

# 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 23/02/2016

## Range Domain

**start:** 10:39:58 19.02.2016 ( week: 1884 sec: 470398 )  
**end:** 14:02:38 19.02.2016 ( week: 1884 sec: 482558 )  
**duration:** 03:22:41 ..

### quality

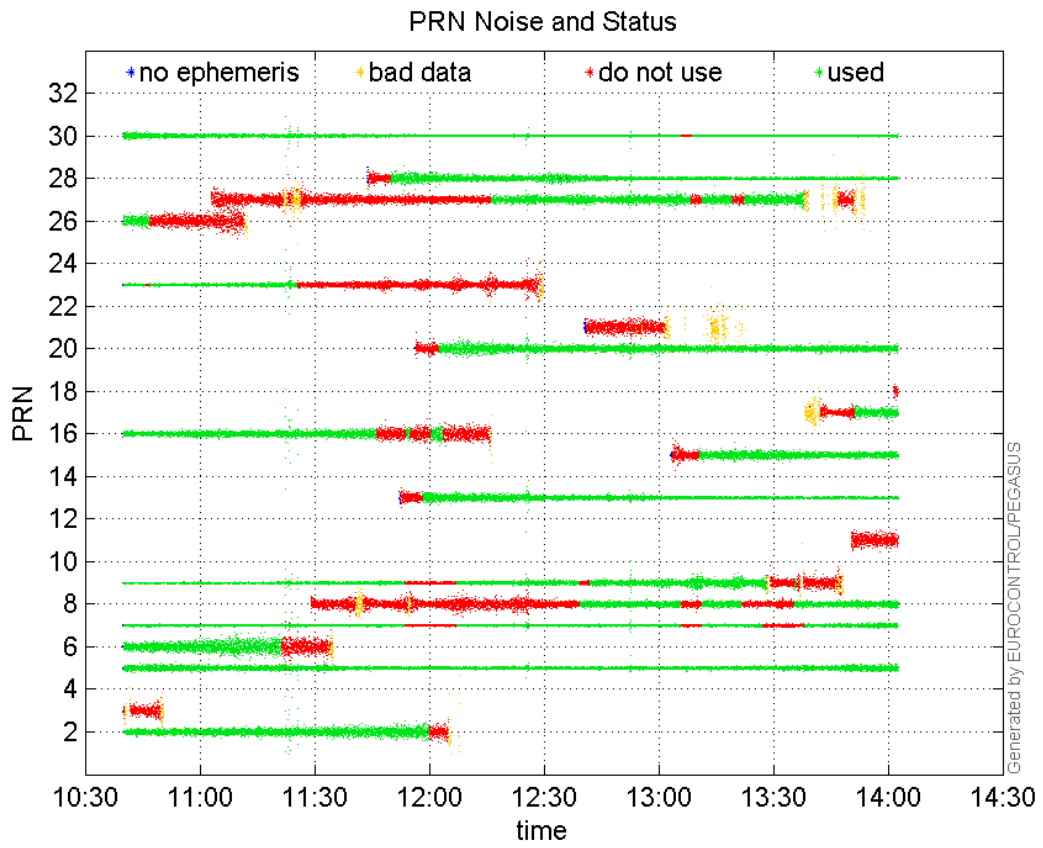
**valid samples** 12161  
**total samples** 12161

### PRN overview

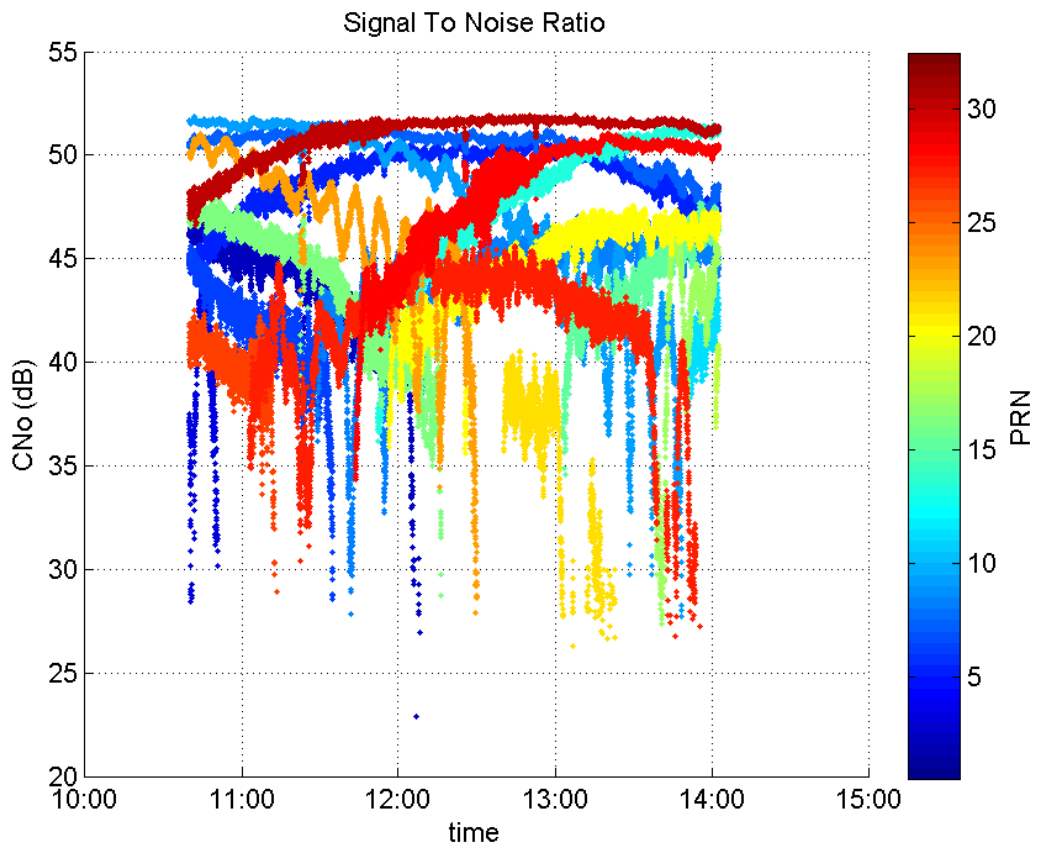
**Number of Visible GPS Satellites** 20  
**Number of Visible SBAS Satellites** 2

### signal quality and status

**PRN Noise and Status:**



**Signal To Noise Ratio:**



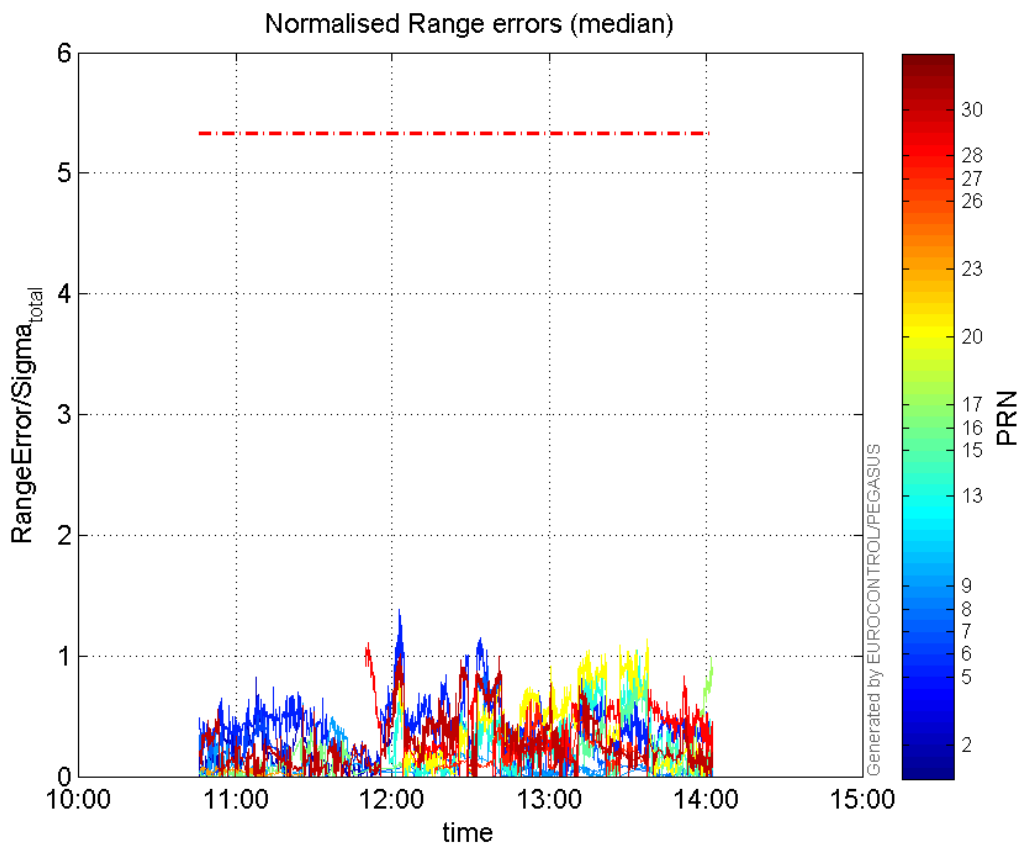
range errors

Number of Overbounding Norm Errors 0

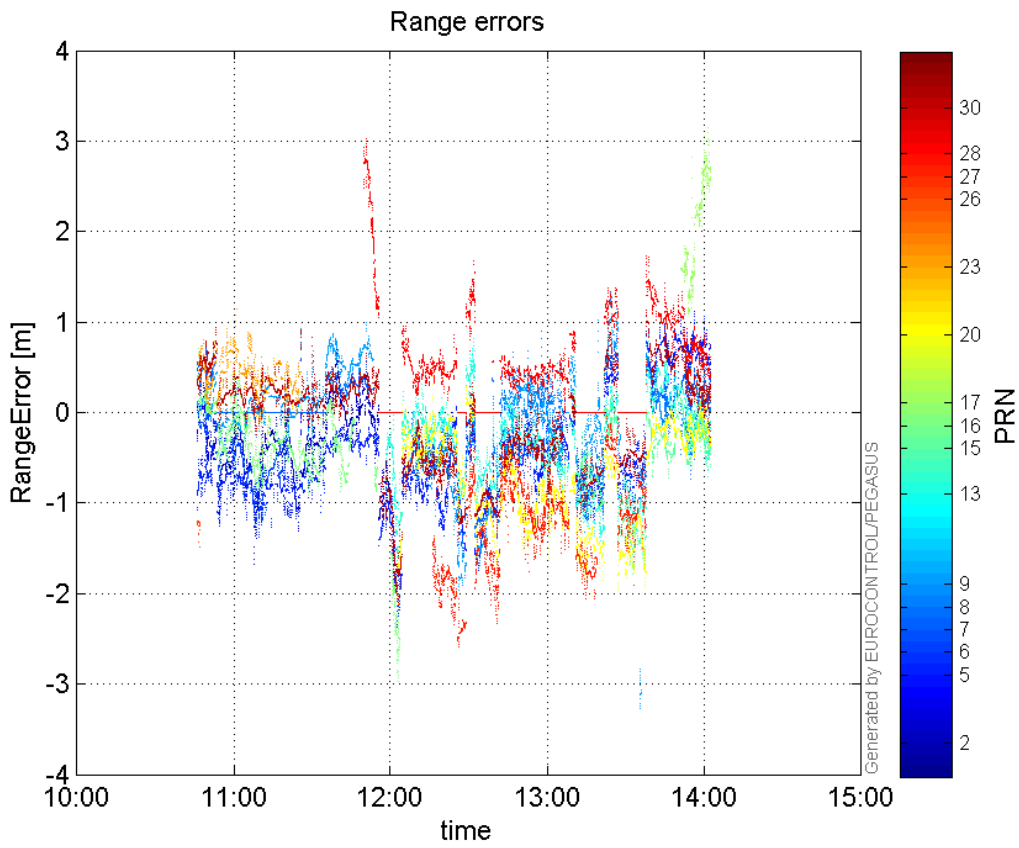
**Max Norm Errors :**

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1884	472071	2	0.826167	-1.68292	2.03701
1884	475353	5	1.38565	-2.44096	1.7616
1884	472183	6	0.551816	-1.38188	2.50424
1884	477645	7	0.955259	-1.42367	1.49035
1884	482098	8	0.224873	-0.729581	3.24442
1884	473138	9	0.60939	0.920062	1.50981
1884	480814	13	1.04666	-1.53374	1.46537
1884	480761	15	0.859339	-1.78485	2.077
1884	473316	16	0.401358	-0.914227	2.27784
1884	482521	17	0.988955	3.01692	3.05061
1884	481044	20	1.1407	-1.94112	1.70169
1884	471657	23	0.0926264	1.14044	12.3122
1884	470814	26	0.159347	-1.48425	9.31452
1884	478375	27	0.637318	-1.75604	2.75536
1884	474661	28	1.11401	3.02876	2.71879
1884	475374	30	1.02037	-2.13205	2.0895

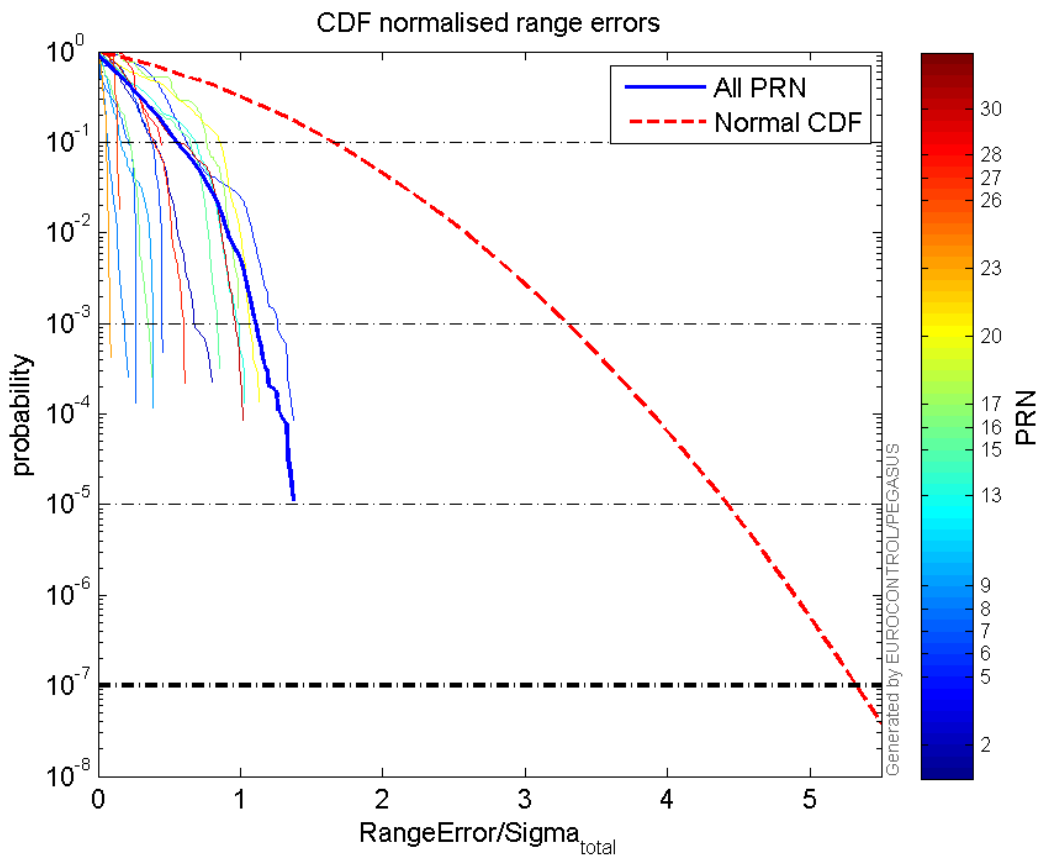
**Normalised Range errors (median):**



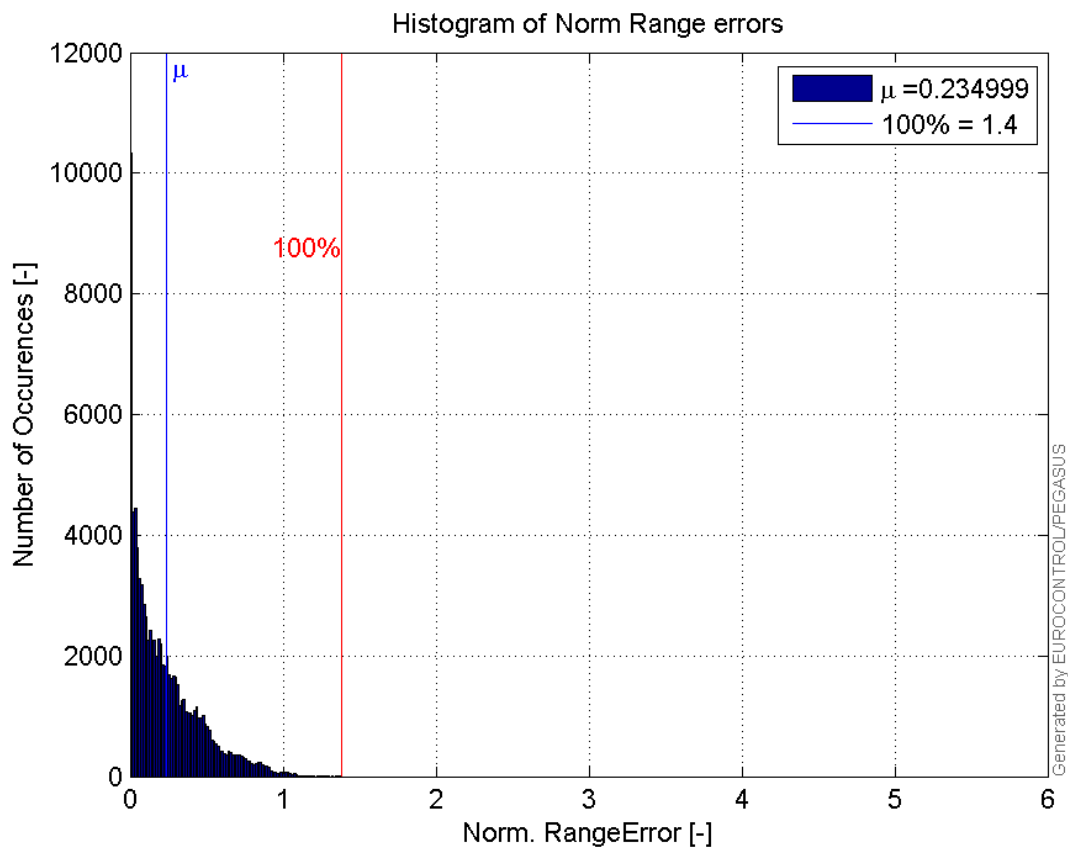
**Range errors:**



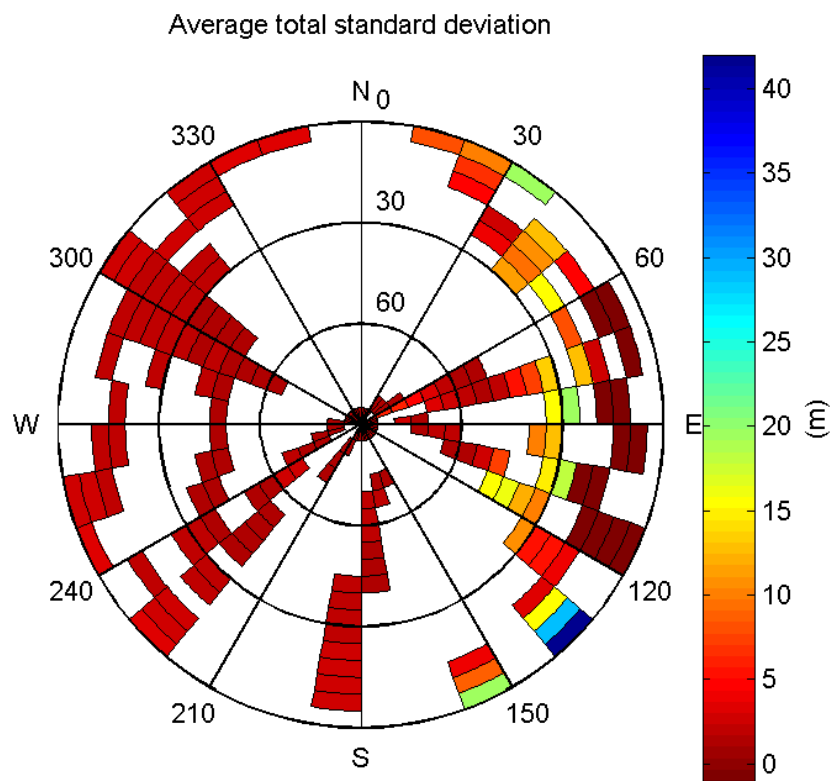
**CDF normalised range errors:**



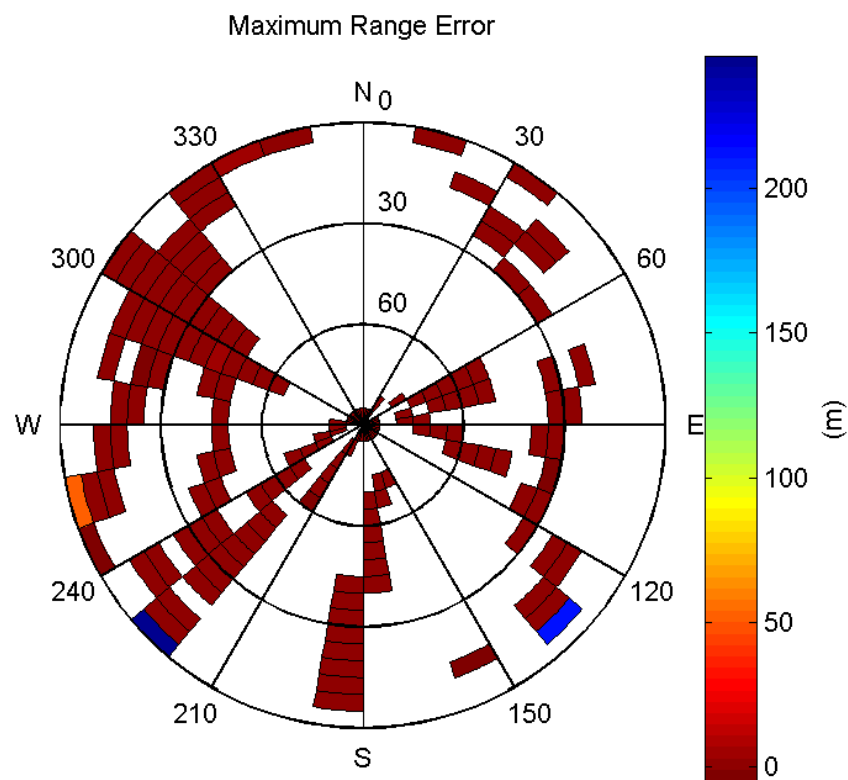
**Histogram of Norm Range errors:**



**Sigma Sky Plot:**

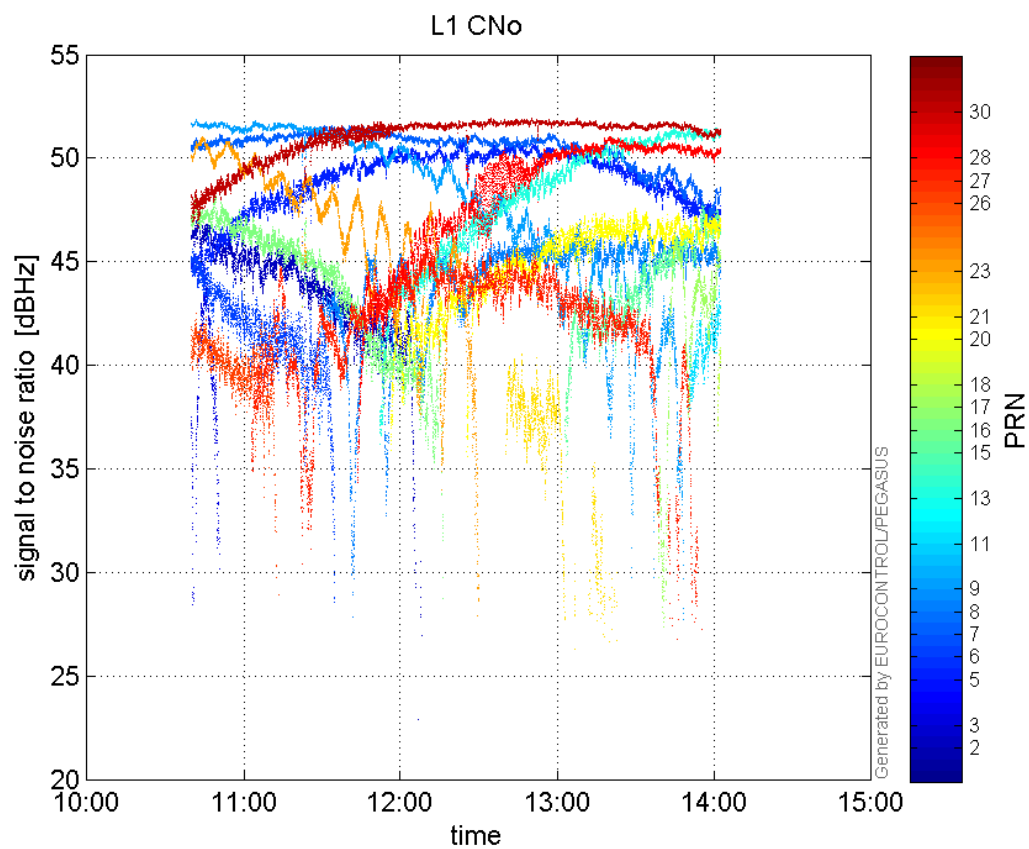


**Norm Error Sky Plot:**

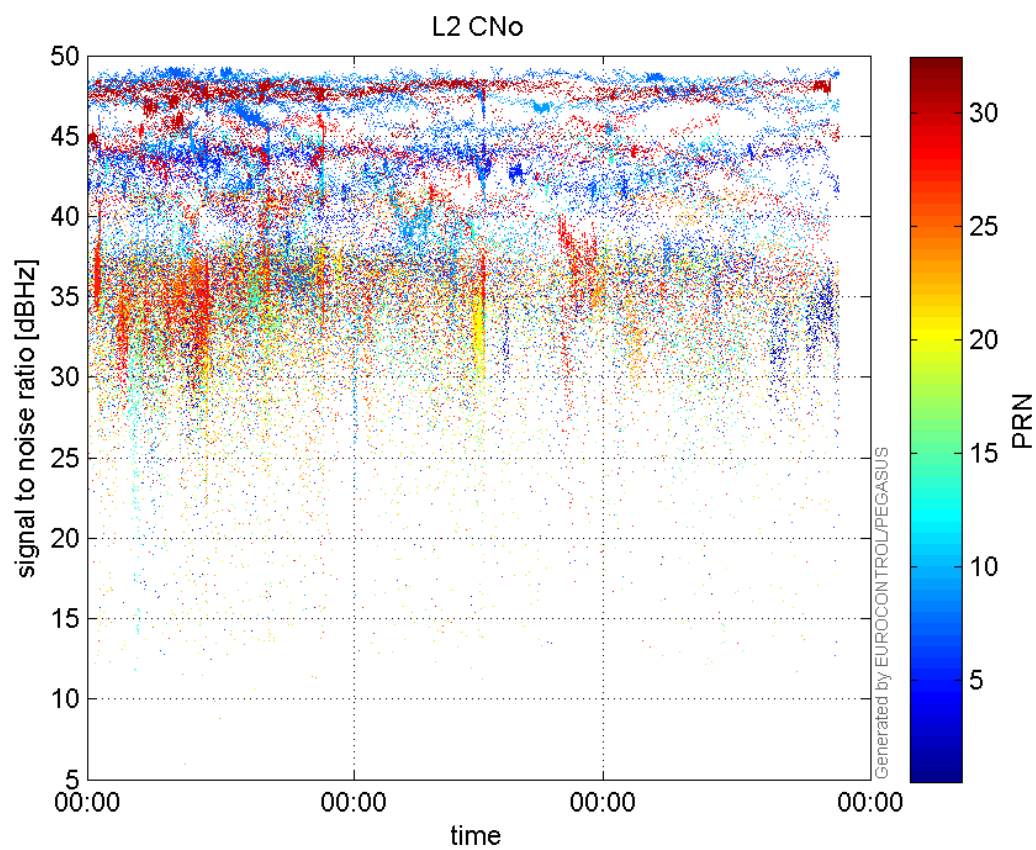


### signal quality

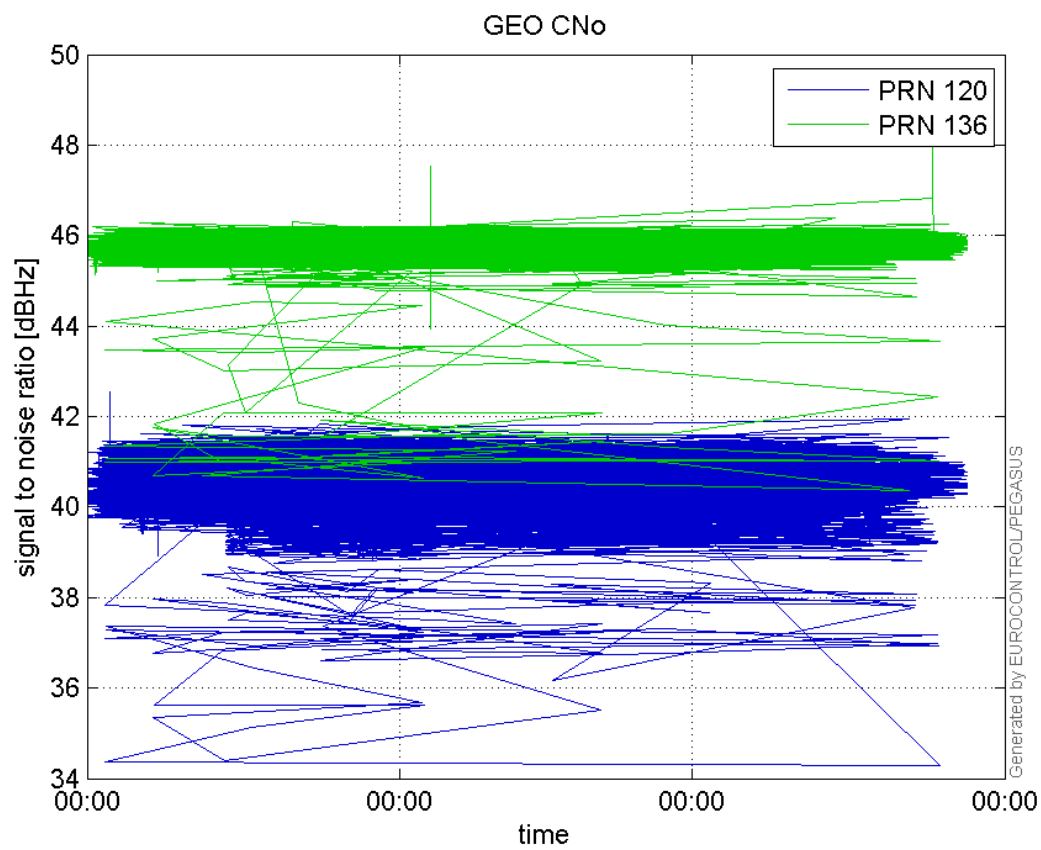
L1 CNo:



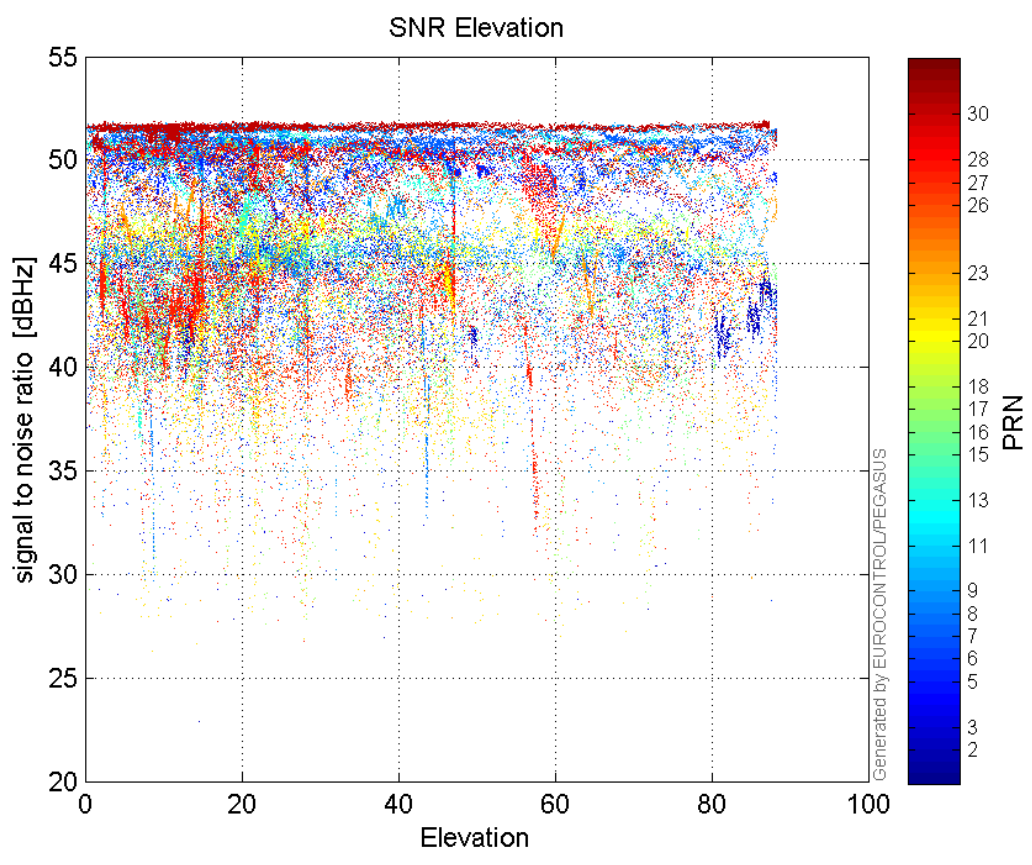
L2 CNo:



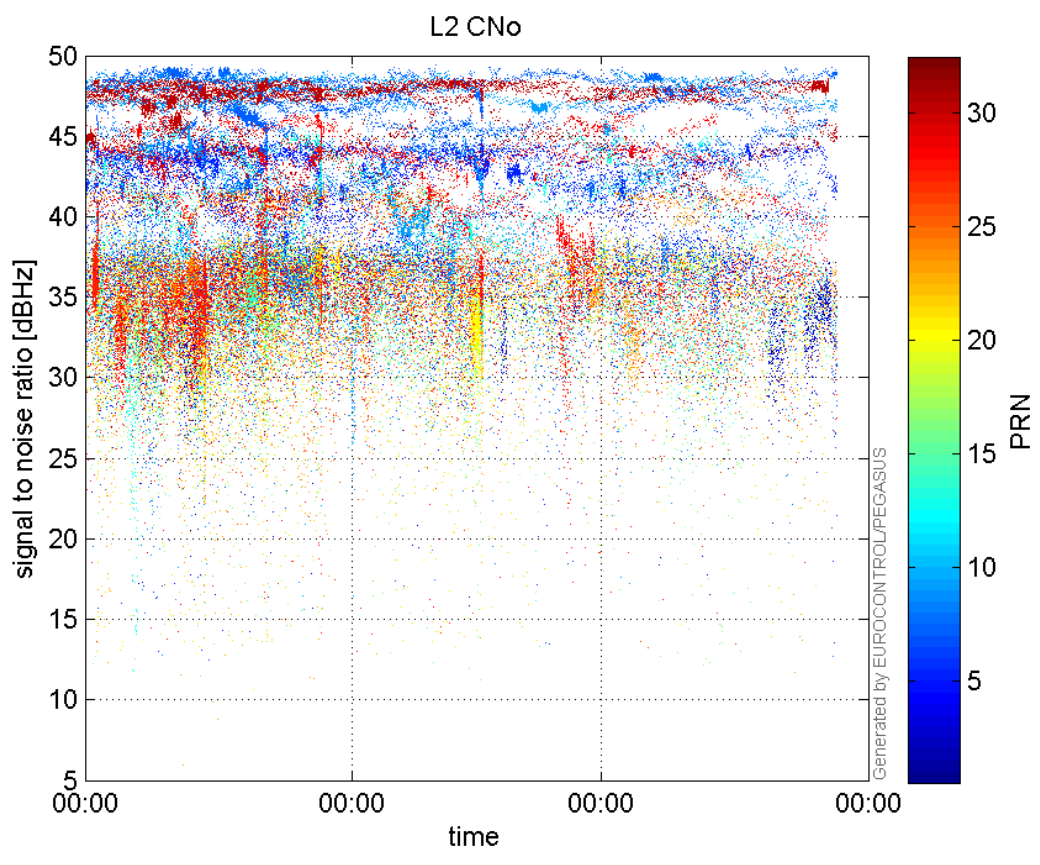
GEO CNo:



SNR Elevation:

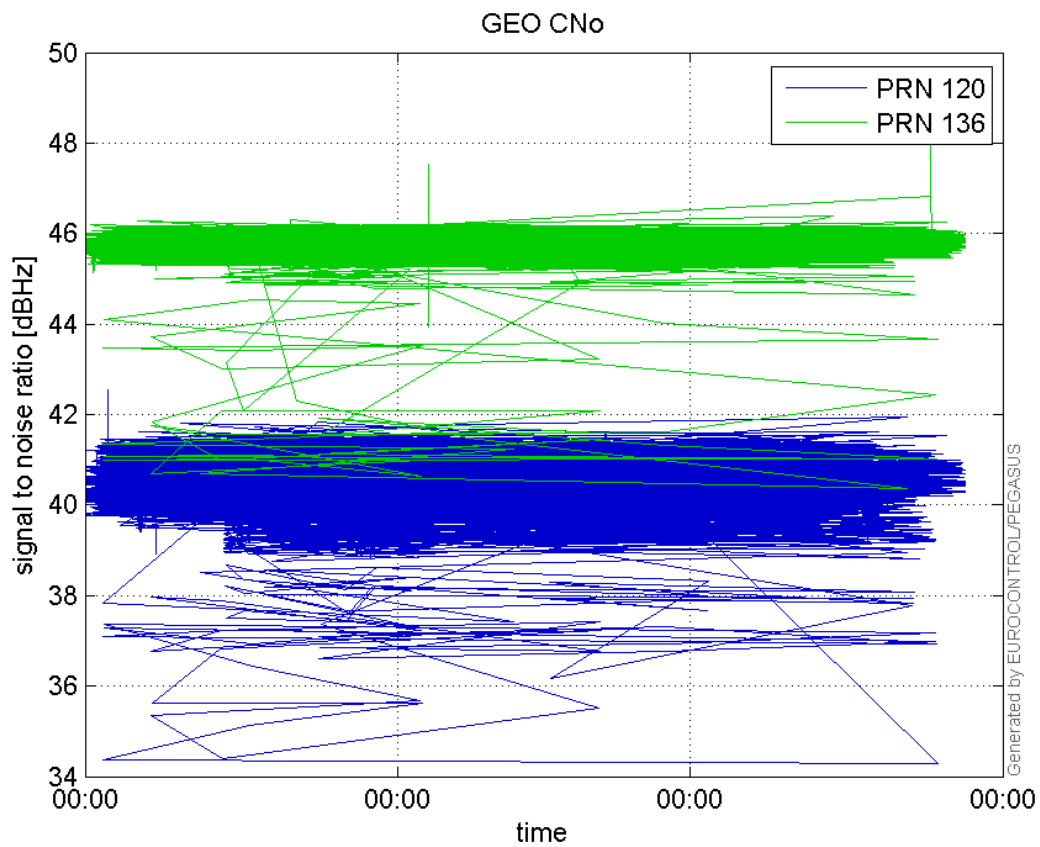


**L2 CNo:**



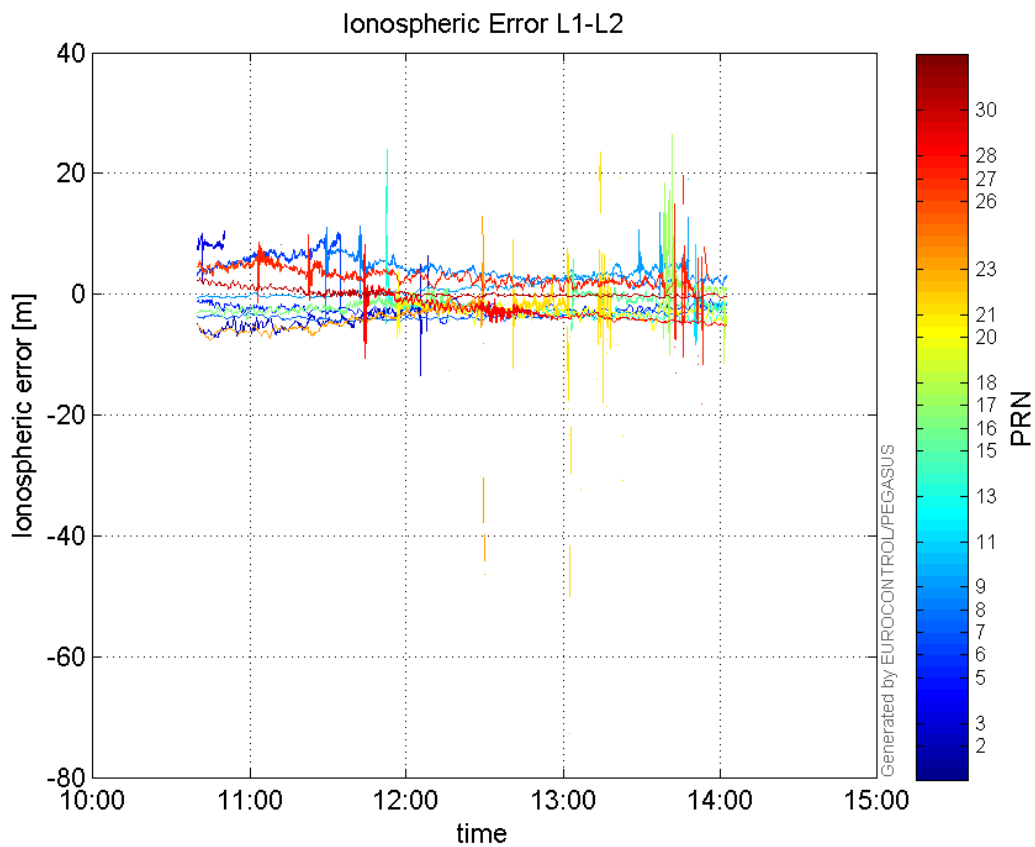
**GEO CNo:**





### 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:/PegasusDateGob/job/2016_02_19EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_19EGNOS/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	30.4296
init_alt	results	228.2501
mi_numbers	results	0

## SBAS Messages

**start:** 10:39:58.129 19.02.2016 ( week: 1884 sec: 470398.129 )  
**end:** 14:02:38.129 19.02.2016 ( week: 1884 sec: 482558.129 )  
**duration:** 03:22:40 ..

## quality

**valid samples** 24322  
**total samples** 24322  
**number of SBAS PRNs** 2

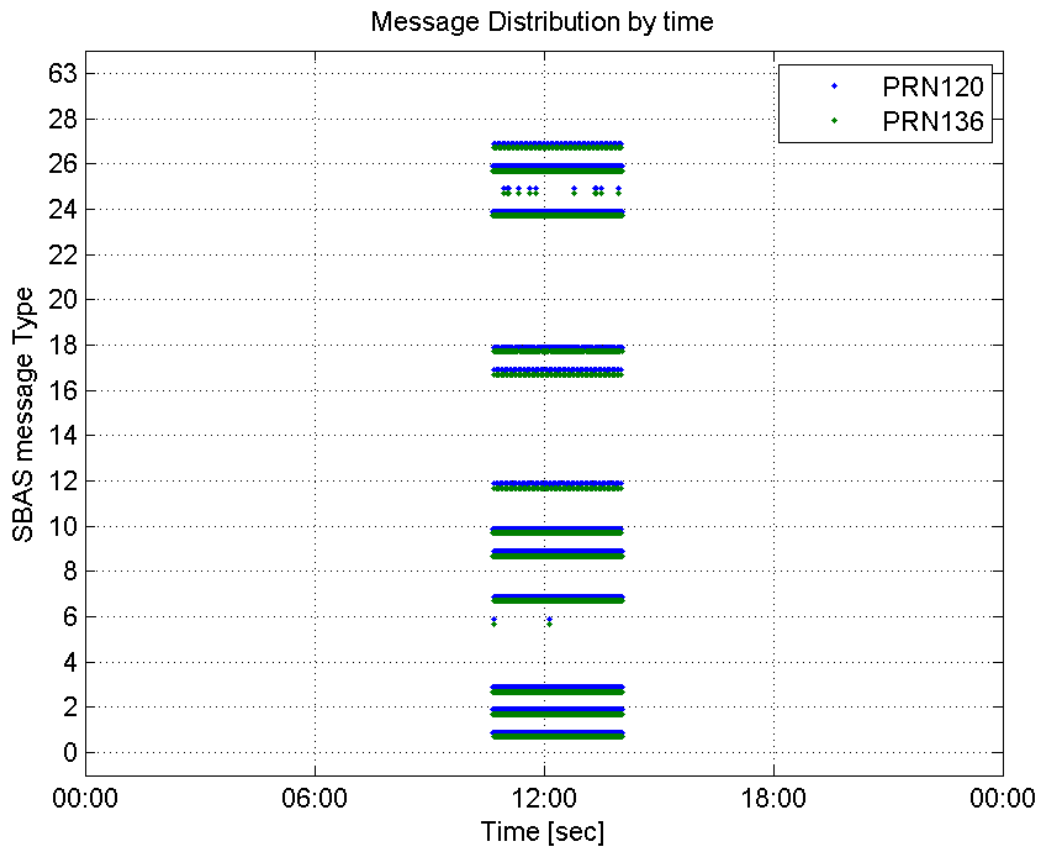
## SBAS SIS Overview

## Message Type 6 repetitions :

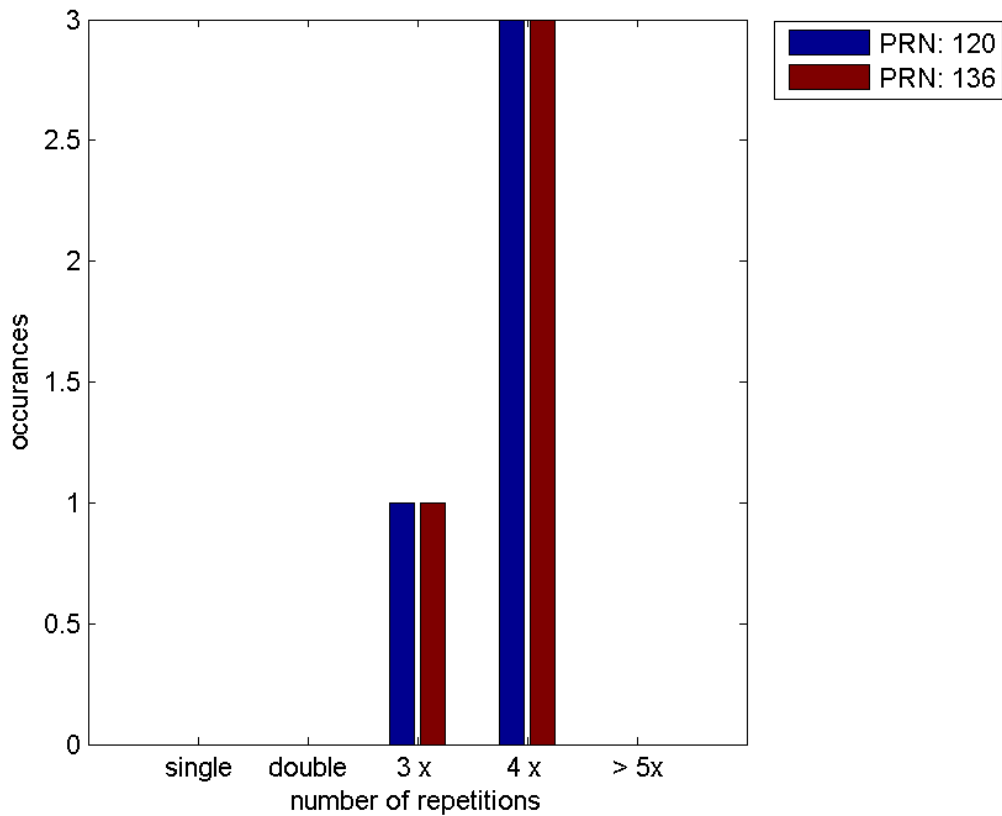
	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	3	0

PRN 136	0	0	1	3	0
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Message Distribution by time:



Message Type 6 repetitions:



## SBAS SIS Analysis

PRN 120

## Broadcast SBAS Messages :

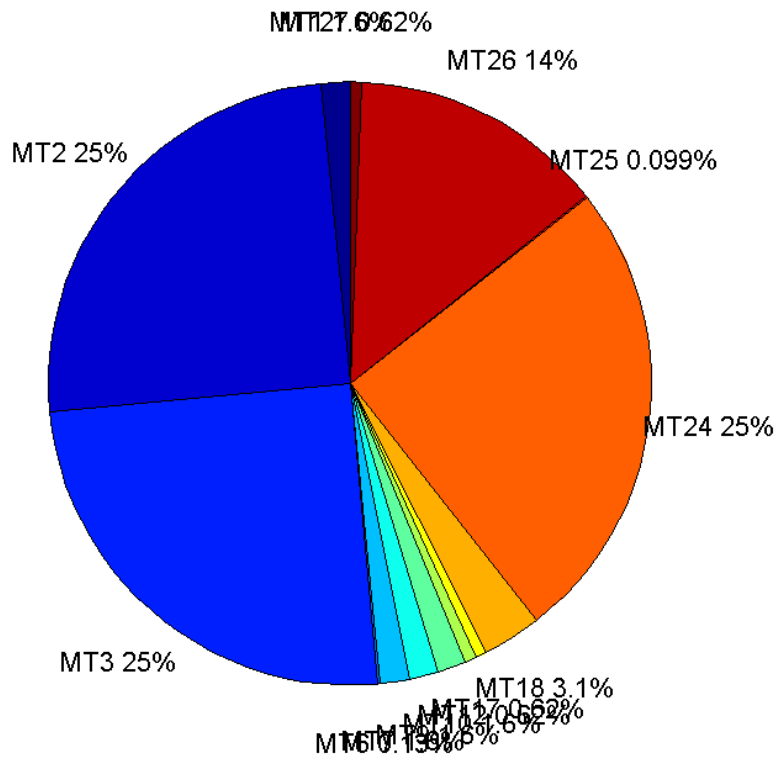
	number of messages	%
MT 0	0	0
MT 1	189	1.55415
MT 2	3035	24.9568
MT 3	3035	24.9568
MT 4	0	0
MT 5	0	0
MT 6	16	0.131568
MT 7	189	1.55415
MT 9	189	1.55415
MT 10	189	1.55415
MT 12	75	0.616726
MT 17	75	0.616726
MT 18	378	3.1083
MT 24	3035	24.9568
MT 25	12	0.0986761
MT 26	1668	13.716
MT 27	76	0.624949
MT 28	0	0
MT 62	0	0
MT 63	0	0
<b>Total</b>	12161	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	73	64.3617	0	0	0
MT 2	4	8	4.00659	4	0	0
MT 3	4	8	4.00659	4	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5185	349.2	3	3	3
MT 7	64	75	64.383	0	0	0
MT 9	64	75	64.3617	0	0	0
MT 10	64	72	64.3617	0	0	0
MT 12	160	171	160.581	74	0	0
MT 17	156	175	160.527	0	0	0
MT 18	4	139	31.9788	0	0	0

MT 24	4	8	4.00659	0	0	0
MT 25	34	3551	983.545	0	0	0
MT 26	4	26	7.29214	0	0	0
MT 27	156	175	160.587	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

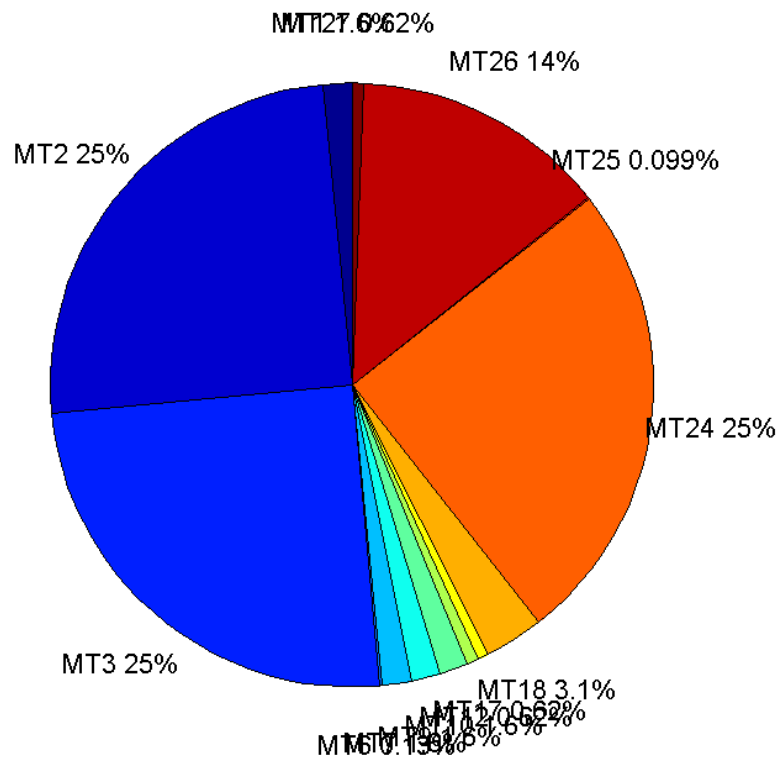
	number of messages	%
MT 0	0	0
MT 1	189	1.55415
MT 2	3035	24.9568
MT 3	3035	24.9568
MT 4	0	0
MT 5	0	0

MT 6	16	0.131568
MT 7	189	1.55415
MT 9	189	1.55415
MT 10	189	1.55415
MT 12	75	0.616726
MT 17	75	0.616726
MT 18	380	3.12474
MT 24	3035	24.9568
MT 25	12	0.0986761
MT 26	1666	13.6995
MT 27	76	0.624949
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	12161	100

## Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	75	64.3617	0	0	0
MT 2	4	8	4.00659	4	0	0
MT 3	4	8	4.00659	4	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5185	349.2	3	3	3
MT 7	64	75	64.383	0	0	0
MT 9	64	73	64.3617	0	0	0
MT 10	64	72	64.3617	0	0	0
MT 12	156	175	160.527	74	0	0
MT 17	156	175	160.581	0	0	0
MT 18	4	139	31.8839	0	0	0
MT 24	4	8	4.00659	0	0	0
MT 25	34	3551	983.545	0	0	0
MT 26	4	25	7.2985	0	0	0
MT 27	160	175	160.64	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/2016_02_19EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_19EGNOS/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:** 10:39:58 19.02.2016 ( week: 1884 sec: 470398 )  
**end:** 14:02:38 19.02.2016 ( week: 1884 sec: 482558 )  
**duration:** 03:22:41 ..

## quality

valid samples 11798

total samples 12161

## Event tables

Position discontinuity events type no (0)  
 APV-I discontinuity events type long  
 APV-35m discontinuity events type long  
 LPV-200 discontinuity events type long  
 CAT-I discontinuity events type nothing

## extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	482542	1.42756	9.3327	0.152963	0.976659	13.6567	0.071515
max normVer	477113	0.874727	12.8979	0.0678193	2.163	18.459	0.117178
max HPE	475206	8.71144	377.956	0.0230488	-1.0791	99.085	0.0108906
max VPE	475210	3.71844	384.353	0.00967453	2.94398	100.771	0.0292146
min HPL	479150	0.792118	8.49495	0.0932457	-0.550204	15.8431	0.0347283
min VPL	482557	1.35177	9.37033	0.144261	0.930261	13.6174	0.0683141

## APV-I discontinuity events :

#	Epoch	duration	stable period
1	474495	338	3734
2	474903	447	70
3	475497	32	1

## APV-35m discontinuity events :

#	Epoch	duration	stable period
1	474495	338	3734
2	474903	447	70
3	475497	32	1
4	479150	160	3574

## LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	474495	338	3734
2	474903	447	70
3	475497	32	1
4	479150	160	3574



Duration	12161
Number of Samples	12161
Number of invalid sample	363
Number of no position solution samples	0
Number of missing sample	0
Logging Loss	0
Processing Loss	2.985
Number of Misleading Information	0
Data gaps	0
Discontinuities	0

## Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
11798	10952	10792	0	10792

## Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.34369	1.1776	1.17861	NaN	1.17861
HPEscale 95%	NaN	4.05583	4.0633	NaN	4.0633
VPE 95%	1.50245	1.47043	1.44635	NaN	1.44635
VPEscale 95%	NaN	4.01015	2.81172	NaN	2.81172

## Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	1	0.928293	0.914731	0	0.914731
measurements	0.97015	0.900584	0.887427	0	0.887427
Operational	0.97015	0.900584	0.887427	0	0.887427

## Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	--	21	22	--	22
Long	--	3	4	--	4
Independent	--	2	3	--	3
P(disc.)	NaN	0.00273923	0.00416976	NaN	0.00416976
P(slide)	NaN	0.00776114	0.00926612	NaN	0.00926612

## 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

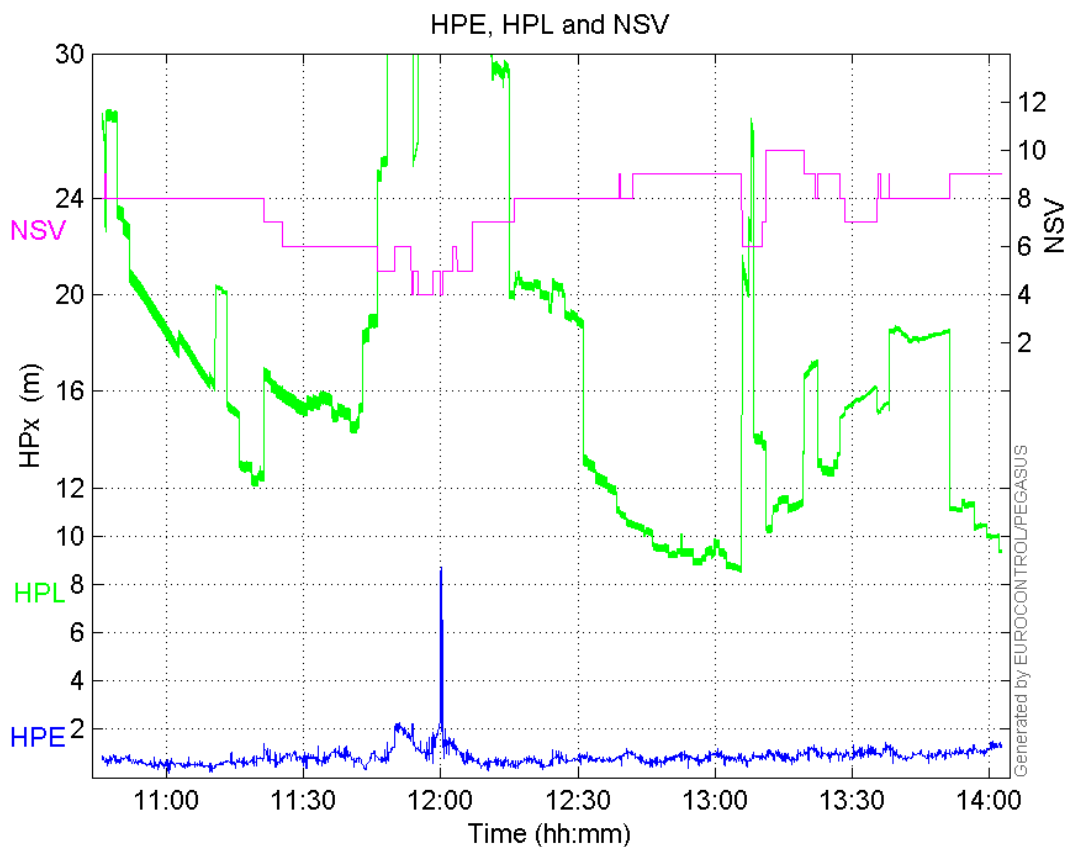
## Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	11798	10952	10792	0	10792
SIS Availability	1	0.928293	0.914731	0	0.914731
Local Availability	0.97015	0.900584	0.887427	0	0.887427

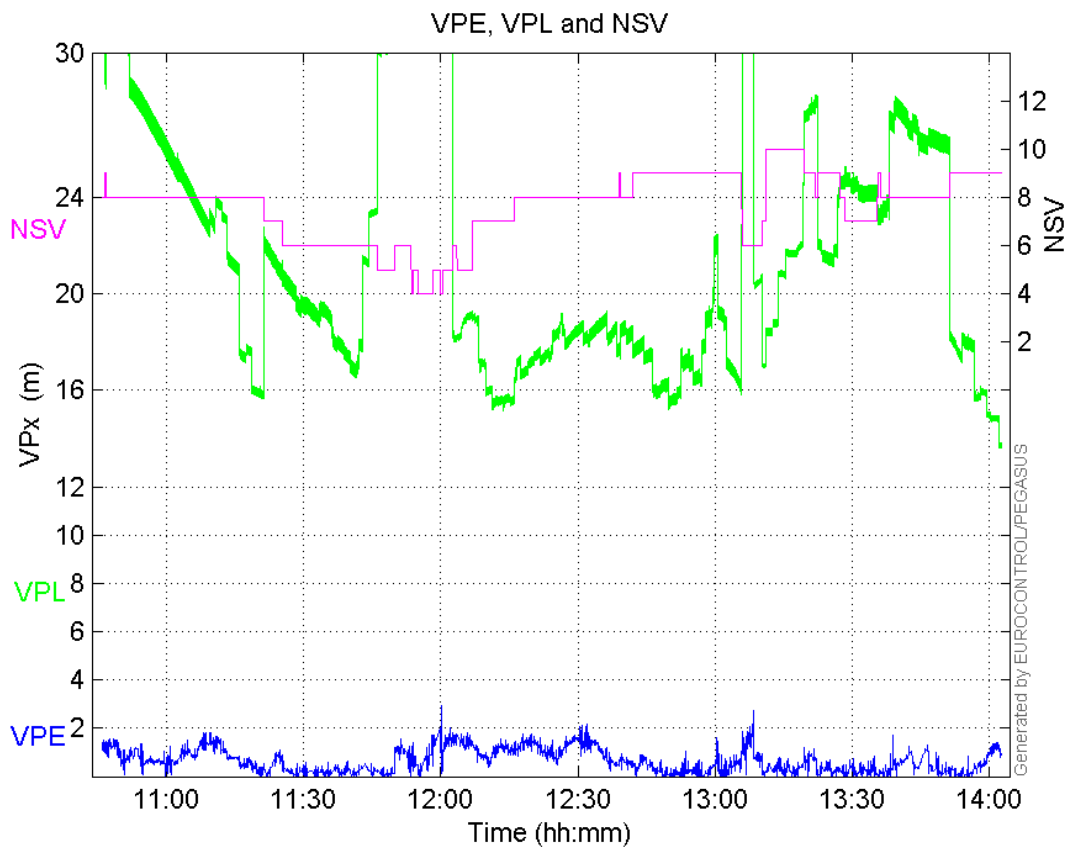
<b>Operational Availability</b>	0.97015	0.900584	0.887427	0	0.887427
<b>HPE 95%</b>	1.34369	1.1776	1.17861	NaN	1.17861
<b>HPEScale 95%</b>	NaN	4.05583	4.0633	NaN	4.0633
<b>VPE 95%</b>	1.50245	1.47043	1.44635	NaN	1.44635
<b>VPEscale 95%</b>	NaN	4.01015	2.81172	NaN	2.81172
<b>All Discontinuity Events</b>	--	21	22	--	22
<b>Long Discontinuity Events</b>	--	3	4	--	4
<b>Independent Discontinuity Events</b>	--	2	3	--	3
<b>P(discontinuity)</b>	NaN	0.00273923	0.00416976	NaN	0.00416976
<b>P(sliding window)</b>	NaN	0.00776114	0.00926612	NaN	0.00926612
<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:

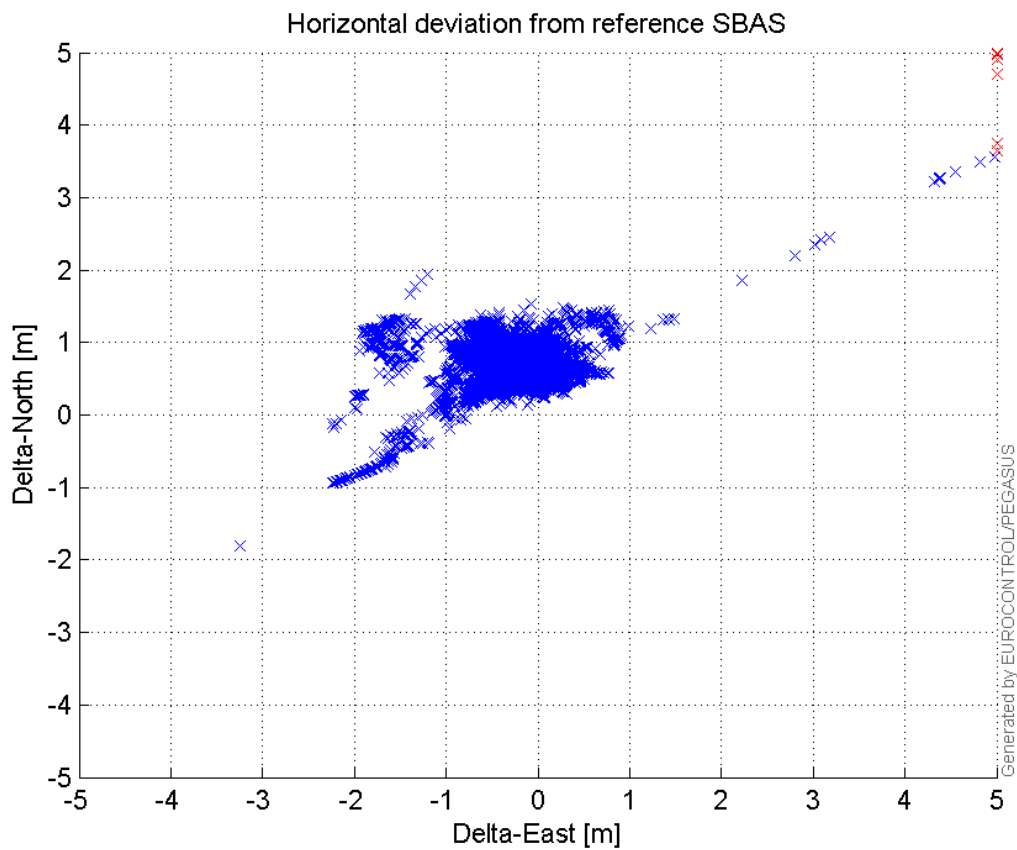


VPE, VPL and NSV:



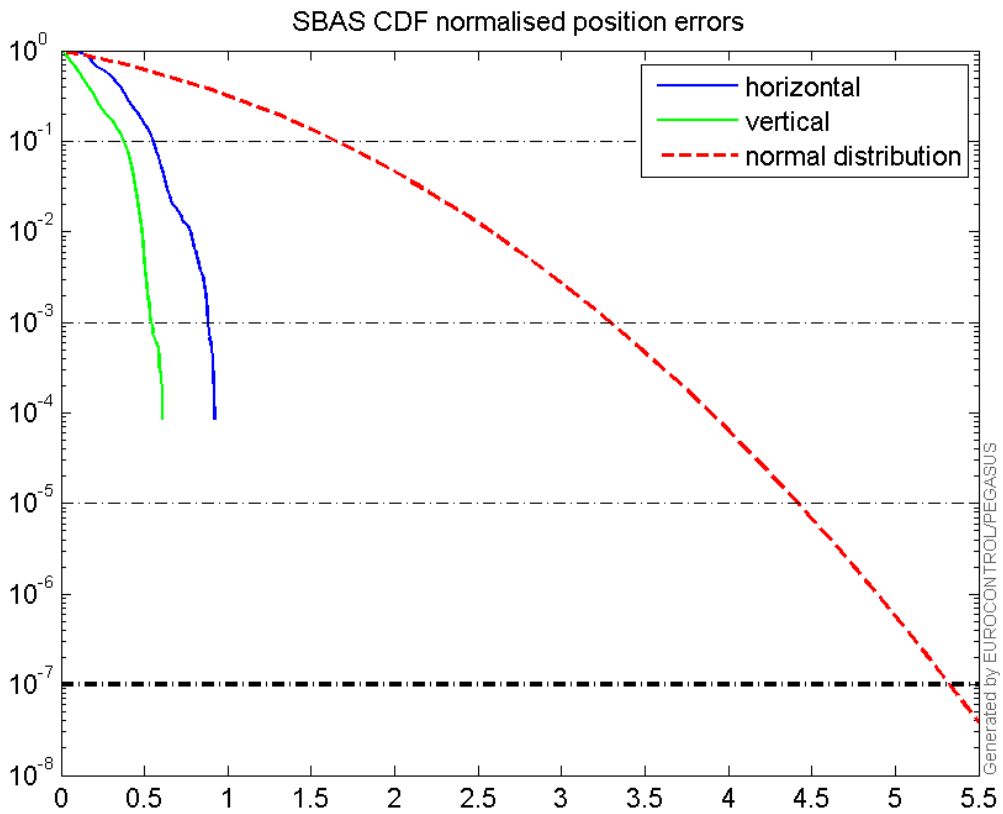
### Horizontal deviation

**Horizontal deviation from reference SBAS:**



CDF position

SBAS CDF position domain:



Statistics

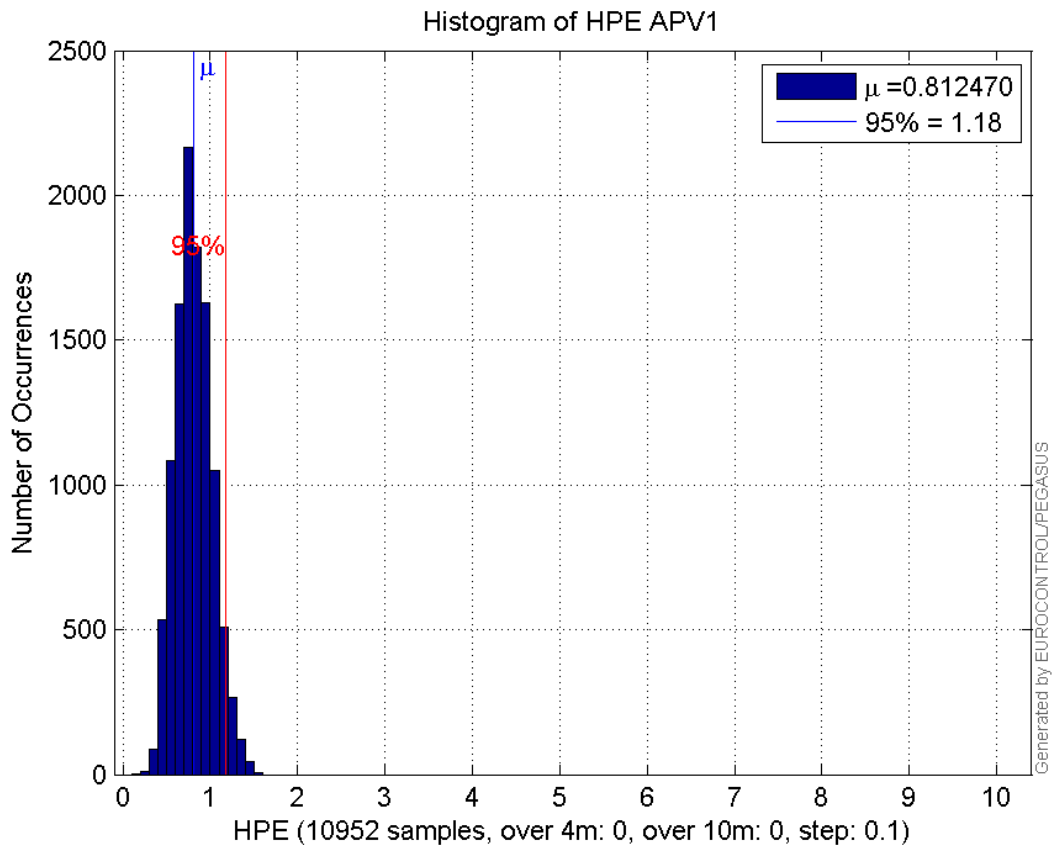
<b>number</b>	10952
<b>sum</b>	8898.1668
<b>sum2</b>	7699.4913
<b>prctile95</b>	1.1775956
<b>prctile99</b>	1.3468121
<b>number</b>	10952
<b>sum</b>	6930.4164
<b>sum2</b>	6728.0932
<b>prctile95</b>	1.4704296
<b>prctile99</b>	1.7018829
<b>number</b>	10952
<b>sum</b>	181238.26
<b>sum2</b>	3403981.7
<b>prctile95</b>	29.35893
<b>prctile99</b>	38.498174
<b>number</b>	10952
<b>sum</b>	232616.53
<b>sum2</b>	5205158.4
<b>prctile95</b>	30.46295
<b>prctile99</b>	38.646668
<b>number</b>	10952
<b>sum</b>	616.74828

**sum2** 42.032964  
**prctile95** 0.10139567  
**prctile99** 0.13005178  
**number** 10952  
**sum** 338.57566  
**sum2** 16.802825  
**prctile95** 0.080203048  
**prctile99** 0.091165555  
**number** 10792  
**sum** 8781.38  
**sum2** 7612.6088  
**prctile95** 1.1786125  
**prctile99** 1.3482772  
**number** 10792  
**sum** 6685.0093  
**sum2** 6318.2882  
**prctile95** 1.4463452  
**prctile99** 1.6402791  
**number** 10792  
**sum** 177619.47  
**sum2** 3321190.9  
**prctile95** 29.38772  
**prctile99** 38.51618  
**number** 10792  
**sum** 226332.08  
**sum2** 4958125.8  
**prctile95** 28.9399  
**prctile99** 33.191522  
**number** 10792  
**sum** 611.575  
**sum2** 41.86386  
**prctile95** 0.10158262  
**prctile99** 0.13023569  
**number** 10792  
**sum** 332.29718  
**sum2** 16.532232  
**prctile95** 0.080334939  
**prctile99** 0.091196941

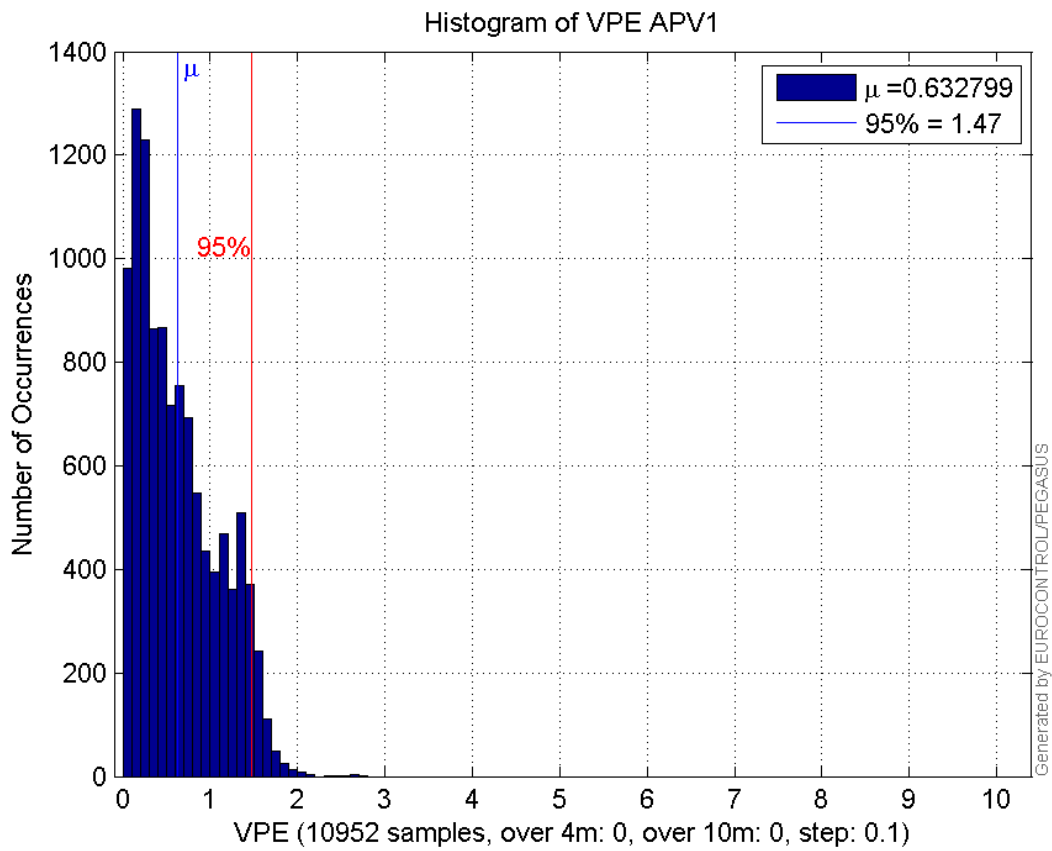
**Error and XPL Statistics :**

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
<b>HPE</b>	0.81247	0.207168	0.798684	1.1776	1.34681	0.838464
<b>HPL</b>	16.5484	6.07967	15.6813	29.3589	38.4982	17.6298
<b>VPE</b>	0.632799	0.462504	0.535962	1.47043	1.70188	0.783789
<b>VPL</b>	21.2396	4.91427	19.3124	30.4629	38.6467	21.8007

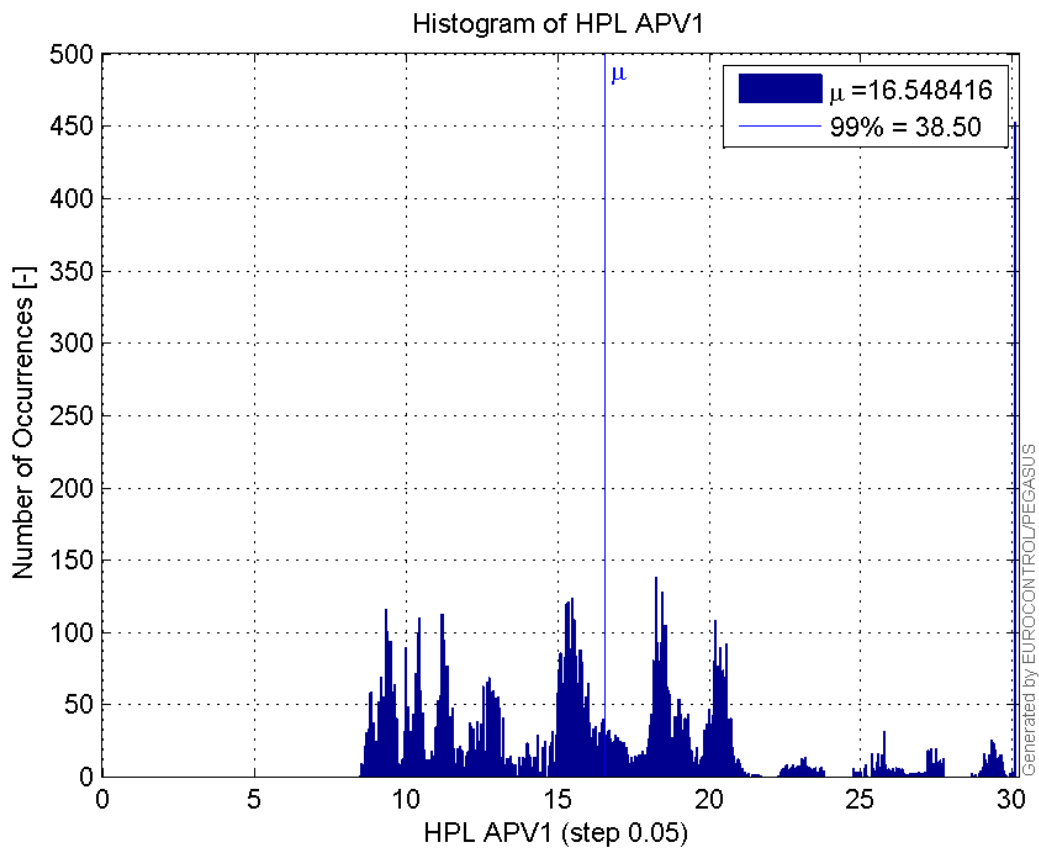
**Histogram of HPE APV1:**



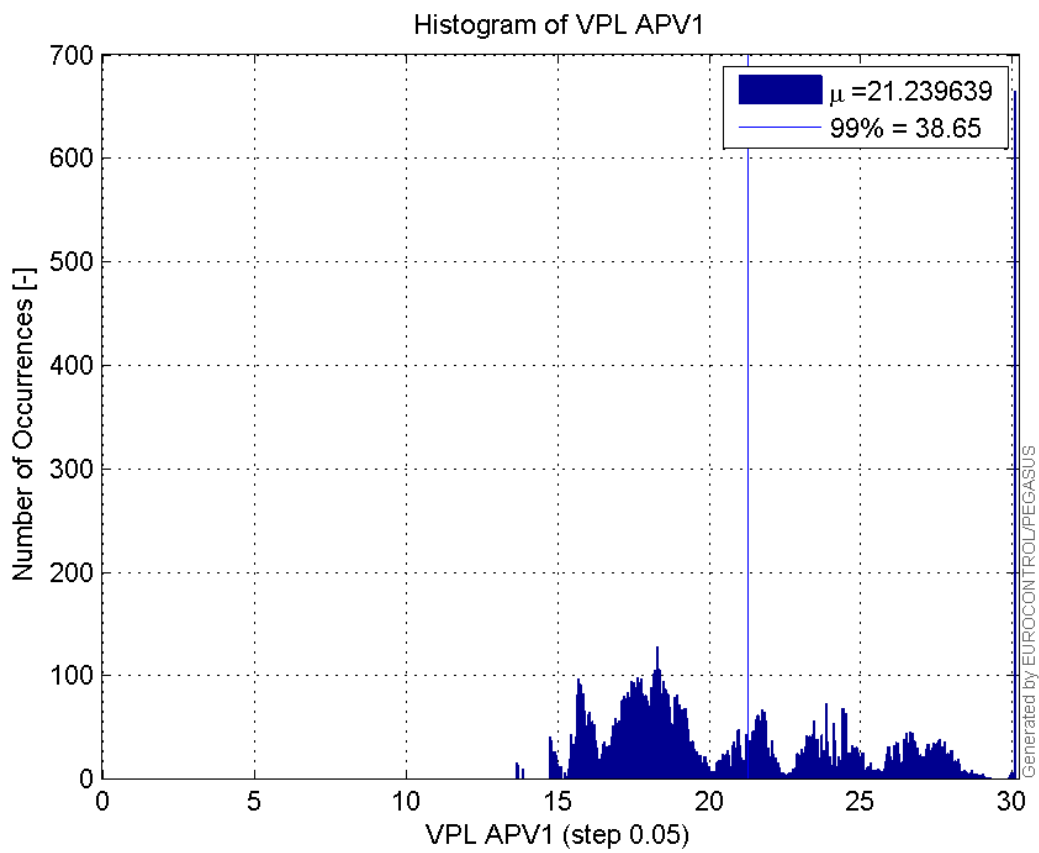
**Histogram of VPE APV1:**



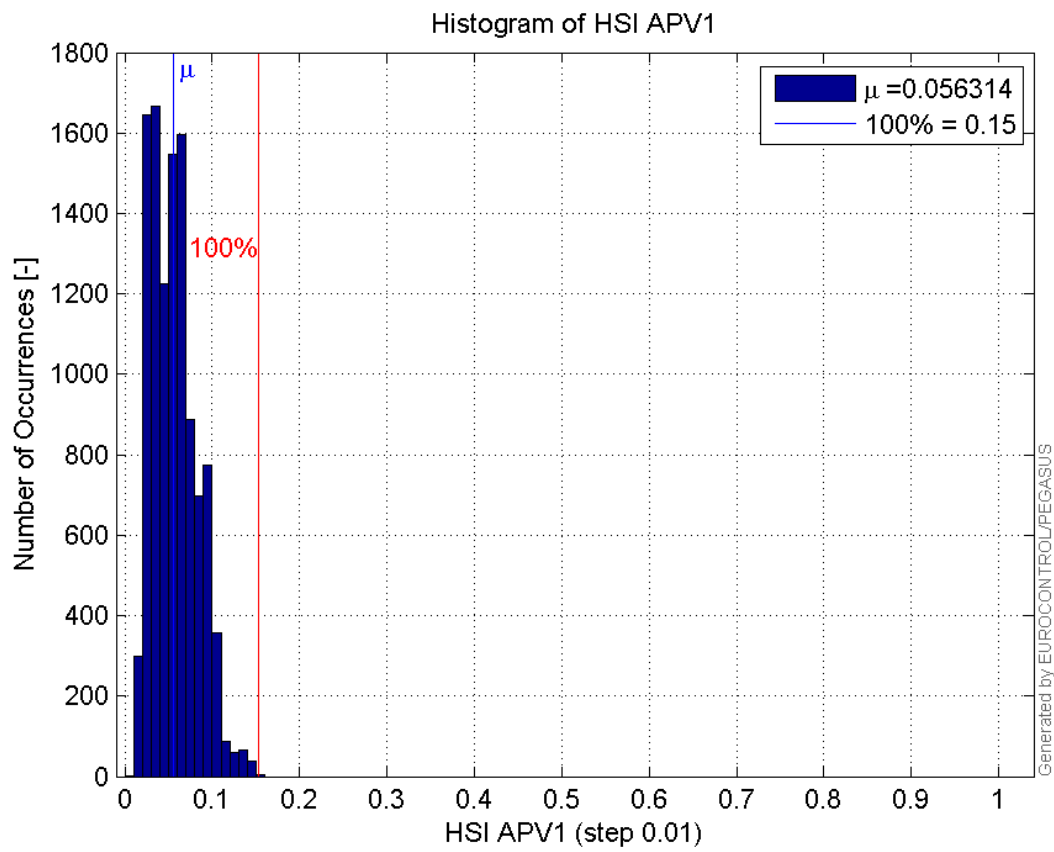
**Histogram of HPL APV1:**



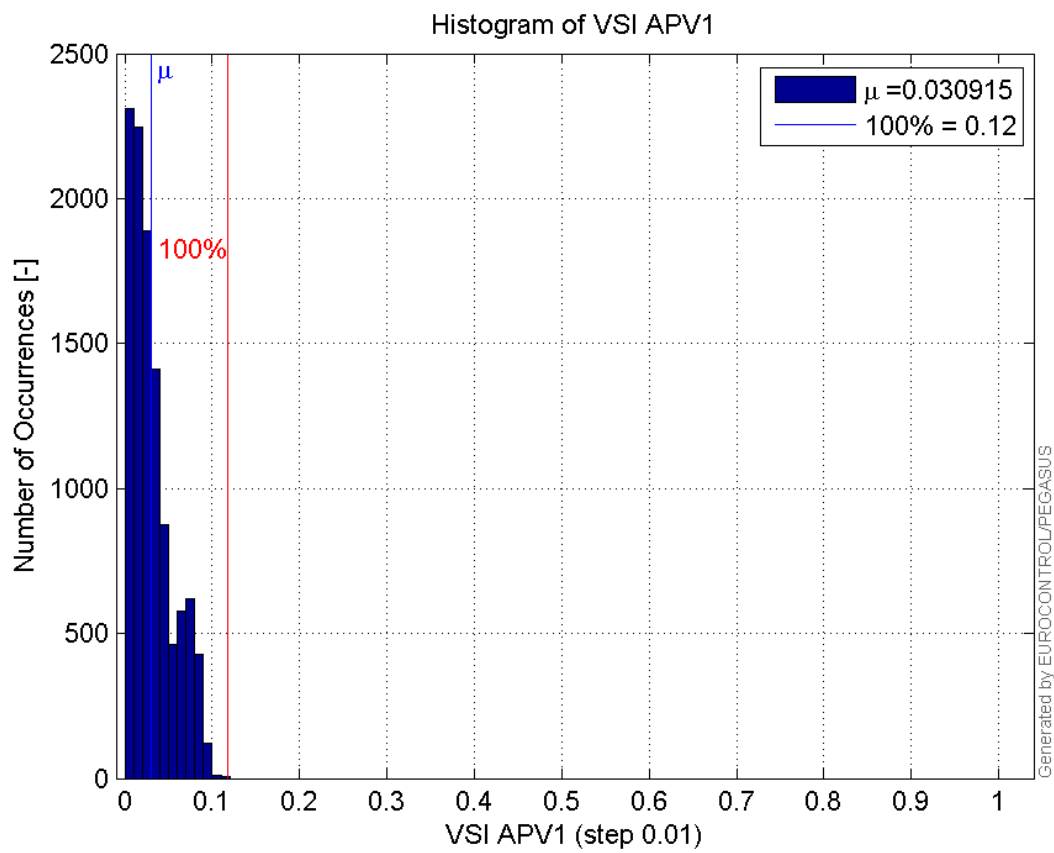
**Histogram of VPL APV1:**



**Histogram of HSI APV1:**

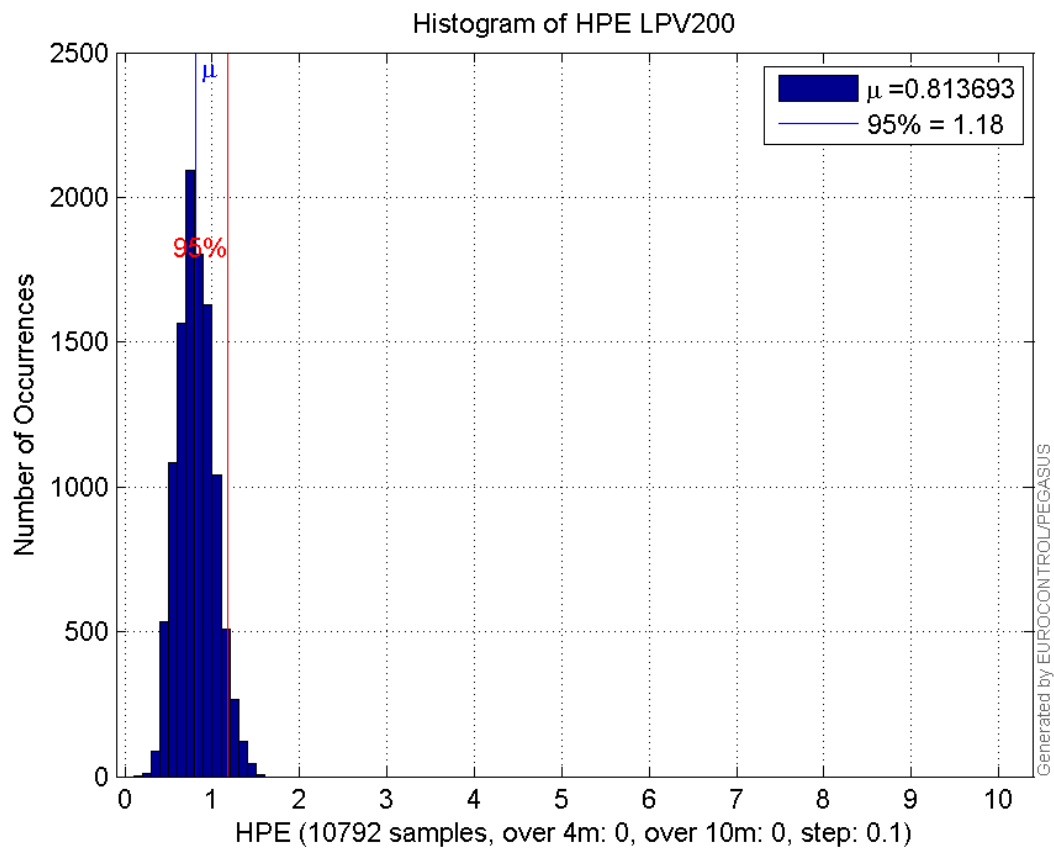


**Histogram of VSI APV1:**

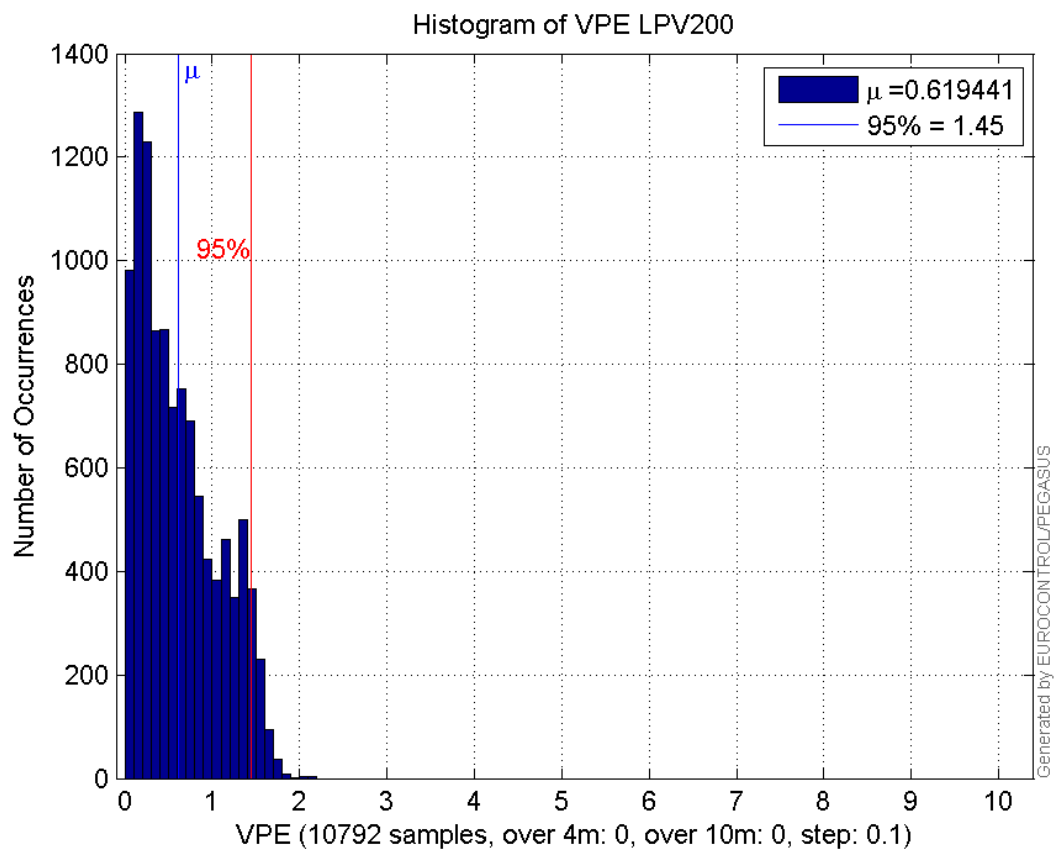


**Histogram of HPE LPV200:**

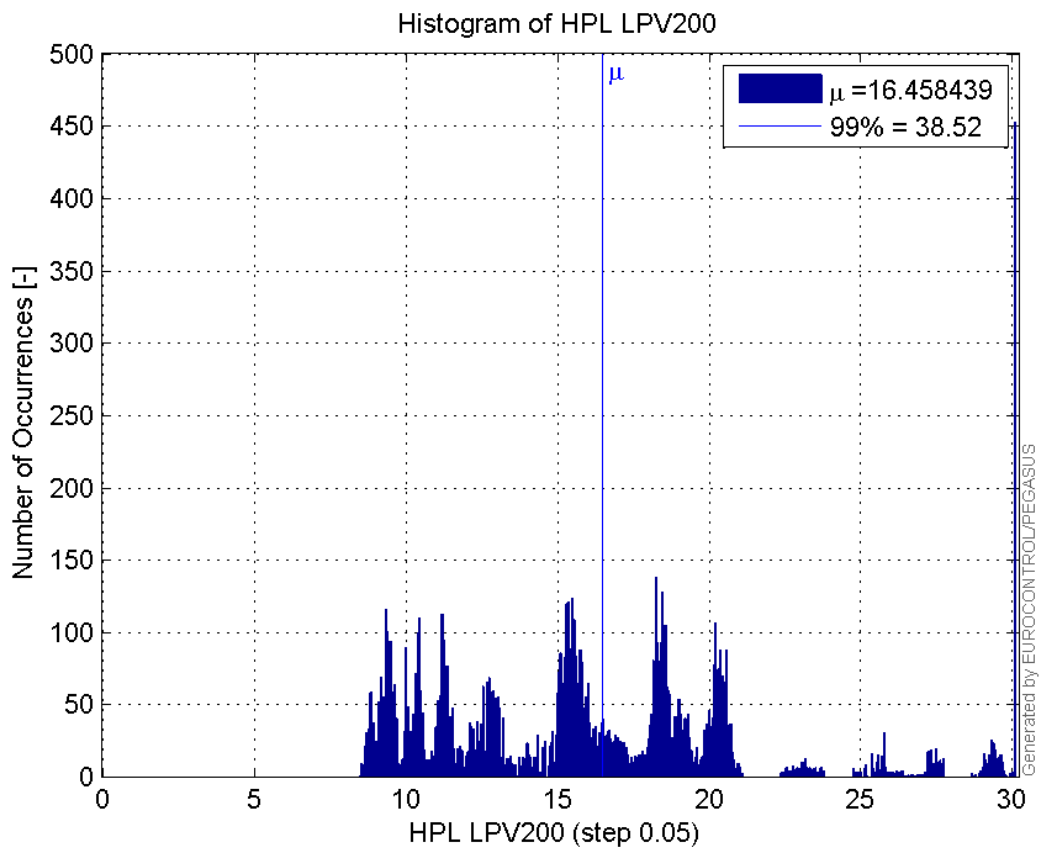




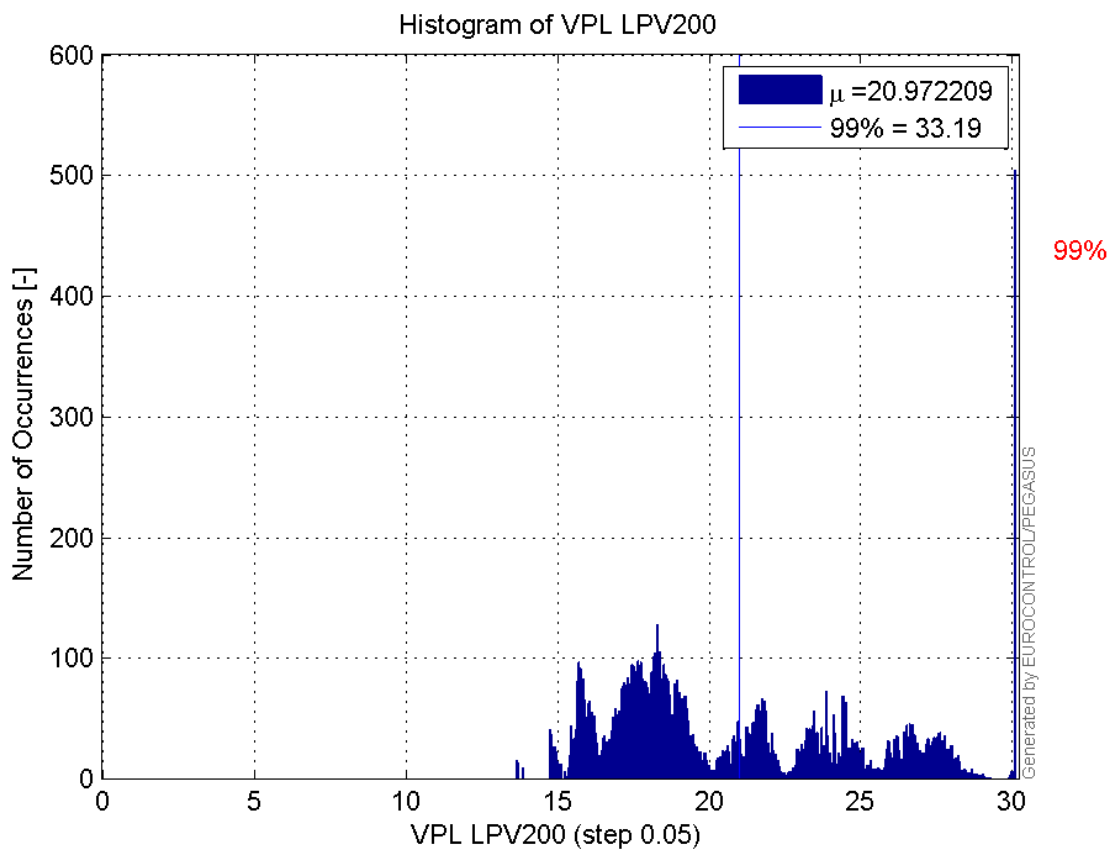
**Histogram of VPE LPV200:**



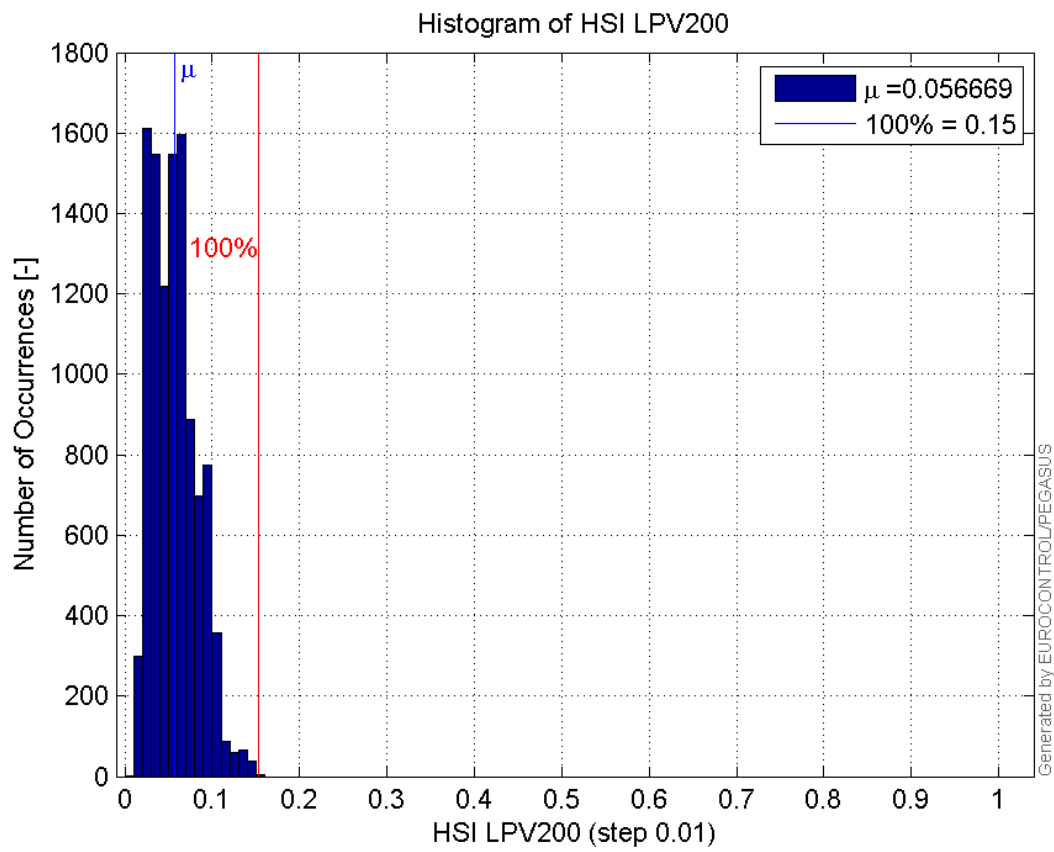
**Histogram of HPL LPV200:**



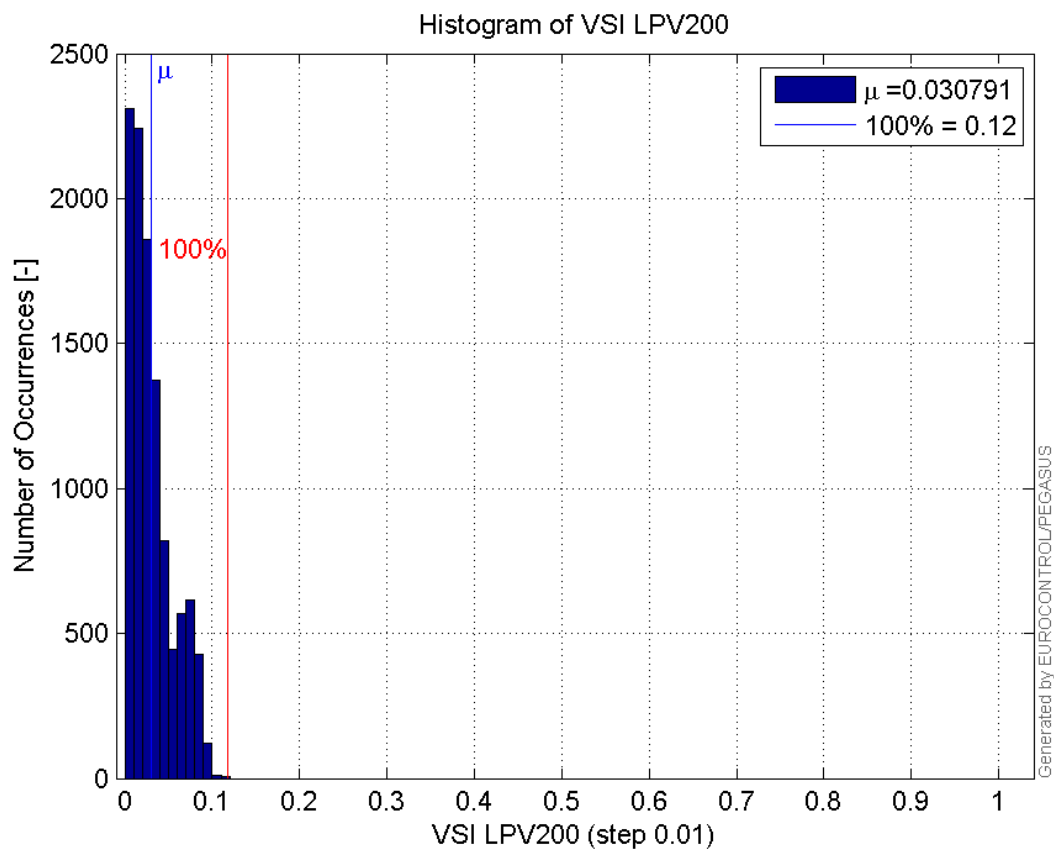
**Histogram of VPL LPV200:**



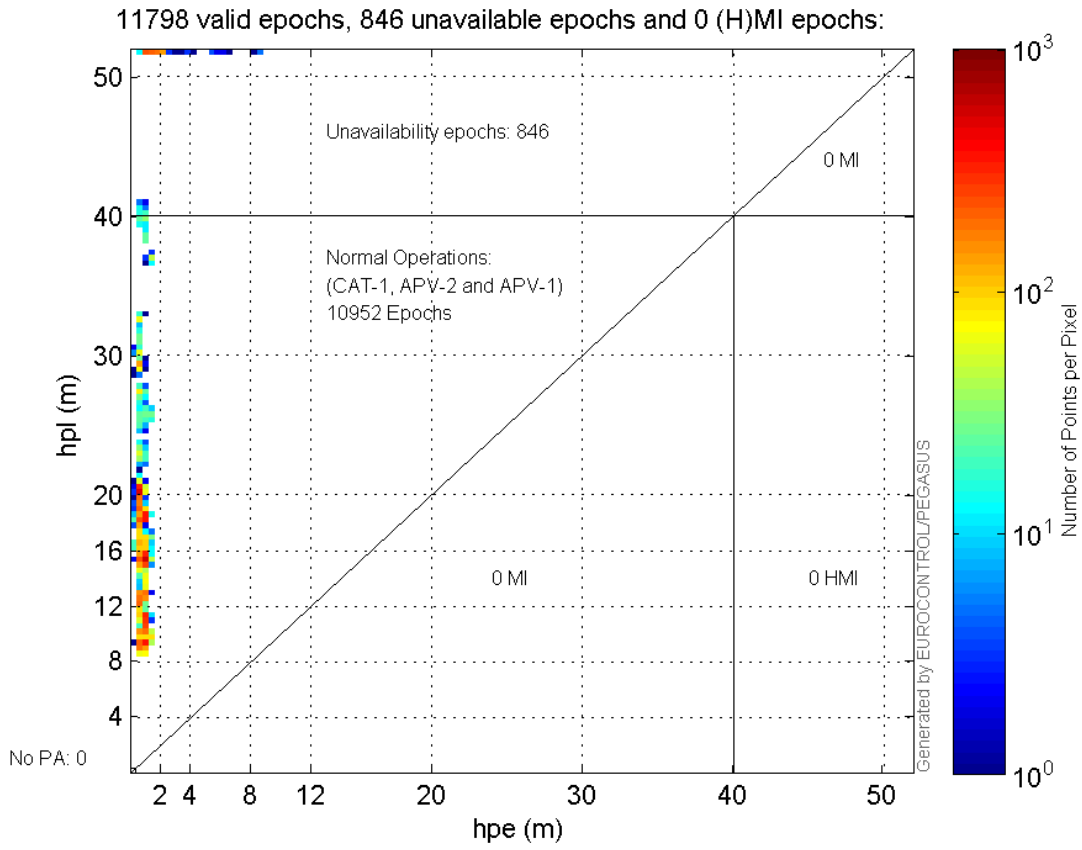
**Histogram of HSI LPV200:**



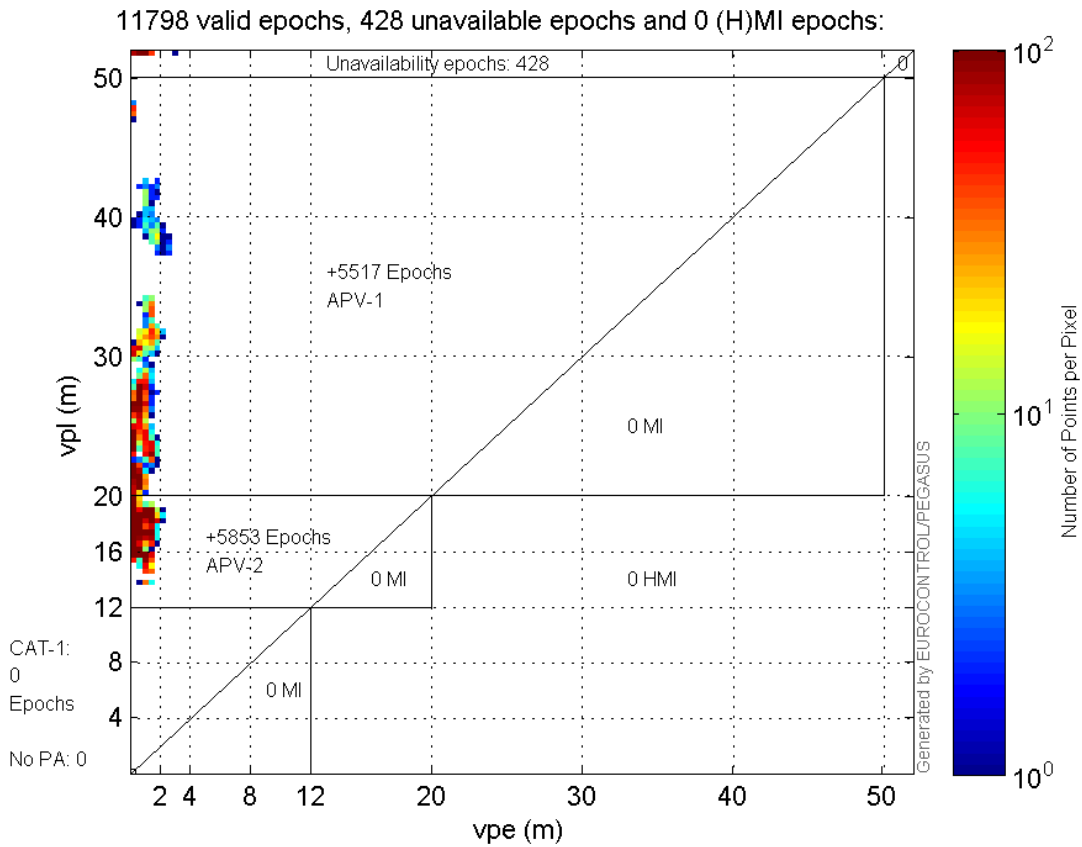
Histogram of VSI LPV200:



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



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



## Parameters

## system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateGob/job/2016_02_19EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_19EGNOS/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	30.4296
init_alt	results	228.2501
mi_numbers	results	0