

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: 09:23:25 29.01.2016 (week: 1881 sec: 465805)
end: 14:20:52 29.01.2016 (week: 1881 sec: 483652)
duration: 04:57:28 ..

quality

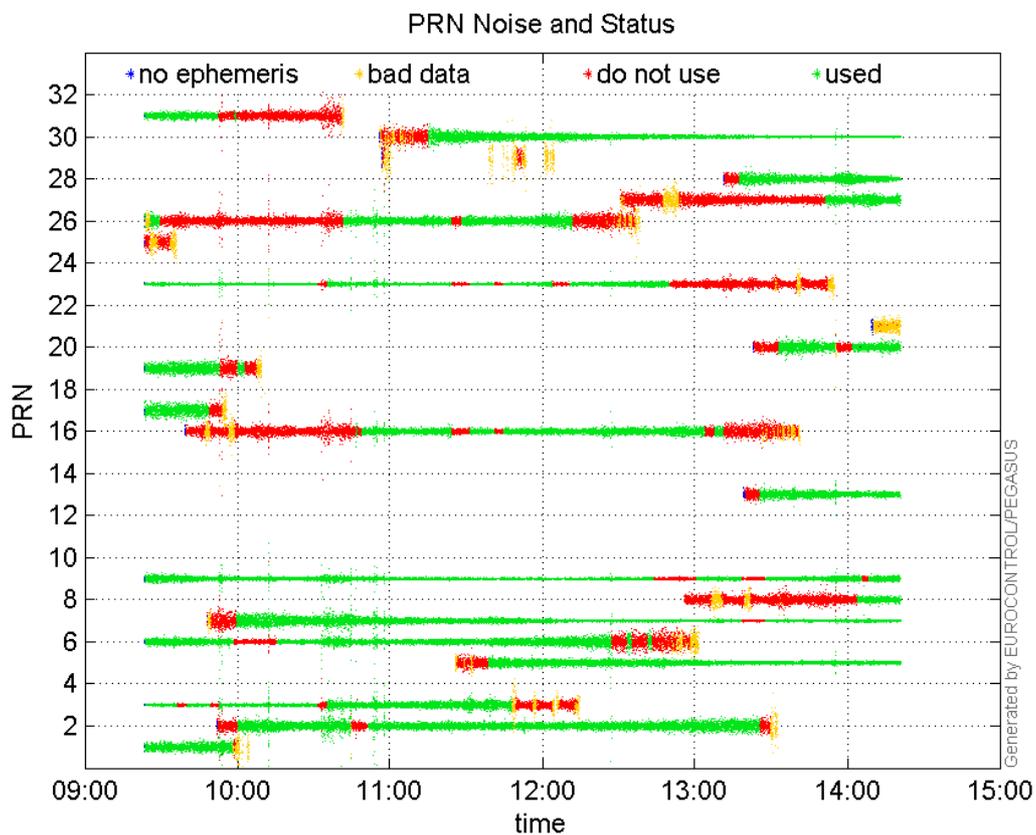
valid samples 17848
total samples 17848

PRN overview

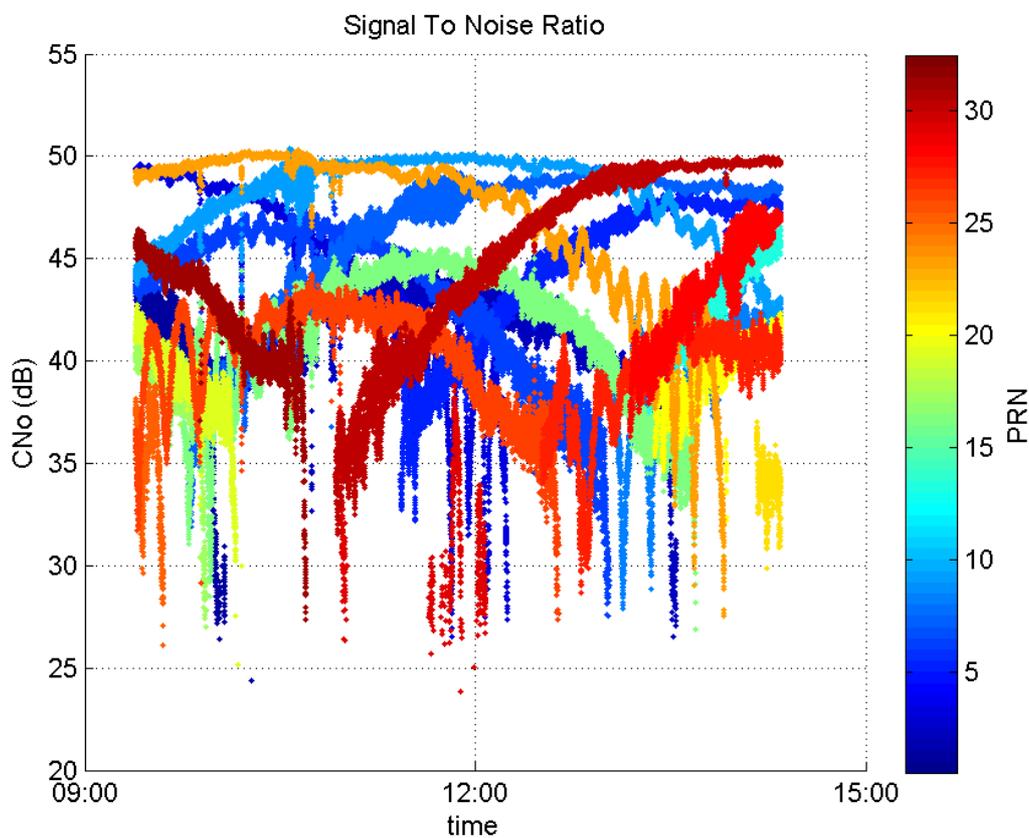
Number of Visible GPS Satellites 22
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



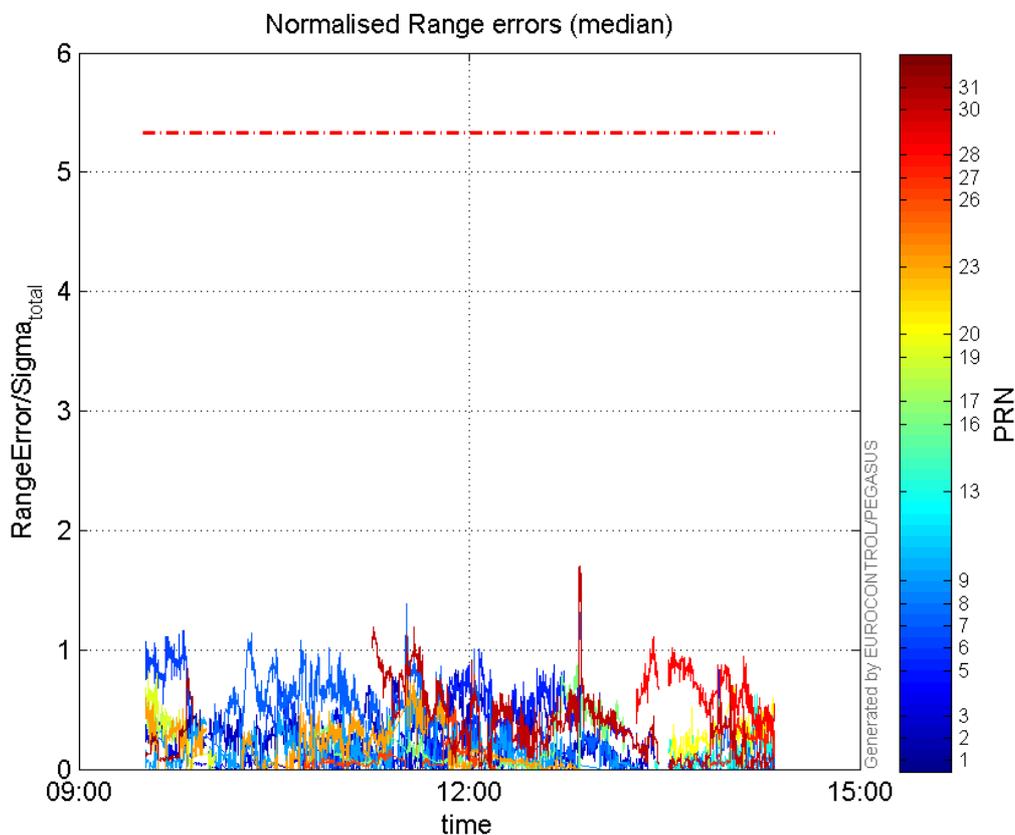
range errors

Number of Overbounding Norm Errors 0

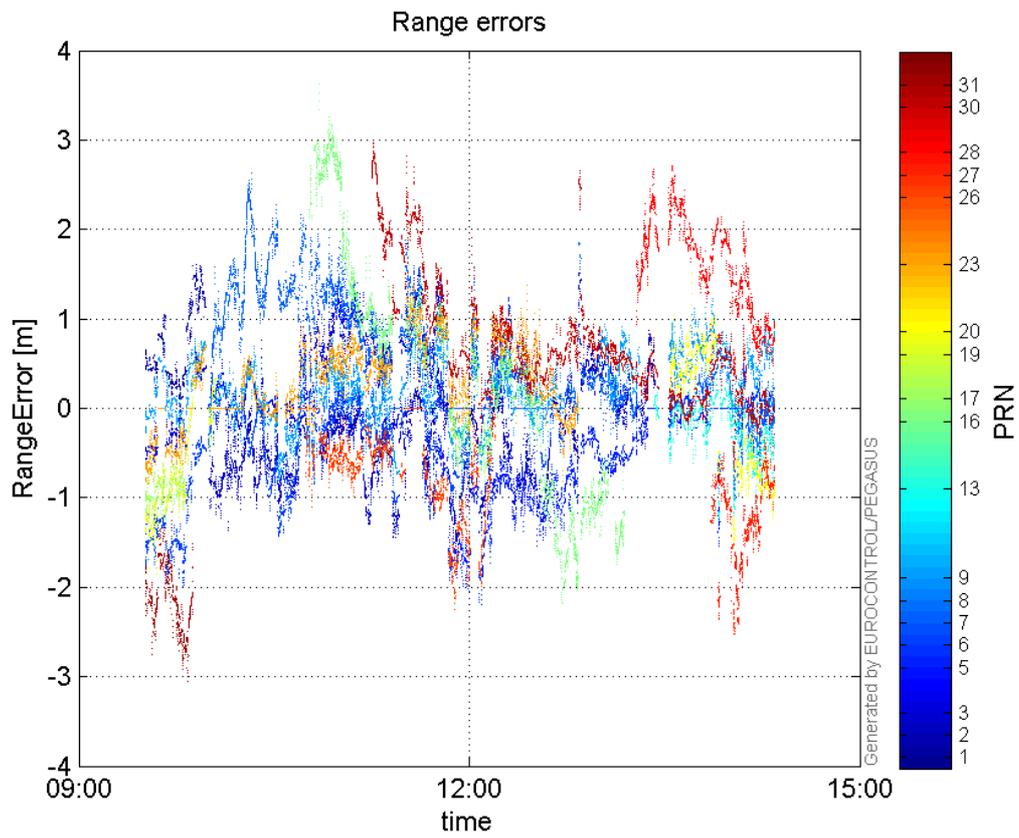
Max Norm Errors :

GPS Week	GPS Second	PRN	Norm Error	Range Error	Sigma
1881	467559	1	0.554083	1.60021	2.88804
1881	474811	2	0.836826	-1.61607	1.93119
1881	473455	3	0.690625	1.8433	2.66903
1881	475483	5	1.00963	-2.16945	2.14876
1881	467281	6	1.1652	-1.9869	1.7052
1881	473458	7	1.38632	2.28412	1.64761
1881	482643	8	0.0603098	-0.985884	16.347
1881	473455	9	0.922818	1.36477	1.47892
1881	483163	13	0.631554	-1.20427	1.90683
1881	478195	16	0.878529	-2.03259	2.31362
1881	466516	17	0.725016	-1.78584	2.46318
1881	466330	19	0.826966	-1.85177	2.23923
1881	482510	20	0.704968	-1.54122	2.18623
1881	473498	23	0.762198	1.39147	1.82561
1881	474778	26	0.52748	-2.25158	4.26856
1881	483223	27	0.592848	-1.54129	2.59981
1881	480289	28	1.10408	2.66926	2.41764
1881	478259	30	1.69928	2.56158	1.50745
1881	467420	31	0.843561	-3.05613	3.62289

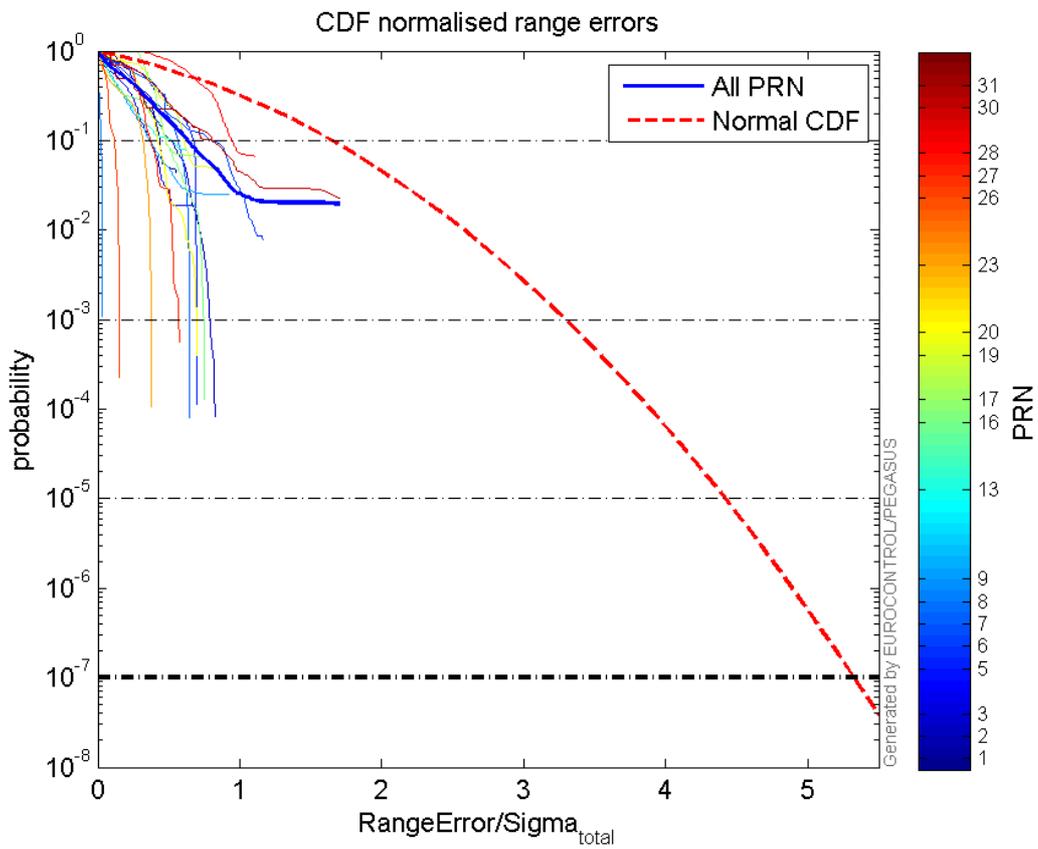
Normalised Range errors (median):



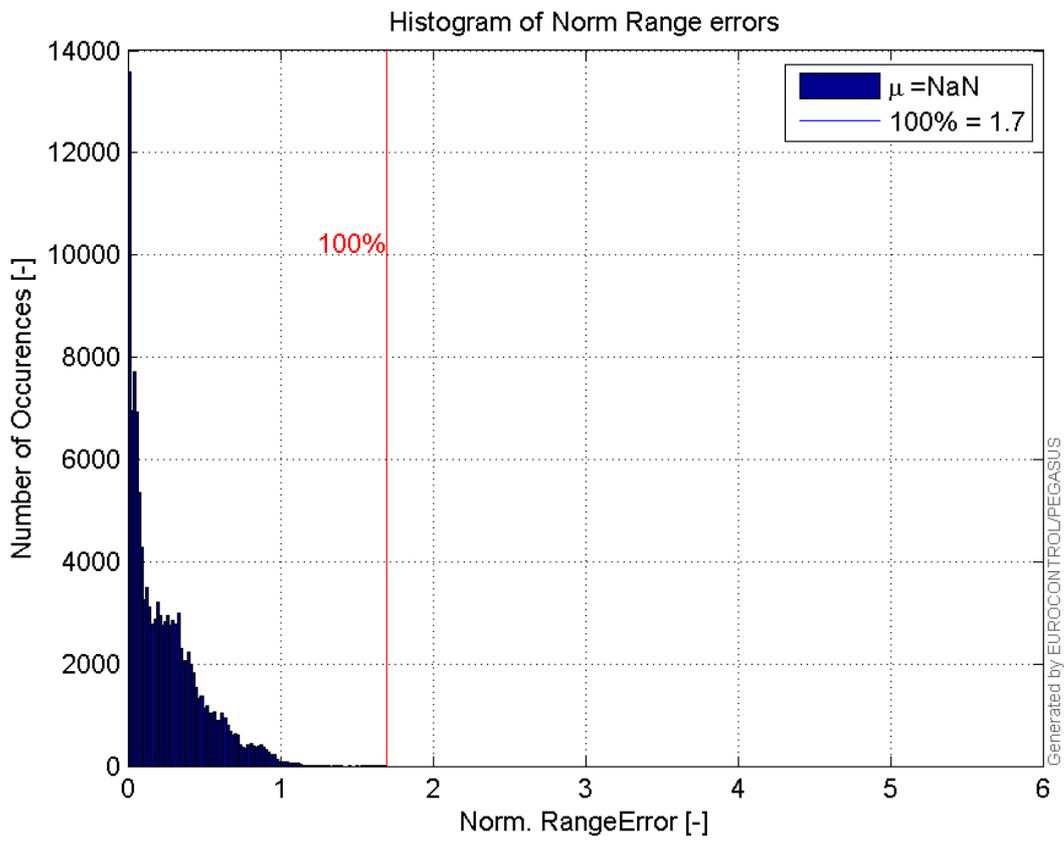
Range errors:



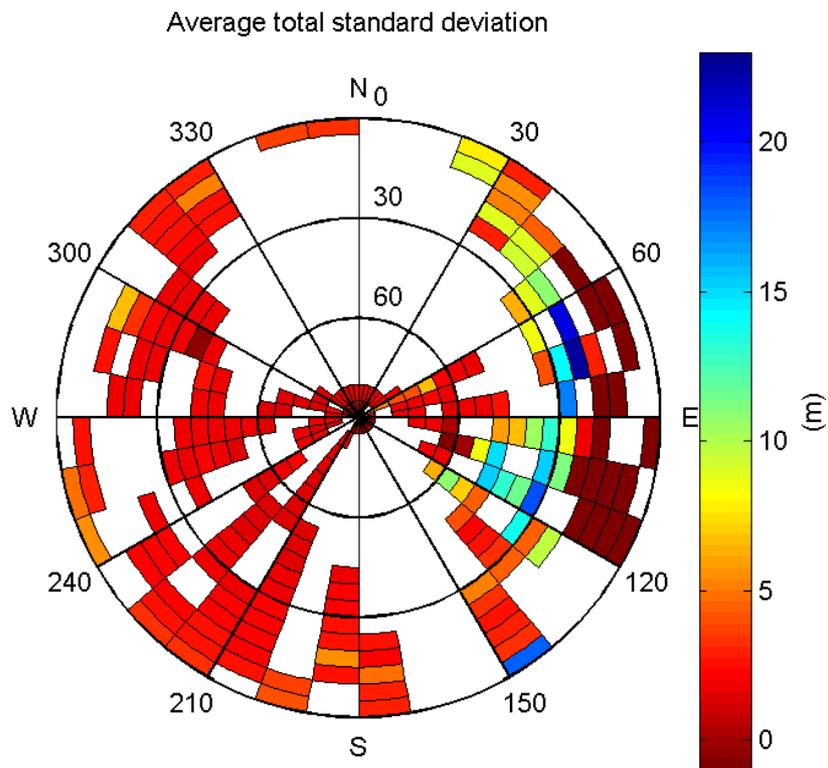
CDF normalised range errors:



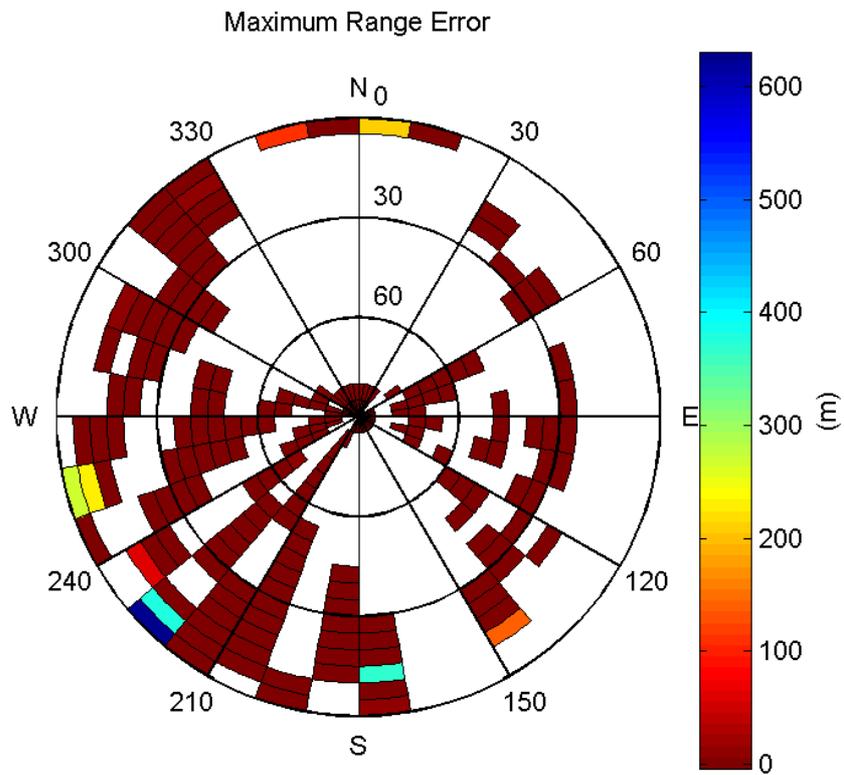
Histogram of Norm Range errors:



Sigma Sky Plot:

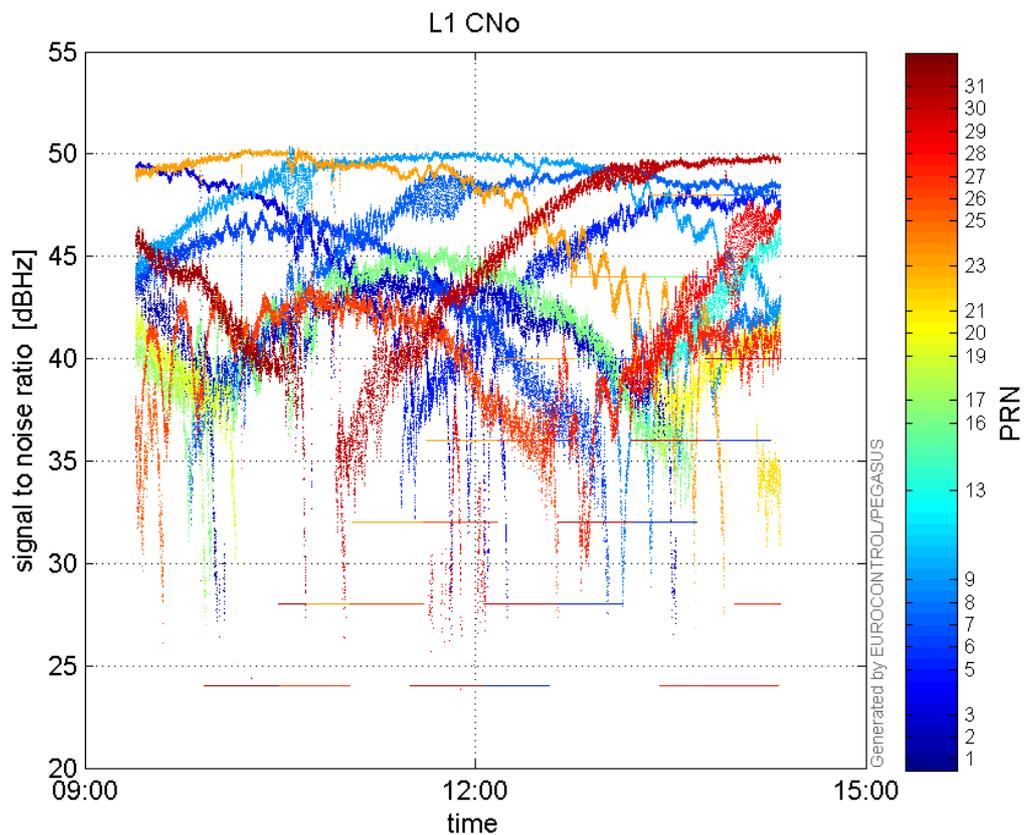


Norm Error Sky Plot:

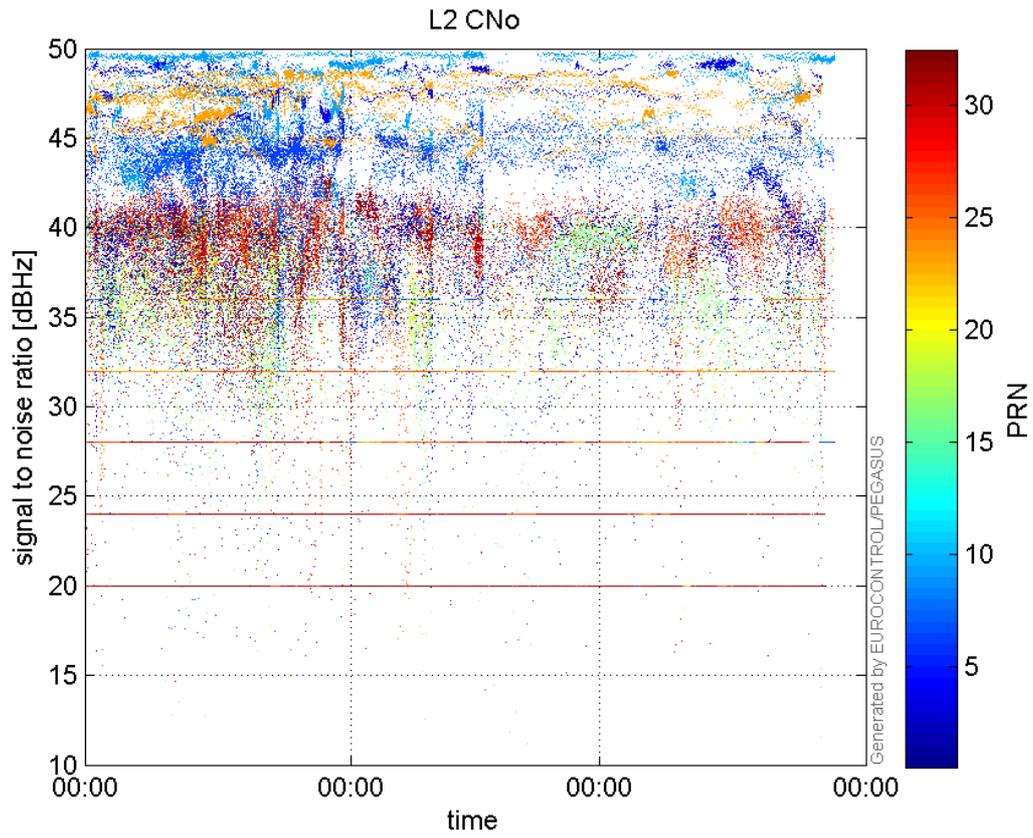


signal quality

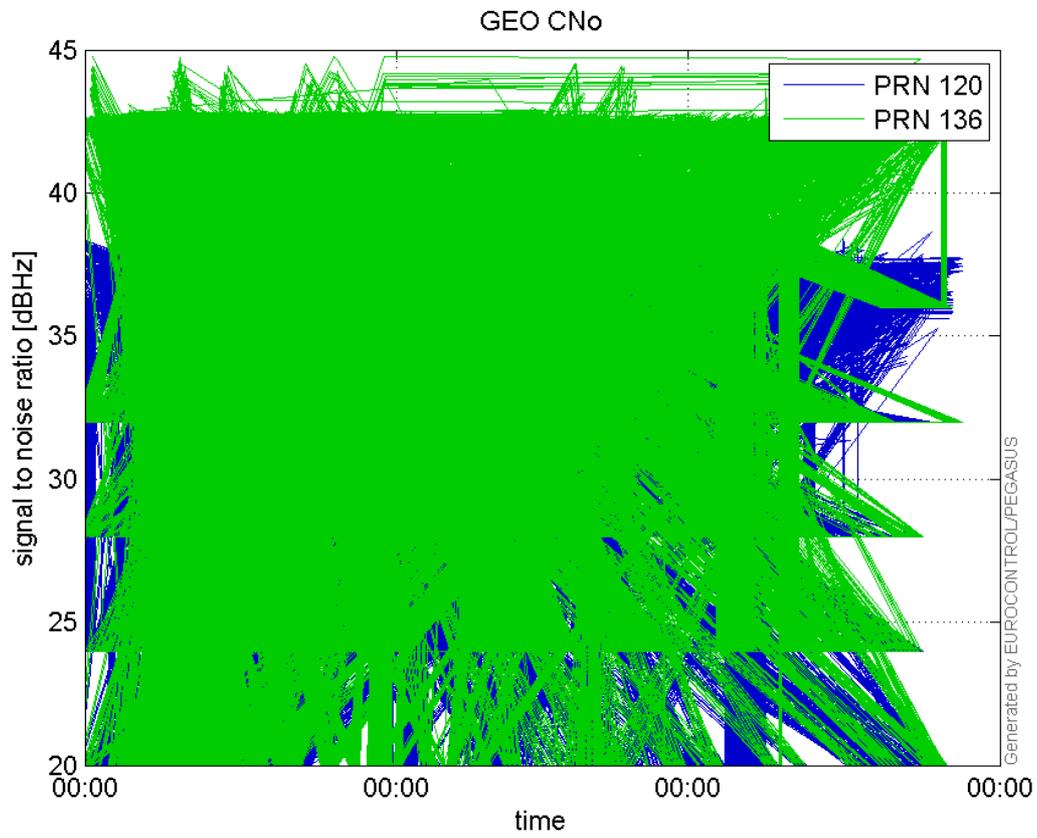
L1 CNo:



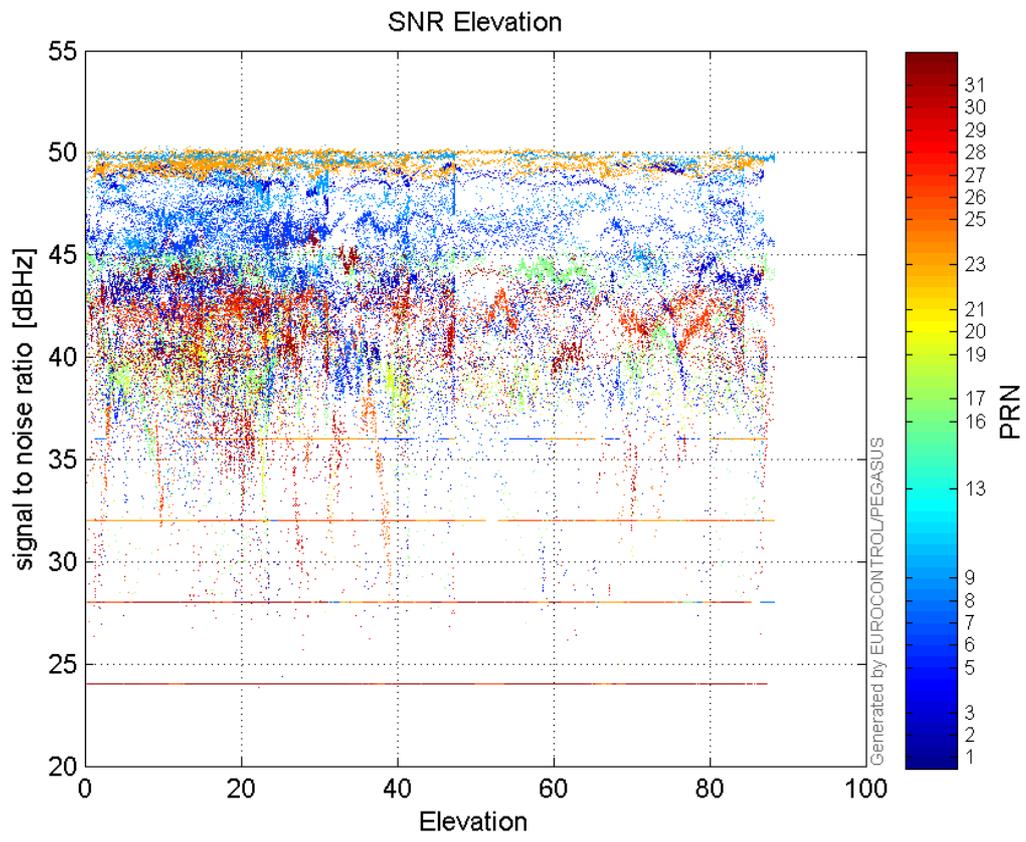
L2 CNo:



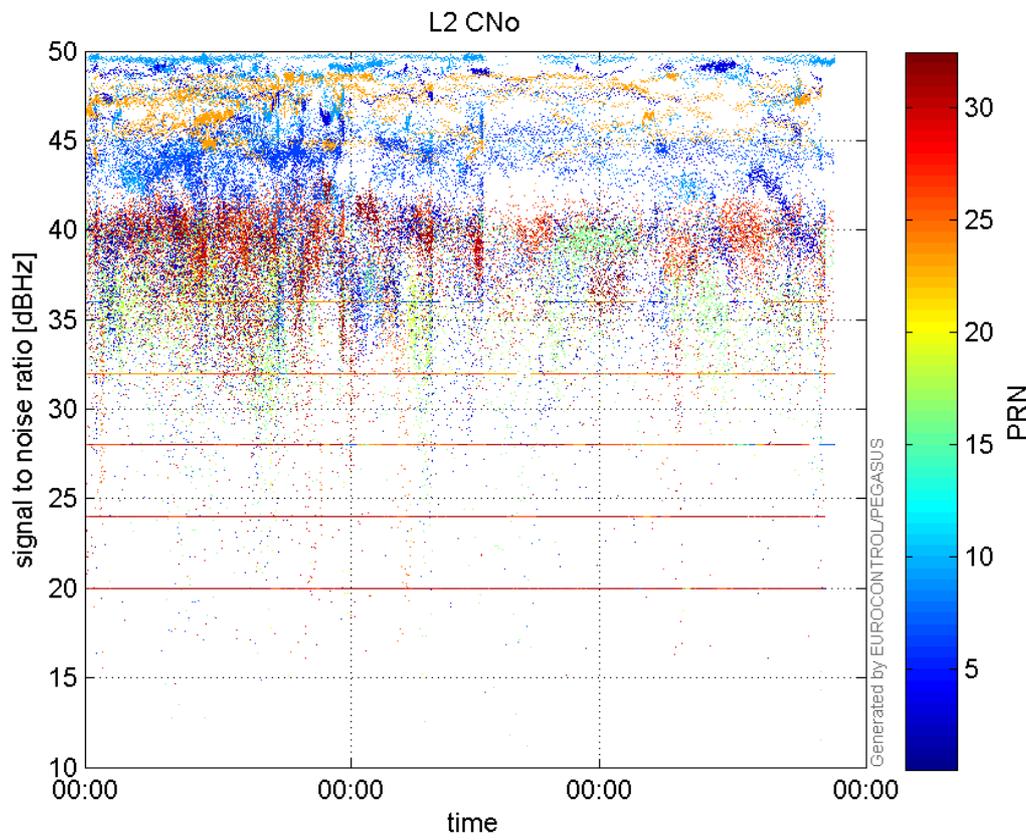
GEO CNo:



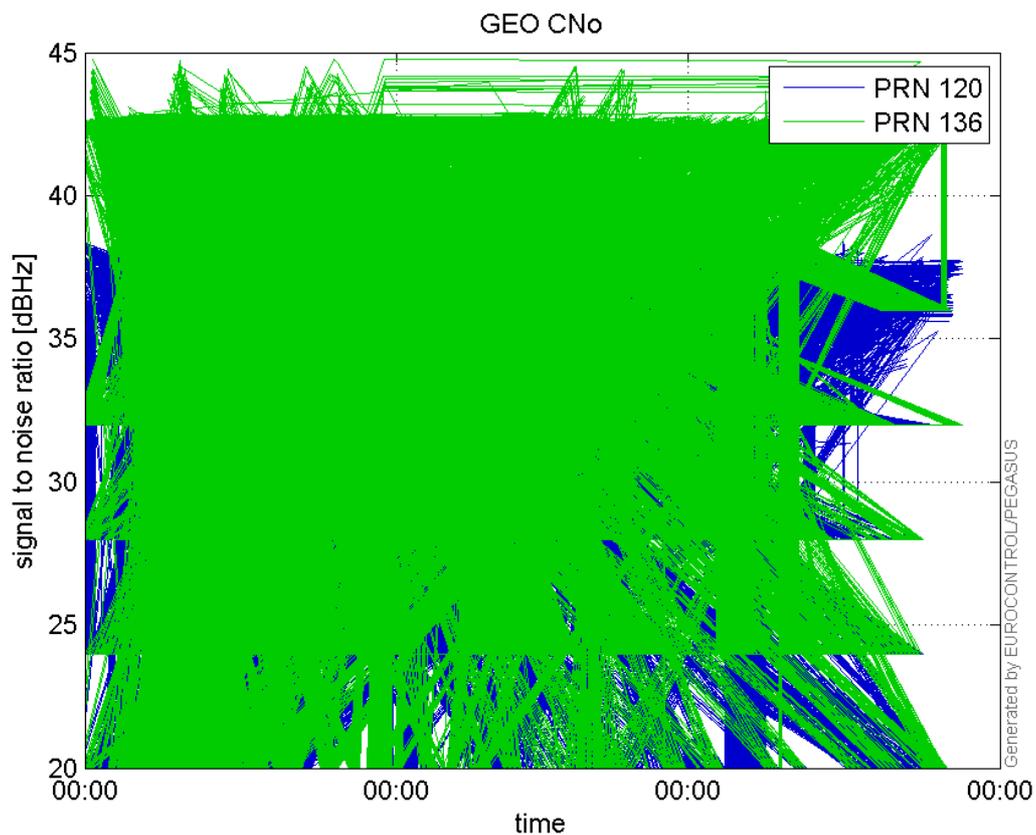
SNR Elevation:



L2 CNo:

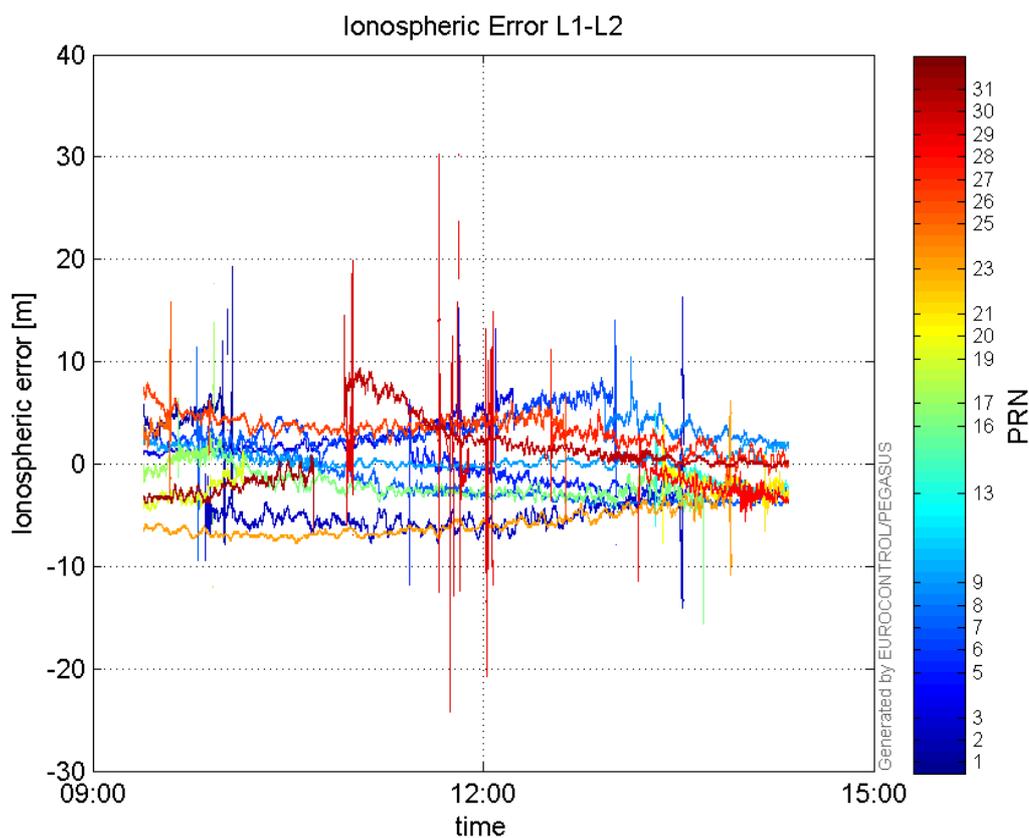


GEO CNo:



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_29_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_29_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	229.476
mi_numbers	results	0

Position Domain

start: 09:23:25 29.01.2016 (week: 1881 sec: 465805)
end: 14:20:52 29.01.2016 (week: 1881 sec: 483652)
duration: 04:57:28 ..

quality

valid samples 17482
total samples 17848

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	467422	2.06685	12.8175	0.161252	-1.28075	15.694	0.0816077
max normVer	481348	1.0324	20.7704	0.0497052	2.18229	17.5842	0.124105
max HPE	480436	10.2457	992.136	0.0103269	3.647	263.841	0.0138227
max VPE	480436	10.2457	992.136	0.0103269	3.647	263.841	0.0138227
min HPL	472988	0.956812	9.02943	0.105966	0.291001	14.5409	0.0200126
min VPL	474068	1.08306	9.05793	0.11957	-0.444647	13.8399	0.0321279

Position discontinuity events :

#	Epoch	duration	stable period
1	467919	67	1671
2	480436	257	12450

APV-I discontinuity events :

#	Epoch	duration	stable period
1	467904	96	1656
2	469904	192	1904
3	470688	194	592
4	479482	353	8600
5	479836	3	1
6	479840	3	1
7	479844	3	1
8	479848	911	1

APV-35m discontinuity events :

#	Epoch	duration	stable period
1	467756	244	1508
2	469904	192	1904
3	470683	369	587
4	476825	253	5773
5	477091	4	1
6	479482	353	2318
7	479848	911	1

LPV-200 discontinuity events :

#	Epoch	duration	stable period
1	467756	244	1508
2	469904	192	1904
3	470683	369	587
4	476825	253	5773
5	477091	4	1
6	479482	353	2318
7	479848	911	1

First Glance analysis

Duration	17848
Number of Samples	17848
Number of invalid sample	366
Number of no position solution samples	401
Number of missing sample	0
Logging Loss	0
Processing Loss	2.0506
Number of Misleading Information	0
Data gaps	0
Discontinuities	2

Number of Samples :

Valid	APV-1	LPV-200	CAT-1	APV-35m
17081	15650	15027	0	15027

Accuracy statistics :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
HPE 95%	1.92071	1.82302	1.82028	NaN	1.82028
HPEscale 95%	NaN	4.76716	4.79263	NaN	4.79263
VPE 95%	1.60965	1.60059	1.60449	NaN	1.60449
VPEscale 95%	NaN	4.04549	2.86622	NaN	2.86622

Availability :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Signal in Space	0.977062	0.895206	0.85957	0	0.85957
measurements	0.957026	0.876849	0.841943	0	0.841943
Operational	0.957026	0.876849	0.841943	0	0.841943

Discontinuity events :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
All	2	8	30	--	30
Long	2	5	7	--	7
Independent	2	4	5	--	5
P(disc.)	0.00175634	0.00383387	0.00499102	NaN	0.00499102
P(slide)	0.00175634	0.00408946	0.00785253	NaN	0.00785253

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

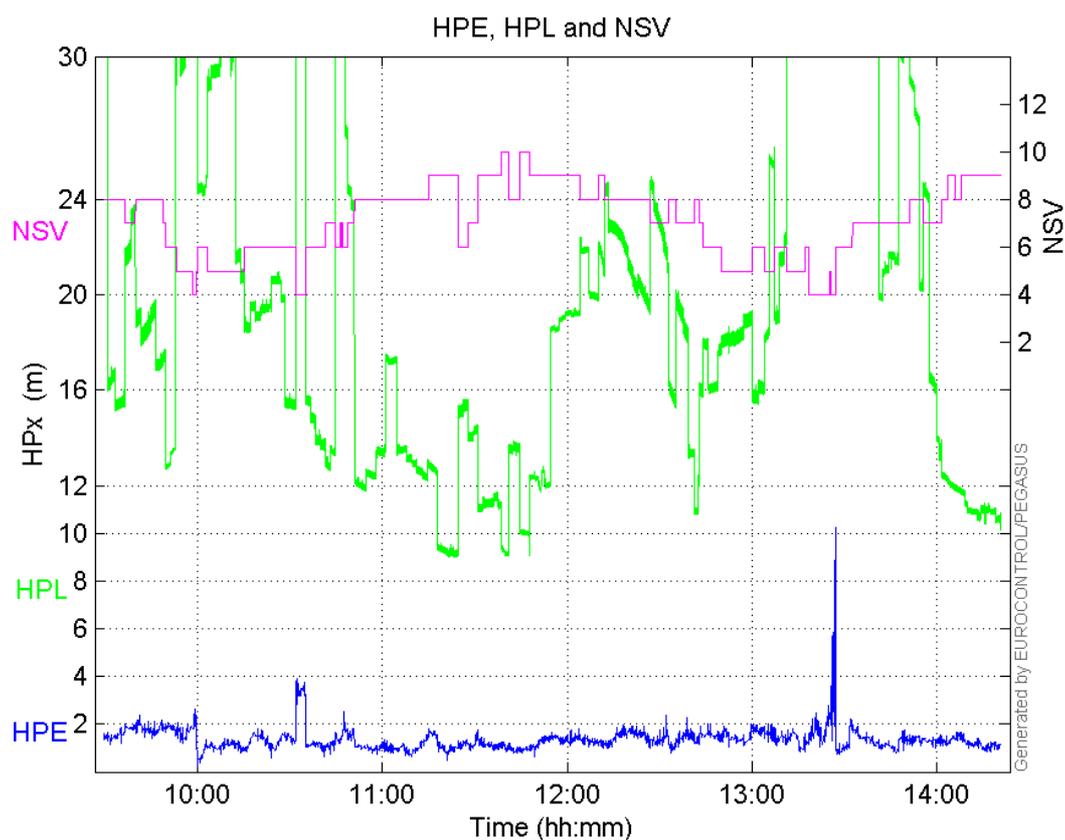
Performance Summary :

	Valid	APV-1	LPV-200	CAT-1	APV-35m
Samples	17081	15650	15027	0	15027
SIS Availability	0.977062	0.895206	0.85957	0	0.85957
Local Availability	0.957026	0.876849	0.841943	0	0.841943

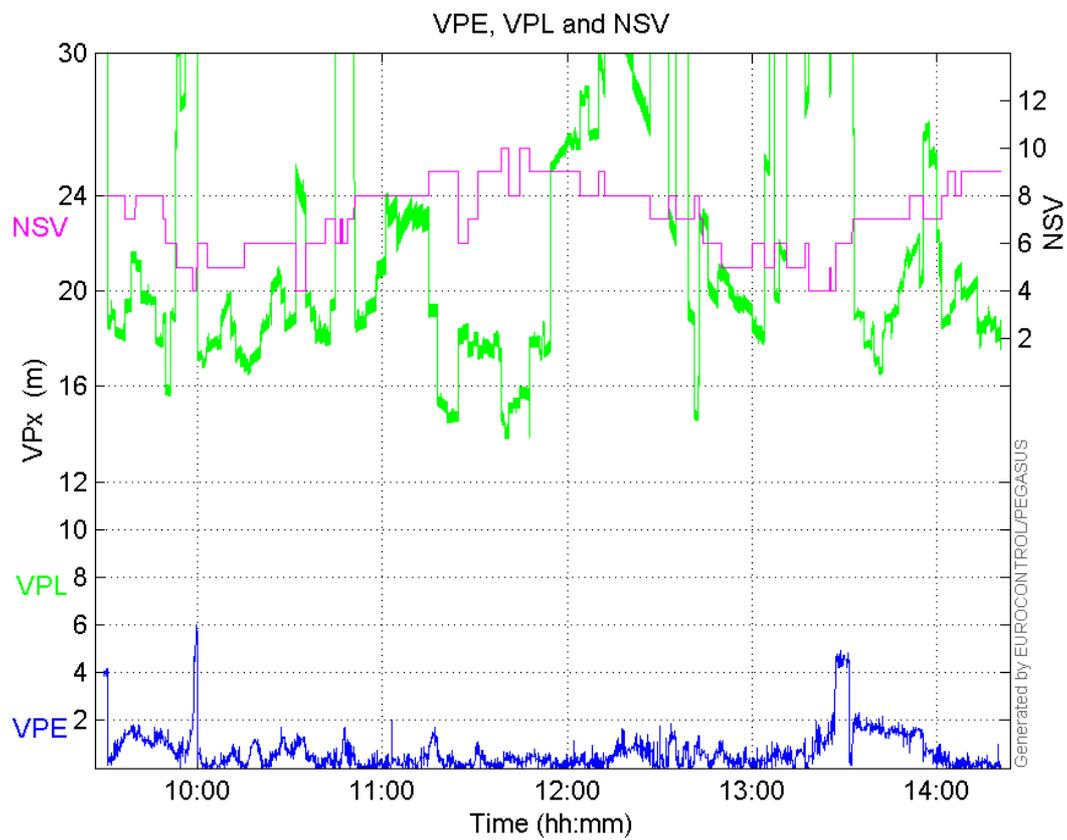
Operational Availability	0.957026	0.876849	0.841943	0	0.841943
HPE 95%	1.92071	1.82302	1.82028	NaN	1.82028
HPscale 95%	NaN	4.76716	4.79263	NaN	4.79263
VPE 95%	1.60965	1.60059	1.60449	NaN	1.60449
VPEscale 95%	NaN	4.04549	2.86622	NaN	2.86622
All Discontinuity Events	2	8	30	--	30
Long Discontinuity Events	2	5	7	--	7
Independent Discontinuity Events	2	4	5	--	5
P(discontinuity)	0.00175634	0.00383387	0.00499102	NaN	0.00499102
P(sliding window)	0.00175634	0.00408946	0.00785253	NaN	0.00785253
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:

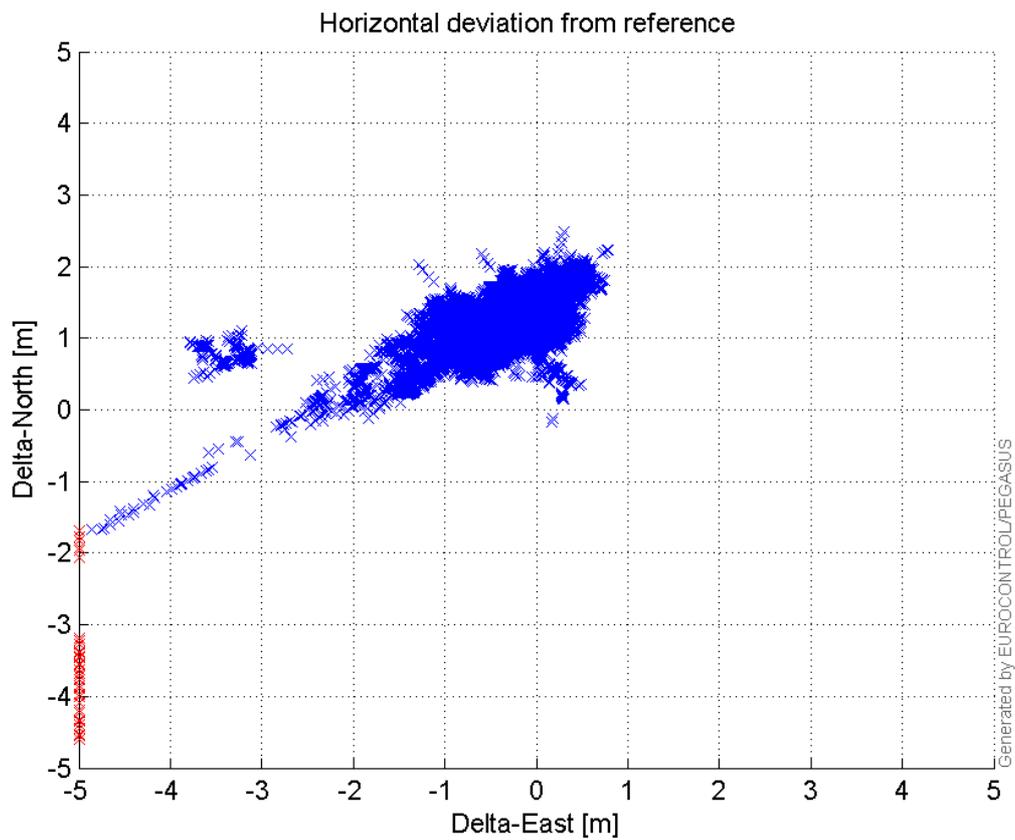


VPE, VPL and NSV:



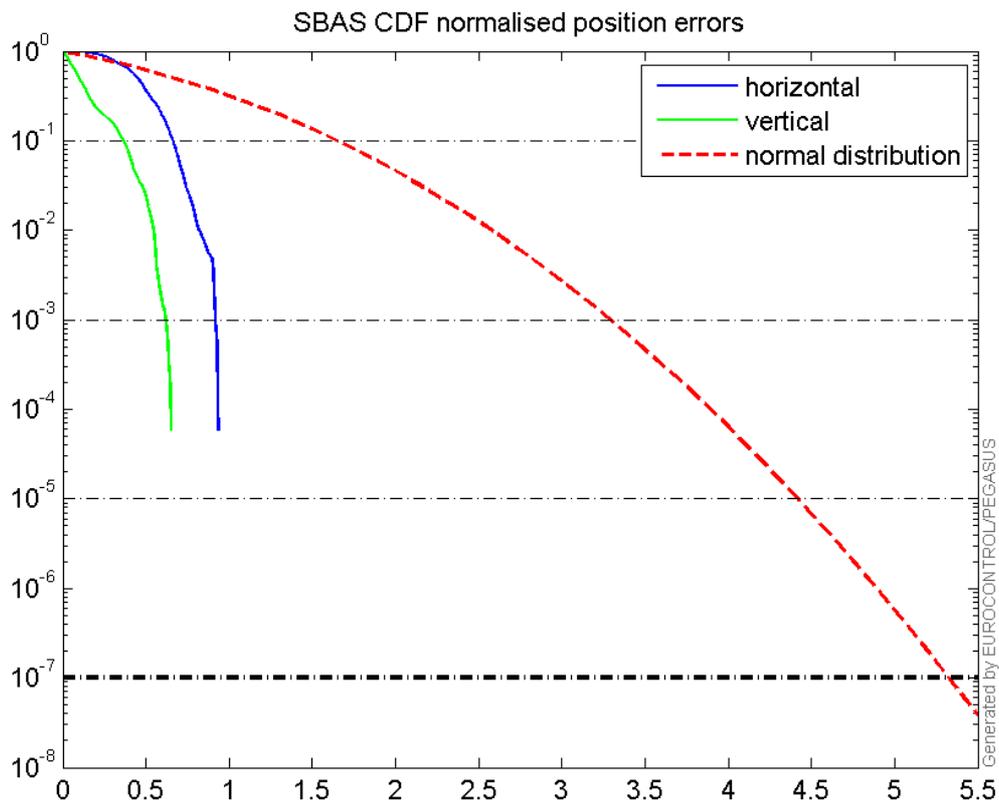
Horizontal deviation

Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

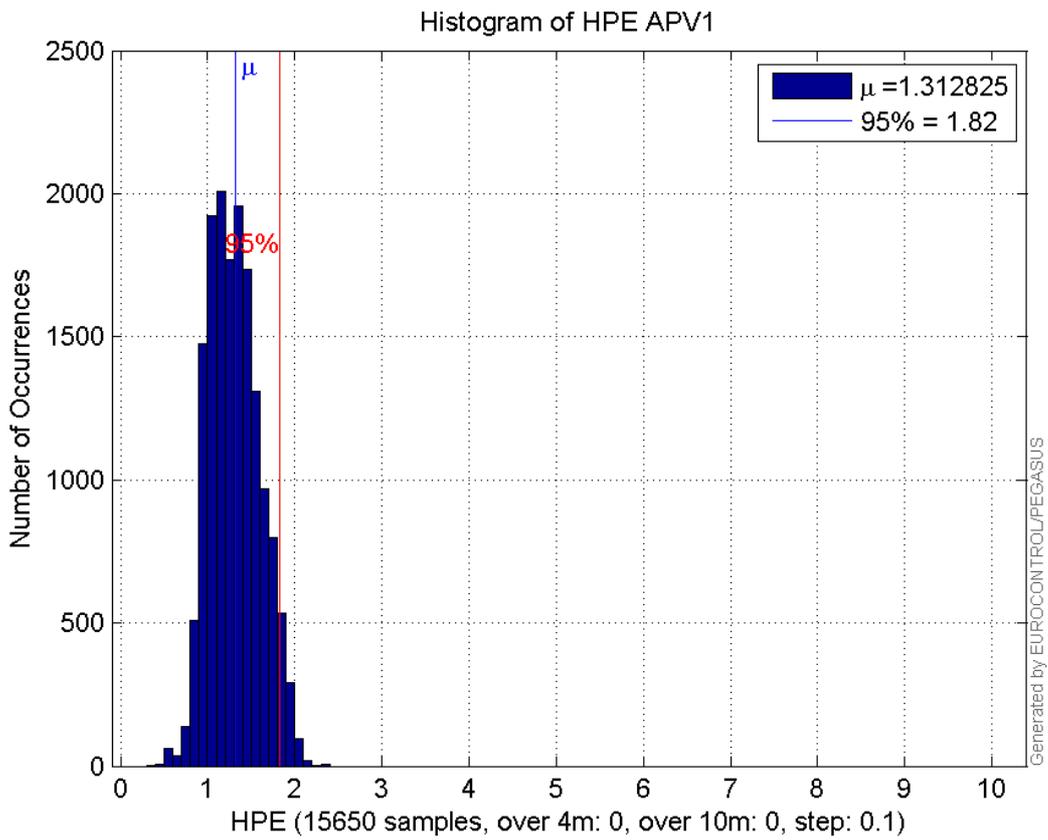
number	15650
sum	20545.711
sum2	28281.929
prctile95	1.82302
prctile99	1.9789449
number	15650
sum	8800.6934
sum2	8775.9295
prctile95	1.6005946
prctile99	1.8314756
number	15650
sum	285010.67
sum2	5788701
prctile95	31.2608
prctile99	33.1684
number	15650
sum	336745.99
sum2	7700589.8
prctile95	32.7386
prctile99	38.1828
number	15650
sum	1227.3973
sum2	105.7501

prctile95 0.11917905
prctile99 0.13886083
number 15650
sum 429.32718
sum2 22.121112
prctile95 0.080909754
prctile99 0.10273096
number 15027
sum 19610.916
sum2 26845.719
prctile95 1.8202792
prctile99 1.980096
number 15027
sum 8443.0137
sum2 8456.0093
prctile95 1.6044862
prctile99 1.8352618
number 15027
sum 268918.16
sum2 5363724.1
prctile95 30.99789
prctile99 33.070945
number 15027
sum 313370.88
sum2 6821771.8
prctile95 30.81434
prctile99 32.77365
number 15027
sum 1190.9225
sum2 103.57144
prctile95 0.11981584
prctile99 0.13909749
number 15027
sum 419.84811
sum2 21.897256
prctile95 0.081892016
prctile99 0.10301933

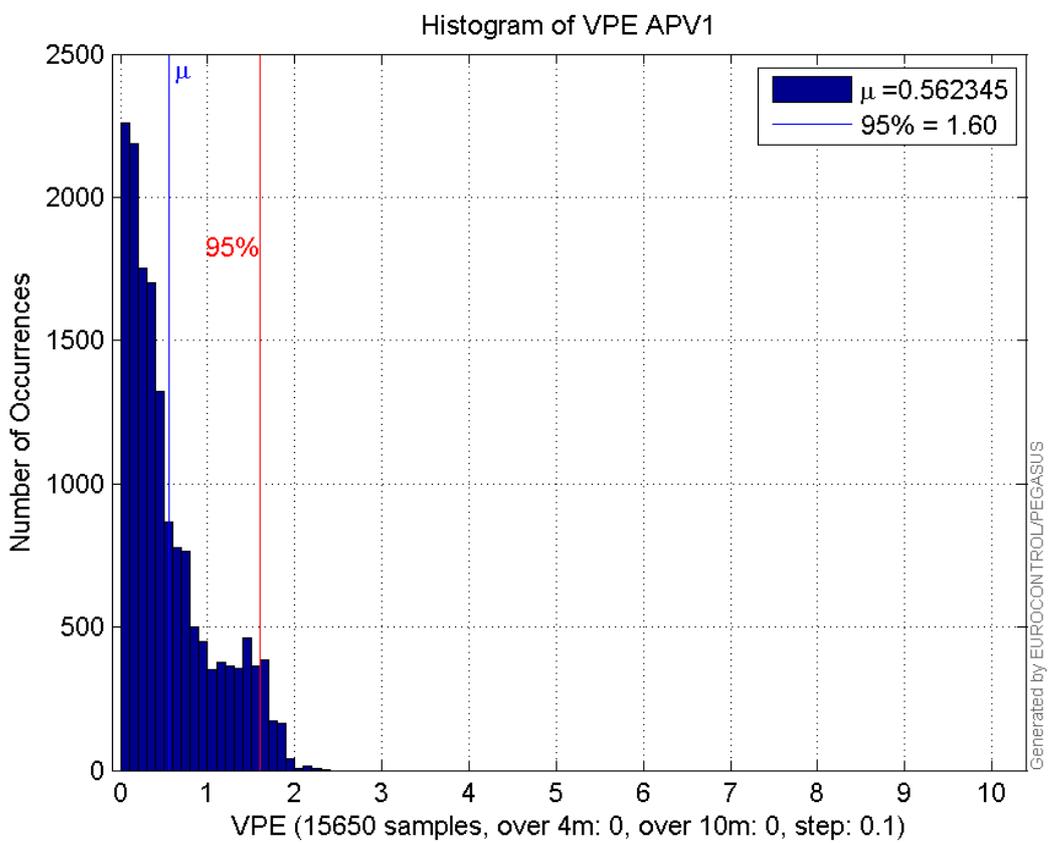
Error and XPL Statistics :

	Mean Value	Standard Deviation	50% Value	95% Value	99% Value	RMS Value
HPE	1.31282	0.28922	1.29316	1.82302	1.97894	1.3443
HPL	18.2115	6.18281	17.9417	31.2608	33.1684	19.2324
VPE	0.562345	0.494516	0.394064	1.60059	1.83148	0.748841
VPL	21.5173	5.3905	19.4777	32.7386	38.1828	22.1822

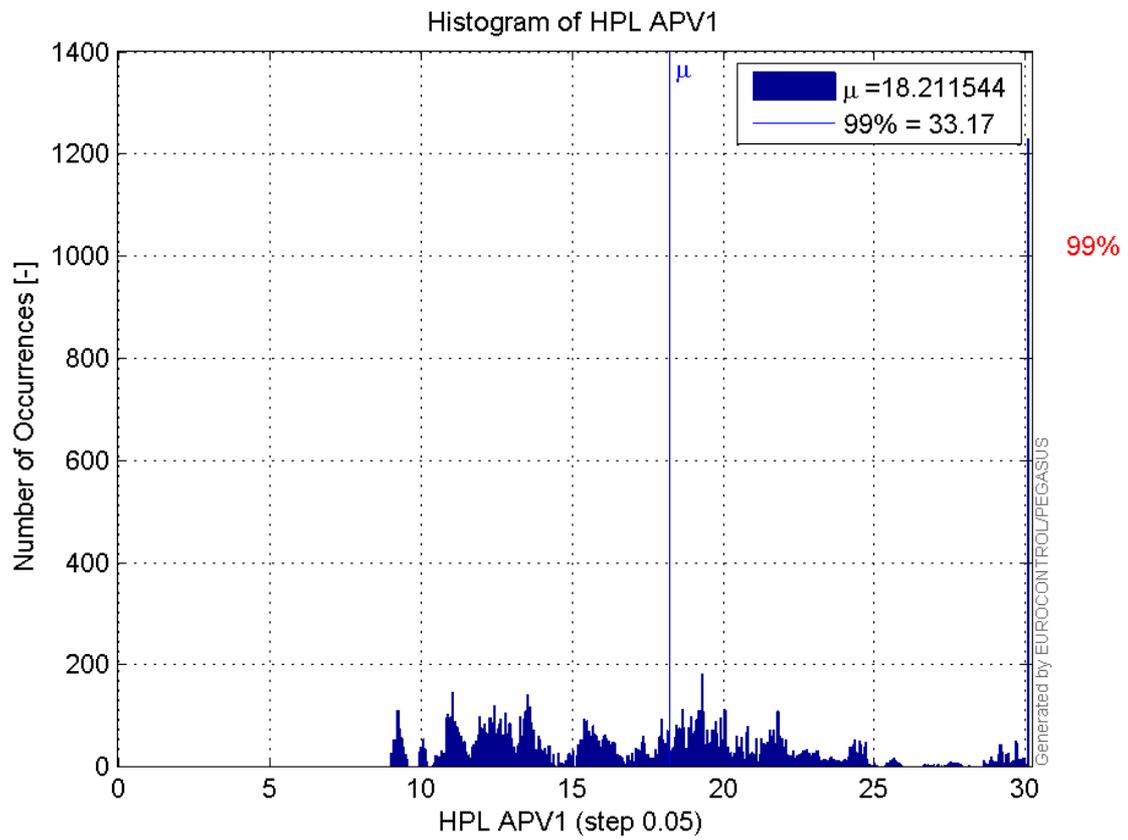
Histogram of HPE APV1:



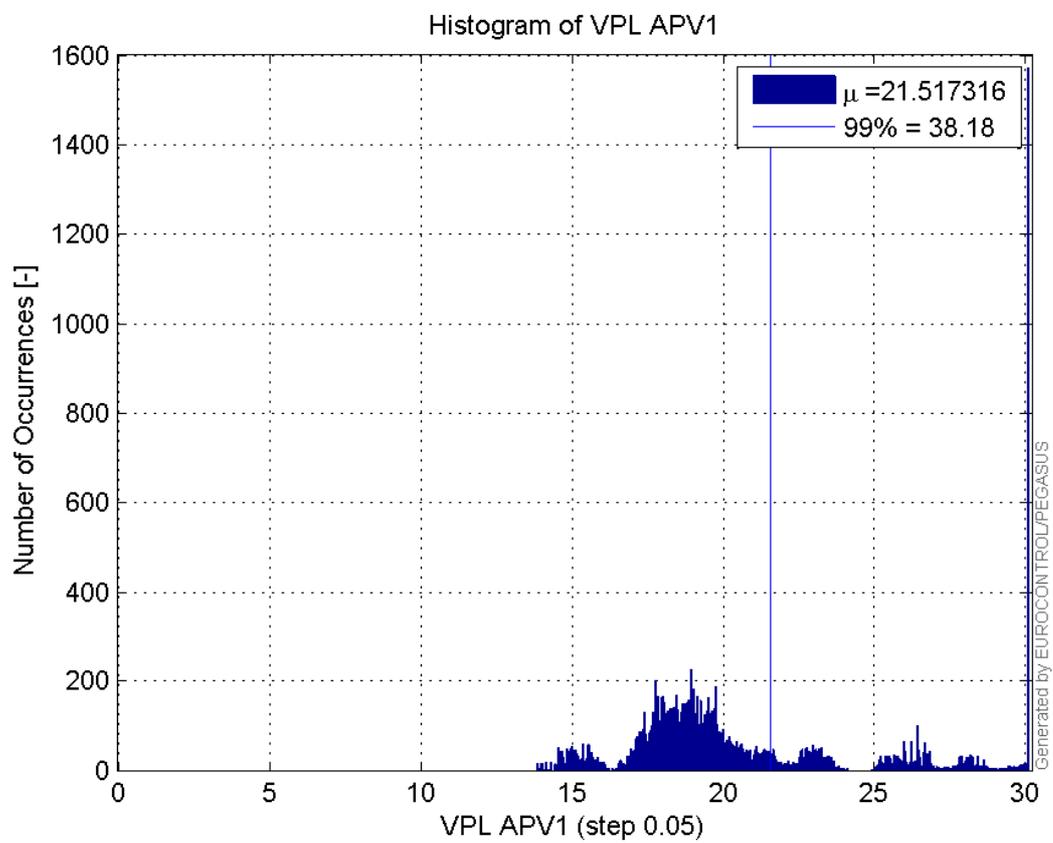
Histogram of VPE APV1:



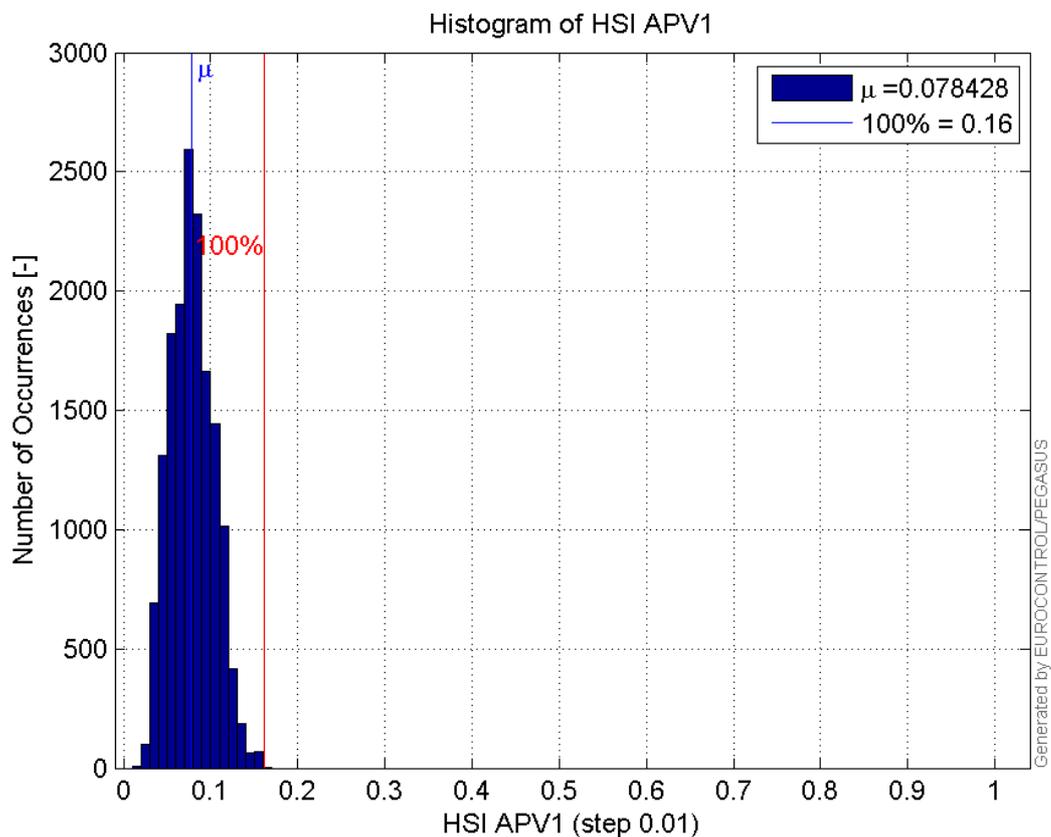
Histogram of HPL APV1:



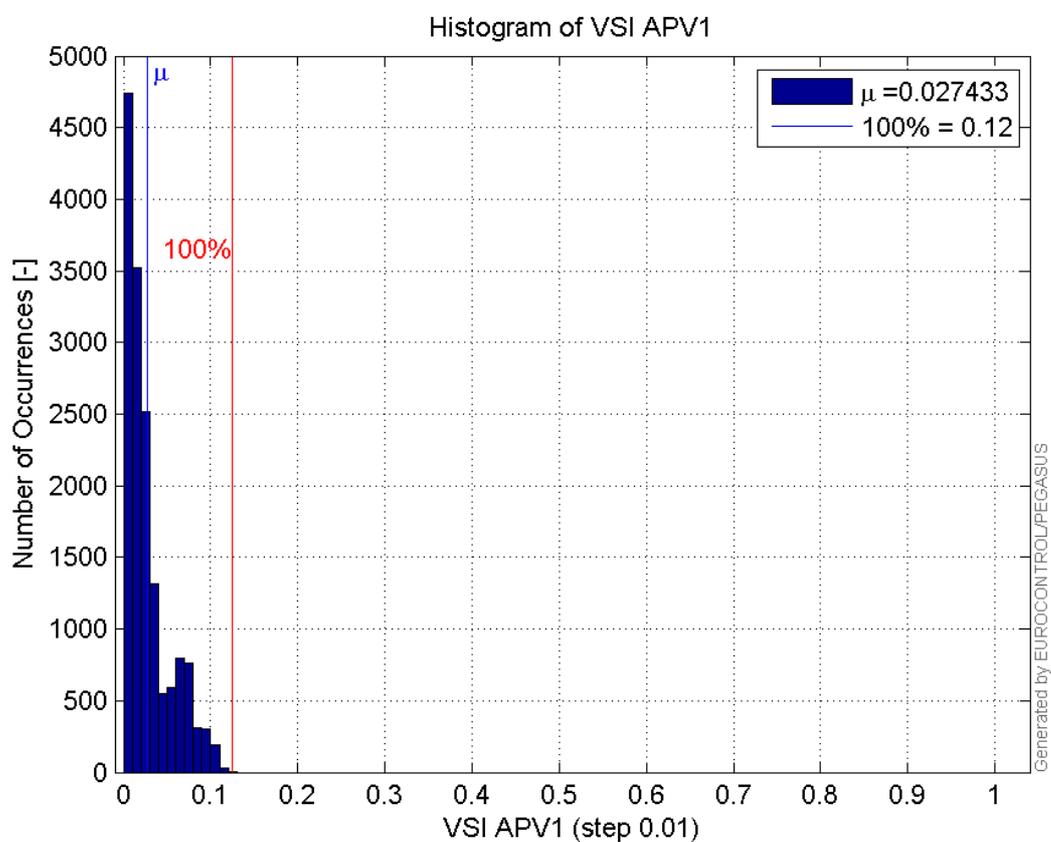
Histogram of VPL APV1:



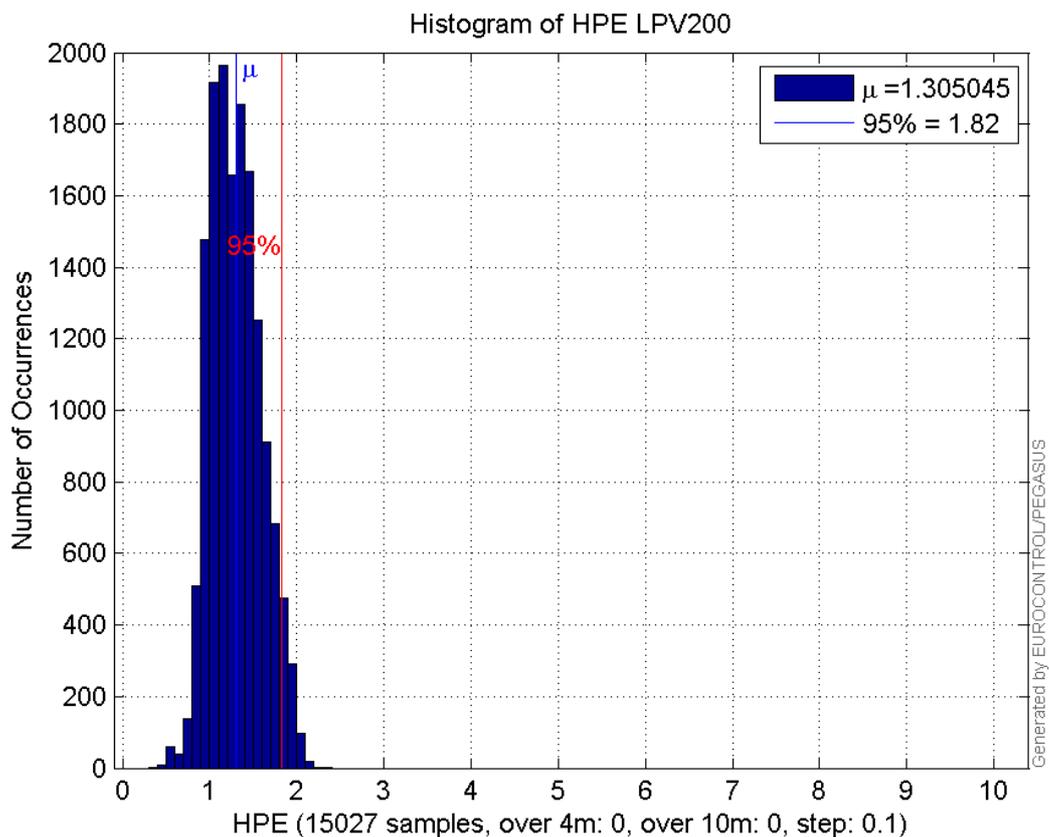
Histogram of HSI APV1:



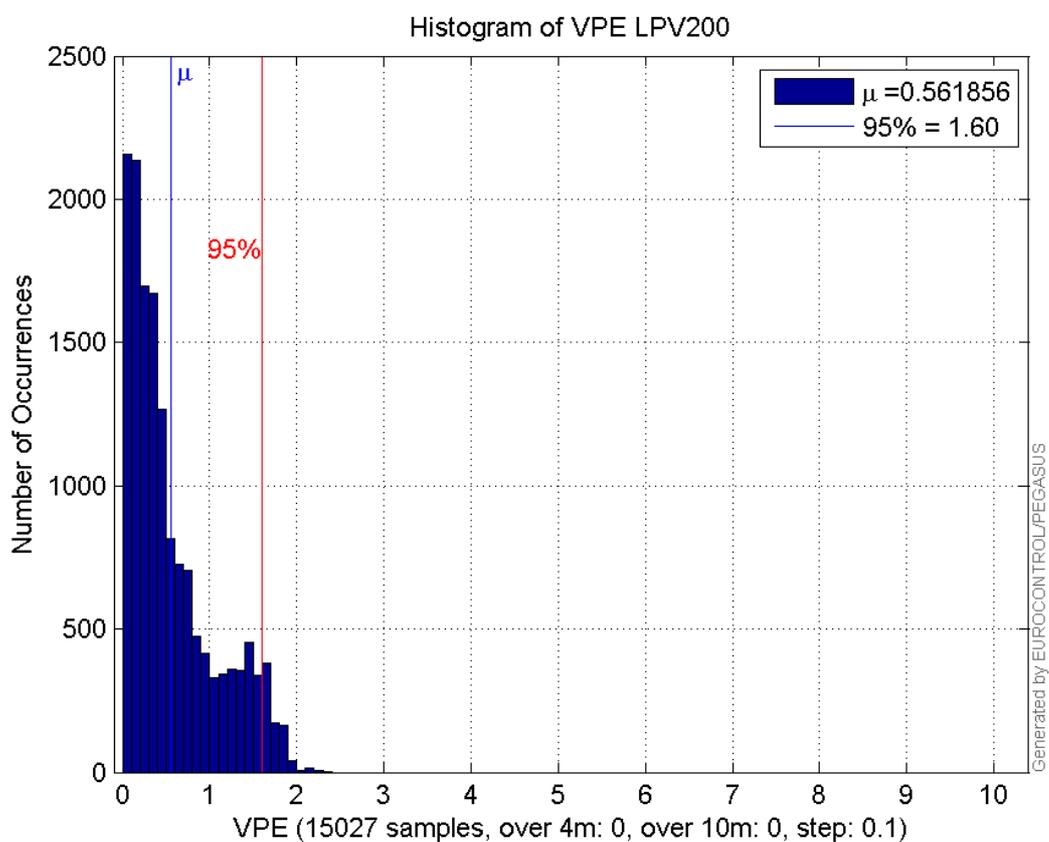
Histogram of VSI APV1:



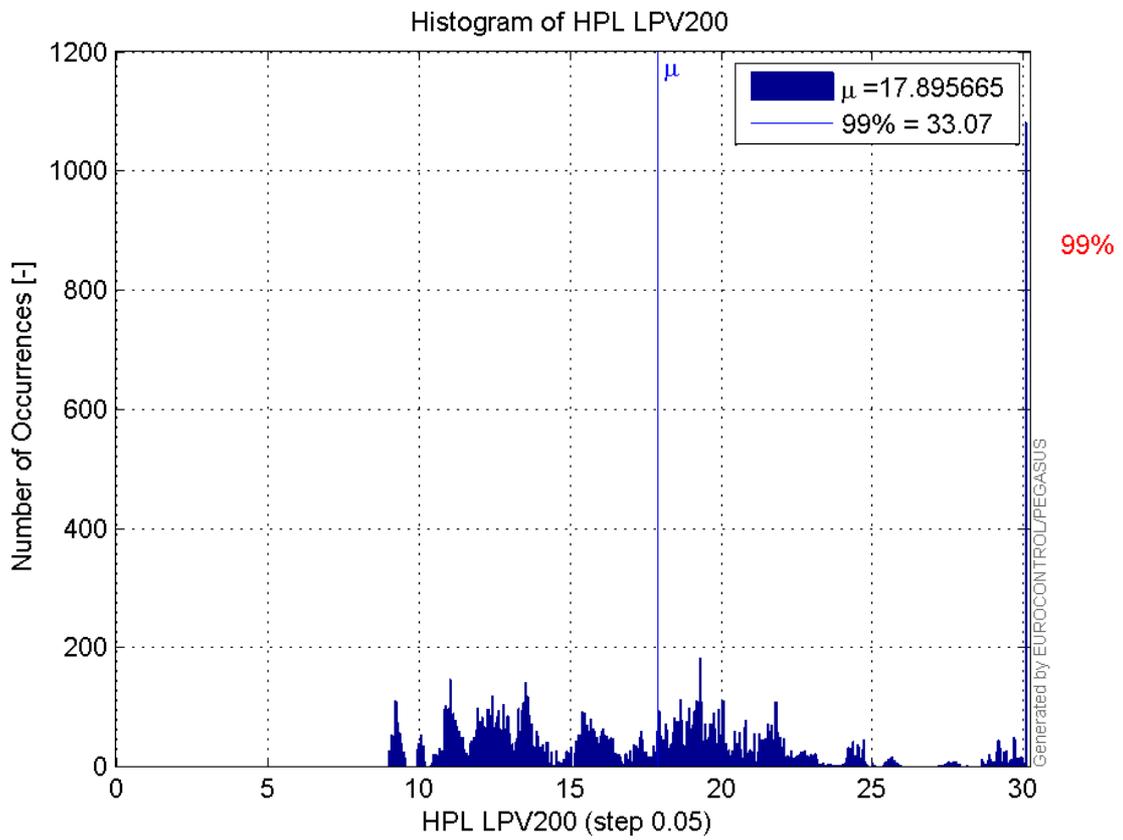
Histogram of HPE LPV200:



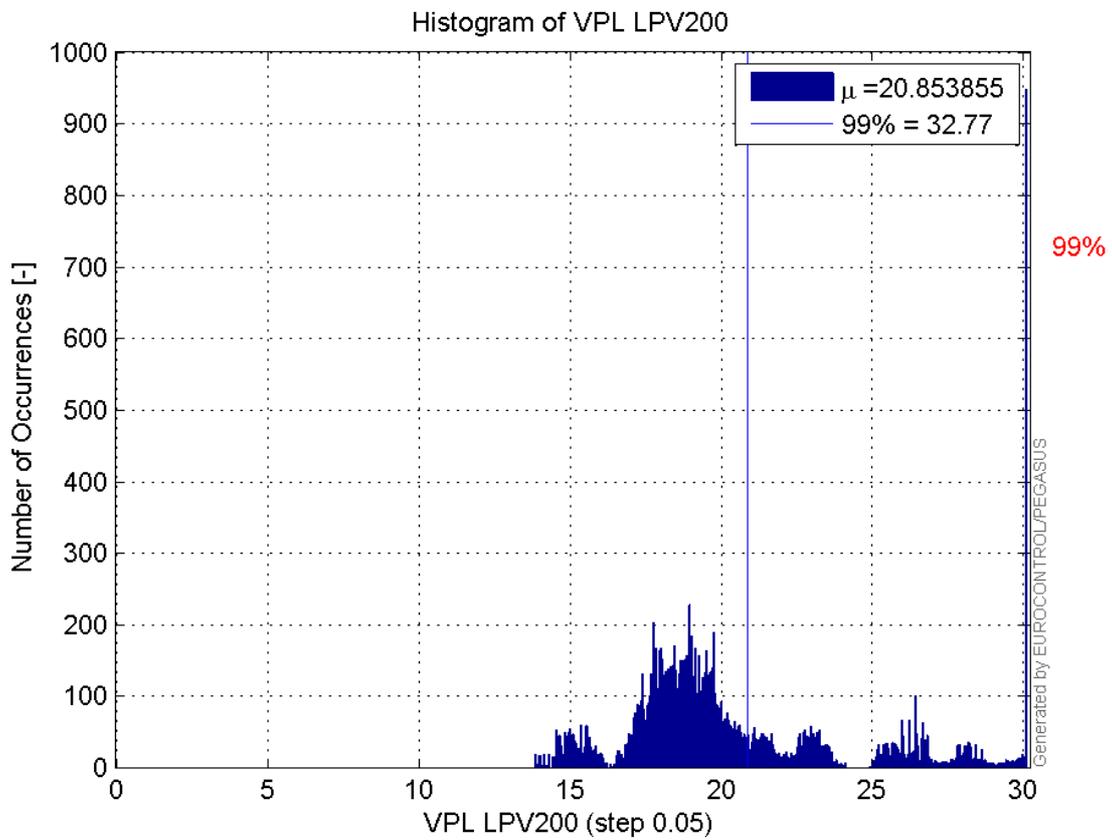
Histogram of VPE LPV200:



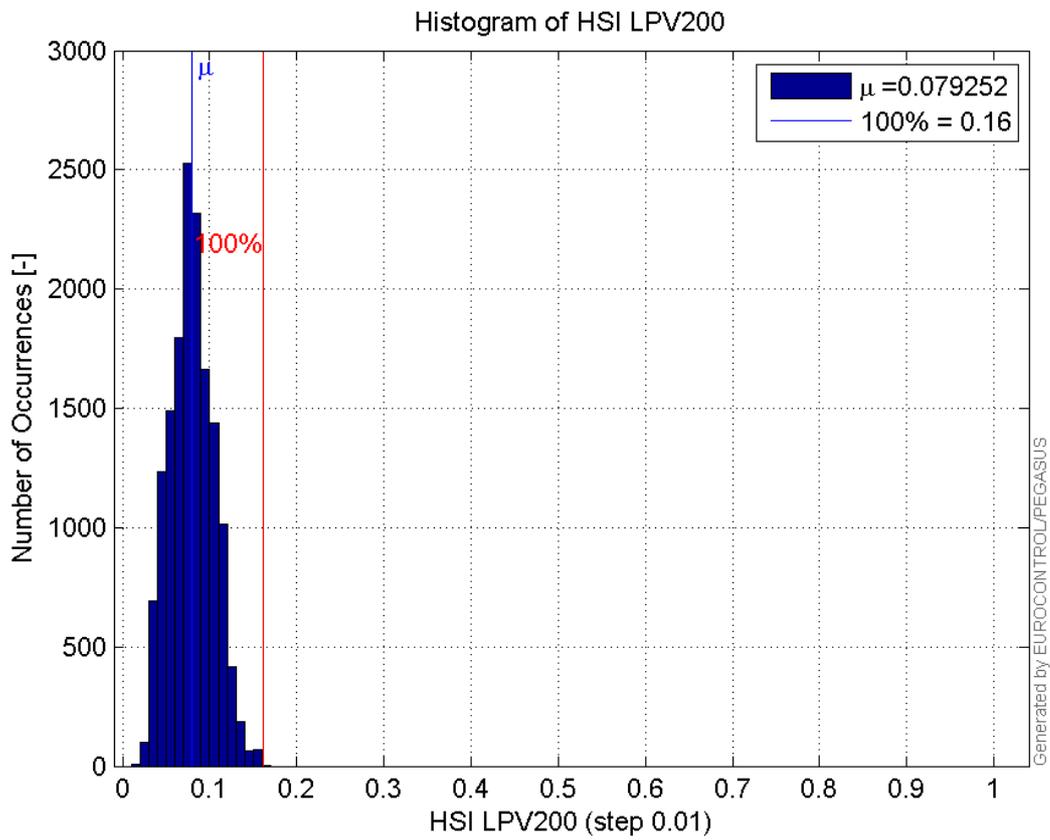
Histogram of HPL LPV200:



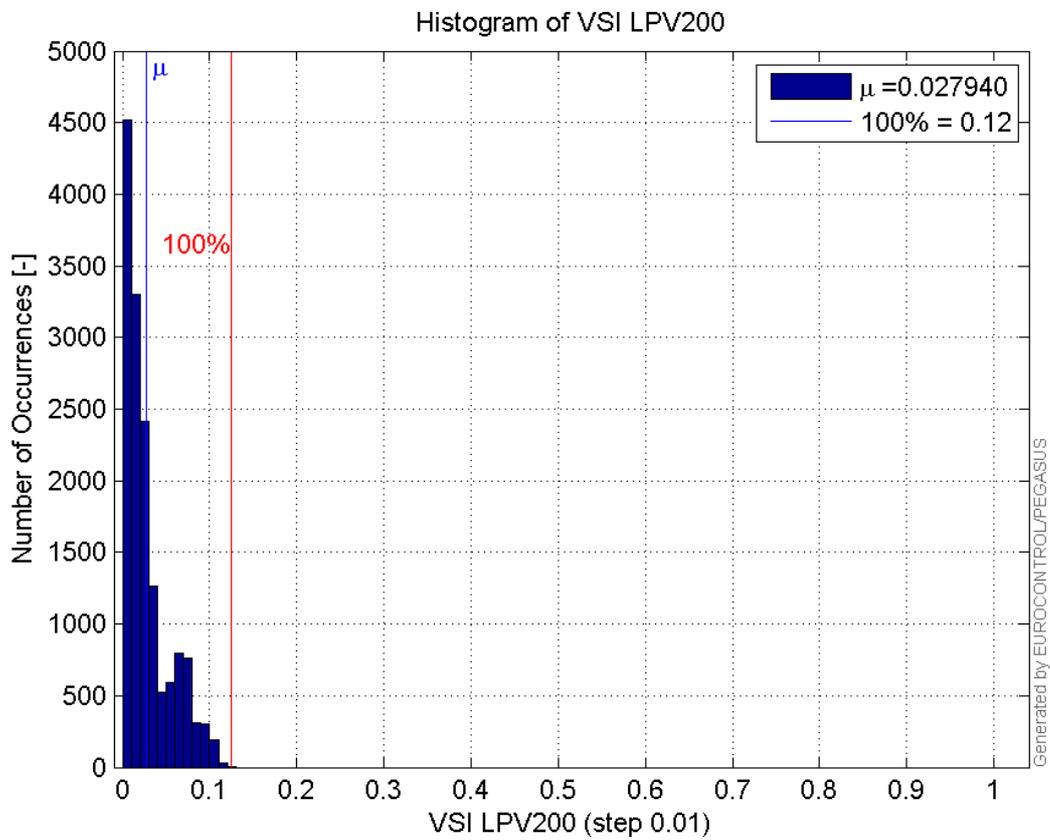
Histogram of VPL LPV200:



Histogram of HSI LPV200:

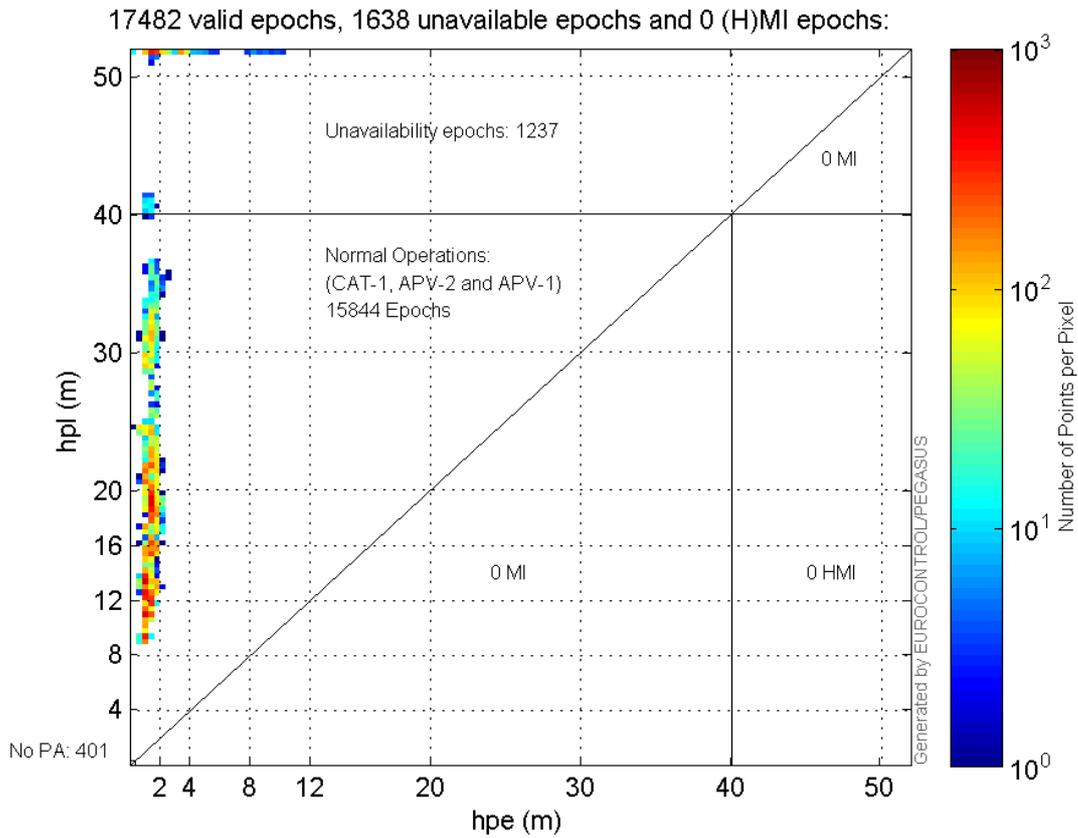


Histogram of VSI LPV200:

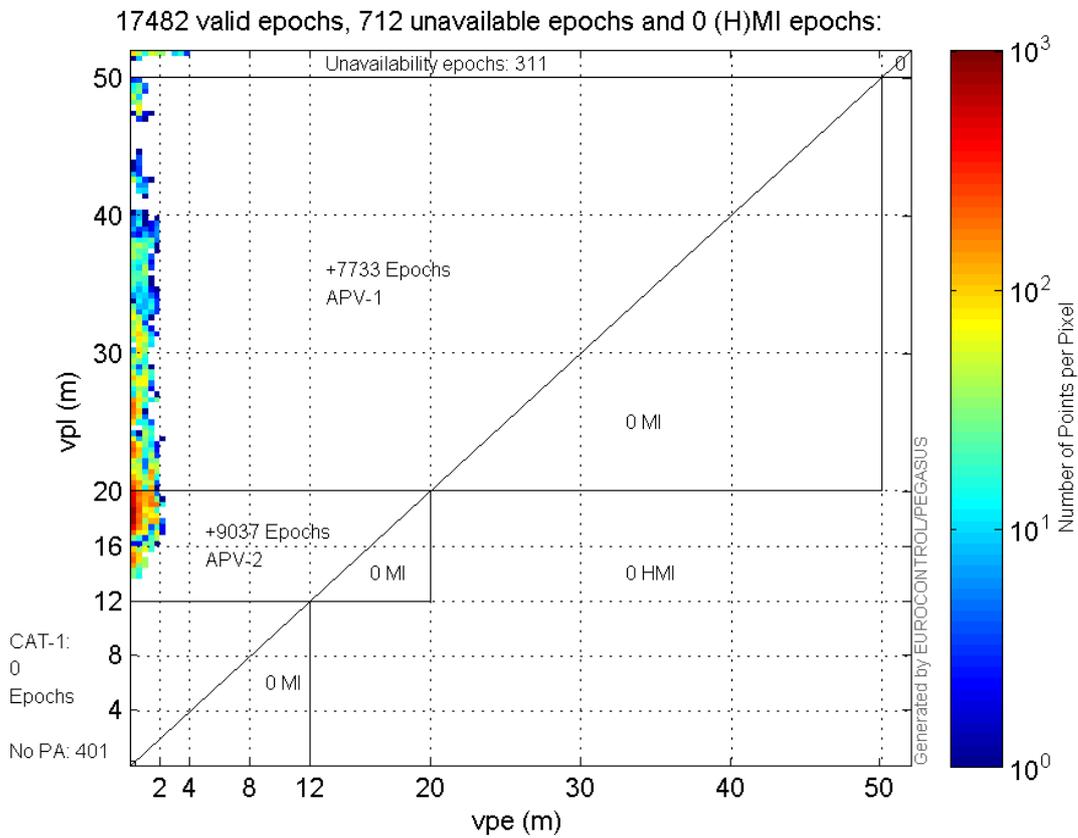


Stanford Plots

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_29_EGNOS/02_Convertor/02_Convertor
output_prefix	system	D:/PegasusDateGob/job/2016_01_29_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	229.476
mi_numbers	results	0

SBAS Messages

start: 09:23:25.129 29.01.2016 (week: 1881 sec: 465805.129)
end: 14:20:51.129 29.01.2016 (week: 1881 sec: 483651.129)
duration: 04:57:26 ..

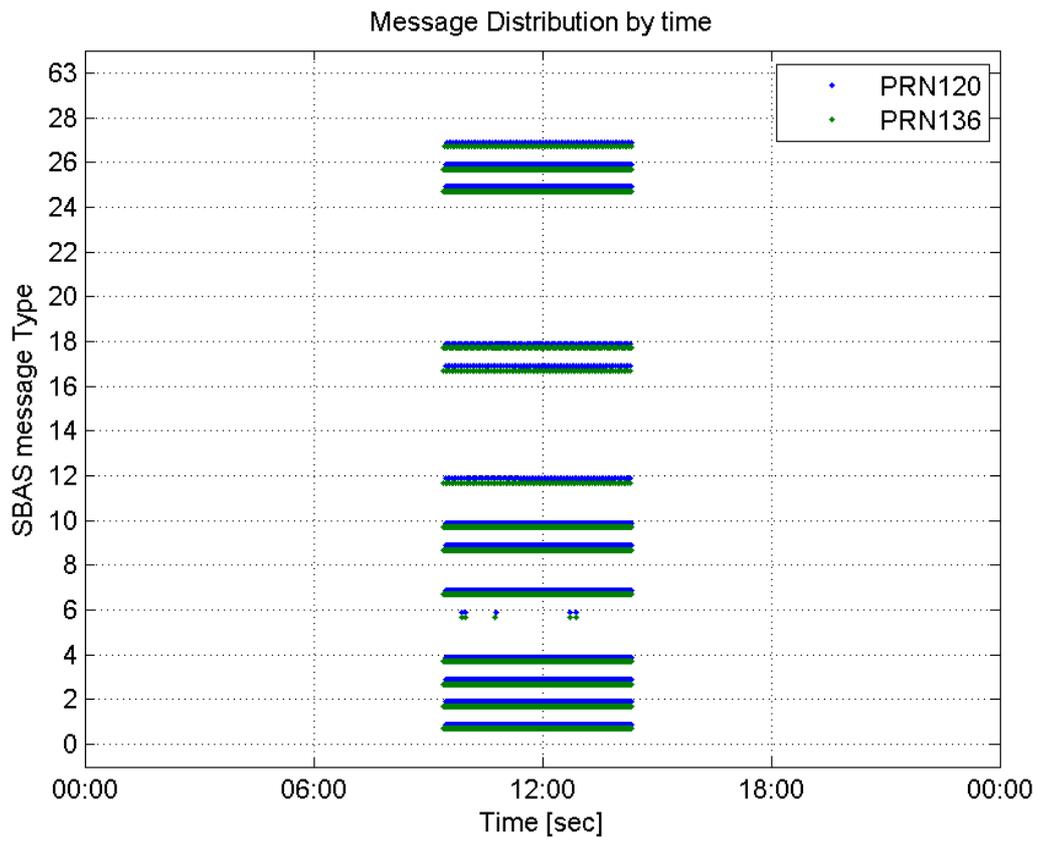
quality

valid samples 35446
total samples 35446
number of SBAS PRNs 2

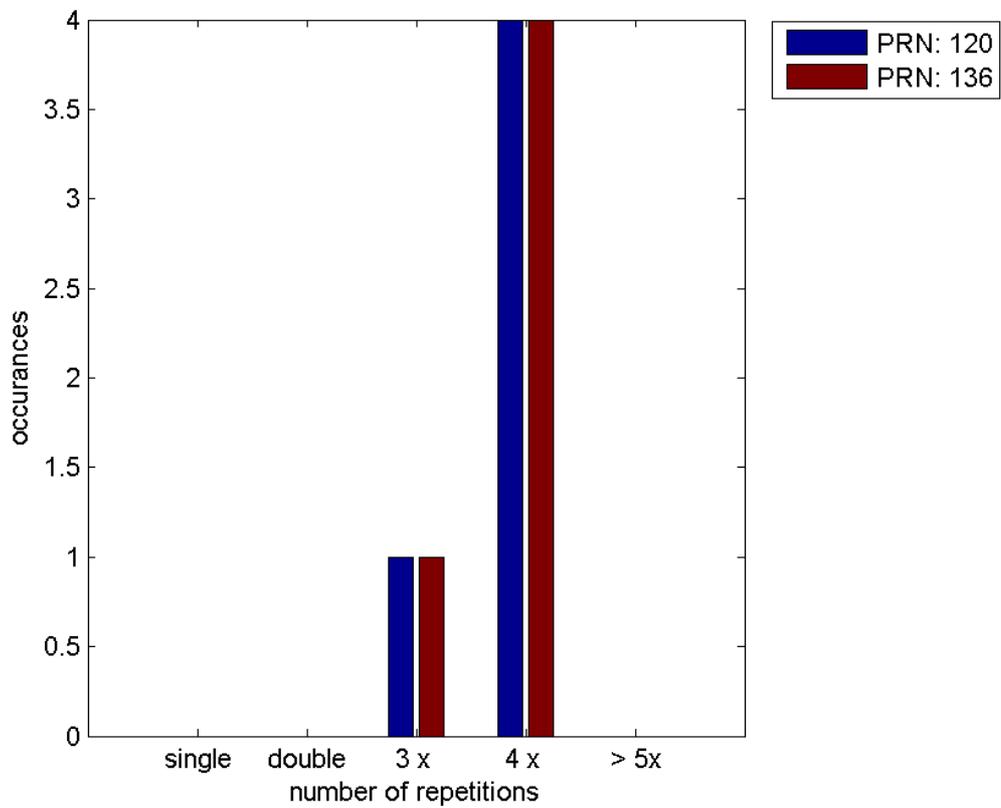
SBAS SIS Overview**Message Type 6 repetitions :**

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

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

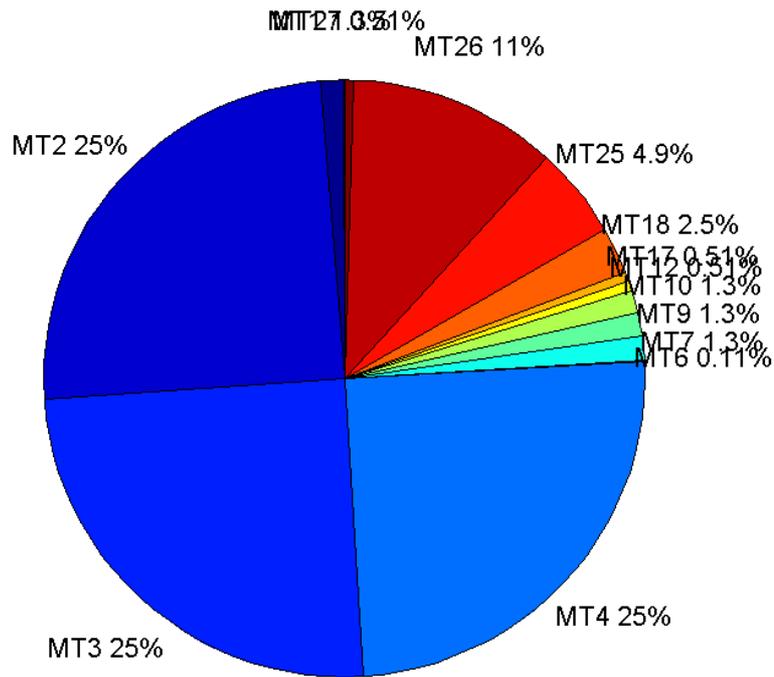
	number of messages	%
MT 0	0	0
MT 1	222	1.26144
MT 2	4378	24.8764
MT 3	4377	24.8707
MT 4	4378	24.8764
MT 5	0	0
MT 6	20	0.113643
MT 7	222	1.26144
MT 9	222	1.26144
MT 10	221	1.25575
MT 12	90	0.511393
MT 17	90	0.511393
MT 18	447	2.53992
MT 24	0	0
MT 25	865	4.91505
MT 26	1977	11.2336
MT 27	90	0.511393
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	17599	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	87	79.362	0	0	0
MT 2	4	8	4.02033	5	0	0
MT 3	4	8	4.02011	5	0	0
MT 4	4	8	4.02011	5	0	0
MT 5	--	--	--	--	--	--
MT 6	1	6998	566.632	4	4	4
MT 7	76	81	79.4208	0	0	0
MT 9	74	81	79.3756	0	0	0
MT 10	76	83	79.4864	0	0	0
MT 12	188	207	195.944	89	0	0
MT 17	187	201	195.978	0	0	0
MT 18	4	161	39.1256	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	47	20.3356	0	0	0

MT 26	3	32	8.90283	0	0	0
MT 27	185	202	195.978	0	0	0
MT 28	--	--	--	--	--	--
MT 62	--	--	--	--	--	--
MT 63	--	--	--	--	--	--

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

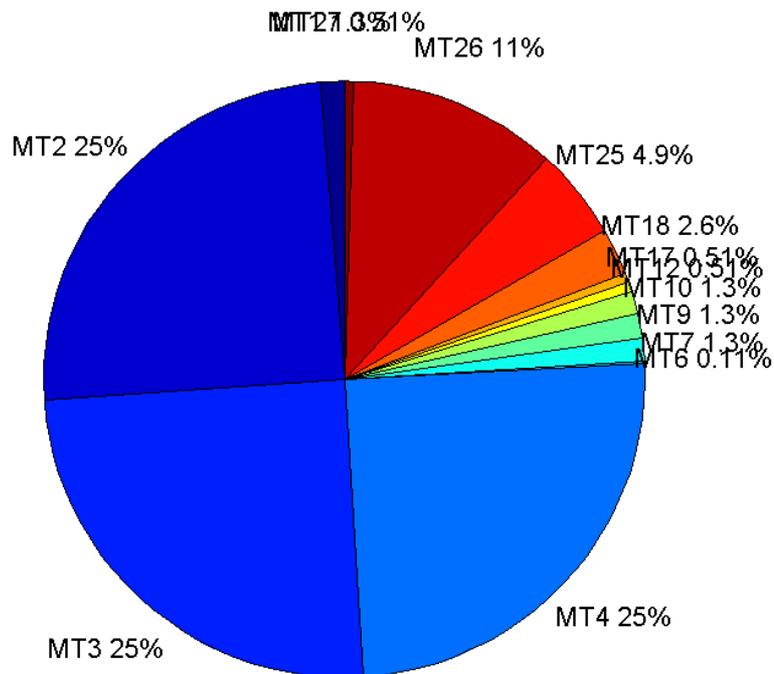
	number of messages	%
MT 0	0	0
MT 1	225	1.26072
MT 2	4439	24.8725
MT 3	4439	24.8725
MT 4	4439	24.8725
MT 5	0	0
MT 6	20	0.112064
MT 7	225	1.26072
MT 9	225	1.26072
MT 10	224	1.25511

MT 12	91	0.50989
MT 17	91	0.50989
MT 18	457	2.56065
MT 24	0	0
MT 25	879	4.9252
MT 26	2002	11.2176
MT 27	91	0.50989
MT 28	0	0
MT 62	0	0
MT 63	0	0
Total	17847	100

Update intervals :

	Minimum [s]	Maximum [s]	Mean value	Exceed Max update	Exceed NPA timeout	Exceed PA timeout
MT 0	--	--	--	--	--	--
MT 1	76	83	79.3661	0	0	0
MT 2	4	8	4.0205	5	0	0
MT 3	4	8	4.0205	5	0	0
MT 4	4	8	4.0205	5	0	0
MT 5	--	--	--	--	--	--
MT 6	1	7077	566.684	4	4	4
MT 7	76	81	79.4063	0	0	0
MT 9	76	82	79.3661	0	0	0
MT 10	76	83	79.3812	0	0	0
MT 12	188	201	195.978	90	0	0
MT 17	188	201	196.067	0	0	0
MT 18	4	165	39.1206	0	0	0
MT 24	--	--	--	--	--	--
MT 25	1	52	20.2904	0	0	0
MT 26	1	32	8.89955	0	0	0
MT 27	188	201	195.978	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_29_EGNOS/01_User/01_User
Outputfile	System	D:/PegasusDateGob/job/2016_01_29_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