

Global View

abbreviation NAU
 version 4.8.2
 program Pegasus
 city Kiev
 site Laboratory satellite systems
 country Ukraine
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 date 29/01/2016

SBAS Messages

start: 05:50:0.128998 20.01.2016 (week: 1880 sec: 280200.129)
end: 14:22:0.128998 20.01.2016 (week: 1880 sec: 310920.129)
duration: 08:31:60 ..

quality

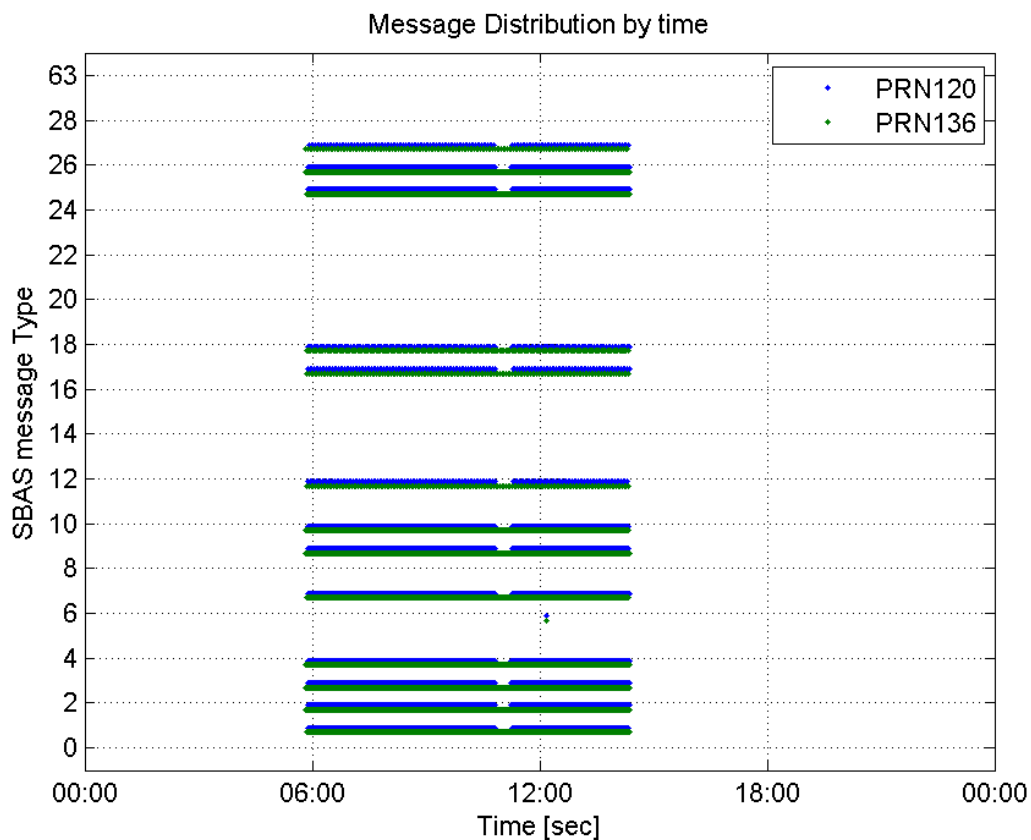
valid samples 59753
total samples 59753
number of SBAS PRNs 2

SBAS SIS Overview

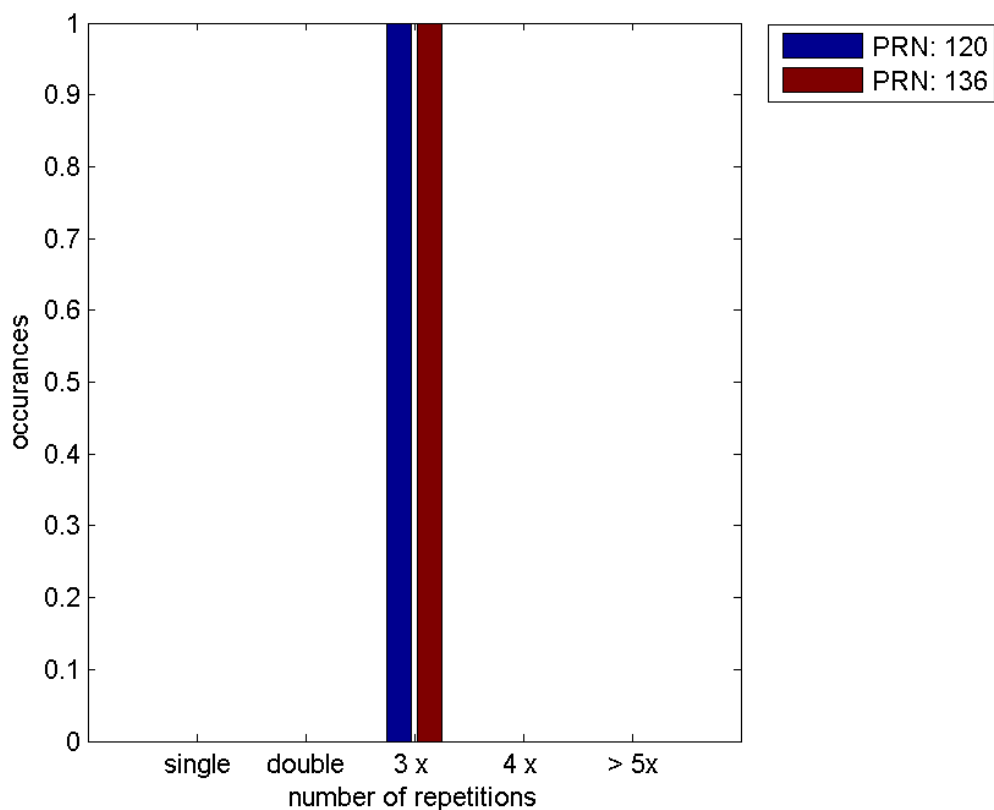
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	0	0
PRN 136	0	0	1	0	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

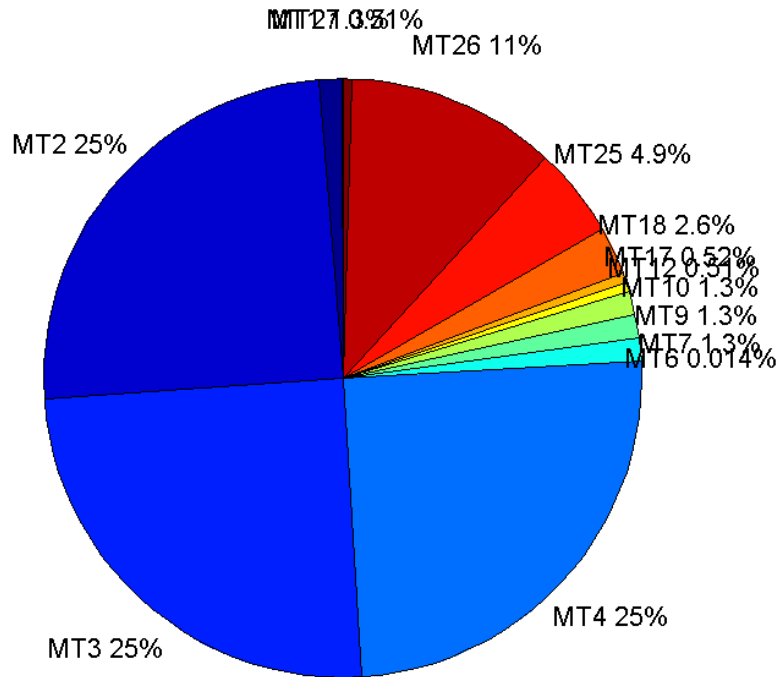
	number of messages	%
MT 0	0	0
MT 1	366	1.26068
MT 2	7221	24.8726
MT 3	7221	24.8726
MT 4	7222	24.876
MT 5	0	0
MT 6	4	0.0137779
MT 7	367	1.26412
MT 9	365	1.25723
MT 10	366	1.26068
MT 12	149	0.513227
MT 17	150	0.516671
MT 18	750	2.58336
MT 24	0	0
MT 25	1418	4.88427
MT 26	3284	11.3117
MT 27	149	0.513227
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	29032	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	1659	83.6082	1	1	1
MT 2	4	1548	4.23407	2	1	1
MT 3	4	1544	4.23366	2	1	1
MT 4	4	1545	4.23362	2	1	1
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	75	1599	83.4454	1	1	1
MT 9	75	1680	83.6319	0	0	0
MT 10	75	1600	83.4658	1	1	1
MT 12	188	1759	204.872	148	1	1
MT 17	184	1759	204.812	0	0	0
MT 18	4	1723	40.7904	1	0	0
MT 24	--	--	--	--	--	--
MT 25	2	1571	21.561	0	0	0
MT	4	1551	9.31221	0	0	0

26						
MT 27	188	1755	204.858	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

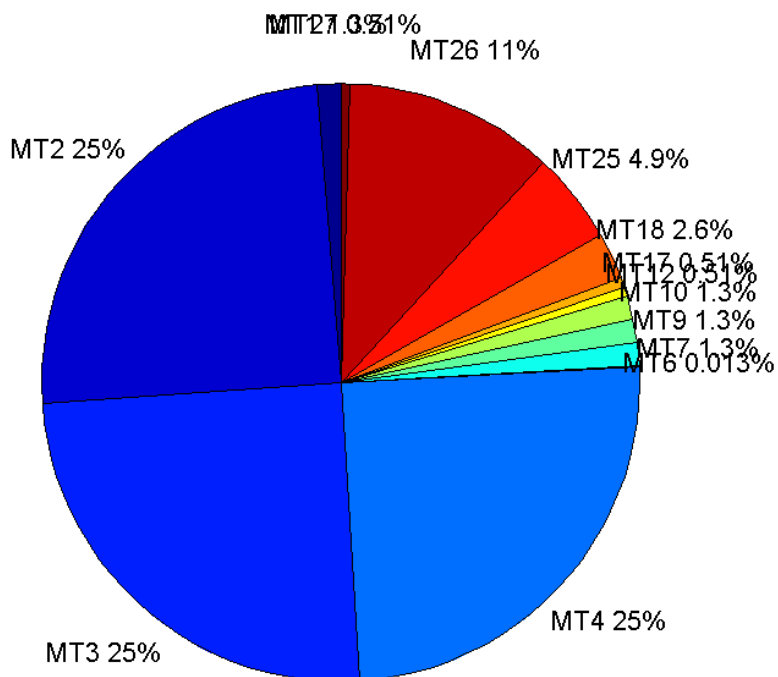
	number of messages	%
MT 0	0	0
MT 1	388	1.26298
MT 2	7640	24.869
MT 3	7640	24.869
MT 4	7641	24.8722
MT 5	0	0
MT 6	4	0.0130204
MT 7	387	1.25972
MT 9	388	1.26298
MT 10	388	1.26298

MT 12	158	0.514306
MT 17	158	0.514306
MT 18	790	2.57153
MT 24	0	0
MT 25	1506	4.90218
MT 26	3475	11.3115
MT 27	158	0.514306
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	30721	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	73	83	79.2842	0	0	0
MT 2	4	8	4.02081	1	0	0
MT 3	4	8	4.02095	1	0	0
MT 4	4	7	4.02081	1	0	0
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	73	81	79.2513	0	0	0
MT 9	75	82	79.261	0	0	0
MT 10	76	81	79.23	0	0	0
MT 12	184	201	194.439	157	0	0
MT 17	184	201	194.465	0	0	0
MT 18	4	164	38.7465	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	60	20.3867	0	0	0
MT 26	4	36	8.84111	0	0	0
MT 27	185	201	194.433	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_01_20_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_01_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

Range Domain

start: 05:50:00 20.01.2016 (week: 1880 sec: 280200)
end: 14:22:00 20.01.2016 (week: 1880 sec: 310920)
duration: 08:32:01 ..

quality

valid samples 30721
total samples 30721

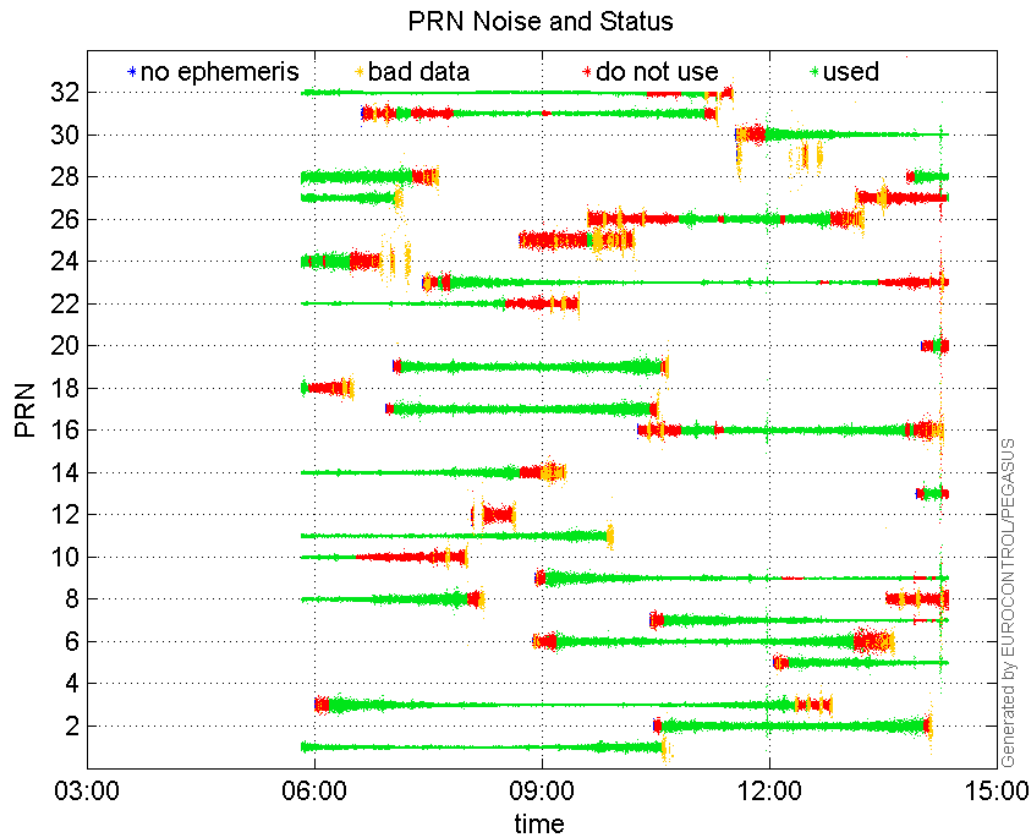
PRN overview

Number of Visible GPS Satellites 29

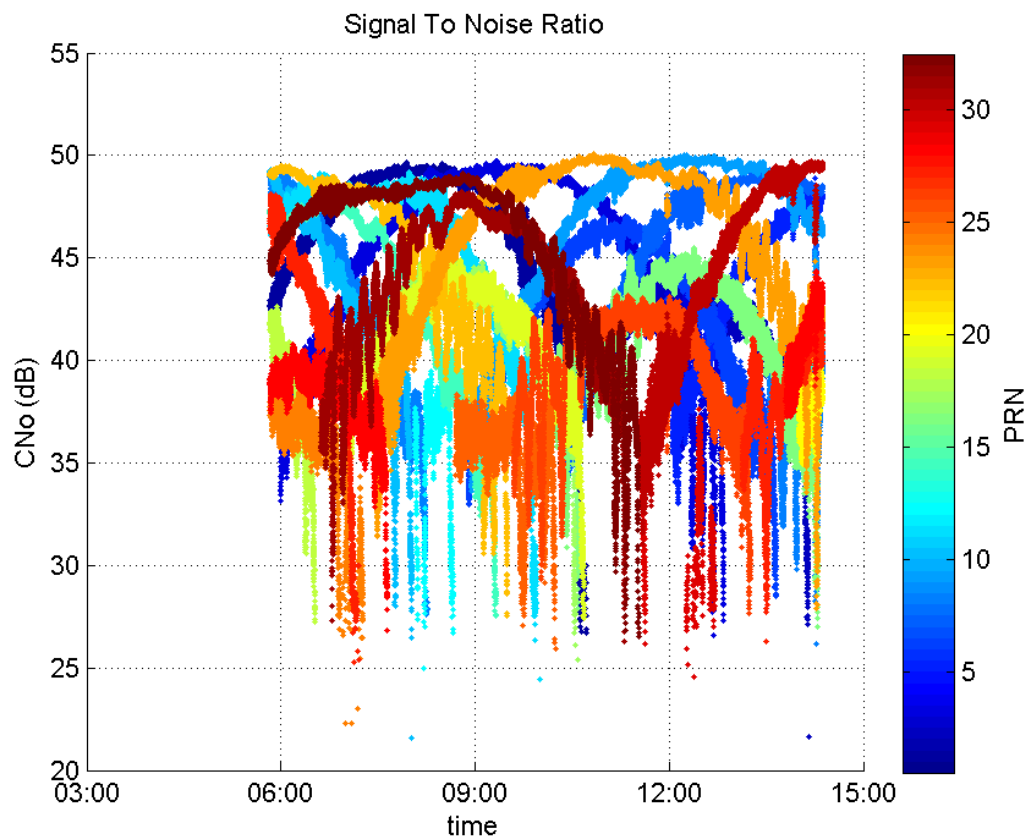
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



range errors

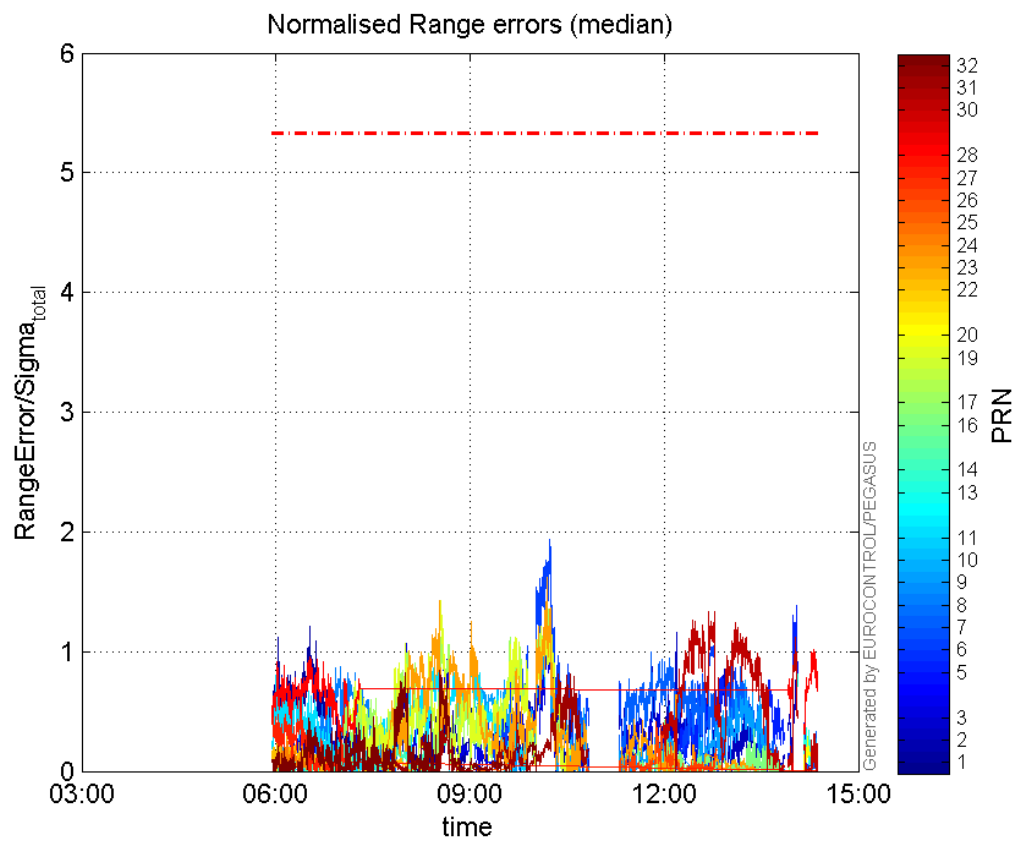
Number of Overbounding Norm Errors 0

Max Norm Errors :

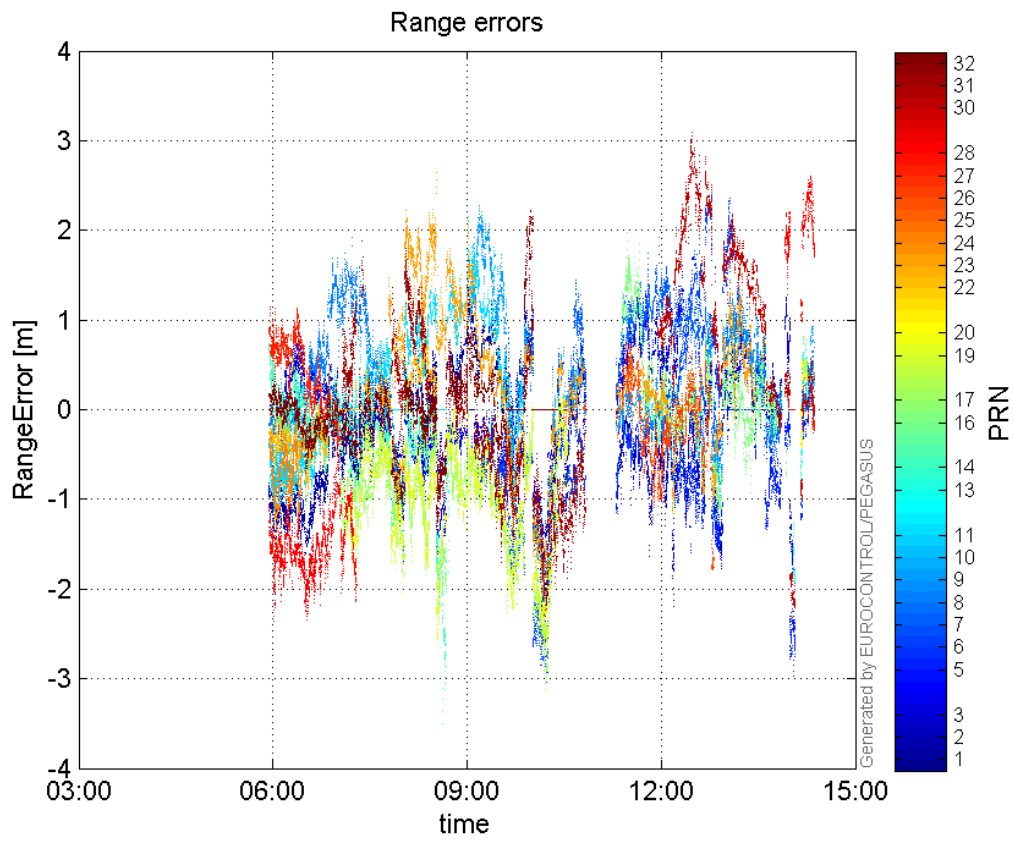
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1880	282673	1	1.21168	-1.96946	1.6254
1880	303093	2	1.1604	-2.19676	1.8931
1880	295909	3	1.18253	-1.69728	1.43529
1880	309748	5	1.38957	-2.97427	2.14042
1880	296017	6	1.93629	-3.04582	1.57302
1880	301675	7	0.995903	1.75092	1.75812
1880	284393	8	0.87011	1.69007	1.94236
1880	295878	9	1.27755	-2.11105	1.65242
1880	280839	10	0.246043	-1.19311	4.84918
1880	291683	11	1.09616	2.1553	1.96623
1880	309833	13	0.811428	-1.92645	2.37415
1880	290416	14	0.743386	-2.98012	4.00885
1880	302431	16	0.427117	1.11641	2.61383
1880	295986	17	1.35594	-3.12293	2.30314
1880	289963	19	1.42384	-2.56872	1.80409
1880	310377	20	0.289404	0.821079	2.83714
1880	282720	22	0.340124	-1.02589	3.01624
1880	295870	23	1.61749	-2.40678	1.48797
1880	281440	24	0.24771	-0.9763	3.94131
1880	294000	25	0.236201	-0.936676	3.96558
1880	301960	26	0.414656	-1.2609	3.04085

1880	280649	27	0.524776	1.14086	2.17399
1880	310750	28	1.01568	2.59043	2.55042
1880	304843	30	1.33402	2.82747	2.1195
1880	296532	31	0.815674	-1.9332	2.37007
1880	289915	32	0.841366	-1.33397	1.58548

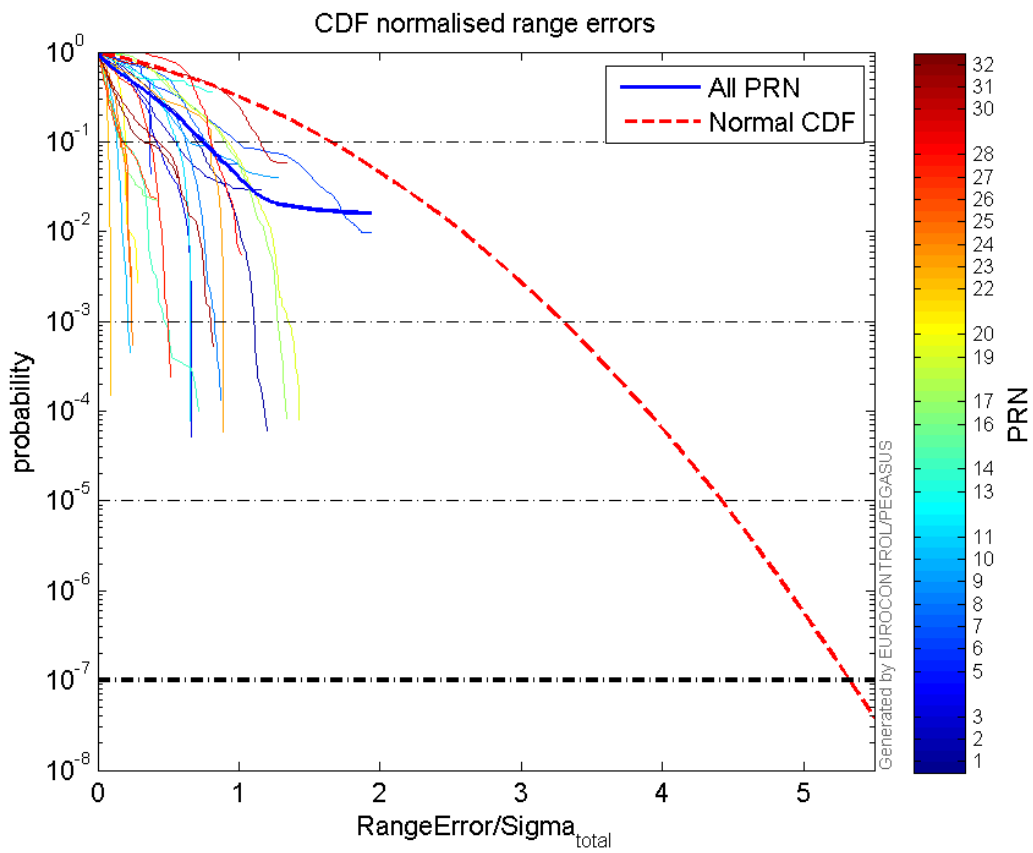
Normalised Range errors (median):



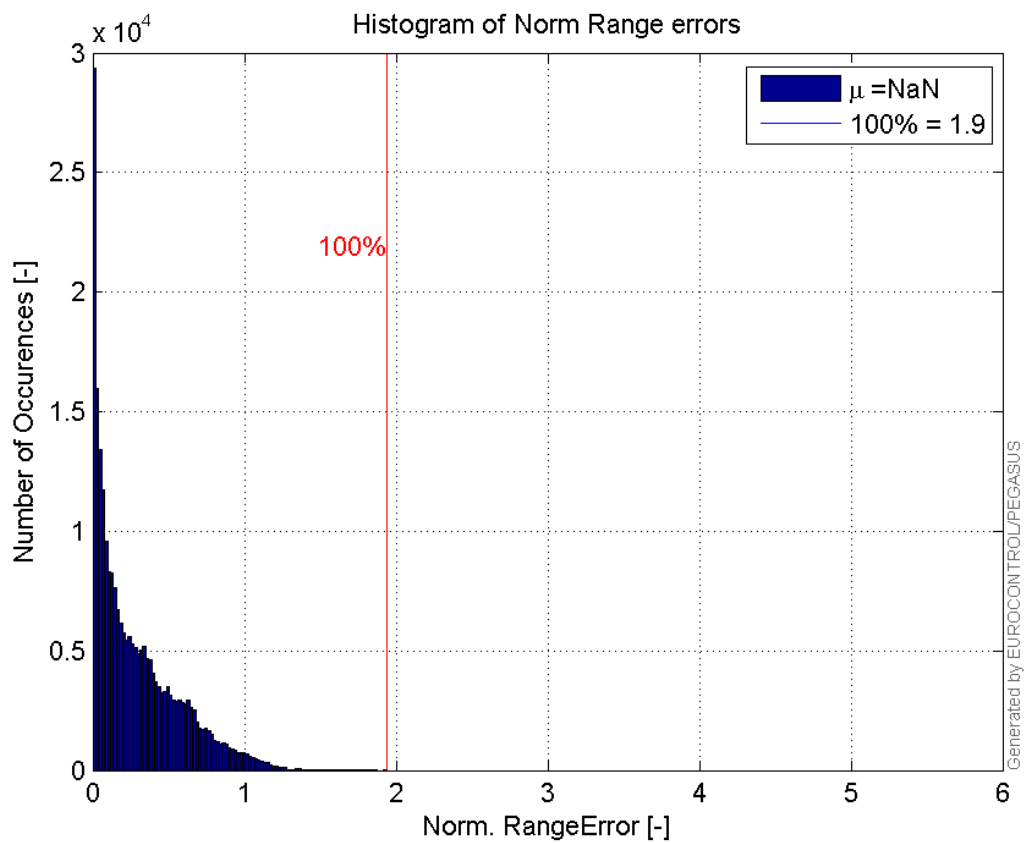
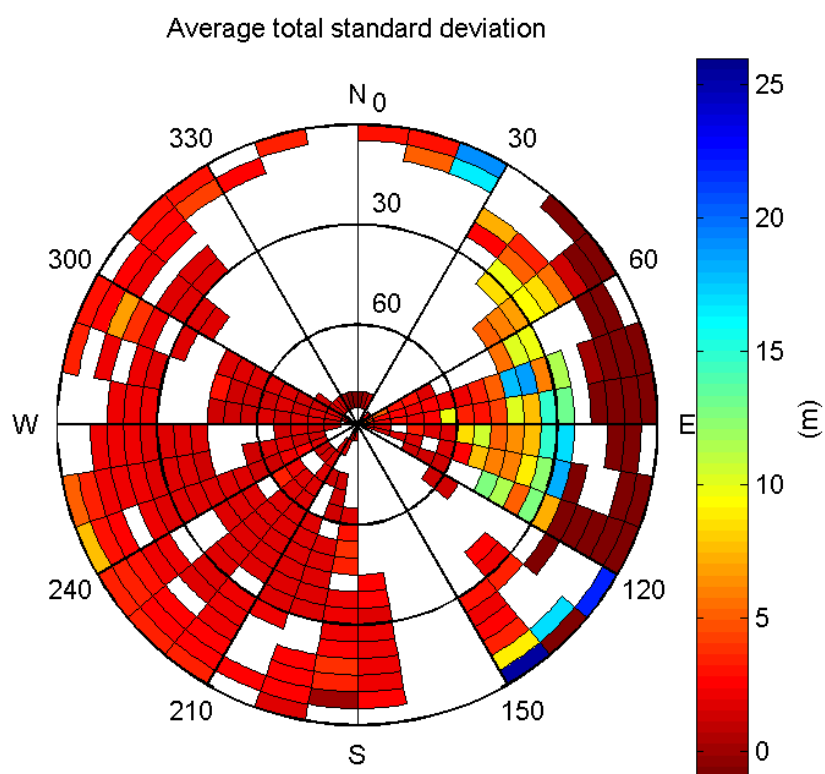
Range errors:

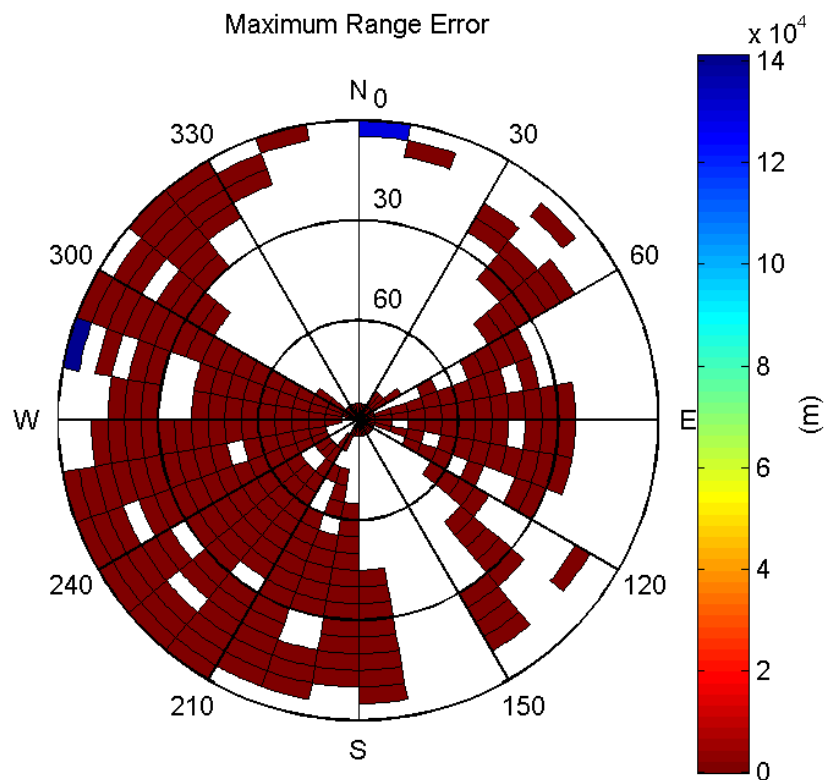


CDF normalised range errors:



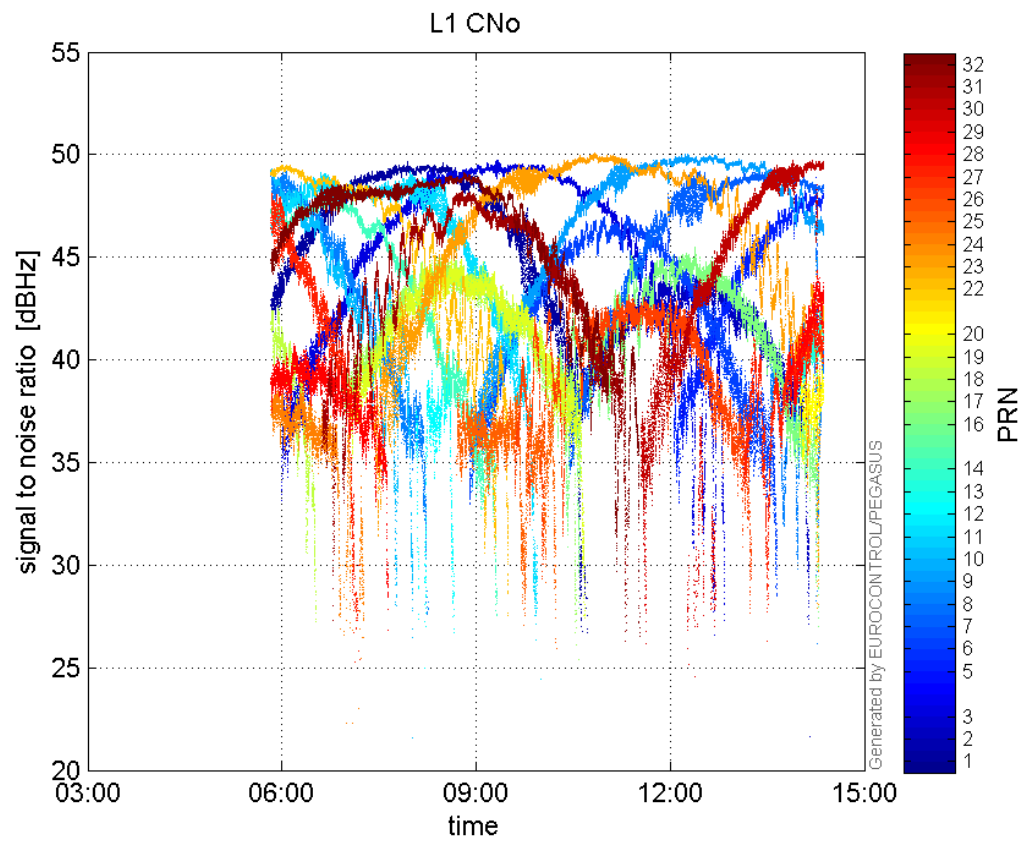
Histogram of Norm Range errors:

**Sigma Sky Plot:****Norm Error Sky Plot:**

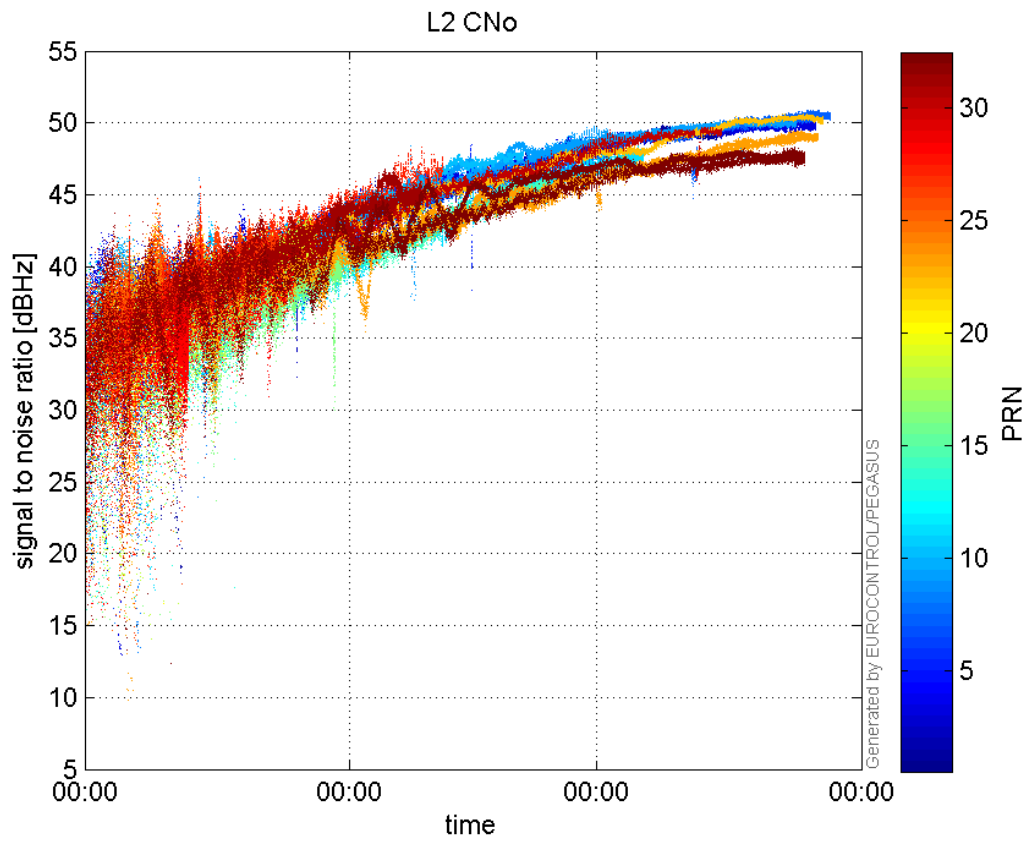


signal quality

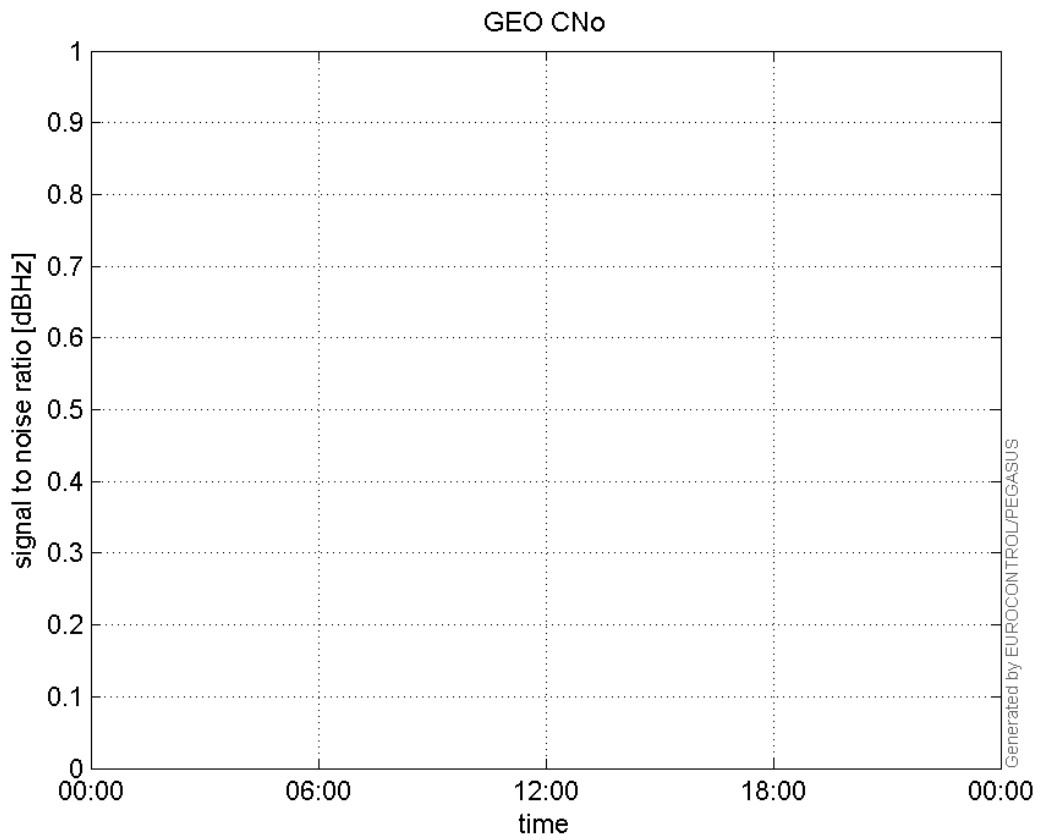
L1 CNo:



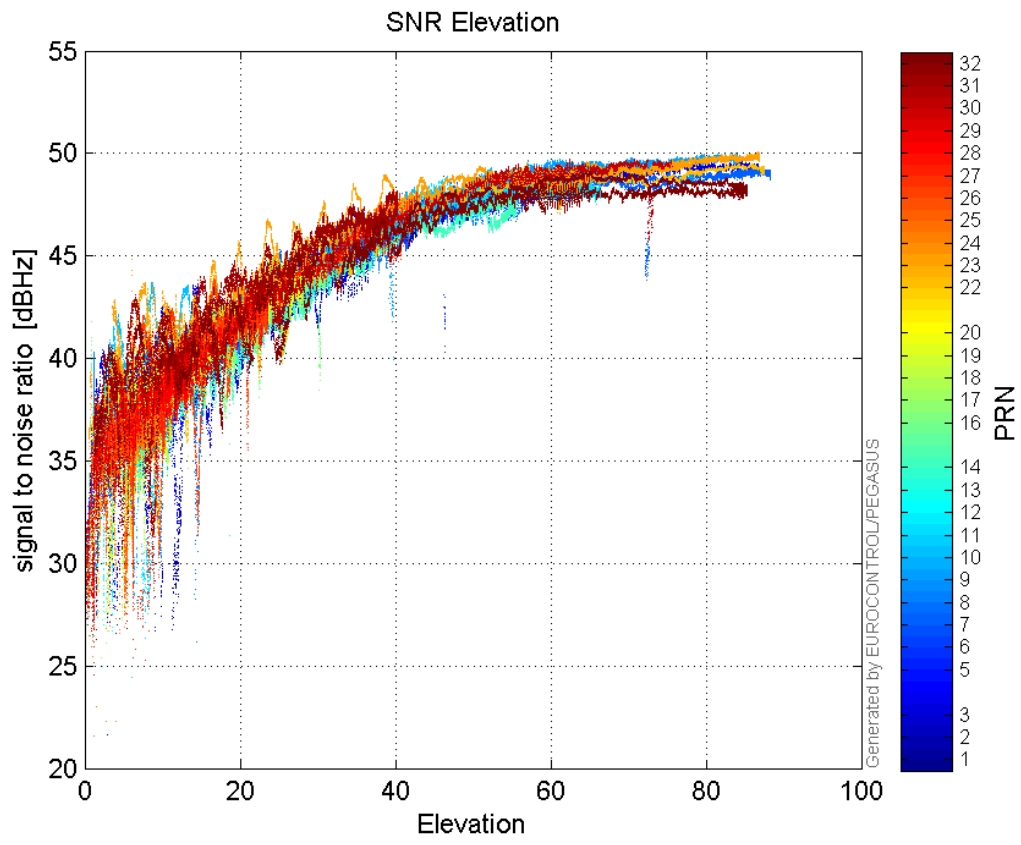
L2 CNo:



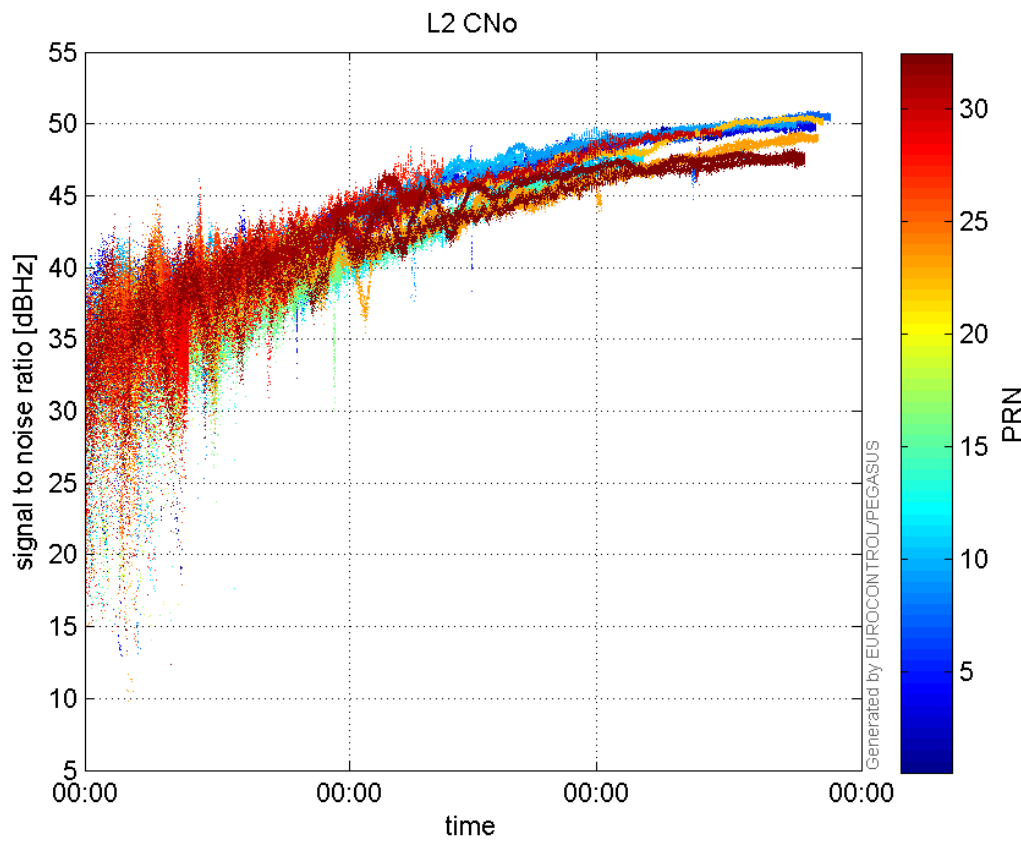
GEO CNo:



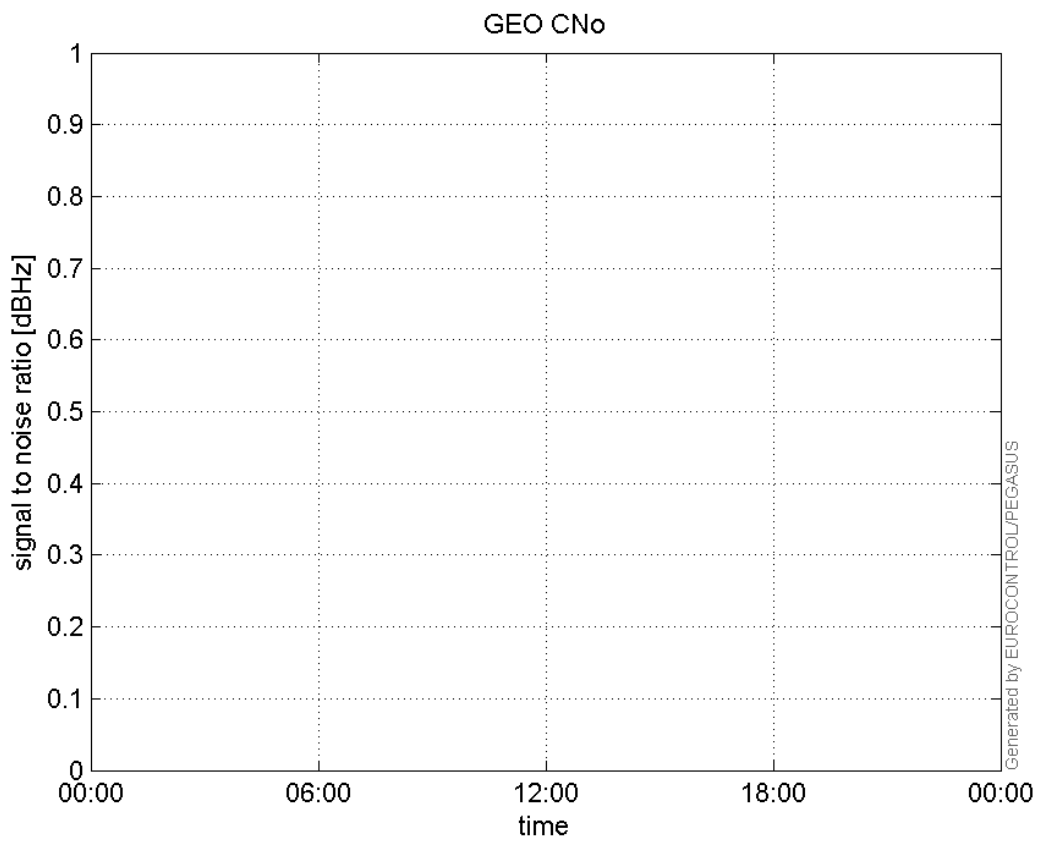
SNR Elevation:



L2 CNo:

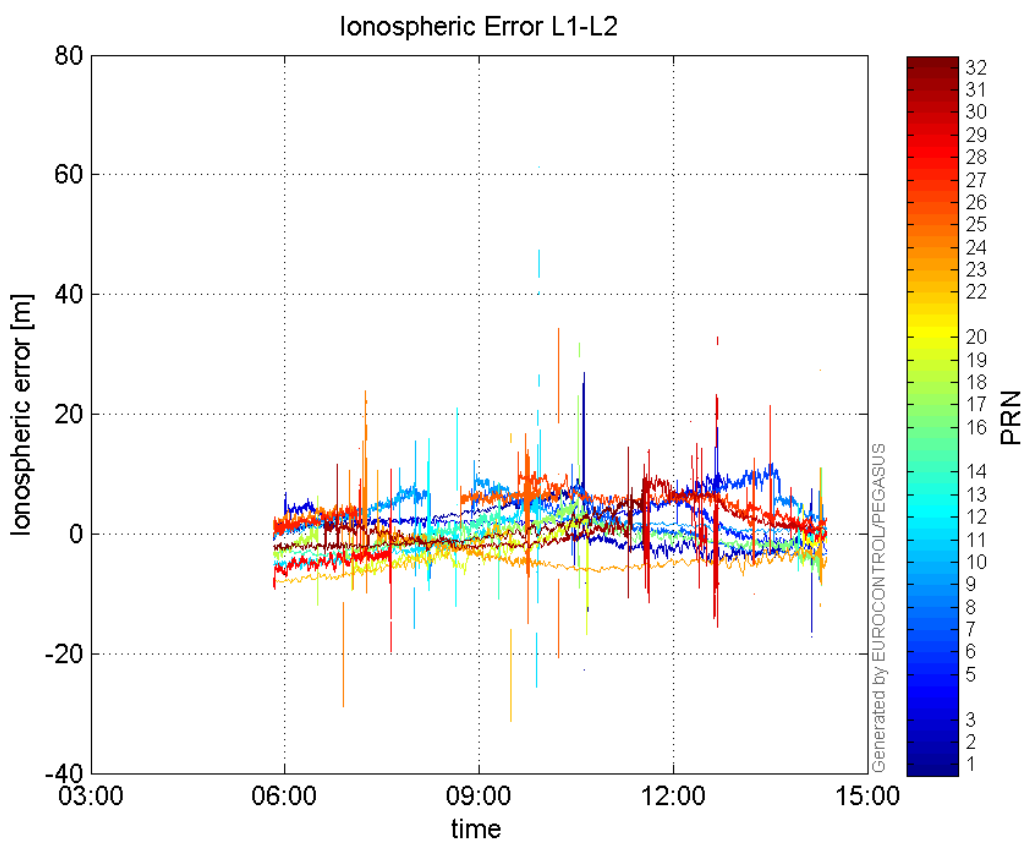


GEO CNo:



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/2016_01_20_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_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	30.4297
init_alt	results	222.9427
mi_numbers	results	0

Position Domain

start: 05:50:00 20.01.2016 (week: 1880 sec: 280200)
end: 14:22:00 20.01.2016 (week: 1880 sec: 310920)
duration: 08:32:01 ..

quality

valid samples 30360
total samples 30721

Event tables

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

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	290063	2.01965	9.60106	0.210357	0.364898	17.5362	0.0208083
max normVer	296773	0.939152	9.07453	0.103493	-1.75775	12.9399	0.13584
max HPE	309748	20.6576	427.76	0.0482925	-3.04966	106.643	0.0285969
max VPE	304924	2.61904	25.548	0.102514	3.19934	33.0424	0.0968252
min HPL	290445	1.46993	8.68131	0.169321	0.564672	16.4055	0.0344197
min VPL	296659	0.754206	9.11114	0.0827785	-1.05085	11.8701	0.0885292

Position discontinuity events :

#	Epoch	duration	stable period
1	298187	1726	17626
2	309071	198	9158
3	309834	309	565

APV-I discontinuity events :

#	Epoch	duration	stable period
1	298187	1726	17626
2	308875	1368	8962

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	291036	298	10475
2	291628	39	162
3	291692	4	1
4	298187	1726	6428
5	306422	258	820
6	308875	1368	2119
7	310542	5	299

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	291036	298	10475
2	291628	39	162
3	291692	4	1
4	298187	1726	6428
5	306422	258	820
6	308875	1368	2119
7	310542	5	299

CAT-I discontinuity events :

#	Epoch	duration	stable period
1	284626	11968	1
2	296612	22	2
3	296659	35	1

First Glance analysis

Duration	30721
Number of Samples	30721
Number of invalid sample	361
Number of no position solution samples	2233
Number of missing sample	0
Logging Loss	0
Processing Loss	1.1751
Number of Misleading Information	0
Data gaps	0
Discontinuities	3

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
28127	27266	26045	33	26045

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	2.43751	2.42381	2.32241	1.08232	2.32241
HPEScale 95%	NaN	6.34223	6.37728	4.79221	6.37728
VPE 95%	1.86809	1.79903	1.78123	1.36832	1.78123
VPEscale 95%	NaN	4.14596	2.93232	1.37835	2.93232

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.926449	0.89809	0.857872	0.00108696	0.857872
measurements	0.915563	0.887536	0.847791	0.00107418	0.847791
Operational	0.915563	0.887536	0.847791	0.00107418	0.847791

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	3	2	131	27	131
Long	3	2	7	3	7
Independent	3	2	6	0	6
P(disc.)	0.00159989	0.00110027	0.00345556	0	0.00345556
P(slide)	0.00159989	0.00110027	0.0121712	0.939394	0.0121712

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

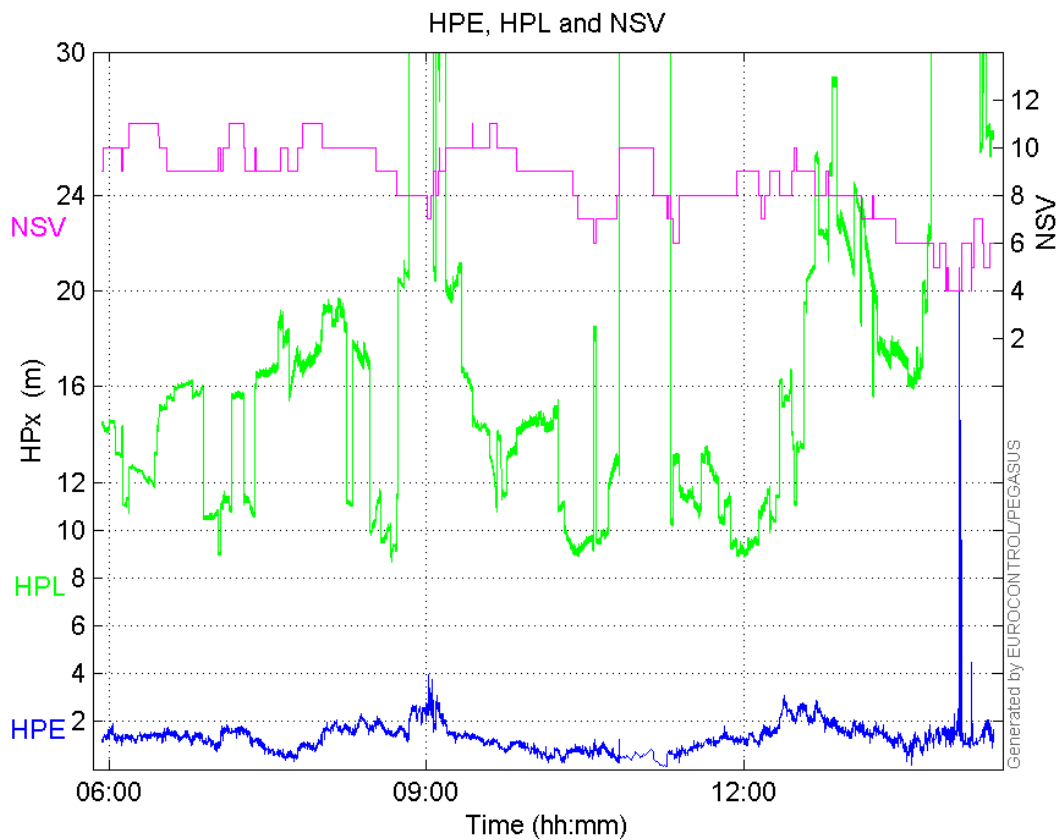
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	28127	27266	26045	33	26045

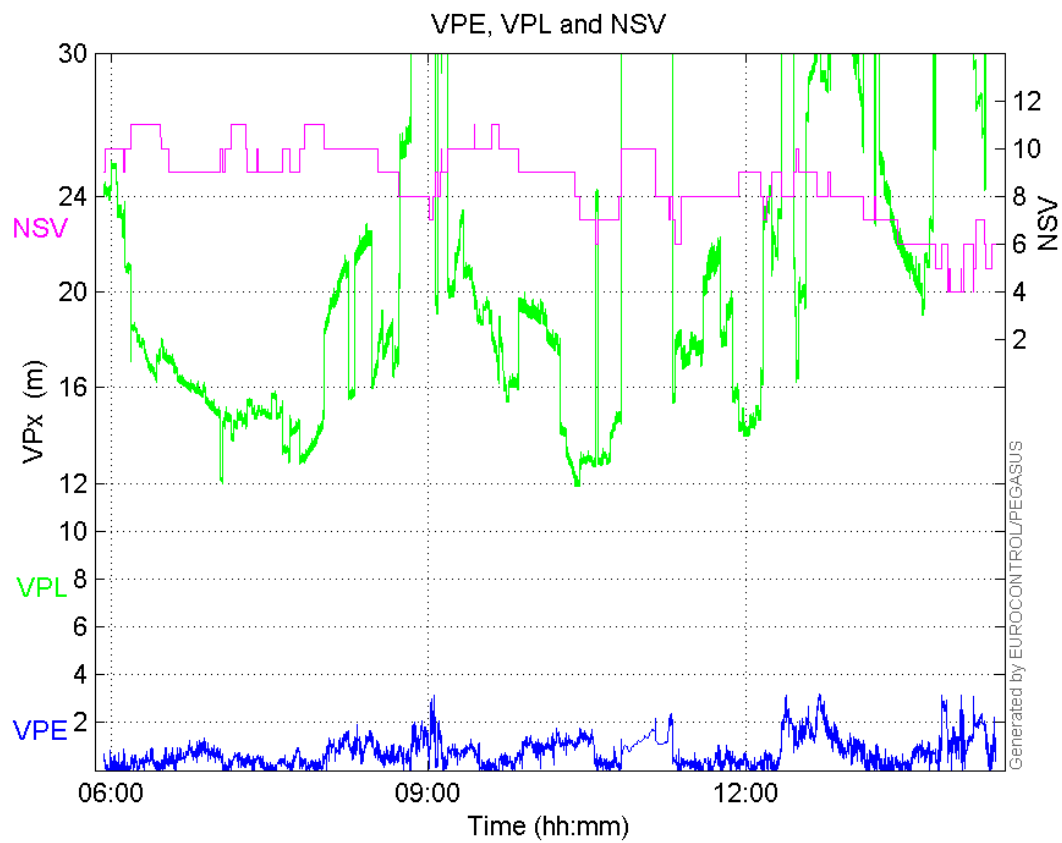
SIS Availability	0.926449	0.89809	0.857872	0.00108696	0.857872
Local Availability	0.915563	0.887536	0.847791	0.00107418	0.847791
Operational Availability	0.915563	0.887536	0.847791	0.00107418	0.847791
HPE 95%	2.43751	2.42381	2.32241	1.08232	2.32241
HPEScale 95%	NaN	6.34223	6.37728	4.79221	6.37728
VPE 95%	1.86809	1.79903	1.78123	1.36832	1.78123
VPEscale 95%	NaN	4.14596	2.93232	1.37835	2.93232
All Discontinuity Events	3	2	131	27	131
Long Discontinuity Events	3	2	7	3	7
Independent Discontinuity Events	3	2	6	0	6
P(discontinuity)	0.00159989	0.00110027	0.00345556	0	0.00345556
P(sliding window)	0.00159989	0.00110027	0.0121712	0.939394	0.0121712
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:

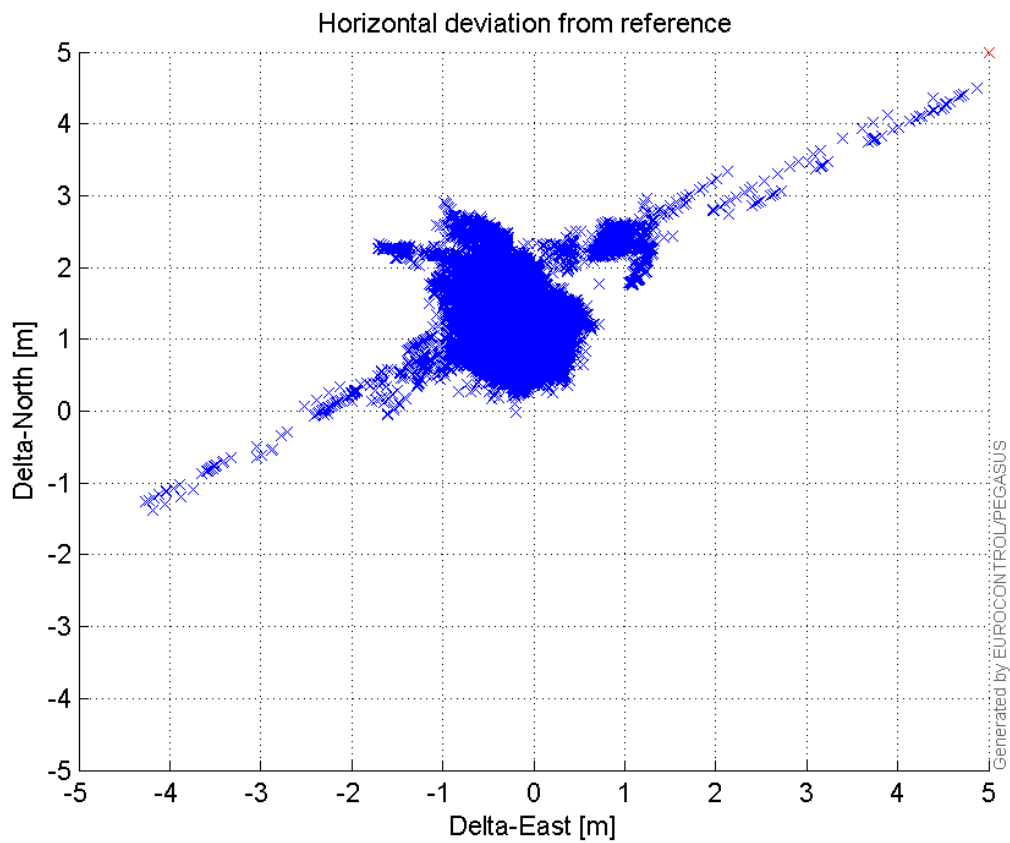


VPE, VPL and NSV:



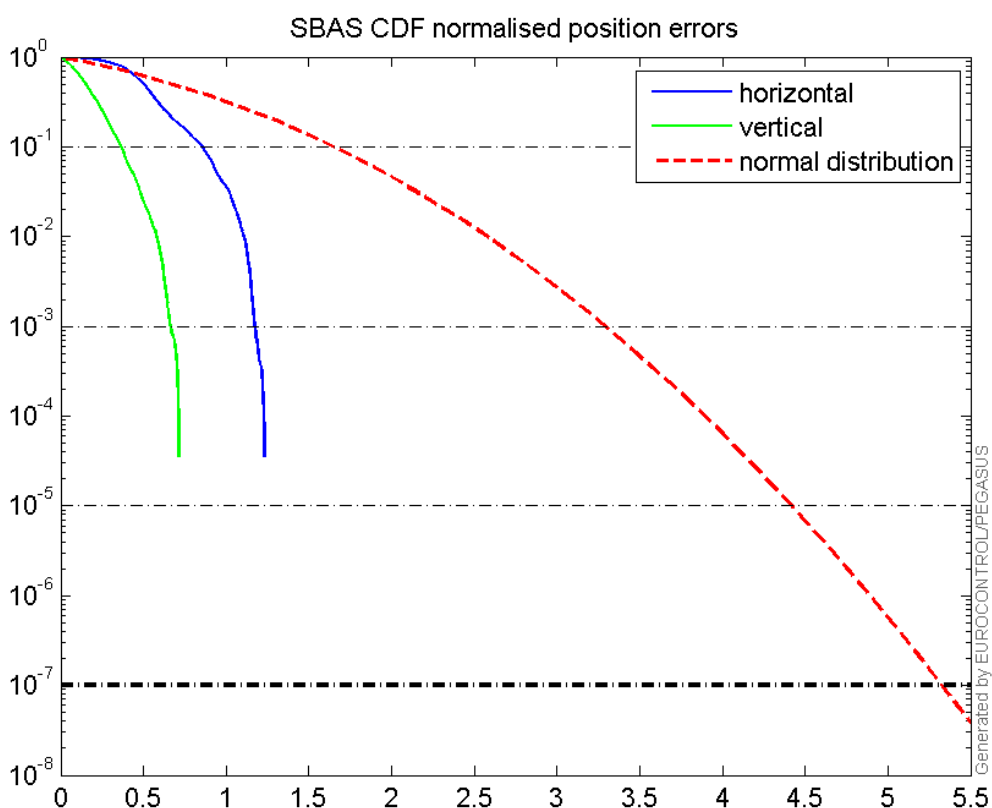
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

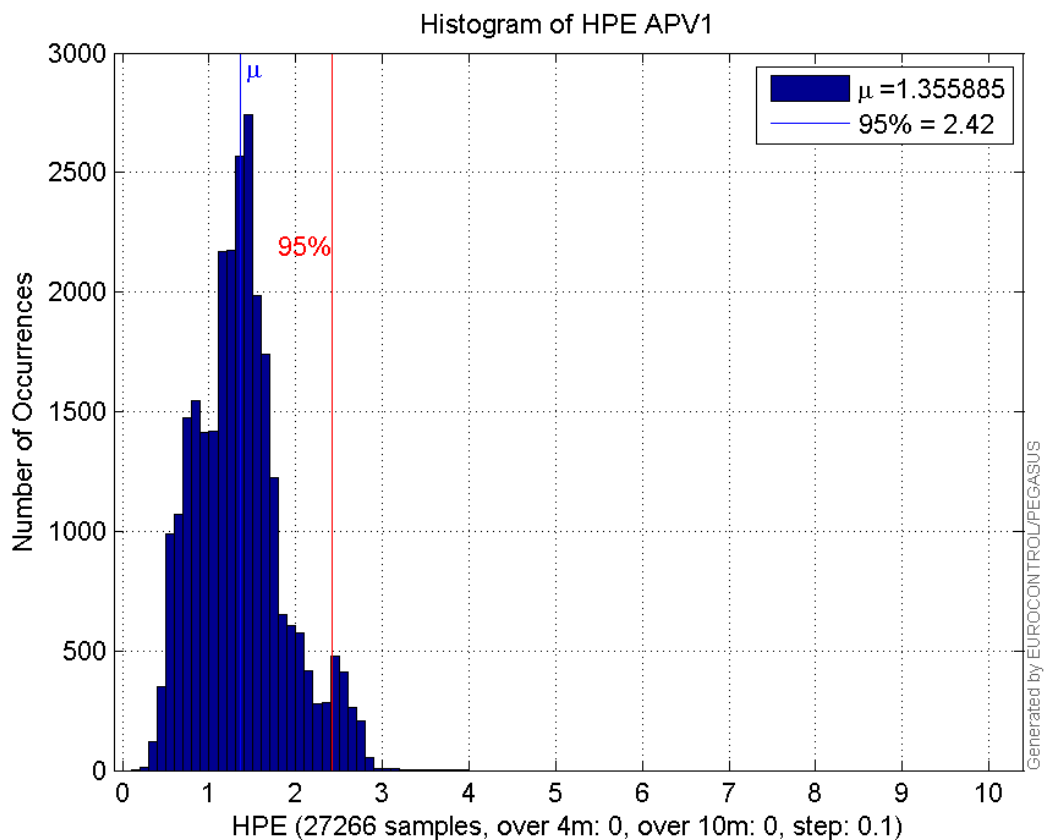
number	27266
sum	36969.562
sum2	57231.033
prctile95	2.4238097
prctile99	2.7150225
number	27266
sum	18747.439
sum2	21235.219
prctile95	1.7990303
prctile99	2.4831716
number	27266
sum	438850.03
sum2	8040004.8
prctile95	31.06172
prctile99	35.554232
number	27266
sum	558580.96
sum2	12618990
prctile95	34.751
prctile99	40.160332
number	27266
sum	2443.3175
sum2	252.34785

prctile95 0.15855573
prctile99 0.1850095
number 27266
sum 917.79914
sum2 47.592175
prctile95 0.082919169
prctile99 0.10917903
number 26045
sum 34579.144
sum2 52276.295
prctile95 2.3224065
prctile99 2.7066806
number 26045
sum 17536.052
sum2 19626.357
prctile95 1.7812299
prctile99 2.4883947
number 26045
sum 403007.2
sum2 6953255.2
prctile95 25.46895
prctile99 34.37254
number 26045
sum 512619.84
sum2 10880936
prctile95 31.870325
prctile99 34.381865
number 26045
sum 2361.8651
sum2 246.78639
prctile95 0.15943197
prctile99 0.18528792
number 26045
sum 885.18862
sum2 46.404438
prctile95 0.083780548
prctile99 0.10952831

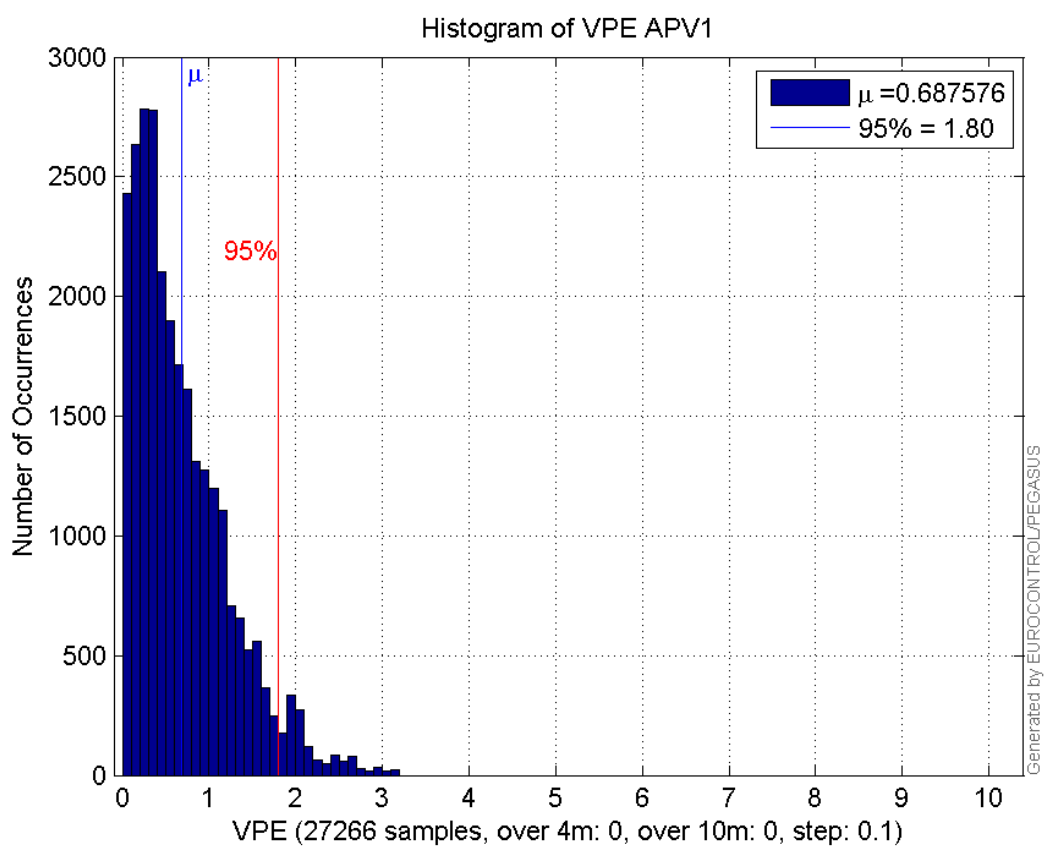
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.35589	0.510465	1.33755	2.42381	2.71502	1.44879
HPL	16.0951	5.98504	15.1017	31.0617	35.5542	17.1719
VPE	0.687576	0.553234	0.547407	1.79903	2.48317	0.882506
VPL	20.4864	6.56668	18.7143	34.751	40.1603	21.513

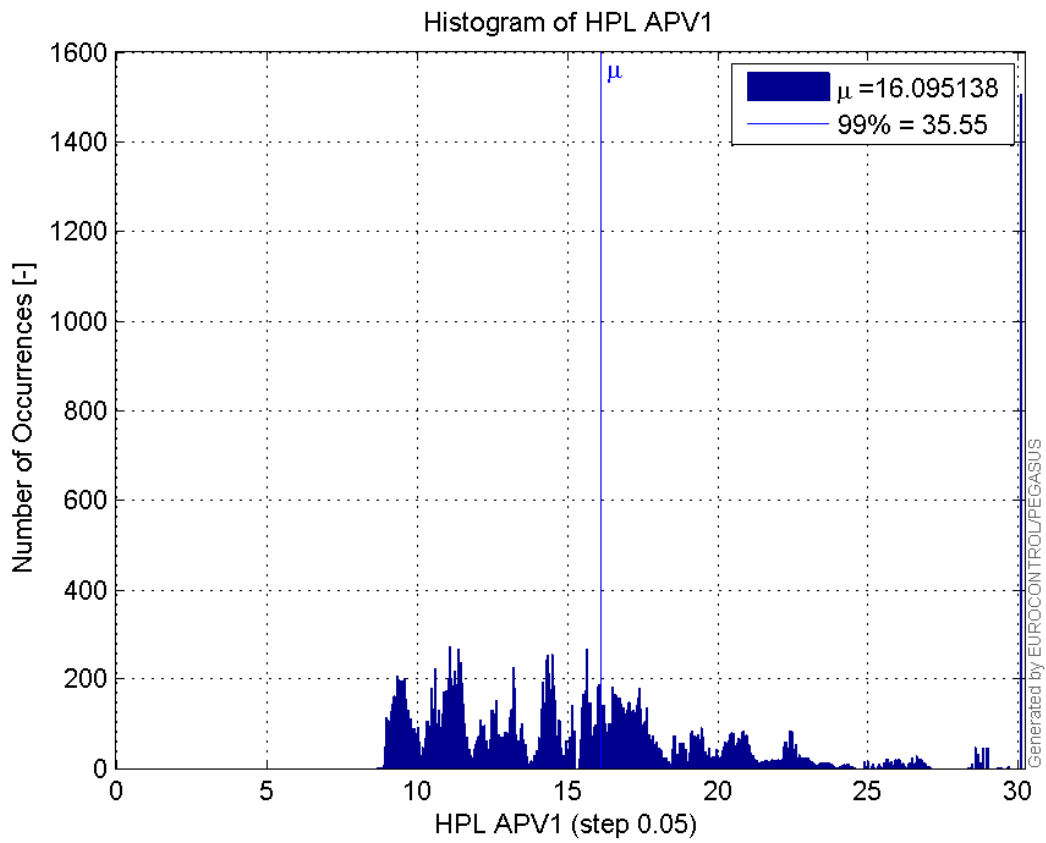
Histogram of HPE APV1:



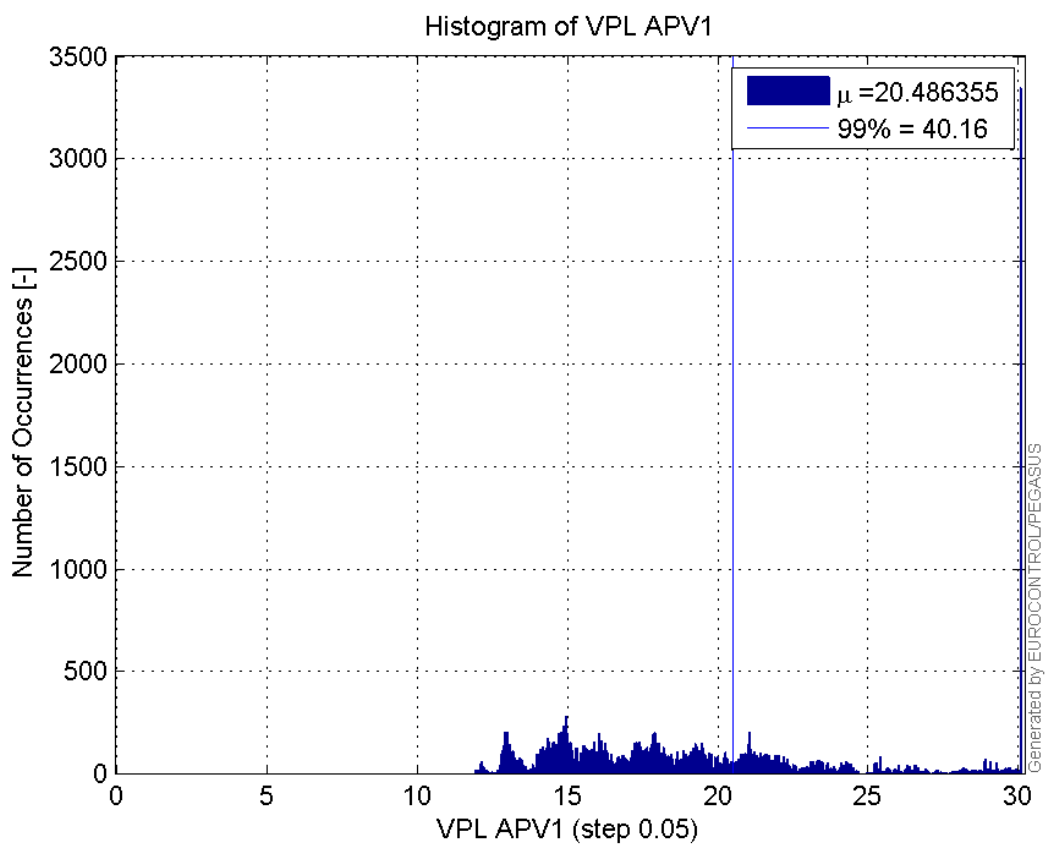
Histogram of VPE APV1:



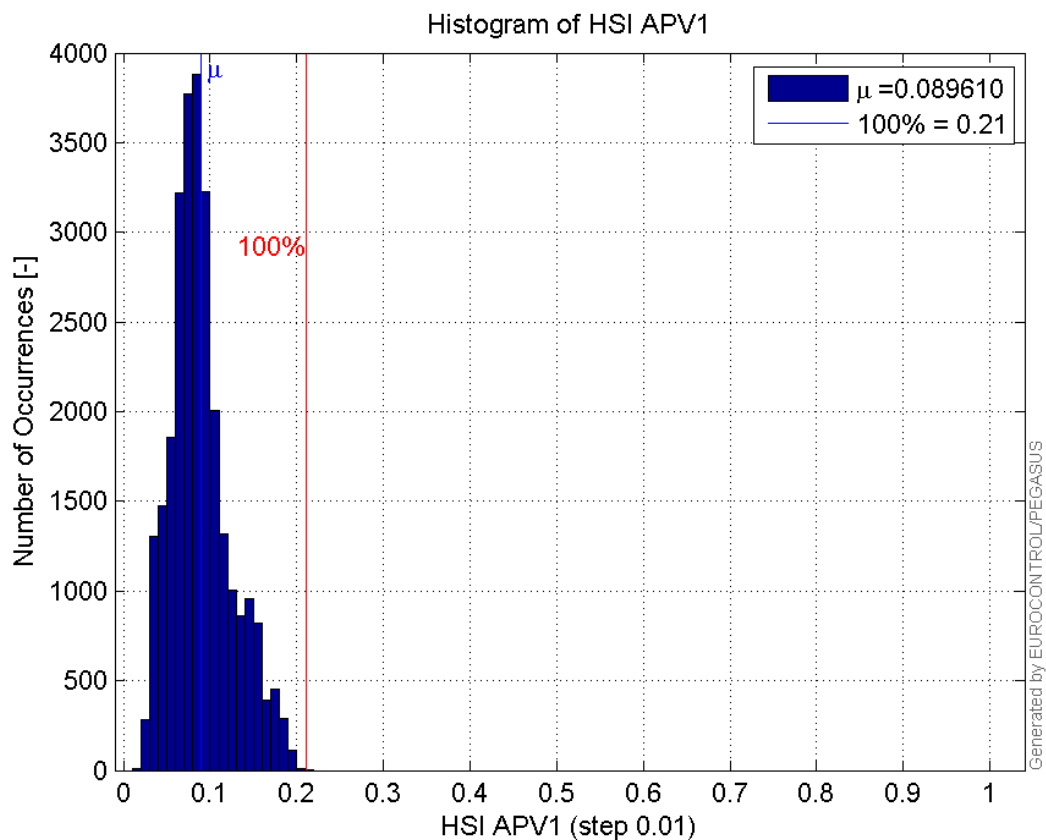
Histogram of HPL APV1:



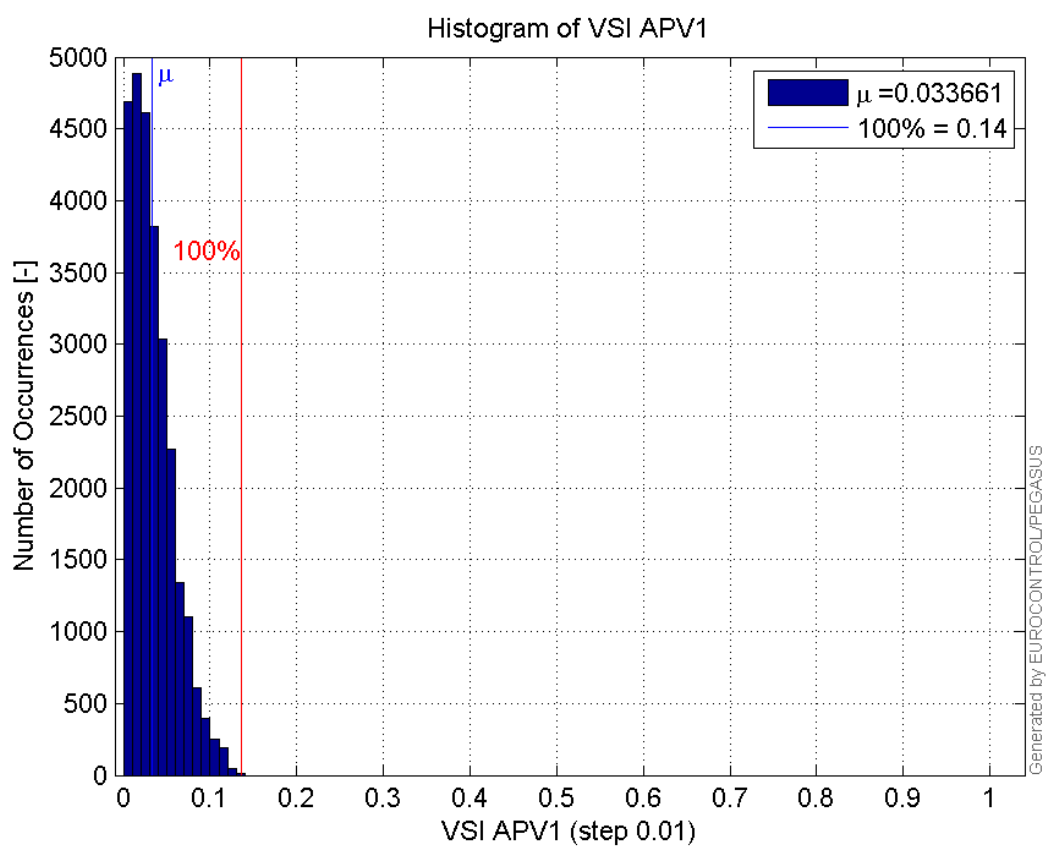
Histogram of VPL APV1:



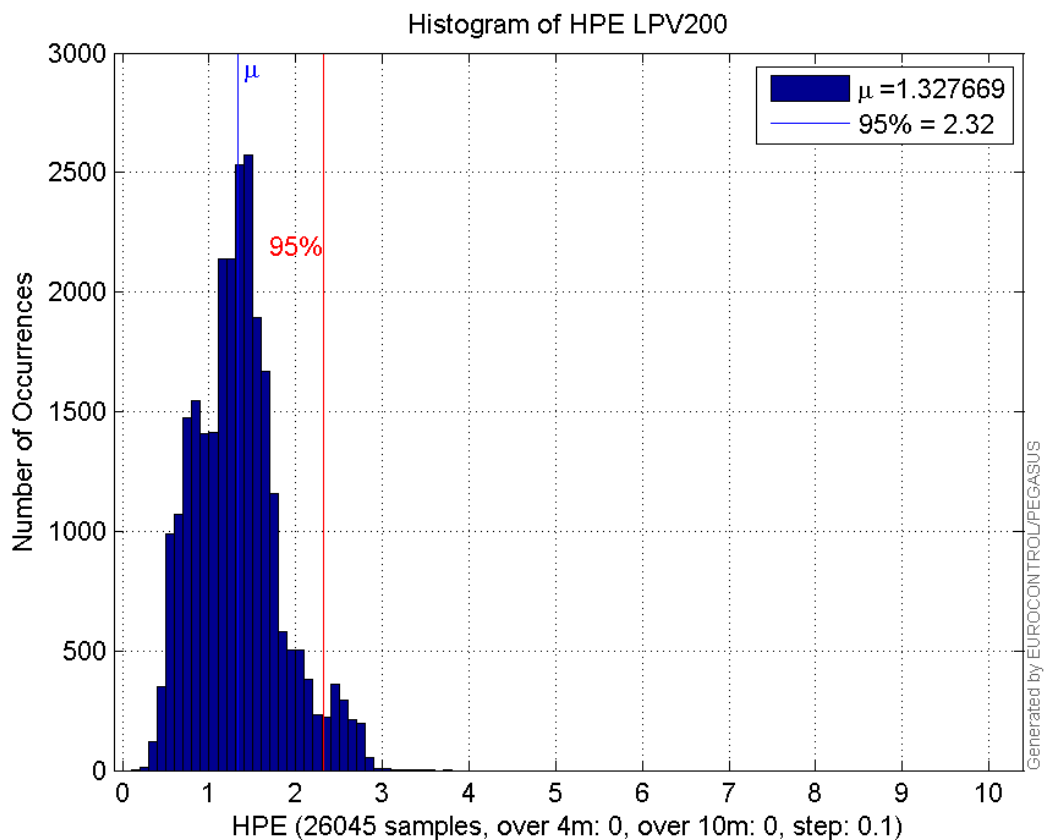
Histogram of HSI APV1:



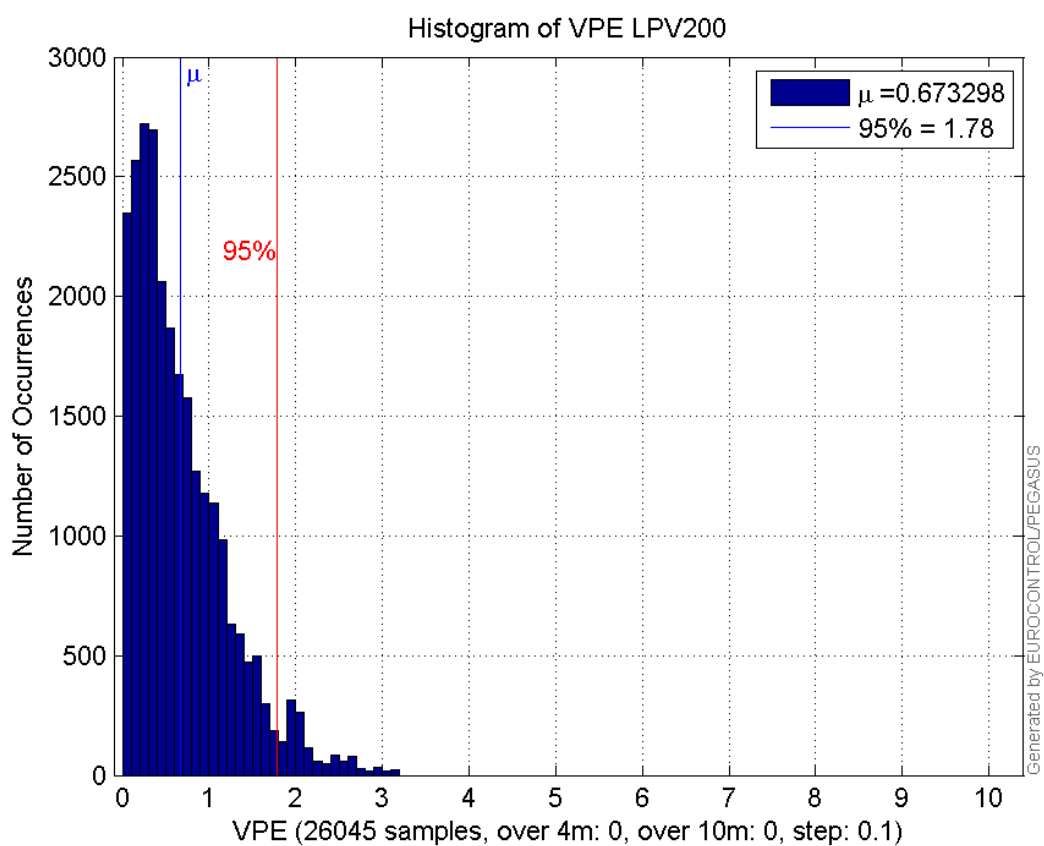
Histogram of VSI APV1:



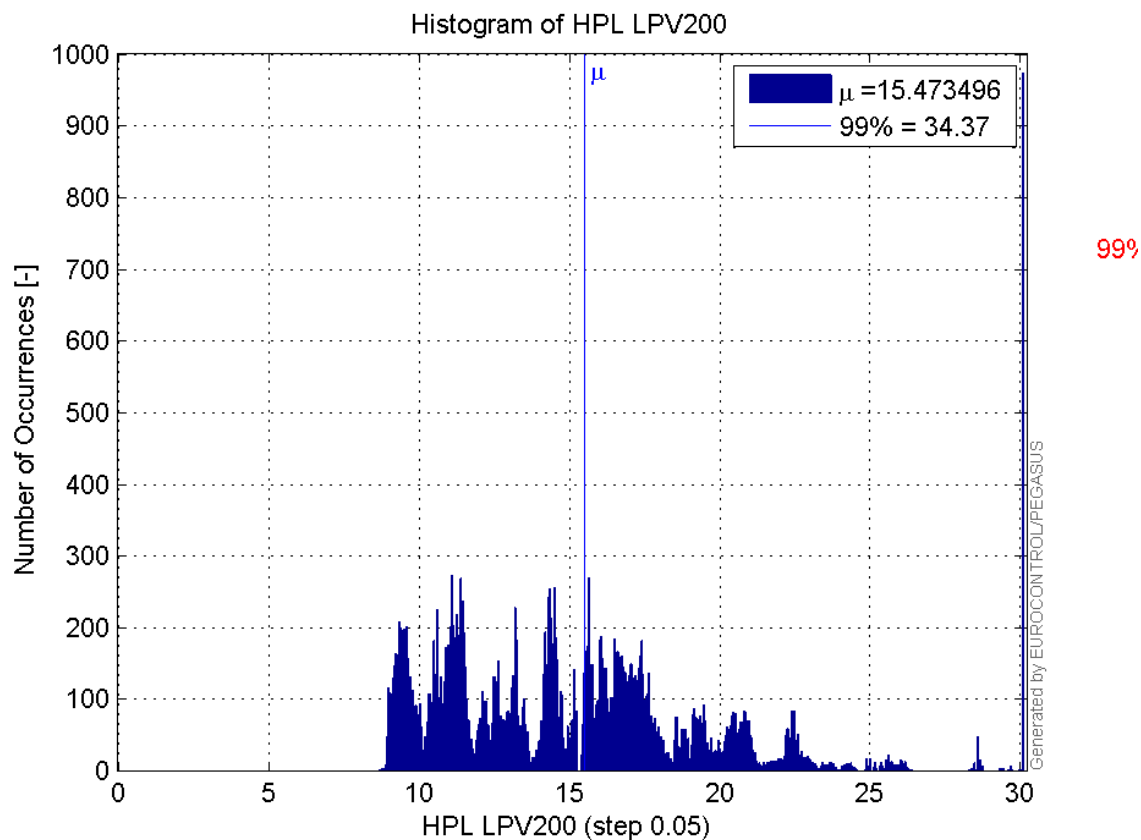
Histogram of HPE LPV200:



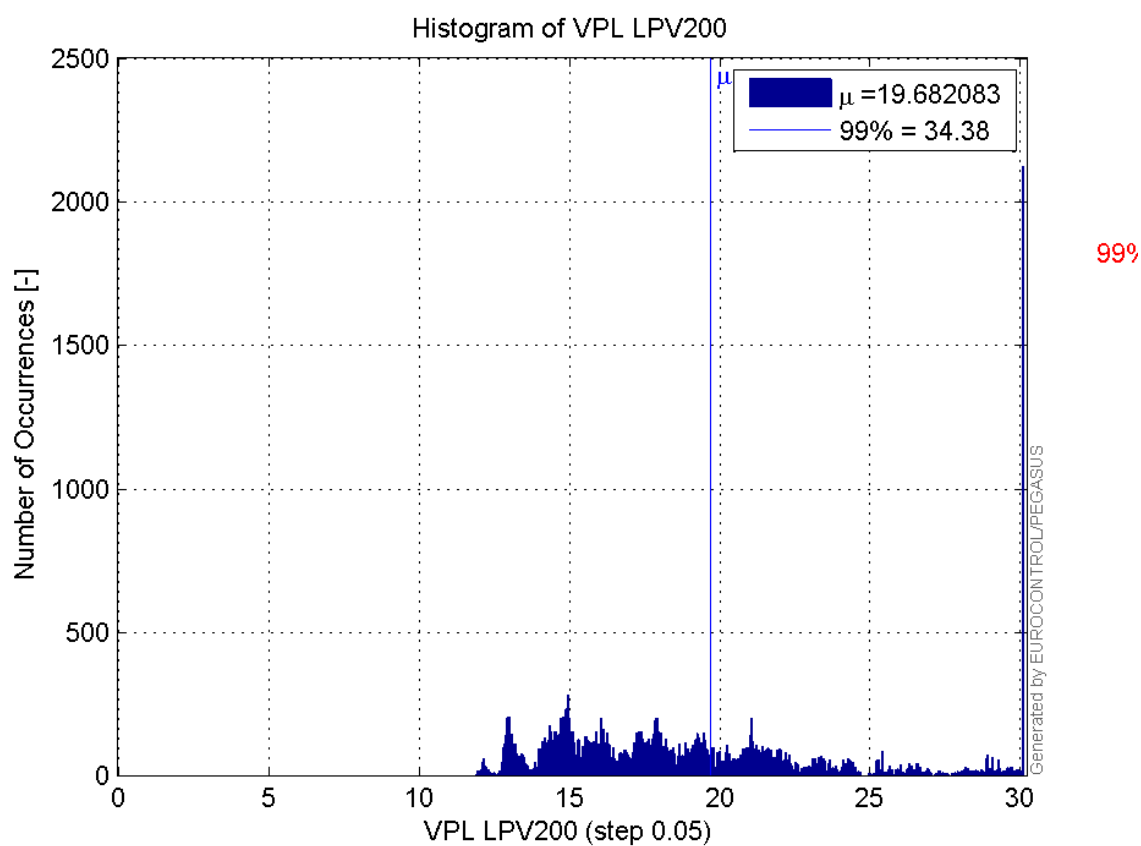
Histogram of VPE LPV200:



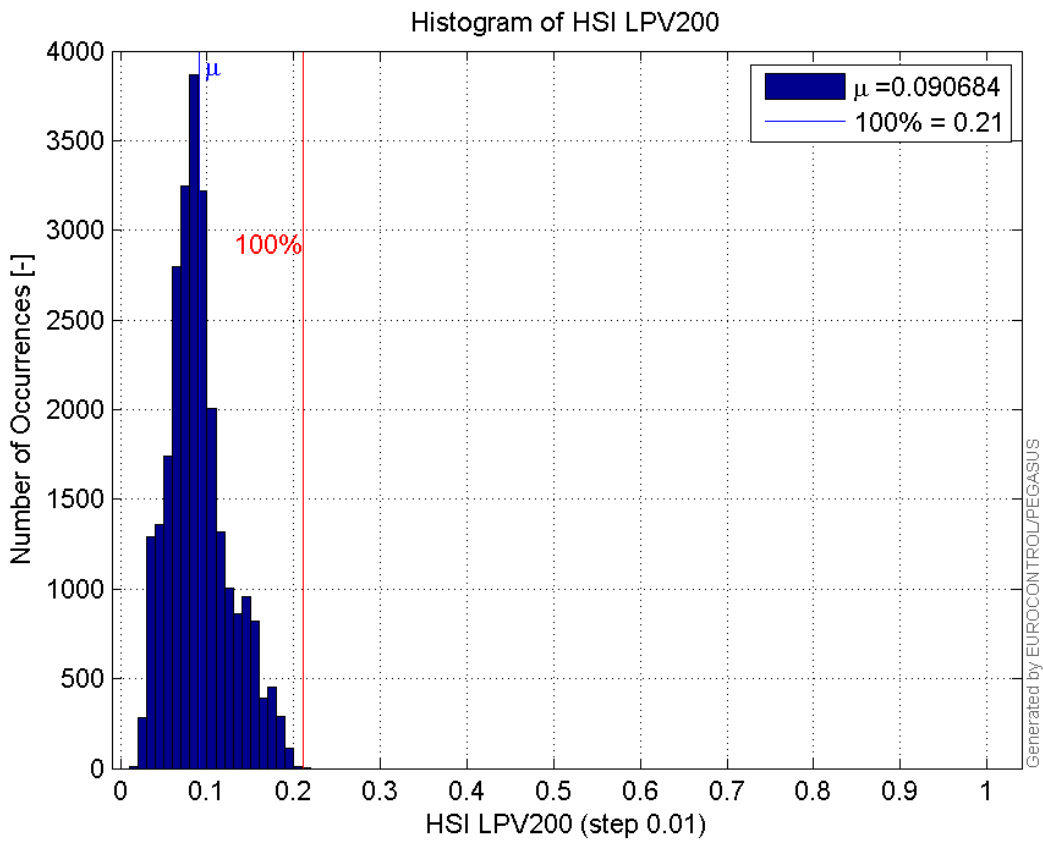
Histogram of HPL LPV200:



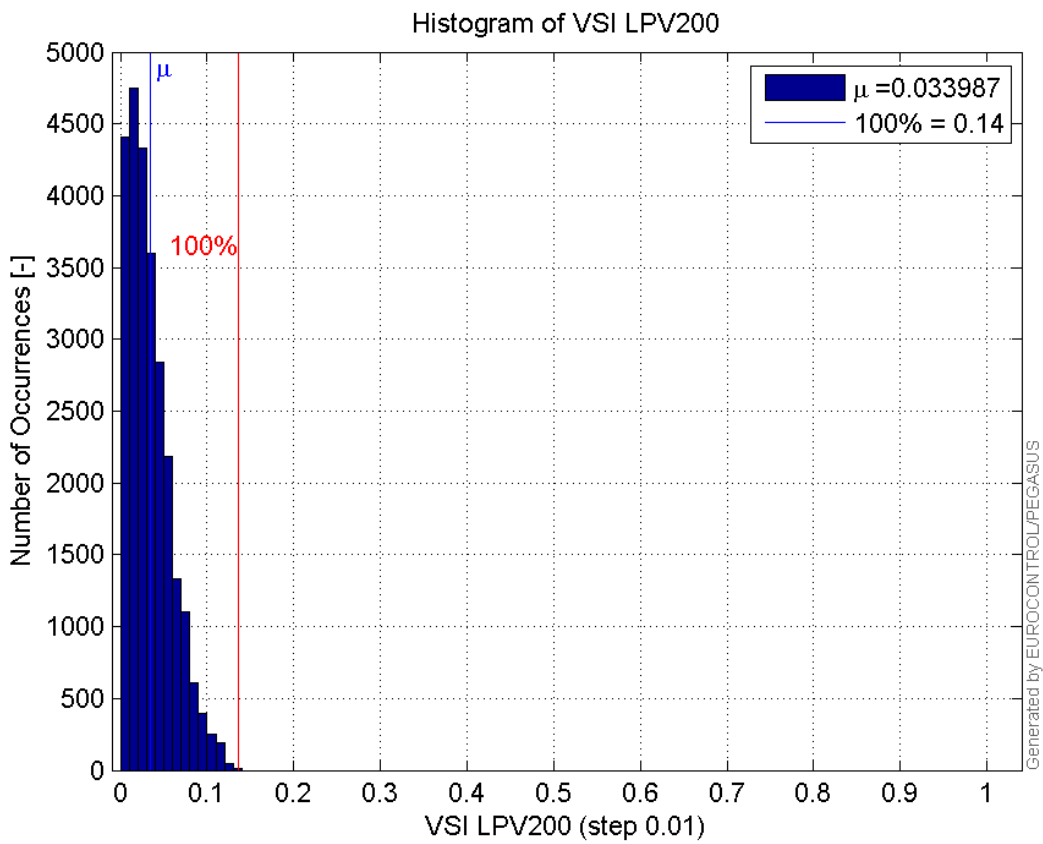
Histogram of VPL LPV200:



Histogram of HSI LPV200:

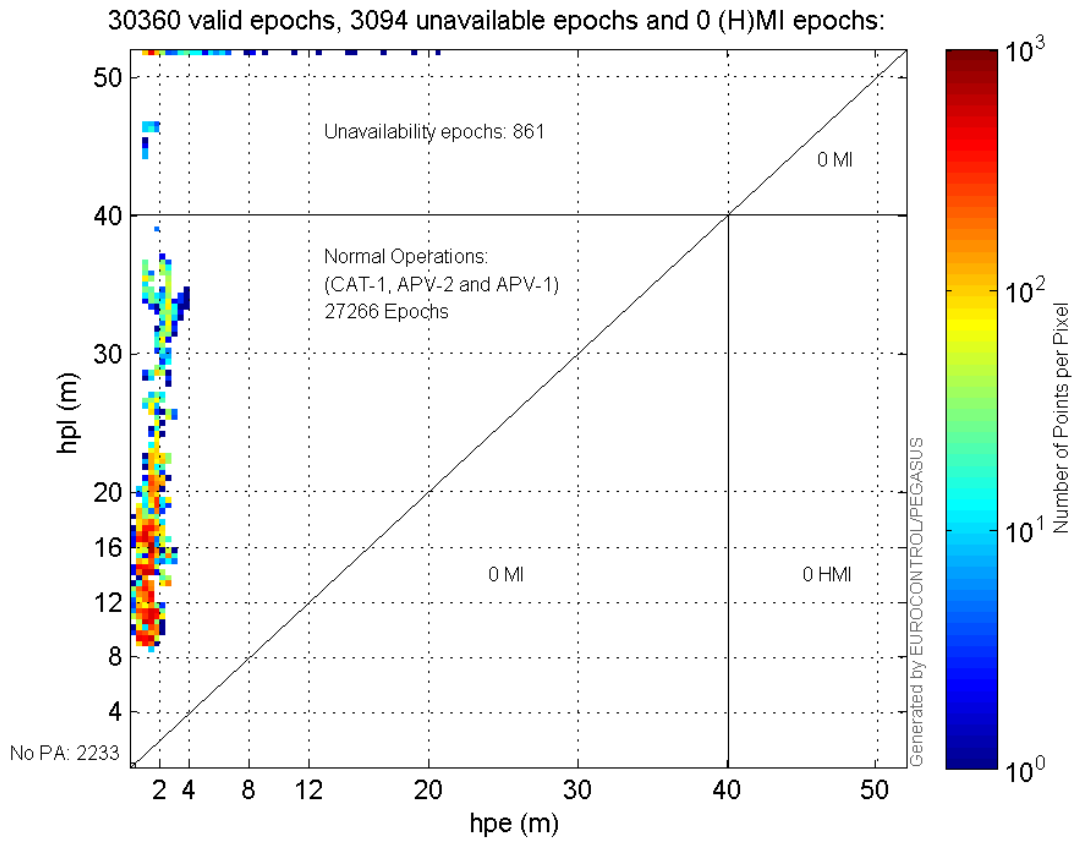


Histogram of VSI LPV200:

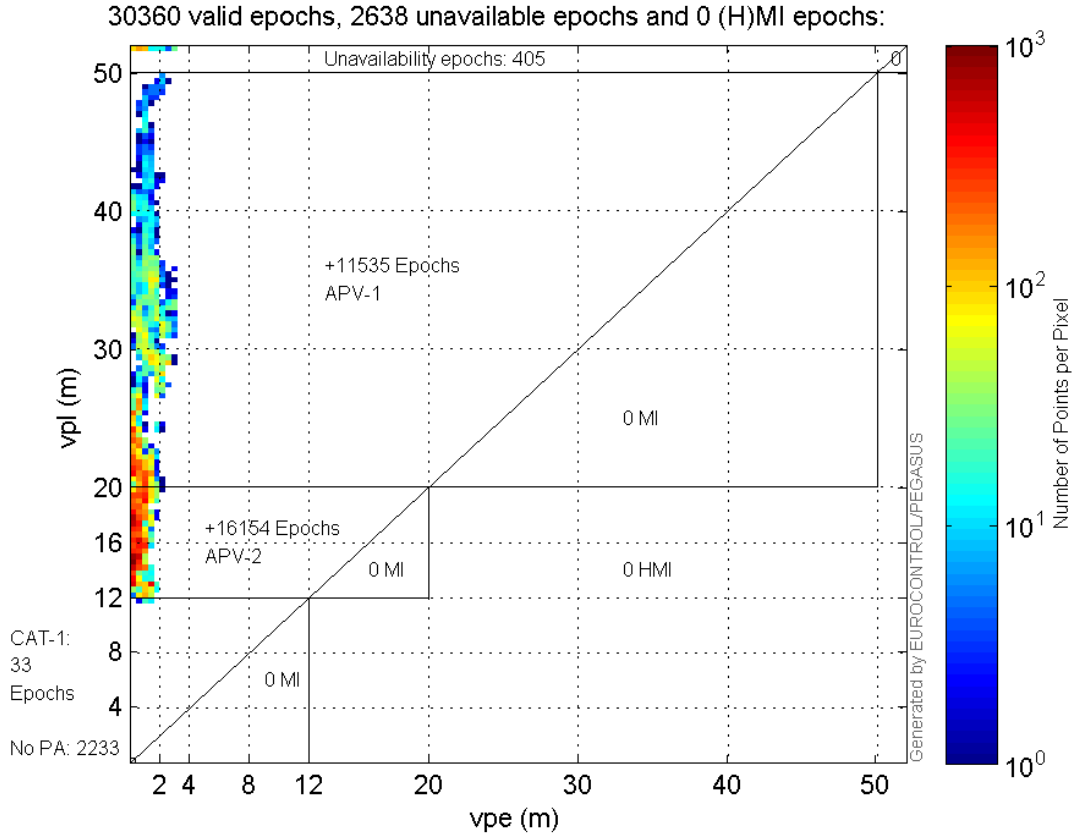


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2016_01_20_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_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	30.4297
init_alt	results	222.9427
mi_numbers	results	0