

# Global View

comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,  
 P.50 - 54  
 city Kiev  
 country Ukraine  
 abbreviation NAU  
 site Laboratory satellite systems  
 version 4.8.2  
 program Pegasus  
 date 24/11/2015

## SBAS Messages

**start:** 07:57:12.129 23.11.2015 ( week: 1872 sec: 115032.129 )  
**end:** 14:54:25.129 23.11.2015 ( week: 1872 sec: 140065.129 )  
**duration:** 06:57:13 ..

### quality

**valid samples** 50068  
**total samples** 50068  
**number of SBAS PRNs** 2

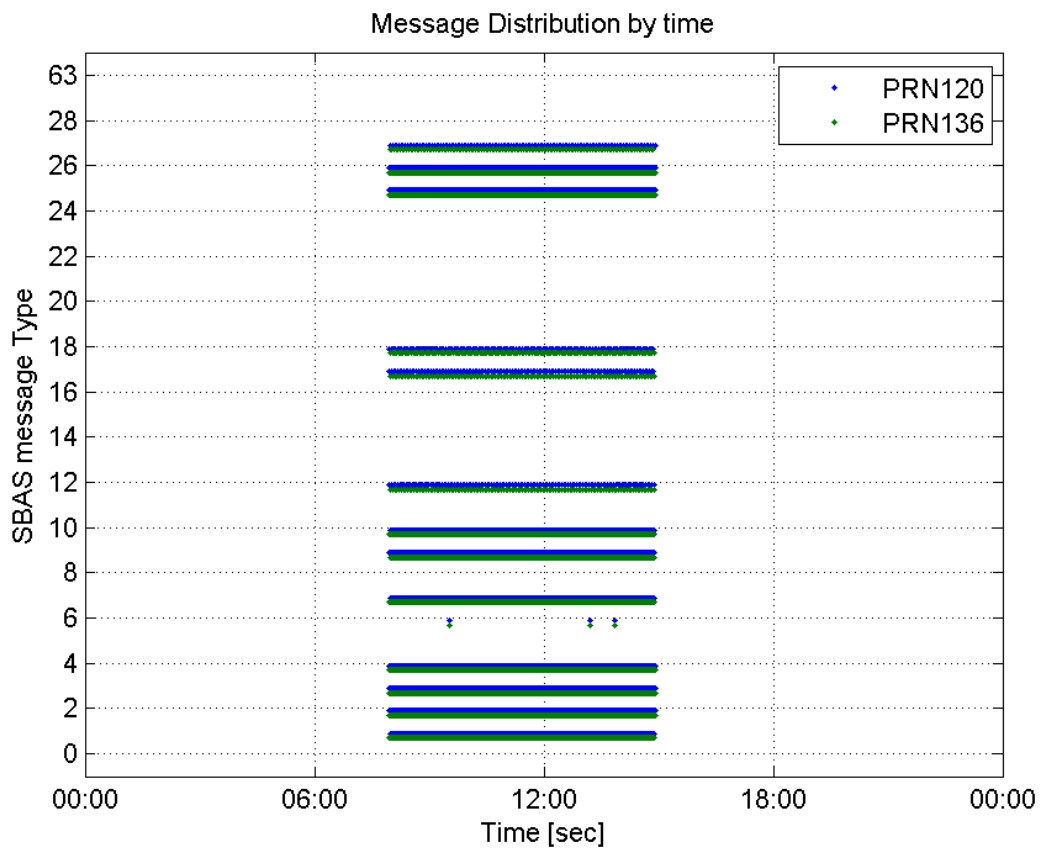
### SBAS SIS Overview

#### Message Type 6 repetitions :

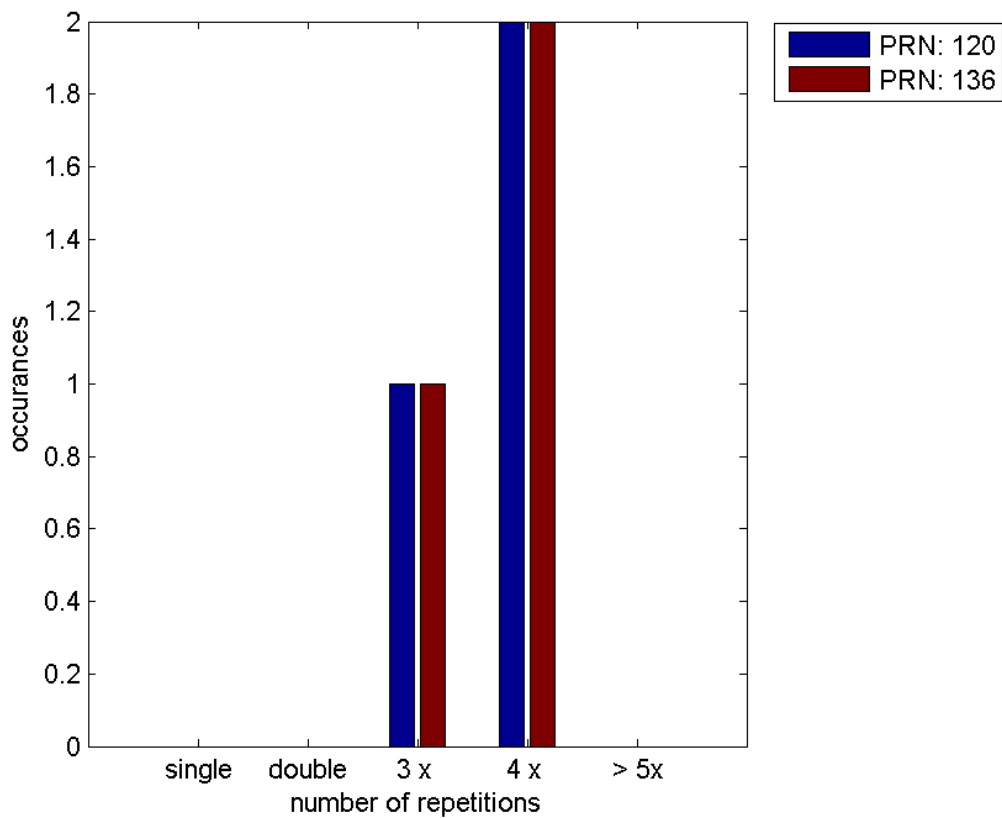
	single	double	3 x	4 x	> 5x
<b>PRN 120</b>	0	0	1	2	0
<b>PRN 136</b>	0	0	1	2	0

---

#### Message Distribution by time:



**Message Type 6 repetitions:**



## Broadcast SBAS Messages :

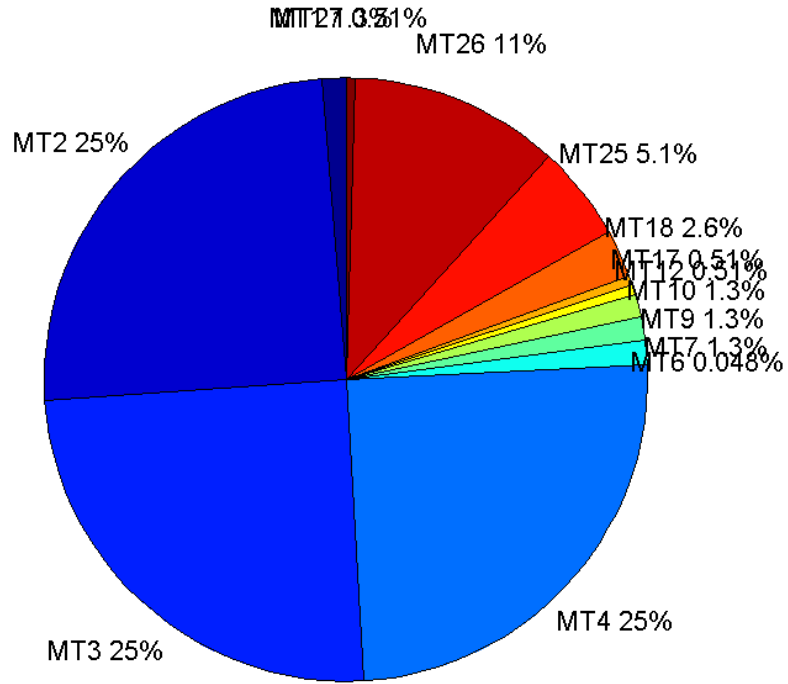
	number of messages	%
MT 0	0	0
MT 1	313	1.2503
MT 2	6217	24.8342
MT 3	6217	24.8342
MT 4	6218	24.8382
MT 5	0	0
MT 6	12	0.0479348
MT 7	314	1.25429
MT 9	314	1.25429
MT 10	314	1.25429
MT 12	128	0.511305
MT 17	128	0.511305
MT 18	639	2.55253
MT 24	0	0
MT 25	1278	5.10506
MT 26	2814	11.2407
MT 27	128	0.511305
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	25034	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	82	79.7981	0	0	0
MT 2	4	8	4.02654	3	0	0
MT 3	4	8	4.02654	3	0	0
MT 4	4	8	4.02638	3	0	0
MT 5	--	--	--	--	--	--
MT 6	1	13215	1415.27	2	2	2
MT 7	74	83	79.7093	0	0	0
MT 9	76	81	79.6709	0	0	0
MT 10	74	81	79.6965	0	0	0
MT 12	185	201	195.756	127	0	0
MT 17	185	201	195.78	0	0	0
MT 18	4	172	39.0063	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	56	19.5944	0	0	0
MT						

26	4	40	8.89513	0	0	0
MT 27	183	202	195.756	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	314	1.25429
MT 2	6225	24.8662
MT 3	6225	24.8662
MT 4	6224	24.8622
MT 5	0	0
MT 6	12	0.0479348
MT 7	315	1.25829
MT 9	314	1.25429

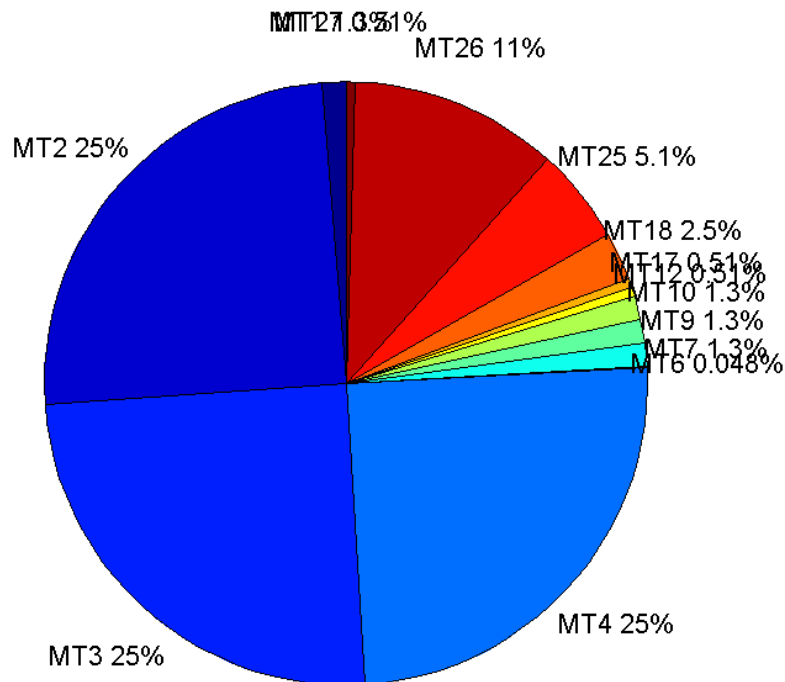
MT 10	314	1.25429
MT 12	127	0.50731
MT 17	127	0.50731
MT 18	635	2.53655
MT 24	0	0
MT 25	1277	5.10106
MT 26	2798	11.1768
MT 27	127	0.50731
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	<b>25034</b>	<b>100</b>

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	82	79.7859	0	0	0
MT 2	4	8	4.02153	3	0	0
MT 3	4	8	4.02169	3	0	0
MT 4	4	8	4.02169	3	0	0
MT 5	--	--	--	--	--	--
MT 6	1	13215	1415.27	2	2	2
MT 7	76	81	79.6688	0	0	0
MT 9	76	83	79.6837	0	0	0
MT 10	76	81	79.7093	0	0	0
MT 12	188	201	196.849	126	0	0
MT 17	188	201	196.865	0	0	0
MT 18	4	172	39.1751	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	44	19.6058	0	0	0
MT 26	2	52	8.94423	0	0	0
MT 27	188	201	196.873	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:/PegasusDateGob/job/2015_11_23EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_11_23EGNOS/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

### Position Domain

**start:** 07:57:12 23.11.2015 ( week: 1872 sec: 115032 )  
**end:** 14:54:26 23.11.2015 ( week: 1872 sec: 140066 )  
**duration:** 06:57:15 ..

### quality

**valid samples** 24674  
**total samples** 25035

## Event tables

Position discontinuity events type no (0)  
 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
max normHor	120680	2.00345	10.6002	0.189001	2.41858	18.3294	0.131951
max normVer	119456	1.93677	15.7296	0.123129	2.71666	18.1169	0.149952
max HPE	140047	9.04199	132.04	0.0684792	-1.99491	40.6091	0.0491247
max VPE	118544	6.11193	88.01	0.0694459	-3.79211	51.5588	0.0735492
min HPL	135738	1.22773	8.57656	0.14315	-1.00534	12.2677	0.08195
min VPL	118299	1.17588	9.64732	0.121887	0.312123	11.7896	0.0264744

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	118523	108	3130
2	118878	37	247

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	118523	108	3130
2	118878	37	247
3	131654	1	12739
4	131790	1	135
5	131792	1243	1

## LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	118523	108	3130
2	118878	37	247
3	131654	1	12739
4	131790	1	135
5	131792	1243	1

## CAT-I discontinuity events :

#	Epoch	duration	stable period
1	118283	2	1
2	118288	1	3
3	118292	1	3
4	118296	1	3
5	118300	20500	3
6	138801	3	1

7	138805	3	1
8	138809	3	1
9	138813	3	1
10	138817	3	1
11	138821	3	1
12	138825	3	1
13	138829	3	1
14	138833	3	1
15	138837	3	1

### First Glance analysis

<b>Duration</b>	25035
<b>Number of Samples</b>	25035
<b>Number of invalid sample</b>	361
<b>Number of no position solution samples</b>	0
<b>Number of missing sample</b>	0
<b>Logging Loss</b>	0
<b>Processing Loss</b>	1.442
<b>Number of Misleading Information</b>	0
<b>Data gaps</b>	0
<b>Discontinuities</b>	0

#### Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
24674	24483	23238	25	23238

#### Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>HPE 95%</b>	1.86275	1.8351	1.77604	1.29307	1.77604
<b>HPEscale 95%</b>	NaN	5.62702	5.65826	5.38498	5.65826
<b>VPE 95%</b>	2.15339	2.13359	2.08264	0.781067	2.08264
<b>VPEscale 95%</b>	NaN	5.47348	3.86039	0.78149	3.86039

#### Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Signal in Space</b>	1	0.992259	0.941801	0.00101321	0.941801
<b>measurements</b>	0.98558	0.977951	0.92822	0.000998602	0.92822
<b>Operational</b>	0.98558	0.977951	0.92822	0.000998602	0.92822

#### Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>All</b>	--	2	5	15	5
<b>Long</b>	--	2	3	1	3
<b>Independent</b>	--	2	2	0	2
<b>P(disc.)</b>	NaN	0.00122534	0.00129099	0	0.00129099
<b>P(slide)</b>	NaN	0.00122534	0.00262501	0.92	0.00262501



## Integrity events :

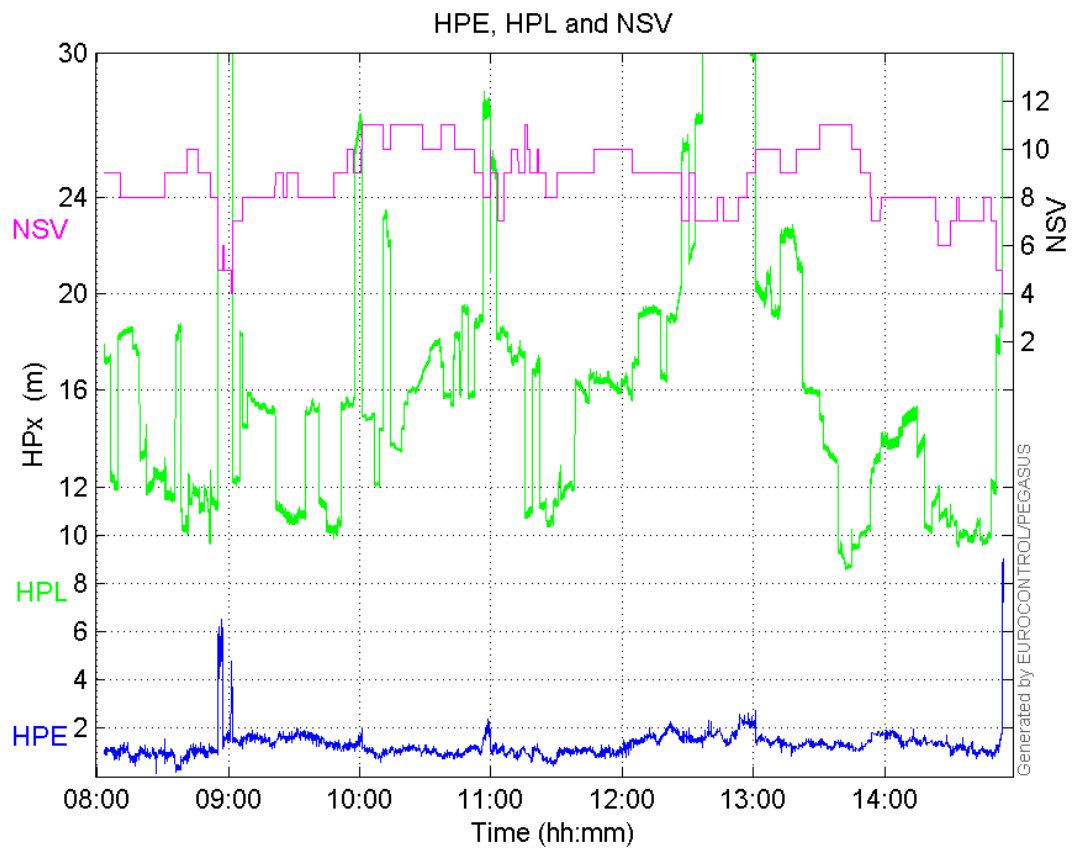
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
<b>Total</b>	0	0	0	0	0
<b>Horizontal</b>	0	0	0	0	0
<b>Vertical</b>	0	0	0	0	0

## Performance Summary :

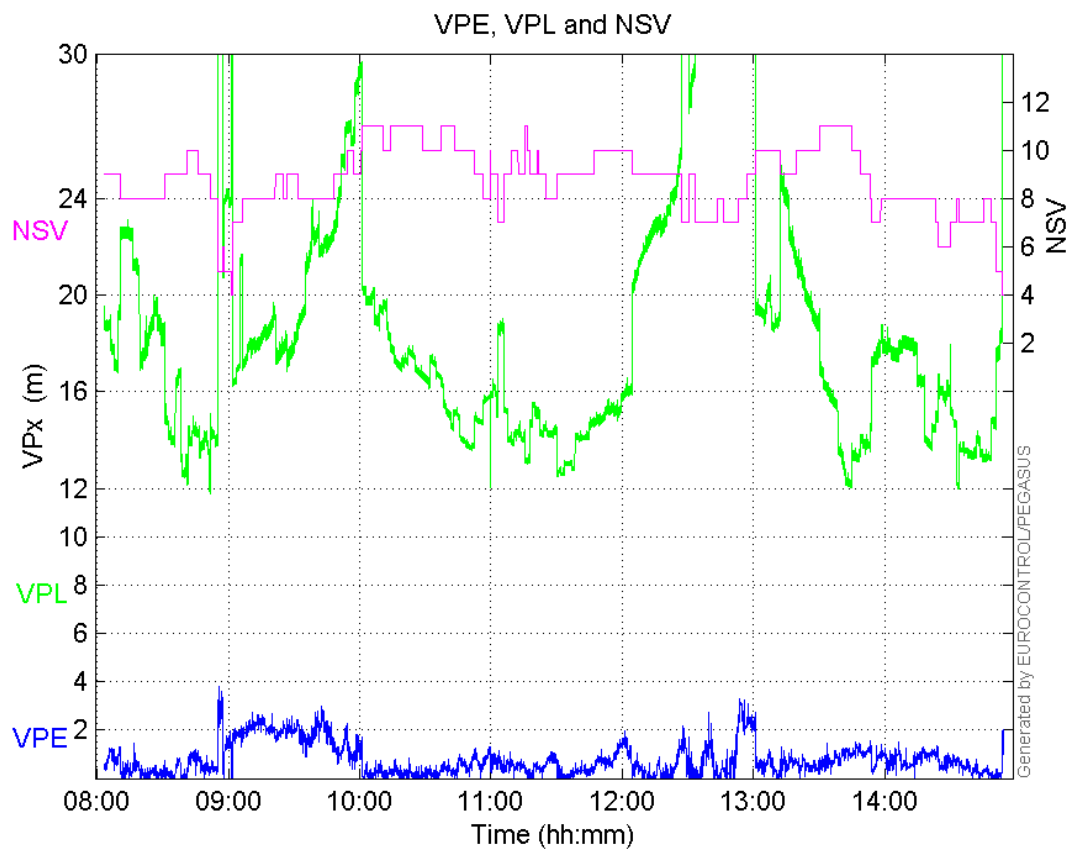
	Valid	APV-1	LPV-200	CAT-1	APV-35m
<b>Samples</b>	24674	24483	23238	25	23238
<b>SIS Availability</b>	1	0.992259	0.941801	0.00101321	0.941801
<b>Local Availability</b>	0.98558	0.977951	0.92822	0.000998602	0.92822
<b>Operational Availability</b>	0.98558	0.977951	0.92822	0.000998602	0.92822
<b>HPE 95%</b>	1.86275	1.8351	1.77604	1.29307	1.77604
<b>HPEScale 95%</b>	NaN	5.62702	5.65826	5.38498	5.65826
<b>VPE 95%</b>	2.15339	2.13359	2.08264	0.781067	2.08264
<b>VPEscale 95%</b>	NaN	5.47348	3.86039	0.78149	3.86039
<b>All Discontinuity Events</b>	--	2	5	15	5
<b>Long Discontinuity Events</b>	--	2	3	1	3
<b>Independent Discontinuity Events</b>	--	2	2	0	2
<b>P(discontinuity)</b>	NaN	0.00122534	0.00129099	0	0.00129099
<b>P(sliding window)</b>	NaN	0.00122534	0.00262501	0.92	0.00262501
<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:

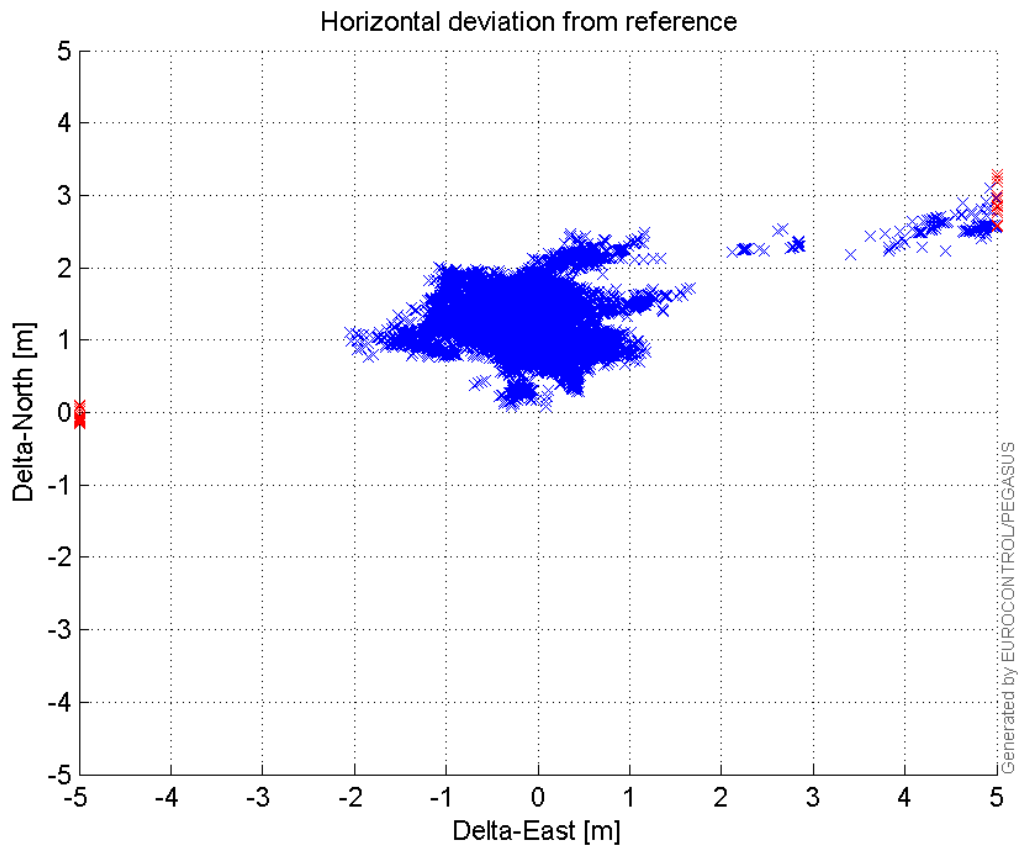


**VPE, VPL and NSV:**



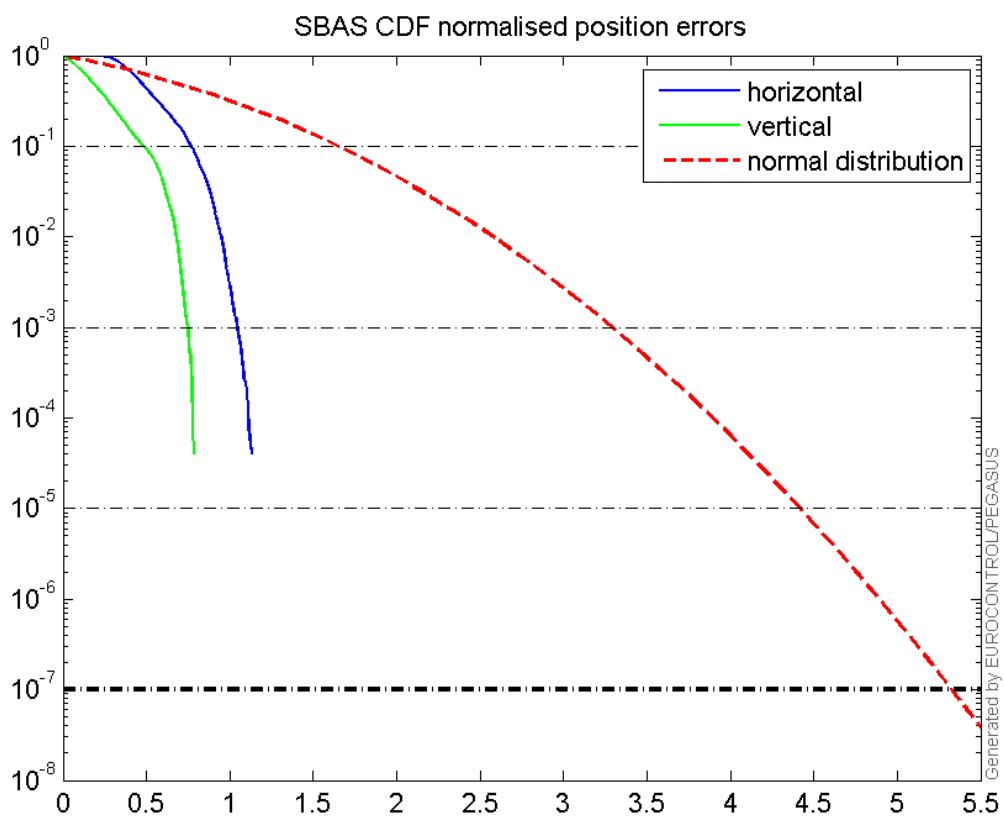
**Horizontal deviation**

## Horizontal deviation from reference :



## CDF position

## SBAS CDF position domain:



## Statistics

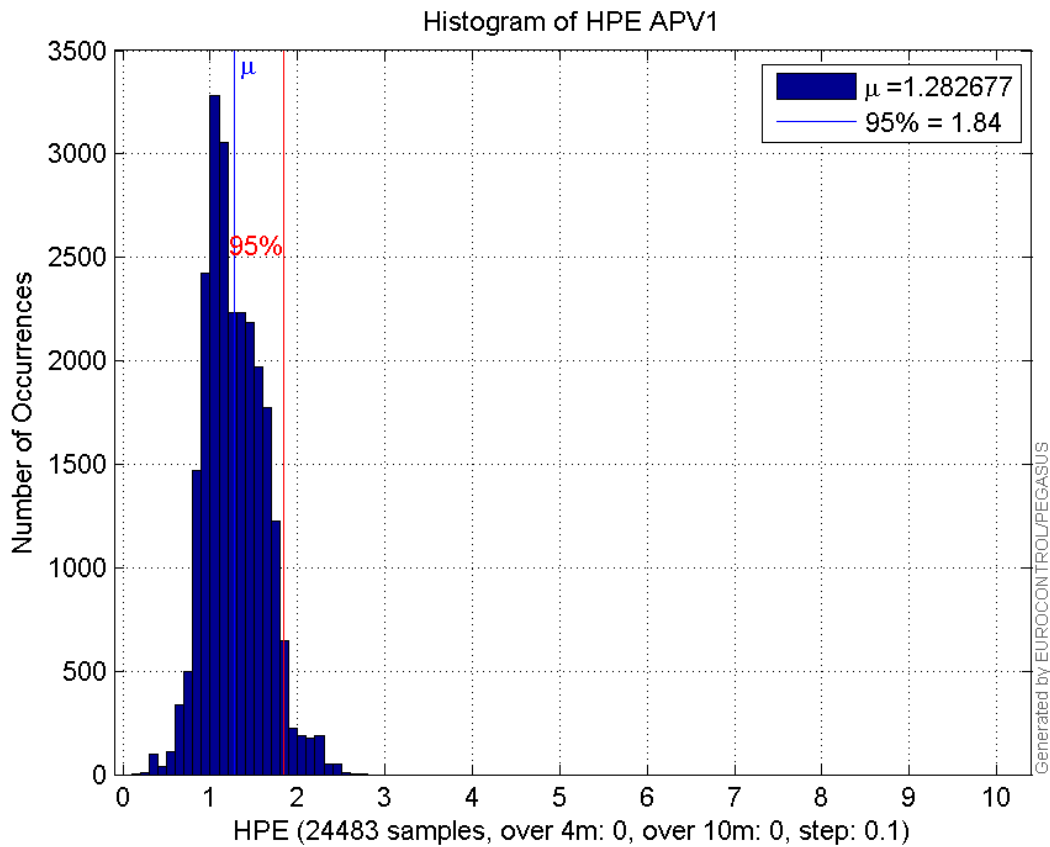
<b>number</b>	24483
<b>sum</b>	31403.772
<b>sum2</b>	43090.905
<b>prctile95</b>	1.8351003
<b>prctile99</b>	2.2223843
<b>number</b>	24483
<b>sum</b>	18607.858
<b>sum2</b>	23909.669
<b>prctile95</b>	2.1335863
<b>prctile99</b>	2.4827376
<b>number</b>	24483
<b>sum</b>	404496.51
<b>sum2</b>	7624764.9
<b>prctile95</b>	31.611425
<b>prctile99</b>	36.726936
<b>number</b>	24483
<b>sum</b>	467456.12
<b>sum2</b>	9949302.6
<b>prctile95</b>	36.748825
<b>prctile99</b>	41.945475
<b>number</b>	24483
<b>sum</b>	2063.2652
<b>sum2</b>	194.65407
<b>prctile95</b>	0.14067558
<b>prctile99</b>	0.15797342
<b>number</b>	24483
<b>sum</b>	1005.3915
<b>sum2</b>	66.266525
<b>prctile95</b>	0.10946956
<b>prctile99</b>	0.12710188
<b>number</b>	23238
<b>sum</b>	29170.181
<b>sum2</b>	38975.686
<b>prctile95</b>	1.7760419
<b>prctile99</b>	2.0978931
<b>number</b>	23238
<b>sum</b>	17305.179
<b>sum2</b>	21525.209
<b>prctile95</b>	2.0826442
<b>prctile99</b>	2.4122943
<b>number</b>	23238
<b>sum</b>	361255.01
<b>sum2</b>	6117284.3
<b>prctile95</b>	26.01146
<b>prctile99</b>	30.916
<b>number</b>	23238
<b>sum</b>	417565.25
<b>sum2</b>	7945330
<b>prctile95</b>	26.78762

**prctile99** 32.668348  
**number** 23238  
**sum** 1998.3814  
**sum2** 191.12856  
**prctile95** 0.14145656  
**prctile99** 0.15835147  
**number** 23238  
**sum** 972.43481  
**sum2** 64.691412  
**prctile95** 0.11029683  
**prctile99** 0.1274297

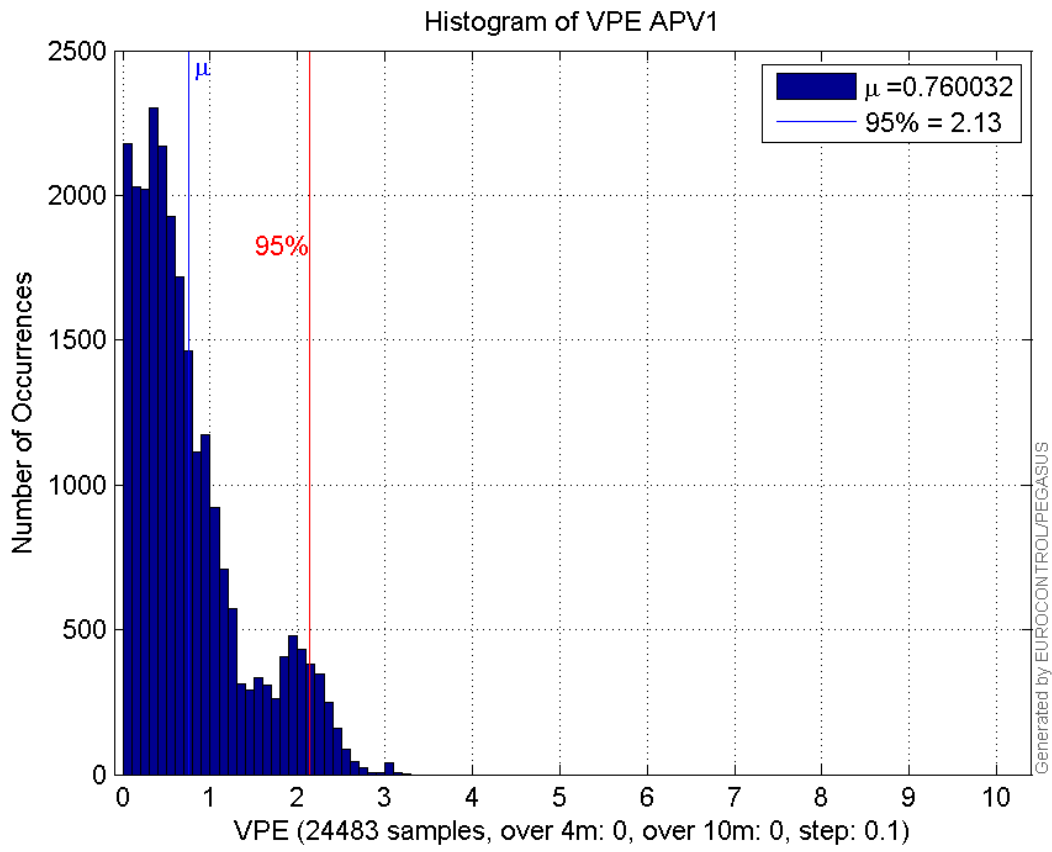
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	1.28268	0.338791	1.24041	1.8351	2.22238	1.32666
<b>HPL</b>	16.5215	6.20256	15.488	31.6114	36.7269	17.6474
<b>VPE</b>	0.760032	0.631625	0.577491	2.13359	2.48274	0.988222
<b>VPL</b>	19.0931	6.46773	17.4619	36.7488	41.9455	20.1588

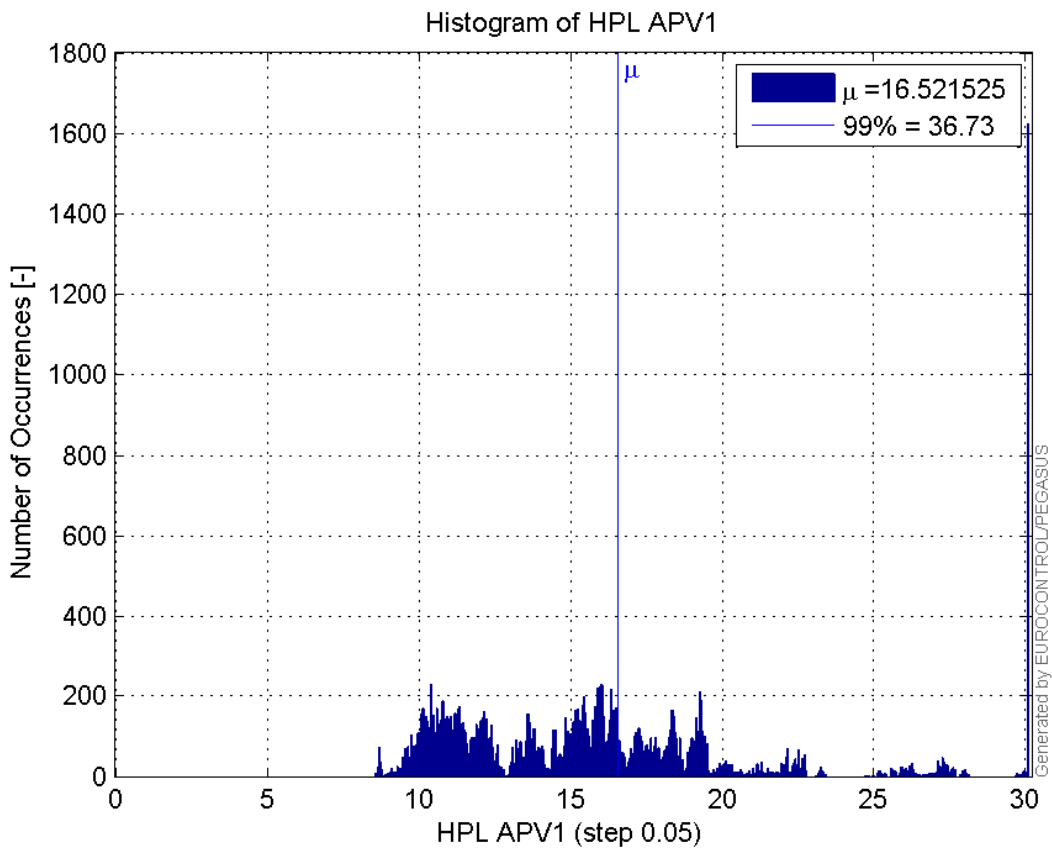
**Histogram of HPE APV1:**



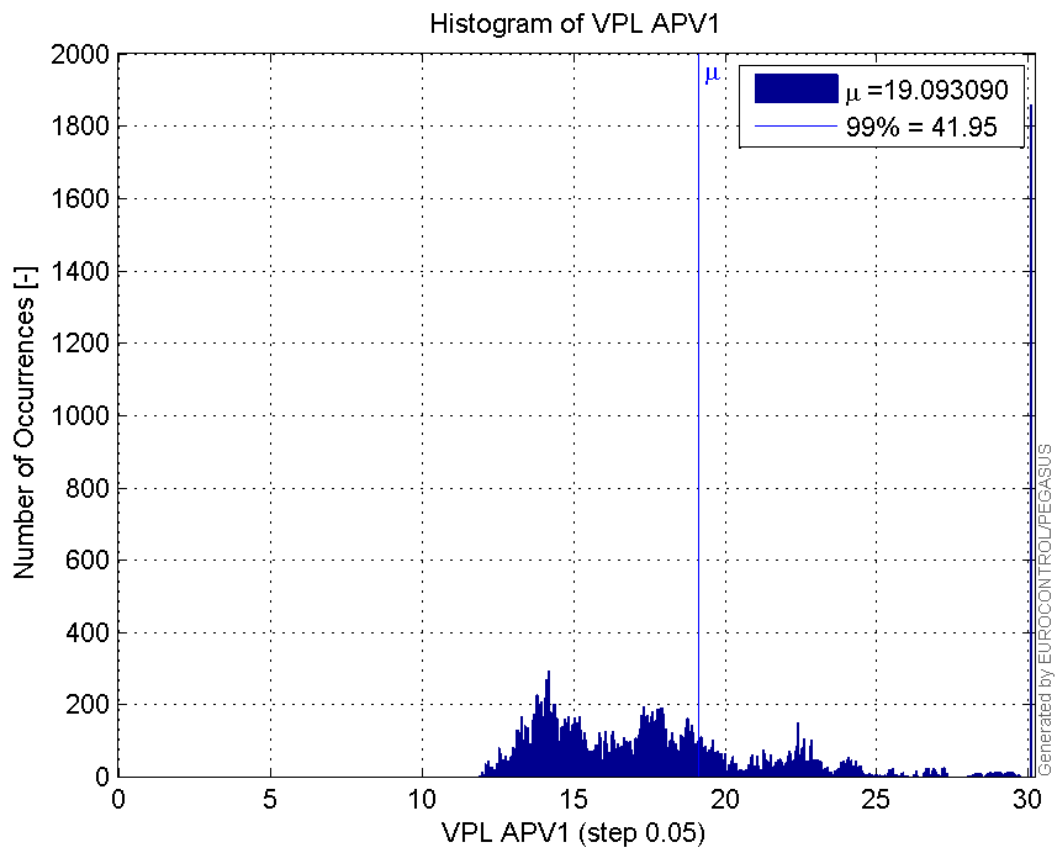
**Histogram of VPE APV1:**



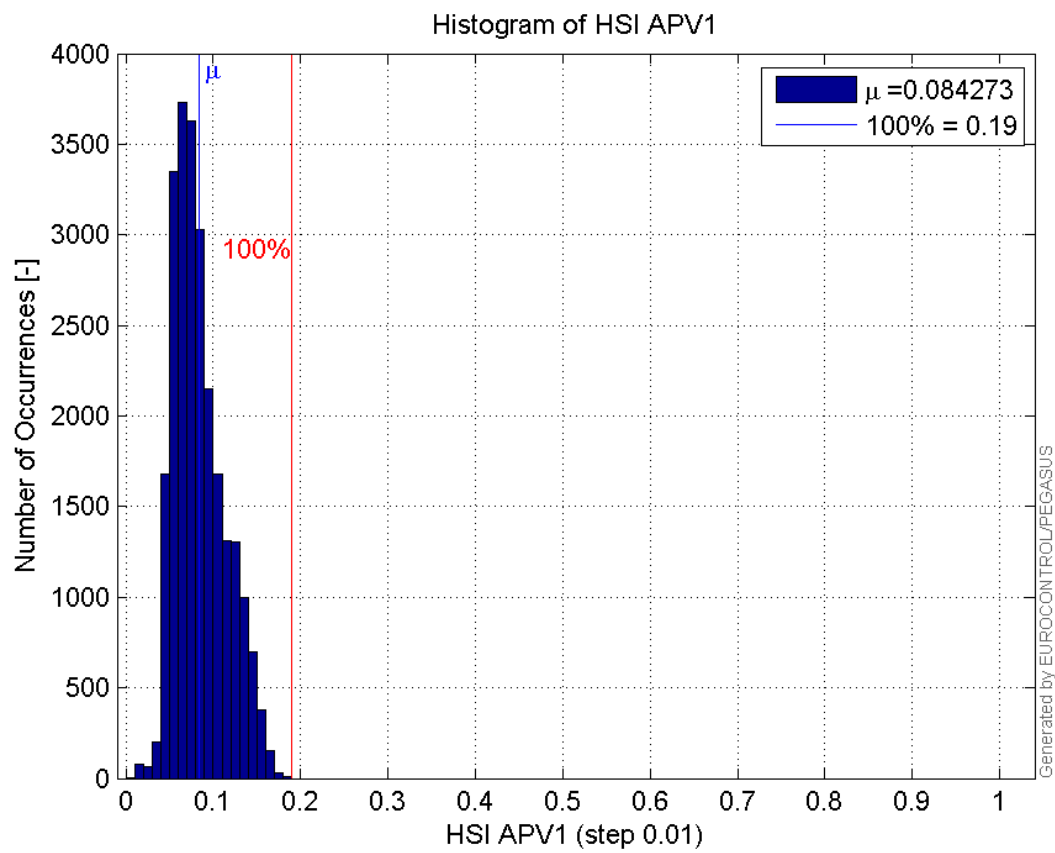
**Histogram of HPL APV1:**



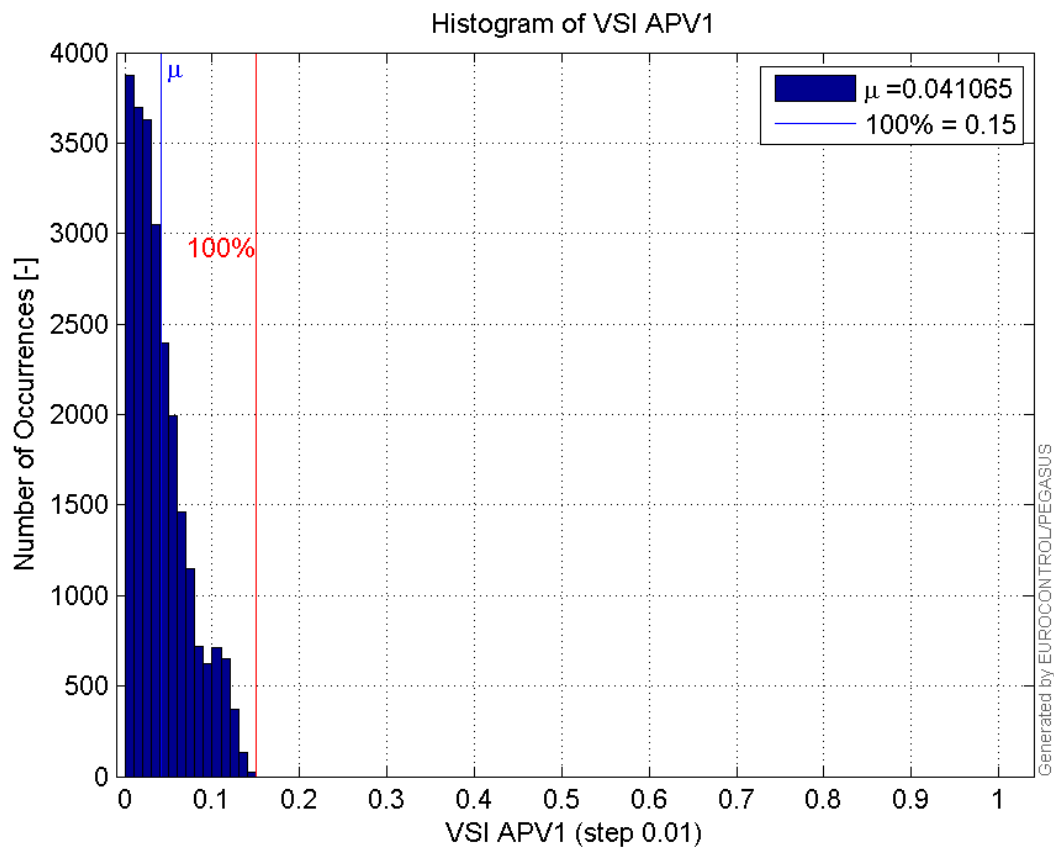
**Histogram of VPL APV1:**



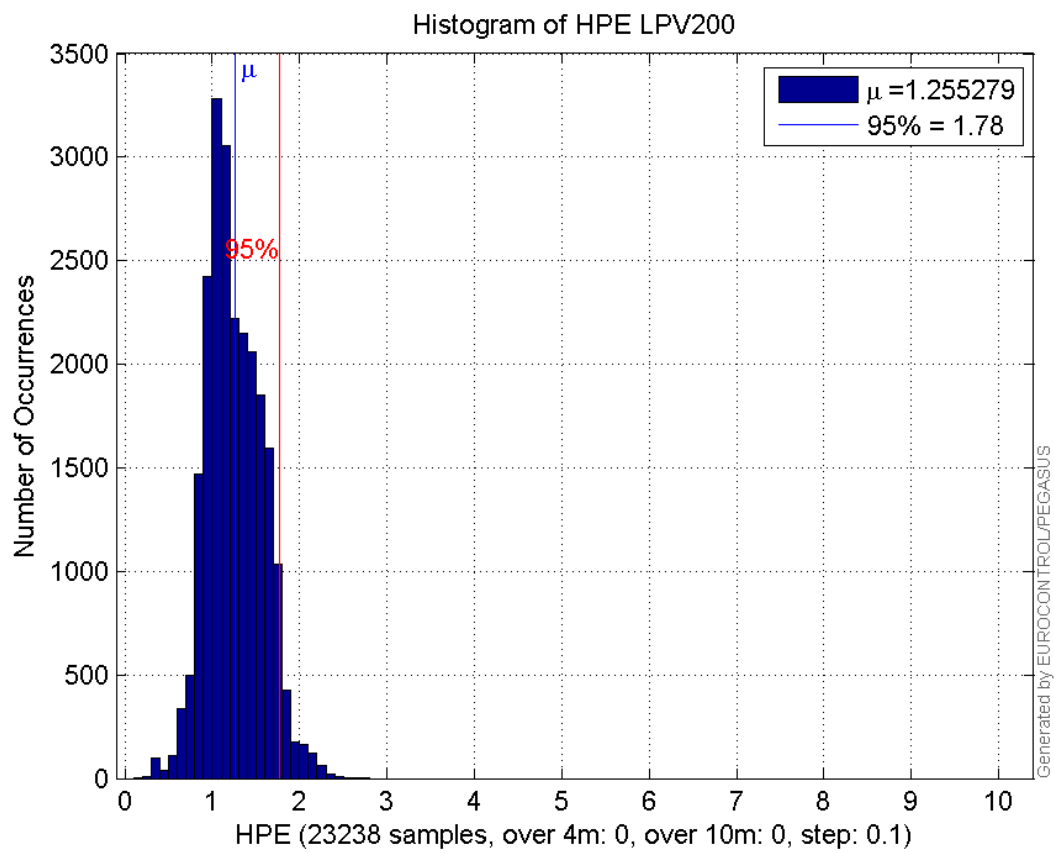
**Histogram of HSI APV1:**



**Histogram of VSI APV1:**

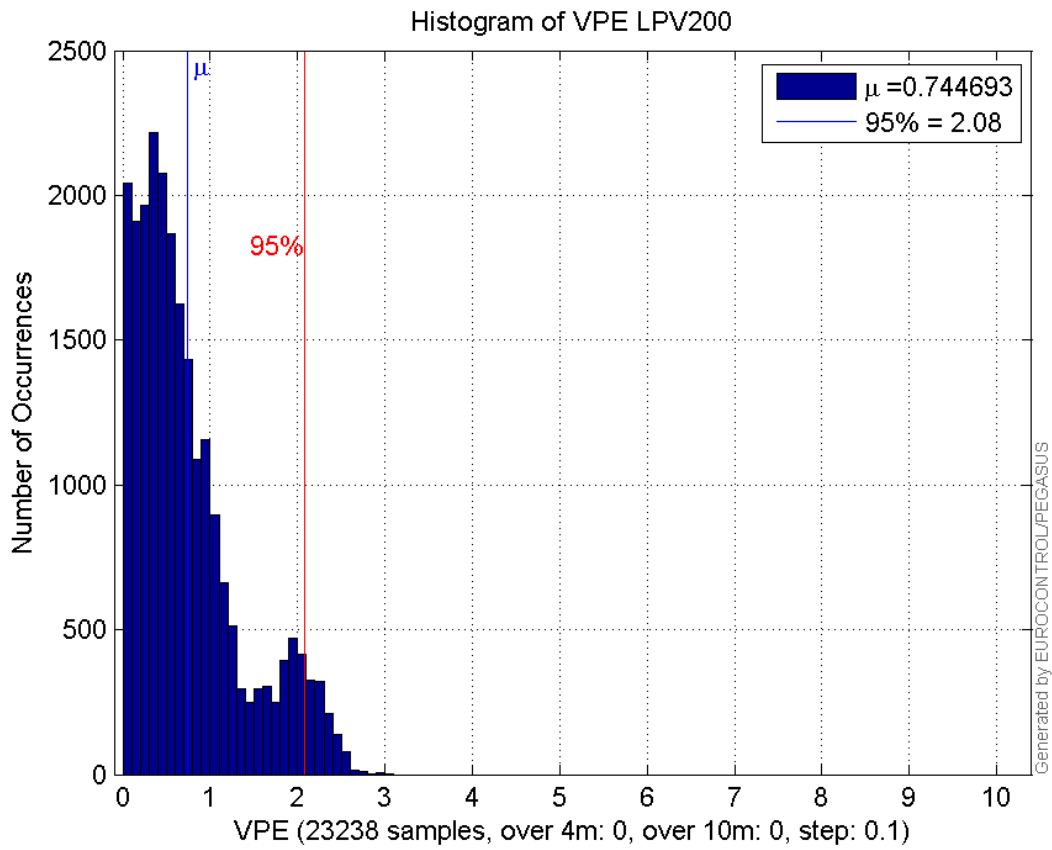


**Histogram of HPE LPV200:**

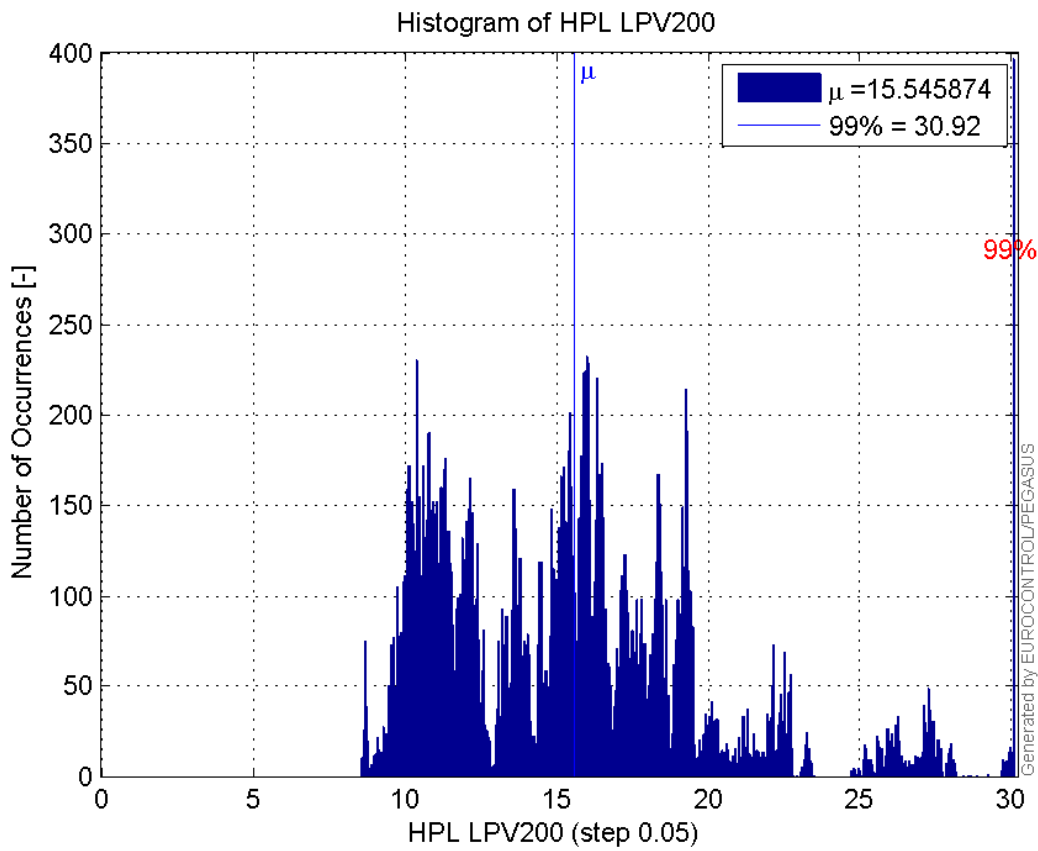


**Histogram of VPE LPV200:**

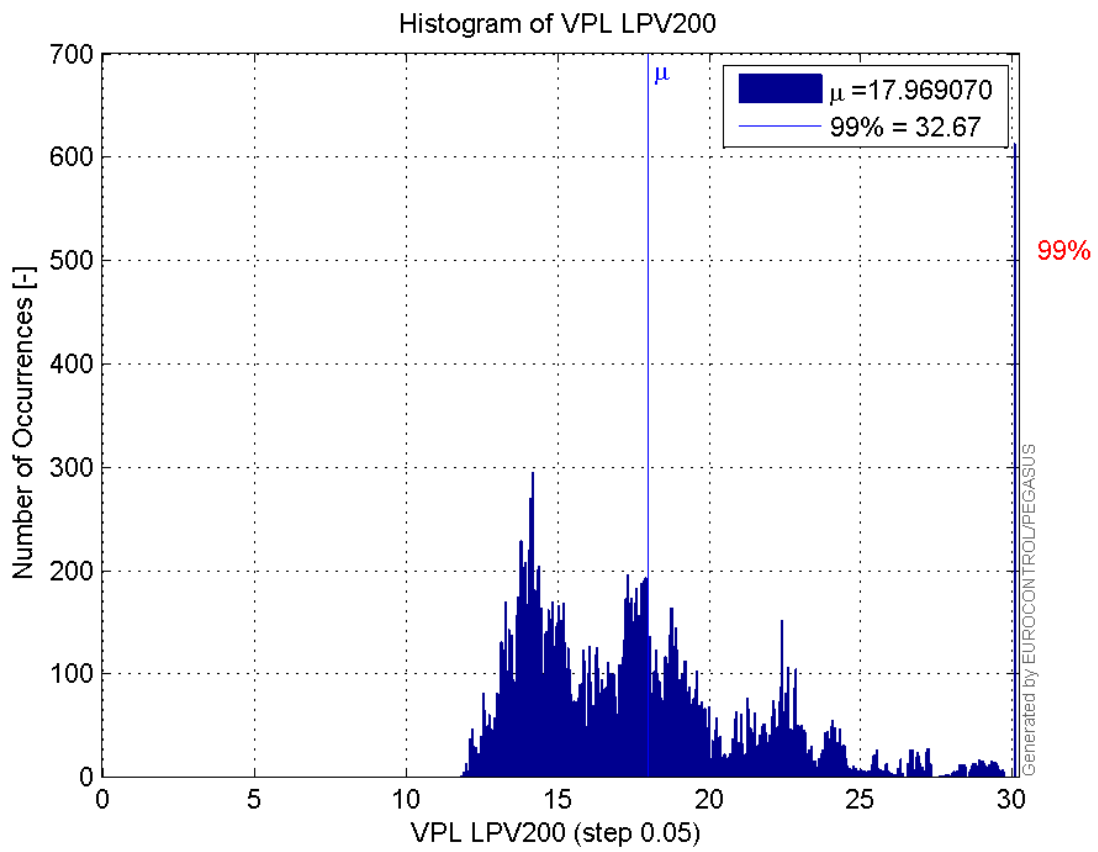




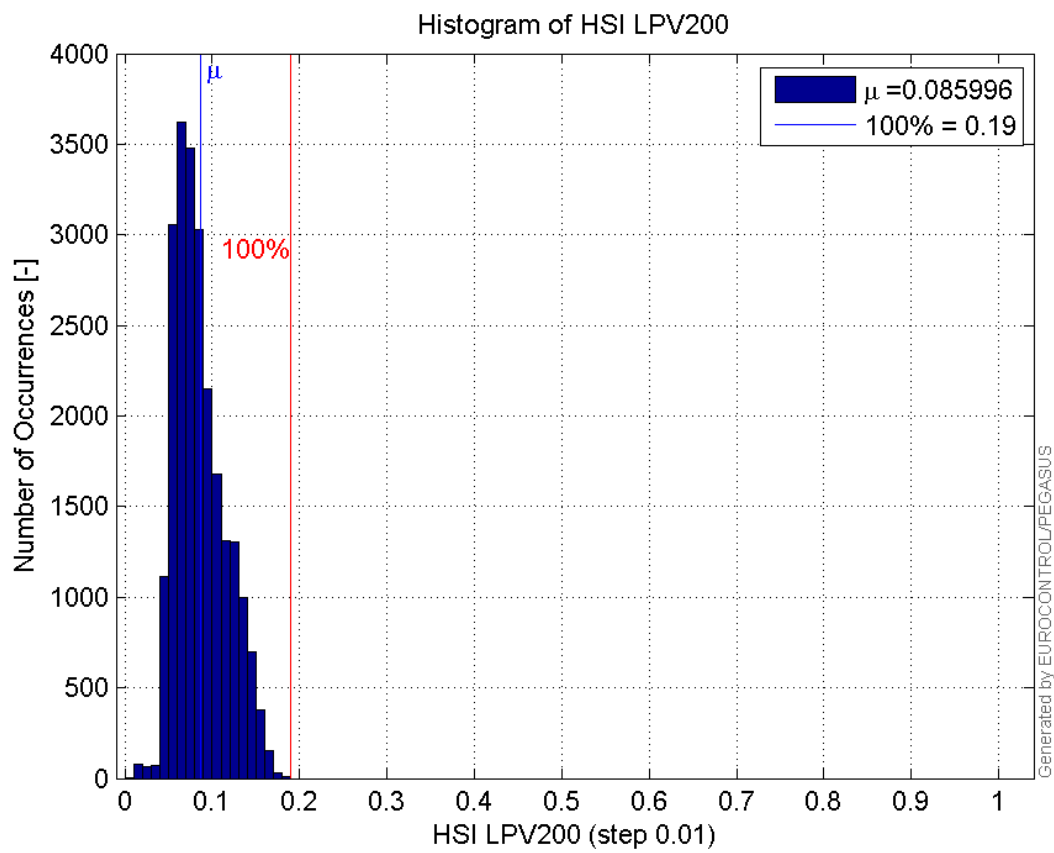
**Histogram of HPL LPV200:**



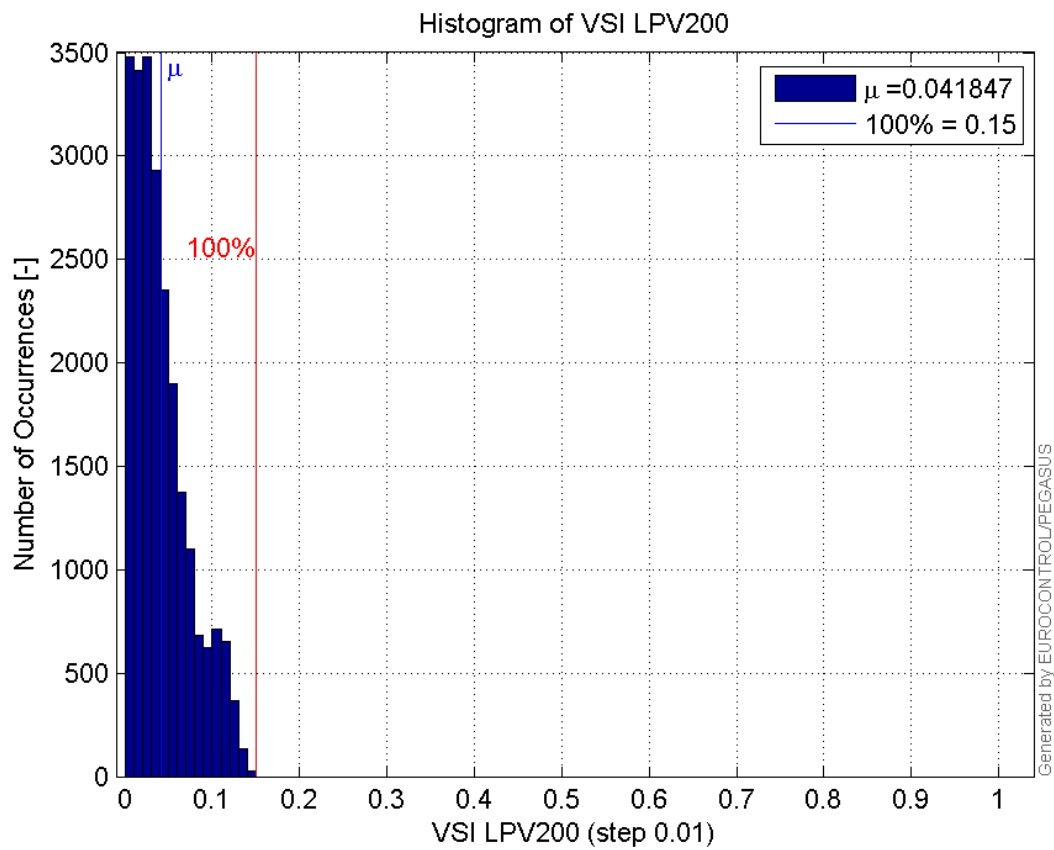
**Histogram of VPL LPV200:**



**Histogram of HSI LPV200:**

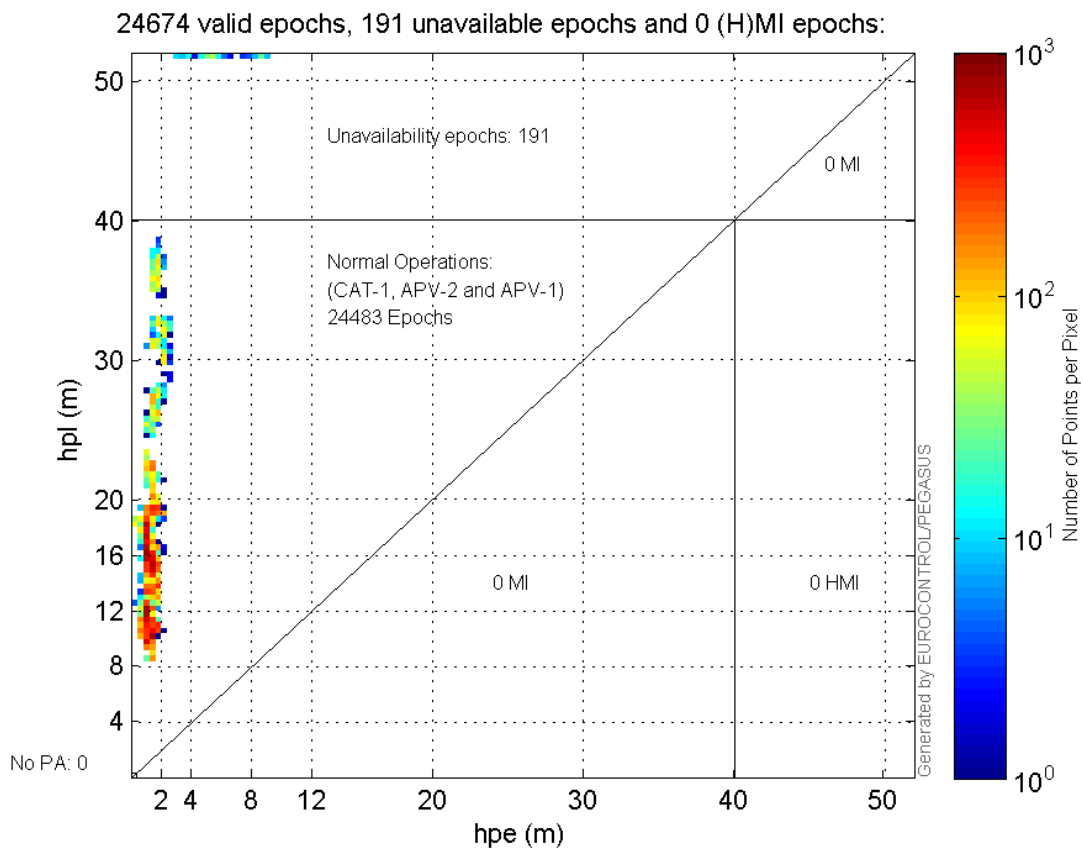


**Histogram of VSI LPV200:**



### Stanford Plots

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





## results

Name	Section	Value
init_lat	results	50.439
init_lon	results	30.4296
init_alt	results	227.9255
mi_numbers	results	0

## Range Domain

**start:** 07:57:12 23.11.2015 ( week: 1872 sec: 115032 )  
**end:** 14:54:26 23.11.2015 ( week: 1872 sec: 140066 )  
**duration:** 06:57:15 ..

## quality

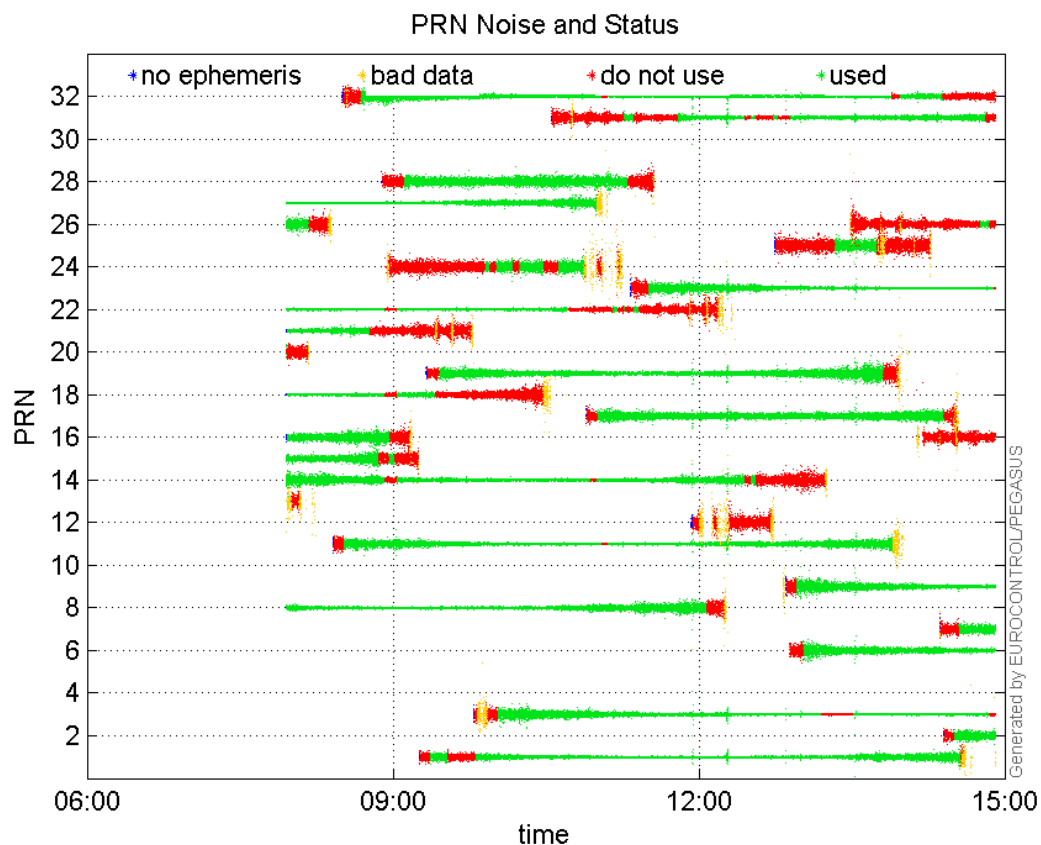
**valid samples** 25035  
**total samples** 25035

## PRN overview

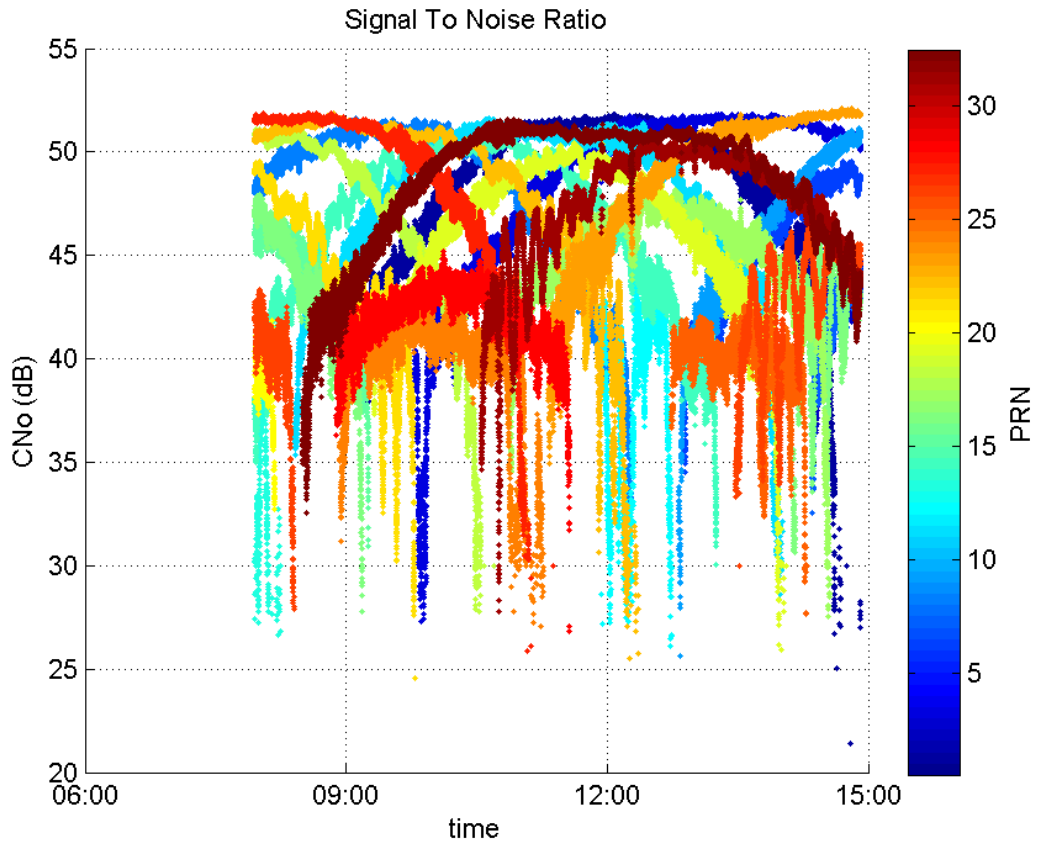
**Number of Visible GPS Satellites** 27  
**Number of Visible SBAS Satellites** 2

## signal quality and status

## PRN Noise and Status:



Signal To Noise Ratio:



range errors

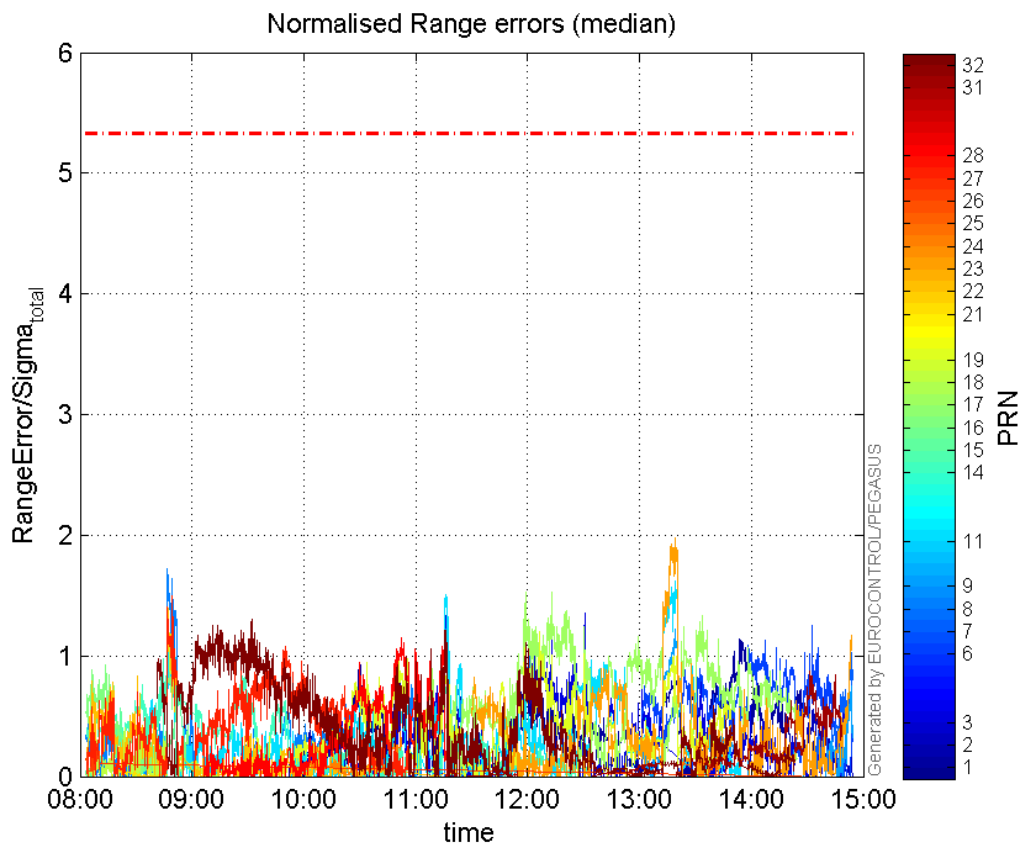
Number of Overbounding Norm Errors 0

Max Norm Errors :

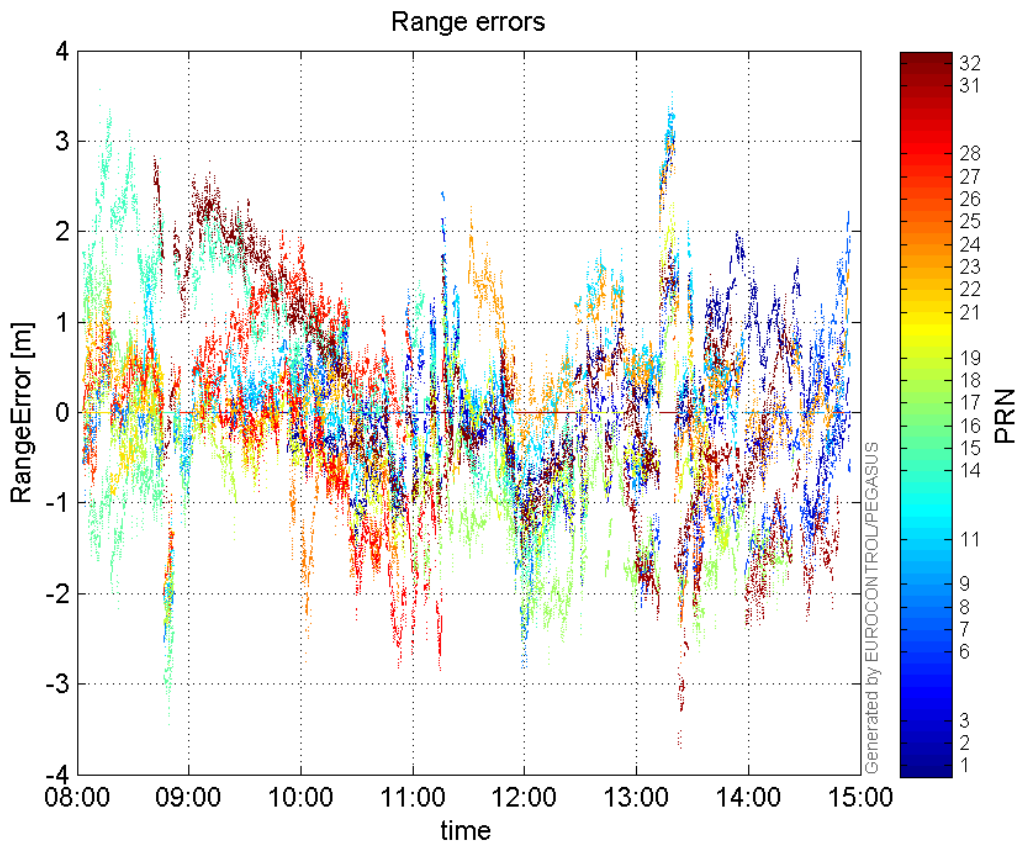
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1872	126964	1	1.27191	1.73778	1.36628
1872	138664	2	0.585089	-1.53428	2.6223
1872	131438	3	1.34949	-1.91456	1.41873
1872	138764	6	1.24977	-2.04834	1.63897
1872	140020	7	1.02769	2.22352	2.16361
1872	117986	8	1.72497	-2.53567	1.46998
1872	134359	9	1.21832	3.3464	2.74673
1872	134423	11	1.62932	3.28198	2.01432
1872	117887	14	0.976099	2.8056	2.8743
1872	118300	15	0.827226	-2.4374	2.94648
1872	118144	16	0.990167	-2.69069	2.71741
1872	130364	17	1.53177	-2.78308	1.81691
1872	117989	18	1.20498	-2.32738	1.93146
1872	129983	19	1.2029	-1.90766	1.58588
1872	116304	21	0.0619235	-0.903086	14.5839
1872	118029	22	1.39081	-2.05557	1.47796
1872	134358	23	1.97775	3.06782	1.55117
1872	125494	24	0.377492	-2.4512	6.49339
1872	135765	25	0.316288	-1.3063	4.1301

1872	115669	26	0.352897	-1.03885	2.94377
1872	118144	27	1.49473	-2.31009	1.54549
1872	125533	28	1.14979	-2.82628	2.45808
1872	138664	31	0.879037	-2.30241	2.61924
1872	120717	32	1.29916	2.33383	1.79642

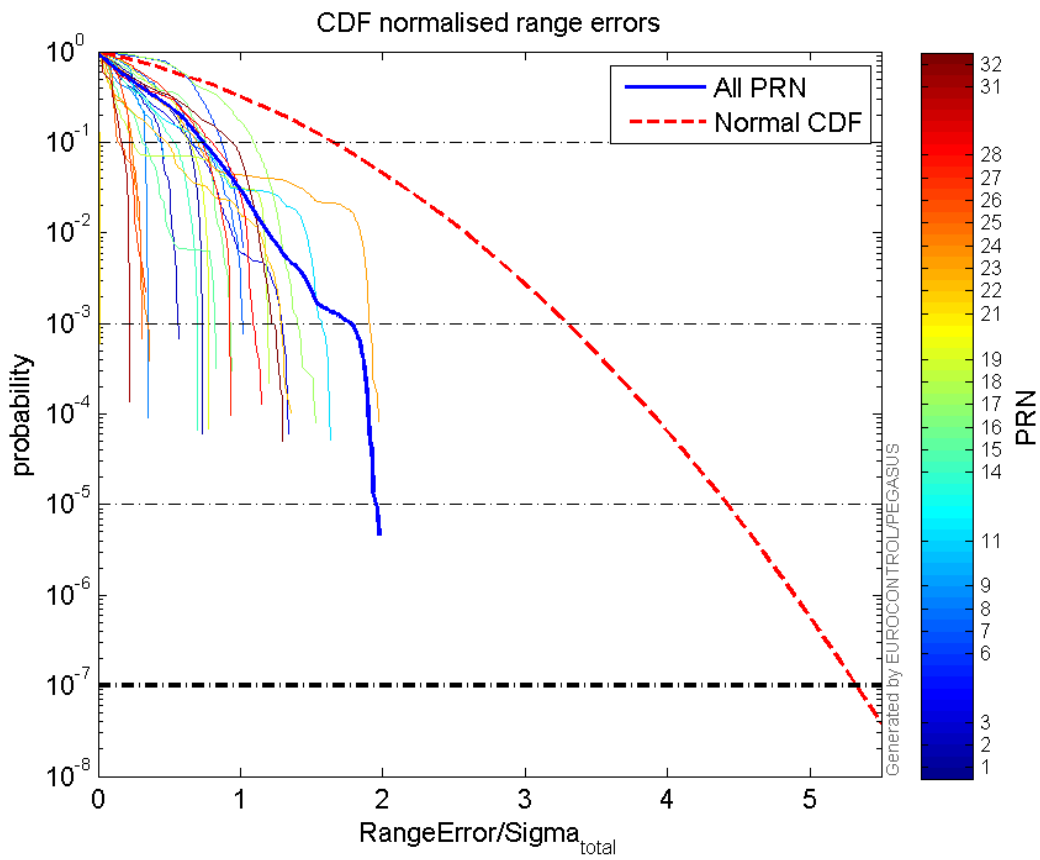
### Normalised Range errors (median):



### Range errors:

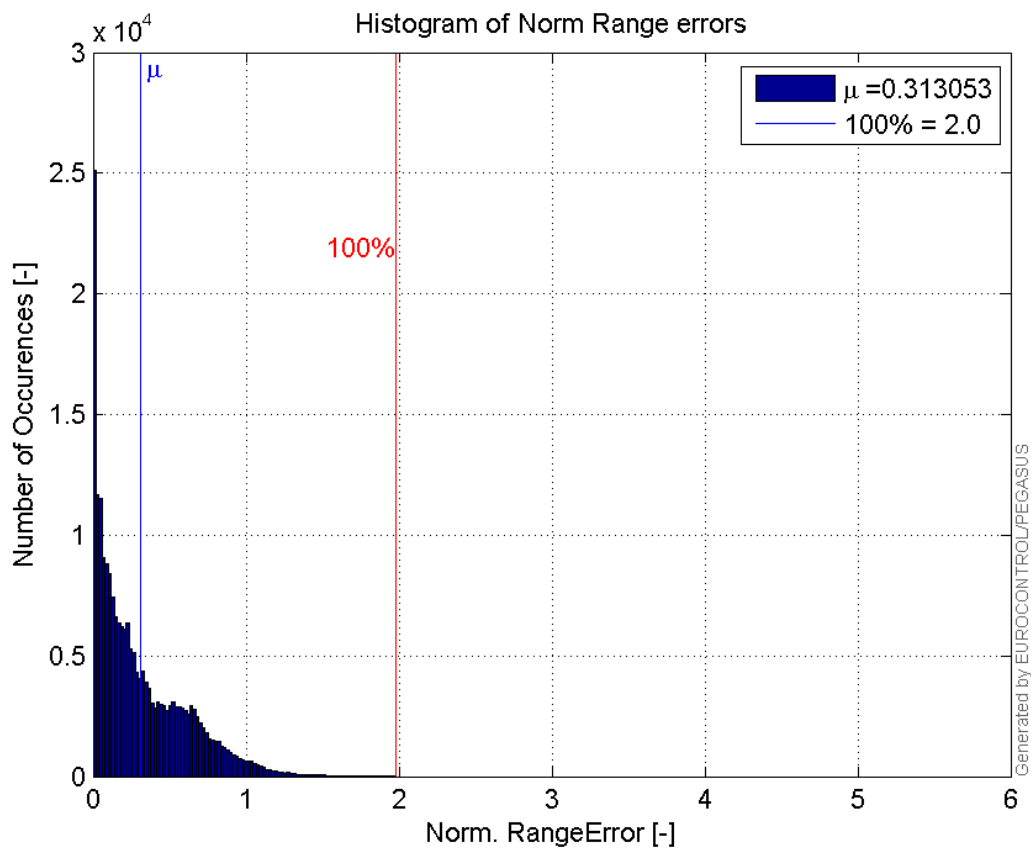


**CDF normalised range errors:**

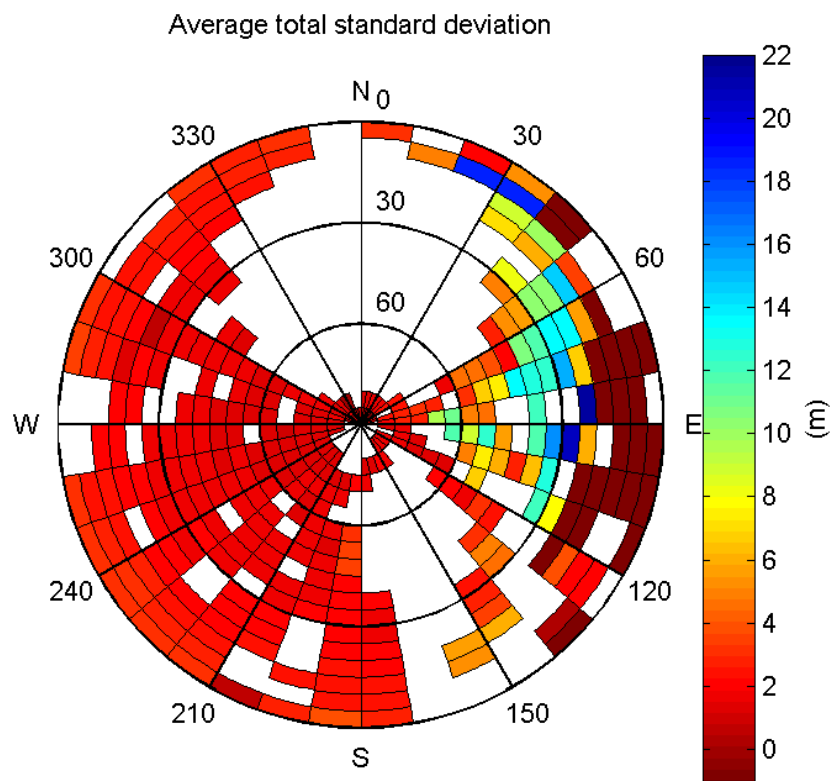


**Histogram of Norm Range errors:**

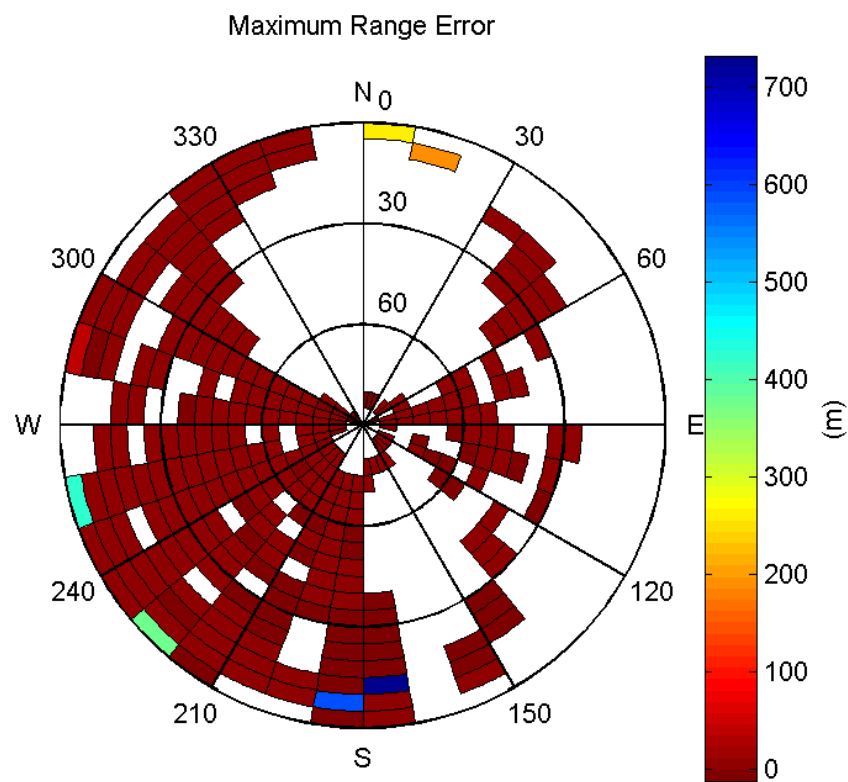




**Sigma Sky Plot:**

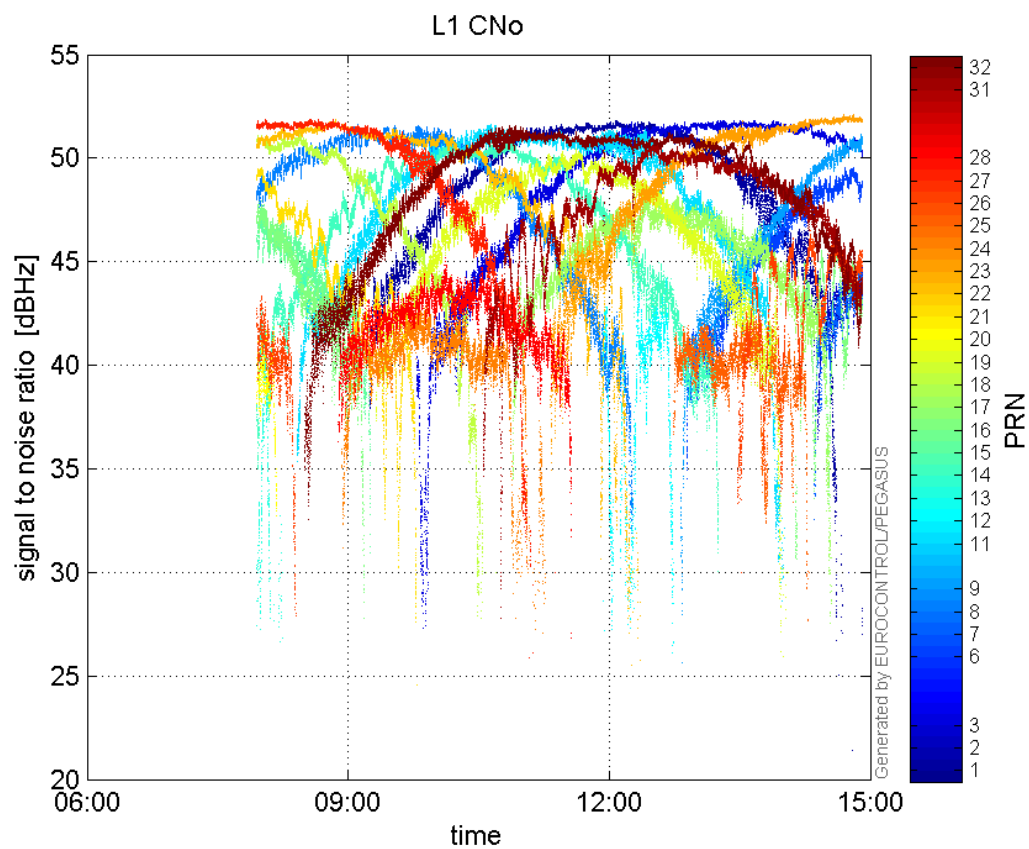


**Norm Error Sky Plot:**

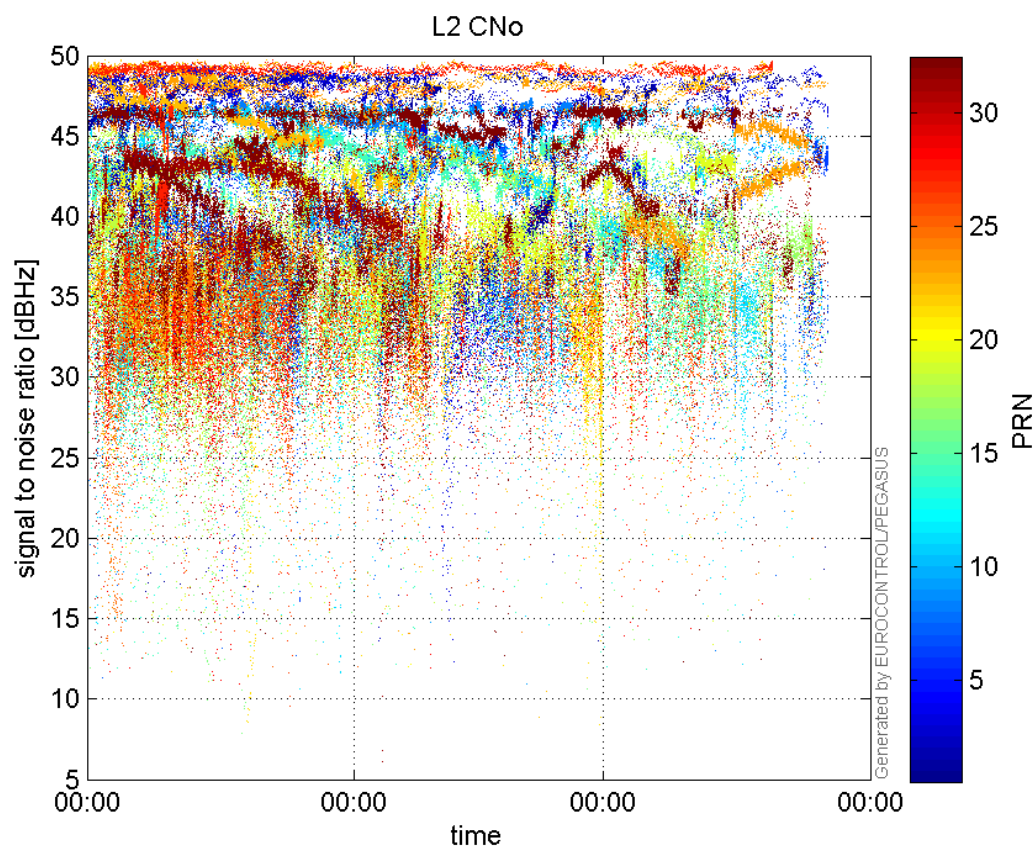


### signal quality

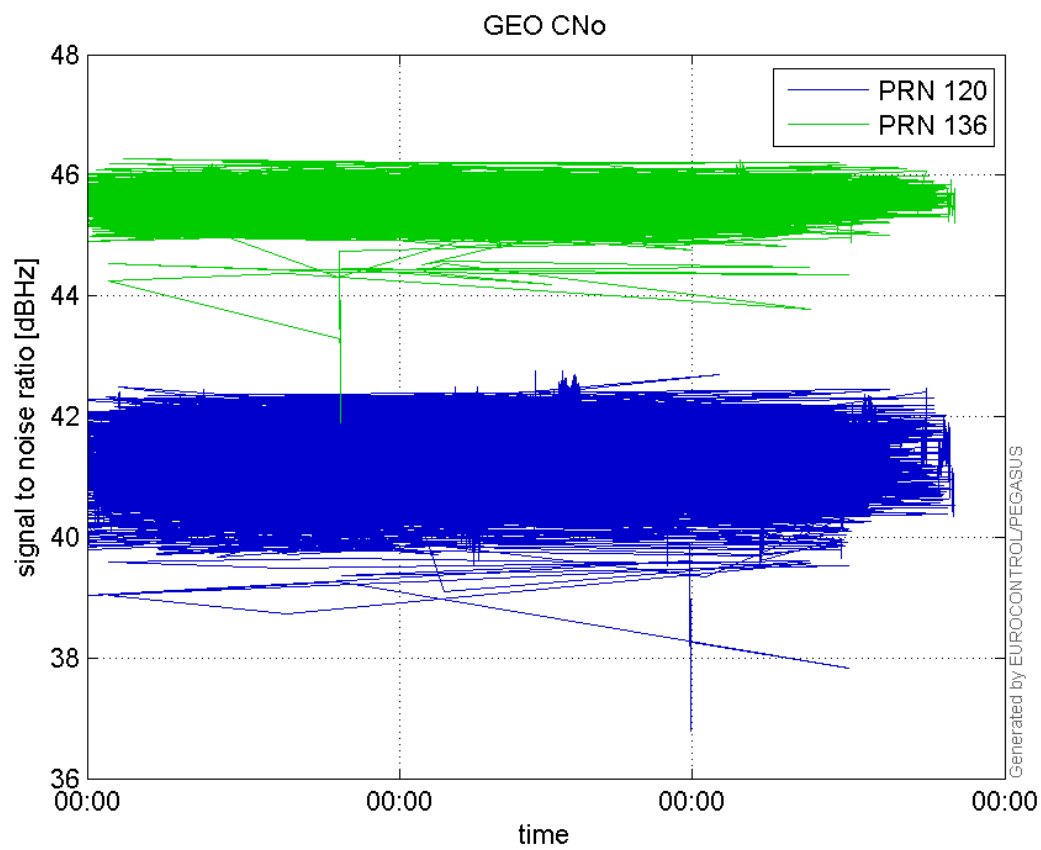
L1 CNo:



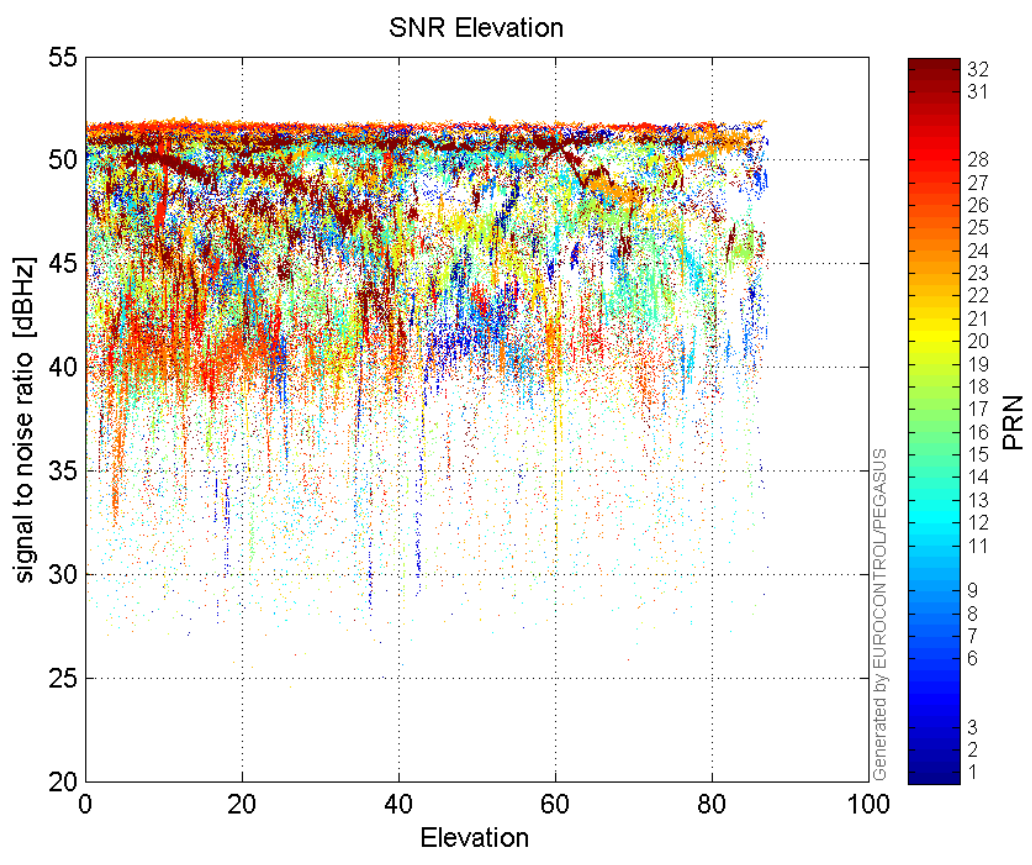
**L2 CNo:**



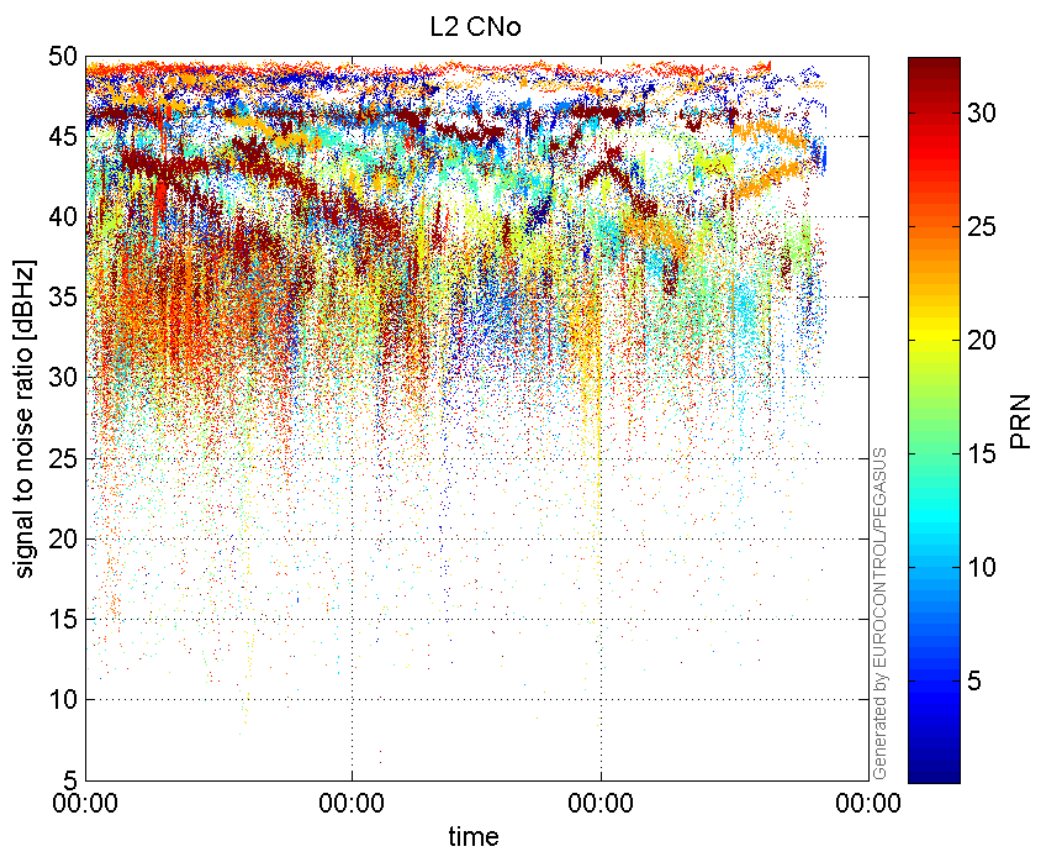
**GEO CNo:**



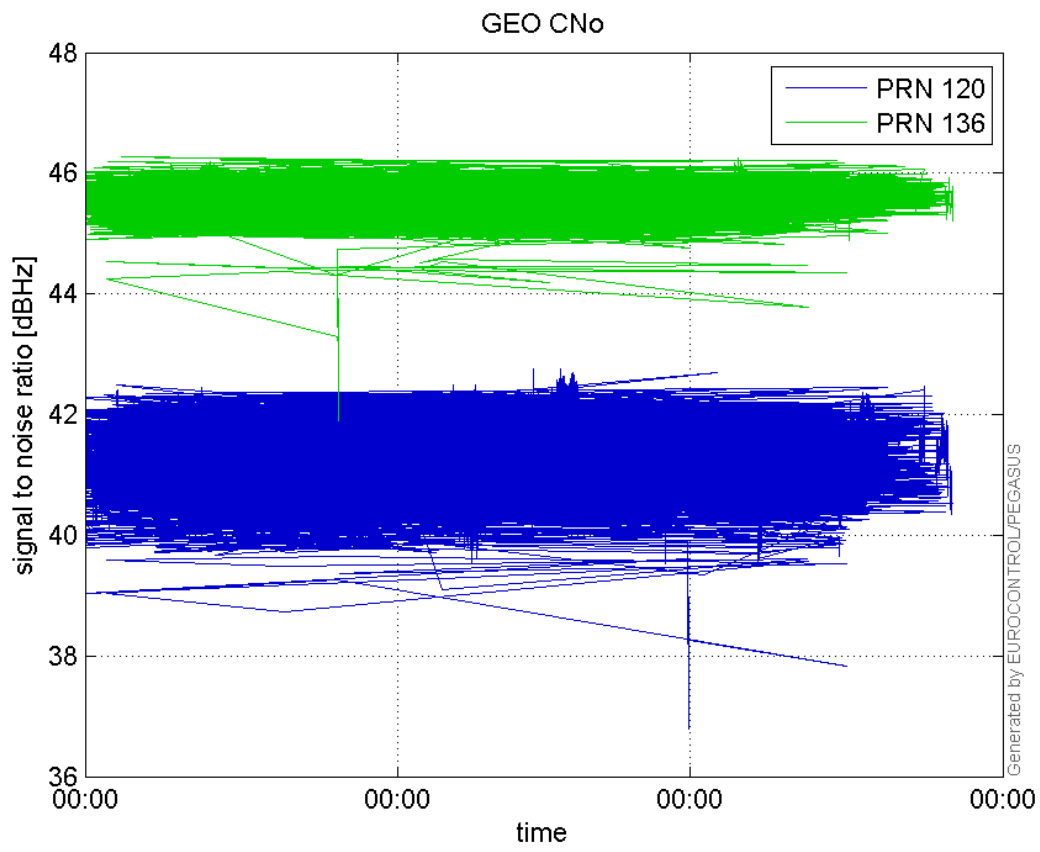
**SNR Elevation:**



**L2 CNo:**

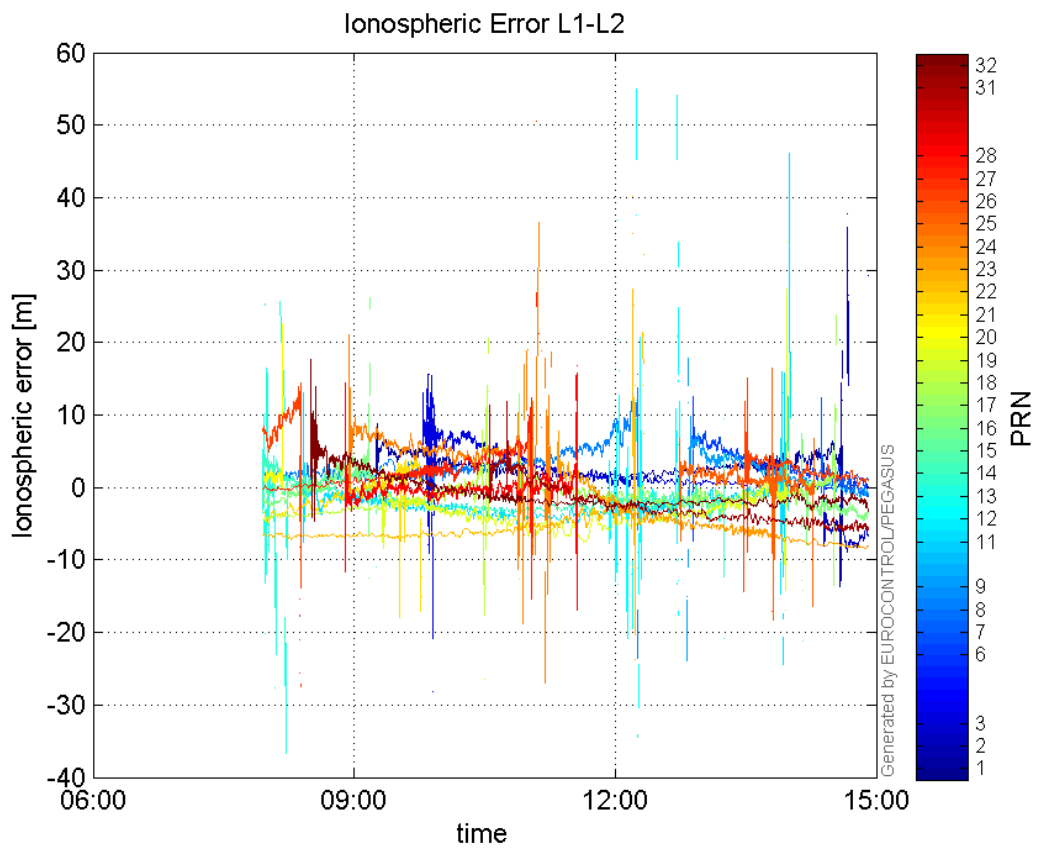


**GEO CNo:**



### 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_23EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_11_23EGNOS/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	227.9255
mi_numbers	results	0