

# 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 16/03/2017

## SBAS Messages

**start:** 09:44:44.129 21.02.2017 ( week: 1937 sec: 207884.129 )  
**end:** 15:09:56.129 21.02.2017 ( week: 1937 sec: 227396.129 )  
**duration:** 05:25:12 ..

### quality

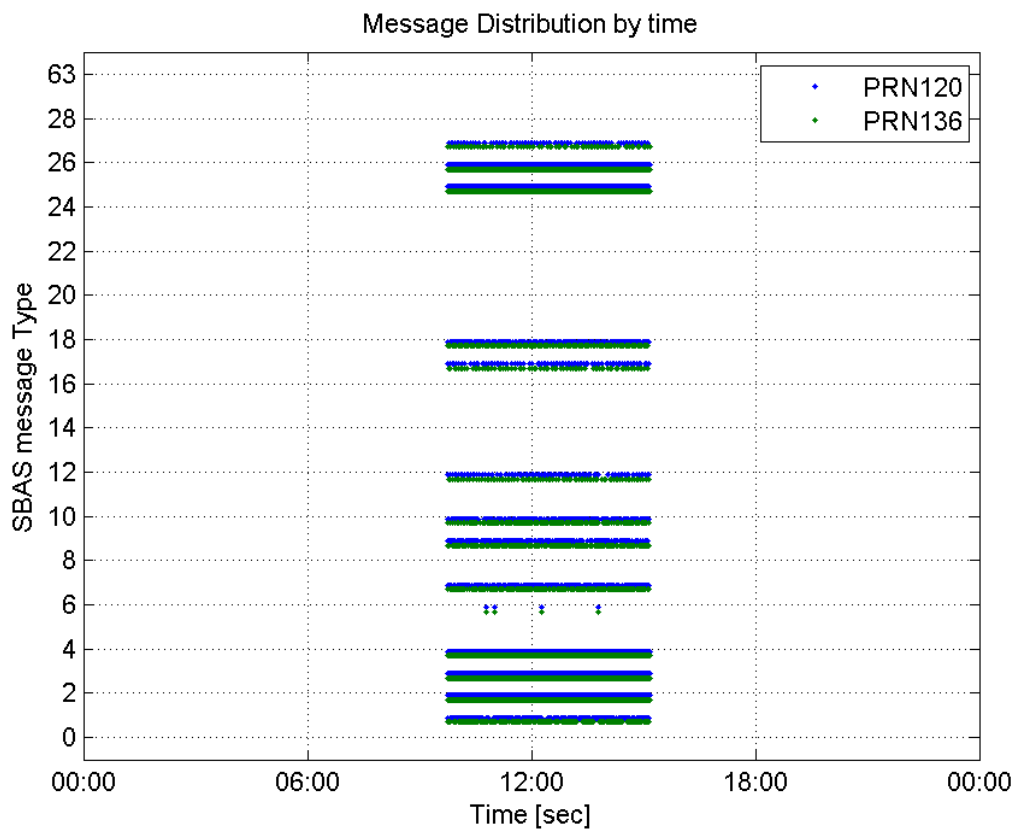
**valid samples** 30639  
**total samples** 30639  
**number of SBAS PRNs** 2

### SBAS SIS Overview

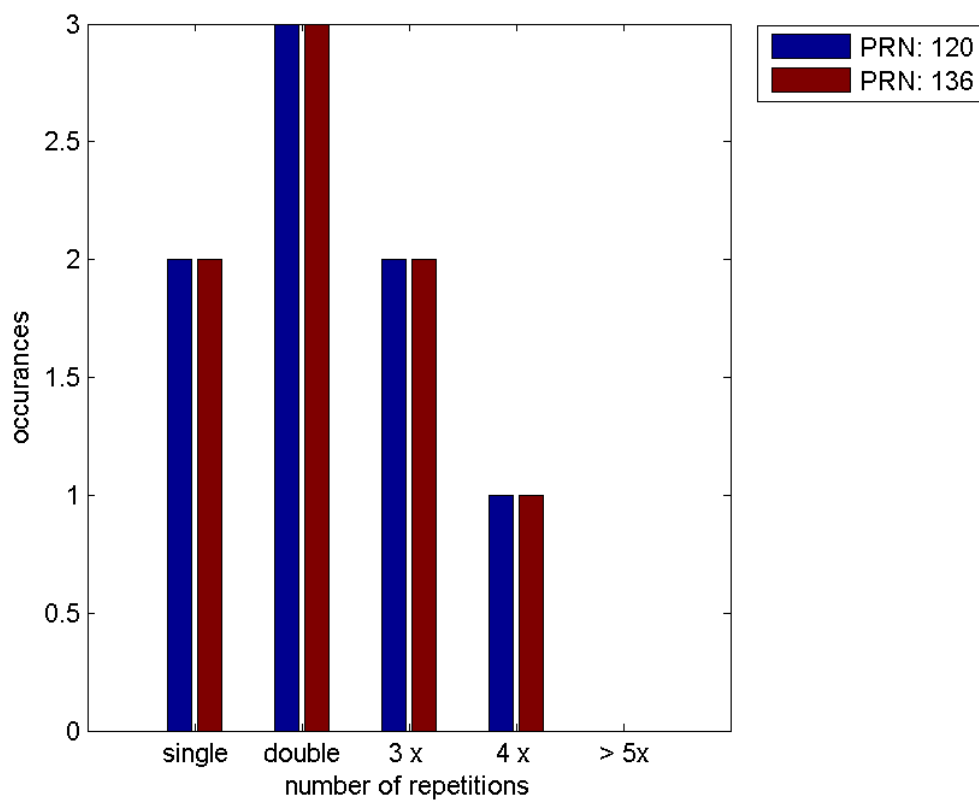
#### Message Type 6 repetitions :

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

#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

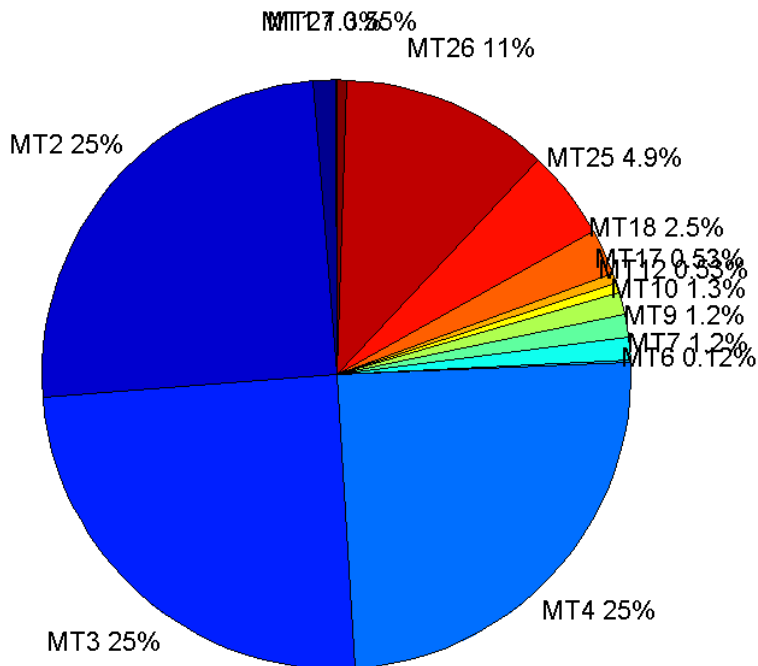
	number of messages	%
MT 0	0	0
MT 1	193	1.25308
MT 2	3851	25.0032
MT 3	3810	24.737
MT 4	3801	24.6786
MT 5	0	0
MT 6	19	0.123361
MT 7	191	1.2401
MT 9	188	1.22062
MT 10	193	1.25308
MT 12	82	0.532398
MT 17	81	0.525906
MT 18	391	2.53863
MT 24	0	0
MT 25	749	4.863
MT 26	1769	11.4855
MT 27	84	0.545384
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	15402	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	75	639	100.932	33	1	1
MT 2	4	36	5.06753	929	1	7
MT 3	4	36	5.12208	972	1	4
MT 4	4	32	5.13395	987	2	5
MT 5	--	--	--	--	--	--
MT 6	1	5421	601.056	5	5	5
MT 7	76	320	102.332	39	0	2
MT 9	75	556	102.775	0	0	0
MT 10	76	480	101.203	34	2	6
MT 12	188	971	239.247	81	15	15
MT 17	190	589	242.238	0	0	0
MT 18	4	191	49.7333	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	81	26.0307	0	0	0
MT 26	4	60	11.0334	0	0	0
MT						

27	190	788	231.12	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	190	1.24696
MT 2	3786	24.8474
MT 3	3789	24.8671
MT 4	3786	24.8474
MT 5	0	0
MT 6	19	0.124696
MT 7	188	1.23384
MT 9	187	1.22728
MT 10	179	1.17477
MT 12	85	0.557853
MT 17	72	0.472534

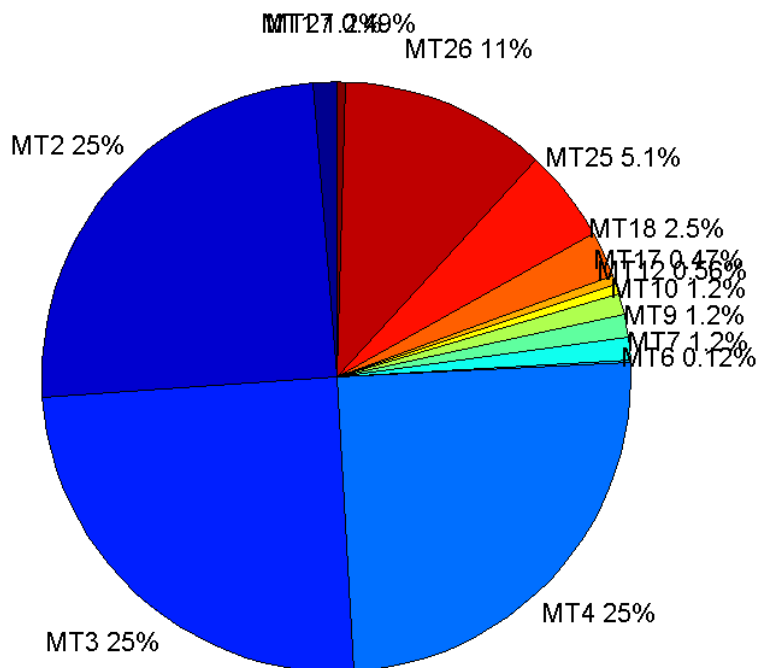
MT 18	384	2.52018
MT 24	0	0
MT 25	775	5.0863
MT 26	1722	11.3014
MT 27	75	0.492223
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	15237	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	560	102.487	31	0	0
MT 2	4	17	5.1535	999	0	10
MT 3	4	17	5.15048	992	0	9
MT 4	4	17	5.15456	993	0	9
MT 5	--	--	--	--	--	--
MT 6	1	5421	601.056	5	5	5
MT 7	76	320	103.668	42	0	2
MT 9	76	395	104.183	0	0	0
MT 10	76	560	109.315	42	1	6
MT 12	189	400	229.167	84	14	14
MT 17	190	789	271.183	0	0	0
MT 18	4	188	50.3551	0	0	0
MT 24	--	--	--	--	--	--
MT 25	4	112	25.1796	0	0	0
MT 26	4	76	11.3295	0	0	0
MT 27	189	592	262.838	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:/PegasusDataJob/job/2017_02_21EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDataJob/job/2017_02_21EGNOS2Hz/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:** 09:44:44.5 21.02.2017 ( week: 1937 sec: 207884.5 )  
**end:** 15:09:57 21.02.2017 ( week: 1937 sec: 227397 )  
**duration:** 05:25:13 ..

#### quality

**valid samples** 35460  
**total samples** 36133

## Event tables

**Position discontinuity events type** long  
**APV-I discontinuity events type** too many (20)  
**APV-35m discontinuity events type** too many (21)  
**LPV-200 discontinuity events type** too many (21)  
**CAT-I discontinuity events type** nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	219095	1.94685	11.3798	0.17108	-0.110471	16.0701	0.00687431
max normVer	212706	1.42089	21.1866	0.0670655	3.26107	19.5861	0.166499
max HPE	211991	23.2681	998.179	0.0233106	-4.01335	219.439	0.0182891
max VPE	218453	11.3873	439.704	0.0258976	22.2565	853.044	0.0260907
min HPL	224610	0.98177	8.96205	0.109547	0.462559	15.7253	0.029415
min VPL	219387	1.49713	9.7952	0.152844	0.459377	13.826	0.0332256

Position discontinuity events :

#	Epoch	duration	stable period
1	210842	33	507.5
2	211786	145	149.5
3	211993	22.5	1
4	216171	8	2.5
5	217559	38.5	213
6	221349	24.5	3166

## First Glance analysis

**Duration** 19513  
**Number of Samples** 36133  
**Number of invalid sample** 673  
**Number of no position solution samples** 581  
**Number of missing sample** 2893  
**Logging Loss** 7.413  
**Processing Loss** 1.8626  
**Number of Misleading Information** 0  
**Data gaps** 7  
**Discontinuities** 44

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
34879	29994	28383	0	28383

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.6019	1.51957	1.51343	NaN	1.51343
HPEscale 95%	NaN	4.92932	4.95876	NaN	4.95876
VPE 95%	1.59548	1.543	1.52592	NaN	1.52592
VPEscale 95%	NaN	3.40659	2.4435	NaN	2.4435

**Availability :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	0.983615	0.845854	0.800423	0	0.800423
<b>measurements</b>	0.965295	0.8301	0.785515	0	0.785515
<b>Operational</b>	1.78748	1.53713	1.45457	0	1.45457

**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	37	80	128	--	128
<b>Long</b>	6	23	38	--	38
<b>Independent</b>	4	20	21	--	21
<b>P(disc.)</b>	0.00172023	0.010002	0.0110982	NaN	0.0110982
<b>P(slide)</b>	0.0151524	0.0352237	0.047916	NaN	0.047916

**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

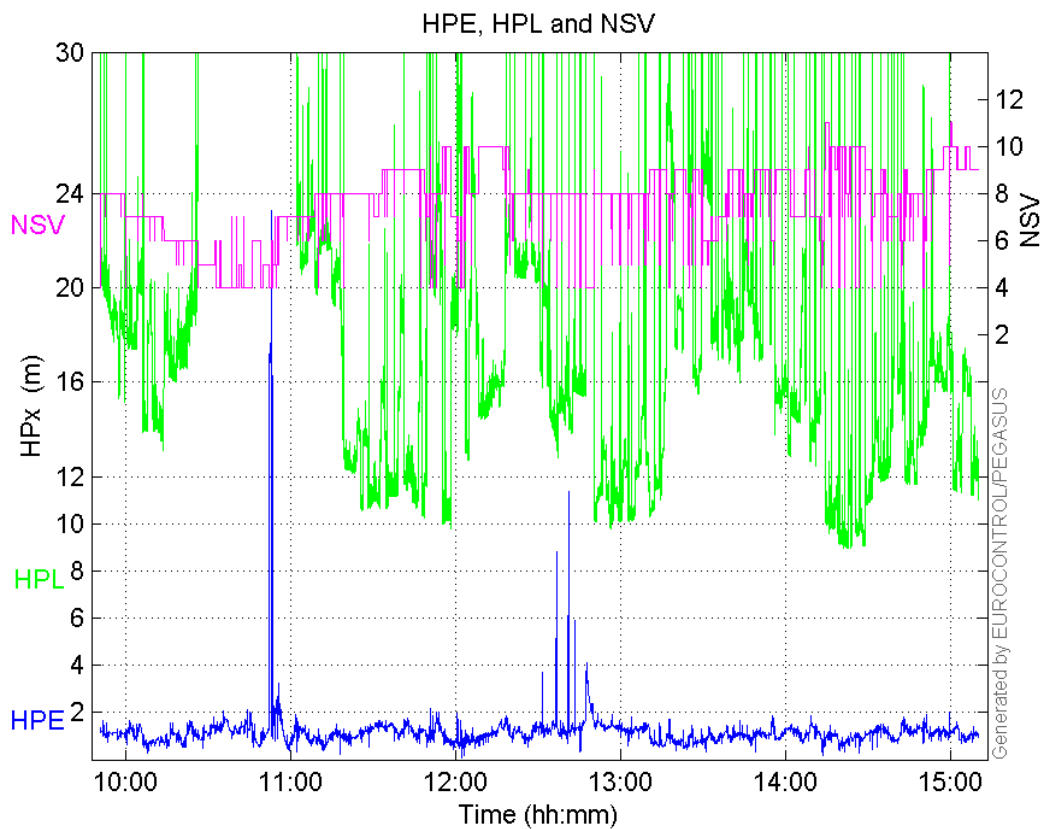
**Performance Summary :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	34879	29994	28383	0	28383
<b>SIS Availability</b>	0.983615	0.845854	0.800423	0	0.800423
<b>Local Availability</b>	0.965295	0.8301	0.785515	0	0.785515
<b>Operational Availability</b>	1.78748	1.53713	1.45457	0	1.45457
<b>HPE 95%</b>	1.6019	1.51957	1.51343	NaN	1.51343
<b>HPEScale 95%</b>	NaN	4.92932	4.95876	NaN	4.95876
<b>VPE 95%</b>	1.59548	1.543	1.52592	NaN	1.52592
<b>VPEscale 95%</b>	NaN	3.40659	2.4435	NaN	2.4435
<b>All Discontinuity Events</b>	37	80	128	--	128
<b>Long Discontinuity Events</b>	6	23	38	--	38
<b>Independent Discontinuity Events</b>	4	20	21	--	21
<b>P(discontinuity)</b>	0.00172023	0.010002	0.0110982	NaN	0.0110982
<b>P(sliding window)</b>	0.0151524	0.0352237	0.047916	NaN	0.047916
<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

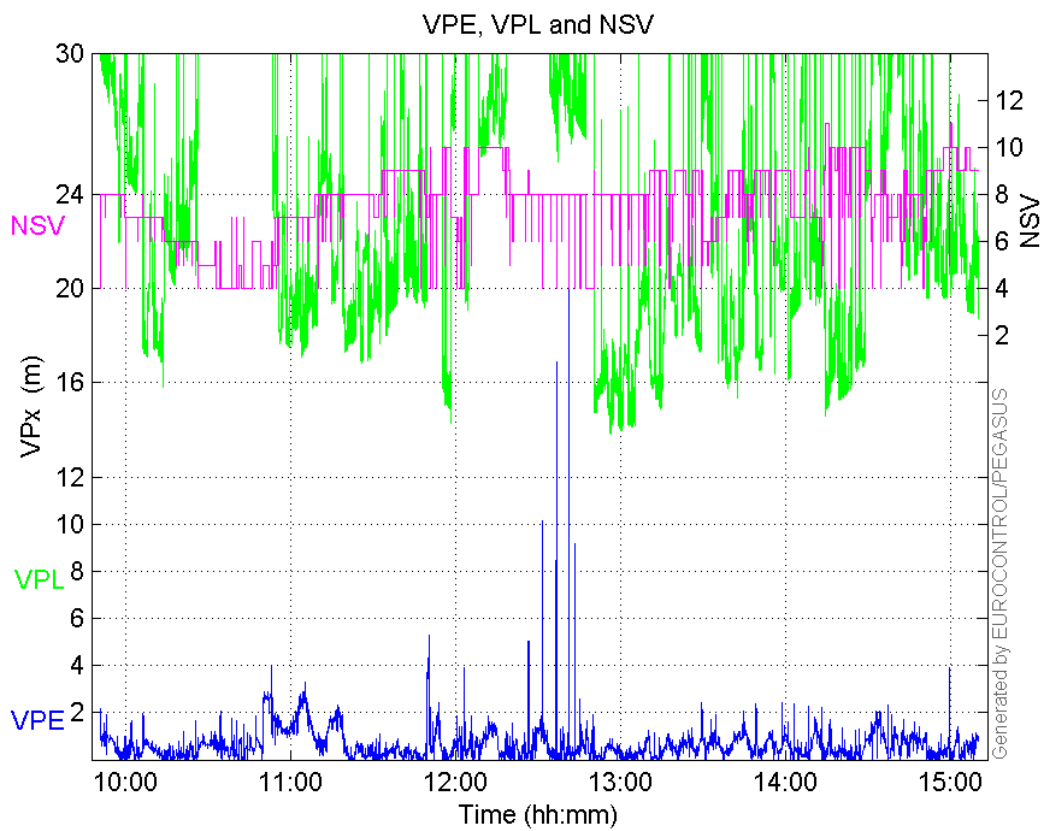
**Time Series**

HPE, HPL and NSV:



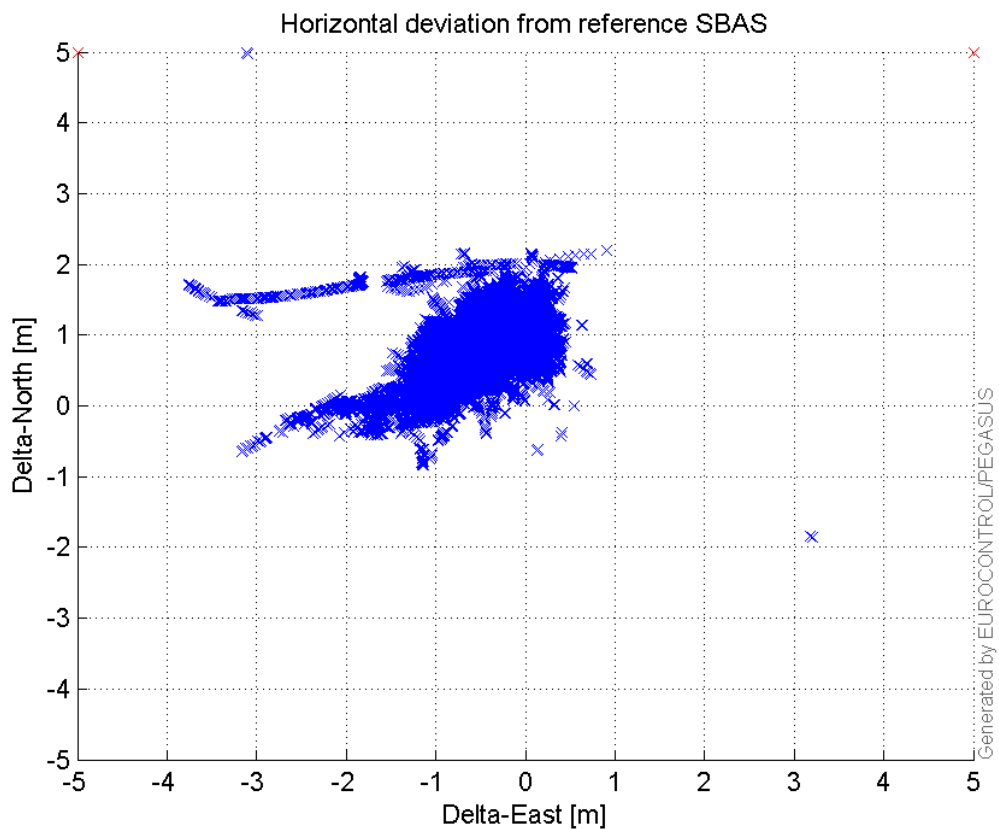


**VPE, VPL and NSV:**



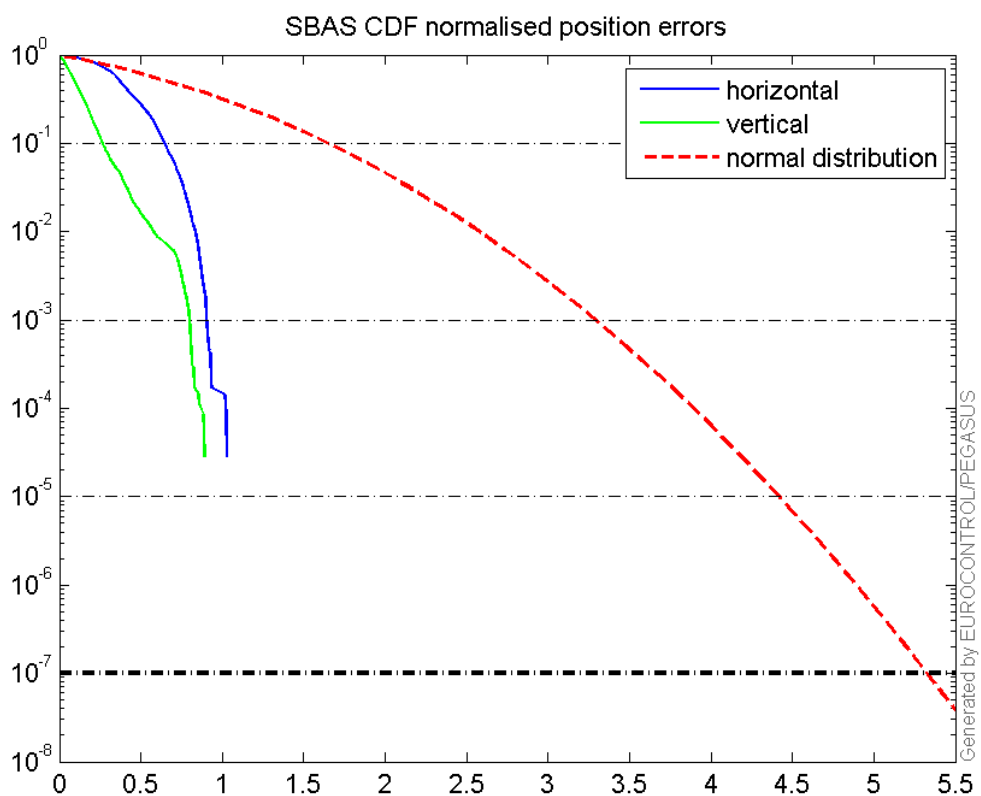
**Horizontal deviation**

**Horizontal deviation from reference SBAS:**



## CDF position

SBAS CDF position domain:



## Statistics

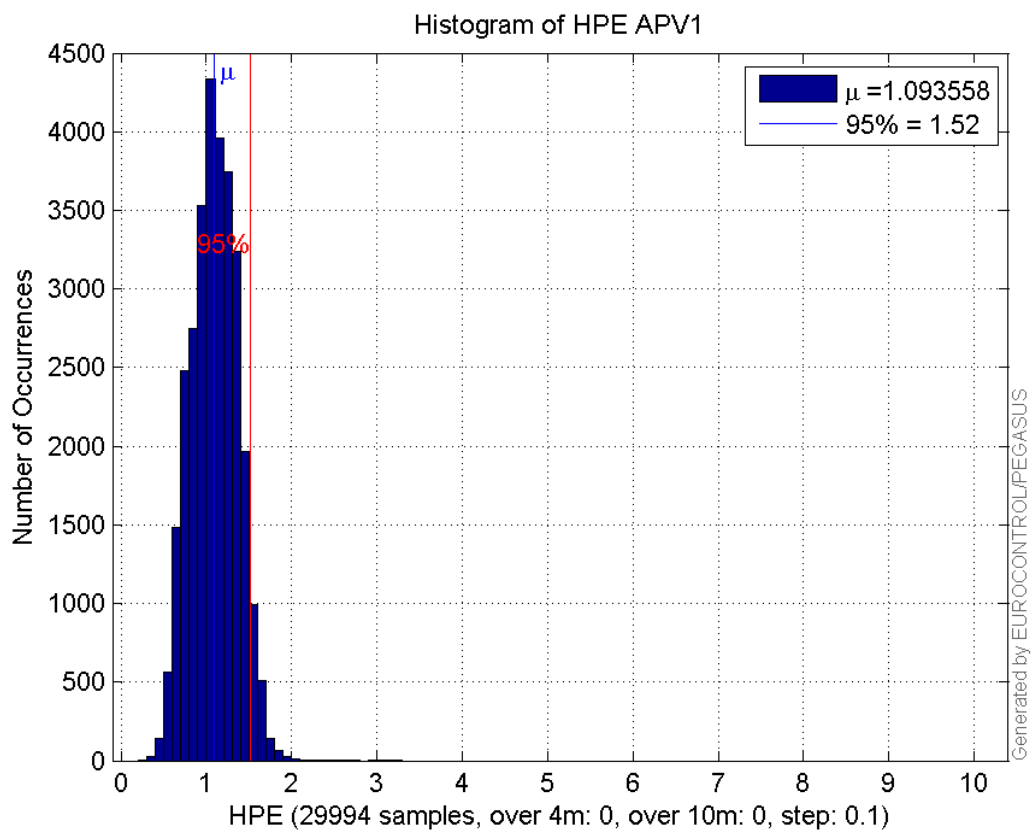
<b>number</b>	29994
<b>sum</b>	32800.166
<b>sum2</b>	38051.386
<b>prctile95</b>	1.5195721
<b>prctile99</b>	1.6918235
<b>number</b>	29994
<b>sum</b>	17233.978
<b>sum2</b>	16832.625
<b>prctile95</b>	1.543001
<b>prctile99</b>	2.2296532
<b>number</b>	29994
<b>sum</b>	497772.91
<b>sum2</b>	9013248.3
<b>prctile95</b>	25.11748
<b>prctile99</b>	33.849504
<b>number</b>	29994
<b>sum</b>	697760.75
<b>sum2</b>	17398578
<b>prctile95</b>	35.51536
<b>prctile99</b>	42.53824
<b>number</b>	29994
<b>sum</b>	2155.7892
<b>sum2</b>	177.46585
<b>prctile95</b>	0.12323301
<b>prctile99</b>	0.14016389
<b>number</b>	29994
<b>sum</b>	764.87037
<b>sum2</b>	34.608641
<b>prctile95</b>	0.068131852
<b>prctile99</b>	0.11364605
<b>number</b>	28383
<b>sum</b>	30951.558
<b>sum2</b>	35819.715
<b>prctile95</b>	1.5134343
<b>prctile99</b>	1.6773107
<b>number</b>	28383
<b>sum</b>	16127.069
<b>sum2</b>	15666.782
<b>prctile95</b>	1.5259223
<b>prctile99</b>	2.2496511
<b>number</b>	28383
<b>sum</b>	461808.34
<b>sum2</b>	8187538.9
<b>prctile95</b>	24.623935
<b>prctile99</b>	33.219955
<b>number</b>	28383
<b>sum</b>	633810.96
<b>sum2</b>	14842153
<b>prctile95</b>	31.91167
<b>prctile99</b>	34.033602
<b>number</b>	28383
<b>sum</b>	2070.4819
<b>sum2</b>	172.59098

**prctile95** 0.12396889  
**prctile99** 0.14059106  
**number** 28383  
**sum** 737.01544  
**sum2** 33.878846  
**prctile95** 0.069814321  
**prctile99** 0.11687061

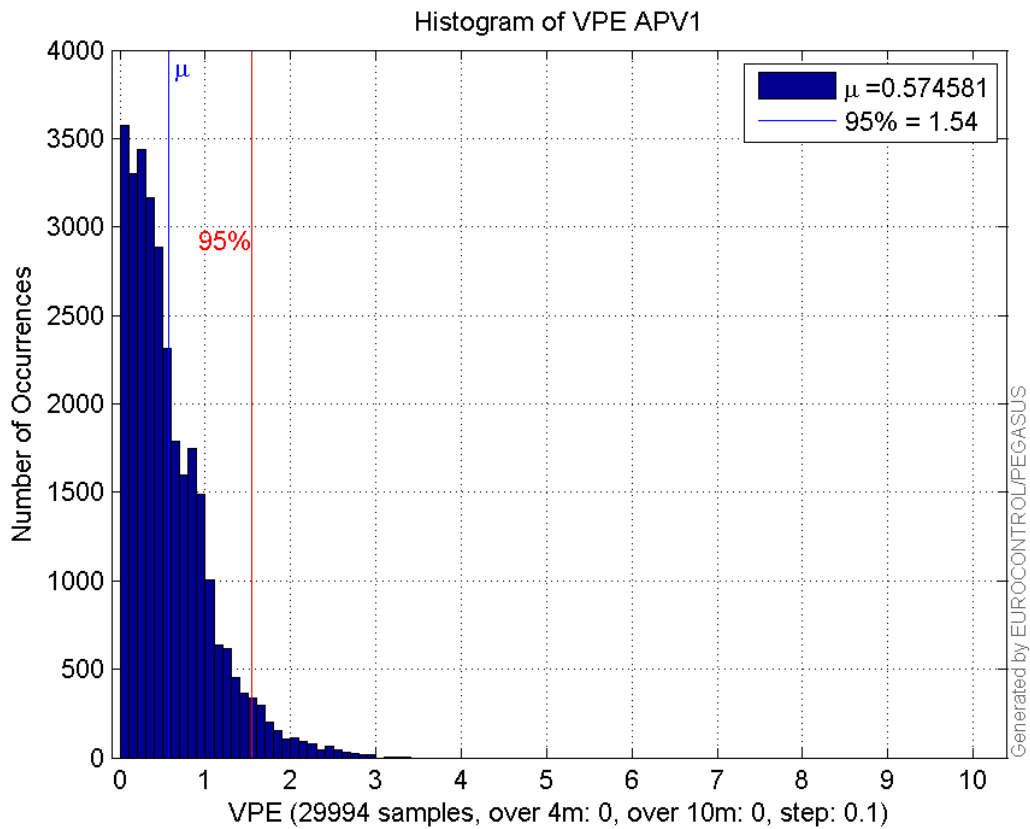
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.09356	0.269755	1.09185	1.51957	1.69182	1.12634
HPL	16.5957	5.00836	15.9193	25.1175	33.8495	17.335
VPE	0.574581	0.480691	0.450062	1.543	2.22965	0.749133
VPL	23.2633	6.23592	21.5429	35.5154	42.5382	24.0846

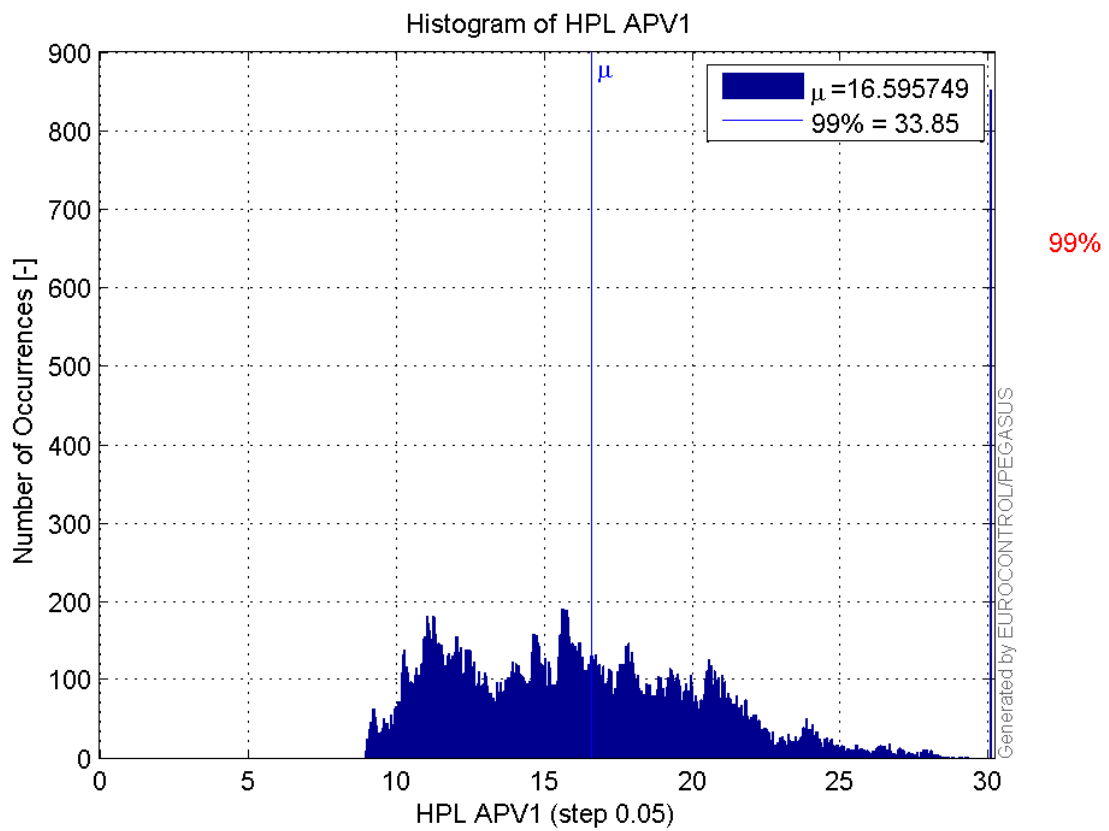
**Histogram of HPE APV1:**



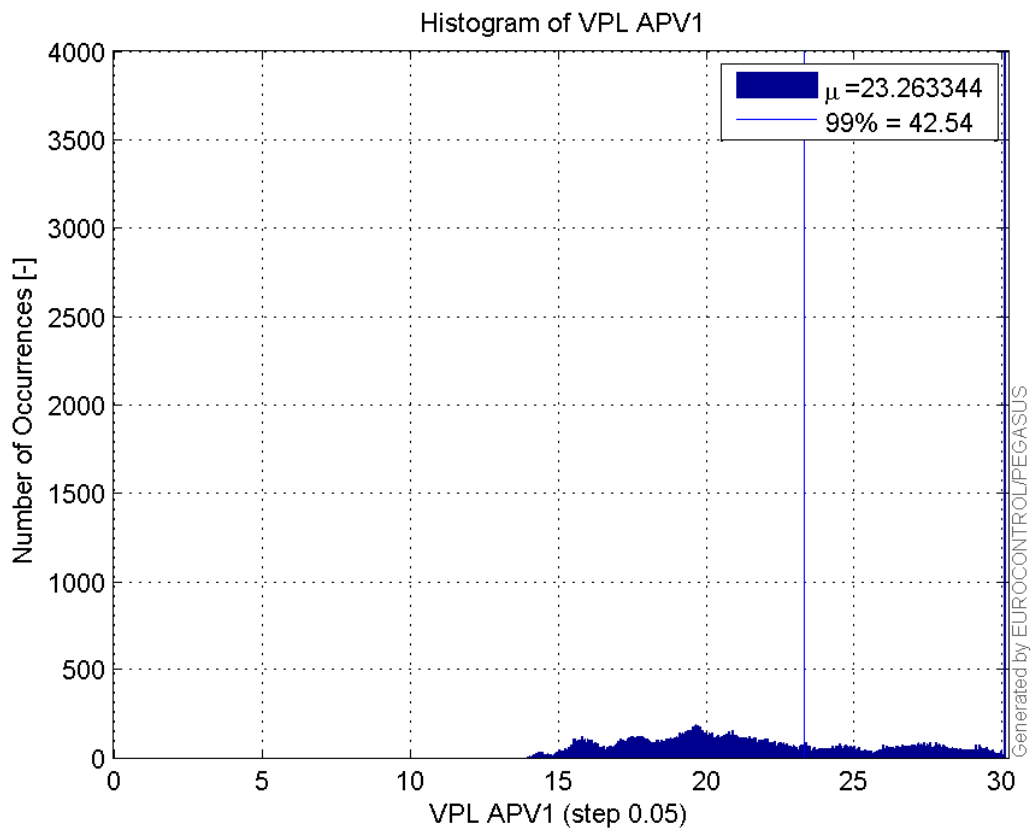
**Histogram of VPE APV1:**



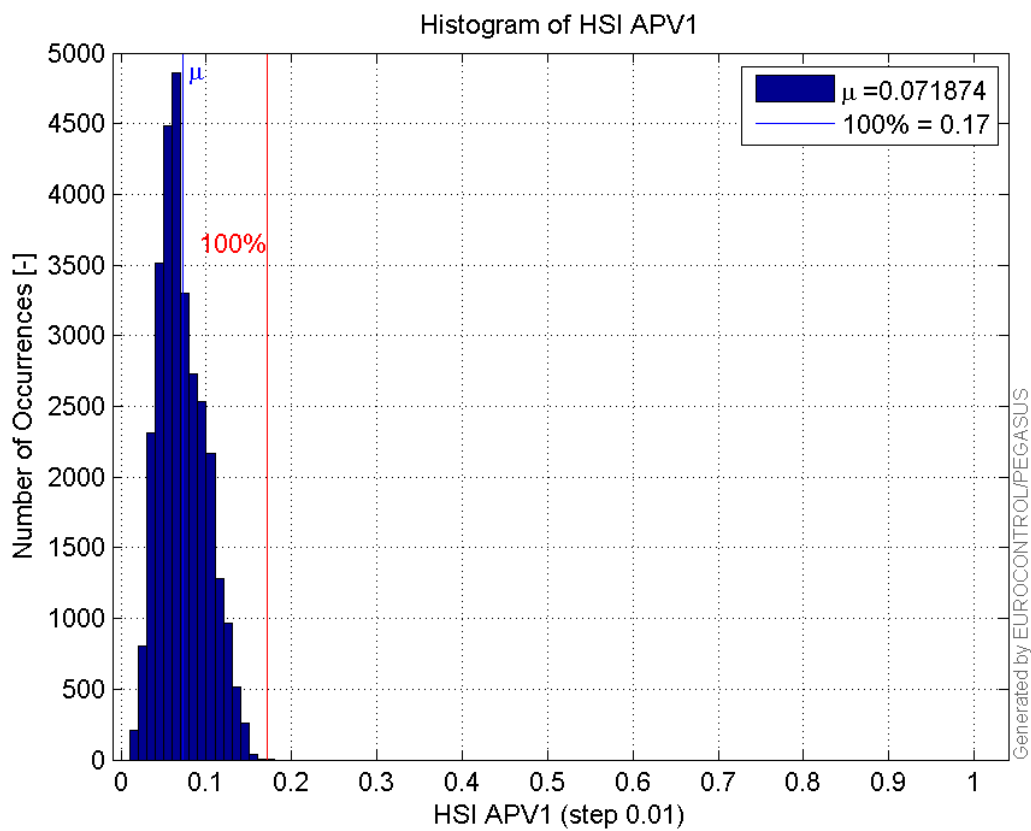
**Histogram of HPL APV1:**



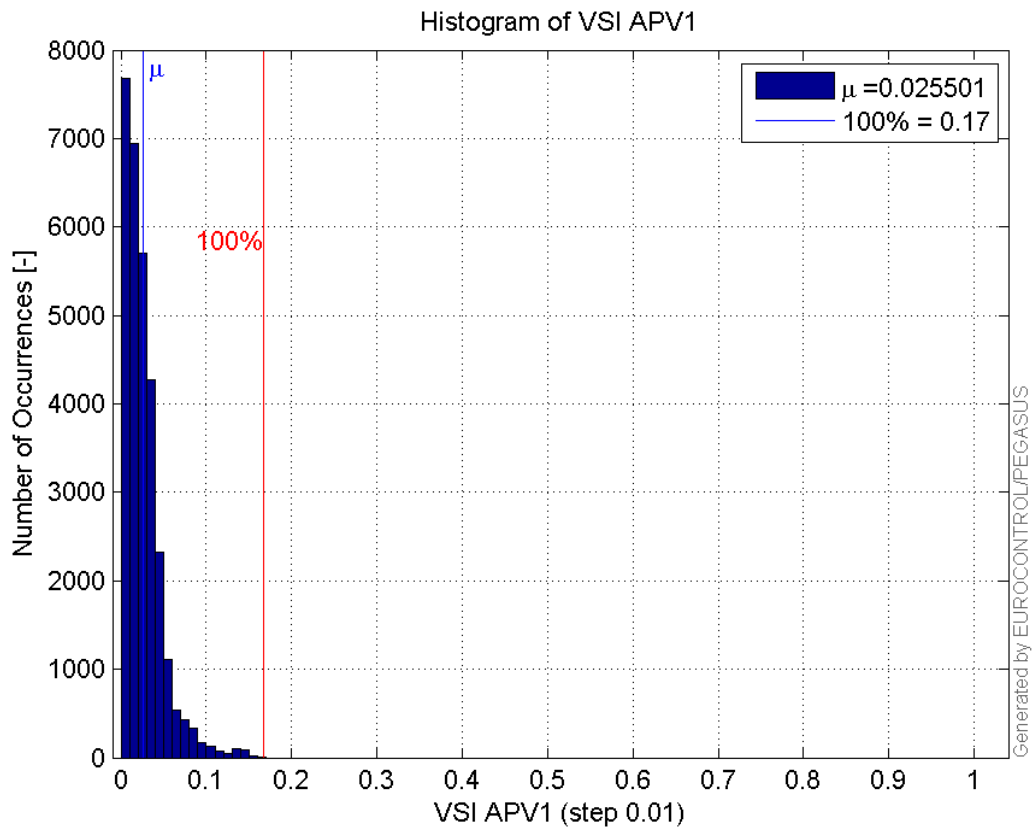
**Histogram of VPL APV1:**



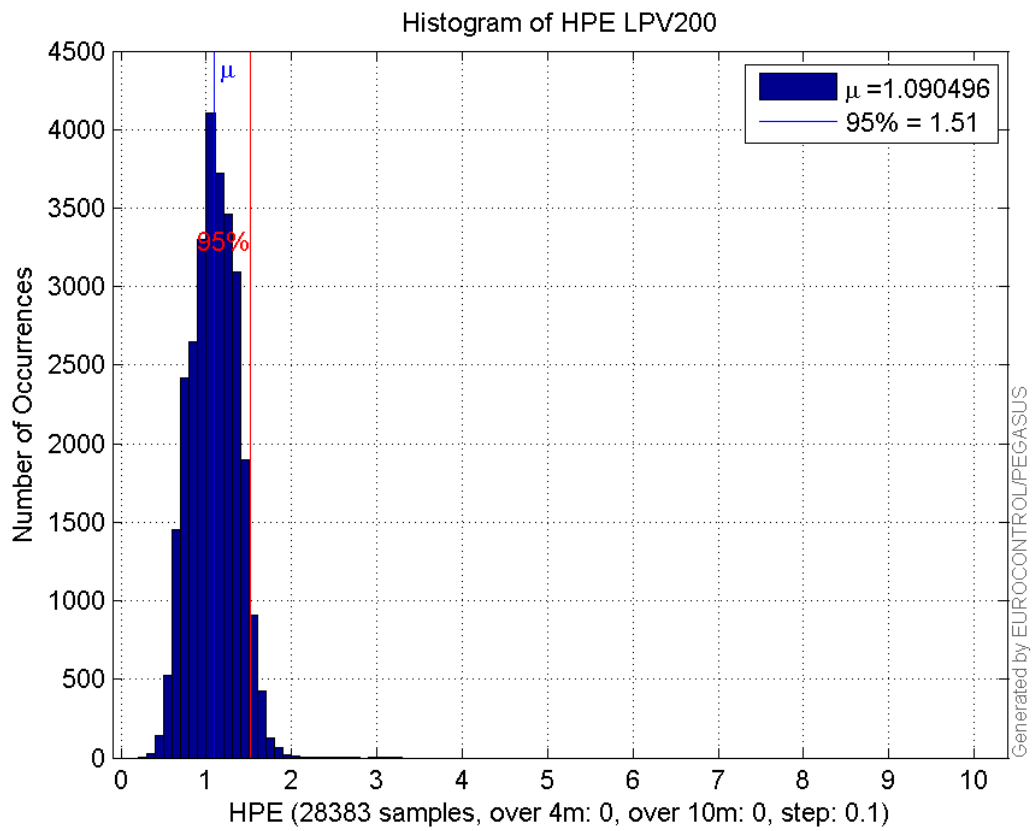
Histogram of HSI APV1:



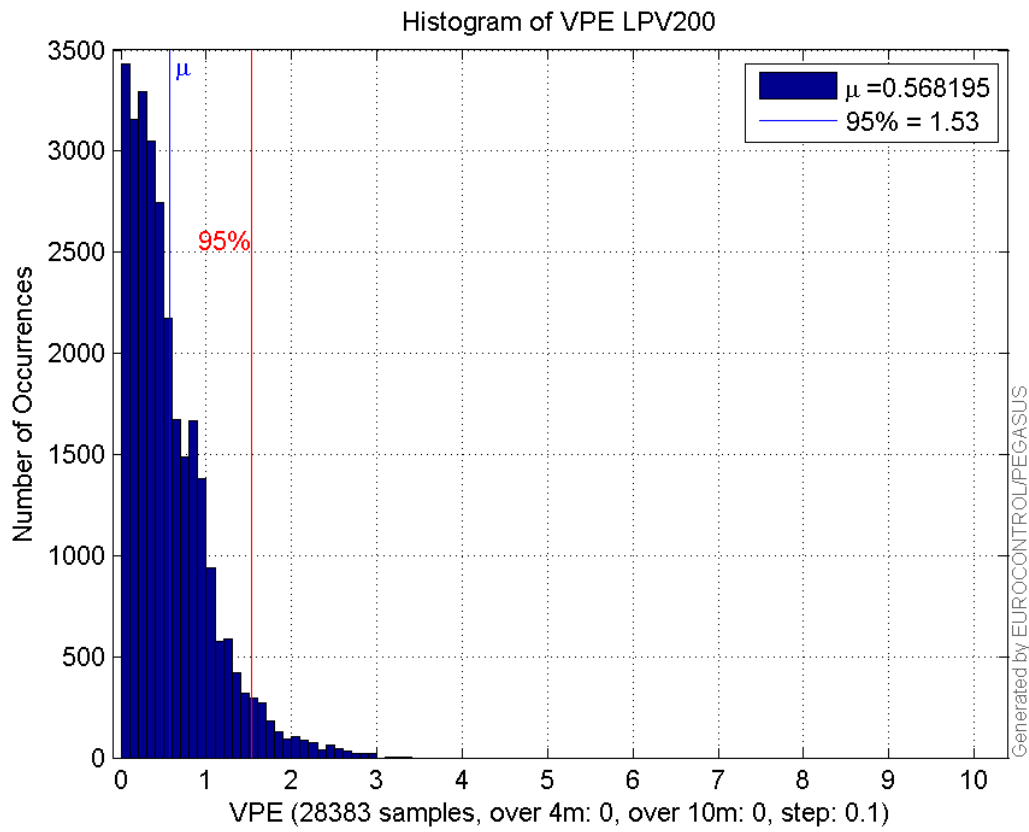
Histogram of VSI APV1:



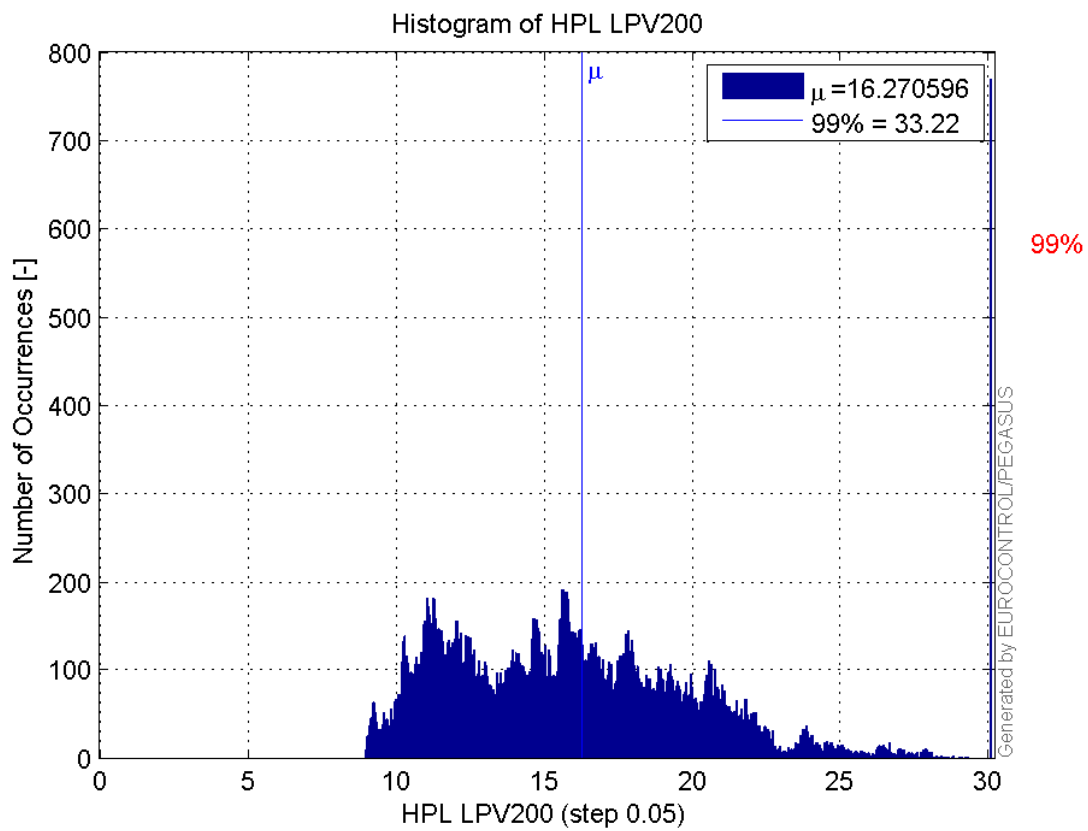
**Histogram of HPE LPV200:**



**Histogram of VPE LPV200:**

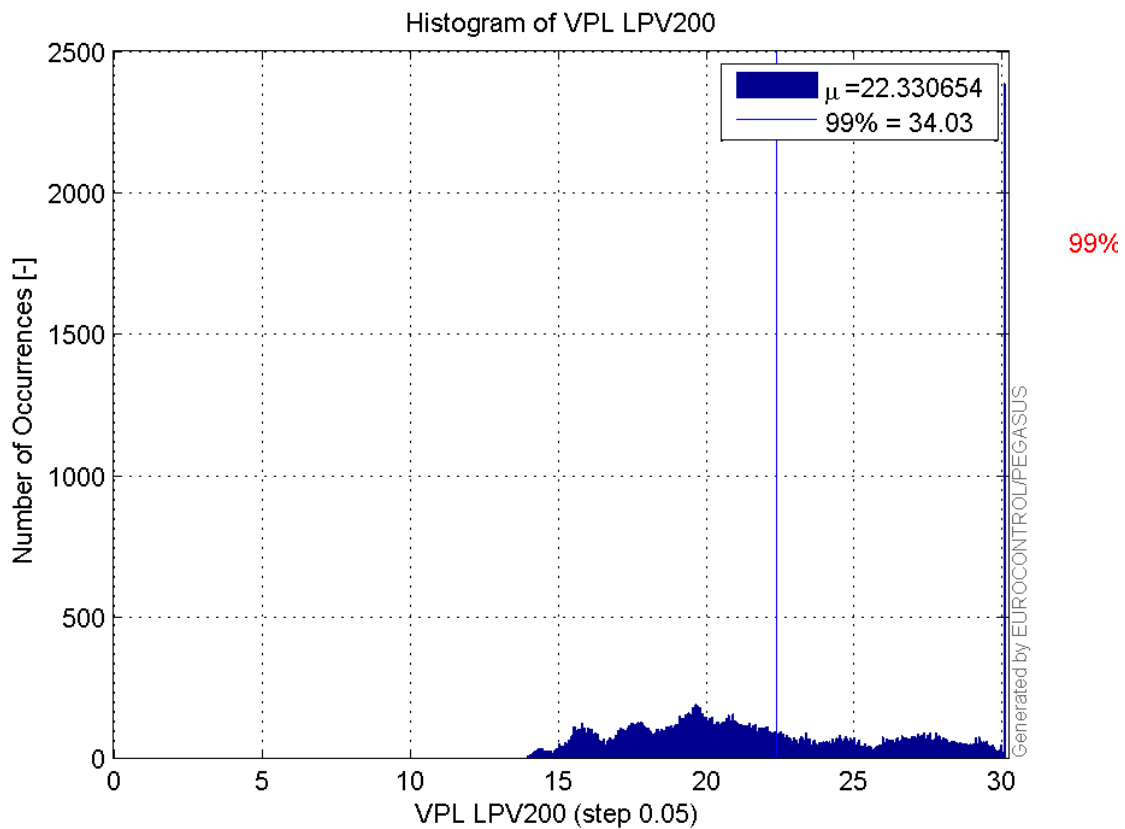


**Histogram of HPL LPV200:**

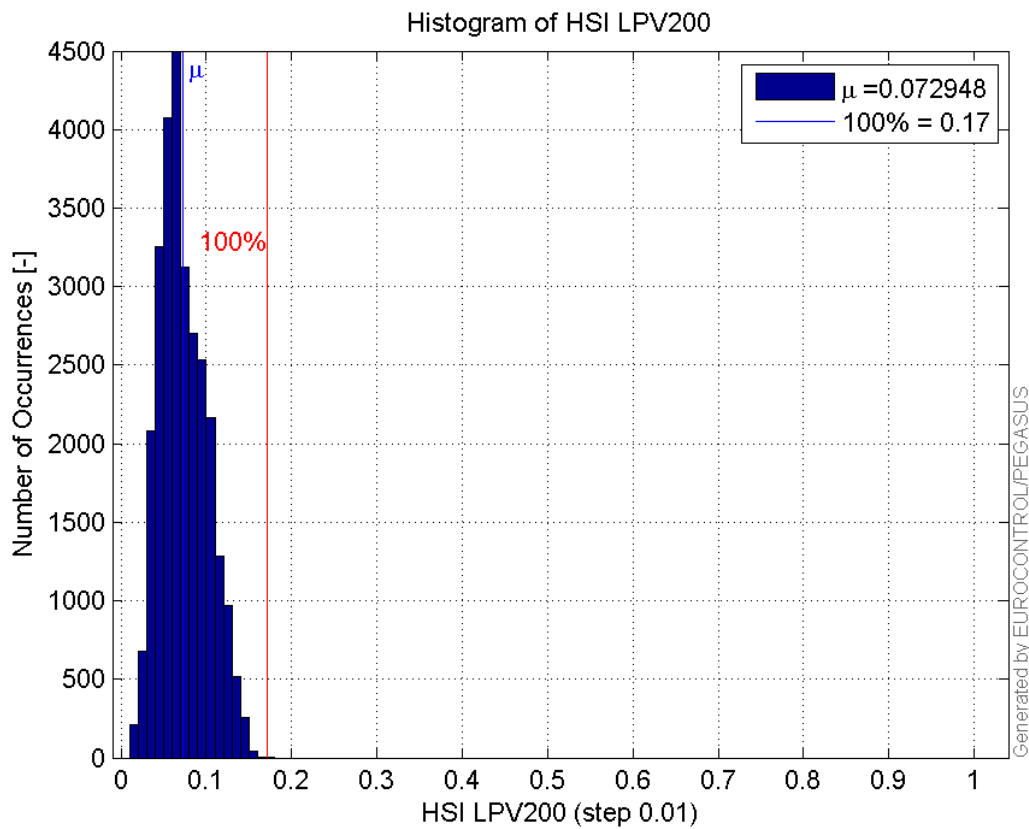


**Histogram of VPL LPV200:**

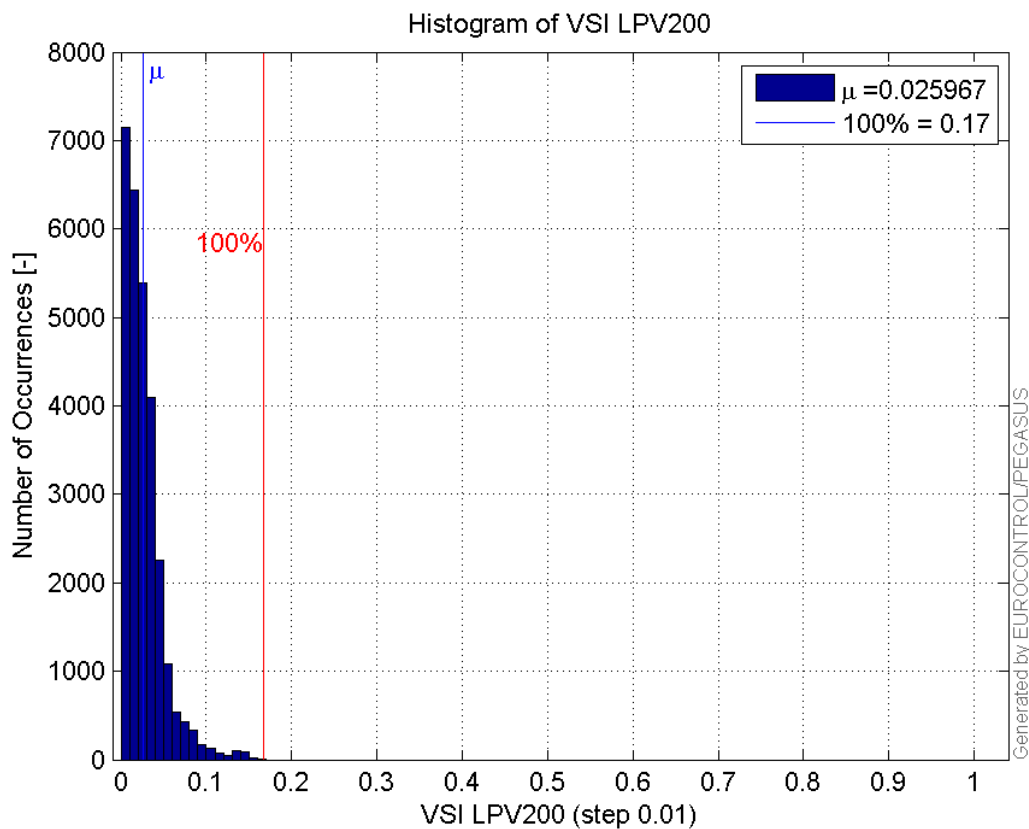




**Histogram of HSI LPV200:**

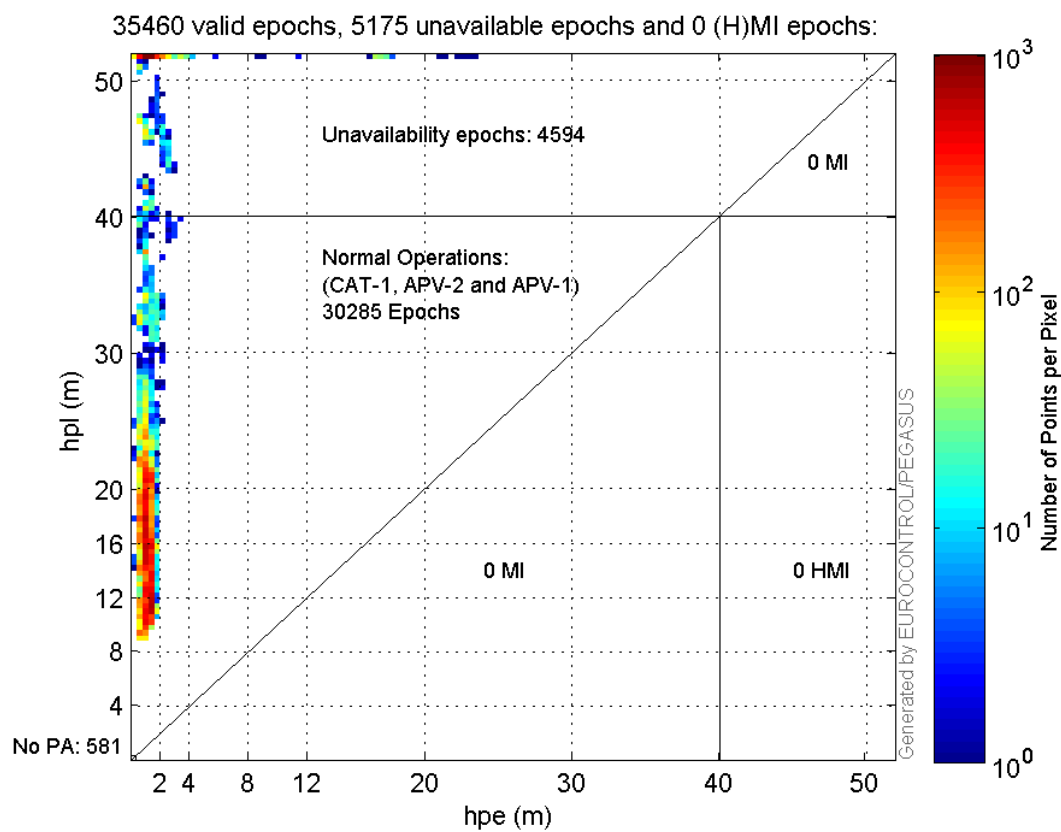


**Histogram of VSI LPV200:**

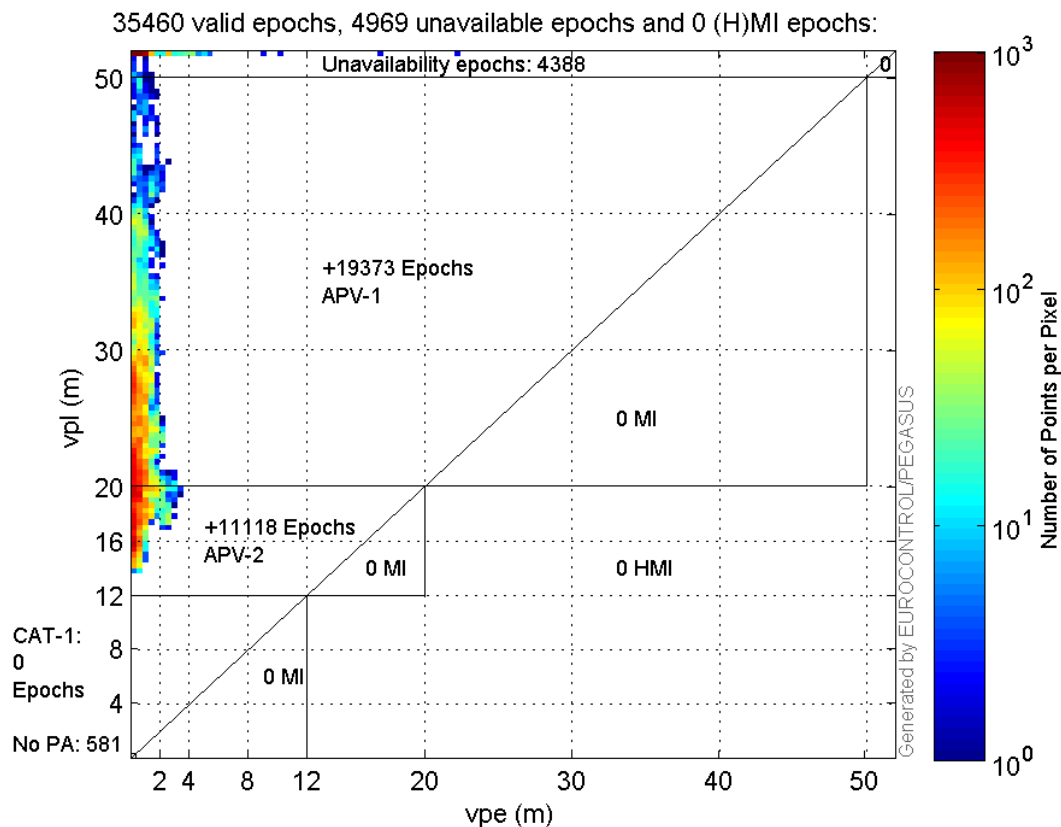


### Stanford Plots

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



#### Vertical\_Stanford\_Plot\_SBAS:



## Parameters

## system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_02_21EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_21EGNOS2Hz/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	223.7826
mi_numbers	results	0

## Range Domain

**start:** 09:44:44.5 21.02.2017 ( week: 1937 sec: 207884.5 )  
**end:** 15:09:57 21.02.2017 ( week: 1937 sec: 227397 )  
**duration:** 05:25:13 ..

### quality

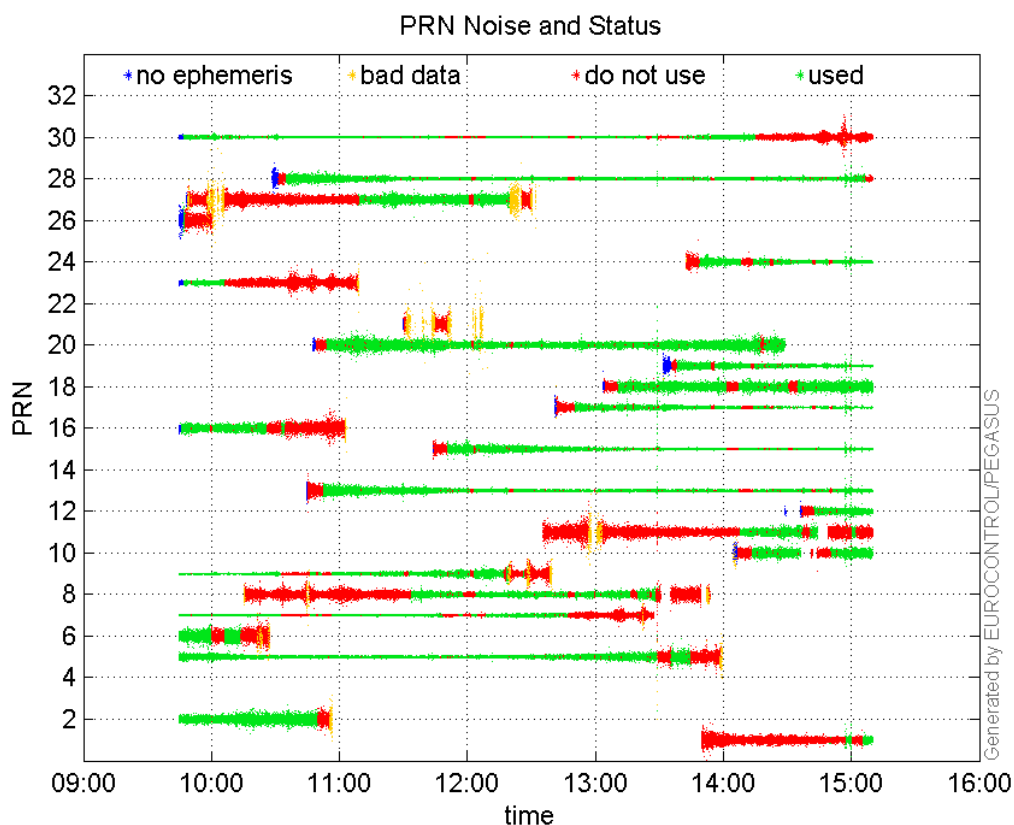
**valid samples** 36133  
**total samples** 36133

### PRN overview

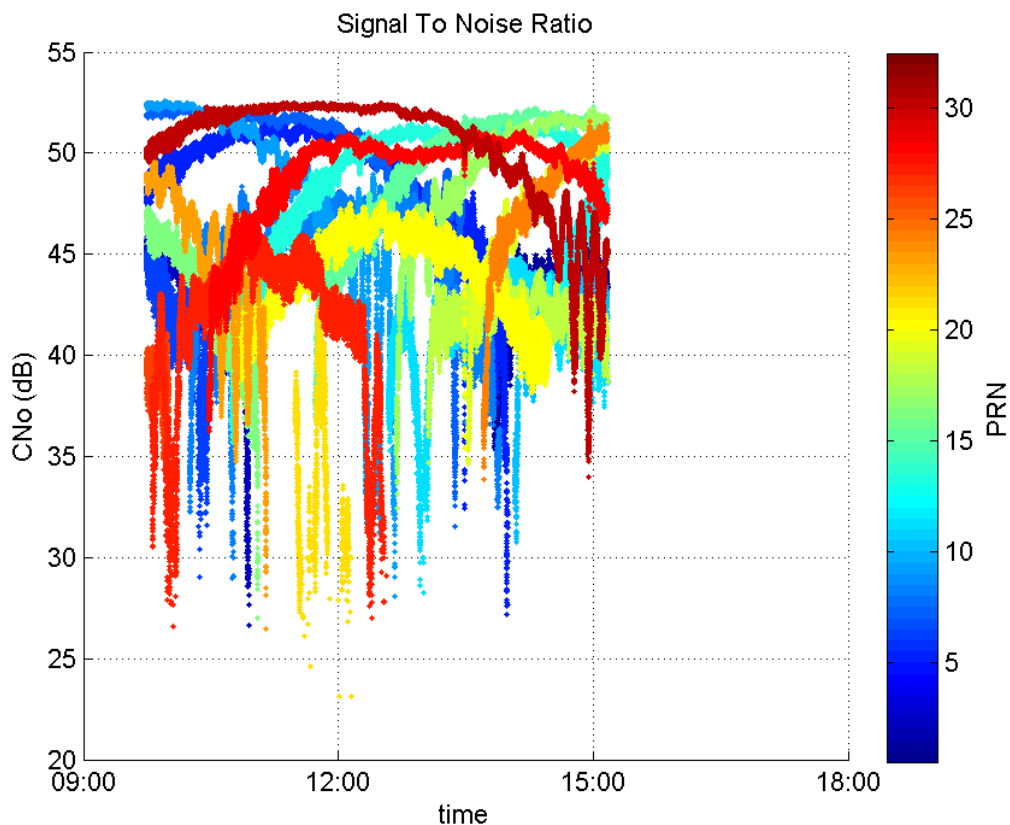
**Number of Visible GPS Satellites** 24  
**Number of Visible SBAS Satellites** 2

### signal quality and status

#### PRN Noise and Status:



#### Signal To Noise Ratio:

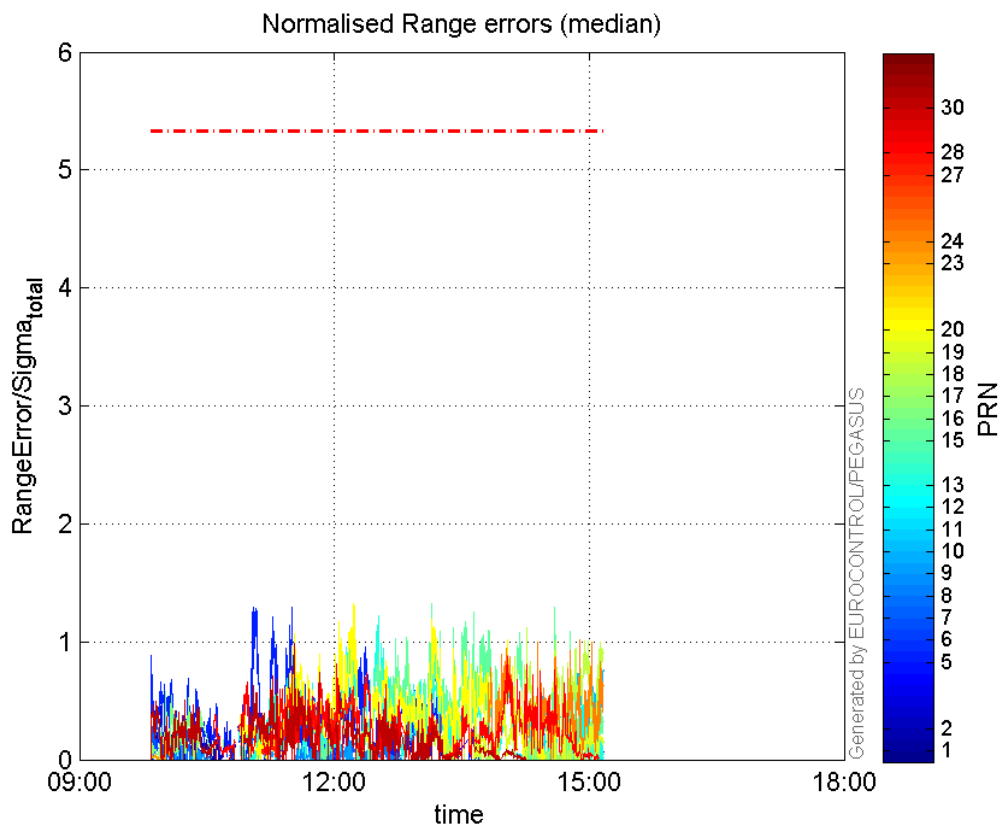
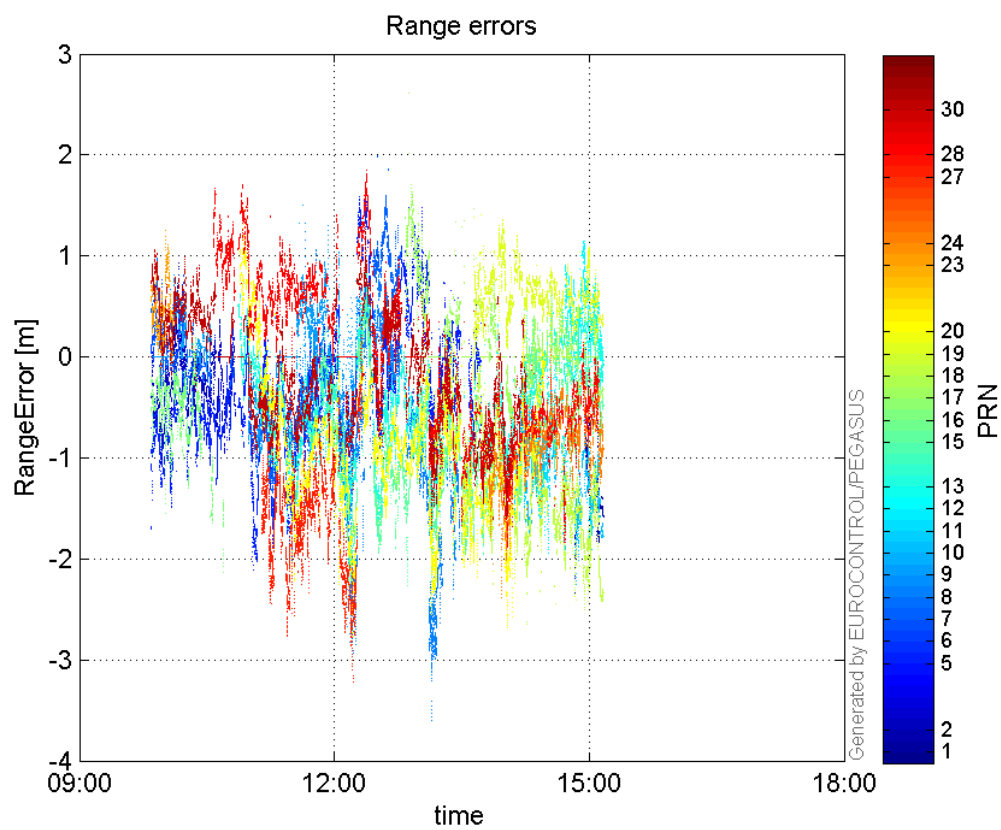


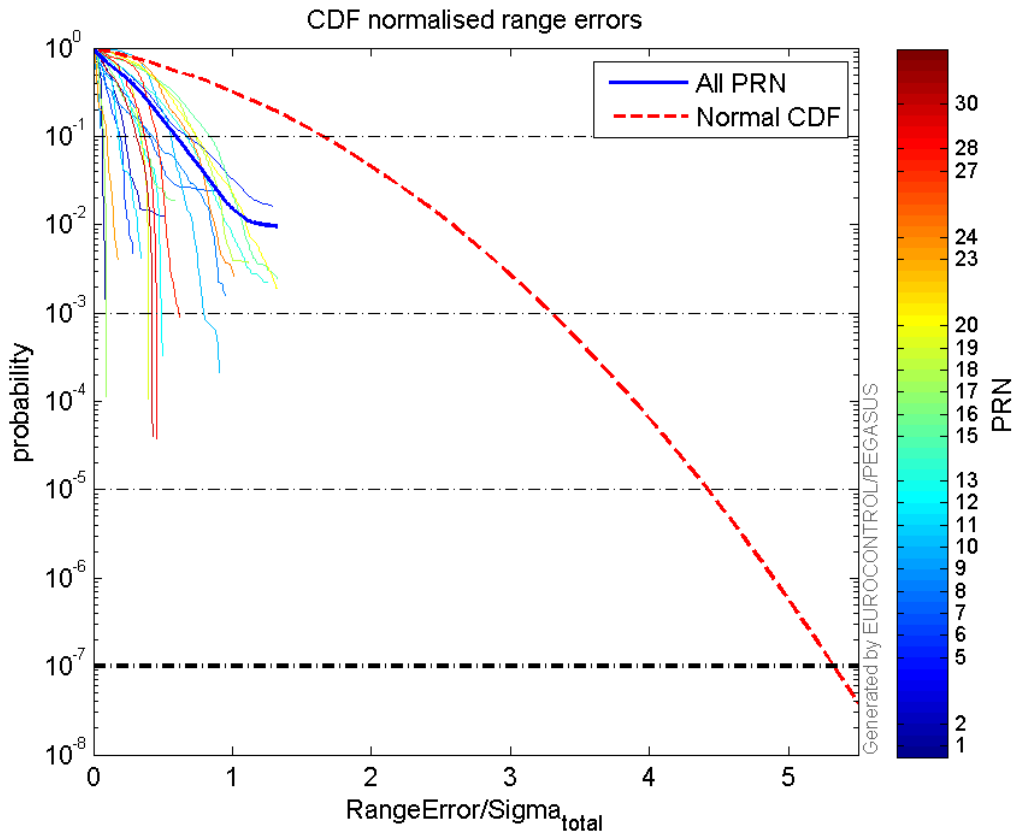
## range errors

Number of Overbounding Norm Errors 0

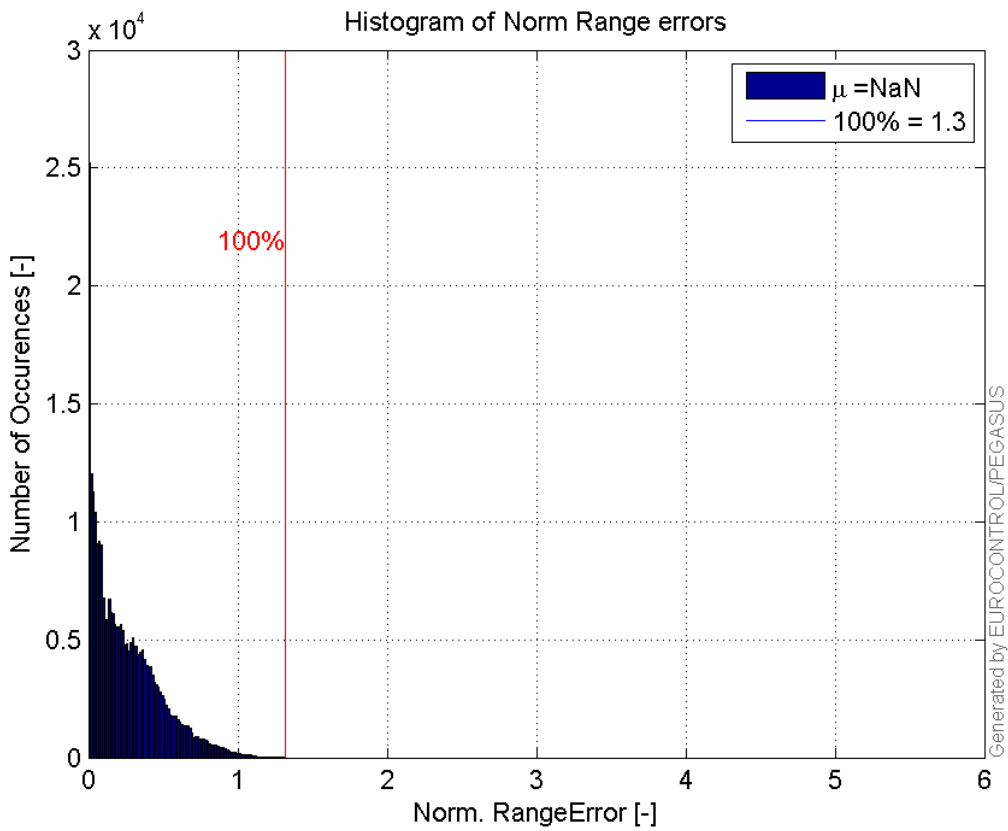
## Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1937	226220	1	0.0884116	-2.36762	26.7795
1937	208247	2	0.504379	-1.12526	2.23098
1937	212548	5	1.29032	-2.11369	1.63812
1937	209594	6	0.278869	0.807766	2.89658
1937	214218	7	0.90902	-1.64757	1.81247
1937	220238	8	0.95128	-2.97195	3.12415
1937	215729	9	0.403318	1.29801	3.21834
1937	226258	10	0.916045	-2.25224	2.45865
1937	225767	11	0.346425	-2.04629	5.90687
1937	226626	12	0.496281	1.14038	2.29785
1937	216784	13	1.25098	-1.91461	1.53048
1937	220126	15	1.31985	-2.51412	1.90485
1937	208847	16	0.582588	-1.54345	2.64931
1937	219178	17	0.816826	2.61363	3.19973
1937	224157	18	1.11434	-2.64643	2.37489
1937	223741	19	0.50837	1.206	2.37229
1937	216823	20	1.31909	-2.33929	1.77341
1937	208847	23	0.179126	1.24728	6.96314
1937	226376	24	1.01319	-1.51608	1.49635
1937	216784	27	0.619772	-3.2172	5.19094
1937	223323	28	0.872674	-1.80549	2.06892
1937	214331	30	0.98635	-1.5356	1.55685

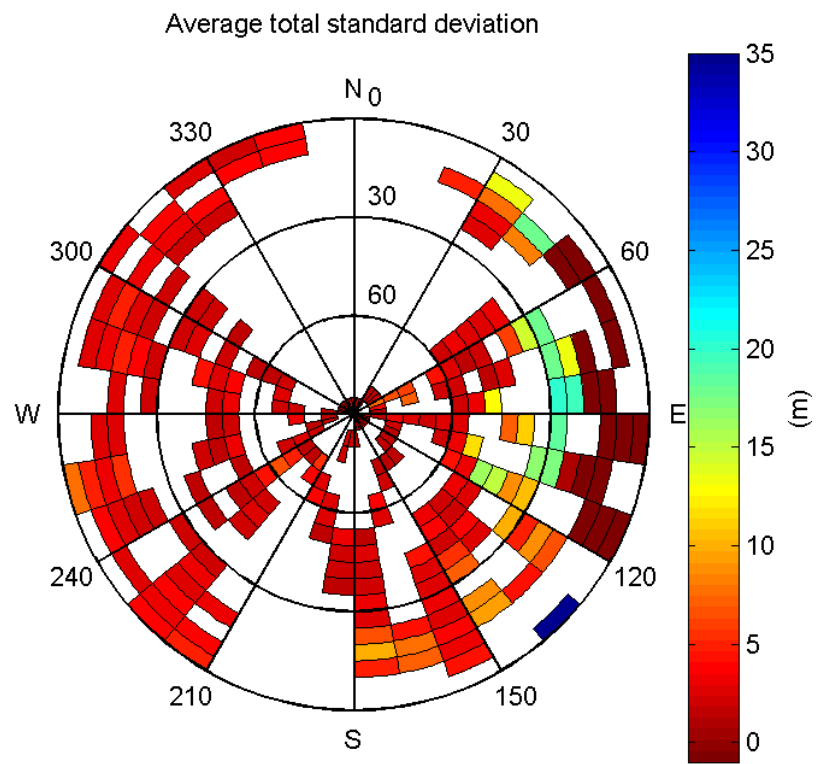
**Normalised Range errors (median):****Range errors:****CDF normalised range errors:**



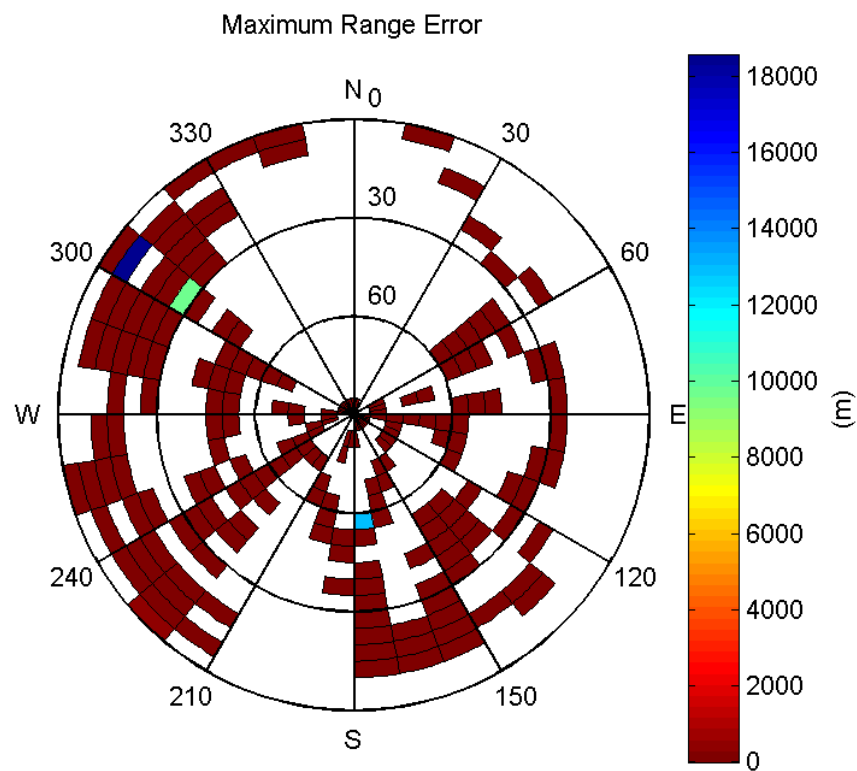
**Histogram of Norm Range errors:**



**Sigma Sky Plot:**



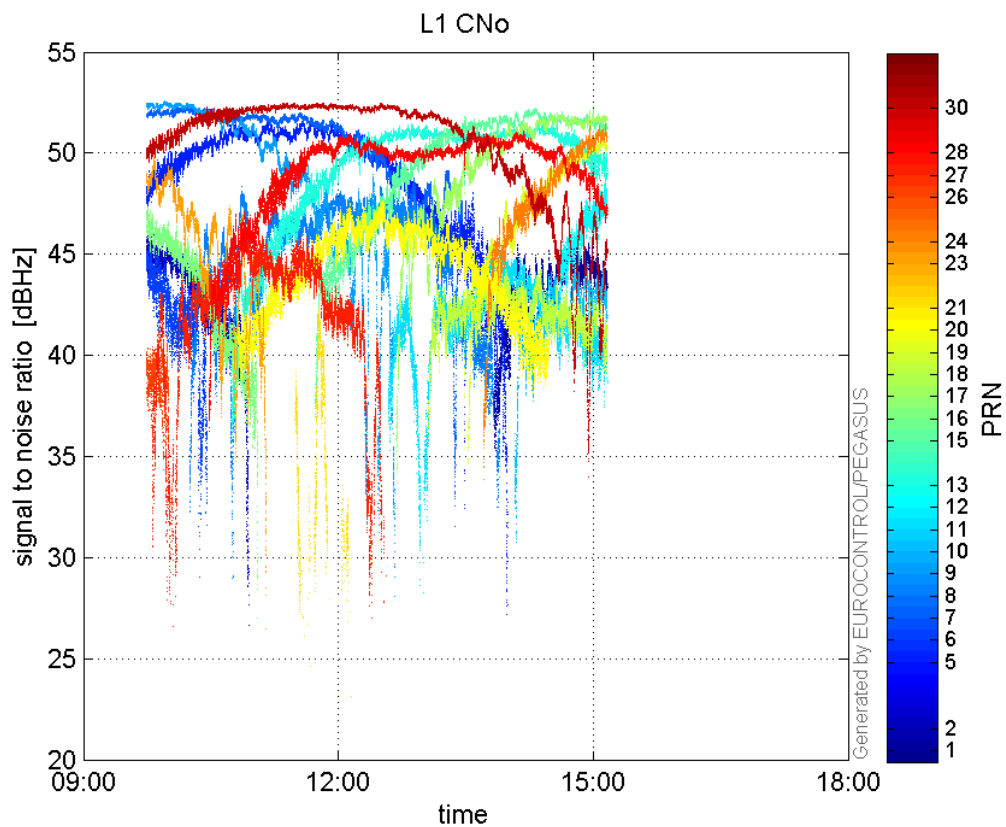
Norm Error Sky Plot:



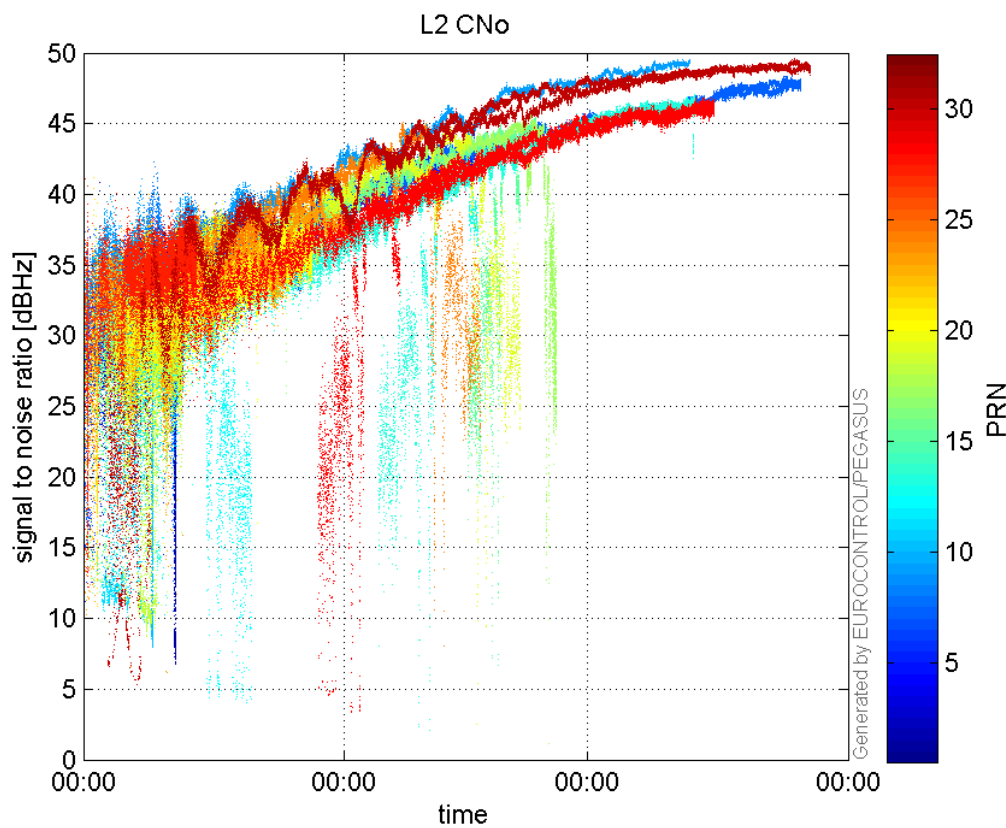
signal quality

L1 CNo:

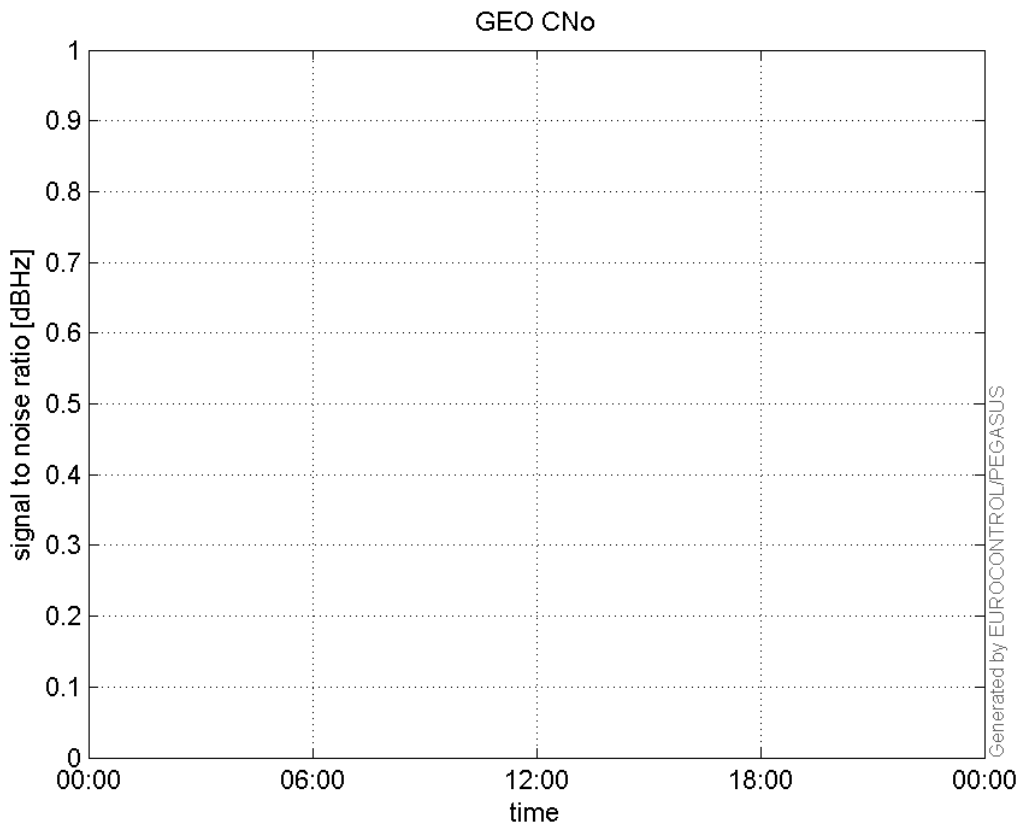




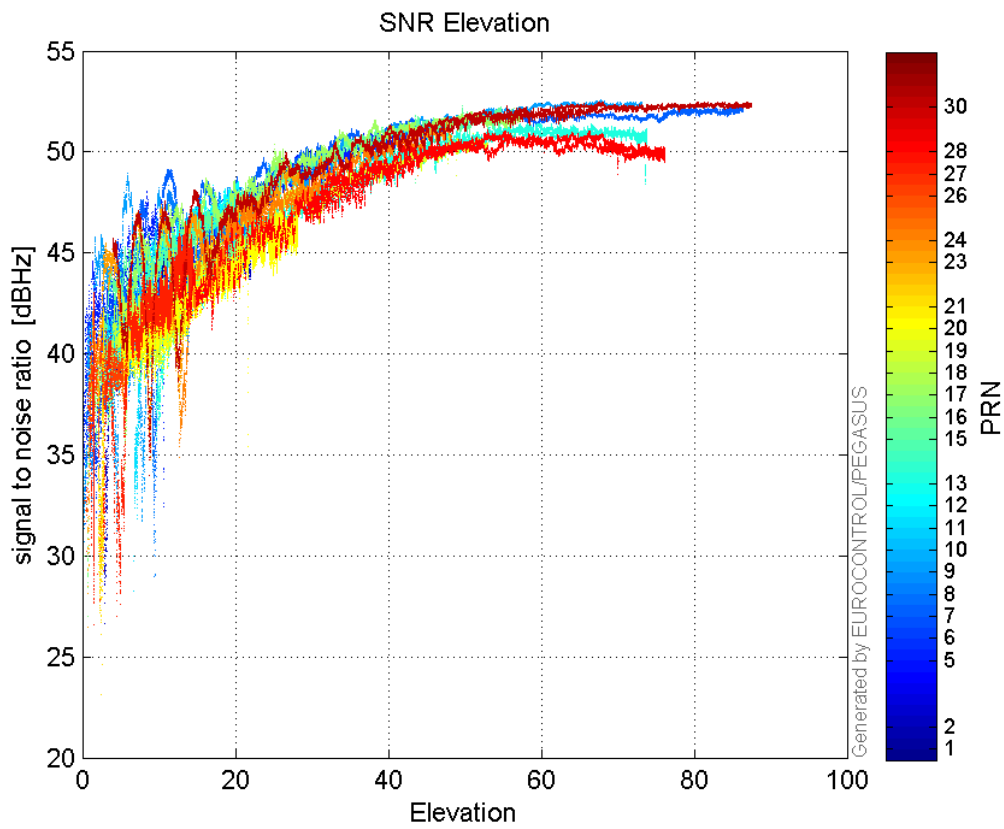
**L2 CNo:**



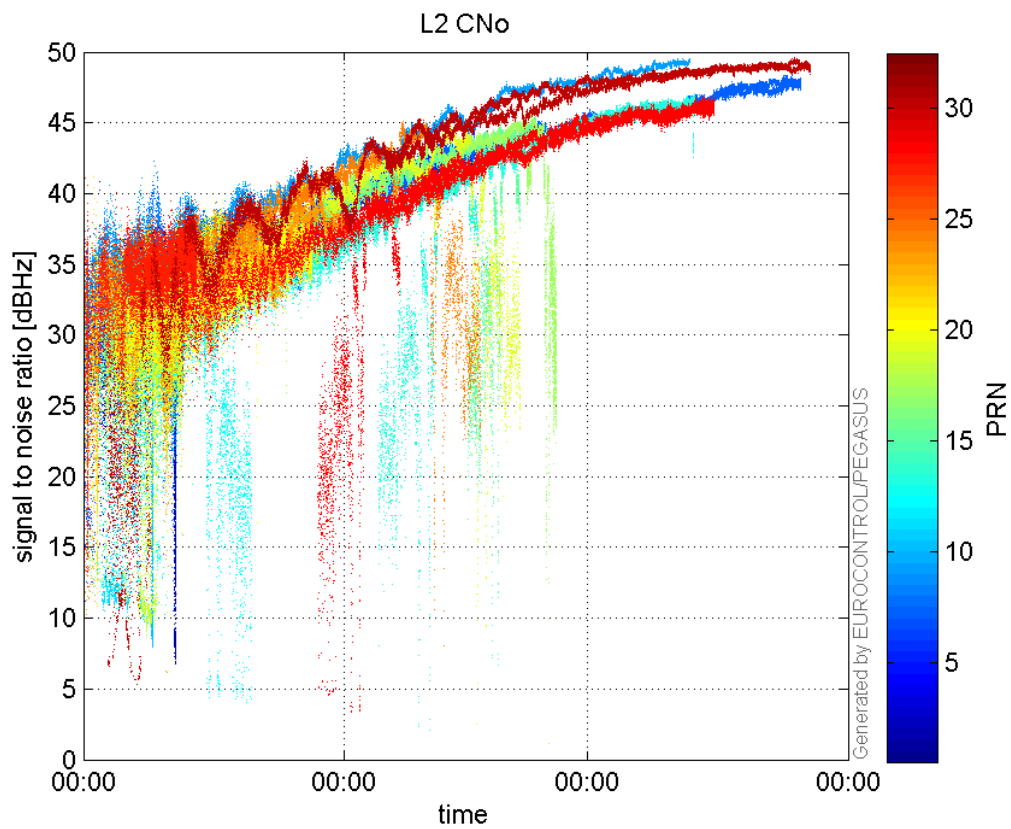
**GEO CNo:**



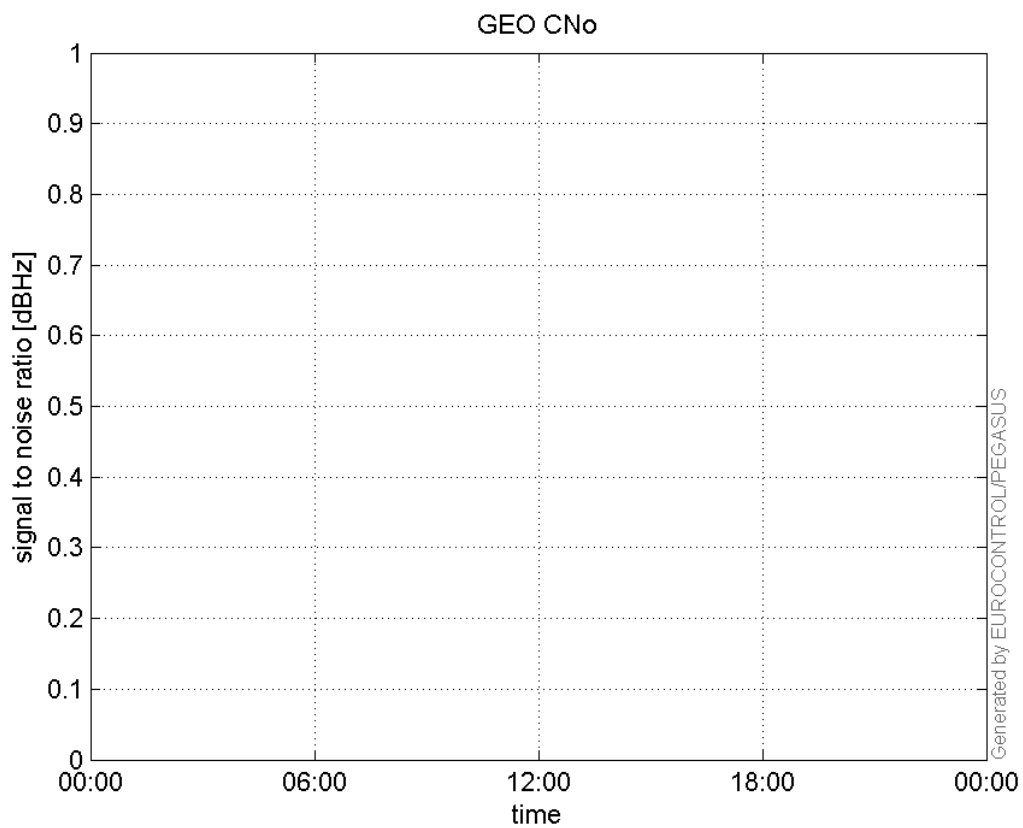
**SNR Elevation:**



**L2 CNo:**

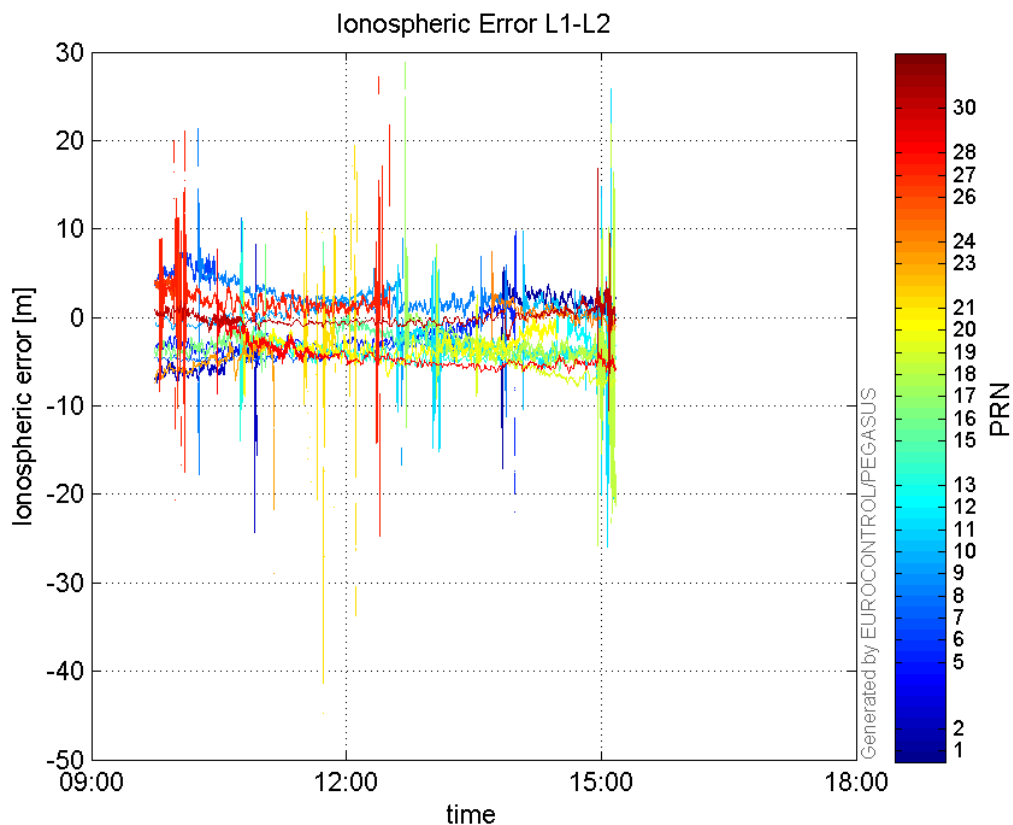


**GEO CNo:**



**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_21EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_21EGNOS2Hz/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

<b>init_lon</b>	results	30.4297
<b>init_alt</b>	results	223.7826
<b>mi_numbers</b>	results	0