

# Global View

site Laboratory satellite systems  
 abbreviation NAU  
 country Ukraine  
 city Kiev  
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,  
 P.50 - 54  
 program Pegasus  
 version 4.8.4  
 date 27/04/2016

## Position Domain

**start:** 06:35:29 27.04.2016 ( week: 1894 sec: 282929 )  
**end:** 13:28:55 27.04.2016 ( week: 1894 sec: 307735 )  
**duration:** 06:53:27 ..

### quality

**valid samples** 24445  
**total samples** 24807

### 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** long

#### extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	288824	1.74988	8.7621	0.19971	-0.100588	14.836	0.00677999
<b>max normVer</b>	293693	1.00887	10.48	0.0962665	1.50156	13.7076	0.109542
<b>max HPE</b>	285928	19.6763	978.689	0.0201047	-5.99964	291.31	0.0205954
<b>max VPE</b>	300472	4.58019	72.8215	0.0628961	7.5388	157.482	0.0478708
<b>min HPL</b>	294417	0.9291	8.58051	0.10828	0.517247	11.9499	0.0432846
<b>min VPL</b>	294581	0.915789	8.71541	0.105077	0.533347	11.949	0.0446353

#### Position discontinuity events :

#	Epoch	duration	stable period
1	285457	292	2166
2	285928	91	179
3	298930	25	12911

**APV-I discontinuity events :**

#	Epoch	duration	stable period
1	285457	562	2166
2	298930	61	12911
3	300298	788	1307
4	304061	102	2975

**APV-35m discontinuity events :**

#	Epoch	duration	stable period
1	285457	562	2166
2	290203	246	4184
3	298522	776	8073
4	300298	788	1000
5	304061	102	2975

**LPV-200 discontinuity events :**

#	Epoch	duration	stable period
1	285457	562	2166
2	290203	246	4184
3	298522	776	8073
4	300298	788	1000
5	304061	102	2975

**CAT-I discontinuity events :**

#	Epoch	duration	stable period
1	294417	4	1
2	294442	47	1
3	294593	15	2

**First Glance analysis**

<b>Duration</b>	24807
<b>Number of Samples</b>	24807
<b>Number of invalid sample</b>	362
<b>Number of no position solution samples</b>	408
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.4593
<b>Number of Misleading Information</b>	0
<b>Data gaps</b>	0
<b>Discontinuities</b>	3

**Number of Samples :**

Valid	APV-1	LPV-200	CAT-1	APV-35m
24037	22932	21971	87	21971

**Accuracy statistics :**

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	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.64661	1.58256	1.58529	1.09164	1.58529
HPEscale 95%	NaN	5.5714	5.59866	5.05448	5.59866
VPE 95%	1.39479	1.27988	1.25138	0.602041	1.25138
VPEscale 95%	NaN	3.51336	2.47518	0.603076	2.47518

## Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.983309	0.938106	0.898793	0.00355901	0.898793
measurements	0.96896	0.924416	0.885677	0.00350707	0.885677
Operational	0.96896	0.924416	0.885677	0.00350707	0.885677

## Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	3	4	5	35	5
Long	3	4	5	3	5
Independent	3	4	5	0	5
P(disc.)	0.00187211	0.00261643	0.00341359	0	0.00341359
P(slide)	0.00187211	0.00261643	0.00341359	0.977011	0.00341359

## Integrity events :

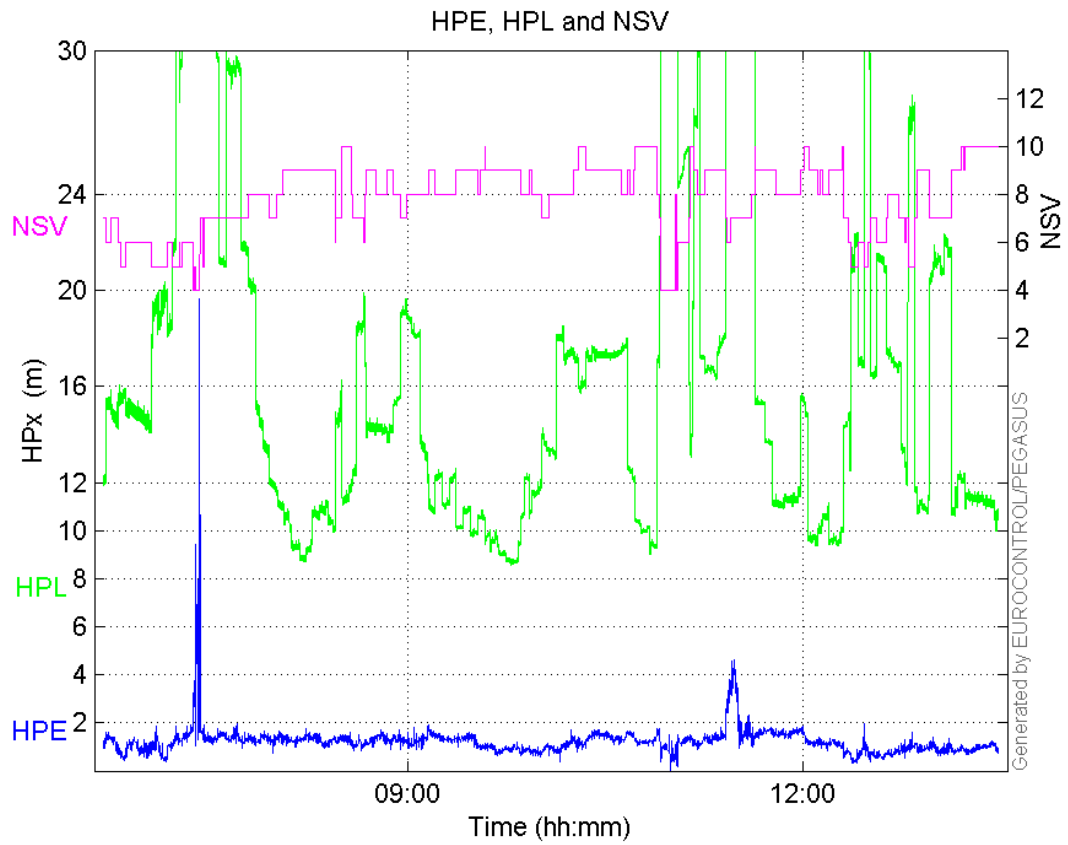
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

## Performance Summary :

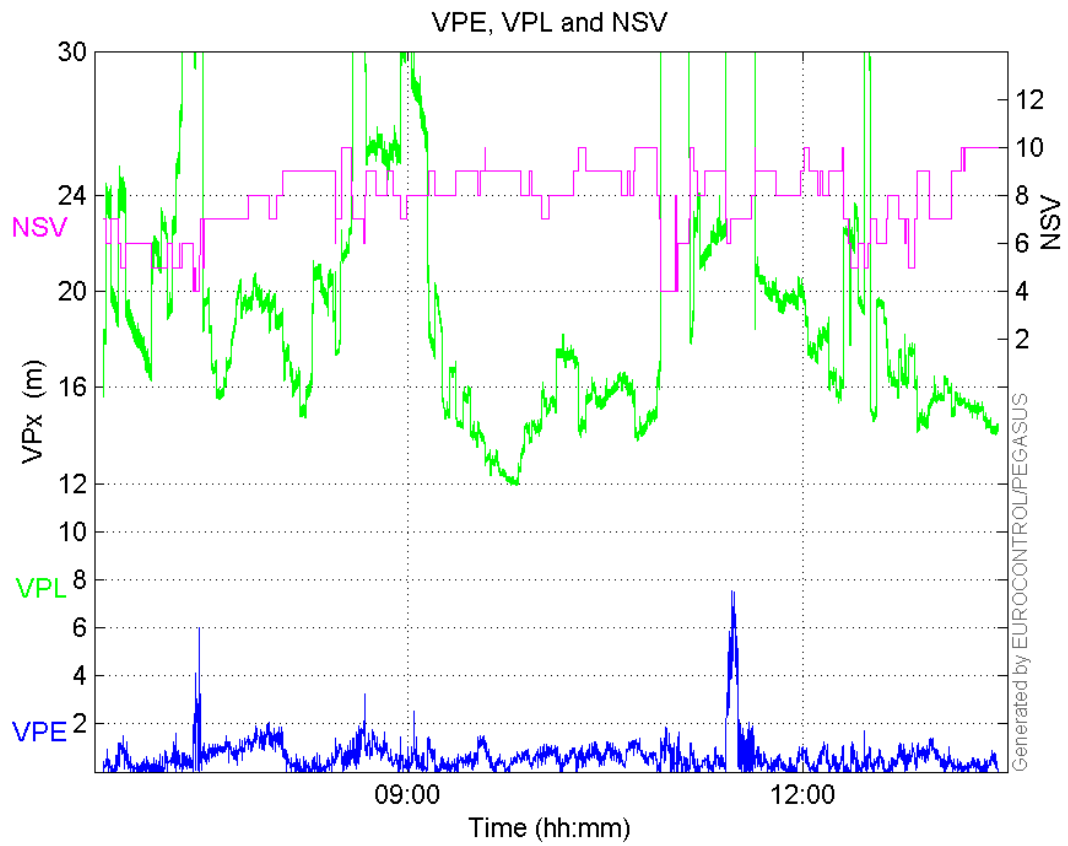
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	24037	22932	21971	87	21971
SIS Availability	0.983309	0.938106	0.898793	0.00355901	0.898793
Local Availability	0.96896	0.924416	0.885677	0.00350707	0.885677
Operational Availability	0.96896	0.924416	0.885677	0.00350707	0.885677
HPE 95%	1.64661	1.58256	1.58529	1.09164	1.58529
HPEscale 95%	NaN	5.5714	5.59866	5.05448	5.59866
VPE 95%	1.39479	1.27988	1.25138	0.602041	1.25138
VPEscale 95%	NaN	3.51336	2.47518	0.603076	2.47518
All Discontinuity Events	3	4	5	35	5
Long Discontinuity Events	3	4	5	3	5
Independent Discontinuity Events	3	4	5	0	5
P(discontinuity)	0.00187211	0.00261643	0.00341359	0	0.00341359
P(sliding window)	0.00187211	0.00261643	0.00341359	0.977011	0.00341359
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:

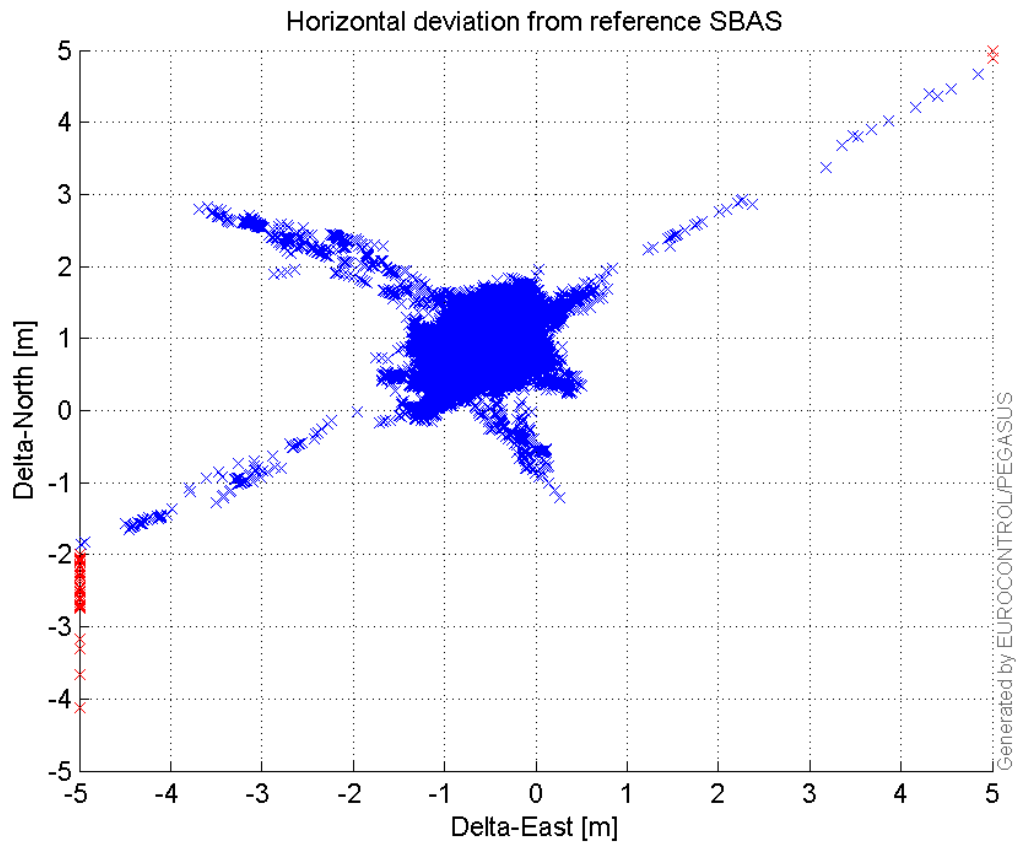


VPE, VPL and NSV:



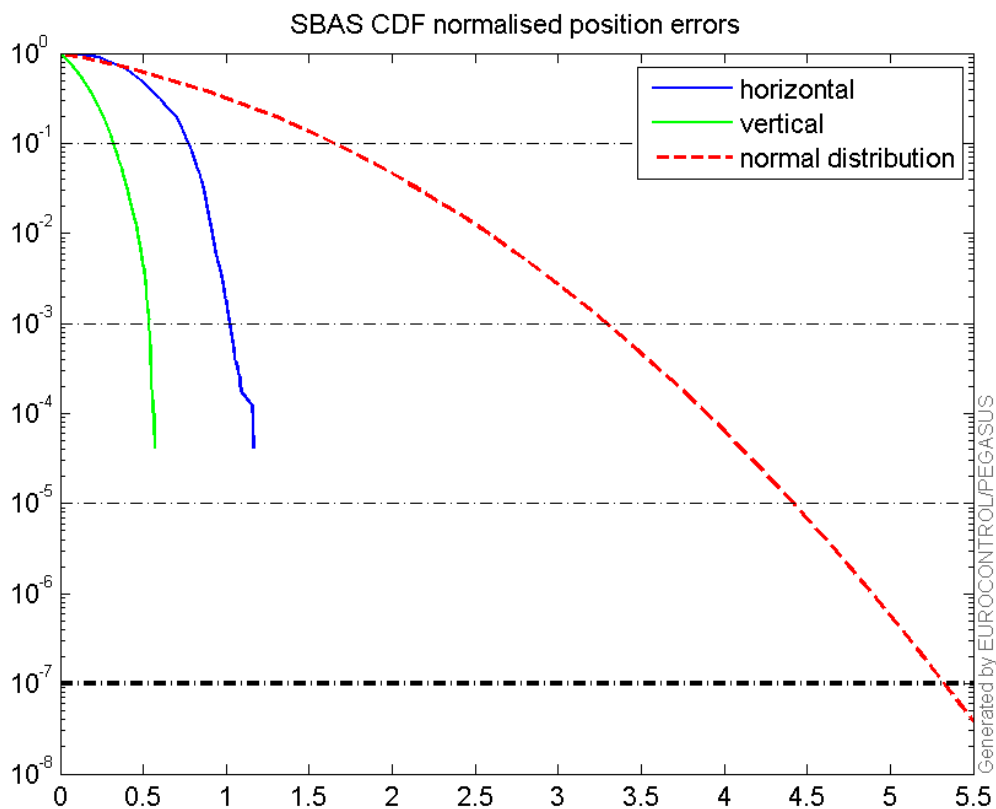
### Horizontal deviation

Horizontal deviation from reference SBAS:



### CDF position

SBAS CDF position domain:



### Statistics

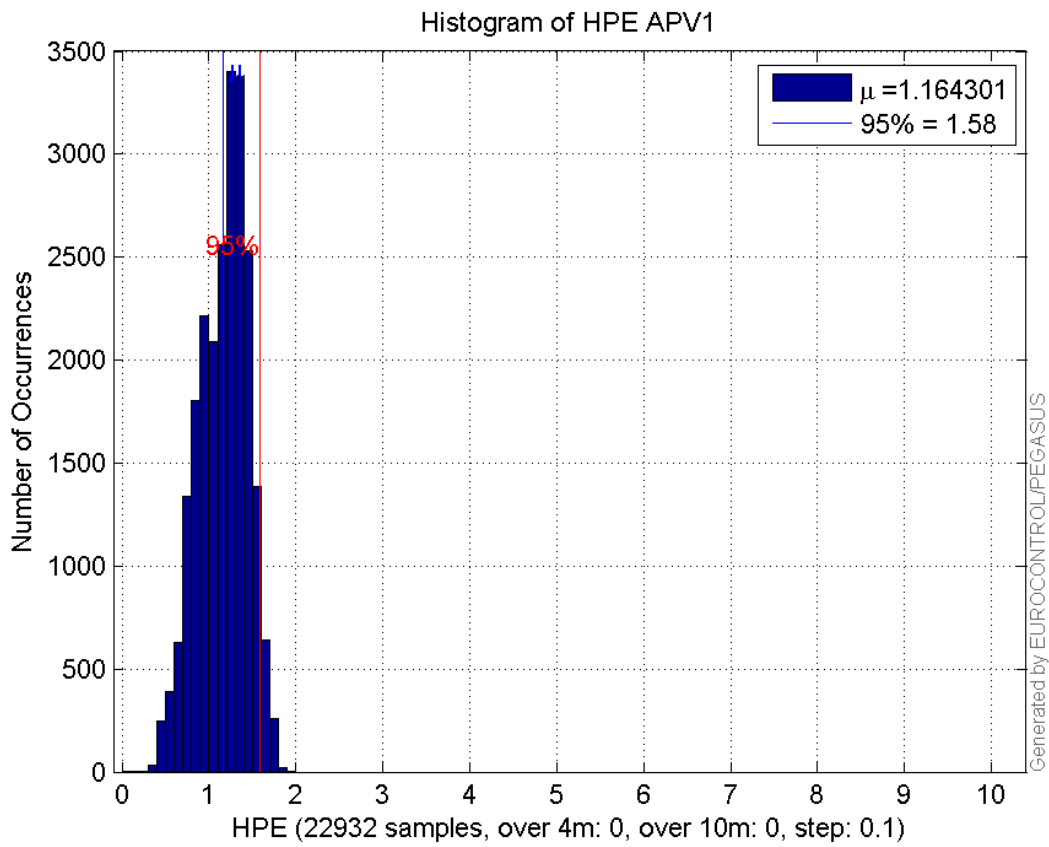
<b>number</b>	22932
<b>sum</b>	26699.741
<b>sum2</b>	32886.262
<b>prctile95</b>	1.5825626
<b>prctile99</b>	1.7112989
<b>number</b>	22932
<b>sum</b>	12806.235
<b>sum2</b>	10567.629
<b>prctile95</b>	1.27988
<b>prctile99</b>	1.6324532
<b>number</b>	22932
<b>sum</b>	358587.63
<b>sum2</b>	6492884.7
<b>prctile95</b>	29.50256
<b>prctile99</b>	38.382038
<b>number</b>	22932
<b>sum</b>	443569.38
<b>sum2</b>	9417466.4
<b>prctile95</b>	31.31212
<b>prctile99</b>	44.19233
<b>number</b>	22932
<b>sum</b>	1932.5191
<b>sum2</b>	187.7299
<b>prctile95</b>	0.13928508
<b>prctile99</b>	0.15282089
<b>number</b>	22932
<b>sum</b>	697.58699

**sum2** 31.601904  
**prctile95** 0.070267116  
**prctile99** 0.087564465  
**number** 21971  
**sum** 25722.952  
**sum2** 31822.412  
**prctile95** 1.5852892  
**prctile99** 1.7147677  
**number** 21971  
**sum** 11986.438  
**sum2** 9584.441  
**prctile95** 1.2513848  
**prctile99** 1.558407  
**number** 21971  
**sum** 330630.12  
**sum2** 5613302.6  
**prctile95** 28.99428  
**prctile99** 32.275361  
**number** 21971  
**sum** 404302.71  
**sum2** 7804559.7  
**prctile95** 26.26502  
**prctile99** 31.096005  
**number** 21971  
**sum** 1894.3496  
**sum2** 185.91056  
**prctile95** 0.13996642  
**prctile99** 0.15300324  
**number** 21971  
**sum** 678.17391  
**sum2** 31.070812  
**prctile95** 0.070719356  
**prctile99** 0.087779684

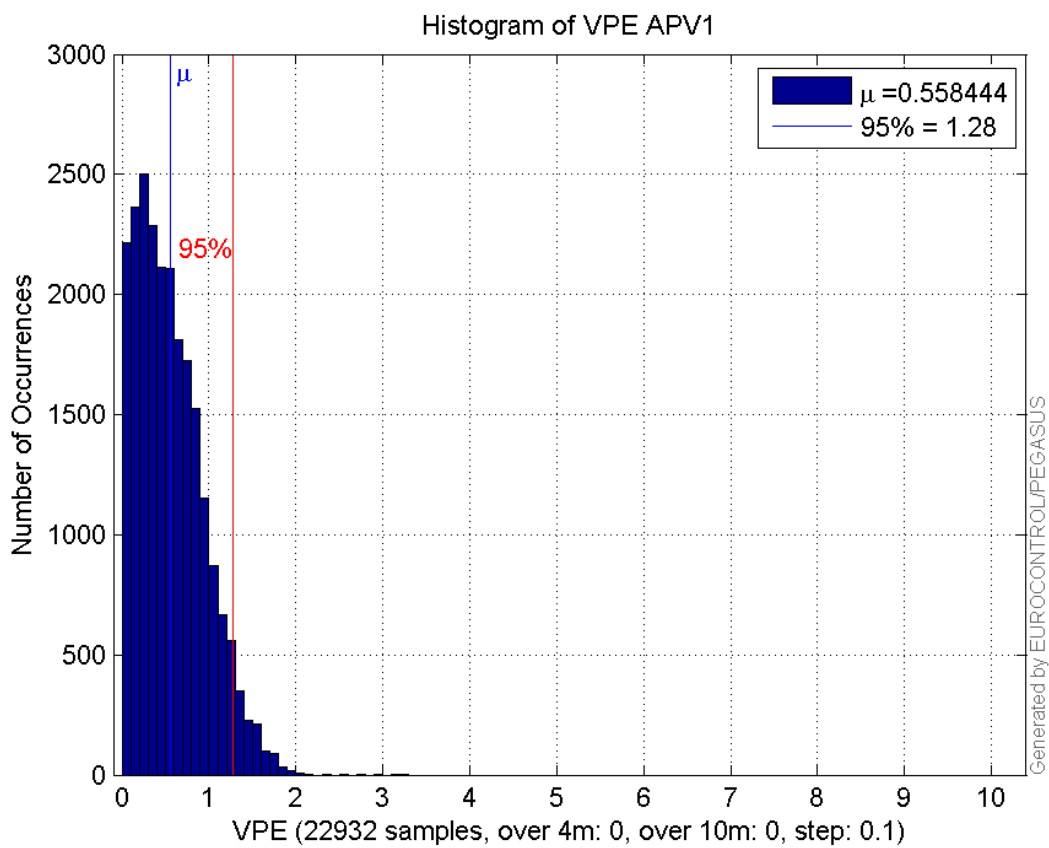
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.1643	0.280152	1.20553	1.58256	1.7113	1.19753
<b>HPL</b>	15.637	6.21469	14.2726	29.5026	38.382	16.8267
<b>VPE</b>	0.558444	0.385968	0.49952	1.27988	1.63245	0.678841
<b>VPL</b>	19.3428	6.04371	17.626	31.3121	44.1923	20.265

**Histogram of HPE APV1:**

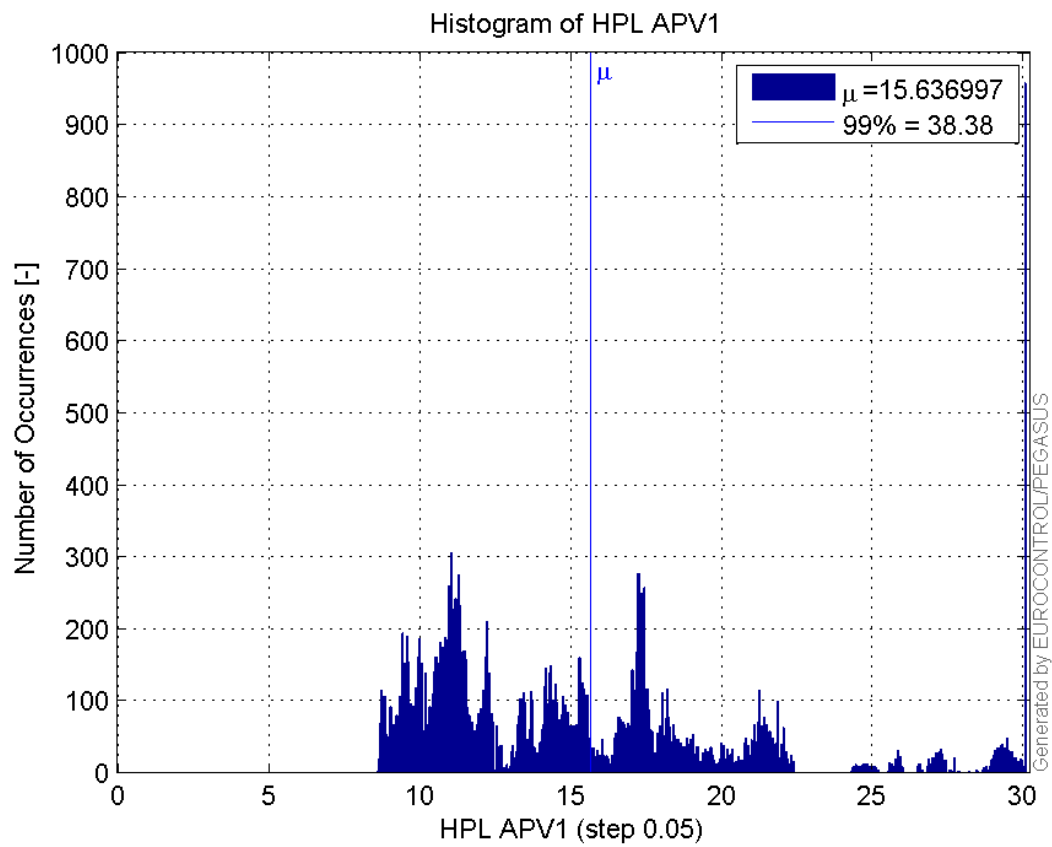


**Histogram of VPE APV1:**

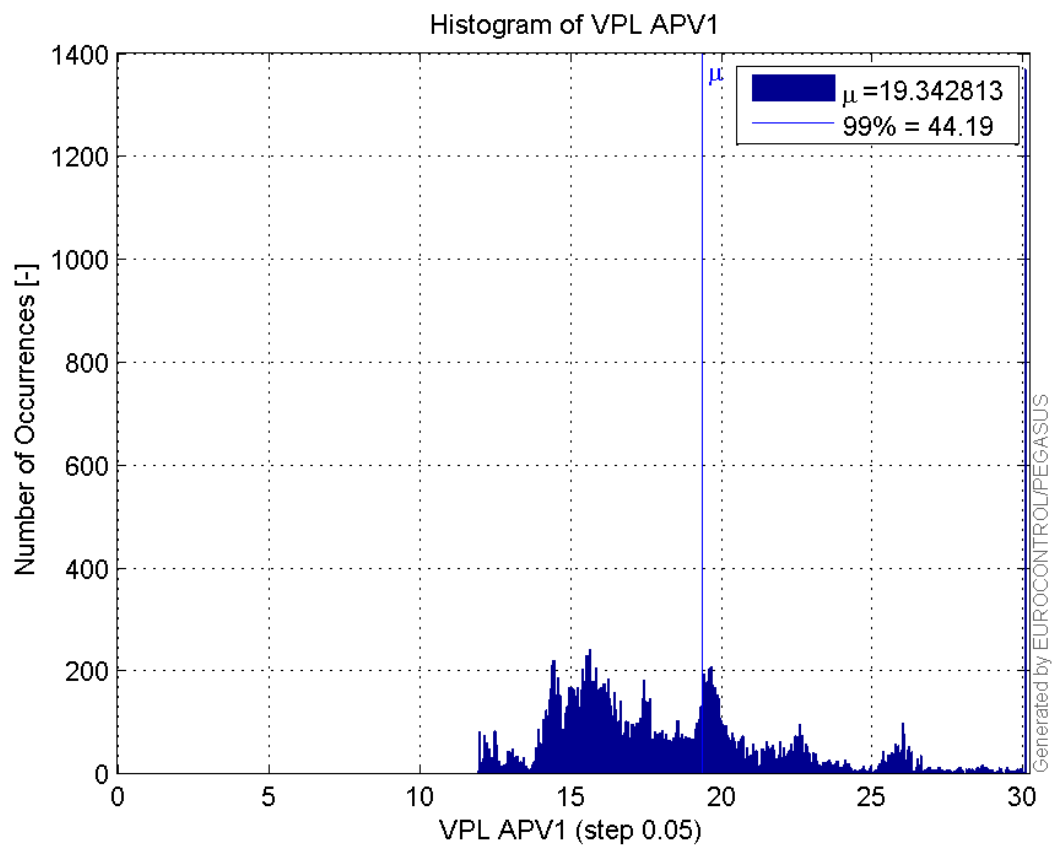


**Histogram of HPL APV1:**

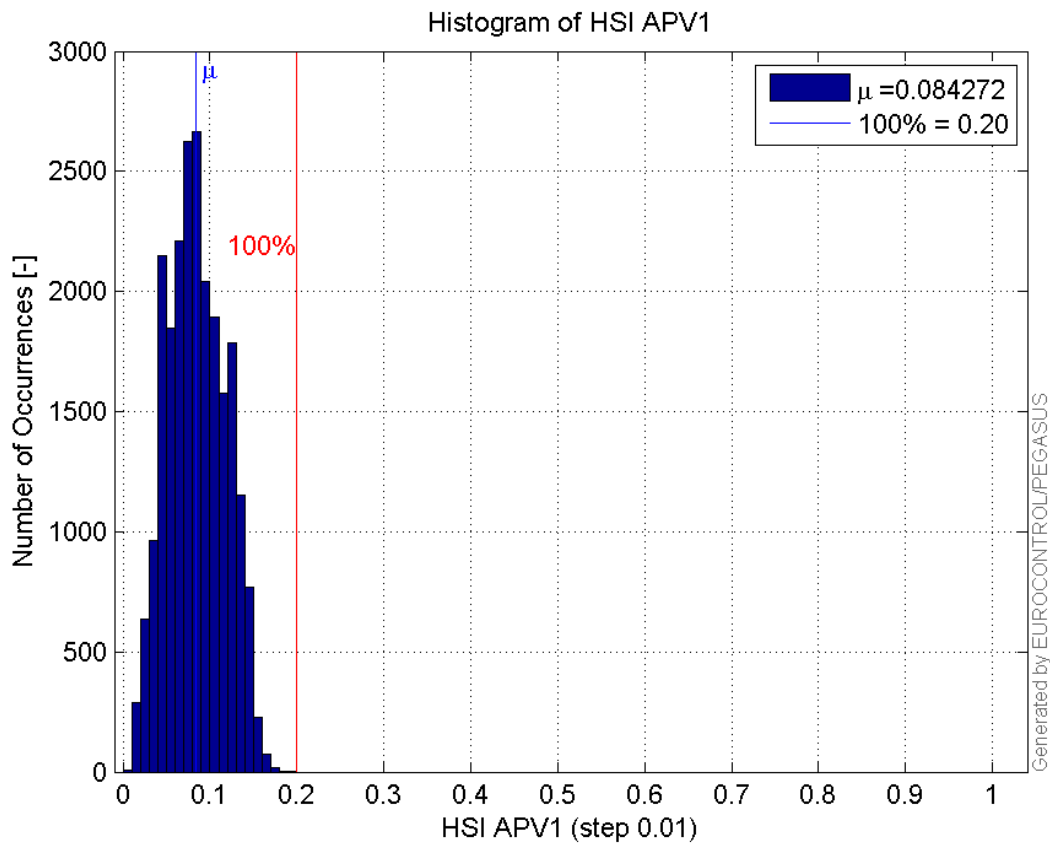




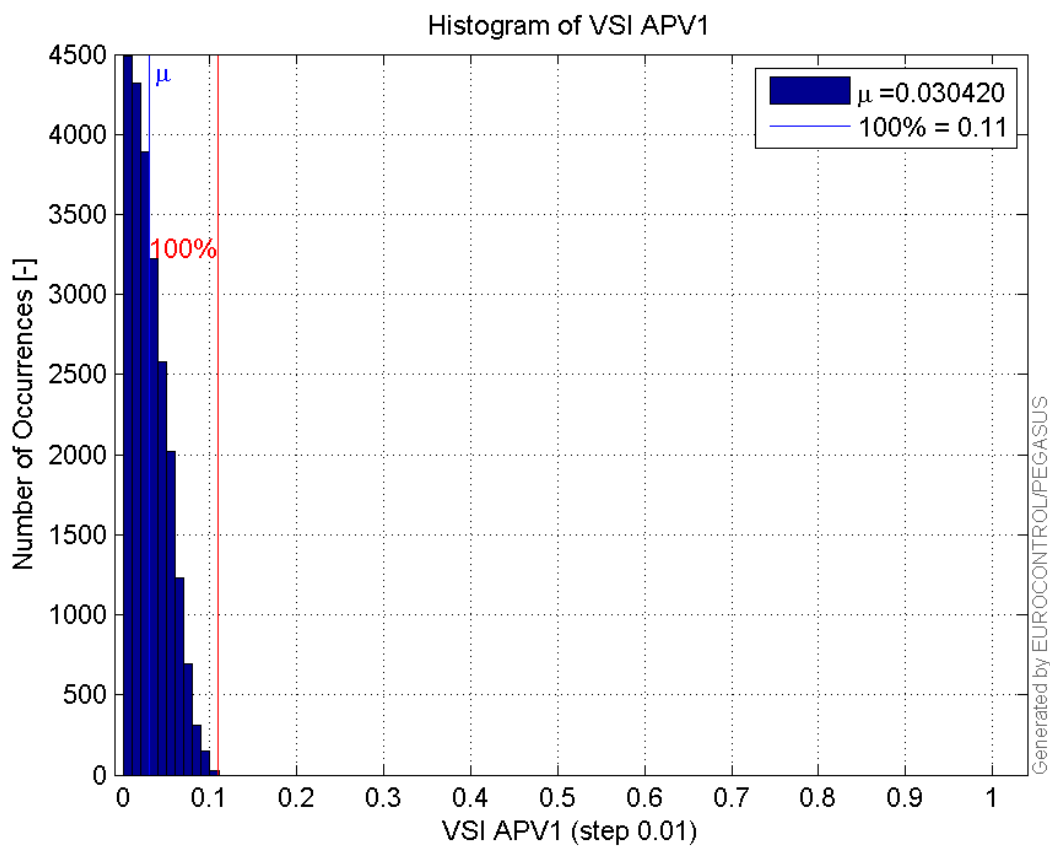
Histogram of VPL APV1:



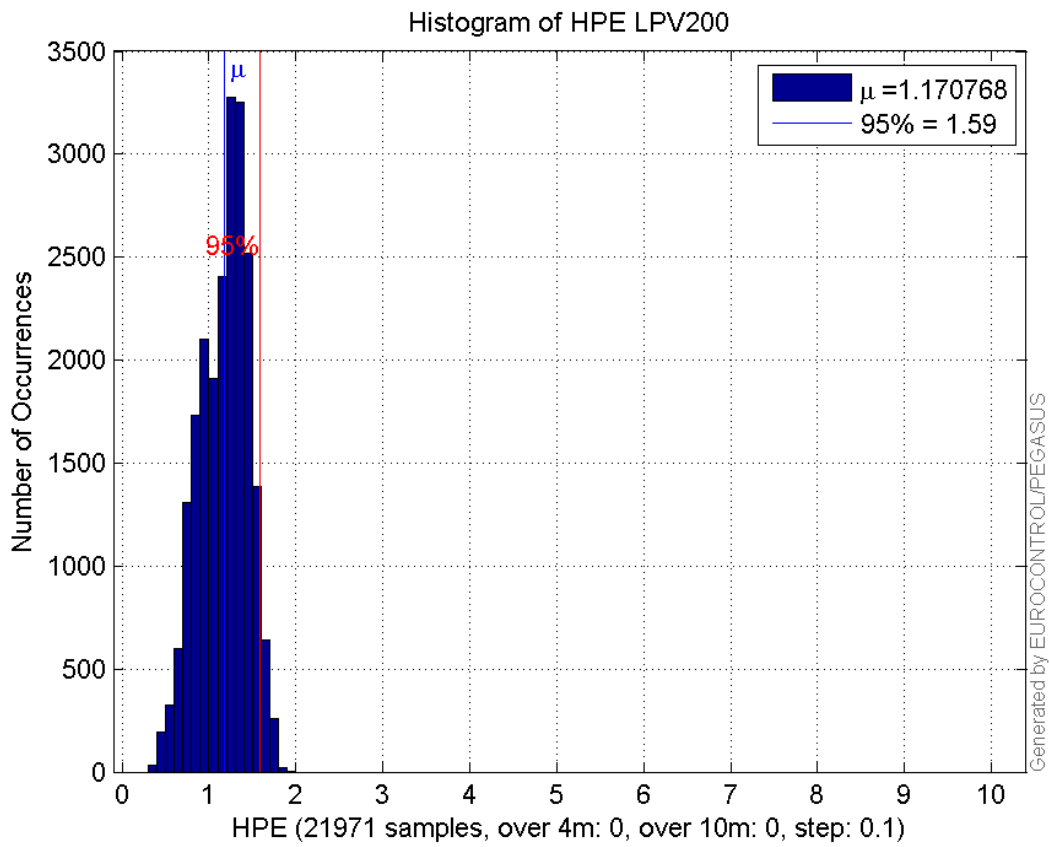
Histogram of HSI APV1:



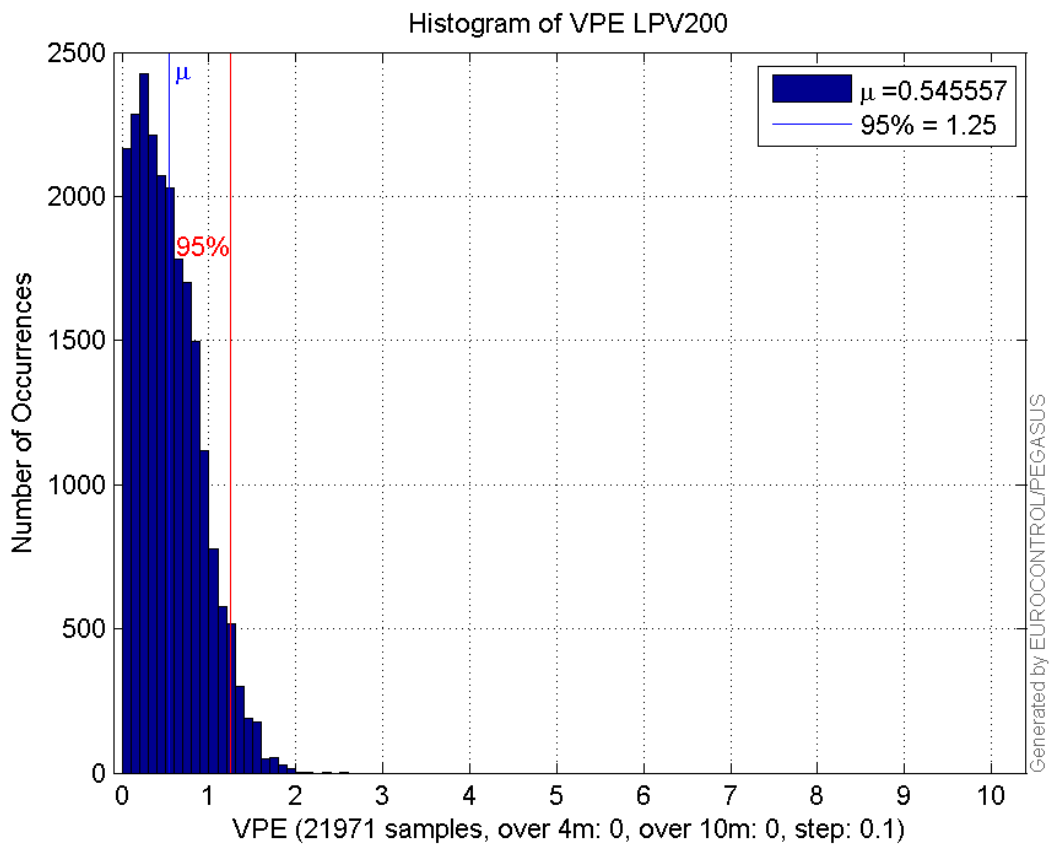
**Histogram of VSI APV1:**



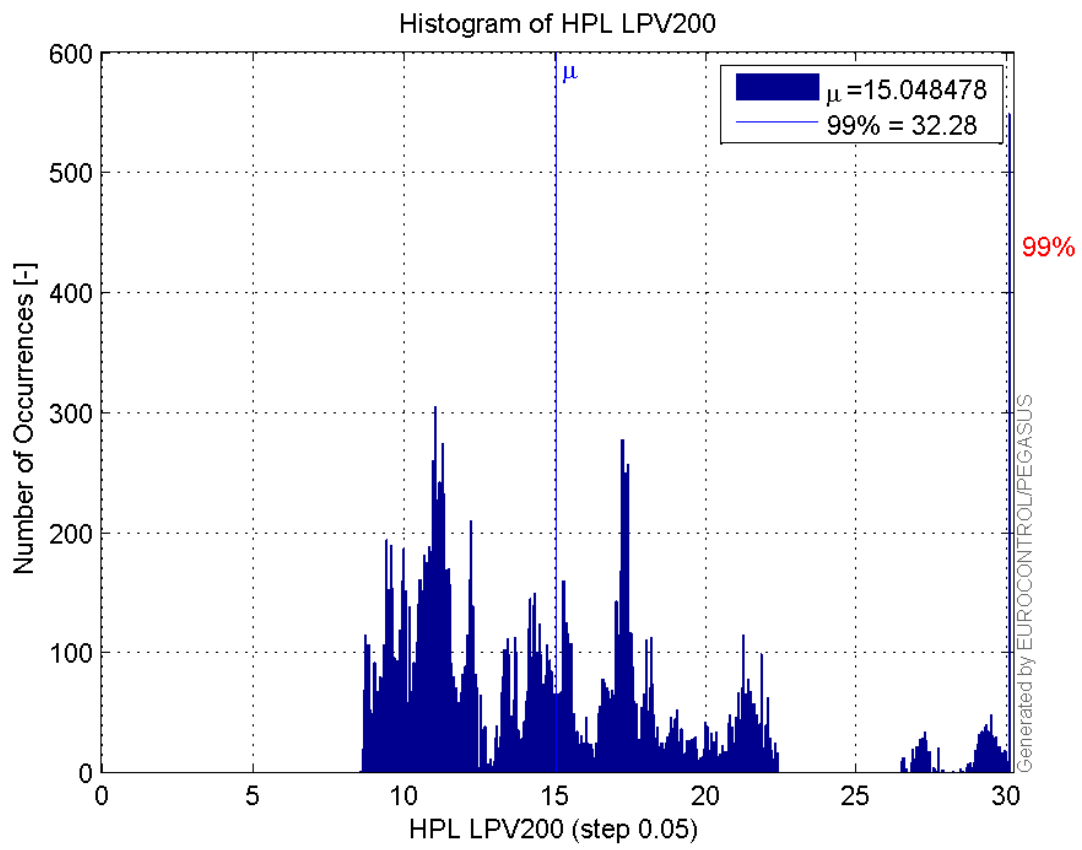
**Histogram of HPE LPV200:**



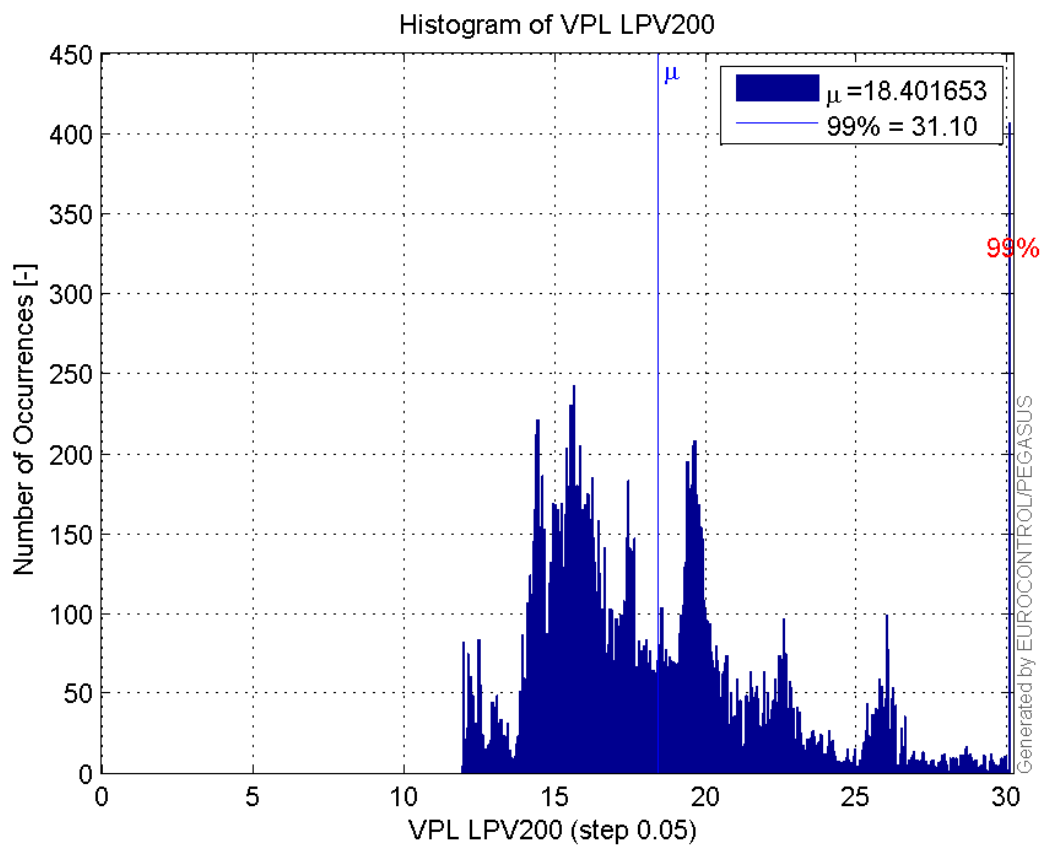
**Histogram of VPE LPV200:**



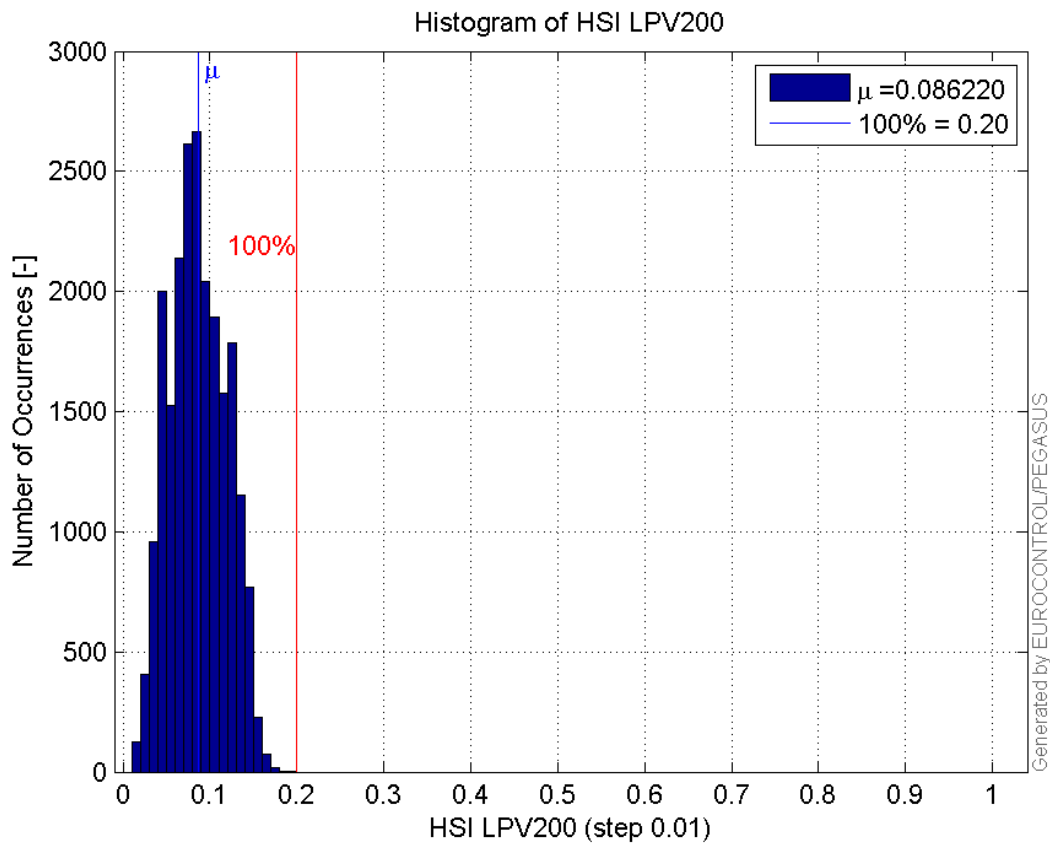
**Histogram of HPL LPV200:**



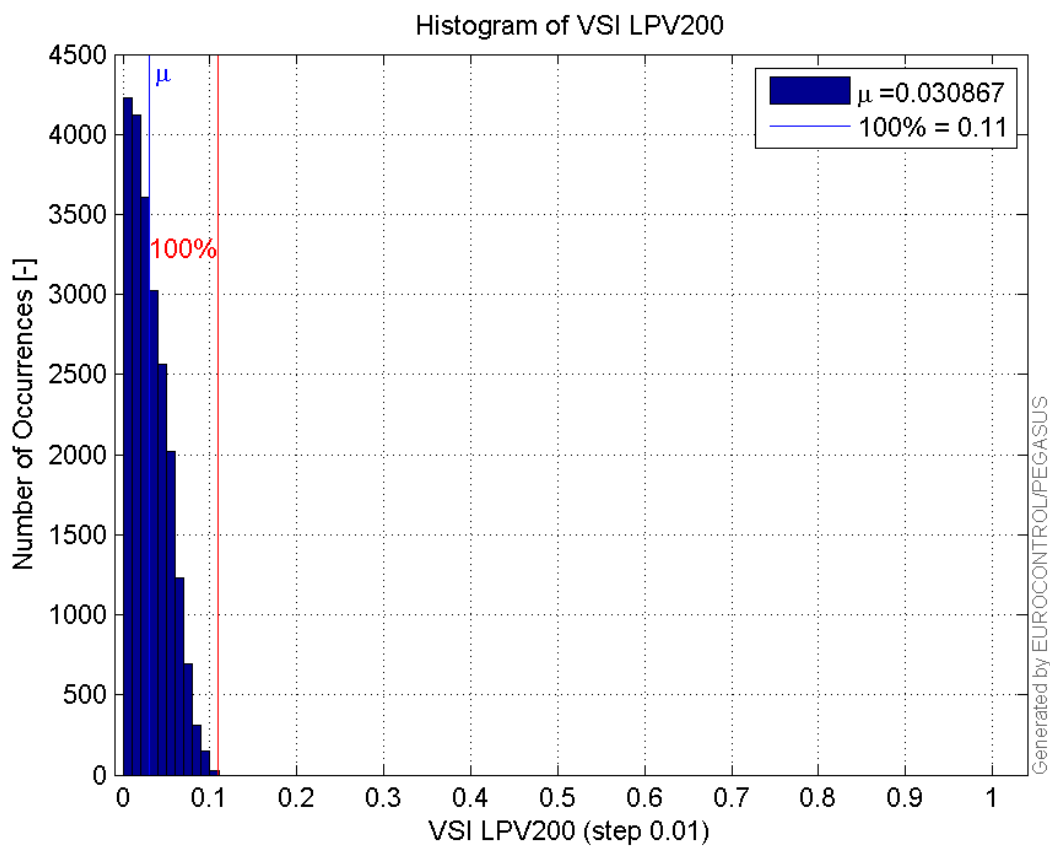
**Histogram of VPL LPV200:**



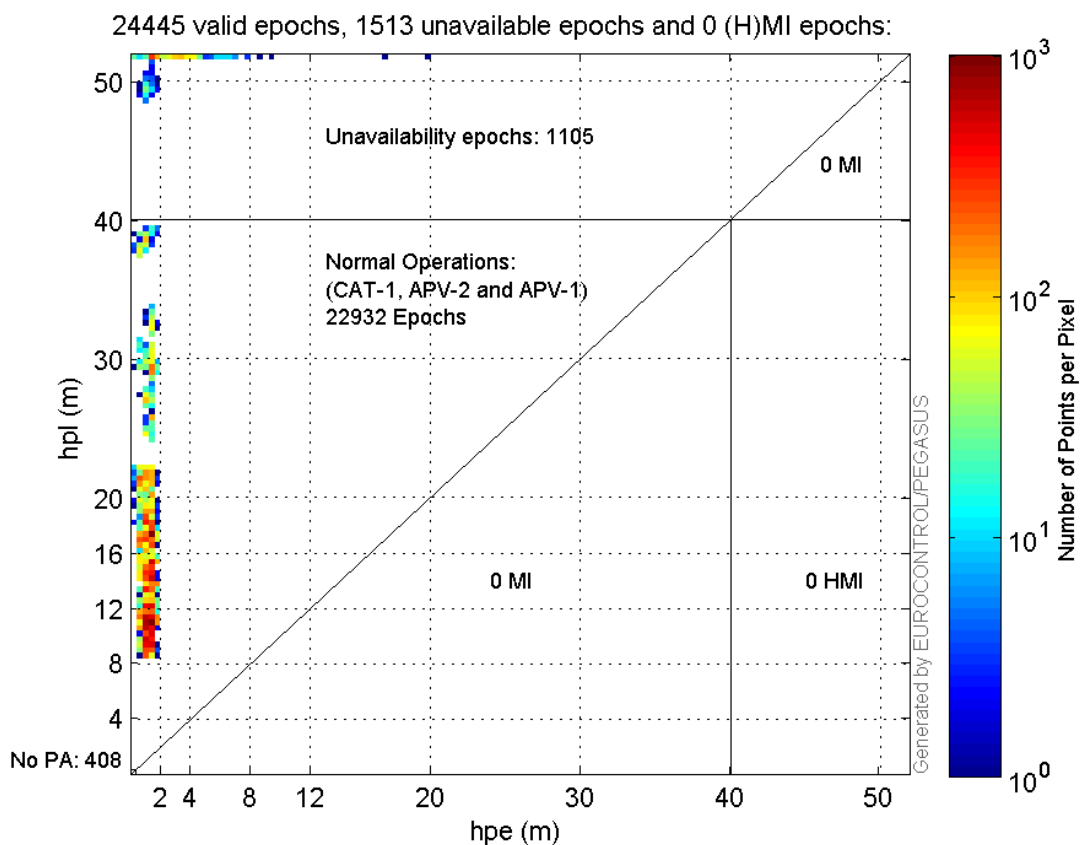
**Histogram of HSI LPV200:**



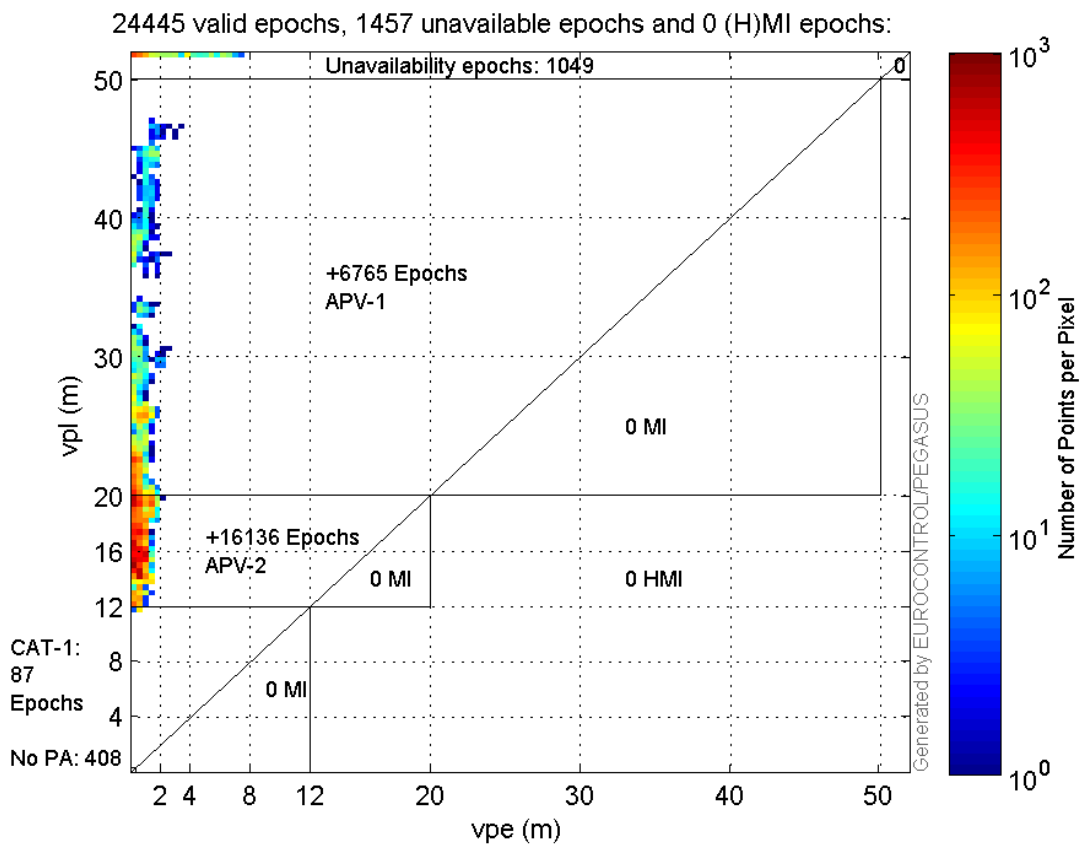
**Histogram of VSI LPV200:**



**Horizontal\_Stanford\_Plot\_SBAS:**



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



**system**

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_04_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_27_EGNOS/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	247.1762
mi_numbers	results	0

**Range Domain**

**start:** 06:35:29 27.04.2016 ( week: 1894 sec: 282929 )  
**end:** 13:28:55 27.04.2016 ( week: 1894 sec: 307735 )  
**duration:** 06:53:27 ..

**quality**

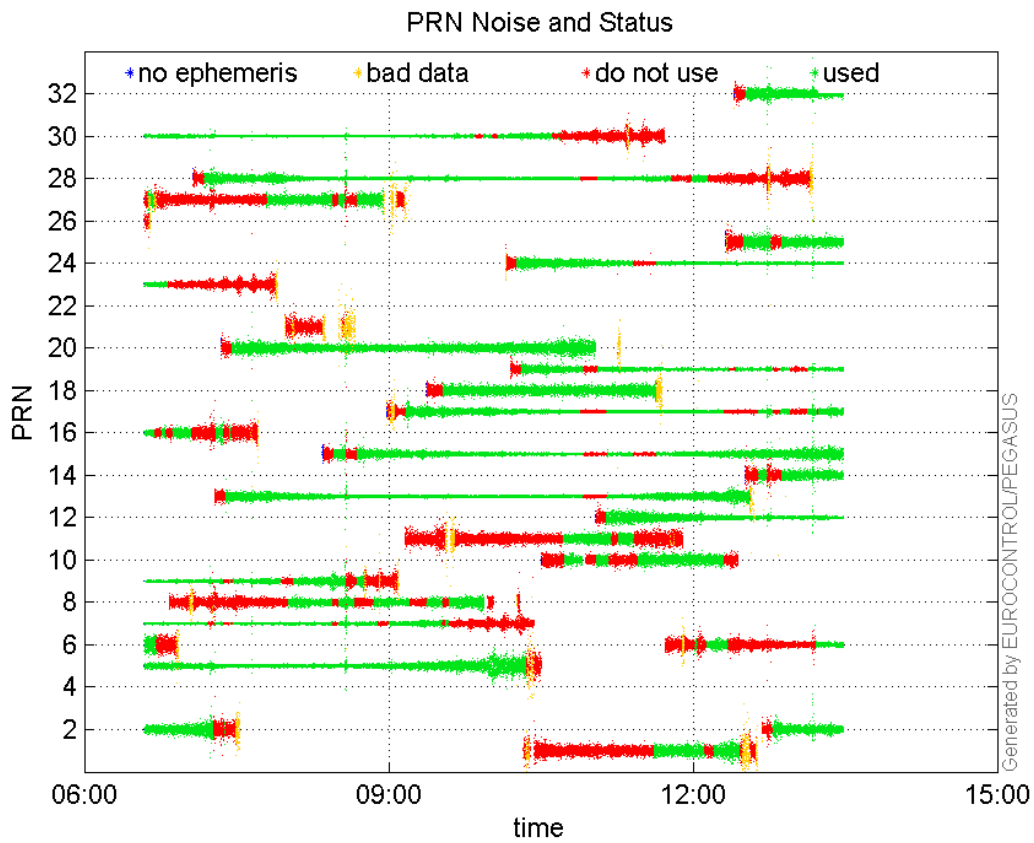
**valid samples** 24807  
**total samples** 24807

**PRN overview**

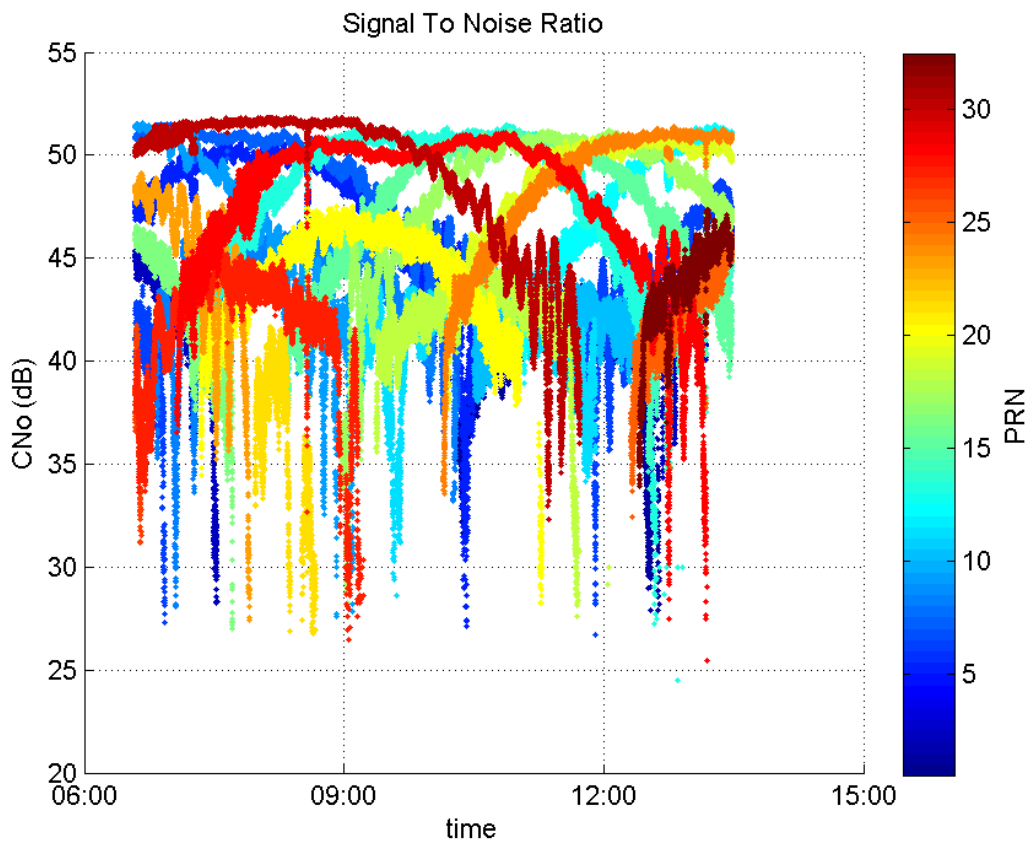
**Number of Visible GPS Satellites** 27  
**Number of Visible SBAS Satellites** 2

**signal quality and status**

**PRN Noise and Status:**



**Signal To Noise Ratio:**



range errors

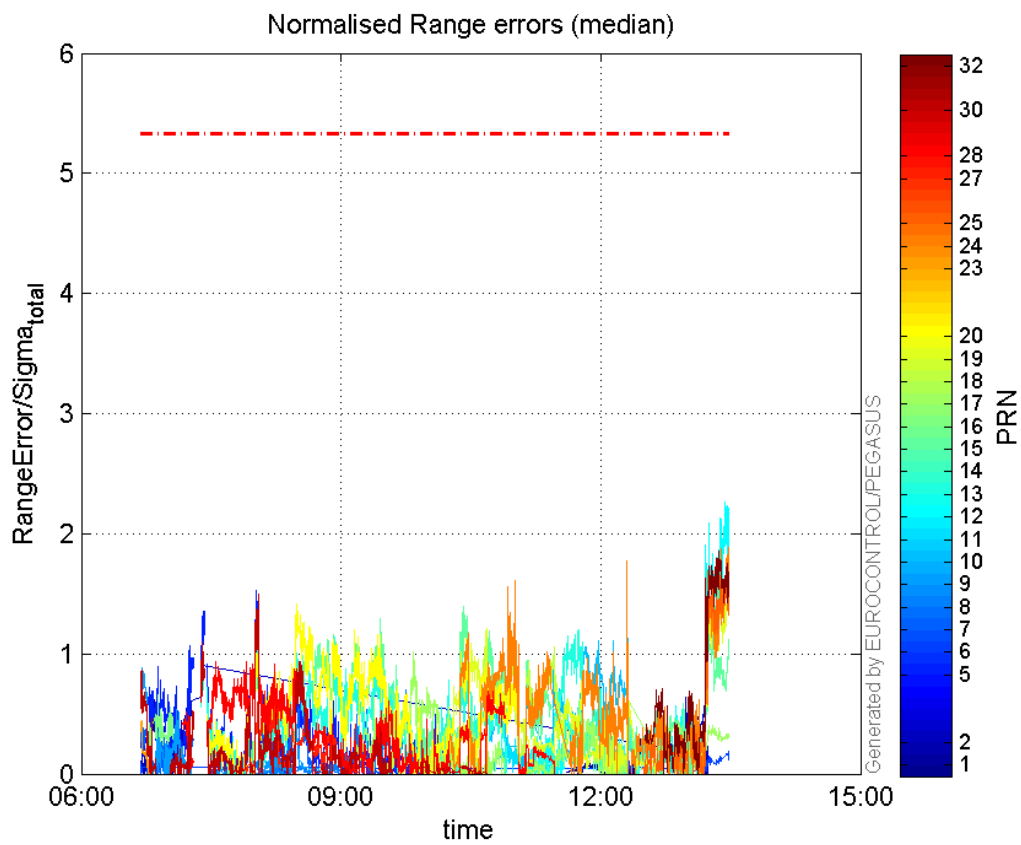
Number of Overbounding Norm Errors 0



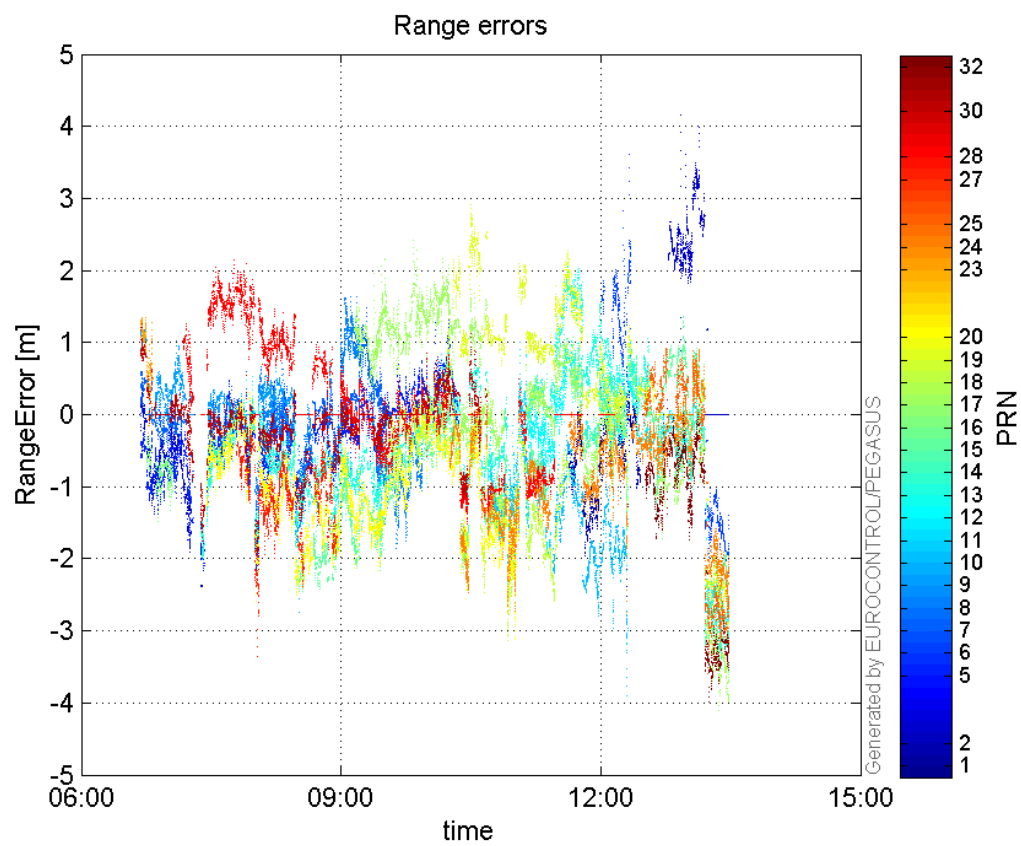
**Max Norm Errors :**

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1894	303471	1	0.499736	-2.5249	5.05247
1894	285799	2	0.909757	-2.37606	2.61175
1894	288091	5	1.52337	-2.22367	1.45971
1894	303342	6	0.201119	2.82452	14.044
1894	288091	7	1.11883	-1.69664	1.51645
1894	294308	8	0.697377	-1.76306	2.52813
1894	283322	9	0.881565	1.19058	1.35053
1894	303471	10	1.41142	-3.90426	2.7662
1894	298991	11	0.331325	-1.49442	4.51044
1894	307561	12	2.26378	-3.14888	1.39098
1894	301482	13	1.19872	2.02939	1.69297
1894	307386	14	1.75275	-3.43873	1.96191
1894	296714	15	1.39275	-2.19631	1.57696
1894	283998	16	0.657416	-1.48631	2.26084
1894	303471	17	1.02171	-2.06681	2.0229
1894	298540	18	1.32186	-3.14241	2.37727
1894	307705	19	1.75305	-2.87242	1.63853
1894	289775	20	1.41216	-2.47408	1.75198
1894	283301	23	0.440623	1.33178	3.02251
1894	307708	24	1.88115	-2.59492	1.37943
1894	306842	25	1.68676	-3.59417	2.13081
1894	288840	27	0.702259	-1.99732	2.84414
1894	287642	28	0.938206	2.09837	2.23658
1894	288167	30	1.49302	-2.14347	1.43566
1894	307316	32	1.86009	-3.64686	1.96058

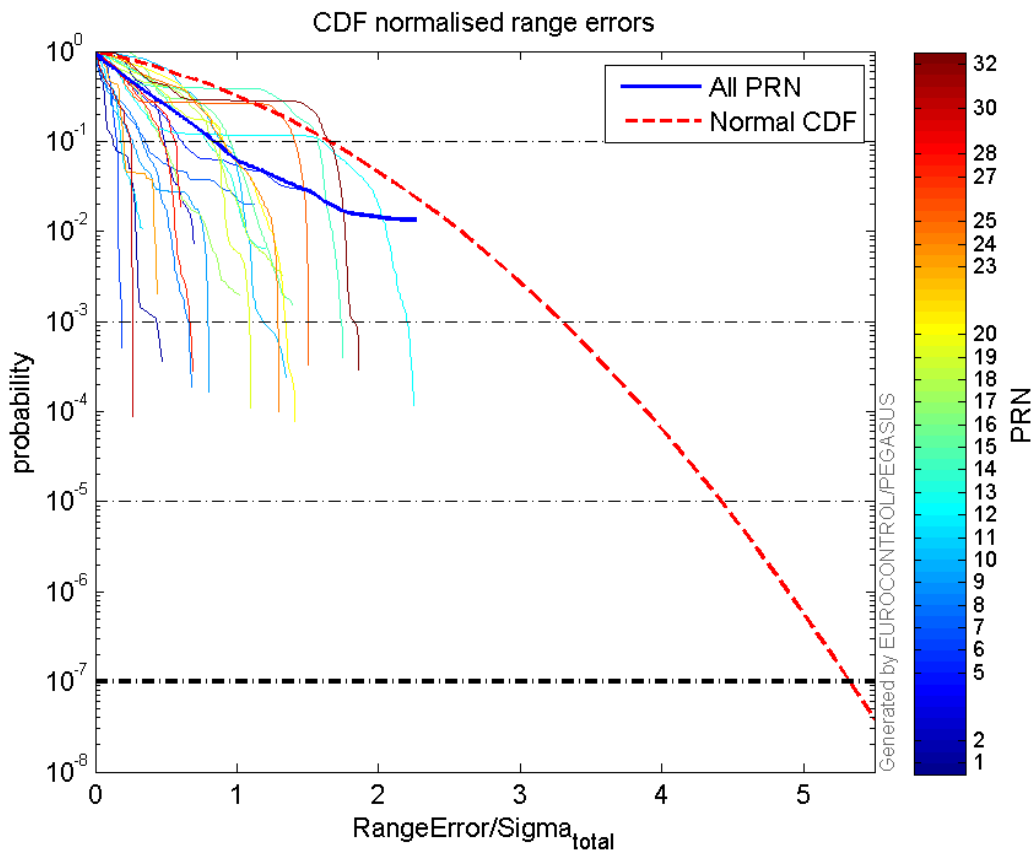
**Normalised Range errors (median):**



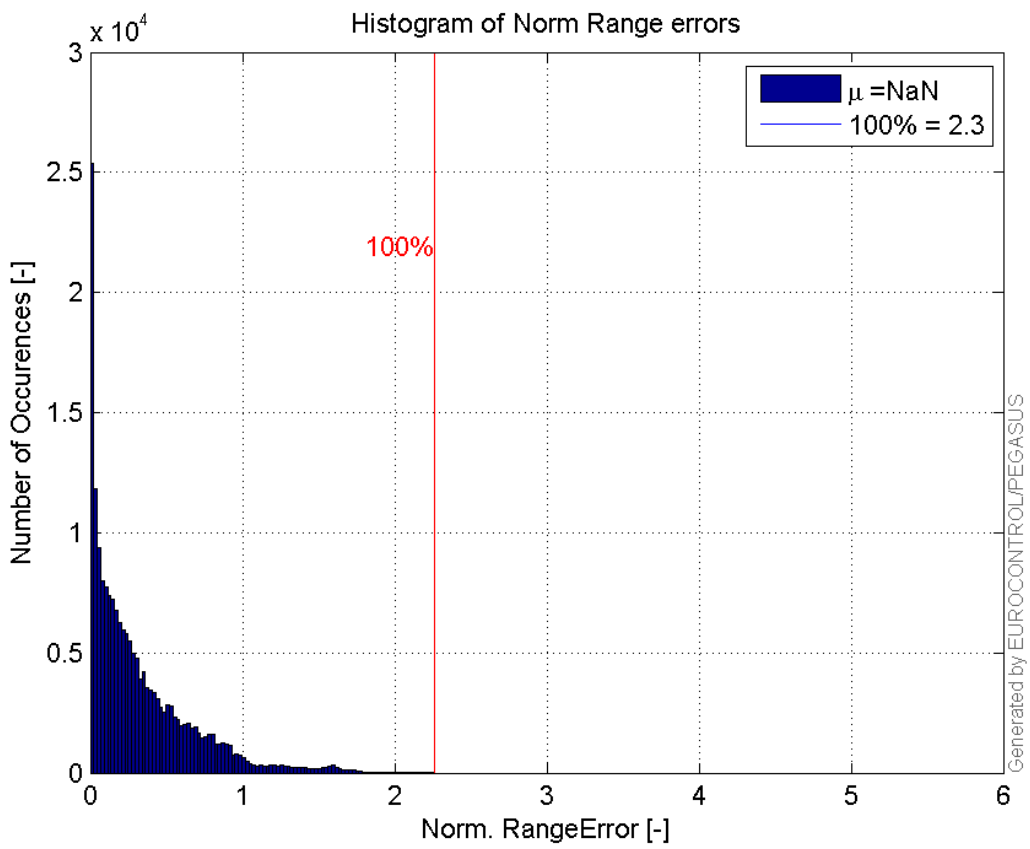
Range errors:



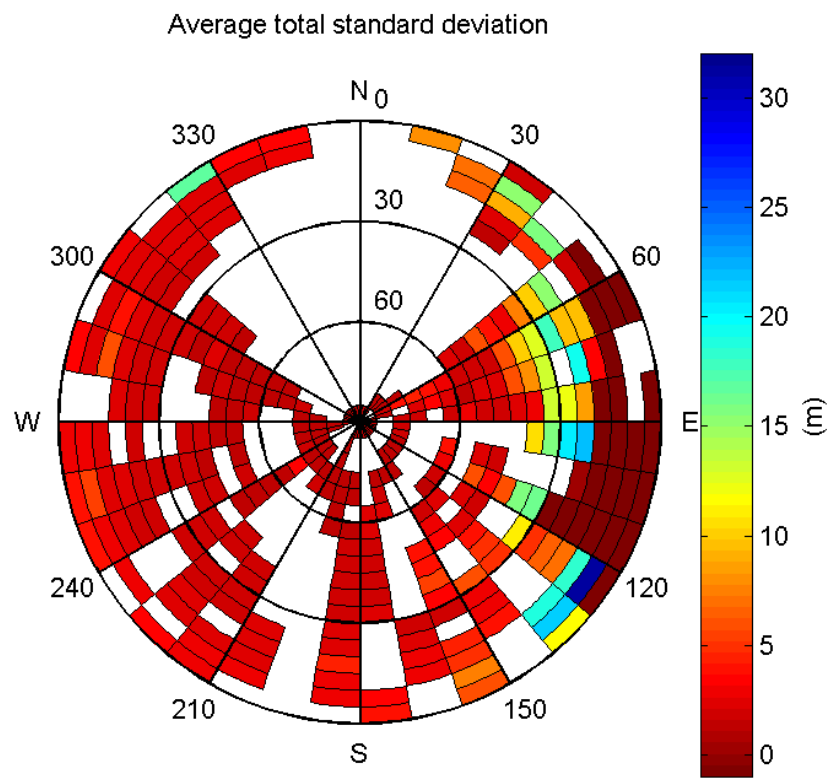
CDF normalised range errors:



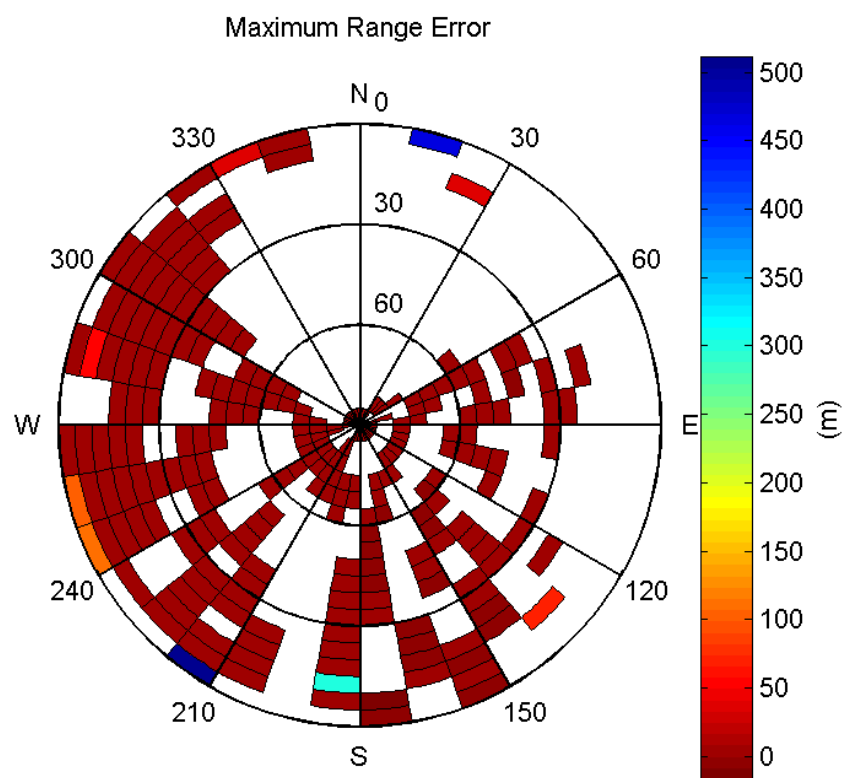
**Histogram of Norm Range errors:**



**Sigma Sky Plot:**

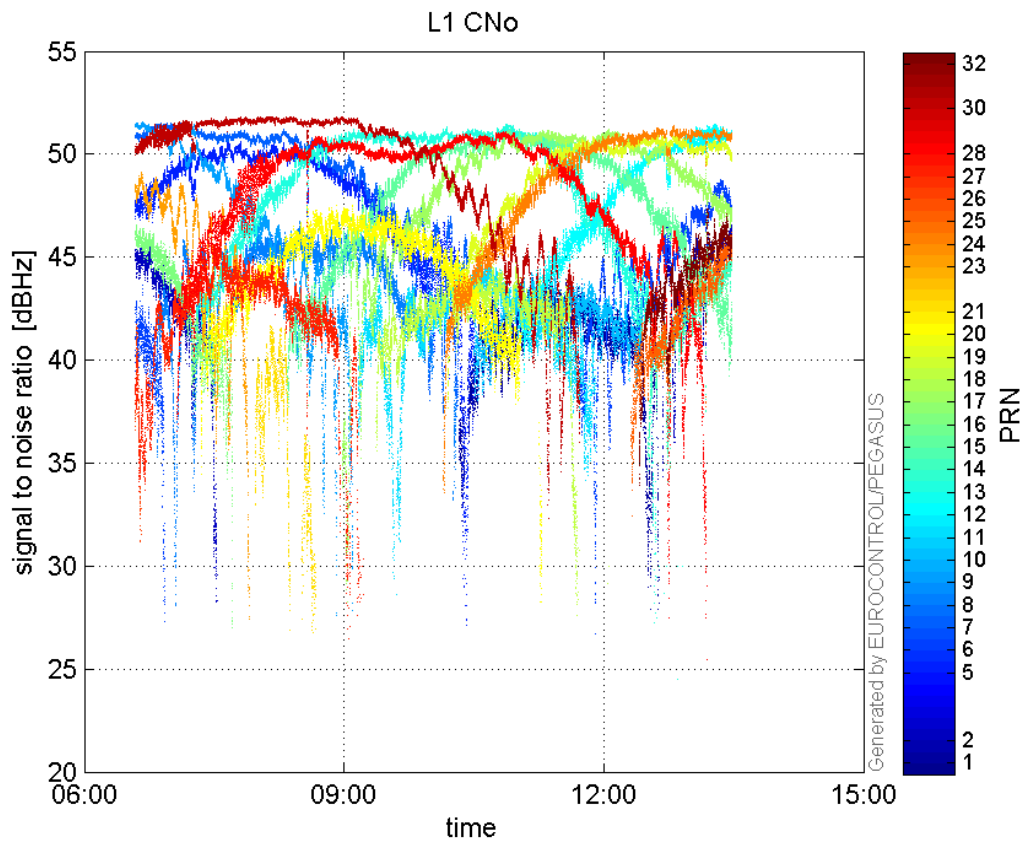


Norm Error Sky Plot:

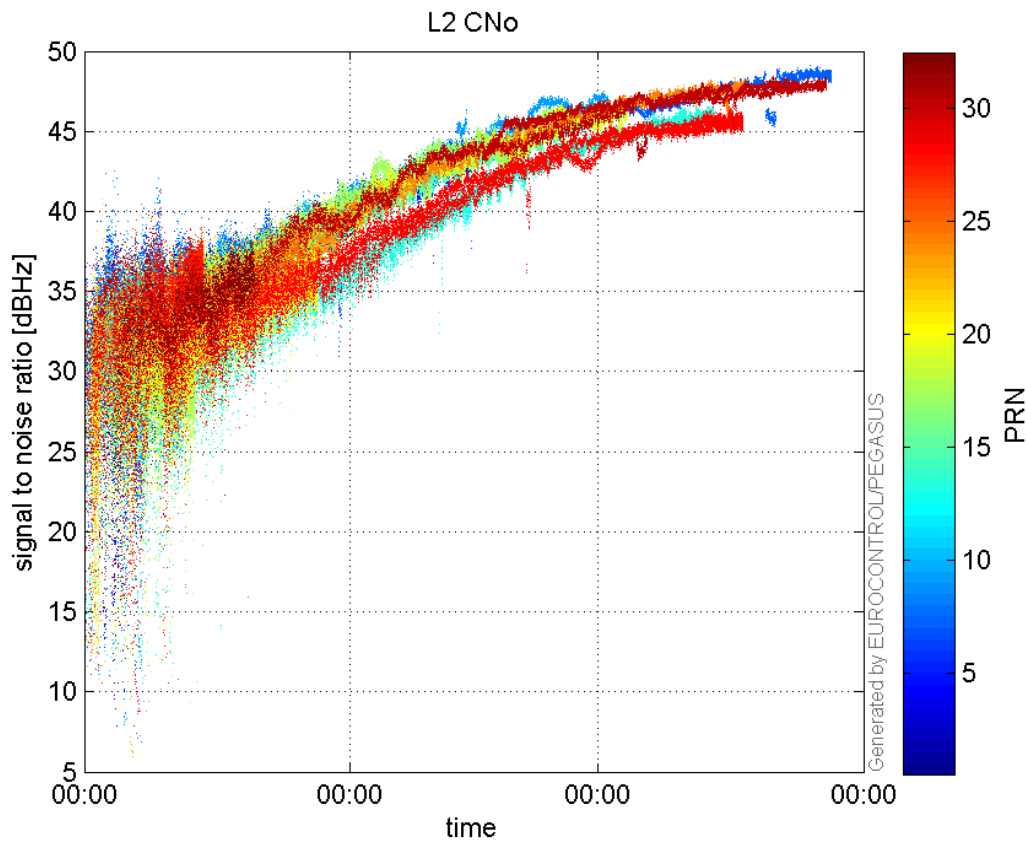


signal quality

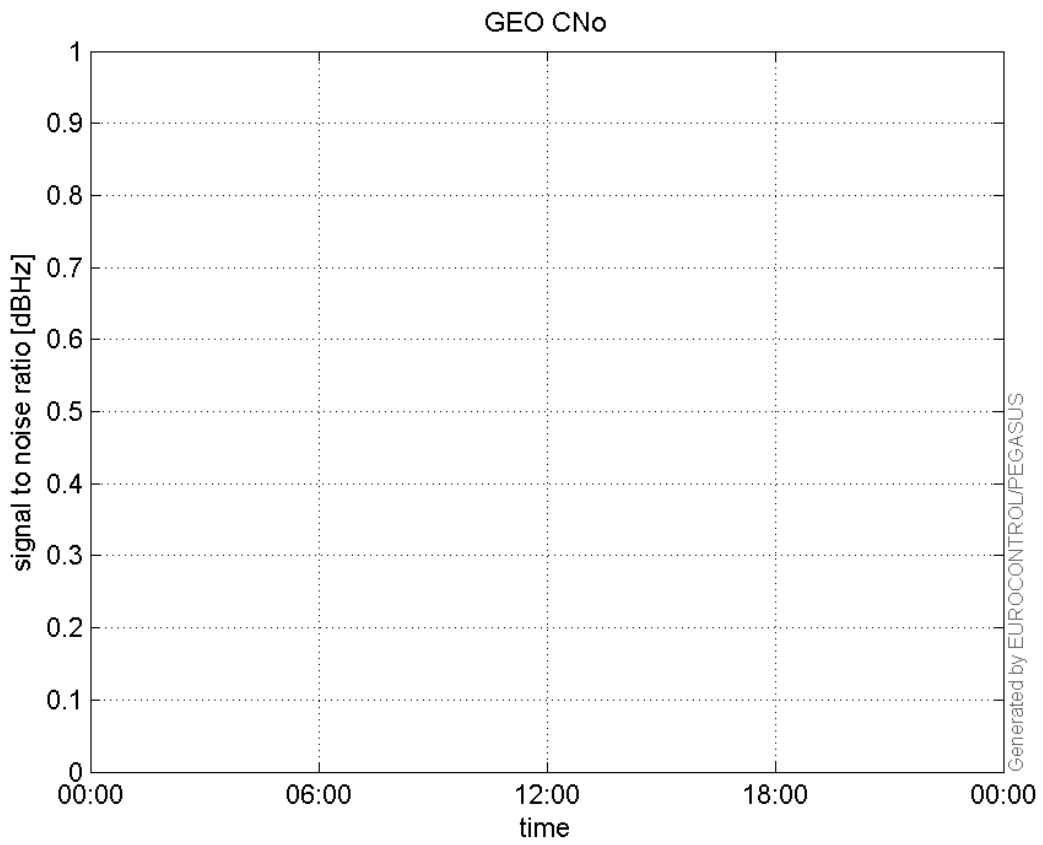
L1 CNo:



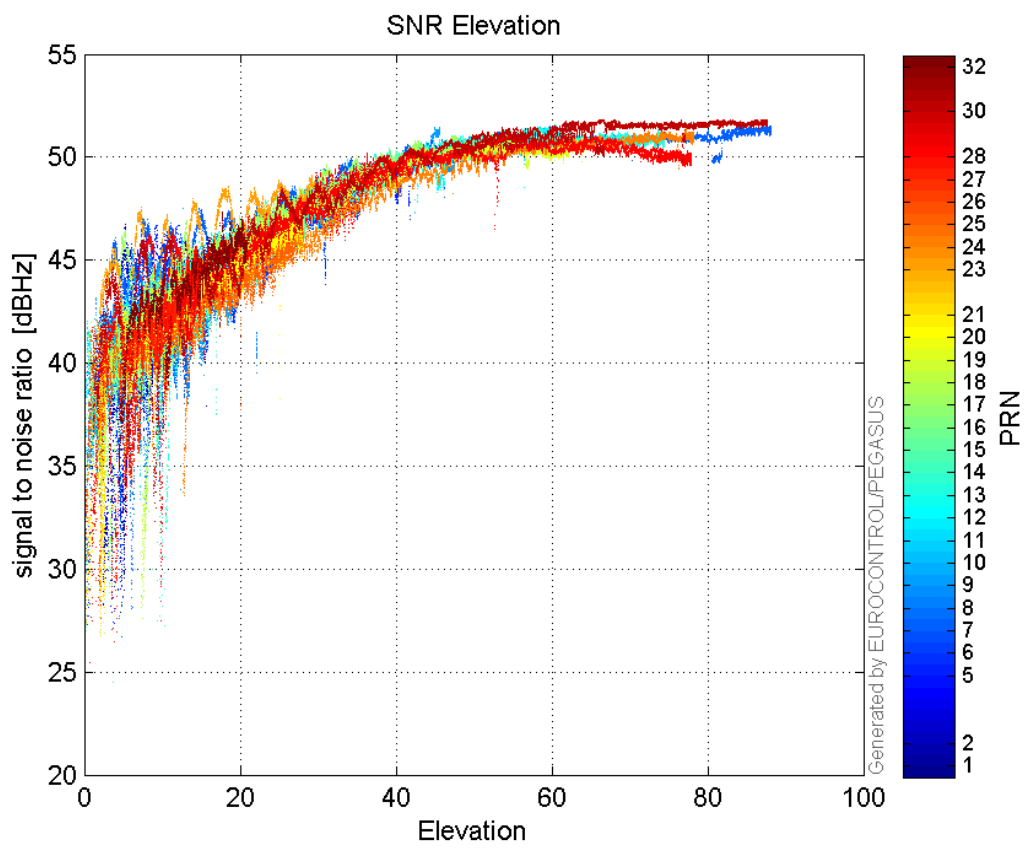
L2 CNo:



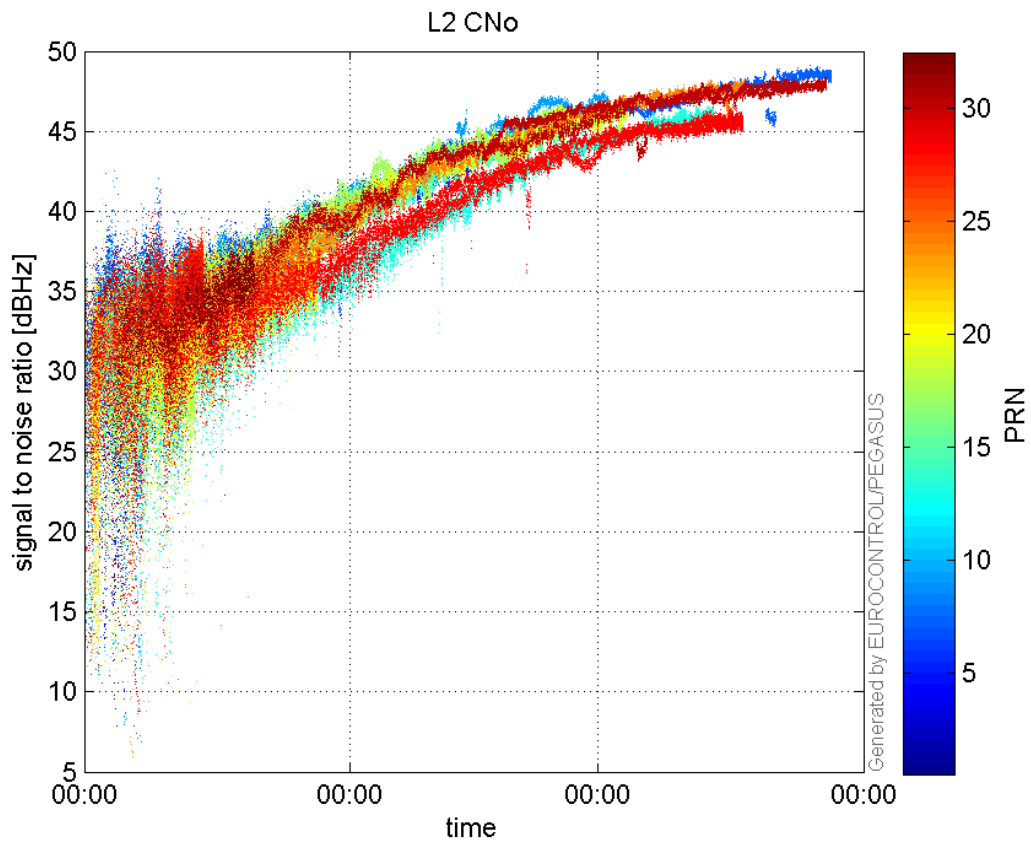
GEO CNo:



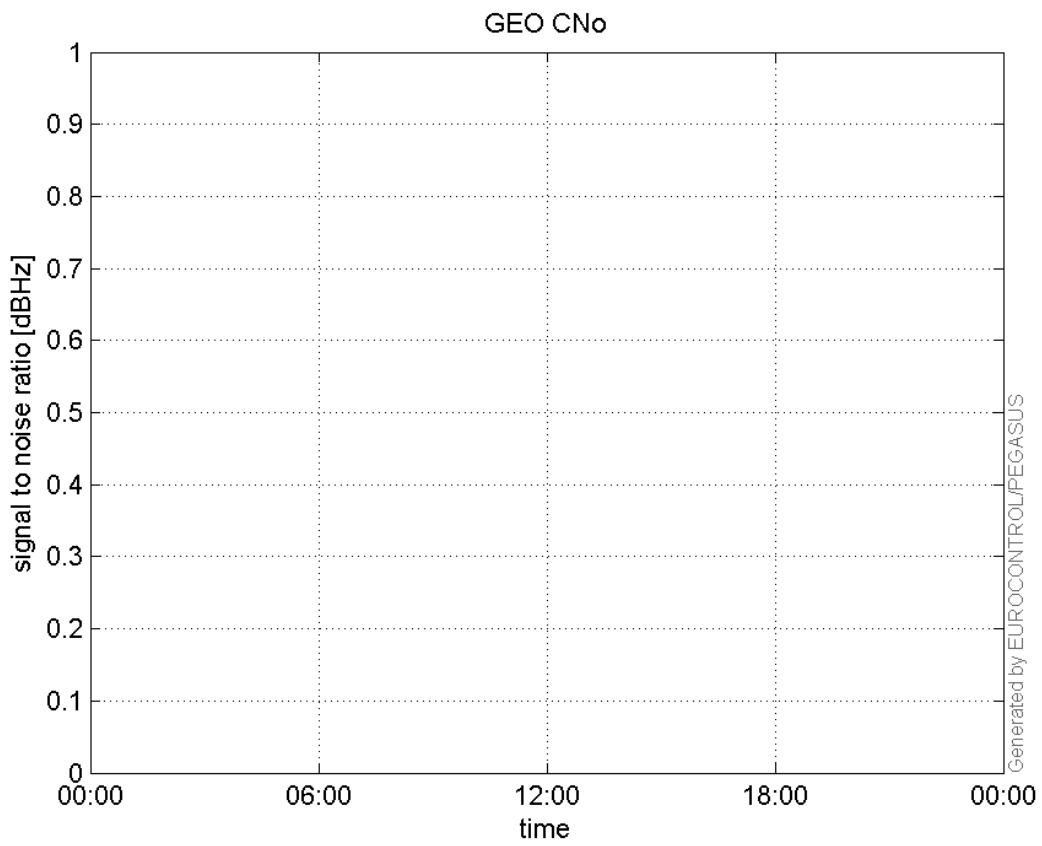
**SNR Elevation:**



**L2 CNo:**

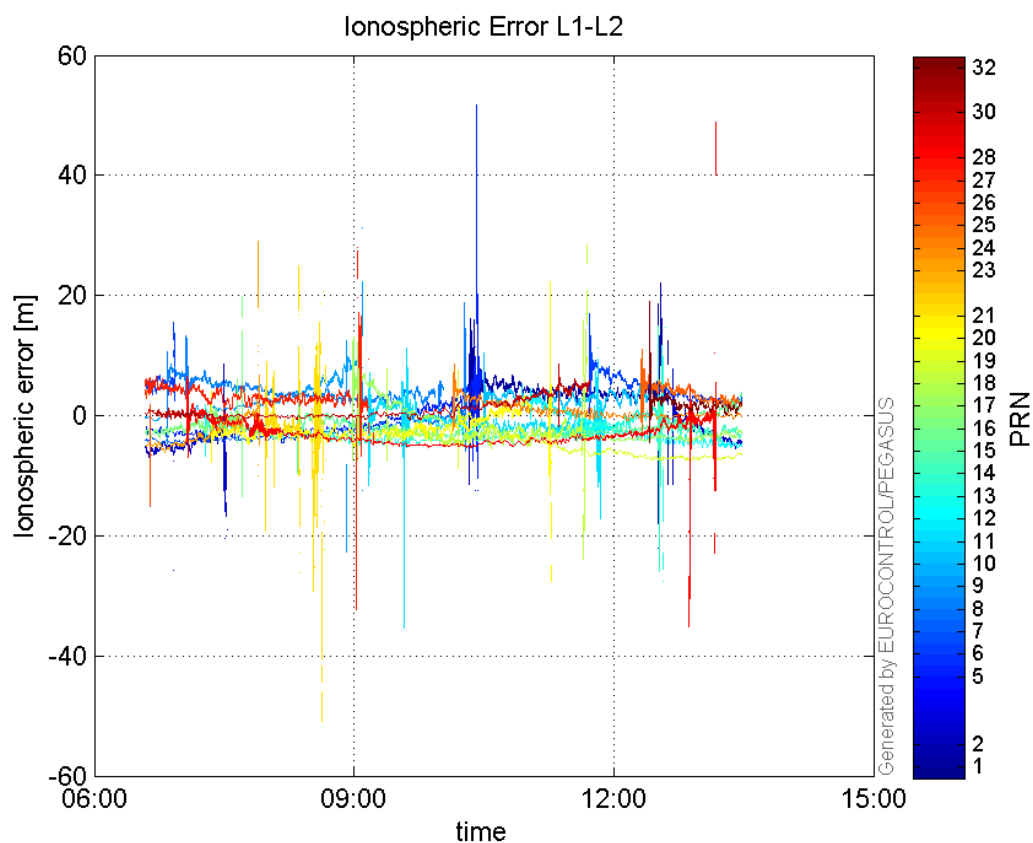


**GEO CNo:**



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:/PegasusDateJob/job/2016_04_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_27_EGNOS/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	247.1762
mi_numbers	results	0

## SBAS Messages

**start:** 06:35:29.129 27.04.2016 ( week: 1894 sec: 282929.129 )  
**end:** 13:28:54.129 27.04.2016 ( week: 1894 sec: 307734.129 )  
**duration:** 06:53:25 ..

### quality

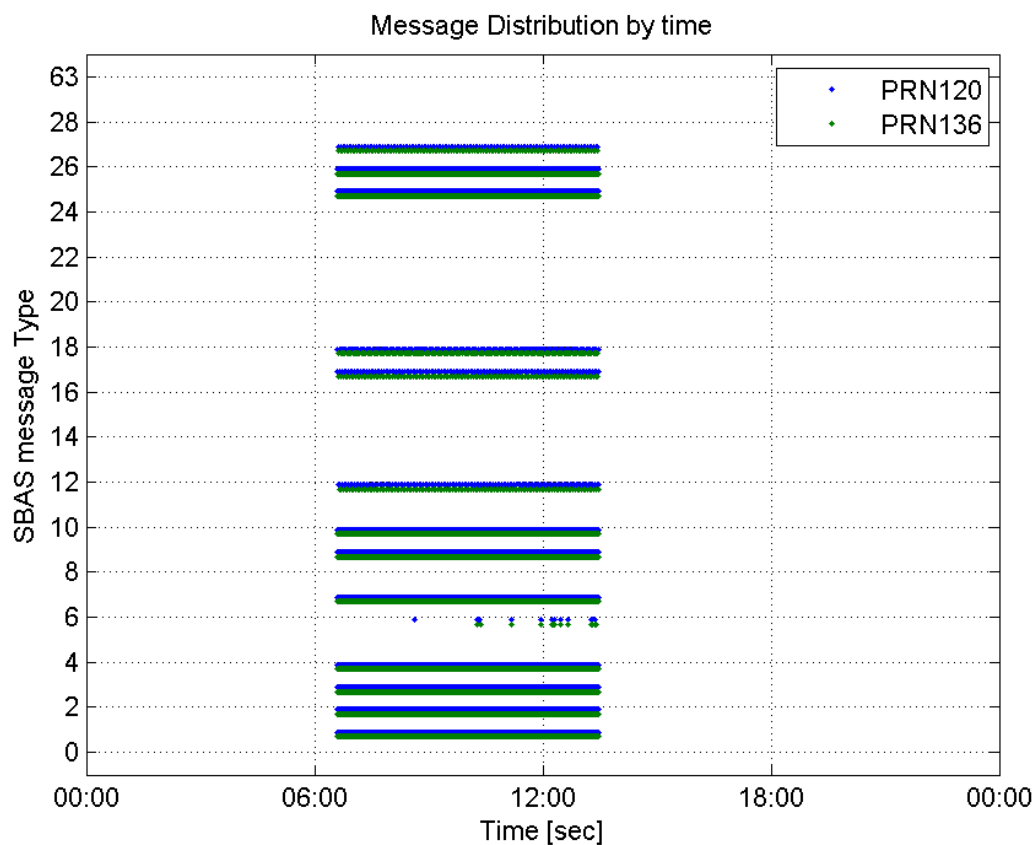
**valid samples** 49612  
**total samples** 49612  
**number of SBAS PRNs** 2

### SBAS SIS Overview

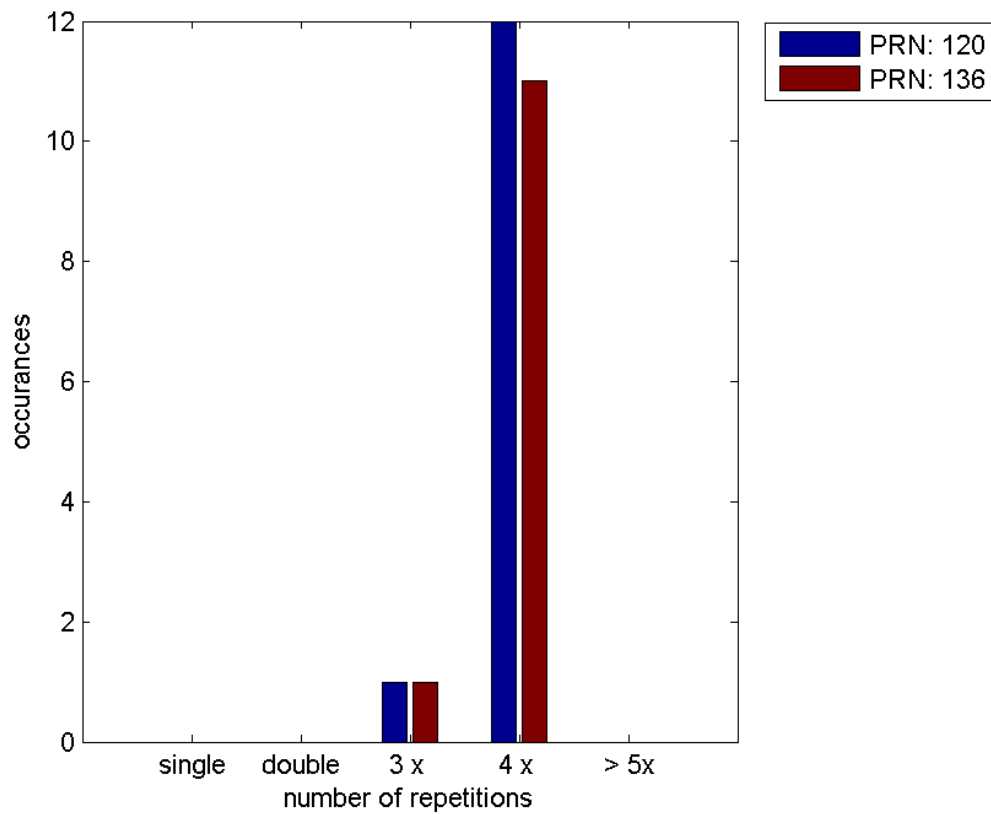
#### Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	12	0
PRN 136	0	0	1	11	0

#### Message Distribution by time:



## Message Type 6 repetitions:



## SBAS SIS Analysis

PRN 120

## Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	311	1.25373
MT 2	6150	24.7924
MT 3	6149	24.7884
MT 4	6150	24.7924
MT 5	0	0
MT 6	52	0.209627
MT 7	311	1.25373
MT 9	311	1.25373
MT 10	311	1.25373
MT 12	127	0.511973
MT 17	127	0.511973
MT 18	635	2.55986
MT 24	0	0
MT 25	1264	5.09554
MT 26	2782	11.215
MT 27	126	0.507942
MT 28	0	0
MT 62	0	0

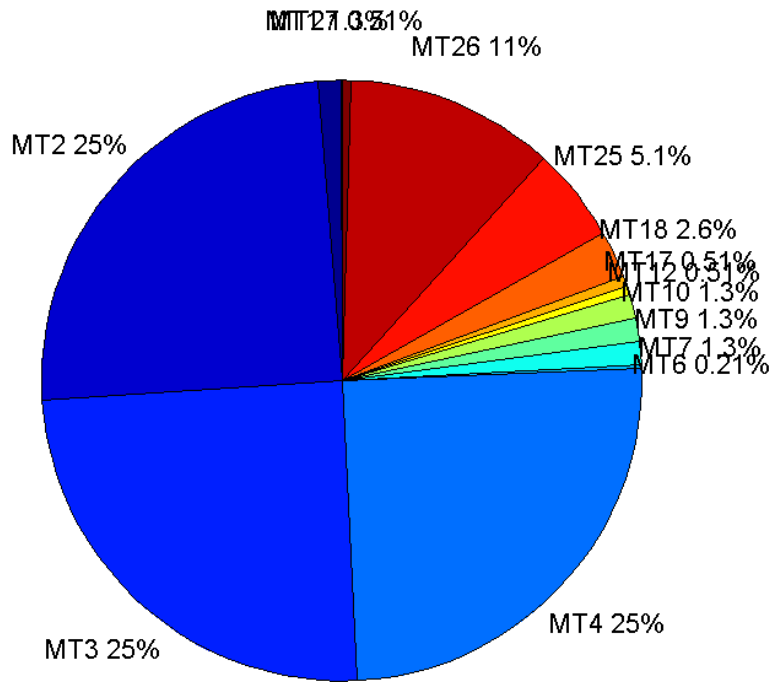
MT 63	0	0
<b>Total</b>	24806	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	84	79.7419	0	0	0
MT 2	4	9	4.03366	13	0	0
MT 3	4	8	4.03351	13	0	0
MT 4	4	8	4.03334	13	0	0
MT 5	--	--	--	--	--	--
MT 6	1	5923	336.039	12	12	12
MT 7	76	86	79.7935	0	0	0
MT 9	76	87	79.7806	0	0	0
MT 10	75	83	79.7774	0	0	0
MT 12	189	202	196	126	0	0
MT 17	188	201	195.968	0	0	0
MT 18	2	156	39.0158	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	52	19.6318	0	0	0
MT 26	1	32	8.91766	0	0	0
MT 27	189	201	195.936	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

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Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

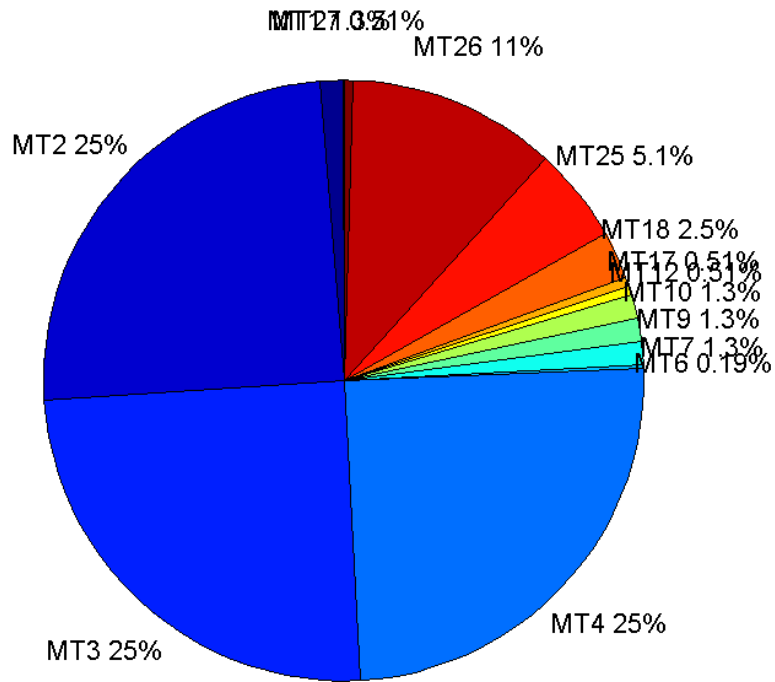
Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	311	1.25373
MT 2	6151	24.7964
MT 3	6151	24.7964
MT 4	6150	24.7924
MT 5	0	0
MT 6	48	0.193502
MT 7	312	1.25776
MT 9	311	1.25373
MT 10	311	1.25373
MT 12	126	0.507942
MT 17	126	0.507942
MT 18	630	2.53971
MT 24	0	0
MT 25	1265	5.09957
MT 26	2788	11.2392
MT 27	126	0.507942
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	24806	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	82	79.7419	0	0	0
MT 2	4	8	4.03301	12	0	0
MT 3	4	8	4.03317	12	0	0
MT 4	4	8	4.03301	12	0	0
MT 5	--	--	--	--	--	--
MT 6	1	2910	239.362	11	11	11
MT 7	74	81	79.6977	0	0	0
MT 9	75	87	79.729	0	0	0
MT 10	76	87	79.7065	0	0	0
MT 12	188	203	196.032	125	0	0
MT 17	187	204	196	0	0	0
MT 18	4	162	39.0334	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	48	19.6171	0	0	0
MT 26	1	32	8.89774	0	0	0
MT 27	189	204	196	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 136:



### Parameters

#### System

Name	Section	Value
Name	System	Convertor
Version	System	4.3
Inputfile	System	D:/PegasusDateJob/job/2016_04_27_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_04_27_EGNOS/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