

Global View

program Pegasus
version 4.8.2
site Laboratory satellite systems
abbreviation NAU
country Ukraine
city Kiev
comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
date 14/12/2015

Range Domain

start: 09:18:57 14.12.2015 (week: 1875 sec: 119937)
end: 15:20:40 14.12.2015 (week: 1875 sec: 141640)
duration: 06:01:44 ..

quality

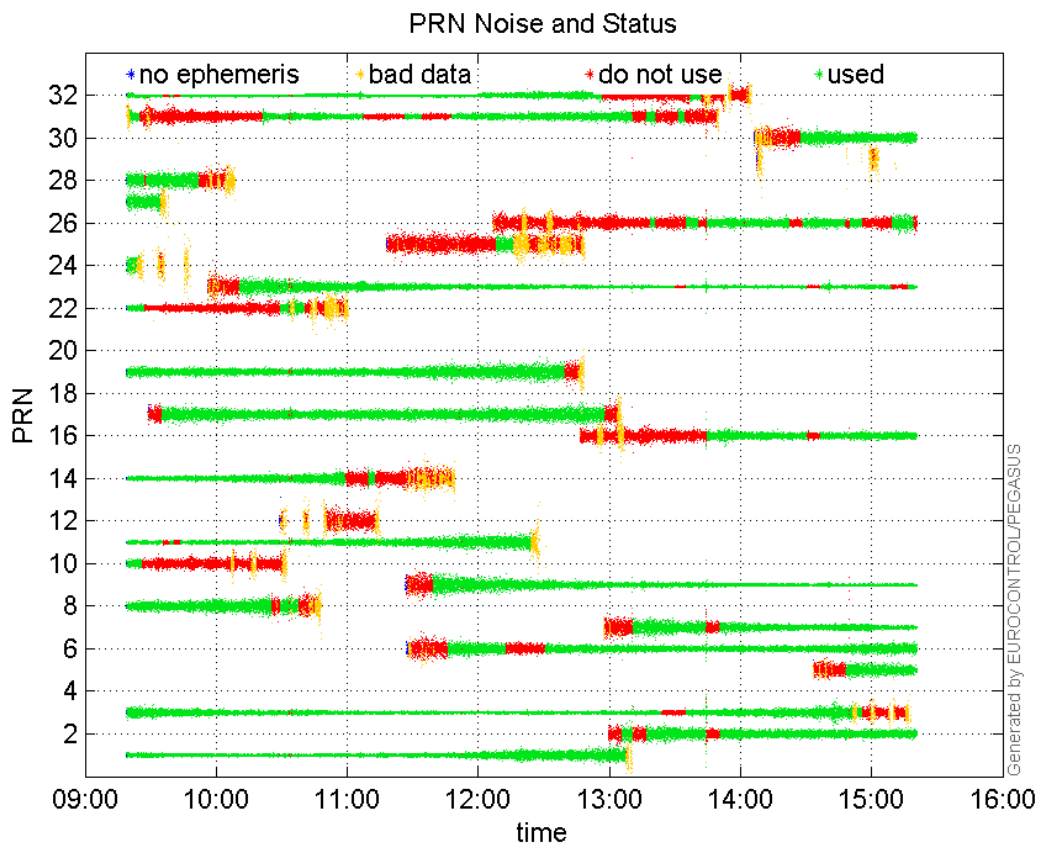
valid samples 21700
total samples 21700

PRN overview

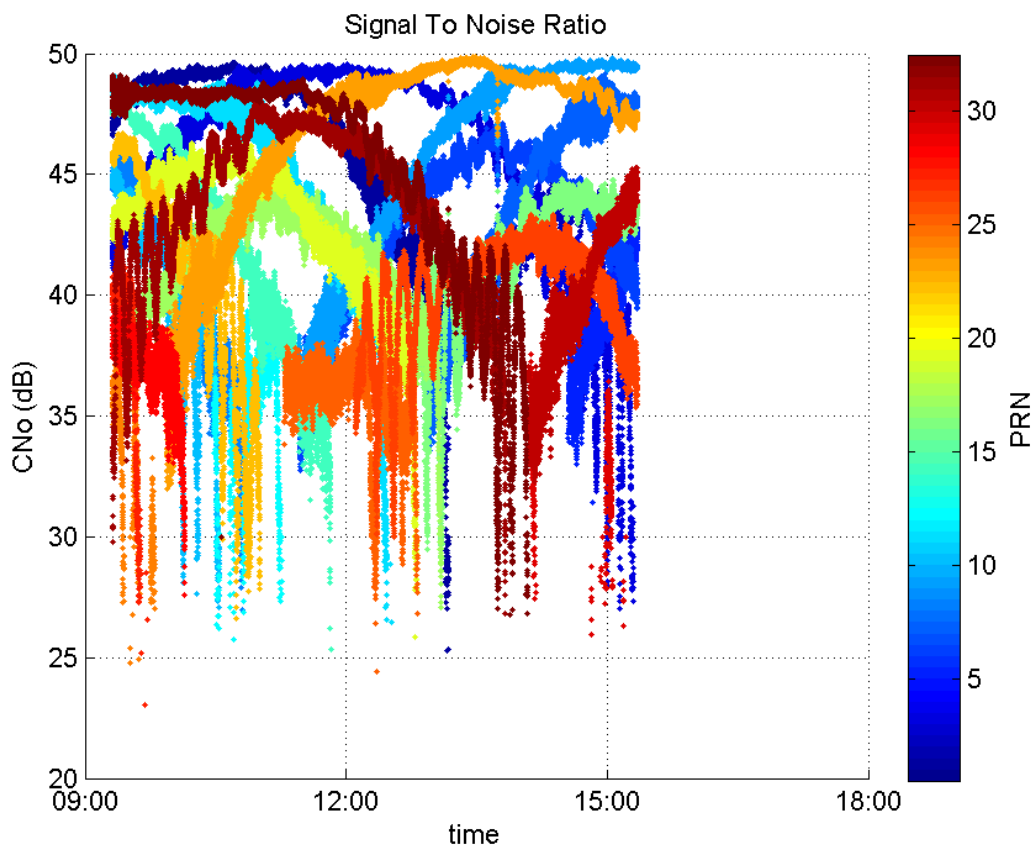
Number of Visible GPS Satellites 26
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



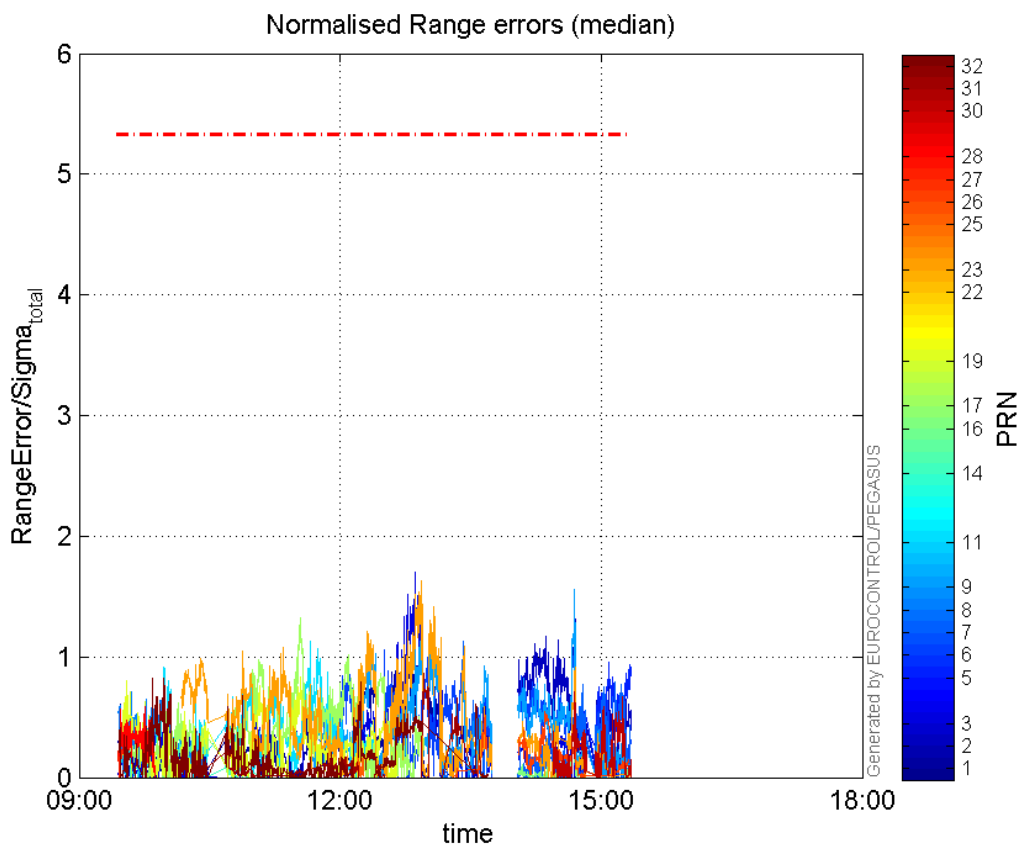
range errors

Number of Overbounding Norm Errors 0

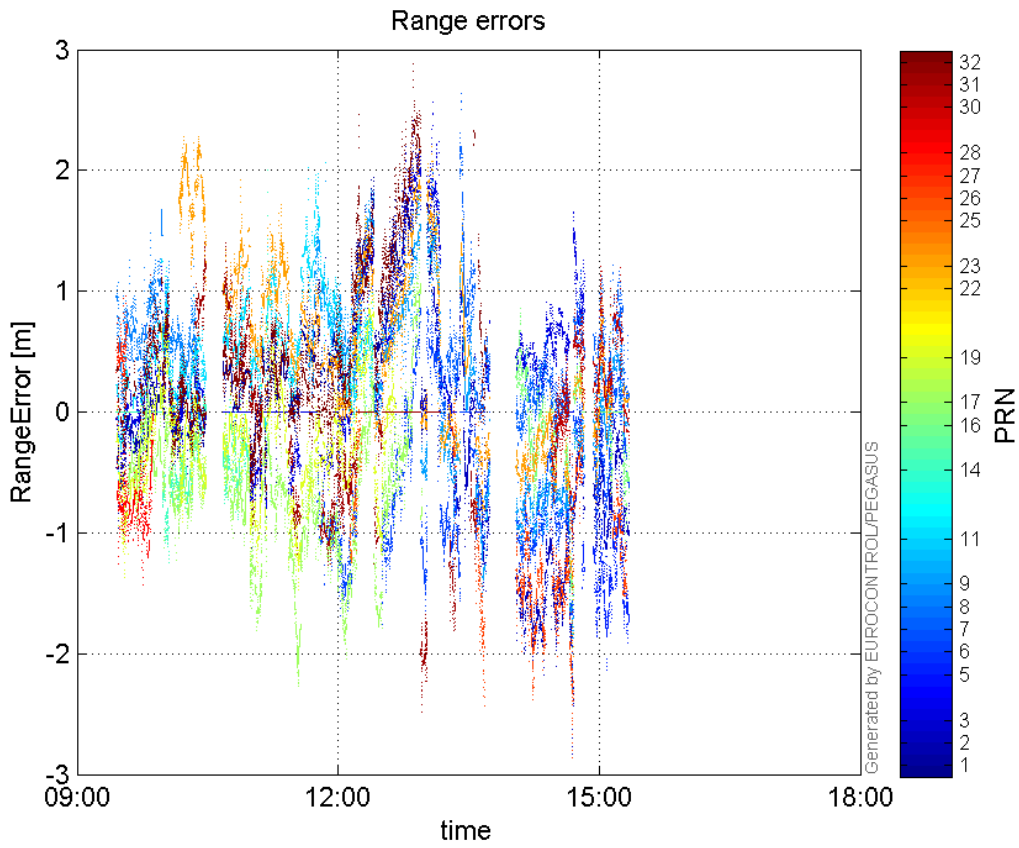
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1875	132401	1	1.14186	2.1988	1.92563
1875	139307	2	1.52199	-2.83168	1.86051
1875	132697	3	1.70379	2.40809	1.41337
1875	140714	5	0.957064	-2.13838	2.23431
1875	139307	6	1.216	-2.11802	1.74179
1875	134699	7	1.12626	2.63405	2.33877
1875	122277	8	0.871128	1.66632	1.91283
1875	139307	9	1.55792	-2.29423	1.47263
1875	128347	11	1.1289	2.02876	1.79712
1875	122972	14	0.302654	-0.798975	2.63989
1875	139307	16	0.32576	-1.95118	5.98961
1875	127943	17	1.32558	-2.22235	1.67651
1875	127950	19	0.836868	-1.46919	1.75559
1875	120374	22	NaN	NaN	11.3884
1875	132963	23	1.63498	2.12054	1.29699
1875	130540	25	0.155326	-0.484062	3.11642
1875	138062	26	0.546128	-2.13306	3.90579
1875	120720	27	0.394738	0.937104	2.37399
1875	121528	28	0.592657	-1.43464	2.4207
1875	139307	30	0.705906	-1.50632	2.13388
1875	133061	31	0.862778	-2.48844	2.88422
1875	121820	32	0.82682	1.13442	1.37203

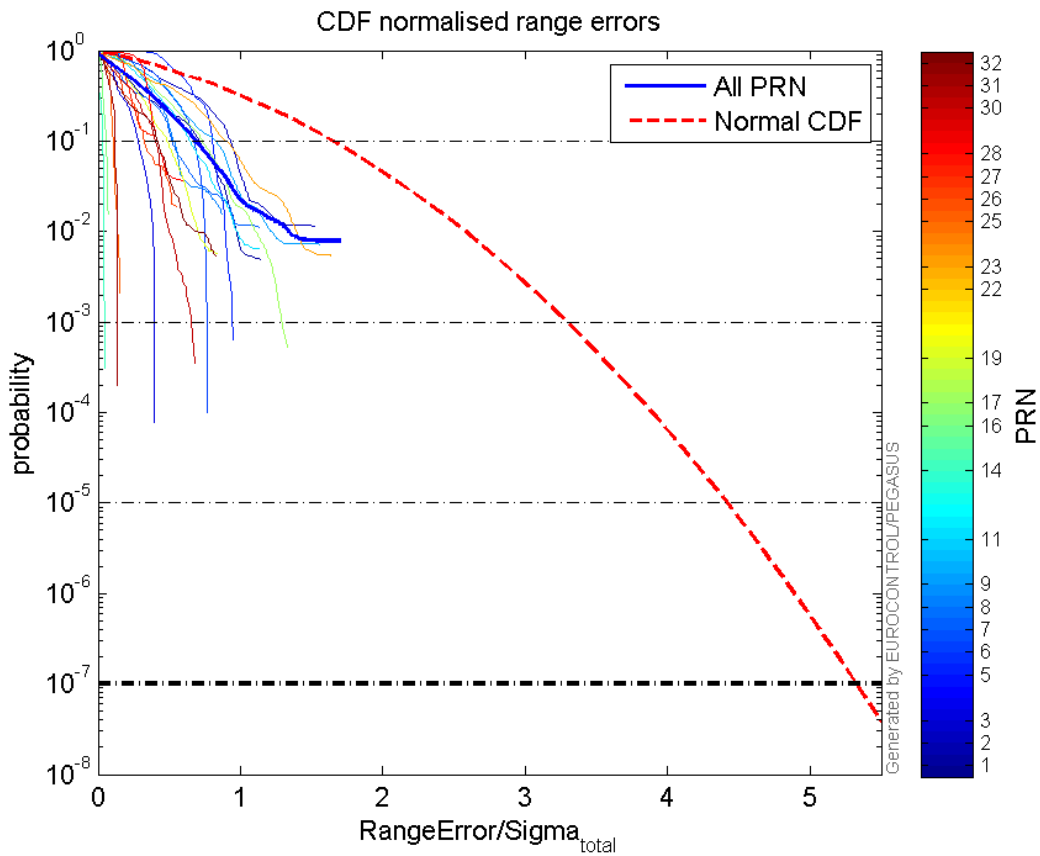
Normalised Range errors (median):



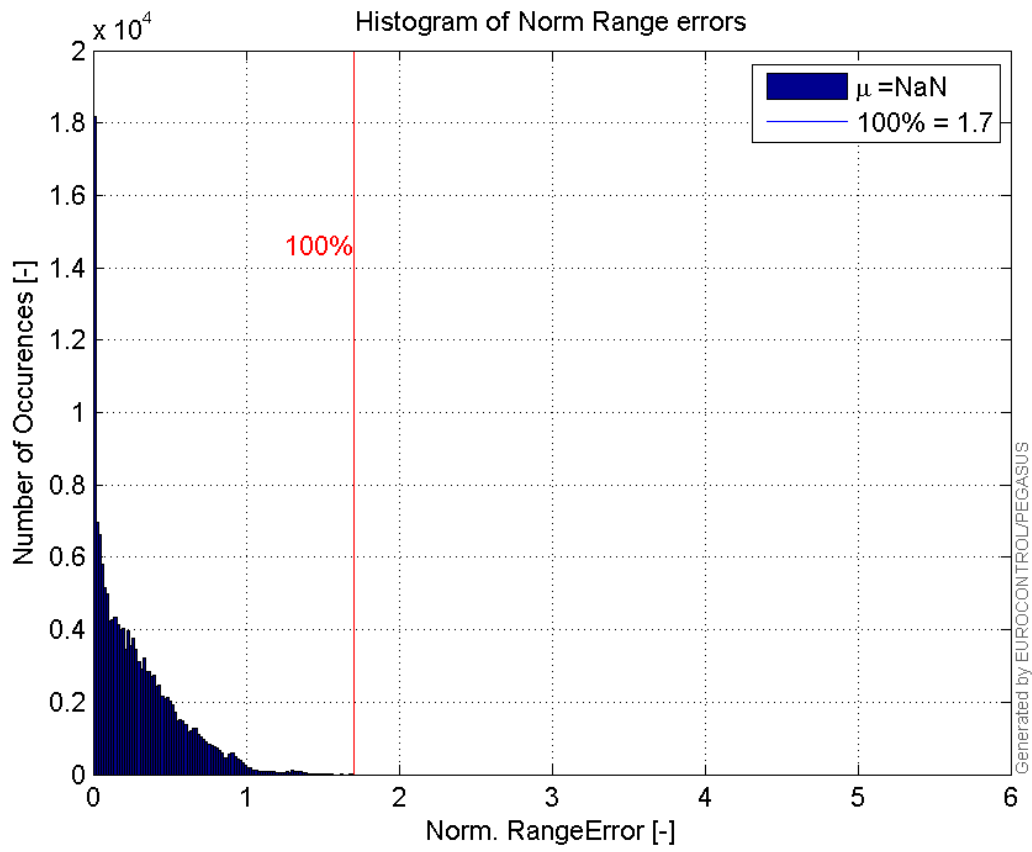
Range errors:



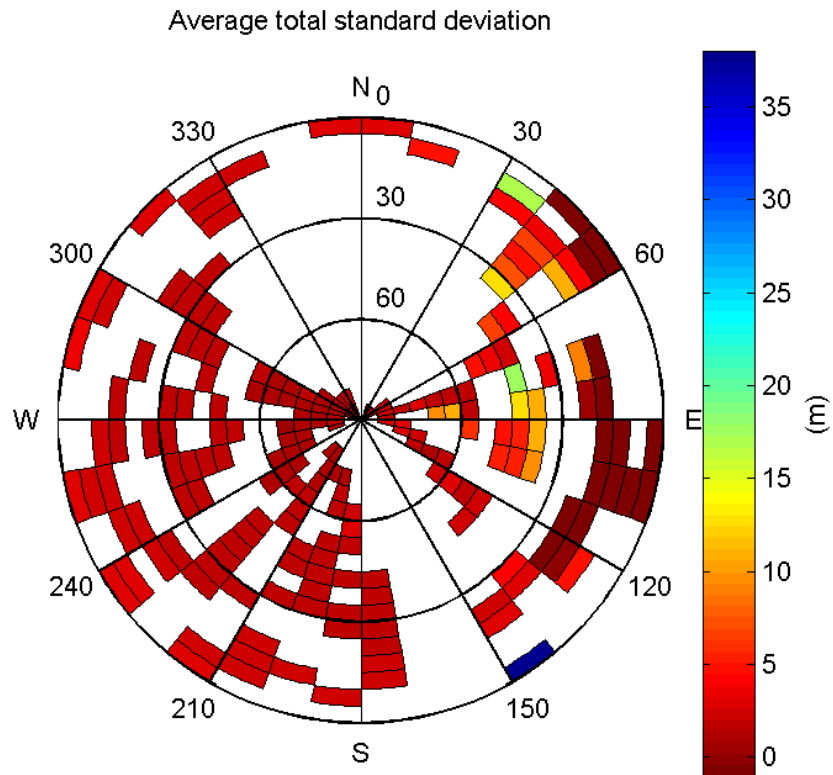
CDF normalised range errors:



Histogram of Norm Range errors:

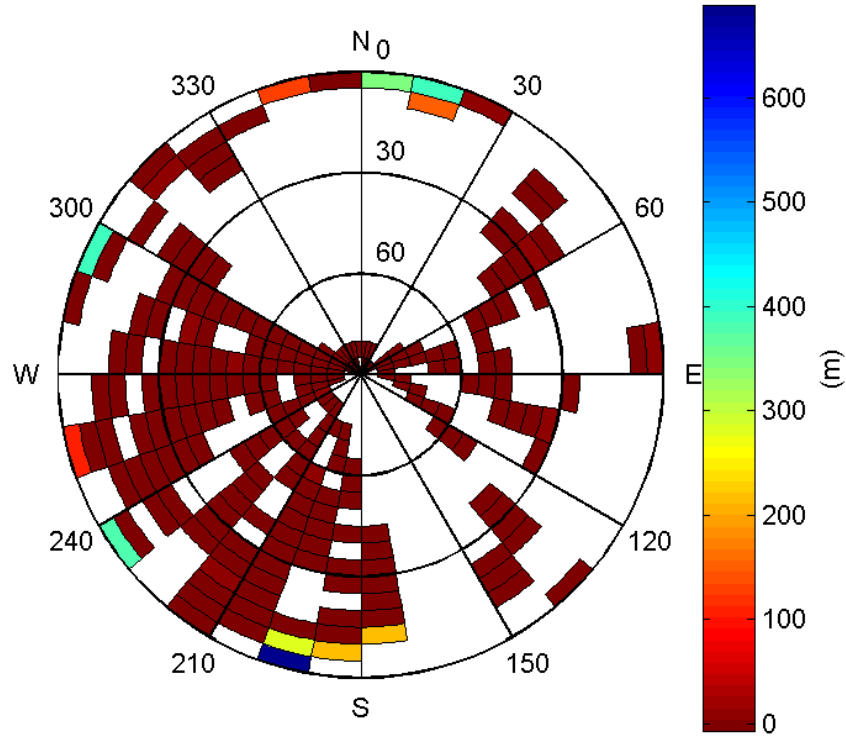


Sigma Sky Plot:



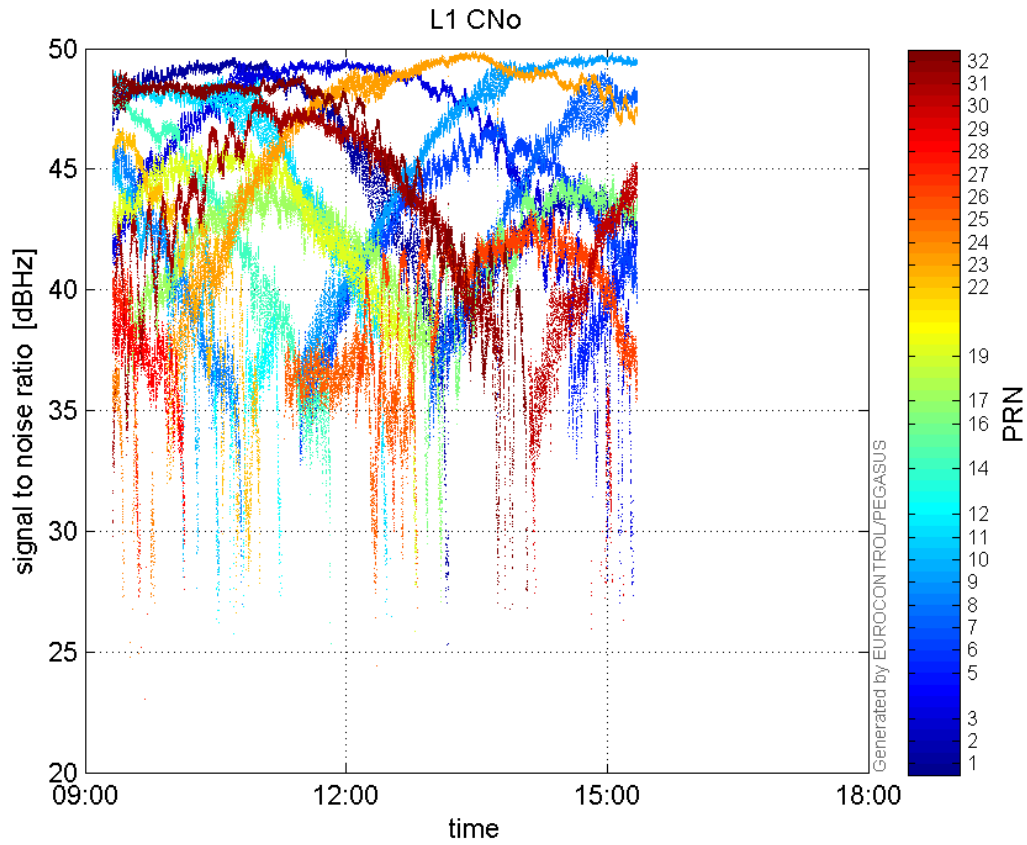
Norm Error Sky Plot:

Maximum Range Error

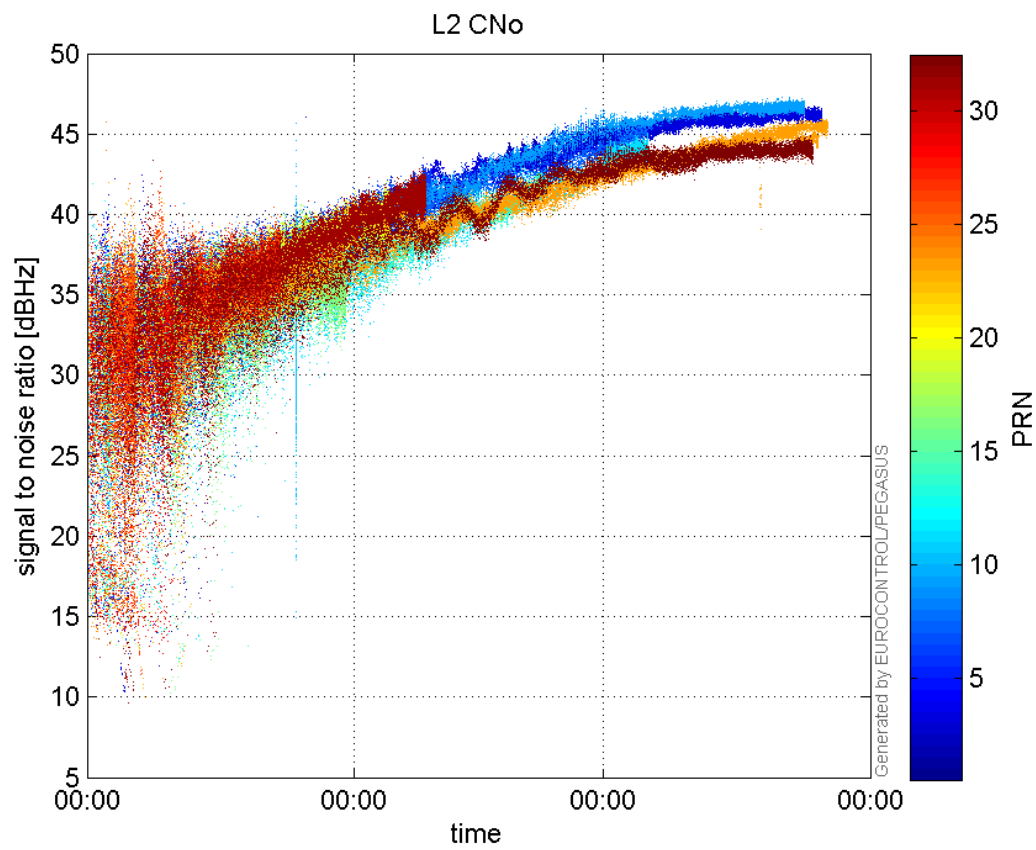


signal quality

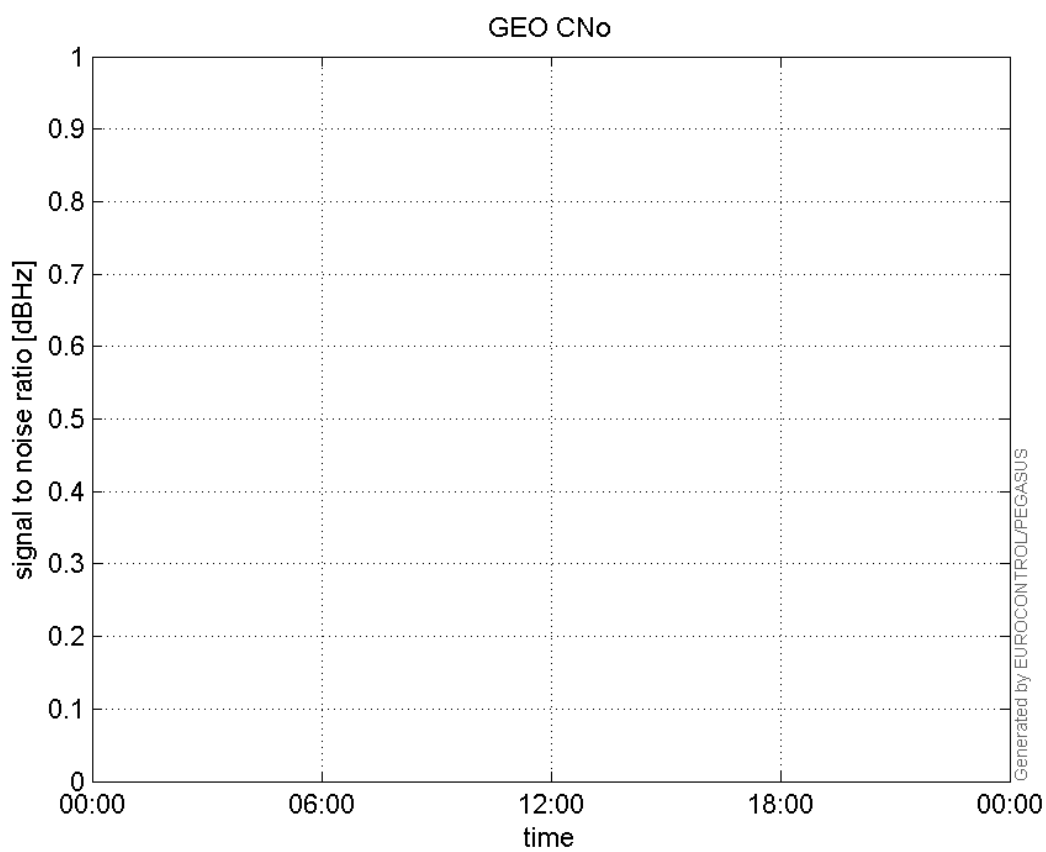
L1 CNo:



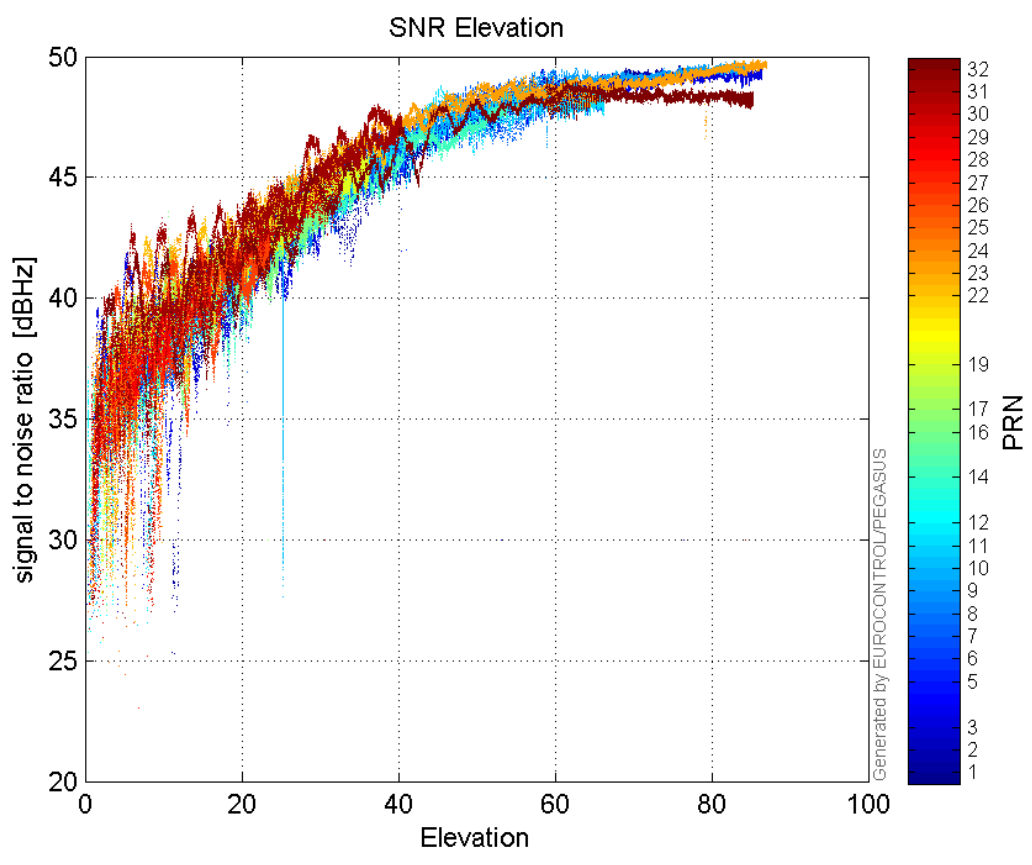
L2 CNo:



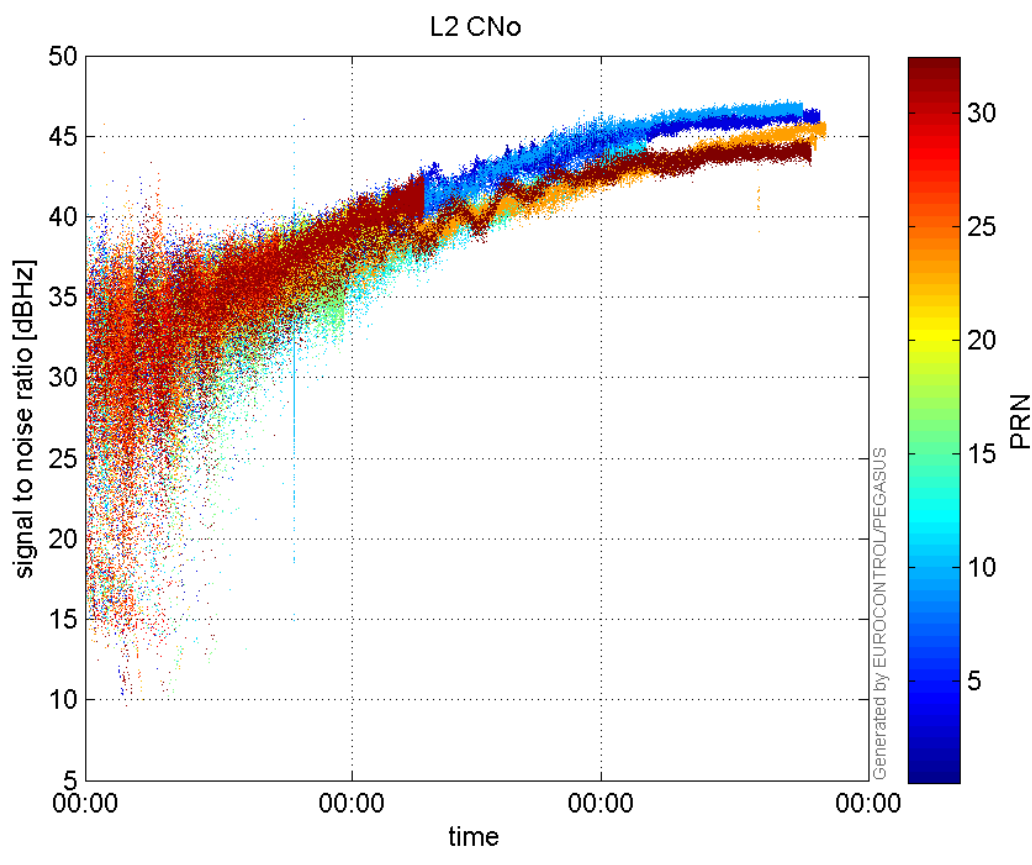
GEO CNo:



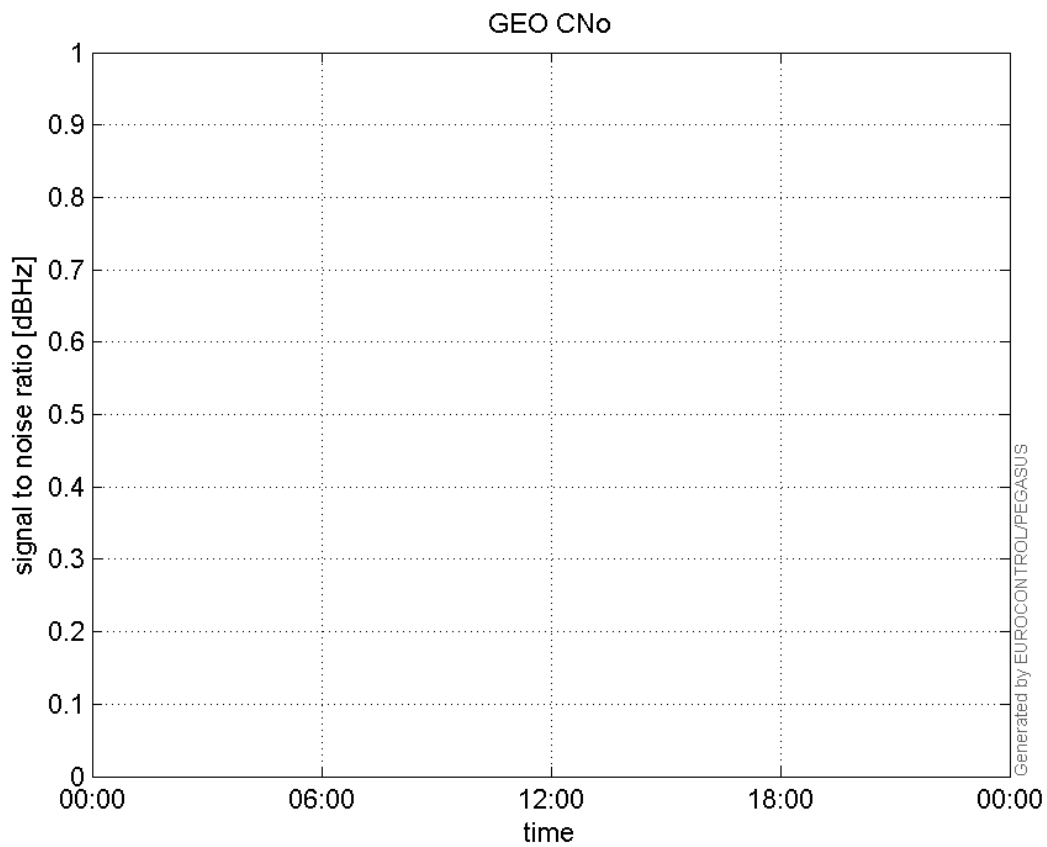
SNR Elevation:



L2 CNo:

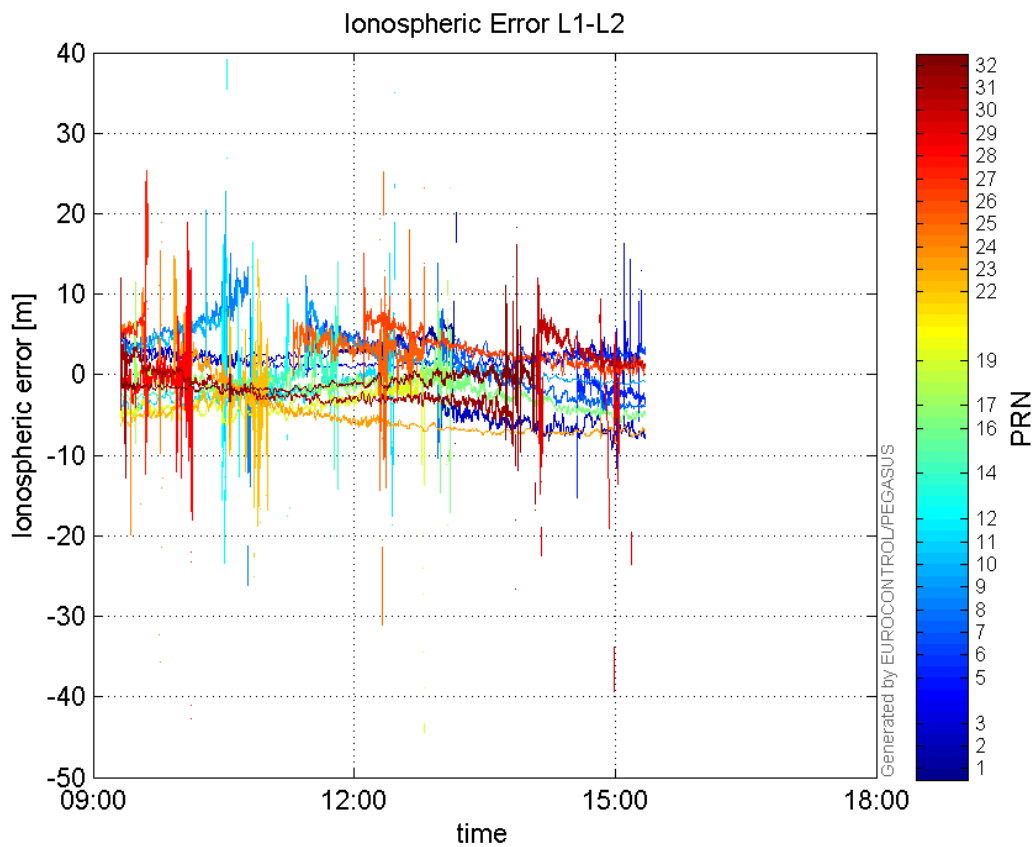


GEO CNo:



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_12_14EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_14EGNOS/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	223.9913
mi_numbers	results	0

SBAS Messages

start: 09:25:26.129 14.12.2015 (week: 1875 sec: 120326.129)
end: 15:20:40.129 14.12.2015 (week: 1875 sec: 141640.129)
duration: 05:55:14 ..

quality

valid samples 40483
total samples 40483
number of SBAS PRNs 2

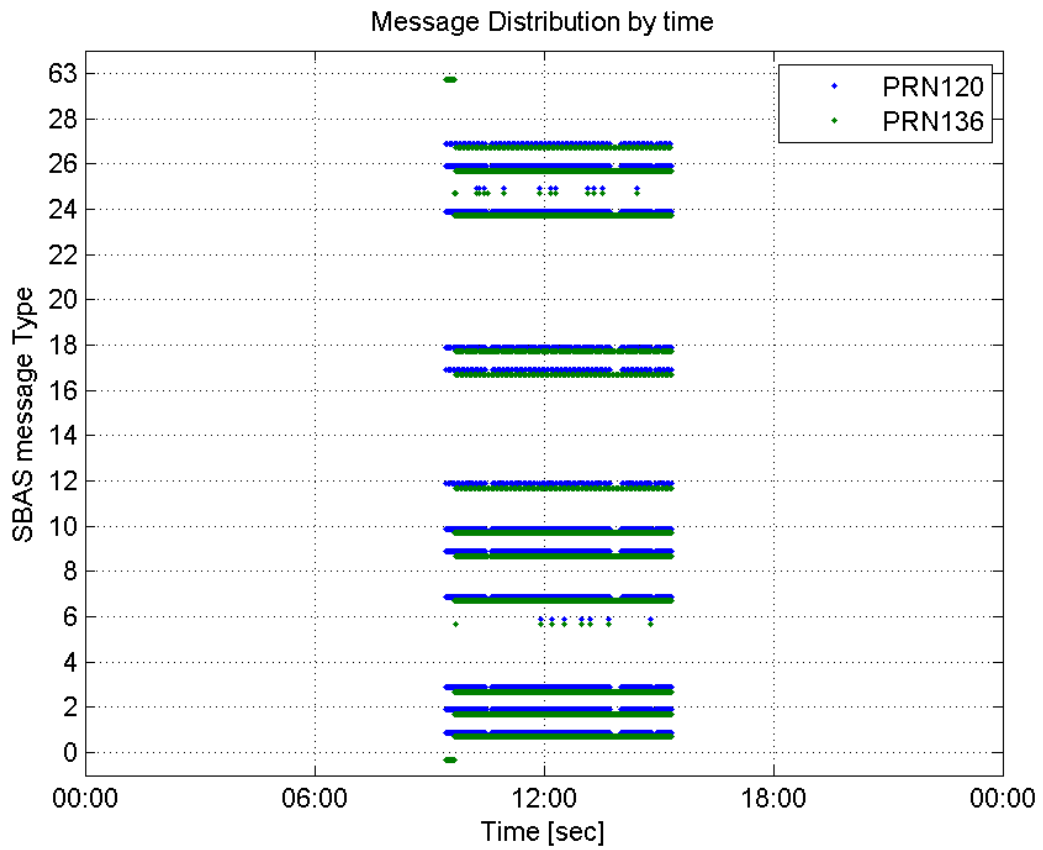
SBAS SIS Overview

Message Type 6 repetitions :

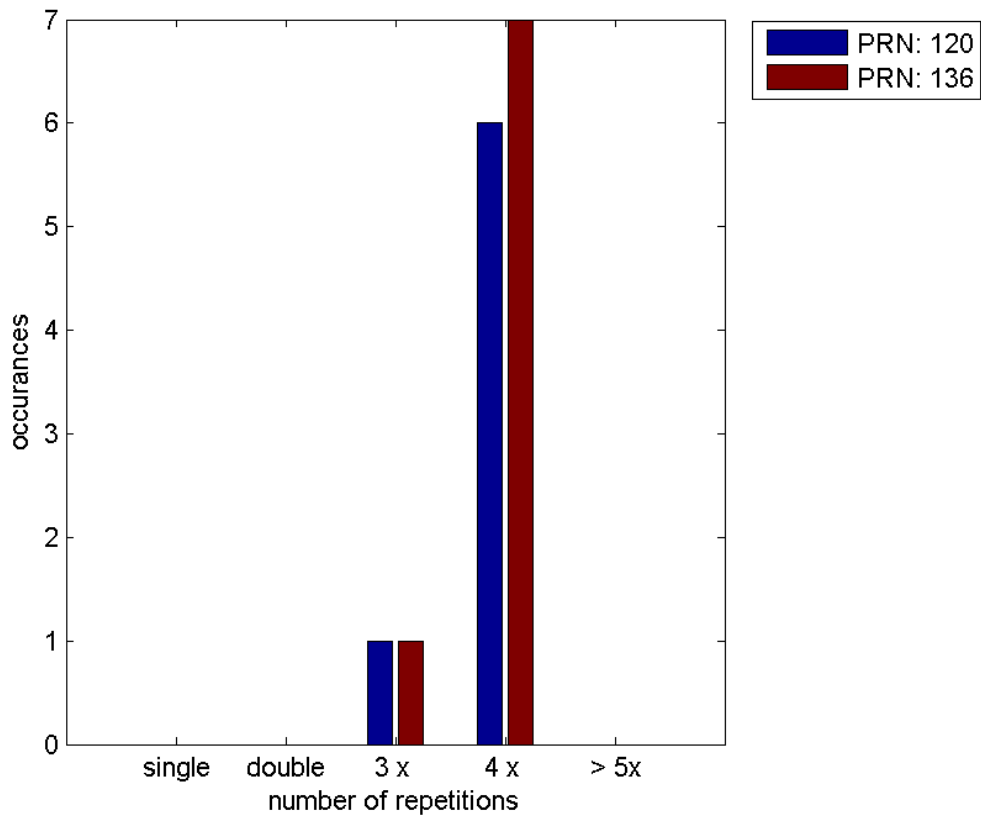
	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	6	0

PRN 136 | 0 | 0 | 1 | 7 | 0

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

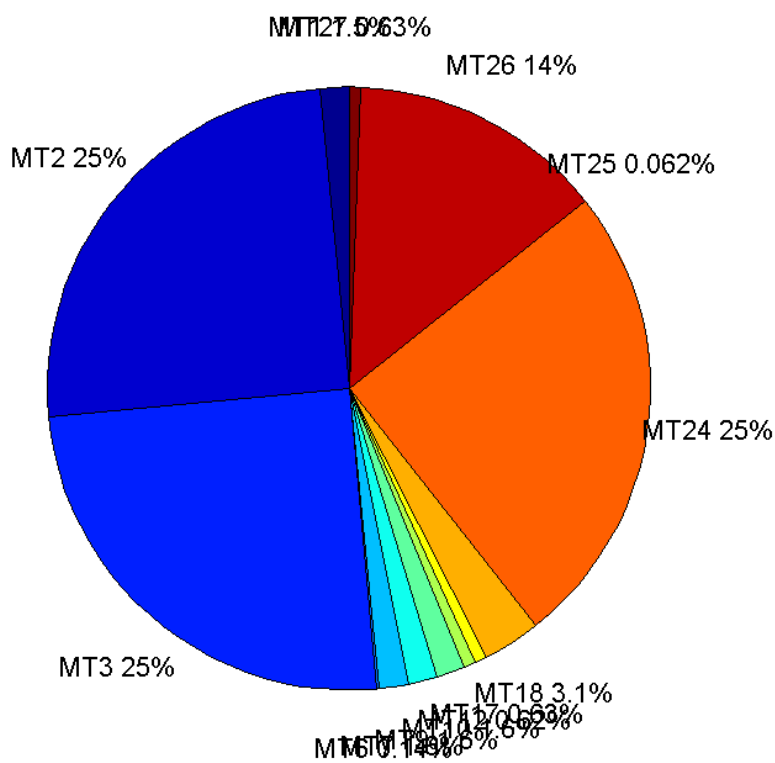
	number of messages	%
MT 0	0	0
MT 1	300	1.54751
MT 2	4839	24.9613
MT 3	4839	24.9613
MT 4	0	0
MT 5	0	0
MT 6	28	0.144434
MT 7	301	1.55267
MT 9	301	1.55267
MT 10	302	1.55783
MT 12	121	0.624162
MT 17	122	0.62932
MT 18	609	3.14144
MT 24	4841	24.9716
MT 25	12	0.0619003
MT 26	2649	13.6645
MT 27	122	0.62932
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	19386	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	1088	71.0234	4	1	1
MT 2	4	1016	4.40492	11	4	4
MT 3	4	1016	4.40492	11	4	4
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	4033	384.259	6	6	6
MT 7	64	1088	70.7733	4	3	3
MT 9	64	1088	70.7867	0	0	0
MT 10	64	1024	70.5515	4	3	3
MT 12	156	1120	176.467	120	3	4
MT 17	156	1120	175.041	0	0	0
MT 18	4	1096	34.875	3	0	0

MT 24	4	1016	4.40372	0	0	0
MT 25	20	3405	1370.55	0	0	0
MT 26	4	1024	8.04683	0	0	0
MT 27	156	1120	175.041	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

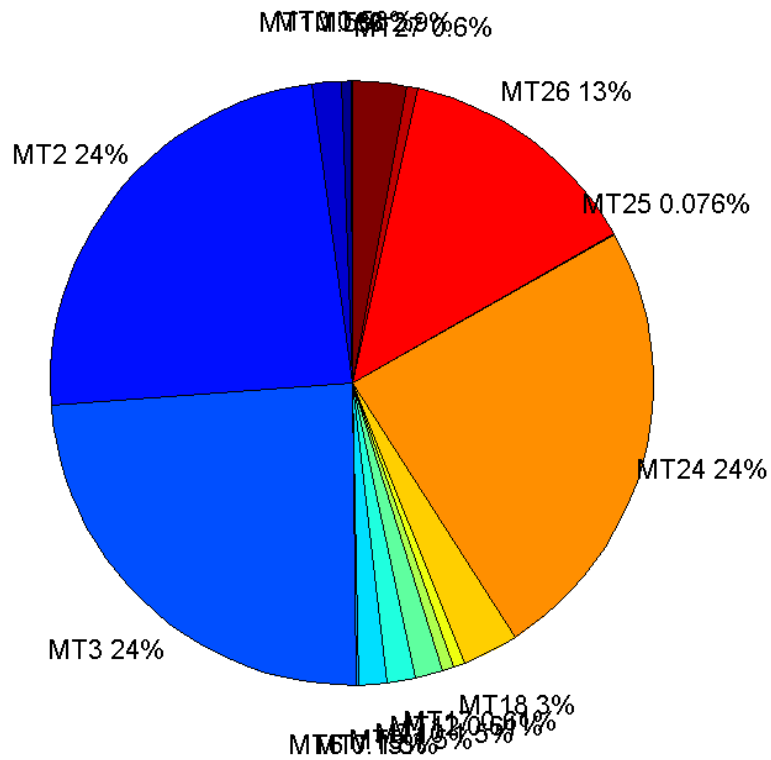
	number of messages	%
MT 0	123	0.583021
MT 1	320	1.5168
MT 2	5078	24.0698
MT 3	5076	24.0603
MT 4	0	0
MT 5	0	0

MT 6	32	0.15168
MT 7	317	1.50258
MT 9	316	1.49784
MT 10	316	1.49784
MT 12	128	0.606721
MT 17	128	0.606721
MT 18	638	3.02413
MT 24	5079	24.0745
MT 25	16	0.0758402
MT 26	2787	13.2104
MT 27	127	0.601981
MT 28	0	0
MT 62	0	0
MT 63	616	2.91985
Total	21097	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	6	66	7.32787	13	0	0
MT 1	1	90	63.9687	0	0	0
MT 2	3	22	4.0193	14	4	5
MT 3	3	22	4.02089	14	5	6
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	7998	592.774	7	7	7
MT 7	61	75	64.3987	0	0	0
MT 9	61	128	64.6921	0	0	0
MT 10	61	128	64.6508	1	0	0
MT 12	152	173	160.488	127	0	0
MT 17	152	170	160.465	0	0	0
MT 18	1	151	31.9922	0	0	0
MT 24	3	22	4.01851	0	0	0
MT 25	1	3405	1141	0	0	0
MT 26	1	120	7.31945	0	0	0
MT 27	152	216	161.063	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	1	60	1.45366	0	0	0

Message Distribution PRN 136:



Parameters

System

Name	Section	Value
Name	System	Convertor
Version	System	4.3
Inputfile	System	D:/PegasusDateGob/job/2015_12_14EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_12_14EGNOS/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: 09:18:57 14.12.2015 (week: 1875 sec: 119937)
end: 15:20:40 14.12.2015 (week: 1875 sec: 141640)
duration: 06:01:44 ..

quality

valid samples 20285

total samples 21700

Event tables

Position discontinuity events type all
 APV-I discontinuity events type all
 APV-35m discontinuity events type all
 LPV-200 discontinuity events type all
 CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	138132	1.62351	9.64684	0.168295	-0.91003	16.8391	0.0540427
max normVer	132593	1.41758	10.8949	0.130114	-1.85382	14.7342	0.125817
max HPE	135035	3.34212	122.438	0.0272964	-1.17415	37.7132	0.0311336
max VPE	127946	2.53611	27.6291	0.0917913	-3.33737	33.0762	0.100899
min HPL	139776	1.21588	9.1284	0.133198	-0.0357424	13.9877	0.00255527
min VPL	123025	1.06143	11.7857	0.0900607	0.184614	12.0323	0.0153432

Position discontinuity events :

#	Epoch	duration	stable period
1	129078	65	4242
2	135857	1104	6714

APV-I discontinuity events :

#	Epoch	duration	stable period
1	129078	68	4242
2	135010	211	5864
3	135240	40	19
4	135856	1105	576

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	126765	866	1929
2	127632	3	1
3	127636	3	1
4	127640	2	1
5	127645	1	3
6	127649	1	3
7	127653	1	3
8	127657	1	3
9	127661	1	3
10	127665	1	3
11	127669	1	3
12	127673	1	3

13	127677	1	3
14	127681	1	3
15	129078	69	1396
16	135010	211	5863
17	135240	40	19
18	135856	1105	576

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	126765	866	1929
2	127632	3	1
3	127636	3	1
4	127640	2	1
5	127645	1	3
6	127649	1	3
7	127653	1	3
8	127657	1	3
9	127661	1	3
10	127665	1	3
11	127669	1	3
12	127673	1	3
13	127677	1	3
14	127681	1	3
15	129078	69	1396
16	135010	211	5863
17	135240	40	19
18	135856	1105	576

First Glance analysis

Duration	21704
Number of Samples	21700
Number of invalid sample	1415
Number of no position solution samples	1298
Number of missing sample	4
Logging Loss	0.01843
Processing Loss	6.5207
Number of Misleading Information	0
Data gaps	2
Discontinuities	4

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
18987	18730	17845	0	17845

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.97431	1.95099	1.72579	NaN	1.72579

HPEScale 95%	NaN	4.80046	4.8228	NaN	4.8228
VPE 95%	1.90885	1.91699	1.71693	NaN	1.71693
VPEscale 95%	NaN	4.68548	3.31281	NaN	3.31281

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.936012	0.923342	0.879714	0	0.879714
measurements	0.874977	0.863134	0.82235	0	0.82235
Operational	0.874816	0.862975	0.822199	0	0.822199

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	2	4	18	--	18
Long	2	4	5	--	5
Independent	2	4	5	--	5
P(disc.)	0.00158003	0.00320342	0.00420286	NaN	0.00420286
P(slide)	0.00158003	0.00320342	0.00605212	NaN	0.00605212

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

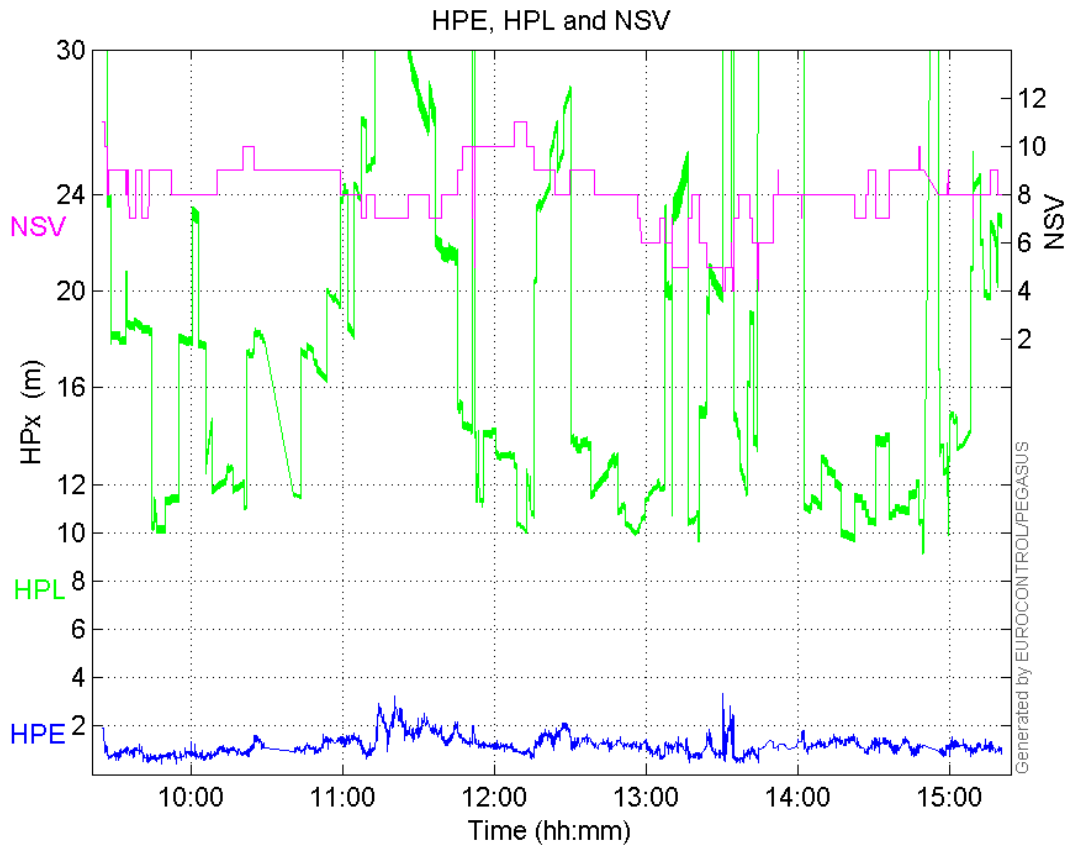
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	18987	18730	17845	0	17845
SIS Availability	0.936012	0.923342	0.879714	0	0.879714
Local Availability	0.874977	0.863134	0.82235	0	0.82235
Operational Availability	0.874816	0.862975	0.822199	0	0.822199
HPE 95%	1.97431	1.95099	1.72579	NaN	1.72579
HPEScale 95%	NaN	4.80046	4.8228	NaN	4.8228
VPE 95%	1.90885	1.91699	1.71693	NaN	1.71693
VPEscale 95%	NaN	4.68548	3.31281	NaN	3.31281
All Discontinuity Events	2	4	18	--	18
Long Discontinuity Events	2	4	5	--	5
Independent Discontinuity Events	2	4	5	--	5
P(discontinuity)	0.00158003	0.00320342	0.00420286	NaN	0.00420286
P(sliding window)	0.00158003	0.00320342	0.00605212	NaN	0.00605212
All Integrity Events	0	0	0	0	0

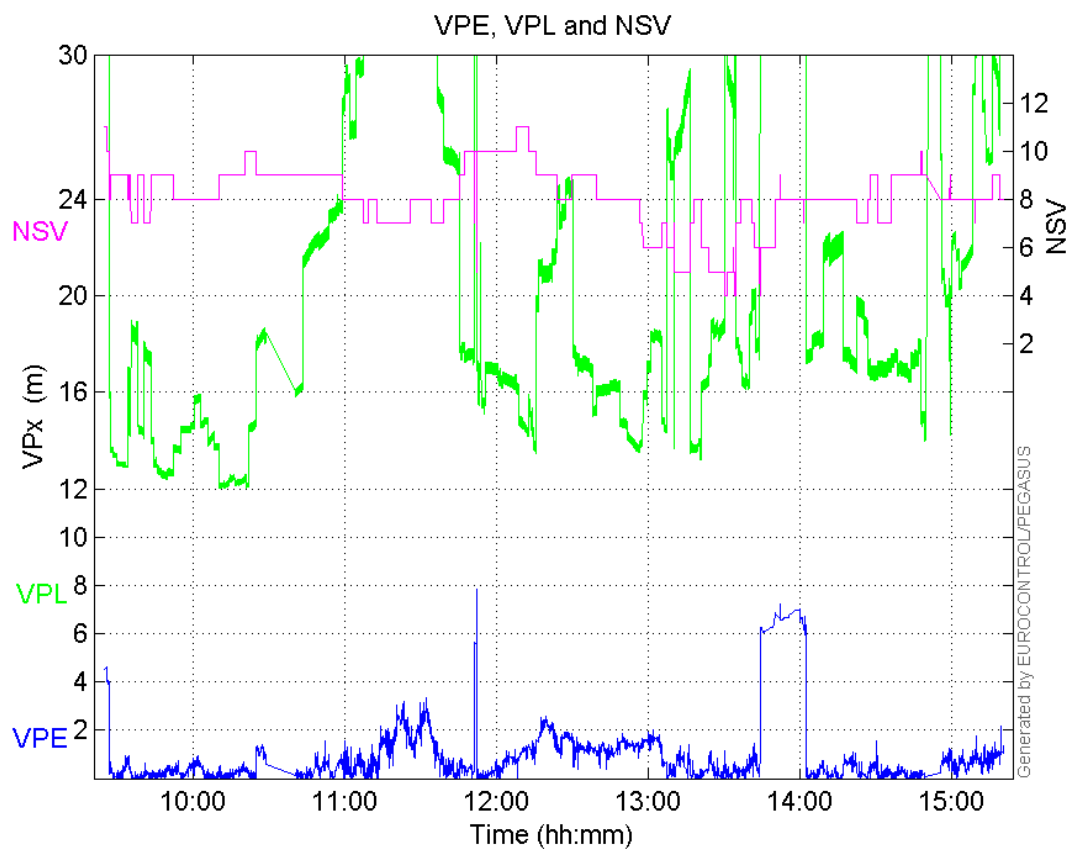
Horizontal Integrity Events	0	0	0	0	0
Vertical Integrity Events	0	0	0	0	0

Time Series

HPE, HPL and NSV:

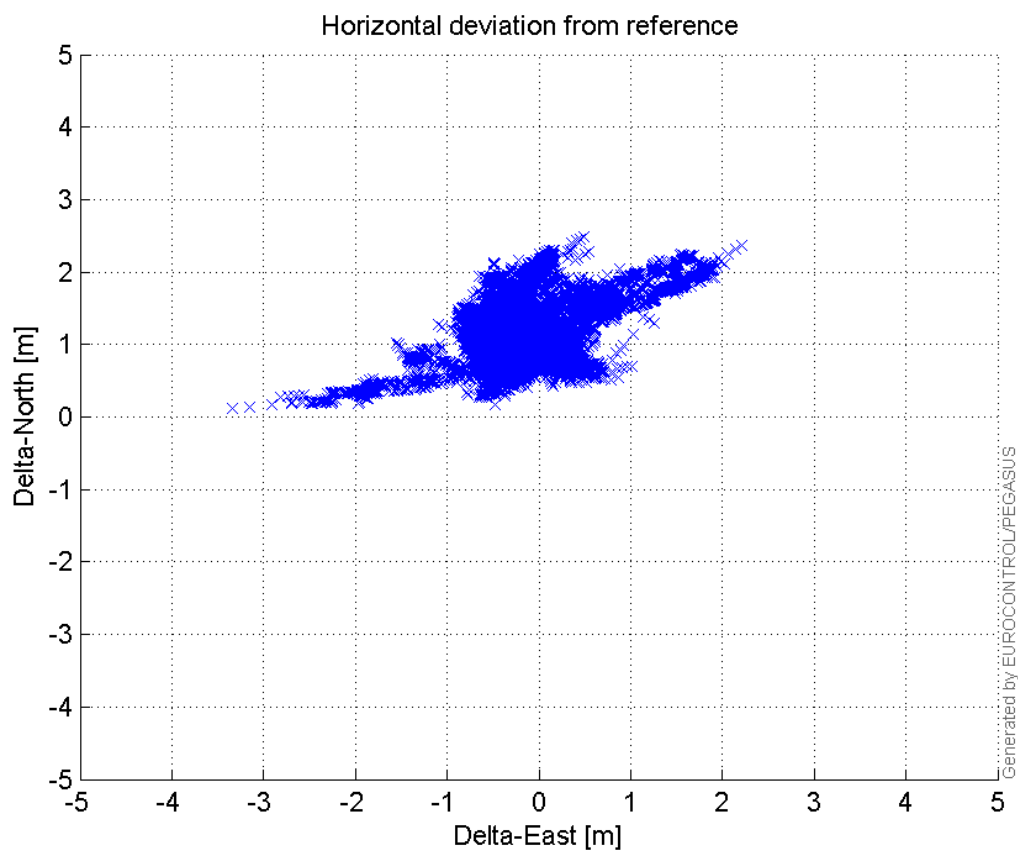


VPE, VPL and NSV:



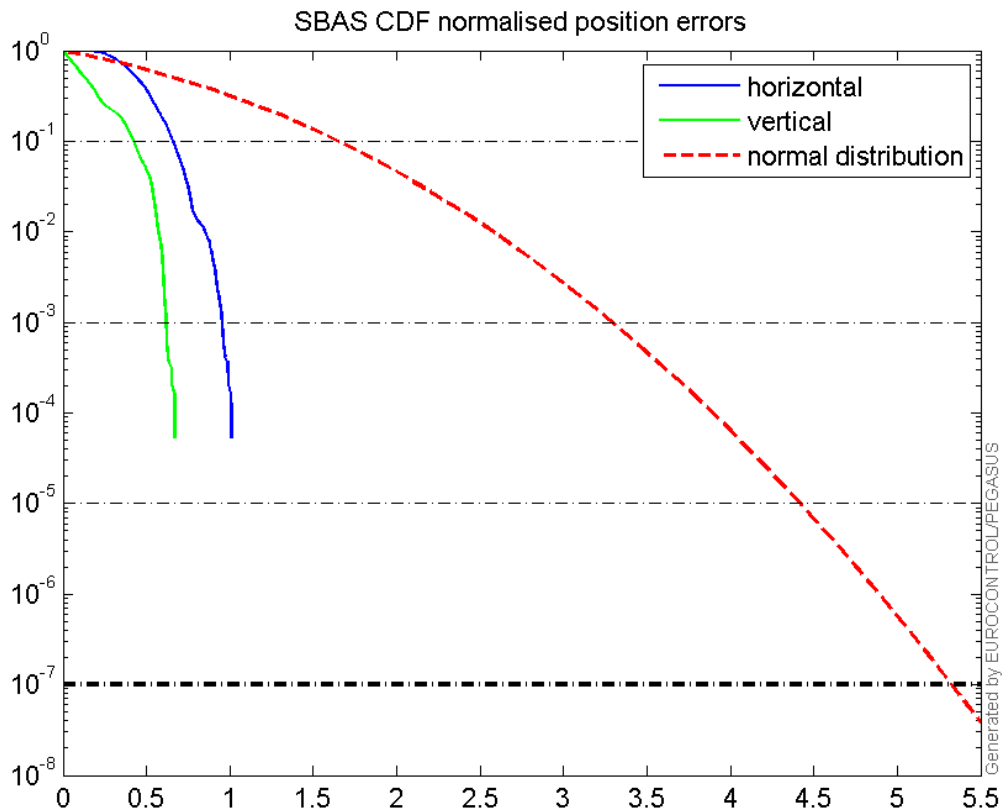
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

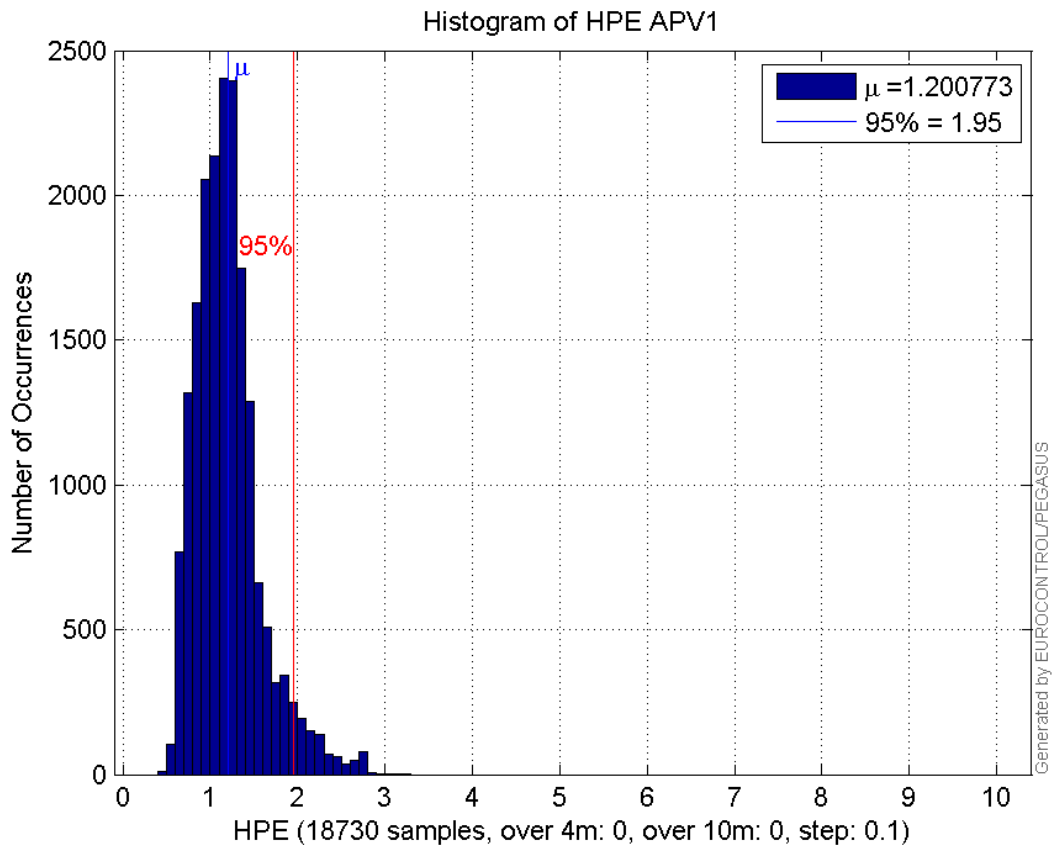
number	18730
sum	22490.478
sum2	29634.26
prctile95	1.9509907
prctile99	2.4748776
number	18730
sum	12870.647
sum2	16058.204
prctile95	1.9169919
prctile99	2.5539685
number	18730
sum	317816.71
sum2	6140015.6
prctile95	28.7856
prctile99	35.2955
number	18730
sum	378791.28
sum2	8503807.9
prctile95	34.4854
prctile99	39.57404
number	18730
sum	1425.1255

sum2 119.92044
prctile95 0.12001162
prctile99 0.14205104
number 18730
sum 629.22978
sum2 36.61768
prctile95 0.093709534
prctile99 0.10709145
number 17845
sum 20625.251
sum2 25552.907
prctile95 1.7257878
prctile99 2.0767315
number 17845
sum 11327.398
sum2 13050.458
prctile95 1.716931
prctile99 2.4049641
number 17845
sum 288100.09
sum2 5139305.3
prctile95 26.49725
prctile99 28.257525
number 17845
sum 344685.75
sum2 7187873.3
prctile95 30.745975
prctile99 33.561125
number 17845
sum 1369.569
sum2 116.31158
prctile95 0.12057004
prctile99 0.14286305
number 17845
sum 589.08502
sum2 34.576576
prctile95 0.09465163
prctile99 0.10745619

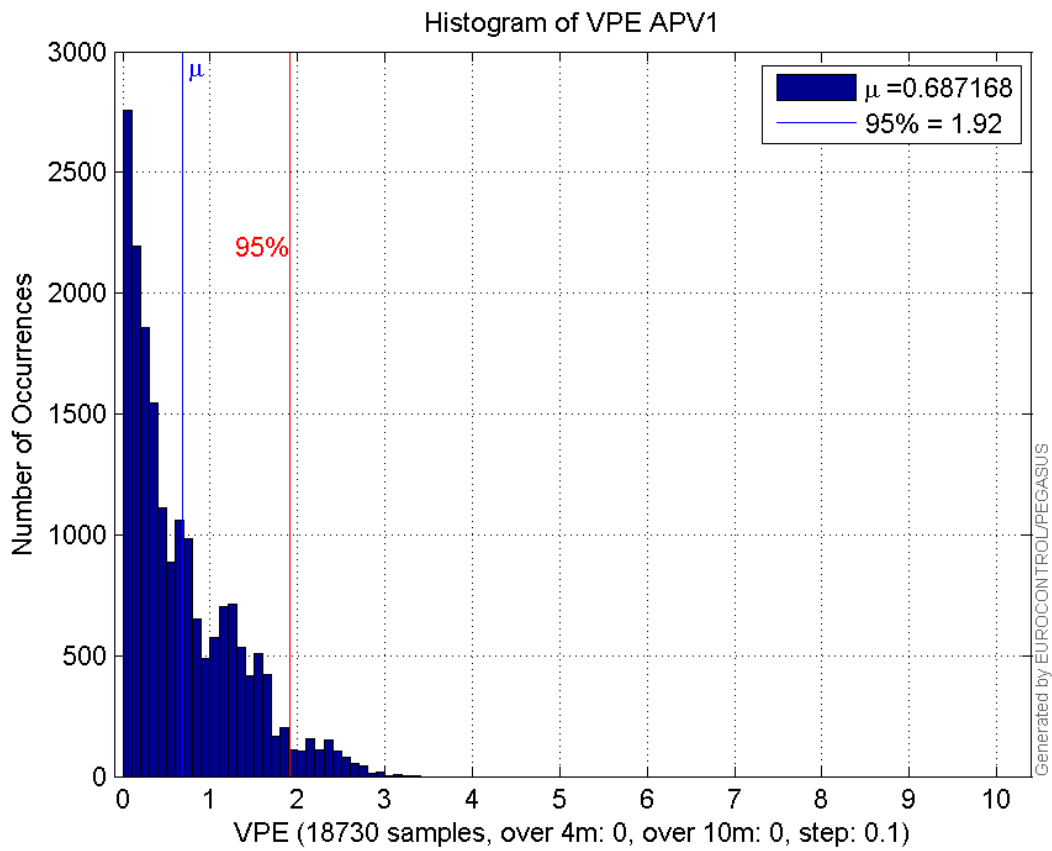
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.20077	0.374611	1.15227	1.95099	2.47488	1.25785
HPL	16.9683	6.31627	14.2516	28.7856	35.2955	18.1057
VPE	0.687168	0.620623	0.488237	1.91699	2.55397	0.925933
VPL	20.2238	6.70985	17.7113	34.4854	39.574	21.3078

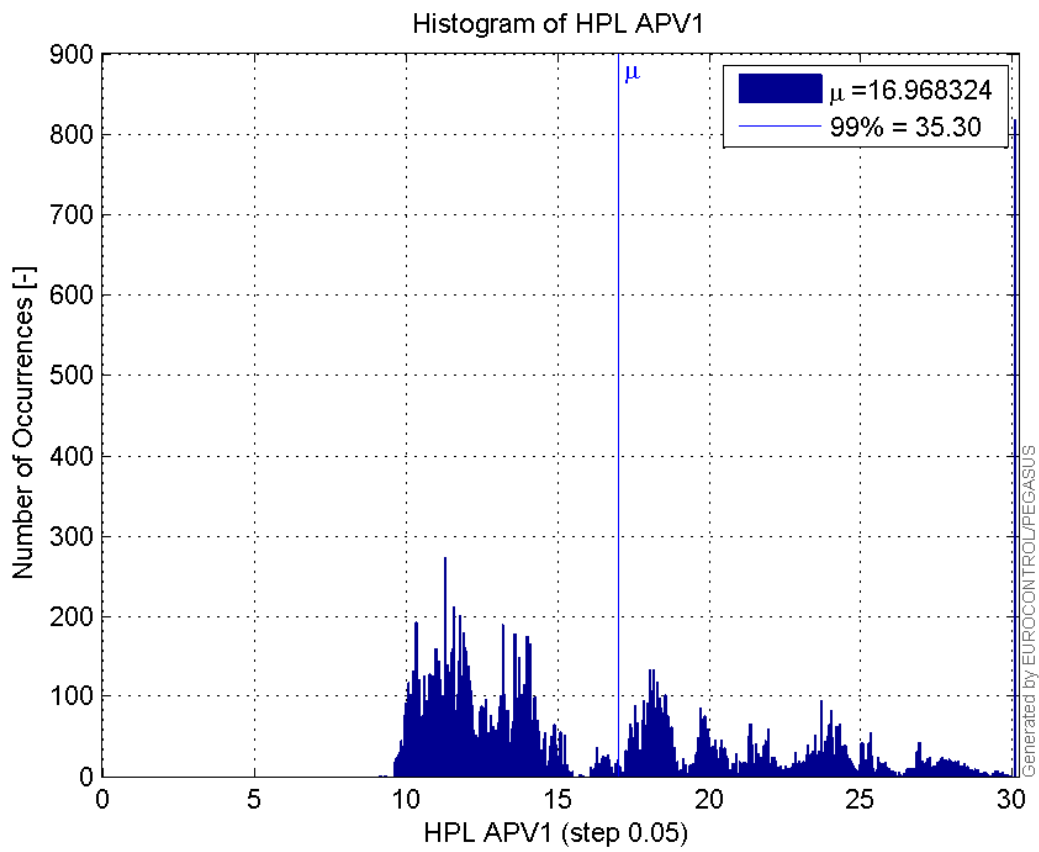
Histogram of HPE APV1:



Histogram of VPE APV1:

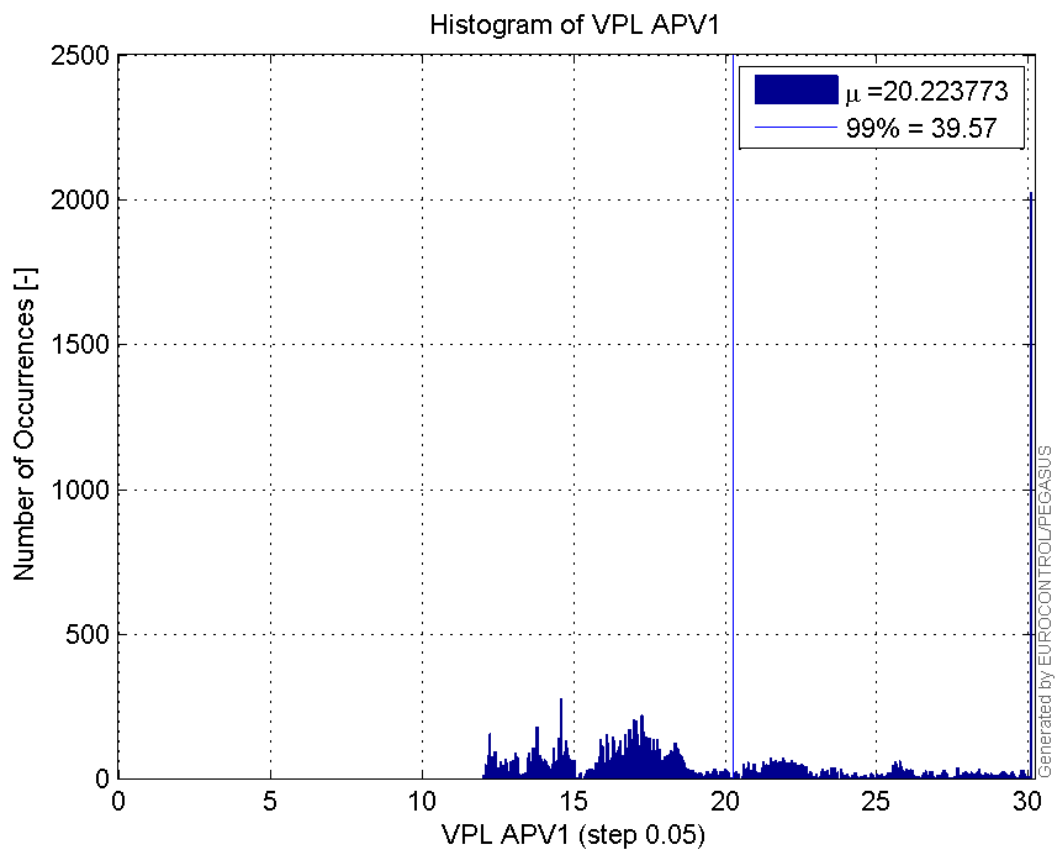


Histogram of HPL APV1:

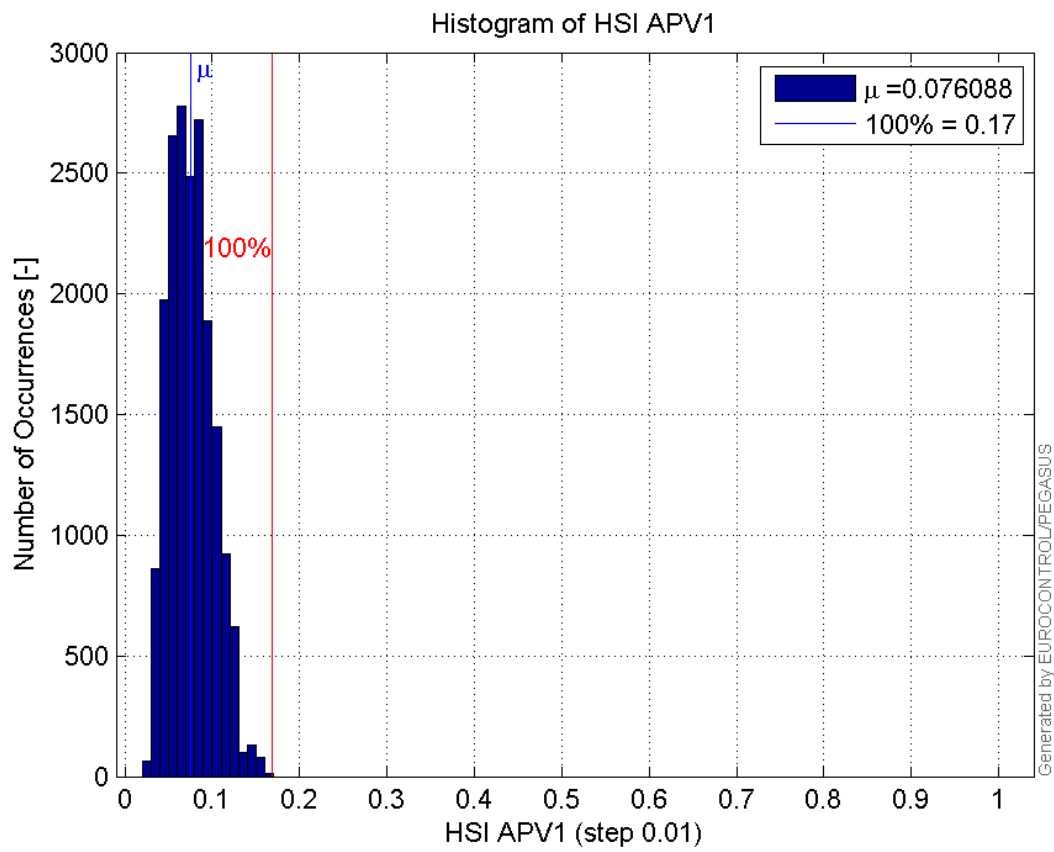


9

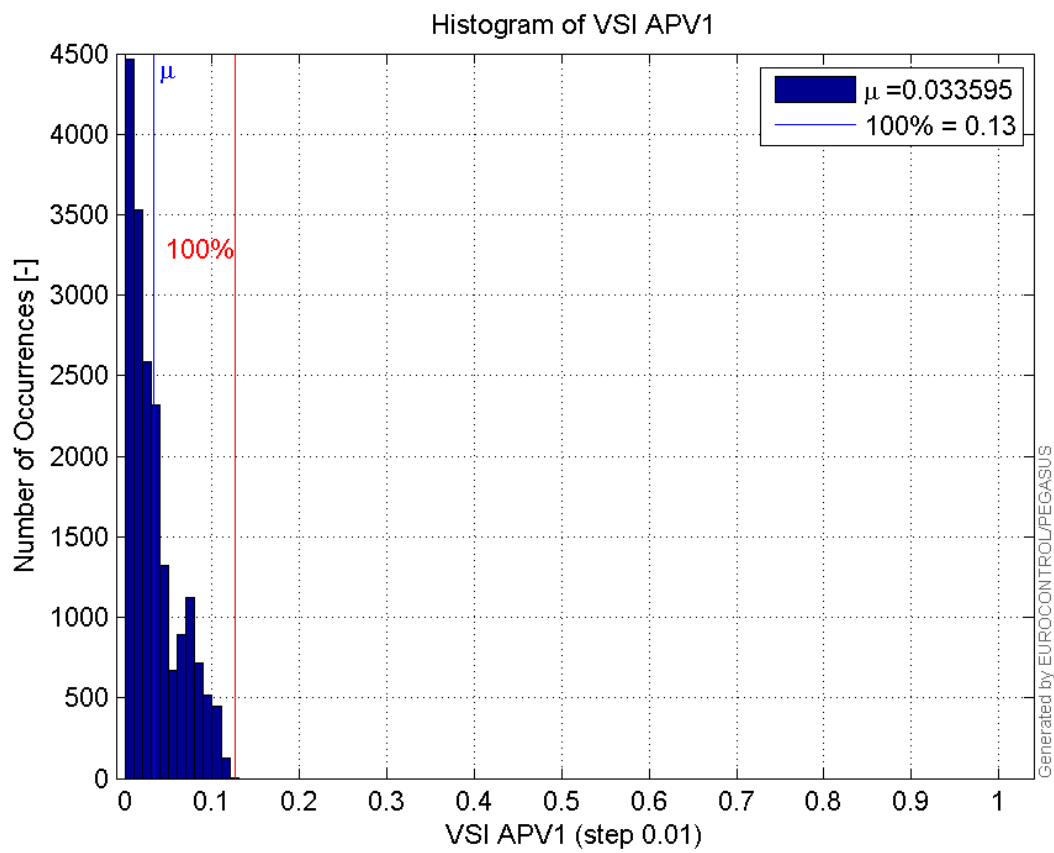
Histogram of VPL APV1:



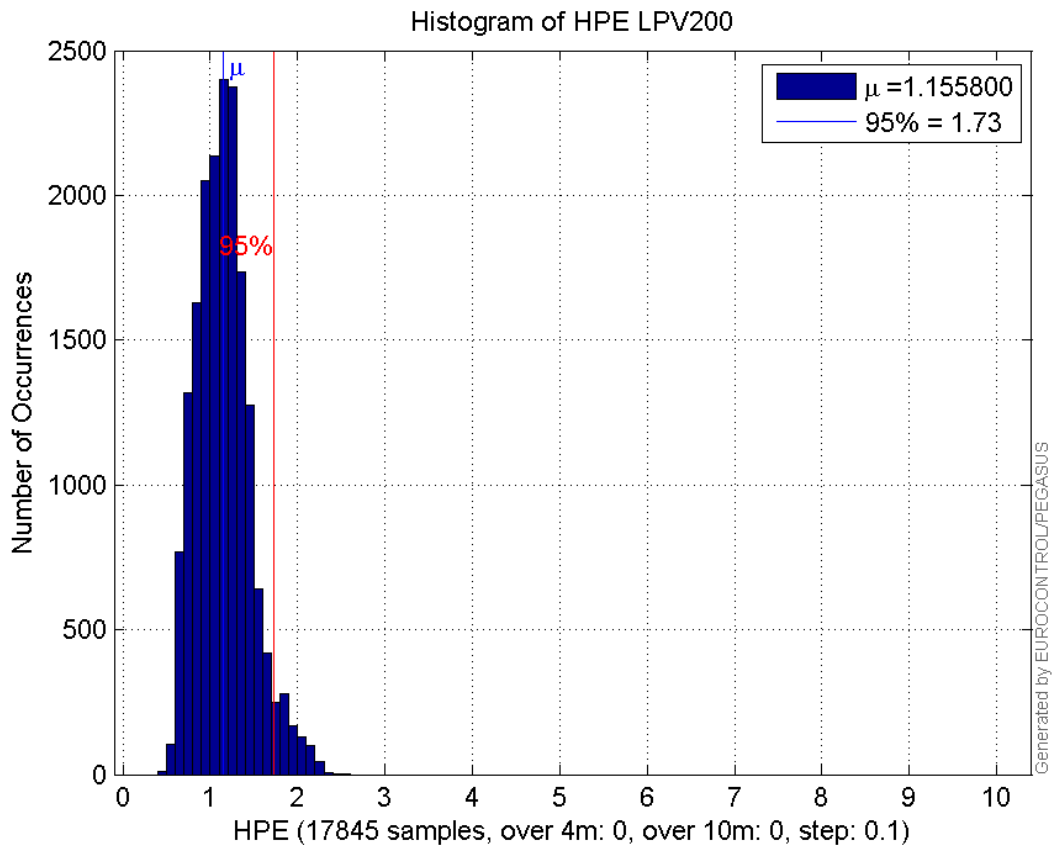
Histogram of HSI APV1:



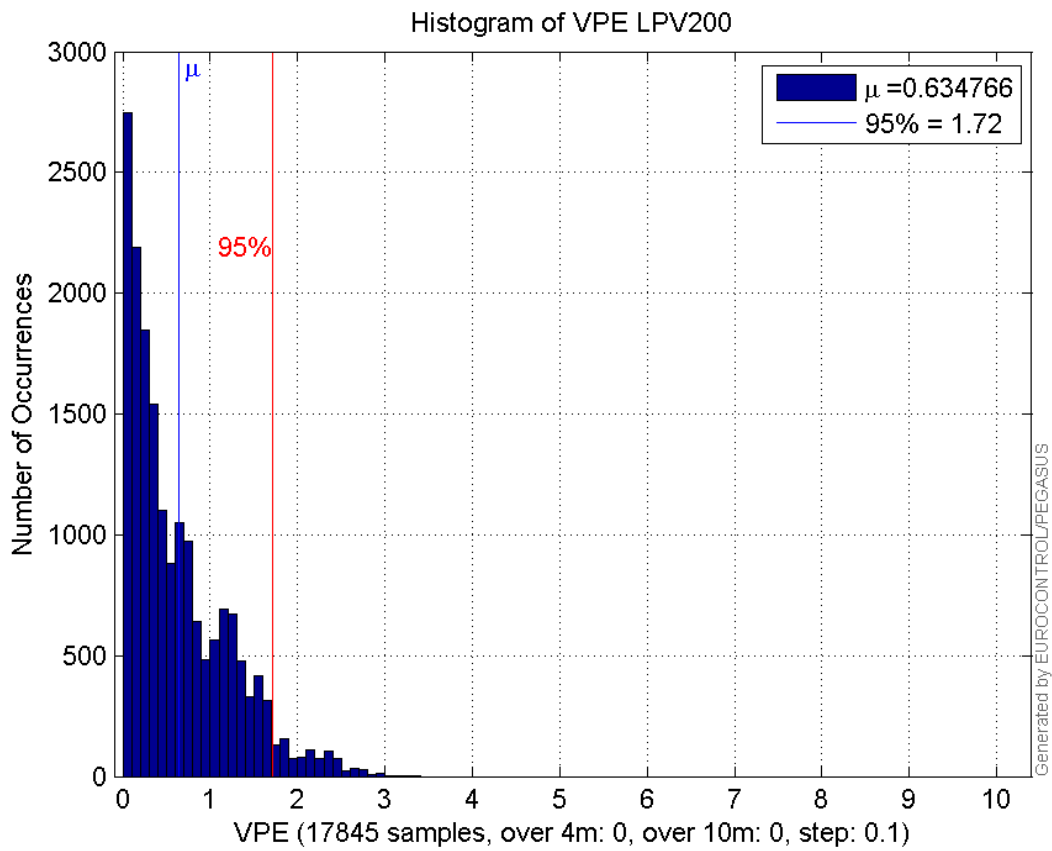
Histogram of VSI APV1:



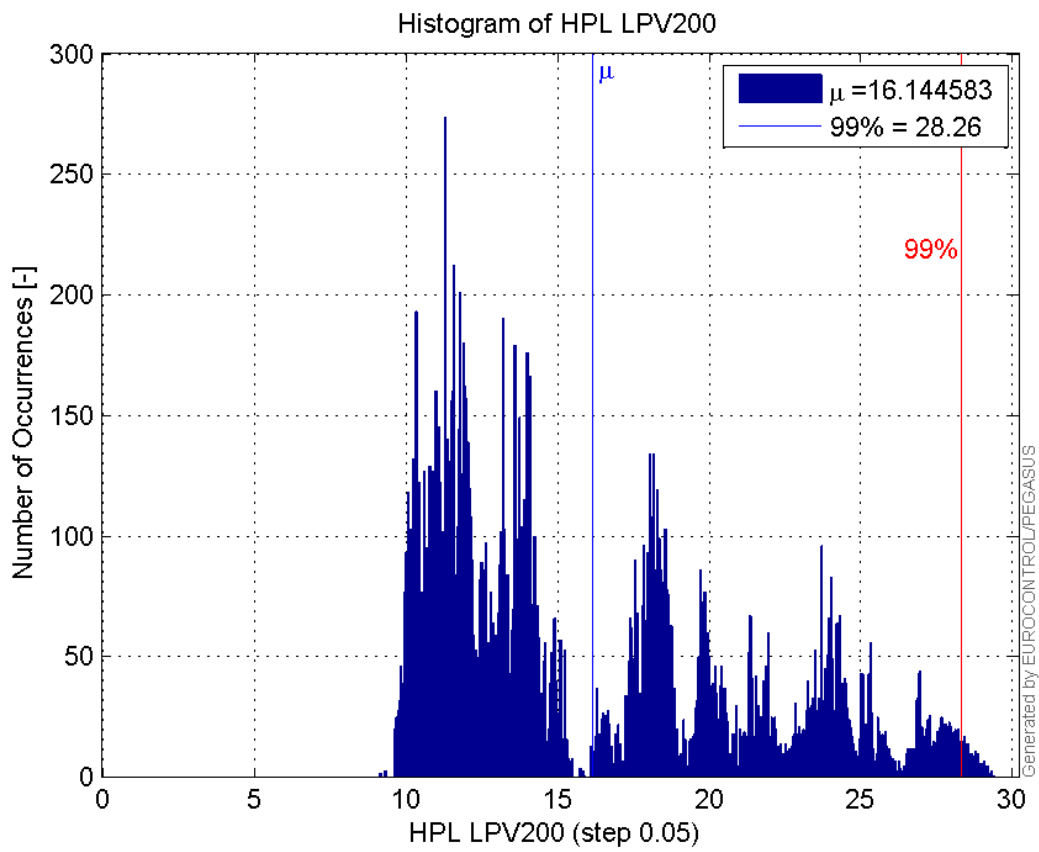
Histogram of HPE LPV200:



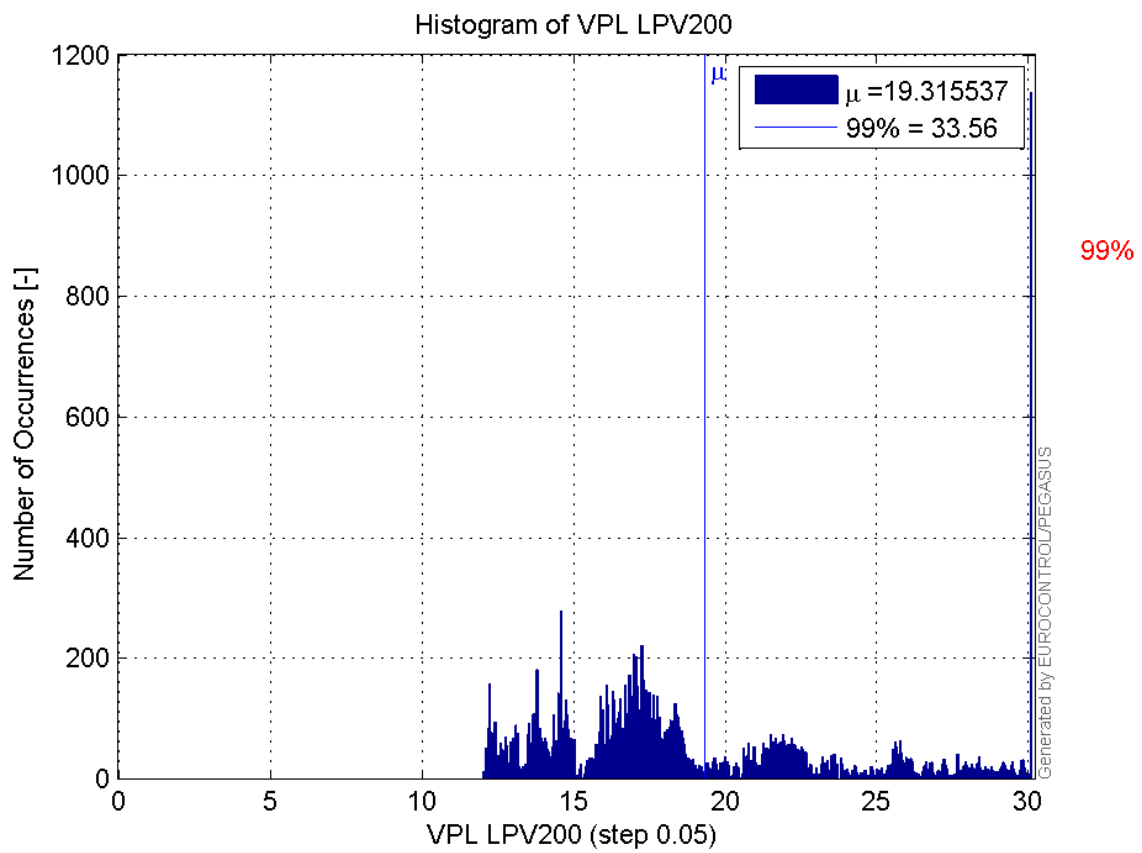
Histogram of VPE LPV200:



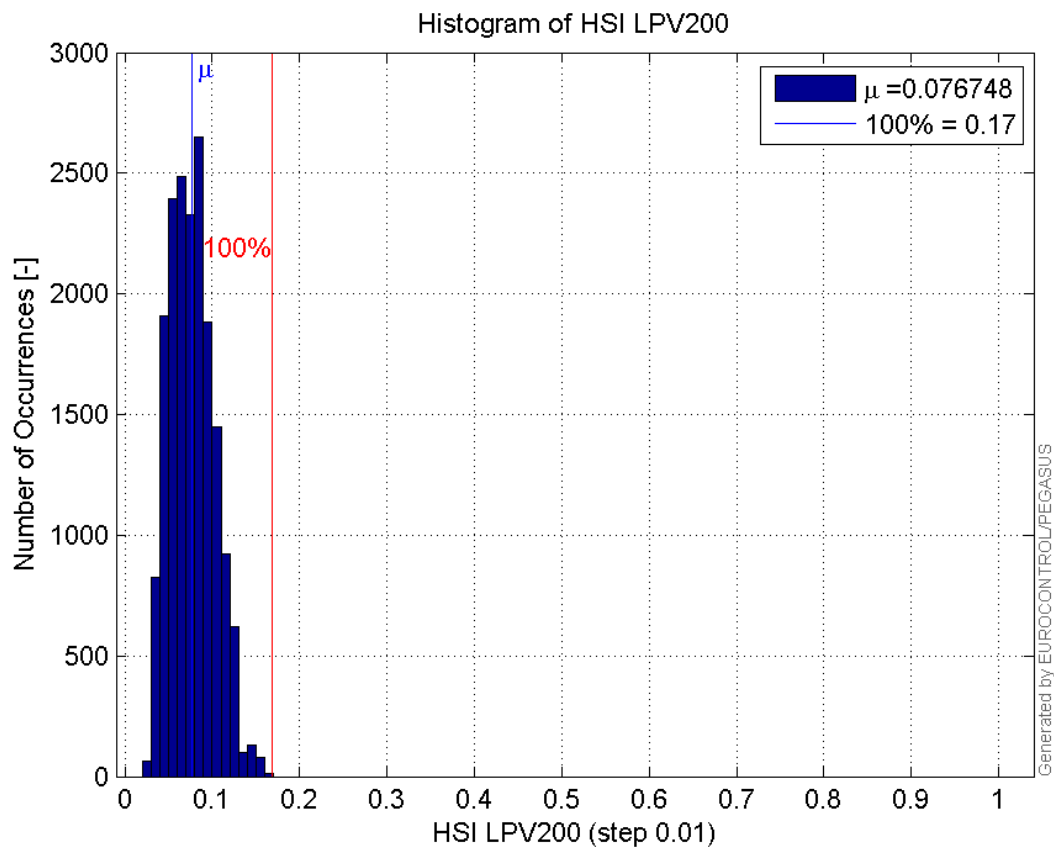
Histogram of HPL LPV200:



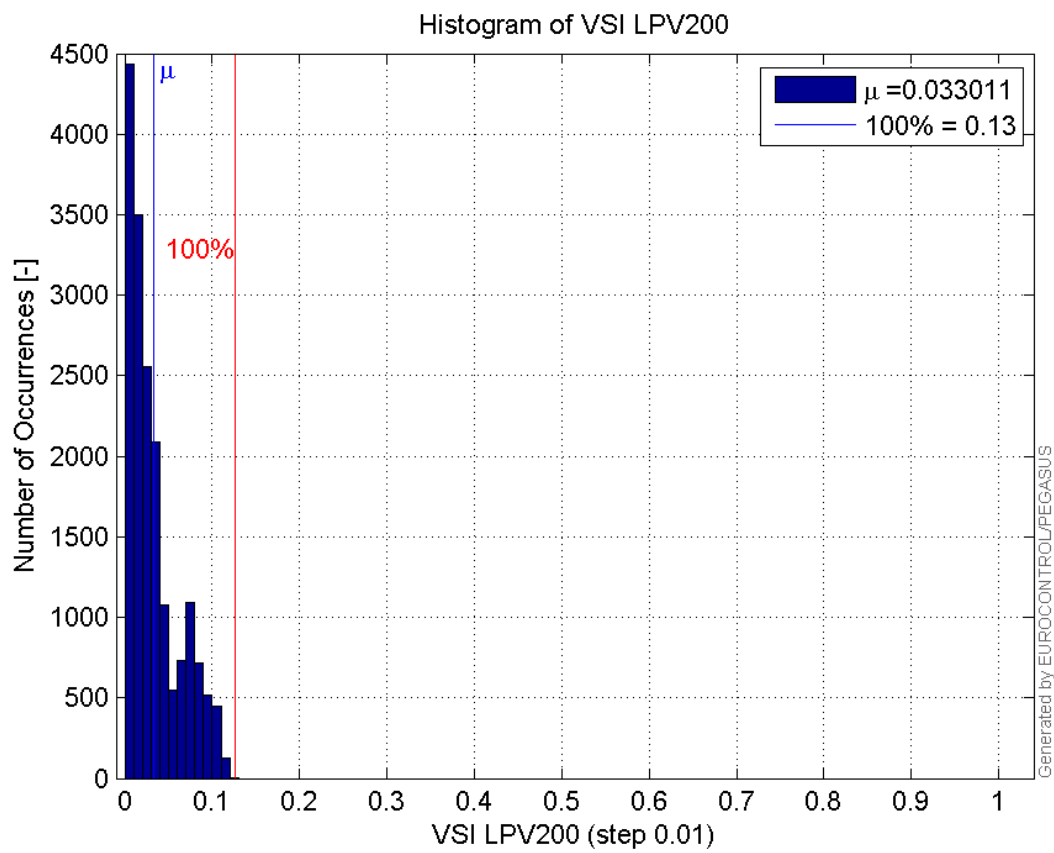
Histogram of VPL LPV200:



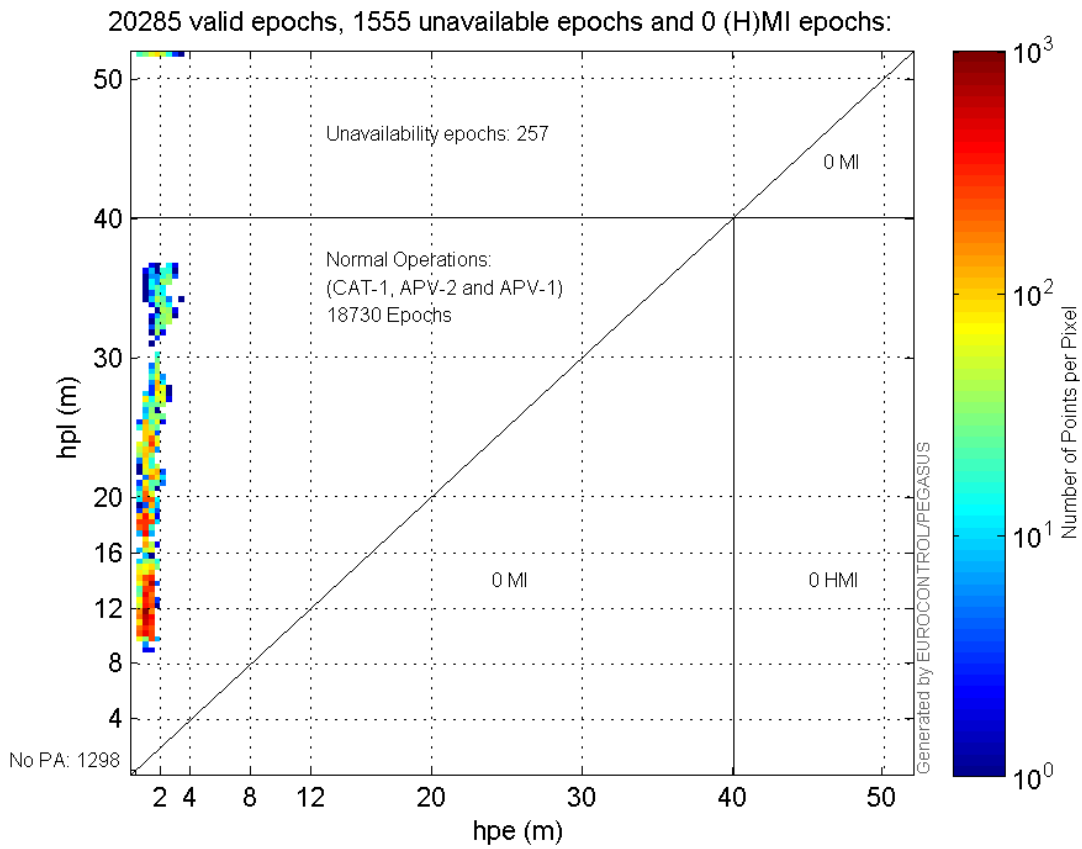
Histogram of HSI LPV200:



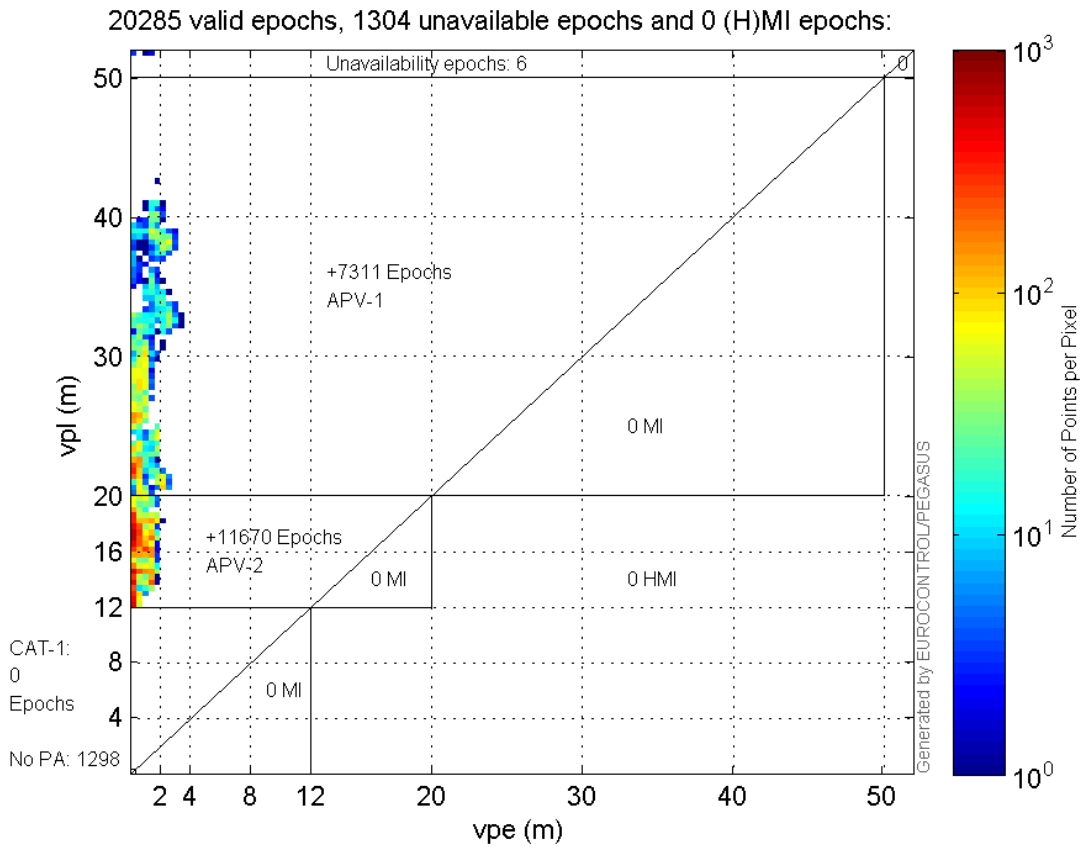
Histogram of VSI LPV200:



Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_12_14EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_14EGNOS/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	223.9913
mi_numbers	results	0