

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 17/12/2016

SBAS Messages

start: 05:47:3.129 15.11.2016 (week: 1923 sec: 193623.129)
end: 13:16:18.129 15.11.2016 (week: 1923 sec: 220578.129)
duration: 07:29:15 ..

quality

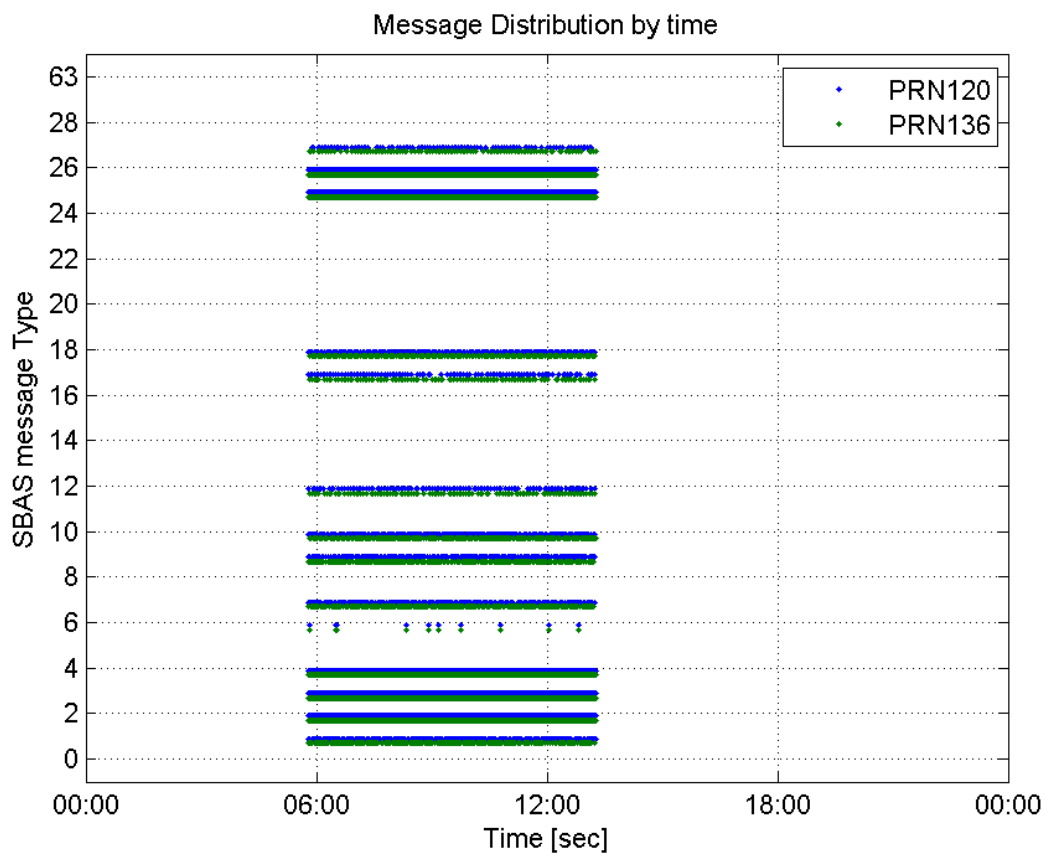
valid samples 41289
total samples 41289
number of SBAS PRNs 2

SBAS SIS Overview

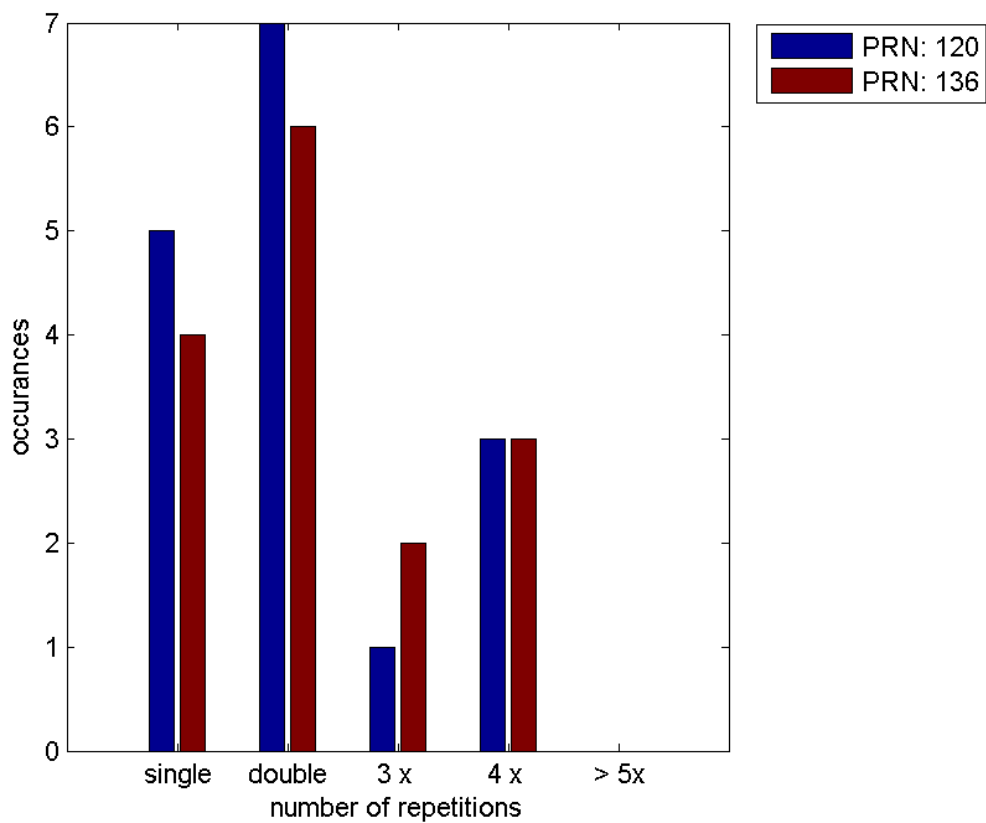
Message Type 6 repetitions :

	single	double	3 x	4 x	> 5x
PRN 120	5	7	1	3	0
PRN 136	4	6	2	3	0

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

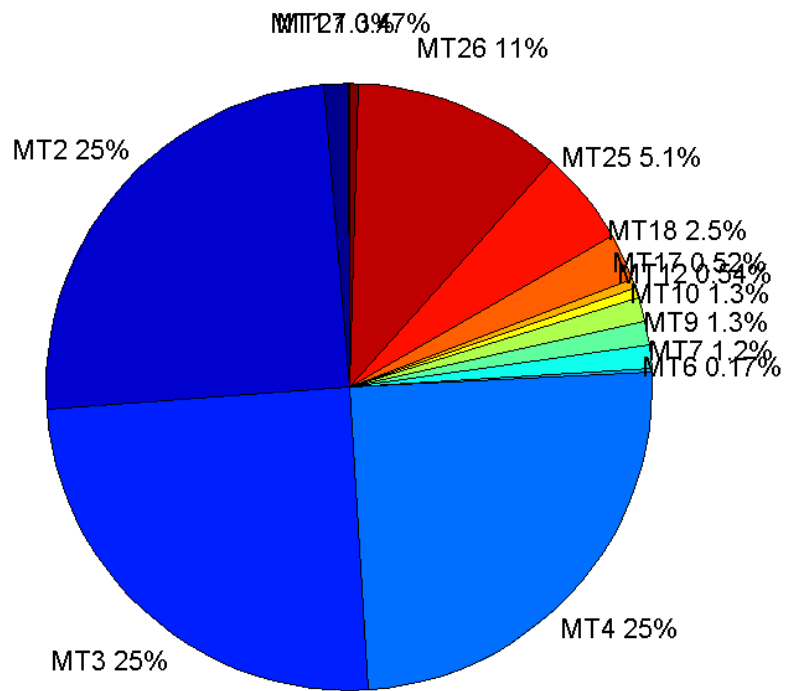
	number of messages	%
MT 0	0	0
MT 1	274	1.32527
MT 2	5136	24.8416
MT 3	5138	24.8513
MT 4	5120	24.7642
MT 5	0	0
MT 6	35	0.169287
MT 7	258	1.24788
MT 9	262	1.26723
MT 10	262	1.26723
MT 12	111	0.53688
MT 17	107	0.517533
MT 18	517	2.5006
MT 24	0	0
MT 25	1049	5.07376
MT 26	2308	11.1632
MT 27	98	0.474002
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20675	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	98.663	46	0	0
MT 2	4	60	5.24849	1403	7	20
MT 3	4	56	5.24723	1402	1	14
MT 4	4	56	5.26509	1442	2	13
MT 5	--	--	--	--	--	--
MT 6	1	6520	742.441	10	9	10
MT 7	76	401	104.459	64	1	4
MT 9	76	320	102.95	0	0	0
MT 10	76	321	102.552	55	0	4
MT 12	188	976	243.764	110	23	23
MT 17	188	970	252.925	0	0	0
MT 18	4	213	52.0019	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	108	25.6823	0	0	0

MT 26	3	79	11.6788	0	0	0
MT 27	188	782	270.402	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

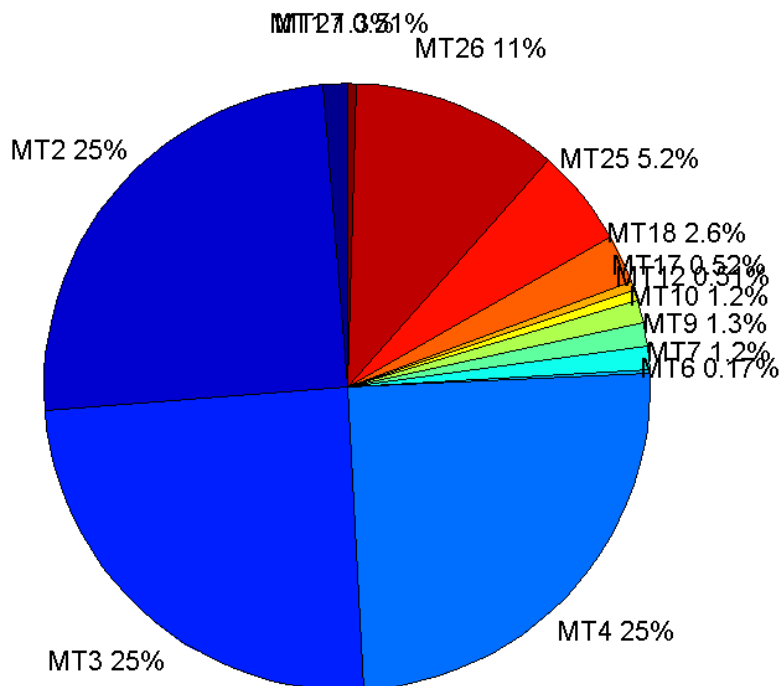
	number of messages	%
MT 0	0	0
MT 1	263	1.27583
MT 2	5142	24.9442
MT 3	5079	24.6386
MT 4	5124	24.8569
MT 5	0	0
MT 6	35	0.169788
MT 7	255	1.23702
MT 9	262	1.27098

MT 10	255	1.23702
MT 12	106	0.514214
MT 17	107	0.519065
MT 18	527	2.55651
MT 24	0	0
MT 25	1071	5.1955
MT 26	2282	11.0701
MT 27	106	0.514214
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20614	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	320	102.24	53	0	0
MT 2	4	20	5.24217	1430	1	13
MT 3	4	24	5.30701	1481	2	10
MT 4	4	24	5.26059	1443	2	20
MT 5	--	--	--	--	--	--
MT 6	1	6521	742.441	10	9	10
MT 7	76	400	105.181	56	2	8
MT 9	76	321	102.372	0	0	0
MT 10	76	320	105.394	59	0	9
MT 12	188	783	253.667	105	22	22
MT 17	188	794	251.274	0	0	0
MT 18	4	200	50.6977	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	105	25.1542	0	0	0
MT 26	1	94	11.8172	0	0	0
MT 27	188	800	255.571	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/2016_11_15EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateJob/job/2016_11_15EGNOS/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: 05:47:3.5 15.11.2016 (week: 1923 sec: 193623.5)
end: 13:16:18 15.11.2016 (week: 1923 sec: 220578)
duration: 07:29:16 ..

quality

valid samples 47927

total samples 49265

Event tables

Position discontinuity events type long
APV-I discontinuity events type too many (24)
APV-35m discontinuity events type too many (29)
LPV-200 discontinuity events type too many (29)
CAT-I discontinuity events type independent

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	215701	1.54075	11.0669	0.139221	1.09876	14.7011	0.0747401
max normVer	205318	1.00554	13.0204	0.0772282	2.90791	18.5333	0.156902
max HPE	203272	13.7673	200.985	0.0684992	7.3767	105.097	0.0701895
max VPE	218038	8.55254	175.019	0.0488664	13.6284	276.346	0.0493163
min HPL	207627	0.734447	8.47909	0.0866186	0.64858	16.9849	0.0381857
min VPL	214236	0.967977	10.2996	0.093982	0.1558	11.4302	0.0136306

Position discontinuity events :

#	Epoch	duration	stable period
1	199398	383.5	166.5
2	200837	4.5	271.5
3	201730	3.5	156.5
4	203407	4.5	211.5
5	207912	4.5	84.5

First Glance analysis

Duration 26956
Number of Samples 49265
Number of invalid sample 1338
Number of no position solution samples 145
Number of missing sample 4647
Logging Loss 8.6196
Processing Loss 2.7159
Number of Misleading Information 0
Data gaps 16
Discontinuities 72

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
47782	45733	45303	333	45303

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.45541	1.40807	1.40625	1.07065	1.40625
HPEScale 95%	NaN	4.1568	4.161	3.93053	4.161
VPE 95%	1.79632	1.72092	1.7232	0.394077	1.7232

VPEscale 95%	NaN	4.40862	3.09379	0.398294	3.09379
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Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.996975	0.954222	0.94525	0.00694807	0.94525
measurements	0.969897	0.928306	0.919578	0.00675936	0.919578
Operational	1.77259	1.69658	1.68063	0.0123535	1.68063

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	57	146	224	76	224
Long	5	26	43	37	43
Independent	5	24	29	0	29
P(disc.)	0.00156963	0.00787178	0.00960201	0	0.00960201
P(slide)	0.0176217	0.0459296	0.0639582	0.654655	0.0639582

Integrity events :

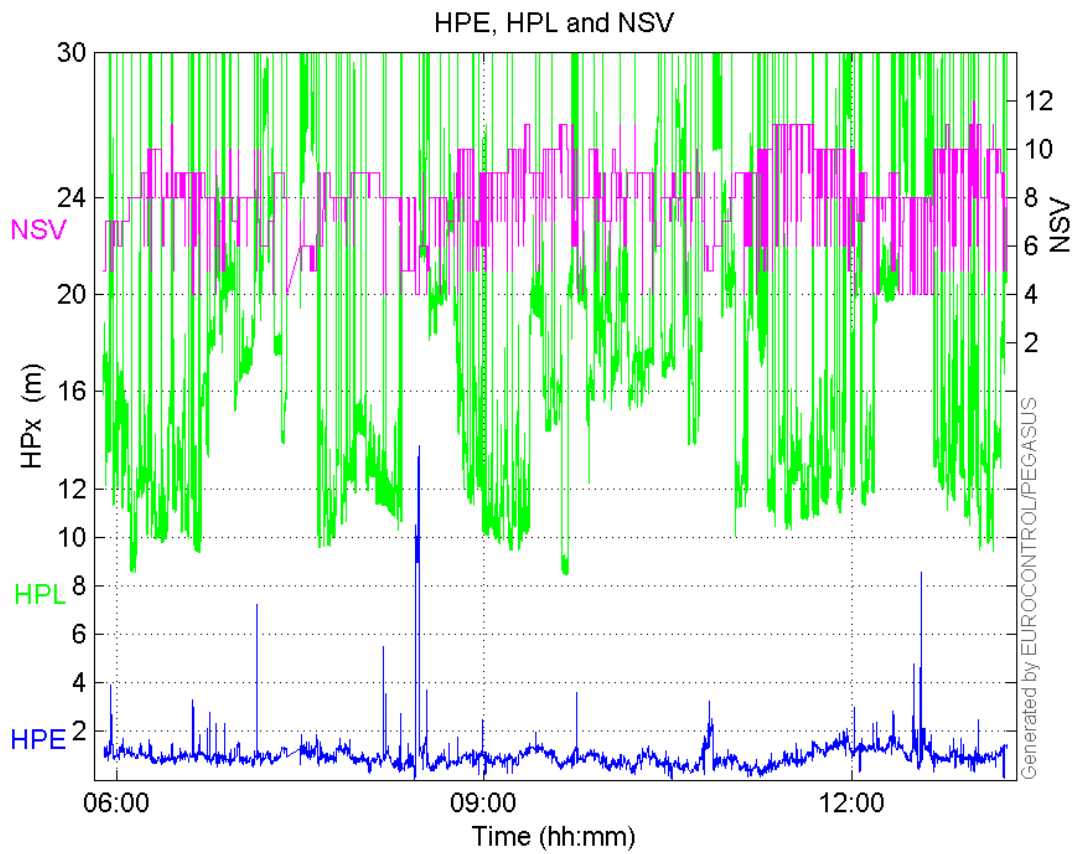
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

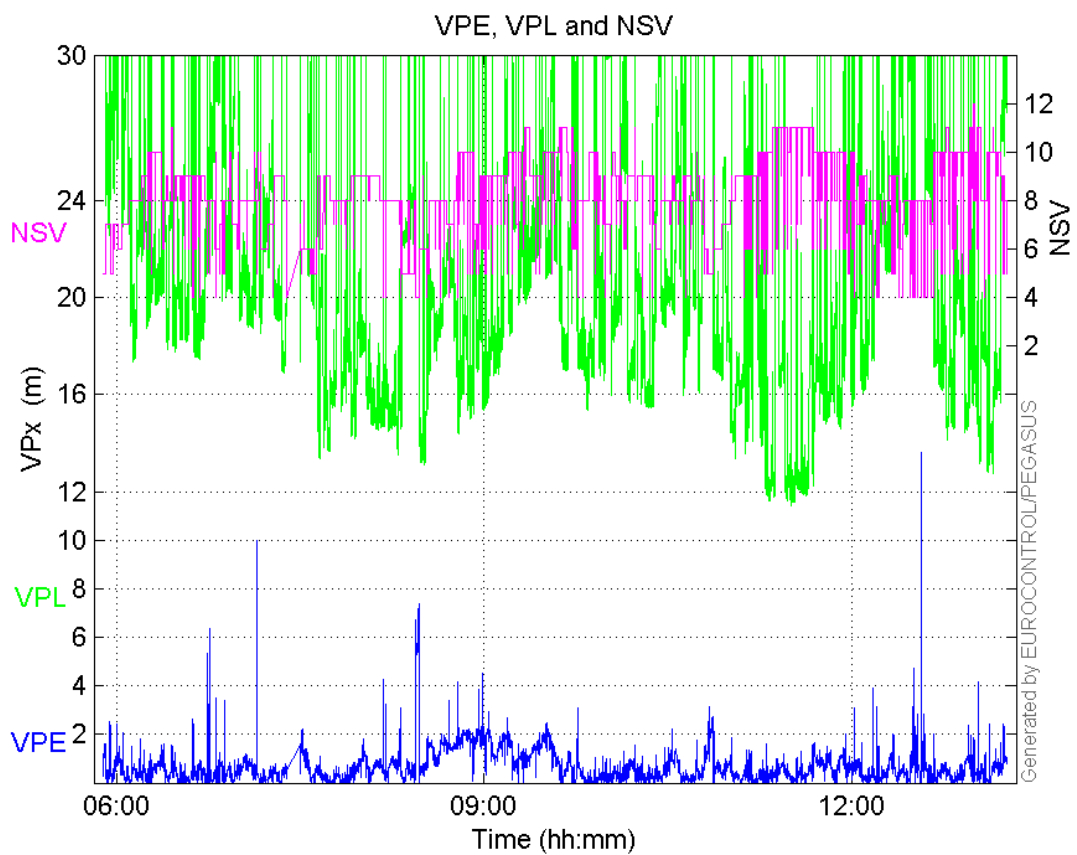
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	47782	45733	45303	333	45303
SIS Availability	0.996975	0.954222	0.94525	0.00694807	0.94525
Local Availability	0.969897	0.928306	0.919578	0.00675936	0.919578
Operational Availability	1.77259	1.69658	1.68063	0.0123535	1.68063
HPE 95%	1.45541	1.40807	1.40625	1.07065	1.40625
HPEScale 95%	NaN	4.1568	4.161	3.93053	4.161
VPE 95%	1.79632	1.72092	1.7232	0.394077	1.7232
VPEscale 95%	NaN	4.40862	3.09379	0.398294	3.09379
All Discontinuity Events	57	146	224	76	224
Long Discontinuity Events	5	26	43	37	43
Independent Discontinuity Events	5	24	29	0	29
P(discontinuity)	0.00156963	0.00787178	0.00960201	0	0.00960201
P(sliding window)	0.0176217	0.0459296	0.0639582	0.654655	0.0639582
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:

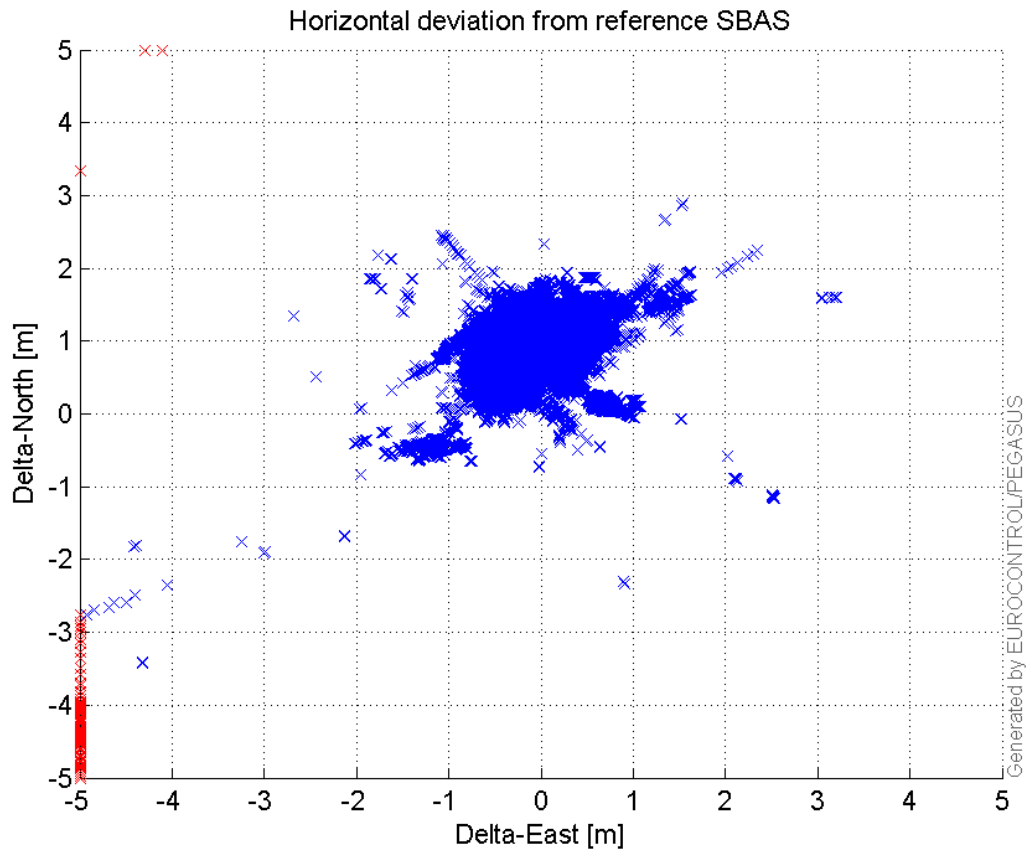


VPE, VPL and NSV:



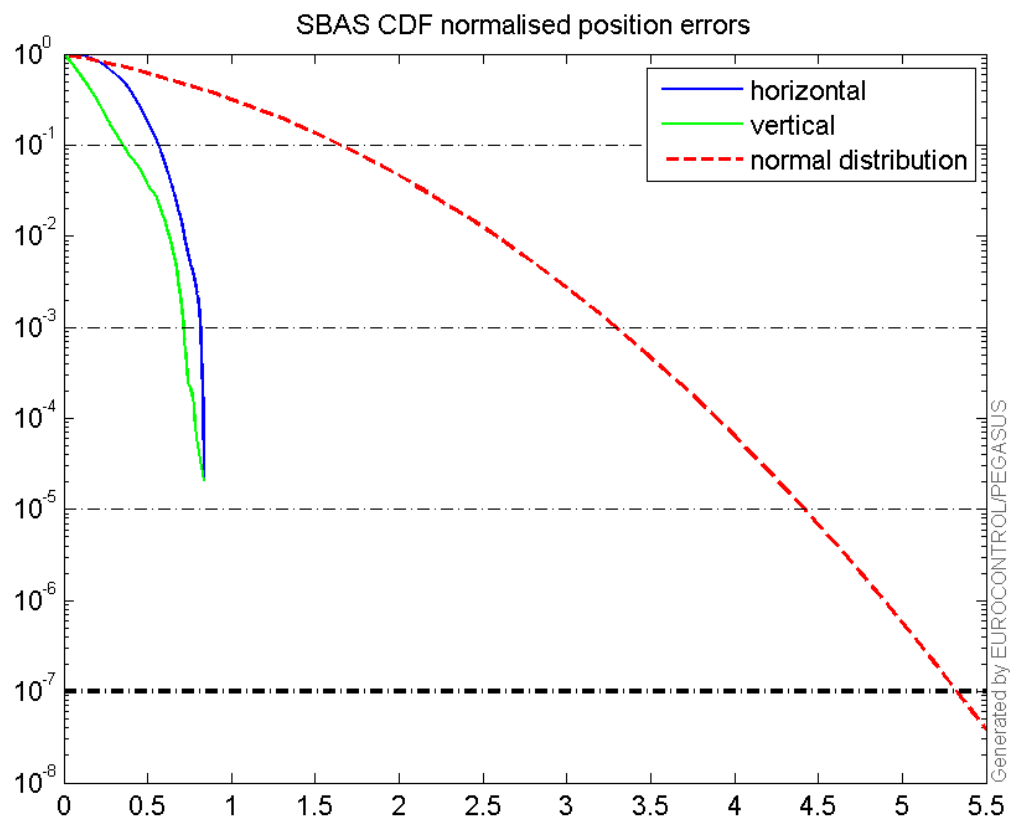
Horizontal deviation

Horizontal deviation from reference SBAS:



CDF position

SBAS CDF position domain:



Statistics

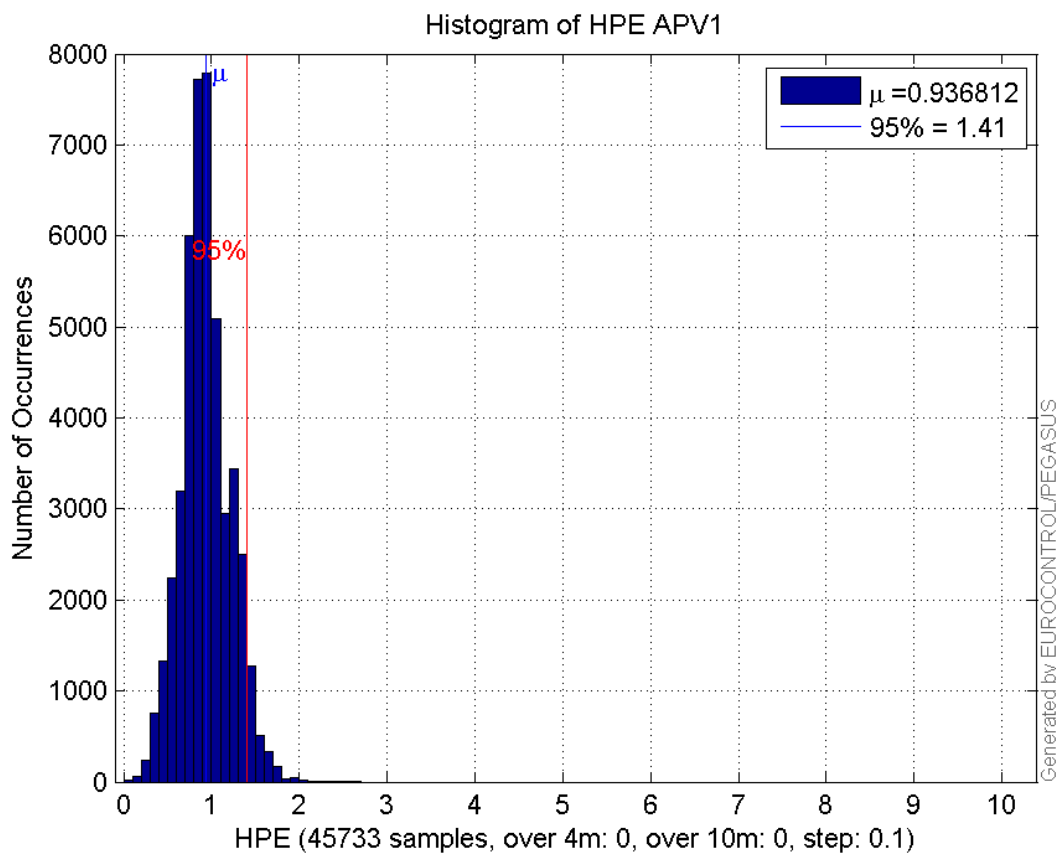
number	45733
sum	42843.203
sum2	43607.125
prctile95	1.4080674
prctile99	1.6307375
number	45733
sum	27728.843
sum2	28490.508
prctile95	1.7209206
prctile99	2.0560875
number	45733
sum	780380.96
sum2	15022913
prctile95	30.22996
prctile99	34.57928
number	45733
sum	929749.83
sum2	20061914
prctile95	30.707405
prctile99	34.84138
number	45733
sum	2789.2962
sum2	197.97561
prctile95	0.10391988
prctile99	0.12005248
number	45733
sum	1418.0523
sum2	76.138967
prctile95	0.088172347
prctile99	0.11840564
number	45303
sum	42401.833
sum2	43117.826
prctile95	1.4062453
prctile99	1.6308256
number	45303
sum	27460.103
sum2	28192.47
prctile95	1.7232007
prctile99	2.0561844
number	45303
sum	769020.22
sum2	14695923
prctile95	29.61321
prctile99	34.227694
number	45303
sum	913417.23
sum2	19435462
prctile95	29.982085

prctile99 33.754626
number 45303
sum 2770.8856
sum2 197.04638
prctile95 0.1040251
prctile99 0.12009132
number 45303
sum 1411.0305
sum2 75.938629
prctile95 0.088393963
prctile99 0.11854444

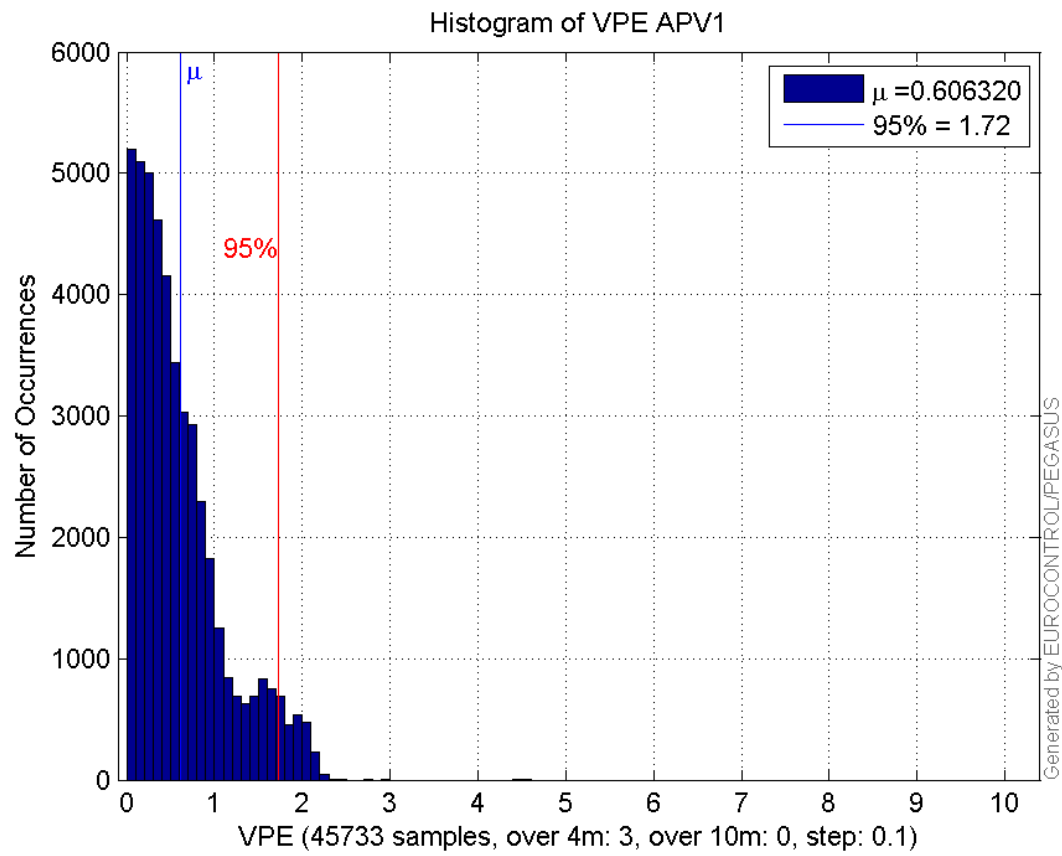
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	0.936812	0.275502	0.916399	1.40807	1.63074	0.976481
HPL	17.0638	6.10882	15.5663	30.23	34.5793	18.1243
VPE	0.60632	0.505328	0.466596	1.72092	2.05609	0.789288
VPL	20.33	5.03669	19.3213	30.7074	34.8414	20.9446

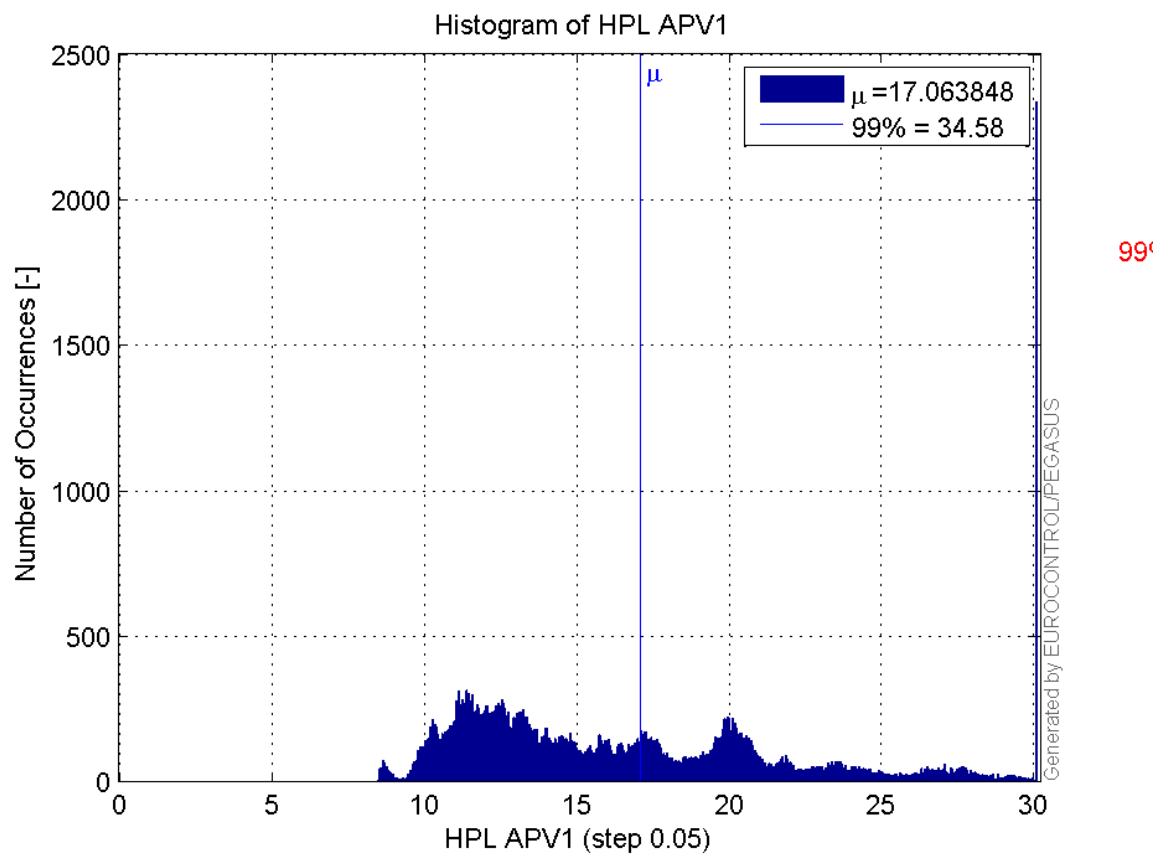
Histogram of HPE APV1:



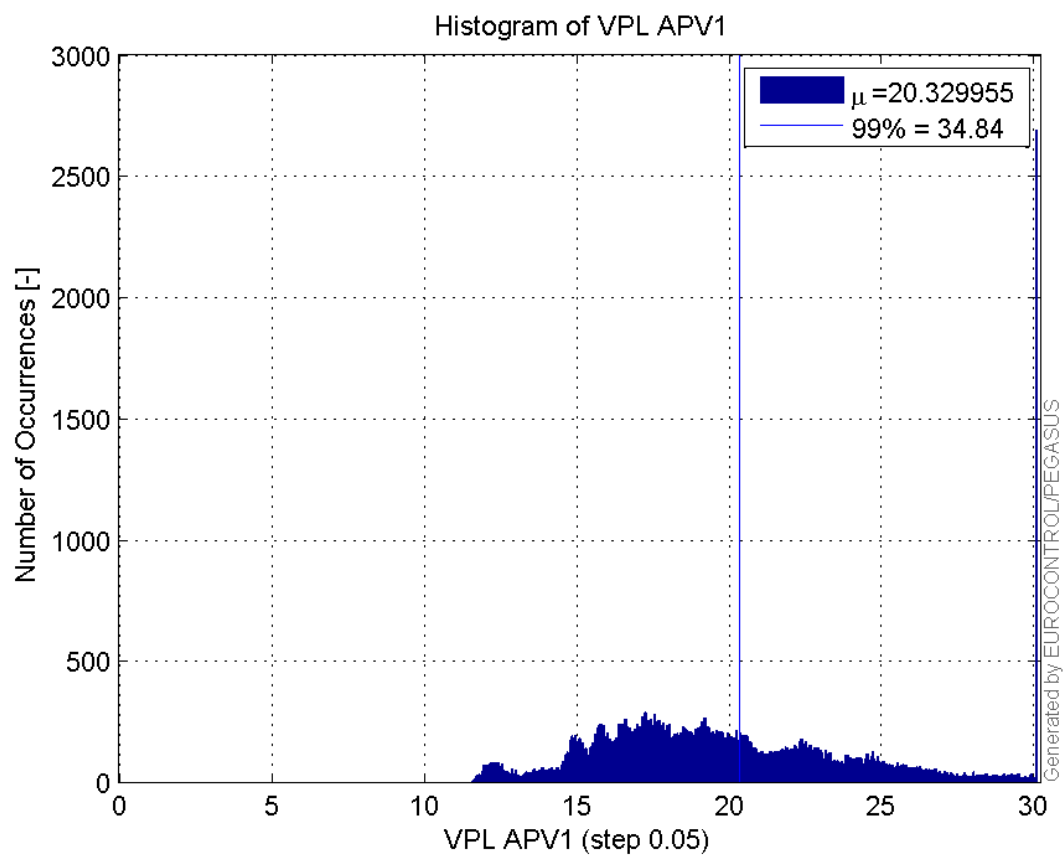
Histogram of VPE APV1:



Histogram of HPL APV1:

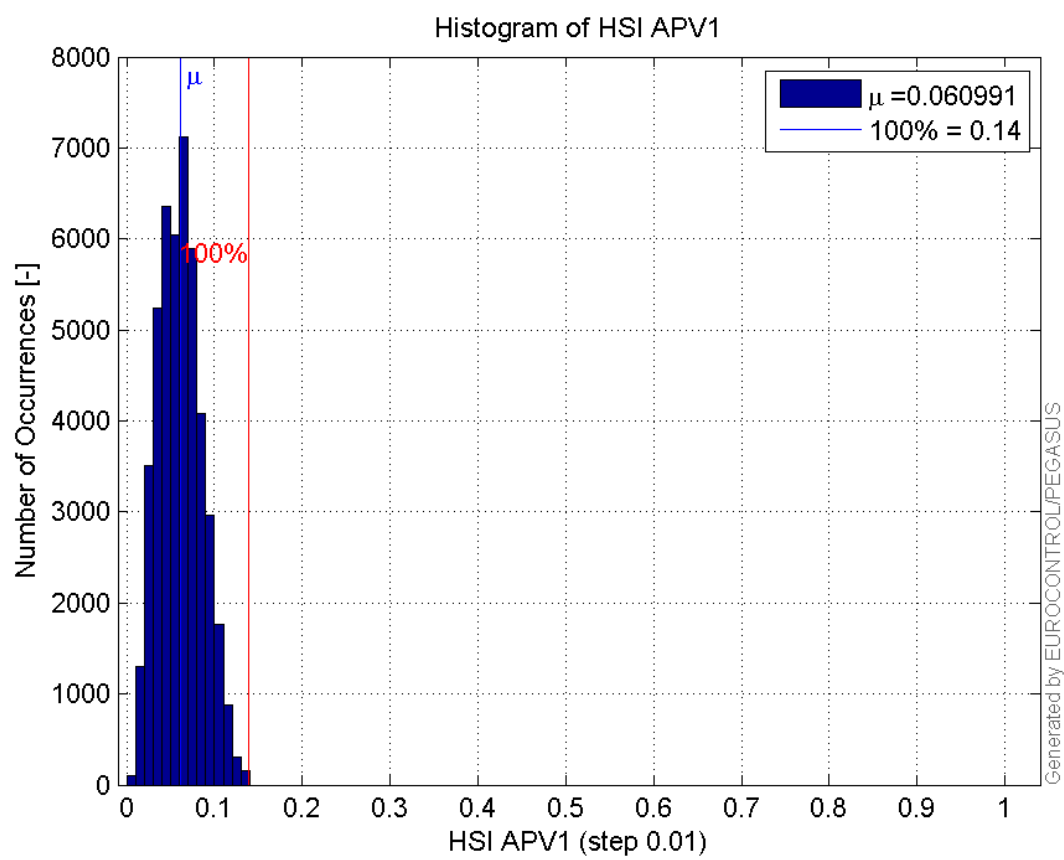


Histogram of VPL APV1:

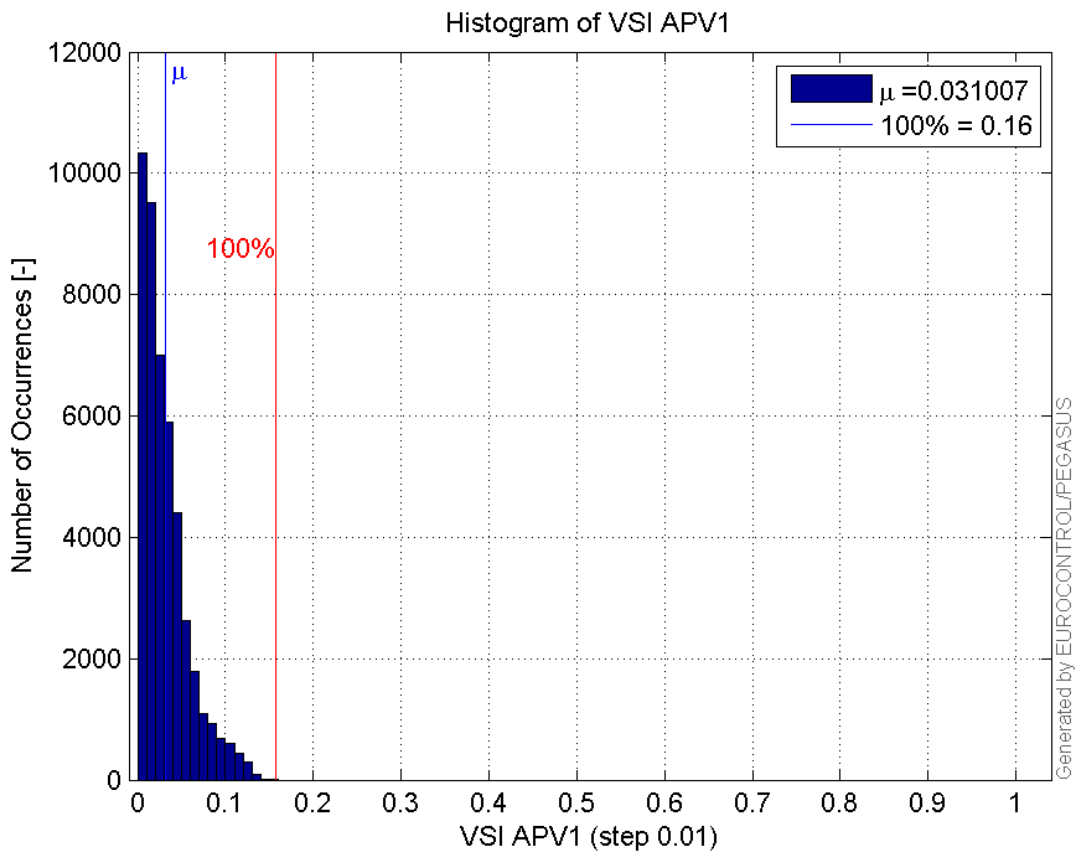


99

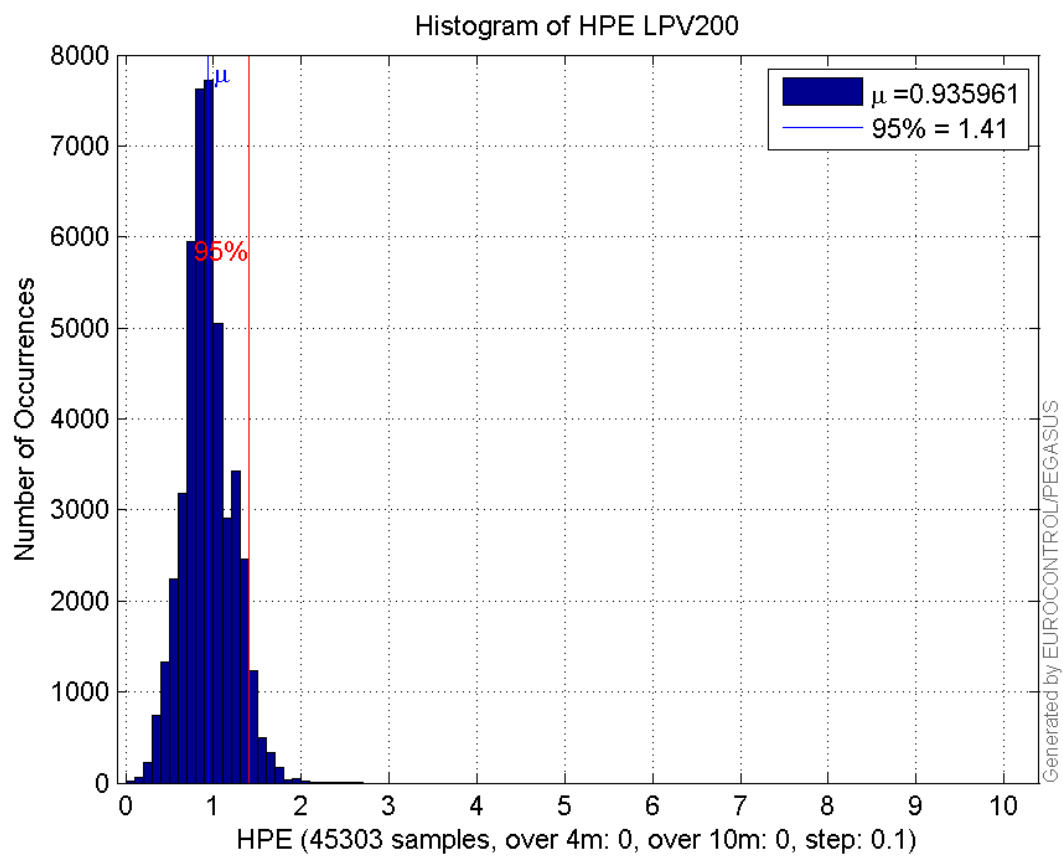
Histogram of HSI APV1:



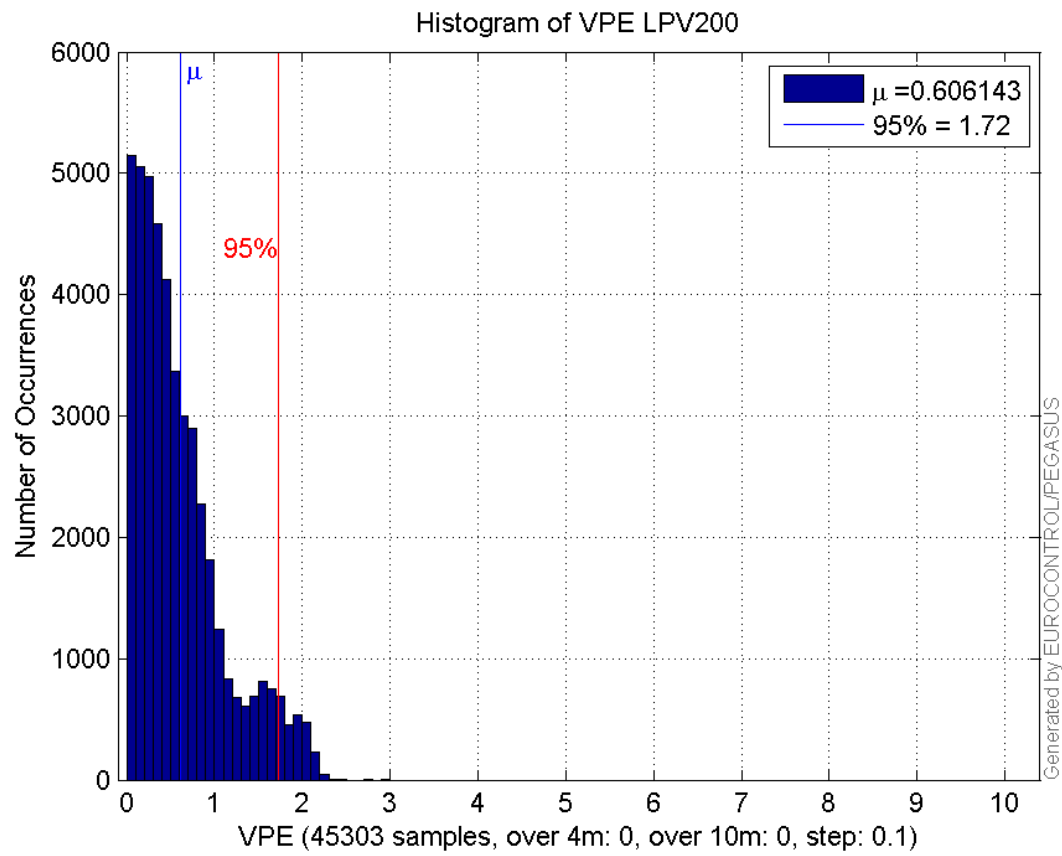
Histogram of VSI APV1:



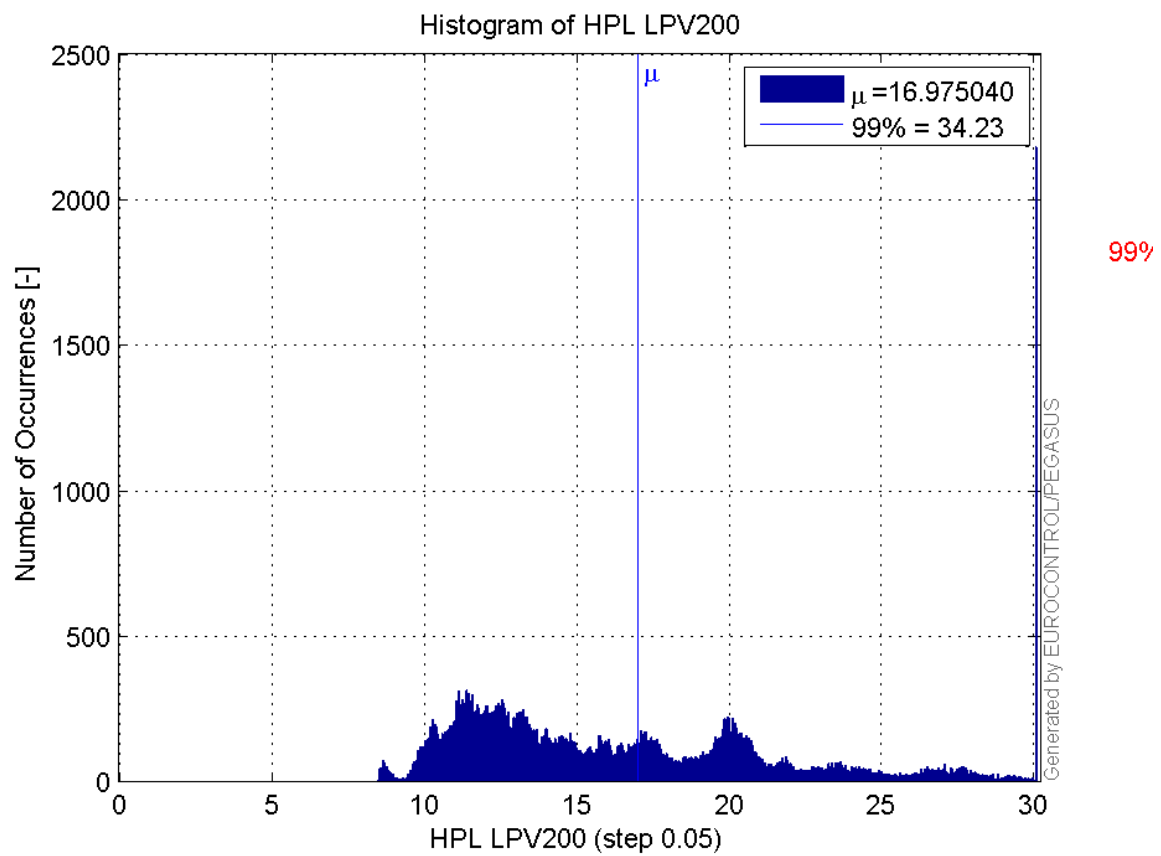
Histogram of HPE LPV200:



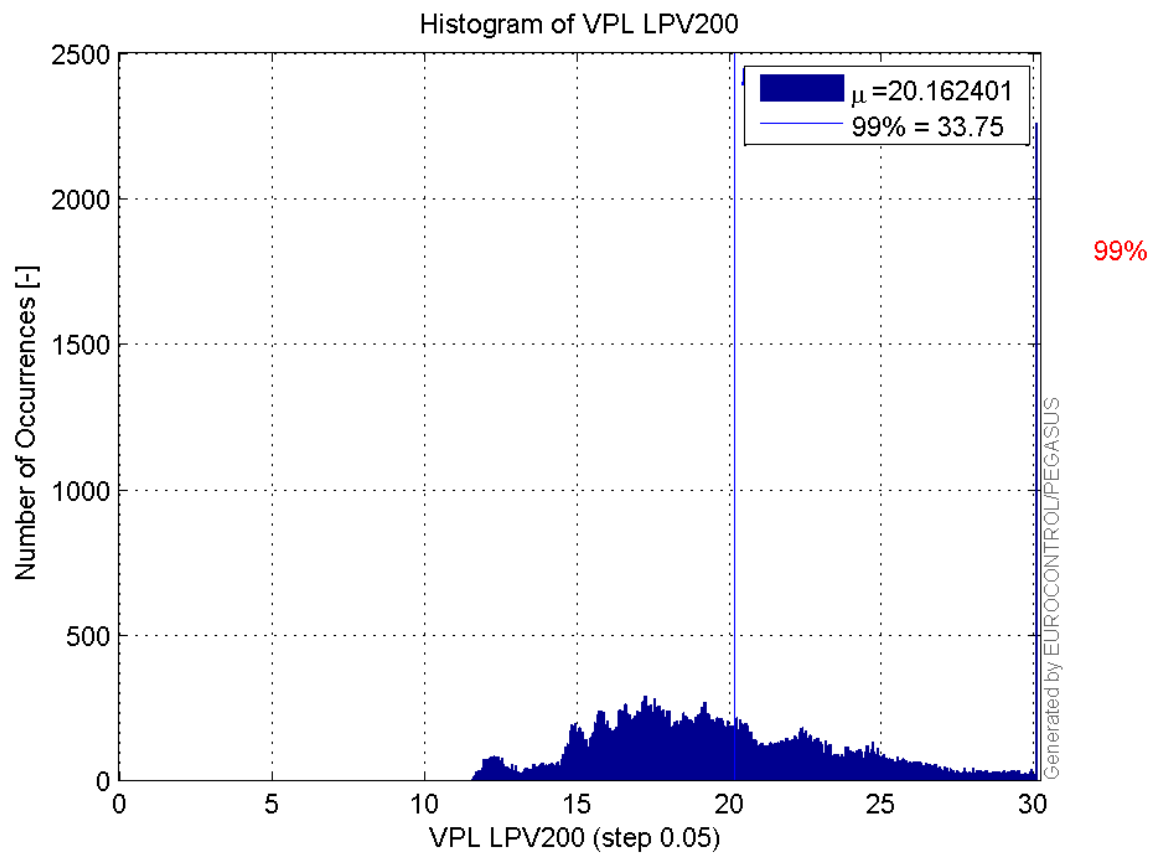
Histogram of VPE LPV200:



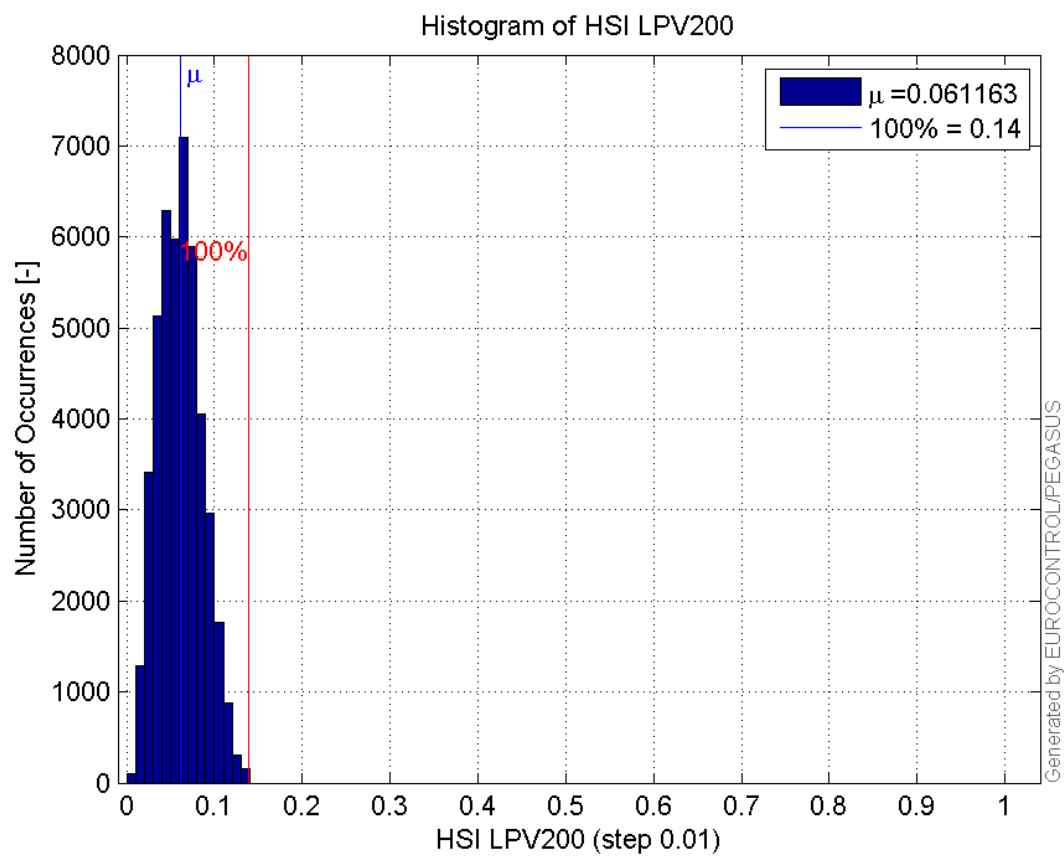
Histogram of HPL LPV200:



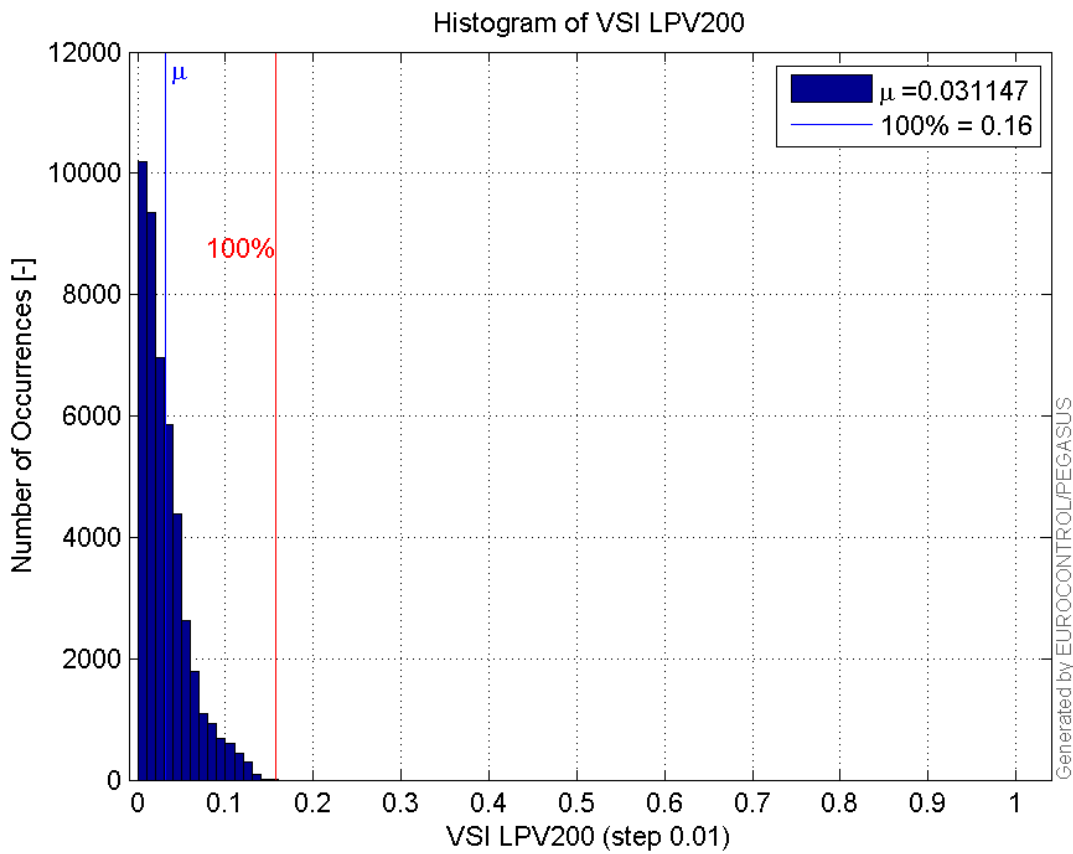
Histogram of VPL LPV200:



Histogram of HSI LPV200:

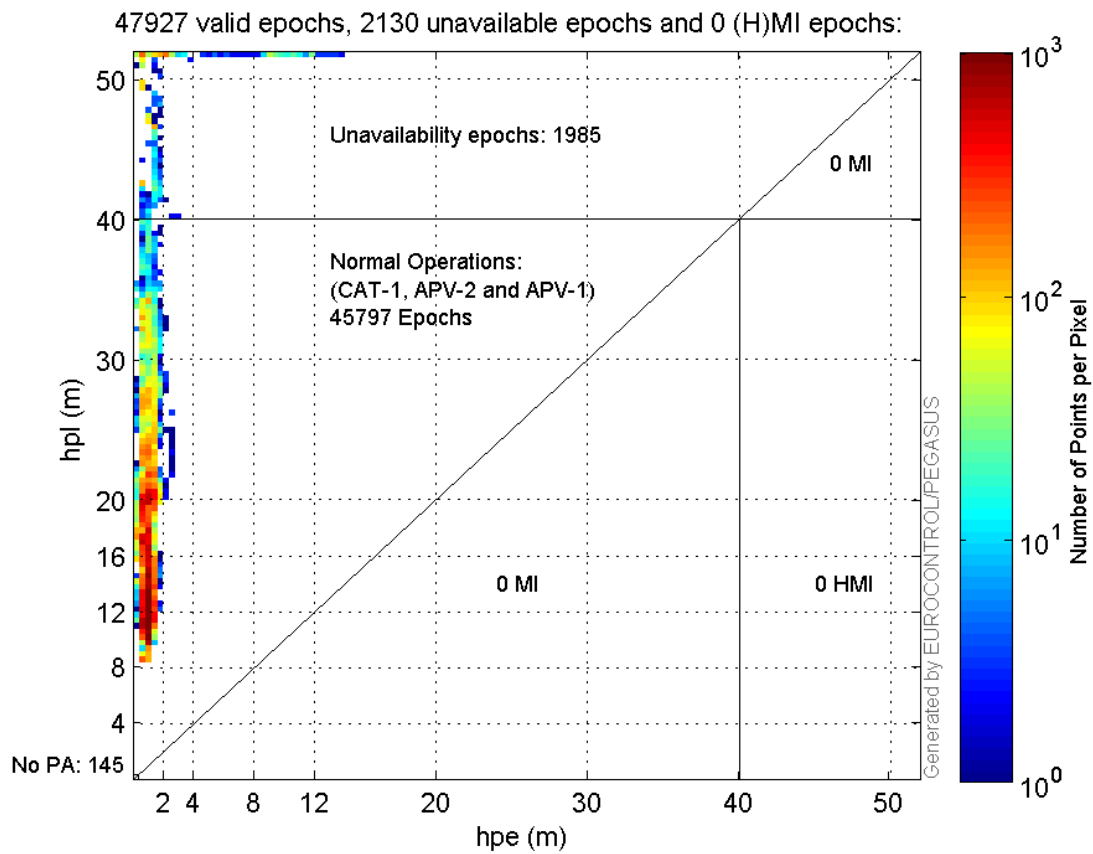


Histogram of VSI LPV200:

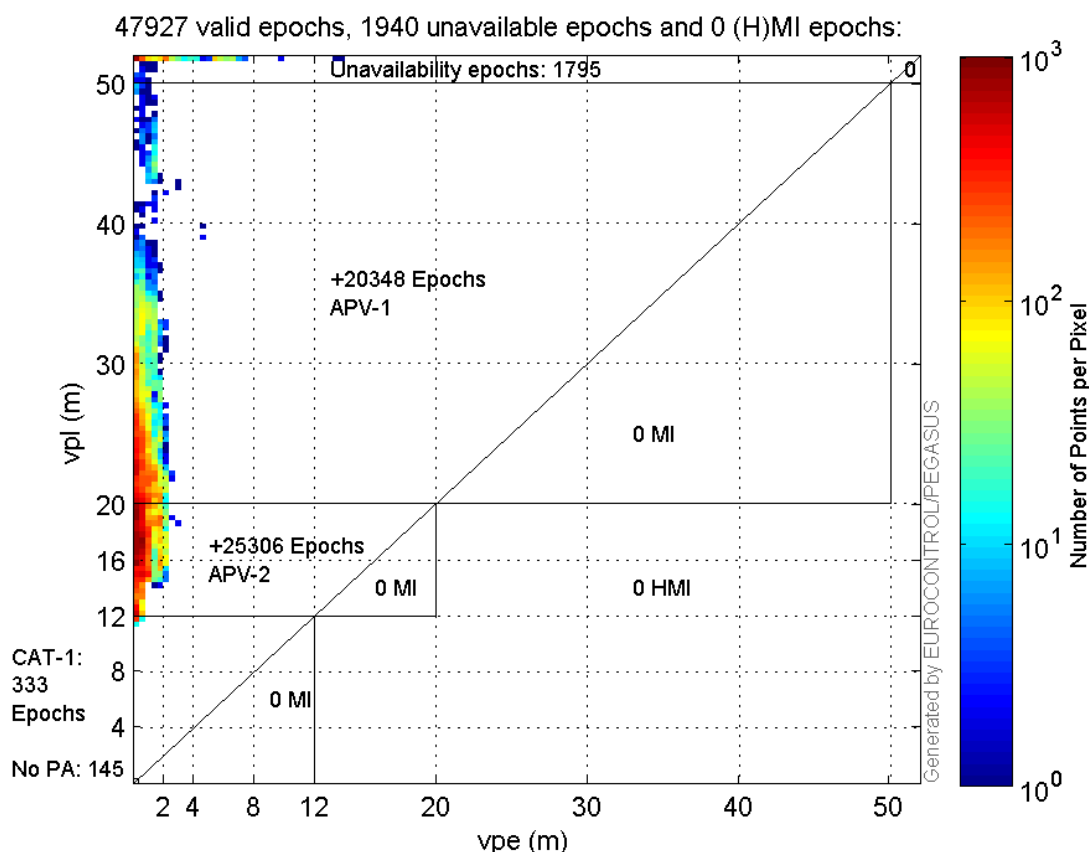


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.4.0
input_prefix	system	D:/PegasusDateJob/job/2016_11_15EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_11_15EGNOS/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	30.4298
init_alt	results	236.2955
mi_numbers	results	0

Range Domain

start: 05:47:3.5 15.11.2016 (week: 1923 sec: 193623.5)
end: 13:16:18 15.11.2016 (week: 1923 sec: 220578)
duration: 07:29:16 ..

quality

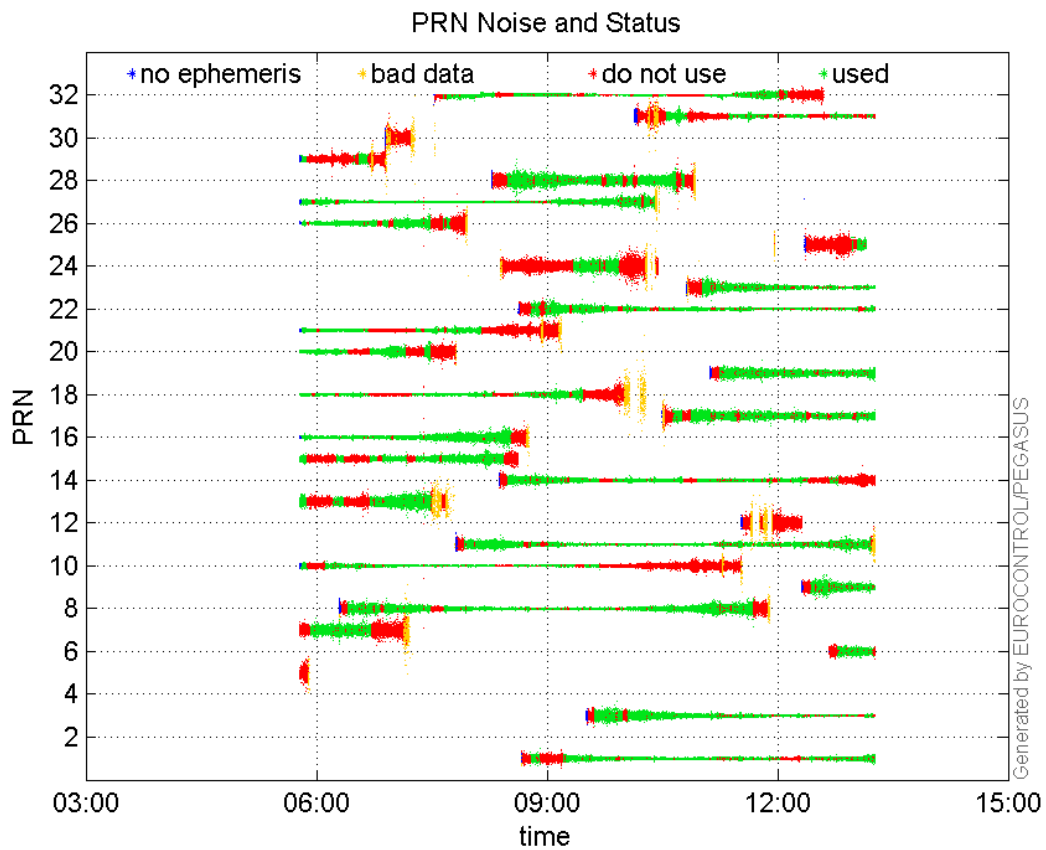
valid samples 49265
total samples 49265

PRN overview

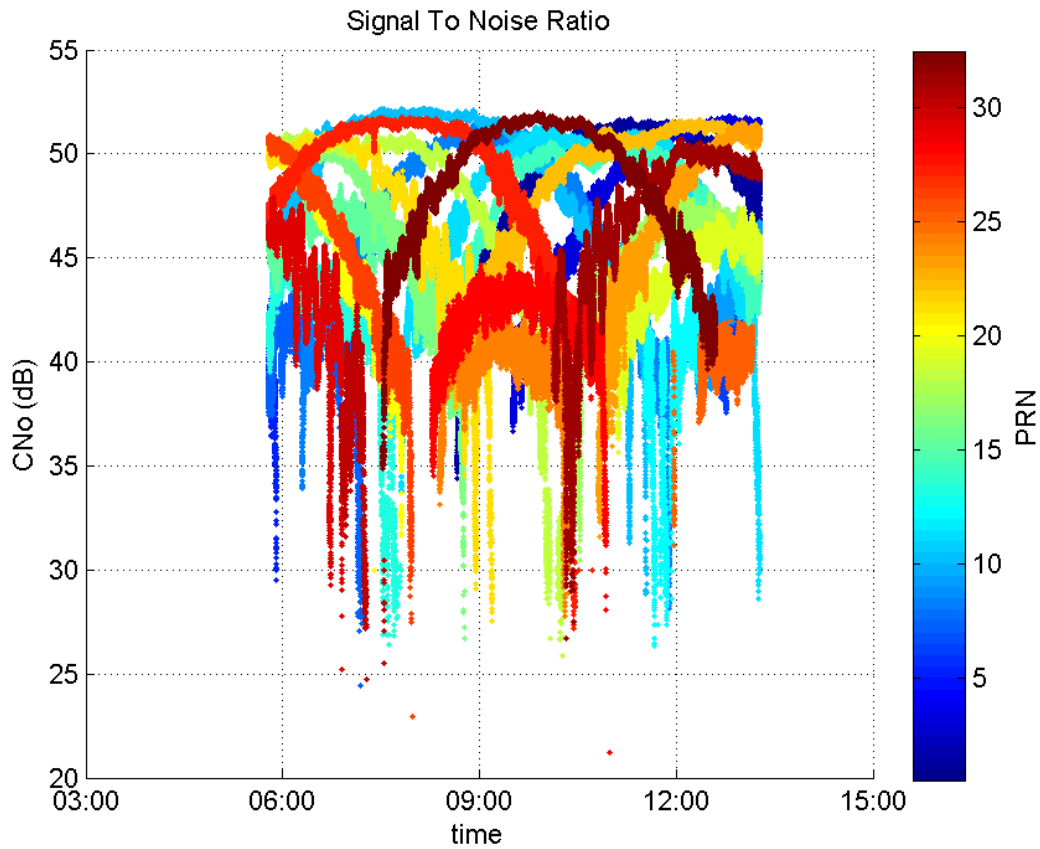
Number of Visible GPS Satellites 30
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



range errors

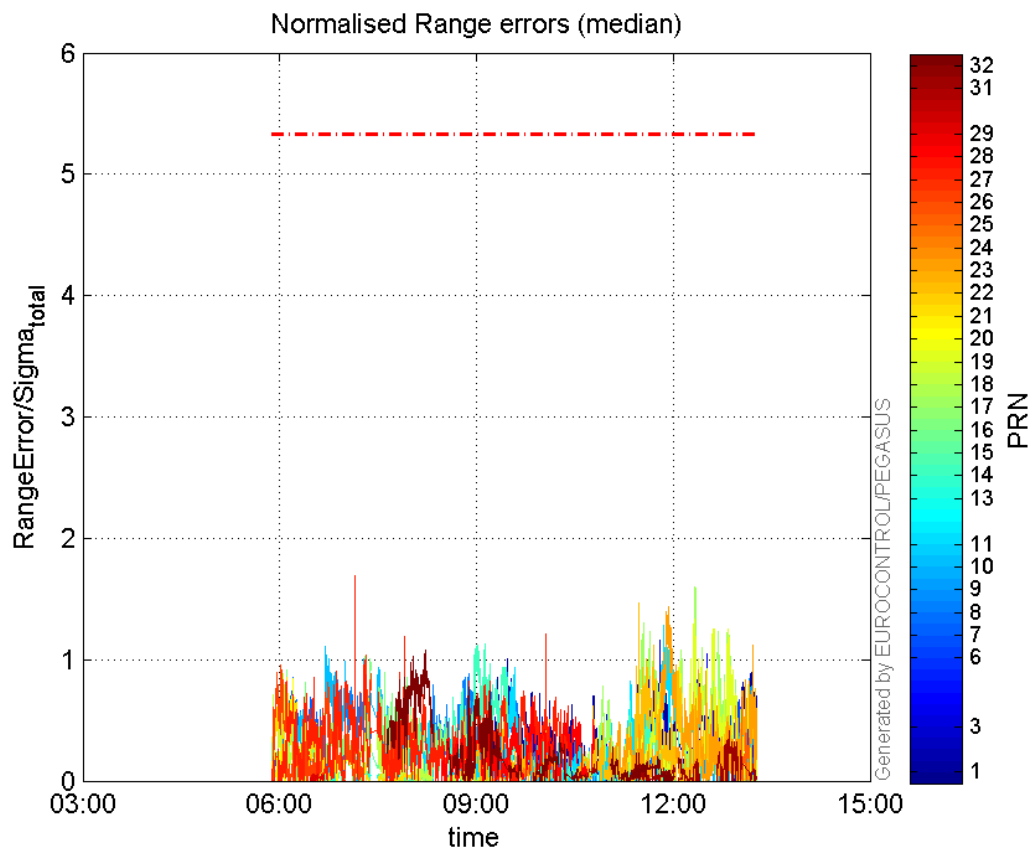
Number of Overbounding Norm Errors 0

Max Norm Errors :

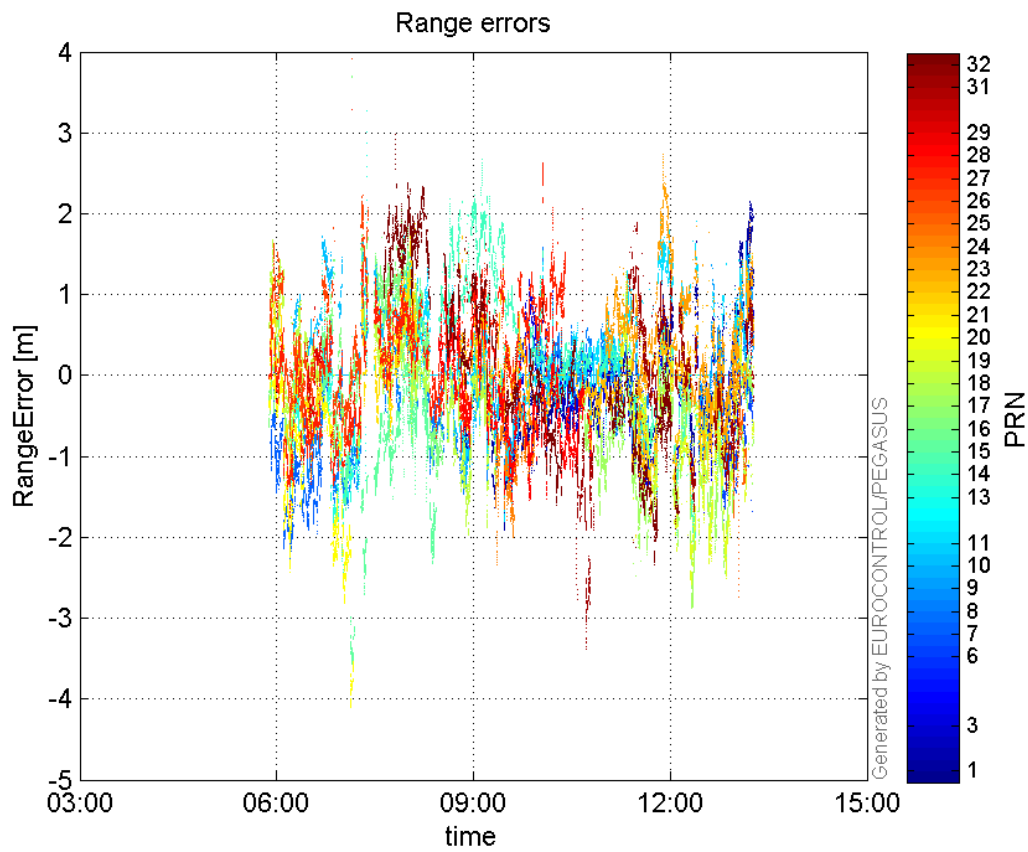
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1923	206924	1	1.00482	-1.82578	1.81702
1923	215302	3	1.16021	-1.91324	1.64905
1923	218952	6	0.84186	-2.03542	2.41776
1923	195147	7	0.85555	-2.32477	2.71728
1923	209023	8	1.09727	1.55713	1.4191
1923	220179	9	0.844295	1.6517	1.9563
1923	196877	10	1.10982	1.72889	1.55781
1923	215507	11	1.28309	1.97094	1.53608
1923	198027	13	0.316079	-2.60489	8.24124
1923	205648	14	1.1298	2.68061	2.37265
1923	199265	15	0.478747	-2.46262	5.14389
1923	198502	16	1.50593	3.70159	2.45801
1923	217198	17	1.60119	-2.87639	1.7964
1923	194566	18	0.882203	1.4313	1.62242
1923	217153	19	1.33224	-2.58071	1.93712
1923	195118	20	0.848009	-2.23764	2.63869
1923	194772	21	0.857084	-1.21417	1.41663
1923	214123	22	1.46991	-1.97354	1.34262
1923	215757	23	1.43417	2.46489	1.71869

1923	208229	24	0.29328	-1.37999	4.70538
1923	219779	25	0.689637	-2.74241	3.97659
1923	198502	26	1.18794	3.9117	3.29285
1923	198502	27	1.6926	3.28796	1.94254
1923	208265	28	0.685956	-1.53608	2.23933
1923	196302	29	0.0607614	-0.655144	10.7822
1923	219078	31	0.40907	-1.4221	3.47643
1923	202396	32	1.0827	2.25963	2.08703

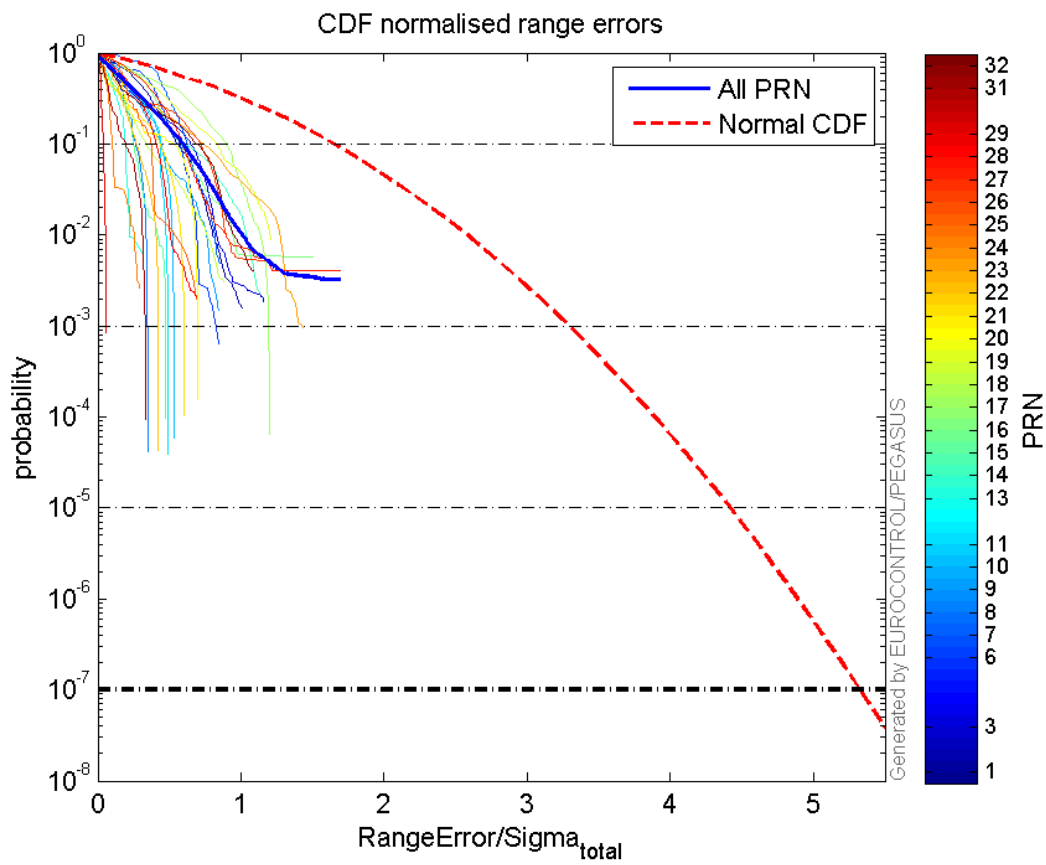
Normalised Range errors (median):



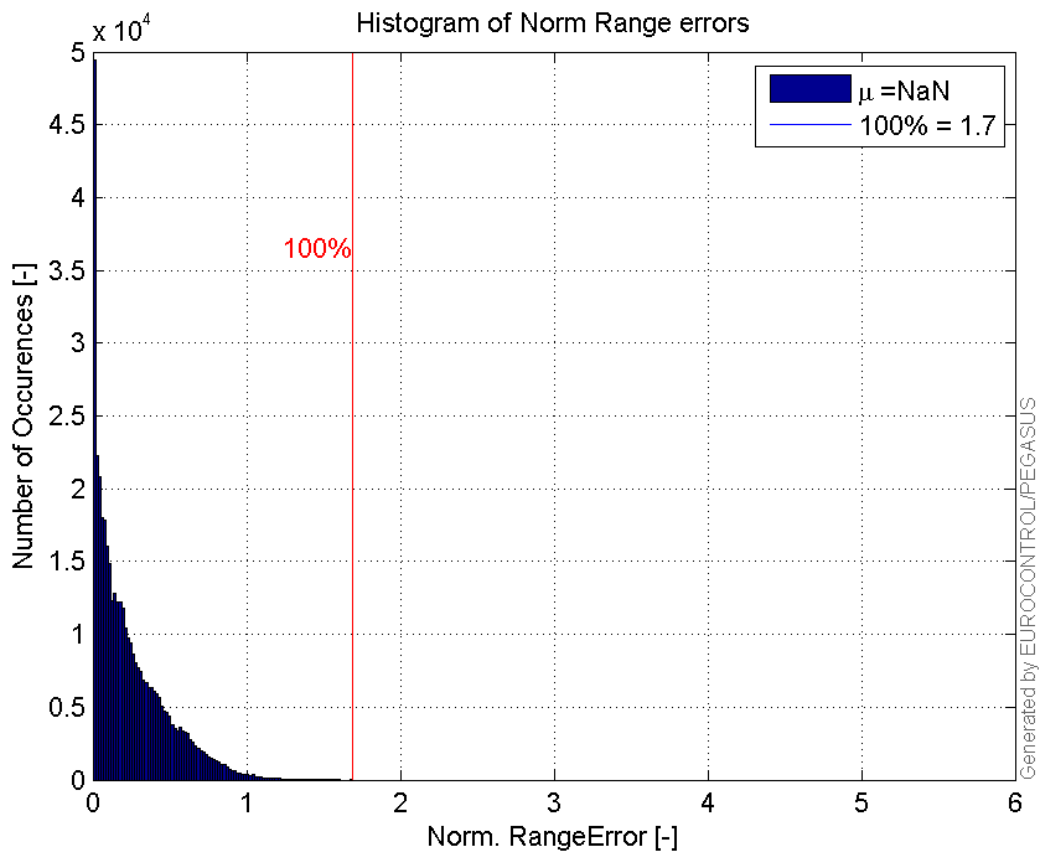
Range errors:



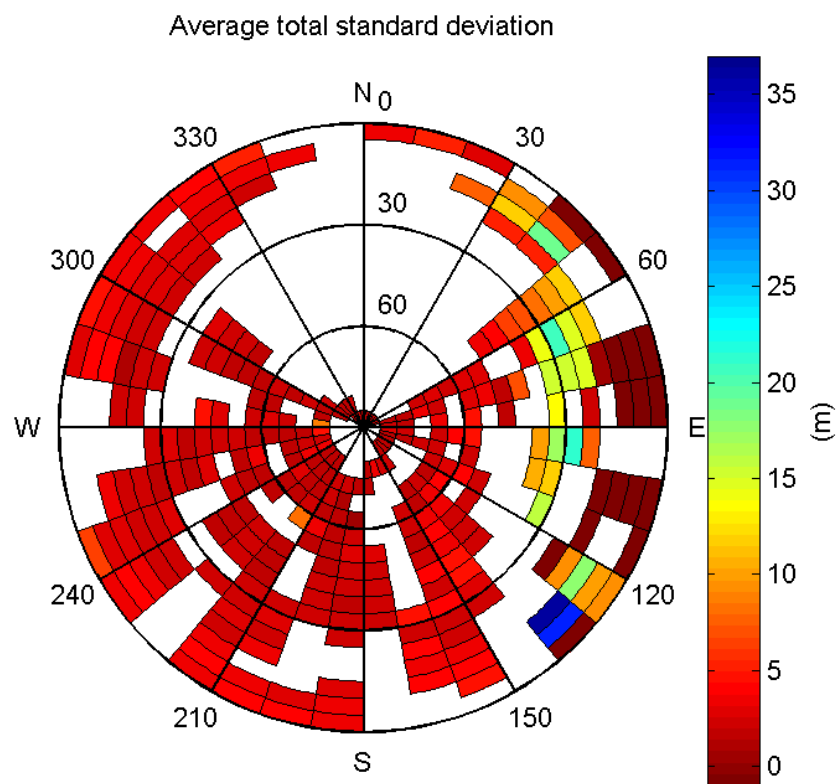
CDF normalised range errors:



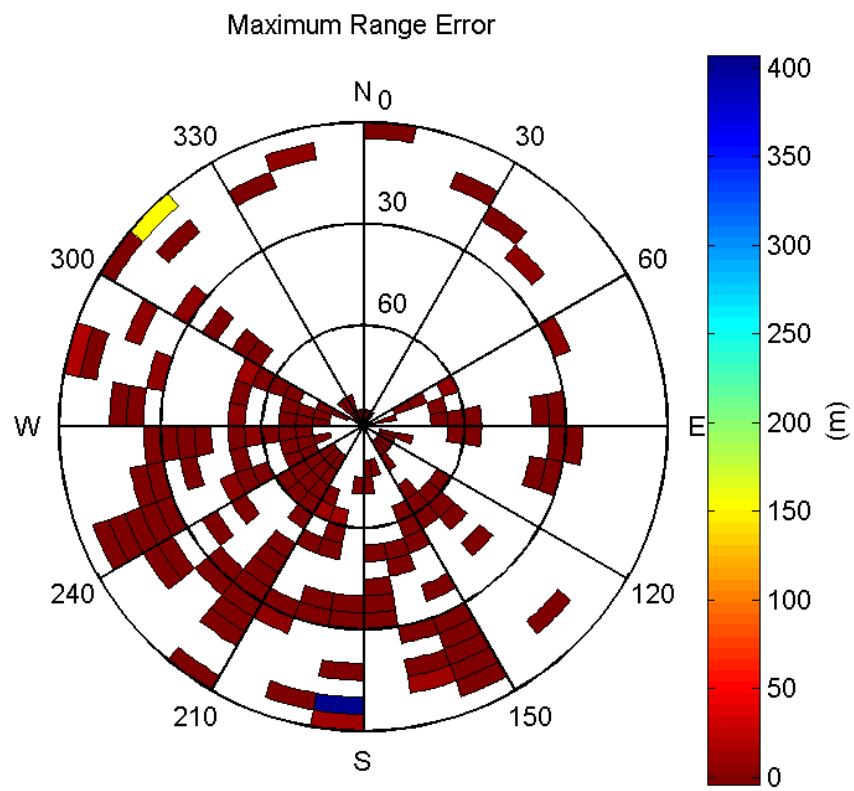
Histogram of Norm Range errors:



Sigma Sky Plot:

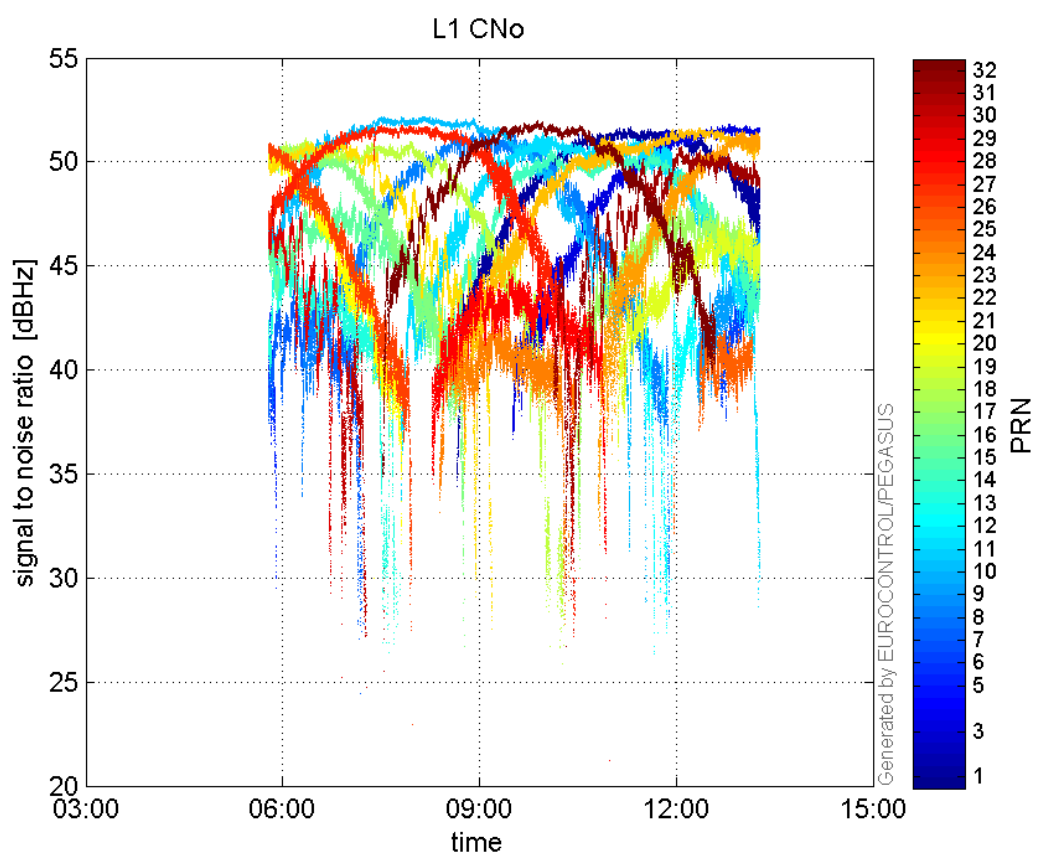


Norm Error Sky Plot:

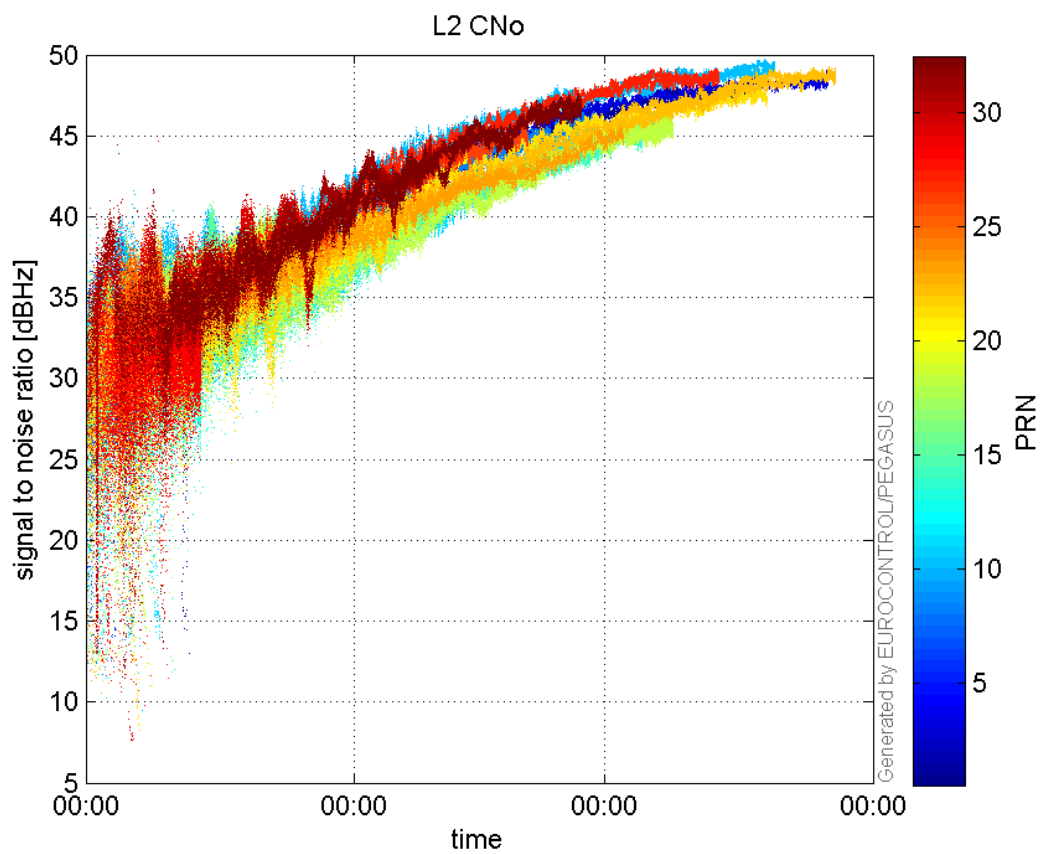


signal quality

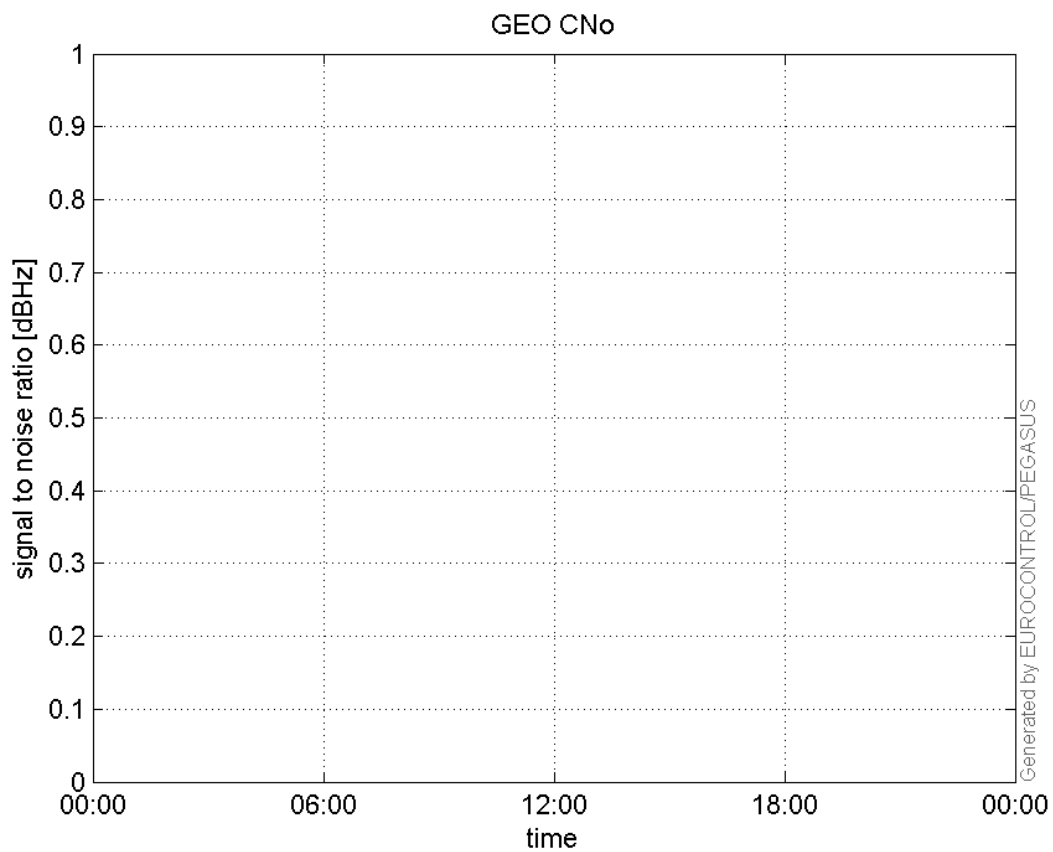
L1 CNo:



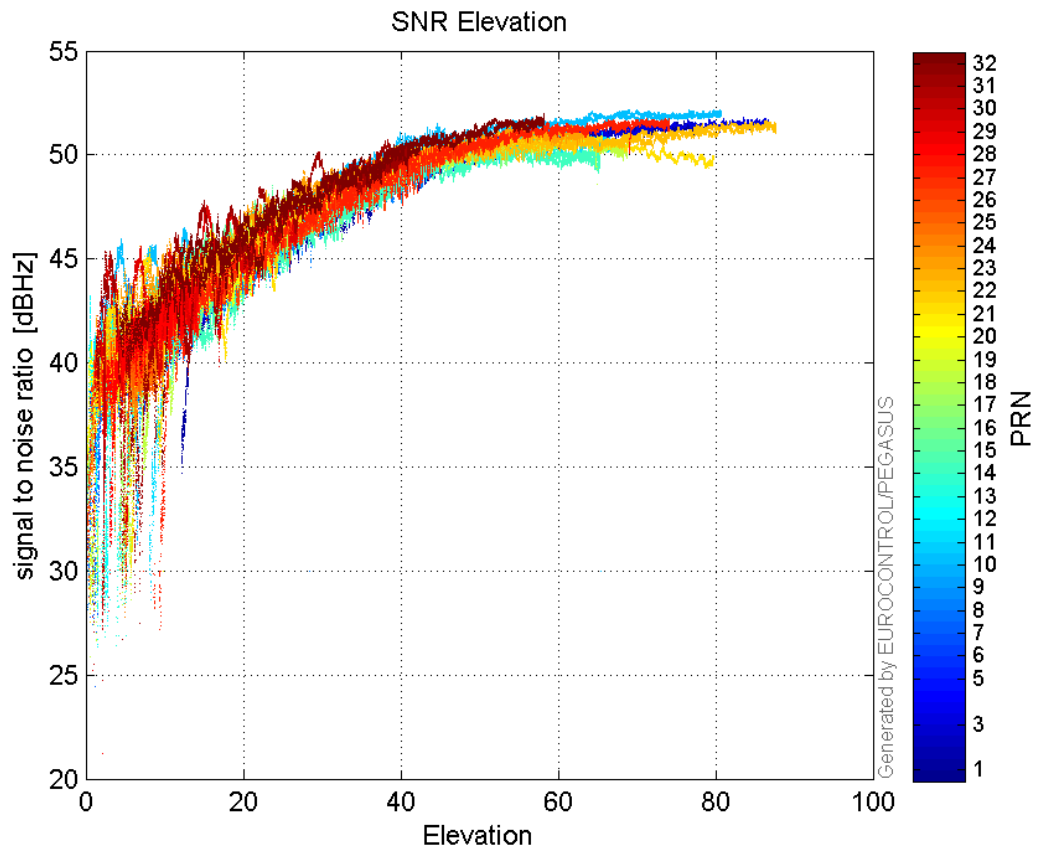
L2 CNo:



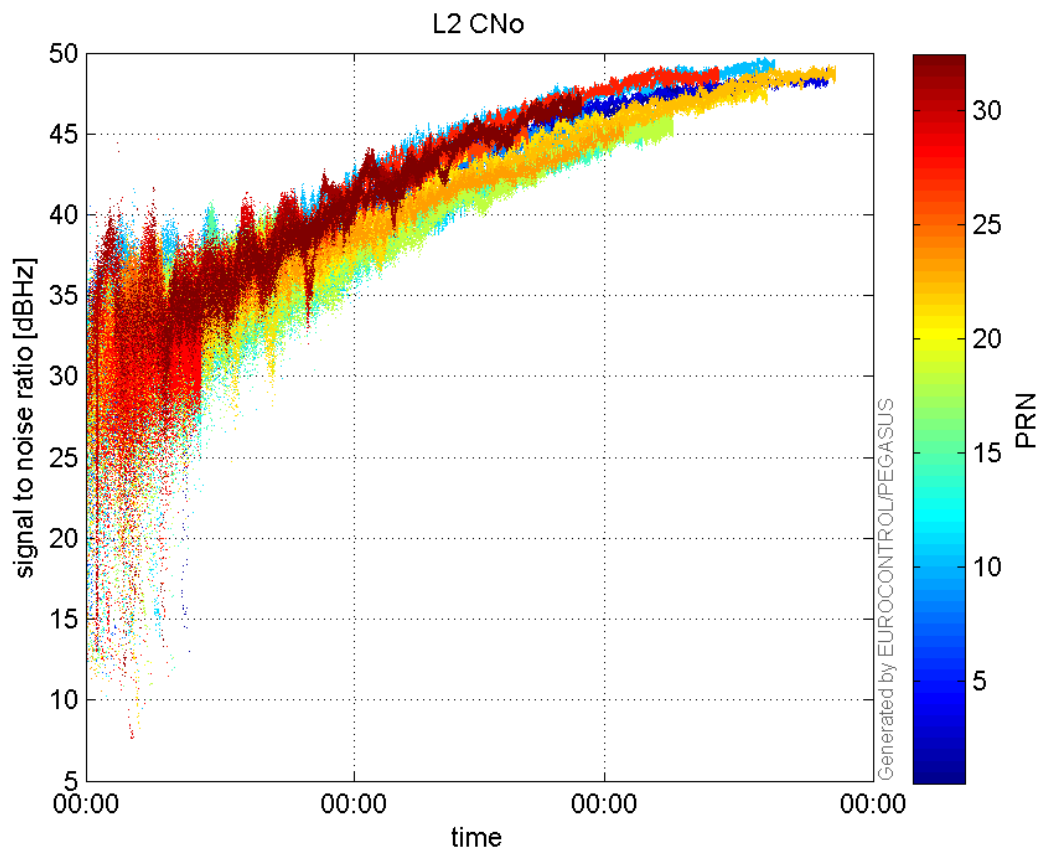
GEO CNo:



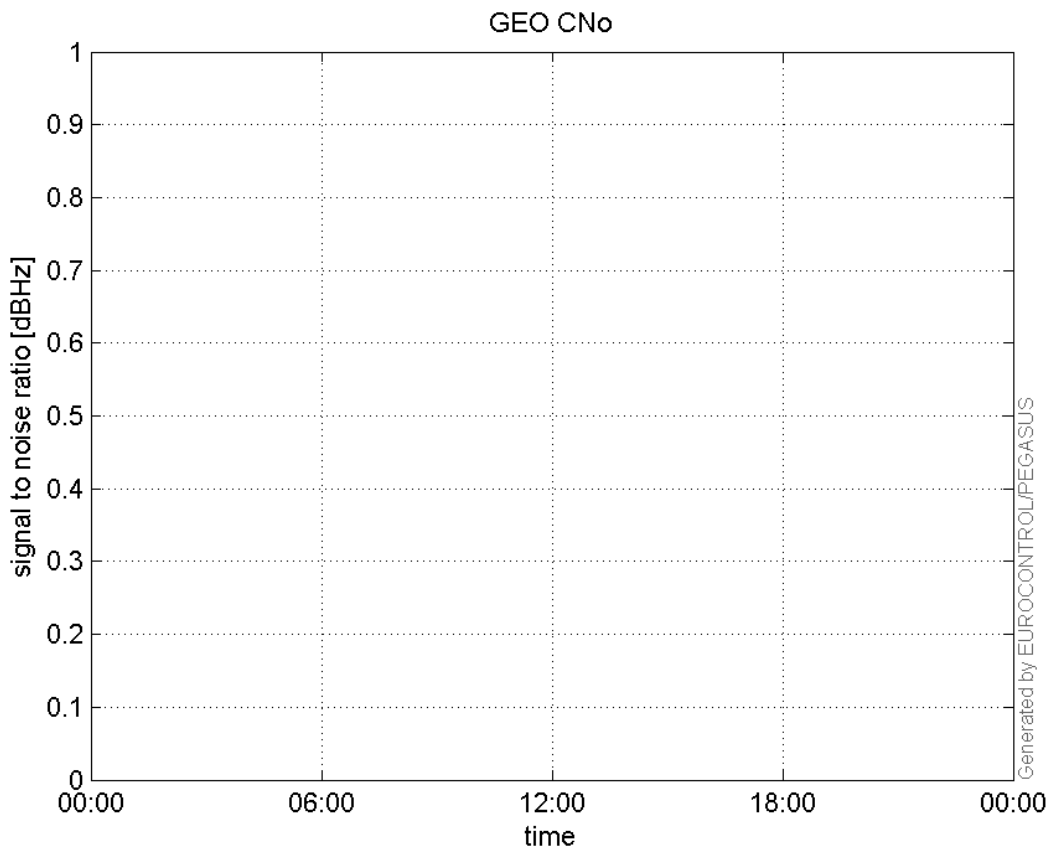
SNR Elevation:



L2 CNo:

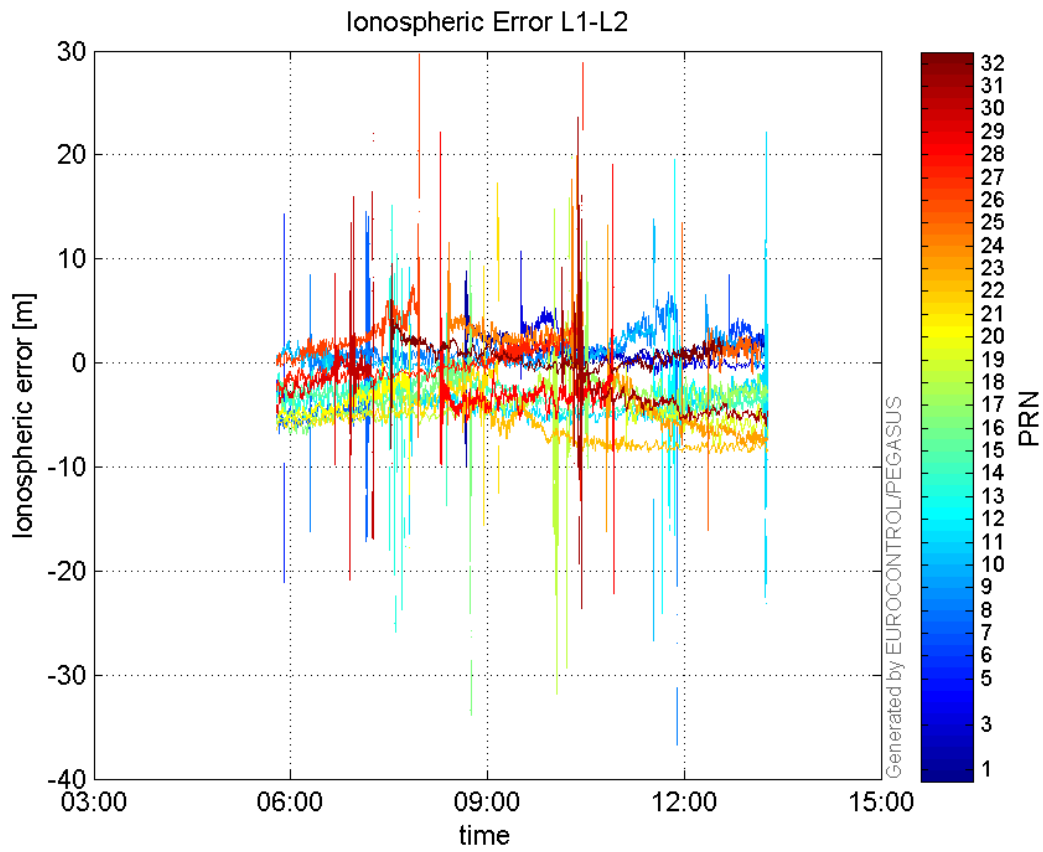


GEO CNo:



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/2016_11_15EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateJob/job/2016_11_15EGNOS/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	30.4298
init_alt	results	236.2955
mi_numbers	results	0