

# Global View

comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,  
P.50 - 54  
program Pegasus  
site Laboratory satellite systems  
city Kiev  
abbreviation NAU  
version 4.8.2  
country Ukraine  
date 25/11/2015

## Range Domain

**start:** 07:18:30 24.11.2015 ( week: 1872 sec: 199110 )  
**end:** 14:58:46 24.11.2015 ( week: 1872 sec: 226726 )  
**duration:** 07:40:17 ..

### quality

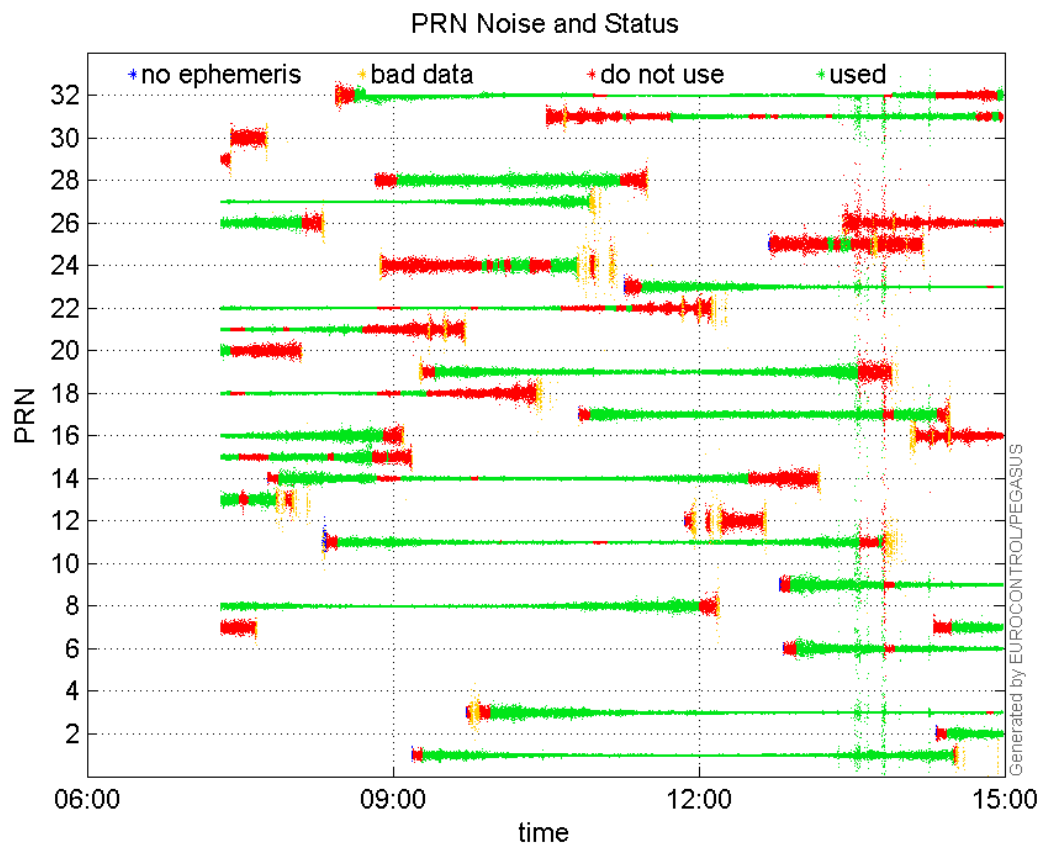
**valid samples** 27617  
**total samples** 27617

### PRN overview

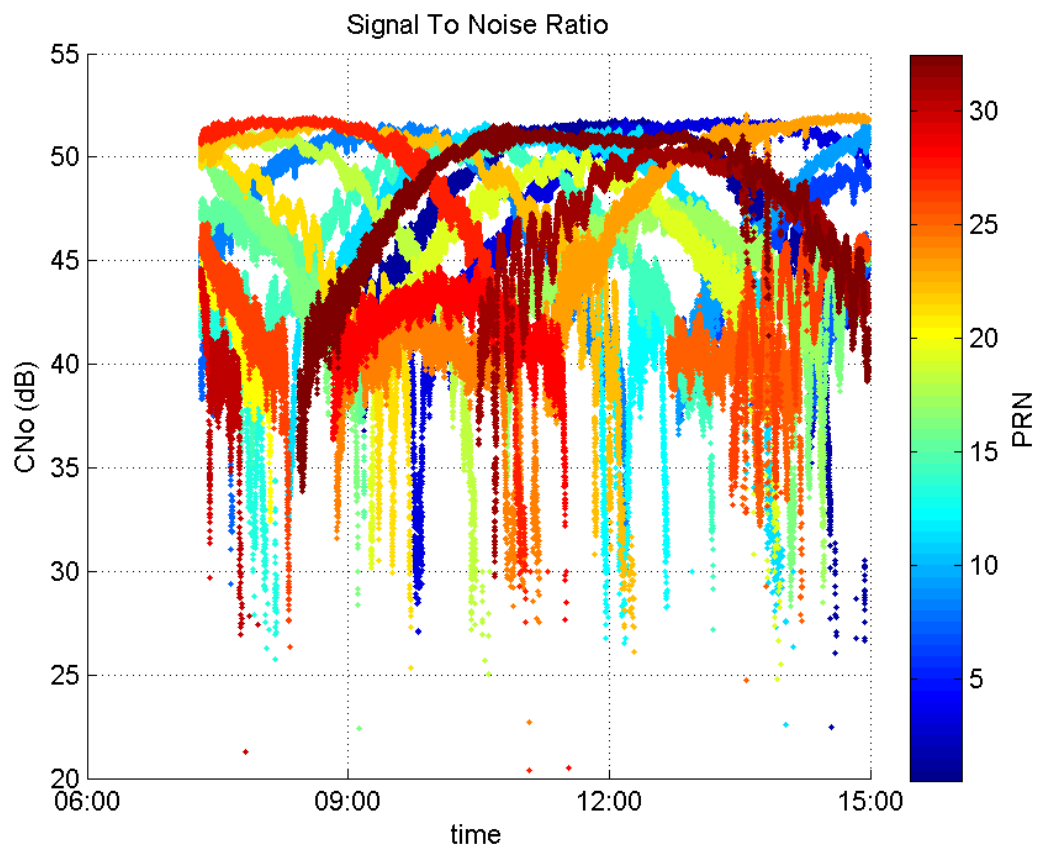
**Number of Visible GPS Satellites** 29  
**Number of Visible SBAS Satellites** 2

### signal quality and status

**PRN Noise and Status:**



**Signal To Noise Ratio:**



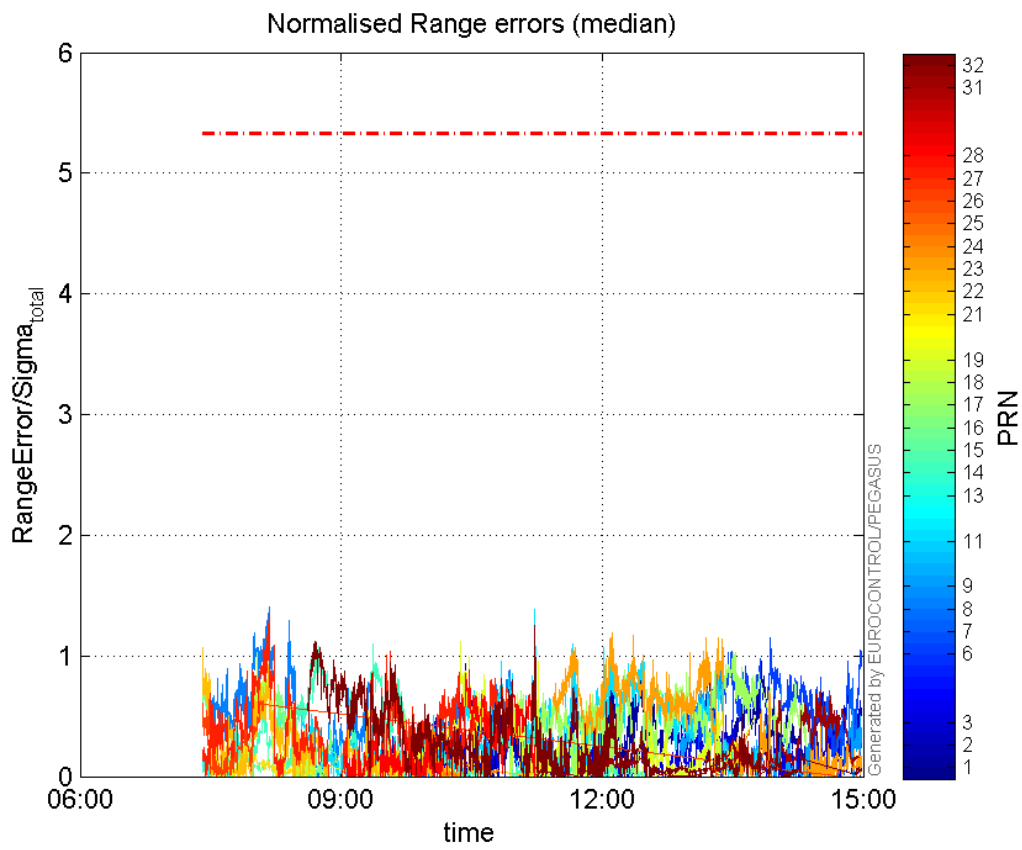
range errors

Number of Overbounding Norm Errors 0

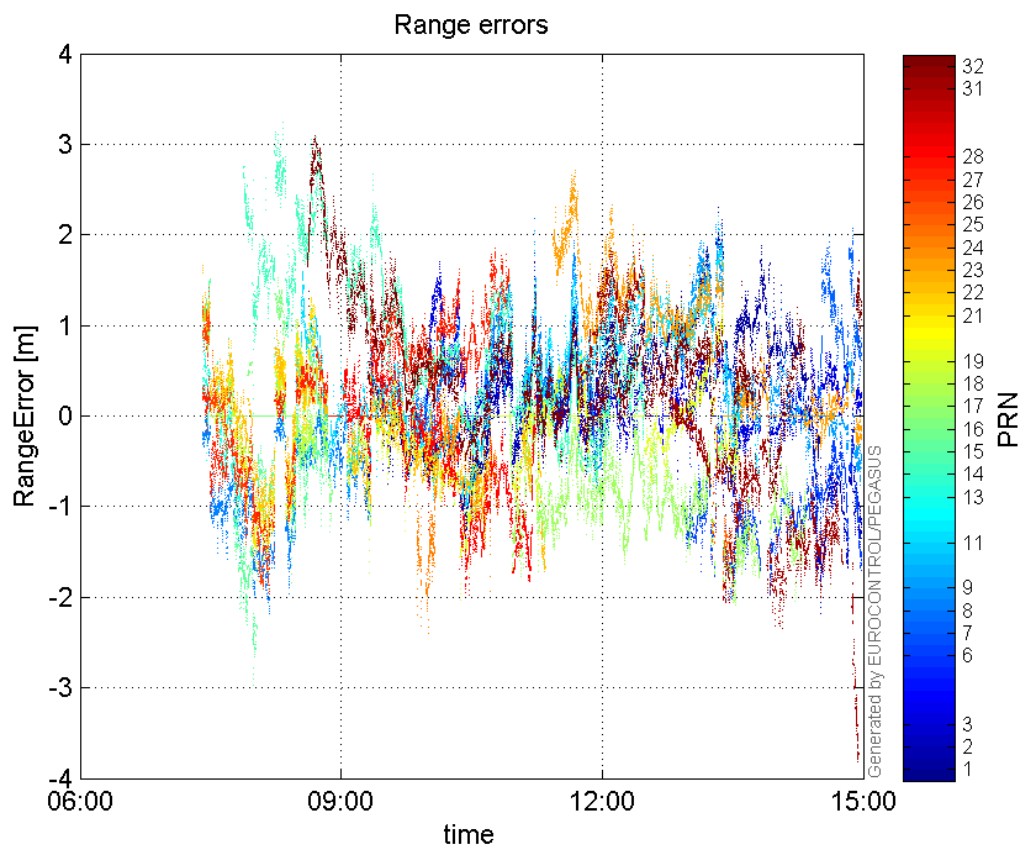
**Max Norm Errors :**

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1872	213196	1	1.08254	1.53668	1.41951
1872	225037	2	0.812957	-2.17725	2.67818
1872	213196	3	1.10084	1.7984	1.63366
1872	222947	6	1.14883	-1.98195	1.72519
1872	226345	7	0.813284	2.06762	2.54231
1872	202211	8	1.40868	-2.12565	1.50896
1872	220882	9	0.923384	2.11438	2.28982
1872	213193	11	1.38543	2.01248	1.4526
1872	200875	13	0.421	-1.40862	3.34589
1872	204195	14	1.12384	3.08536	2.74536
1872	203690	15	0.399154	-1.23008	3.08171
1872	199551	16	0.770558	1.20118	1.55885
1872	221508	17	1.02962	-2.08236	2.02245
1872	201737	18	1.03069	-1.80788	1.75404
1872	210136	19	1.11427	-2.02452	1.8169
1872	201300	21	0.298043	-1.01121	3.39282
1872	199473	22	1.06607	1.63893	1.53736
1872	216407	23	1.18594	2.32783	1.96286
1872	208958	24	0.410529	-1.83084	4.4597
1872	222086	25	0.382062	-1.35673	3.55106
1872	199711	26	0.640897	1.42089	2.21704
1872	202210	27	1.33975	-1.90218	1.4198
1872	210481	28	0.881799	-1.97852	2.24374
1872	225029	31	0.713883	-2.00692	2.81127
1872	213196	32	1.24882	1.68479	1.34911

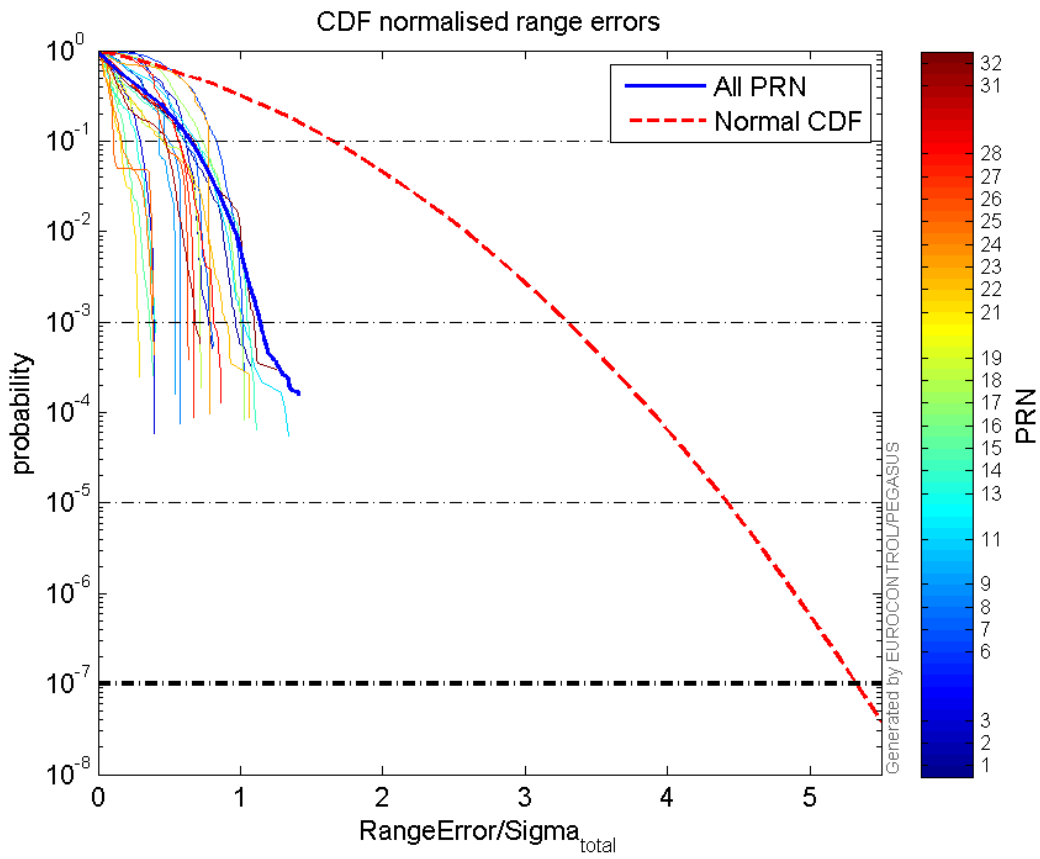
**Normalised Range errors (median):**



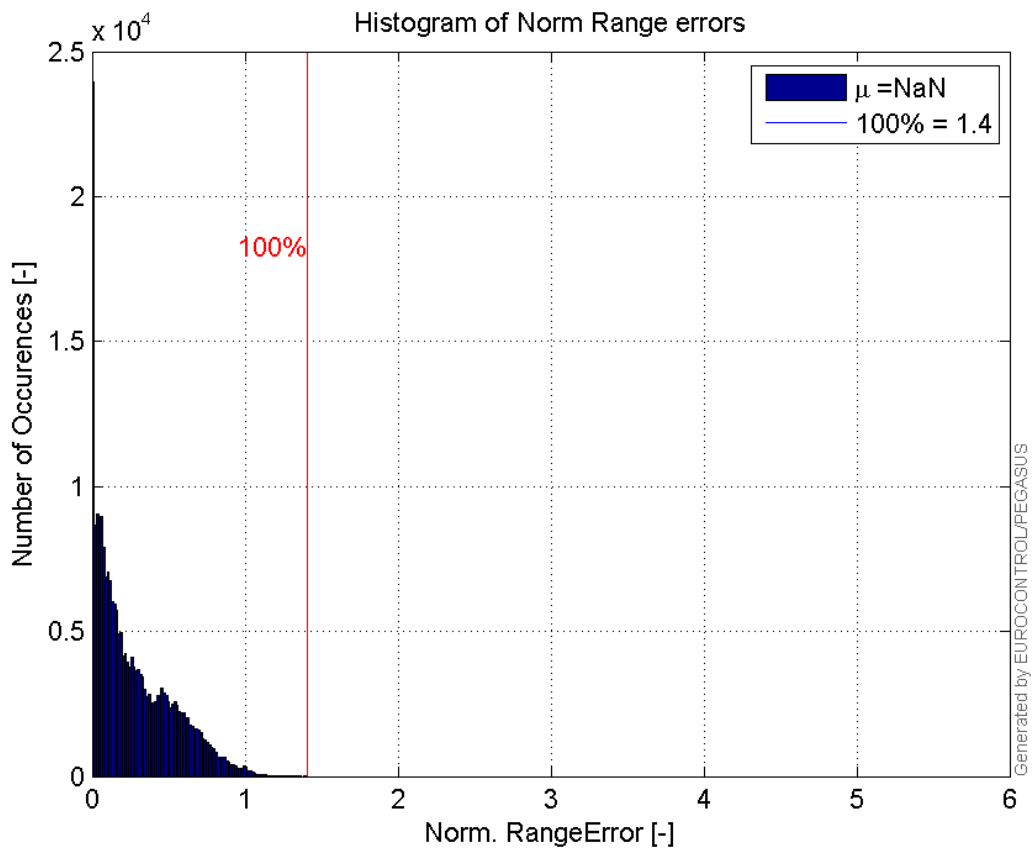
Range errors:



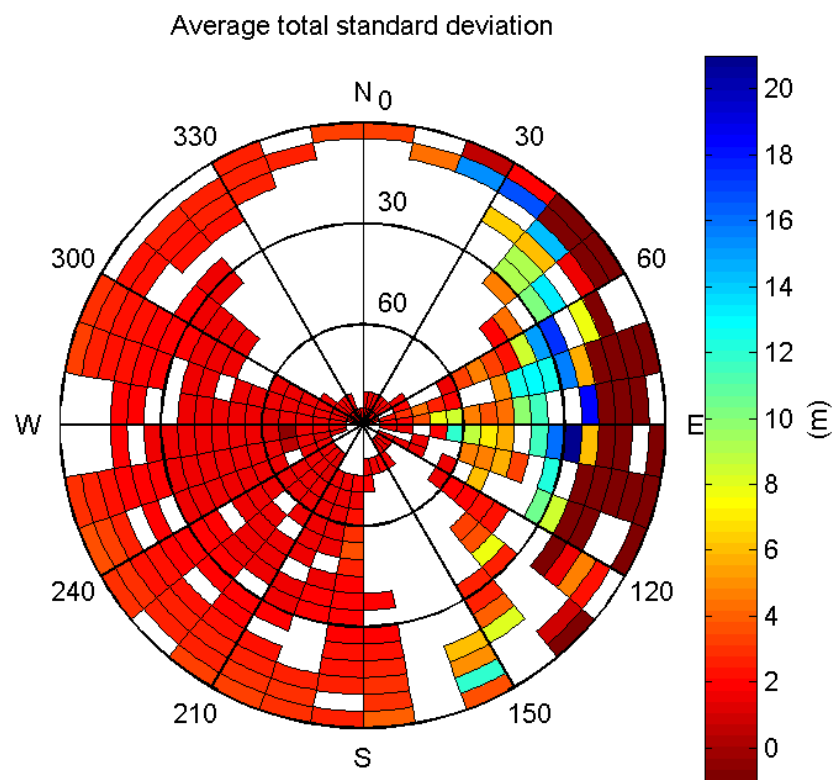
CDF normalised range errors:



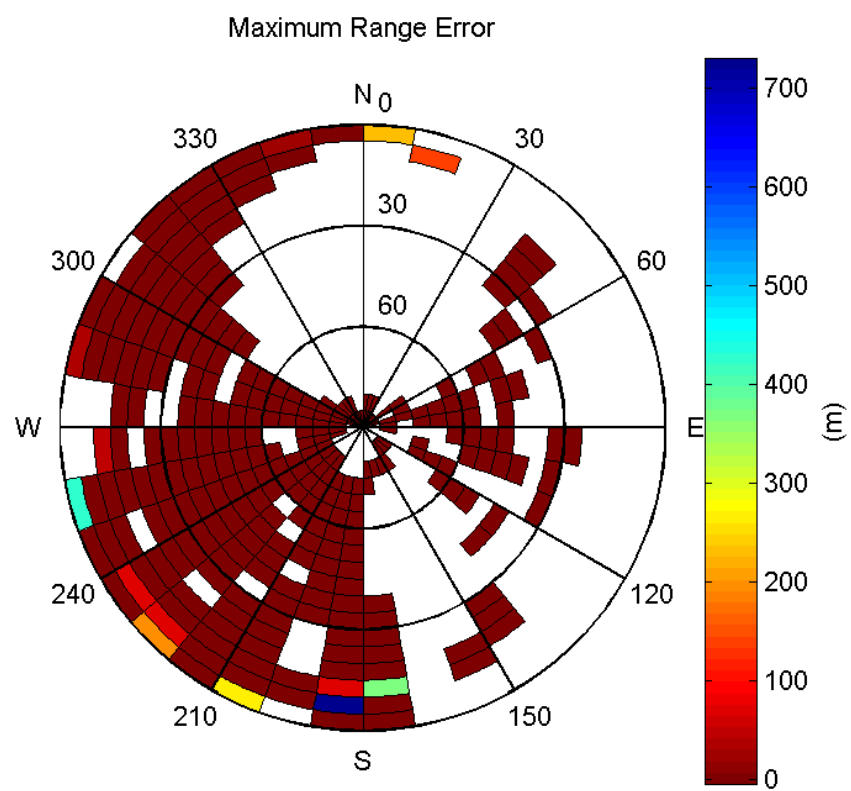
**Histogram of Norm Range errors:**



**Sigma Sky Plot:**

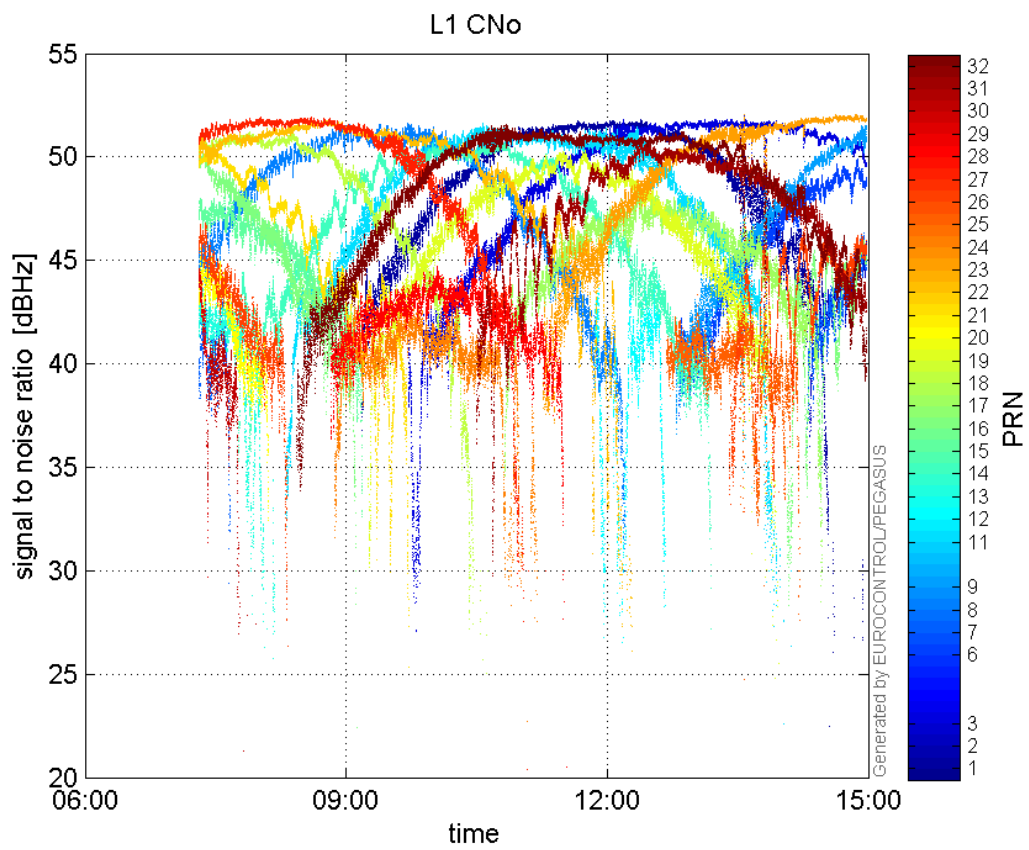


Norm Error Sky Plot:

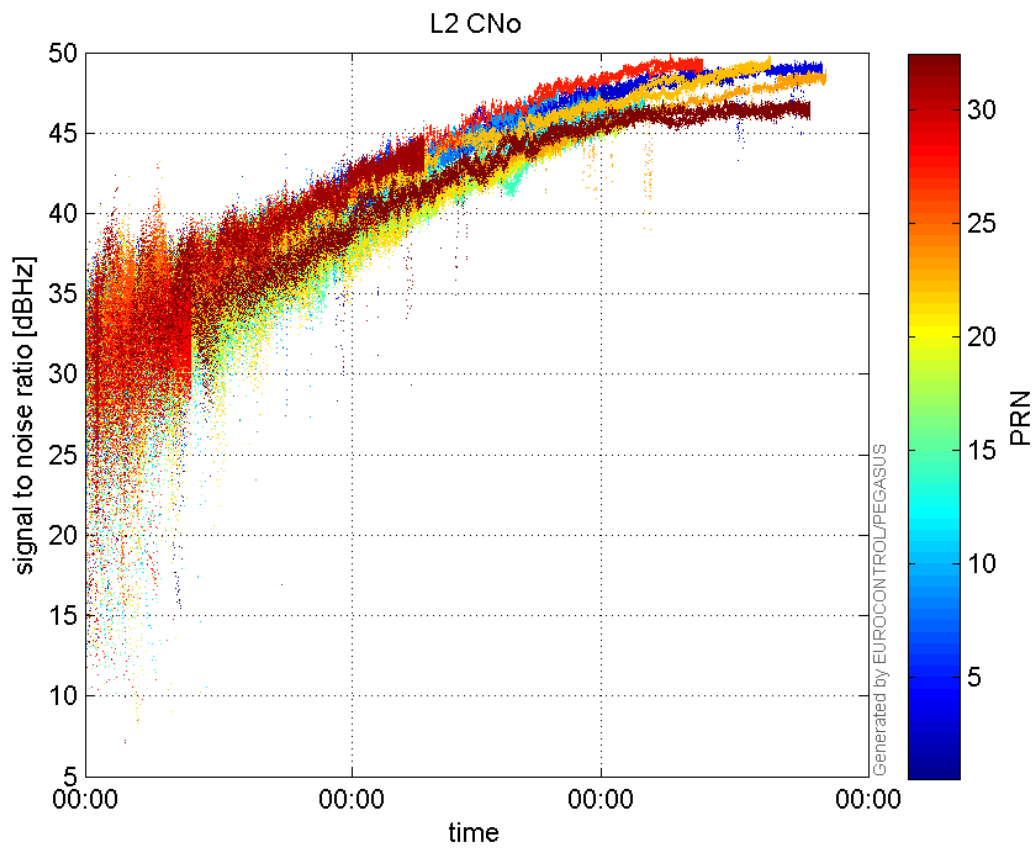


signal quality

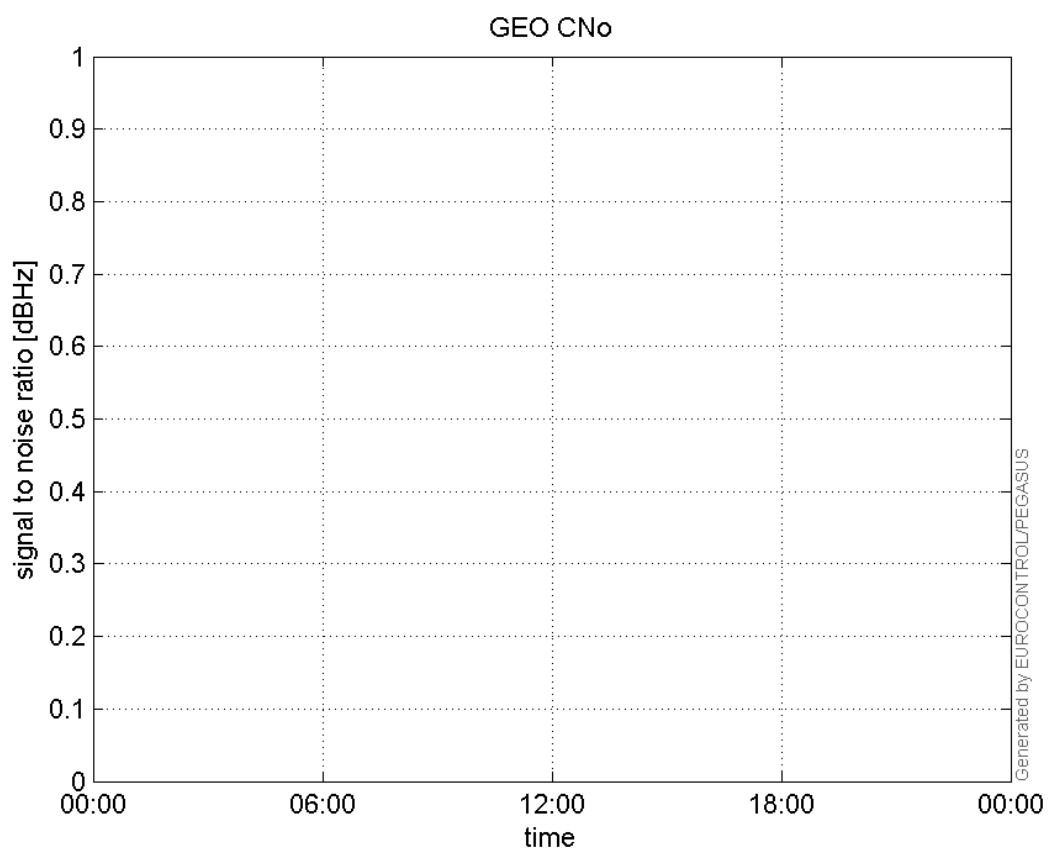
L1 CNo:



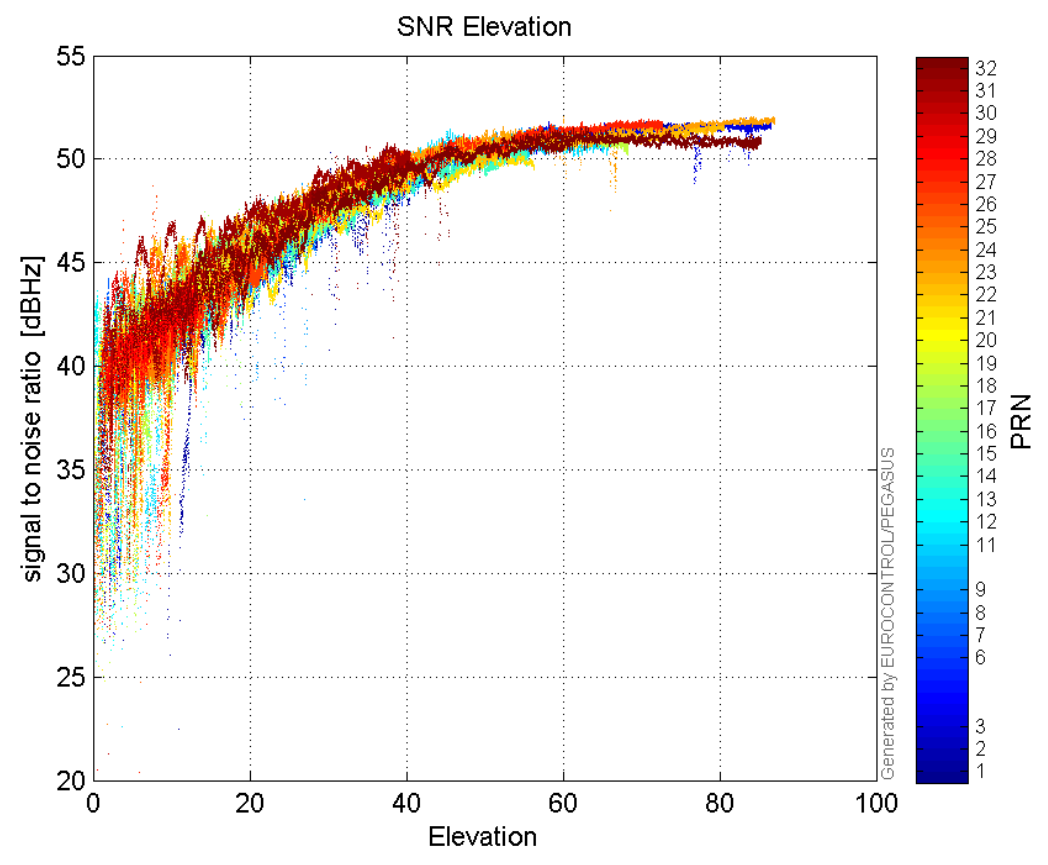
L2 CNo:



GEO CNo:

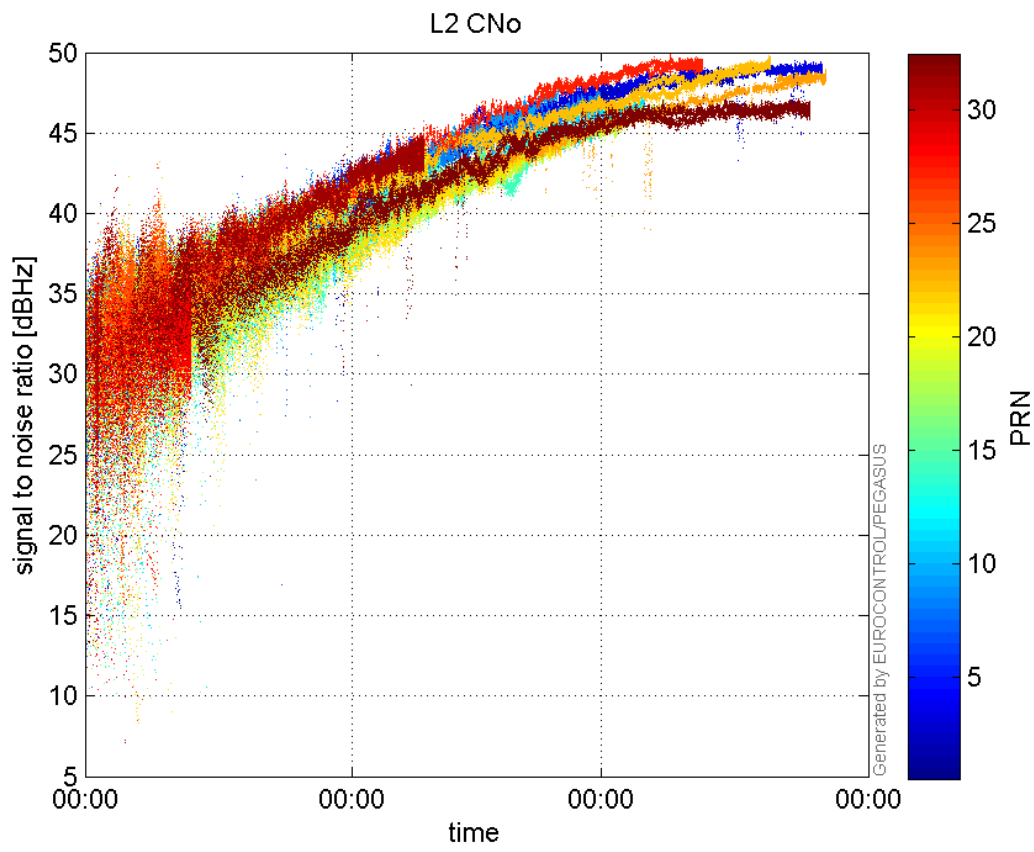


**SNR Elevation:**

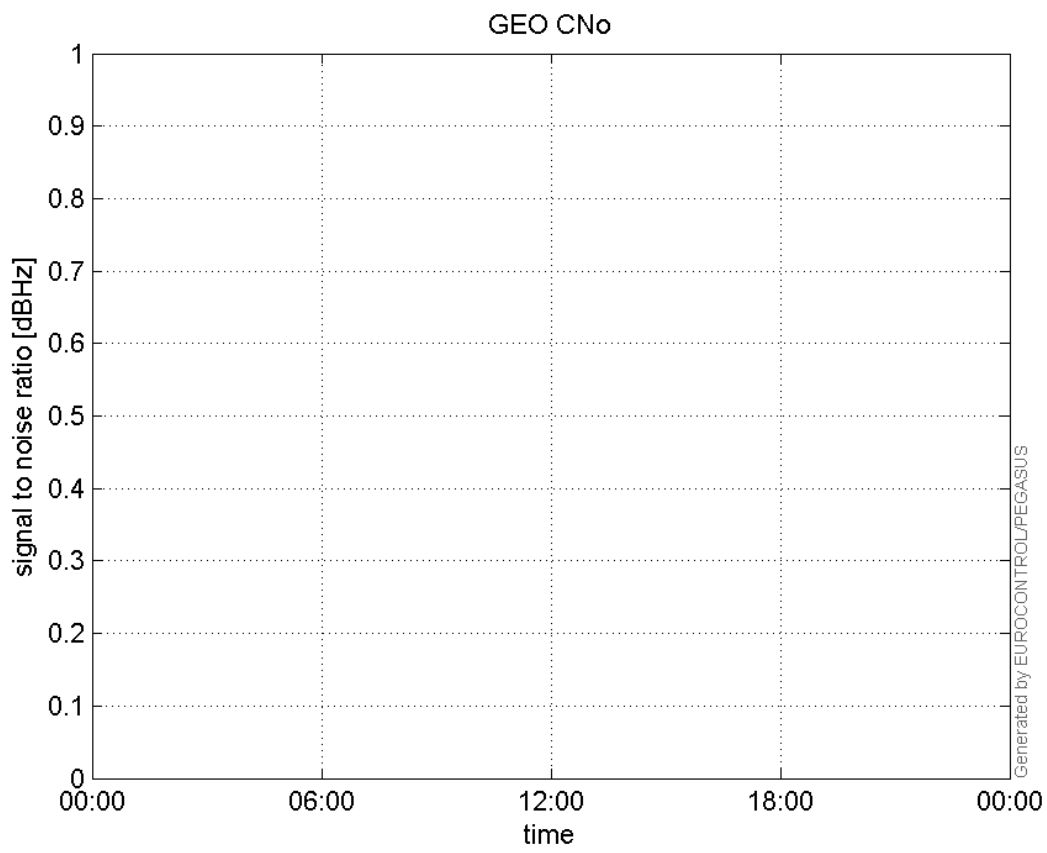


**L2 CNo:**



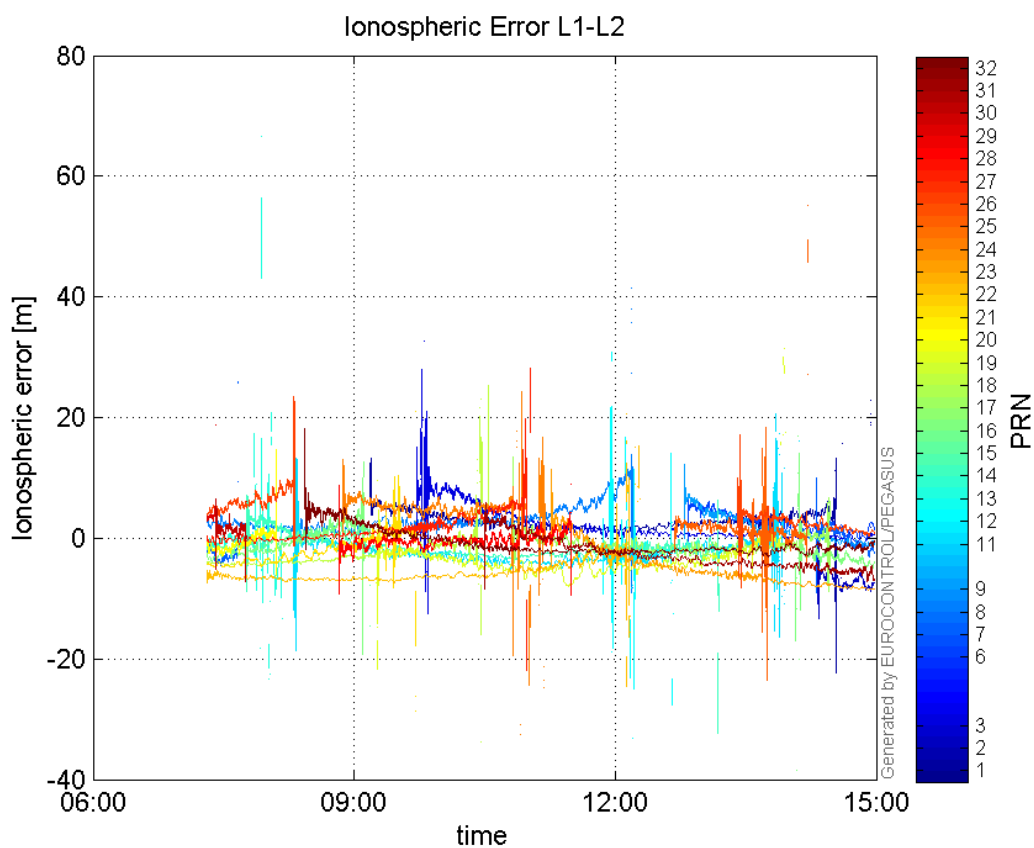


**GEO CNo:**



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_11_24EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_24EGNOS/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	238.1291
mi_numbers	results	0

## Position Domain

**start:** 07:18:30 24.11.2015 ( week: 1872 sec: 199110 )  
**end:** 14:58:46 24.11.2015 ( week: 1872 sec: 226726 )  
**duration:** 07:40:17 ..

## quality

**valid samples** 27256  
**total samples** 27617

## Event tables

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

## extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	221952	1.88437	9.73499	0.193566	-0.367865	16.0939	0.0228574
<b>max normVer</b>	206226	1.31863	11.1099	0.11869	2.94458	17.5404	0.167874
<b>max HPE</b>	204842	8.80052	81.5155	0.107961	-4.93039	47.6397	0.103493
<b>max VPE</b>	204842	8.80052	81.5155	0.107961	-4.93039	47.6397	0.103493
<b>min HPL</b>	222059	1.5111	9.12949	0.165519	-0.196027	14.1719	0.0138321
<b>min VPL</b>	212150	1.18117	16.3658	0.0721731	-0.335738	11.4735	0.029262

## Position discontinuity events :

#	Epoch	duration	stable period
1	222548	9	23077

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	199772	197	301
2	204655	308	4686
3	205038	295	75
4	222548	14	17215
5	222819	57	257
6	226188	192	3312

**APV-35m discontinuity events :**

#	Epoch	duration	stable period
1	199772	197	301
2	204655	308	4686
3	205038	295	75
4	217952	1259	12619
5	222548	328	3337
6	226188	192	3312

**LPV-200 discontinuity events :**

#	Epoch	duration	stable period
1	199772	197	301
2	204655	308	4686
3	205038	295	75
4	217952	1259	12619
5	222548	328	3337
6	226188	192	3312

**CAT-I discontinuity events :**

#	Epoch	duration	stable period
1	204458	1	0
2	204460	7681	1

**First Glance analysis**

<b>Duration</b>	27617
<b>Number of Samples</b>	27617
<b>Number of invalid sample</b>	361
<b>Number of no position solution samples</b>	9
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.3072
<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
27247	26193	24677	13	24677

**Accuracy statistics :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	1.85686	1.75947	1.69804	1.31237	1.69804
<b>HPEscale 95%</b>	NaN	5.25785	5.30725	5.39576	5.30725
<b>VPE 95%</b>	2.18219	2.13695	2.0591	0.59199	2.0591
<b>VPEscale 95%</b>	NaN	5.31705	3.79267	0.59586	3.79267

**Availability :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	0.99967	0.960999	0.905379	0.000476959	0.905379
<b>measurements</b>	0.986602	0.948438	0.893544	0.000470725	0.893544
<b>Operational</b>	0.986602	0.948438	0.893544	0.000470725	0.893544

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	1	6	6	2	6
<b>Long</b>	1	6	6	1	6
<b>Independent</b>	1	6	6	0	6
<b>P(disc.)</b>	0.000550519	0.00343603	0.00364712	0	0.00364712
<b>P(slide)</b>	0.000550519	0.00343603	0.00364712	0.0769231	0.00364712

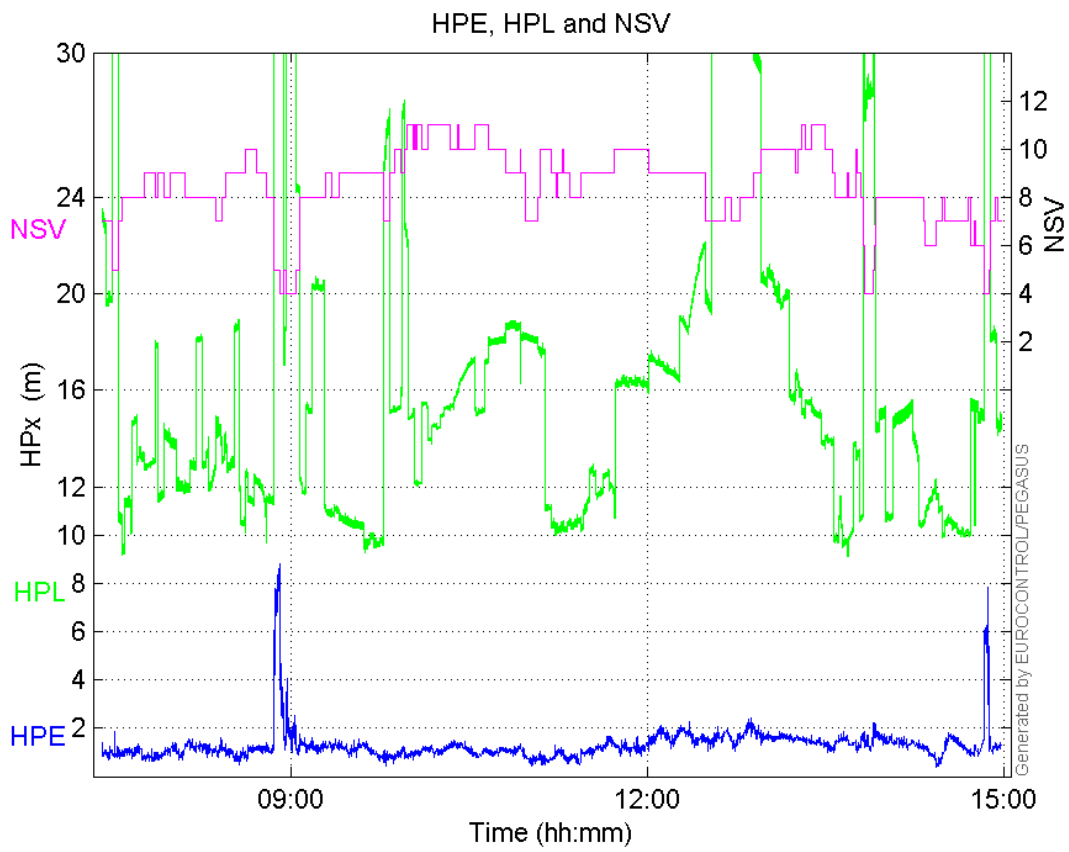
**Integrity events :**

	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

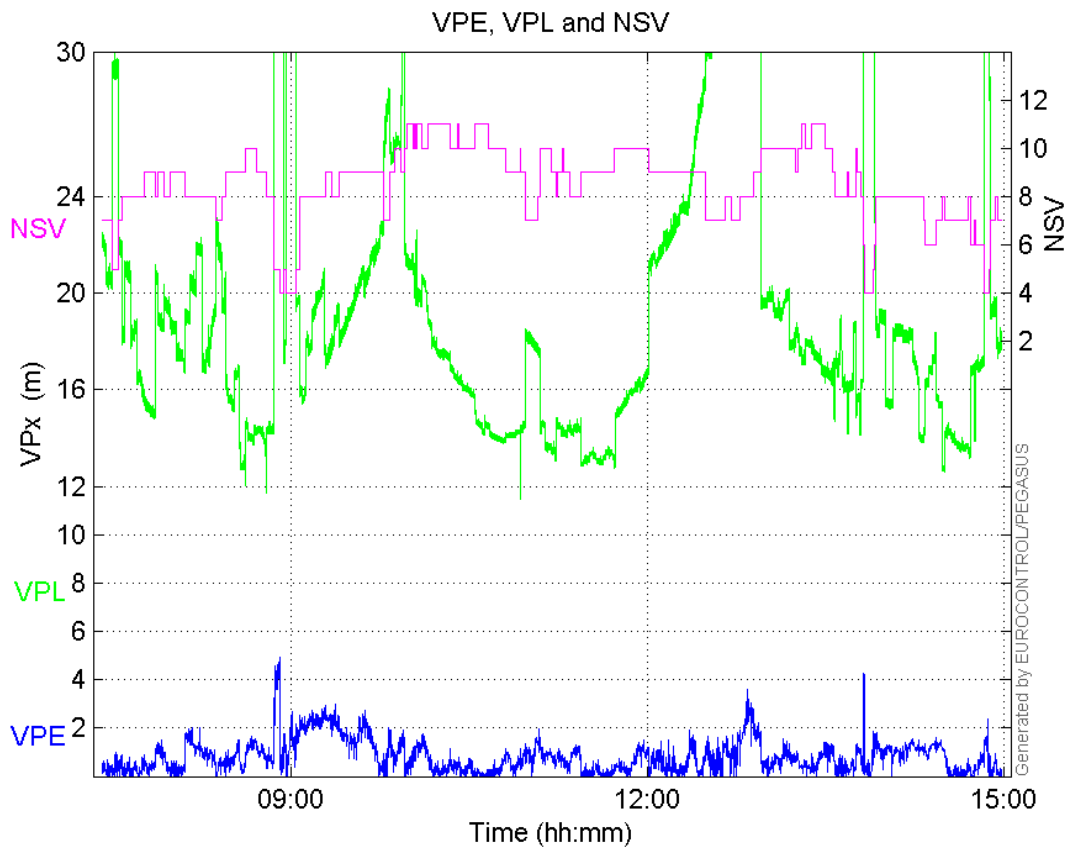
**Performance Summary :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	27247	26193	24677	13	24677
<b>SIS Availability</b>	0.99967	0.960999	0.905379	0.000476959	0.905379
<b>Local Availability</b>	0.986602	0.948438	0.893544	0.000470725	0.893544
<b>Operational Availability</b>	0.986602	0.948438	0.893544	0.000470725	0.893544
<b>HPE 95%</b>	1.85686	1.75947	1.69804	1.31237	1.69804
<b>HPEScale 95%</b>	NaN	5.25785	5.30725	5.39576	5.30725
<b>VPE 95%</b>	2.18219	2.13695	2.0591	0.59199	2.0591
<b>VPEscale 95%</b>	NaN	5.31705	3.79267	0.59586	3.79267
<b>All Discontinuity Events</b>	1	6	6	2	6
<b>Long Discontinuity Events</b>	1	6	6	1	6
<b>Independent Discontinuity Events</b>	1	6	6	0	6
<b>P(discontinuity)</b>	0.000550519	0.00343603	0.00364712	0	0.00364712
<b>P(sliding window)</b>	0.000550519	0.00343603	0.00364712	0.0769231	0.00364712
<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:**

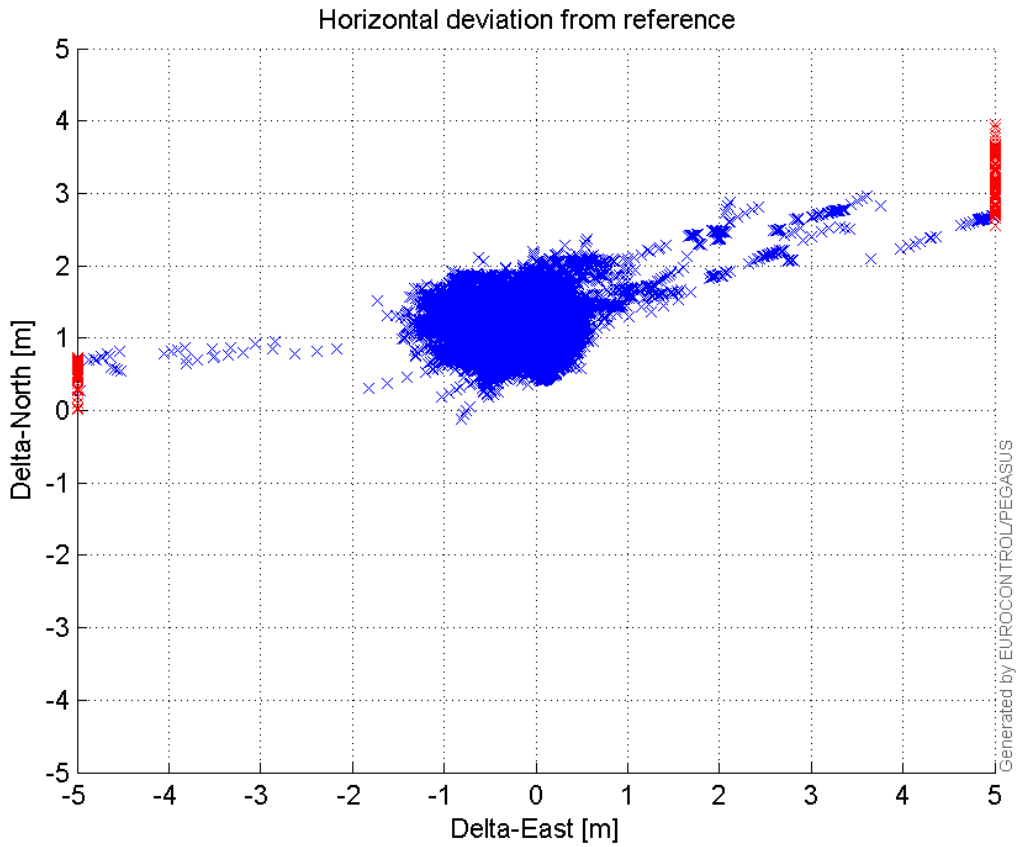


**VPE, VPL and NSV:**



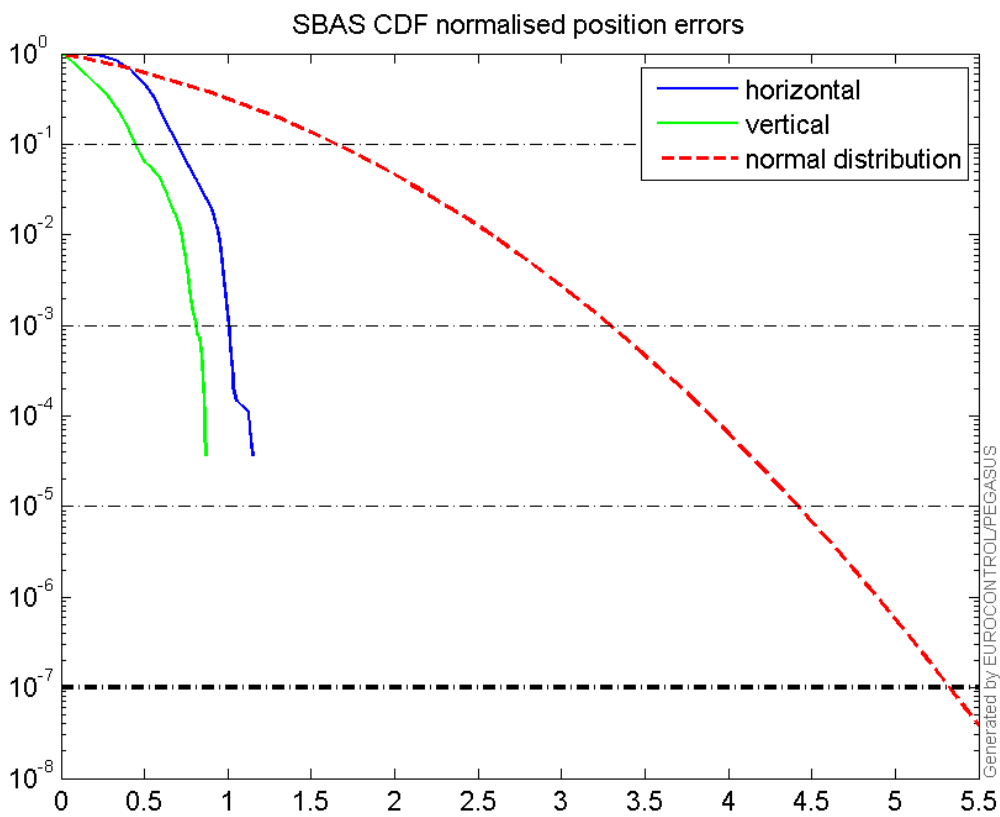
**Horizontal deviation**

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



## Statistics

<b>number</b>	26193
<b>sum</b>	31943.682
<b>sum2</b>	41459.109
<b>prctile95</b>	1.7594731
<b>prctile99</b>	2.0152749
<b>number</b>	26193
<b>sum</b>	20849.799
<b>sum2</b>	26361.696
<b>prctile95</b>	2.1369514
<b>prctile99</b>	2.5062609
<b>number</b>	26193
<b>sum</b>	413999.7
<b>sum2</b>	7400448.1
<b>prctile95</b>	29.82094
<b>prctile99</b>	36.180407
<b>number</b>	26193
<b>sum</b>	501972.53
<b>sum2</b>	10597198
<b>prctile95</b>	37.091565
<b>prctile99</b>	40.994483
<b>number</b>	26193
<b>sum</b>	2174.0485
<b>sum2</b>	198.86434
<b>prctile95</b>	0.13144618
<b>prctile99</b>	0.15755922
<b>number</b>	26193
<b>sum</b>	1114.3327
<b>sum2</b>	73.798558
<b>prctile95</b>	0.10634095
<b>prctile99</b>	0.1356293
<b>number</b>	24677
<b>sum</b>	29485.608
<b>sum2</b>	37362.262
<b>prctile95</b>	1.6980406
<b>prctile99</b>	1.9472076
<b>number</b>	24677
<b>sum</b>	19162.069
<b>sum2</b>	23424.185
<b>prctile95</b>	2.0590966
<b>prctile99</b>	2.4155648
<b>number</b>	24677
<b>sum</b>	363822.23
<b>sum2</b>	5727297.8
<b>prctile95</b>	20.77025
<b>prctile99</b>	27.557252
<b>number</b>	24677
<b>sum</b>	442923.37
<b>sum2</b>	8292726.6
<b>prctile95</b>	25.973125

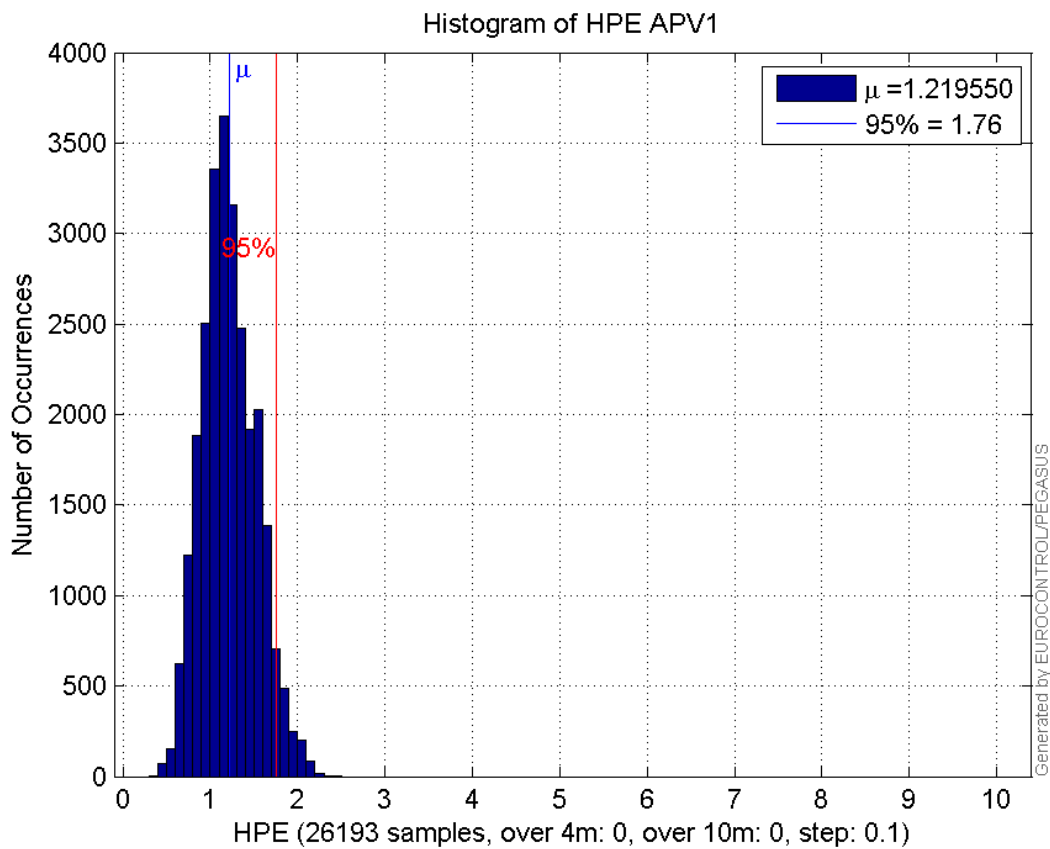


**prctile99** 30.537019  
**number** 24677  
**sum** 2099.3291  
**sum2** 195.05764  
**prctile95** 0.13268125  
**prctile99** 0.15798389  
**number** 24677  
**sum** 1070.1453  
**sum2** 71.721878  
**prctile95** 0.10836205  
**prctile99** 0.13593917

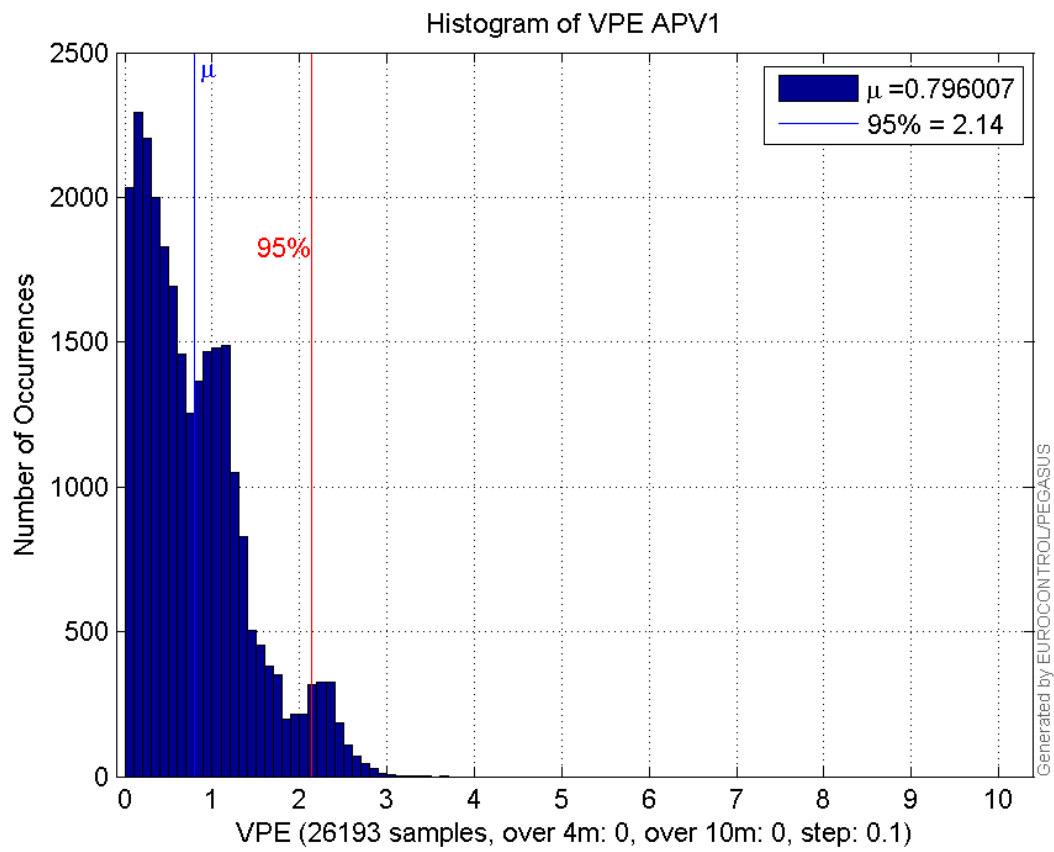
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.21955	0.309083	1.1904	1.75947	2.01527	1.25811
<b>HPL</b>	15.8057	5.71972	14.9276	29.8209	36.1804	16.8088
<b>VPE</b>	0.796007	0.610597	0.665056	2.13695	2.50626	1.00322
<b>VPL</b>	19.1644	6.10814	17.7502	37.0916	40.9945	20.1142

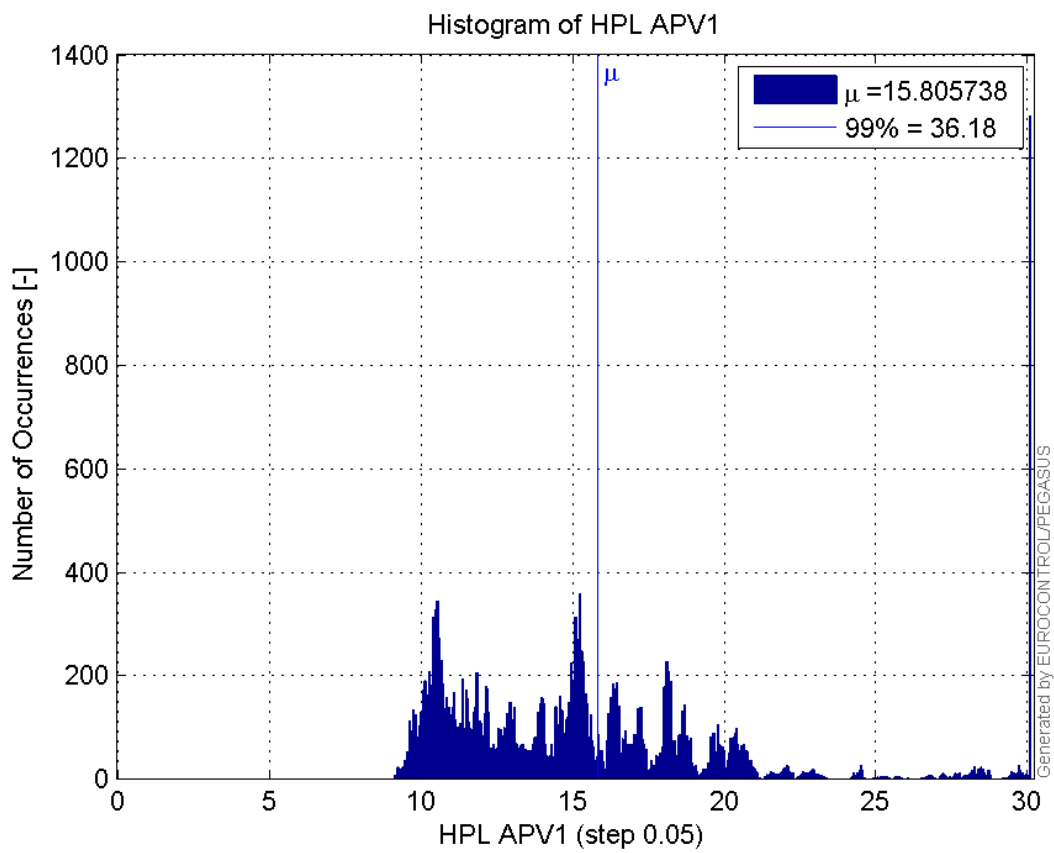
**Histogram of HPE APV1:**



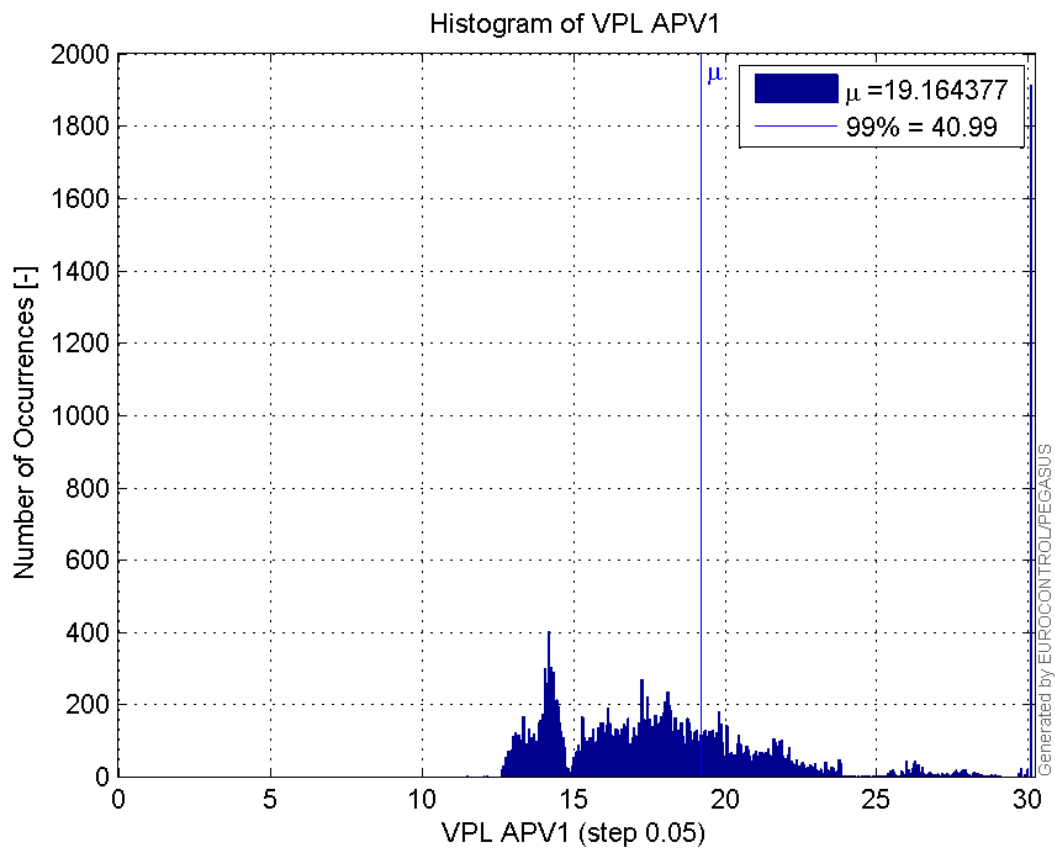
**Histogram of VPE APV1:**



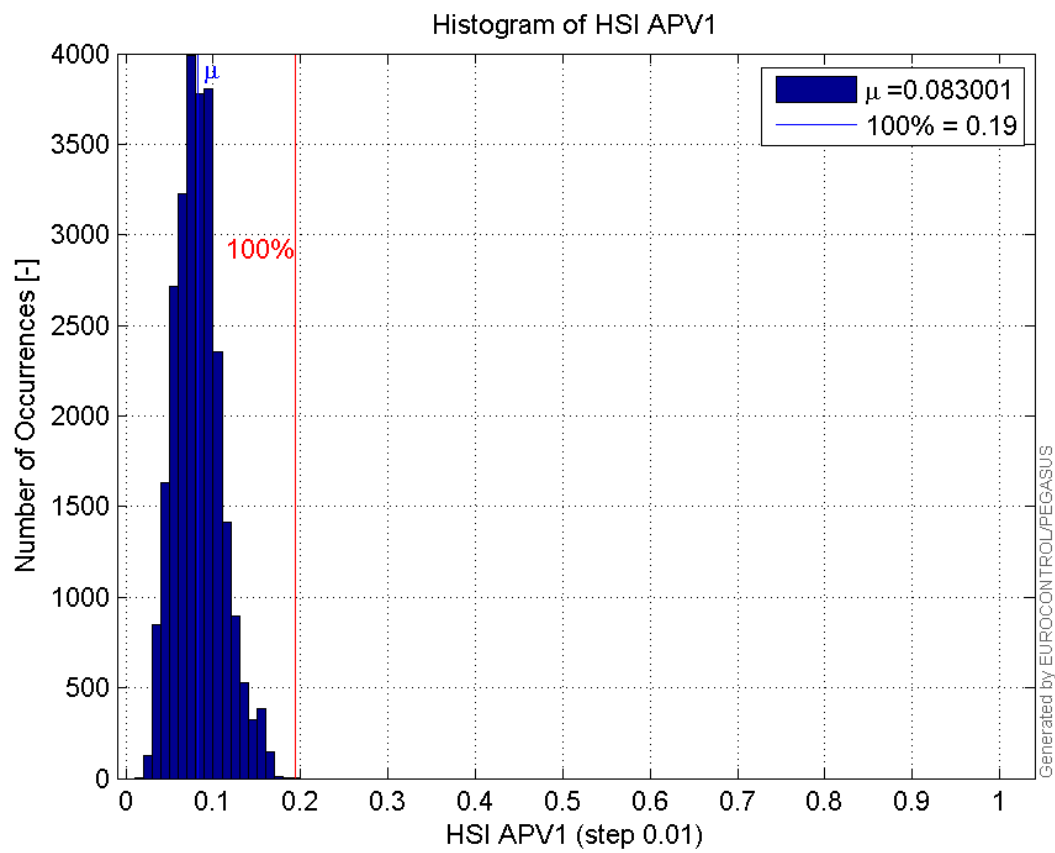
**Histogram of HPL APV1:**



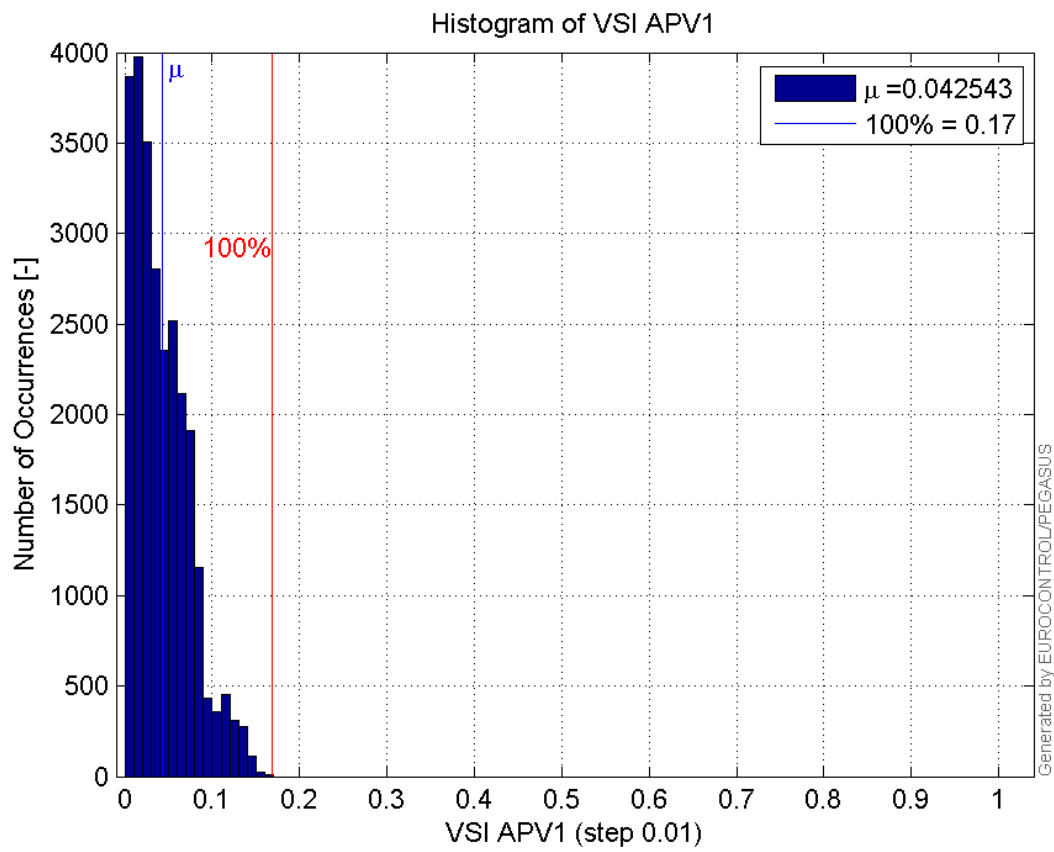
**Histogram of VPL APV1:**



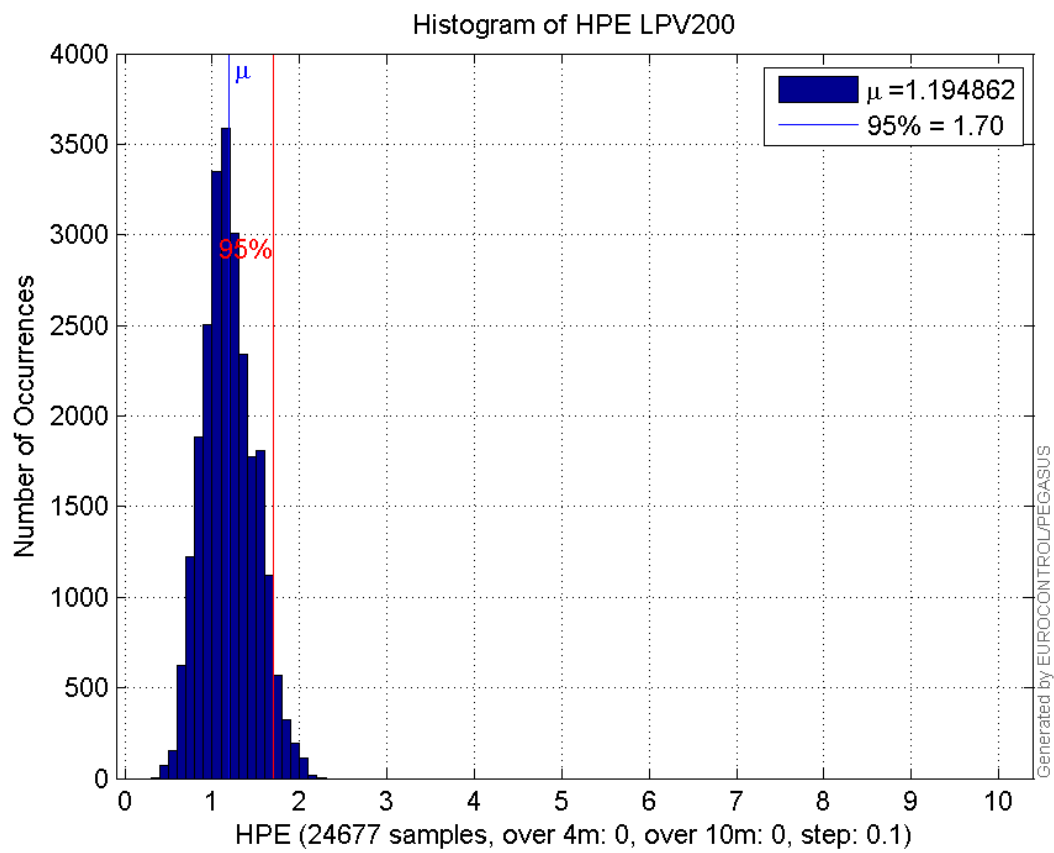
**Histogram of HSI APV1:**



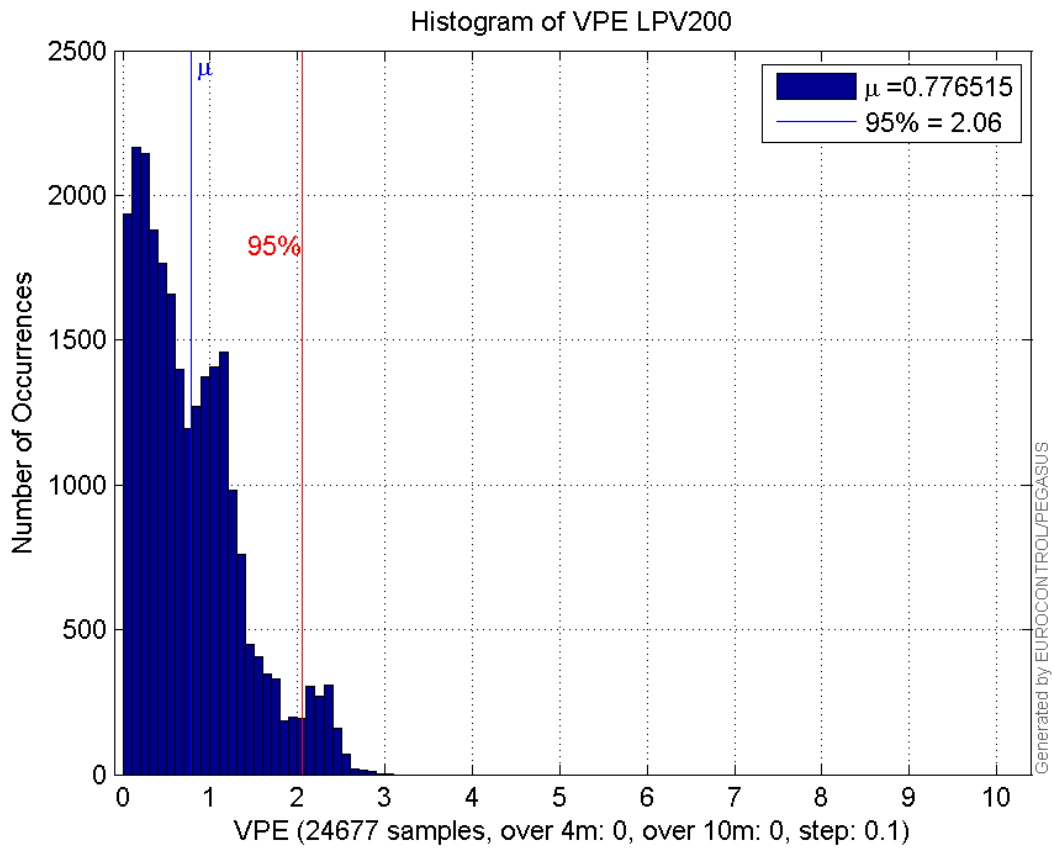
**Histogram of VSI APV1:**



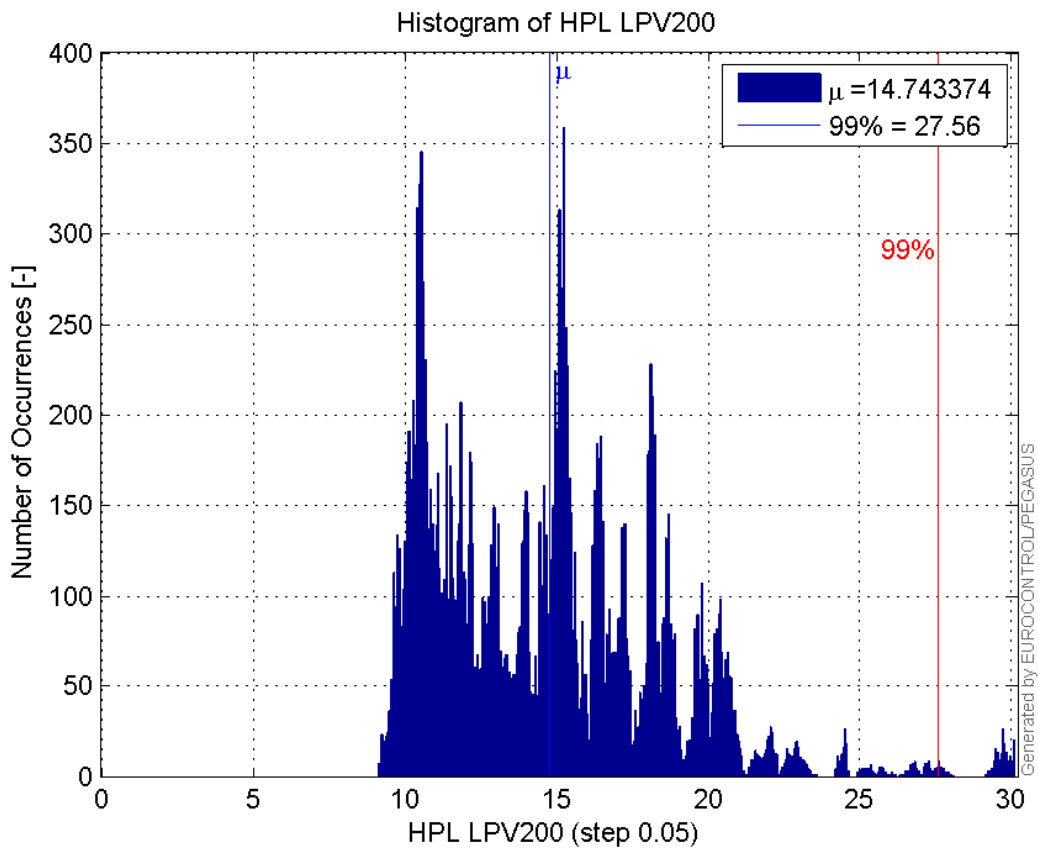
**Histogram of HPE LPV200:**



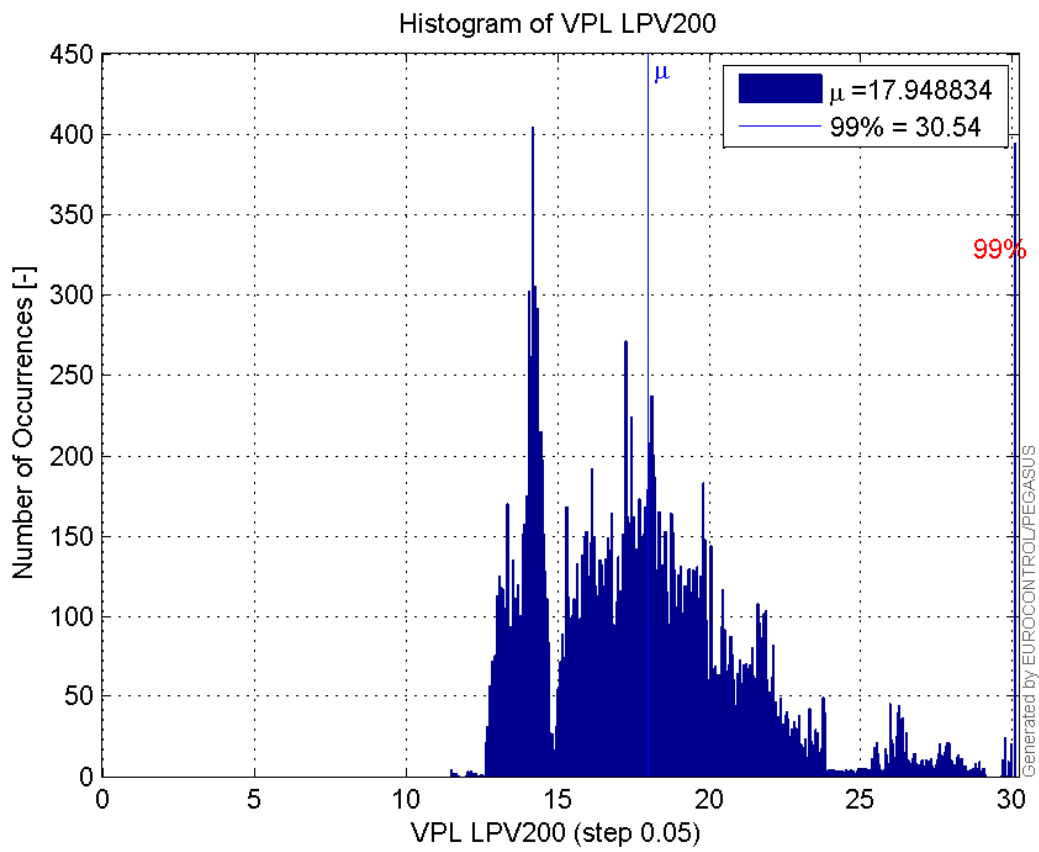
**Histogram of VPE LPV200:**



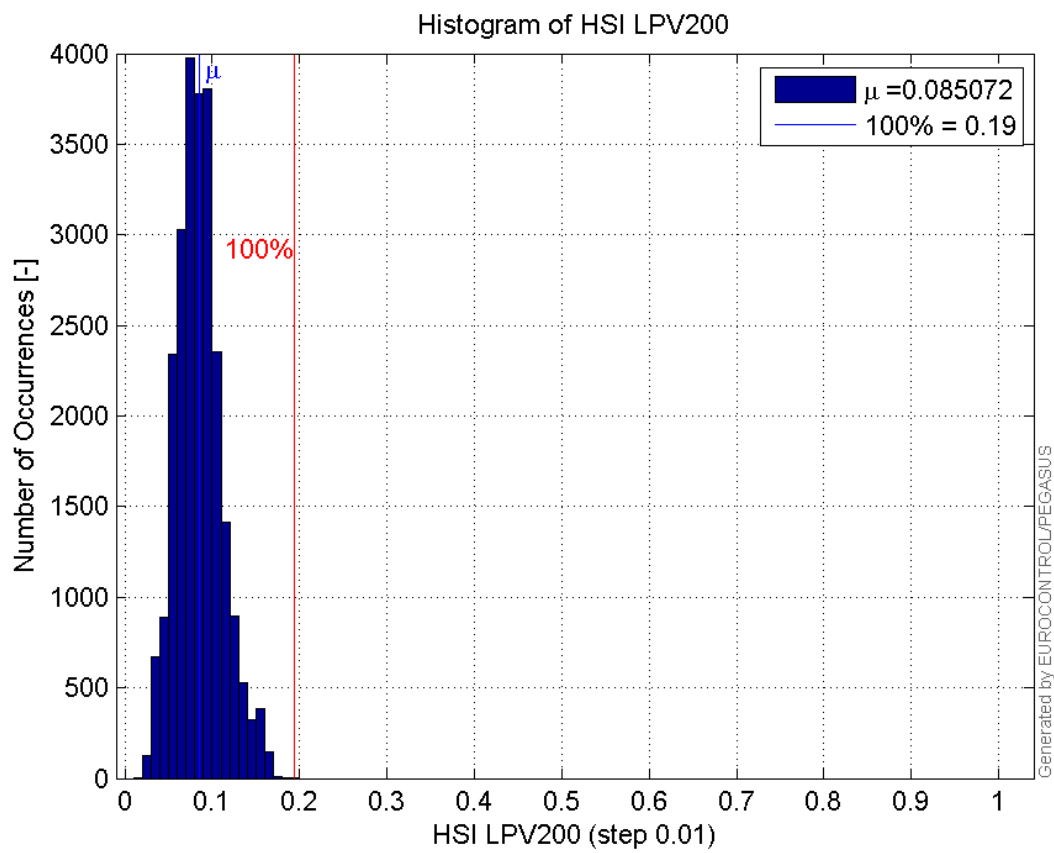
**Histogram of HPL LPV200:**



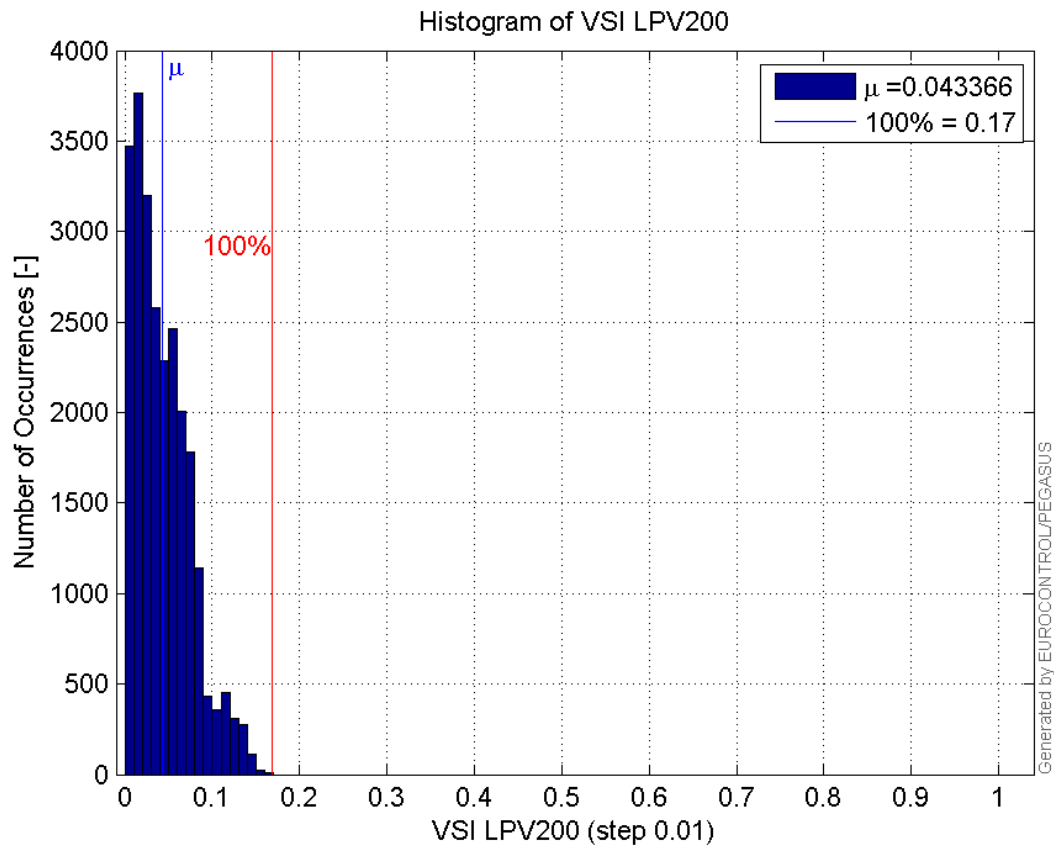
**Histogram of VPL LPV200:**



**Histogram of HSI LPV200:**

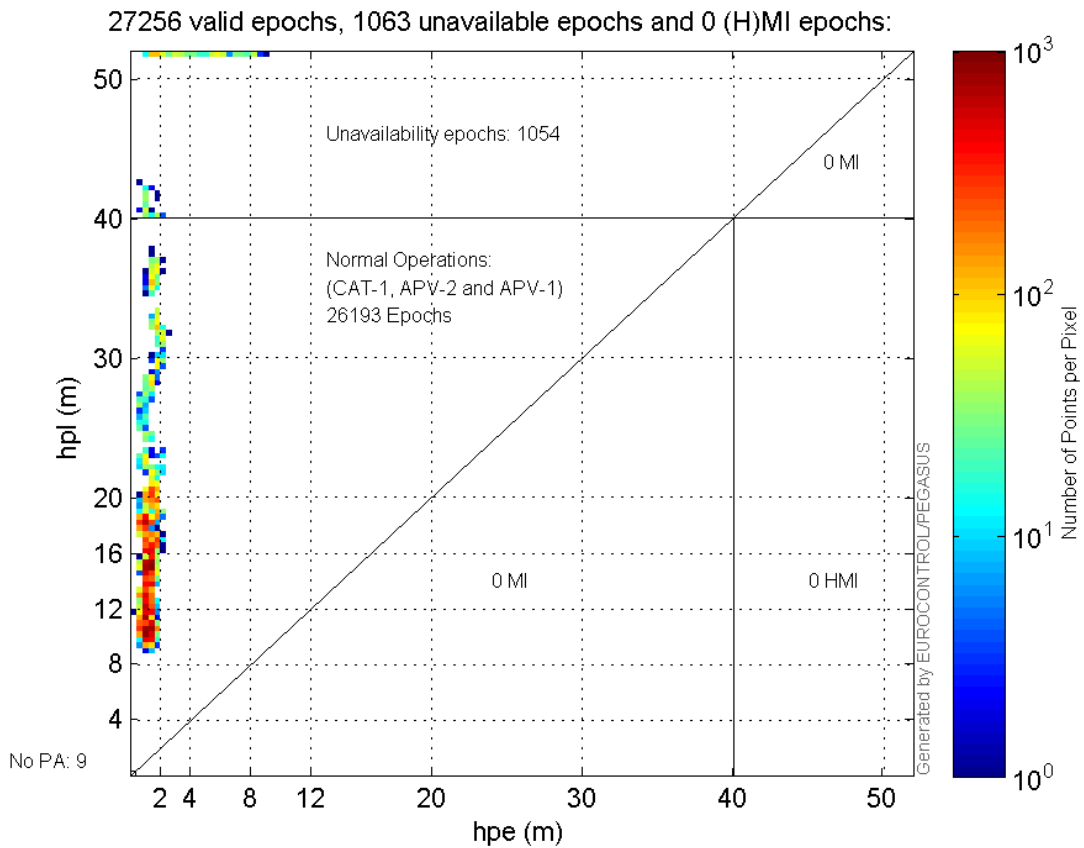


**Histogram of VSI LPV200:**

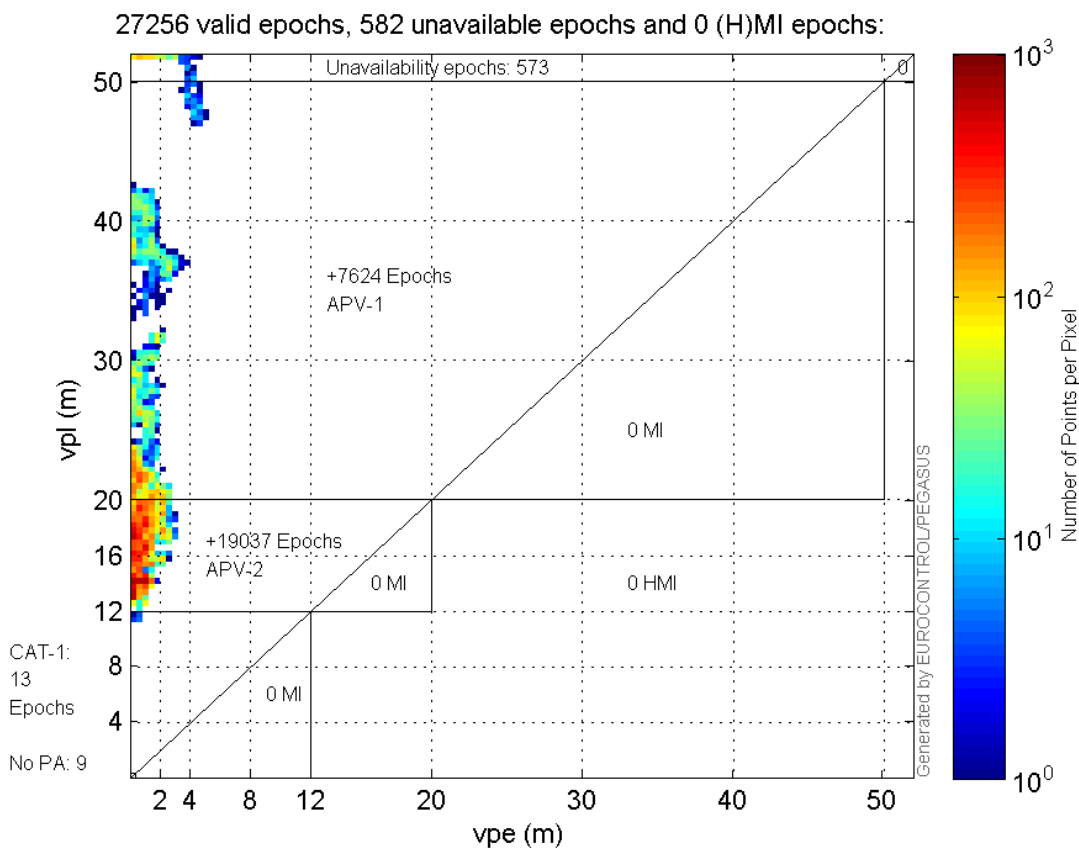


### Stanford Plots

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



## Vertical\_Stanford\_Plot\_SBAS:



## Parameters

## system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_11_24EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_24EGNOS/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	238.1291
mi_numbers	results	0

**SBAS Messages**

**start:** 07:18:29.129 24.11.2015 ( week: 1872 sec: 199109.129 )  
**end:** 14:58:45.129 24.11.2015 ( week: 1872 sec: 226725.129 )  
**duration:** 07:40:16 ..

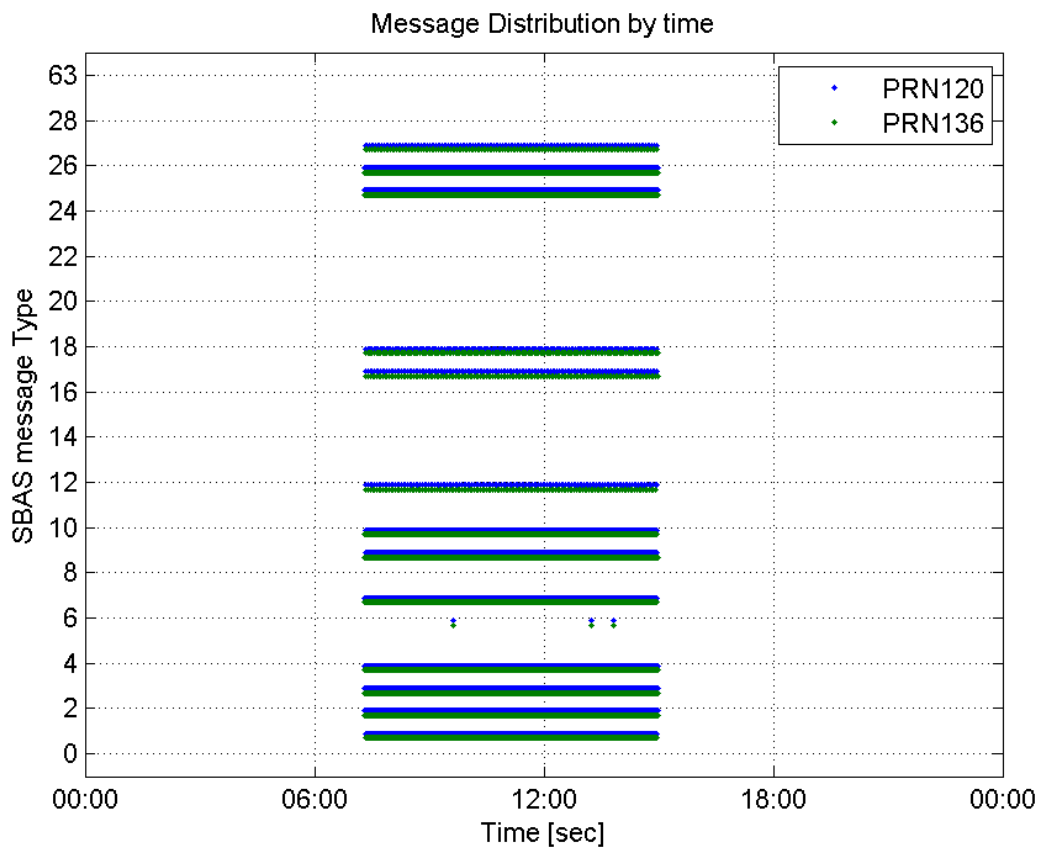
**quality**

**valid samples**            55218  
**total samples**            55218  
**number of SBAS PRNs**    2

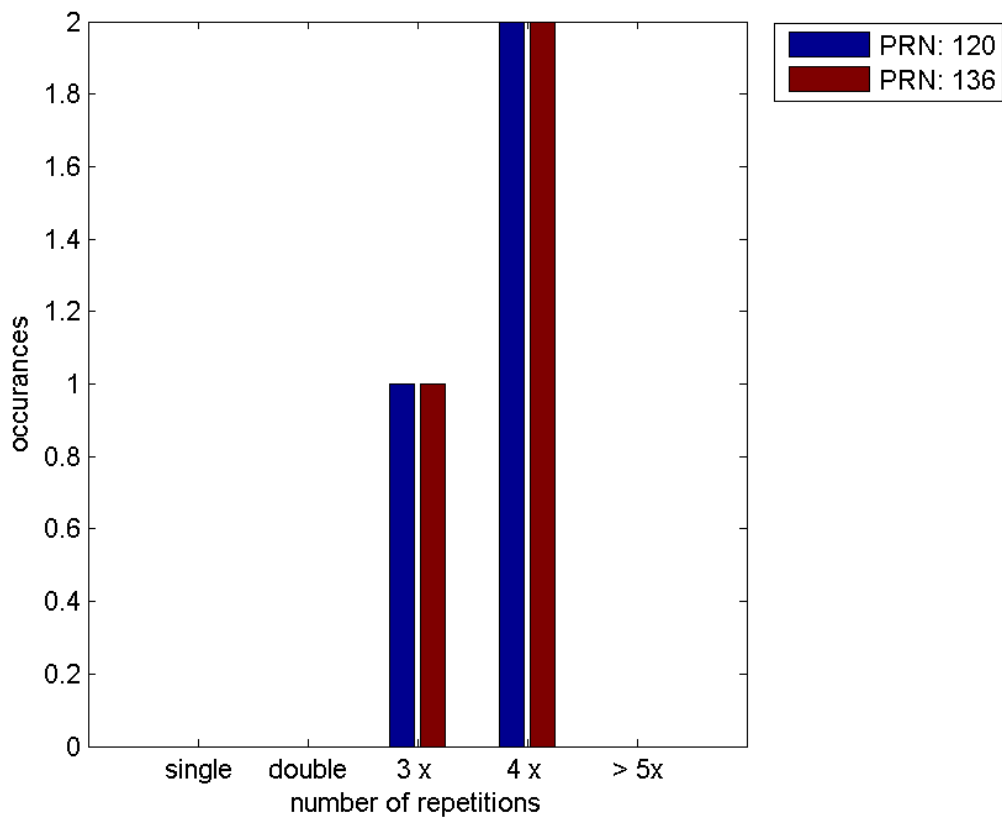
**SBAS SIS Overview****Message Type 6 repetitions :**

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

**Message Distribution by time:**



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

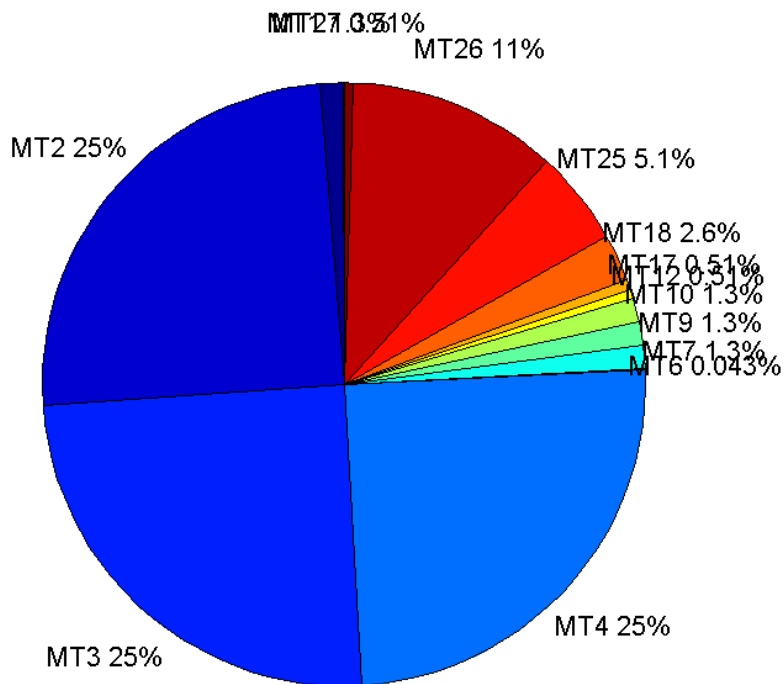
	number of messages	%
MT 0	0	0
MT 1	346	1.25358
MT 2	6859	24.8505
MT 3	6859	24.8505
MT 4	6858	24.8469
MT 5	0	0
MT 6	12	0.0434767
MT 7	346	1.25358
MT 9	346	1.25358
MT 10	346	1.25358
MT 12	141	0.510851
MT 17	141	0.510851
MT 18	705	2.55426
MT 24	0	0
MT 25	1397	5.06141
MT 26	3104	11.246
MT 27	141	0.510851
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	27601	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	80	79.6986	0	0	0
MT 2	4	20	4.02654	4	1	1
MT 3	4	16	4.0261	4	0	1
MT 4	4	20	4.02713	5	1	1
MT 5	--	--	--	--	--	--
MT 6	1	13007	1377	2	2	2
MT 7	76	81	79.8029	0	0	0
MT 9	76	83	79.6754	0	0	0
MT 10	76	81	79.7101	0	0	0
MT 12	184	201	195.657	140	0	0
MT 17	188	201	195.65	0	0	0
MT 18	2	168	38.9489	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	60	19.7658	0	0	0
MT						

26	4	40	8.89881	0	0	0
MT 27	186	202	195.629	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	346	1.25285
MT 2	6865	24.8579
MT 3	6866	24.8615
MT 4	6866	24.8615
MT 5	0	0
MT 6	12	0.0434515
MT 7	346	1.25285
MT 9	347	1.25647

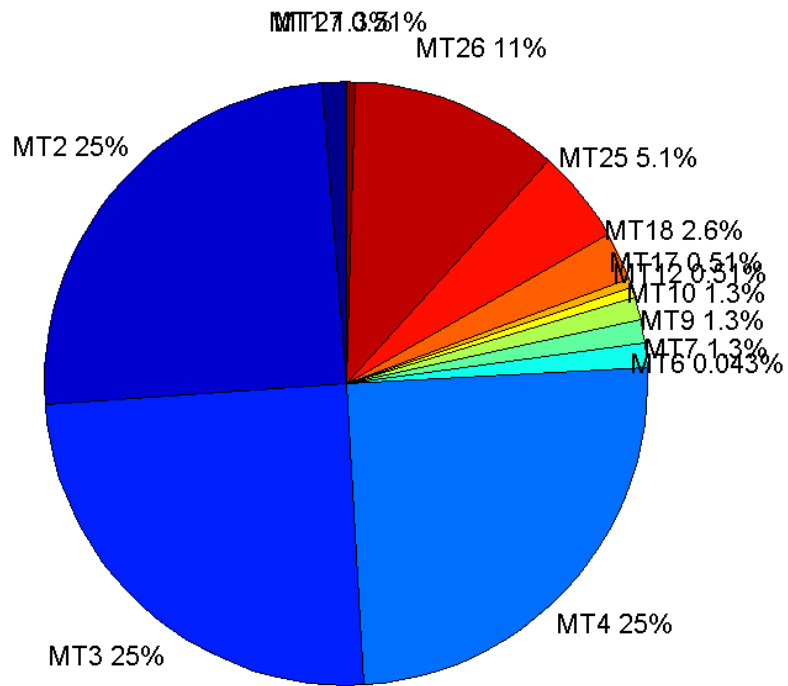
MT 10	347	1.25647
MT 12	140	0.506934
MT 17	141	0.510555
MT 18	705	2.55278
MT 24	0	0
MT 25	1398	5.0621
MT 26	3097	11.2141
MT 27	141	0.510555
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>27617</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	80	79.6928	0	0	0
MT 2	4	8	4.02244	3	0	0
MT 3	4	8	4.02229	3	0	0
MT 4	4	8	4.02243	3	0	0
MT 5	--	--	--	--	--	--
MT 6	1	13007	1376.82	2	2	2
MT 7	75	81	79.7159	0	0	0
MT 9	75	81	79.7659	0	0	0
MT 10	76	81	79.659	0	0	0
MT 12	188	201	196.101	139	0	0
MT 17	184	201	196.136	0	0	0
MT 18	4	171	39.0483	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	52	19.7445	0	0	0
MT 26	4	52	8.90762	0	0	0
MT 27	181	201	196.129	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_11_24EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_11_24EGNOS/02_Convertor/02_Convertor

#### Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	17
Correction_mode	Configuration	SBAS MODE 0
Dual_Frequency	Configuration	no