

Global View

country Ukraine
 program Pegasus
 city Kiev
 comment Konin V., Shyshkov F. InsideGNSS, Jan-Feb 2015,
 P.50 - 54
 abbreviation NAU
 site Laboratory satellite systems
 version 4.8.2
 date 07/12/2015

SBAS Messages

start: 07:14:27.129 07.12.2015 (week: 1874 sec: 112467.129)
end: 13:46:40.129 07.12.2015 (week: 1874 sec: 136000.129)
duration: 06:32:13 ..

quality

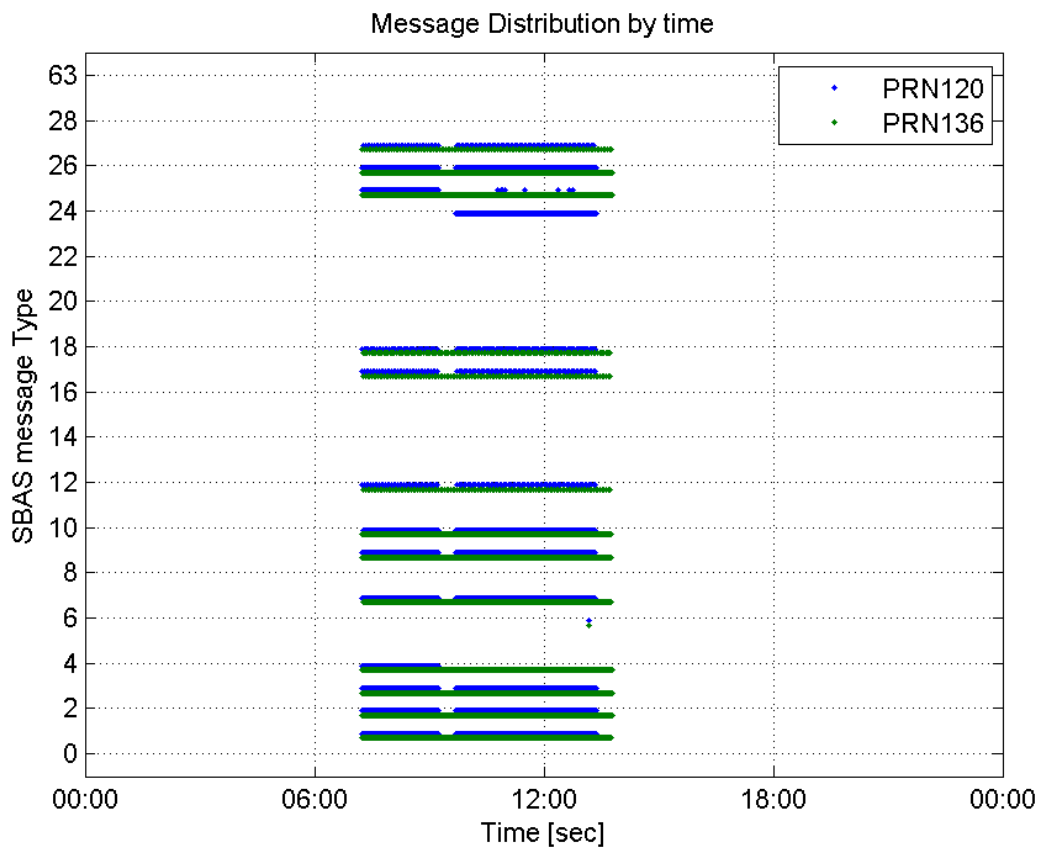
valid samples 43997
total samples 43997
number of SBAS PRNs 2

SBAS SIS Overview

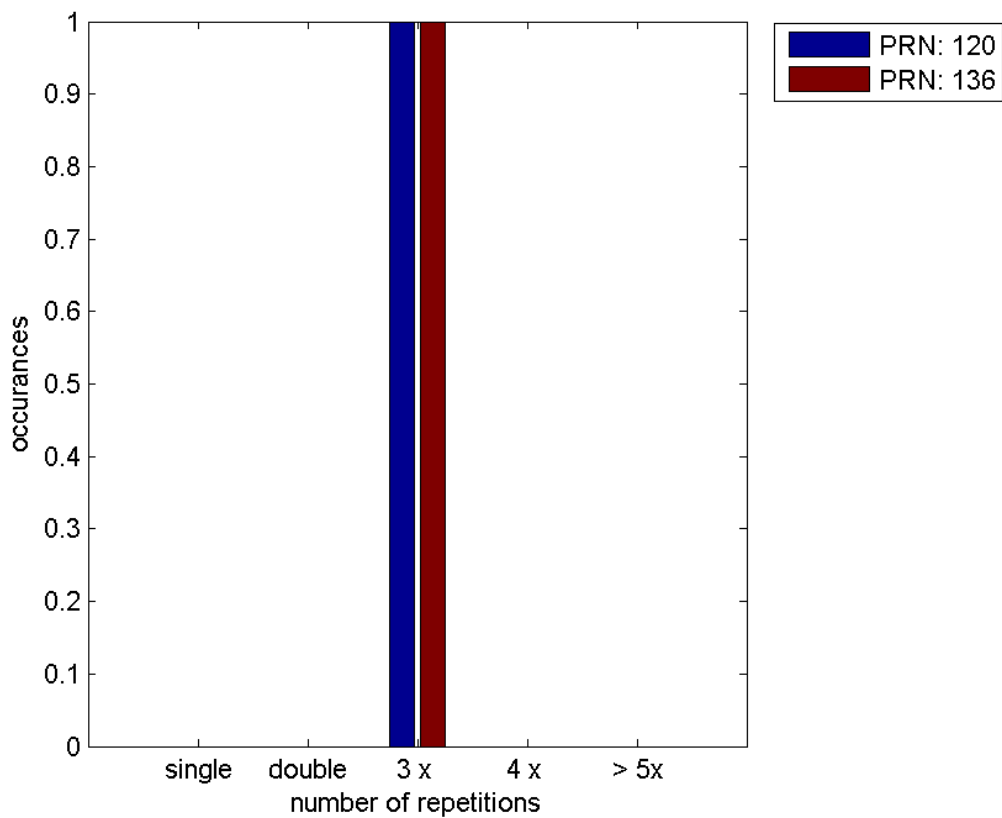
Message Type 6 repetitions :

	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 :

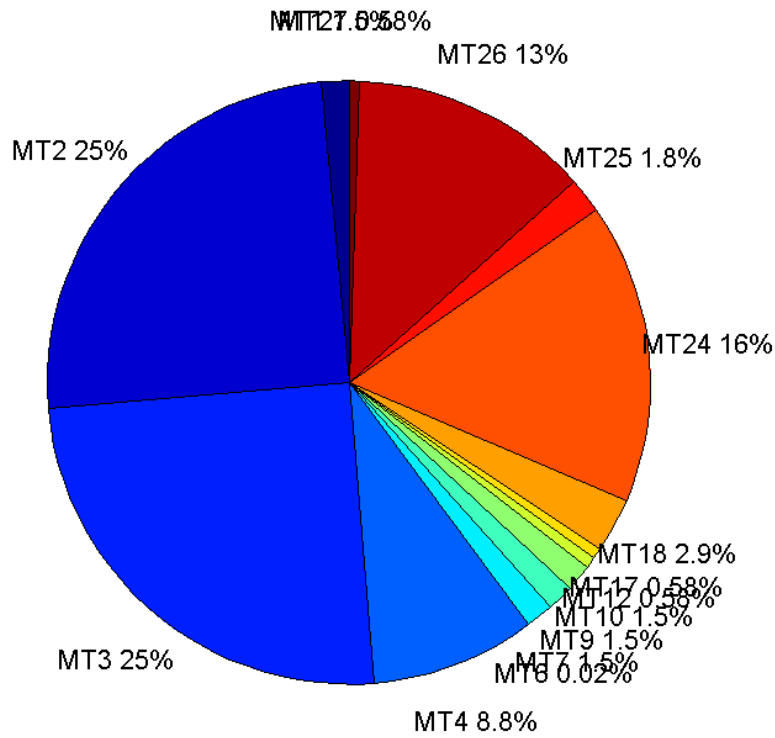
	number of messages	%
MT 0	0	0
MT 1	297	1.4514
MT 2	5105	24.9475
MT 3	5105	24.9475
MT 4	1803	8.81102
MT 5	0	0
MT 6	4	0.0195475
MT 7	297	1.4514
MT 9	297	1.4514
MT 10	297	1.4514
MT 12	119	0.581537
MT 17	119	0.581537
MT 18	593	2.89791
MT 24	3302	16.1364
MT 25	378	1.84724
MT 26	2628	12.8427
MT 27	119	0.581537
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	20463	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	64	1683	74.3108	1	1	1
MT 2	4	1577	4.31661	2	1	1
MT 3	4	1576	4.31661	2	1	1
MT 4	4	5	4.02053	0	0	0
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	64	1607	74.1351	1	1	1
MT 9	64	1611	74.0946	0	0	0
MT 10	64	1587	74.1081	1	1	1
MT 12	152	1871	185.797	118	1	1
MT 17	152	1879	185.831	0	0	0
MT 18	4	1843	37.0676	1	0	0
MT 24	4	7	4.00212	0	0	0
MT 25	4	5520	52.7347	0	0	0
MT						

26	4	1595	8.37609	0	0	0
MT 27	152	1691	184.271	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

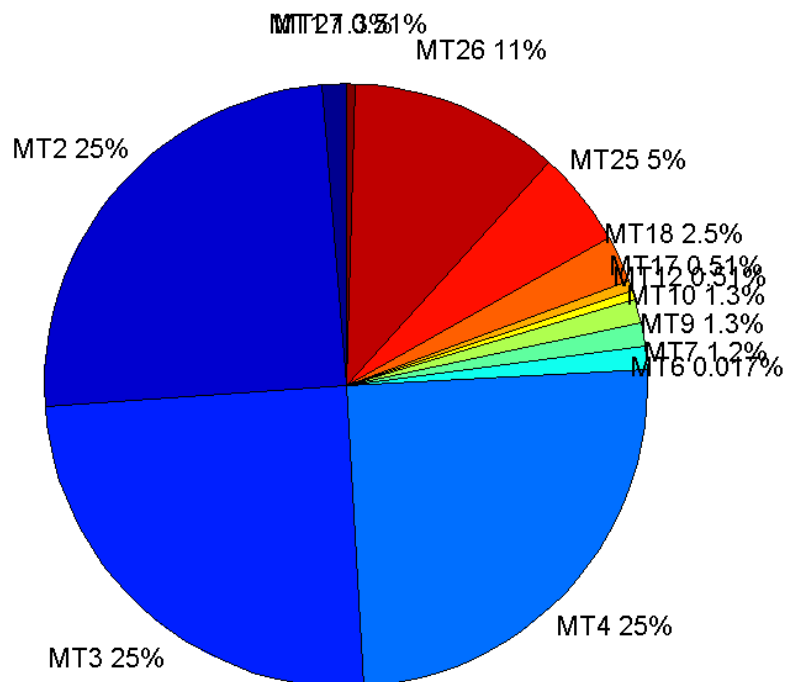
	number of messages	%
MT 0	0	0
MT 1	295	1.25351
MT 2	5850	24.8577
MT 3	5850	24.8577
MT 4	5851	24.8619
MT 5	0	0
MT 6	4	0.0169967
MT 7	294	1.24926
MT 9	295	1.25351

MT 10	295	1.25351
MT 12	120	0.509901
MT 17	120	0.509901
MT 18	600	2.5495
MT 24	0	0
MT 25	1187	5.04377
MT 26	2652	11.2688
MT 27	121	0.51415
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	23534	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	81	79.6871	0	0	0
MT 2	4	8	4.02274	1	0	0
MT 3	4	7	4.02274	1	0	0
MT 4	4	8	4.02274	1	0	0
MT 5	--	--	--	--	--	--
MT 6	1	1	1	0	0	0
MT 7	76	82	79.7952	0	0	0
MT 9	76	82	79.7279	0	0	0
MT 10	76	81	79.7415	0	0	0
MT 12	188	201	195.395	119	0	0
MT 17	188	201	195.429	0	0	0
MT 18	4	170	38.8781	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	54	19.8356	0	0	0
MT 26	4	52	8.87401	0	0	0
MT 27	188	201	195.433	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/2015_12_07EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2015_12_07EGNOS/02_Convertor/02_Convertor

Configuration

Name	Section	Value
Receiver	Configuration	Novatel OEM4
Leap_Seconds	Configuration	17
Correction_mode	Configuration	SBAS MODE 0
Dual_Frequency	Configuration	no

Position Domain

start: 07:14:27 07.12.2015 (week: 1874 sec: 112467)
end: 13:46:41 07.12.2015 (week: 1874 sec: 136001)
duration: 06:32:15 ..

quality

valid samples 23171
total samples 23535

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 nothing

extremes :

	Epoch	HPE	HPL	HPE/HPL	VPE	VPL	VPE/VPL
max normHor	116853	1.45725	10.0106	0.145571	2.57586	16.6099	0.15508
max normVer	117051	1.39498	9.90322	0.140861	2.92843	17.5544	0.166821
max HPE	115738	4.9826	75.2619	0.0662034	-1.08681	52.2789	0.0207886
max VPE	115593	1.93246	80.5803	0.0239818	4.43069	54.6129	0.0811291
min HPL	118133	0.598849	8.96956	0.0667646	1.13944	21.7522	0.0523829
min VPL	124828	1.14805	11.1501	0.102963	0.182995	12.1771	0.0150278

Position discontinuity events :

#	Epoch	duration	stable period
1	114988	103	2157
2	119725	1689	4634

APV-I discontinuity events :

#	Epoch	duration	stable period
1	114939	152	2108
2	115136	2	45
3	115140	2	2
4	115143	3	1
5	115147	202	1
6	115475	296	126
7	119723	1691	3952

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	114939	152	2108
2	115147	202	1
3	115475	296	126
4	119574	1840	3803
5	128429	1615	3
6	130083	25	1

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	114939	152	2108
2	115147	202	1
3	115475	296	126

4	119574	1840	3803
5	128429	1615	3
6	130083	25	1

First Glance analysis

Duration	23535
Number of Samples	23535
Number of invalid sample	364
Number of no position solution samples	3280
Number of missing sample	0
Logging Loss	0
Processing Loss	1.5466
Number of Misleading Information	0
Data gaps	0
Discontinuities	2

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
19891	19335	17498	0	17498

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	2.03435	1.99627	1.8295	NaN	1.8295
HPEscale 95%	NaN	4.46581	4.51433	NaN	4.51433
VPE 95%	2.26209	2.26559	2.31047	NaN	2.31047
VPEscale 95%	NaN	5.13693	3.67844	NaN	3.67844

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.858444	0.834448	0.755168	0	0.755168
measurements	0.845167	0.821542	0.743488	0	0.743488
Operational	0.845167	0.821542	0.743488	0	0.743488

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	2	7	37	--	37
Long	2	4	6	--	6
Independent	2	3	3	--	3
P(disc.)	0.00150822	0.00232739	0.00257172	NaN	0.00257172
P(slide)	0.00150822	0.00331006	0.00811521	NaN	0.00811521

Integrity events :

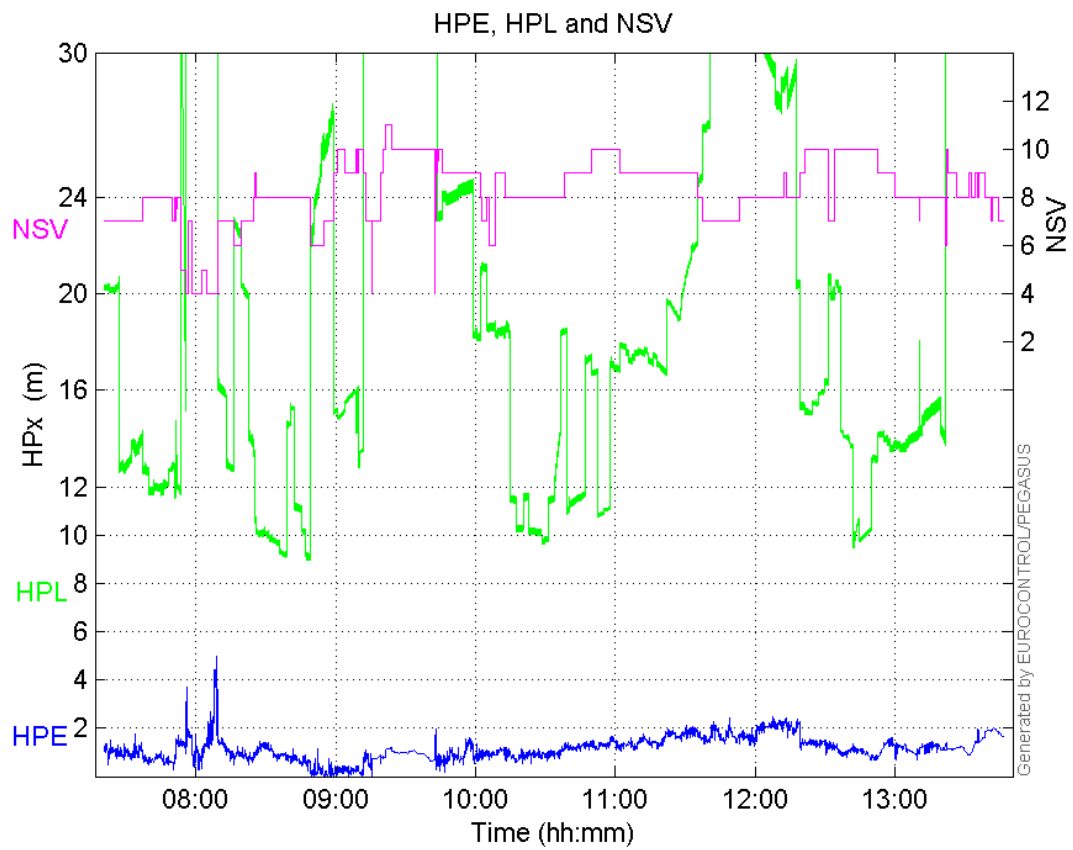
	MI	HMI APV-1	HMI LPV-200	HMI CAT-1	HMI APV-35m
Total	0	0	0	0	0
Horizontal	0	0	0	0	0
Vertical	0	0	0	0	0

Performance Summary :

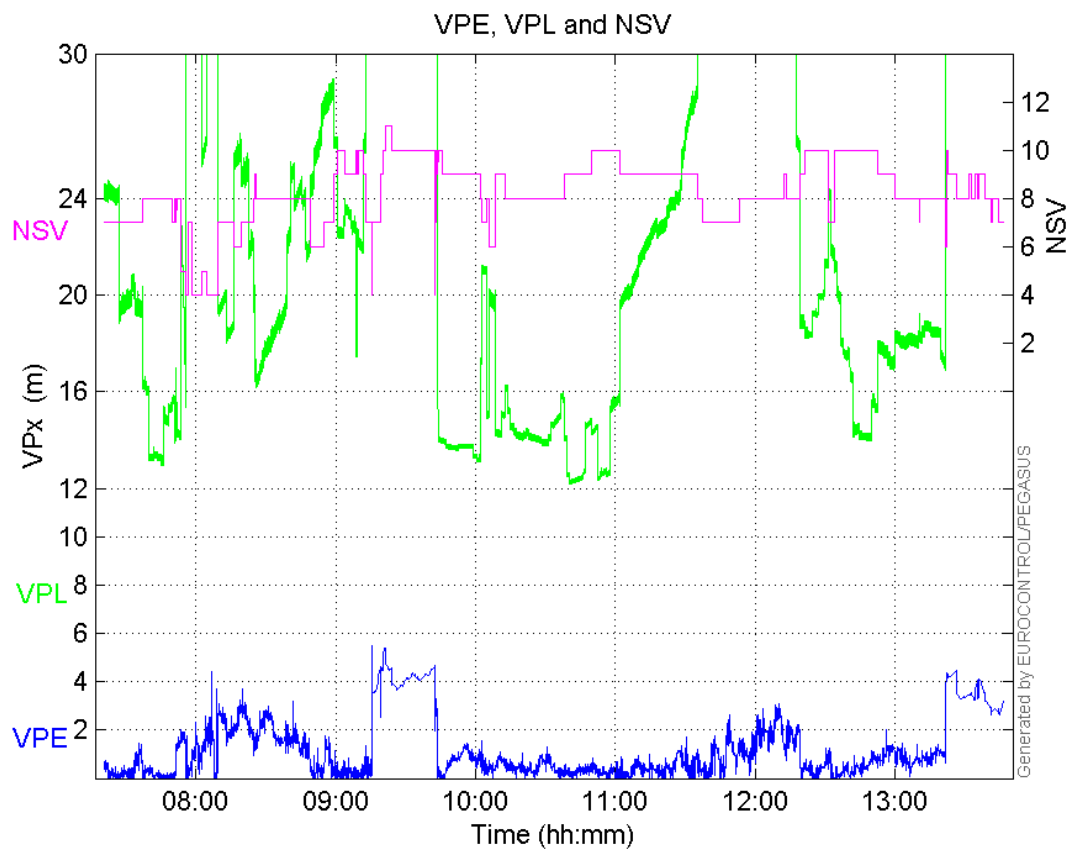
	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	19891	19335	17498	0	17498
SIS Availability	0.858444	0.834448	0.755168	0	0.755168
Local Availability	0.845167	0.821542	0.743488	0	0.743488
Operational Availability	0.845167	0.821542	0.743488	0	0.743488
HPE 95%	2.03435	1.99627	1.8295	NaN	1.8295
HPEScale 95%	NaN	4.46581	4.51433	NaN	4.51433
VPE 95%	2.26209	2.26559	2.31047	NaN	2.31047
VPEscale 95%	NaN	5.13693	3.67844	NaN	3.67844
All Discontinuity Events	2	7	37	--	37
Long Discontinuity Events	2	4	6	--	6
Independent Discontinuity Events	2	3	3	--	3
P(discontinuity)	0.00150822	0.00232739	0.00257172	NaN	0.00257172
P(sliding window)	0.00150822	0.00331006	0.00811521	NaN	0.00811521
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:

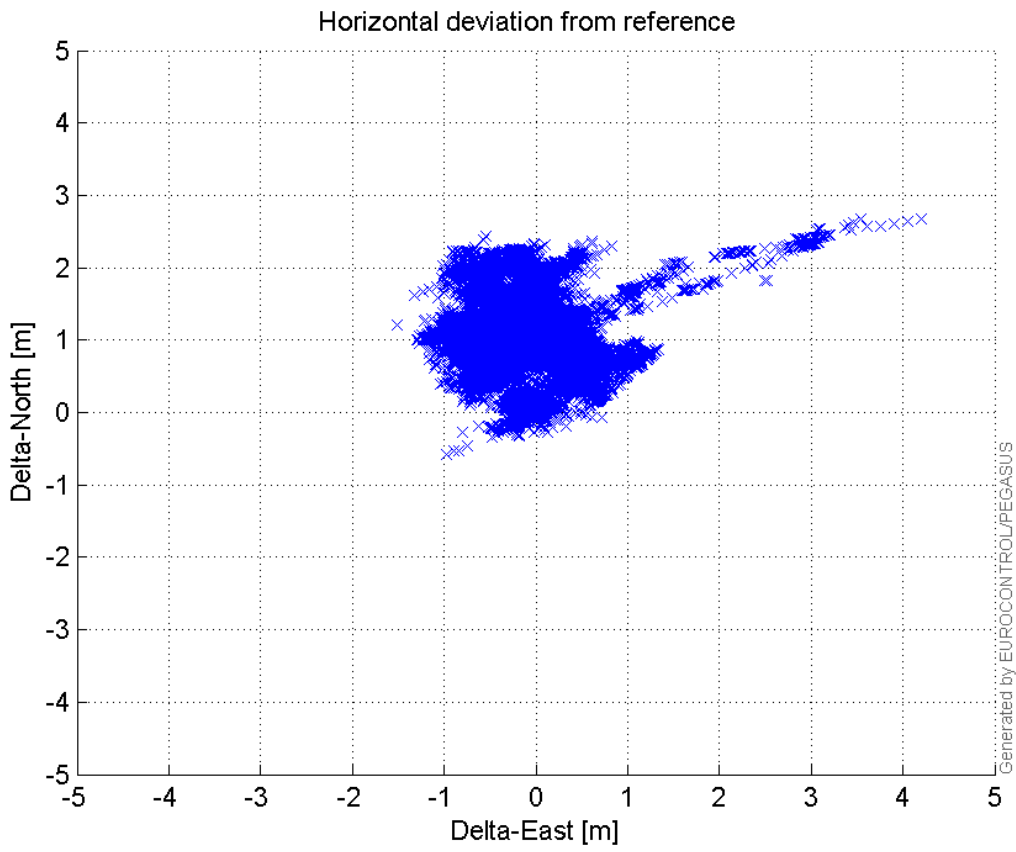


VPE, VPL and NSV:



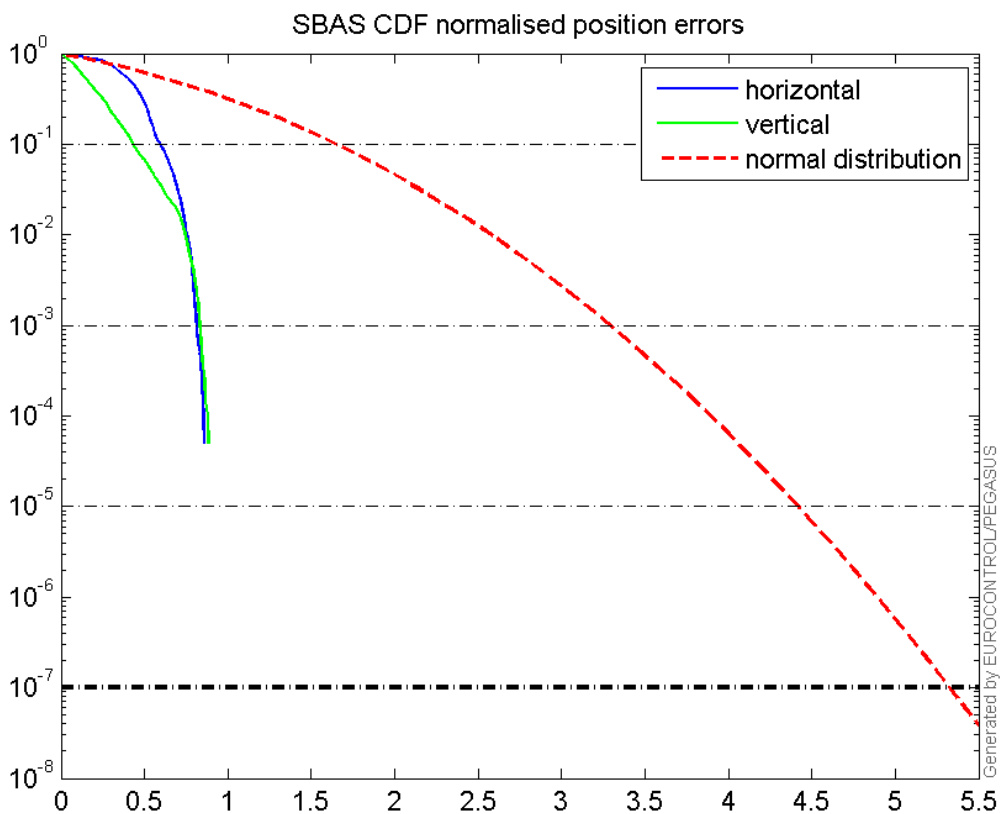
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

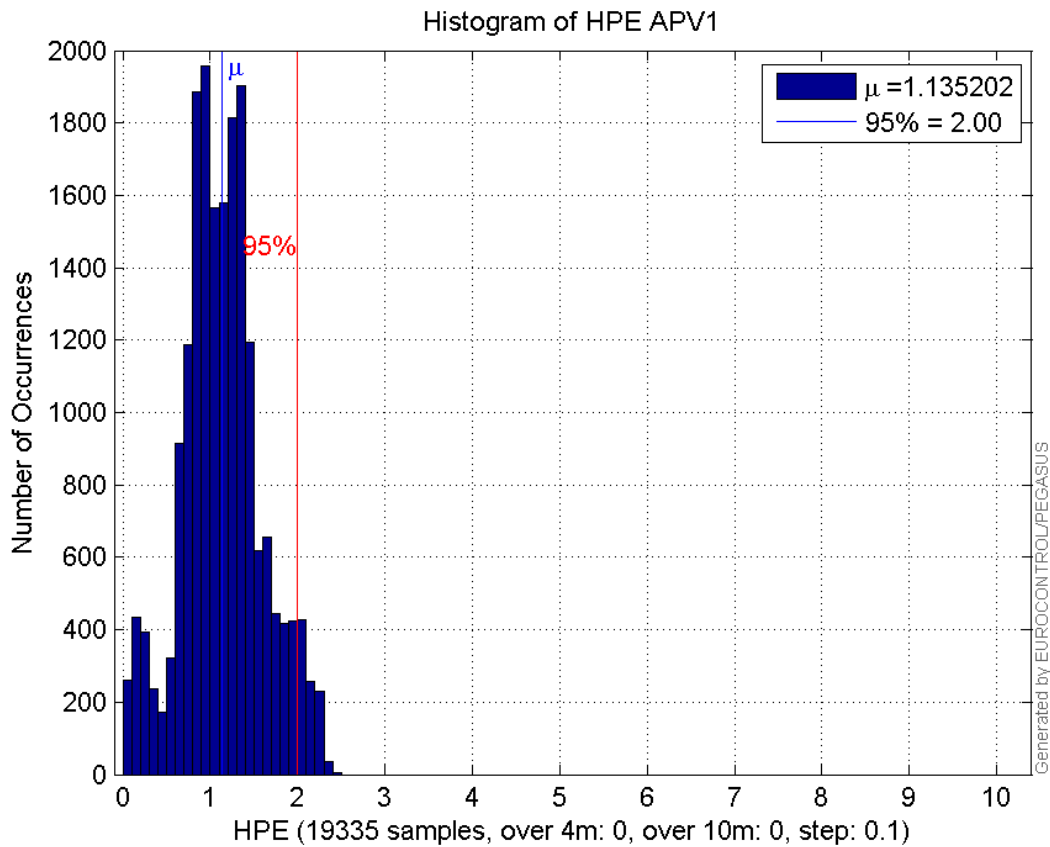
number	19335
sum	21949.131
sum2	29032.343
prctile95	1.9962736
prctile99	2.2233472
number	19335
sum	15521.743
sum2	21709.638
prctile95	2.2655906
prctile99	2.7832267
number	19335
sum	351941.85
sum2	7394580.7
prctile95	34.27715
prctile99	36.318535
number	19335
sum	412532.87
sum2	9929954
prctile95	39.44025
prctile99	41.34656
number	19335
sum	1308.8202
sum2	102.66359
prctile95	0.1116452
prctile99	0.12602123
number	19335
sum	742.27579
sum2	47.763473
prctile95	0.10273853
prctile99	0.13984554
number	17498
sum	18823.943
sum2	23424.234
prctile95	1.829504
prctile99	2.2164905
number	17498
sum	13286.171
sum2	18278.009
prctile95	2.3104656
prctile99	2.800622
number	17498
sum	291291.63
sum2	5381231.9
prctile95	27.59108
prctile99	33.662228
number	17498
sum	340796.08
sum2	7121179.1
prctile95	30.67508

prctile99 34.040552
number 17498
sum 1213.1816
sum2 97.342935
prctile95 0.11285823
prctile99 0.1268565
number 17498
sum 684.35841
sum2 45.428224
prctile95 0.10509842
prctile99 0.14090045

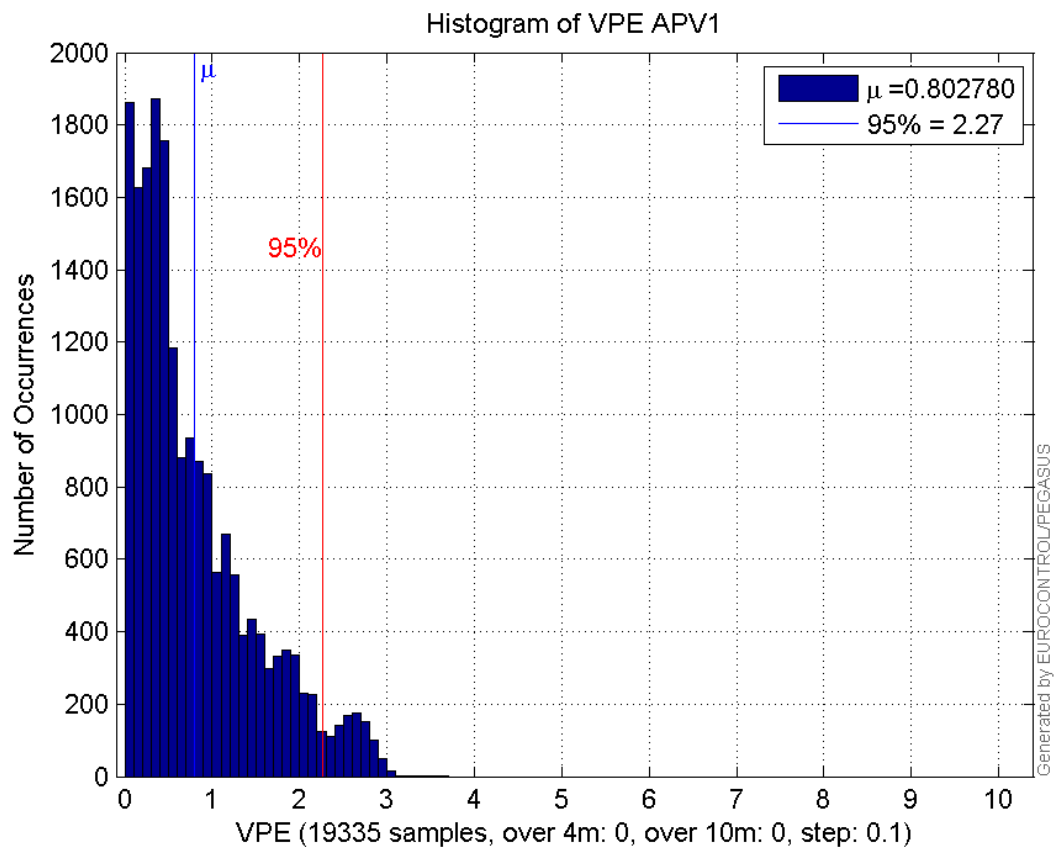
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.1352	0.461379	1.11891	1.99627	2.22335	1.22537
HPL	18.2023	7.15007	16.0845	34.2772	36.3185	19.5562
VPE	0.80278	0.691654	0.569687	2.26559	2.78323	1.05963
VPL	21.3361	7.63867	19.2728	39.4402	41.3466	22.6622

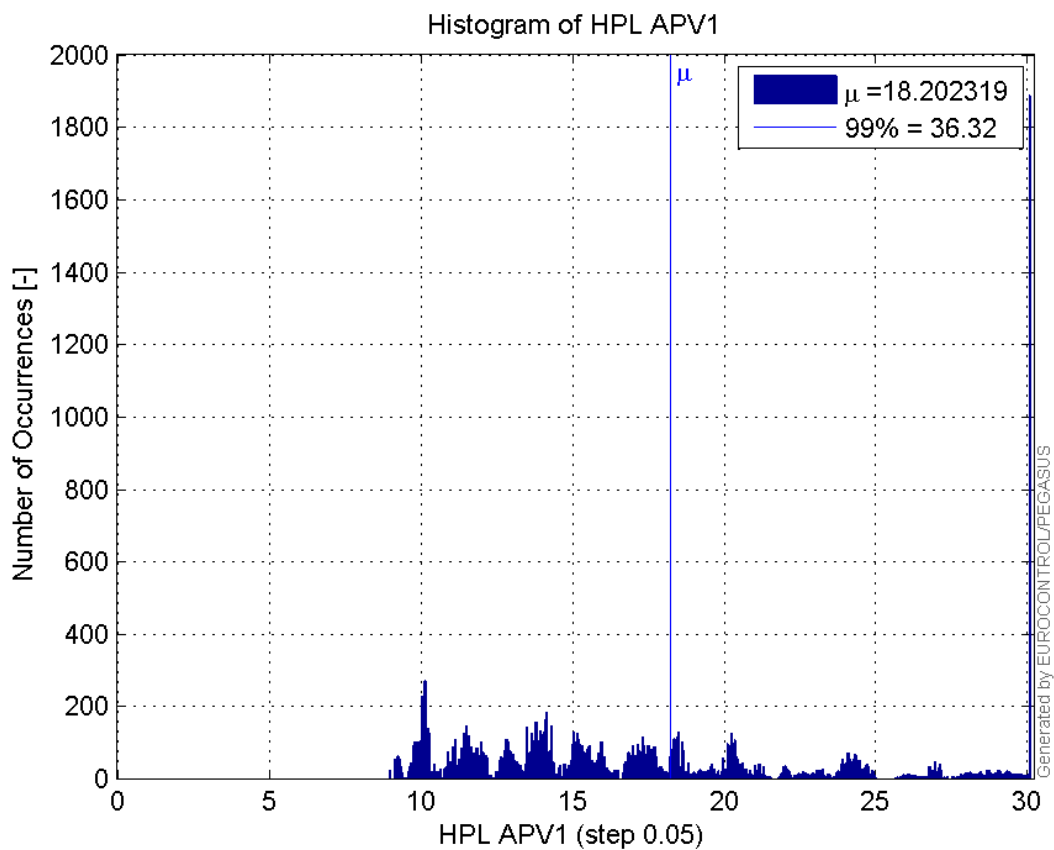
Histogram of HPE APV1:



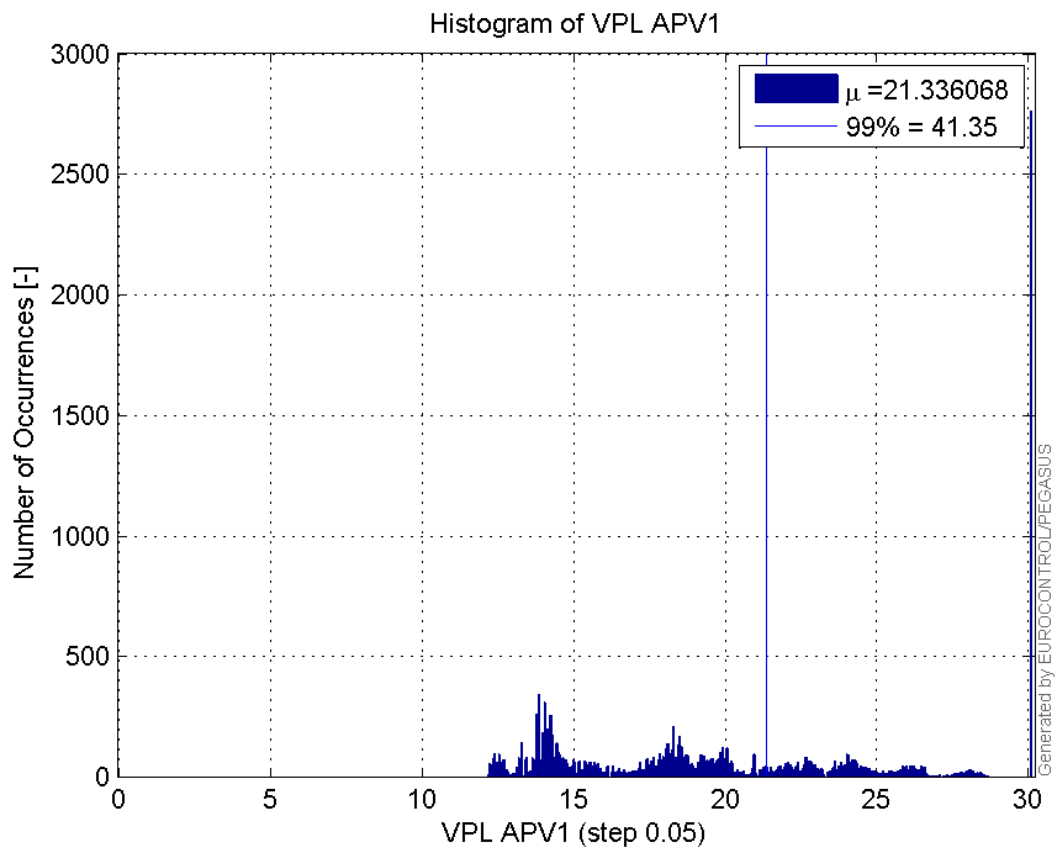
Histogram of VPE APV1:



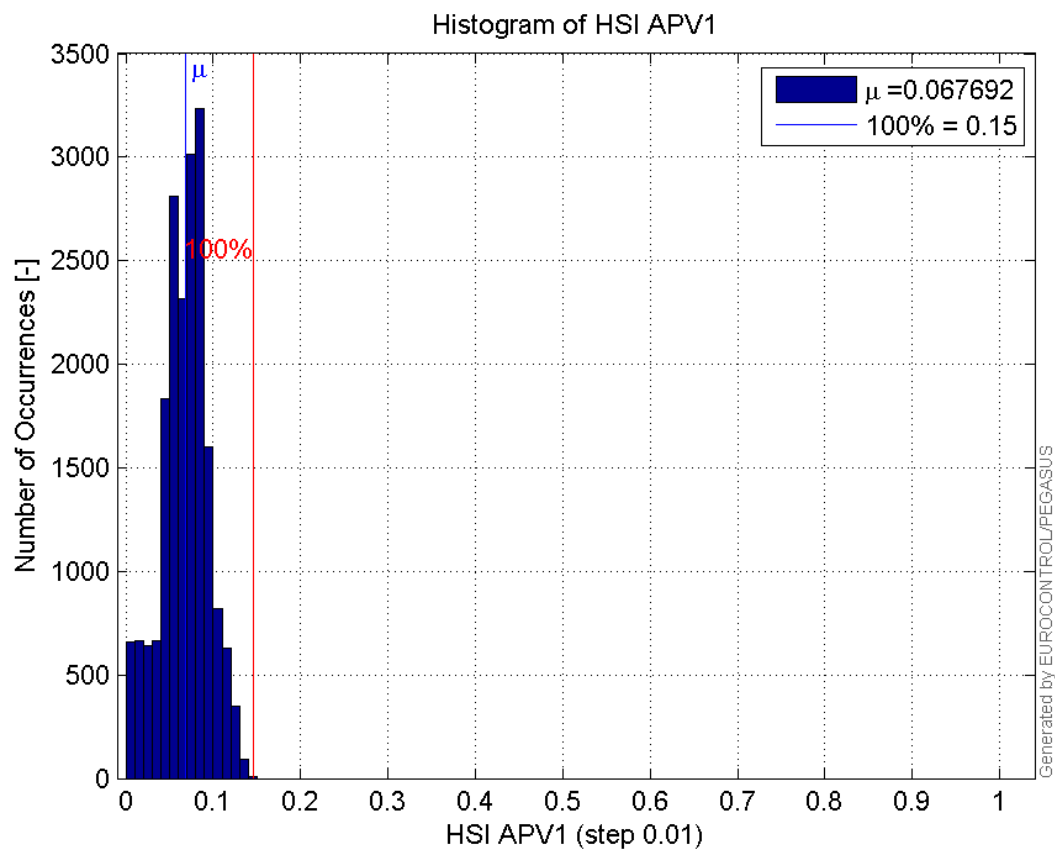
Histogram of HPL APV1:



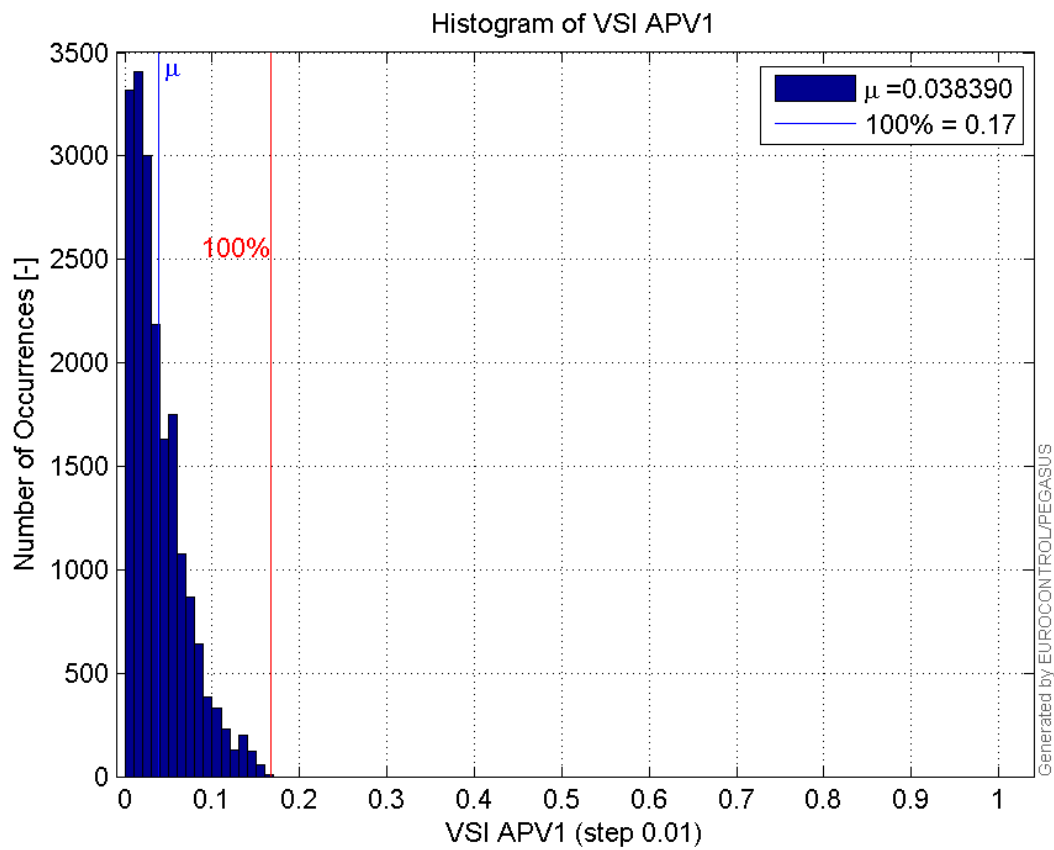
Histogram of VPL APV1:



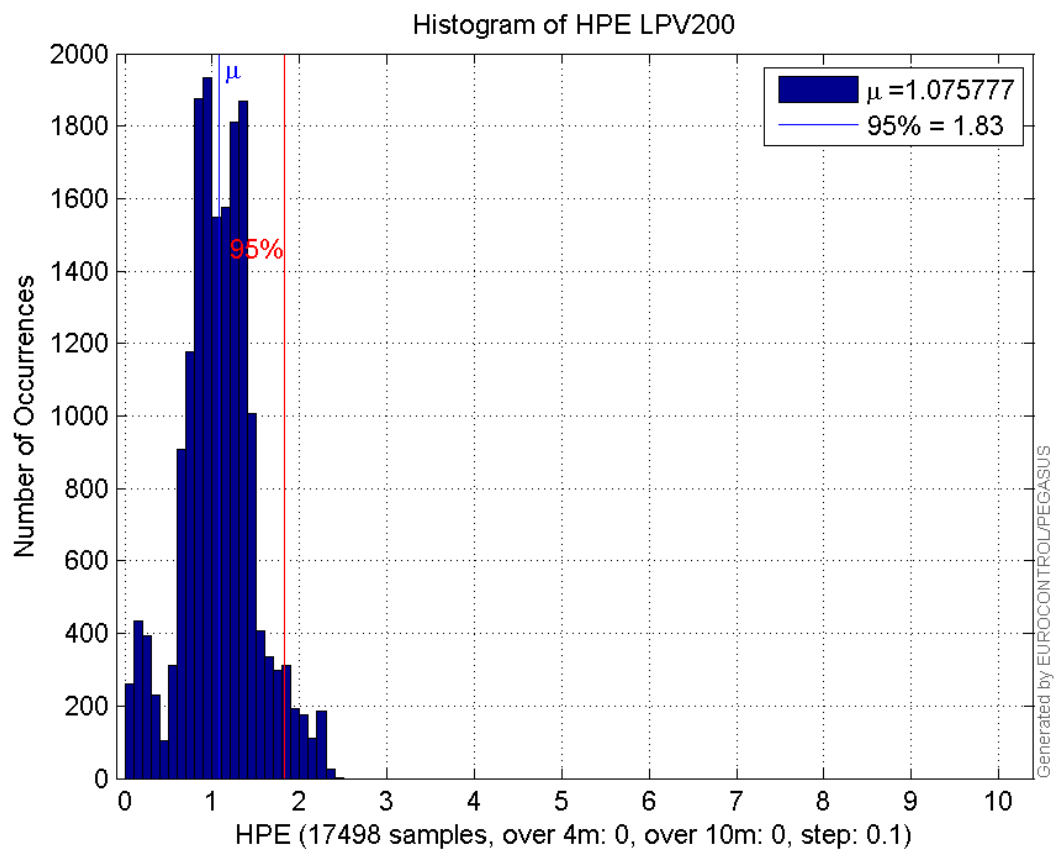
Histogram of HSI APV1:



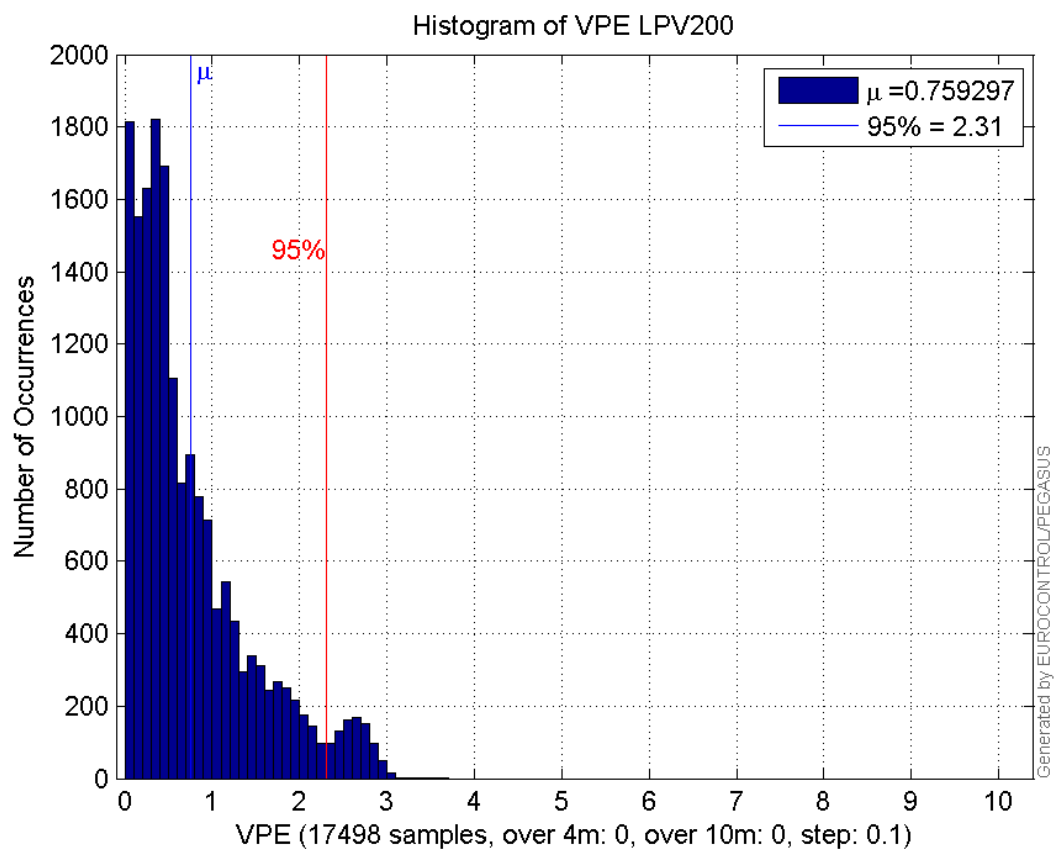
Histogram of VSI APV1:



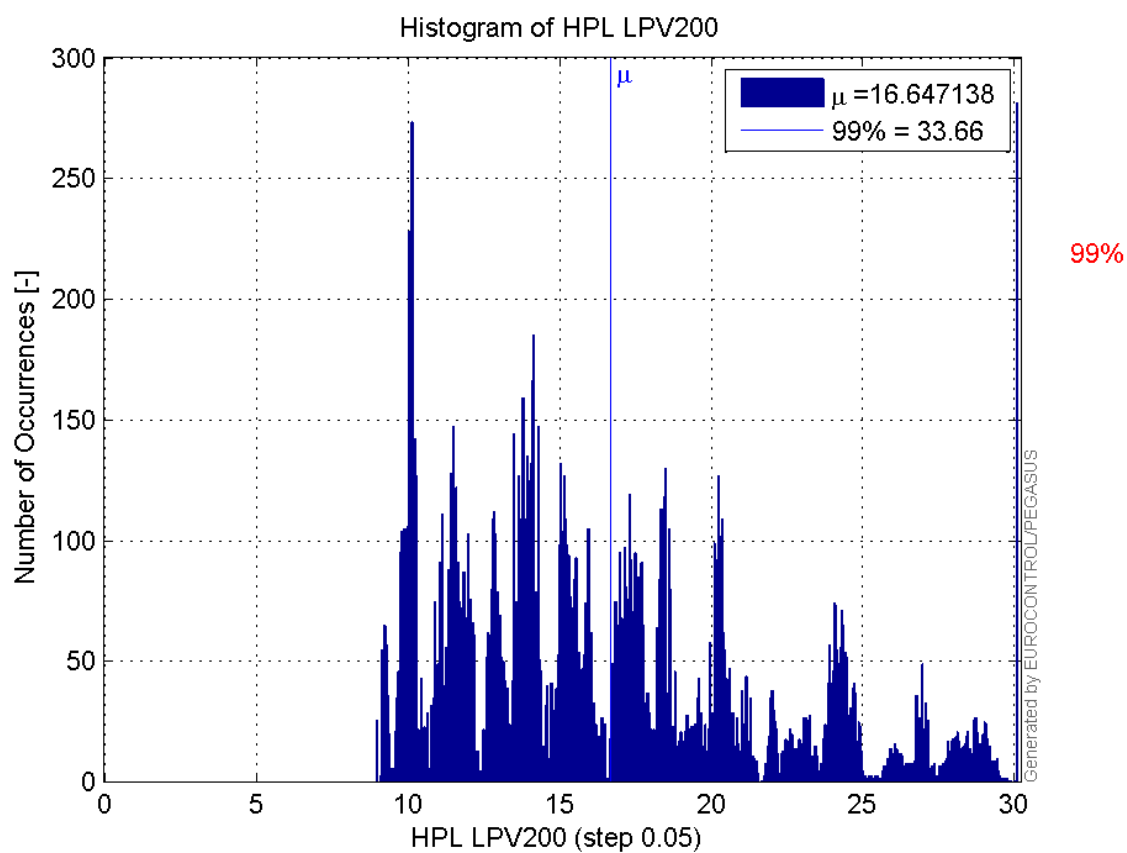
Histogram of HPE LPV200:



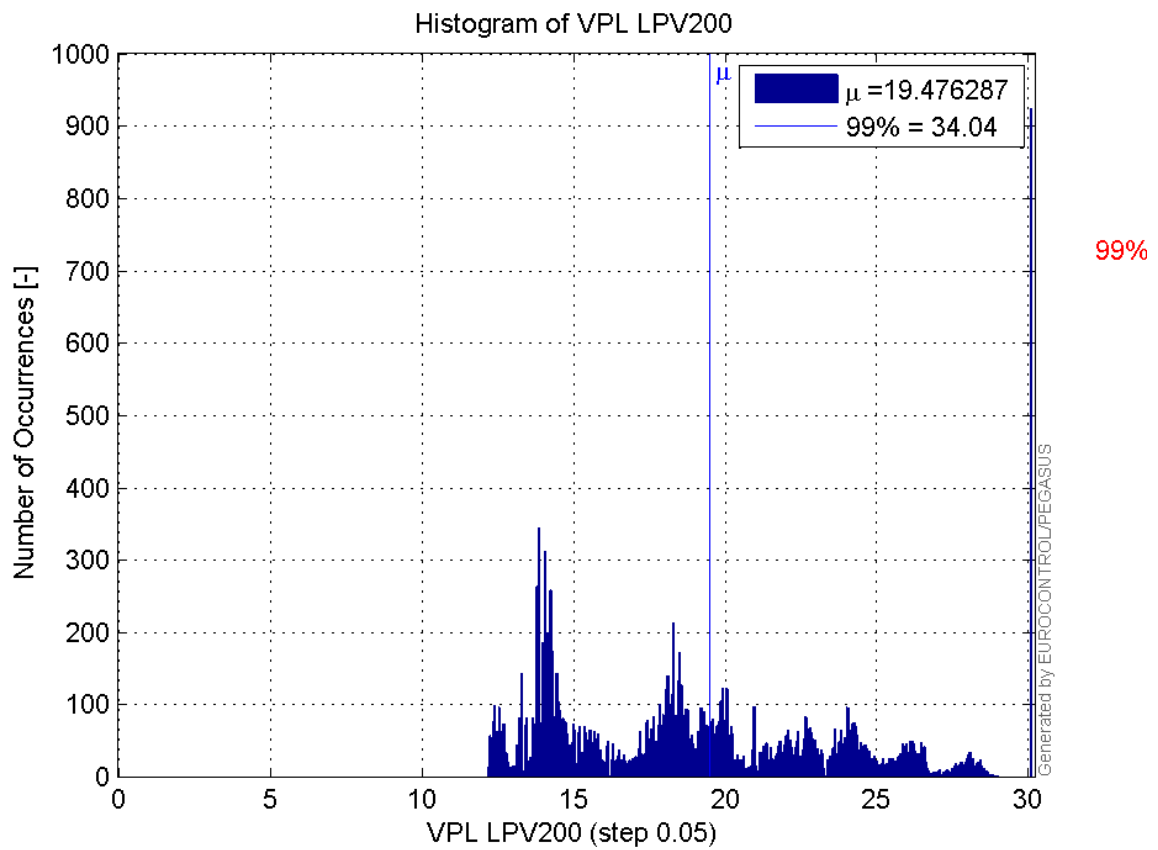
Histogram of VPE LPV200:



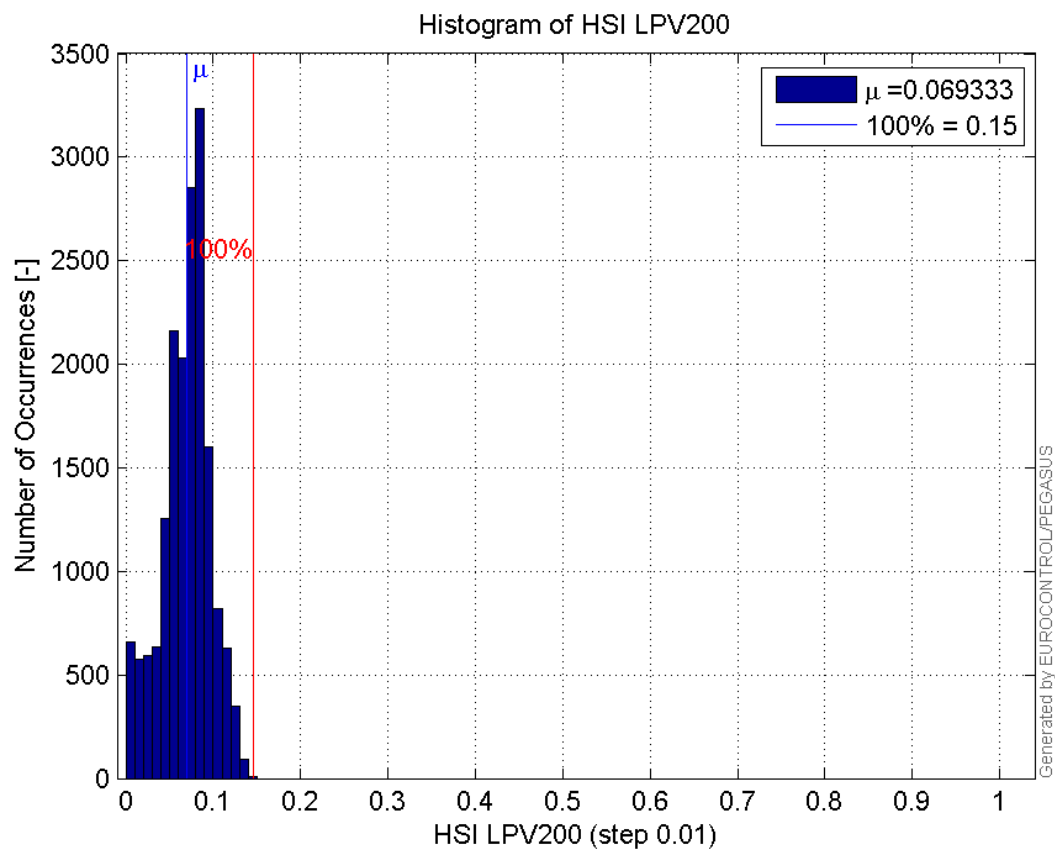
Histogram of HPL LPV200:



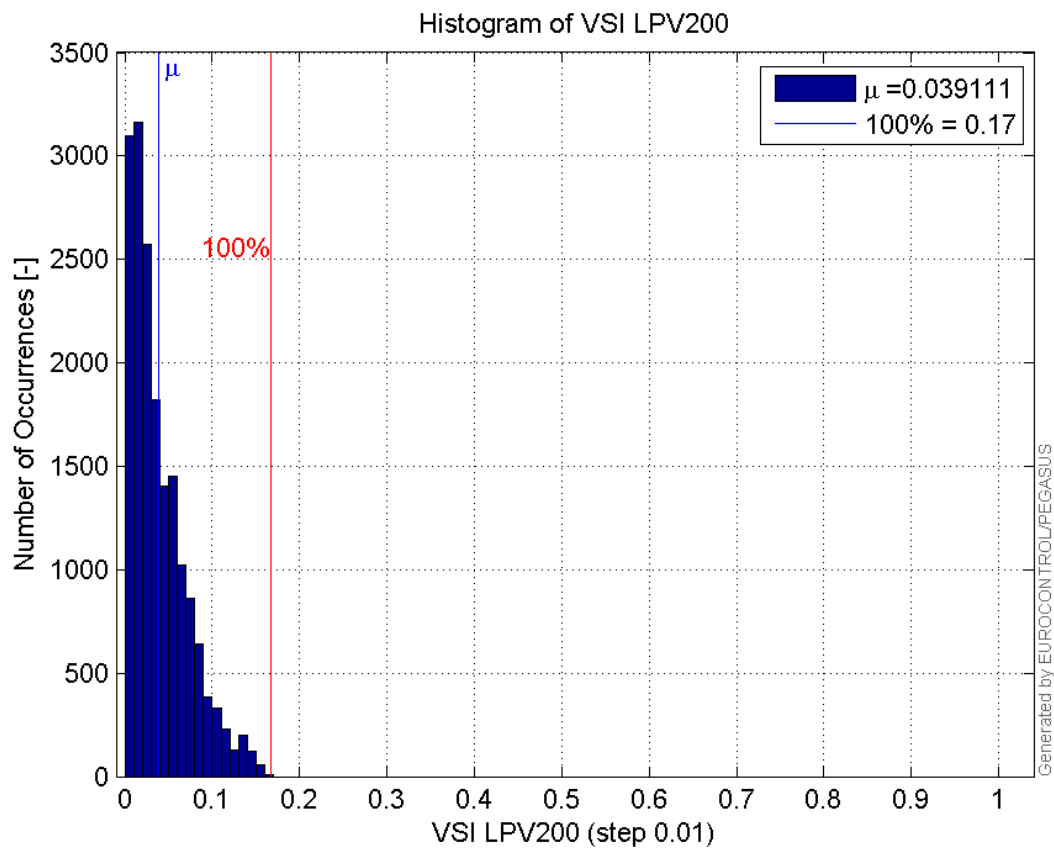
Histogram of VPL LPV200:



Histogram of HSI LPV200:

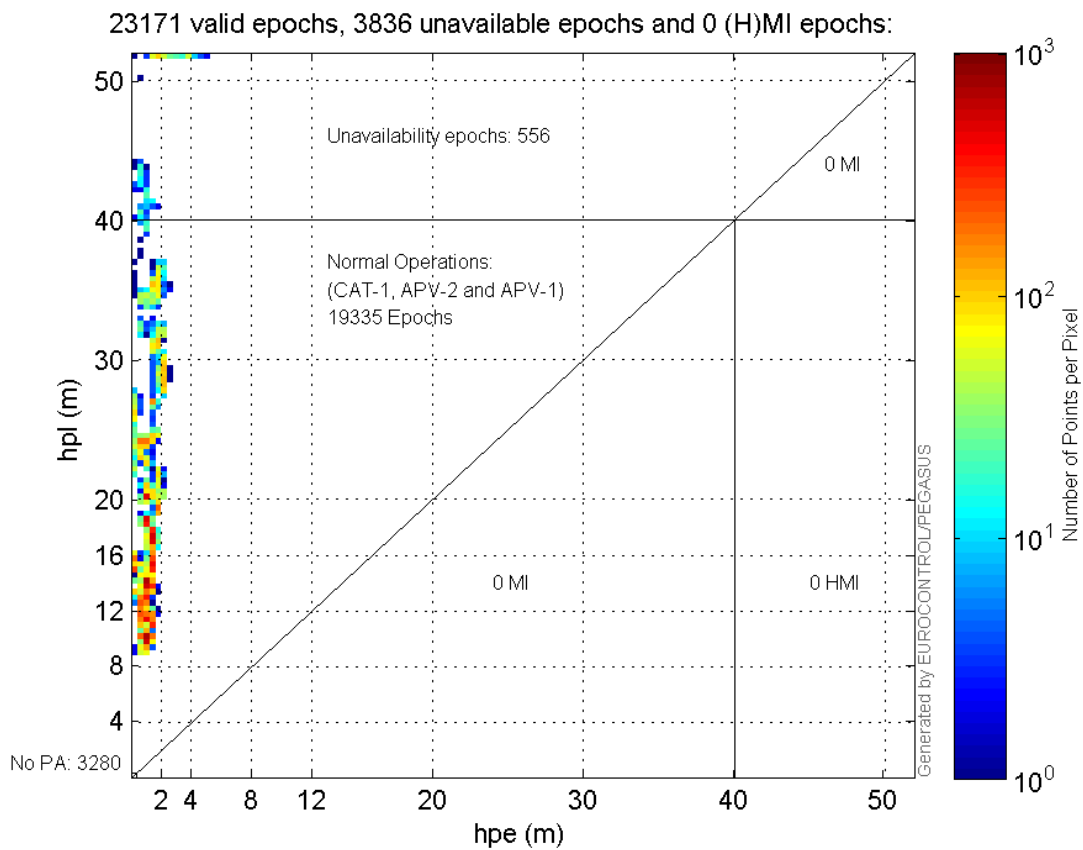


Histogram of VSI LPV200:

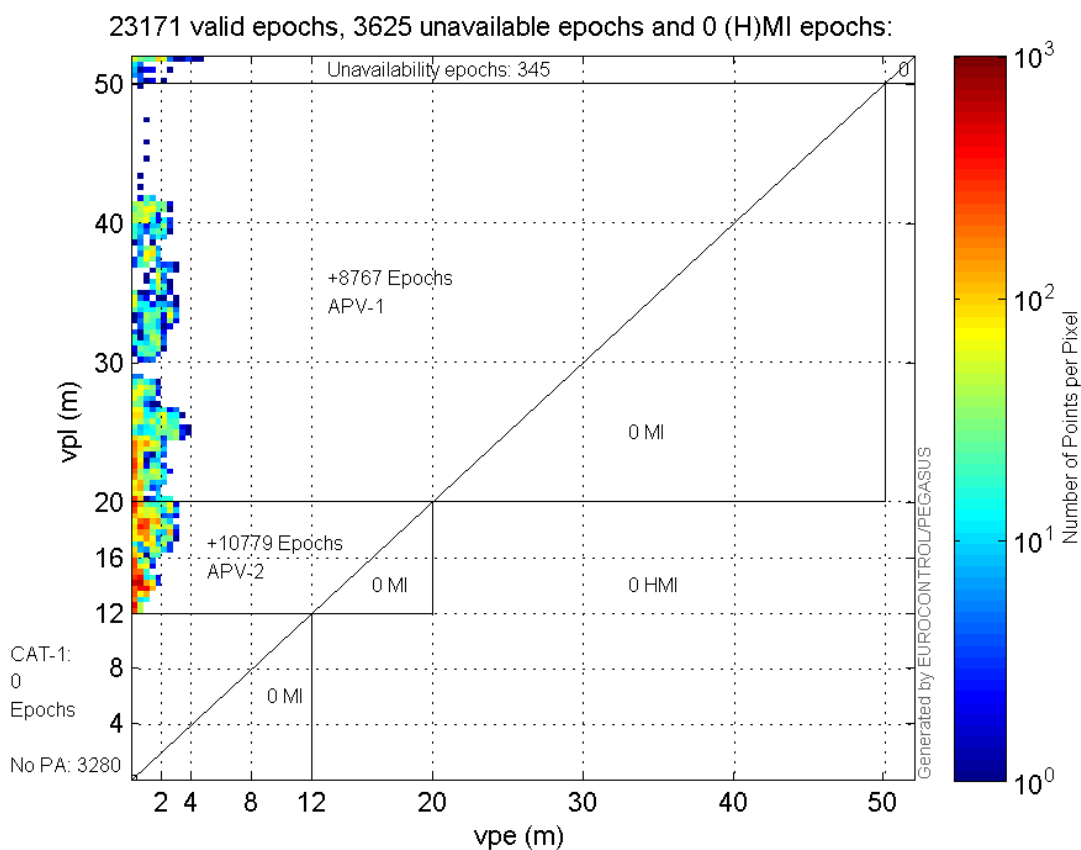


Stanford Plots

Horizontal_Stanford_Plot_SBAS:



Vertical_Stanford_Plot_SBAS:



Parameters

system

Name	Section	Value
name	system	GNSS_Solution
version	system	4.8.2.1
input_prefix	system	D:/PegasusDateGob/job/2015_12_07EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_07EGNOS/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	50.4391
init_lon	results	30.4297
init_alt	results	227.2625
mi_numbers	results	0

Range Domain

start: 07:14:27 07.12.2015 (week: 1874 sec: 112467)
end: 13:46:41 07.12.2015 (week: 1874 sec: 136001)
duration: 06:32:15 ..

quality

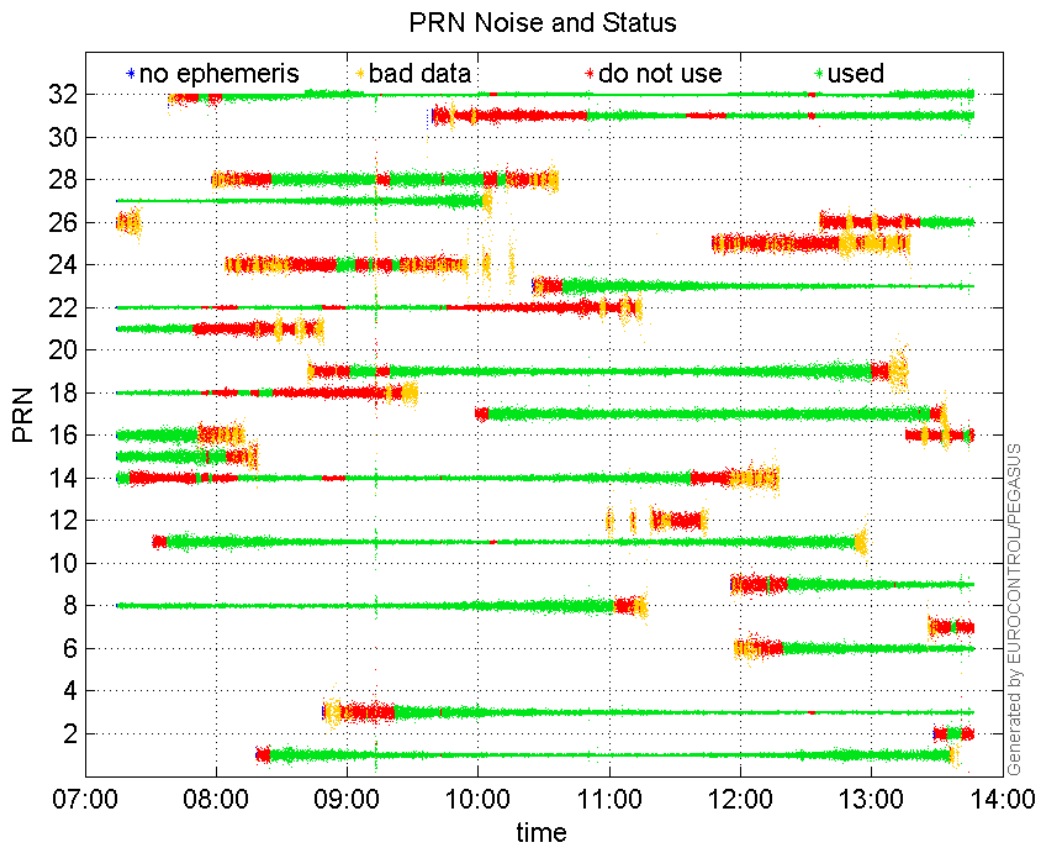
valid samples 23535
total samples 23535

PRN overview

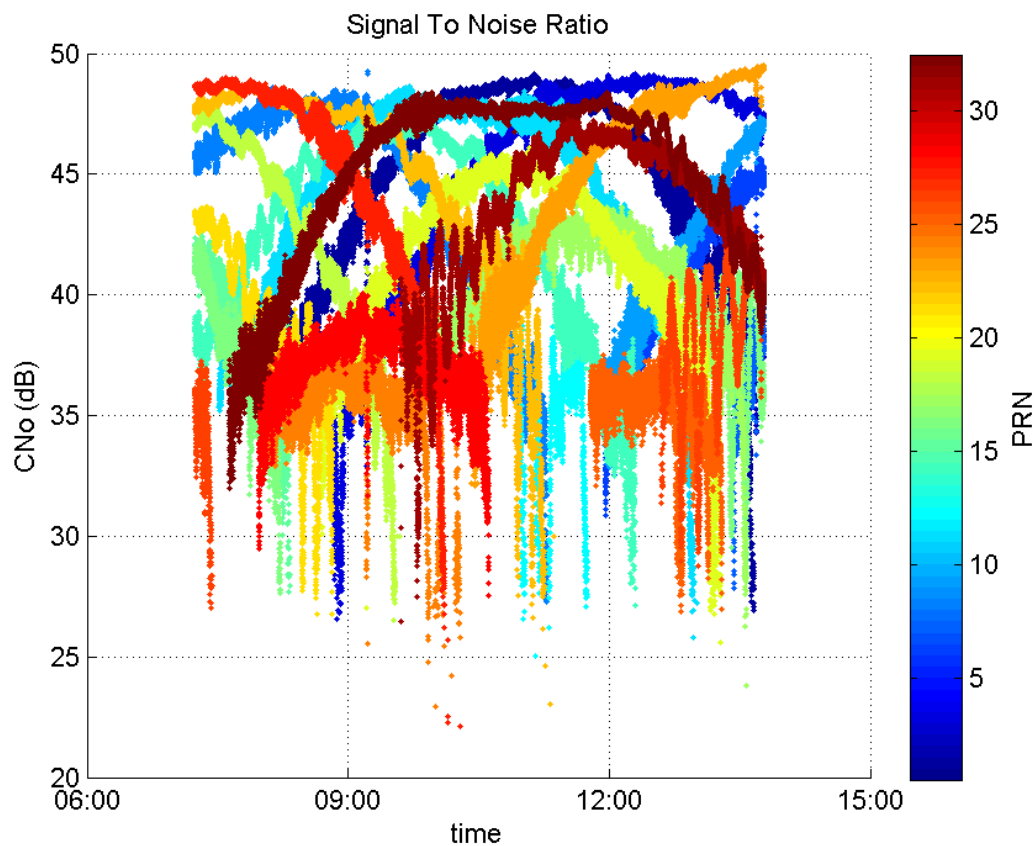
Number of Visible GPS Satellites 25
Number of Visible SBAS Satellites 2

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
1874	131179	1	1.28019	2.86797	2.24027
1874	129612	3	0.948875	-1.5926	1.67841
1874	132912	6	1.20811	-2.04586	1.69344
1874	116854	8	1.49612	-2.08887	1.39619
1874	131306	9	1.4693	3.81	2.59308
1874	131179	11	1.59516	3.55224	2.22688
1874	114748	14	1.15115	2.76925	2.40564
1874	114939	15	0.310936	-0.816224	2.62506
1874	112840	16	0.701496	1.39451	1.9879
1874	129801	17	1.51238	-2.68436	1.77493
1874	113669	18	0.617495	-1.16056	1.87946
1874	131319	19	1.34392	2.85795	2.12658
1874	113665	21	0.101308	-1.89788	18.7338
1874	116960	22	1.20863	-1.92749	1.59477
1874	131204	23	1.81254	3.23462	1.78458
1874	119420	24	0.132156	-0.582934	4.41095
1874	116857	27	1.1125	-1.6625	1.49438
1874	116934	28	0.682149	-1.71408	2.51277
1874	131055	31	0.374889	-3.60313	9.61119

1874

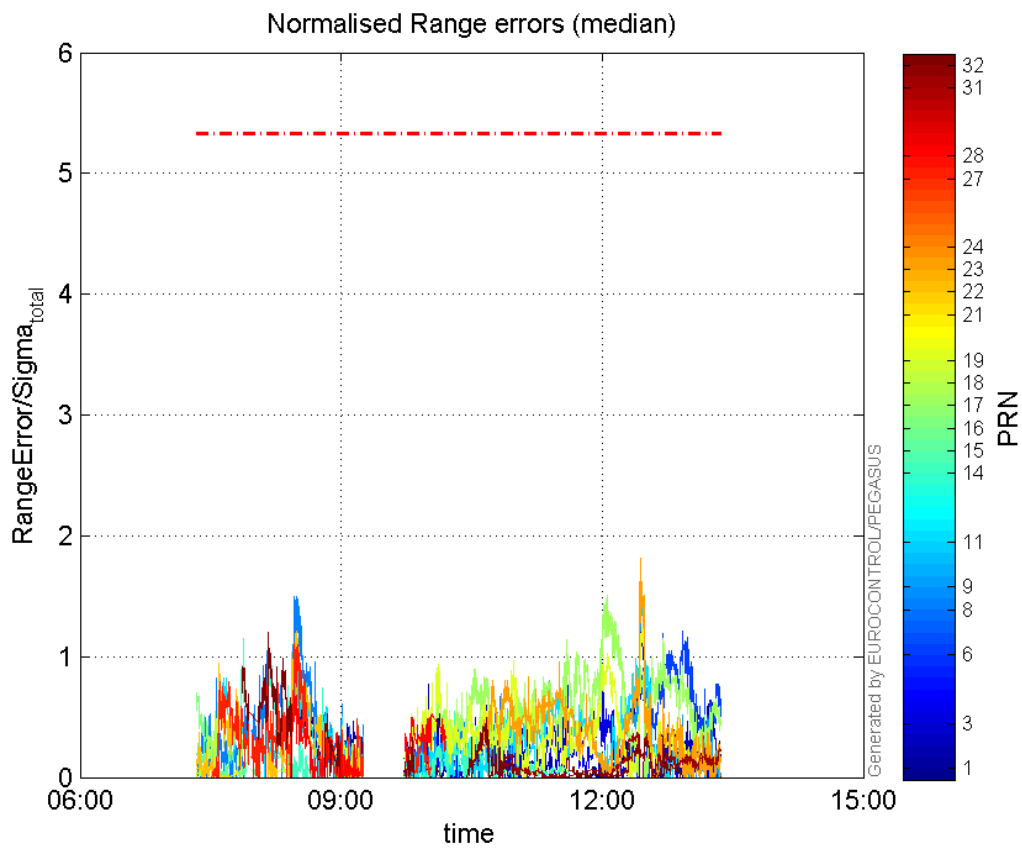
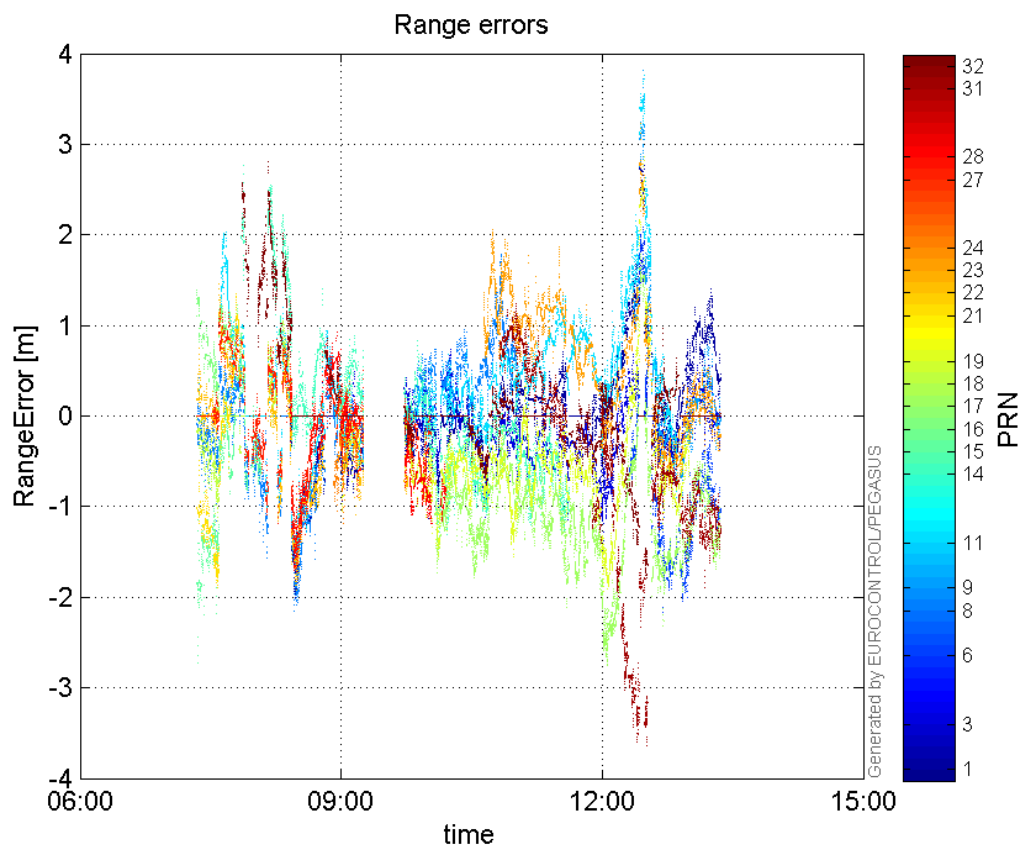
115800

32

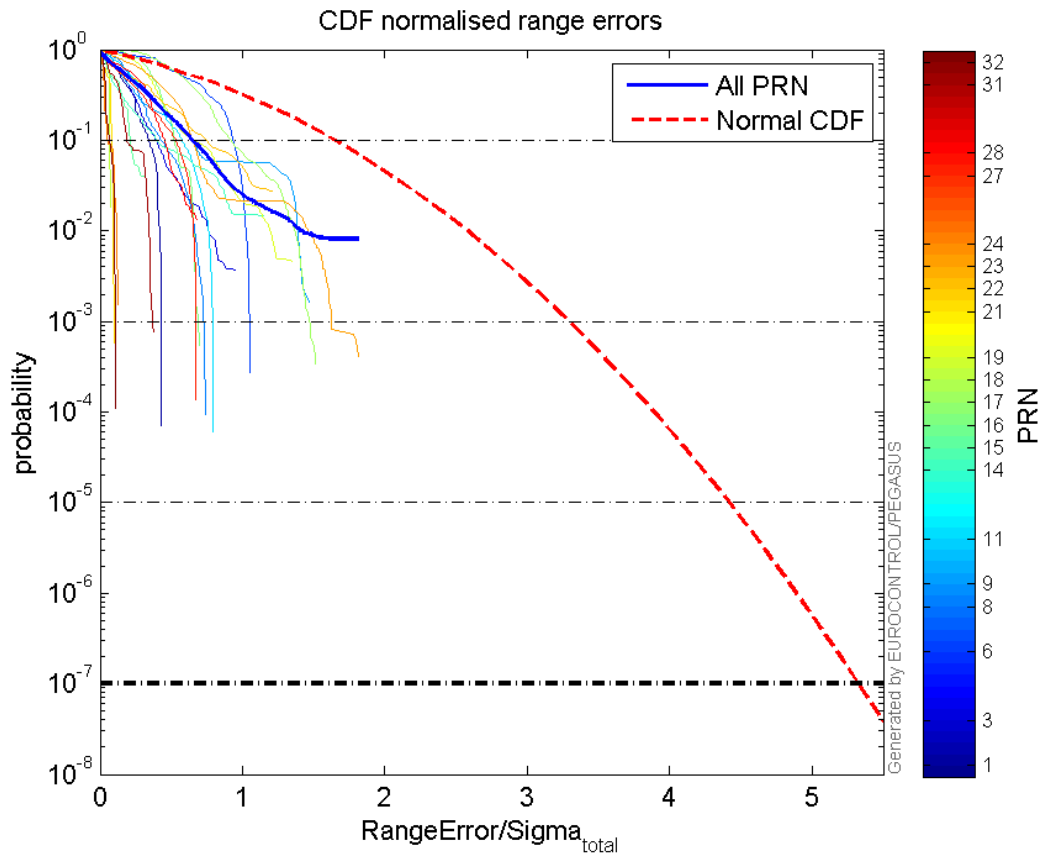
1.20018

2.81273

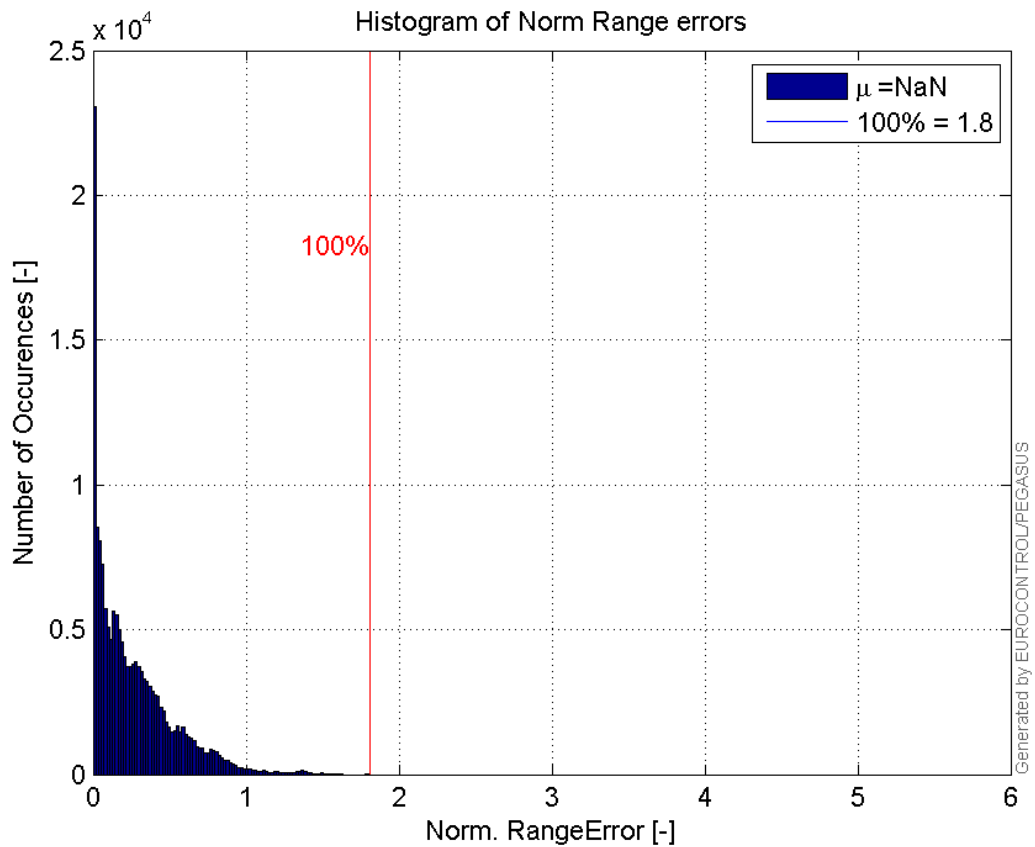
2.34359

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

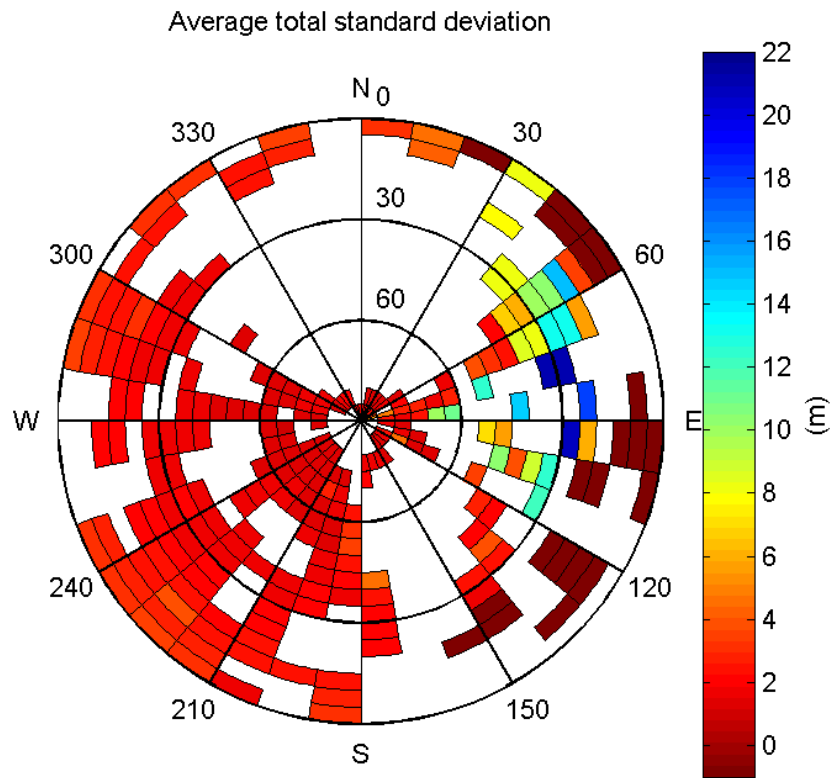
CDF normalised range errors:



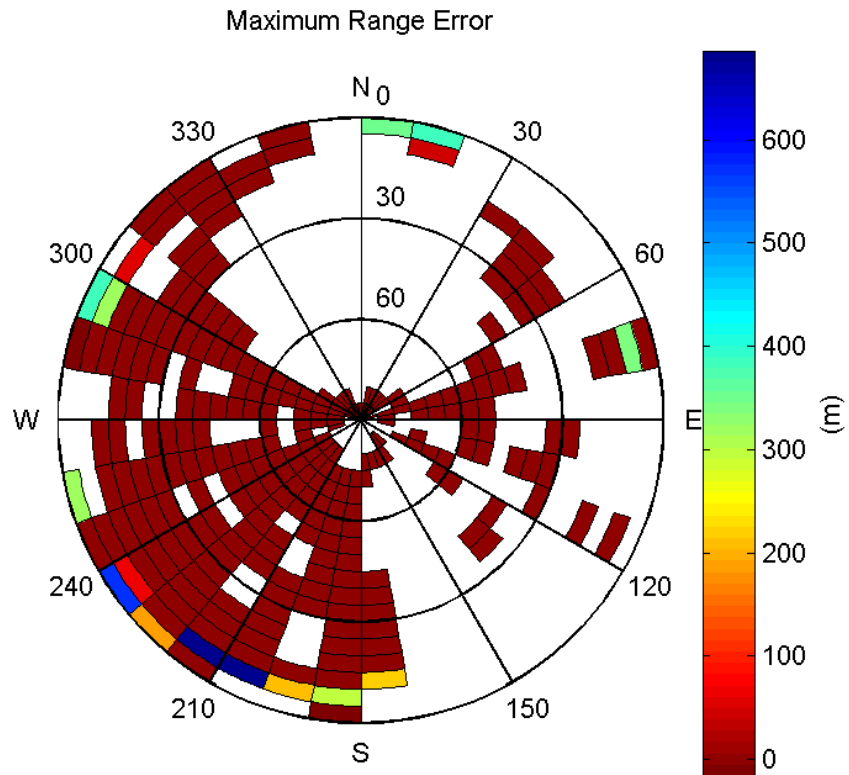
Histogram of Norm Range errors:



Sigma Sky Plot:

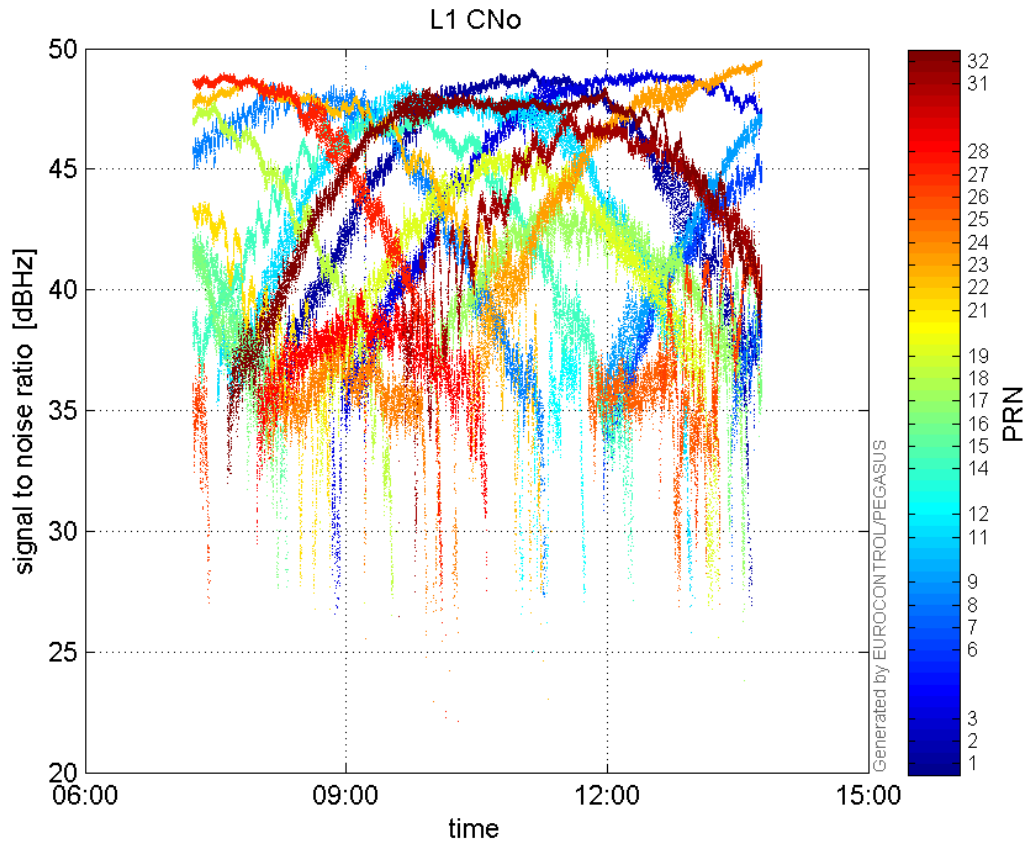


Norm Error Sky Plot:

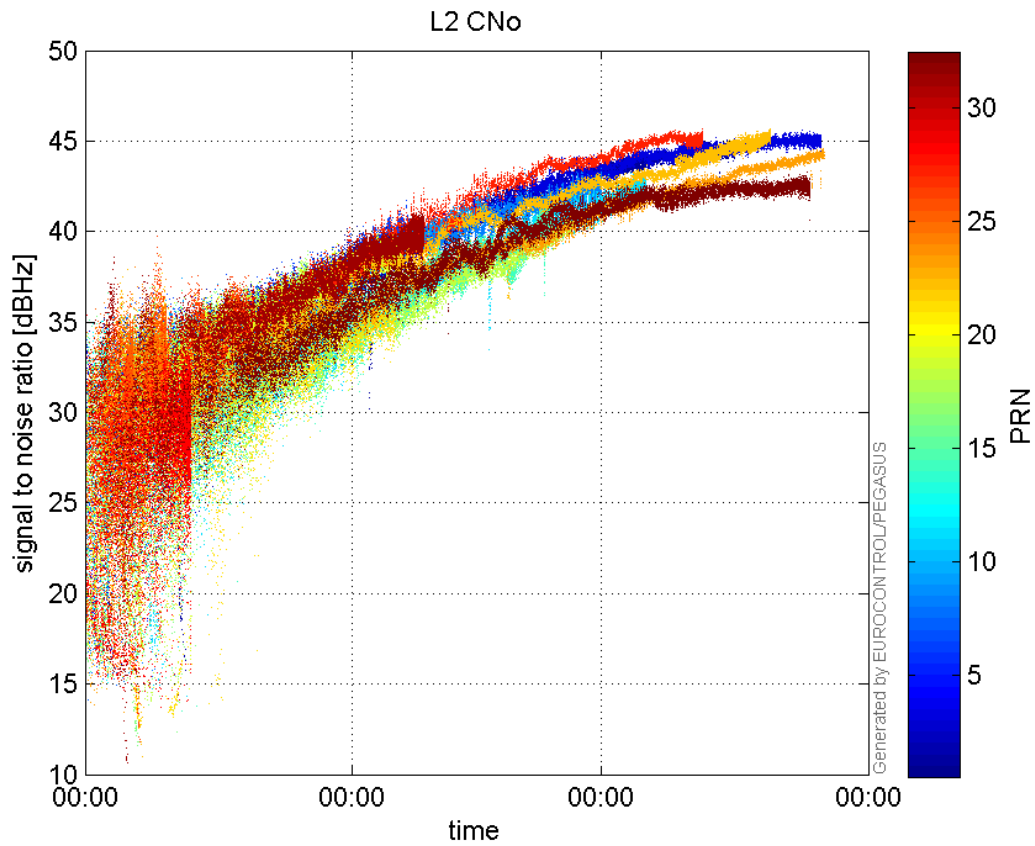


signal quality

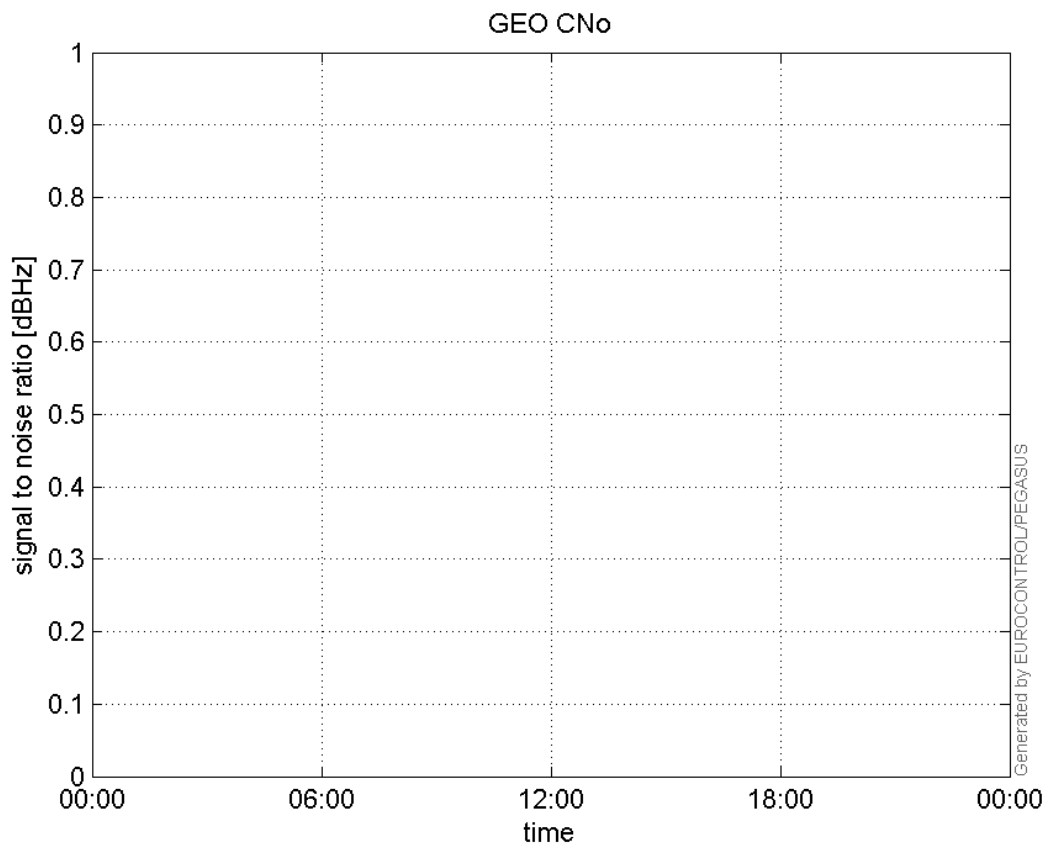
L1 CNo:



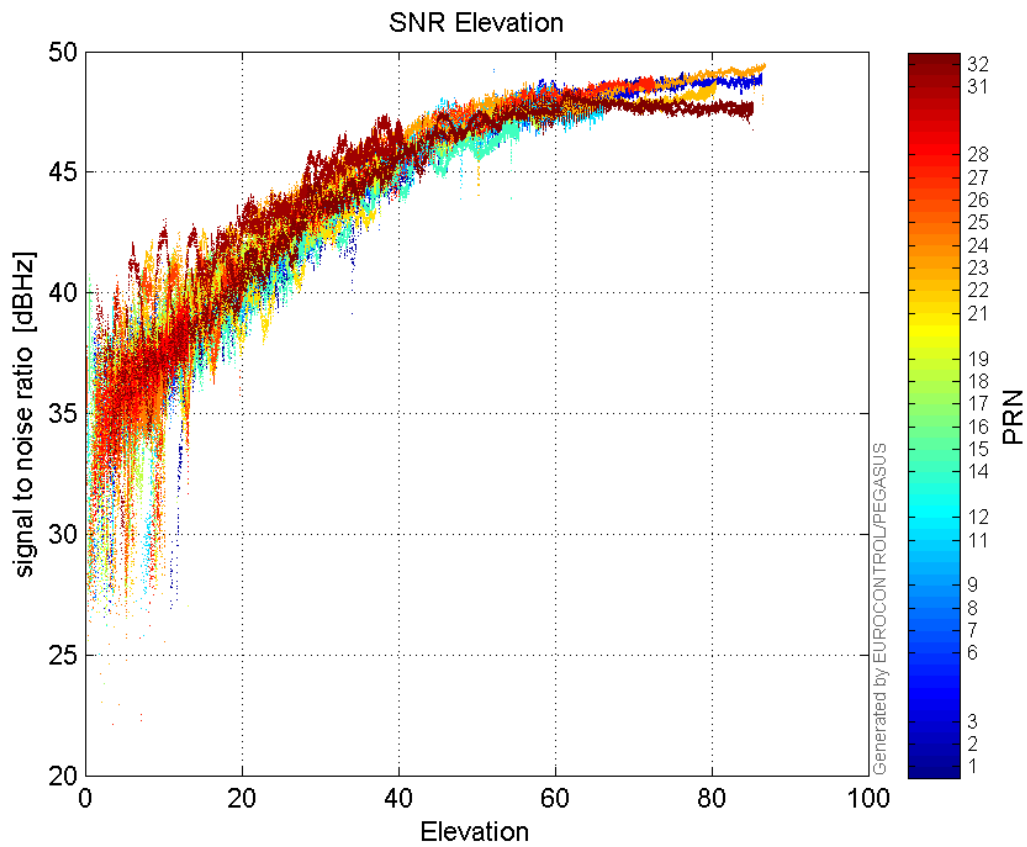
L2 CNo:



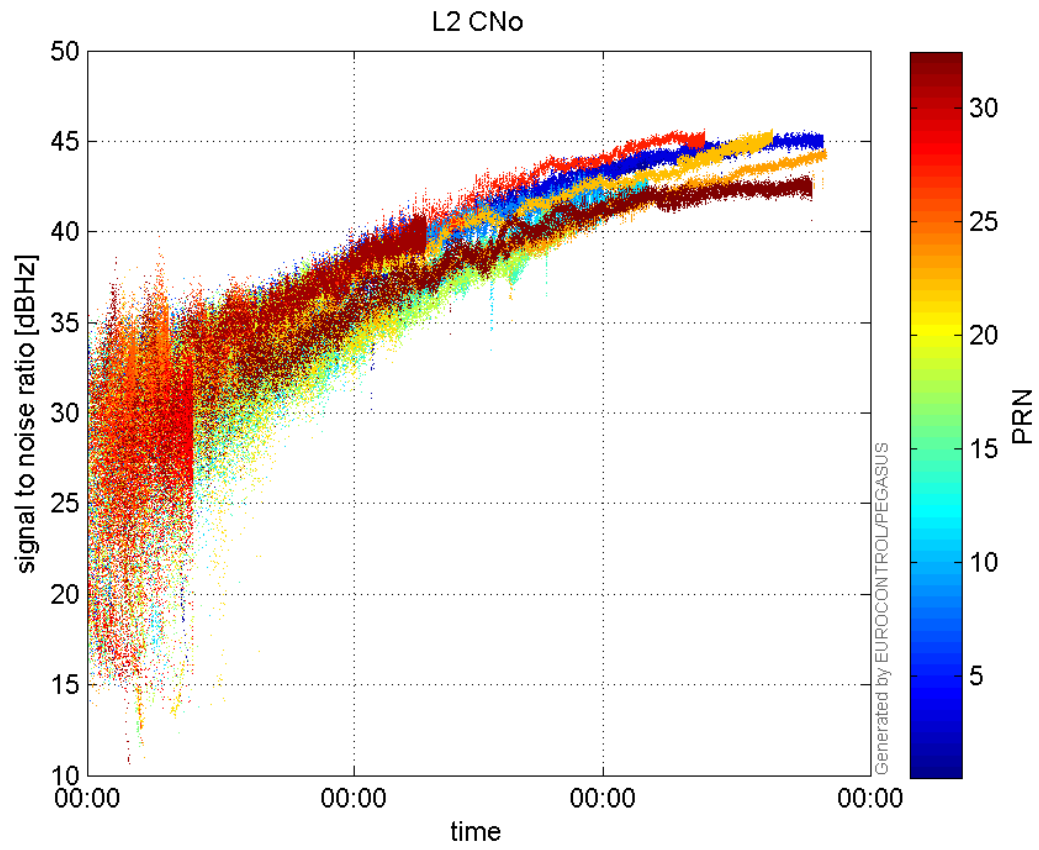
GEO CNo:



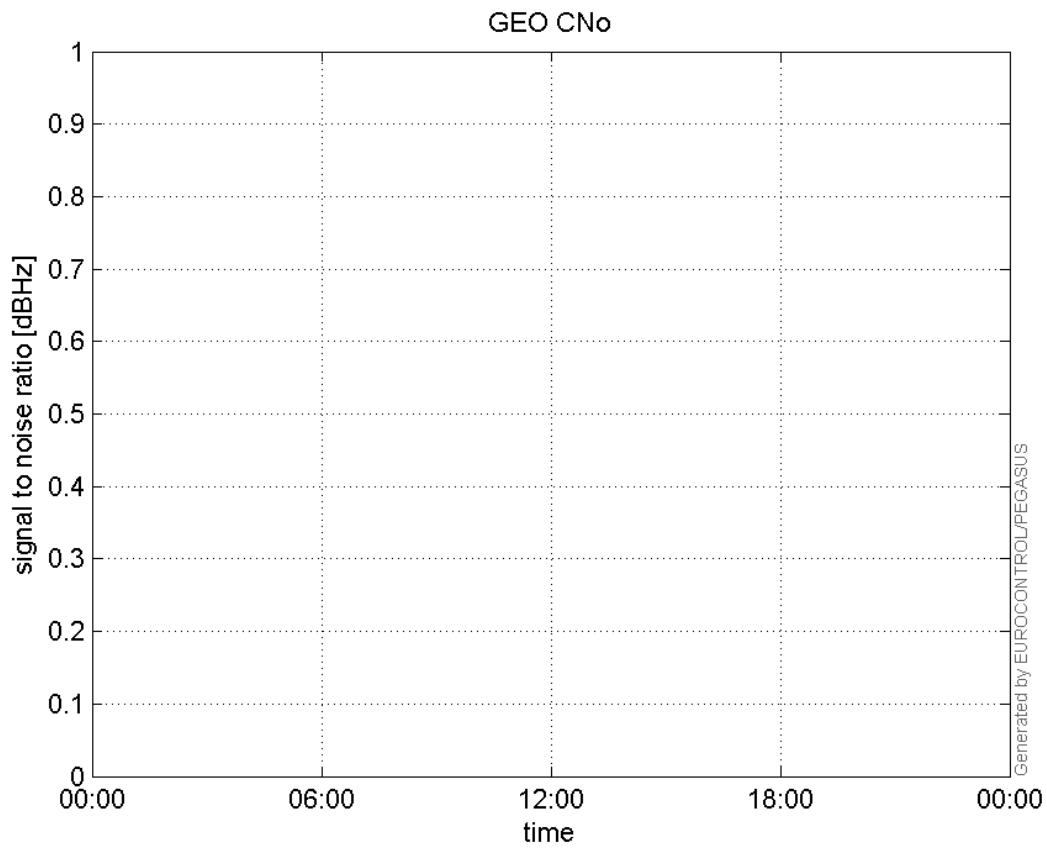
SNR Elevation:



L2 CNo:

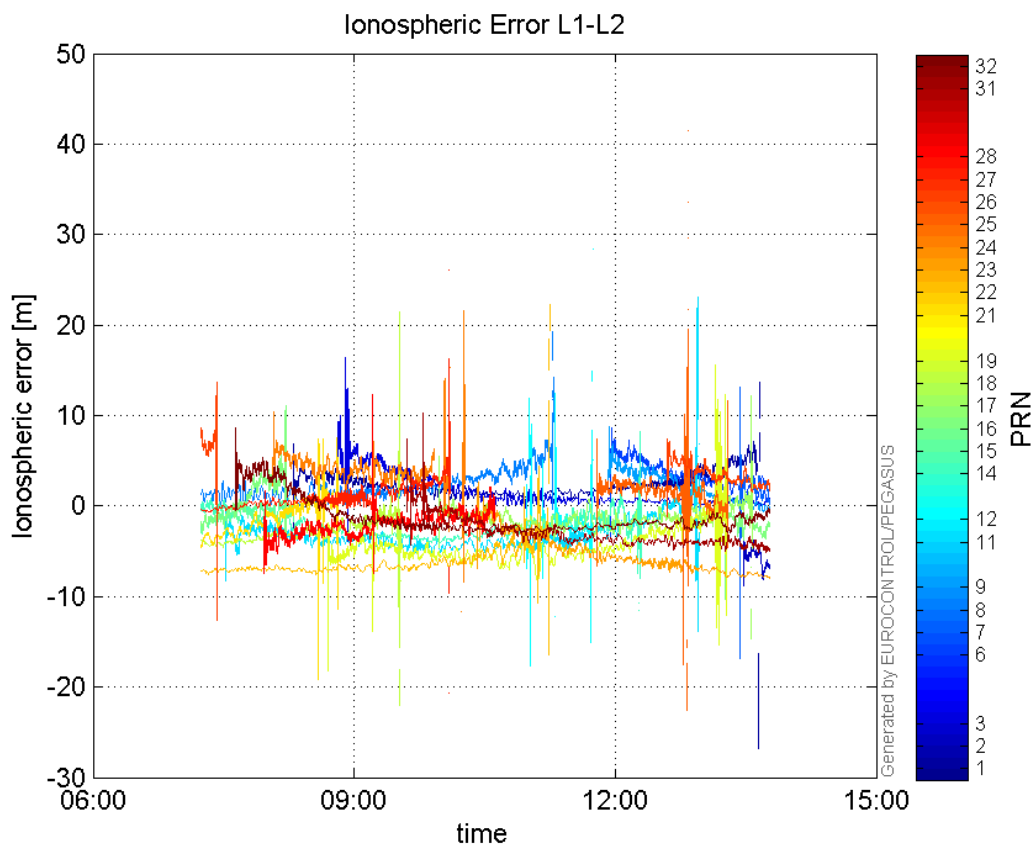


GEO CNo:



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/2015_12_07EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2015_12_07EGNOS/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	50.4391
init_lon	results	30.4297
init_alt	results	227.2625
mi_numbers	results	0