

DLV3 -

DLV3 - Constellation

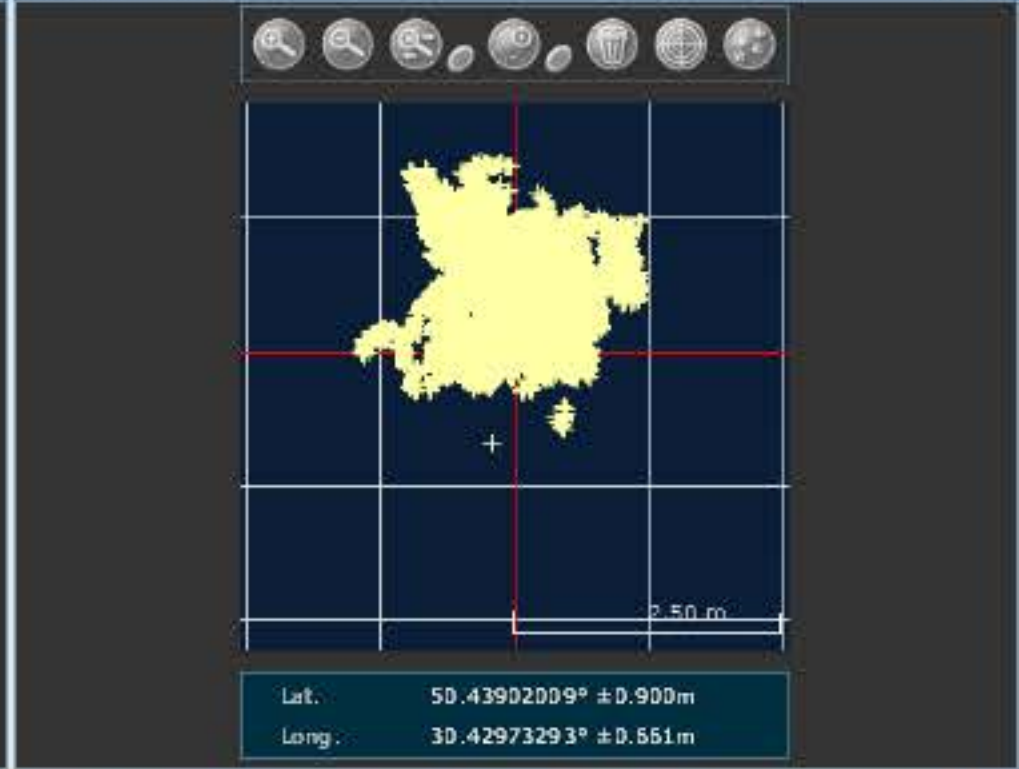


PRN	AZ	ELEV	C/No	STATUS
No SV				

DLV3 - Position

Latitude	50.43902009°	+/- 0.90 m
Longitude	30.42973293°	+/- 0.66 m
Hgt. (MSL)	190.952m	+/- 1.47 m
Solution type	SBAS	
Iono correction	Multi-frequency	
Advanced RTK status	N/A	
Solution age	0 second	
Differential age	5 seconds	
# of satellites used in solution	9	
	GPS	L1 L2 L5
	GLD	L1 L2
Solution status	Computed	
Wed 20/04/2016 13:25:50 GMT Wed 20/04/2016 16:25:50 Local		

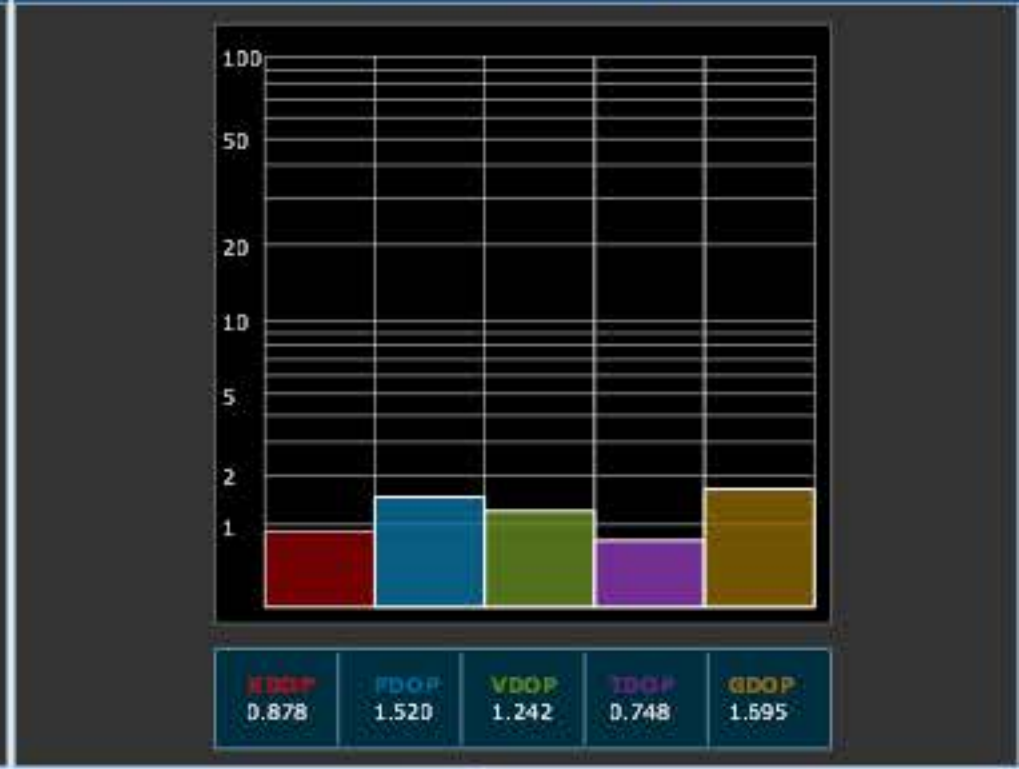
DLV3 - Plan



DLV3 - GPS Tracking Channel Status



DLV3 - Dilution Of Precision (DOP)



DLV3 - Console Window

```
<OK
[COM1]
<OK
[COM1]
Command
```

DLV3 - Logging Control Window

Log File	Logs	Size	Elapsed:
sus482/data/In_date/2016_04_20_EGNOS.gps	165178	141.33MB	08h 34m 45s

# 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 21/04/2016

## SBAS Messages

**start:** 04:51:5.129 20.04.2016 ( week: 1893 sec: 276665.129 )  
**end:** 13:27:44.129 20.04.2016 ( week: 1893 sec: 307664.129 )  
**duration:** 08:36:39 ..

### quality

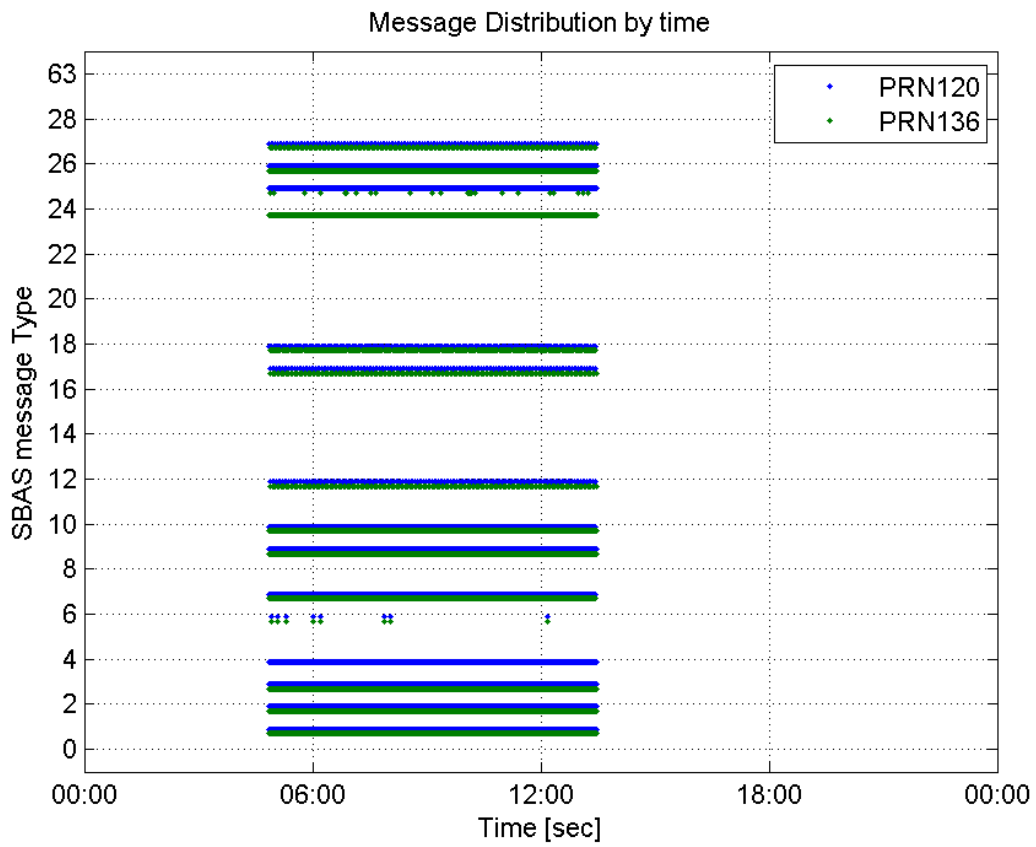
**valid samples** 61971  
**total samples** 61971  
**number of SBAS PRNs** 2

### SBAS SIS Overview

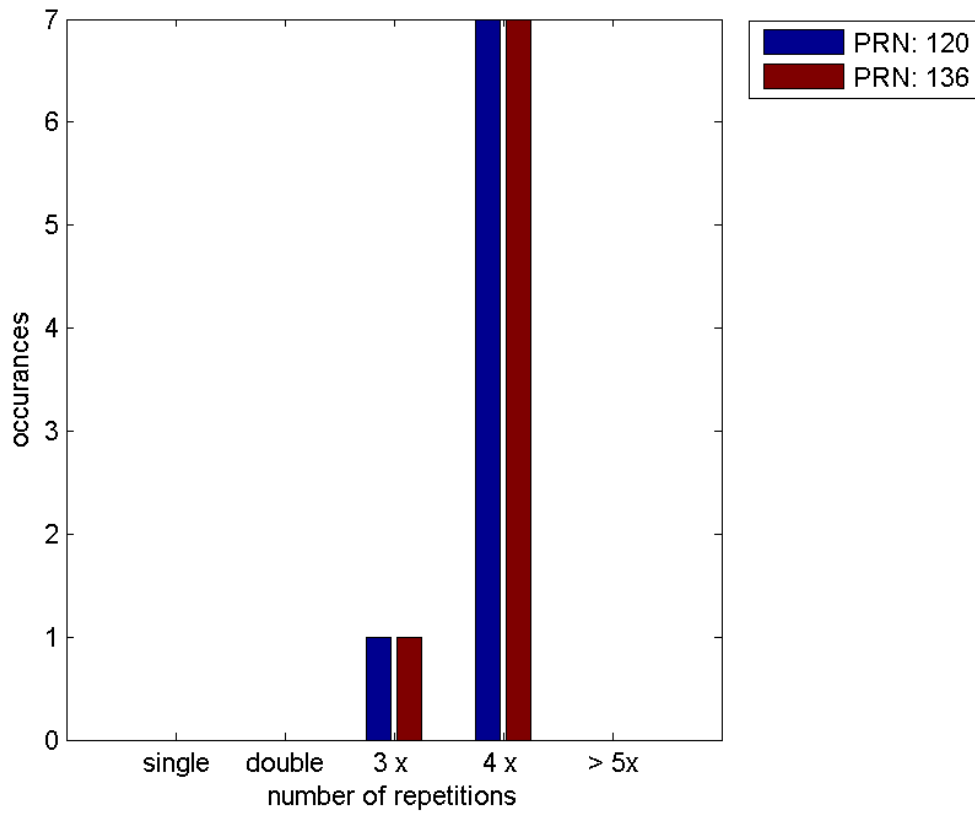
#### Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
<b>PRN 120</b>	0	0	1	7	0
<b>PRN 136</b>	0	0	1	7	0

#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

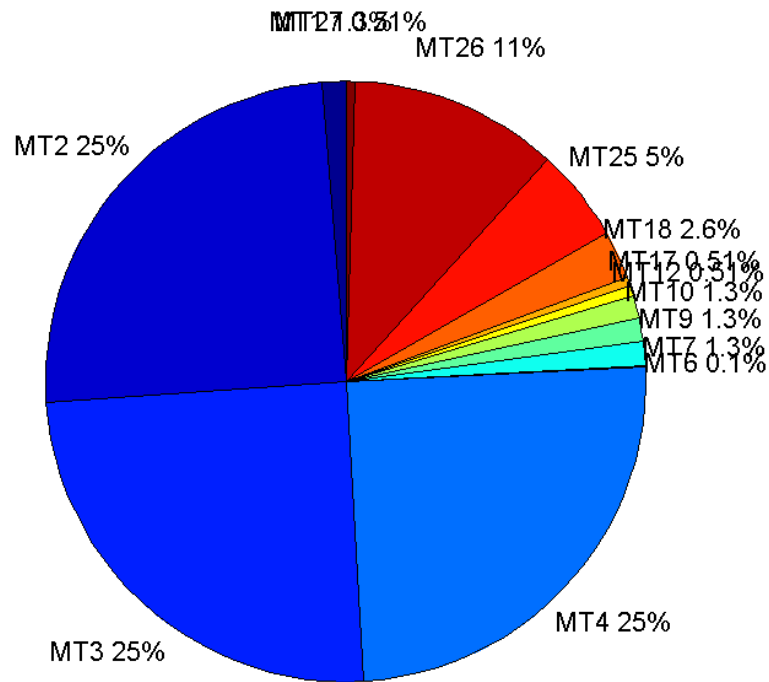
	number of messages	%
MT 0	0	0
MT 1	389	1.25601
MT 2	7693	24.8394
MT 3	7692	24.8361
MT 4	7691	24.8329
MT 5	0	0
MT 6	32	0.103322
MT 7	389	1.25601
MT 9	390	1.25924
MT 10	389	1.25601
MT 12	158	0.510155
MT 17	158	0.510155
MT 18	790	2.55077
MT 24	0	0
MT 25	1563	5.04666
MT 26	3478	11.2299
MT 27	159	0.513383
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	30971	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	84	79.6649	0	0	0
MT 2	4	32	4.03003	9	1	1
MT 3	4	32	4.03004	9	1	1
MT 4	4	36	4.03069	9	1	1
MT 5	--	--	--	--	--	--
MT 6	1	14794	843.548	7	7	7
MT 7	76	83	79.6624	0	0	0
MT 9	76	81	79.635	0	0	0
MT 10	76	88	79.6598	0	0	0
MT 12	188	201	195.898	157	0	0
MT 17	188	203	195.904	0	0	0
MT 18	4	162	39.0279	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	80	19.8323	0	0	0
MT	4	36	8.91286	0	0	0

26						
MT 27	183	203	195.886	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	483	1.55806
MT 2	7740	24.9677
MT 3	7740	24.9677
MT 4	0	0
MT 5	0	0
MT 6	32	0.103226
MT 7	482	1.55484
MT 9	482	1.55484
MT 10	482	1.55484



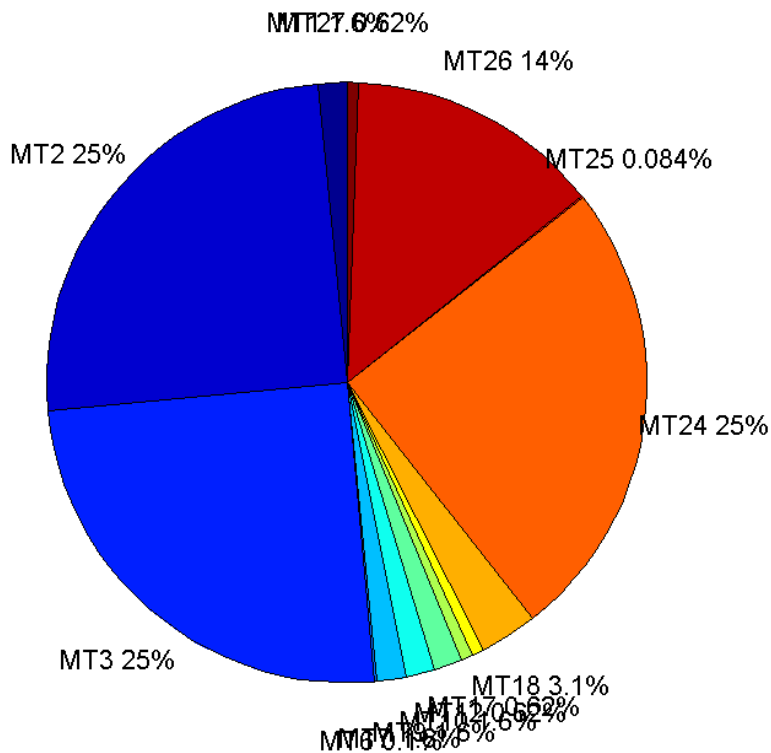
MT 12	193	0.622581
MT 17	193	0.622581
MT 18	965	3.1129
MT 24	7740	24.9677
MT 25	26	0.083871
MT 26	4249	13.7065
MT 27	193	0.622581
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	31000	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	71	64.278	0	0	0
MT 2	4	8	4.0053	8	0	0
MT 3	4	8	4.00517	8	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	14794	843.548	7	7	7
MT 7	64	71	64.2869	0	0	0
MT 9	64	71	64.2952	0	0	0
MT 10	64	72	64.2869	0	0	0
MT 12	156	169	160.531	192	0	0
MT 17	156	169	160.51	0	0	0
MT 18	4	141	32.0062	0	0	0
MT 24	4	8	4.0053	0	0	0
MT 25	40	3192	1203.08	0	0	0
MT 26	4	31	7.2952	0	0	0
MT 27	156	173	160.531	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:/PegasusDateJob/job/2016_04_20_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_04_20_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

### Position Domain

**start:** 04:51:06 20.04.2016 ( week: 1893 sec: 276666 )  
**end:** 13:27:45 20.04.2016 ( week: 1893 sec: 307665 )  
**duration:** 08:36:40 ..

#### quality

**valid samples** 30639  
**total samples** 31000

## Event tables

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

## extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	301484	1.6756	9.60676	0.174419	1.10316	18.3596	0.0600861
max normVer	295239	1.22404	9.18718	0.133234	1.87694	12.6455	0.148428
max HPE	287560	14.0907	487.768	0.0288882	5.79254	139.969	0.0413845
max VPE	287560	14.0907	487.768	0.0288882	5.79254	139.969	0.0413845
min HPL	280056	0.872268	8.08384	0.107903	-0.625746	13.2488	0.0472304
min VPL	295365	1.02185	8.63469	0.118343	1.36743	11.9191	0.114726

## Position discontinuity events :

#	Epoch	duration	stable period
1	277286	393	200
2	277953	30	274
3	298024	21	20041
4	302634	29	4589

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	277286	393	200
2	277766	8	8
3	277820	163	1
4	287055	508	1
5	298024	25	10461
6	301683	80	3634
7	302351	4	2
8	302551	112	196
9	305843	121	3180

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	277255	1012	3
2	287055	508	1
3	298024	25	10461
4	301683	80	3634
5	302351	4	2
6	302551	112	196
7	305843	121	3180

## LPV-200 discontinuity events :

#	Epoch	duration	stable period



#	Epoch	duration	stable period
1	277255	1012	3
2	287055	508	1
3	298024	25	10461
4	301683	80	3634
5	302351	4	2
6	302551	112	196
7	305843	121	3180

**CAT-I discontinuity events :**

#	Epoch	duration	stable period
1	295352	4	0
2	295357	3	1
3	295361	3	1
4	295365	4	1
5	295372	1	3
6	295376	1	3
7	295380	937	3
8	296318	3	1

**First Glance analysis**

<b>Duration</b>	31000
<b>Number of Samples</b>	31000
<b>Number of invalid sample</b>	361
<b>Number of no position solution samples</b>	532
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.1645
<b>Number of Misleading Information</b>	0
<b>Data gaps</b>	0
<b>Discontinuities</b>	4

**Number of Samples :**

Valid	APV-1	LPV-200	CAT-1	APV-35m
30107	29101	28697	15	28697

**Accuracy statistics :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	1.85916	1.55146	1.55459	1.0984	1.55459
<b>HPEscale 95%</b>	NaN	5.42408	5.43217	5.06364	5.43217
<b>VPE 95%</b>	1.48266	1.39145	1.3935	1.42142	1.3935
<b>VPEscale 95%</b>	NaN	3.96435	2.78162	1.42839	2.78162

**Availability :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	0.982637	0.949803	0.936617	0.000489572	0.936617
<b>measurements</b>	0.971194	0.938742	0.92571	0.000483871	0.92571

<b>Operational</b>	0.971194	0.938742	0.92571	0.000483871	0.92571
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**Discontinuity events :**

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	4	46	25	8	25
<b>Long</b>	4	9	7	3	7
<b>Independent</b>	4	5	4	0	4
<b>P(disc.)</b>	0.00199289	0.00257723	0.00209081	0	0.00209081
<b>P(slide)</b>	0.00199289	0.00659771	0.00529672	0.866667	0.00529672

**Integrity events :**

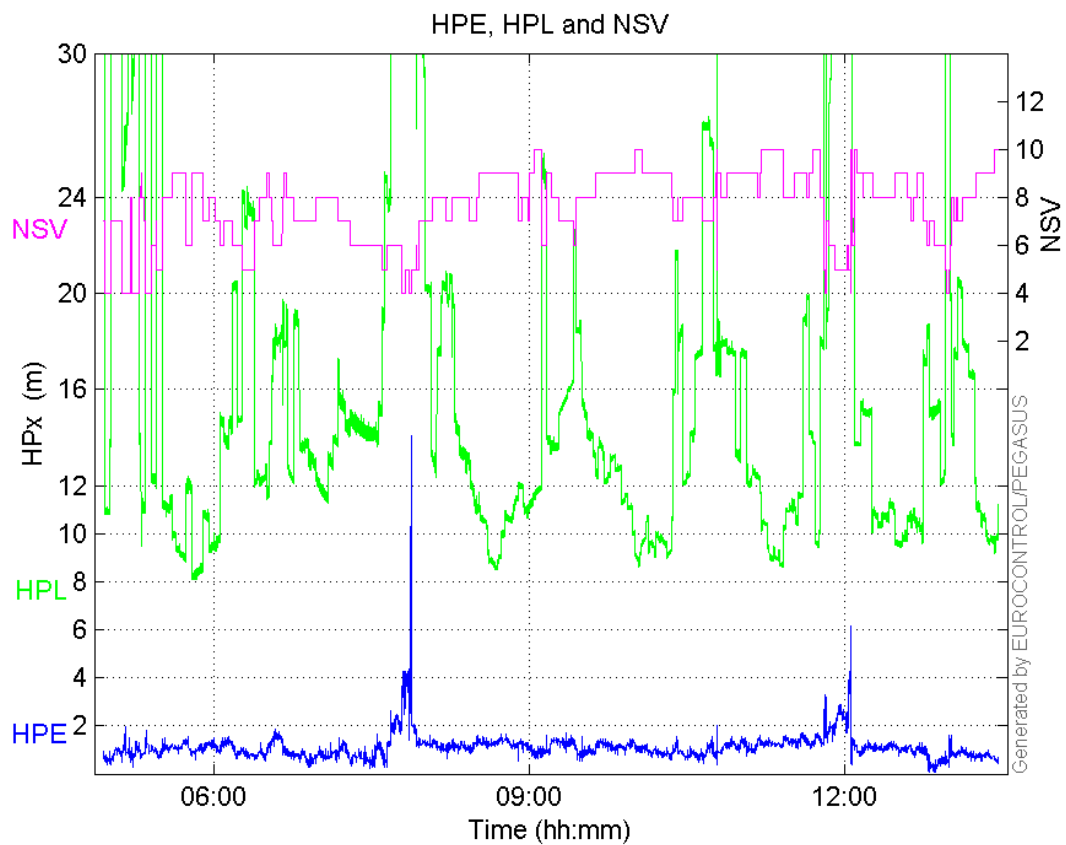
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

**Performance Summary :**

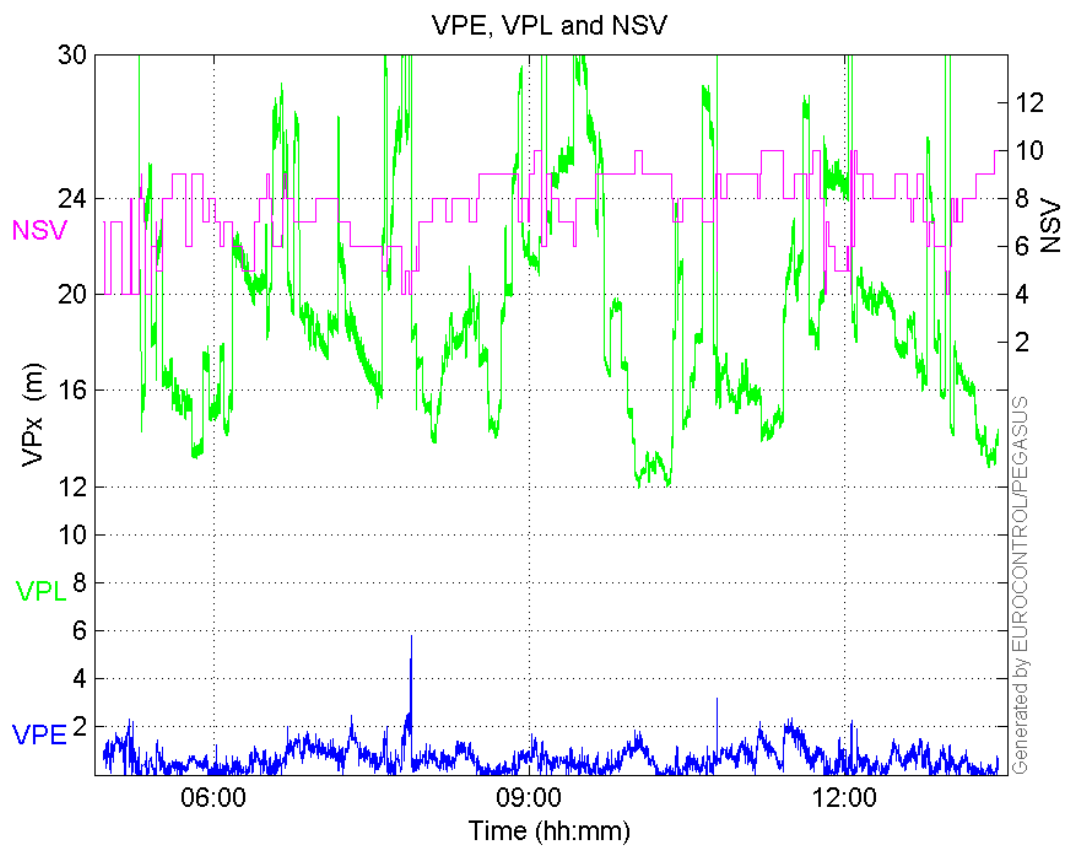
	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	30107	29101	28697	15	28697
<b>SIS Availability</b>	0.982637	0.949803	0.936617	0.000489572	0.936617
<b>Local Availability</b>	0.971194	0.938742	0.92571	0.000483871	0.92571
<b>Operational Availability</b>	0.971194	0.938742	0.92571	0.000483871	0.92571
<b>HPE 95%</b>	1.85916	1.55146	1.55459	1.0984	1.55459
<b>HPEscale 95%</b>	NaN	5.42408	5.43217	5.06364	5.43217
<b>VPE 95%</b>	1.48266	1.39145	1.3935	1.42142	1.3935
<b>VPEscale 95%</b>	NaN	3.96435	2.78162	1.42839	2.78162
<b>All Discontinuity Events</b>	4	46	25	8	25
<b>Long Discontinuity Events</b>	4	9	7	3	7
<b>Independent Discontinuity Events</b>	4	5	4	0	4
<b>P(discontinuity)</b>	0.00199289	0.00257723	0.00209081	0	0.00209081
<b>P(sliding window)</b>	0.00199289	0.00659771	0.00529672	0.866667	0.00529672
<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:**

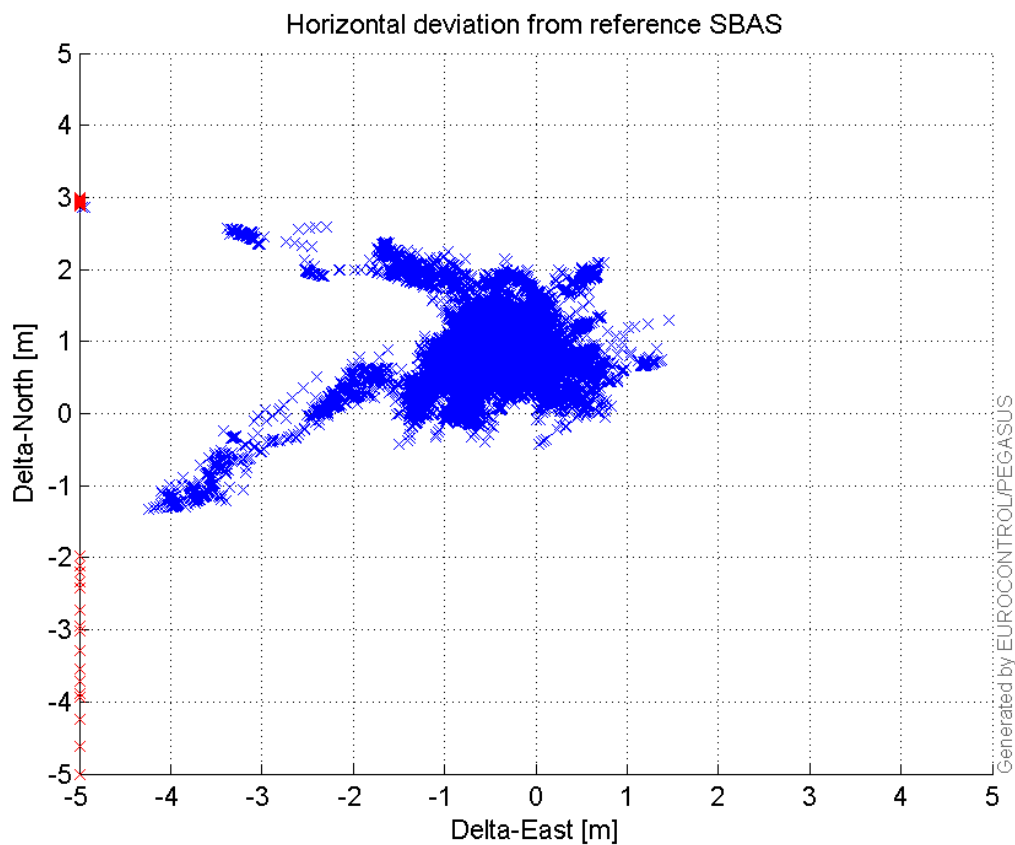


**VPE, VPL and NSV:**



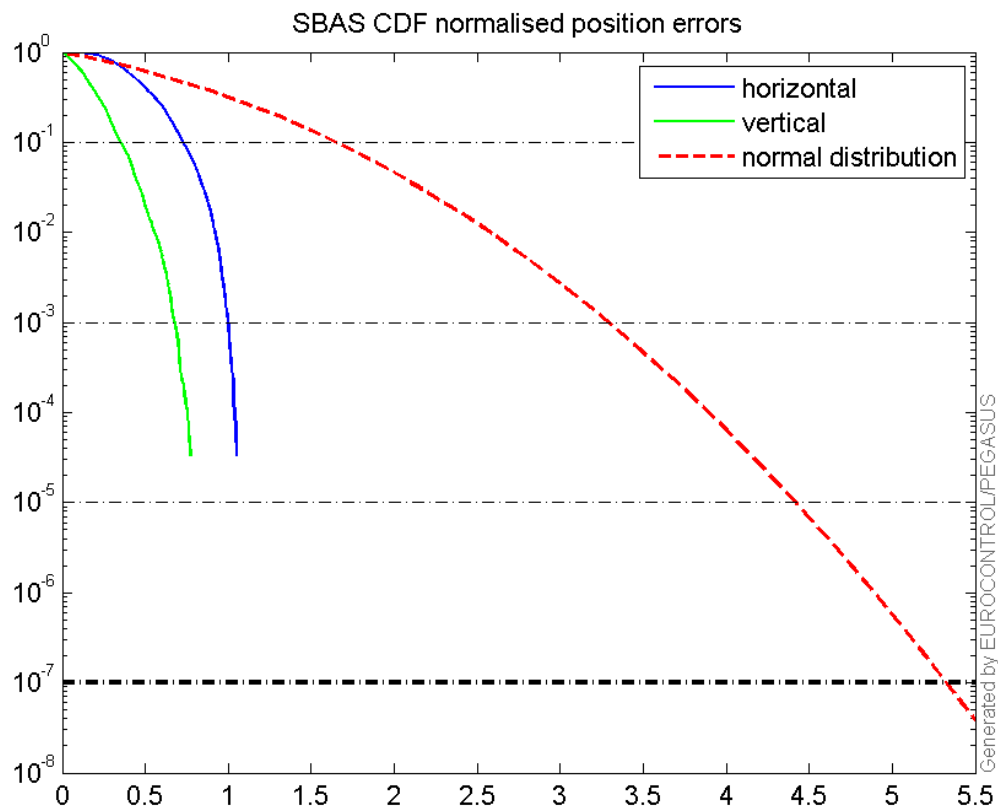
Horizontal deviation

## Horizontal deviation from reference SBAS:



## CDF position

## SBAS CDF position domain:



## Statistics

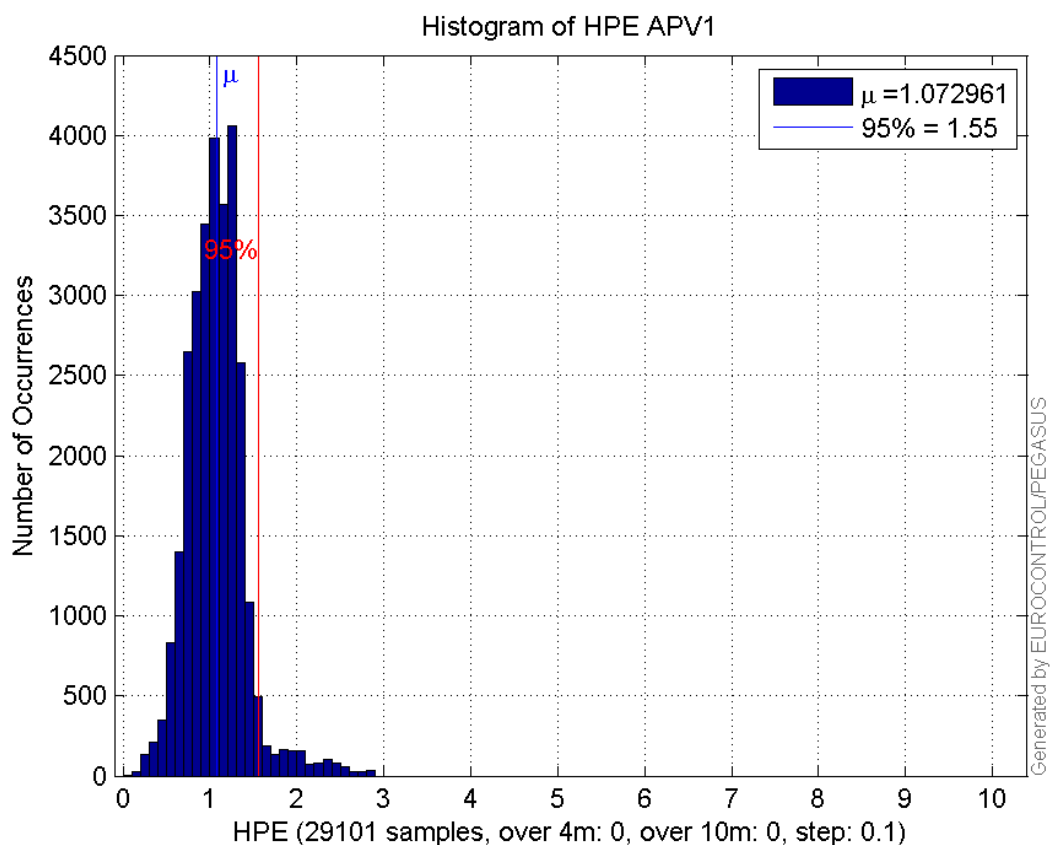
<b>number</b>	29101
<b>sum</b>	31224.242
<b>sum2</b>	36782.931
<b>prctile95</b>	1.5514561
<b>prctile99</b>	2.327421
<b>number</b>	29101
<b>sum</b>	17608.521
<b>sum2</b>	15777.926
<b>prctile95</b>	1.3914468
<b>prctile99</b>	1.8420115
<b>number</b>	29101
<b>sum</b>	441632.73
<b>sum2</b>	7931703.2
<b>prctile95</b>	31.71838
<b>prctile99</b>	37.658575
<b>number</b>	29101
<b>sum</b>	566266.99
<b>sum2</b>	11789665
<b>prctile95</b>	28.568825
<b>prctile99</b>	38.769372
<b>number</b>	29101
<b>sum</b>	2296.0944
<b>sum2</b>	209.68064
<b>prctile95</b>	0.13560207
<b>prctile99</b>	0.15376278
<b>number</b>	29101
<b>sum</b>	952.90881
<b>sum2</b>	48.024946
<b>prctile95</b>	0.079286952
<b>prctile99</b>	0.10510847
<b>number</b>	28697
<b>sum</b>	30855.071
<b>sum2</b>	36421.065
<b>prctile95</b>	1.554593
<b>prctile99</b>	2.3313107
<b>number</b>	28697
<b>sum</b>	17375.552
<b>sum2</b>	15590.415
<b>prctile95</b>	1.3934979
<b>prctile99</b>	1.842159
<b>number</b>	28697
<b>sum</b>	430245.78
<b>sum2</b>	7597358.5
<b>prctile95</b>	31.084605
<b>prctile99</b>	37.680473
<b>number</b>	28697
<b>sum</b>	549366.72
<b>sum2</b>	11075614
<b>prctile95</b>	27.797255

**prctile99** 30.775784  
**number** 28697  
**sum** 2282.7412  
**sum2** 209.21206  
**prctile95** 0.13580425  
**prctile99** 0.15384039  
**number** 28697  
**sum** 947.22168  
**sum2** 47.911069  
**prctile95** 0.079474736  
**prctile99** 0.10515254

**Error and XPL Statistics :**

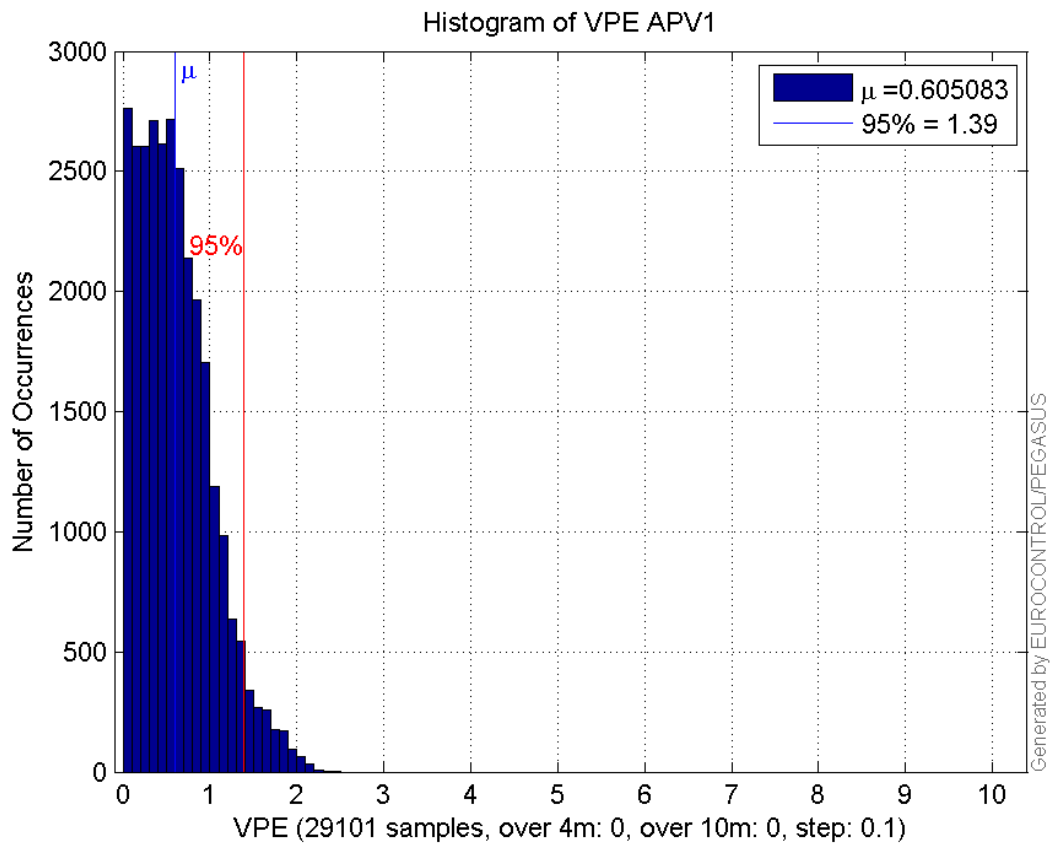
	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.07296	0.335757	1.06478	1.55146	2.32742	1.12427
<b>HPL</b>	15.1759	6.50019	13.2668	31.7184	37.6586	16.5093
<b>VPE</b>	0.605083	0.419594	0.547686	1.39145	1.84201	0.736327
<b>VPL</b>	19.4587	5.14684	18.3701	28.5688	38.7694	20.1278

**Histogram of HPE APV1:**

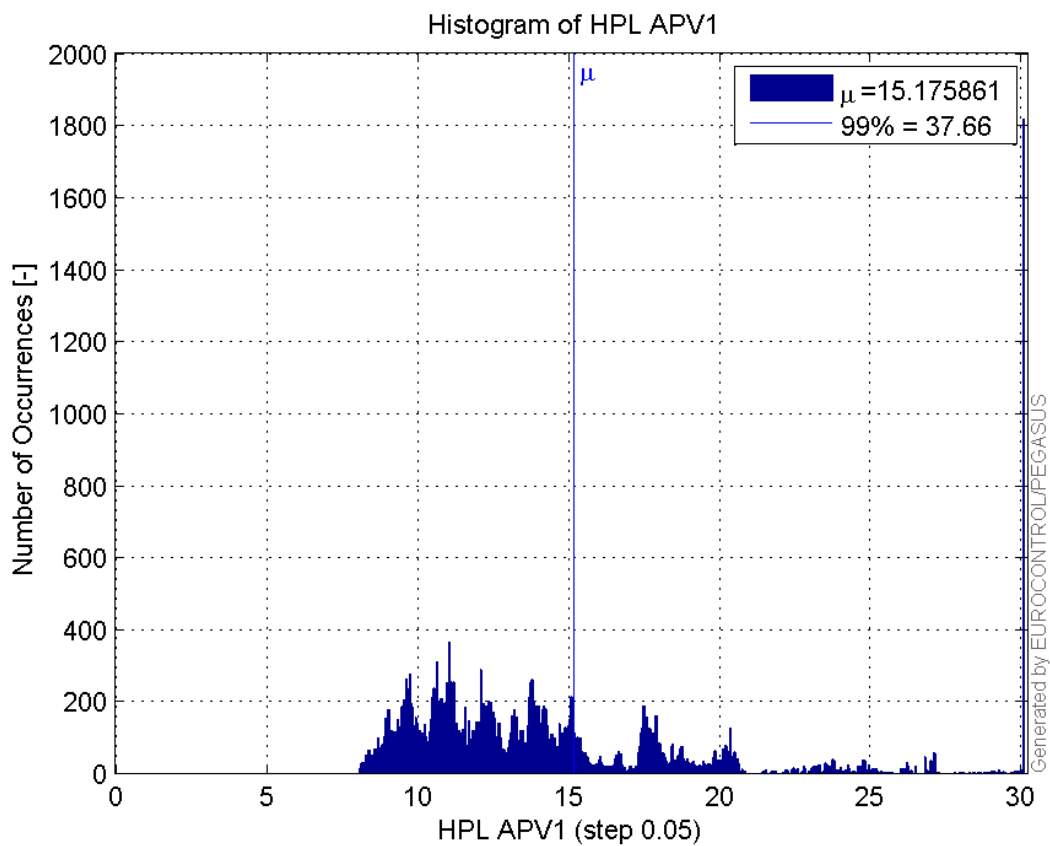


**Histogram of VPE APV1:**

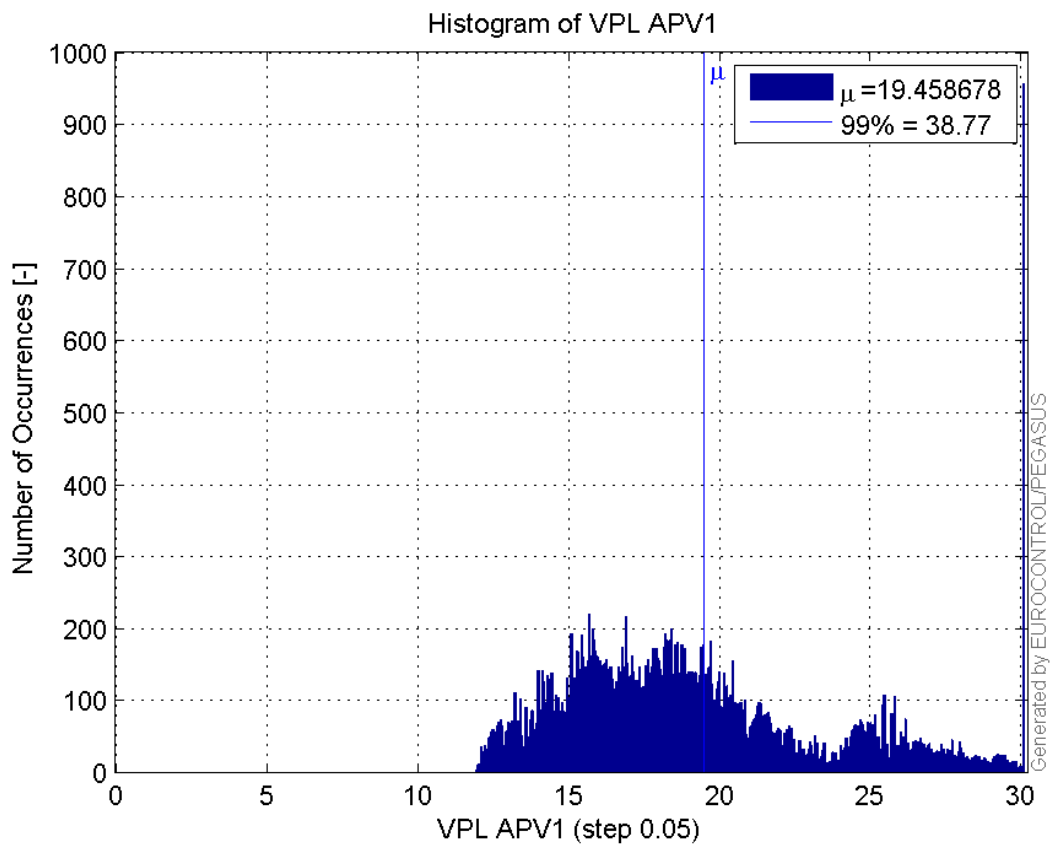




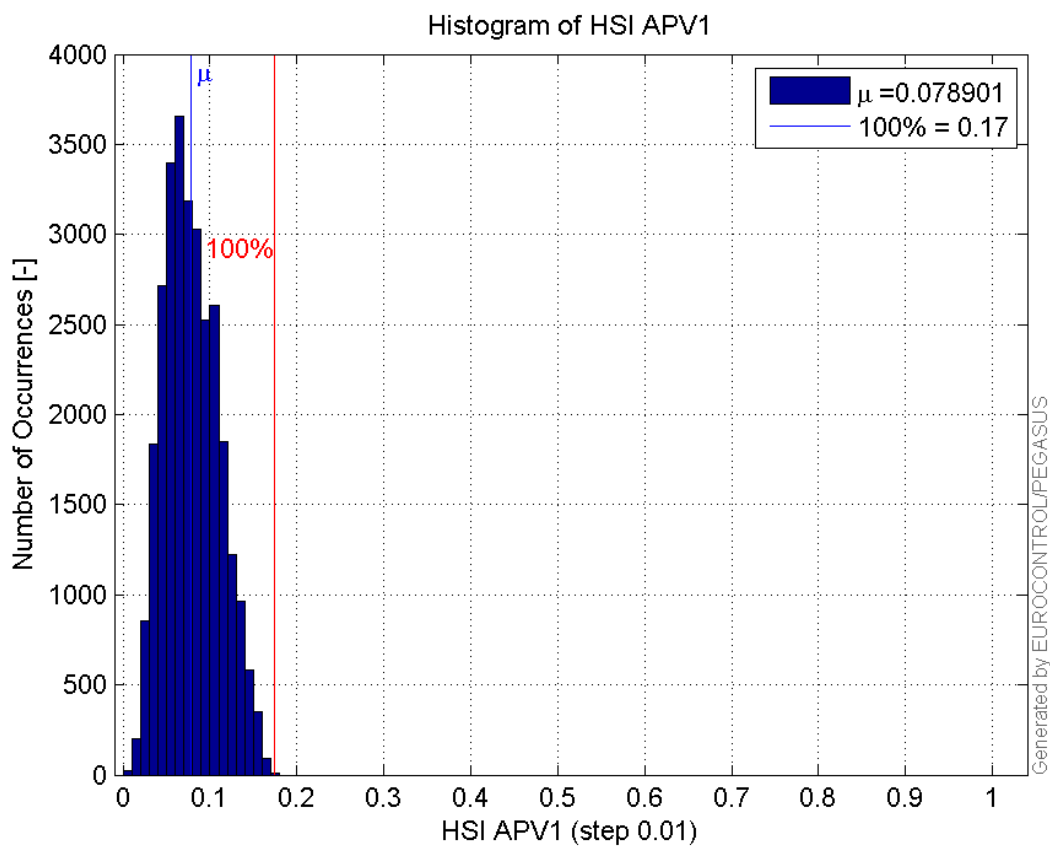
**Histogram of HPL APV1:**



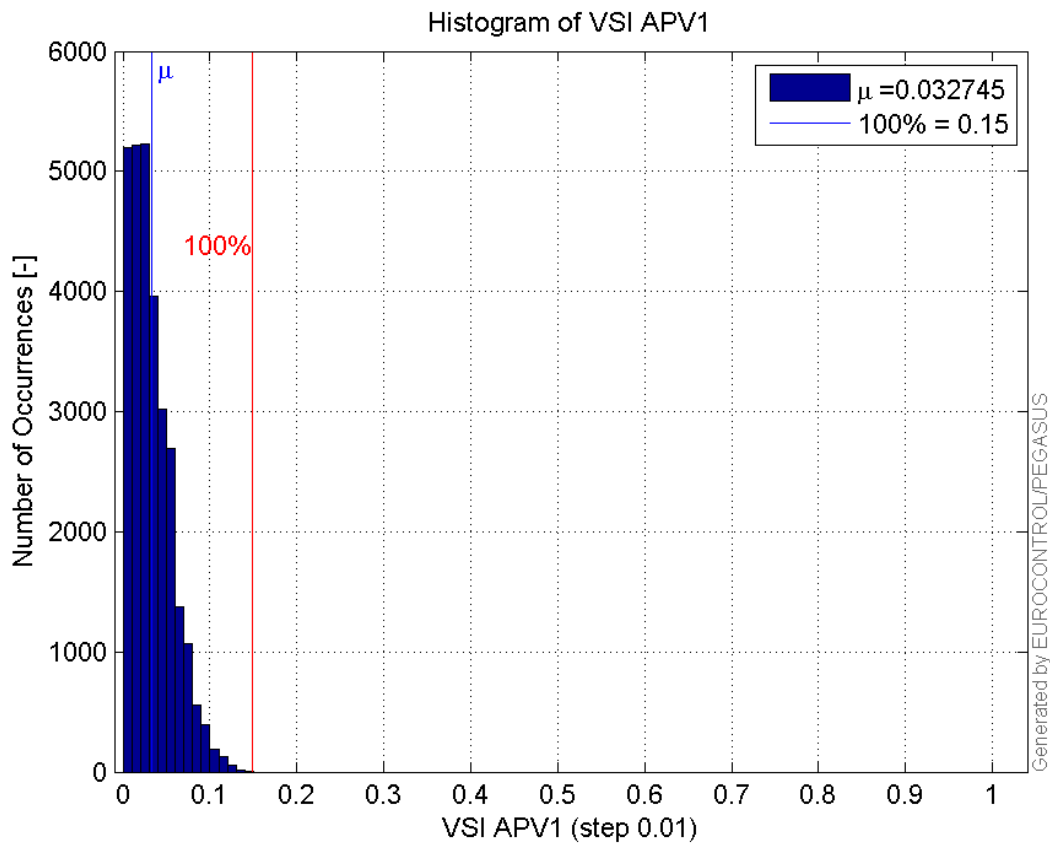
**Histogram of VPL APV1:**



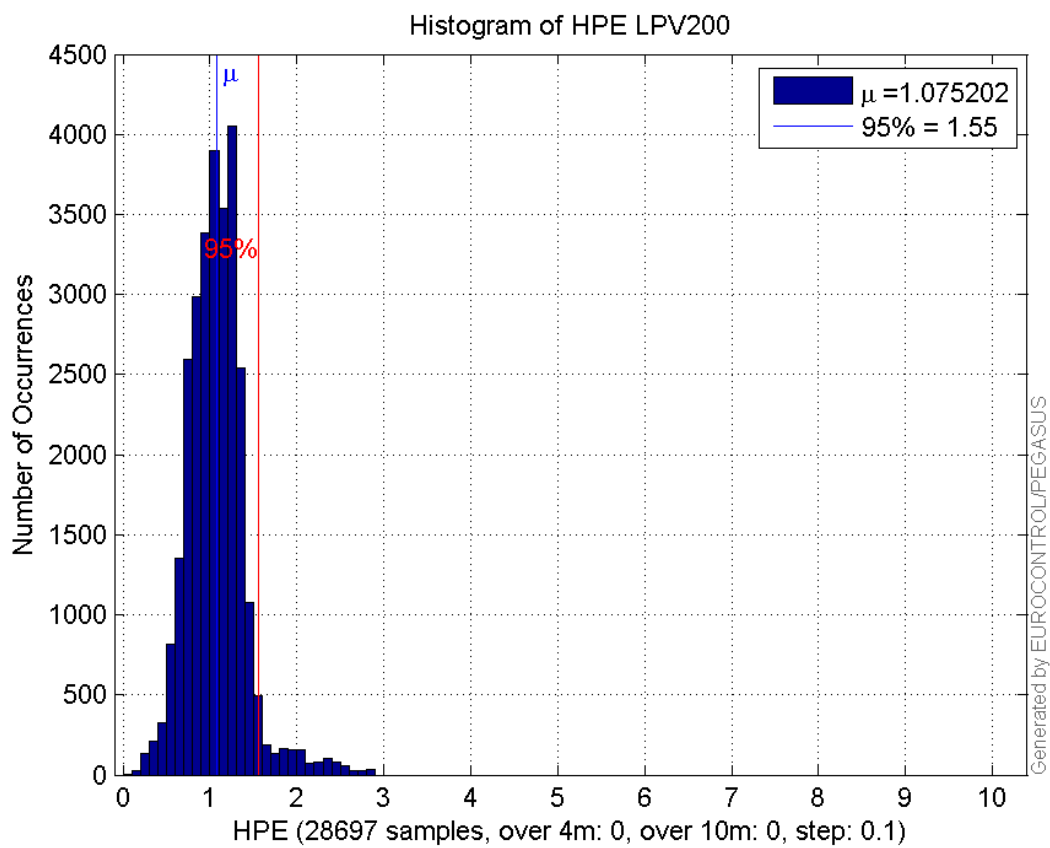
**Histogram of HSI APV1:**



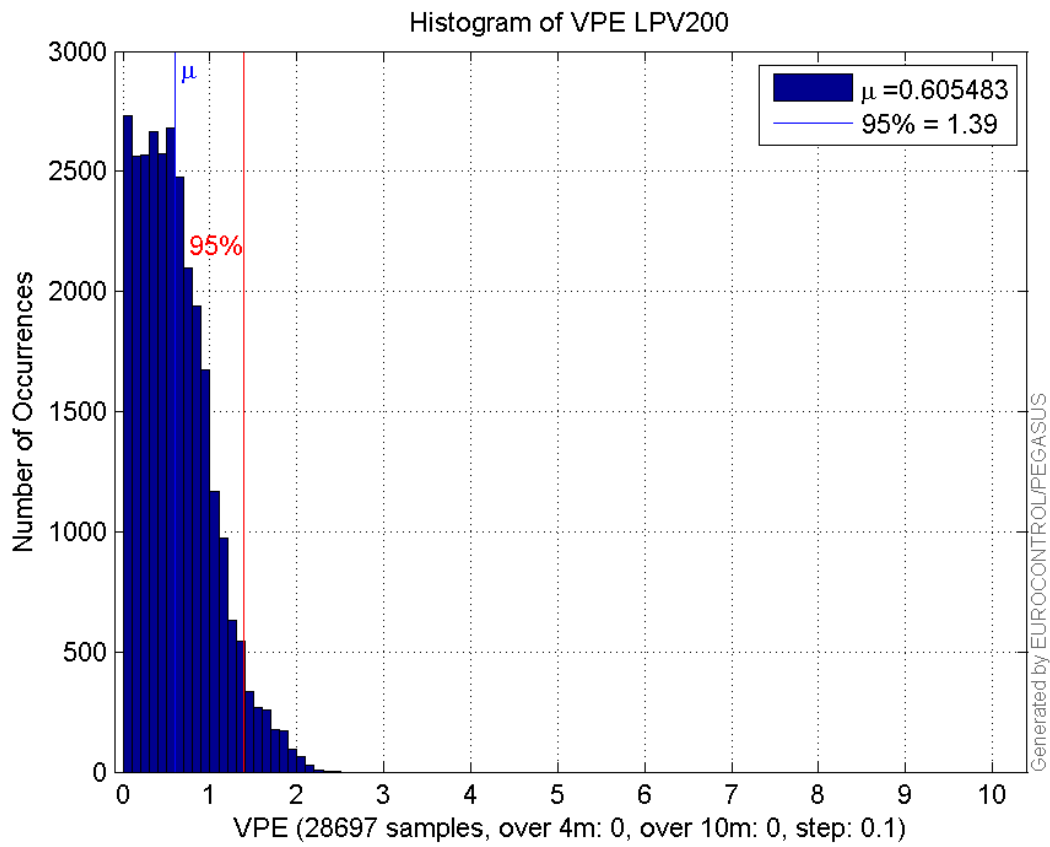
**Histogram of VSI APV1:**



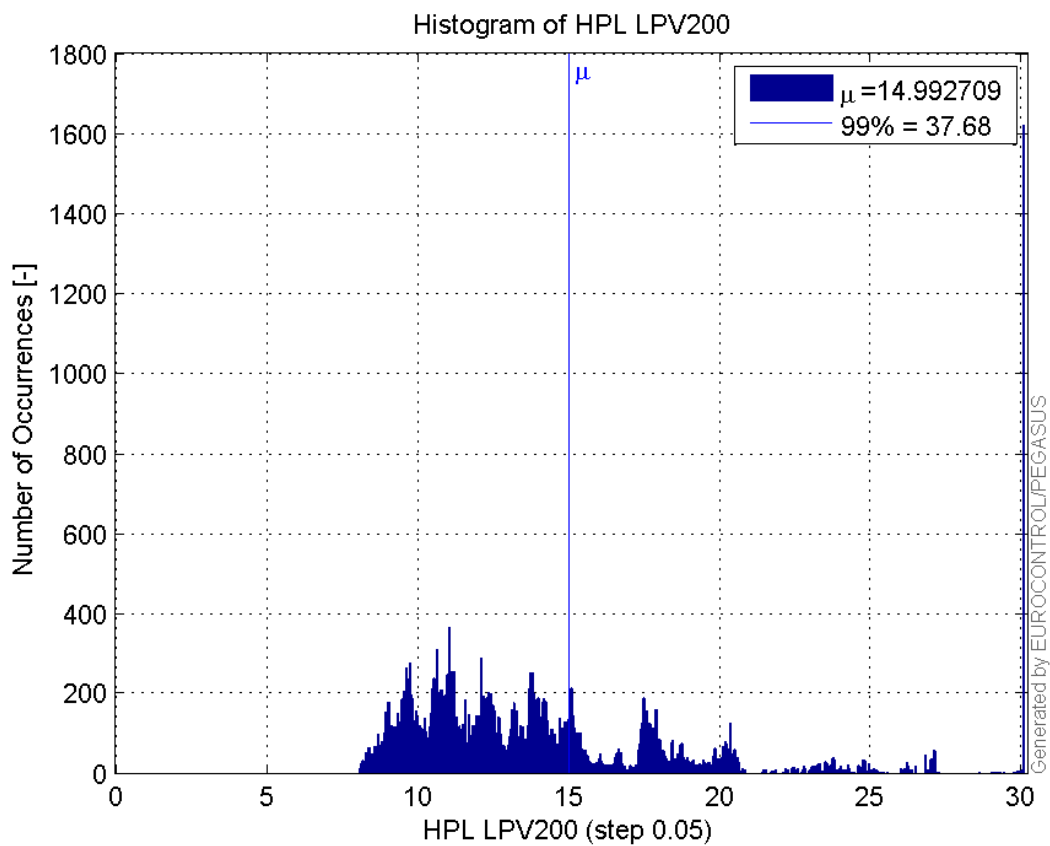
**Histogram of HPE LPV200:**



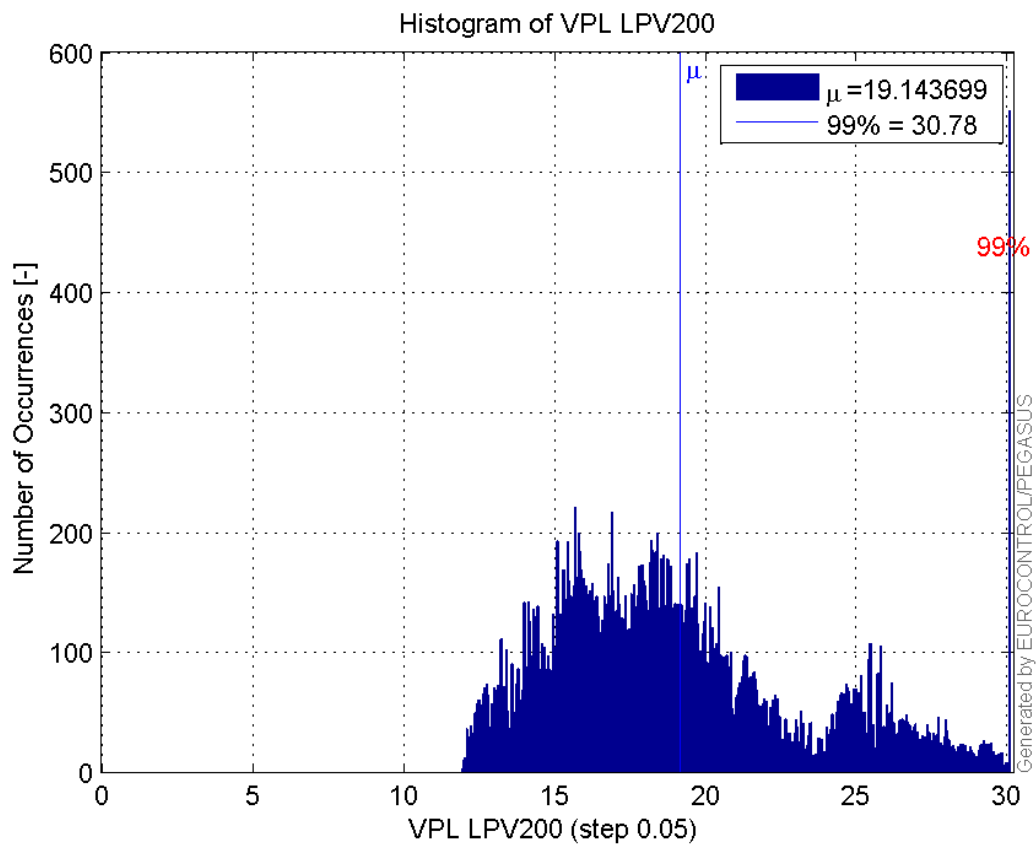
**Histogram of VPE LPV200:**



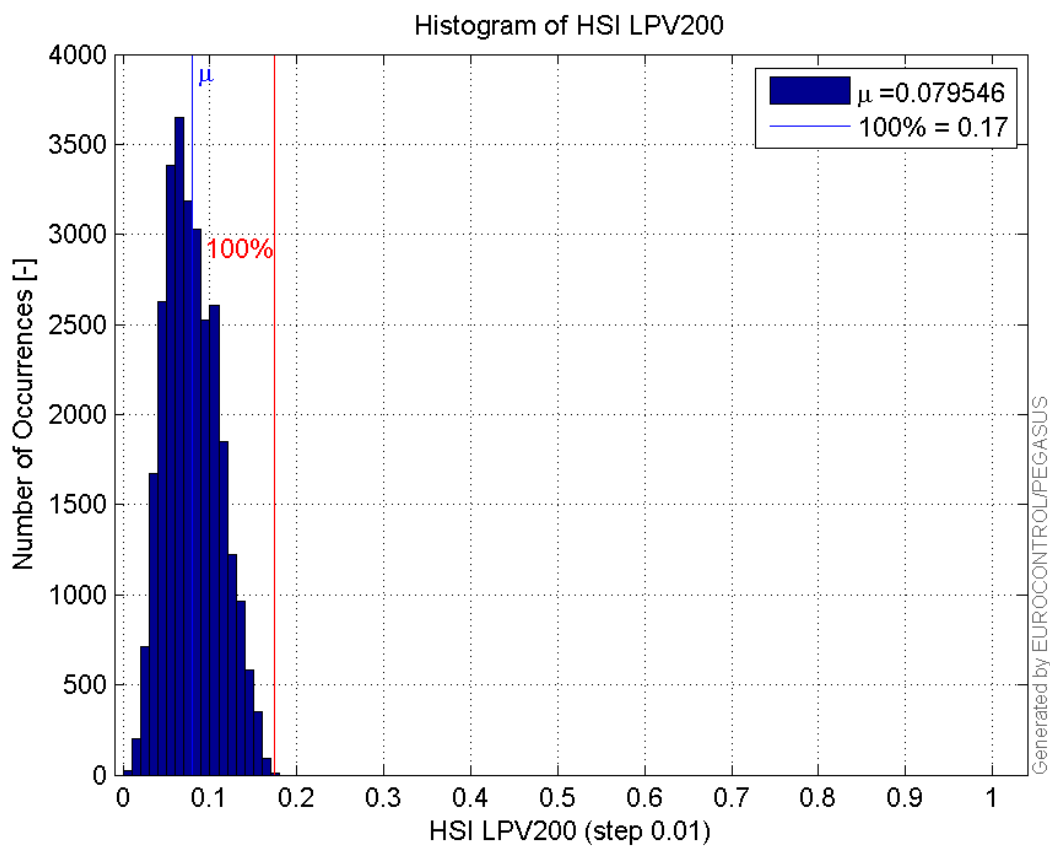
**Histogram of HPL LPV200:**



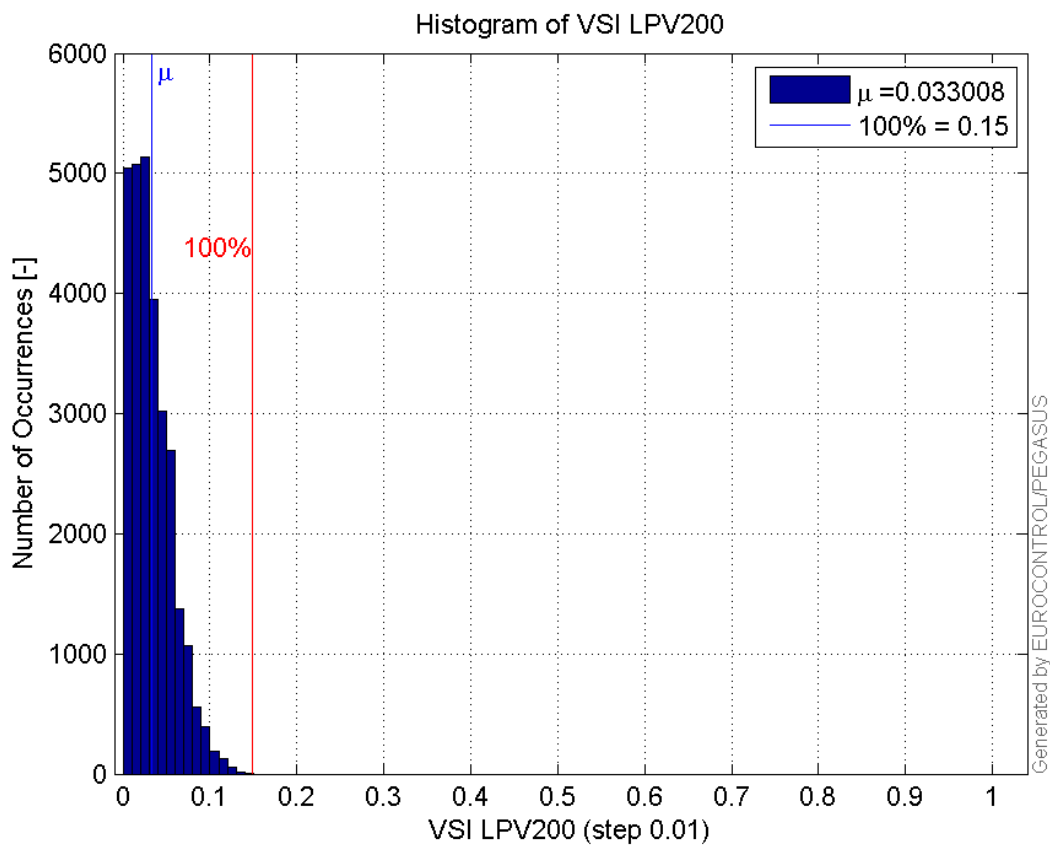
**Histogram of VPL LPV200:**



**Histogram of HSI LPV200:**

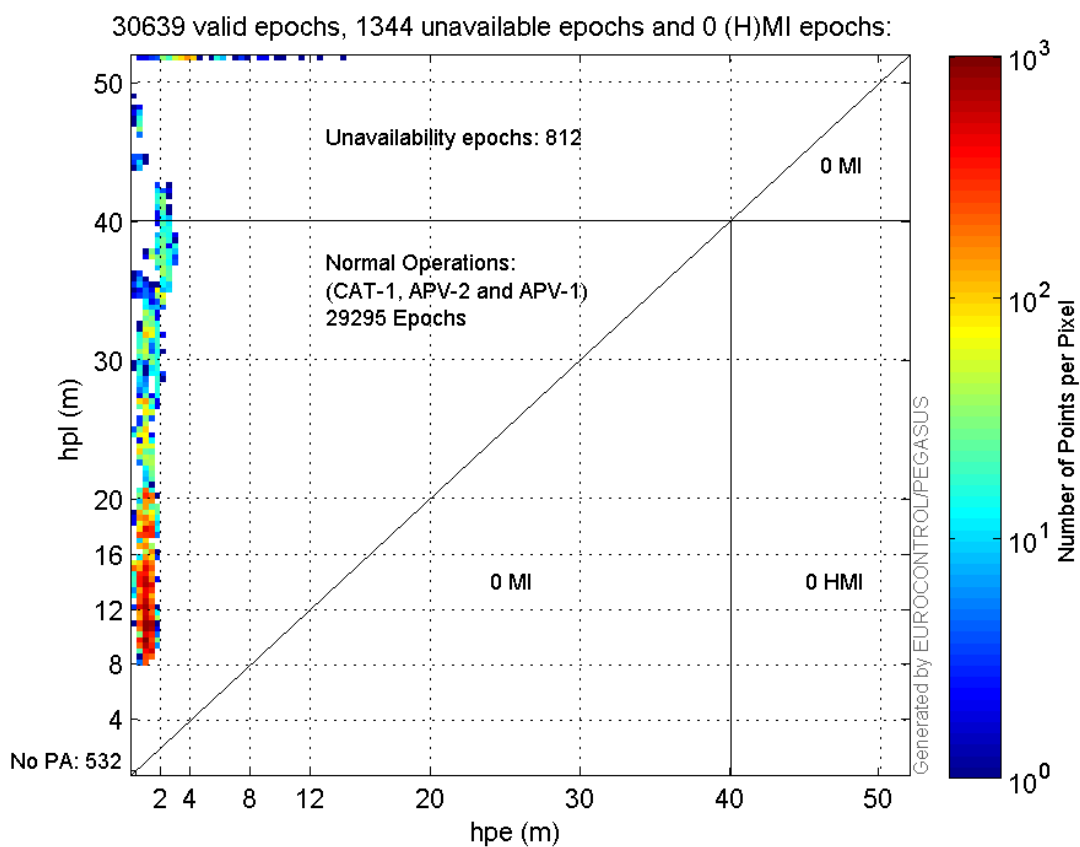


**Histogram of VSI LPV200:**



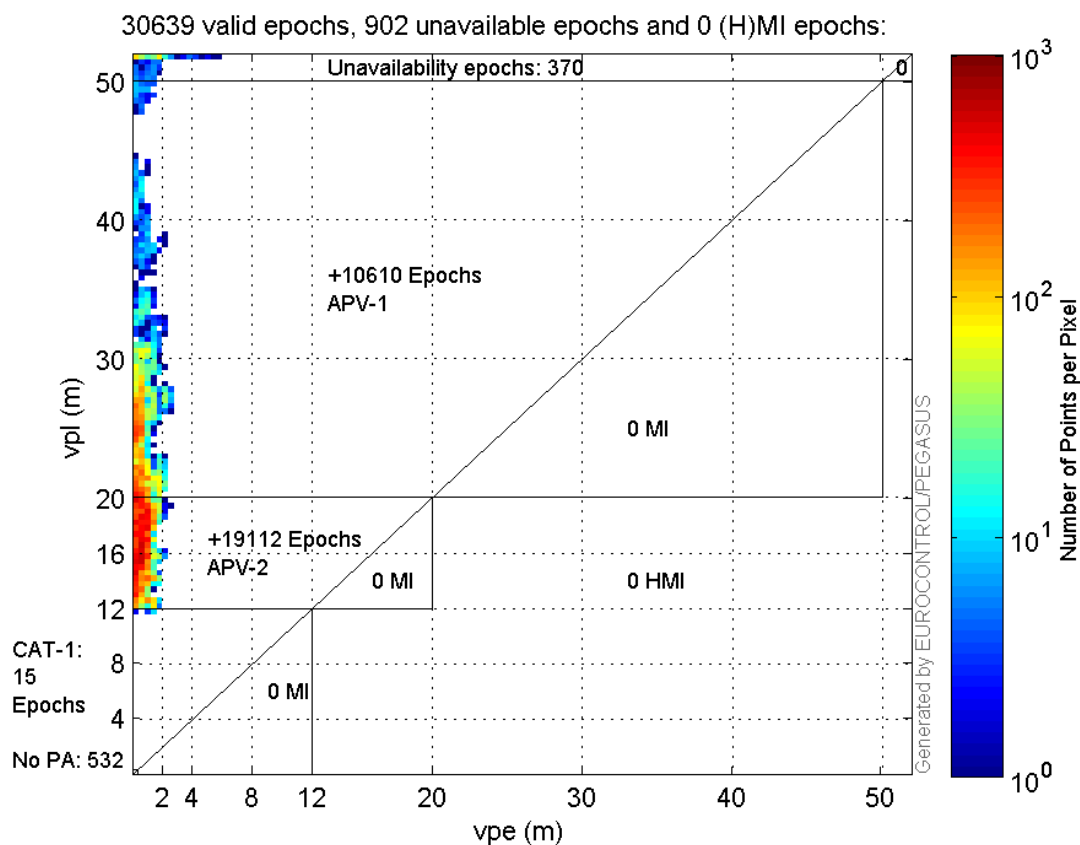
### Stanford Plots

#### 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/2016_04_20_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_20_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	30.4298
init_alt	results	240.5905
mi_numbers	results	0

## Range Domain

**start:** 04:51:06 20.04.2016 ( week: 1893 sec: 276666 )  
**end:** 13:27:45 20.04.2016 ( week: 1893 sec: 307665 )  
**duration:** 08:36:40 ..

### quality

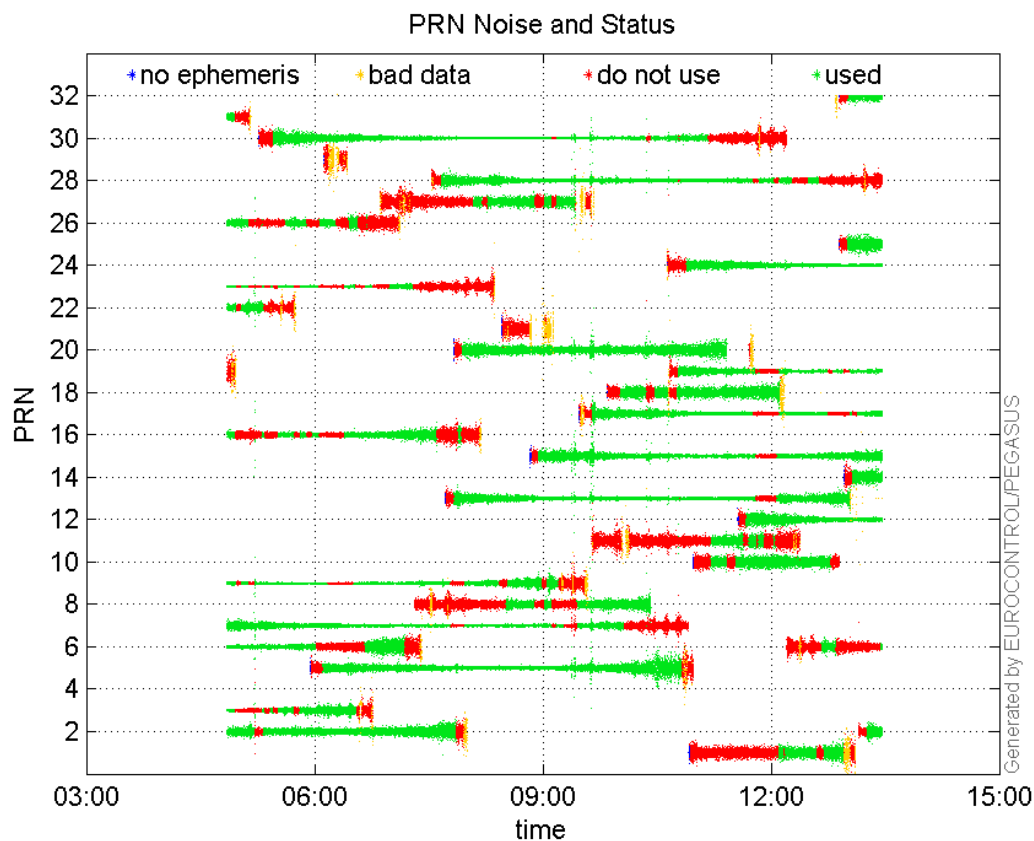
**valid samples** 31000  
**total samples** 31000

### PRN overview

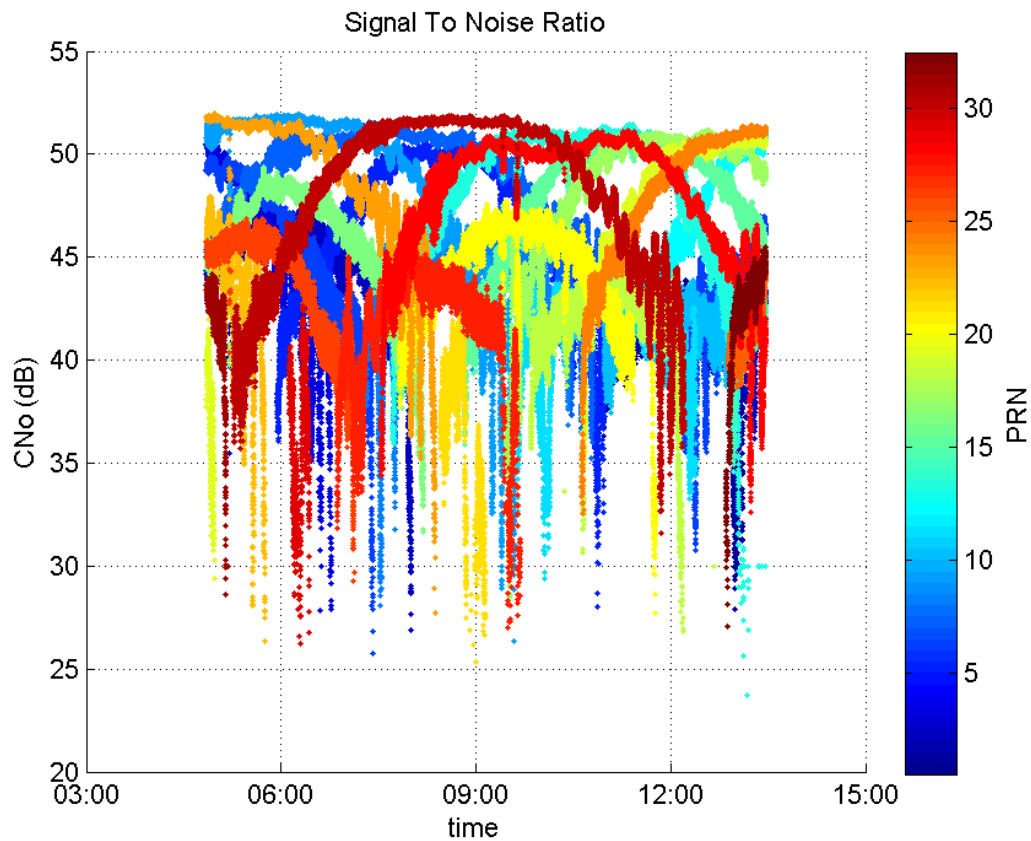
**Number of Visible GPS Satellites** 31  
**Number of Visible SBAS Satellites** 2

### signal quality and status

#### PRN Noise and Status:



#### Signal To Noise Ratio:



## range errors

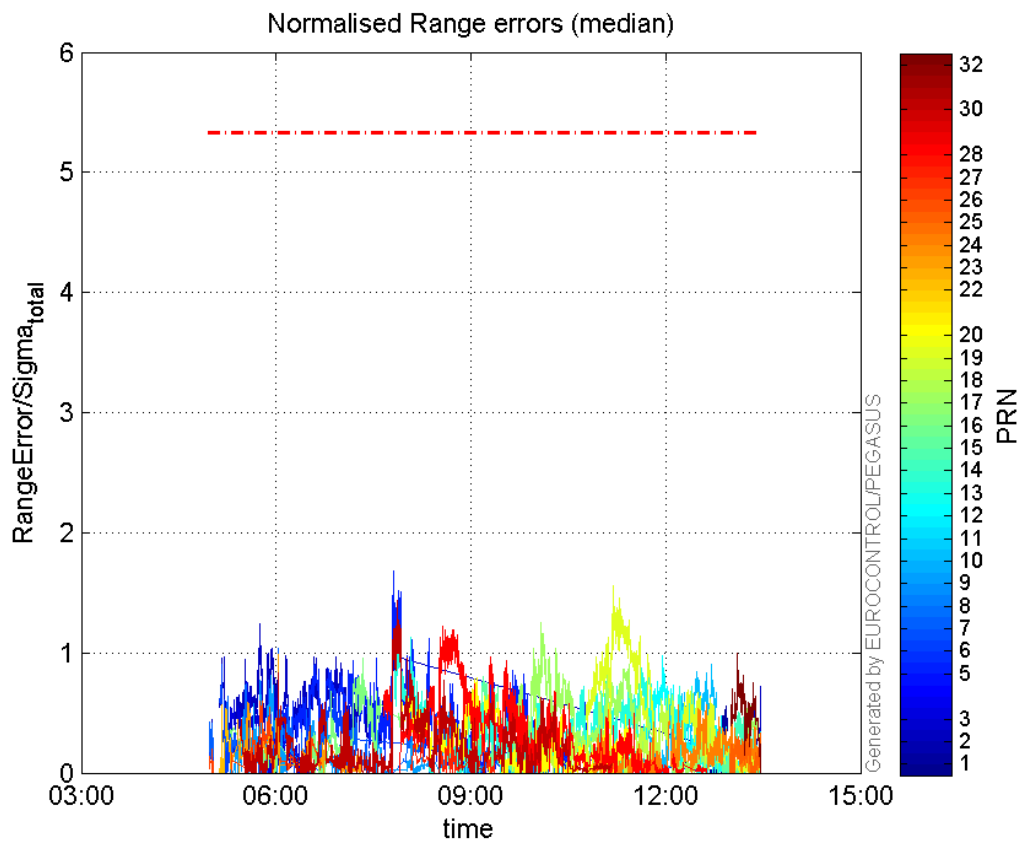
Number of Overbounding Norm Errors 0

## Max Norm Errors :

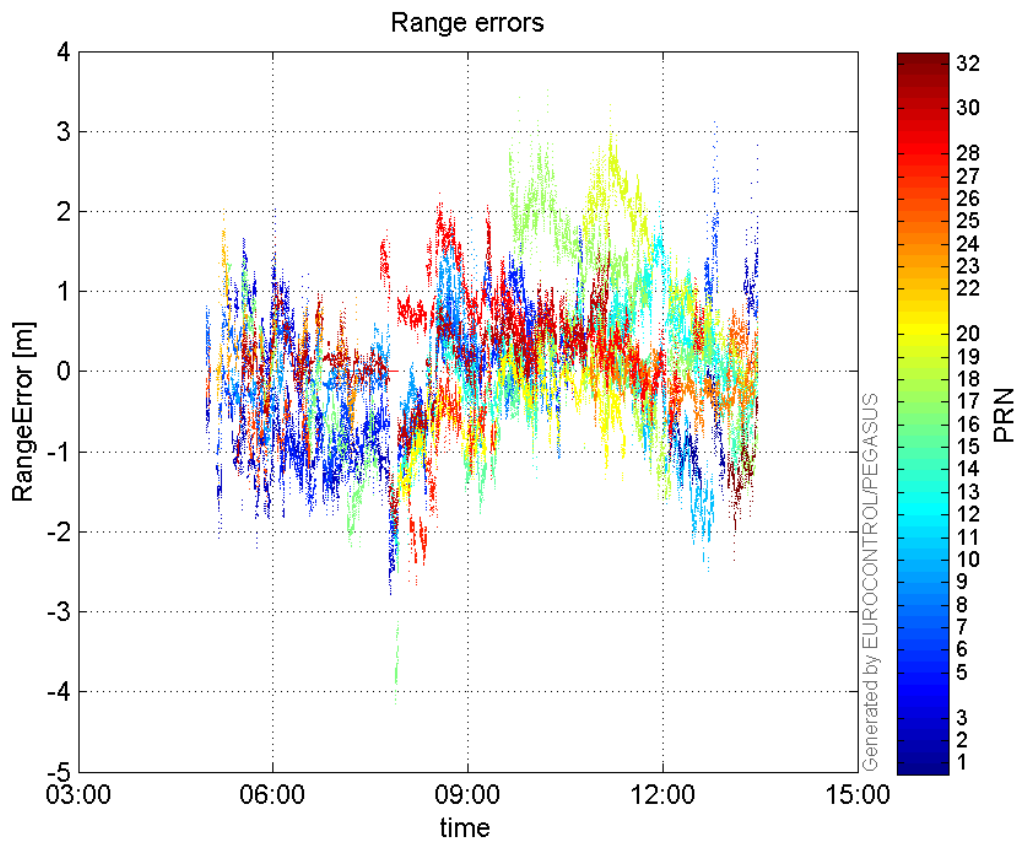
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1893	305758	1	0.560866	-1.60308	2.85823
1893	279923	2	1.2394	-2.20538	1.7794
1893	280900	3	0.832465	2.02223	2.42921
1893	287324	5	1.67869	-2.48876	1.48256
1893	277770	6	0.905771	-1.42057	1.56835
1893	280900	7	1.03808	1.57726	1.5194
1893	290465	8	0.269237	1.03895	3.85888
1893	280518	9	0.810366	-1.1193	1.38123
1893	304966	10	0.906555	-2.49005	2.74672
1893	300336	11	0.377319	1.35095	3.58038
1893	302217	12	0.976066	2.12649	2.17863
1893	287661	13	1.18485	-2.3889	2.01621
1893	307008	14	0.526923	-1.21585	2.30744
1893	292250	15	0.807257	-1.77979	2.20473
1893	285635	16	0.960551	-2.18543	2.27518
1893	295493	17	1.25357	3.13537	2.50115
1893	302579	18	0.647685	-1.58619	2.44902
1893	299509	19	1.55924	3.33879	2.1413
1893	291917	20	0.793852	-1.34453	1.69367
1893	277802	22	0.565362	-1.60532	2.83945
1893	280900	23	0.989255	1.44256	1.45823

1893	303090	24	0.567401	-0.85479	1.5065
1893	307067	25	0.415	0.968332	2.33333
1893	279923	26	0.600557	-1.49849	2.49517
1893	289869	27	0.37612	-1.94463	5.17023
1893	290003	28	1.22478	2.23011	1.82082
1893	287544	30	1.43871	-2.02472	1.40732
1893	306383	32	0.994174	-2.35308	2.36687

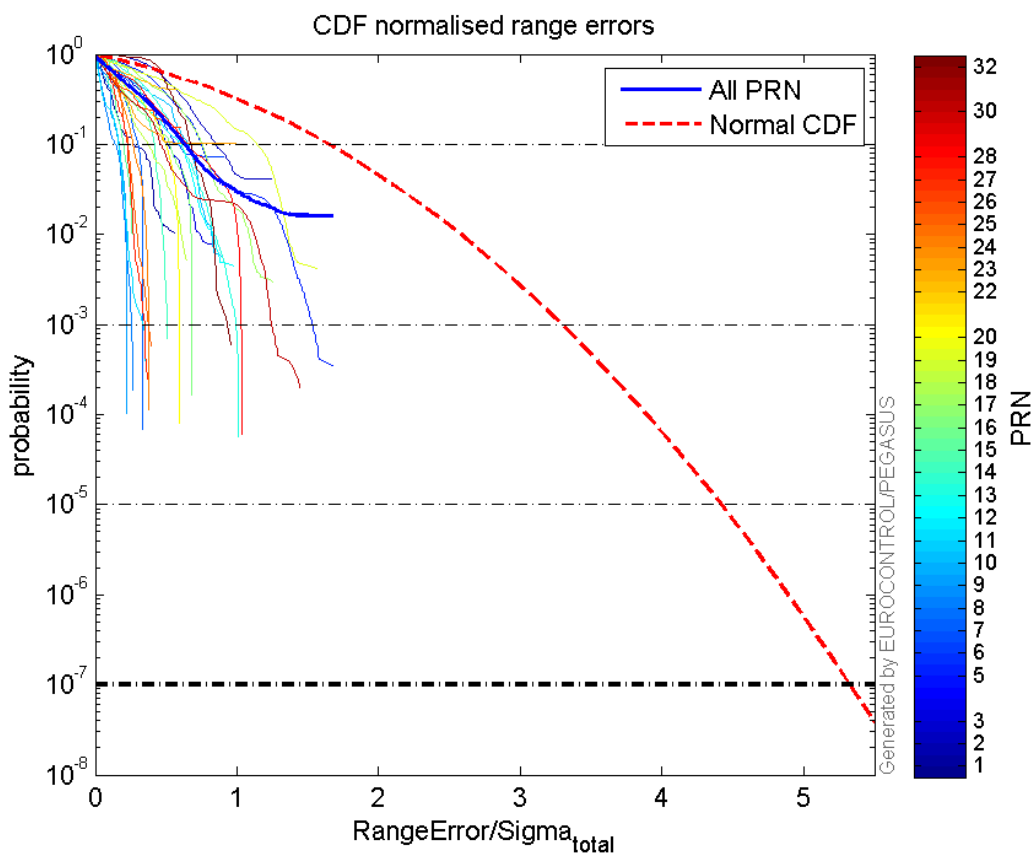
**Normalised Range errors (median):**



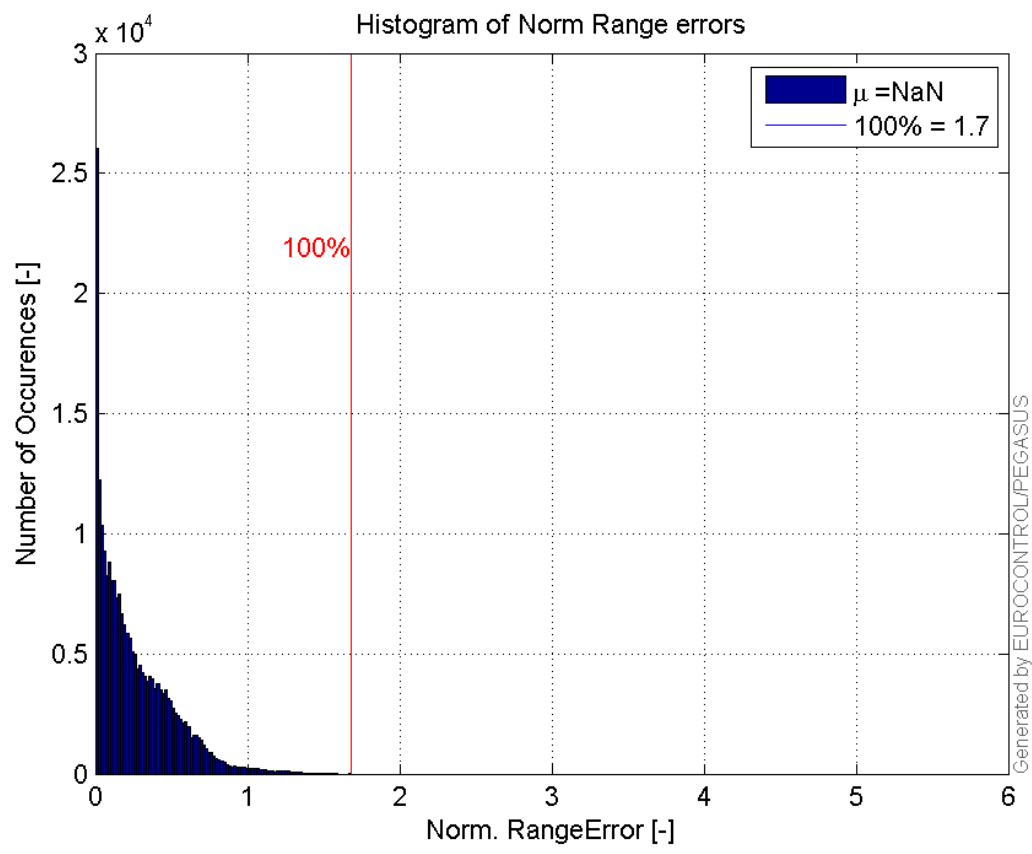
**Range errors:**



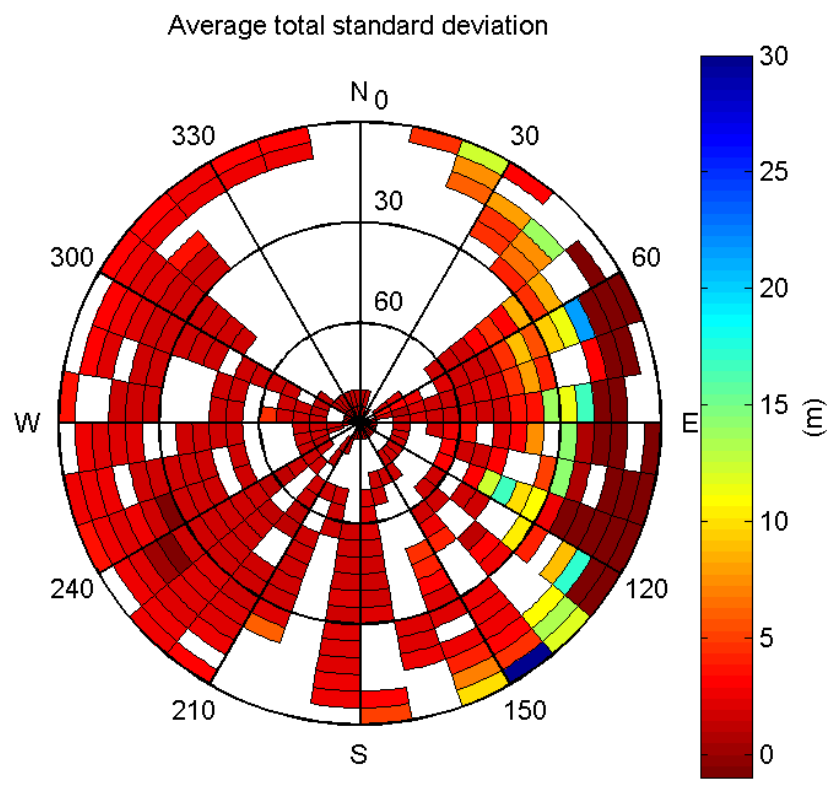
**CDF normalised range errors:**



**Histogram of Norm Range errors:**

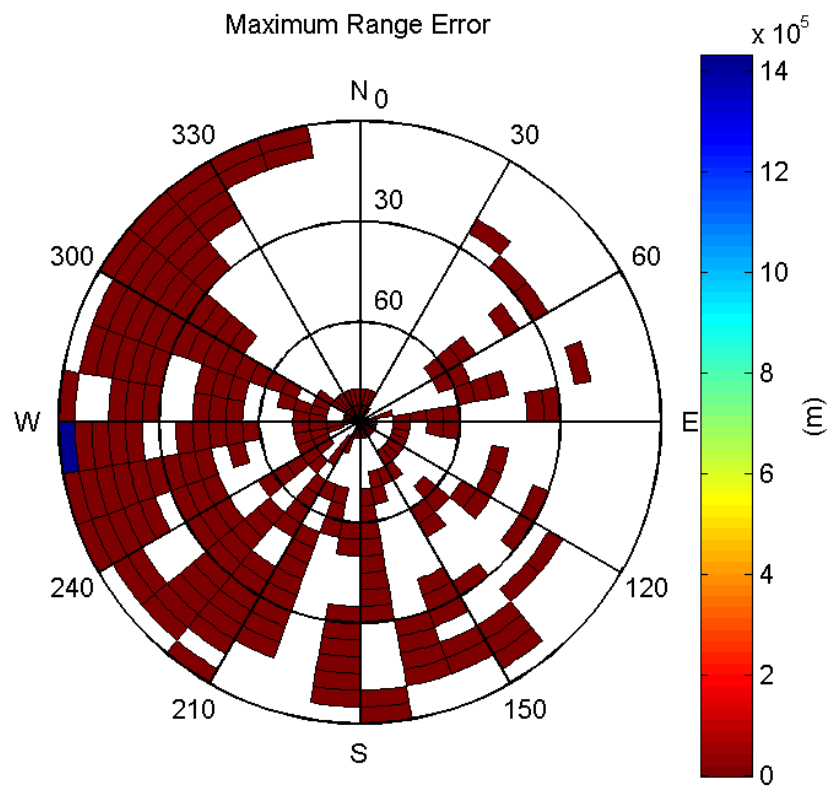


**Sigma Sky Plot:**



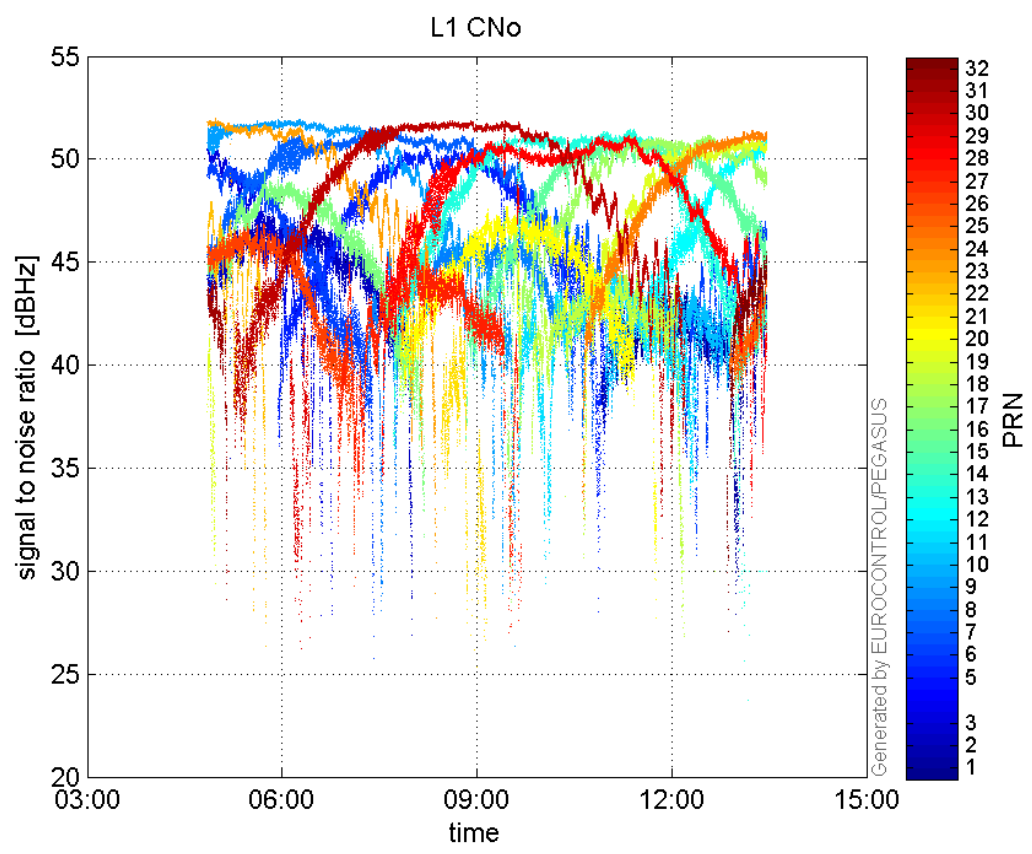
**Norm Error Sky Plot:**



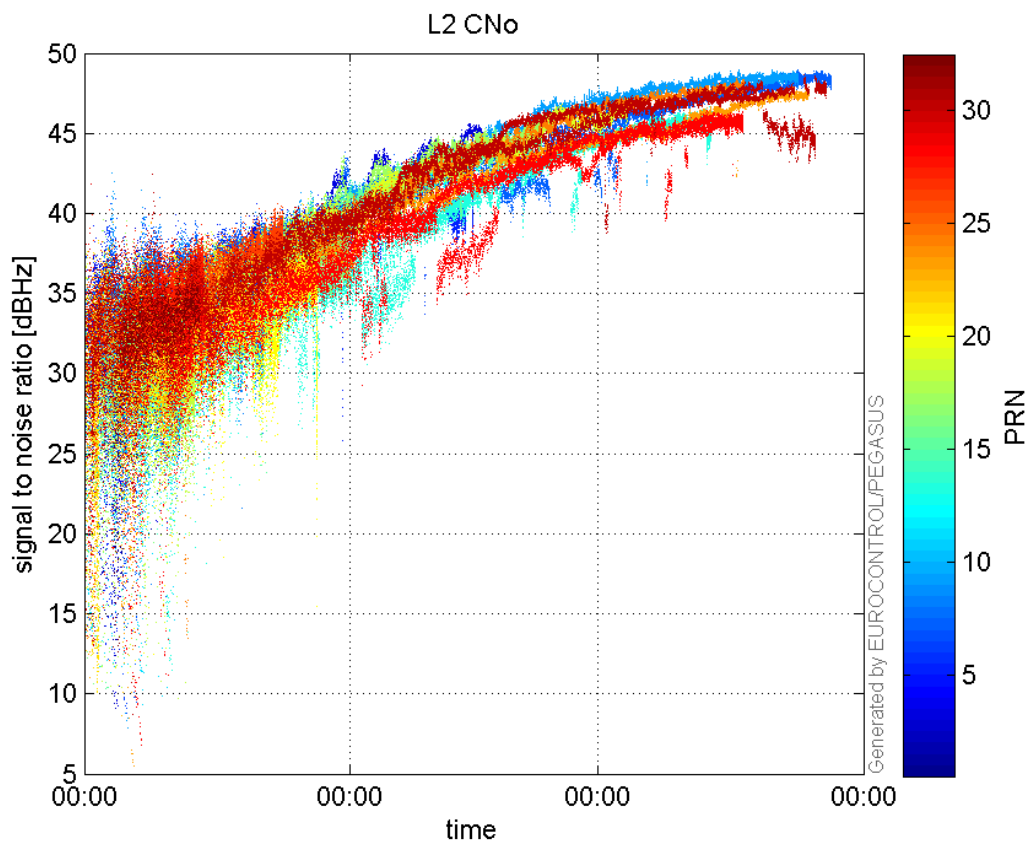


### signal quality

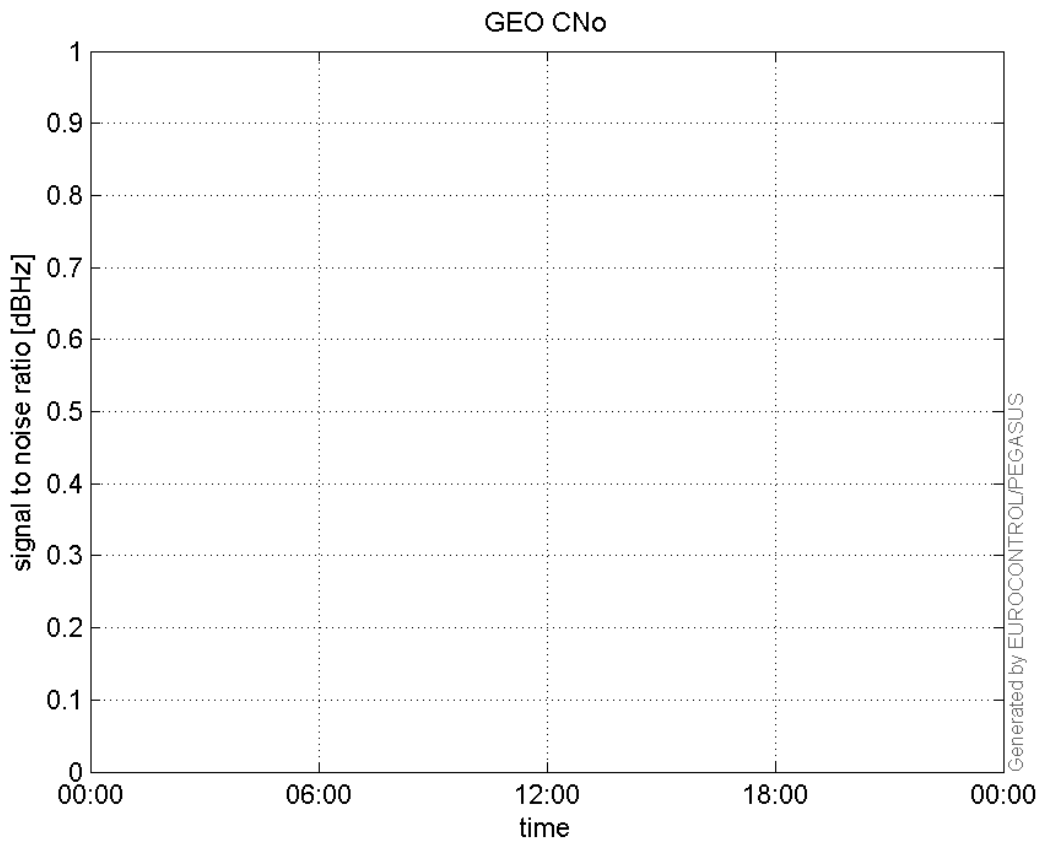
L1 CNo:



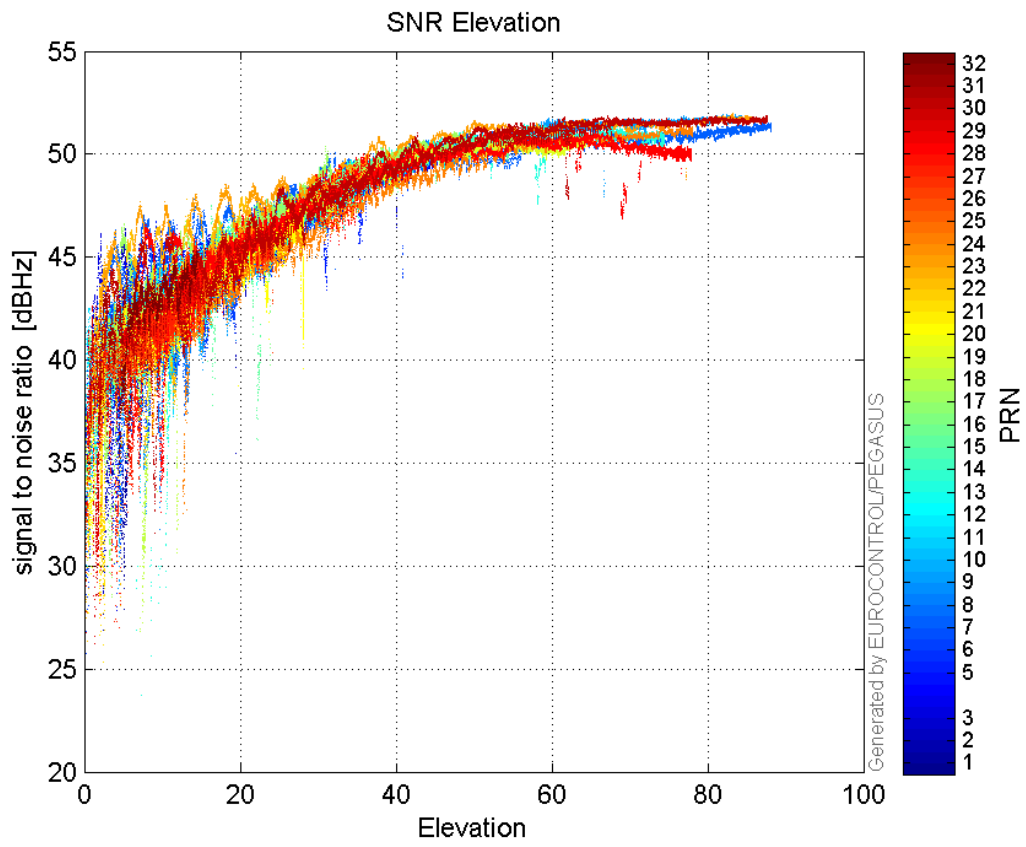
**L2 CNo:**



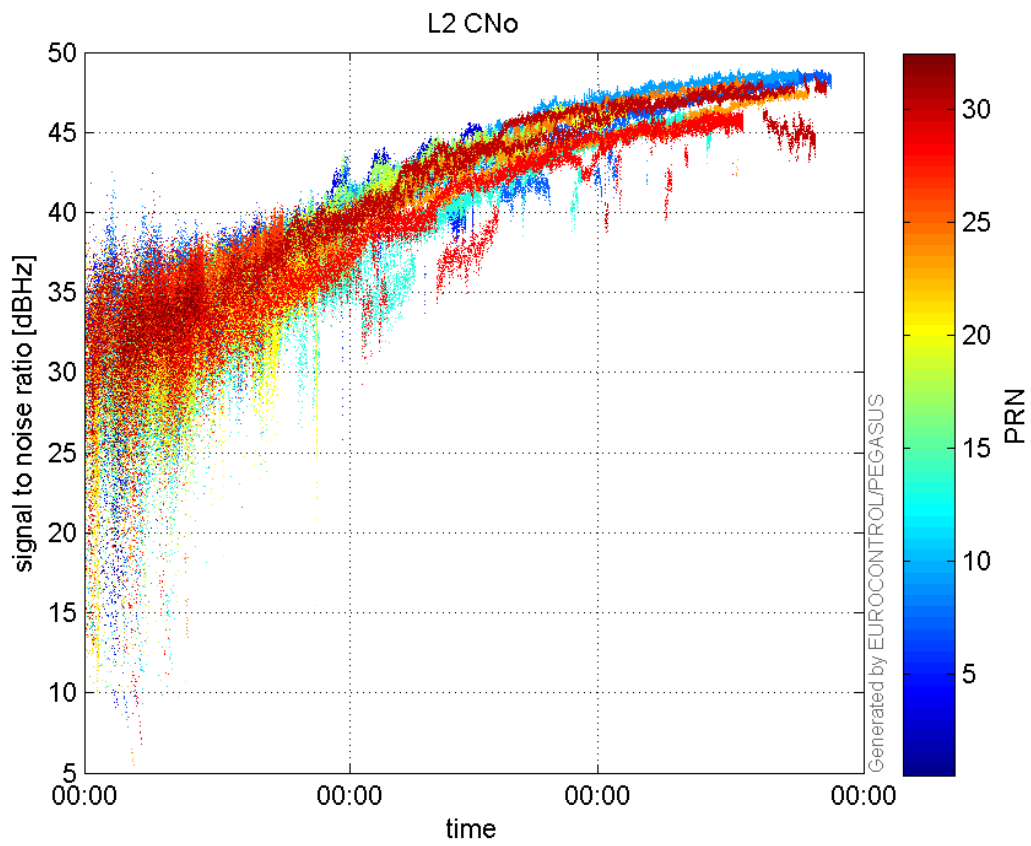
**GEO CNo:**



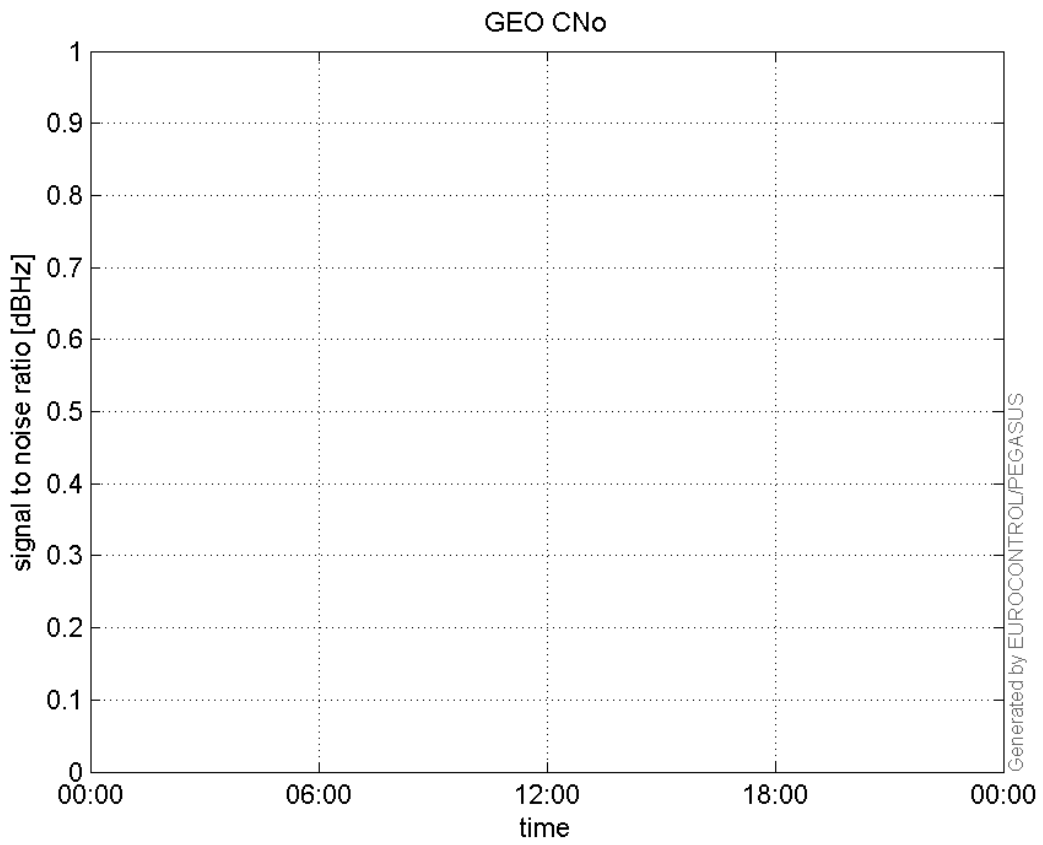
**SNR Elevation:**



**L2 CNo:**

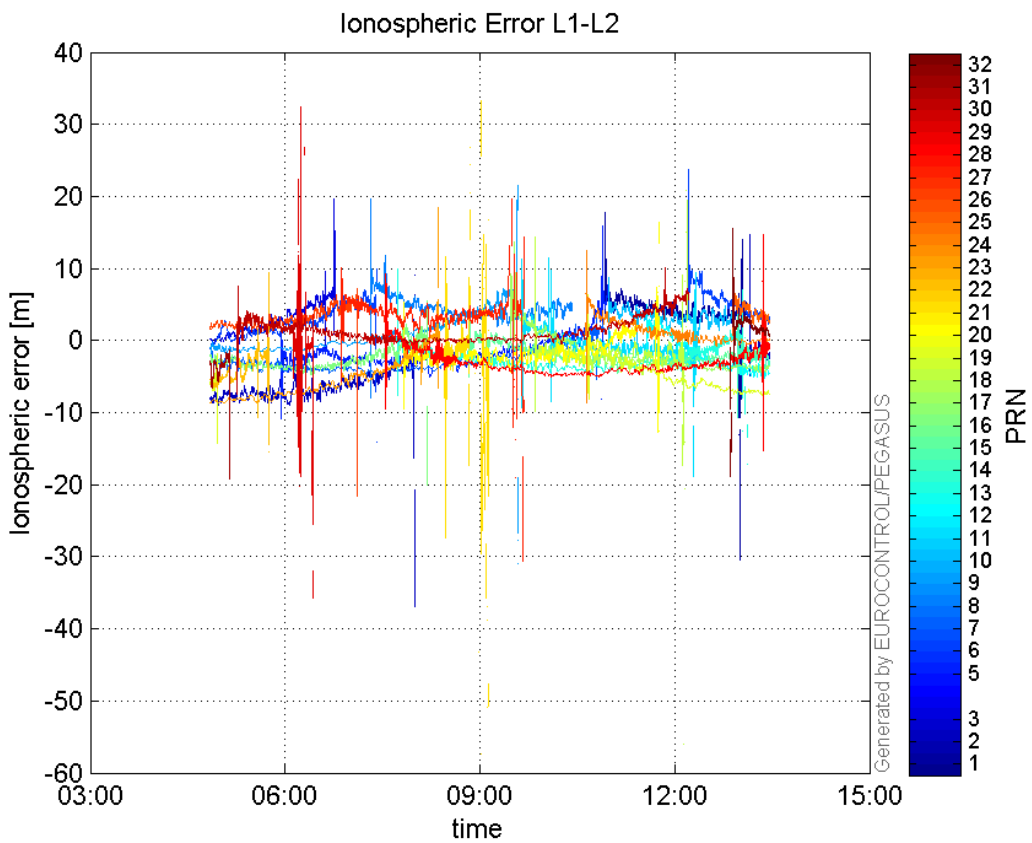


**GEO CNo:**



### 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_20_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_04_20_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	30.4298
init_alt	results	240.5905
mi_numbers	results	0