

Global View

program Pegasus
 version 4.8.4
 site Laboratory satellite systems
 abbreviation NAU
 country Ukraine
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 date 09/02/2017

SBAS Messages

start: 05:52:54.129 06.02.2017 (week: 1935 sec: 107574.129)
end: 12:21:21.129 06.02.2017 (week: 1935 sec: 130881.129)
duration: 06:28:27 ..

quality

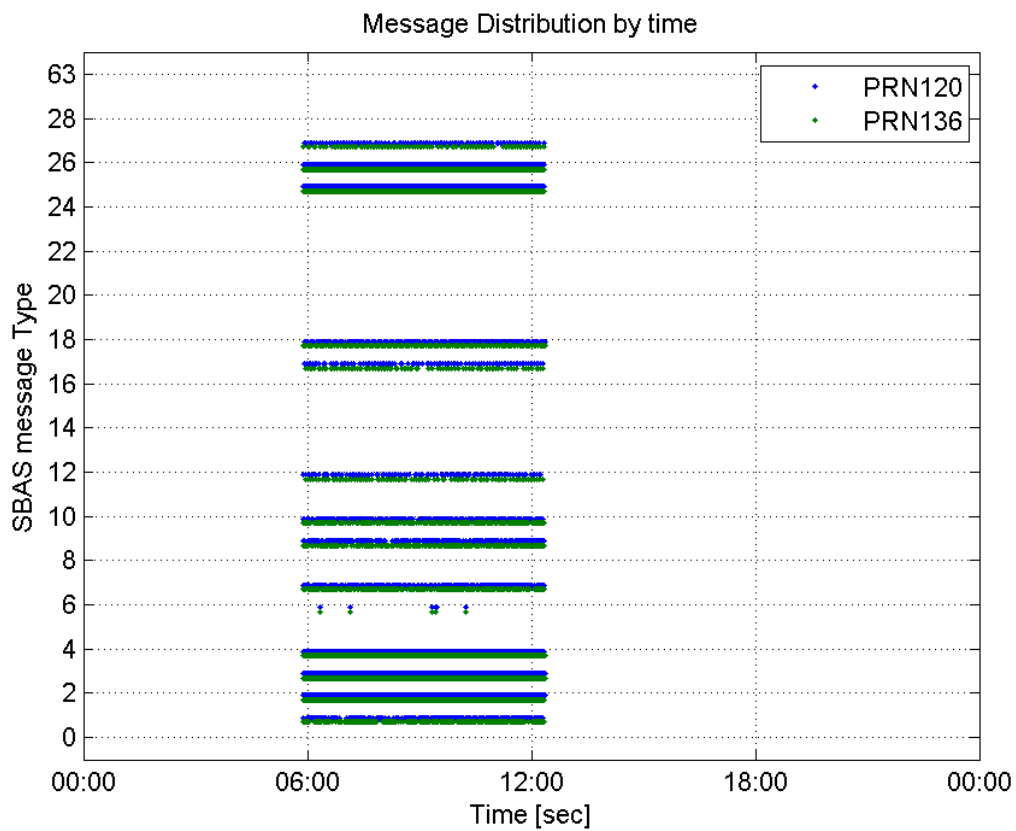
valid samples 36422
total samples 36422
number of SBAS PRNs 2

SBAS SIS Overview

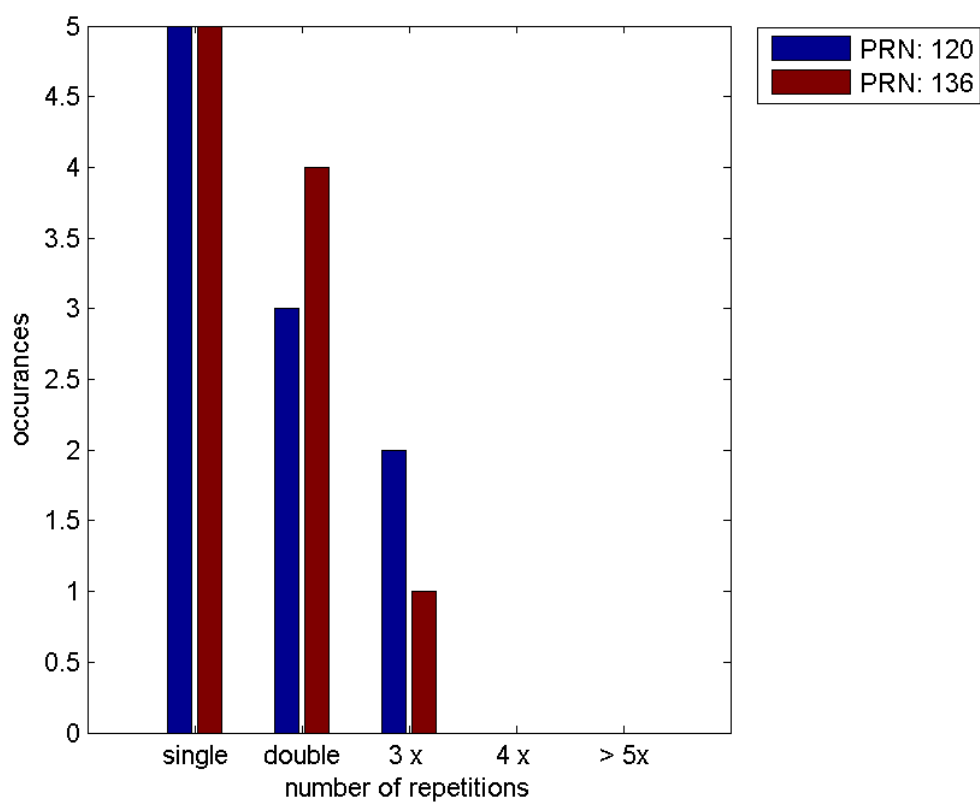
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

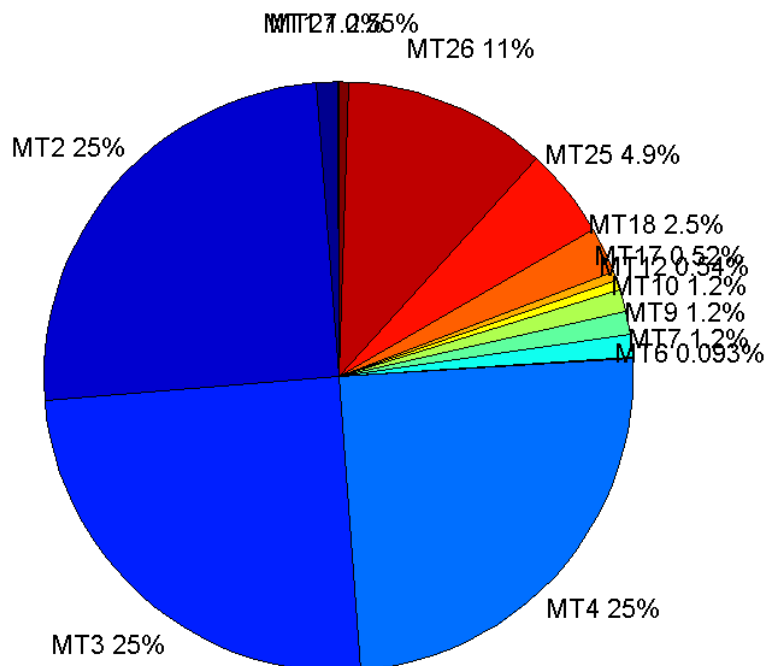
	number of messages	%
MT 0	0	0
MT 1	225	1.23565
MT 2	4565	25.07
MT 3	4528	24.8668
MT 4	4514	24.7899
MT 5	0	0
MT 6	17	0.0933604
MT 7	226	1.24114
MT 9	225	1.23565
MT 10	221	1.21369
MT 12	98	0.538195
MT 17	95	0.52172
MT 18	462	2.53721
MT 24	0	0
MT 25	889	4.8822
MT 26	2043	11.2197
MT 27	101	0.554671
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18209	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	718	103.42	37	1	1
MT 2	4	84	5.10605	1122	1	8
MT 3	4	68	5.14778	1167	3	9
MT 4	4	88	5.16175	1171	1	4
MT 5	--	--	--	--	--	--
MT 6	1	7816	877.688	5	4	5
MT 7	76	396	102.96	42	1	6
MT 9	76	720	103.384	0	0	0
MT 10	75	551	104.955	45	4	6
MT 12	182	588	236.464	97	19	19
MT 17	184	596	244.021	0	0	0
MT 18	3	188	50.2603	0	0	0
MT 24	--	--	--	--	--	--
MT 25	2	128	26.2354	0	0	0
MT 26	3	84	11.4089	0	0	0
MT						

27	185	400	231.38	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

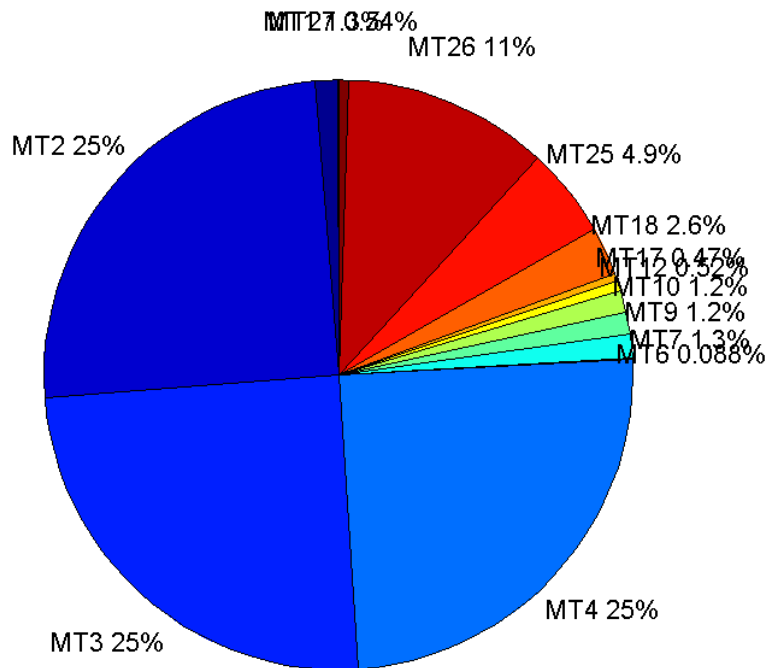
	number of messages	%
MT 0	0	0
MT 1	231	1.26832
MT 2	4551	24.9876
MT 3	4518	24.8065
MT 4	4515	24.79
MT 5	0	0
MT 6	16	0.0878493
MT 7	237	1.30127
MT 9	214	1.17498
MT 10	220	1.20793
MT 12	94	0.516115
MT 17	85	0.4667

MT 18	477	2.61901
MT 24	0	0
MT 25	899	4.93603
MT 26	2058	11.2996
MT 27	98	0.538077
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	18213	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	560	100.778	36	0	0
MT 2	4	20	5.1211	1158	1	8
MT 3	4	17	5.15918	1190	0	8
MT 4	4	17	5.16261	1187	0	8
MT 5	--	--	--	--	--	--
MT 6	1	7877	936.2	5	4	4
MT 7	74	480	98.5551	40	1	5
MT 9	76	401	109.141	0	0	0
MT 10	76	321	105.84	52	0	5
MT 12	184	599	245.366	93	19	19
MT 17	188	1000	271.655	0	0	0
MT 18	4	364	48.8466	1	0	0
MT 24	--	--	--	--	--	--
MT 25	2	120	25.9321	0	0	0
MT 26	4	68	11.3209	0	0	0
MT 27	188	965	239.289	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:/PegasusDateJob/job/2017_02_06EGNOS2Hz/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2017_02_06EGNOS2Hz/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: 05:52:54 06.02.2017 (week: 1935 sec: 107574)
end: 12:21:22 06.02.2017 (week: 1935 sec: 130882)
duration: 06:28:29 ..

quality

valid samples 42296
total samples 42969

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (25)
APV-35m discontinuity events type too many (27)
LPV-200 discontinuity events type too many (27)
CAT-I discontinuity events type nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	109006	1.51253	10.3527	0.1461	0.38891	15.0317	0.0258727
max normVer	115453	1.10199	22.6436	0.0486666	-2.00111	19.6475	0.10185
max HPE	113860	7.35479	92.8564	0.0792061	6.88107	81.8976	0.0840204
max VPE	110683	2.19337	50.6322	0.0433196	7.88196	311.293	0.0253201
min HPL	109010	1.47854	10.3511	0.142839	0.411781	15.0335	0.0273909
min VPL	113610	1.09966	11.2659	0.0976094	-0.233401	14.409	0.0161983

Position discontinuity events :

#	Epoch	duration	stable period
1	110636	8.5	18.5
2	111629	117.5	9.5
3	116641	4	5.5
4	123143	72.5	763.5
5	128016	167	232.5
6	129345	193.5	336.5

First Glance analysis

Duration 23309
Number of Samples 42969
Number of invalid sample 673
Number of no position solution samples 1165
Number of missing sample 3649
Logging Loss 7.8274
Processing Loss 1.5662
Number of Misleading Information 0
Data gaps 14
Discontinuities 79

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
41131	33177	29994	0	29994

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.78706	1.65593	1.62979	NaN	1.62979
HPEscale 95%	NaN	4.36546	4.4089	NaN	4.4089
VPE 95%	1.72563	1.55842	1.55831	NaN	1.55831
VPEscale 95%	NaN	3.59374	2.55246	NaN	2.55246

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.972456	0.7844	0.709145	0	0.709145
measurements	0.957225	0.772115	0.698038	0	0.698038
Operational	1.7646	1.42336	1.2868	0	1.2868

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	65	151	206	--	206
Long	6	35	49	--	49
Independent	4	25	27	--	27
P(disc.)	0.00145875	0.011303	0.0135027	NaN	0.0135027
P(slide)	0.0223432	0.0563342	0.0671968	NaN	0.0671968

Integrity events :

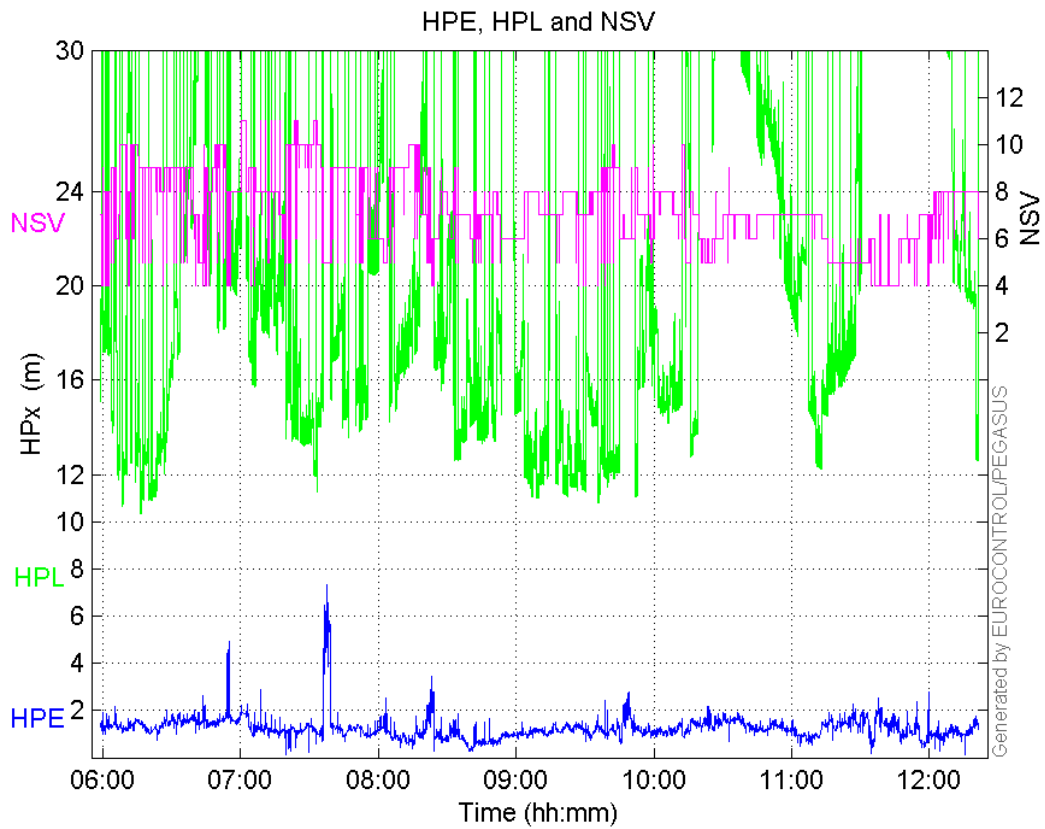
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

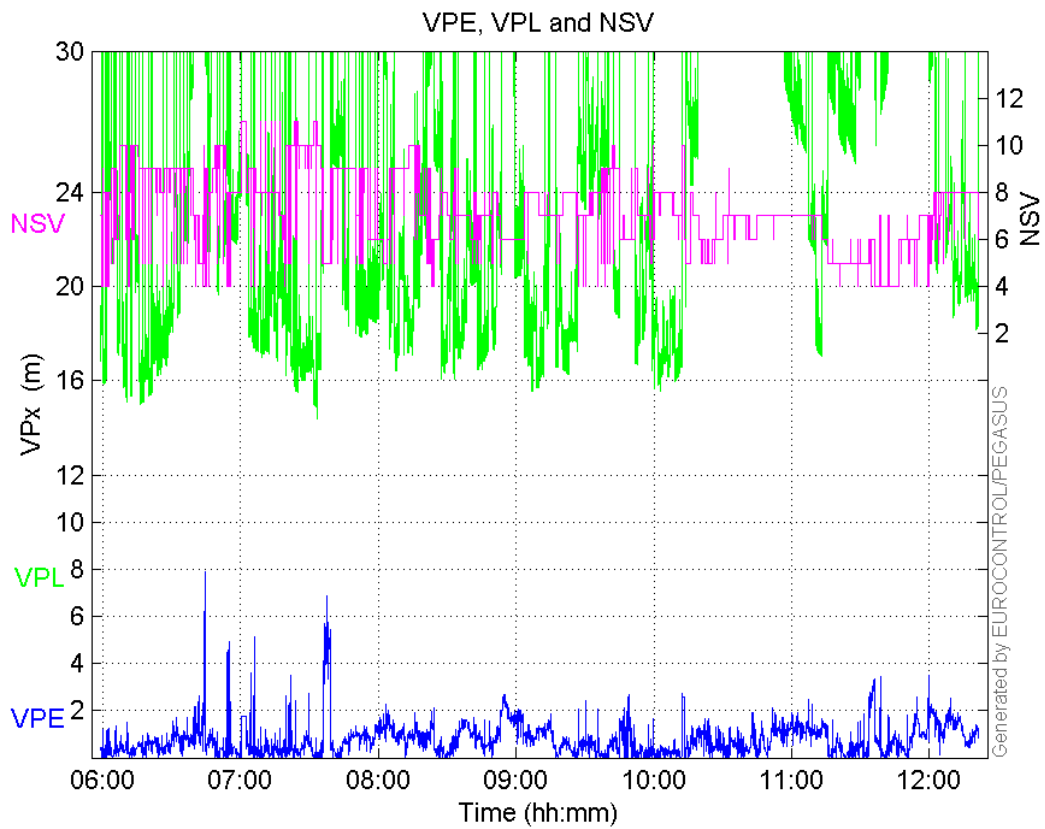
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	41131	33177	29994	0	29994
SIS Availability	0.972456	0.7844	0.709145	0	0.709145
Local Availability	0.957225	0.772115	0.698038	0	0.698038
Operational Availability	1.7646	1.42336	1.2868	0	1.2868
HPE 95%	1.78706	1.65593	1.62979	NaN	1.62979
HPEScale 95%	NaN	4.36546	4.4089	NaN	4.4089
VPE 95%	1.72563	1.55842	1.55831	NaN	1.55831
VPEscale 95%	NaN	3.59374	2.55246	NaN	2.55246
All Discontinuity Events	65	151	206	--	206
Long Discontinuity Events	6	35	49	--	49
Independent Discontinuity Events	4	25	27	--	27
P(discontinuity)	0.00145875	0.011303	0.0135027	NaN	0.0135027
P(sliding window)	0.0223432	0.0563342	0.0671968	NaN	0.0671968
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:

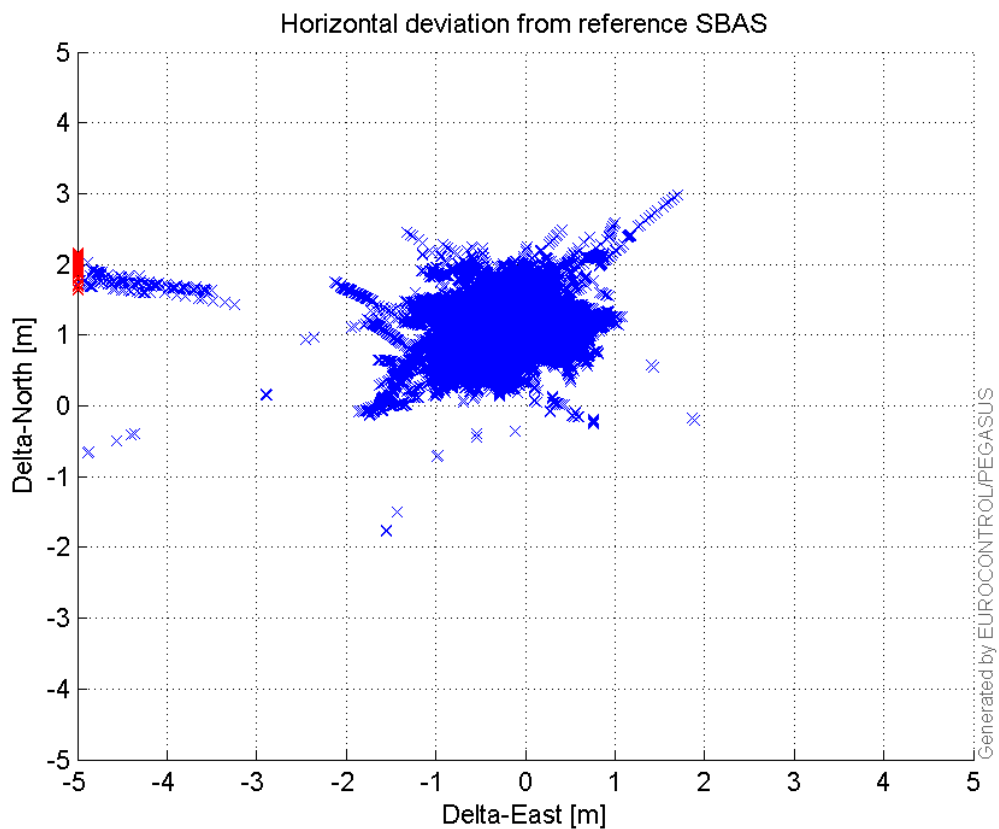


VPE, VPL and NSV:



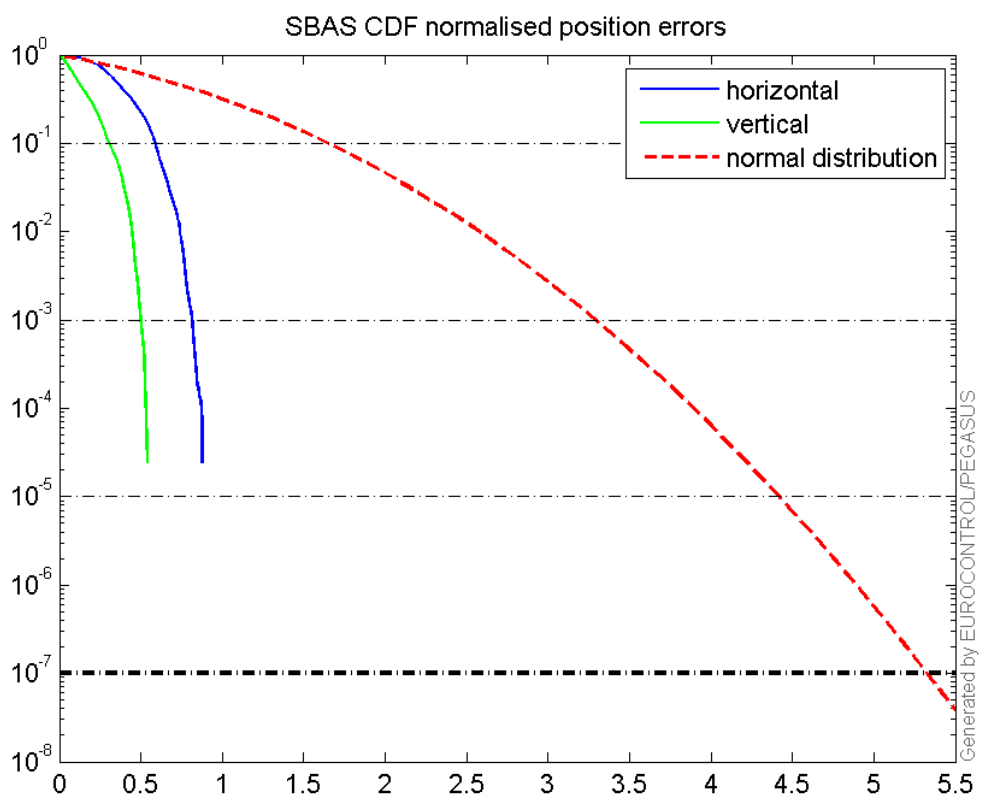
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

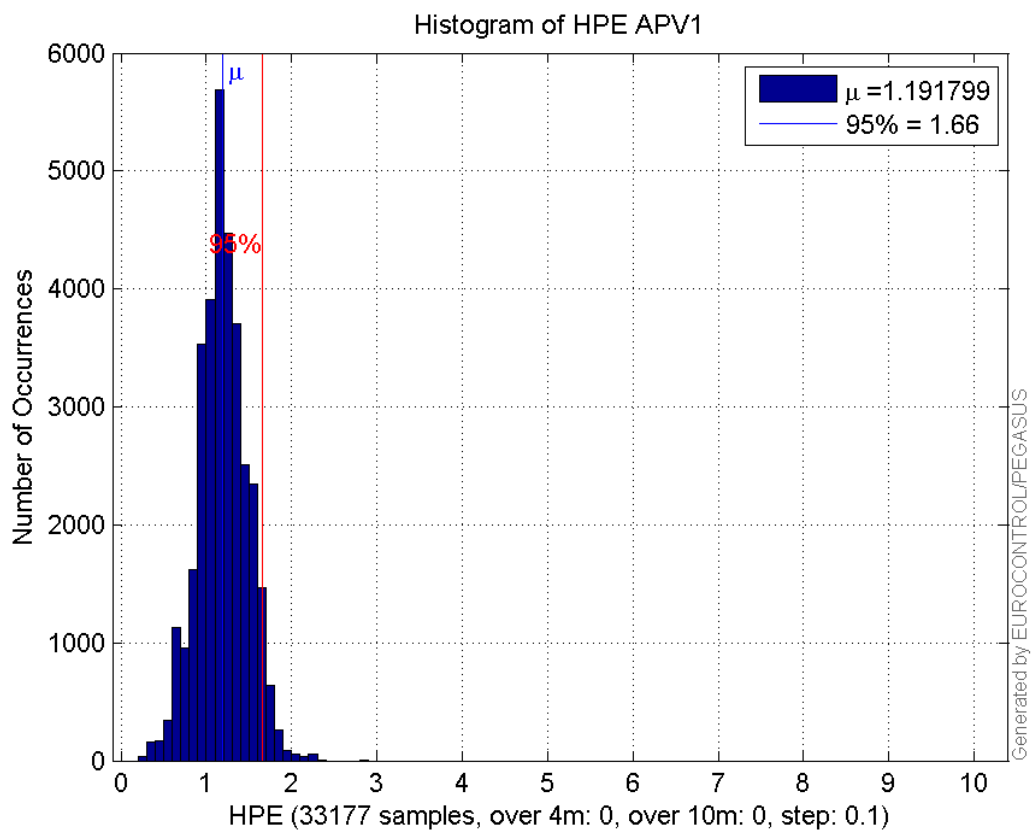
number	33177
sum	39540.322
sum2	49879.962
prctile95	1.6559314
prctile99	1.8501746
number	33177
sum	21828.177
sum2	21564.267
prctile95	1.5584158
prctile99	1.9019479
number	33177
sum	621645.3
sum2	12929585
prctile95	33.09827
prctile99	37.803941
number	33177
sum	775347.42
sum2	19787677
prctile95	38.849055
prctile99	47.550684
number	33177
sum	2274.6407
sum2	173.84034
prctile95	0.10913646
prctile99	0.12452797
number	33177
sum	982.99214
sum2	44.352437
prctile95	0.071874893
prctile99	0.084422401
number	29994
sum	34995.929
sum2	43263.422
prctile95	1.6297877
prctile99	1.8638538
number	29994
sum	19789.206
sum2	19646.413
prctile95	1.5583109
prctile99	1.889371
number	29994
sum	523300.19
sum2	9818796.4
prctile95	25.9748
prctile99	34.311484
number	29994
sum	646599.26
sum2	14517598
prctile95	29.75366
prctile99	33.94216
number	29994
sum	2125.3925
sum2	166.64692

prctile95 0.1102224
prctile99 0.12513638
number 29994
sum 931.72108
sum2 43.0992
prctile95 0.072927564
prctile99 0.084867542

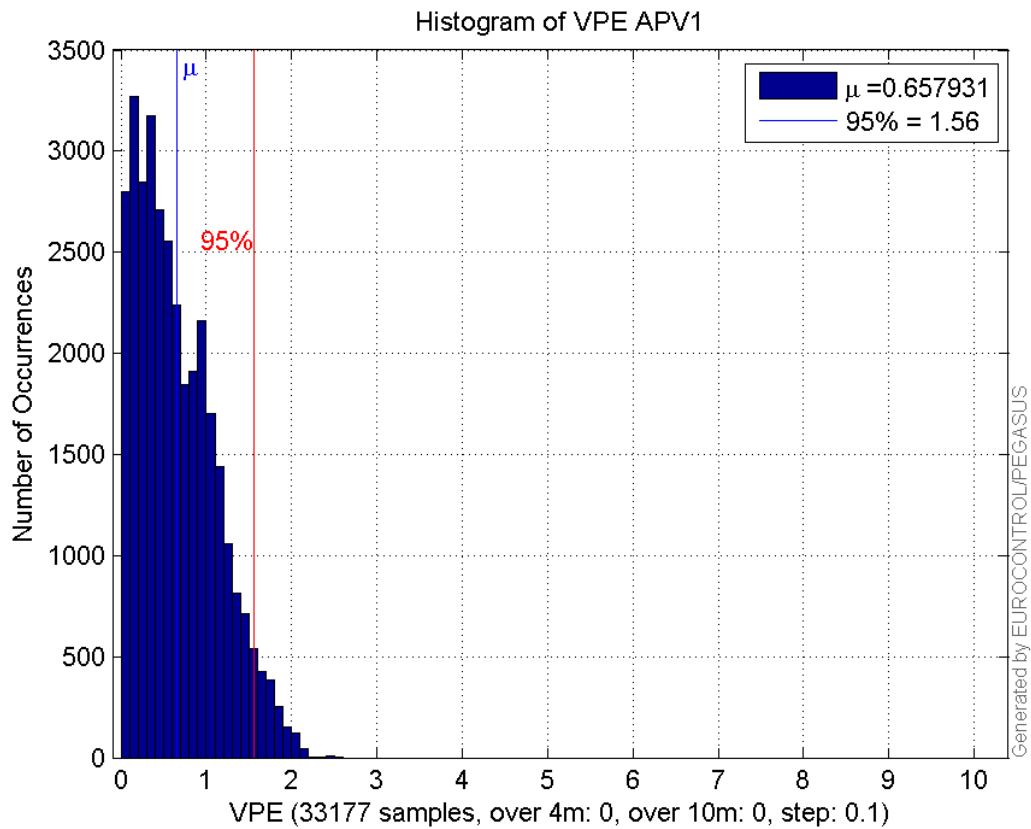
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.1918	0.288214	1.18093	1.65593	1.85017	1.22615
HPL	18.7372	6.2155	17.1352	33.0983	37.8039	19.7412
VPE	0.657931	0.46595	0.568441	1.55842	1.90195	0.806211
VPL	23.37	7.09019	21.2011	38.8491	47.5507	24.4219

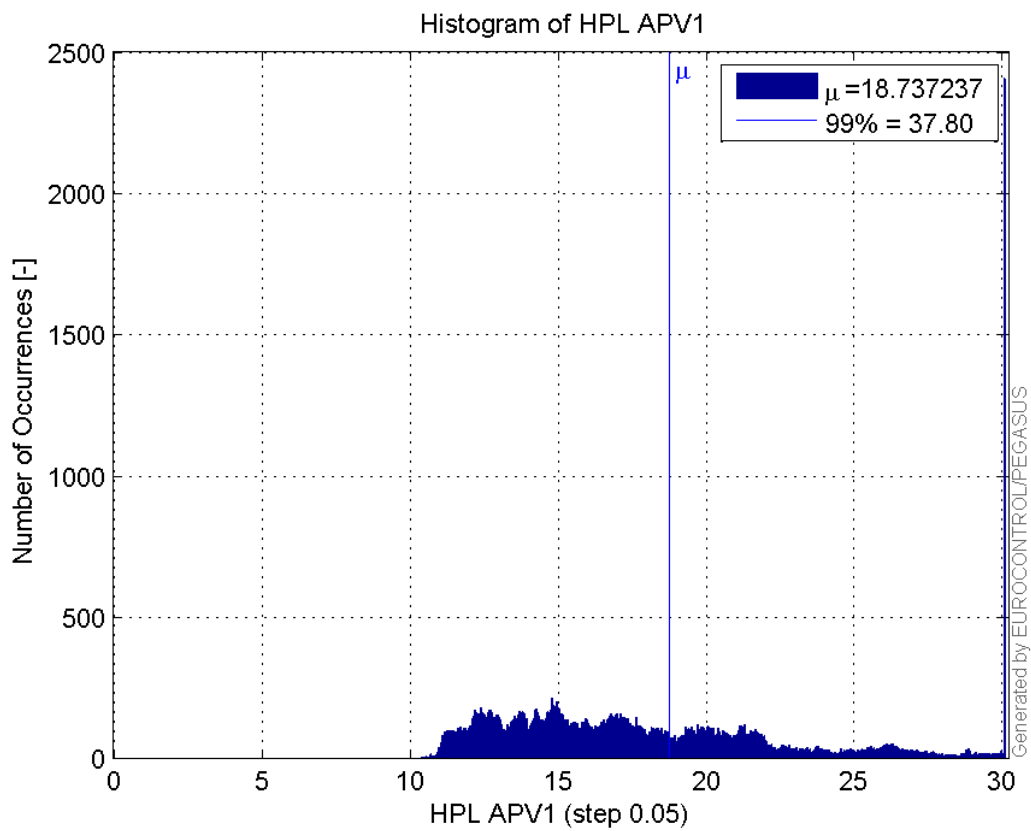
Histogram of HPE APV1:



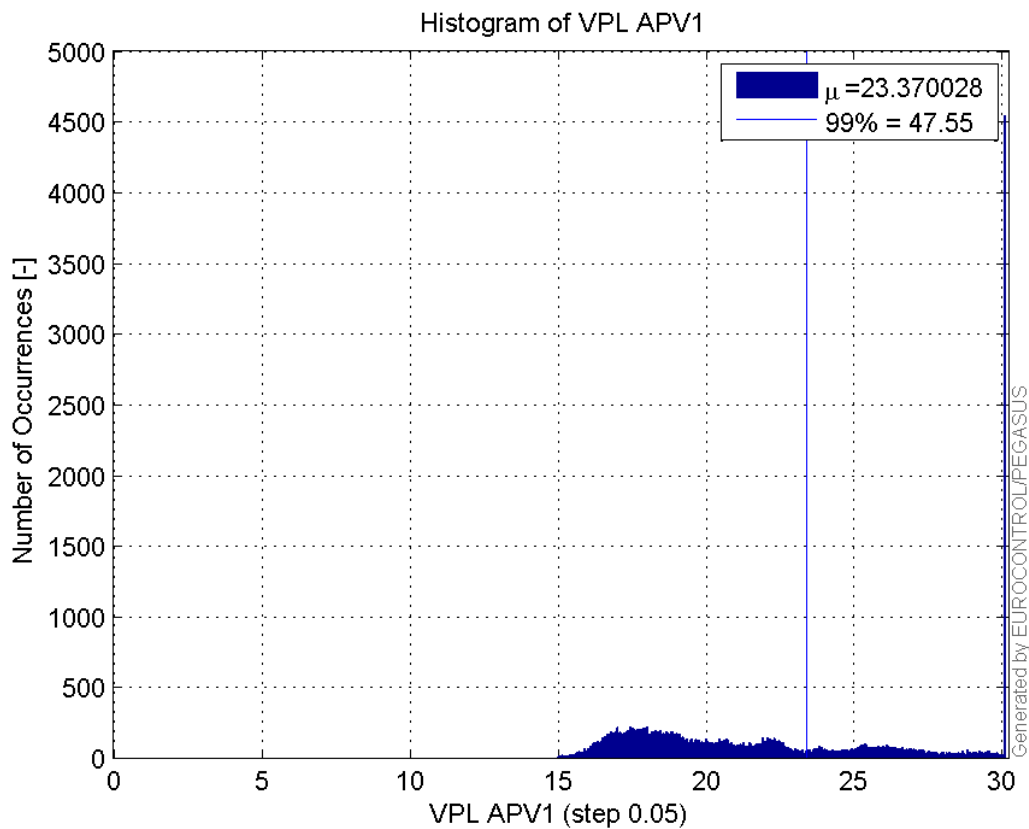
Histogram of VPE APV1:



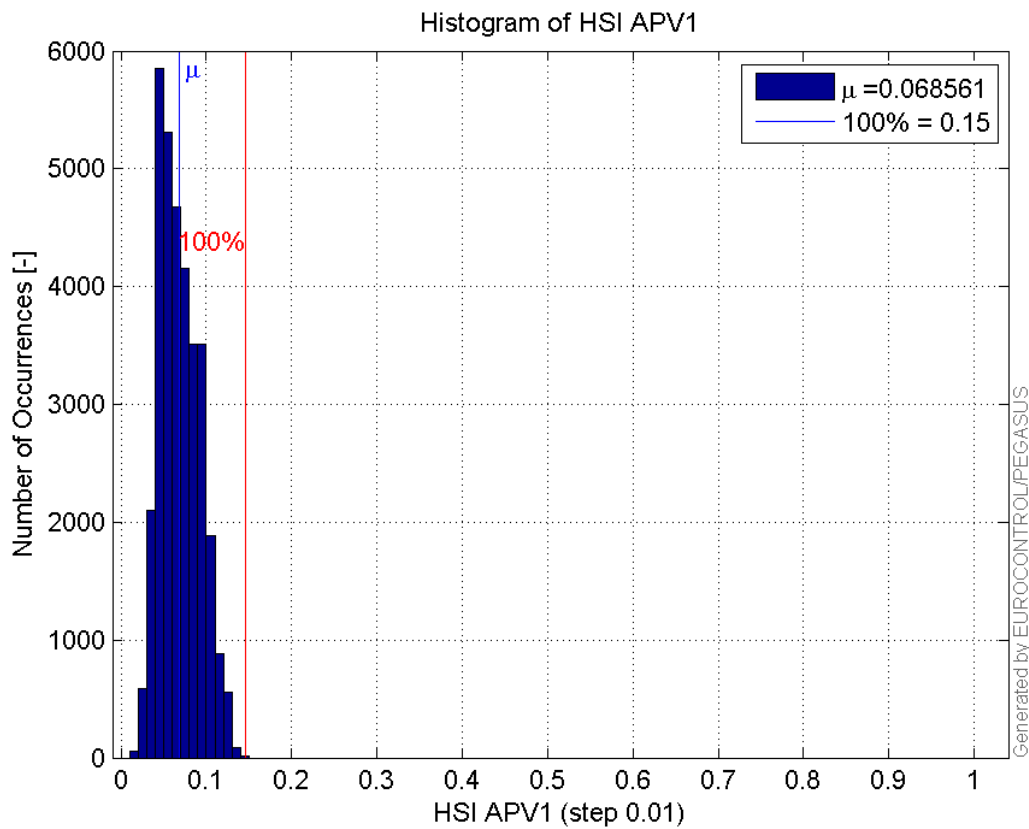
Histogram of HPL APV1:



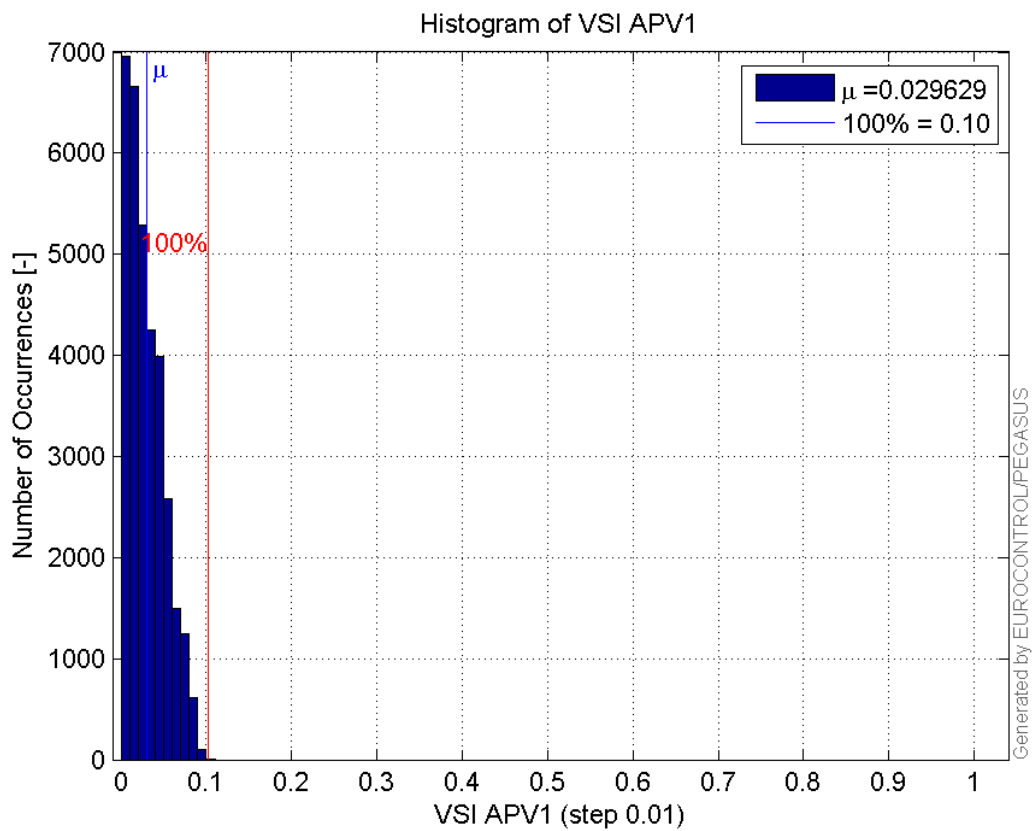
Histogram of VPL APV1:



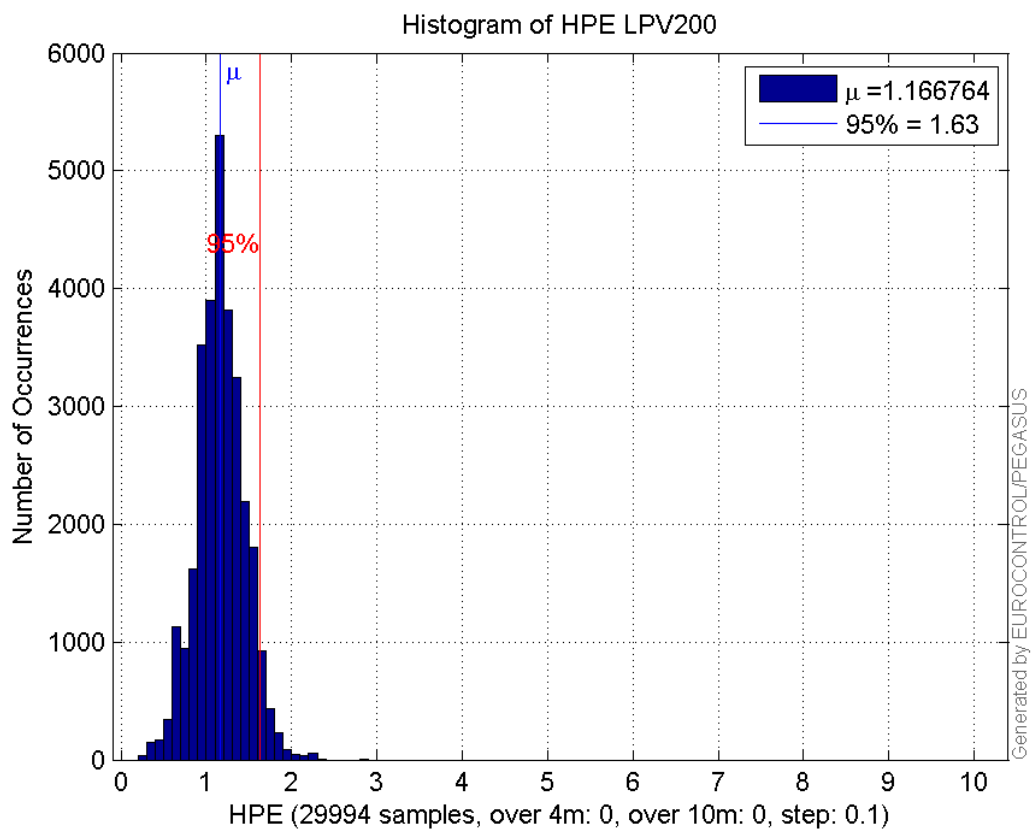
Histogram of HSI APV1:



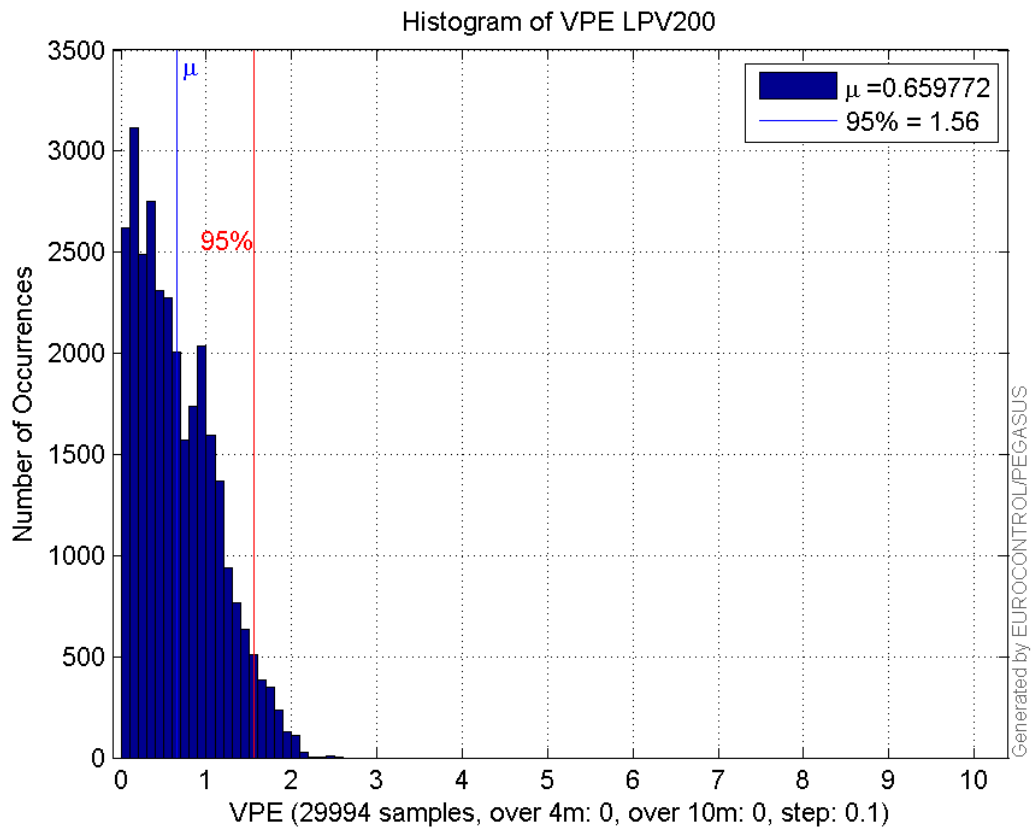
Histogram of VSI APV1:



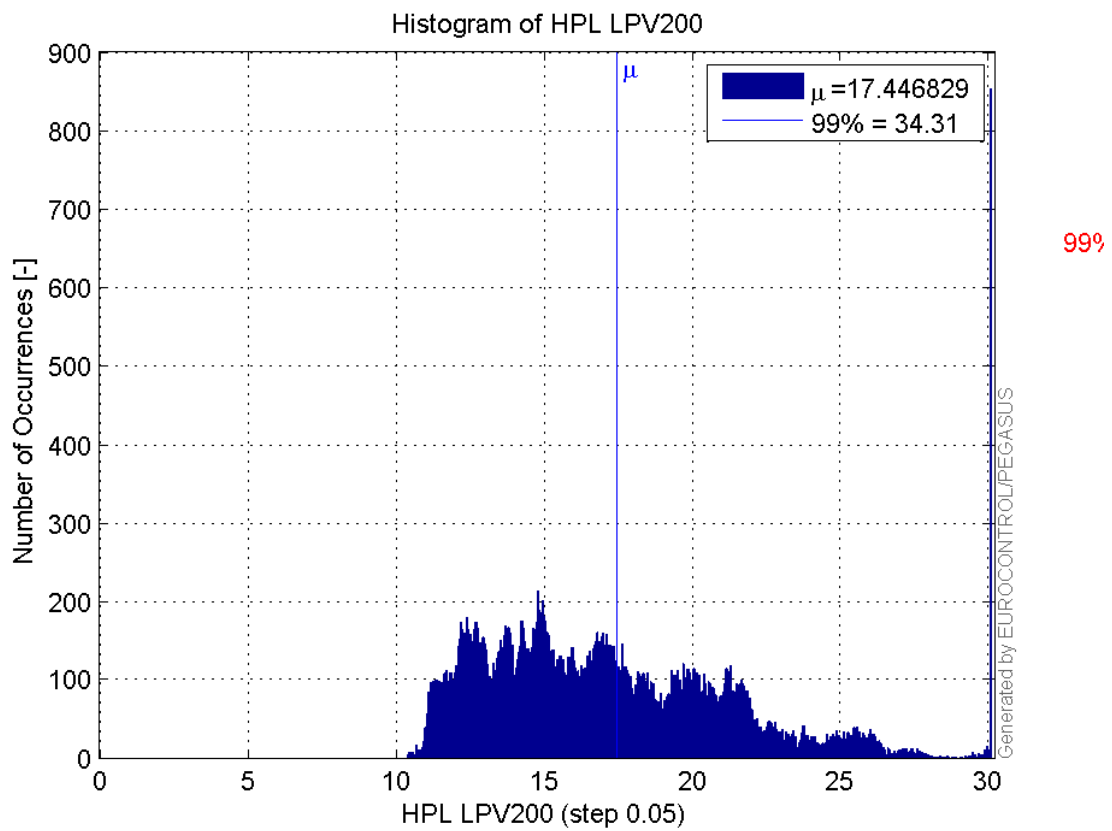
Histogram of HPE LPV200:



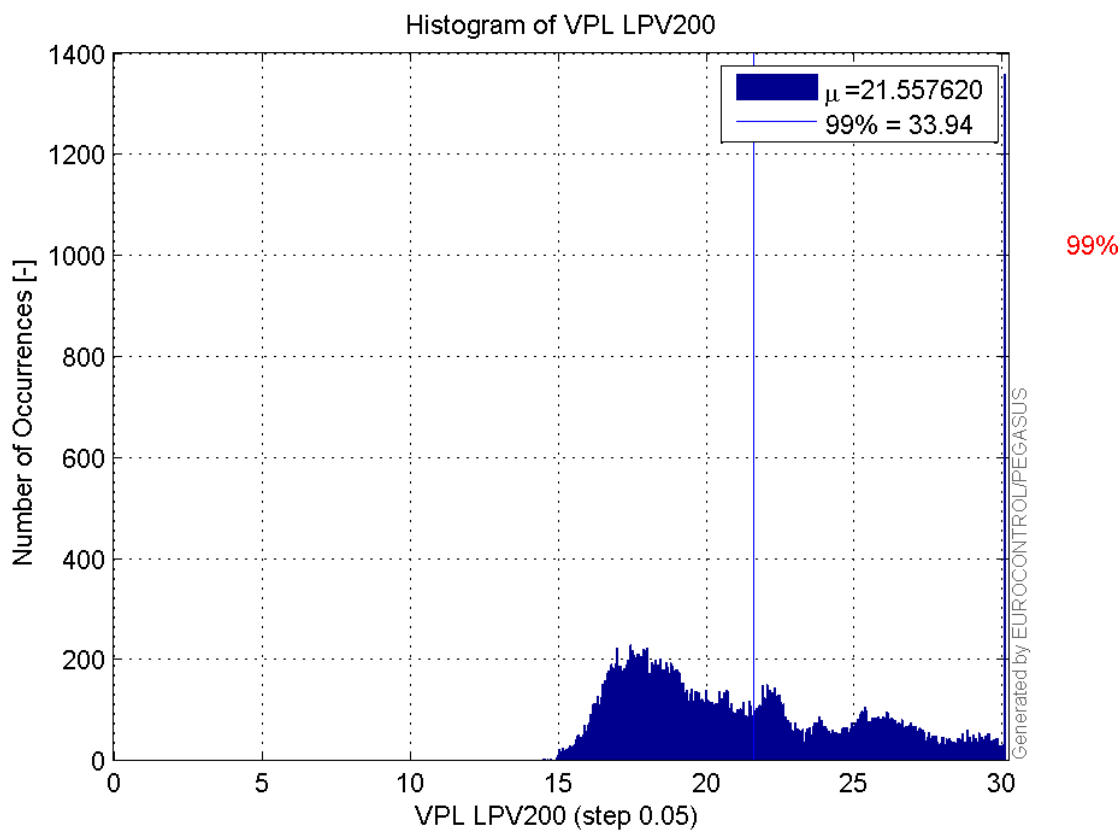
Histogram of VPE LPV200:



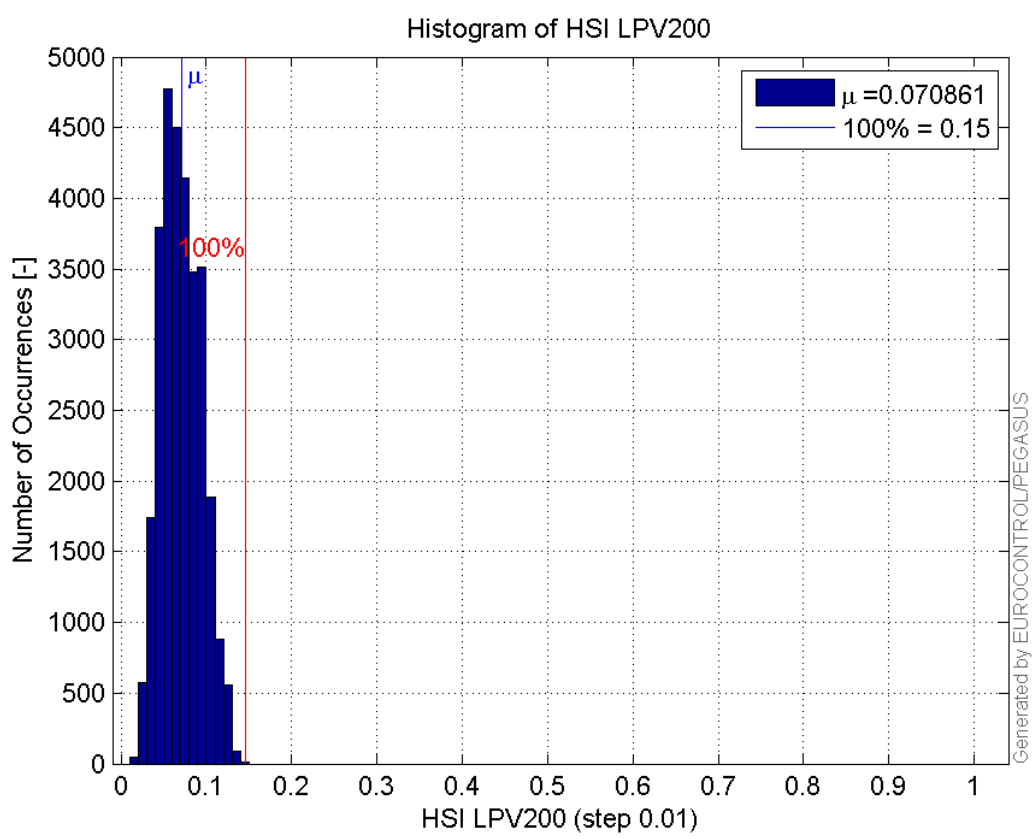
Histogram of HPL LPV200:



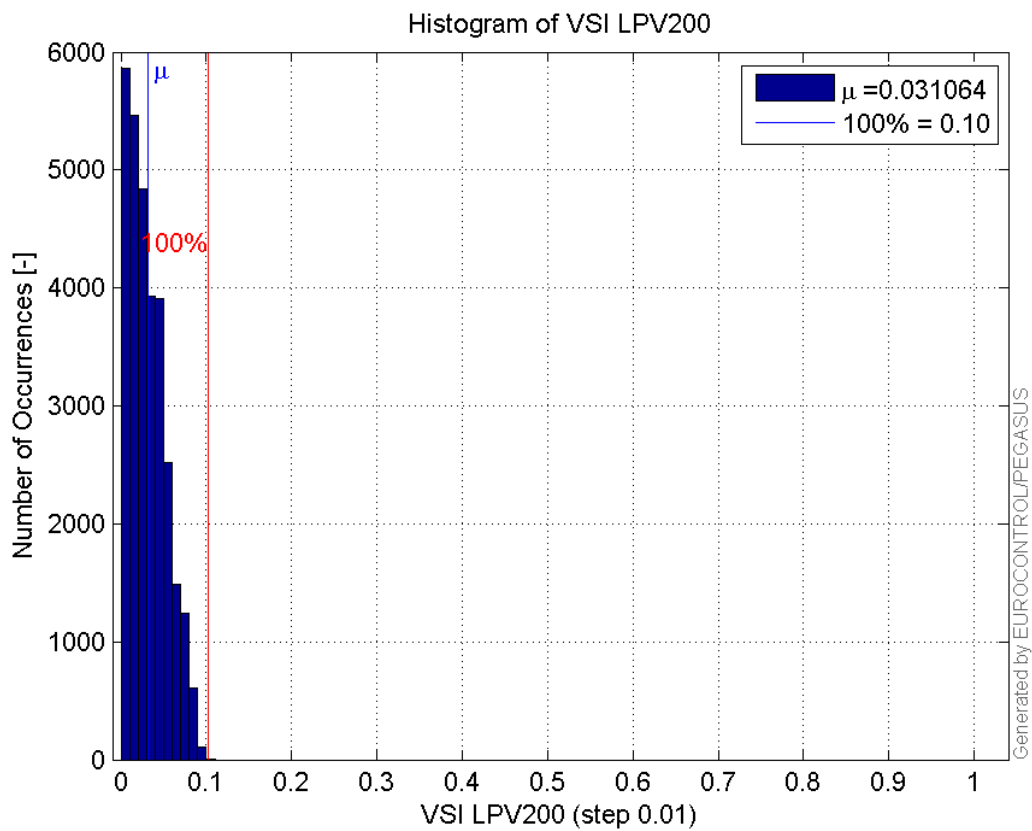
Histogram of VPL LPV200:



Histogram of HSI LPV200:

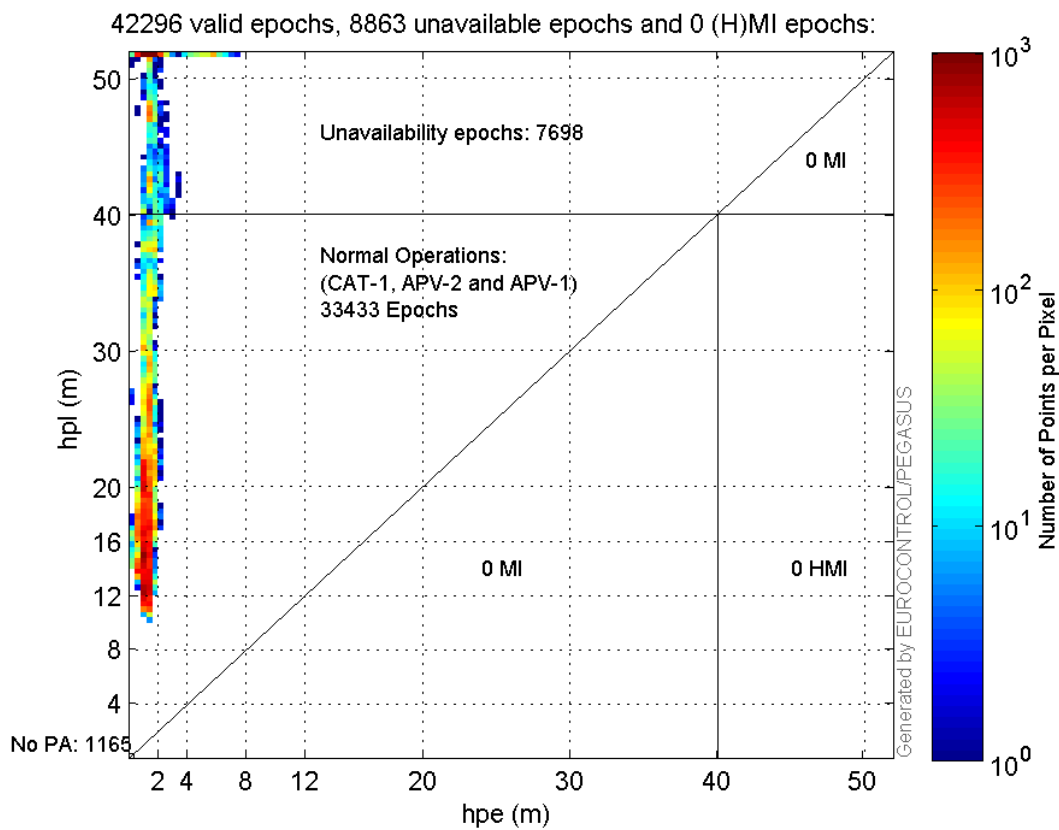


Histogram of VSI LPV200:



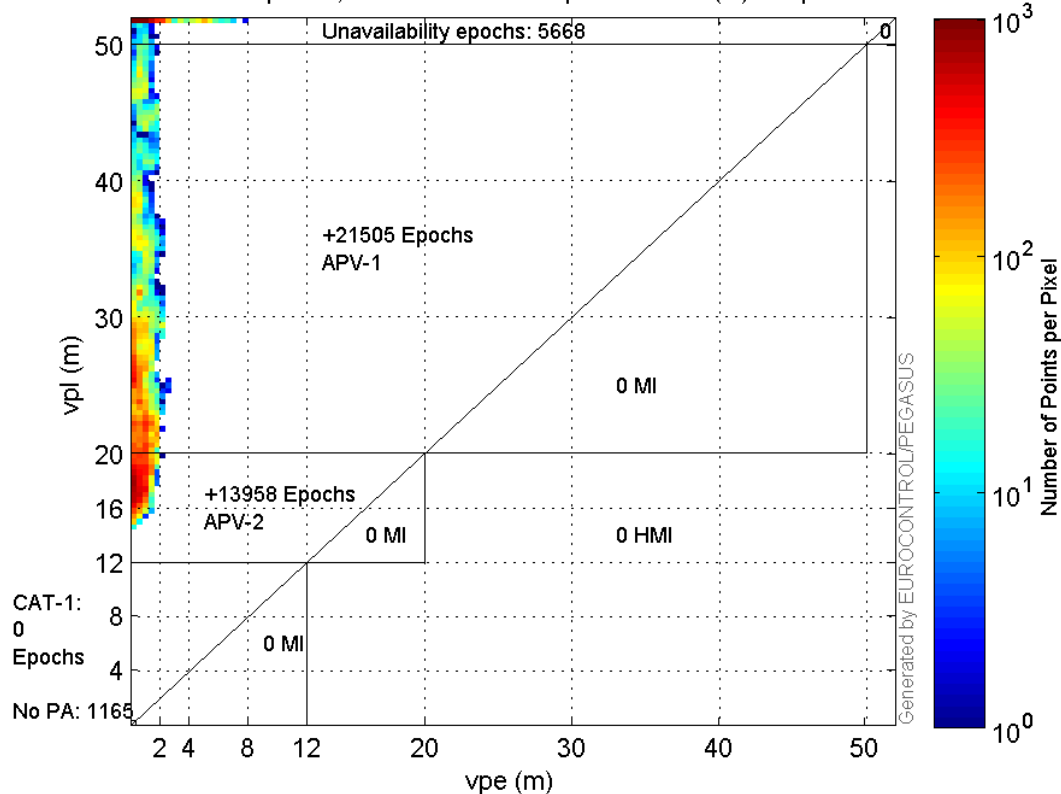
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

42296 valid epochs, 6833 unavailable epochs and 0 (H)MI epochs:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2017_02_06EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_06EGNOS2Hz/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	223.505
mi_numbers	results	0

Range Domain

start: 05:52:54 06.02.2017 (week: 1935 sec: 107574)
end: 12:21:22 06.02.2017 (week: 1935 sec: 130882)
duration: 06:28:29 ..

quality

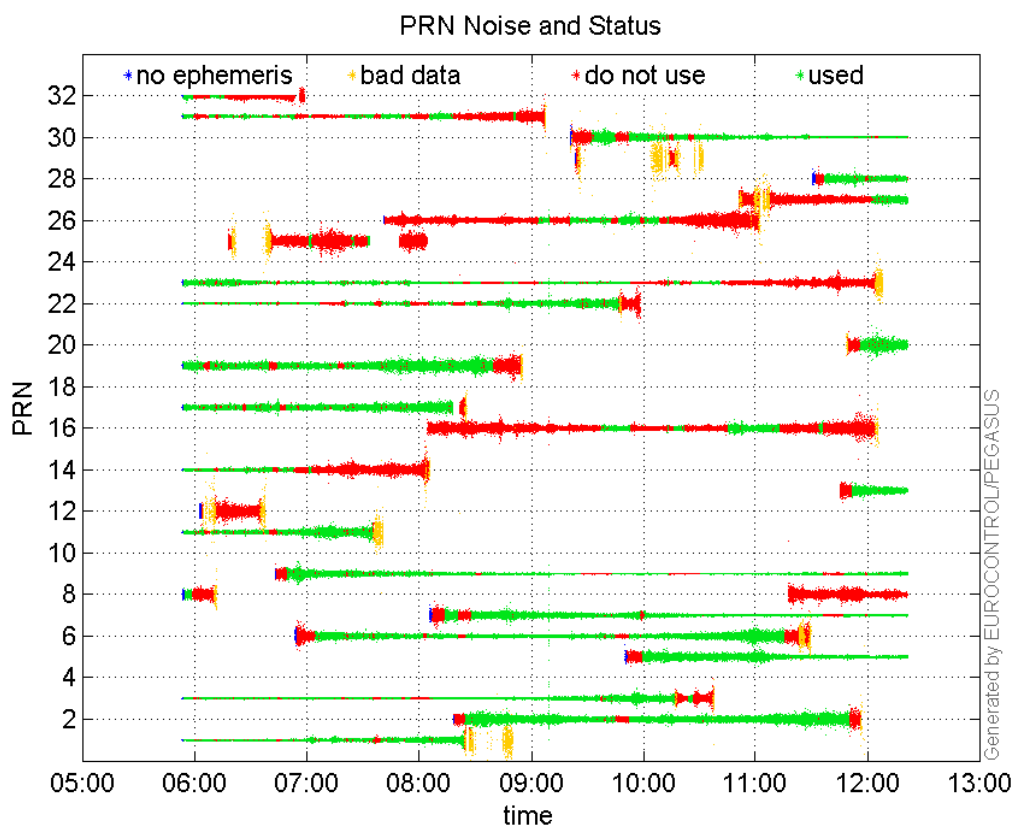
valid samples 42969
total samples 42969

PRN overview

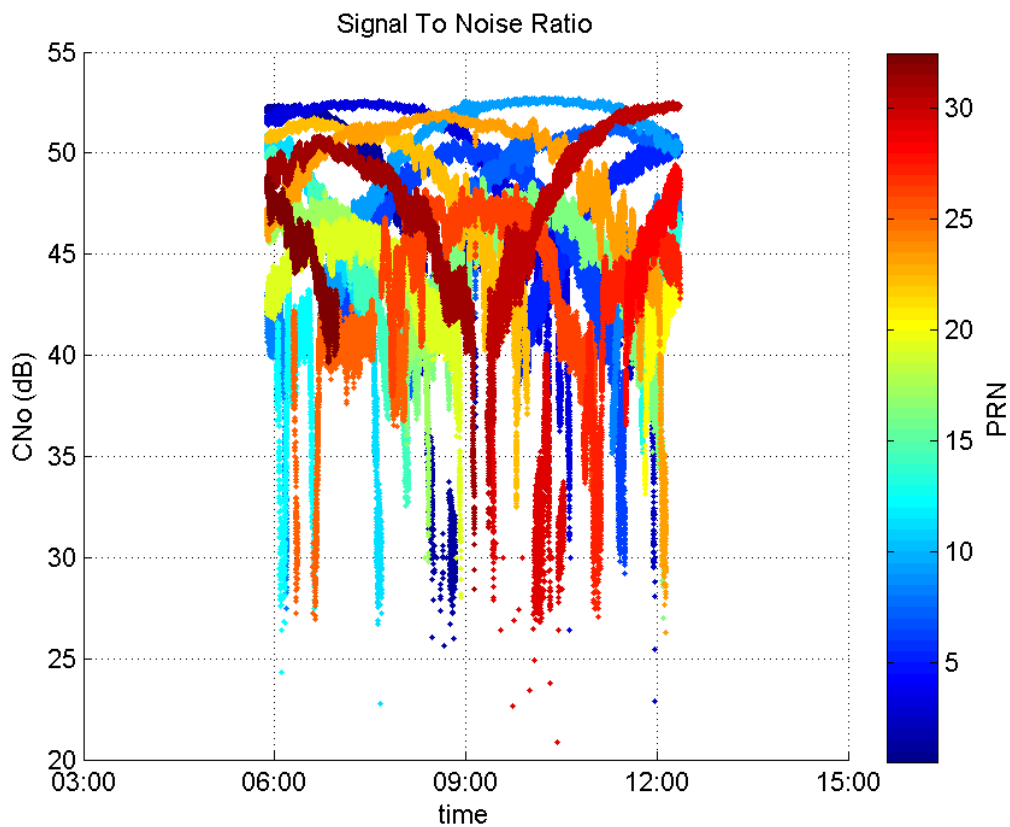
Number of Visible GPS Satellites 26
Number of Visible SBAS Satellites 2

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
1935	113368	1	1.76854	3.21756	1.81933
1935	120126	2	0.897038	-1.79086	1.99642
1935	111314	3	1.64107	-2.21765	1.35134
1935	123761	5	0.734843	-1.74214	2.37076
1935	120344	6	1.07715	1.69689	1.57536
1935	120344	7	1.45607	2.37918	1.63397
1935	121397	9	1.18485	-1.66303	1.40357
1935	111201	11	1.56456	2.96569	1.89555
1935	129262	13	0.470421	1.06757	2.26939
1935	109060	14	0.498777	-1.14154	2.28868
1935	126751	16	0.175853	-0.643198	3.6576
1935	110293	17	1.48497	-2.65614	1.78868
1935	113361	19	0.991501	-1.92947	1.94601
1935	129605	20	0.452404	1.18629	2.62218
1935	115613	22	1.12691	2.79276	2.47826
1935	112961	23	1.60232	2.50308	1.56216
1935	113596	25	0.163389	-0.78861	4.82658
1935	119309	26	0.227844	-1.65712	7.27304
1935	130880	27	0.112627	-2.18144	19.3687
1935	128278	28	0.99552	2.67606	2.6881
1935	124231	30	1.63942	2.96039	1.80575
1935	108540	31	0.379489	1.77888	4.68757

1935

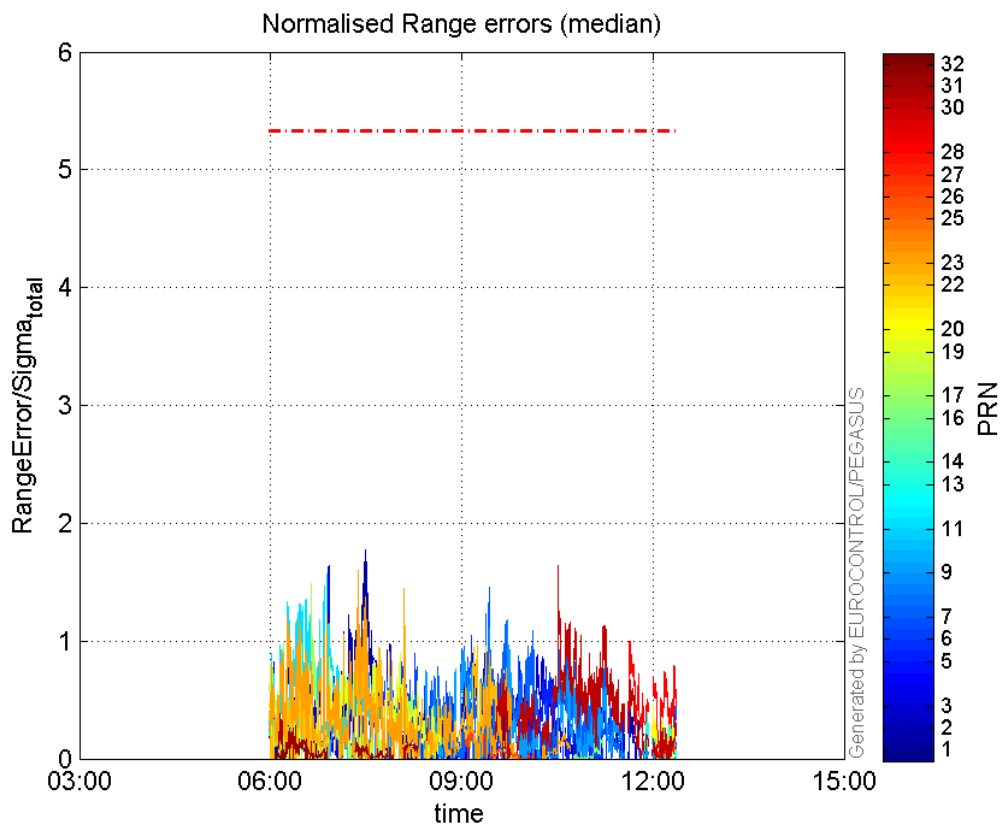
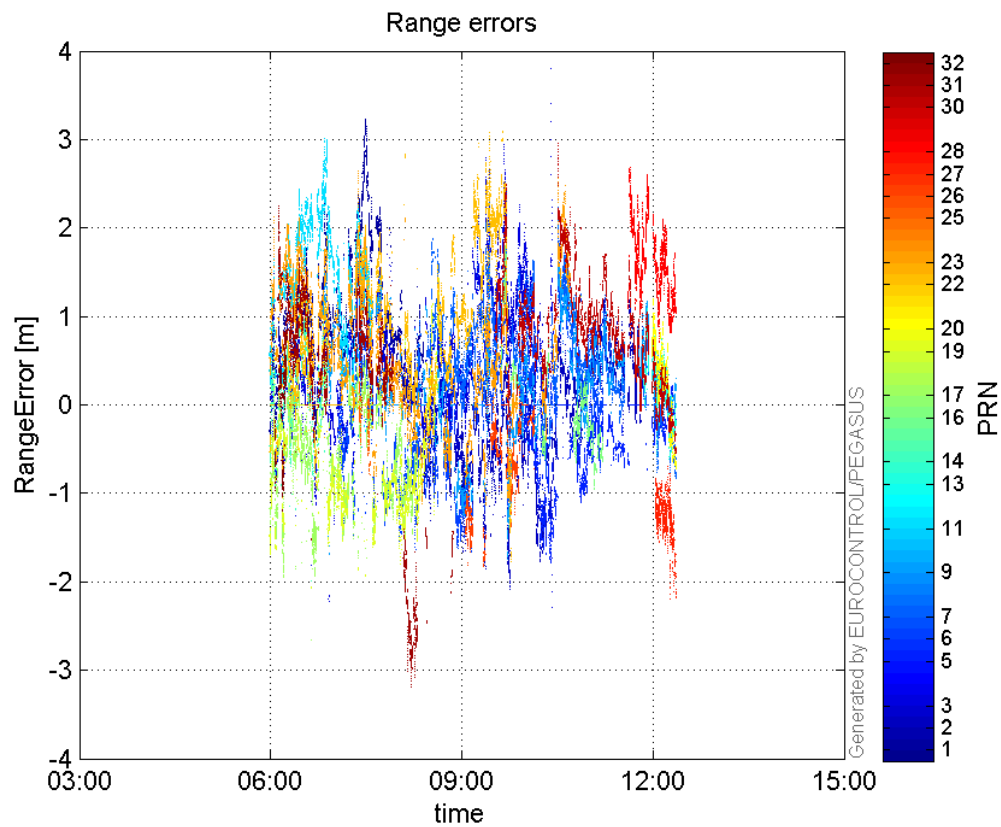
108649

32

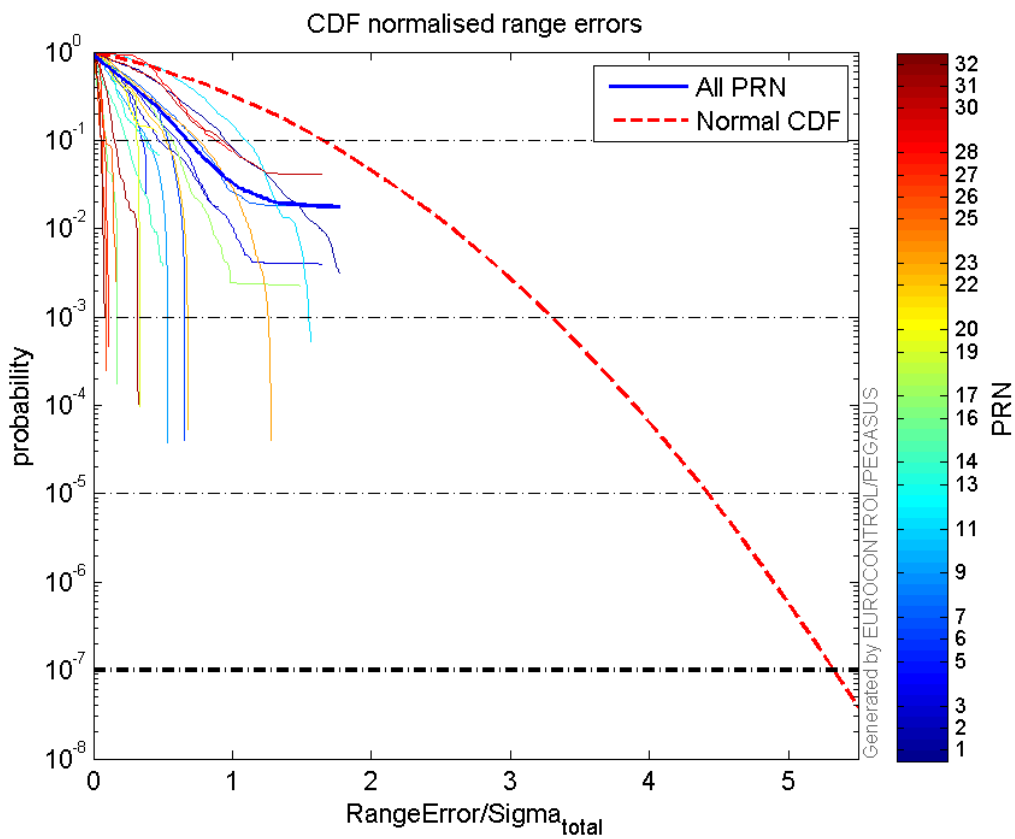
0.0843865

-1.19353

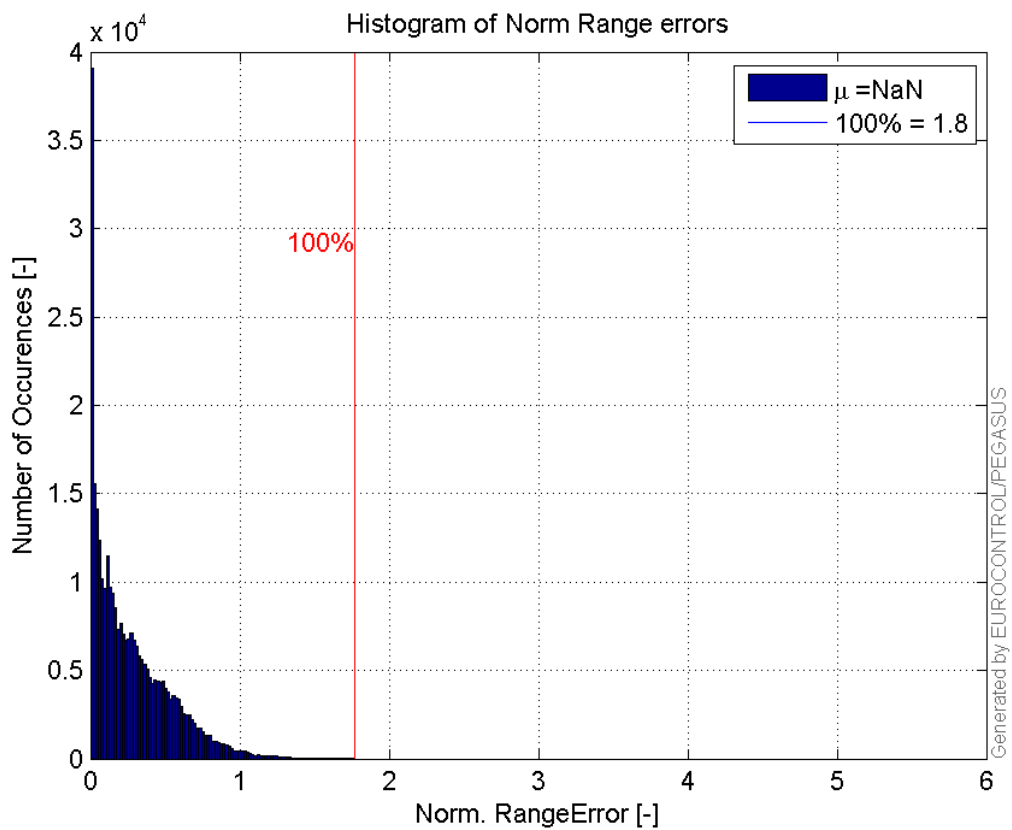
14.1436

Normalised Range errors (median):**Range errors:**

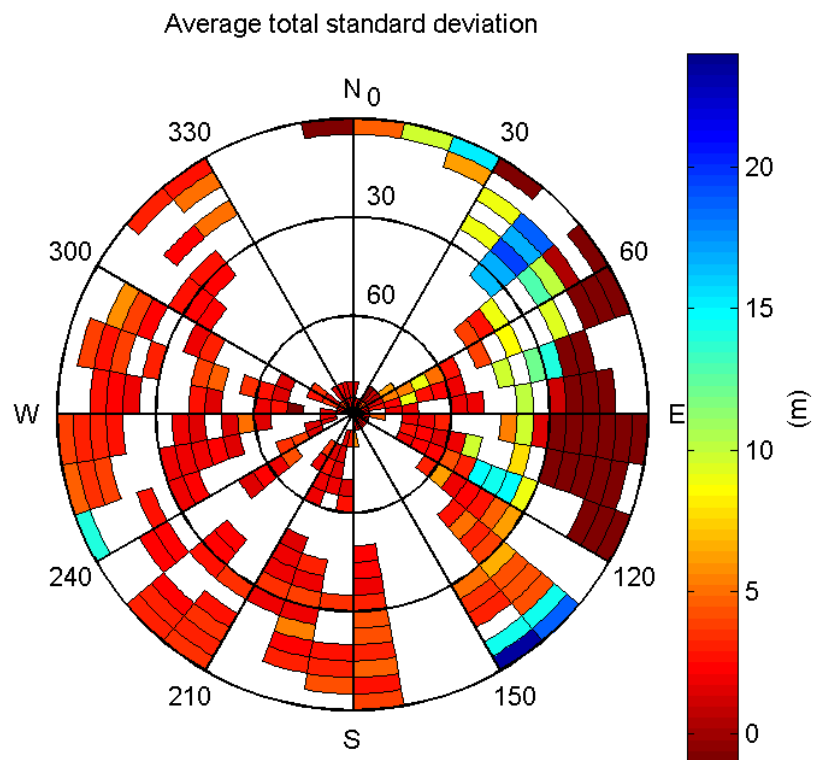
CDF normalised range errors:



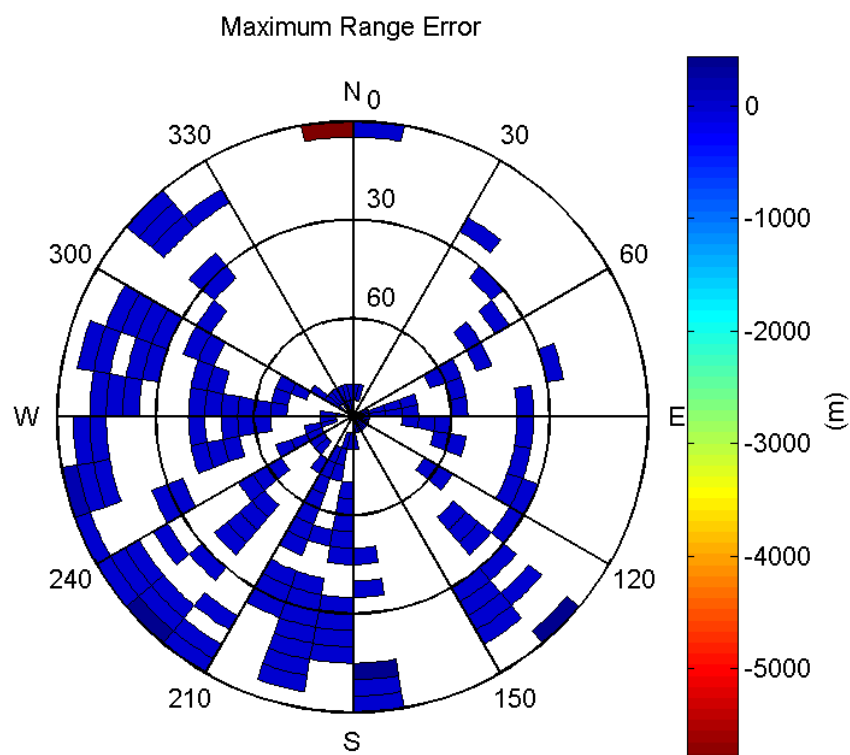
Histogram of Norm Range errors:



Sigma Sky Plot:

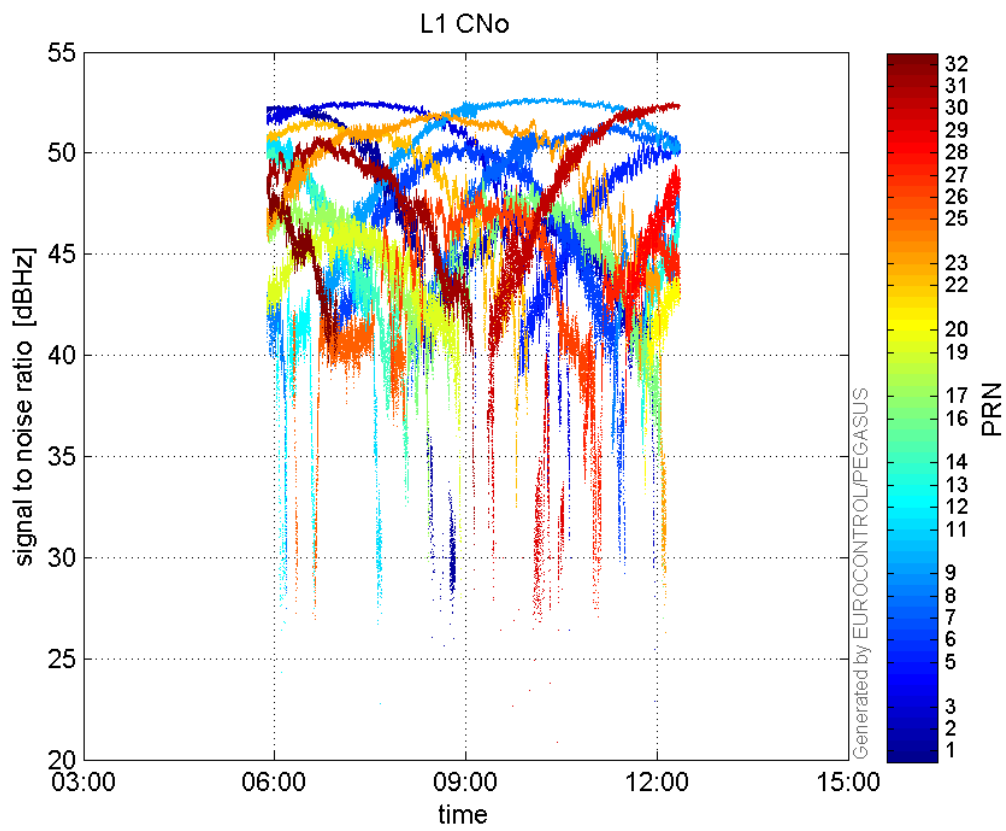


Norm Error Sky Plot:

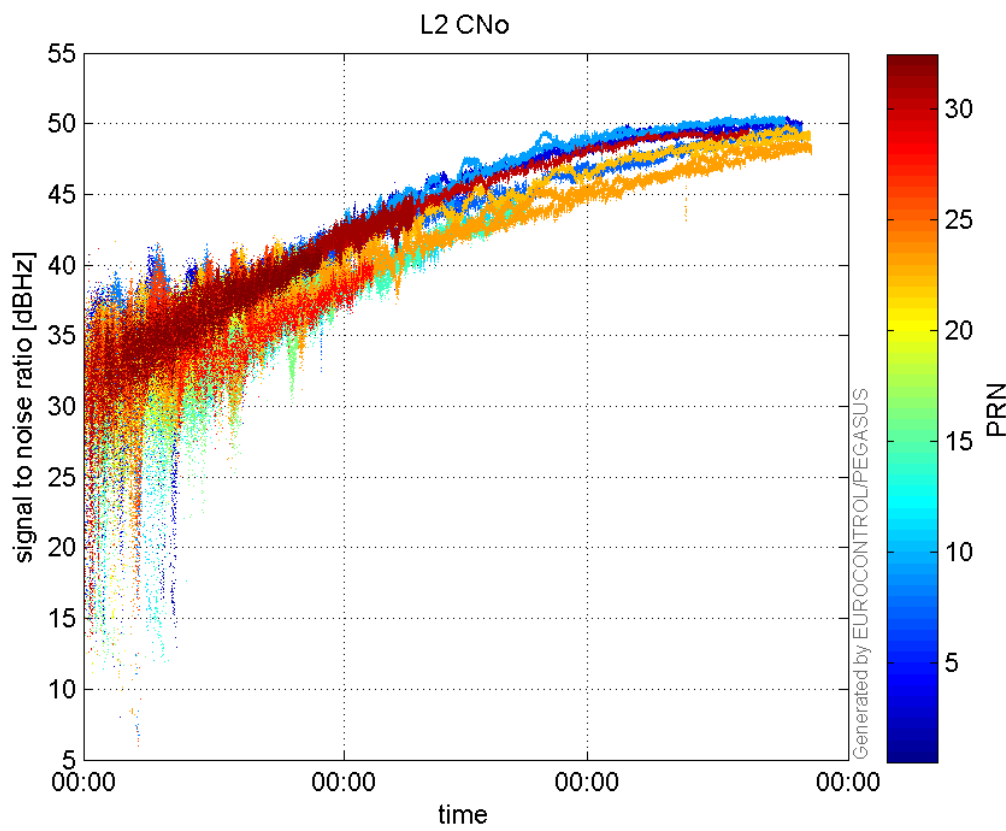


signal quality

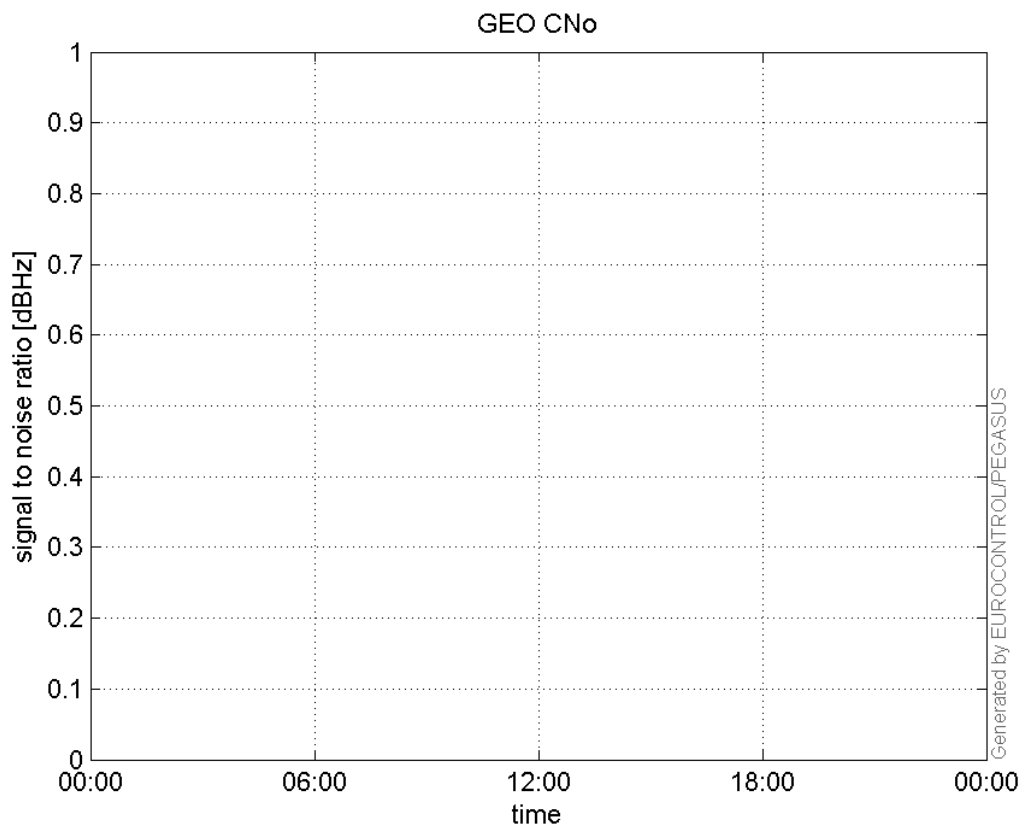
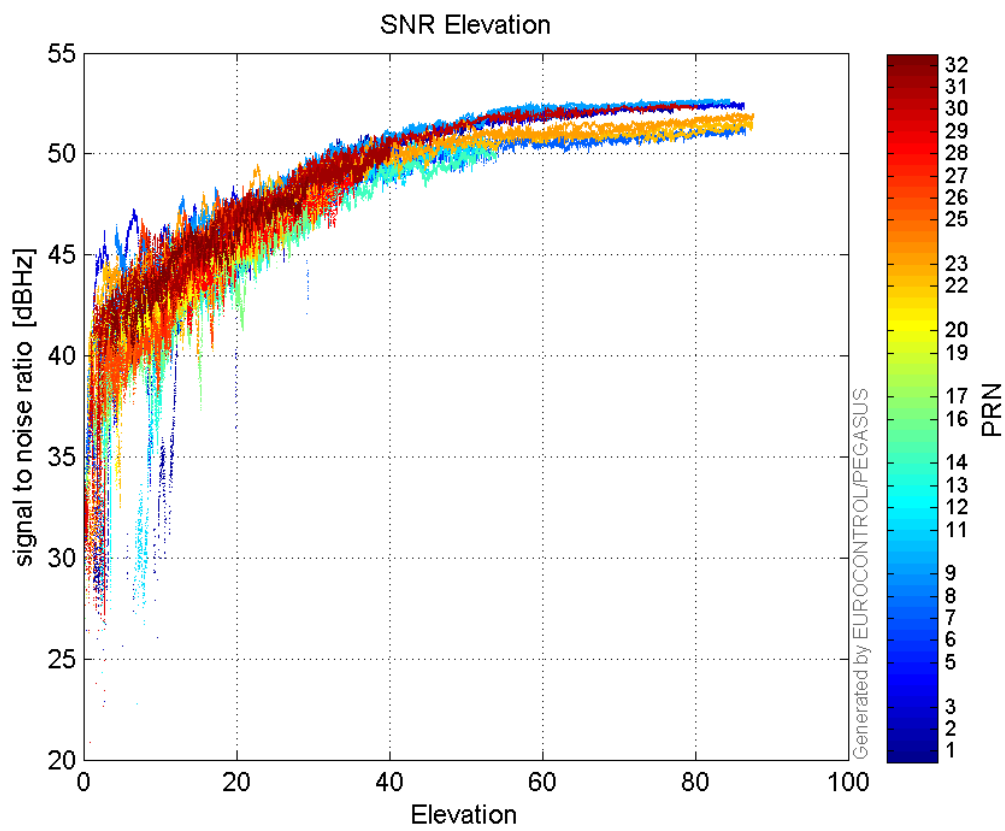
L1 CNo:

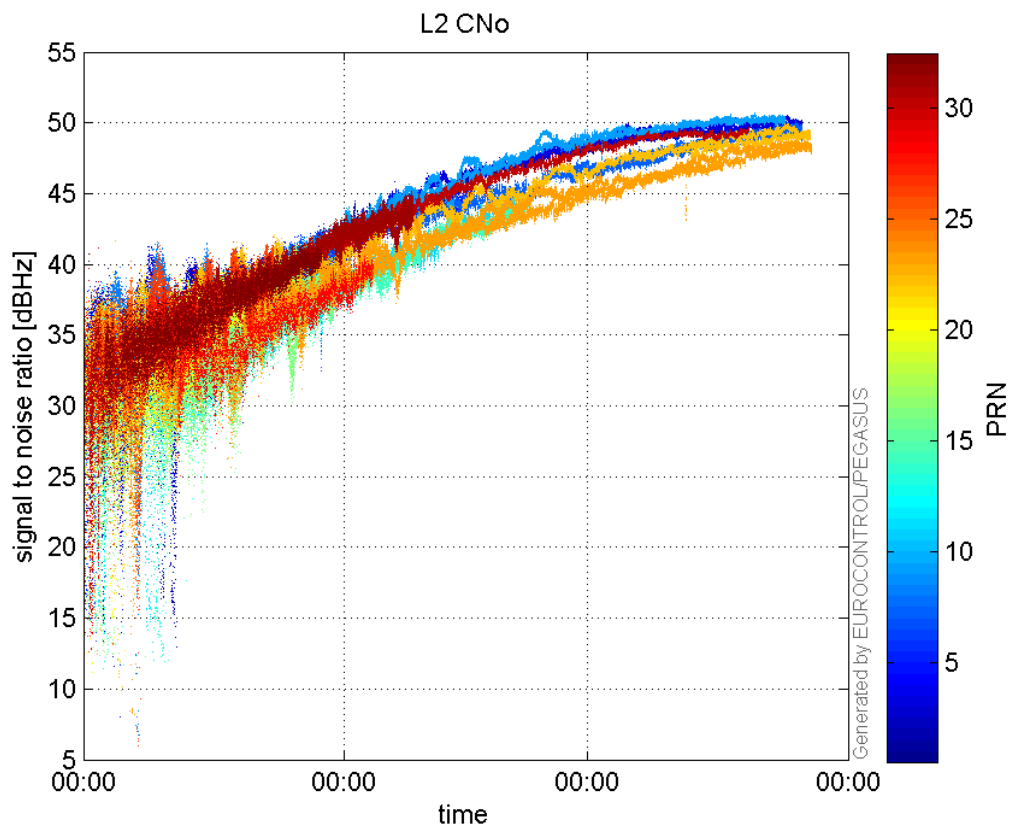


L2 CNo:

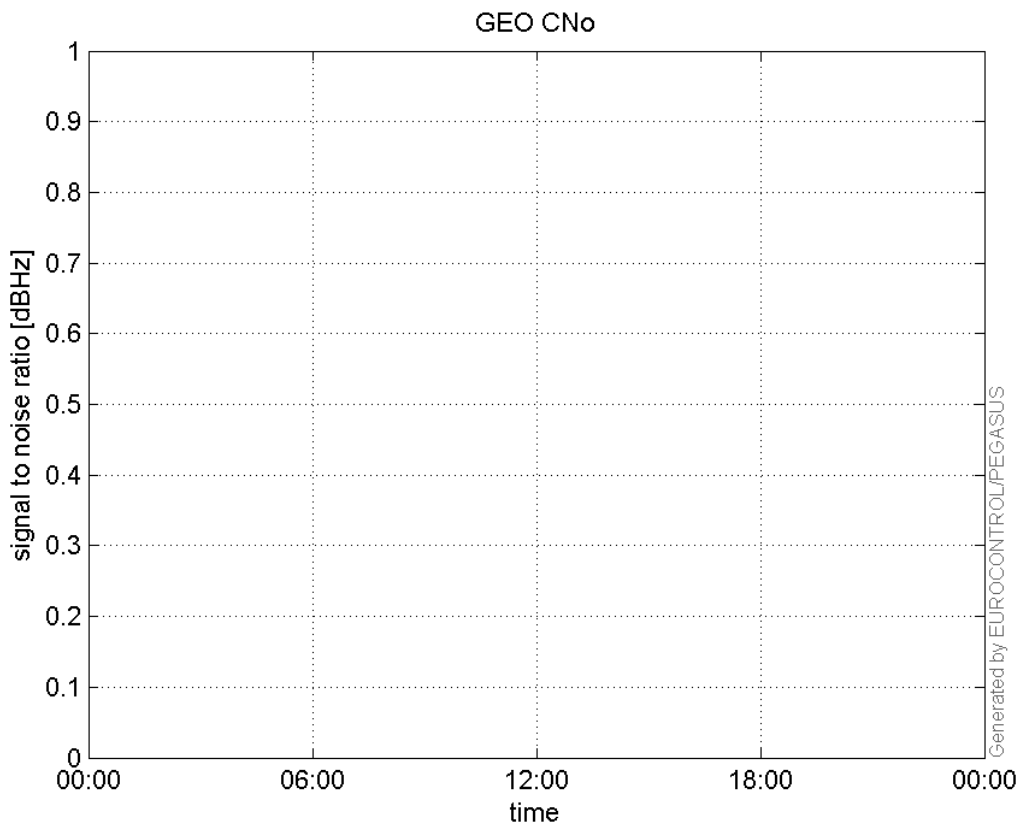


GEO CNo:

**SNR Elevation:****L2 CNo:**

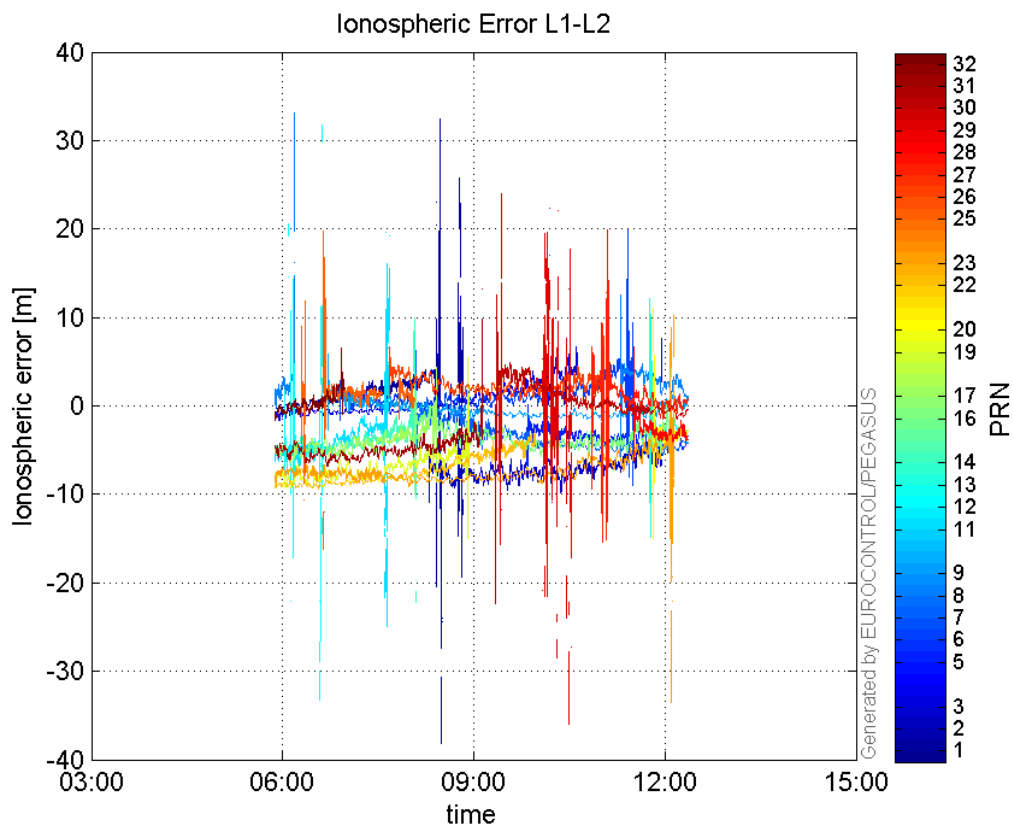


GEO CNo:



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:/PegasusDateJob/job/2017_02_06EGNOS2Hz/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2017_02_06EGNOS2Hz/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	223.505
mi_numbers	results	0