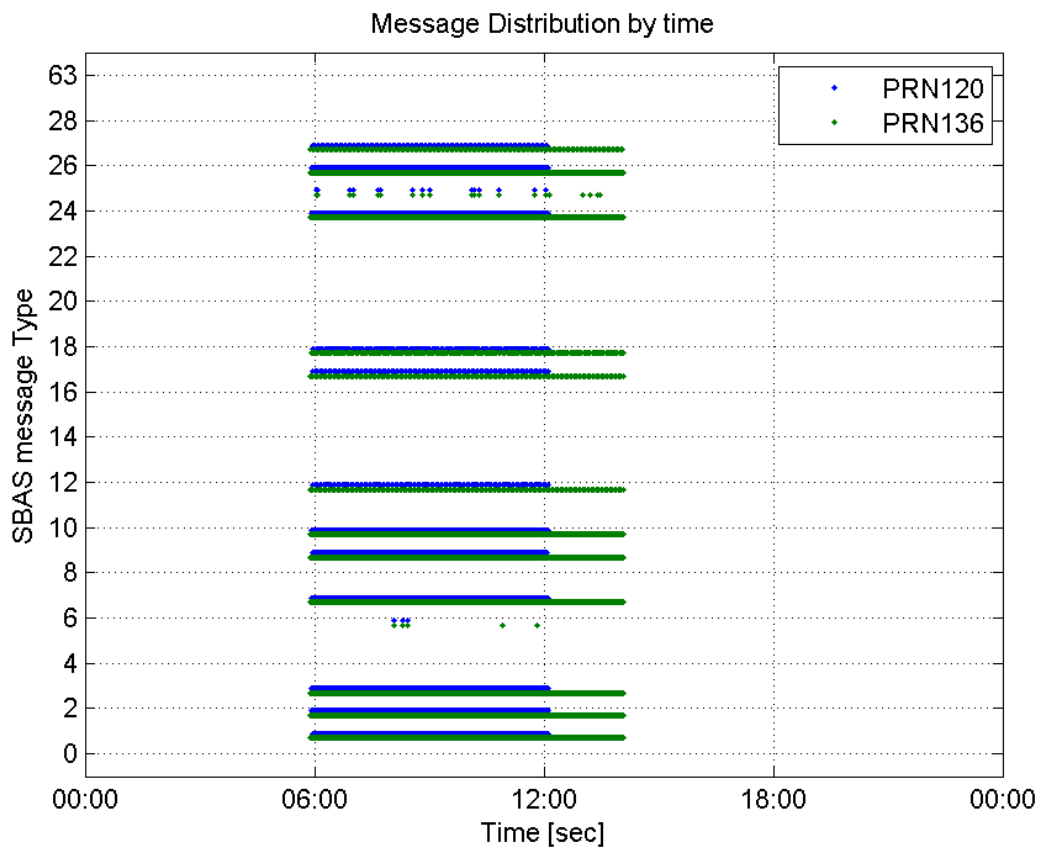
**quality**

**valid samples** 51776  
**total samples** 51776  
**number of SBAS PRNs** 2

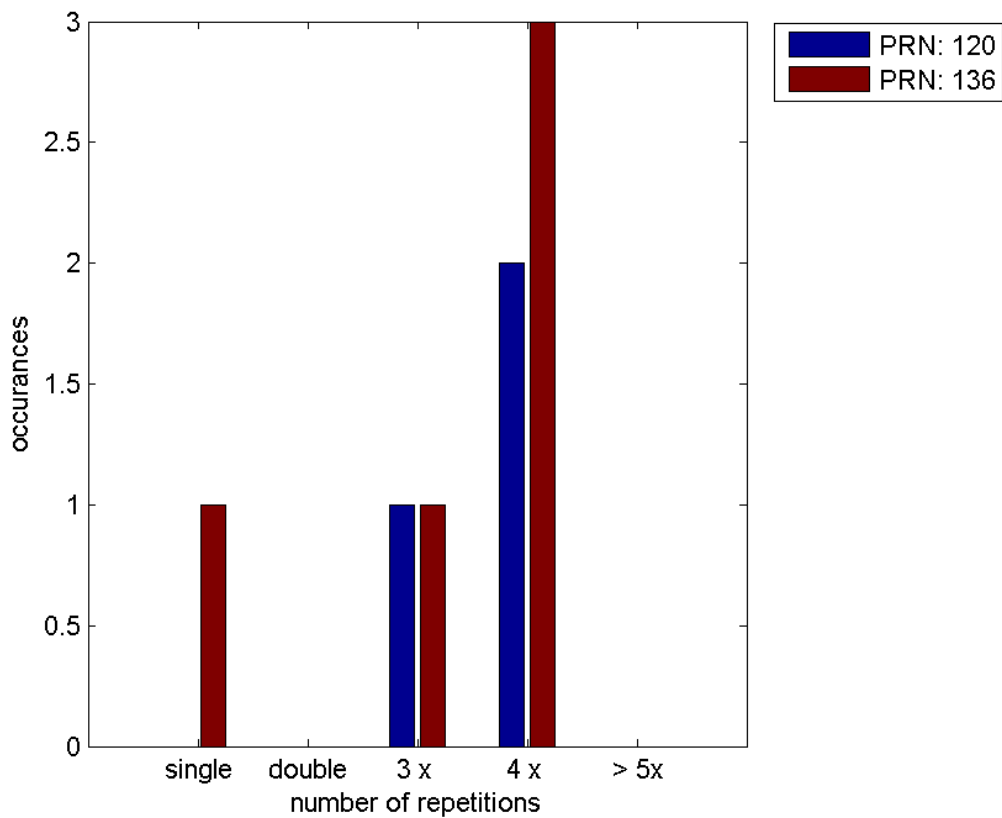
**SBAS SIS Overview****Message Type 6 repetitions :**

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

**Message Distribution by time:**



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

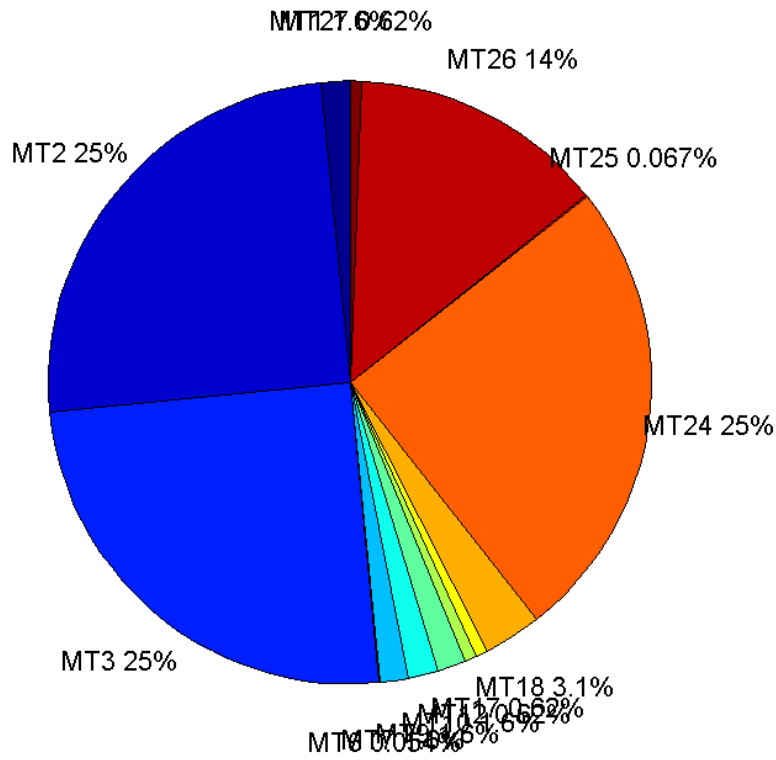
	number of messages	%
MT 0	0	0
MT 1	347	1.56011
MT 2	5556	24.9798
MT 3	5556	24.9798
MT 4	0	0
MT 5	0	0
MT 6	12	0.053952
MT 7	347	1.56011
MT 9	346	1.55562
MT 10	347	1.56011
MT 12	139	0.624944
MT 17	139	0.624944
MT 18	695	3.12472
MT 24	5556	24.9798
MT 25	15	0.06744
MT 26	3048	13.7038
MT 27	139	0.624944
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	22242	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	70	64.1734	0	0	0
MT 2	4	8	4.00342	3	0	0
MT 3	4	8	4.00342	3	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	807	112.818	2	2	2
MT 7	64	70	64.1734	0	0	0
MT 9	64	70	64.1855	0	0	0
MT 10	64	70	64.185	0	0	0
MT 12	156	166	160.348	138	0	0
MT 17	160	166	160.377	0	0	0
MT 18	4	140	31.9251	0	0	0
MT 24	4	8	4.00324	0	0	0
MT 25	57	3890	1538.21	0	0	0
MT						

26	4	34	7.29373	0	0	0
MT 27	160	166	160.348	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	460	1.55753
MT 2	7377	24.978
MT 3	7377	24.978
MT 4	0	0
MT 5	0	0
MT 6	17	0.0575608
MT 7	460	1.55753
MT 9	461	1.56091

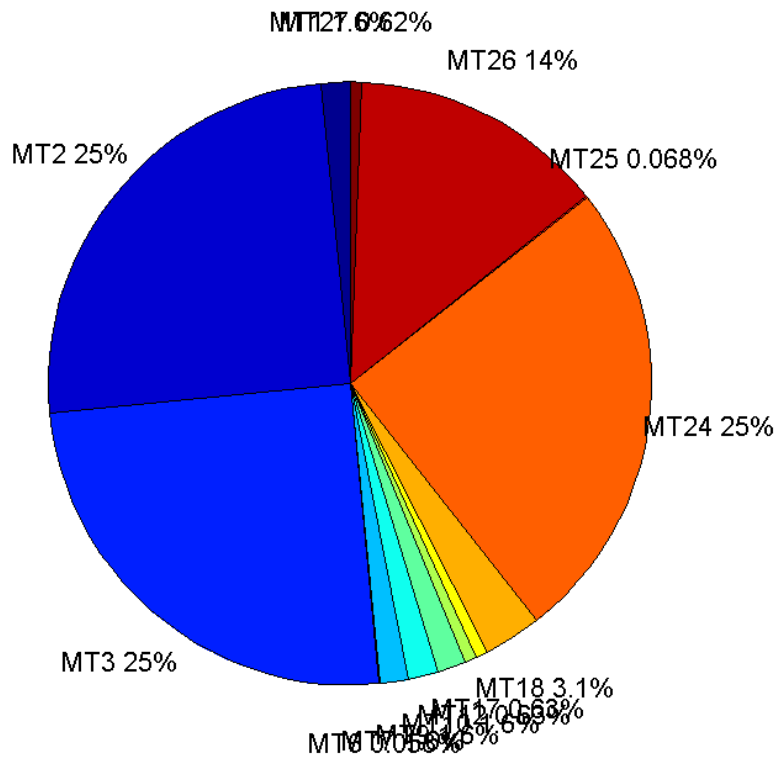
MT 10	460	1.55753
MT 12	185	0.626397
MT 17	185	0.626397
MT 18	919	3.11167
MT 24	7377	24.978
MT 25	20	0.0677186
MT 26	4052	13.7198
MT 27	184	0.623011
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>29534</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	114	64.3028	0	0	0
MT 2	4	22	4.0061	5	1	1
MT 3	4	22	4.00597	5	1	1
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	8902	836.875	4	4	4
MT 7	64	74	64.1983	0	0	0
MT 9	64	72	64.2326	0	0	0
MT 10	64	70	64.1983	0	0	0
MT 12	156	170	160.386	184	0	0
MT 17	156	166	160.364	0	0	0
MT 18	4	154	31.9989	0	0	0
MT 24	4	26	4.00651	0	0	0
MT 25	57	3890	1401.16	0	0	0
MT 26	4	58	7.29178	0	0	0
MT 27	156	170	160.366	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_16EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_12_16EGNOS/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