

Global View

city Kiev
comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
P.50 - 54
program Pegasus
version 4.8.4
site Laboratory satellite systems
abbreviation NAU
country Ukraine
date 25/02/2016

Range Domain

start: 07:43:43 25.02.2016 (week: 1885 sec: 373423)
end: 12:16:46 25.02.2016 (week: 1885 sec: 389806)
duration: 04:33:04 ..

quality

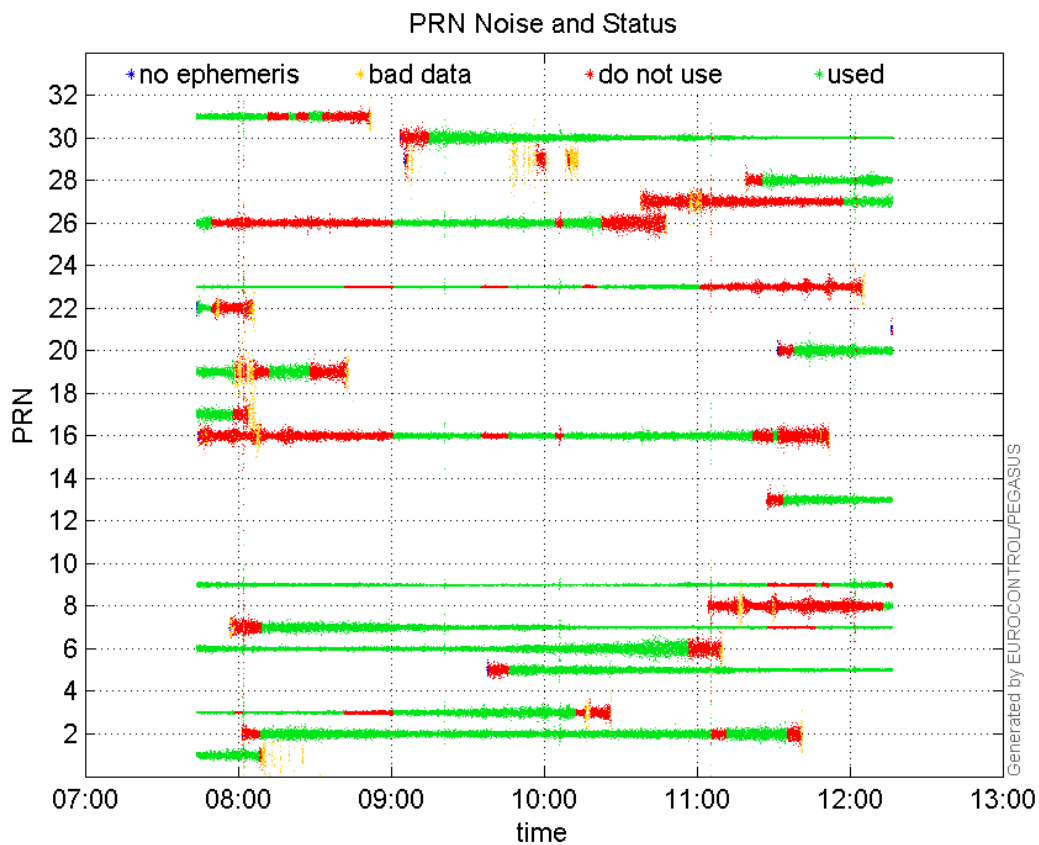
valid samples 16384
total samples 16384

PRN overview

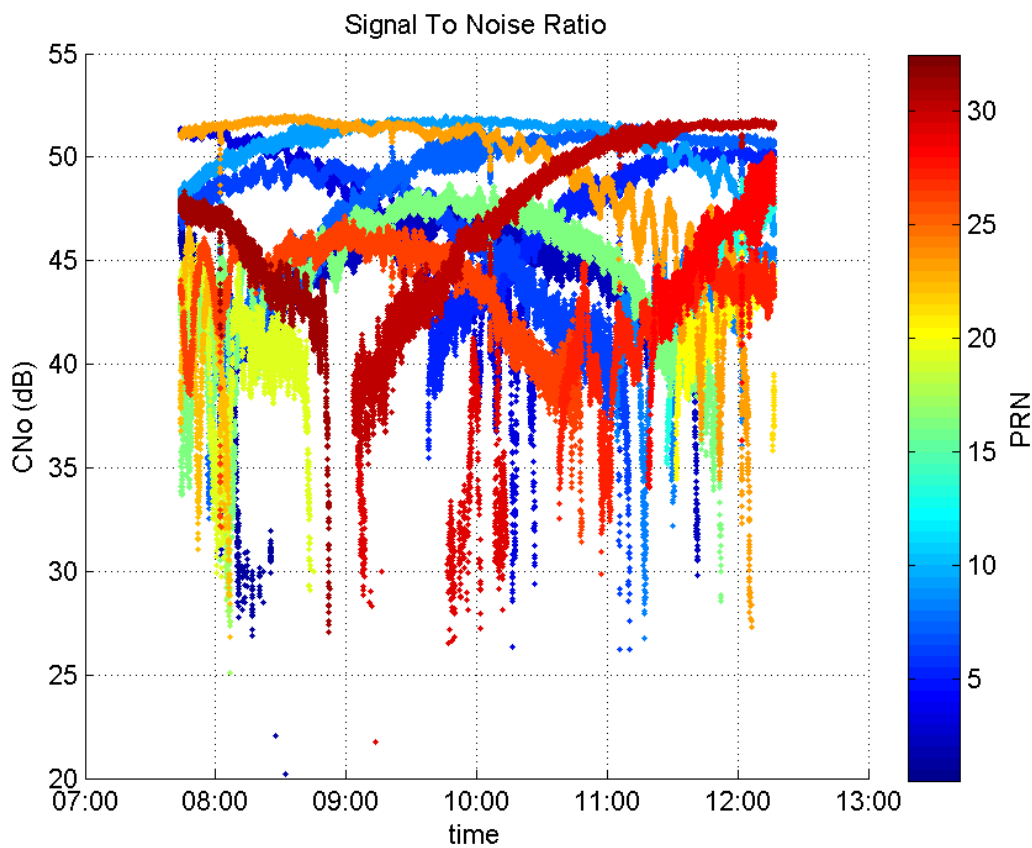
Number of Visible GPS Satellites 22
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



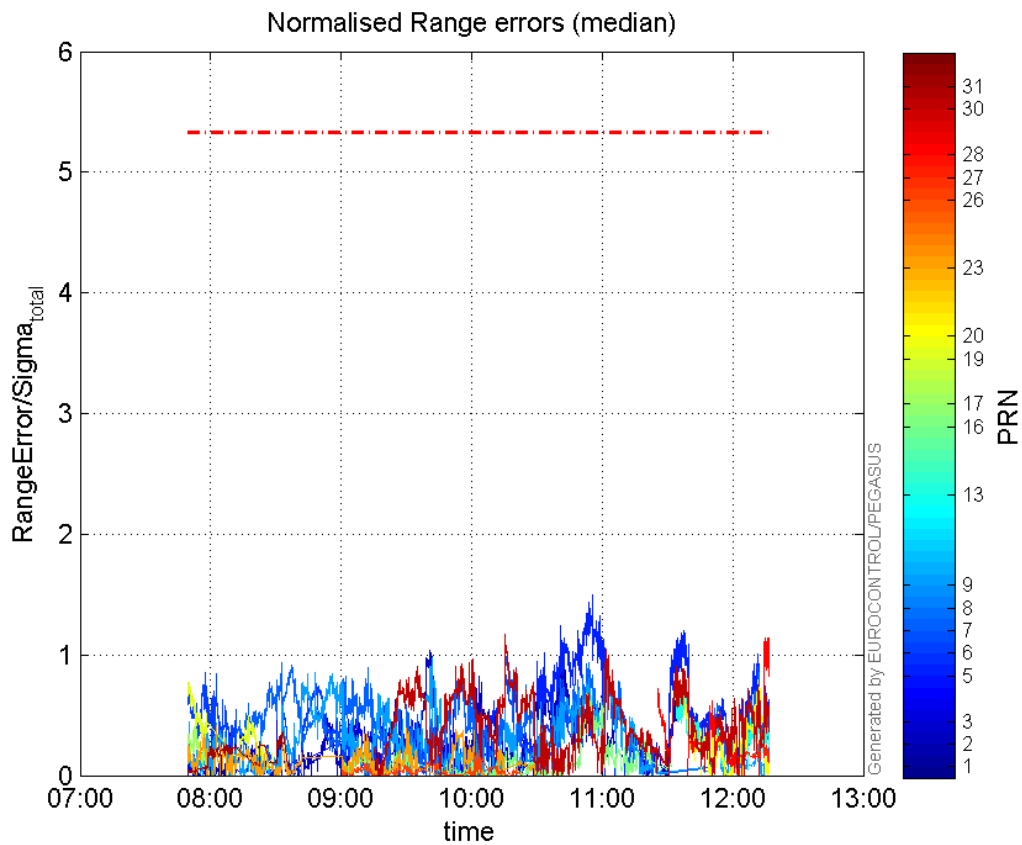
range errors

Number of Overbounding Norm Errors 0

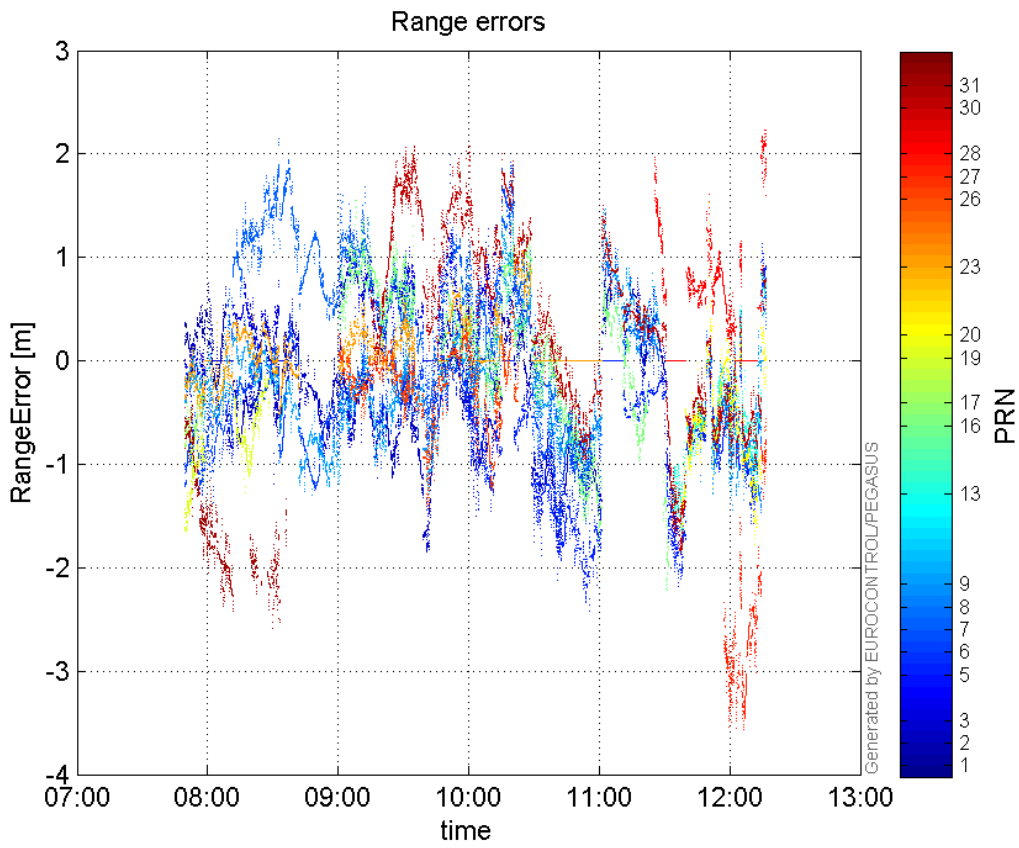
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1885	374409	1	0.321717	0.750693	2.33339
1885	380442	2	1.03657	-1.83453	1.76981
1885	381077	3	0.543715	1.98861	3.65744
1885	384933	5	1.49674	-2.42518	1.6203
1885	382526	6	0.927197	1.83646	1.98065
1885	382525	7	1.0964	1.5265	1.39229
1885	389663	8	0.0923342	-1.4609	15.8218
1885	380504	9	0.979913	-1.32001	1.34707
1885	387488	13	0.824633	-1.84922	2.24247
1885	384773	16	0.681268	-1.53417	2.25193
1885	373980	17	0.437524	-1.11997	2.55979
1885	373801	19	0.771913	-1.65167	2.13971
1885	389482	20	0.787693	-1.77622	2.25497
1885	374545	23	0.410572	-0.617624	1.5043
1885	381868	26	0.244347	-0.945091	3.86783
1885	389571	27	0.432403	-2.50735	5.79864
1885	389697	28	1.14108	2.16398	1.89643
1885	382528	30	1.17094	1.99909	1.70724
1885	376388	31	0.359372	-2.53153	7.04431

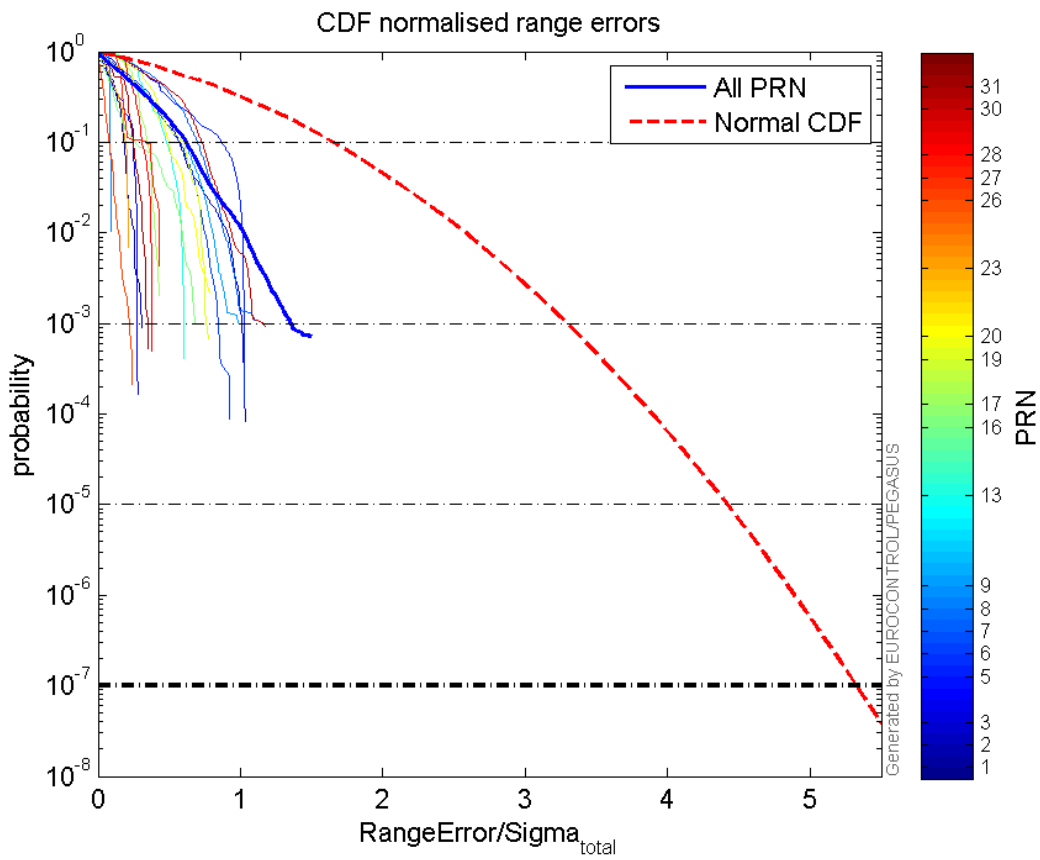
Normalised Range errors (median):



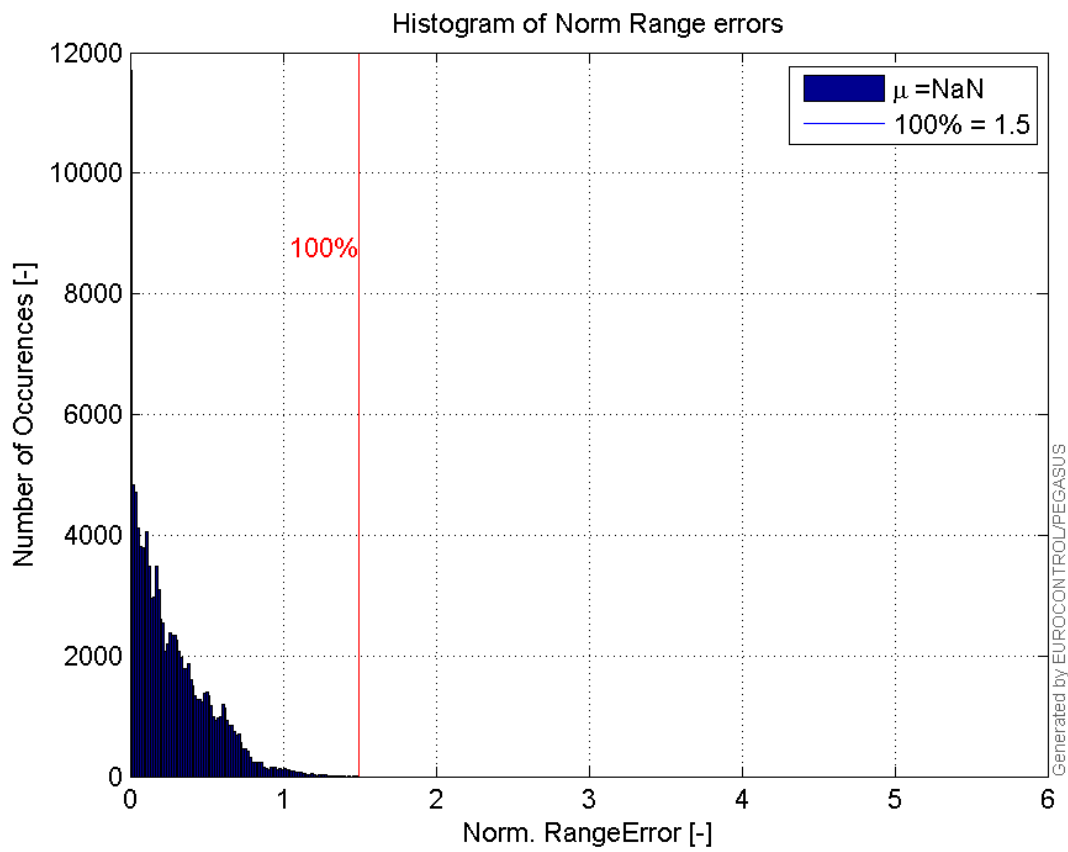
Range errors:



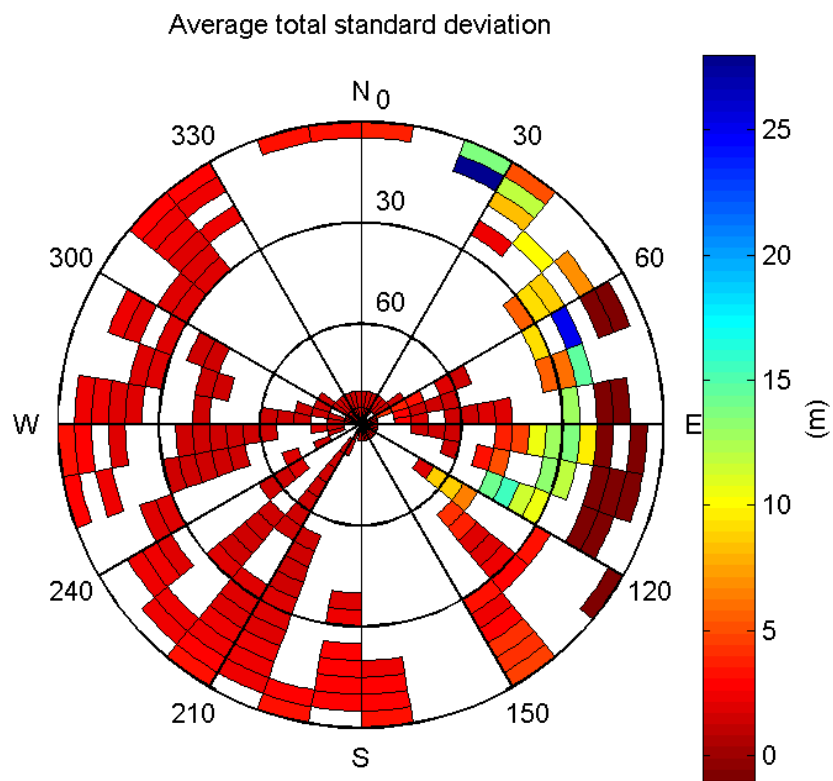
CDF normalised range errors:



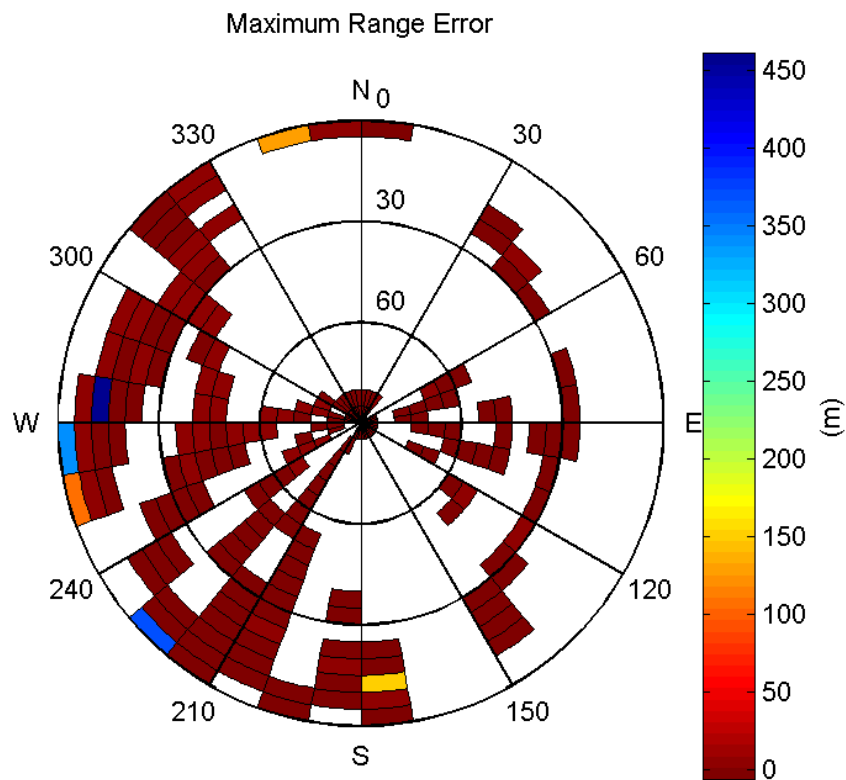
Histogram of Norm Range errors:



Sigma Sky Plot:

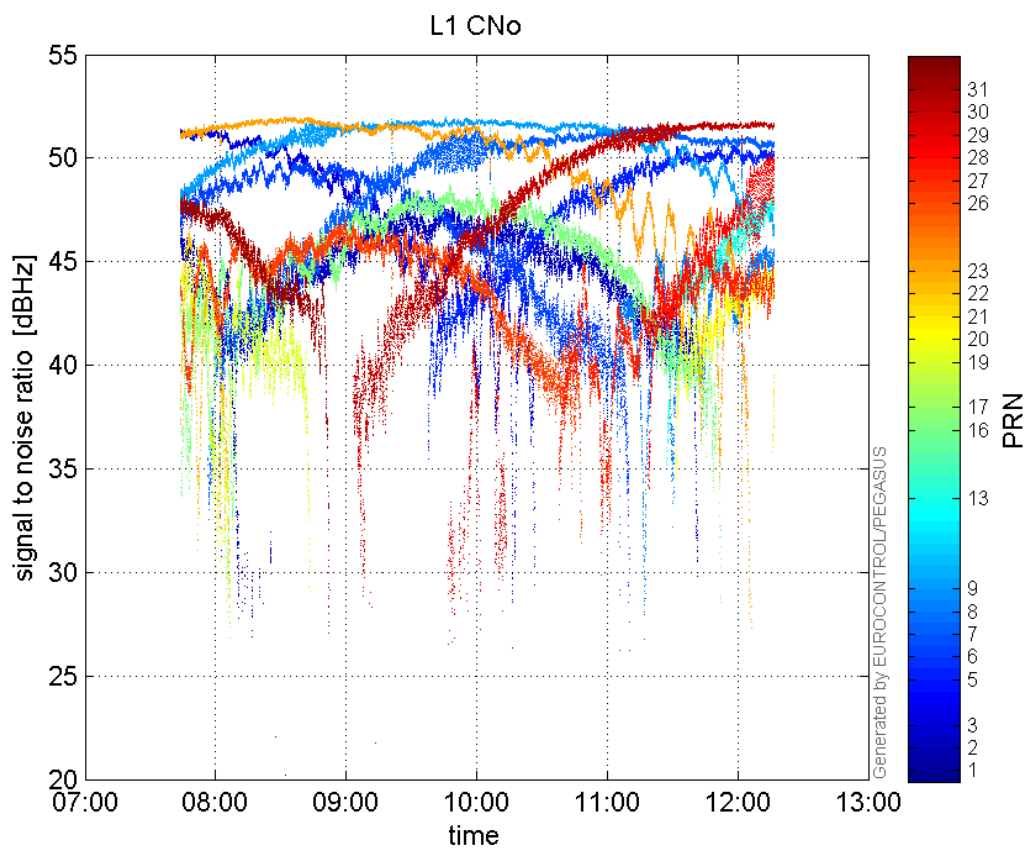


Norm Error Sky Plot:

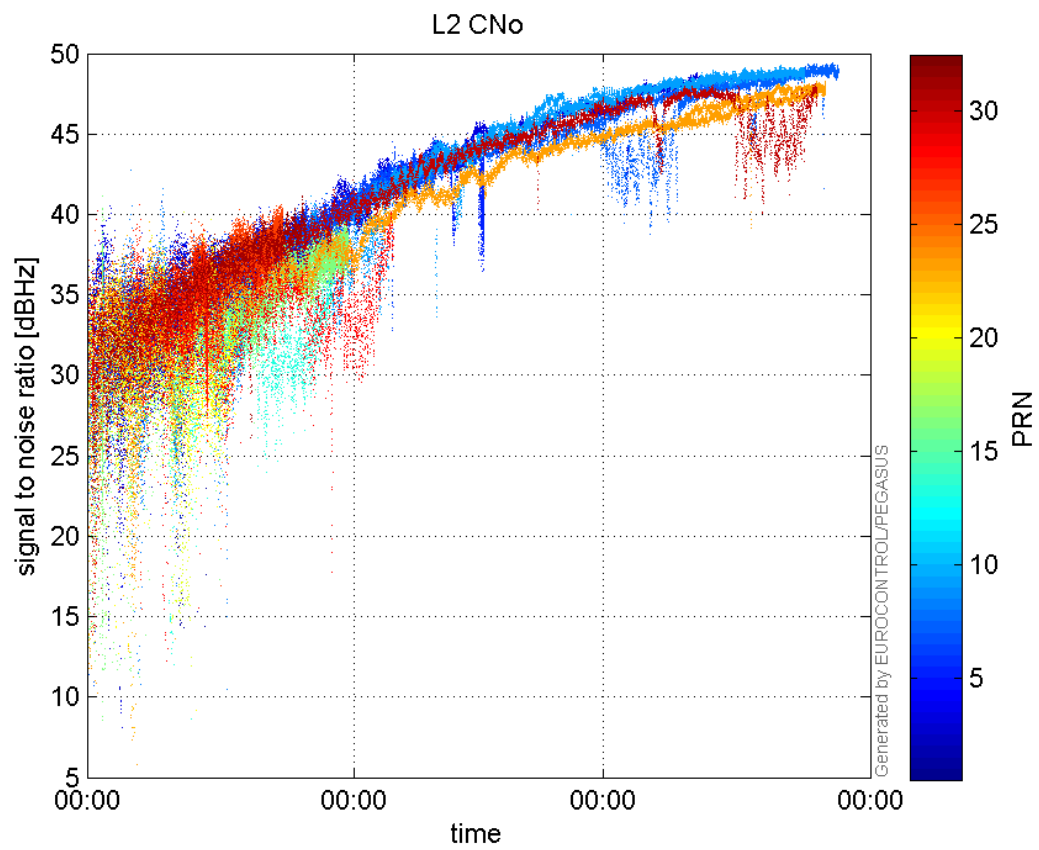


signal quality

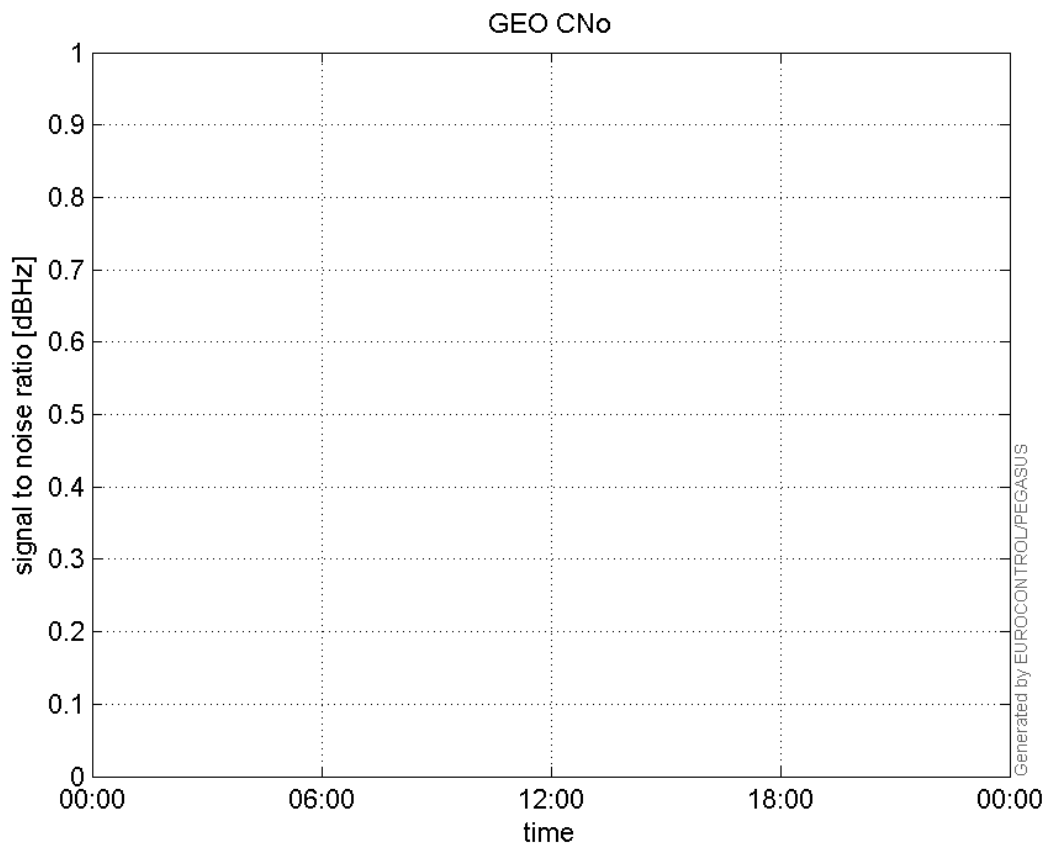
L1 CNo:



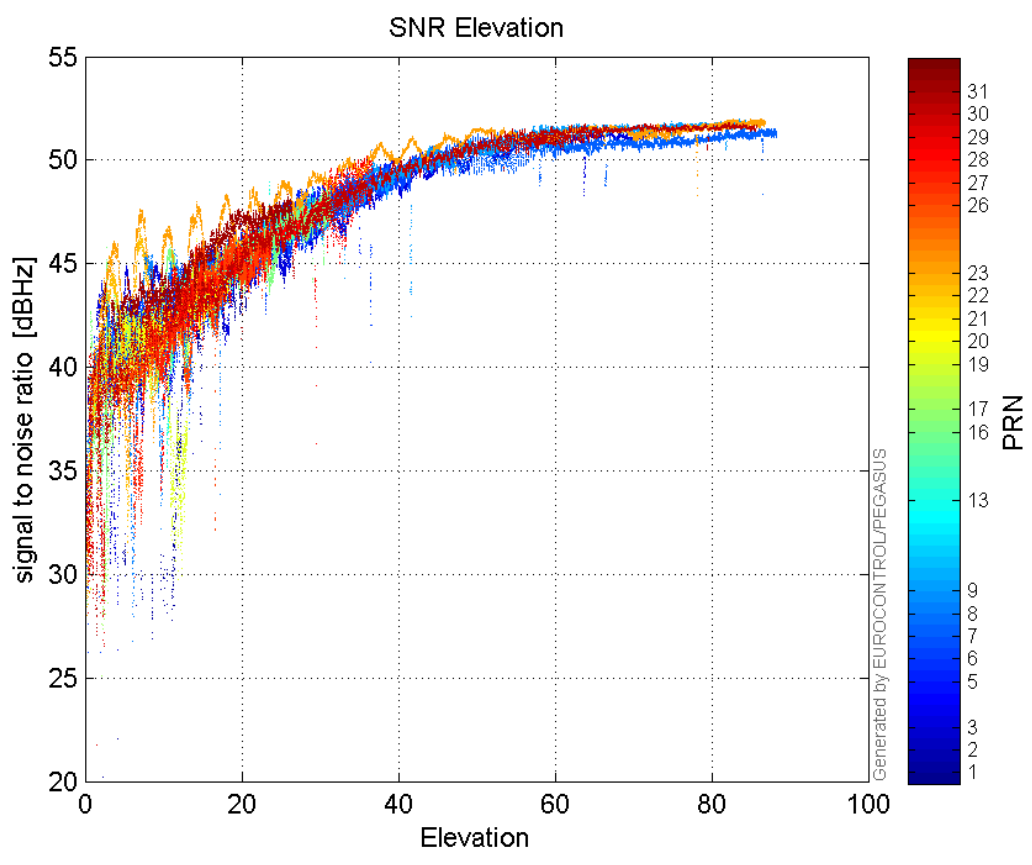
L2 CNo:



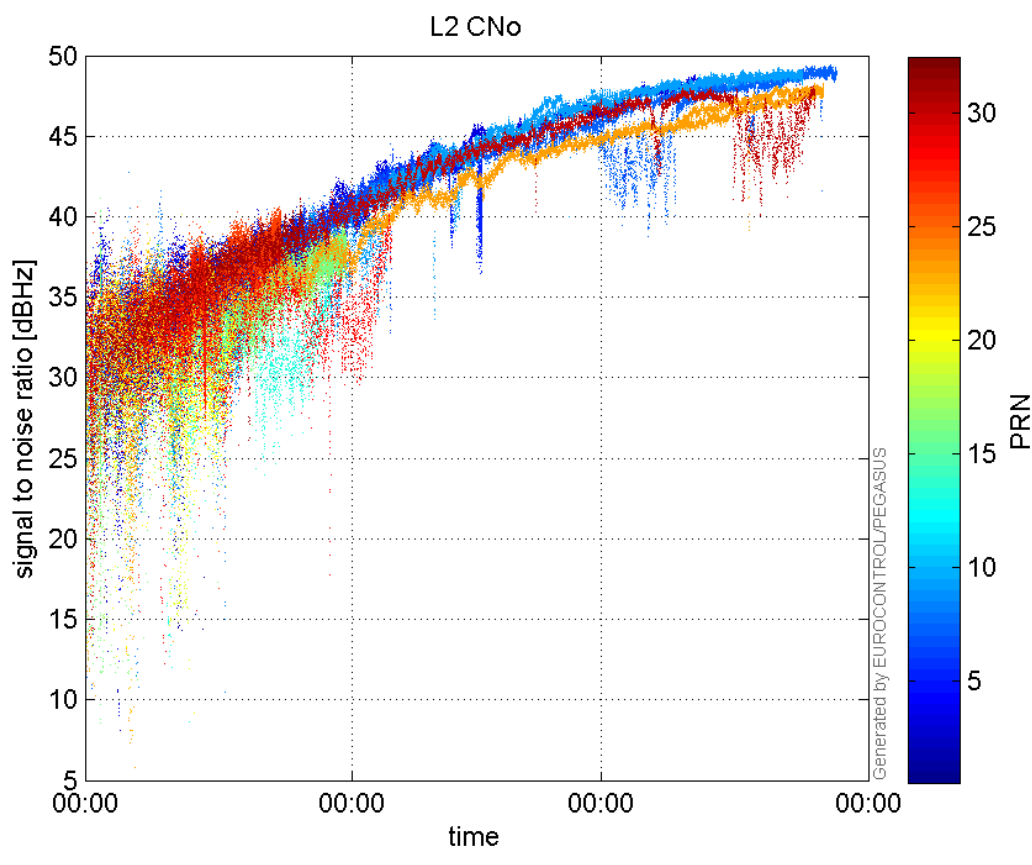
GEO CNo:



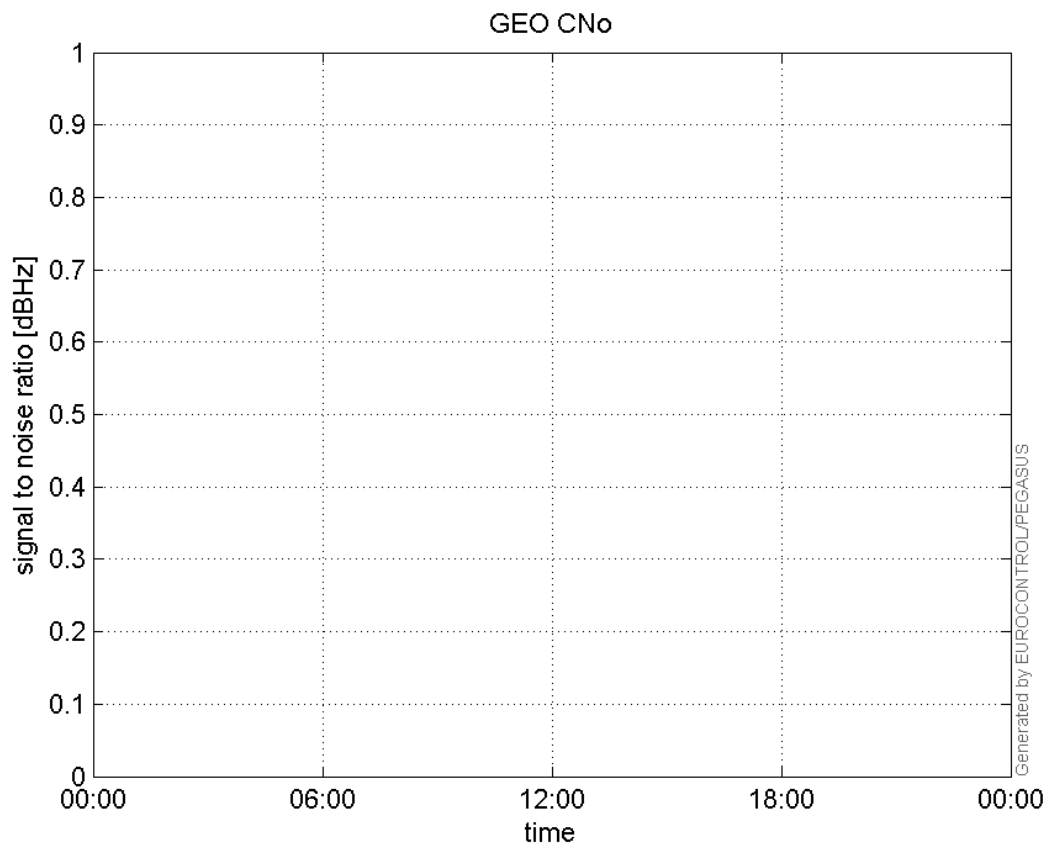
SNR Elevation:



L2 CNo:

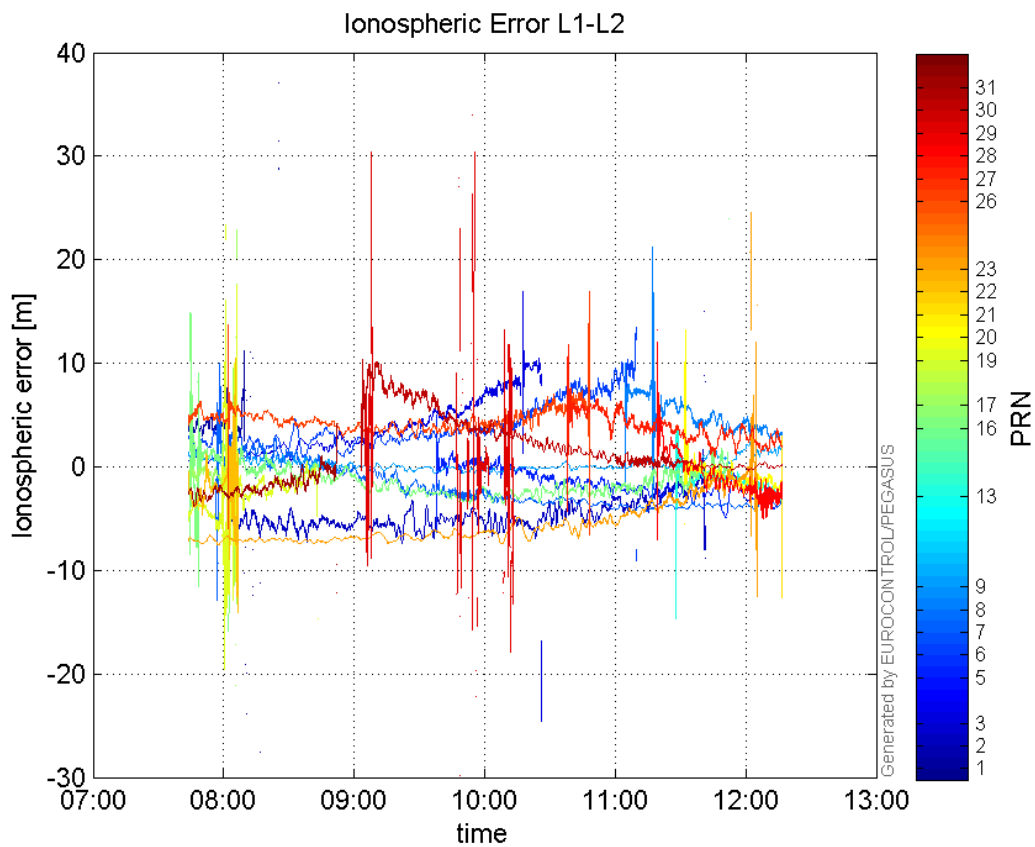


GEO CNo:



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_25EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_02_25EGNOS/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	226.6962
mi_numbers	results	0

SBAS Messages

start: 07:43:42.129 25.02.2016 (week: 1885 sec: 373422.129)
end: 12:16:45.129 25.02.2016 (week: 1885 sec: 389805.129)
duration: 04:33:2.99999 ..

quality

valid samples 32716
total samples 32716
number of SBAS PRNs 2

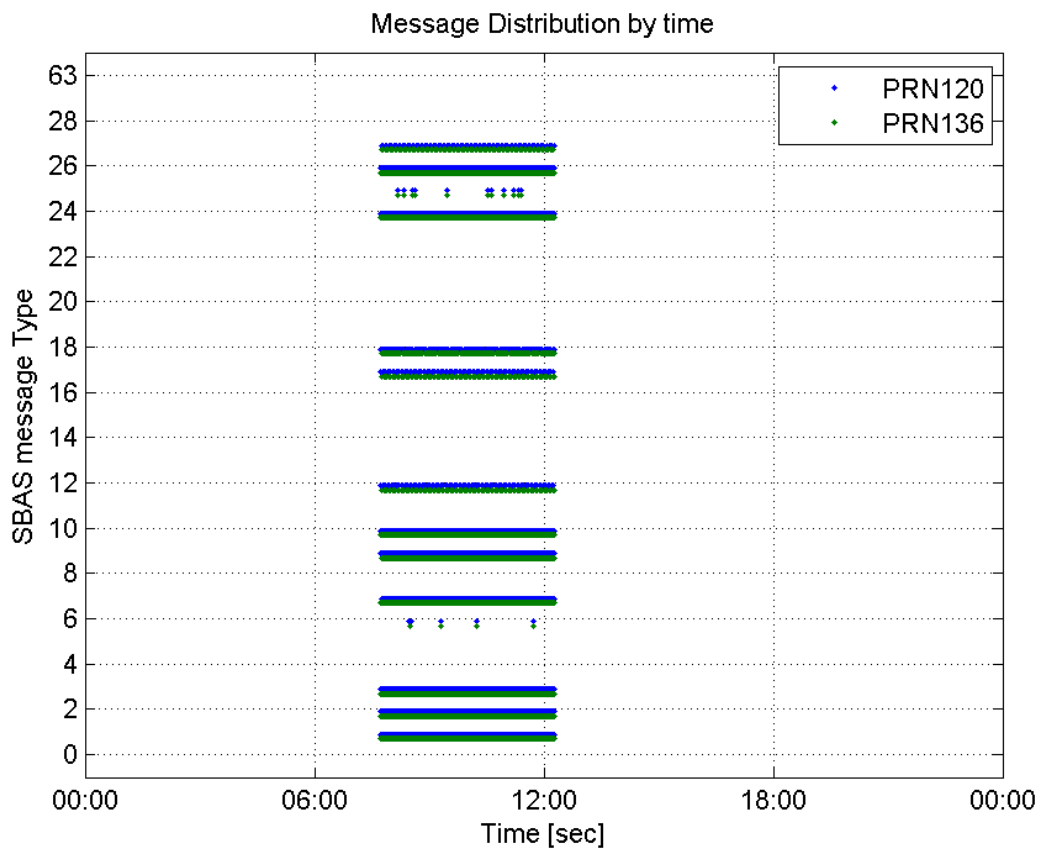
SBAS SIS Overview

Message Type 6 repetitions :

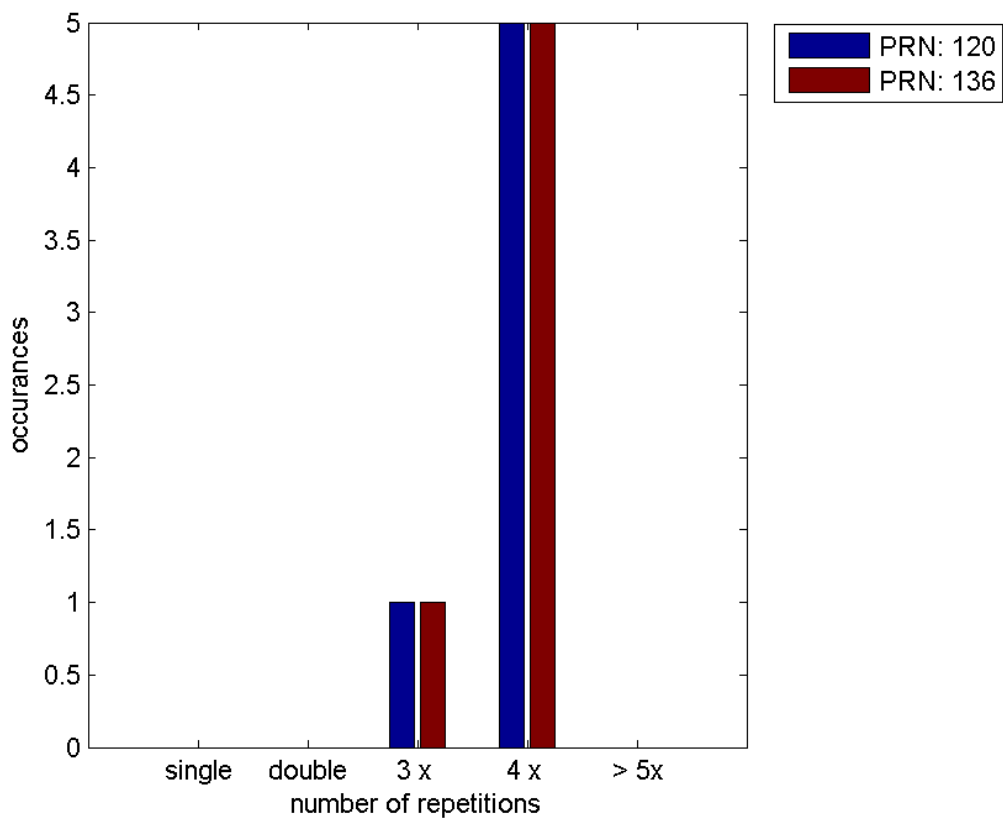
	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	5	0

PRN 136	0	0	1	5	0
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Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

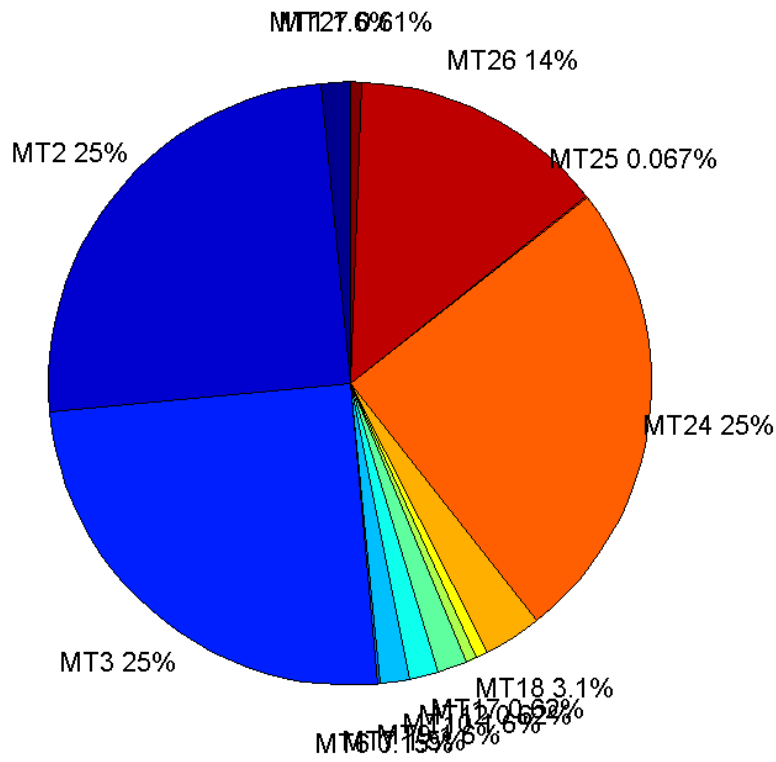
	number of messages	%
MT 0	0	0
MT 1	254	1.55523
MT 2	4077	24.9633
MT 3	4076	24.9571
MT 4	0	0
MT 5	0	0
MT 6	24	0.146951
MT 7	253	1.54911
MT 9	254	1.55523
MT 10	254	1.55523
MT 12	102	0.624541
MT 17	102	0.624541
MT 18	512	3.13495
MT 24	4077	24.9633
MT 25	11	0.0673524
MT 26	2236	13.6909
MT 27	100	0.612295
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	16332	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	63	128	64.5929	1	0	0
MT 2	4	32	4.01816	8	2	2
MT 3	4	32	4.01914	8	2	2
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5294	509.174	5	5	5
MT 7	64	128	64.5952	1	0	0
MT 9	64	128	64.5771	0	0	0
MT 10	64	128	64.5929	1	0	0
MT 12	156	172	160.535	101	0	0
MT 17	159	172	160.535	0	0	0
MT 18	4	140	32.0587	0	0	0

MT 24	4	32	4.01914	0	0	0
MT 25	147	3808	1166.2	0	0	0
MT 26	4	40	7.31544	0	0	0
MT 27	160	320	163.778	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

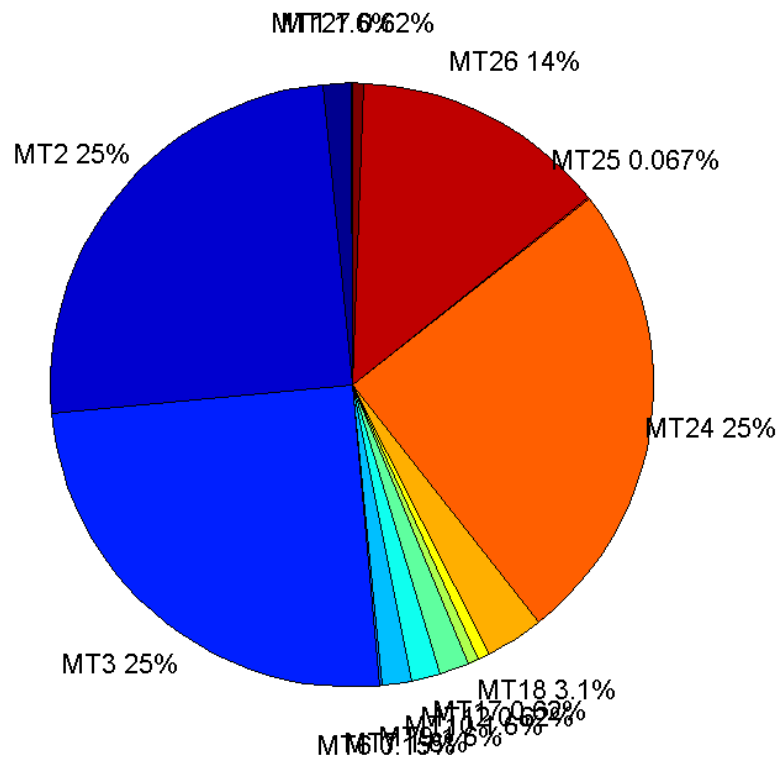
	number of messages	%
MT 0	0	0
MT 1	255	1.5564
MT 2	4089	24.9573
MT 3	4089	24.9573
MT 4	0	0
MT 5	0	0

MT 6	24	0.146484
MT 7	255	1.5564
MT 9	254	1.55029
MT 10	255	1.5564
MT 12	102	0.622559
MT 17	102	0.622559
MT 18	510	3.11279
MT 24	4089	24.9573
MT 25	11	0.0671387
MT 26	2247	13.7146
MT 27	102	0.622559
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	16384	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	73	64.3386	0	0	0
MT 2	4	8	4.0066	6	0	0
MT 3	4	8	4.0066	6	0	0
MT 4	--	--	--	--	--	--
MT 5	--	--	--	--	--	--
MT 6	1	5296	509	5	5	5
MT 7	64	72	64.3071	0	0	0
MT 9	64	72	64.2925	0	0	0
MT 10	64	72	64.3386	0	0	0
MT 12	156	172	160.535	101	0	0
MT 17	156	172	160.495	0	0	0
MT 18	4	130	31.9175	0	0	0
MT 24	4	8	4.00685	0	0	0
MT 25	147	3808	1166.2	0	0	0
MT 26	4	29	7.29386	0	0	0
MT 27	156	172	160.495	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_25EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_02_25EGNOS/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: 07:43:43 25.02.2016 (week: 1885 sec: 373423)
end: 12:16:46 25.02.2016 (week: 1885 sec: 389806)
duration: 04:33:04 ..

quality

valid samples 16023

total samples 16384

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 nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	379554	1.3924	9.35427	0.148852	0.523416	15.3379	0.0341256
max normVer	377277	1.82725	51.5366	0.0354553	3.1546	21.7084	0.145317
max HPE	387372	13.1405	454.614	0.0289047	-2.21307	119.445	0.0185279
max VPE	387450	5.41859	716.985	0.00755747	3.30225	190.796	0.0173077
min HPL	380850	0.671419	9.23396	0.0727119	0.388112	14.7574	0.0262995
min VPL	381730	0.977671	9.4934	0.102984	-0.0407641	13.9673	0.00291854

Position discontinuity events :

#	Epoch	duration	stable period
1	385553	24	11769
2	388938	14	3361

APV-I discontinuity events :

#	Epoch	duration	stable period
1	374905	5	1121
2	376914	884	2004
3	385552	27	7519
4	386697	26	1118
5	386799	681	1
6	388935	21	1455

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	374905	43	1121
2	376914	884	1966
3	382959	134	3
4	385551	28	2458
5	386697	26	1118
6	386799	681	1

7	388935	21	1455
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LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	374905	43	1121
2	376914	884	1966
3	382959	134	3
4	385551	28	2458
5	386697	26	1118
6	386799	681	1
7	388935	21	1455

First Glance analysis

Duration	16384
Number of Samples	16384
Number of invalid sample	361
Number of no position solution samples	38
Number of missing sample	0
Logging Loss	0
Processing Loss	2.2034
Number of Misleading Information	0
Data gaps	0
Discontinuities	2

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
15985	14344	14166	0	14166

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.59214	1.39554	1.39612	NaN	1.39612
HPEScale 95%	NaN	4.41273	4.41893	NaN	4.41893
VPE 95%	1.9812	1.58217	1.58756	NaN	1.58756
VPEscale 95%	NaN	4.19716	2.94607	NaN	2.94607

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.997628	0.895213	0.884104	0	0.884104
measurements	0.975647	0.875488	0.864624	0	0.864624
Operational	0.975647	0.875488	0.864624	0	0.864624

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	2	41	47	--	47
Long	2	6	7	--	7
Independent	2	5	5	--	5

P(disc.)	0.00187676	0.00522867	0.00529437	NaN	0.00529437
P(slide)	0.00187676	0.0133854	0.0156713	NaN	0.0156713

Integrity events :

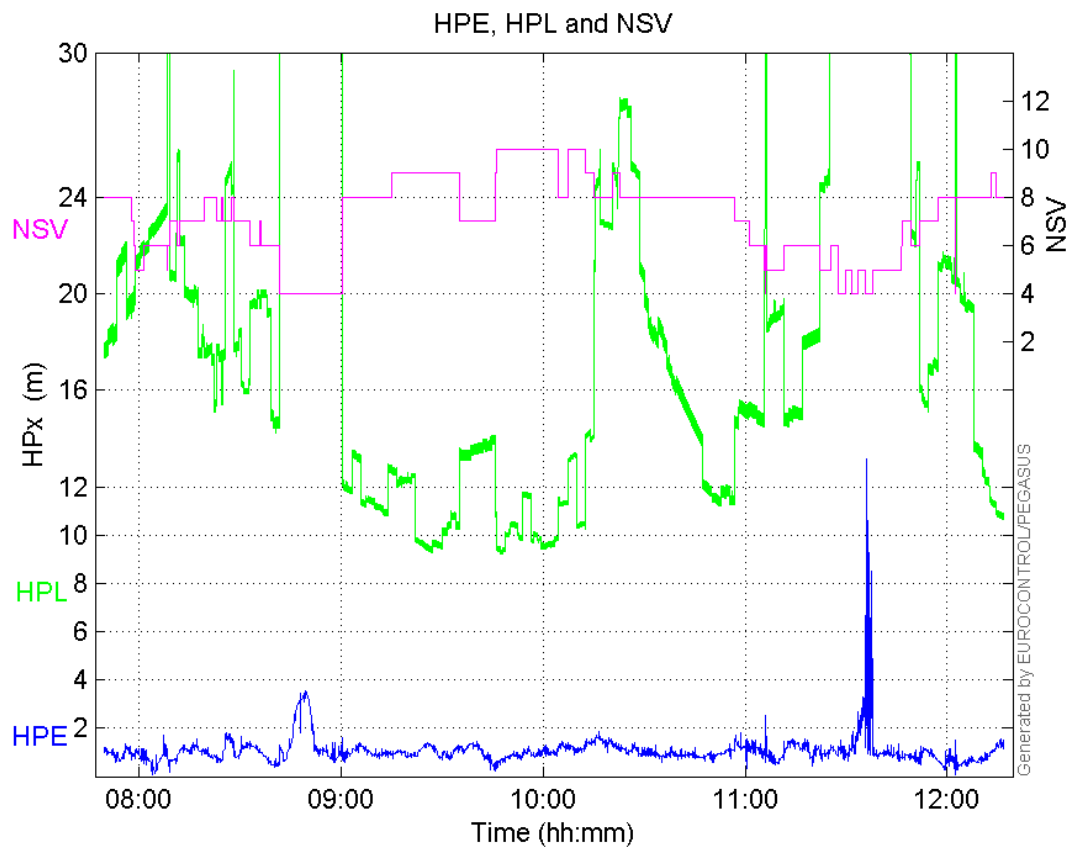
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

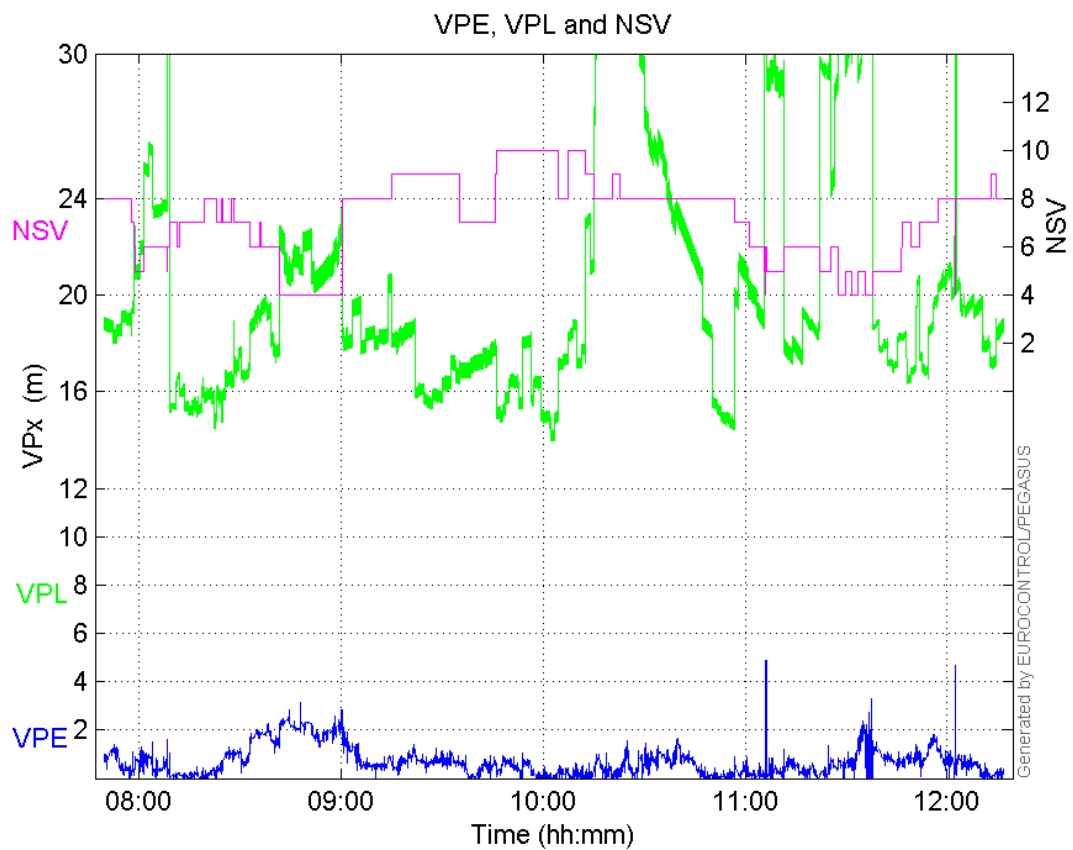
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	15985	14344	14166	0	14166
SIS Availability	0.997628	0.895213	0.884104	0	0.884104
Local Availability	0.975647	0.875488	0.864624	0	0.864624
Operational Availability	0.975647	0.875488	0.864624	0	0.864624
HPE 95%	1.59214	1.39554	1.39612	NaN	1.39612
HPEScale 95%	NaN	4.41273	4.41893	NaN	4.41893
VPE 95%	1.9812	1.58217	1.58756	NaN	1.58756
VPEscale 95%	NaN	4.19716	2.94607	NaN	2.94607
All Discontinuity Events	2	41	47	--	47
Long Discontinuity Events	2	6	7	--	7
Independent Discontinuity Events	2	5	5	--	5
P(discontinuity)	0.00187676	0.00522867	0.00529437	NaN	0.00529437
P(sliding window)	0.00187676	0.0133854	0.0156713	NaN	0.0156713
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:

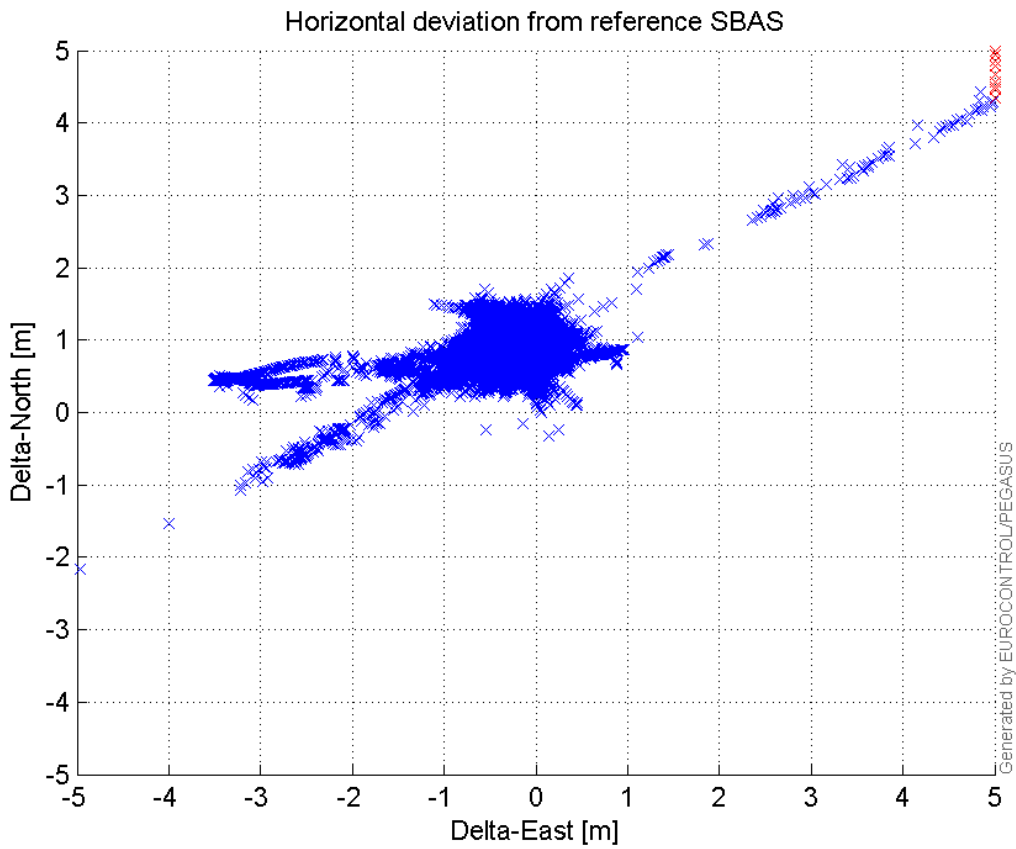


VPE, VPL and NSV:



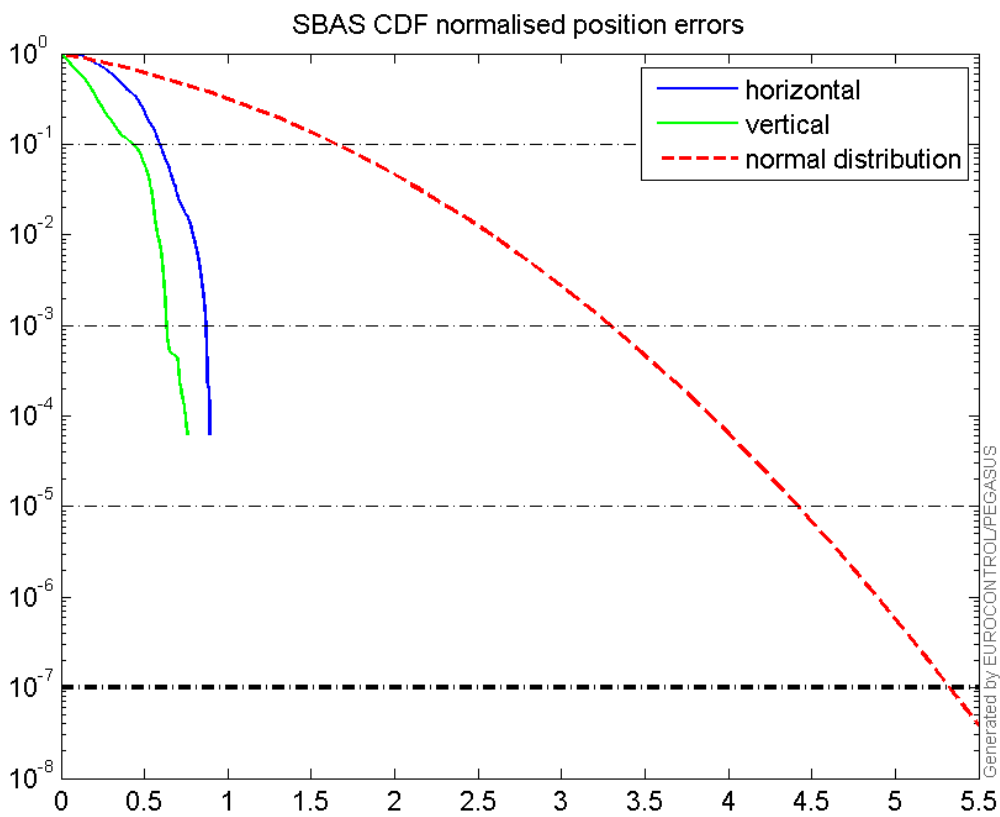
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

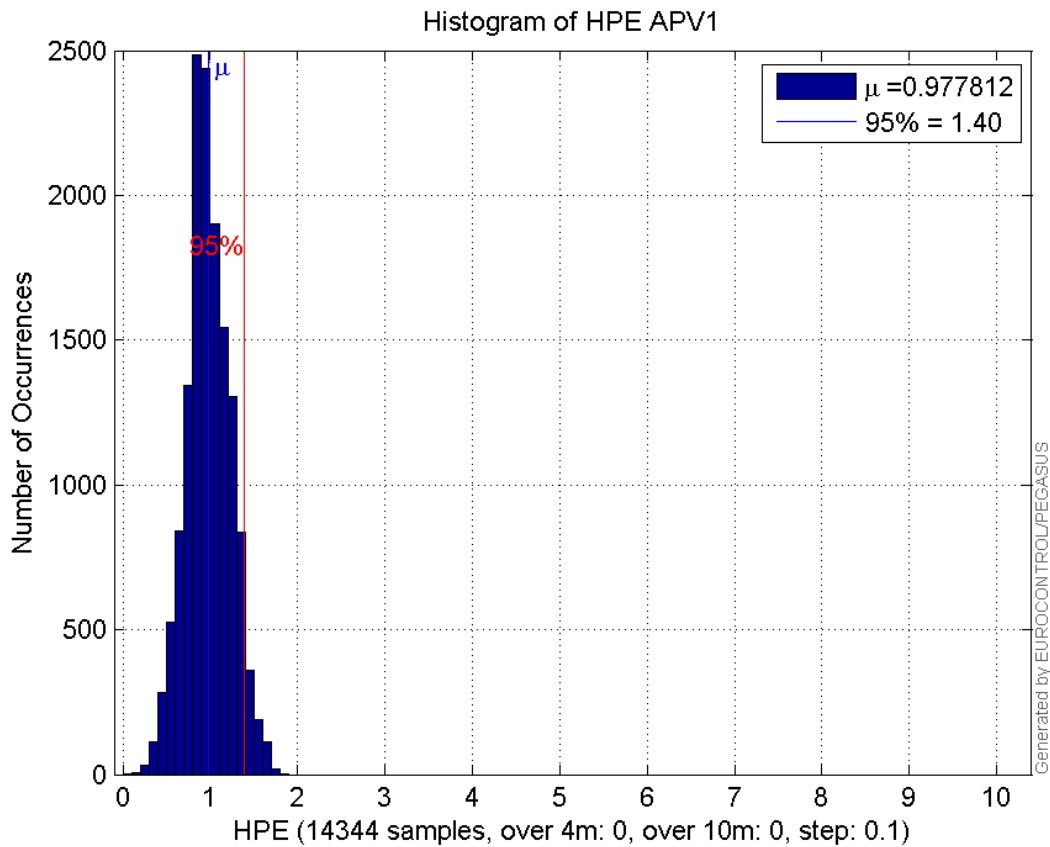
number	14344
sum	14025.736
sum2	14625.088
prctile95	1.3955417
prctile99	1.5985178
number	14344
sum	8502.5711
sum2	8092.5987
prctile95	1.5821674
prctile99	2.013575
number	14344
sum	251156.24
sum2	5085861.3
prctile95	35.90932
prctile99	39.039858
number	14344
sum	284451.57
sum2	5948462.2
prctile95	30.5674
prctile99	35.154396
number	14344
sum	916.28517
sum2	69.194768
prctile95	0.11031828
prctile99	0.13280435
number	14344
sum	439.48924
sum2	21.690264
prctile95	0.083943289
prctile99	0.10008664
number	14166
sum	13843.267
sum2	14428.517
prctile95	1.3961205
prctile99	1.5986551
number	14166
sum	8412.1561
sum2	8028.789
prctile95	1.5875575
prctile99	2.0172824
number	14166
sum	246045.02
sum2	4938484.7
prctile95	35.93208
prctile99	39.049864
number	14166
sum	278095.98
sum2	5721482.9
prctile95	29.81766

prctile99 32.537932
number 14166
sum 909.83094
sum2 68.945099
prctile95 0.1104733
prctile99 0.13287537
number 14166
sum 436.95073
sum2 21.639795
prctile95 0.08417337
prctile99 0.100108

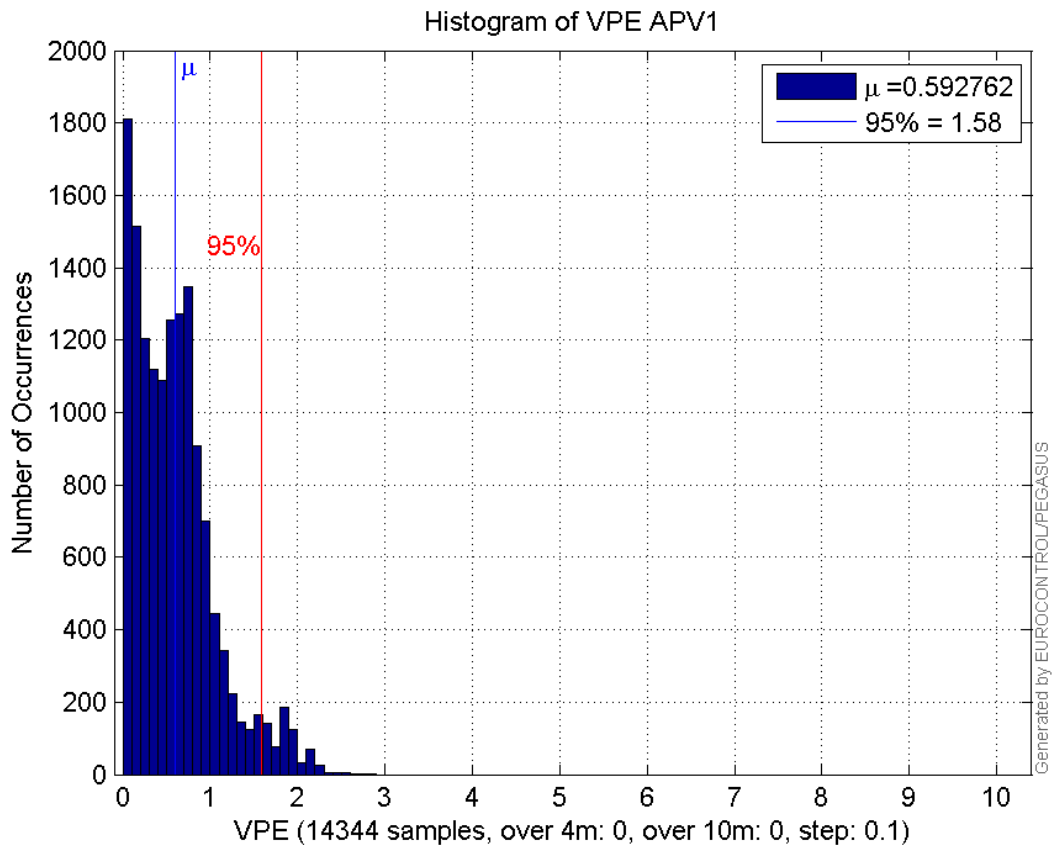
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.977812	0.251961	0.962644	1.39554	1.59852	1.00975
HPL	17.5095	6.92708	15.8659	35.9093	39.0399	18.8299
VPE	0.592762	0.461334	0.53496	1.58217	2.01357	0.751119
VPL	19.8307	4.6309	18.426	30.5674	35.1544	20.3642

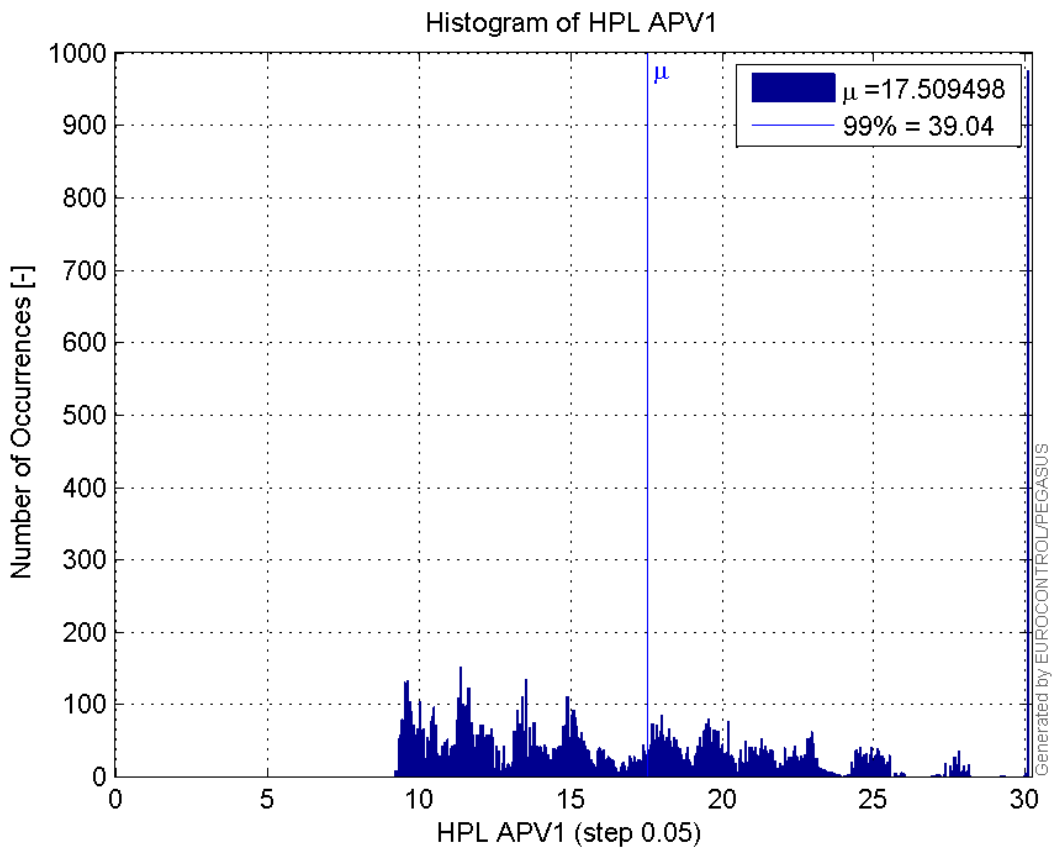
Histogram of HPE APV1:



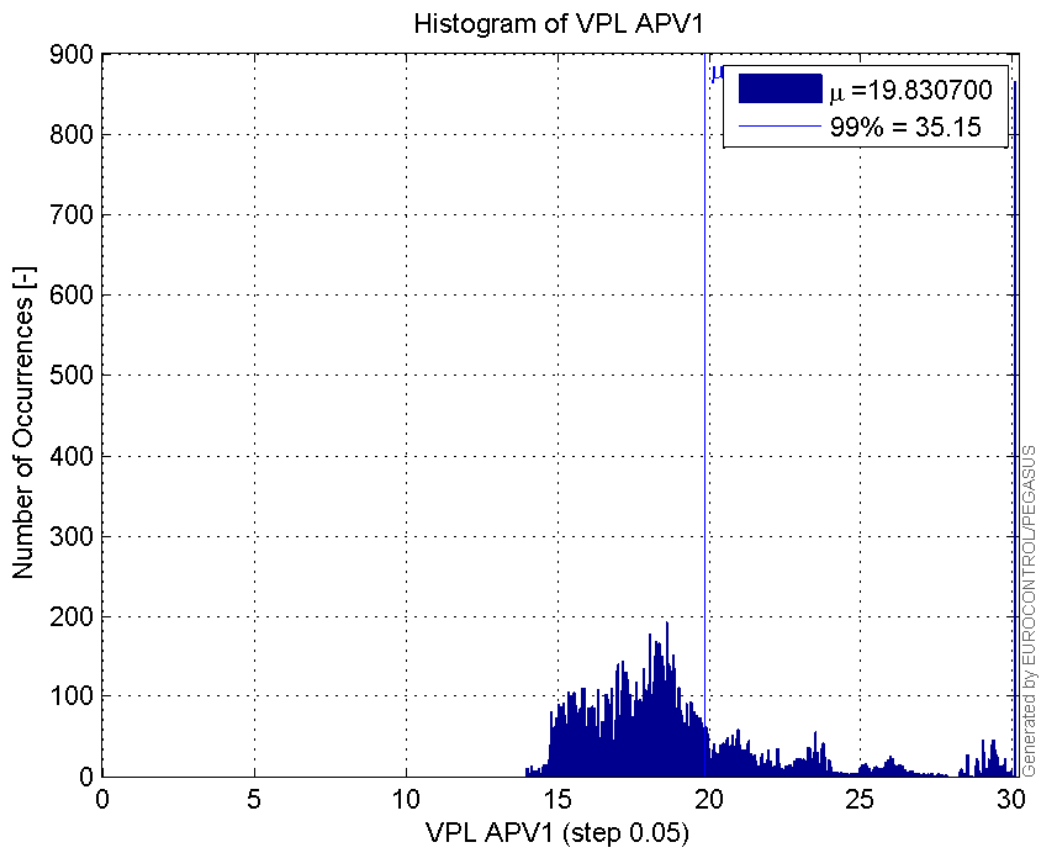
Histogram of VPE APV1:



Histogram of HPL APV1:

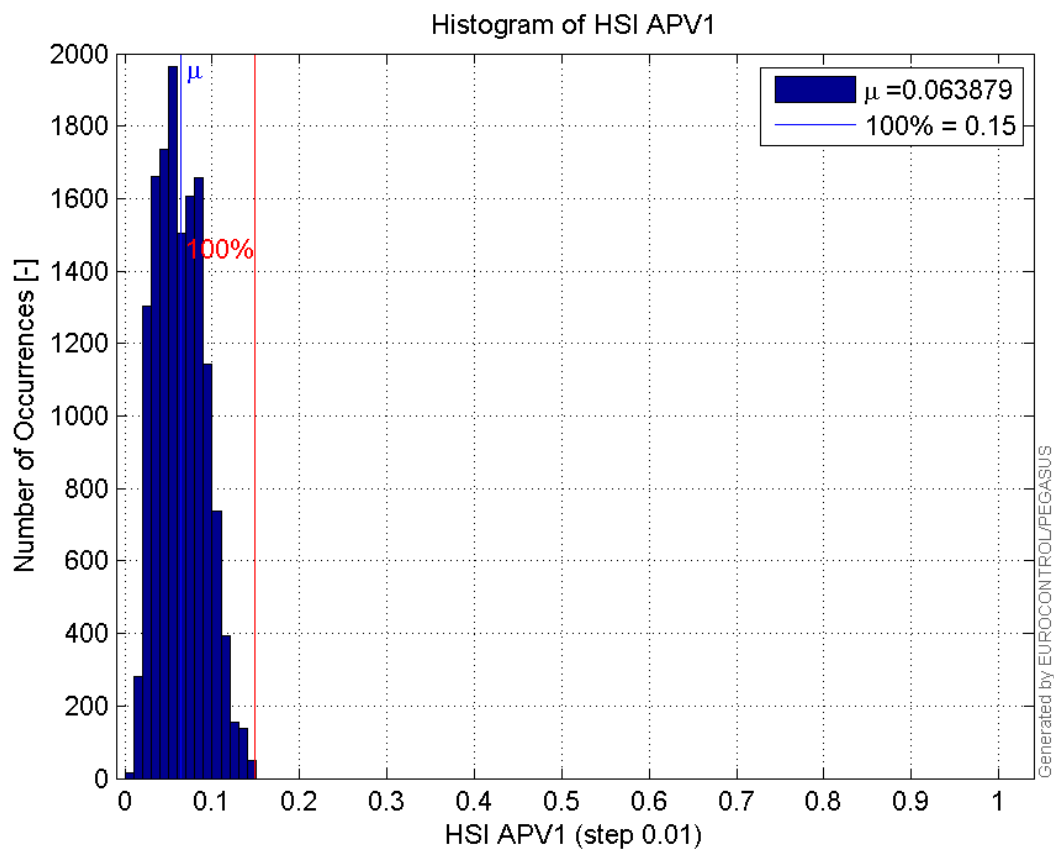


Histogram of VPL APV1:

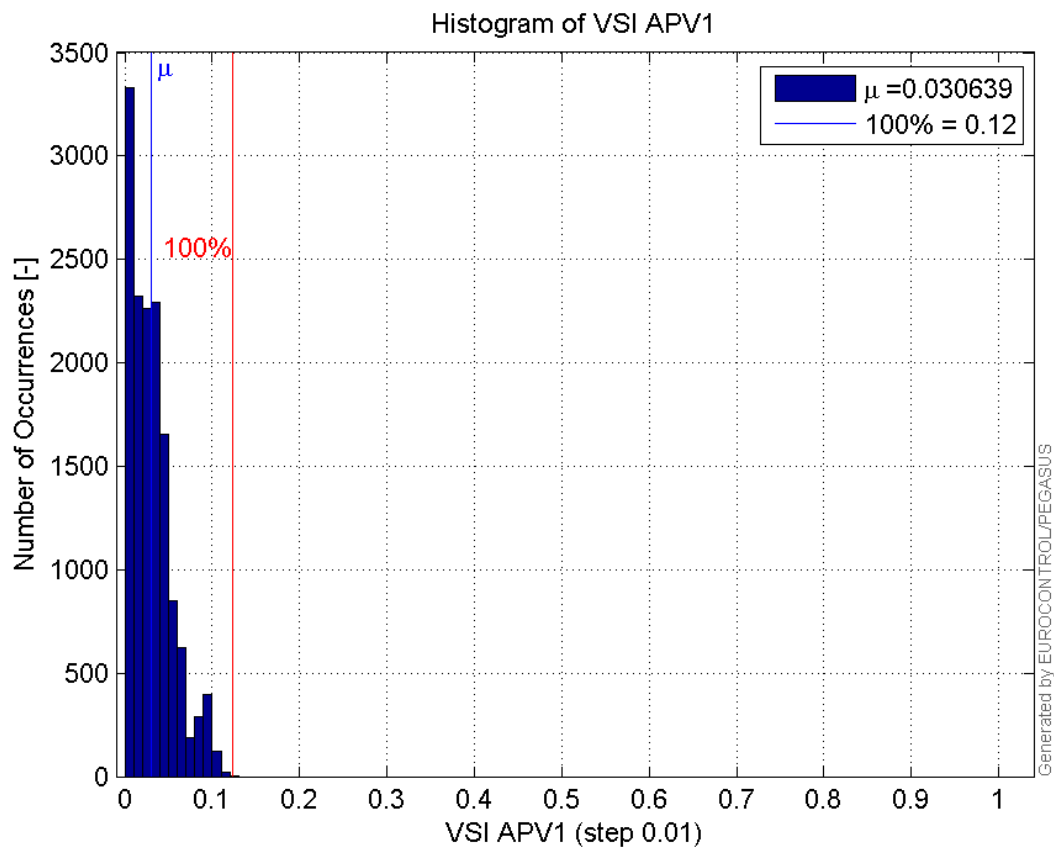
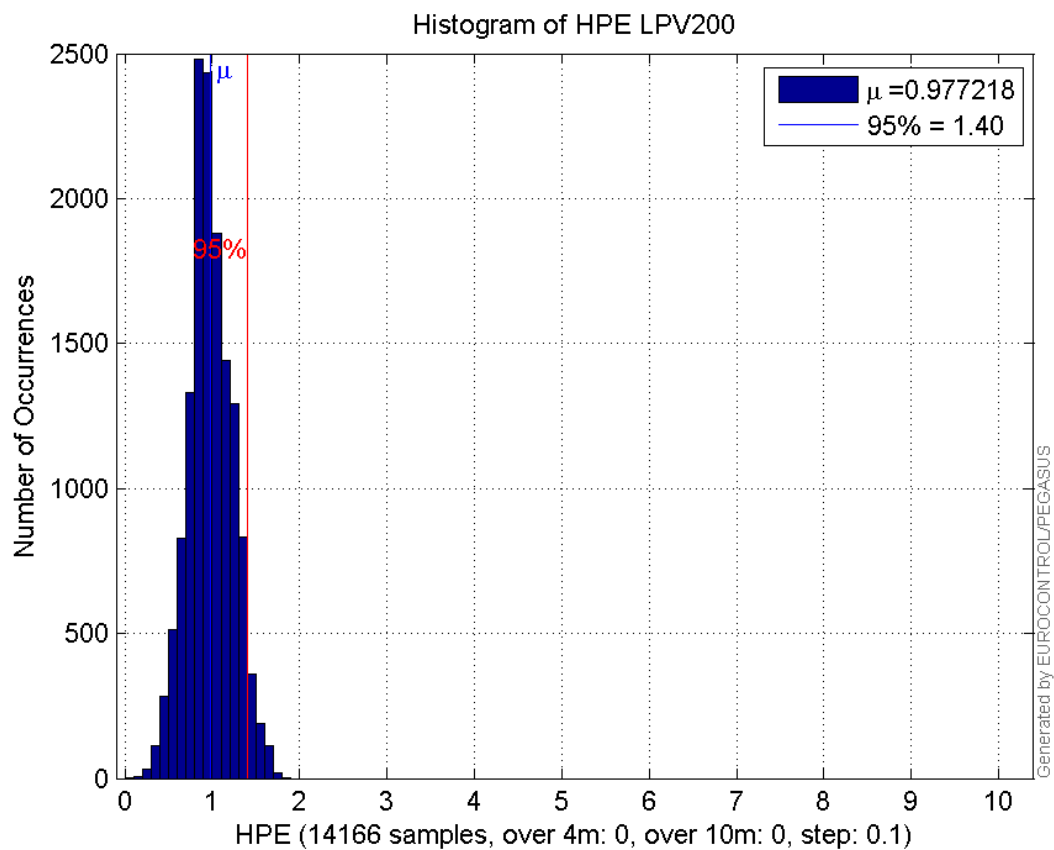


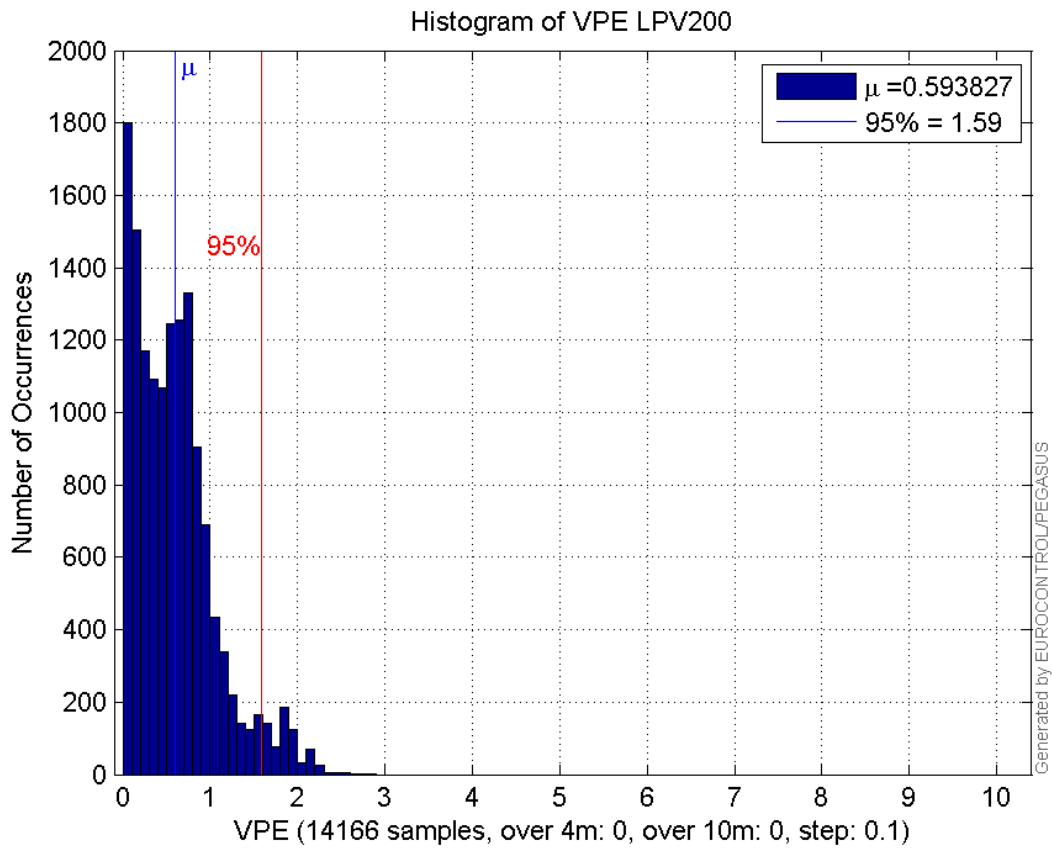
9:

Histogram of HSI APV1:

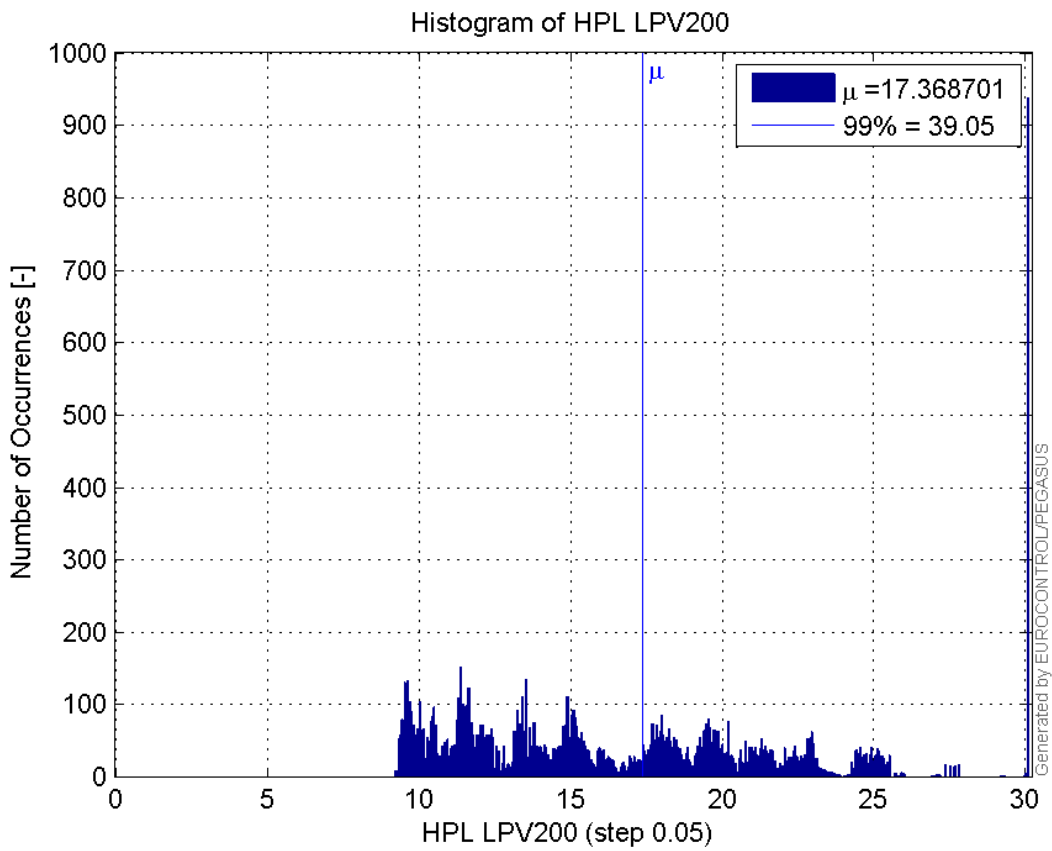


Histogram of VSI APV1:

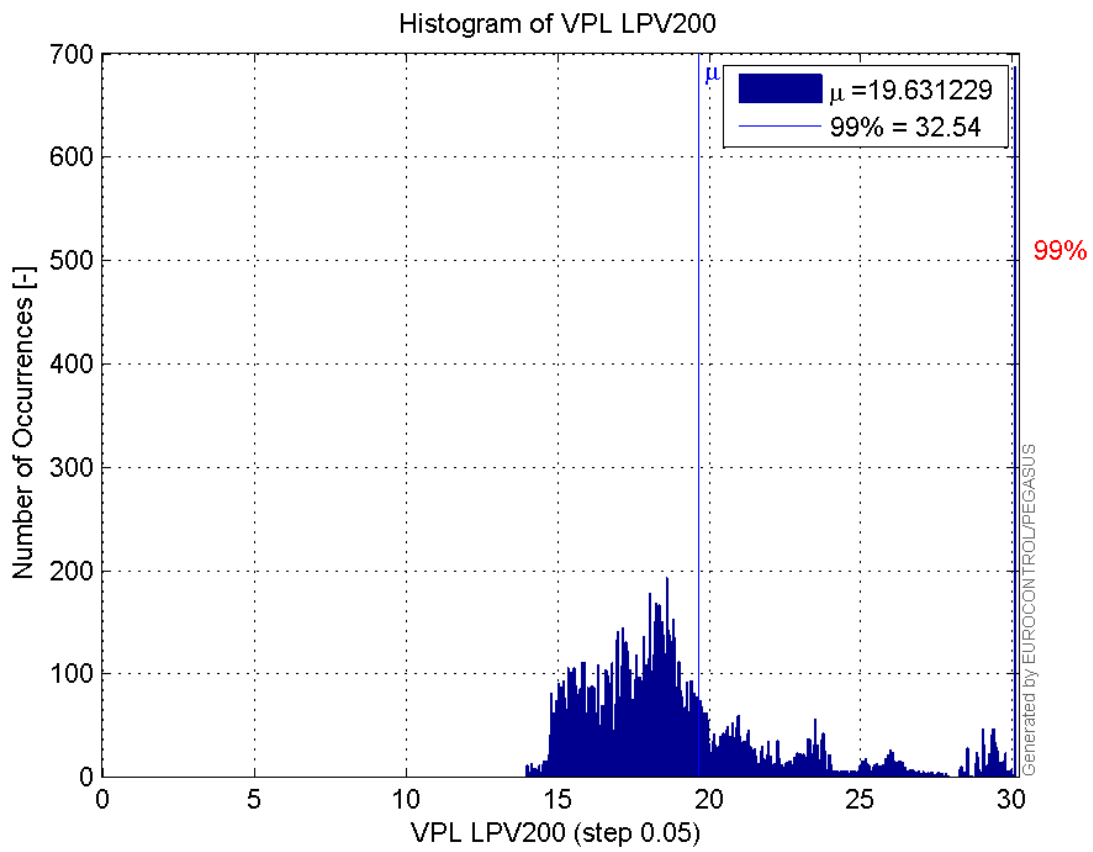
**Histogram of HPE LPV200:****Histogram of VPE LPV200:**



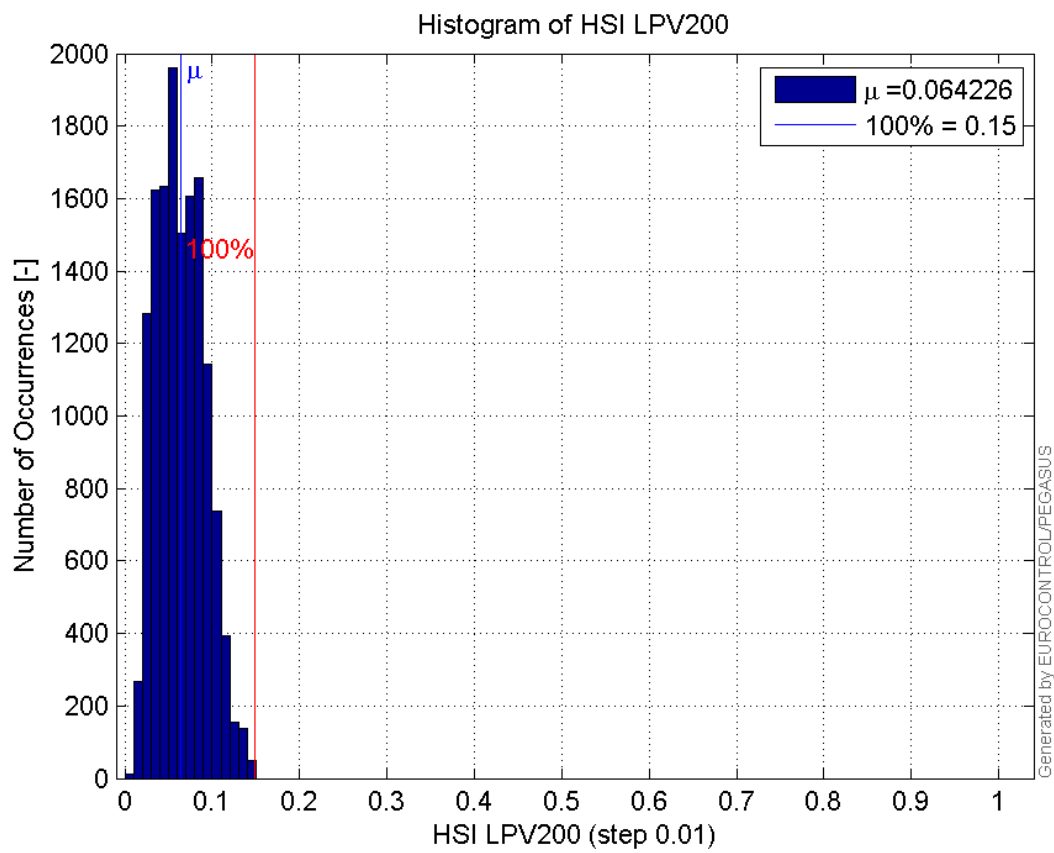
Histogram of HPL LPV200:



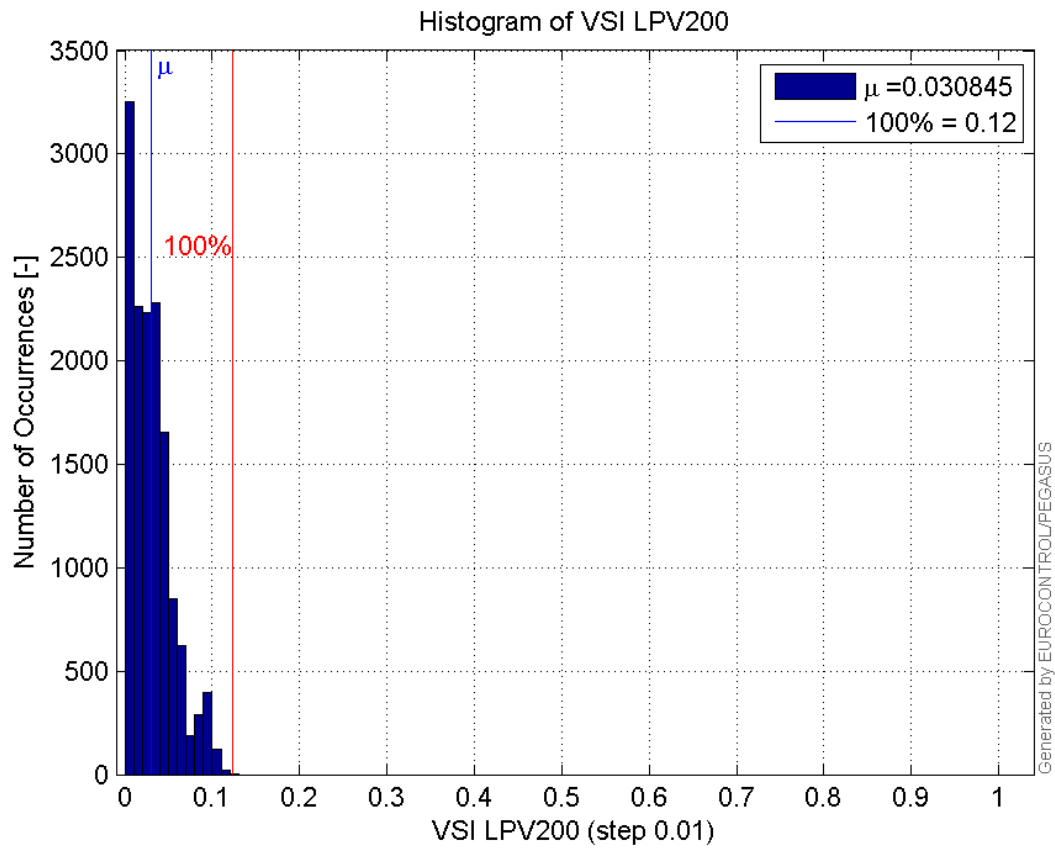
Histogram of VPL LPV200:



Histogram of HSI LPV200:

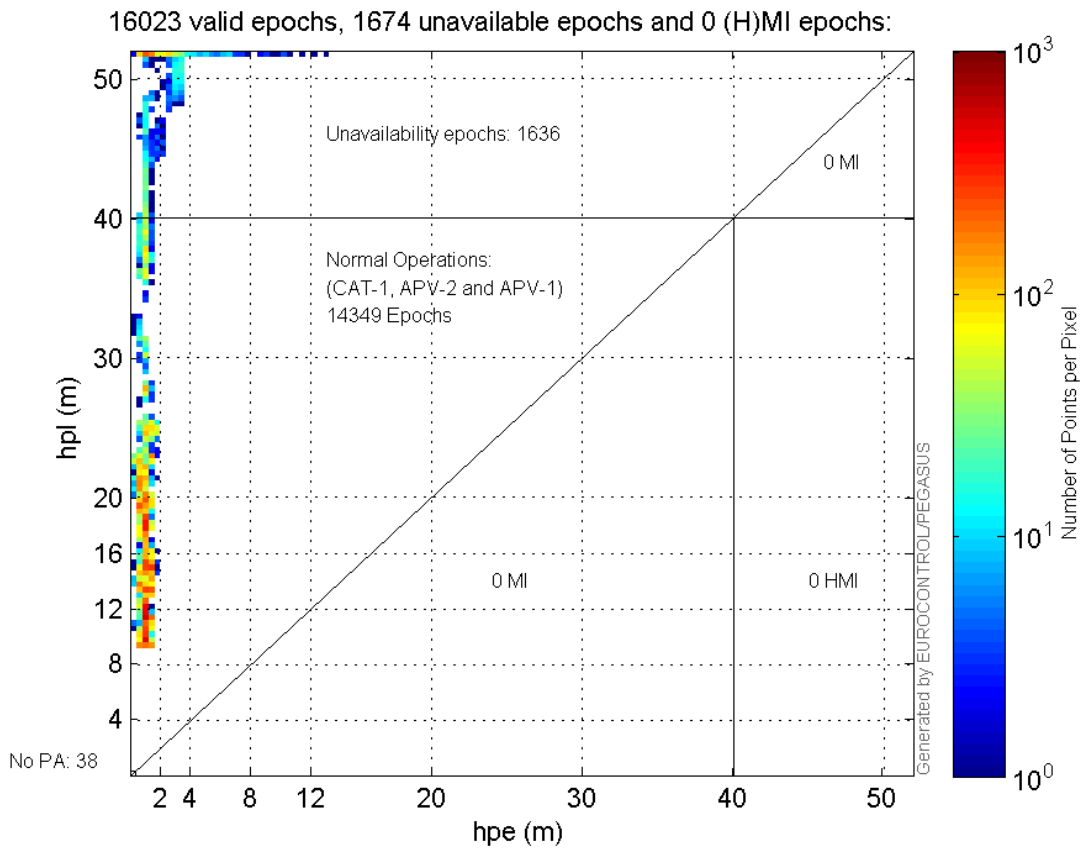


Histogram of VSI LPV200:



Stanford Plots

Horizontal_Stanford_Plot_SBAS:



results		
Name	Section	Value
init_lat	results	50.439
init_lon	results	30.4297
init_alt	results	226.6962
mi_numbers	results	0