

# 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 09/02/2017

## SBAS Messages

**start:** 07:19:59.129 03.02.2017 ( week: 1934 sec: 458399.129 )  
**end:** 13:22:5.129 03.02.2017 ( week: 1934 sec: 480125.129 )  
**duration:** 06:02:06 ..

### quality

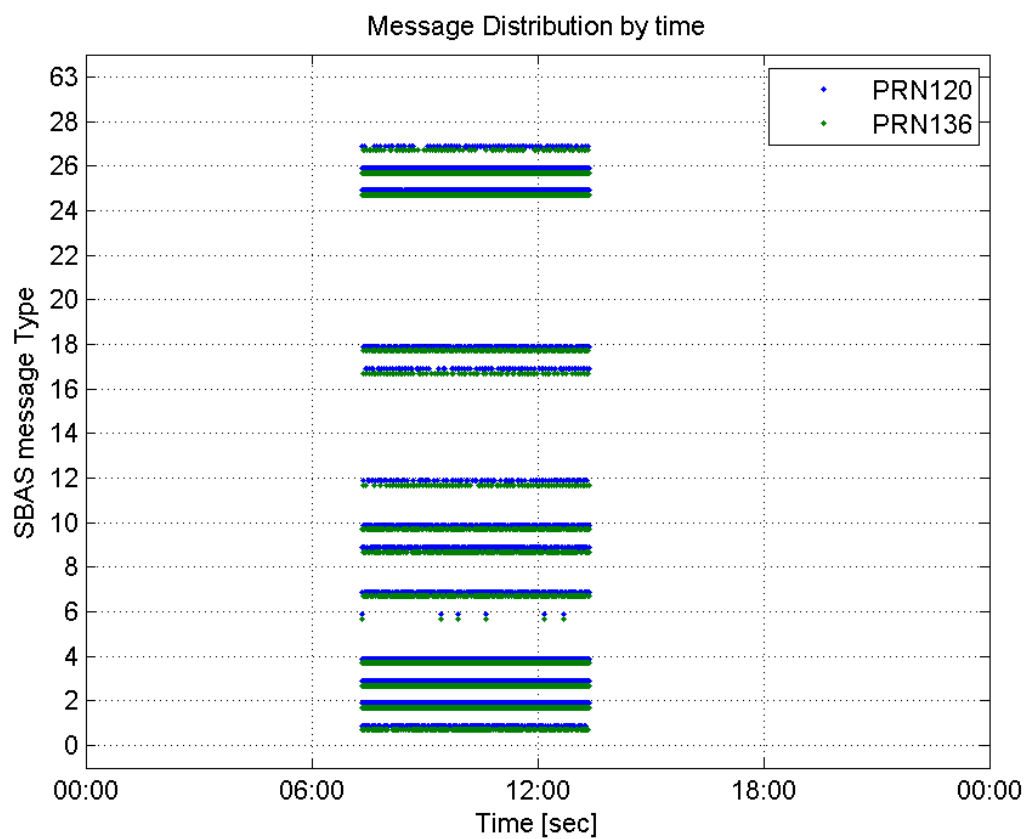
**valid samples** 33796  
**total samples** 33796  
**number of SBAS PRNs** 2

### SBAS SIS Overview

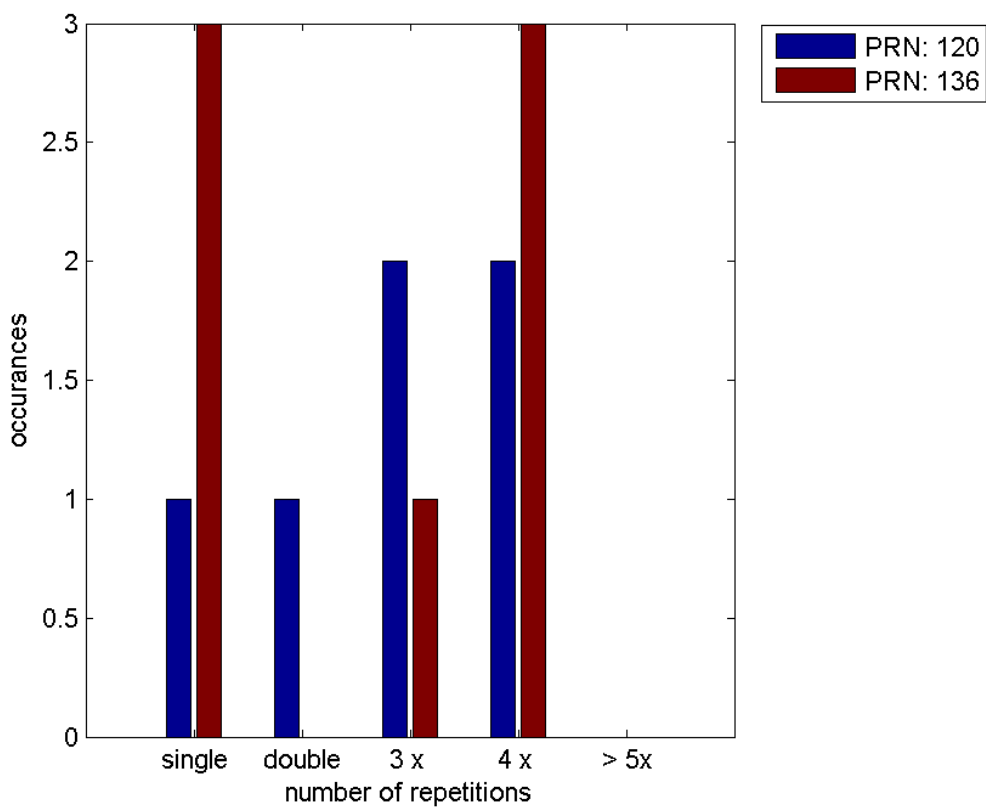
#### Message Type 6 repetitions :

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

#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

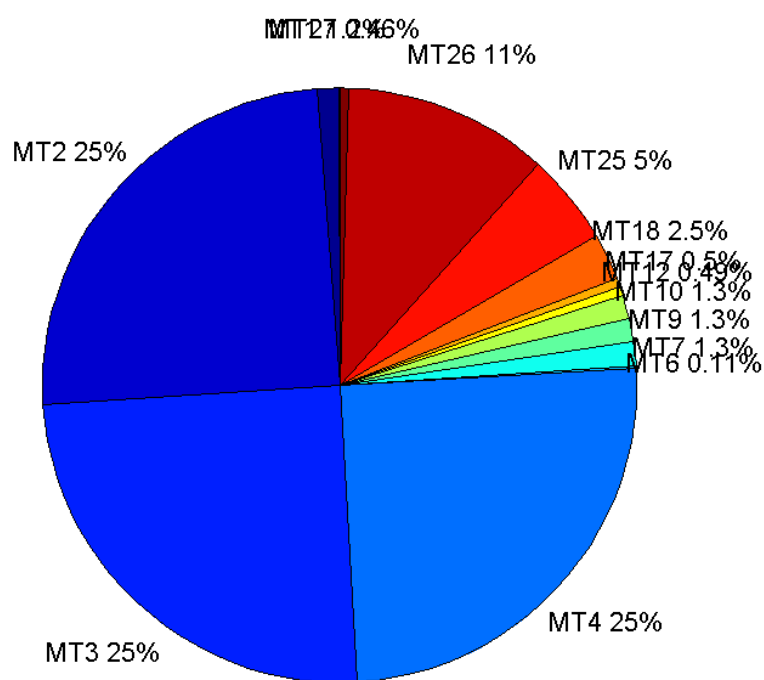
	number of messages	%
MT 0	0	0
MT 1	208	1.22982
MT 2	4194	24.7975
MT 3	4219	24.9453
MT 4	4219	24.9453
MT 5	0	0
MT 6	18	0.106427
MT 7	221	1.30669
MT 9	214	1.2653
MT 10	219	1.29486
MT 12	83	0.490747
MT 17	85	0.502572
MT 18	419	2.47738
MT 24	0	0
MT 25	843	4.98433
MT 26	1893	11.1926
MT 27	78	0.461184
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	16913	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	400	103.314	43	0	0
MT 2	4	36	5.18102	1124	2	12
MT 3	4	36	5.15007	1113	2	9
MT 4	4	36	5.14936	1115	1	6
MT 5	--	--	--	--	--	--
MT 6	1	7543	1133.18	5	5	5
MT 7	76	400	98.5682	36	1	3
MT 9	76	322	101.507	0	0	0
MT 10	76	316	99.1239	43	0	3
MT 12	188	590	260.512	82	22	22
MT 17	188	973	254.345	0	0	0
MT 18	4	337	51.6675	1	0	0
MT 24	--	--	--	--	--	--
MT 25	4	181	25.7732	0	0	0
MT 26	4	60	11.4804	0	0	0

MT 27	188	1382	279.961	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

**Message Distribution PRN 120:**



**SBAS SIS Analysis**

PRN 136

**Broadcast SBAS Messages :**

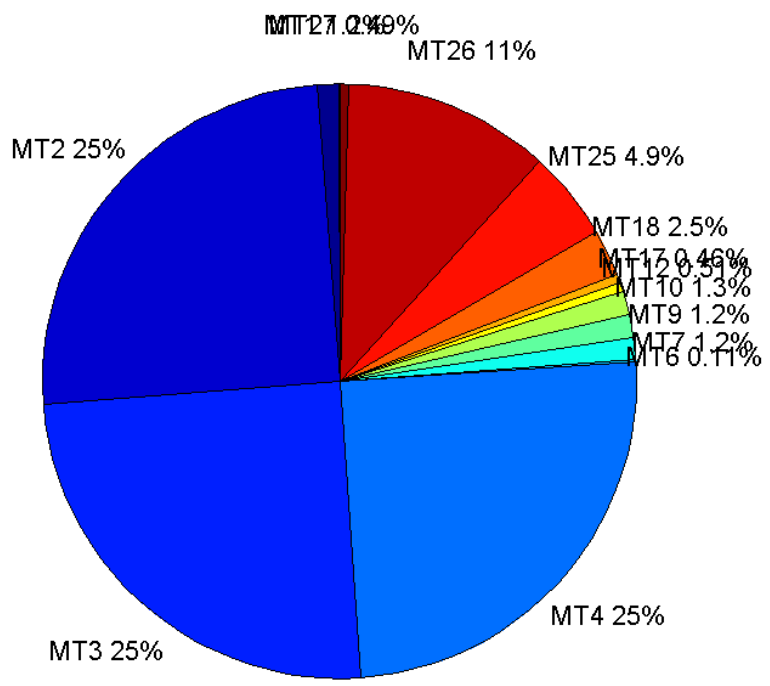
	number of messages	%
MT 0	0	0
MT 1	203	1.20239
MT 2	4227	25.037
MT 3	4201	24.883
MT 4	4205	24.9067
MT 5	0	0
MT 6	19	0.112539
MT 7	209	1.23793
MT 9	205	1.21424
MT 10	214	1.26755
MT 12	86	0.509388
MT 17	78	0.462003

MT 18	429	2.54102
MT 24	0	0
MT 25	831	4.92211
MT 26	1894	11.2184
MT 27	82	0.485696
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	16883	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	395	107.03	46	0	0
MT 2	4	17	5.1389	1106	0	2
MT 3	4	17	5.1719	1141	0	4
MT 4	4	17	5.16794	1122	0	6
MT 5	--	--	--	--	--	--
MT 6	1	7543	1070.28	5	5	5
MT 7	76	316	103.692	49	0	4
MT 9	75	401	105.706	0	0	0
MT 10	76	397	101.93	40	1	7
MT 12	188	784	253.141	85	19	19
MT 17	188	600	279.39	0	0	0
MT 18	4	188	50.3084	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	116	26.1205	0	0	0
MT 26	1	93	11.4754	0	0	0
MT 27	188	976	265.605	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/2017_02_03EGNOS2H/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_03EGNOS2H/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:** 07:19:59.5 03.02.2017 ( week: 1934 sec: 458399.5 )  
**end:** 13:22:06 03.02.2017 ( week: 1934 sec: 480126 )  
**duration:** 06:02:07 ..

### quality

**valid samples** 39251  
**total samples** 39910

## Event tables

**Position discontinuity events type** long  
**APV-I discontinuity events type** too many (25)  
**APV-35m discontinuity events type** too many (31)  
**LPV-200 discontinuity events type** too many (31)  
**CAT-I discontinuity events type** nothing

## extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
<b>max normHor</b>	466403	1.42548	9.09498	0.156732	-0.368198	17.6	0.0209203
<b>max normVer</b>	475992	1.27584	31.1568	0.040949	2.05299	18.0961	0.113449
<b>max HPE</b>	460493	11.8379	132.802	0.0891395	11.6296	121.827	0.0954602
<b>max VPE</b>	462420	11.1548	296.011	0.0376838	18.9804	440.548	0.0430837
<b>min HPL</b>	466613	0.859491	8.24623	0.104228	0.0433871	17.1954	0.00252318
<b>min VPL</b>	468874	0.885452	8.77952	0.100854	0.649522	13.1283	0.0494749

## Position discontinuity events :

#	Epoch	duration	stable period
1	462399	13	92.5
2	462431	19.5	19.5
3	465057	229.5	1098.5
4	465968	4.5	188.5
5	469257	4.5	540.5
6	469361	5.5	99.5
7	469844	5.5	108.5
8	470065	5.5	39.5
9	474438	20.5	528.5
10	474481	22	5.5
11	475799	184.5	94.5
12	478640	24.5	183

## First Glance analysis

**Duration** 21727  
**Number of Samples** 39910  
**Number of invalid sample** 659  
**Number of no position solution samples** 1075  
**Number of missing sample** 3544  
**Logging Loss** 8.1558  
**Processing Loss** 1.6512  
**Number of Misleading Information** 0  
**Data gaps** 17  
**Discontinuities** 69

## Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
38176	32756	31760	0	31760

## Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.55158	1.33615	1.32865	NaN	1.32865
HPEscale 95%	NaN	4.04826	4.06061	NaN	4.06061
VPE 95%	1.53407	1.29233	1.26214	NaN	1.26214
VPEscale 95%	NaN	3.40877	2.39326	NaN	2.39326

## Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.972612	0.834527	0.809151	0	0.809151
measurements	0.956552	0.820747	0.795791	0	0.795791
Operational	1.75708	1.50762	1.46178	0	1.46178

## Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	52	102	154	--	154
Long	12	28	54	--	54
Independent	11	25	31	--	31
P(disc.)	0.00432209	0.0114483	0.0146411	NaN	0.0146411
P(slide)	0.0199733	0.0407101	0.0539043	NaN	0.0539043

## Integrity events :

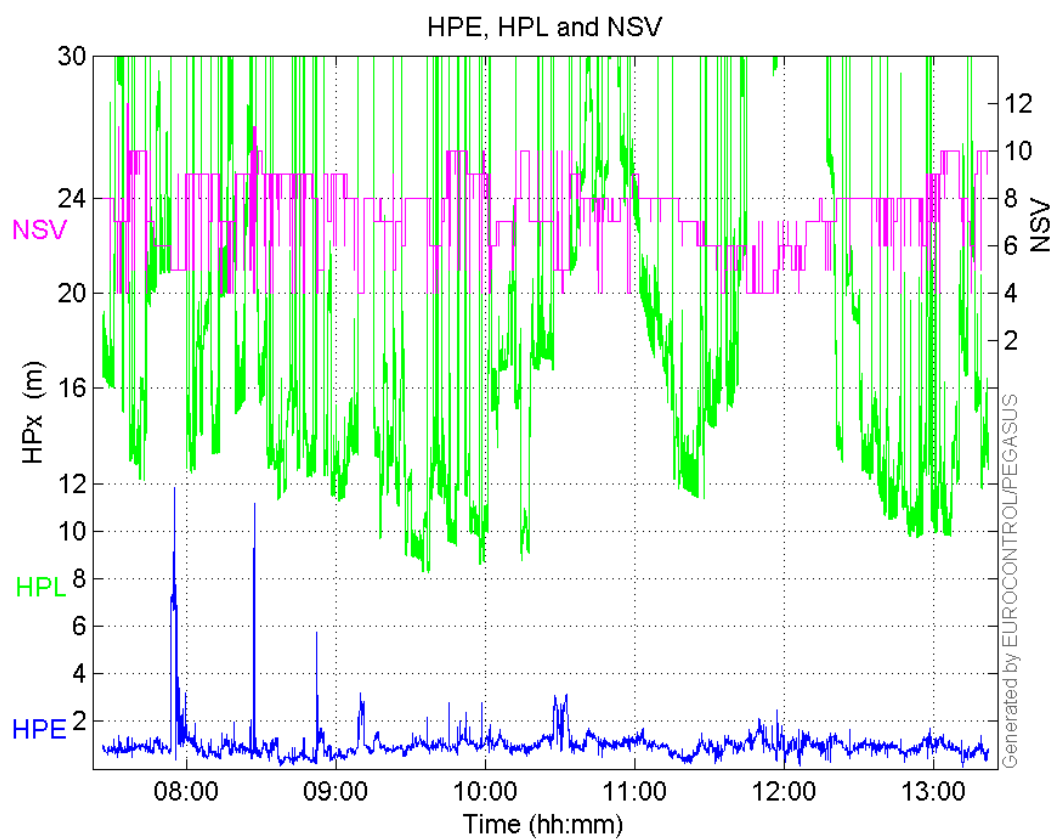
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

## Performance Summary :

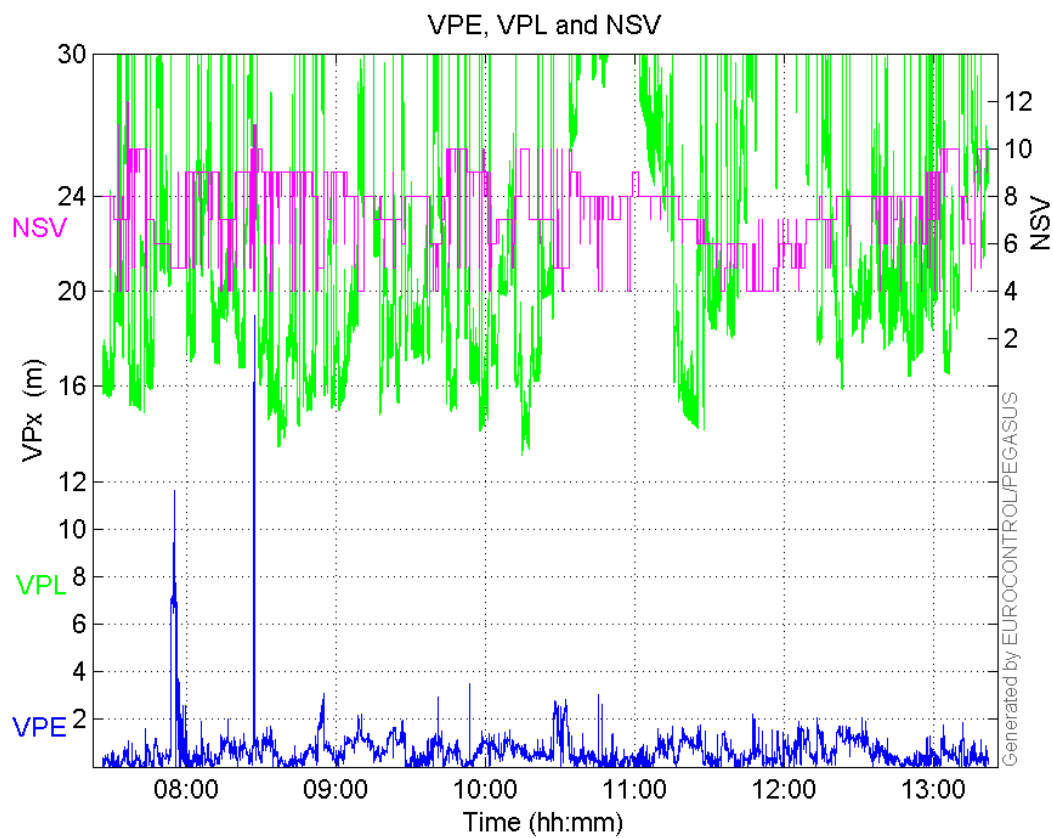
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	38176	32756	31760	0	31760
SIS Availability	0.972612	0.834527	0.809151	0	0.809151
Local Availability	0.956552	0.820747	0.795791	0	0.795791
Operational Availability	1.75708	1.50762	1.46178	0	1.46178
HPE 95%	1.55158	1.33615	1.32865	NaN	1.32865
HPEscale 95%	NaN	4.04826	4.06061	NaN	4.06061
VPE 95%	1.53407	1.29233	1.26214	NaN	1.26214
VPEscale 95%	NaN	3.40877	2.39326	NaN	2.39326
All Discontinuity Events	52	102	154	--	154
Long Discontinuity Events	12	28	54	--	54
Independent Discontinuity Events	11	25	31	--	31
P(discontinuity)	0.00432209	0.0114483	0.0146411	NaN	0.0146411
P(sliding window)	0.0199733	0.0407101	0.0539043	NaN	0.0539043
All Integrity Events	0	0	0	0	0
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0



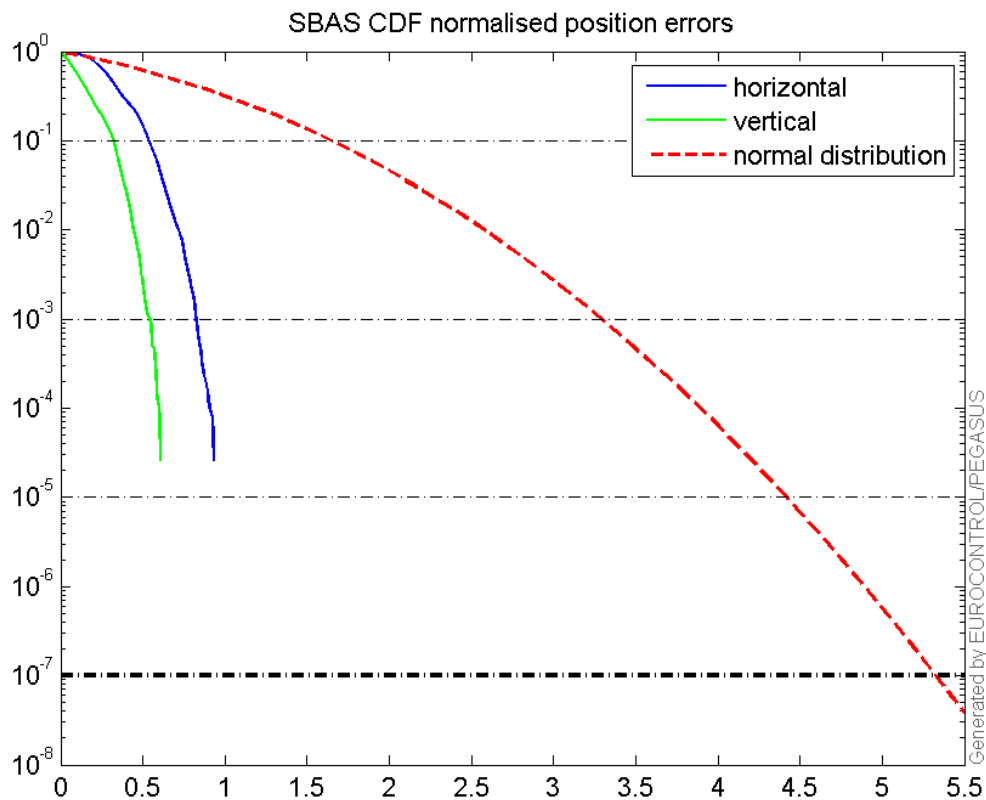
## HPE, HPL and NSV:



## VPE, VPL and NSV:







## Statistics

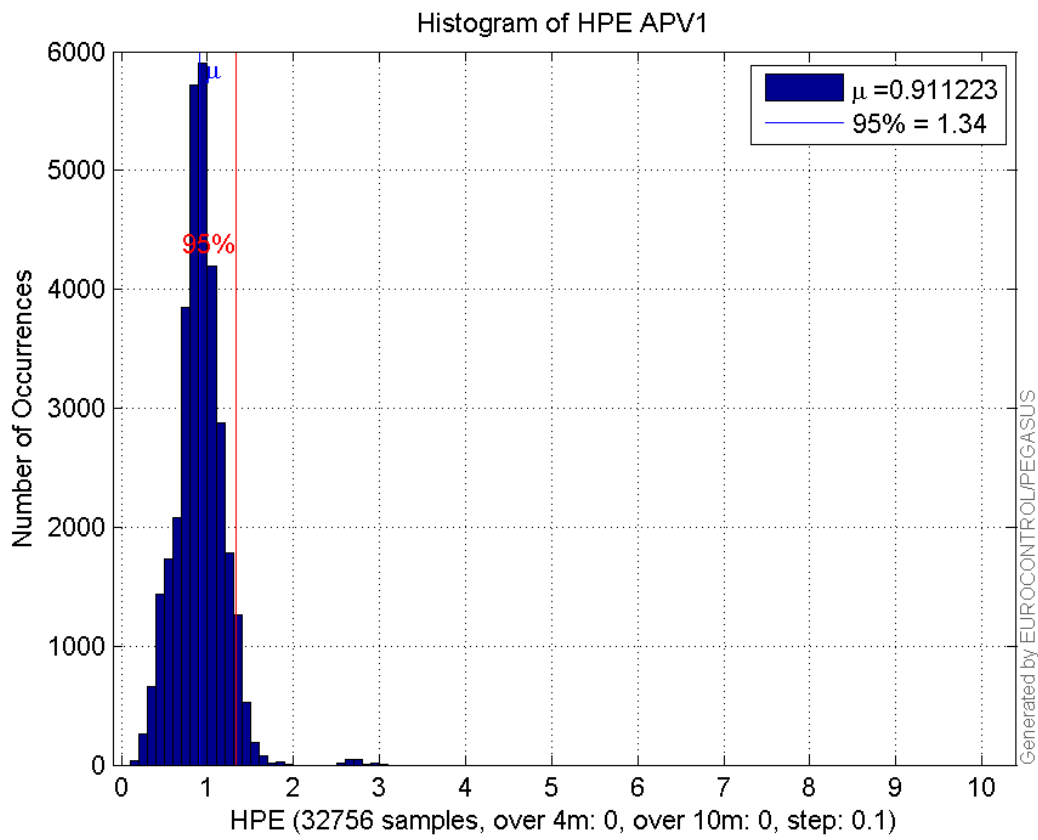
<b>number</b>	32756
<b>sum</b>	29848.031
<b>sum2</b>	29723.356
<b>prctile95</b>	1.3361541
<b>prctile99</b>	1.5401858
<b>number</b>	32756
<b>sum</b>	18225.992
<b>sum2</b>	15412.893
<b>prctile95</b>	1.2923327
<b>prctile99</b>	1.6171999
<b>number</b>	32756
<b>sum</b>	560009.24
<b>sum2</b>	10834972
<b>prctile95</b>	30.08585
<b>prctile99</b>	35.657964
<b>number</b>	32756
<b>sum</b>	705031.3
<b>sum2</b>	16213283
<b>prctile95</b>	33.81245
<b>prctile99</b>	37.008894
<b>number</b>	32756
<b>sum</b>	1914.5027
<b>sum2</b>	130.02417
<b>prctile95</b>	0.10120641
<b>prctile99</b>	0.12143292
<b>number</b>	32756
<b>sum</b>	911.20926

**sum2** 39.940903  
**prctile95** 0.06817548  
**prctile99** 0.083546527  
**number** 31760  
**sum** 28599.949  
**sum2** 27820.412  
**prctile95** 1.3286474  
**prctile99** 1.4947186  
**number** 31760  
**sum** 17646.107  
**sum2** 14486.209  
**prctile95** 1.2621447  
**prctile99** 1.5672778  
**number** 31760  
**sum** 529441.28  
**sum2** 9870078  
**prctile95** 29.2913  
**prctile99** 32.23558  
**number** 31760  
**sum** 668158.34  
**sum2** 14843975  
**prctile95** 31.34955  
**prctile99** 34.44554  
**number** 31760  
**sum** 1873.7786  
**sum2** 128.13872  
**prctile95** 0.10151521  
**prctile99** 0.12176824  
**number** 31760  
**sum** 895.52664  
**sum2** 39.264673  
**prctile95** 0.068378857  
**prctile99** 0.083855095

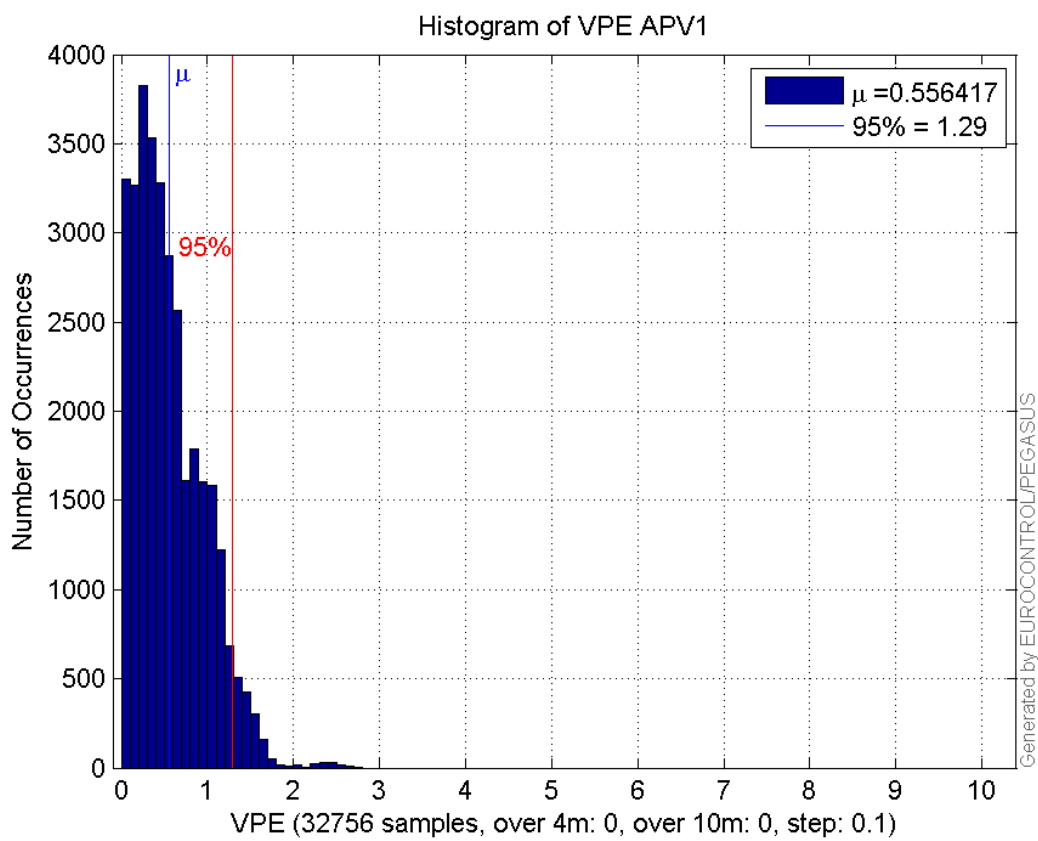
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	0.911223	0.277654	0.909256	1.33615	1.54019	0.952584
<b>HPL</b>	17.0964	6.20427	15.5399	30.0859	35.658	18.1873
<b>VPE</b>	0.556417	0.401175	0.475195	1.29233	1.6172	0.685957
<b>VPL</b>	21.5237	5.6304	19.8606	33.8124	37.0089	22.248

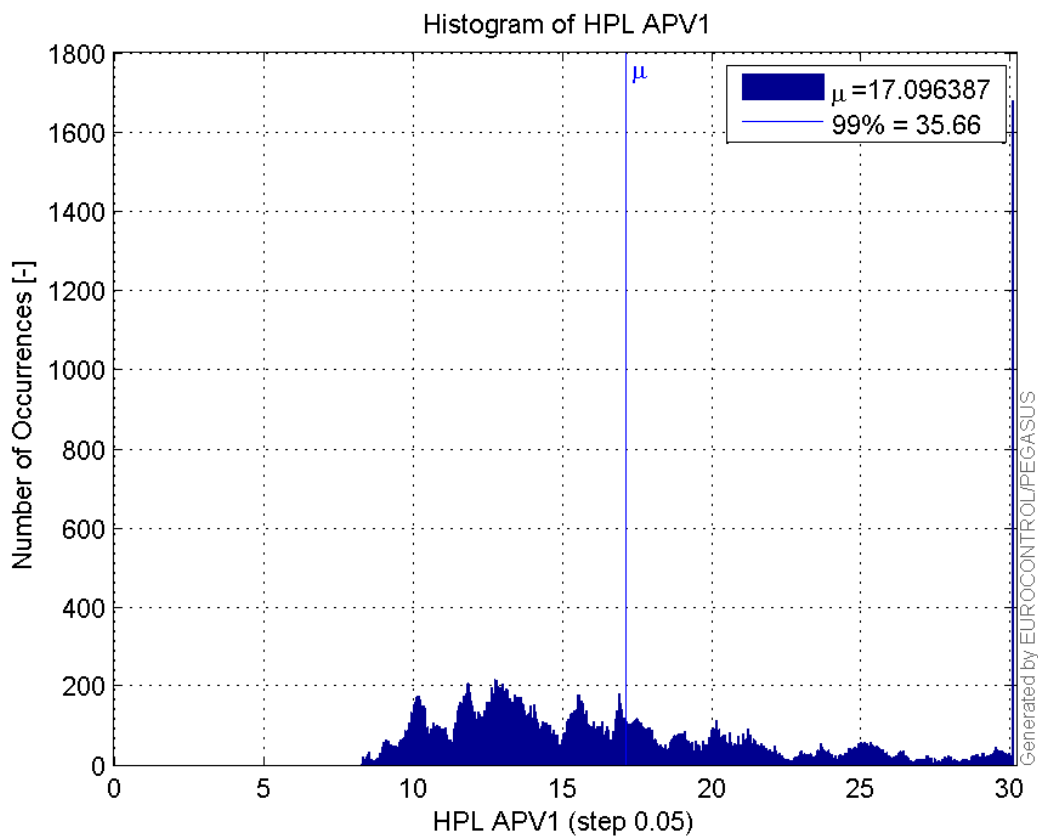
**Histogram of HPE APV1:**



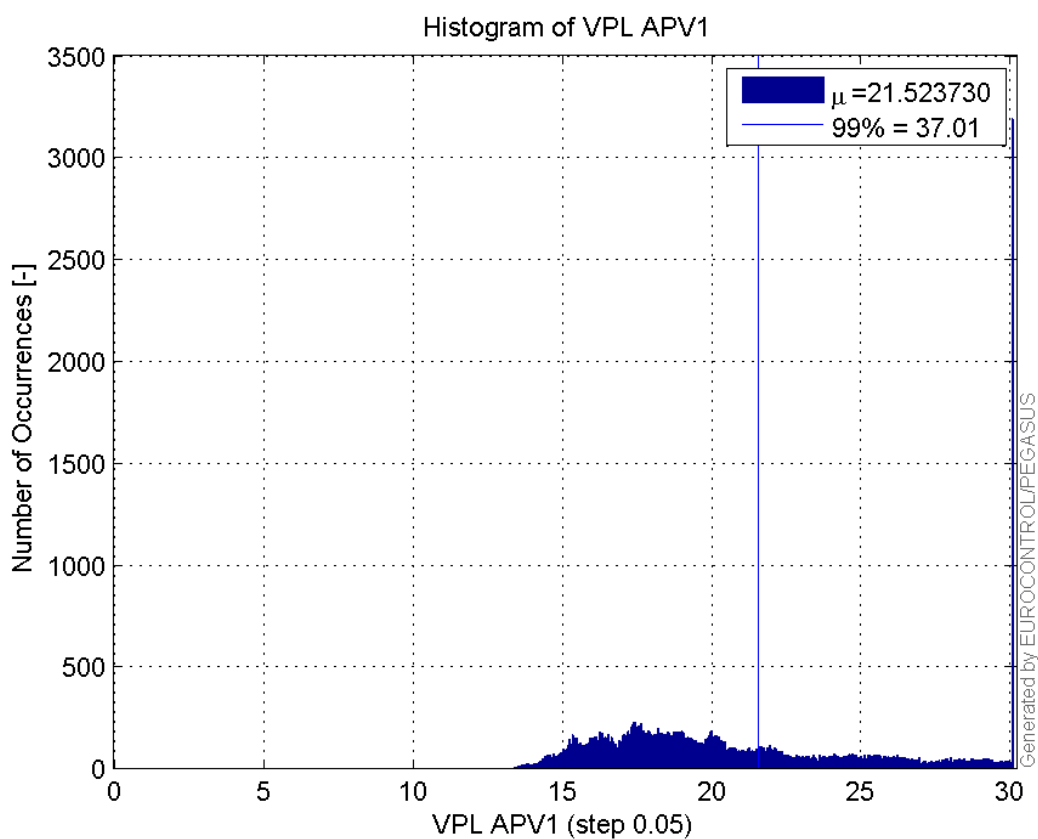
**Histogram of VPE APV1:**



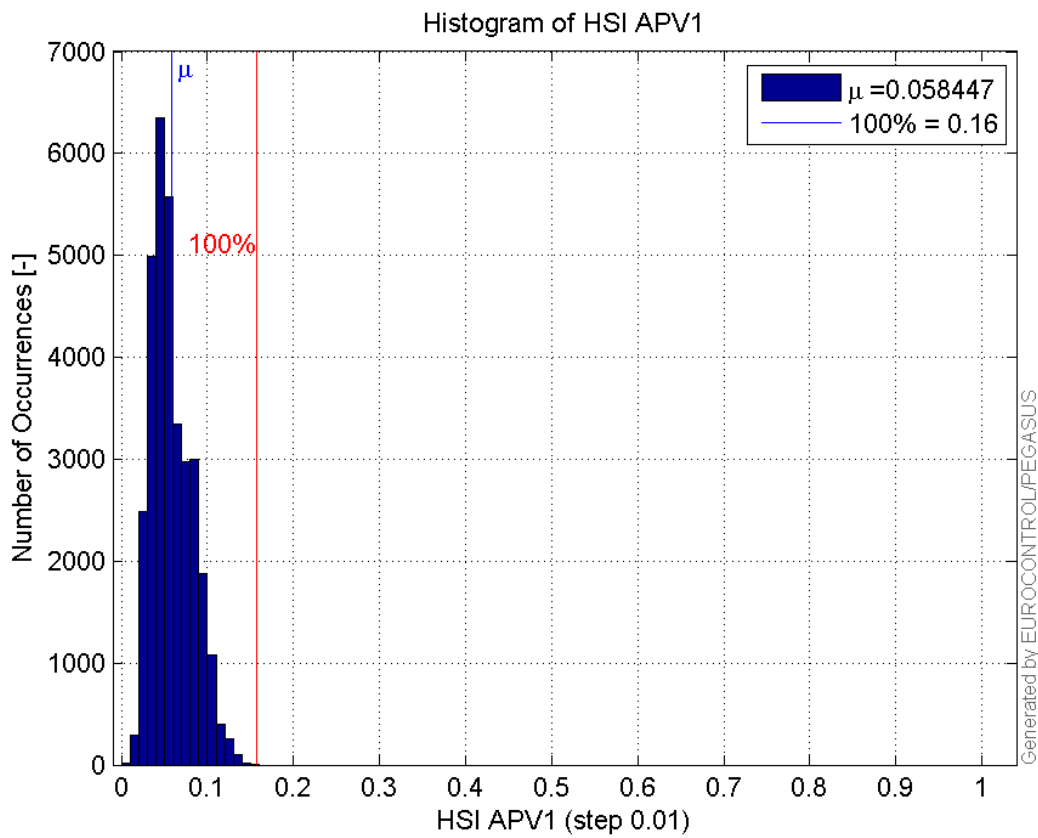
**Histogram of HPL APV1:**



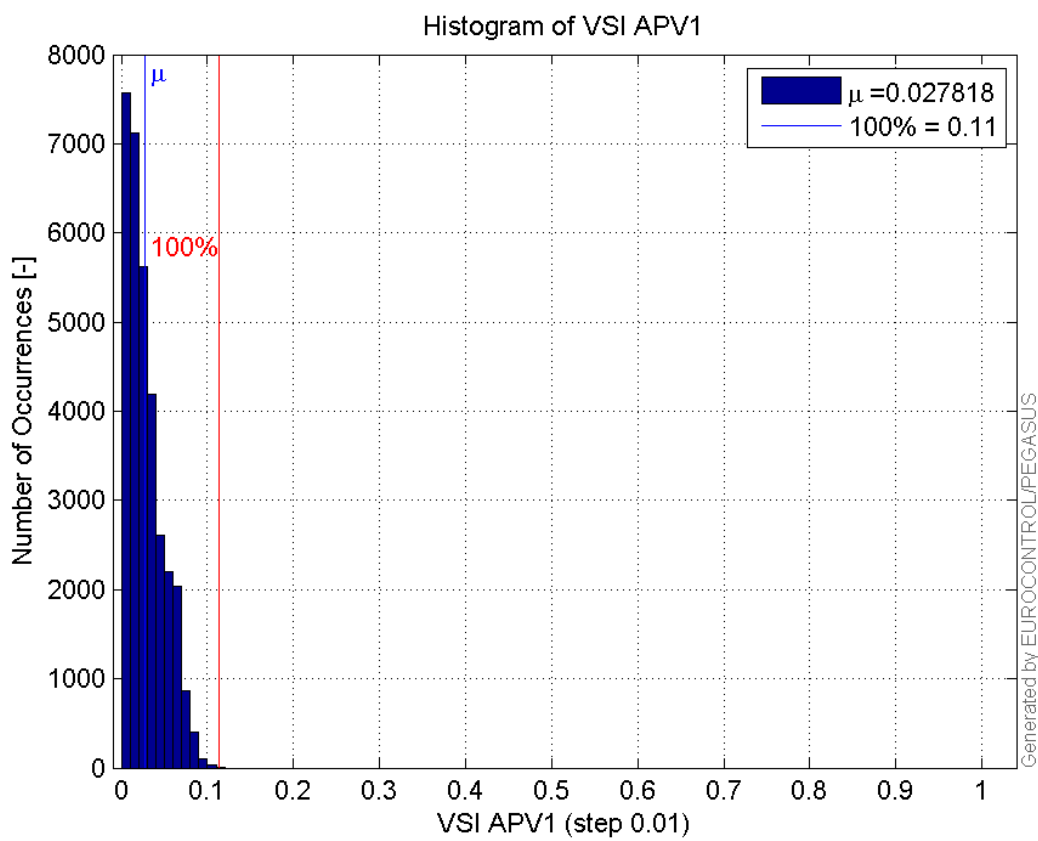
**Histogram of VPL APV1:**



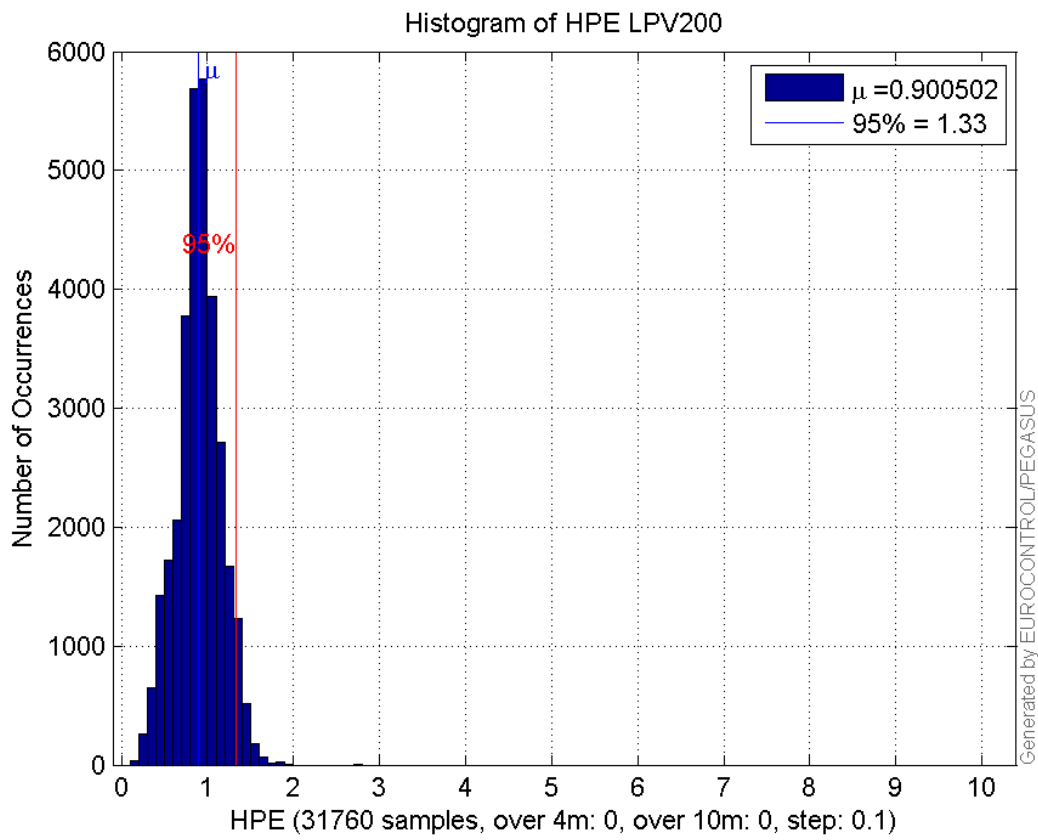
**Histogram of HSI APV1:**



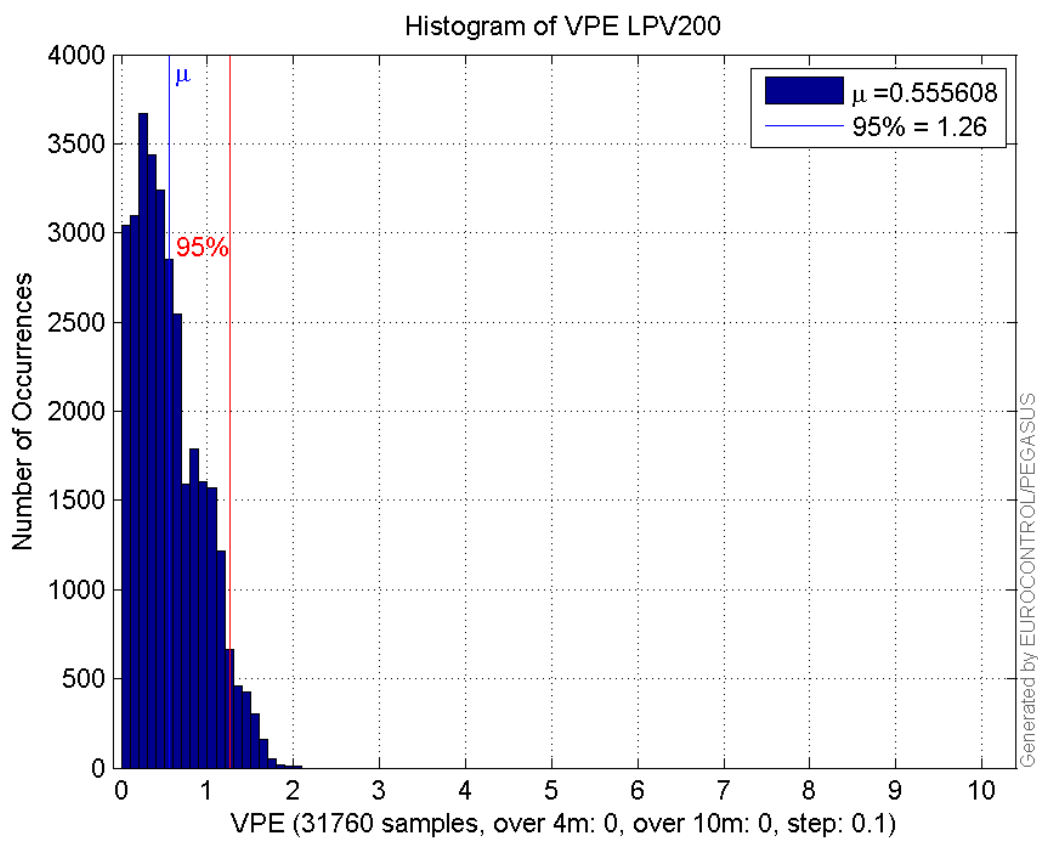
**Histogram of VSI APV1:**



**Histogram of HPE LPV200:**

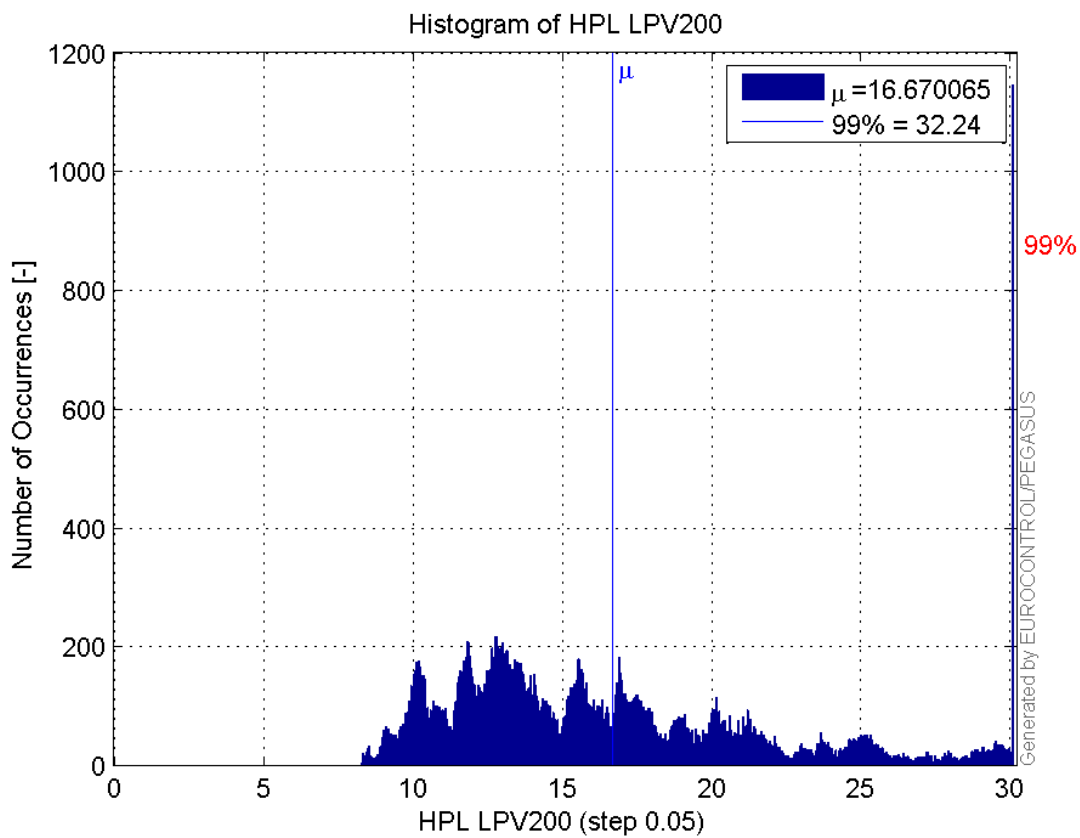


**Histogram of VPE LPV200:**

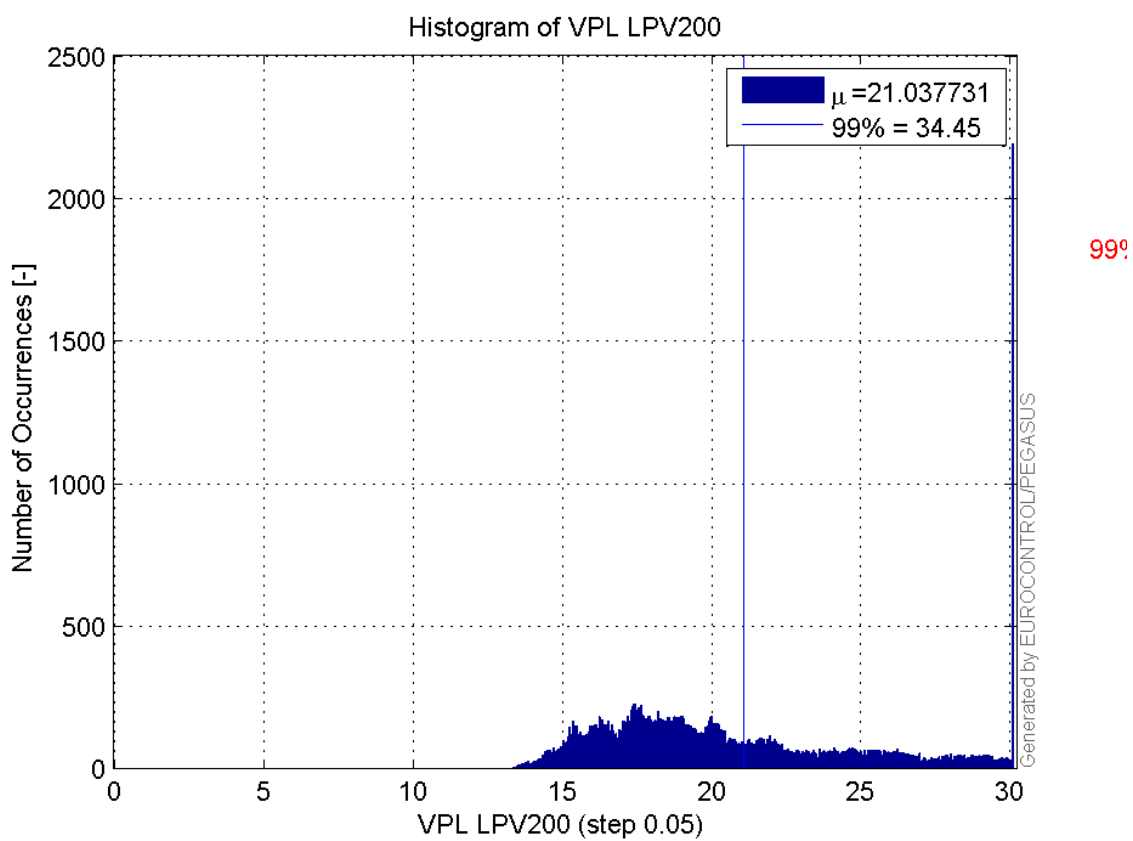


**Histogram of HPL LPV200:**

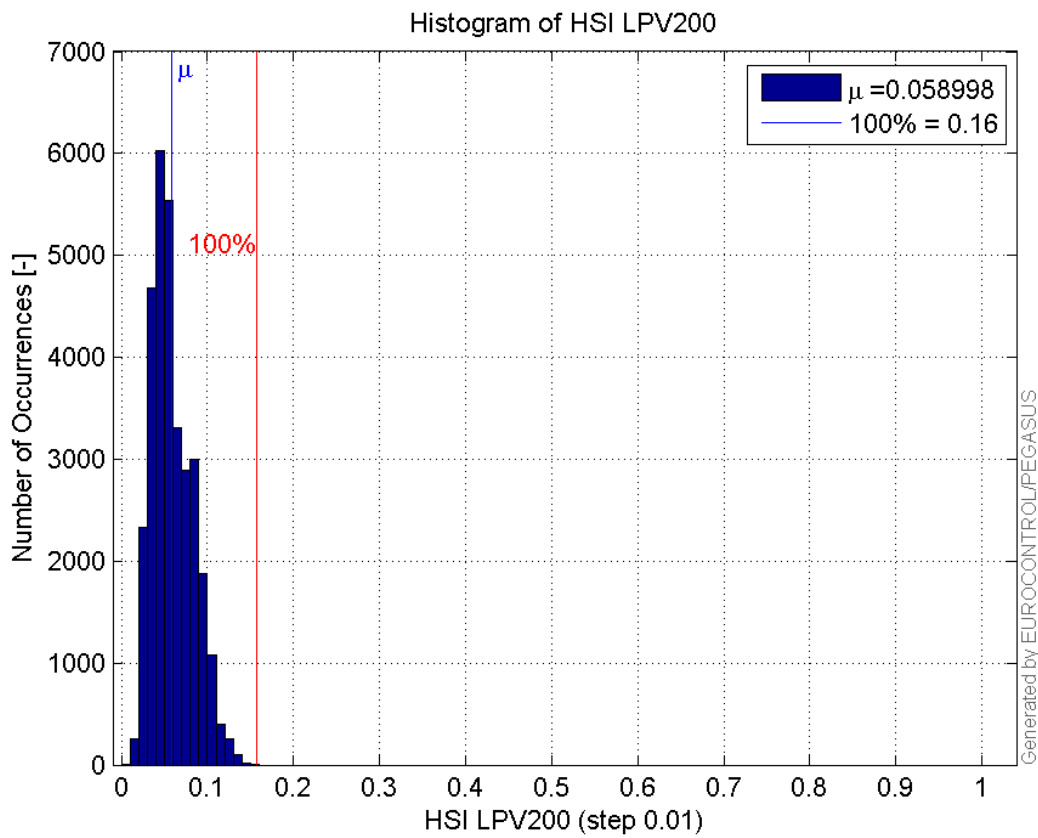




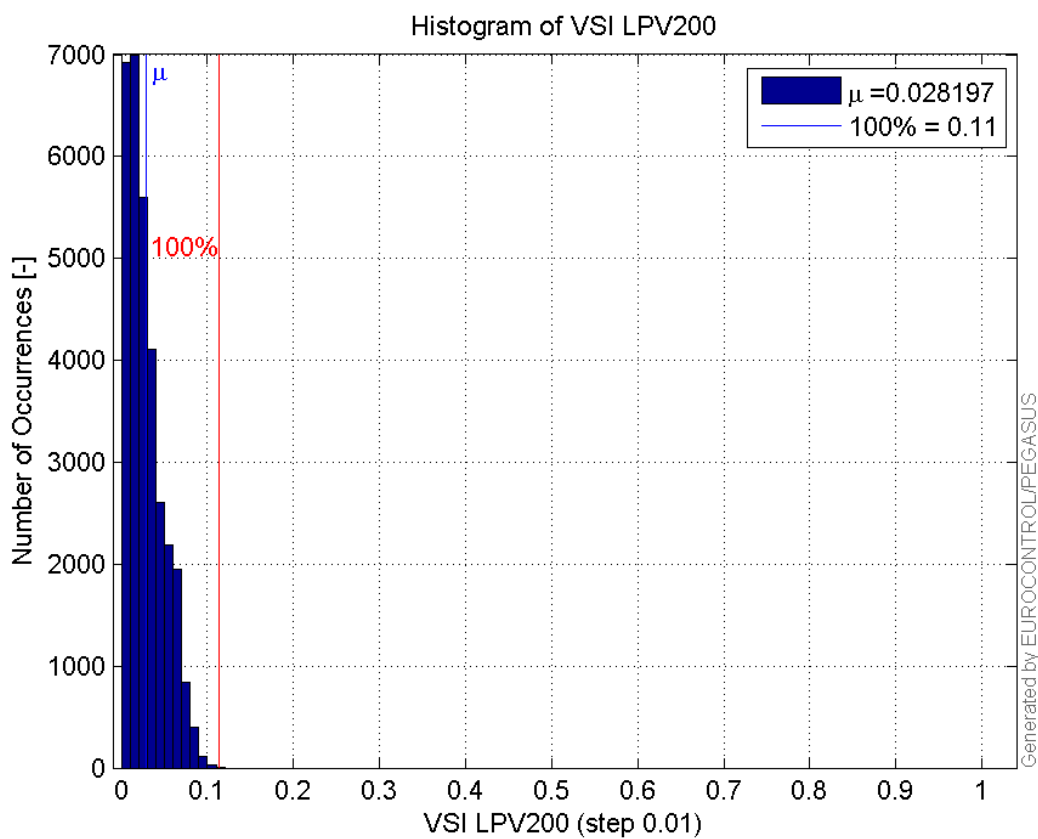
**Histogram of VPL LPV200:**

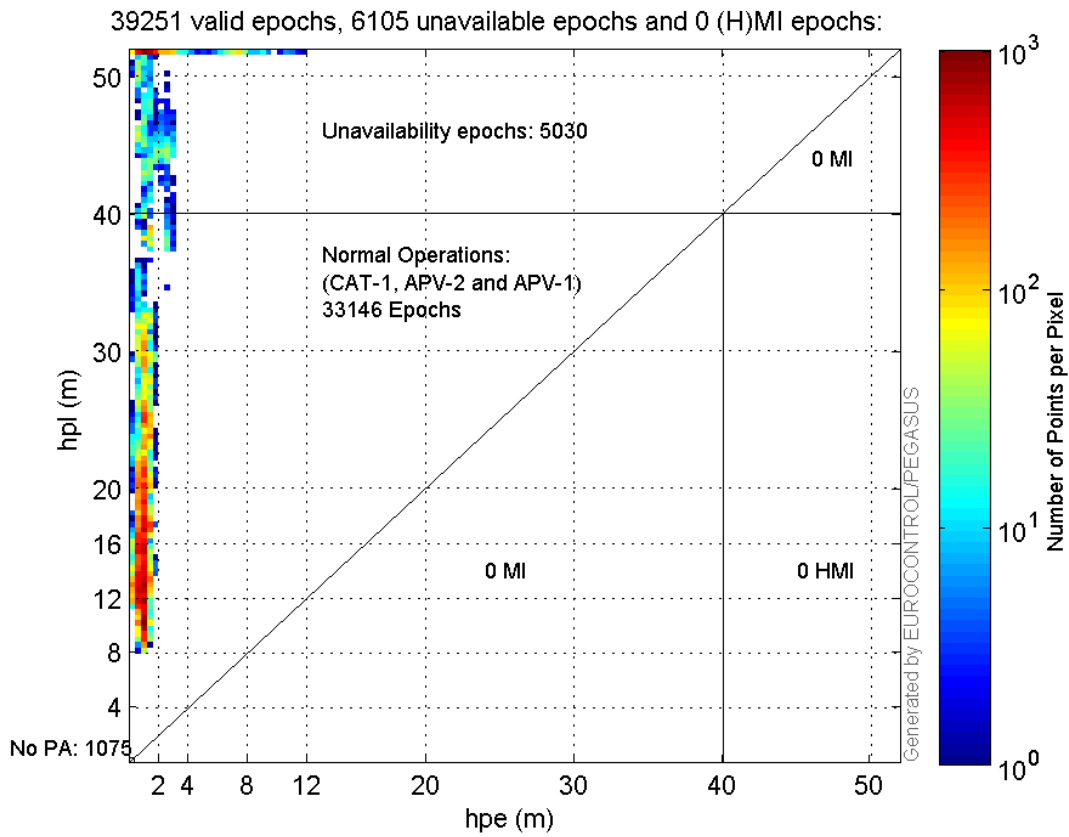


**Histogram of HSI LPV200:**

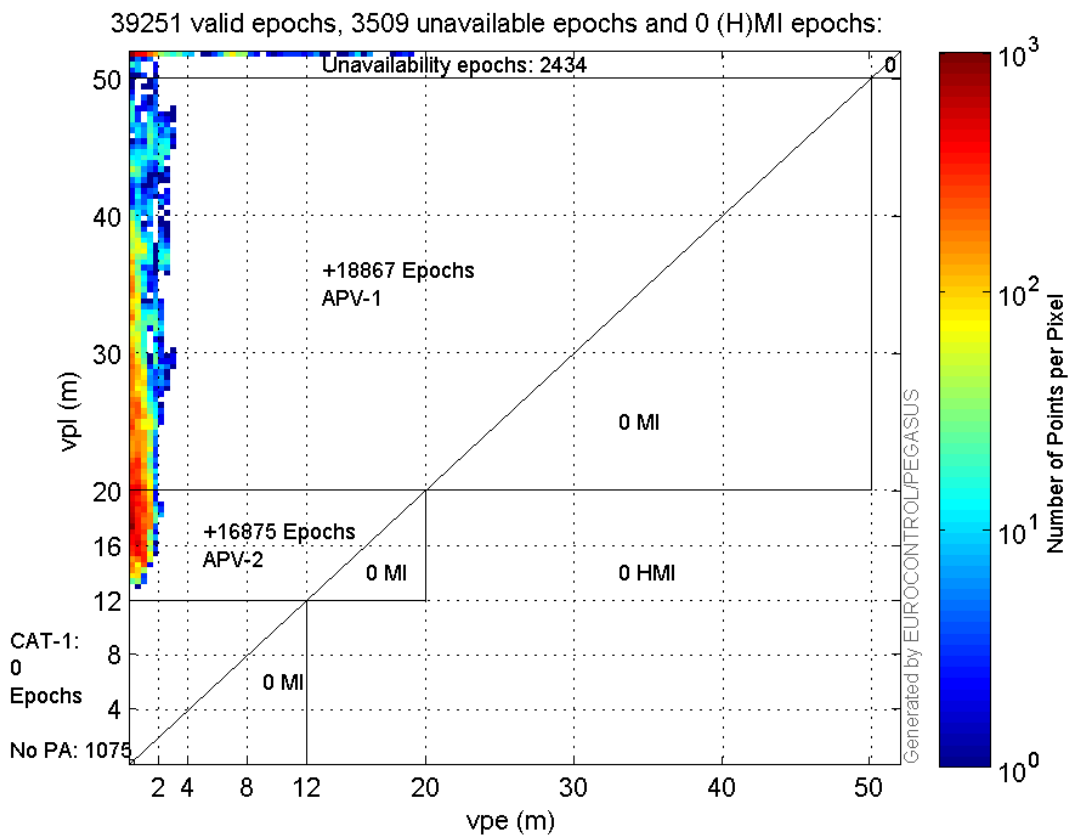


**Histogram of VSI LPV200:**





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



**Parameters**

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_02_03EGNOS2H/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_03EGNOS2H/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	228.4985
mi_numbers	results	0

## Range Domain

**start:** 07:19:59.5 03.02.2017 ( week: 1934 sec: 458399.5 )  
**end:** 13:22:06 03.02.2017 ( week: 1934 sec: 480126 )  
**duration:** 06:02:07 ..

### quality

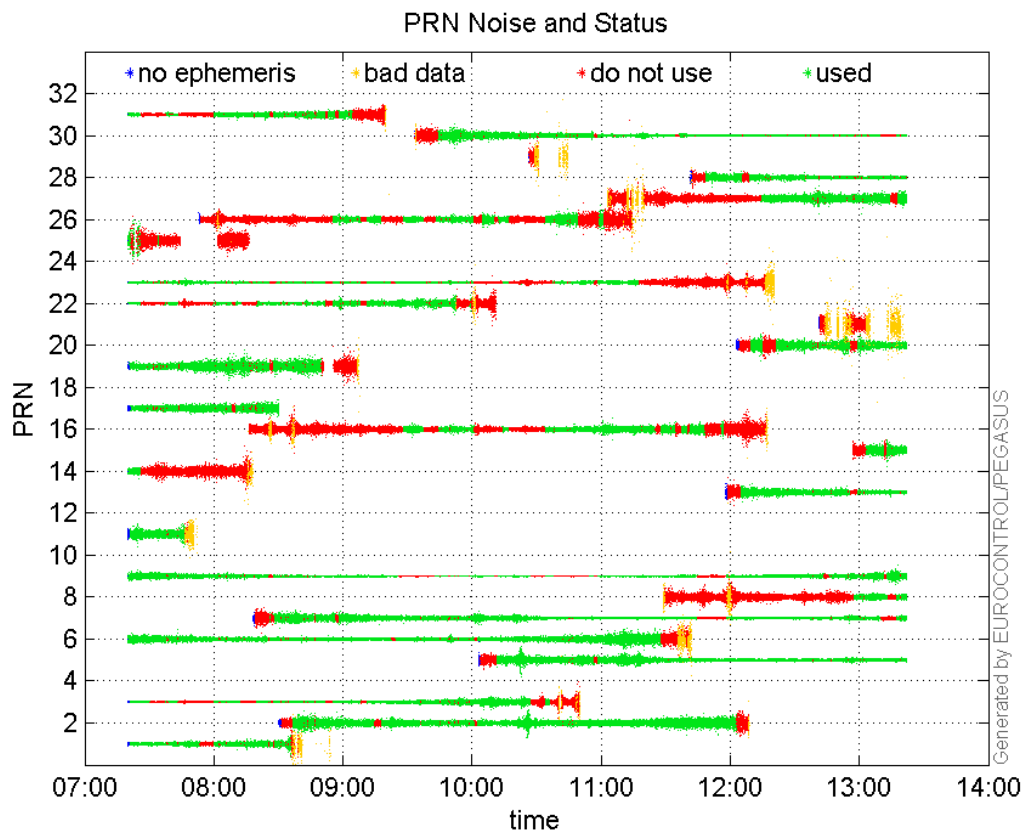
**valid samples** 39910  
**total samples** 39910

### PRN overview

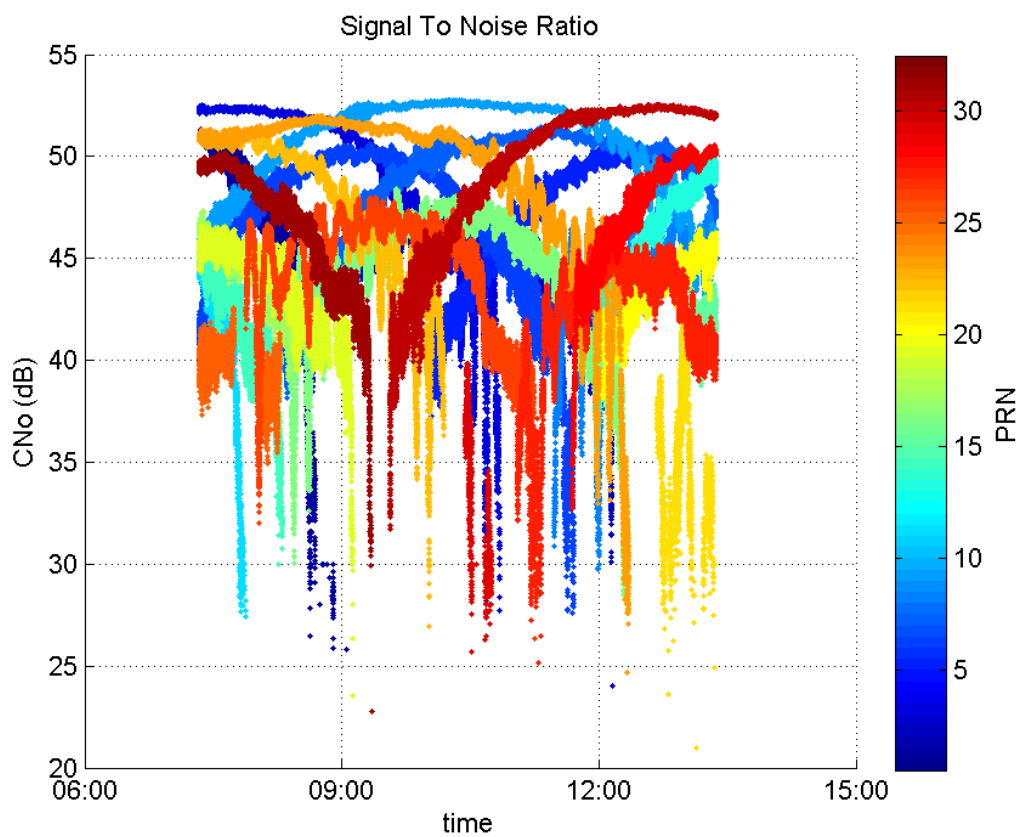
**Number of Visible GPS Satellites** 26  
**Number of Visible SBAS Satellites** 2

### signal quality and status

**PRN Noise and Status:**



**Signal To Noise Ratio:**



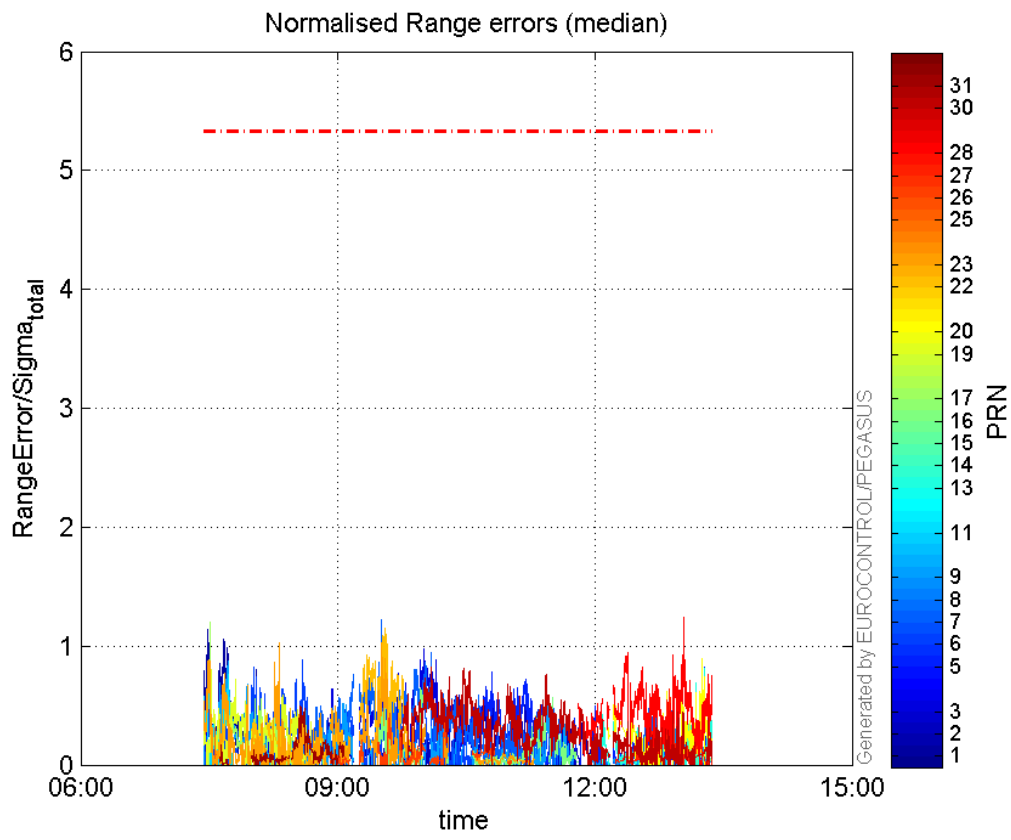
range errors

Number of Overbounding Norm Errors 0

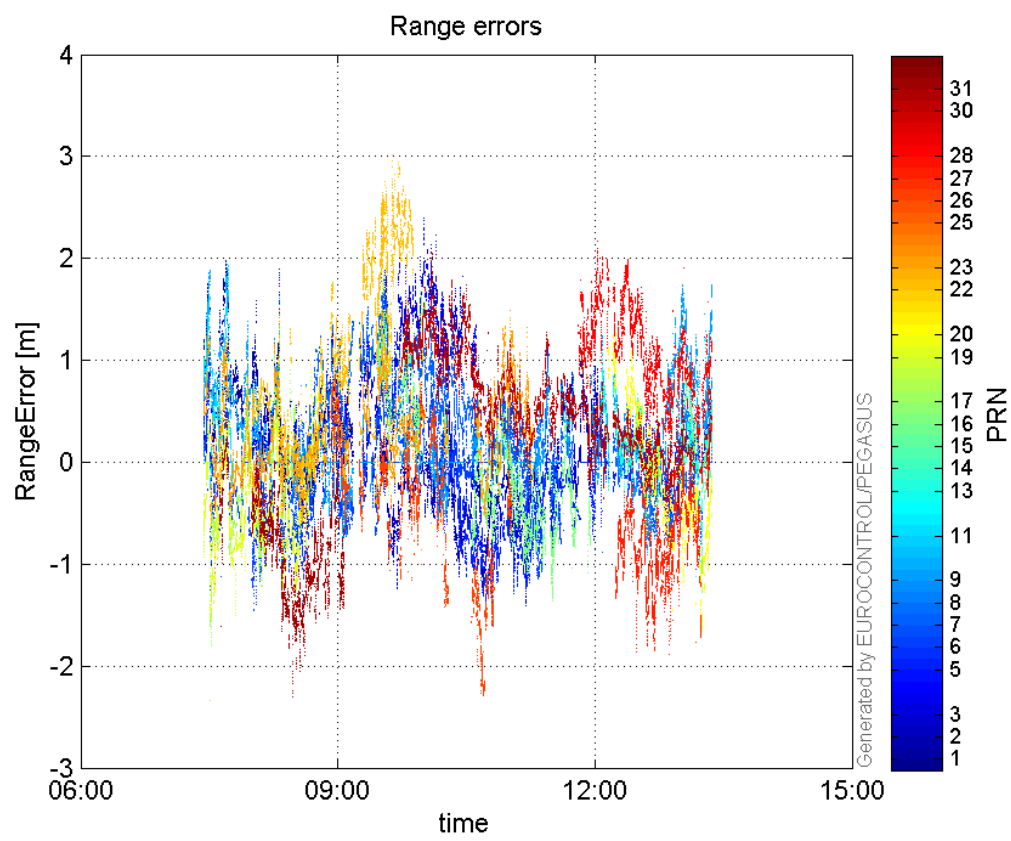
**Max Norm Errors :**

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1934	458919	1	1.1357	1.75142	1.54216
1934	472319	2	0.644202	-1.40289	2.17772
1934	466403	3	1.05229	1.88666	1.79291
1934	479786	5	0.820346	1.23041	1.49987
1934	462924	6	0.887805	-1.50081	1.69047
1934	466246	7	1.22406	2.25407	1.84147
1934	479464	8	0.160268	-1.12639	7.02818
1934	461937	9	0.910641	1.63779	1.7985
1934	458969	11	0.770112	1.76489	2.29173
1934	479786	13	0.813742	1.19495	1.46846
1934	459146	14	NaN	NaN	10.3522
1934	479632	15	0.434438	-0.987774	2.27368
1934	467882	16	0.650737	1.68375	2.58745
1934	459028	17	1.19927	-2.33222	1.94471
1934	459029	19	0.837012	-1.50112	1.79343
1934	479716	20	0.892952	-1.50988	1.69088
1934	466403	22	1.14799	2.75115	2.39649
1934	461937	23	1.02867	1.5091	1.46704
1934	459233	25	0.313773	-1.19217	3.79947
1934	466576	26	0.430888	-1.0565	2.45191
1934	478306	27	0.641782	-1.88964	2.94436
1934	478945	28	1.24355	1.90484	1.53177
1934	468300	30	0.819215	1.90243	2.32226
1934	462825	31	0.500535	-2.05374	4.1031

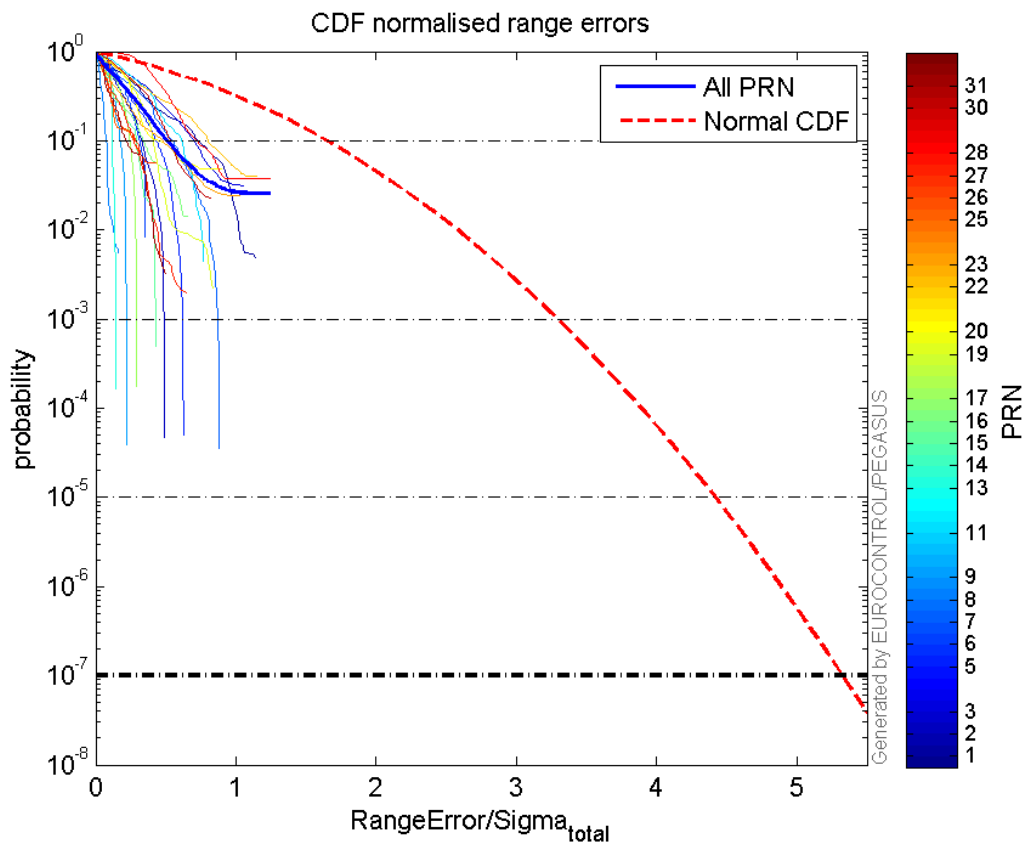
**Normalised Range errors (median):**



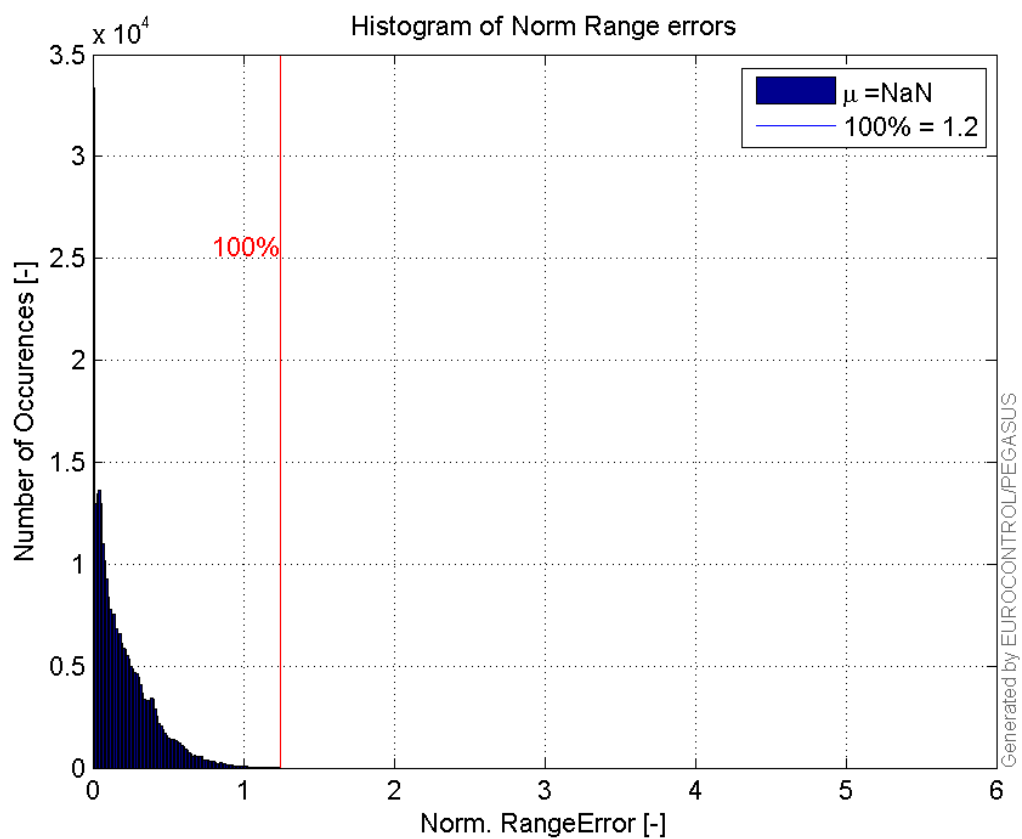
Range errors:



CDF normalised range errors:

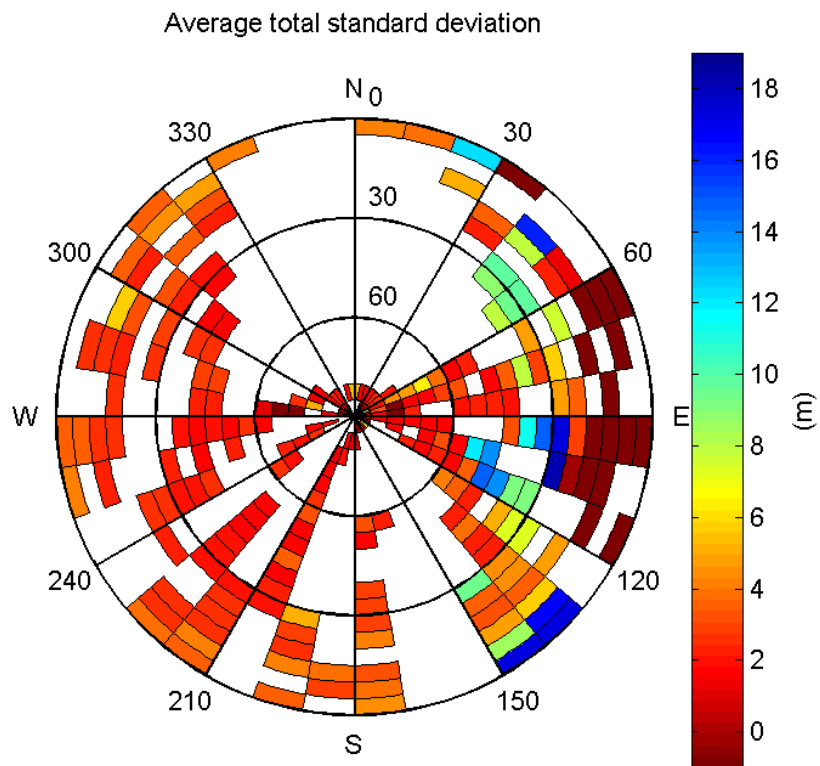


**Histogram of Norm Range errors:**

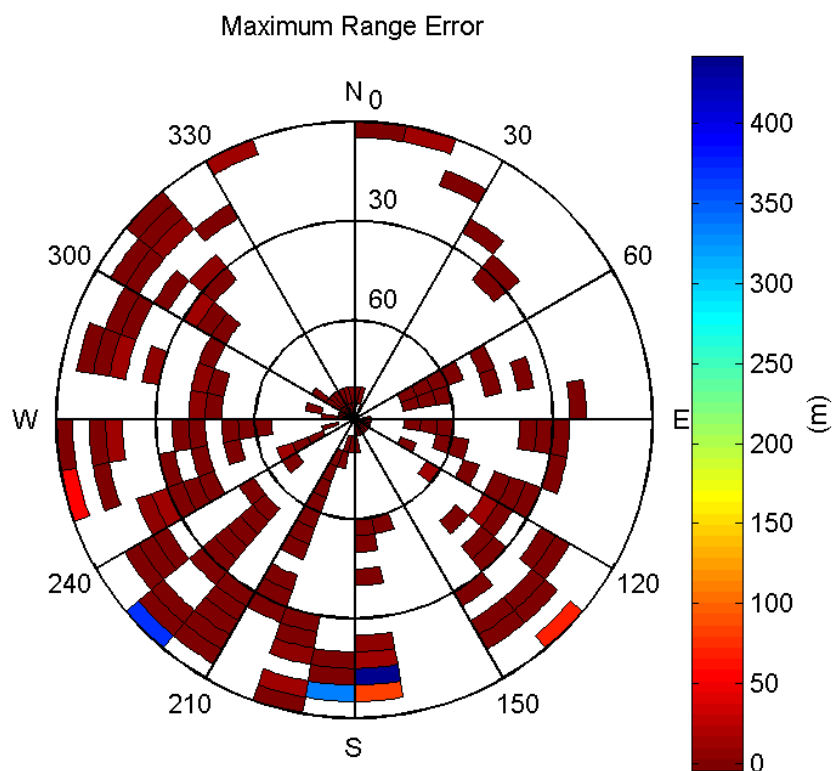


**Sigma Sky Plot:**



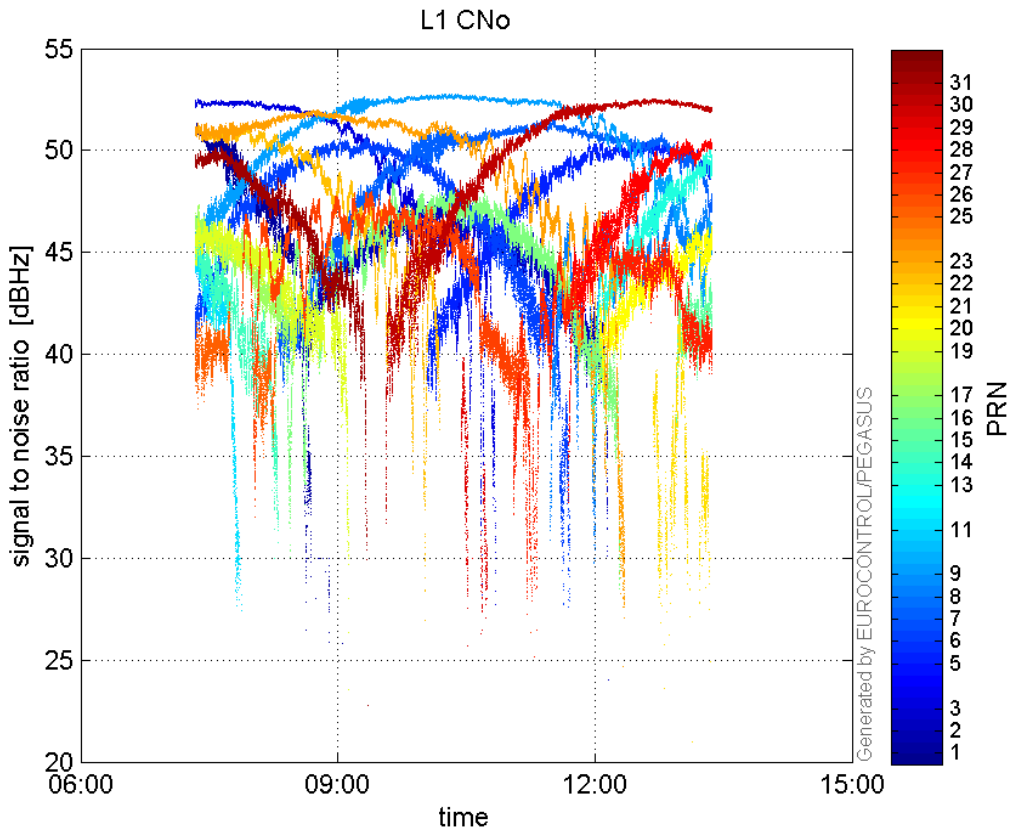


Norm Error Sky Plot:

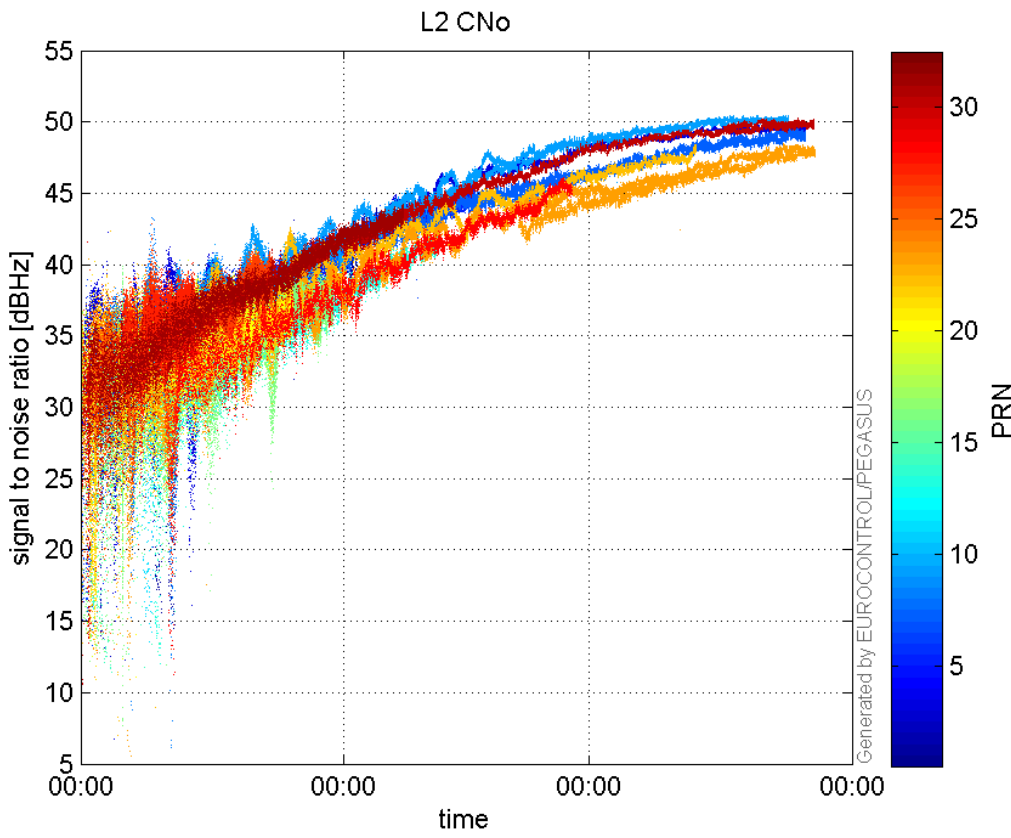


signal quality

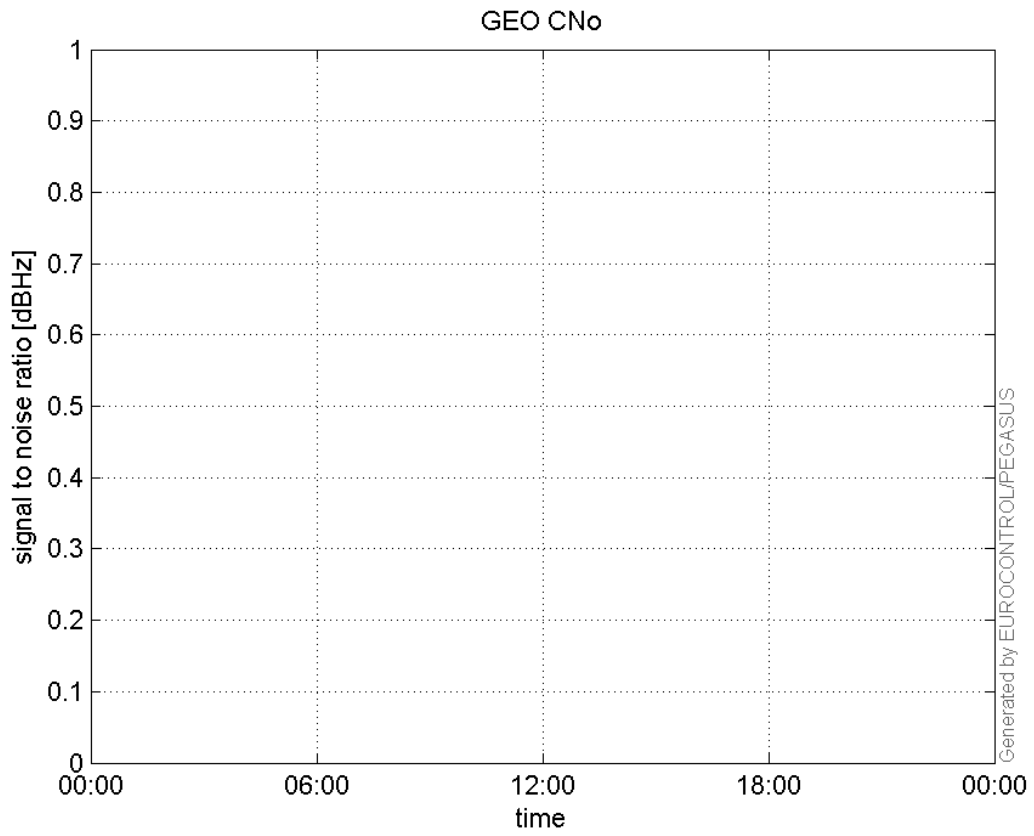
L1 CNo:



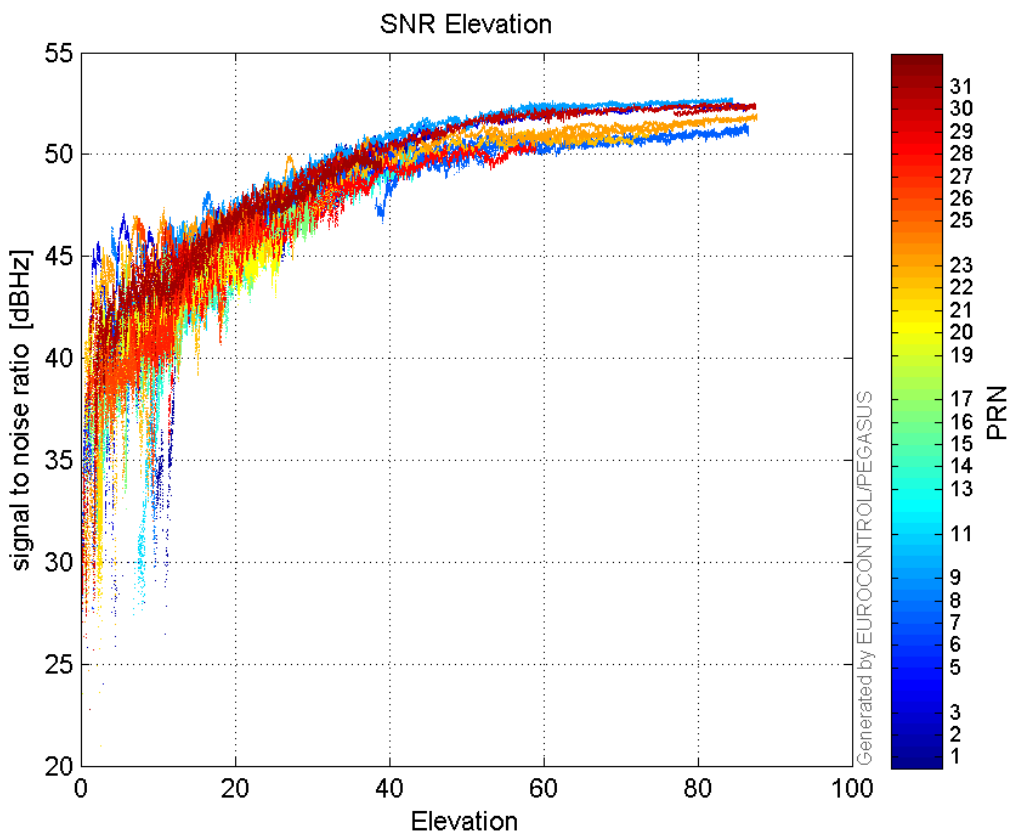
**L2 CNo:**



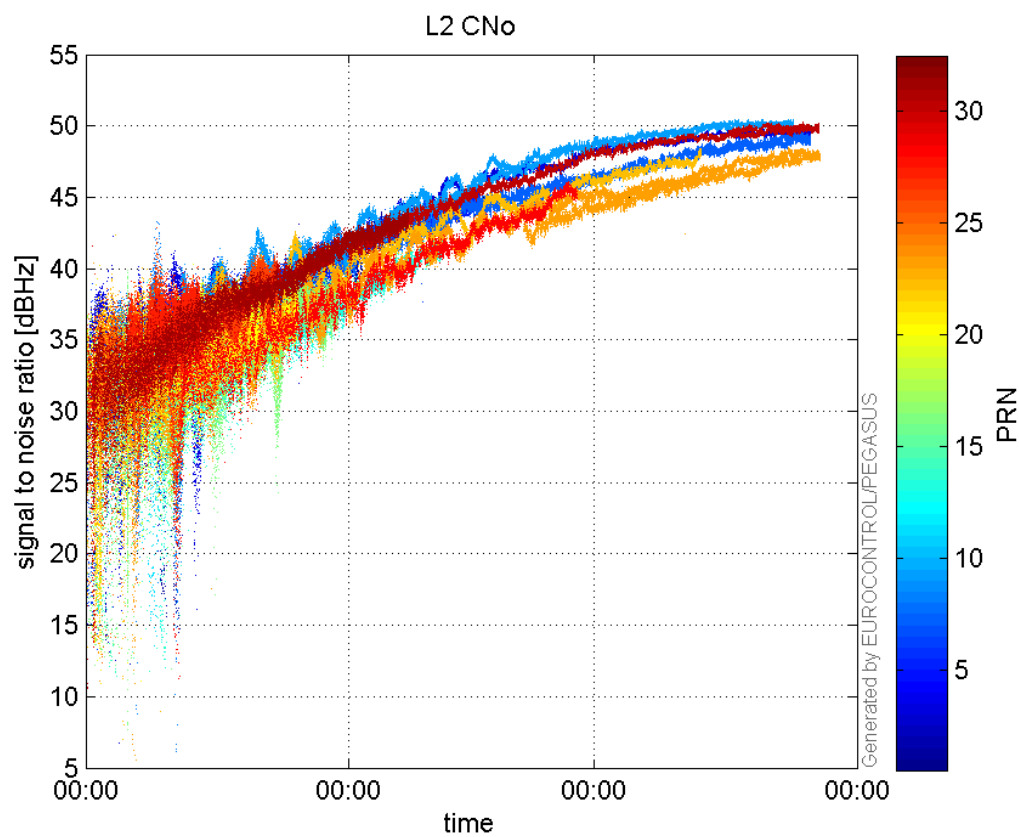
**GEO CNo:**



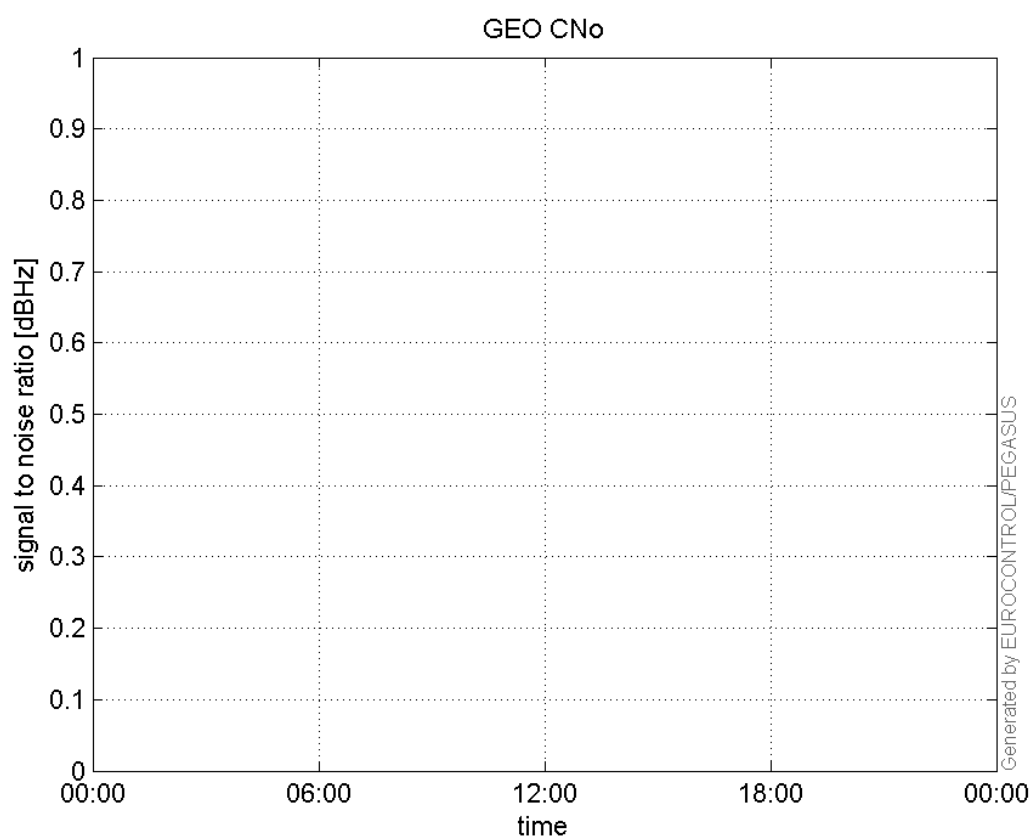
**SNR Elevation:**



**L2 CNo:**

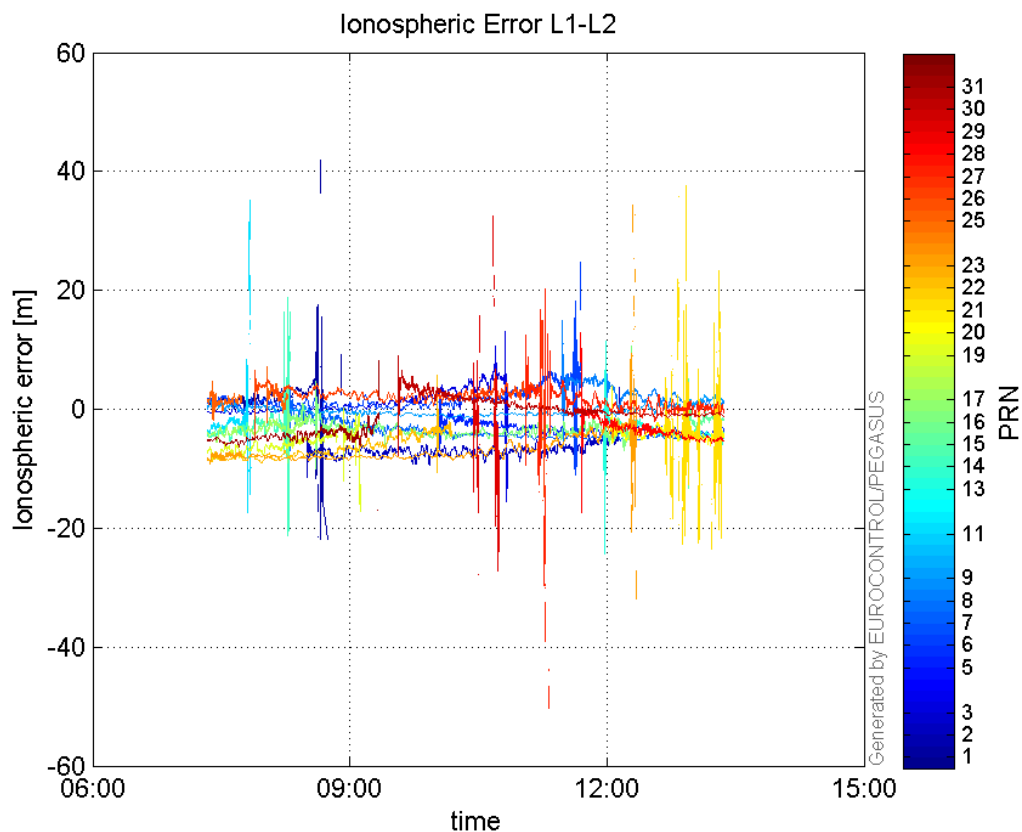


**GEO CNo:**



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/2017_02_03EGNOS2H/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_03EGNOS2H/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
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<b>init_lat</b>	results	50.439
<b>init_lon</b>	results	30.4297
<b>init_alt</b>	results	228.4985
<b>mi_numbers</b>	results	0