

Global View

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

SBAS Messages

start: 08:13:21.129 26.01.2016 (week: 1881 sec: 202401.129)
end: 15:52:50.129 26.01.2016 (week: 1881 sec: 229970.129)
duration: 07:39:29 ..

quality

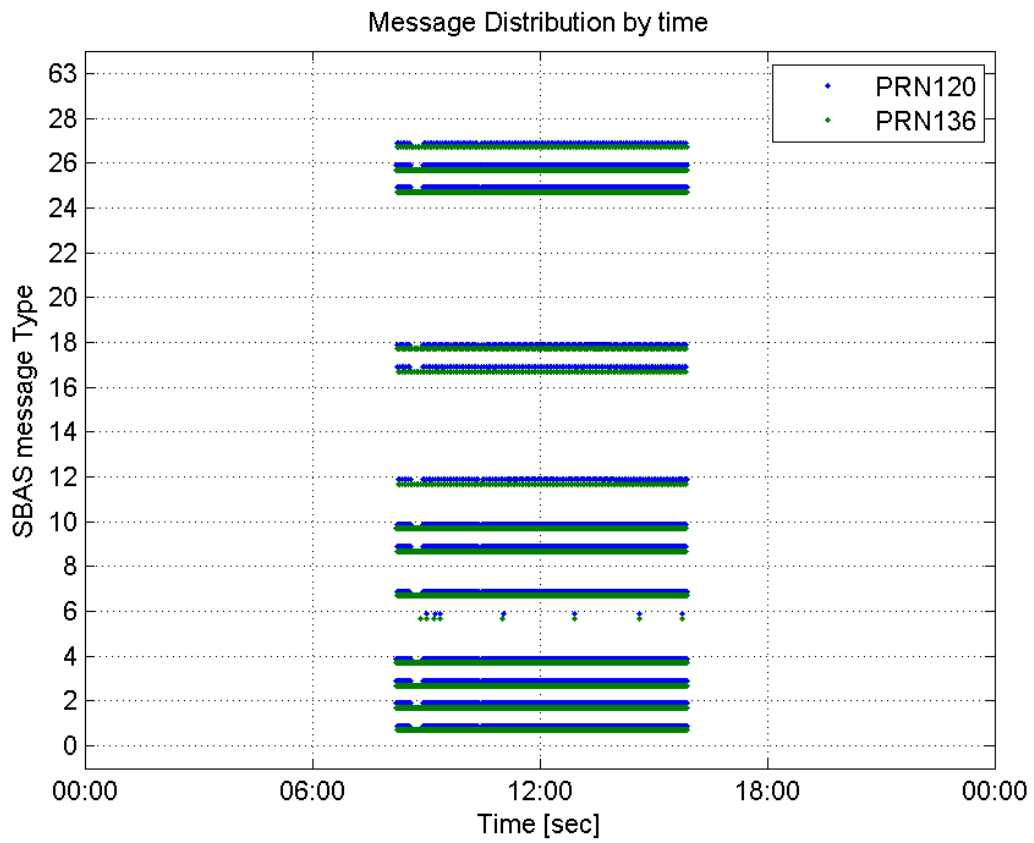
valid samples 53778
total samples 53778
number of SBAS PRNs 2

SBAS SIS Overview

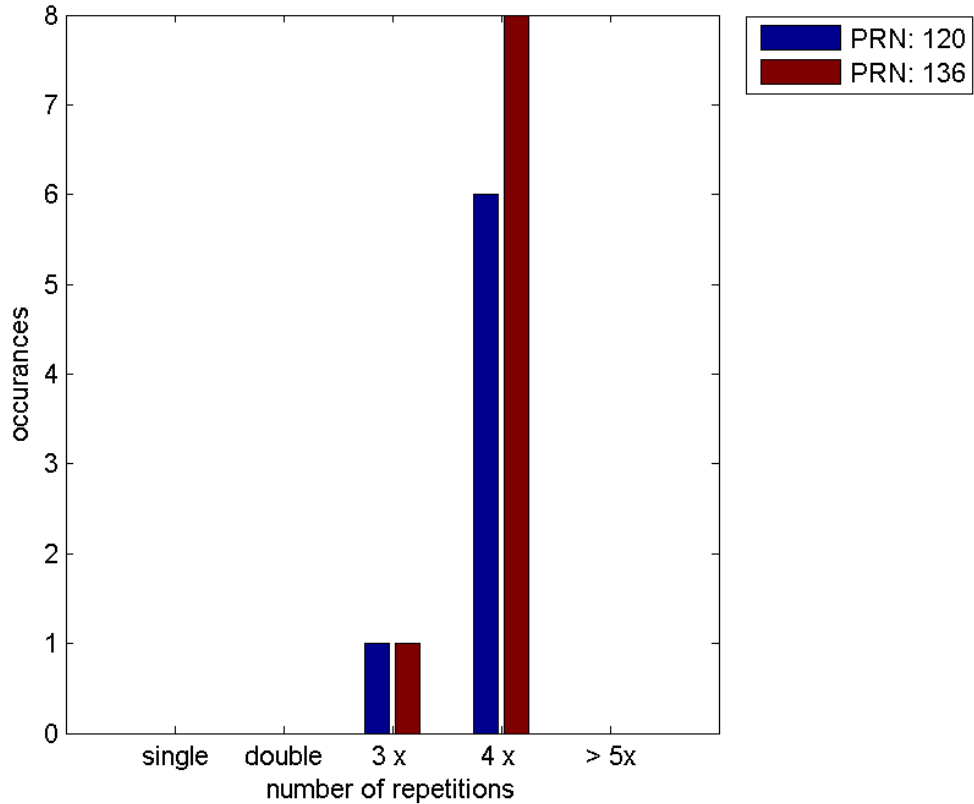
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	0	0	1	6	0
PRN 136	0	0	1	8	0

Message Distribution by time:



Message Type 6 repetitions:



Broadcast SBAS Messages :

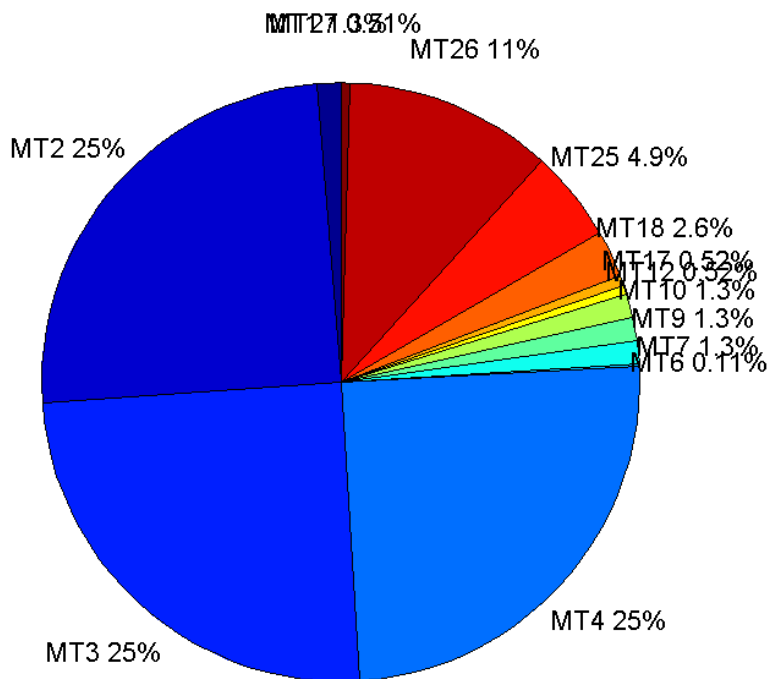
	number of messages	%
MT 0	0	0
MT 1	329	1.25534
MT 2	6516	24.8626
MT 3	6515	24.8588
MT 4	6516	24.8626
MT 5	0	0
MT 6	28	0.106838
MT 7	330	1.25916
MT 9	330	1.25916
MT 10	330	1.25916
MT 12	135	0.51511
MT 17	135	0.51511
MT 18	671	2.56029
MT 24	0	0
MT 25	1297	4.94887
MT 26	2942	11.2256
MT 27	134	0.511294
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	26208	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	1277	83.7927	2	1	1
MT 2	4	1143	4.23116	9	2	2
MT 3	4	1144	4.23196	9	2	2
MT 4	4	1144	4.23131	9	2	2
MT 5	--	--	--	--	--	--
MT 6	1	6832	901.667	6	6	6
MT 7	76	1201	83.5137	2	1	2
MT 9	75	1201	83.5866	0	0	0
MT 10	76	1193	83.5745	2	1	2
MT 12	188	1169	204.567	134	2	2
MT 17	186	1173	204.567	0	0	0
MT 18	4	1173	40.9612	2	0	0
MT 24	--	--	--	--	--	--
MT 25	2	1169	21.2469	0	0	0
MT	1	1157	9.37232	0	0	0

26						
MT 27	188	1373	206.113	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

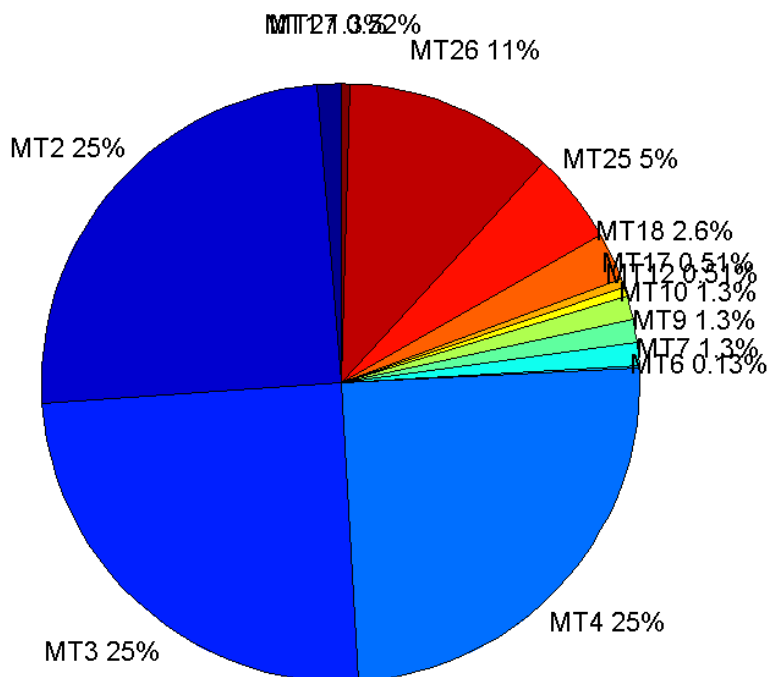
	number of messages	%
MT 0	0	0
MT 1	347	1.25861
MT 2	6846	24.8313
MT 3	6846	24.8313
MT 4	6846	24.8313
MT 5	0	0
MT 6	36	0.130577
MT 7	347	1.25861
MT 9	347	1.25861
MT 10	347	1.25861

MT 12	141	0.511425
MT 17	141	0.511425
MT 18	705	2.55713
MT 24	0	0
MT 25	1367	4.95829
MT 26	3112	11.2876
MT 27	142	0.515053
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	27570	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.4884	0	0	0
MT 2	4	8	4.02717	9	0	0
MT 3	4	8	4.02703	9	0	0
MT 4	4	8	4.02703	9	0	0
MT 5	--	--	--	--	--	--
MT 6	1	6907	709.886	8	7	8
MT 7	76	87	79.4798	0	0	0
MT 9	74	82	79.4653	0	0	0
MT 10	75	87	79.4422	0	0	0
MT 12	185	201	195.057	140	0	0
MT 17	187	201	195.057	0	0	0
MT 18	4	164	38.8466	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	52	20.1596	0	0	0
MT 26	3	36	8.86146	0	0	0
MT 27	188	203	195.057	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_26_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_01_26_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

Position Domain

start: 08:13:22 26.01.2016 (week: 1881 sec: 202402)
end: 15:52:51 26.01.2016 (week: 1881 sec: 229971)
duration: 07:39:30 ..

quality

valid samples 27201
total samples 27570

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	224823	1.7677	9.47889	0.186488	0.350579	16.138	0.0217238
max normVer	210177	1.82741	21.7147	0.0841552	2.80194	18.5352	0.151169
max HPE	221948	13.8321	731.64	0.0189056	5.12574	196.768	0.0260497
max VPE	203727	3.29625	148.223	0.0222384	6.48641	418.436	0.0155016
min HPL	225152	1.19496	8.95831	0.133391	0.285861	15.1059	0.0189238
min VPL	229947	0.889624	10.8057	0.0823292	0.444023	13.8983	0.031948

Position discontinuity events :

#	Epoch	duration	stable period
1	203727	1304	956
2	210249	249	5218
3	221995	64	11497

APV-I discontinuity events :

#	Epoch	duration	stable period
1	203725	1306	954
2	210249	288	5218
3	211460	777	923
4	221012	453	2318
5	221482	672	17
6	222393	161	239
7	225750	294	3196

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	203725	1306	954
2	210249	288	5218
3	211460	777	923
4	216234	192	3997
5	216814	29	1
6	216863	35	20
7	217278	79	380
8	217450	127	73
9	218263	433	410
10	221012	453	2316
11	221474	788	9
12	222393	161	131
13	225750	294	3196

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	203725	1306	954
2	210249	288	5218
3	211460	777	923
4	216234	192	3997
5	216814	29	1
6	216863	35	20
7	217278	79	380
8	217450	127	73
9	218263	433	410
10	221012	453	2316
11	221474	788	9
12	222393	161	131
13	225750	294	3196

First Glance analysis

Duration	27570
Number of Samples	27570
Number of invalid sample	369
Number of no position solution samples	1617
Number of missing sample	0
Logging Loss	0
Processing Loss	1.3384
Number of Misleading Information	0
Data gaps	0
Discontinuities	3

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
25584	23234	22075	0	22075

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.74421	1.65219	1.61532	NaN	1.61532
HPEScale 95%	NaN	4.93086	4.97803	NaN	4.97803
VPE 95%	1.8602	1.81011	1.70179	NaN	1.70179
VPEscale 95%	NaN	3.37132	2.37201	NaN	2.37201

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.940554	0.85416	0.811551	0	0.811551
measurements	0.927965	0.842728	0.800689	0	0.800689
Operational	0.927965	0.842728	0.800689	0	0.800689

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	3	23	98	--	98
Long	3	7	13	--	13
Independent	3	7	11	--	11
P(disc.)	0.00175891	0.00451924	0.00747452	NaN	0.00747452
P(slide)	0.00175891	0.00710166	0.0164439	NaN	0.0164439

Integrity events :

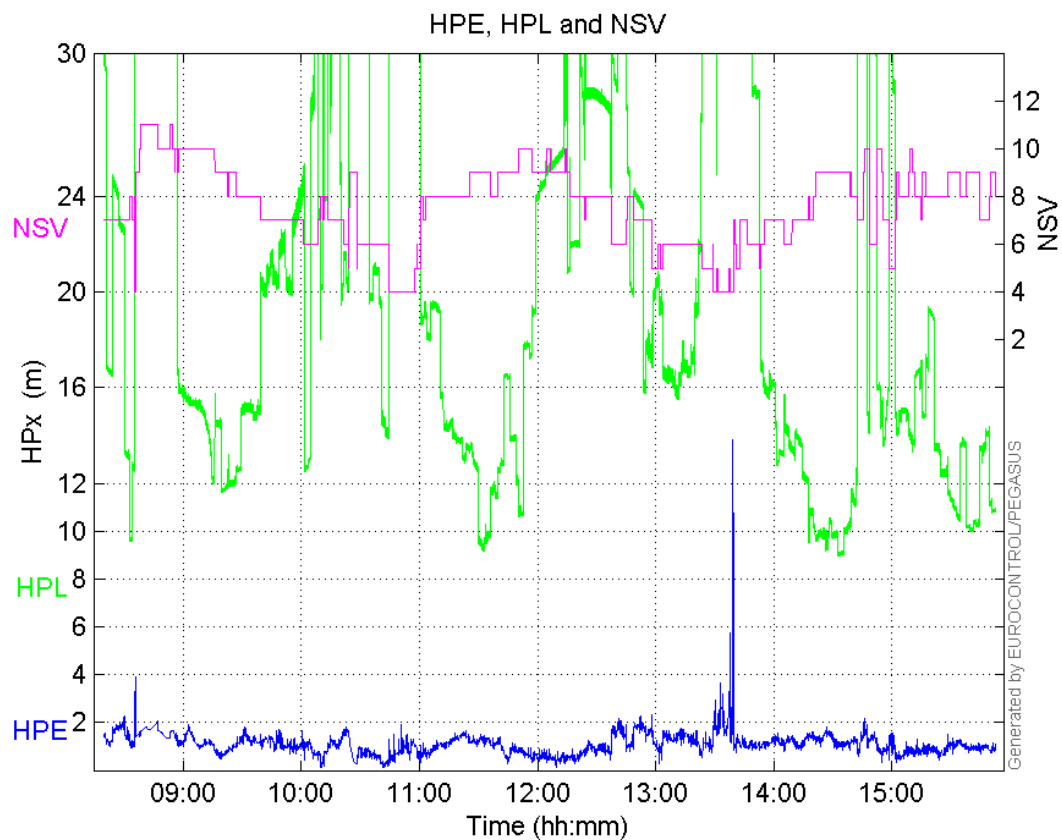
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

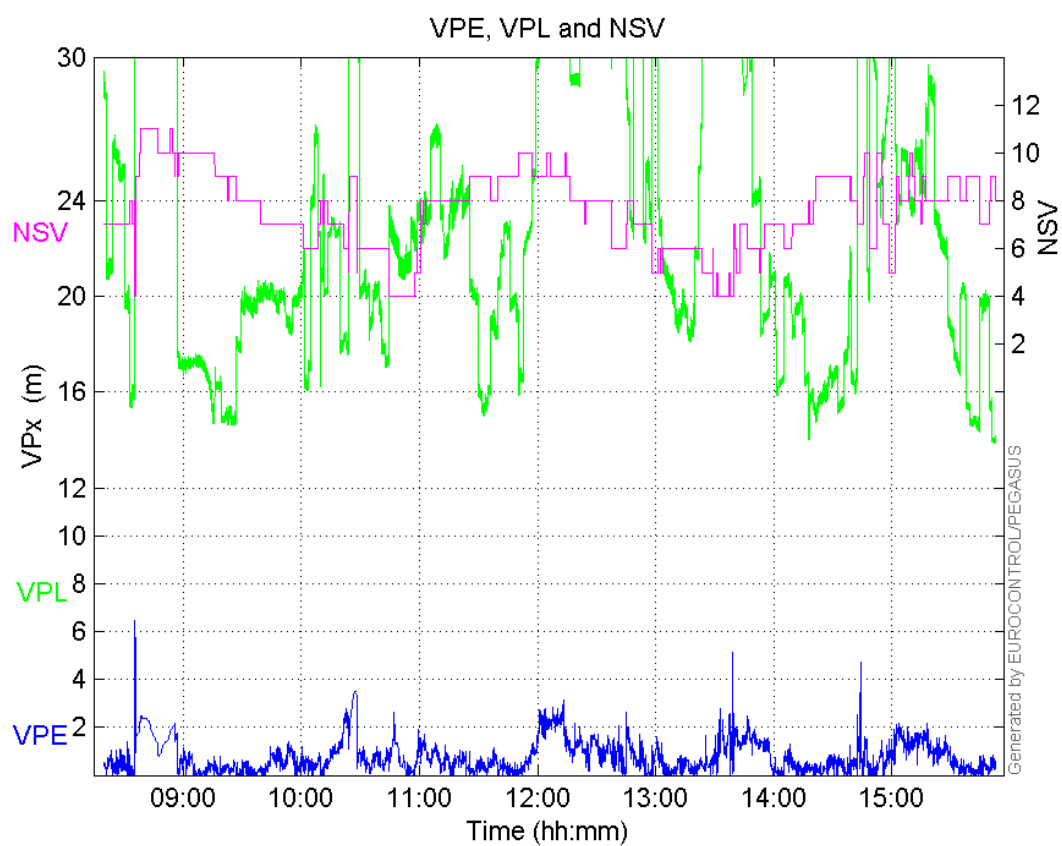
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	25584	23234	22075	0	22075
SIS Availability	0.940554	0.85416	0.811551	0	0.811551
Local Availability	0.927965	0.842728	0.800689	0	0.800689
Operational Availability	0.927965	0.842728	0.800689	0	0.800689
HPE 95%	1.74421	1.65219	1.61532	NaN	1.61532
HPEScale 95%	NaN	4.93086	4.97803	NaN	4.97803
VPE 95%	1.8602	1.81011	1.70179	NaN	1.70179
VPEscale 95%	NaN	3.37132	2.37201	NaN	2.37201
All Discontinuity Events	3	23	98	--	98
Long Discontinuity Events	3	7	13	--	13
Independent Discontinuity Events	3	7	11	--	11
P(discontinuity)	0.00175891	0.00451924	0.00747452	NaN	0.00747452
P(sliding window)	0.00175891	0.00710166	0.0164439	NaN	0.0164439
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:

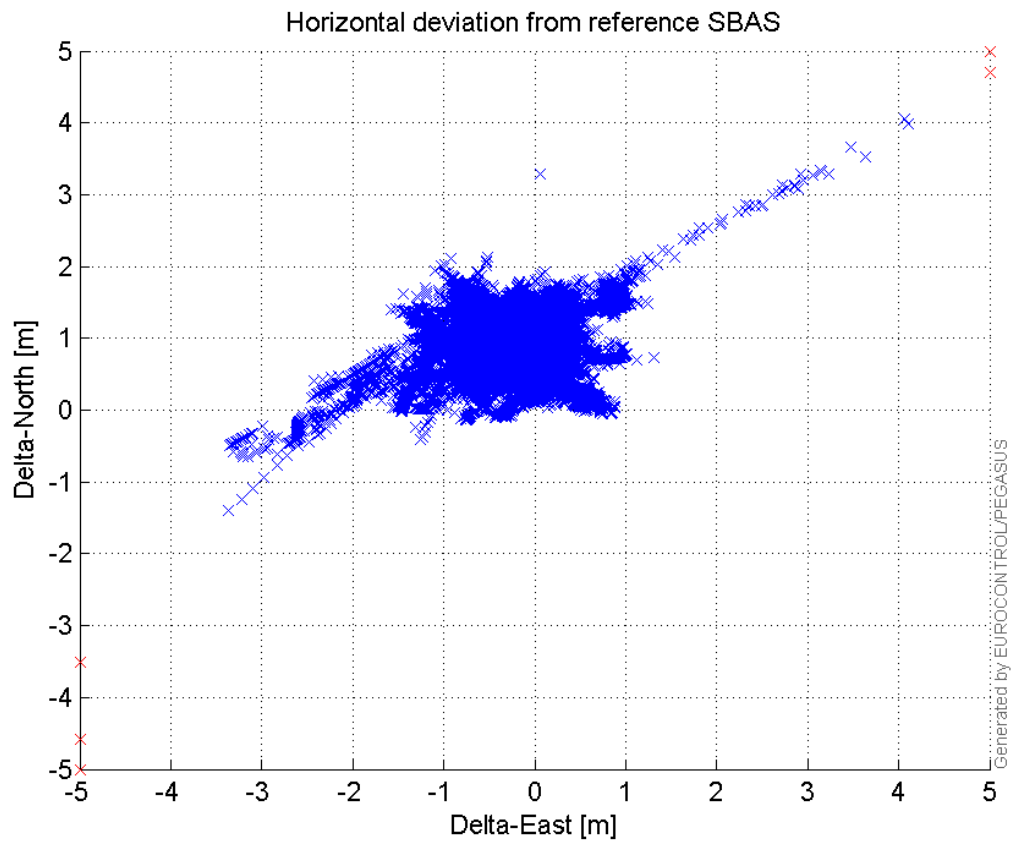


VPE, VPL and NSV:



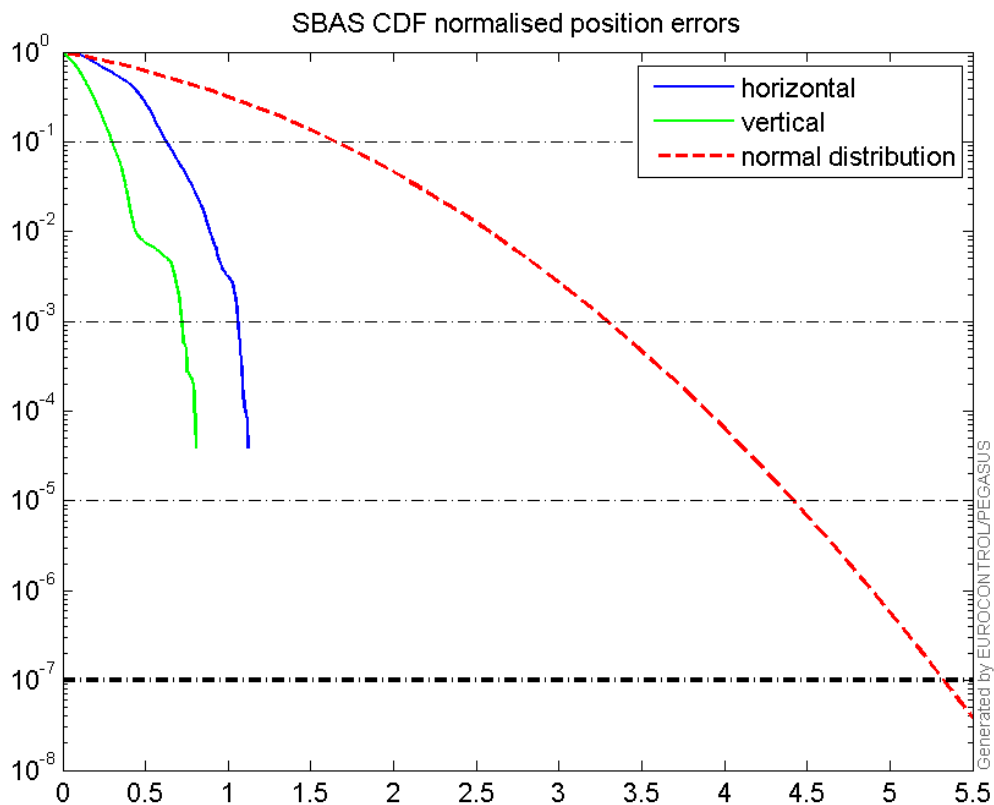
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

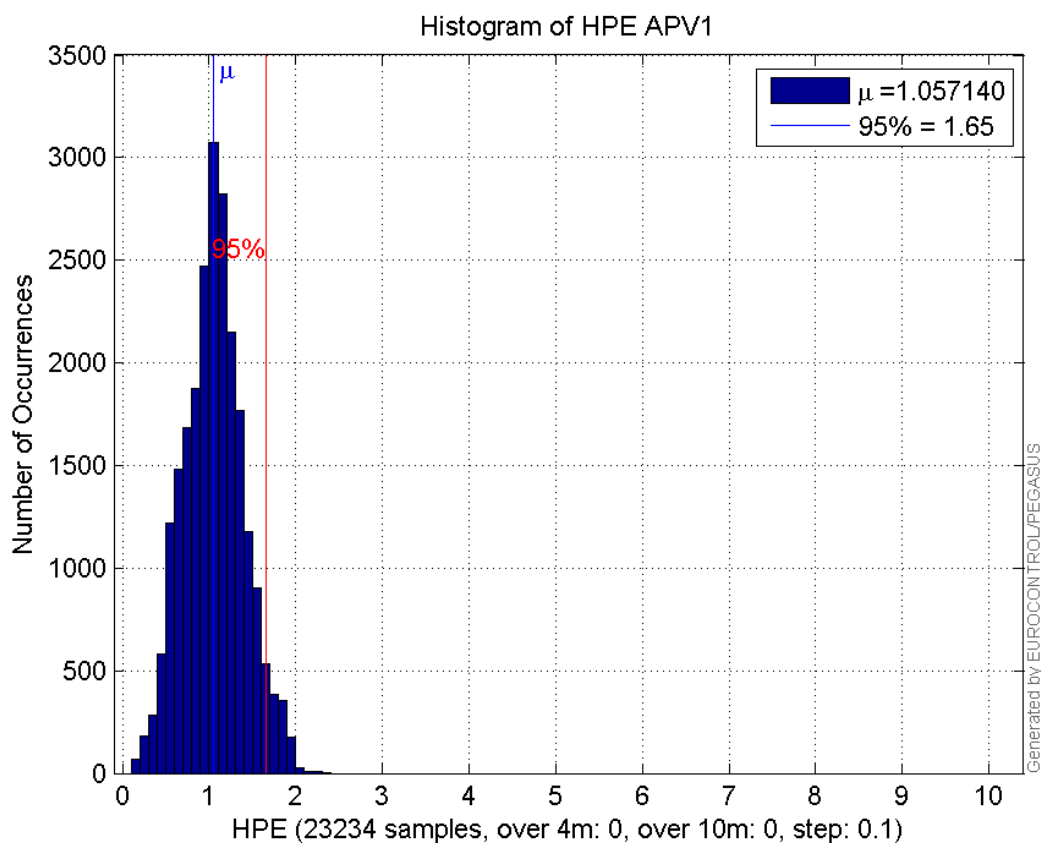
number	23234
sum	24561.597
sum2	28740.159
prctile95	1.6521939
prctile99	1.8964641
number	23234
sum	15730.528
sum2	17877.822
prctile95	1.8101141
prctile99	2.4151321
number	23234
sum	427328.16
sum2	8952563.5
prctile95	33.2089
prctile99	35.577552
number	23234
sum	527842.65
sum2	12995441
prctile95	34.99546
prctile99	48.517468
number	23234
sum	1534.54
sum2	125.10601
prctile95	0.12327149
prctile99	0.14968118
number	23234
sum	663.19834
sum2	28.890535
prctile95	0.067426458
prctile99	0.083737706
number	22075
sum	23271.62
sum2	27025.731
prctile95	1.6153243
prctile99	1.8728042
number	22075
sum	14293.884
sum2	15676.007
prctile95	1.7017916
prctile99	2.4145581
number	22075
sum	392481.96
sum2	7893333.3
prctile95	31.30105
prctile99	35.7758
number	22075
sum	480973.89
sum2	11068123
prctile95	33.3124
prctile99	34.673775
number	22075

sum 1492.3216
sum2 123.32557
prctile95 0.12445071
prctile99 0.15033383
number 22075
sum 626.16381
sum2 27.376252
prctile95 0.06777159
prctile99 0.085224746

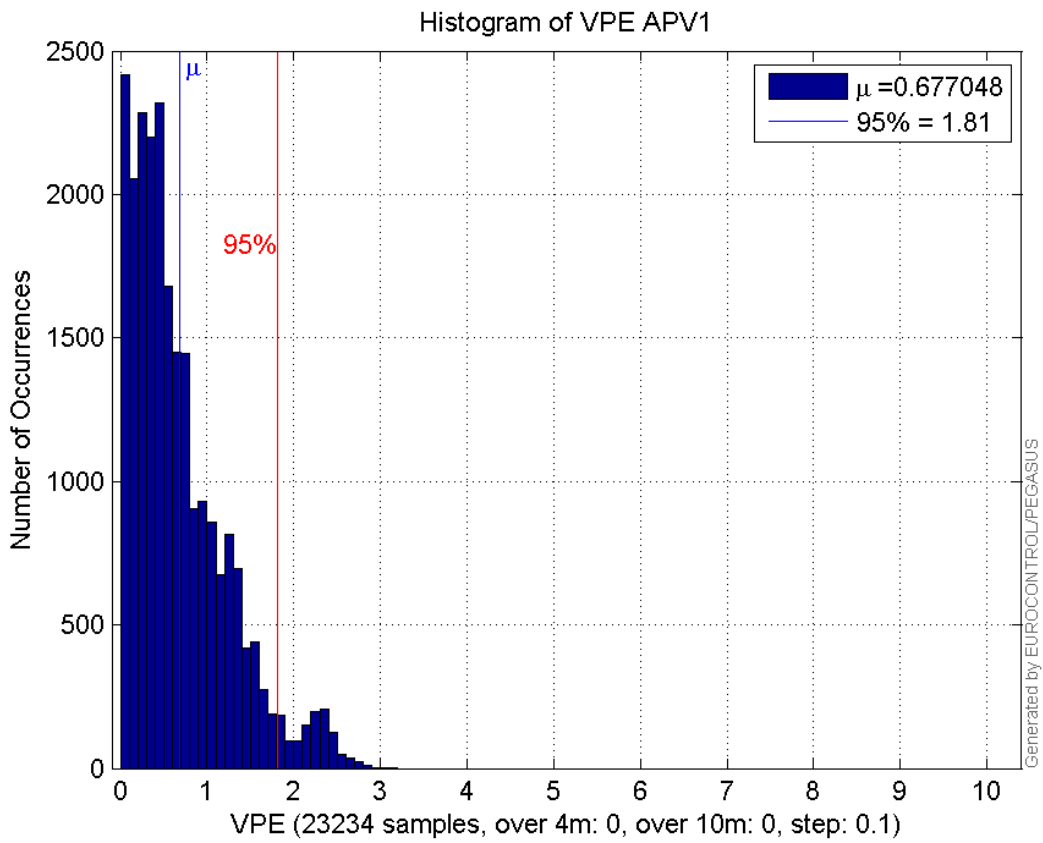
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.05714	0.345611	1.05698	1.65219	1.89646	1.1122
HPL	18.3924	6.85891	16.1733	33.2089	35.5776	19.6296
VPE	0.677048	0.557752	0.520163	1.81011	2.41513	0.877193
VPL	22.7185	6.57254	20.5547	34.9955	48.5175	23.6501

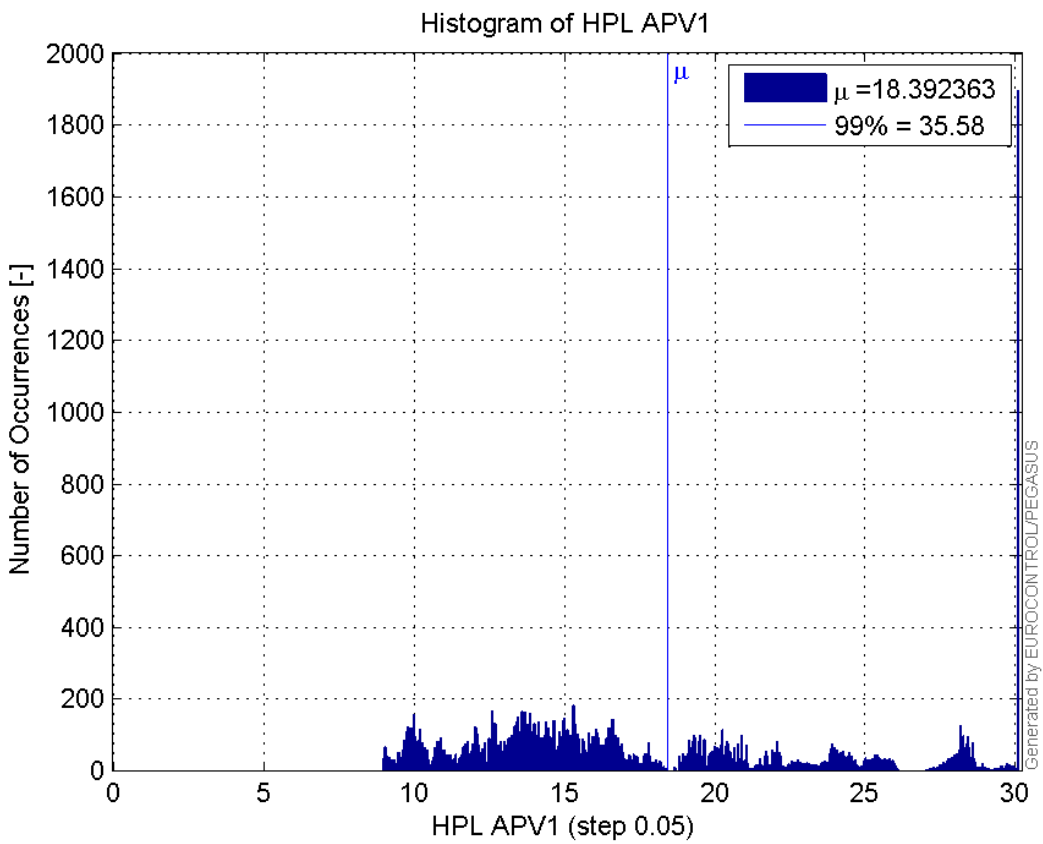
Histogram of HPE APV1:



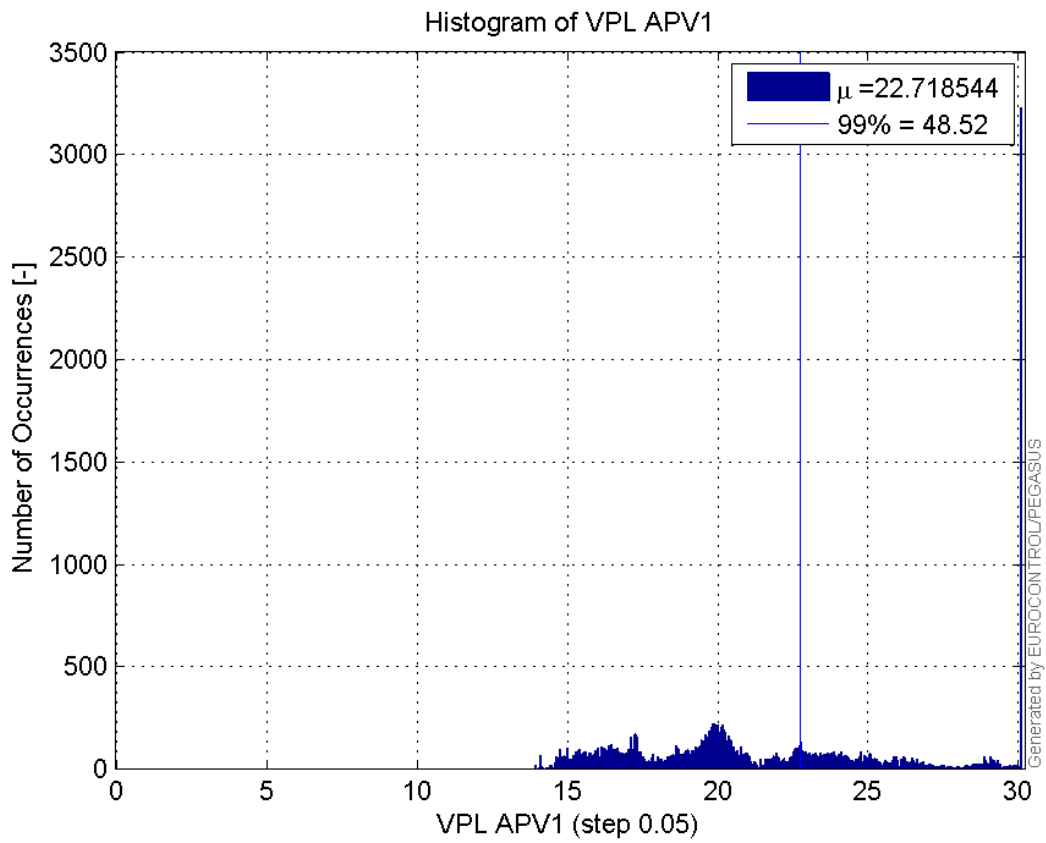
Histogram of VPE APV1:



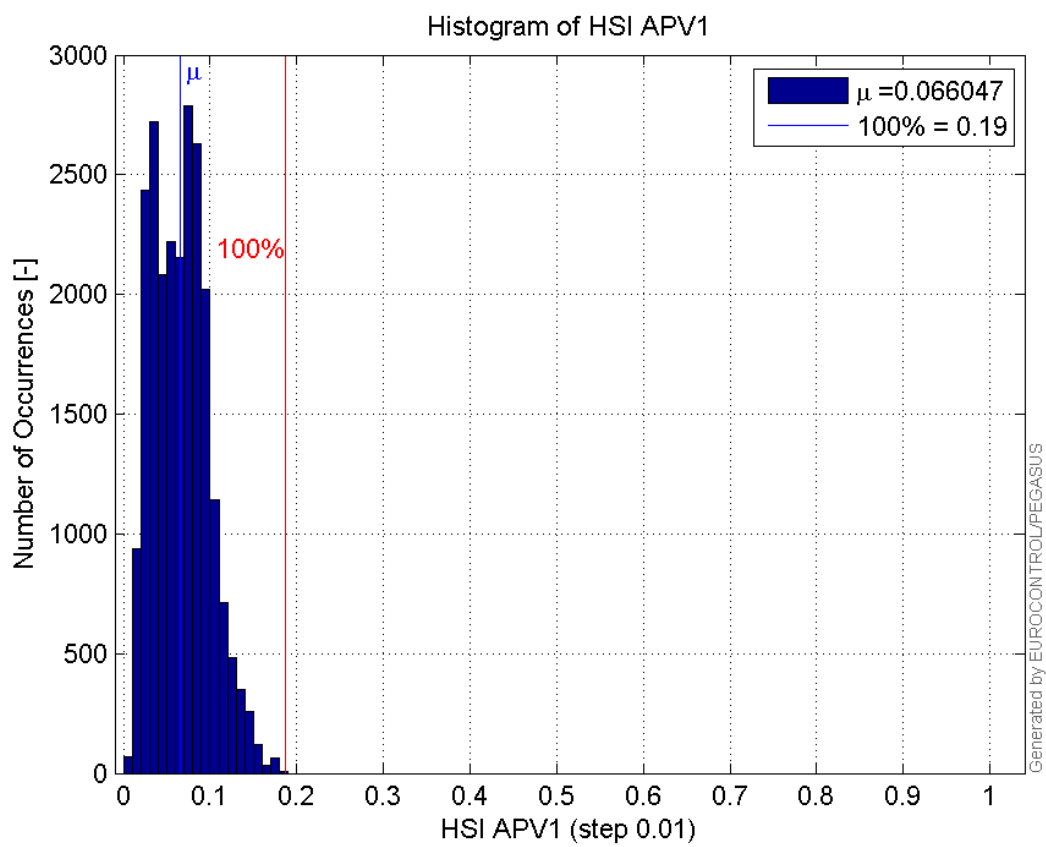
Histogram of HPL APV1:



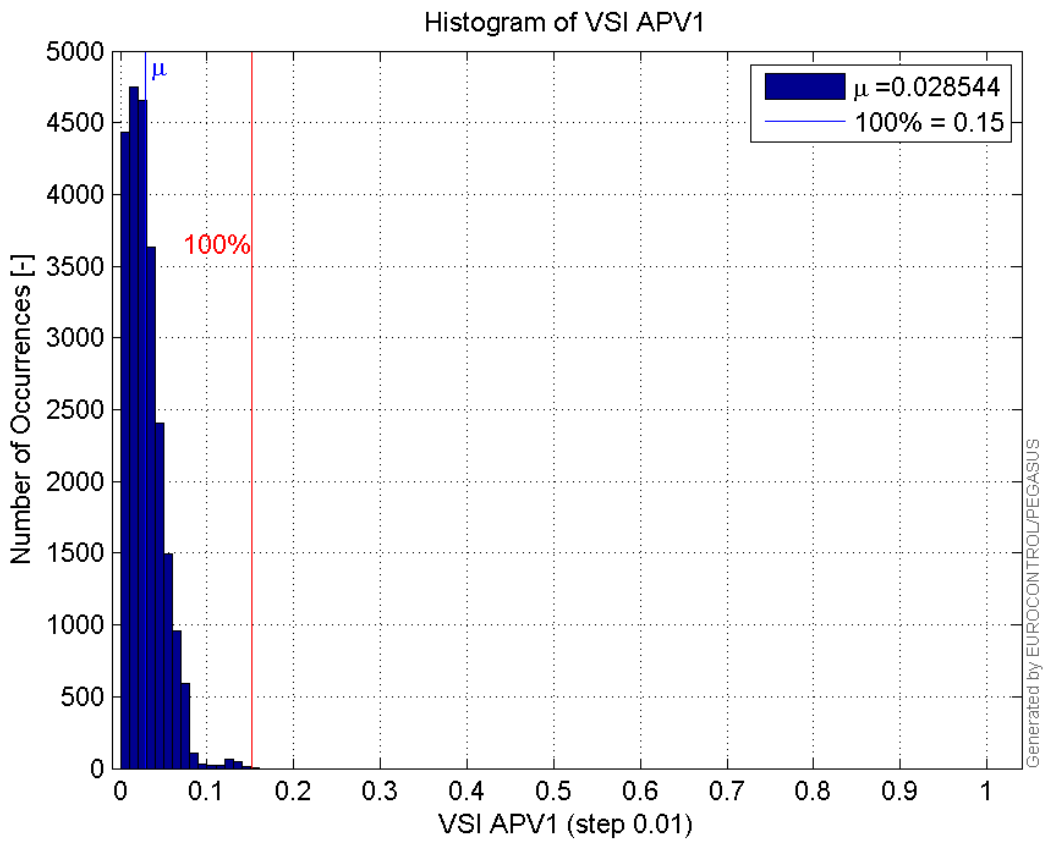
Histogram of VPL APV1:



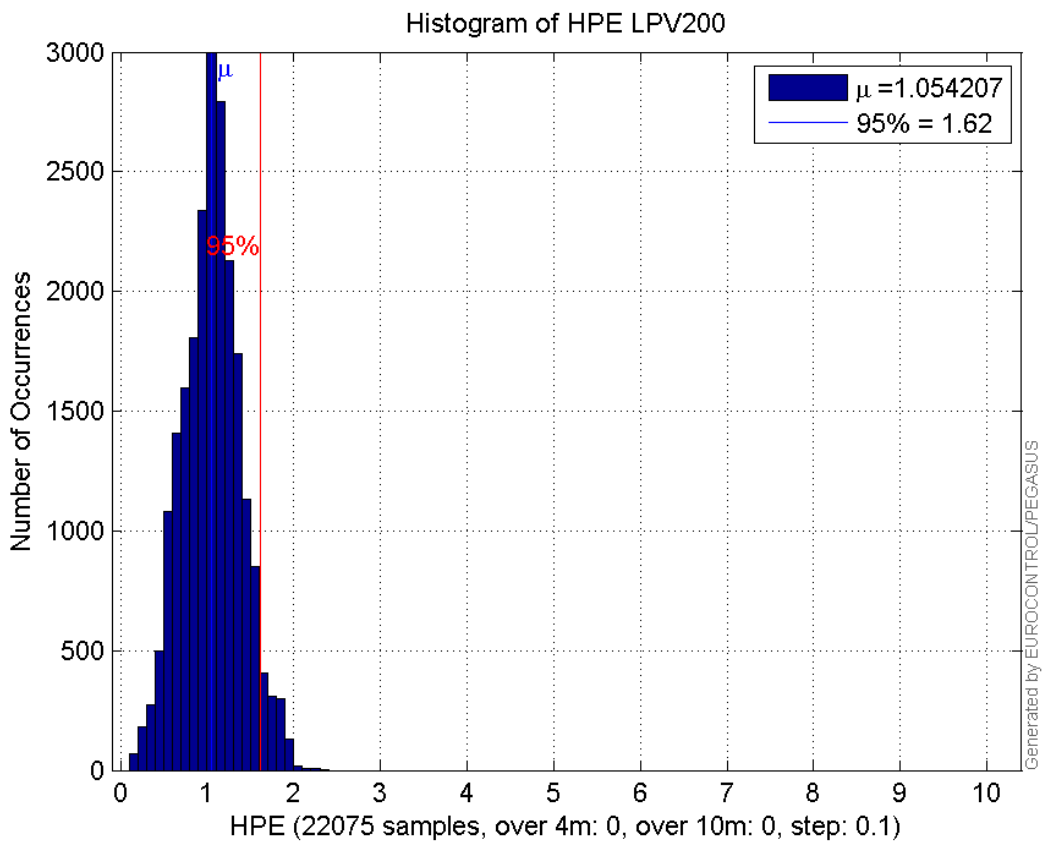
Histogram of HSI APV1:



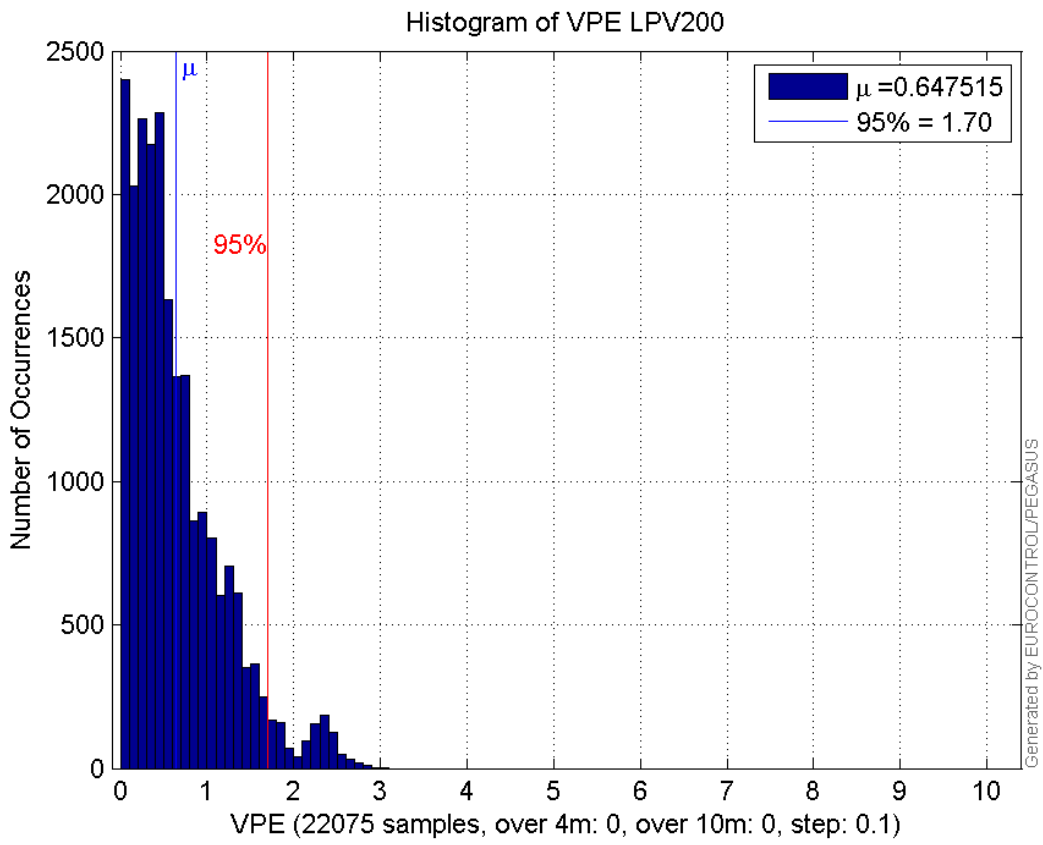
Histogram of VSI APV1:



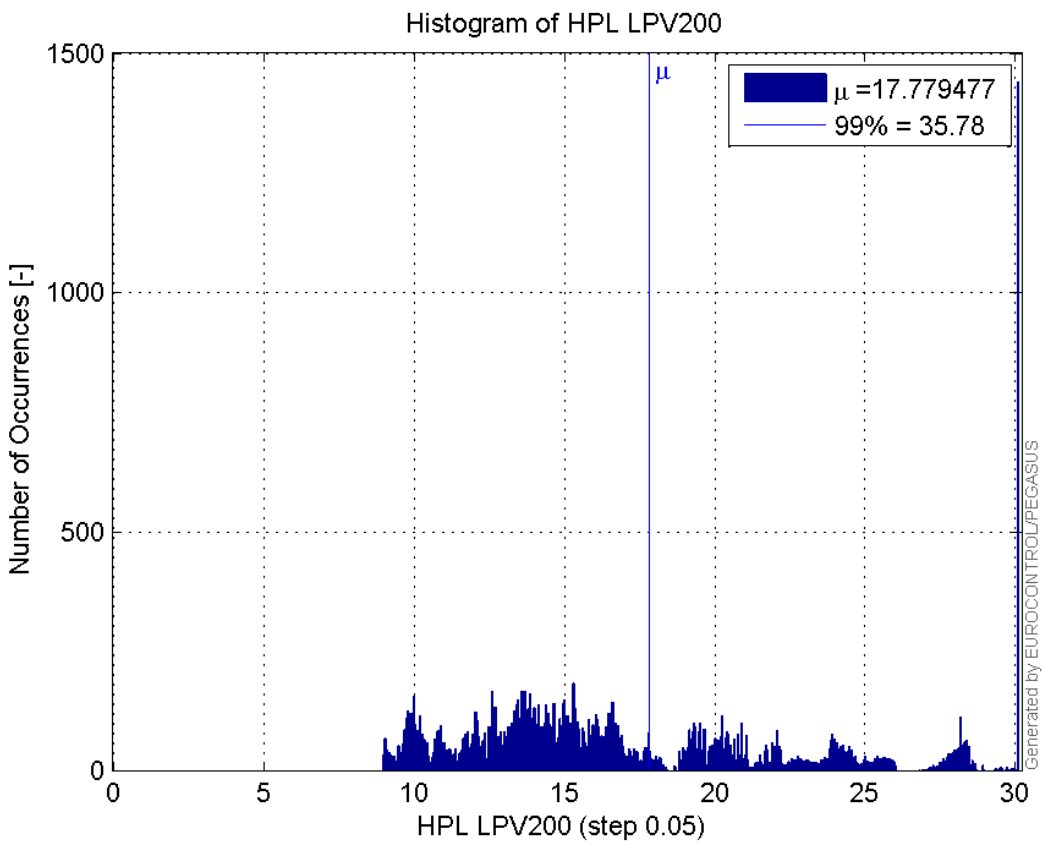
Histogram of HPE LPV200:



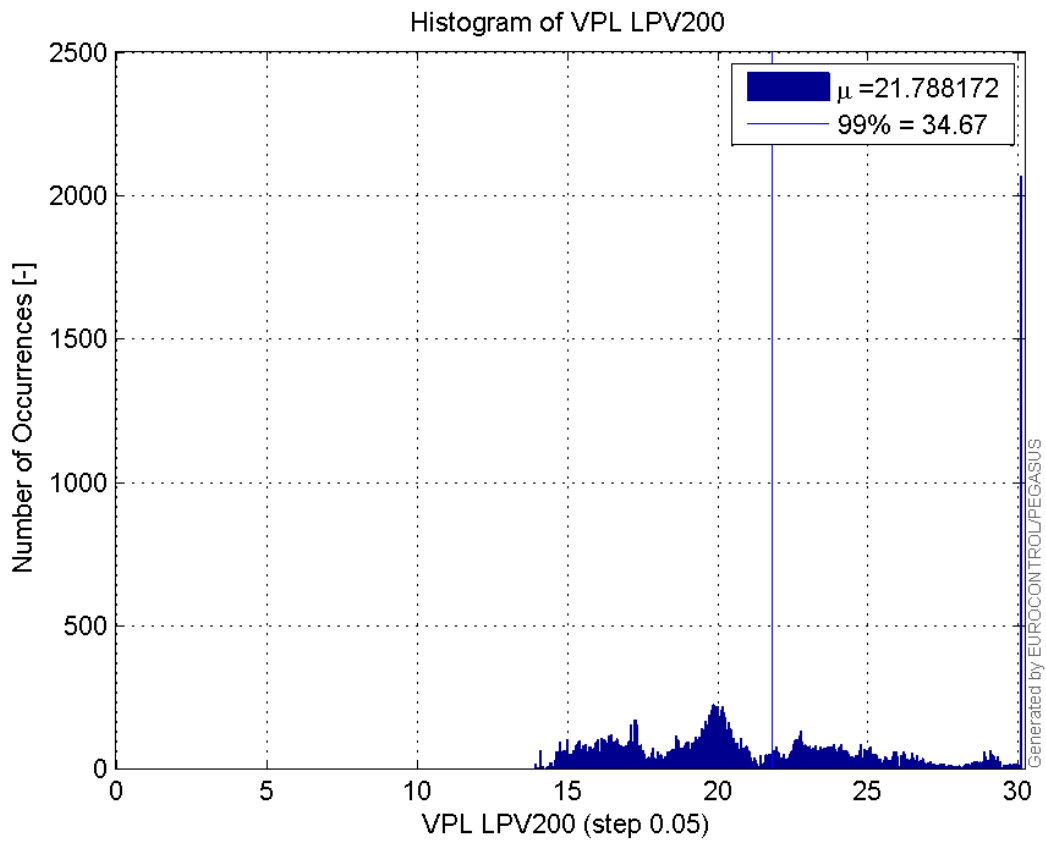
Histogram of VPE LPV200:



Histogram of HPL LPV200:

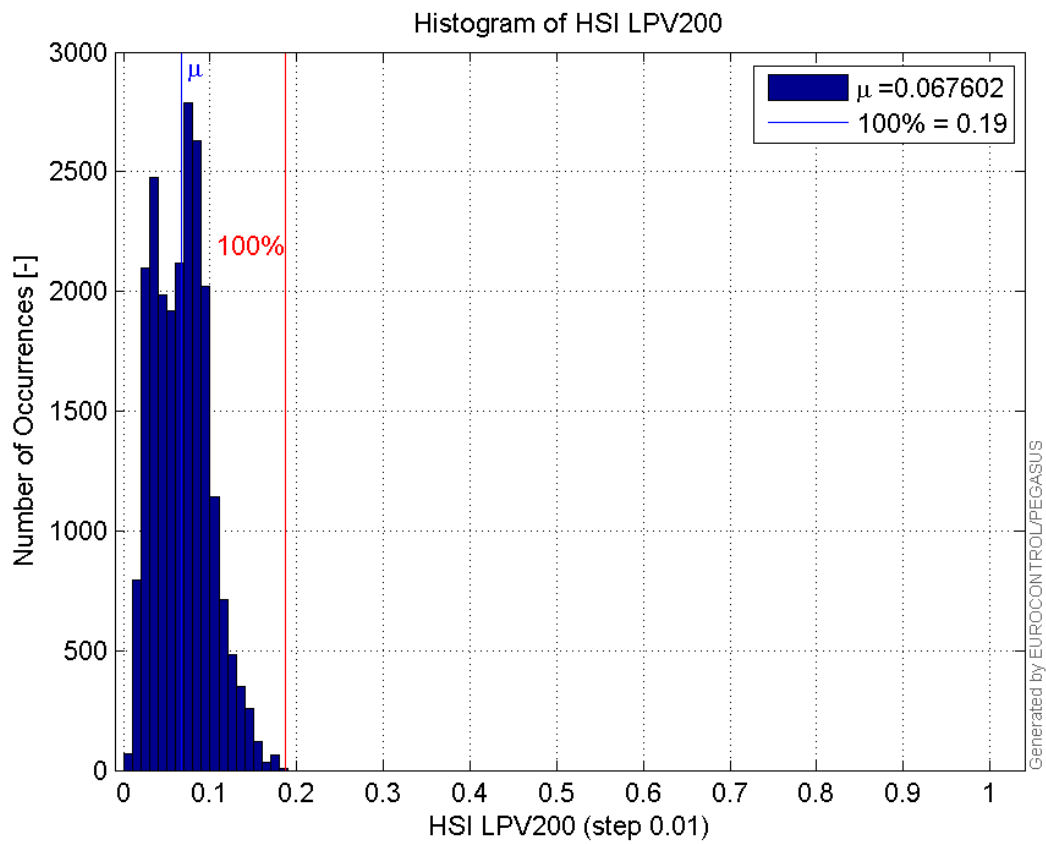


Histogram of VPL LPV200:

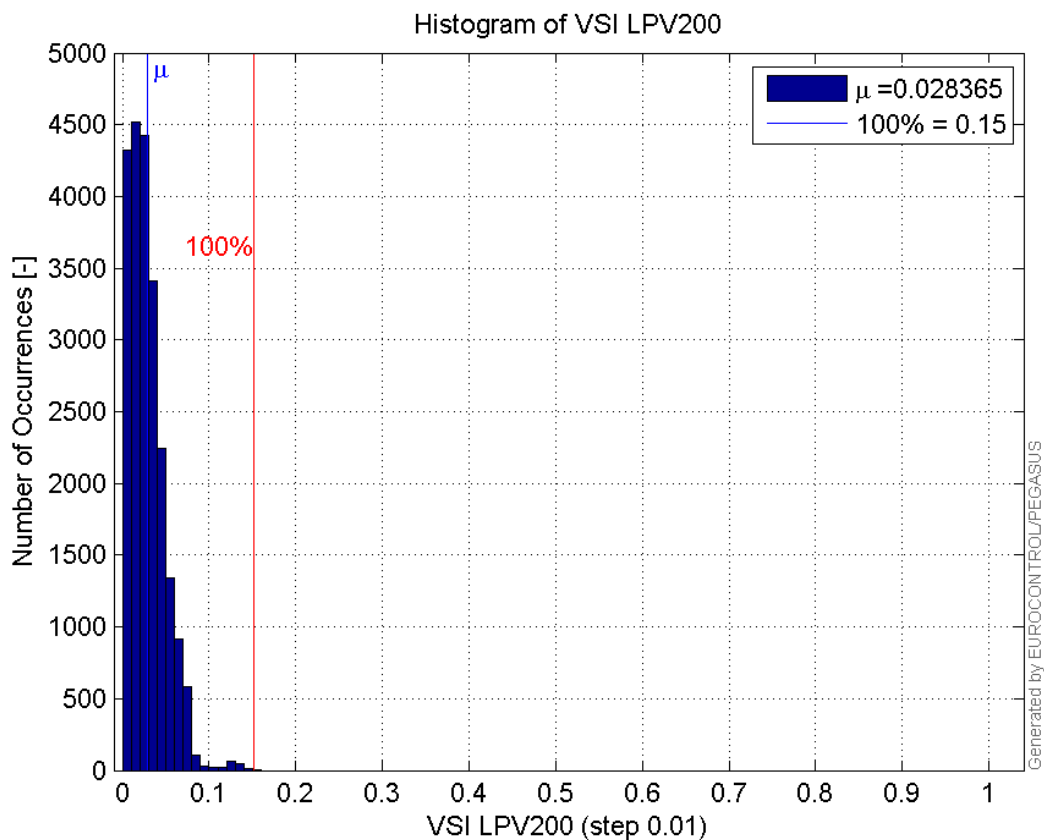


99'

Histogram of HSI LPV200:

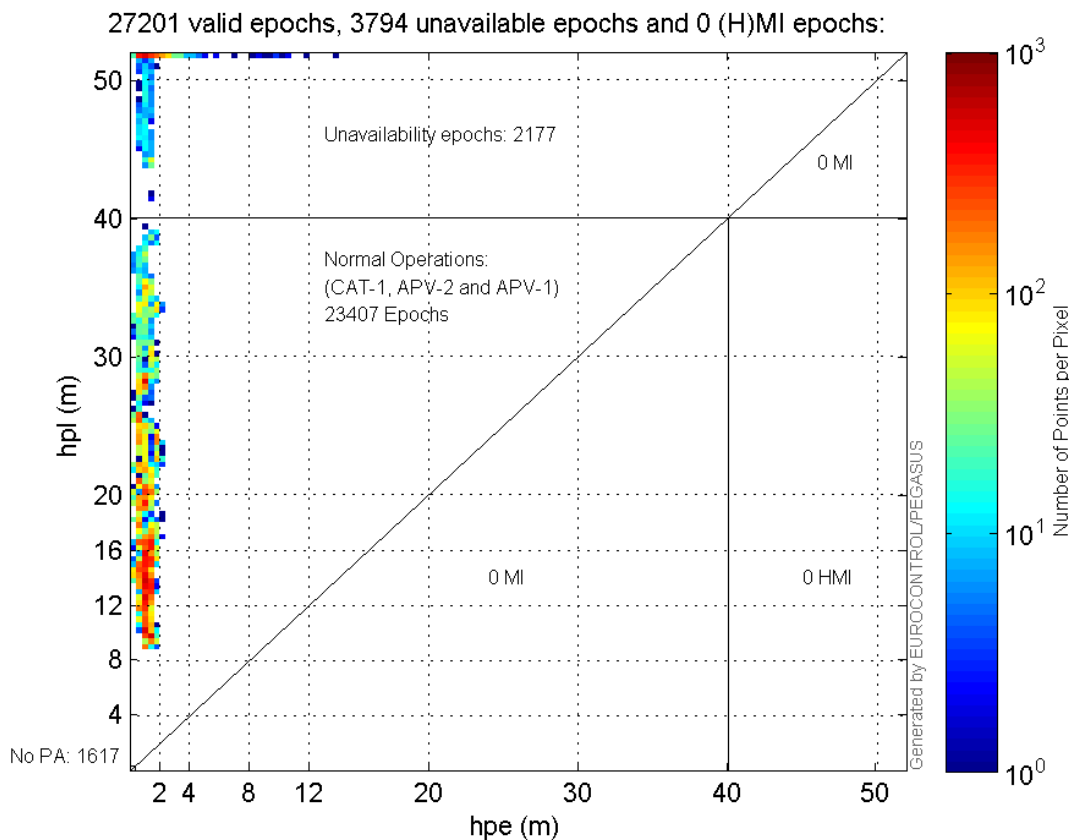


Histogram of VSI LPV200:



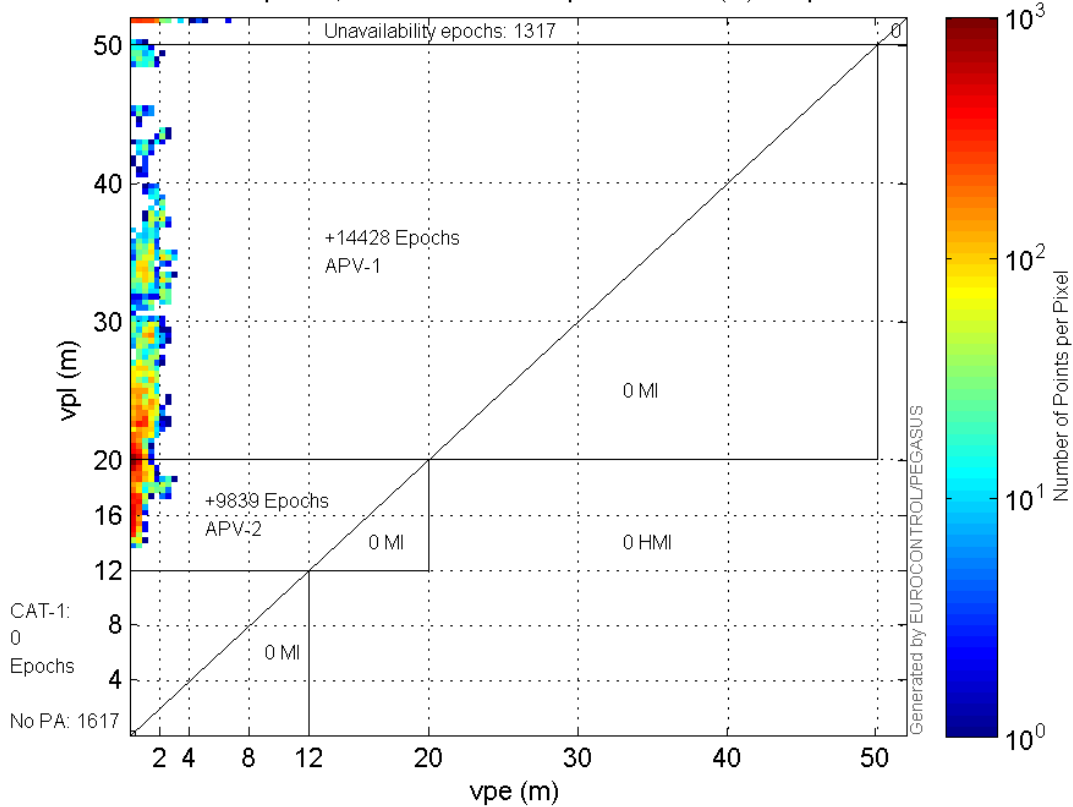
Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:

27201 valid epochs, 2934 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:/PegasusDateGob/job/2016_01_26_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_26_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

Name	Section	Value
init_lat	results	50.439
init_lon	results	30.4297
init_alt	results	220.8335
mi_numbers	results	0

Range Domain

start: 08:13:22 26.01.2016 (week: 1881 sec: 202402)
end: 15:52:51 26.01.2016 (week: 1881 sec: 229971)
duration: 07:39:30 ..

quality

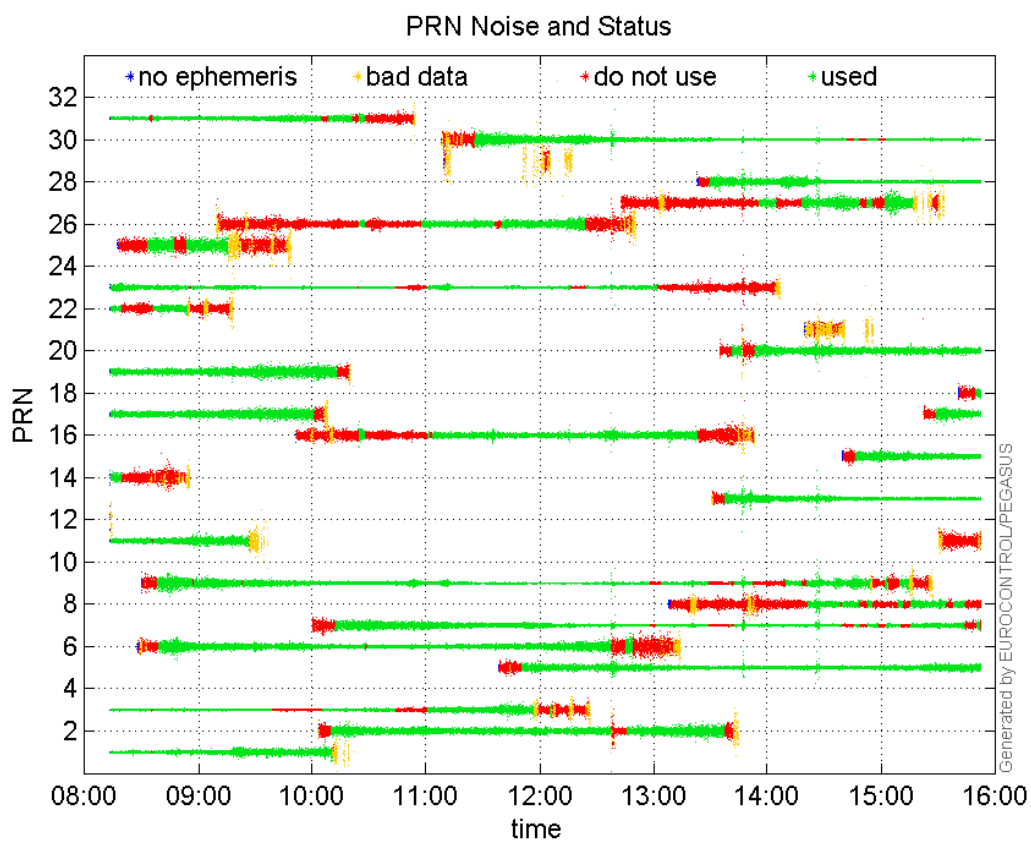
valid samples 27570
total samples 27570

PRN overview

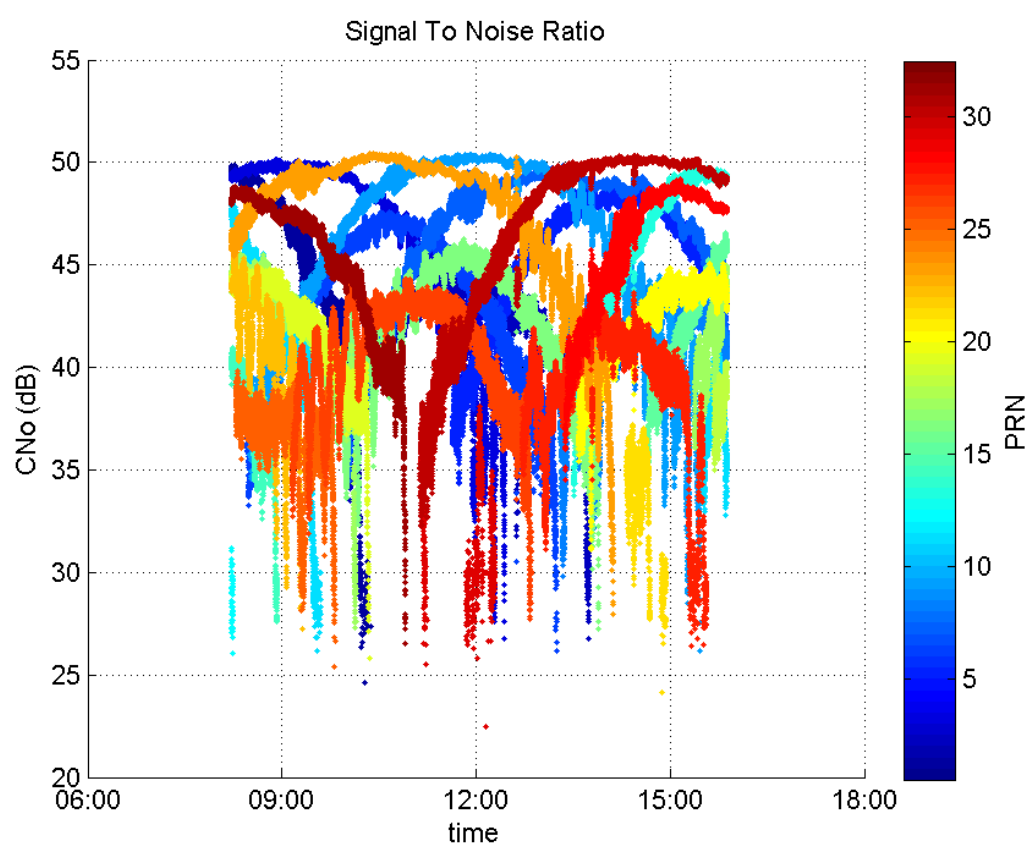
Number of Visible GPS Satellites 28
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



range errors

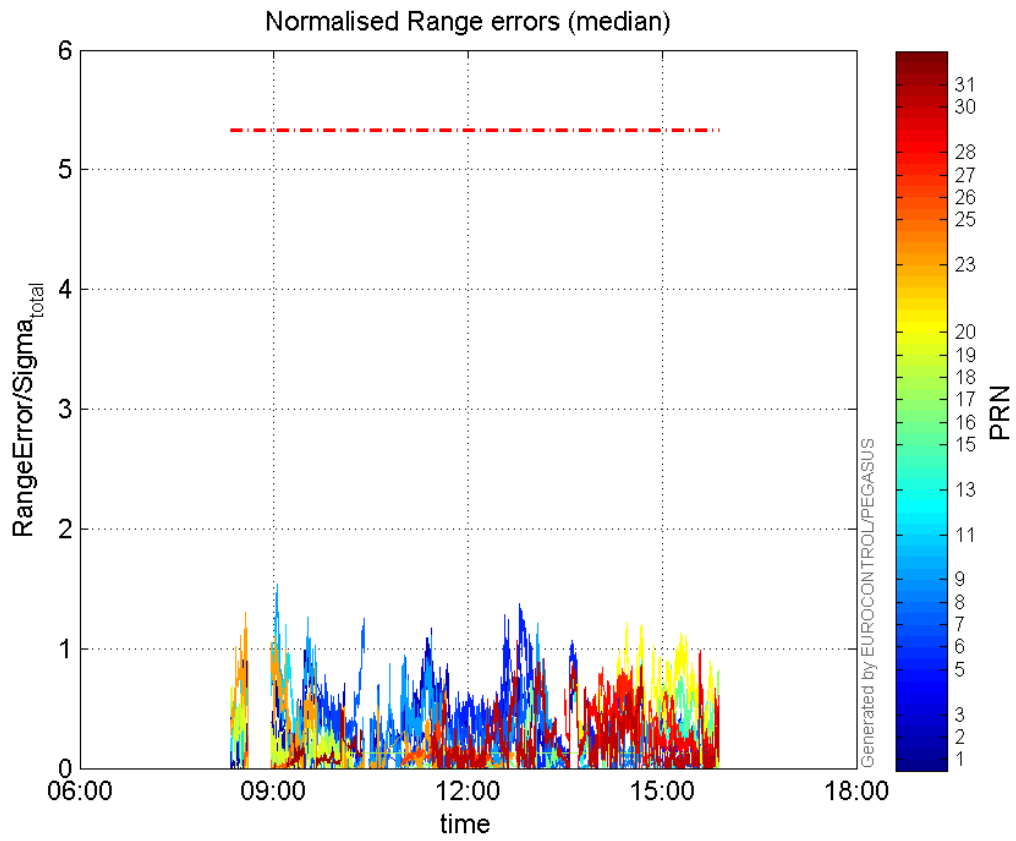
Number of Overbounding Norm Errors 0

Max Norm Errors :

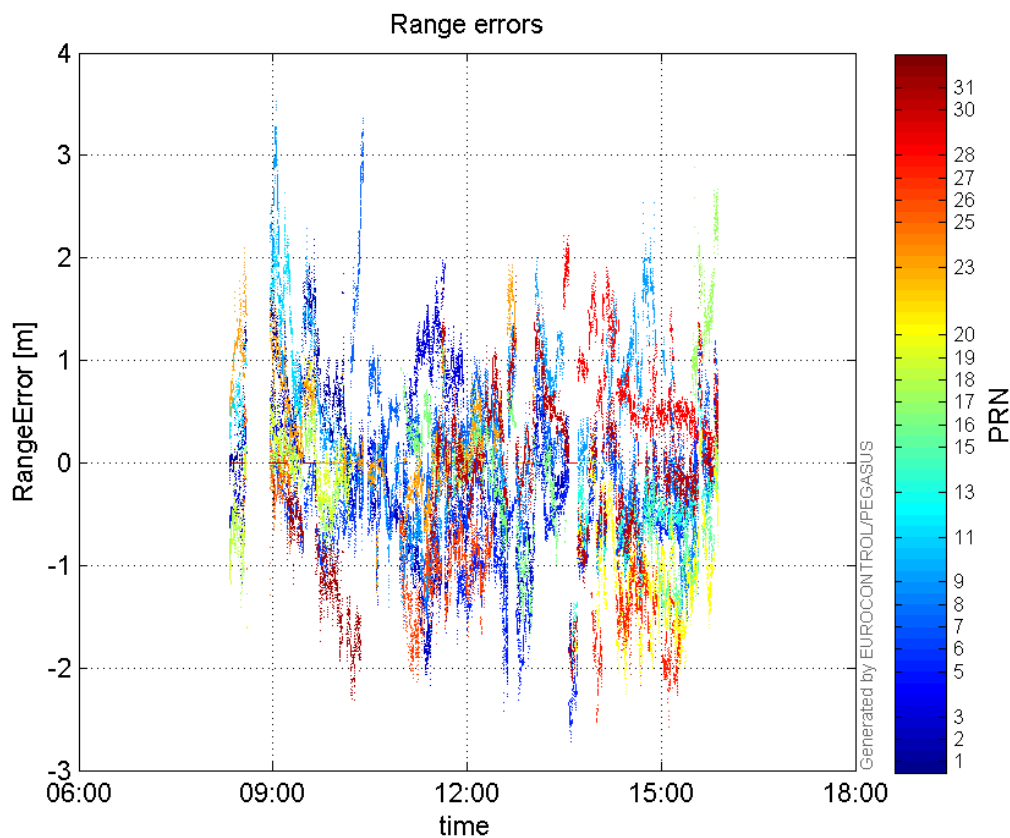
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1881	207228	1	0.998053	1.94115	1.94494
1881	213935	2	1.17002	-2.17632	1.86007
1881	207520	3	1.00399	1.48972	1.4838
1881	218879	5	1.37225	-2.31653	1.68813
1881	212521	6	0.923283	-1.54472	1.67307
1881	210188	7	1.24928	3.35944	2.6891
1881	228826	8	0.460493	-1.2781	2.77551
1881	205366	9	1.54079	3.44202	2.23394
1881	205274	11	1.21856	2.39673	1.96686
1881	225667	13	0.906677	-1.42517	1.57186
1881	227784	15	0.889421	-1.88305	2.11717
1881	219529	16	0.728481	-1.65873	2.27697
1881	229961	17	0.823669	2.66558	3.23622
1881	229877	18	0.163414	0.454718	2.78261
1881	203726	19	0.805514	-1.60606	1.99383
1881	224836	20	1.22542	-2.26048	1.84466
1881	203632	23	1.30572	2.09273	1.60274
1881	203726	25	0.266823	-1.03584	3.88211
1881	214301	26	0.542346	-1.76311	3.25089
1881	225132	27	0.854815	-2.06113	2.4112
1881	228932	28	0.985202	1.79363	1.82057

1881	218700	30	1.07215	1.81946	1.69701
1881	208952	31	0.53261	-1.92778	3.61949

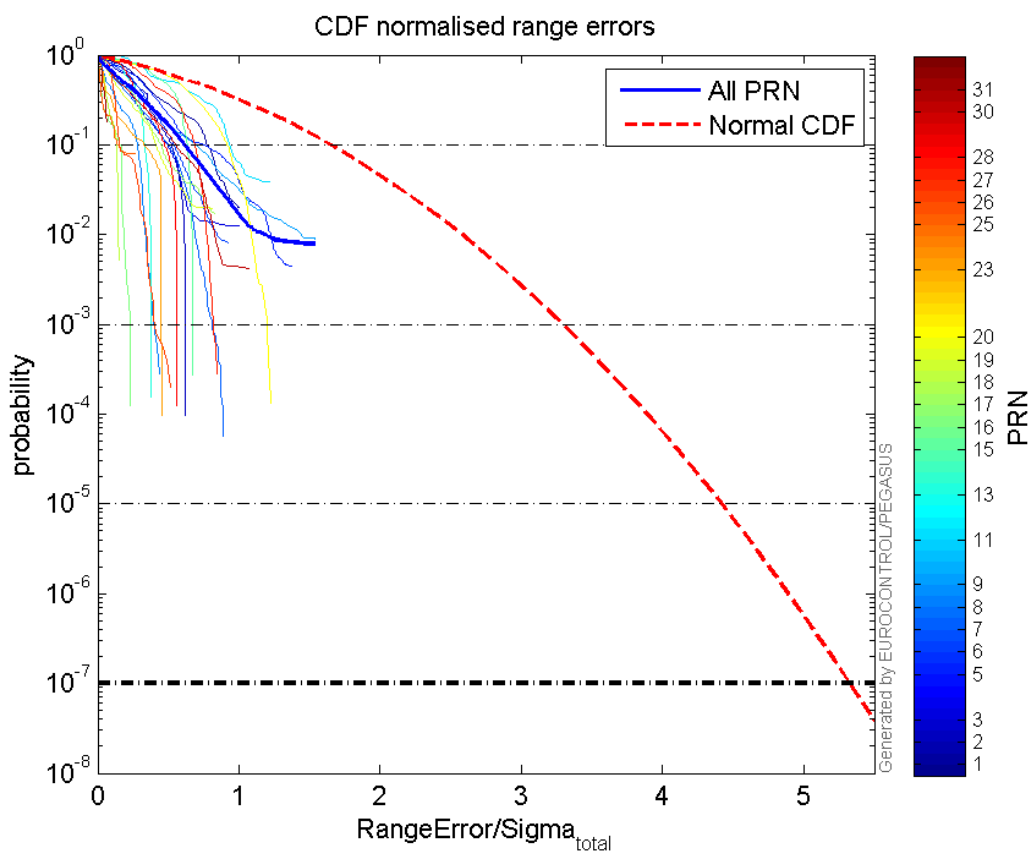
Normalised Range errors (median):



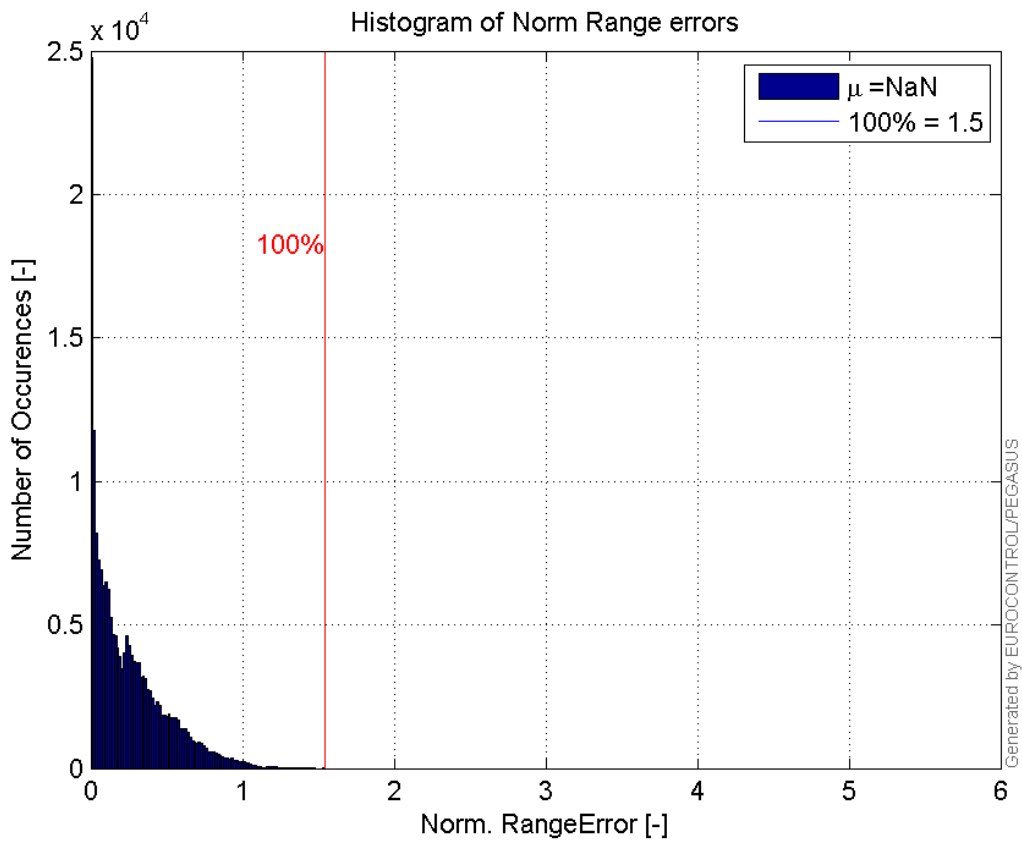
Range errors:



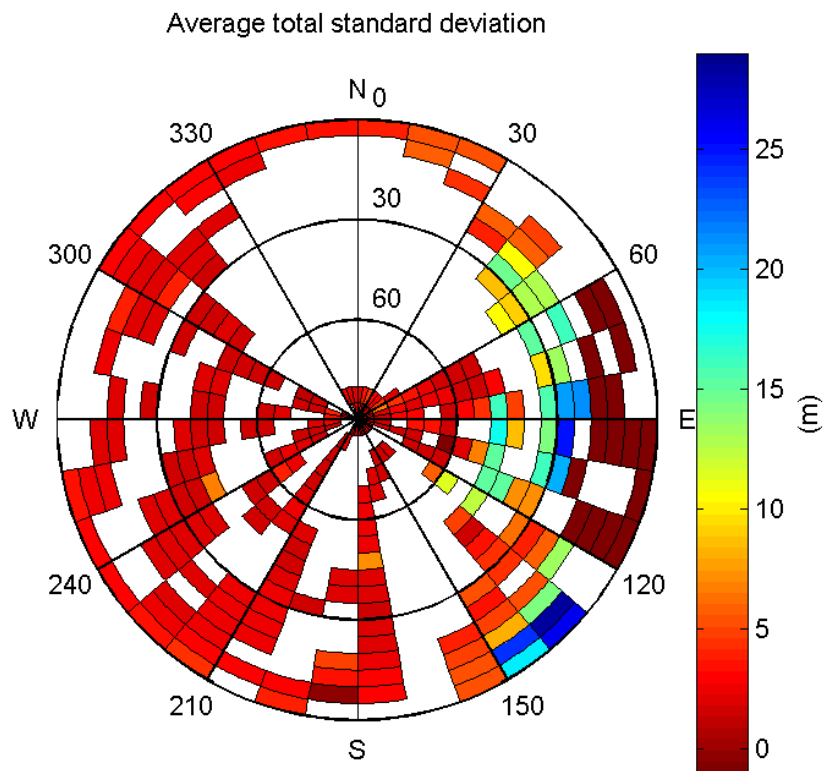
CDF normalised range errors:



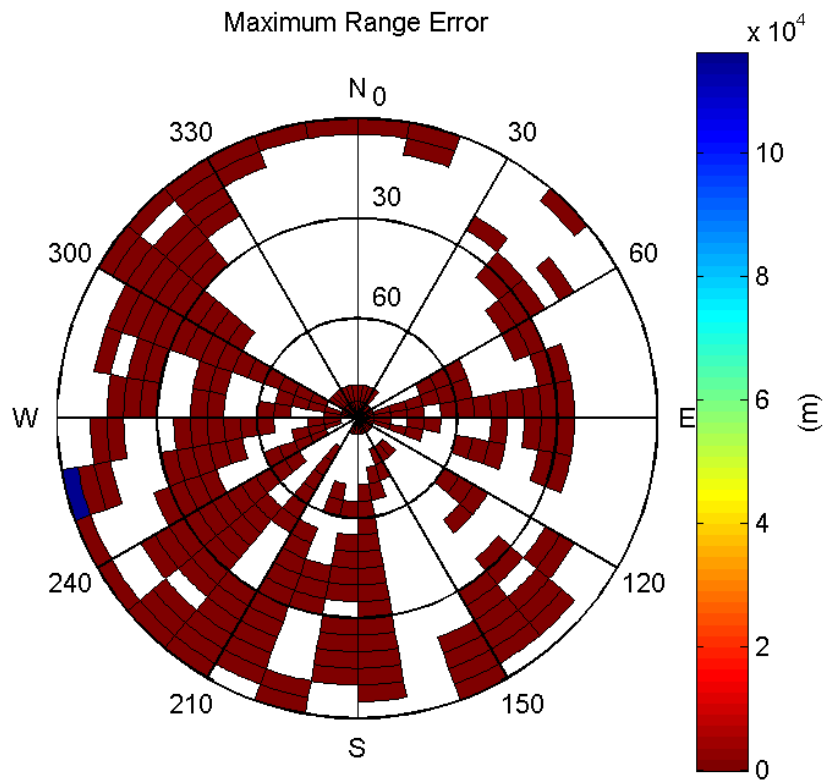
Histogram of Norm Range errors:



Sigma Sky Plot:

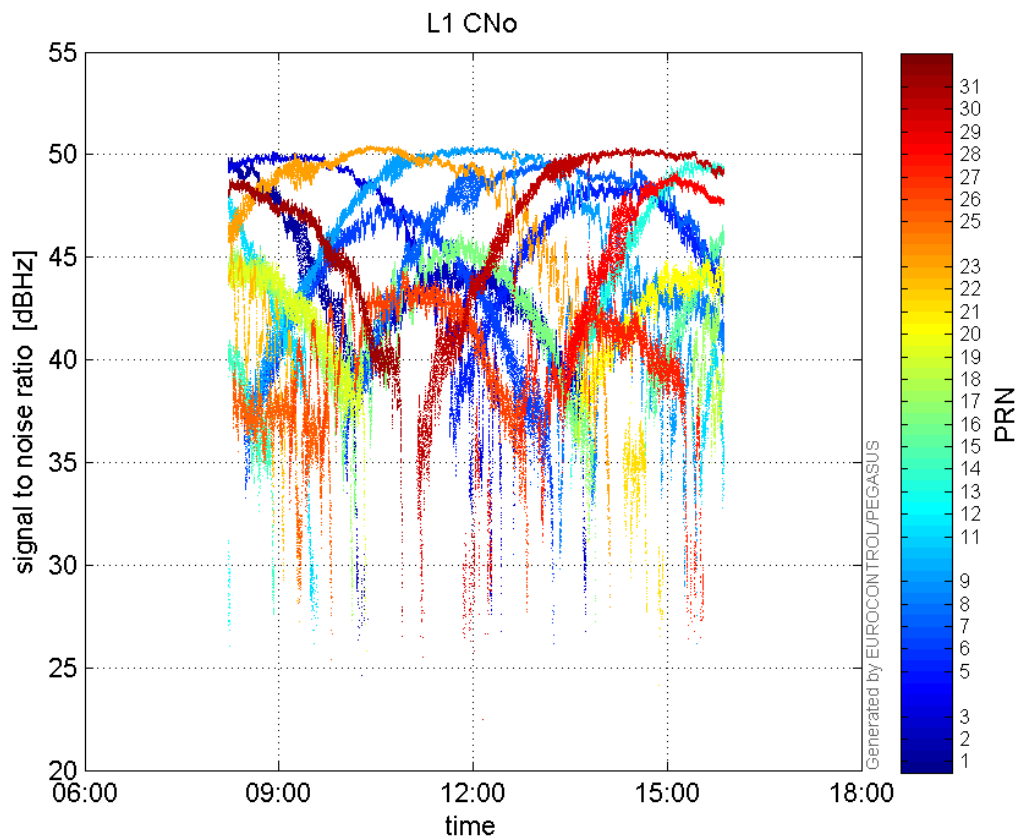


Norm Error Sky Plot:

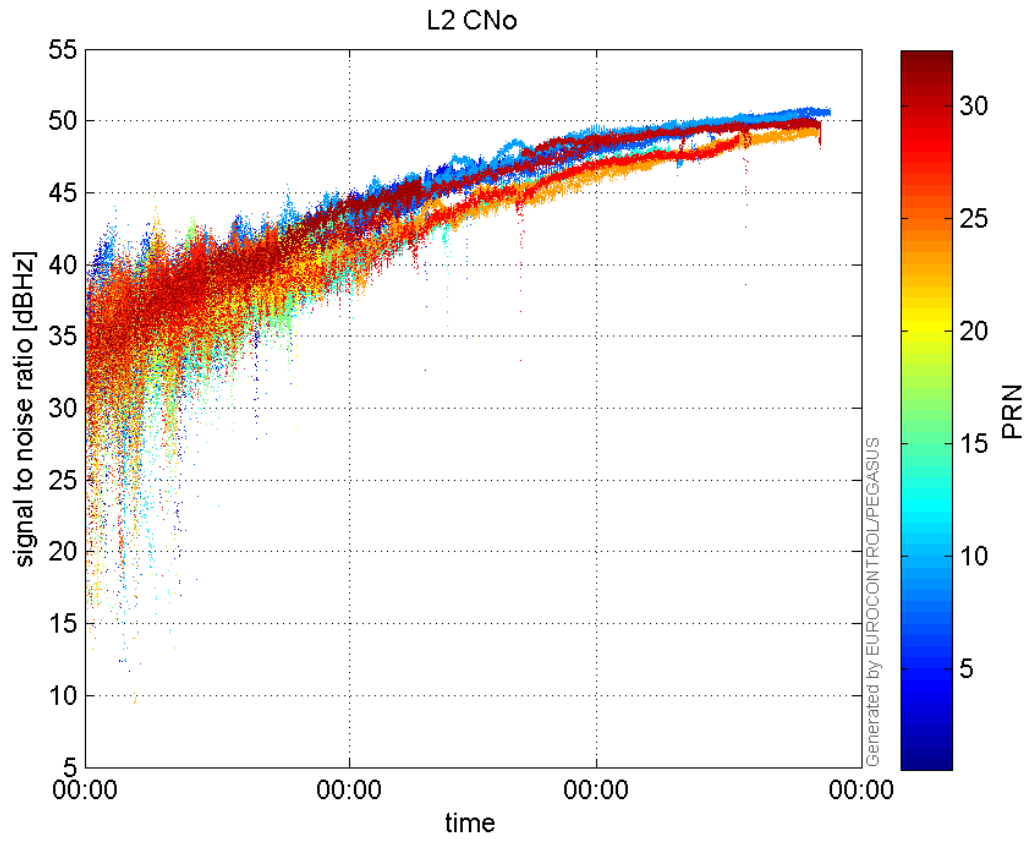


signal quality

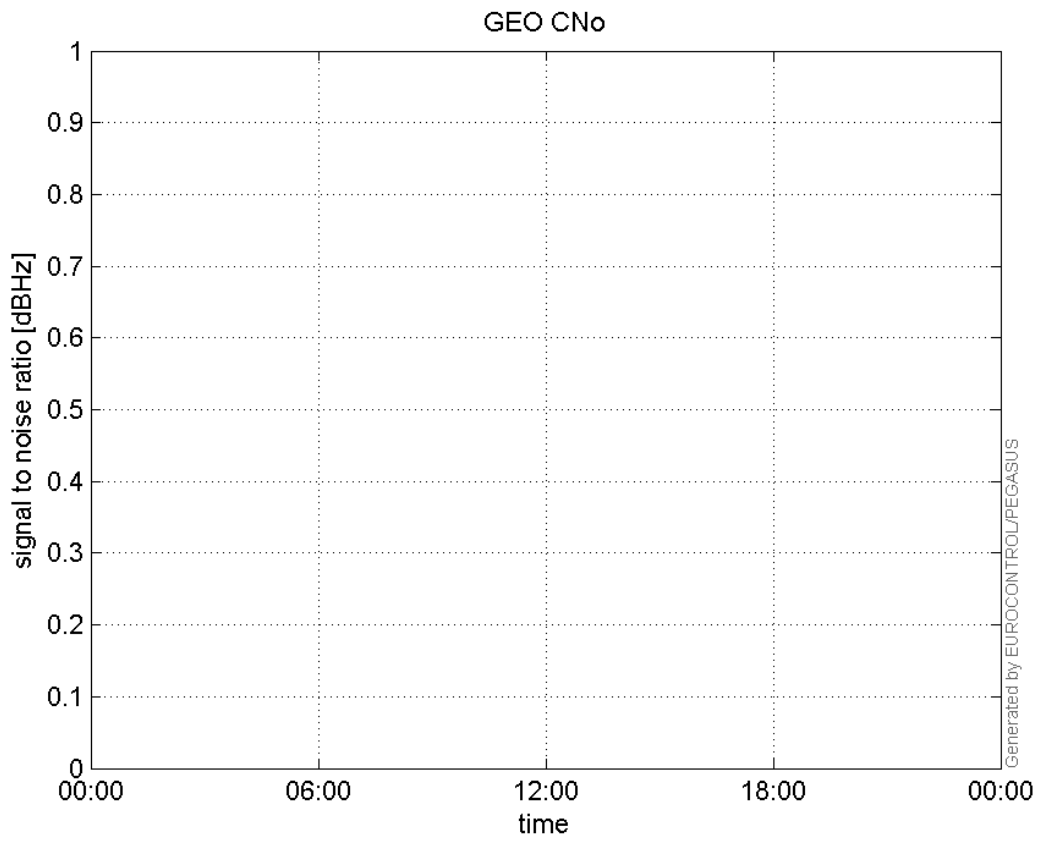
L1 CNo:



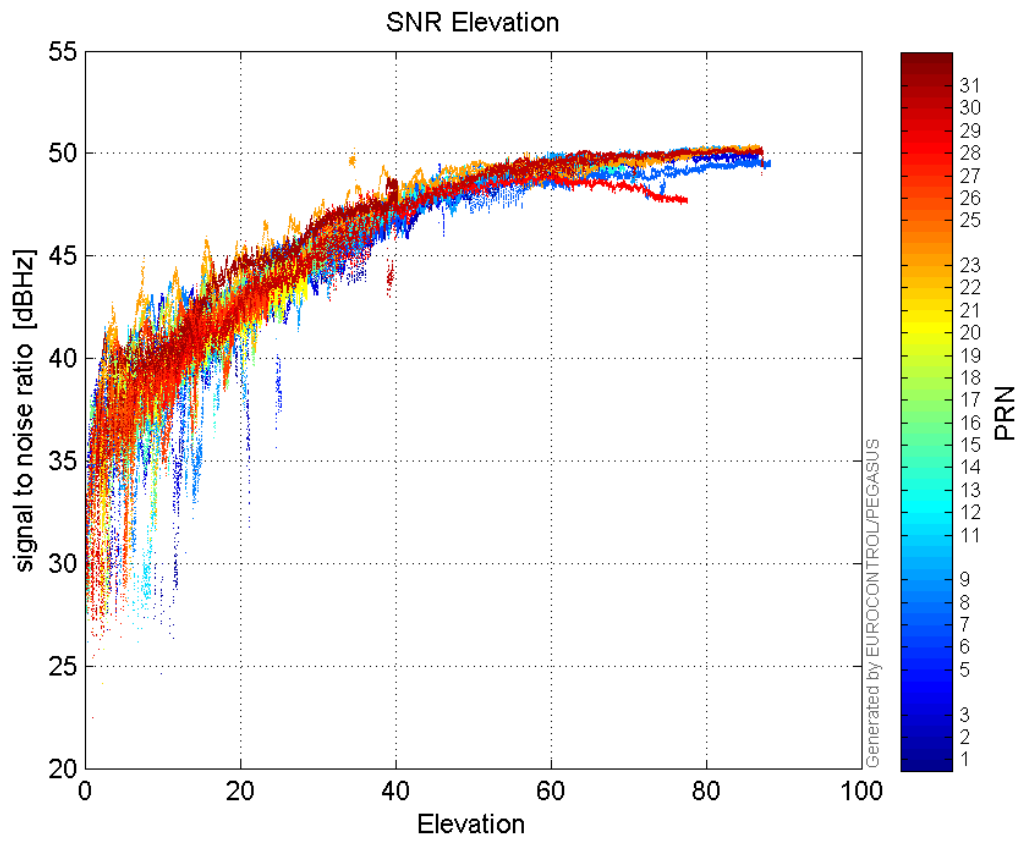
L2 CNo:



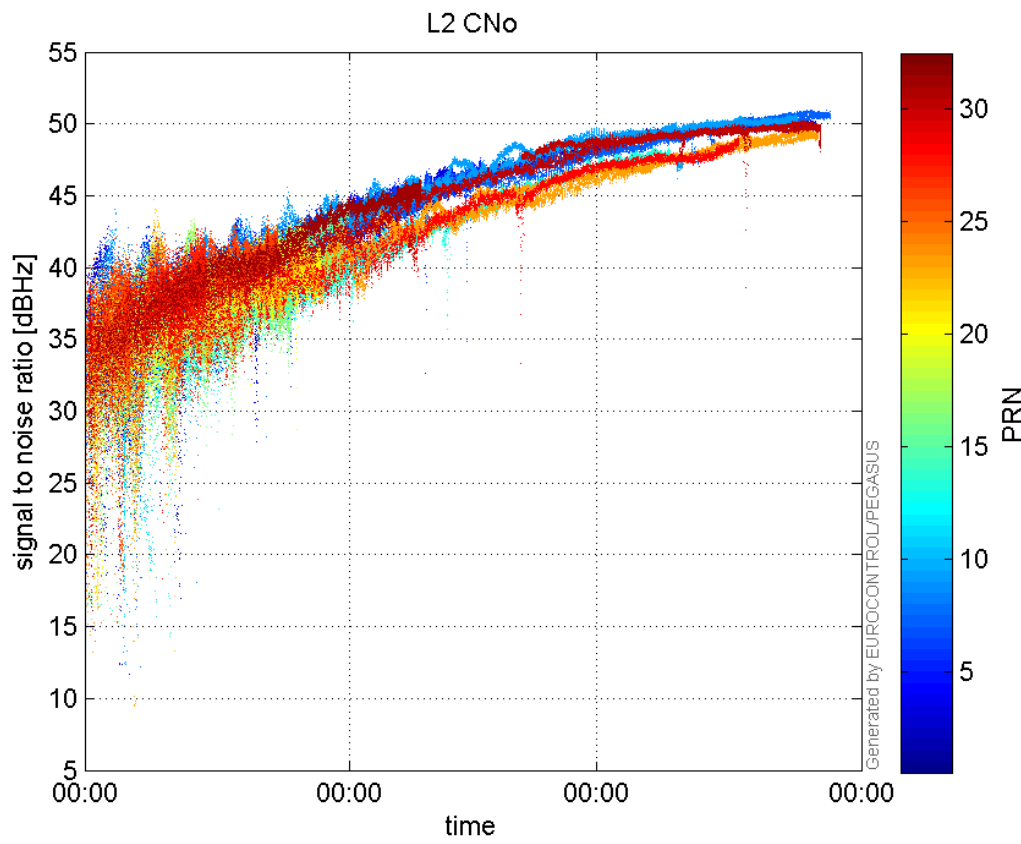
GEO CNo:



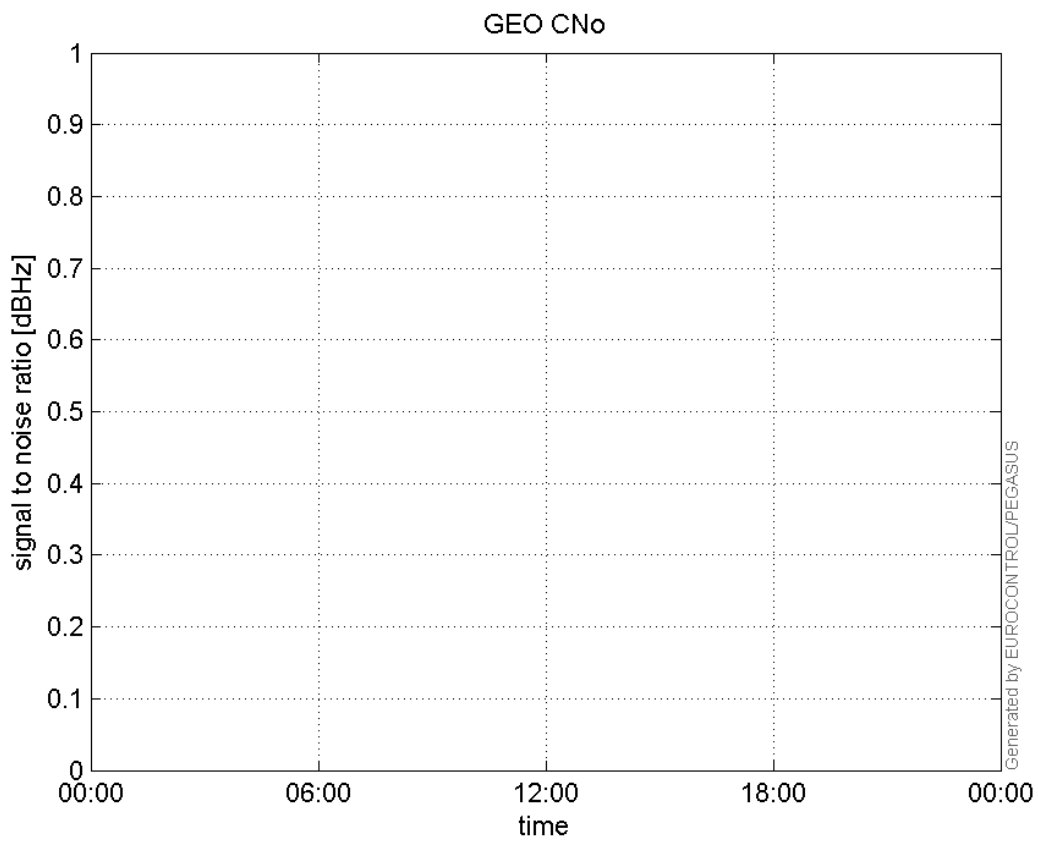
SNR Elevation:



L2 CNo:

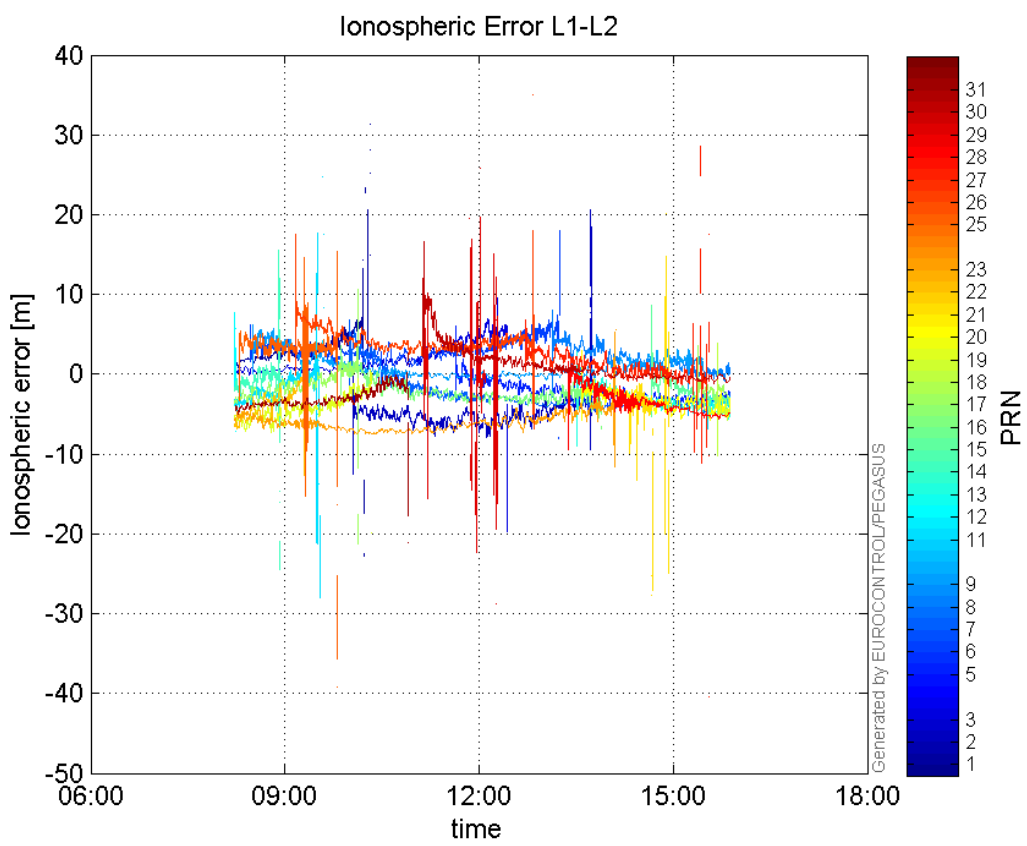


GEO CNo:



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_01_26_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_26_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	220.8335
mi_numbers	results	0