

Global View

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

Range Domain

start: 05:46:35 27.01.2016 (week: 1881 sec: 279995)
end: 13:32:21 27.01.2016 (week: 1881 sec: 307941)
duration: 07:45:47 ..

quality

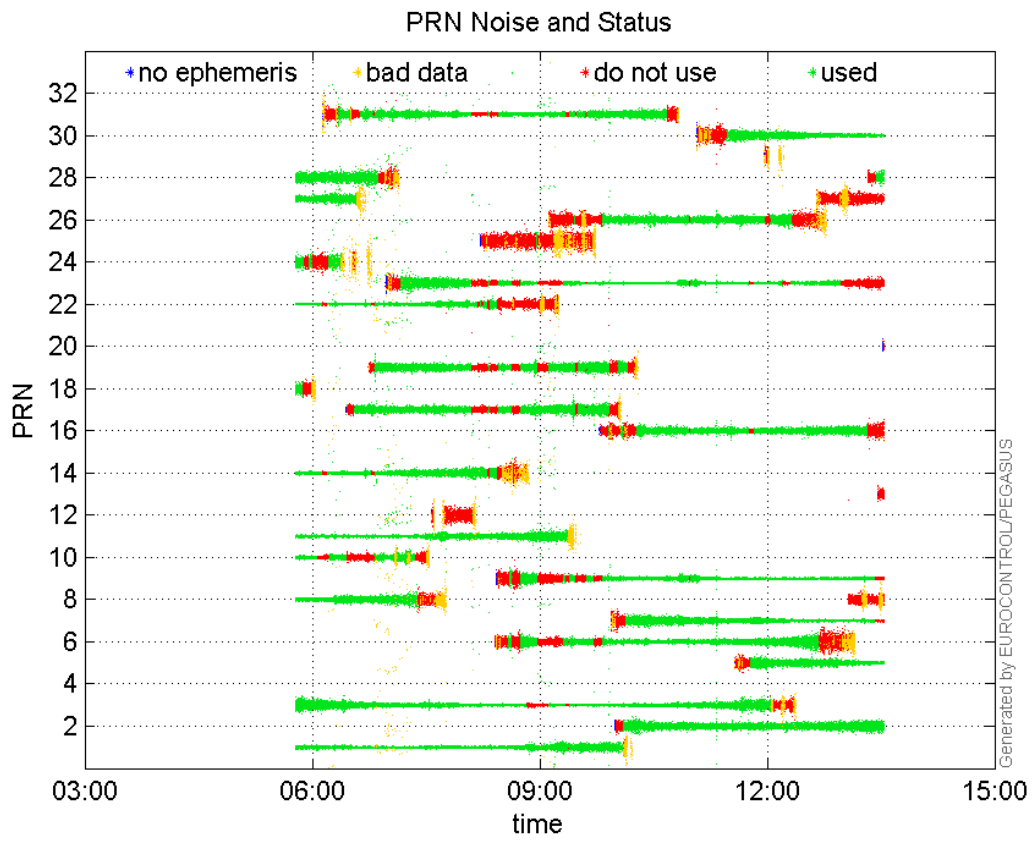
valid samples 27947
total samples 27947

PRN overview

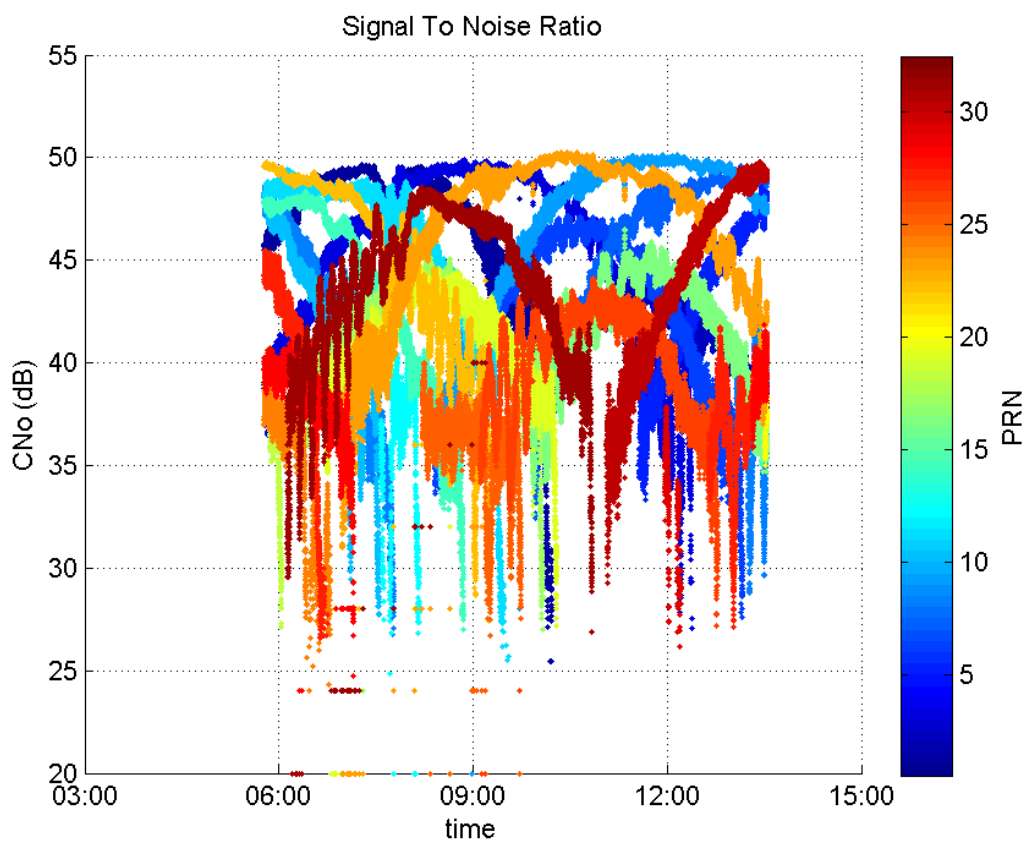
Number of Visible GPS Satellites 28
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



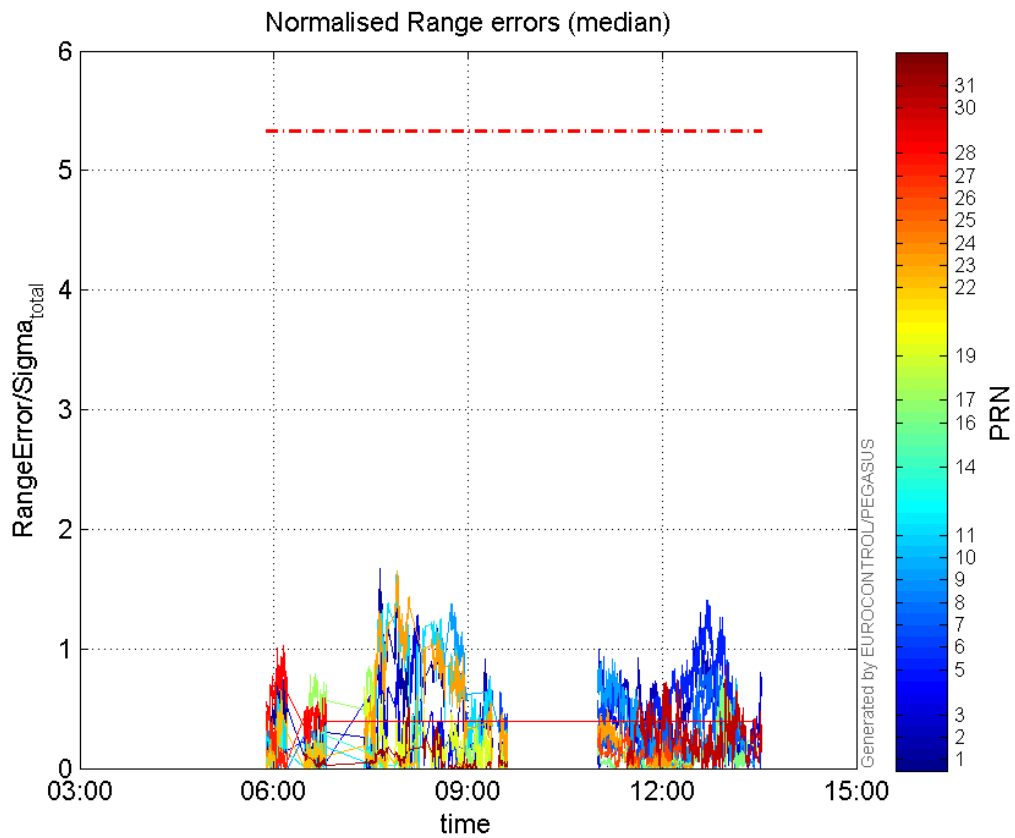
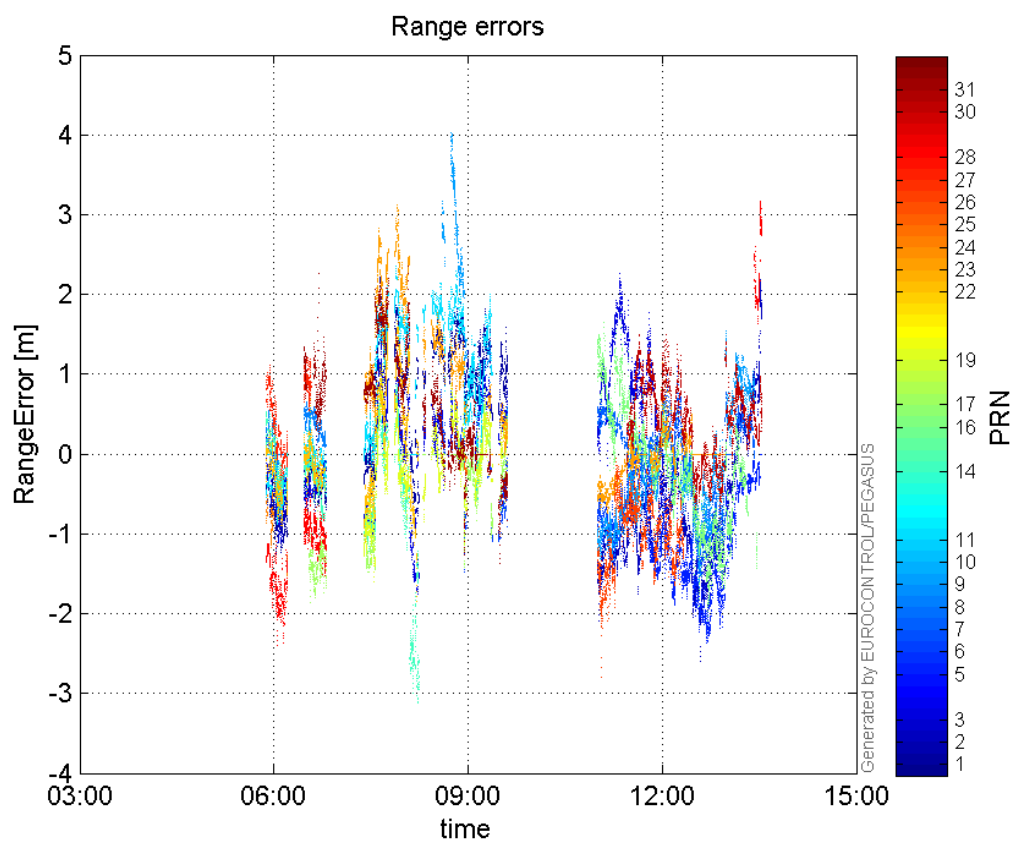
range errors

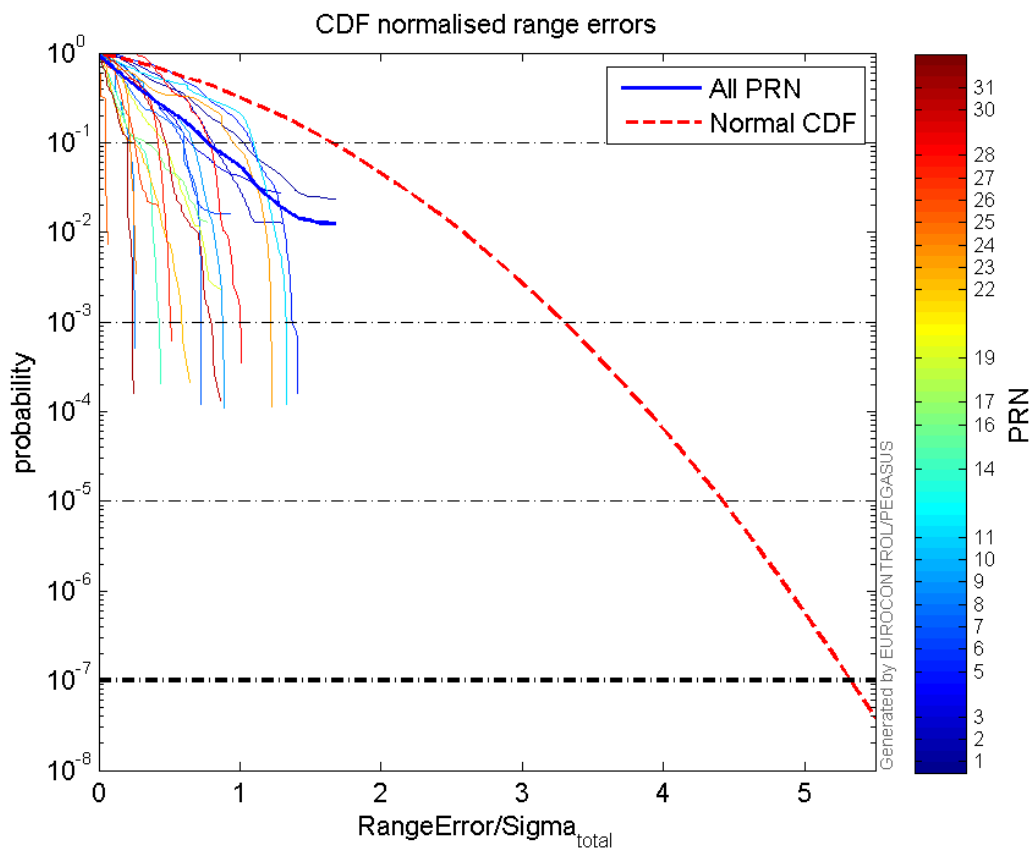
Number of Overbounding Norm Errors 0

Max Norm Errors :

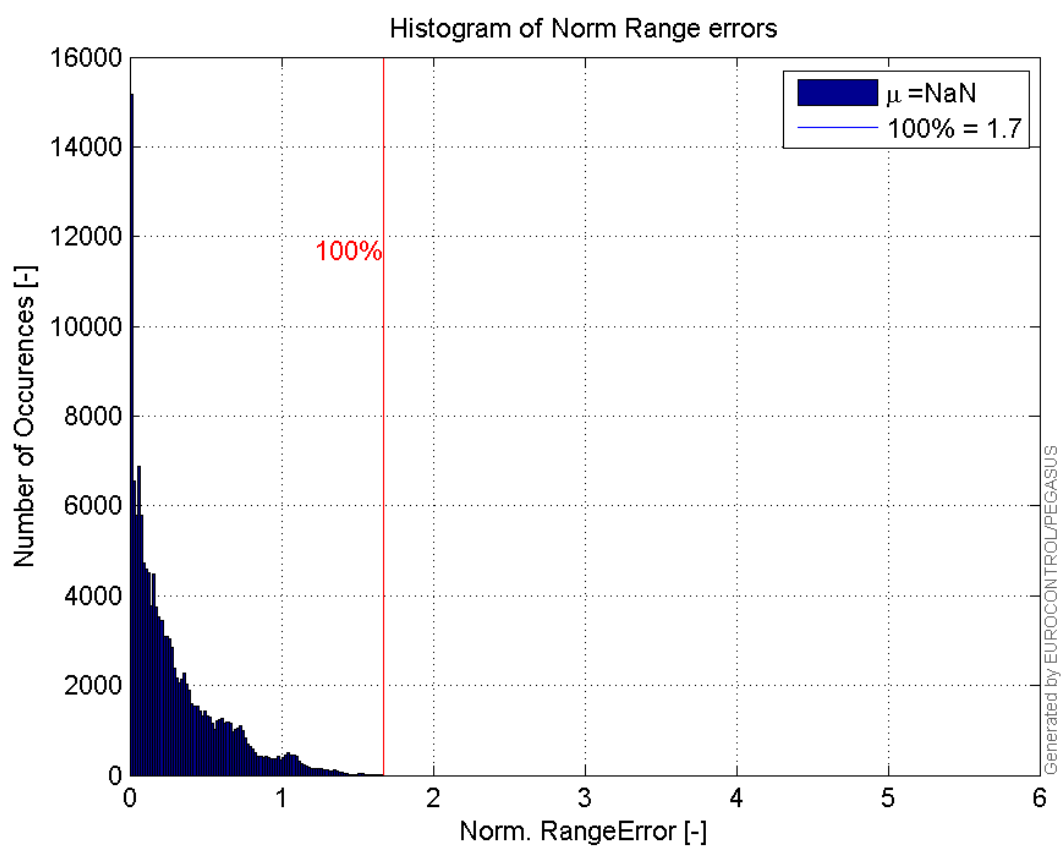
GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1881	286688	1	1.6754	2.17817	1.30009
1881	304514	2	1.30386	-2.59097	1.98715
1881	288825	3	1.28598	-1.66916	1.29797
1881	304895	5	1.40859	-2.3393	1.66074
1881	299169	6	0.935252	-1.57641	1.68554
1881	304711	7	0.876639	-1.38676	1.58191
1881	282630	8	0.388201	0.660639	1.7018
1881	290695	9	1.3724	3.98954	2.90698
1881	281003	10	0.176561	-0.877338	4.96905
1881	287594	11	1.61961	2.32168	1.43348
1881	288556	14	0.447547	-2.99291	6.68737
1881	305878	16	0.768899	-1.67258	2.17529
1881	286060	17	0.858541	-1.47942	1.72318
1881	286377	19	0.860349	-1.59725	1.85651
1881	281232	22	0.654723	-0.899948	1.37455
1881	287676	23	1.6511	3.04081	1.84168
1881	280674	24	0.269918	-1.17055	4.33669
1881	290930	25	0.0629222	0.845532	13.4377
1881	302132	26	0.417032	-1.31933	3.16362
1881	282632	27	0.518478	1.21401	2.3415
1881	281359	28	1.03019	-2.36842	2.29901
1881	305958	30	0.859975	1.39467	1.62176
1881	288237	31	0.598193	2.35696	3.94012

Normalised Range errors (median):

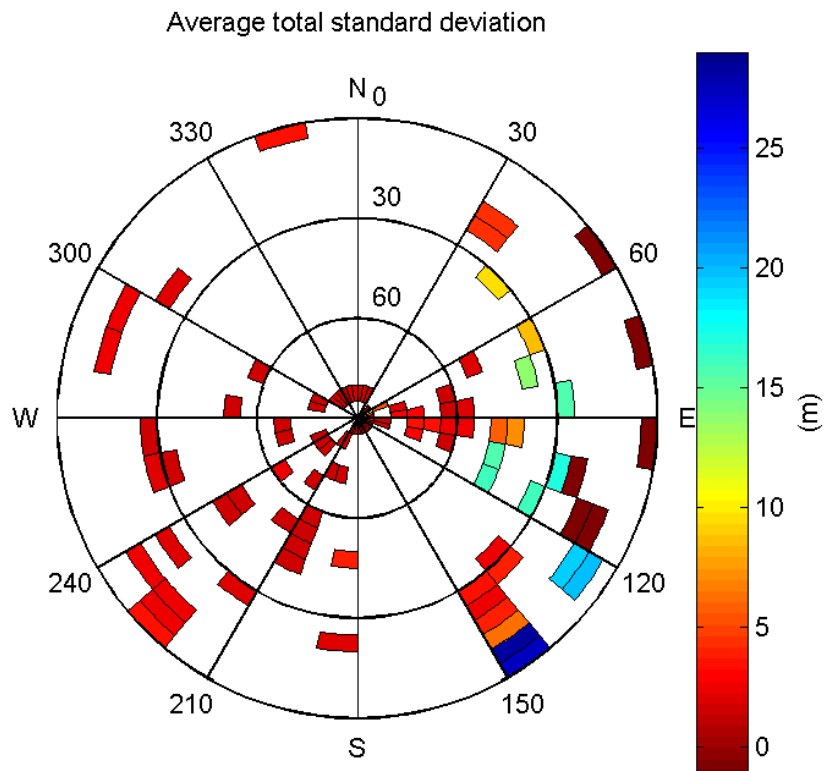
**Range errors:****CDF normalised range errors:**



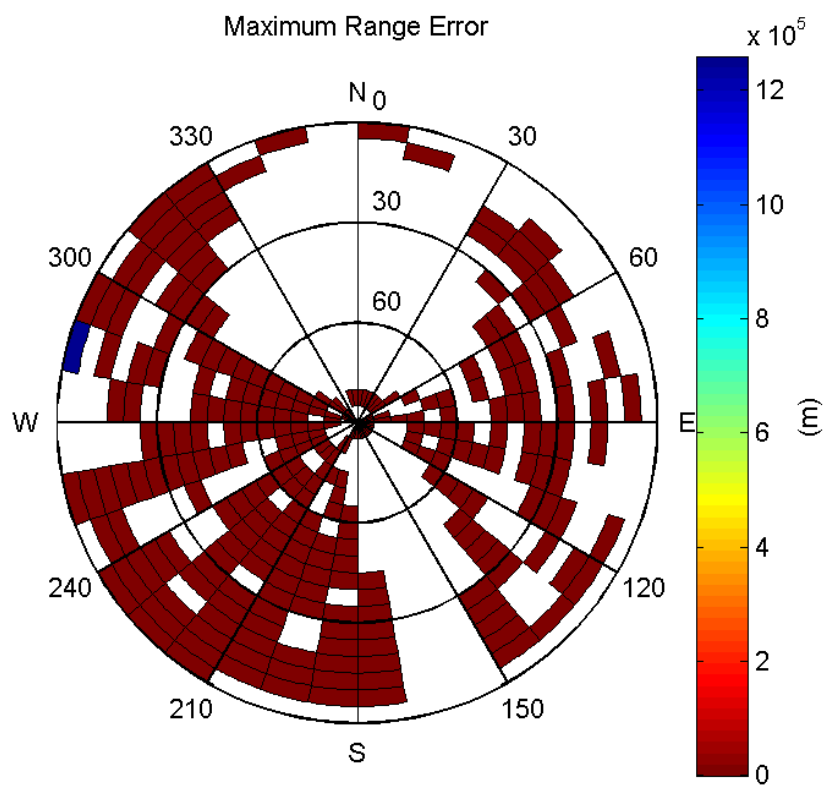
Histogram of Norm Range errors:



Sigma Sky Plot:

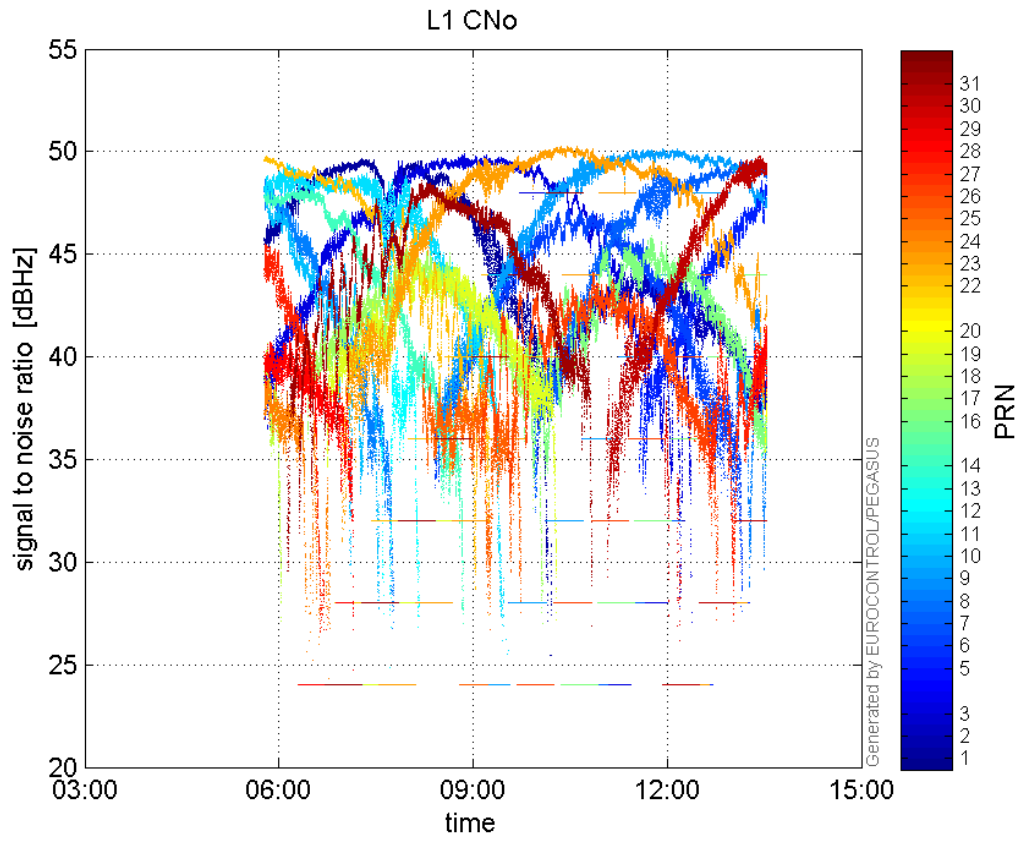


Norm Error Sky Plot:

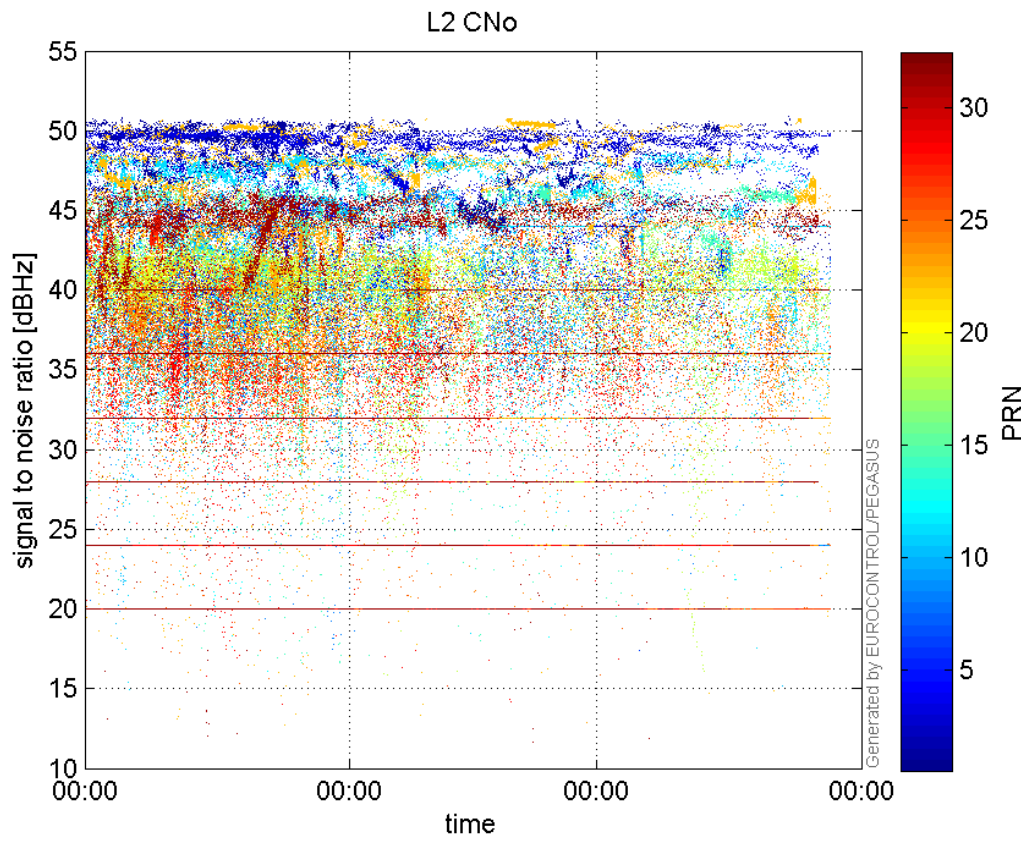


signal quality

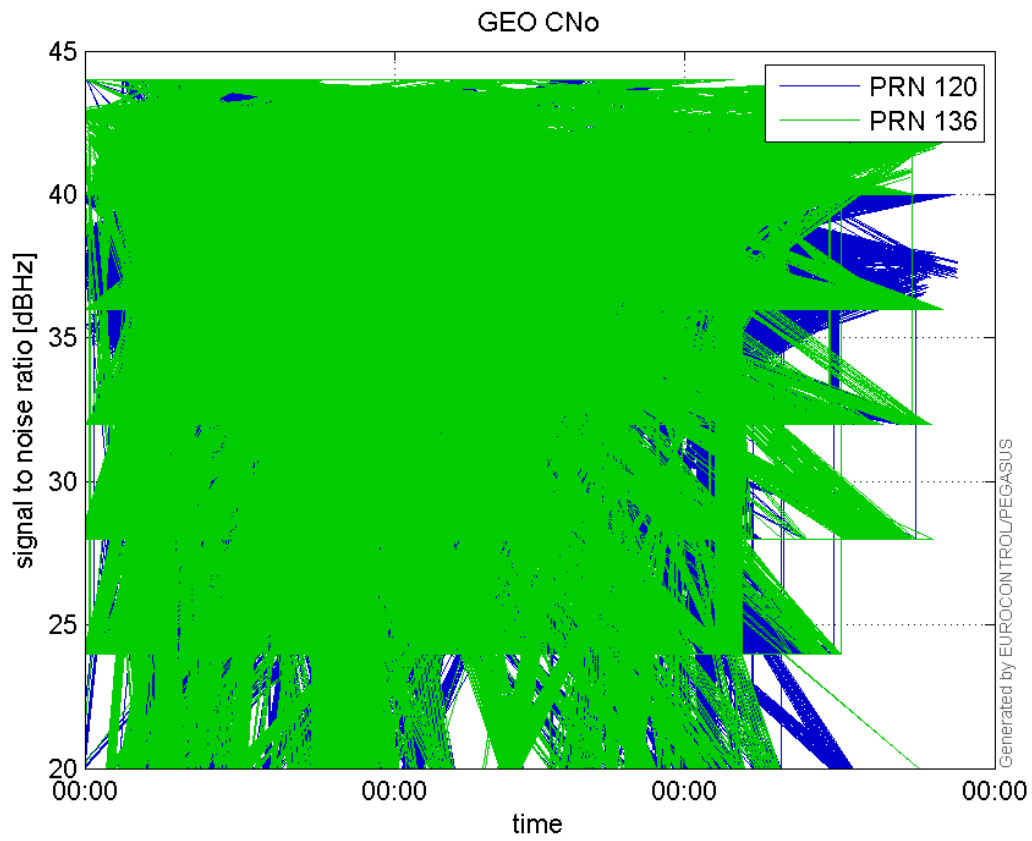
L1 CNo:



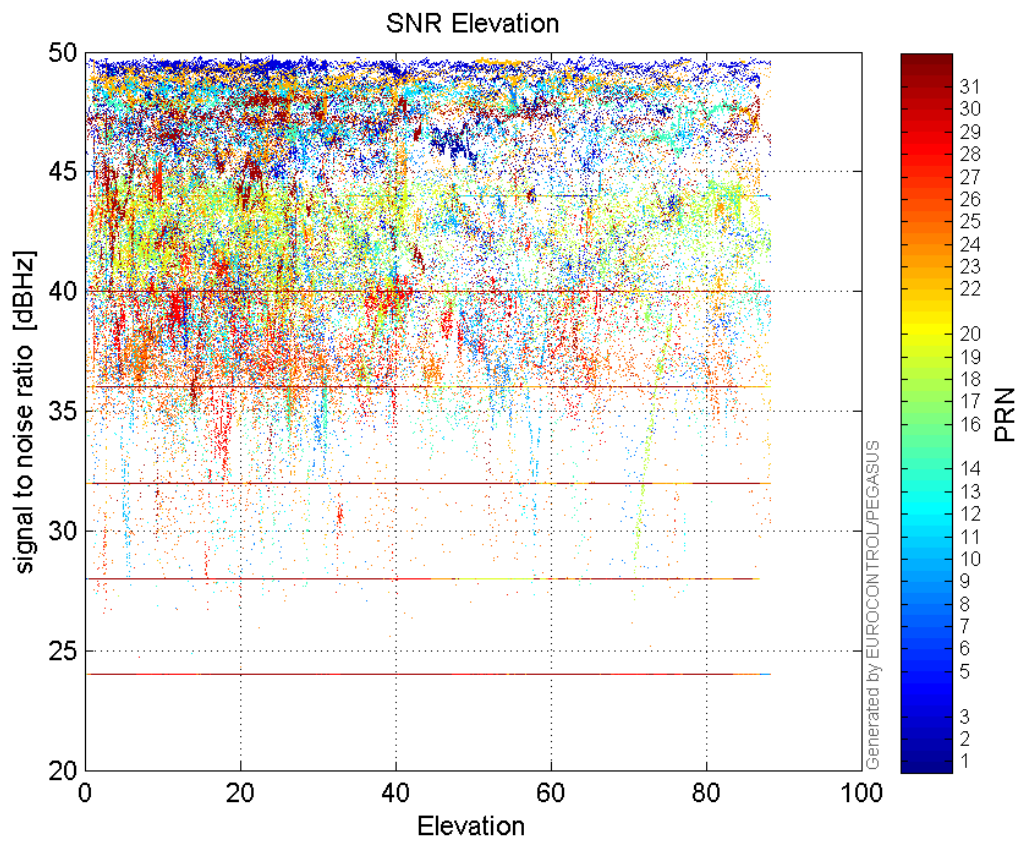
L2 CNo:



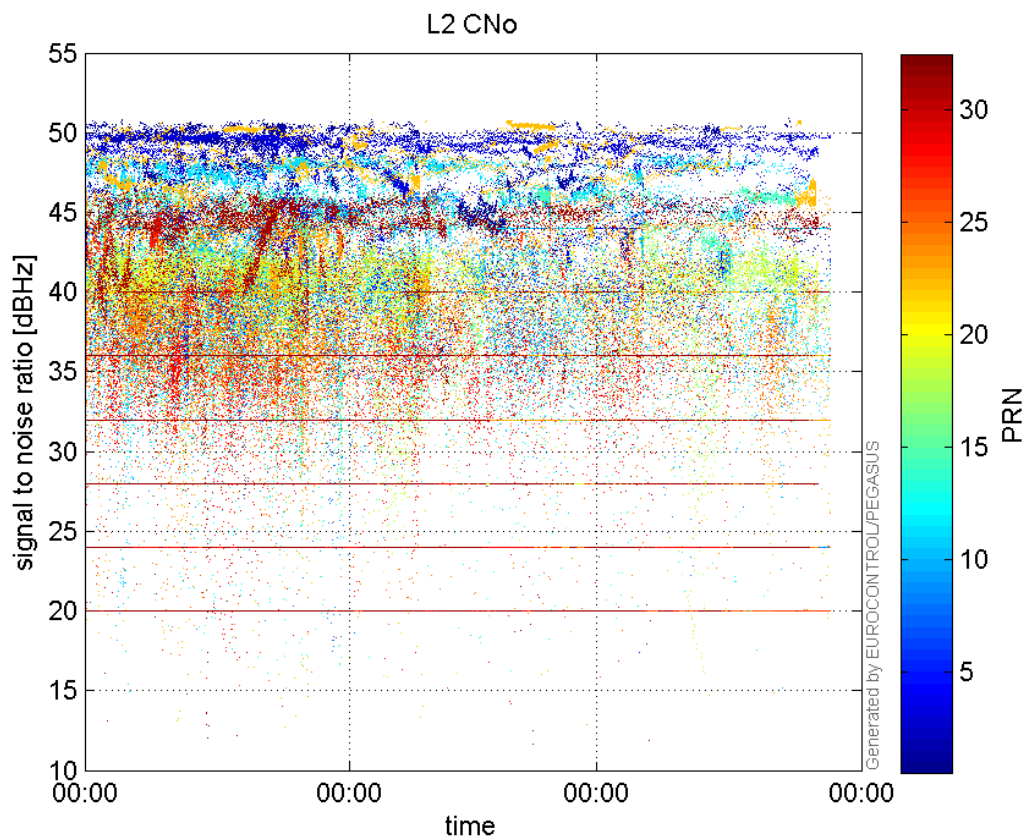
GEO CNo:



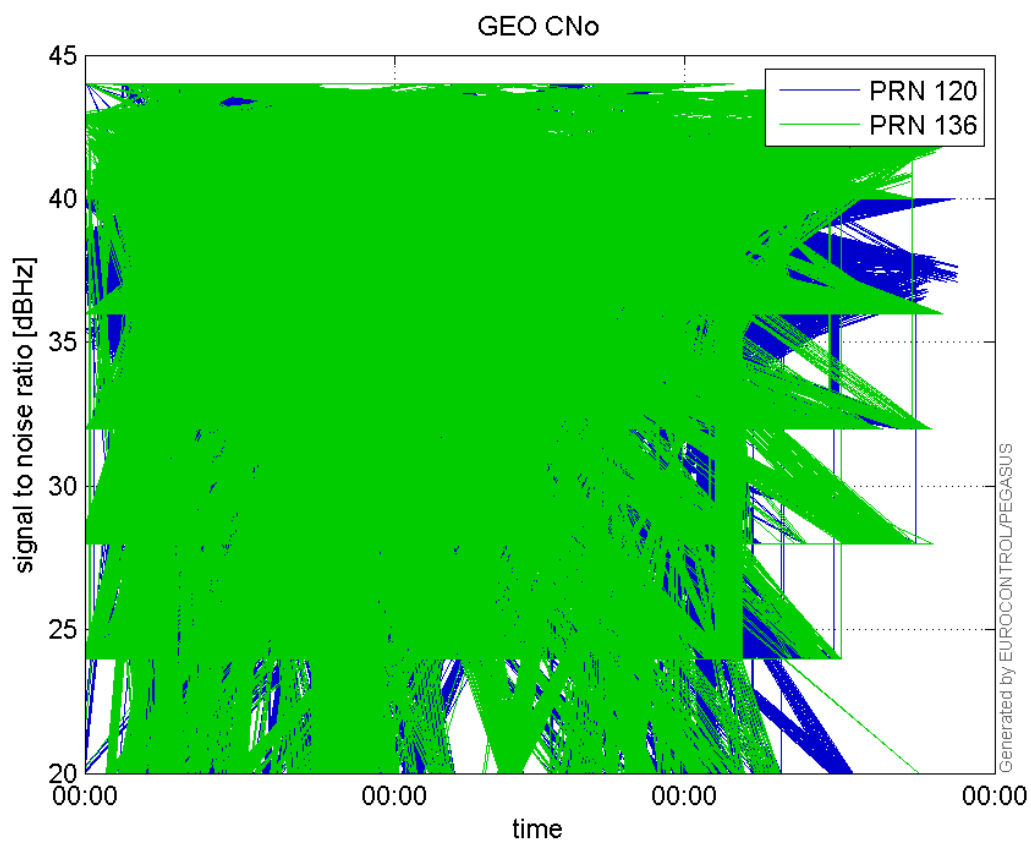
SNR Elevation:



L2 CNo:

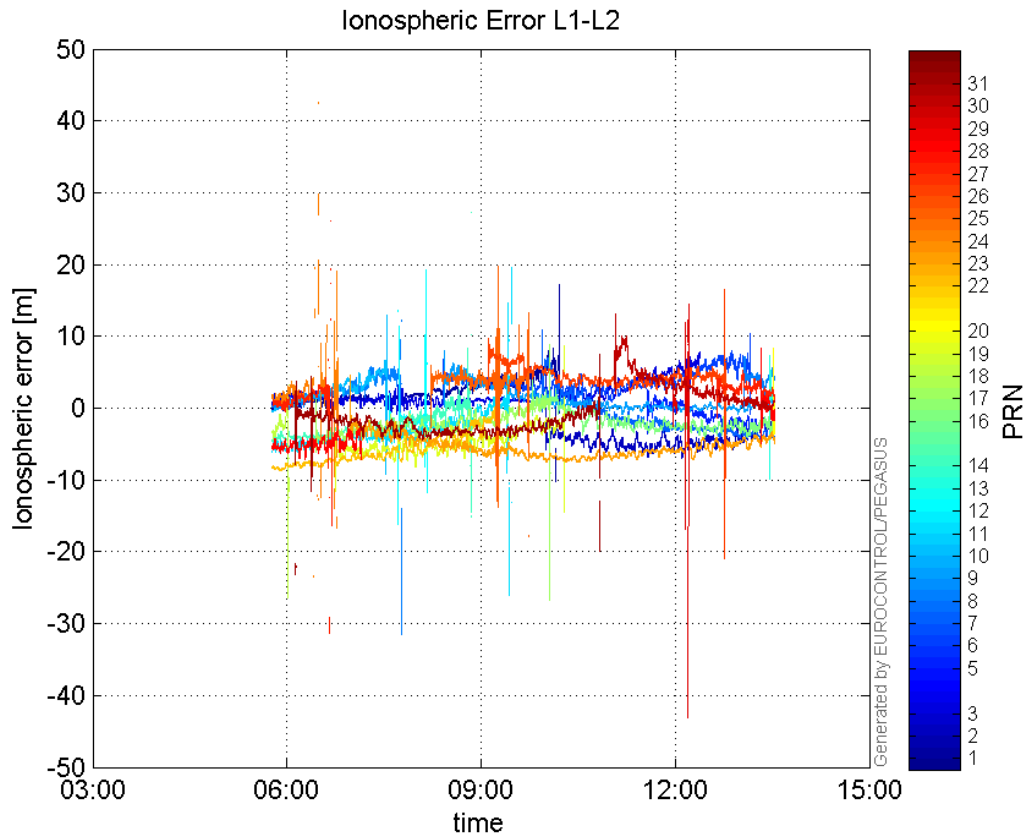


GEO CNo:



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_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_27_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	225.7744
mi_numbers	results	0

SBAS Messages

start: 05:46:35.129 27.01.2016 (week: 1881 sec: 279995.129)
end: 13:32:21.129 27.01.2016 (week: 1881 sec: 307941.129)
duration: 07:45:46 ..

quality

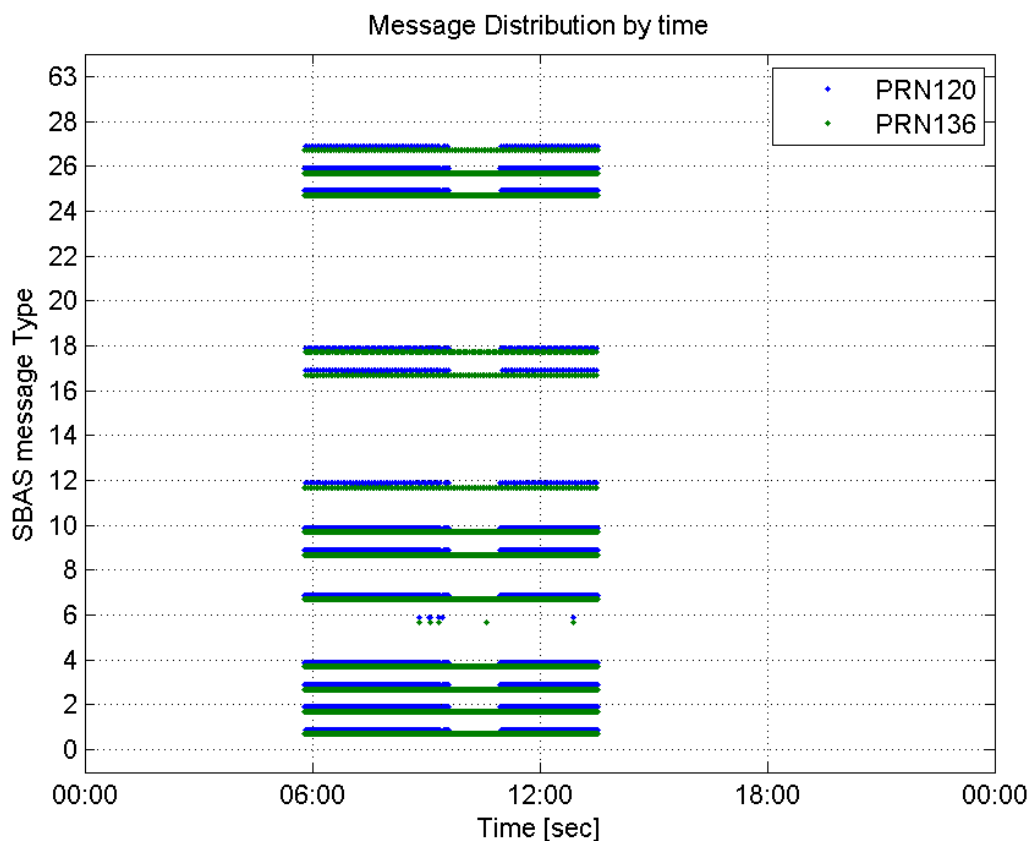
valid samples 50772
total samples 50772
number of SBAS PRNs 2

SBAS SIS Overview

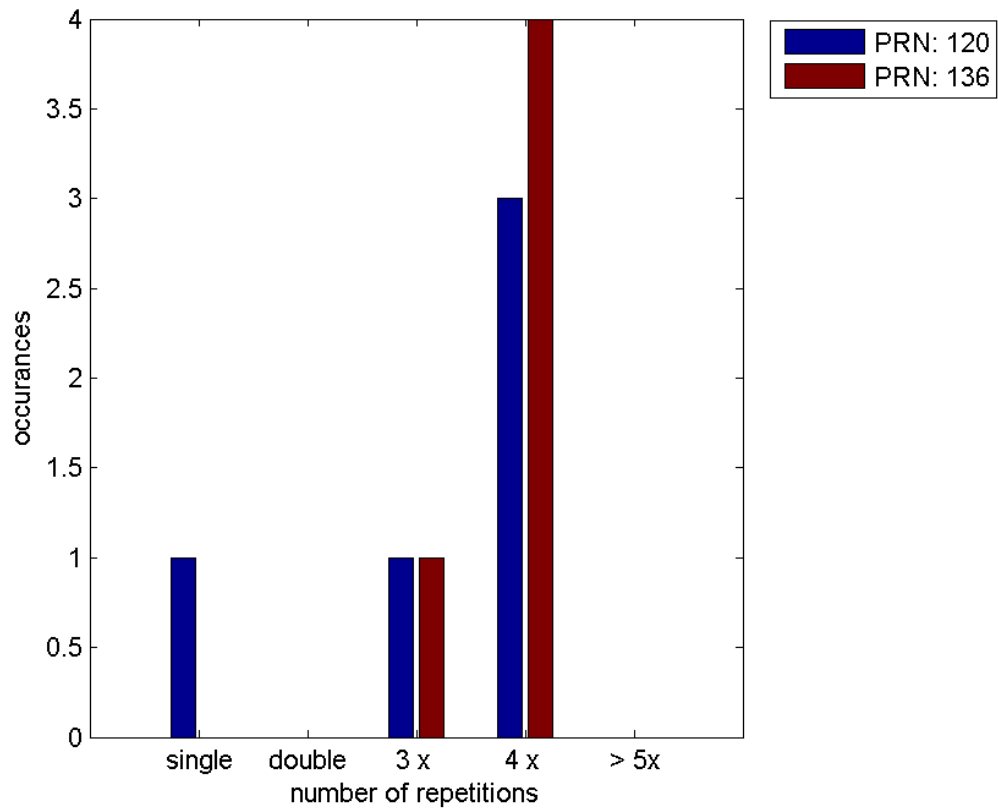
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



SBAS SIS Analysis

PRN 120

Broadcast SBAS Messages :

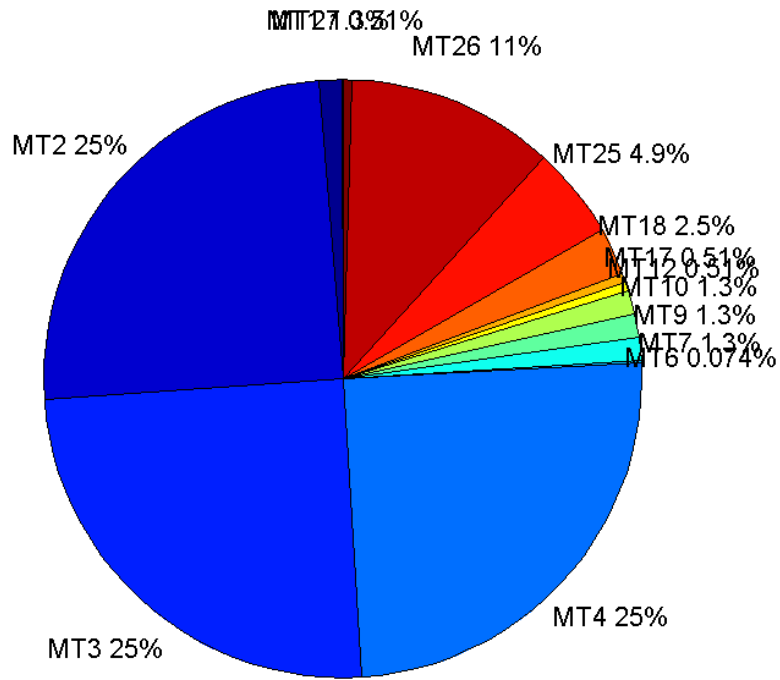
	number of messages	%
MT 0	0	0
MT 1	287	1.25739
MT 2	5677	24.8719
MT 3	5678	24.8762
MT 4	5677	24.8719
MT 5	0	0
MT 6	17	0.0744797
MT 7	288	1.26177
MT 9	287	1.25739
MT 10	287	1.25739
MT 12	117	0.512596
MT 17	116	0.508215
MT 18	580	2.54107
MT 24	0	0
MT 25	1128	4.94195
MT 26	2569	11.2552
MT 27	117	0.512596
MT 28	0	0
MT 62	0	0

MT 63	0	0
Total	22825	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	4943	97.3042	2	1	1
MT 2	4	4862	4.91473	6	2	2
MT 3	4	4866	4.91439	6	2	2
MT 4	4	4865	4.91473	6	2	2
MT 5	--	--	--	--	--	--
MT 6	1	12413	915.063	4	4	4
MT 7	76	4871	96.8815	2	1	2
MT 9	76	4935	97.2203	0	0	0
MT 10	76	4935	97.1783	2	1	2
MT 12	183	4919	238.086	116	2	2
MT 17	188	5119	240.157	0	0	0
MT 18	2	5079	47.7617	2	0	0
MT 24	--	--	--	--	--	--
MT 25	1	4919	24.7427	0	0	0
MT 26	4	4879	10.8618	0	0	0
MT 27	188	5119	239.767	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

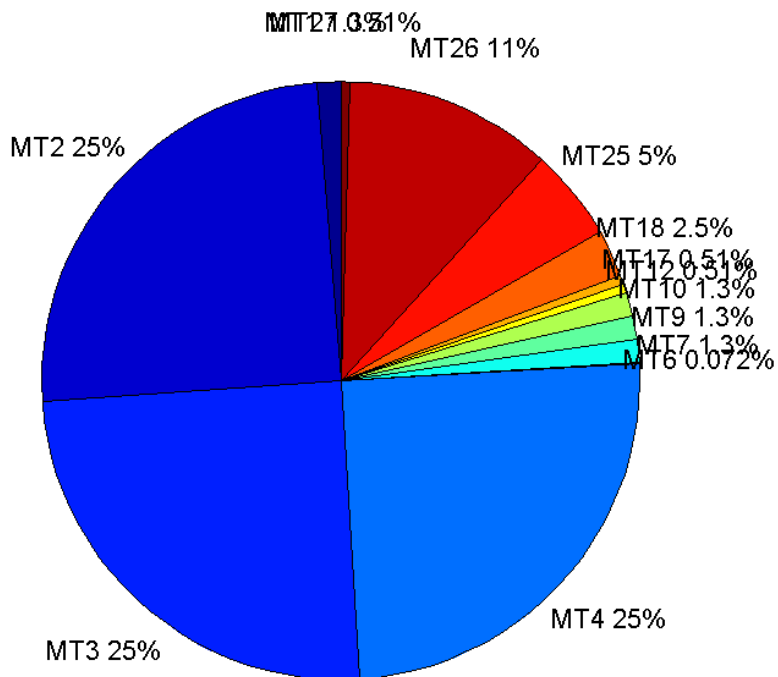
Broadcast SBAS Messages :

	number of messages	%
MT 0	0	0
MT 1	351	1.25595
MT 2	6952	24.8757
MT 3	6952	24.8757
MT 4	6952	24.8757
MT 5	0	0
MT 6	20	0.071564
MT 7	352	1.25953
MT 9	351	1.25595
MT 10	351	1.25595
MT 12	143	0.511683
MT 17	142	0.508105
MT 18	710	2.54052
MT 24	0	0
MT 25	1387	4.96297
MT 26	3141	11.2391
MT 27	143	0.511683
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	27947	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	74	83	79.5171	0	0	0
MT 2	4	8	4.01985	5	0	0
MT 3	4	8	4.01985	5	0	0
MT 4	4	8	4.01985	5	0	0
MT 5	--	--	--	--	--	--
MT 6	1	8307	770.105	4	4	4
MT 7	76	83	79.5157	0	0	0
MT 9	75	81	79.5171	0	0	0
MT 10	76	86	79.5286	0	0	0
MT 12	188	201	195.993	142	0	0
MT 17	188	201	196.021	0	0	0
MT 18	1	165	39.0339	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	61	20.1515	0	0	0
MT 26	2	36	8.89618	0	0	0
MT 27	188	201	196.014	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_27_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_01_27_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: 05:46:35 27.01.2016 (week: 1881 sec: 279995)
end: 13:32:21 27.01.2016 (week: 1881 sec: 307941)
duration: 07:45:47 ..

quality

valid samples 24170
total samples 27947

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	299974	1.68291	10.2748	0.16379	1.23936	17.6195	0.0703402
max normVer	290272	1.6462	16.2541	0.101279	1.76936	16.9422	0.104435
max HPE	307867	2.92996	104.109	0.0281432	0.421594	67.6956	0.00622779
max VPE	288425	2.04179	50.7839	0.0402054	-2.60862	52.3133	0.0498653
min HPL	280794	0.861099	8.70389	0.0989327	-0.505507	14.0966	0.0358602
min VPL	282894	1.07615	9.0175	0.11934	-0.659258	12.1485	0.0542666

Position discontinuity events :

#	Epoch	duration	stable period
1	288876	230	127
2	290311	200	20
3	292982	308	668
4	293802	5017	512

APV-I discontinuity events :

#	Epoch	duration	stable period
1	288876	230	127
2	292982	312	505
3	293801	5018	507
4	307169	453	8350

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	292982	312	505
2	293801	5018	507
3	304876	149	6057
4	305147	4	1
5	307169	453	1966

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	292982	312	505
2	293801	5018	507
3	304876	149	6057
4	305147	4	1
5	307169	453	1966

First Glance analysis

Duration	27947
Number of Samples	27947
Number of invalid sample	3777
Number of no position solution samples	6109
Number of missing sample	0
Logging Loss	0
Processing Loss	13.5149
Number of Misleading Information	0
Data gaps	17
Discontinuities	20

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
18061	16122	15462	0	15462

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.82161	1.81658	1.76234	NaN	1.76234
HPEscale 95%	NaN	5.25704	5.27668	NaN	5.27668
VPE 95%	1.41841	1.32753	1.32448	NaN	1.32448
VPEscale 95%	NaN	3.34607	2.36596	NaN	2.36596

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.747249	0.667025	0.639719	0	0.639719
measurements	0.646259	0.576878	0.553262	0	0.553262
Operational	0.646259	0.576878	0.553262	0	0.553262

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	4	4	48	--	48
Long	4	4	5	--	5
Independent	4	4	4	--	4
P(disc.)	0.00332208	0.00372162	0.00388048	NaN	0.00388048
P(slide)	0.00332208	0.00372162	0.00911913	NaN	0.00911913

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

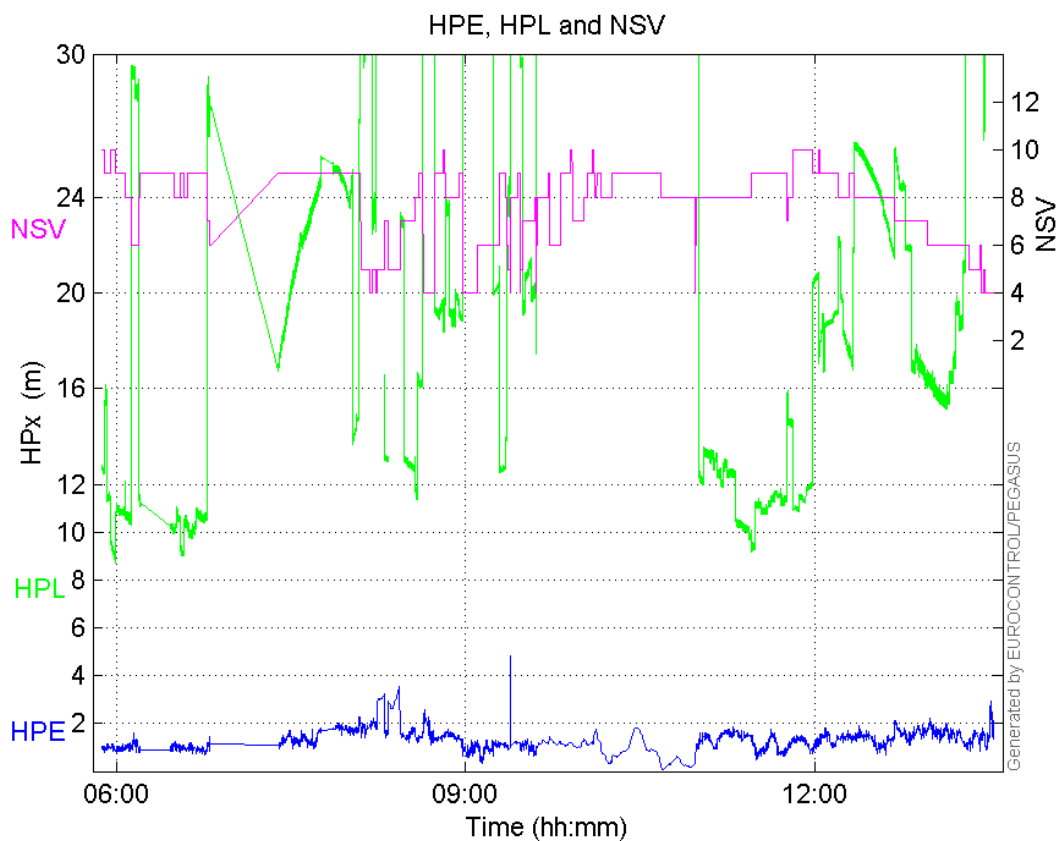
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	18061	16122	15462	0	15462
SIS Availability	0.747249	0.667025	0.639719	0	0.639719

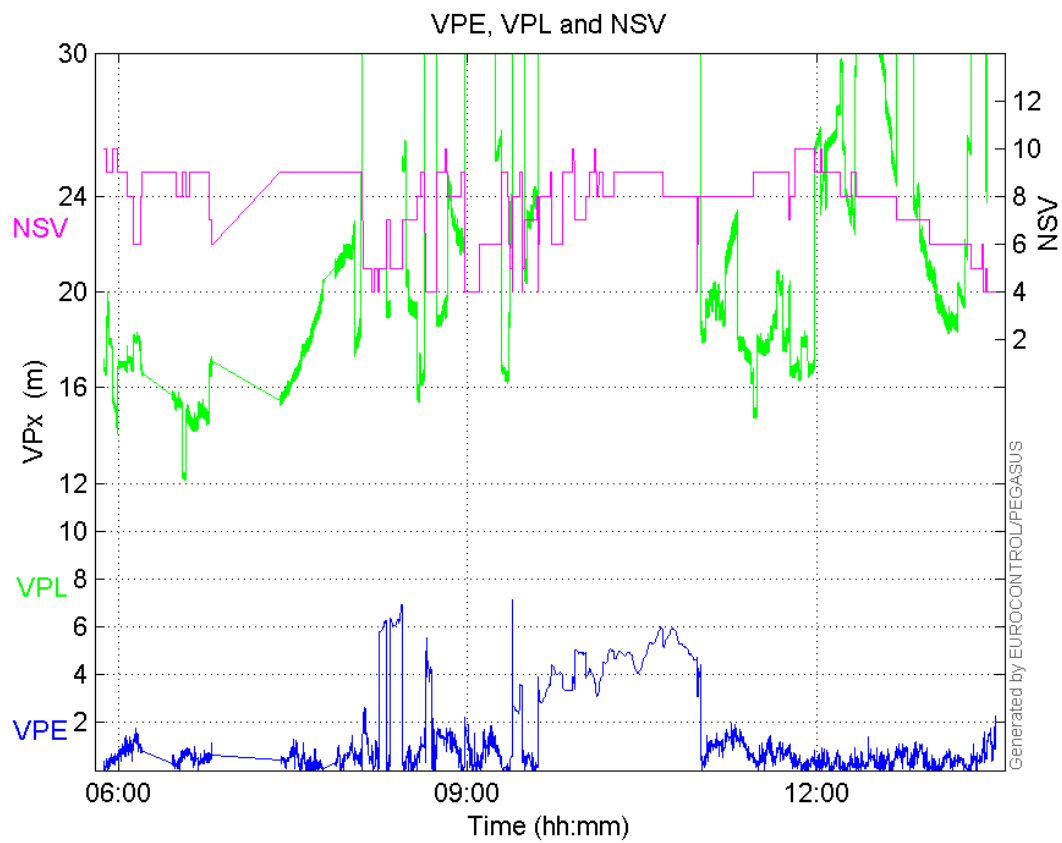
Local Availability	0.646259	0.576878	0.553262	0	0.553262
Operational Availability	0.646259	0.576878	0.553262	0	0.553262
HPE 95%	1.82161	1.81658	1.76234	NaN	1.76234
HPscale 95%	NaN	5.25704	5.27668	NaN	5.27668
VPE 95%	1.41841	1.32753	1.32448	NaN	1.32448
VPscale 95%	NaN	3.34607	2.36596	NaN	2.36596
All Discontinuity Events	4	4	48	--	48
Long Discontinuity Events	4	4	5	--	5
Independent Discontinuity Events	4	4	4	--	4
P(discontinuity)	0.00332208	0.00372162	0.00388048	NaN	0.00388048
P(sliding window)	0.00332208	0.00372162	0.00911913	NaN	0.00911913
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:



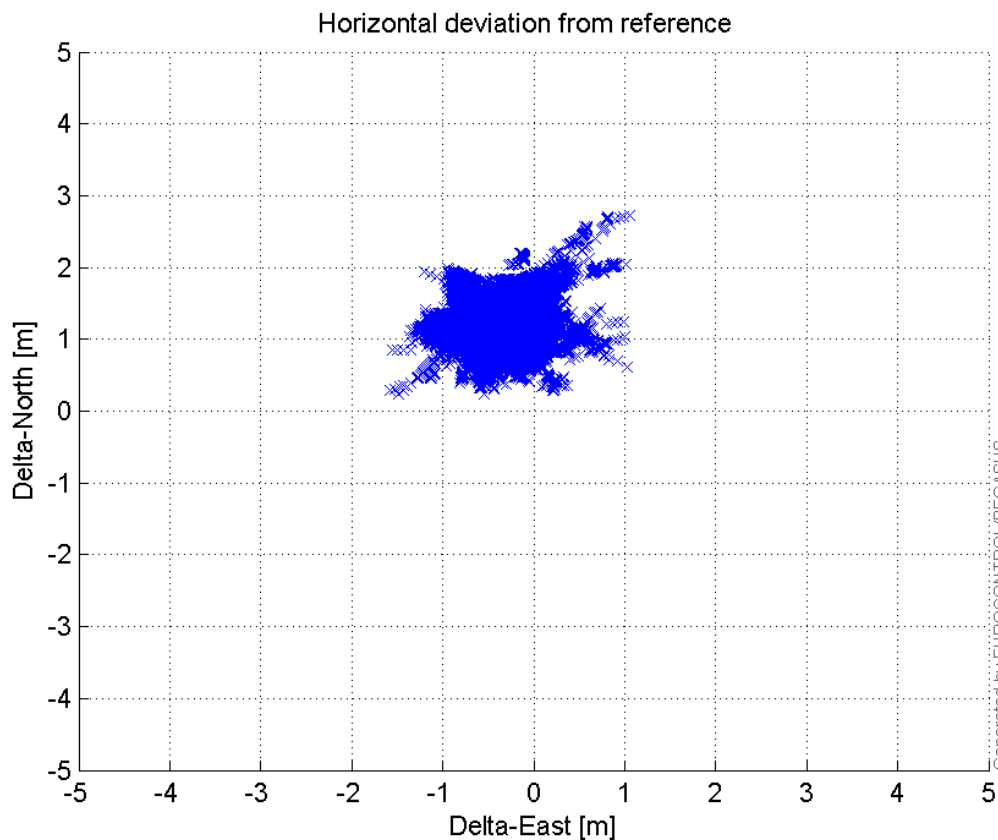
VPE, VPL and NSV:



Generated by EUROCONTROL/PEGASUS

Horizontal deviation

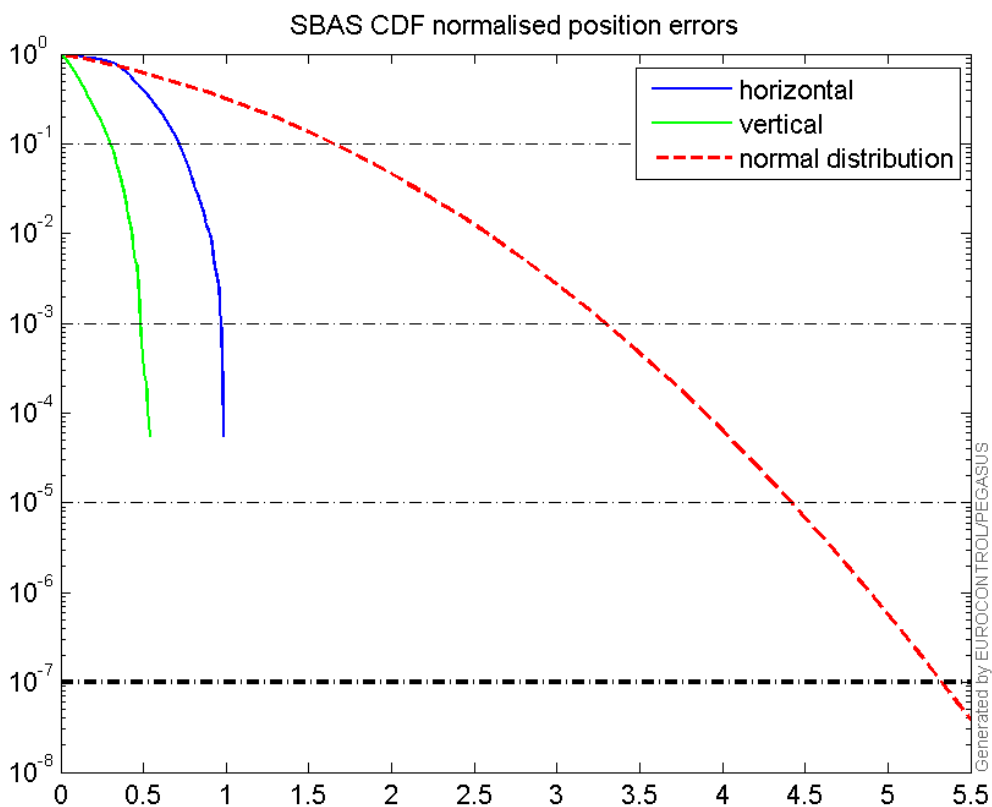
Horizontal deviation from reference :



Generated by EUROCONTROL/PEGASUS

CDF position

SBAS CDF position domain:



Statistics

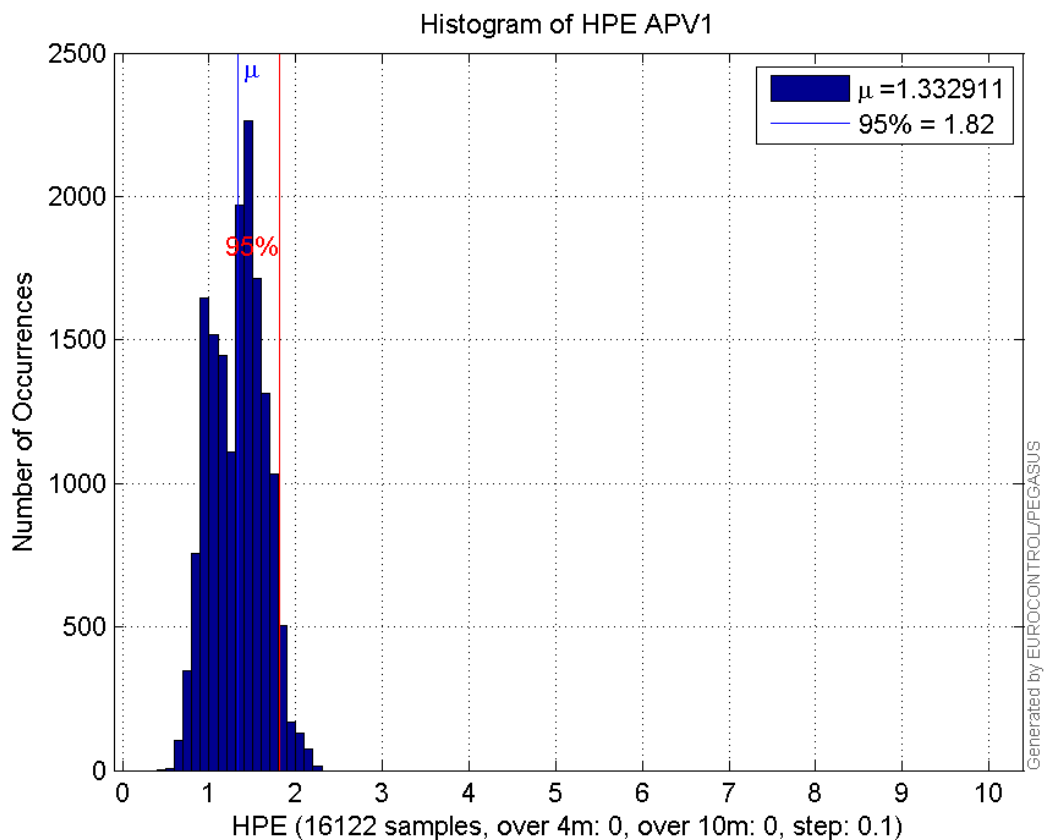
number	16122
sum	21489.187
sum2	30154.047
prctile95	1.816582
prctile99	2.0455912
number	16122
sum	8963.5341
sum2	7335.1358
prctile95	1.3275301
prctile99	1.5711947
number	16122
sum	282980.53
sum2	5553412.7
prctile95	26.83762
prctile99	34.165592
number	16122
sum	345208.54
sum2	7931426.6
prctile95	34.04558
prctile99	39.250676
number	16122
sum	1332.8159
sum2	121.77946

prctile95 0.1314261
prctile99 0.15116625
number 16122
sum 449.06189
sum2 19.026167
prctile95 0.066921486
prctile99 0.081041692
number 15462
sum 20276.246
sum2 27905.847
prctile95 1.7623388
prctile99 1.897187
number 15462
sum 8493.7457
sum2 6900.1188
prctile95 1.324484
prctile99 1.5687338
number 15462
sum 264024.55
sum2 4992657
prctile95 25.91004
prctile99 29.549456
number 15462
sum 320264.44
sum2 6986786.4
prctile95 31.5172
prctile99 33.98936
number 15462
sum 1289.3042
sum2 118.79489
prctile95 0.13191697
prctile99 0.15152096
number 15462
sum 436.53306
sum2 18.717433
prctile95 0.067598944
prctile99 0.081134156

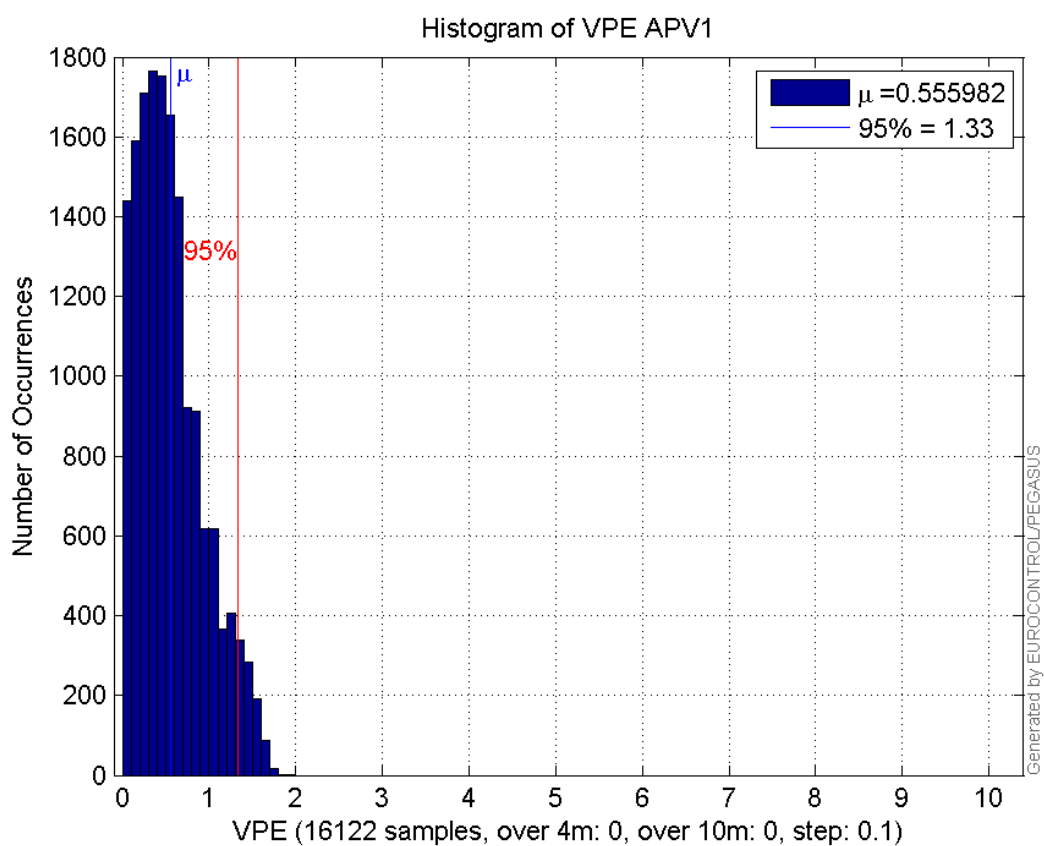
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.33291	0.306139	1.35904	1.81658	2.04559	1.36761
HPL	17.5524	6.03123	17.1293	26.8376	34.1656	18.5597
VPE	0.555982	0.38193	0.488723	1.32753	1.57119	0.67452
VPL	21.4123	5.78618	19.4583	34.0456	39.2507	22.1802

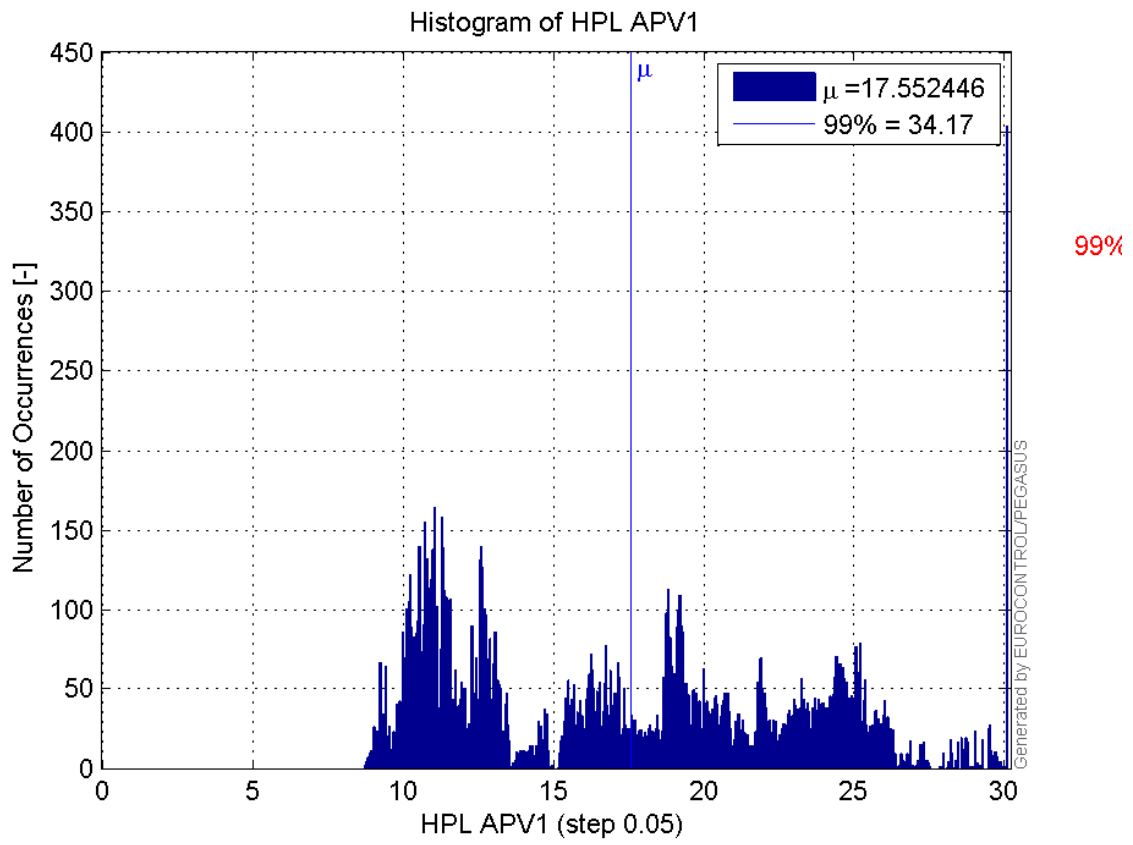
Histogram of HPE APV1:



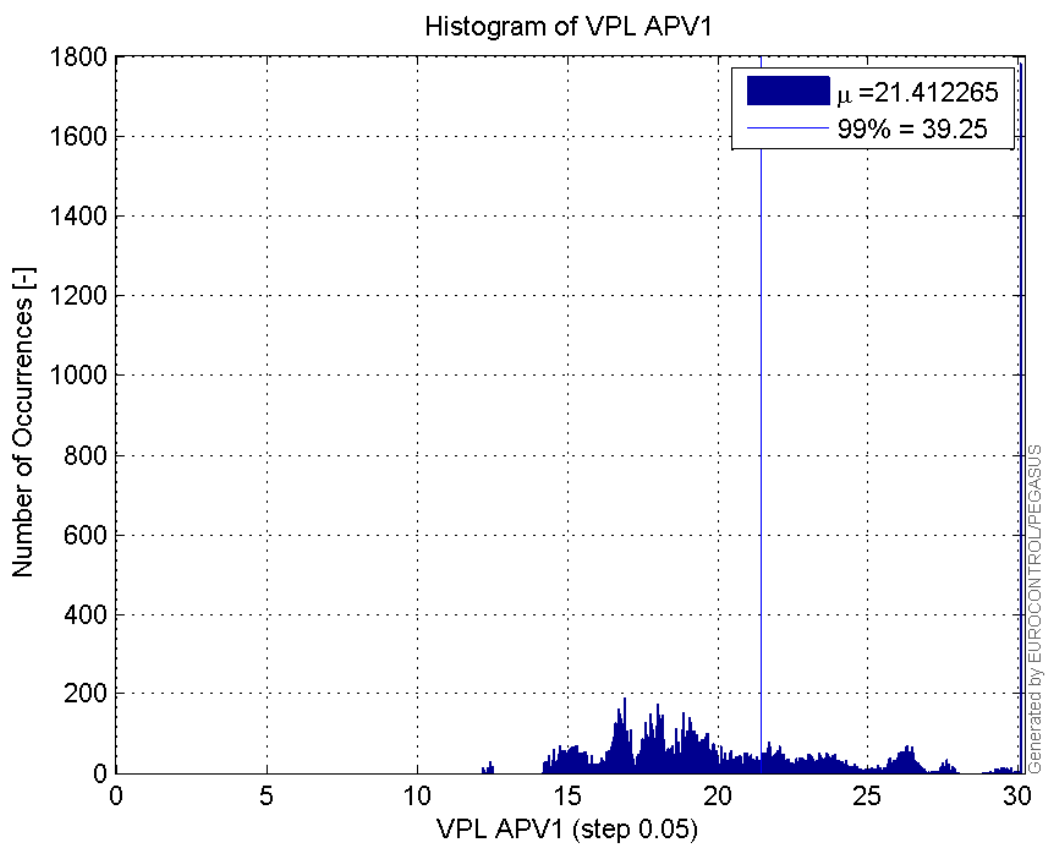
Histogram of VPE APV1:



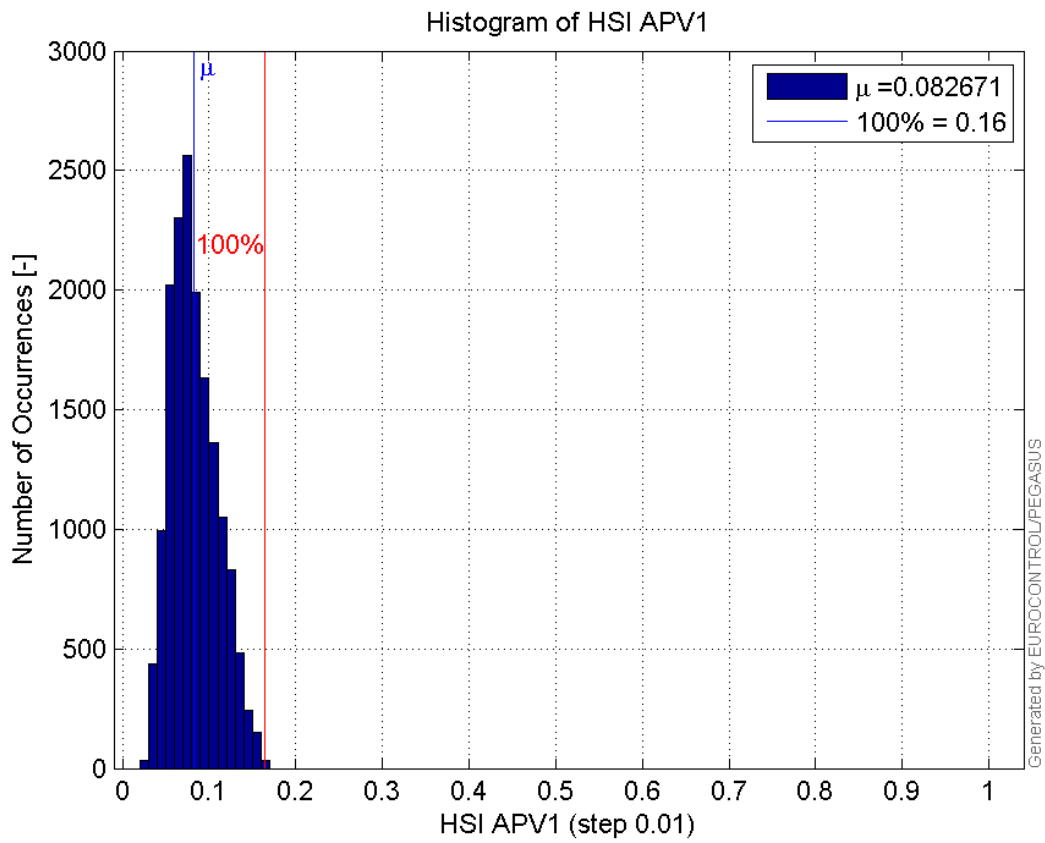
Histogram of HPL APV1:



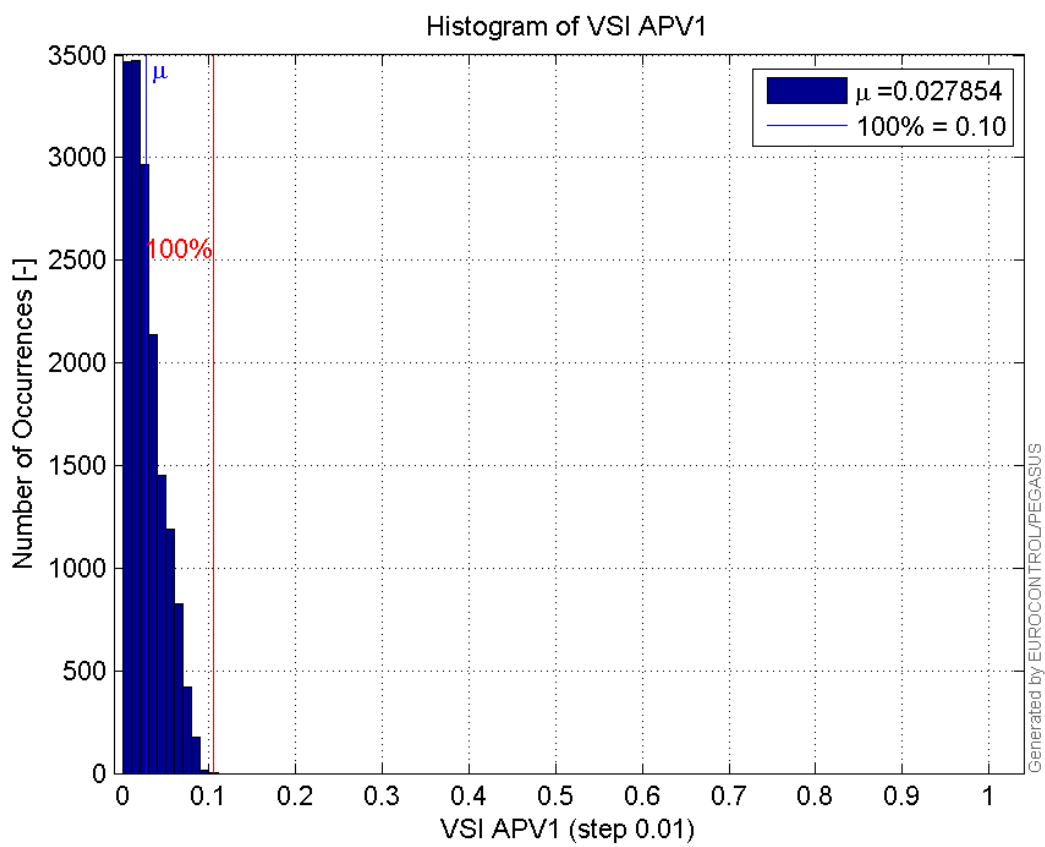
Histogram of VPL APV1:



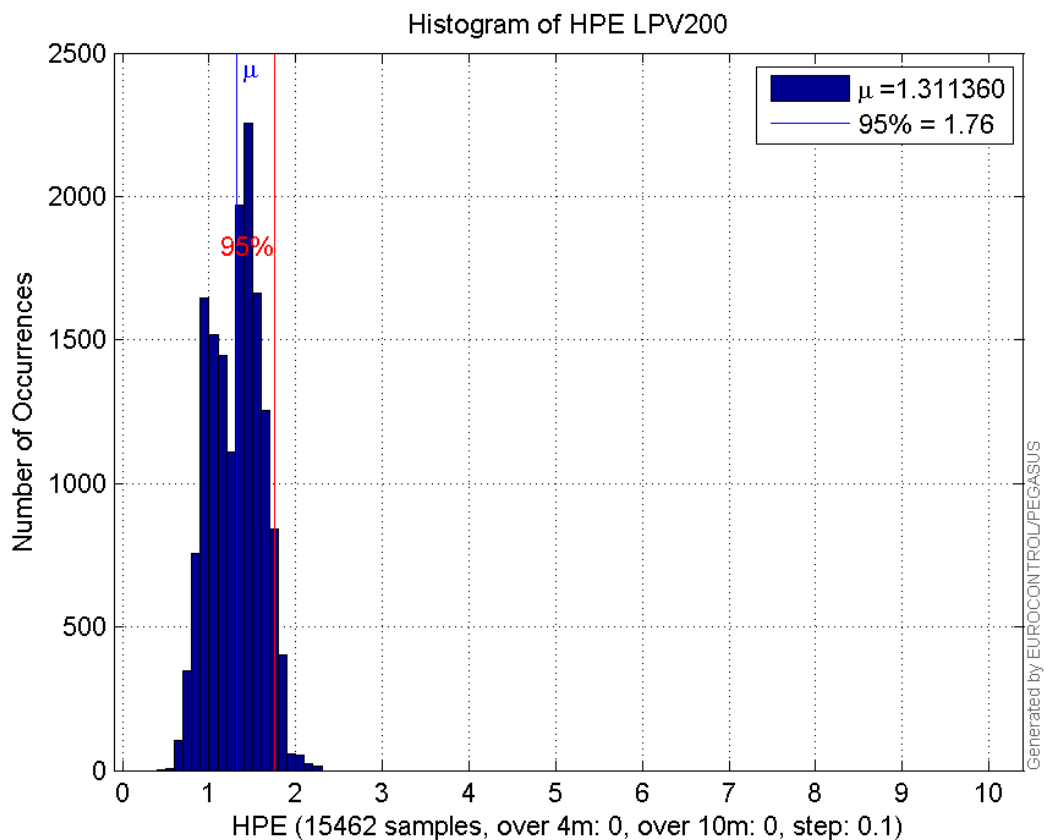
Histogram of HSI APV1:



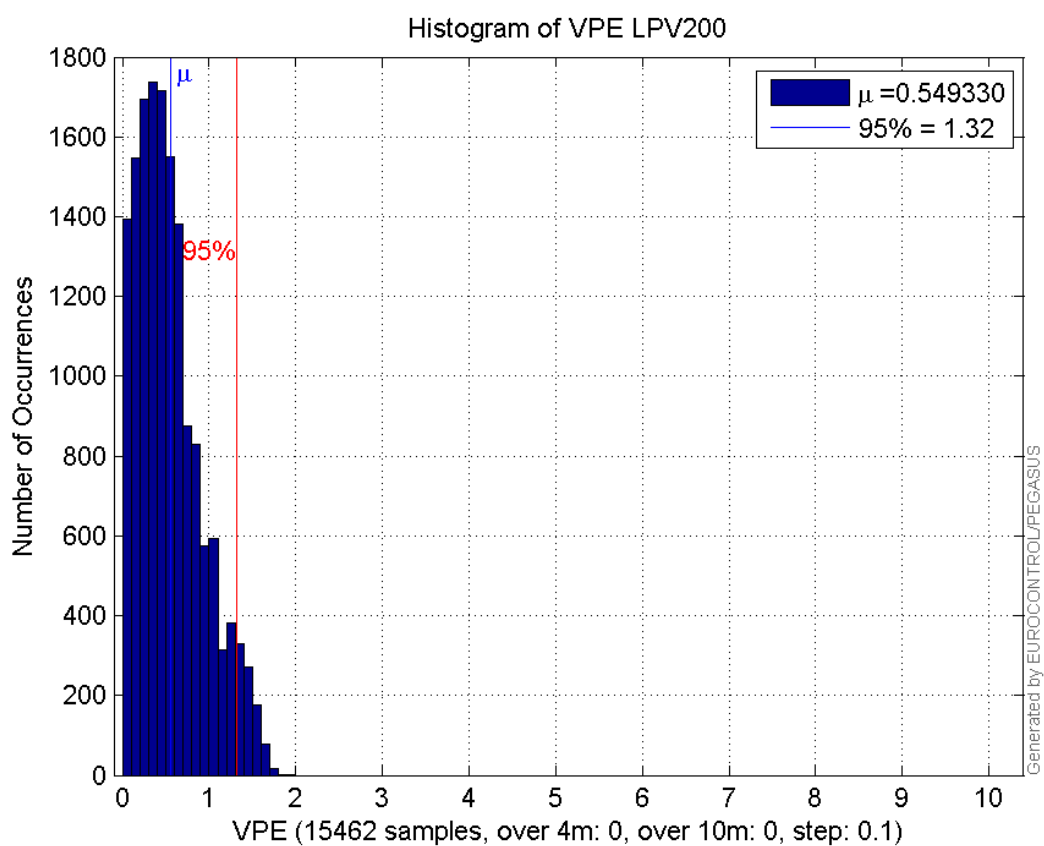
Histogram of VSI APV1:



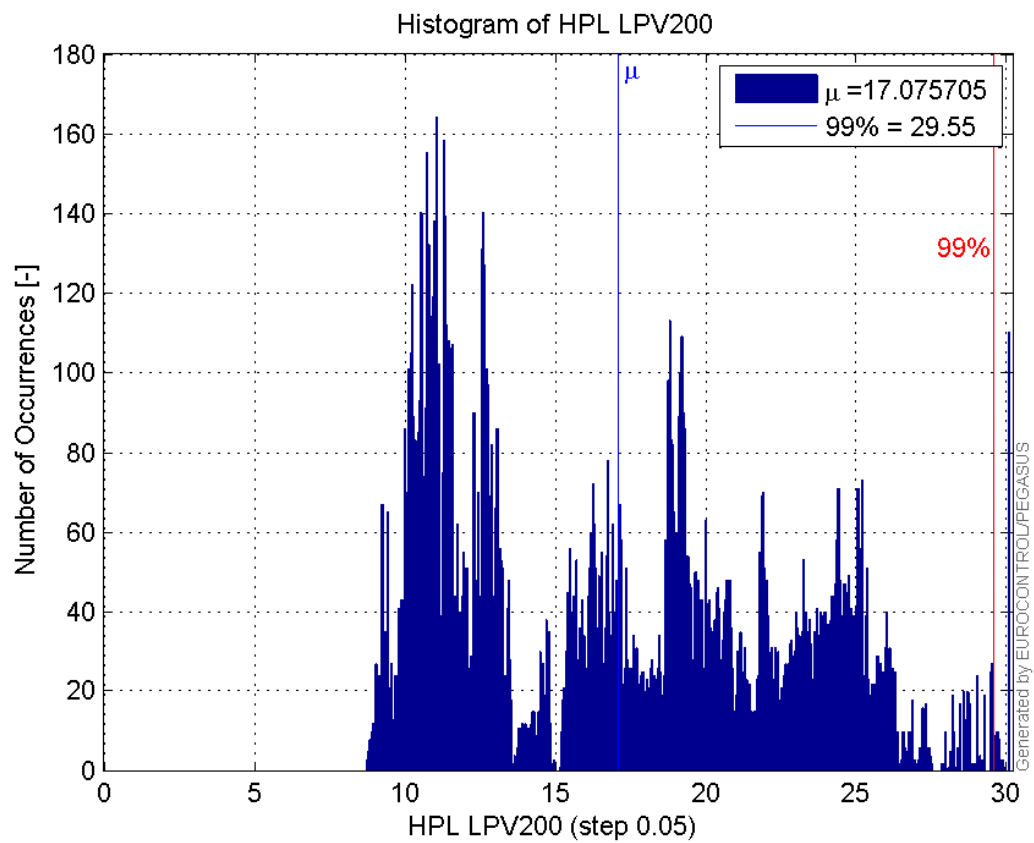
Histogram of HPE LPV200:



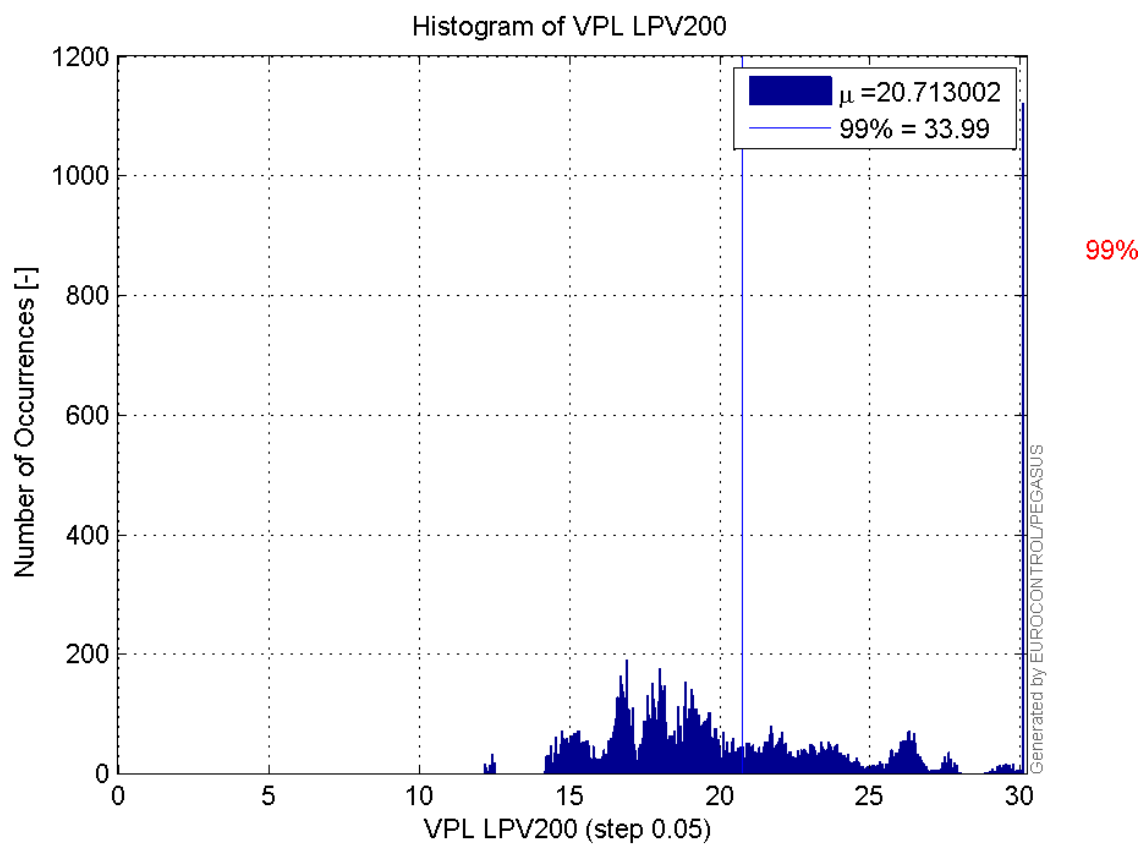
Histogram of VPE LPV200:



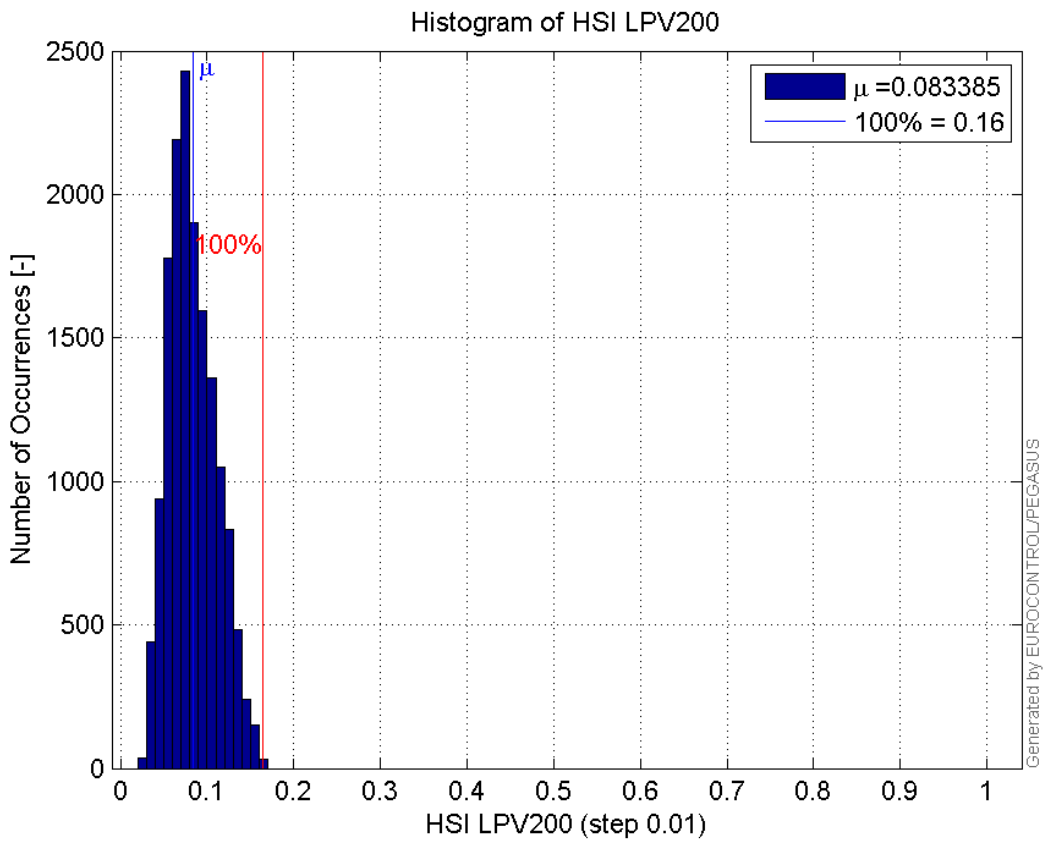
Histogram of HPL LPV200:



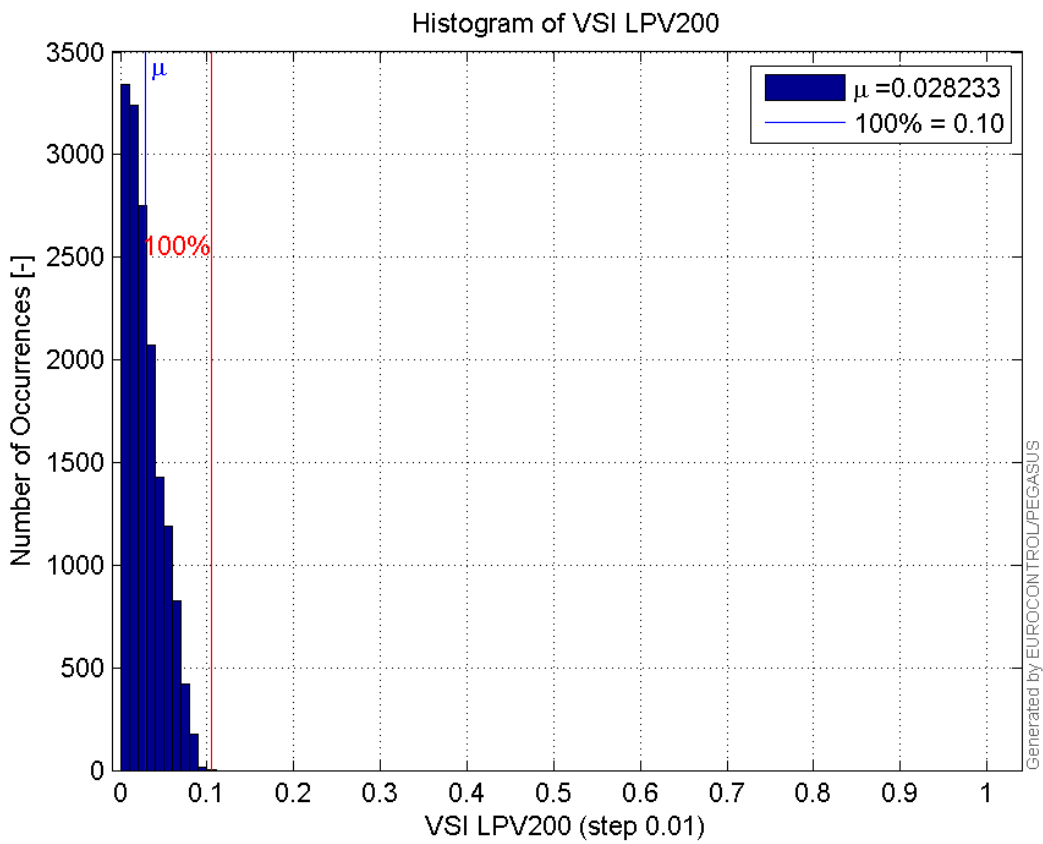
Histogram of VPL LPV200:



Histogram of HSI LPV200:

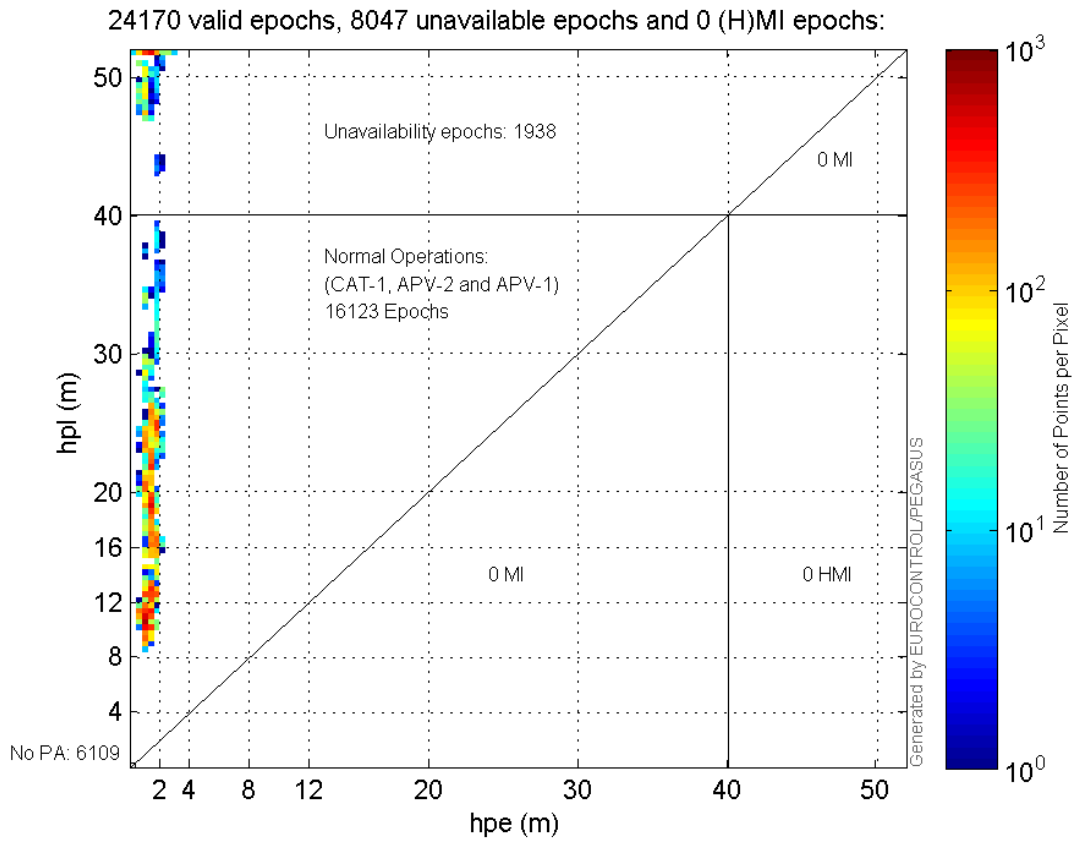


Histogram of VSI LPV200:

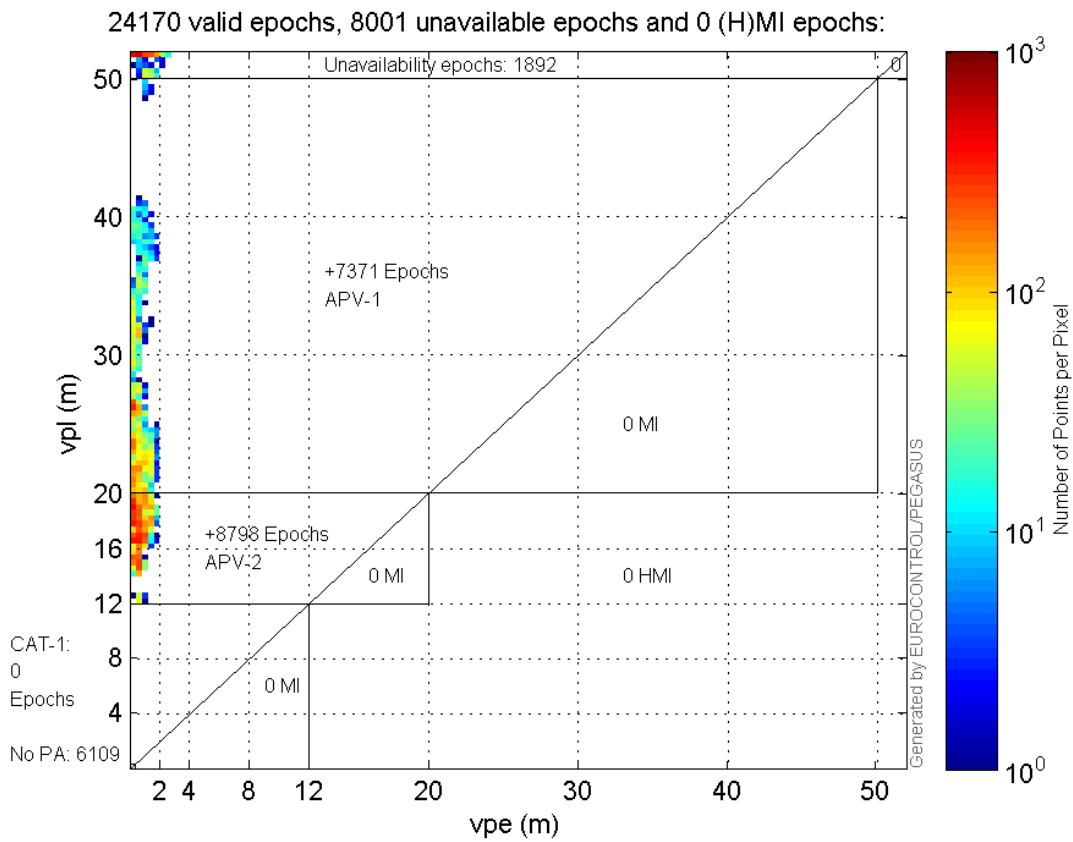


Stanford Plots

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_27_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_27_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	225.7744
mi_numbers	results	0