

Global View

comment
 abbreviation NAU
 country Ukraine
 site Laboratory satellite systems
 version 4.8.2
 program Pegasus
 city Kiev
 date 20/10/2015

SBAS Messages

start: 07:34:14.129 22.09.2015 (week: 1863 sec: 200054.129)
end: 13:27:46.129 22.09.2015 (week: 1863 sec: 221266.129)
duration: 05:53:32 ..

quality

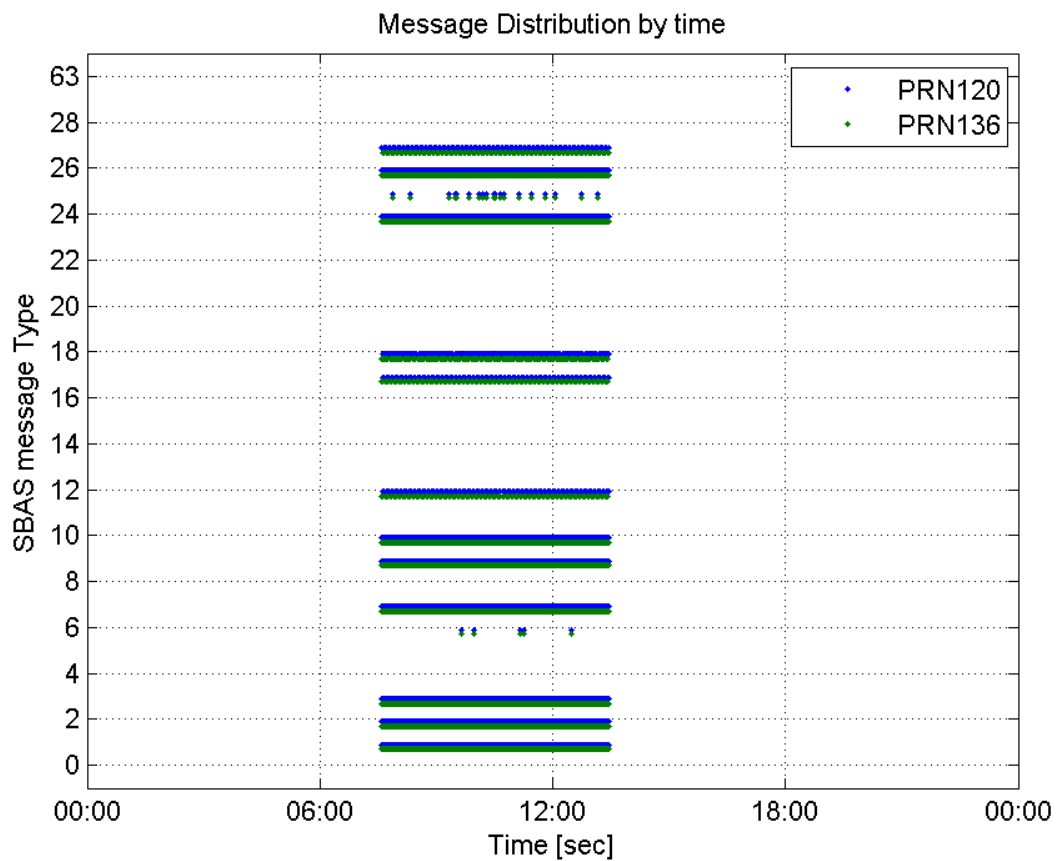
valid samples 42398
total samples 42398
number of SBAS PRNs 2

SBAS SIS Overview

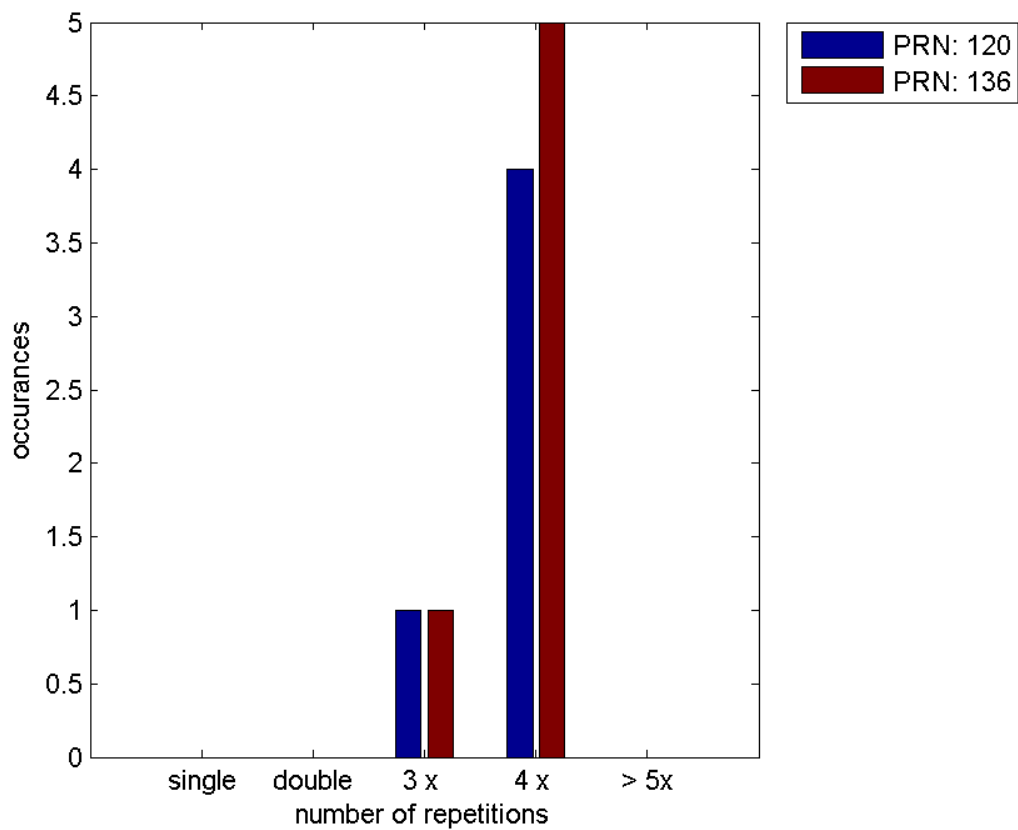
Message Type 6 repetitions :

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

Message Distribution by time:



Message Type 6 repetitions:



PRN 120

Broadcast SBAS Messages :

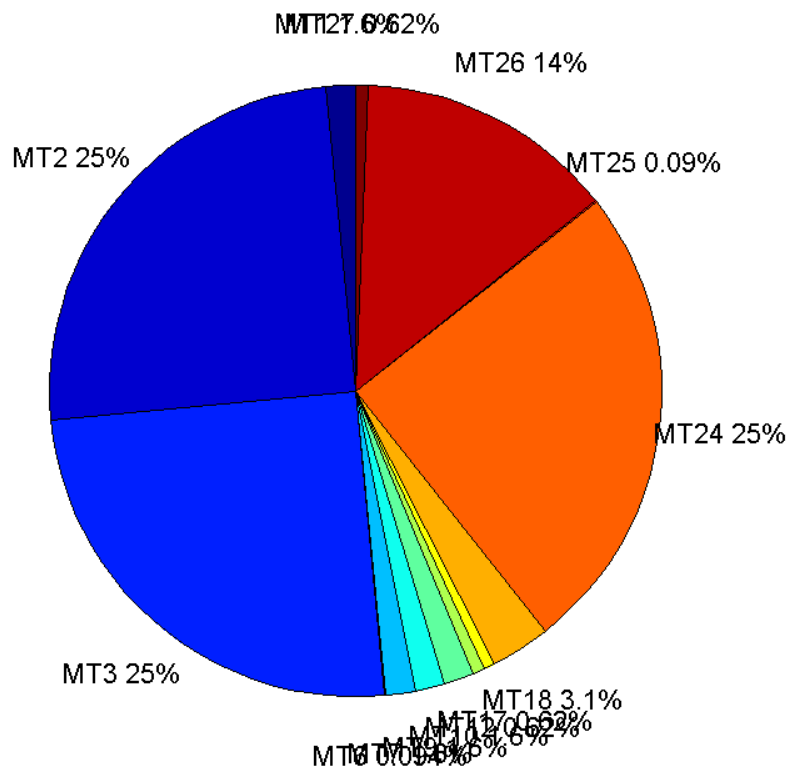
| | number of messages | % |
|-------|--------------------|-----------|
| MT 0 | 0 | 0 |
| MT 1 | 329 | 1.55299 |
| MT 2 | 5290 | 24.9705 |
| MT 3 | 5290 | 24.9705 |
| MT 4 | 0 | 0 |
| MT 5 | 0 | 0 |
| MT 6 | 20 | 0.0944064 |
| MT 7 | 329 | 1.55299 |
| MT 9 | 330 | 1.55771 |
| MT 10 | 330 | 1.55771 |
| MT 12 | 132 | 0.623082 |
| MT 17 | 132 | 0.623082 |
| MT 18 | 660 | 3.11541 |
| MT 24 | 5290 | 24.9705 |
| MT 25 | 19 | 0.0896861 |
| MT 26 | 2902 | 13.6984 |
| MT 27 | 132 | 0.623082 |
| MT 28 | 0 | 0 |
| MT 62 | 0 | 0 |
| MT 63 | 0 | 0 |
| Total | 21185 | 100 |

Update intervals :

| | Minimum [s] | Maximum [s] | Mean value | Exceed Max update | Exceed NPA timeout | Exceed PA timeout |
|-------|-------------|-------------|------------|-------------------|--------------------|-------------------|
| MT 0 | -- | -- | -- | -- | -- | -- |
| MT 1 | 64 | 70 | 64.311 | 0 | 0 | 0 |
| MT 2 | 4 | 8 | 4.00492 | 5 | 0 | 0 |
| MT 3 | 4 | 8 | 4.00492 | 5 | 0 | 0 |
| MT 4 | -- | -- | -- | -- | -- | -- |
| MT 5 | -- | -- | -- | -- | -- | -- |
| MT 6 | 1 | 4394 | 536.947 | 4 | 4 | 4 |
| MT 7 | 64 | 70 | 64.2744 | 0 | 0 | 0 |
| MT 9 | 64 | 70 | 64.31 | 0 | 0 | 0 |
| MT 10 | 64 | 70 | 64.2736 | 0 | 0 | 0 |
| MT 12 | 156 | 167 | 160.565 | 131 | 0 | 0 |
| MT 17 | 156 | 167 | 160.565 | 0 | 0 | 0 |
| MT 18 | 4 | 131 | 31.9666 | 0 | 0 | 0 |
| MT 24 | 4 | 8 | 4.00492 | 0 | 0 | 0 |
| MT | | | | | | |

| | | | | | | |
|-------|-----|------|---------|----|----|----|
| 25 | 92 | 3493 | 1051.72 | 0 | 0 | 0 |
| MT 26 | 4 | 32 | 7.29886 | 0 | 0 | 0 |
| MT 27 | 156 | 167 | 160.534 | 0 | 0 | 0 |
| MT 28 | -- | -- | -- | -- | -- | -- |
| MT 62 | -- | -- | -- | -- | -- | -- |
| MT 63 | -- | -- | -- | -- | -- | -- |

Message Distribution PRN 120:



SBAS SIS Analysis

PRN 136

Broadcast SBAS Messages :

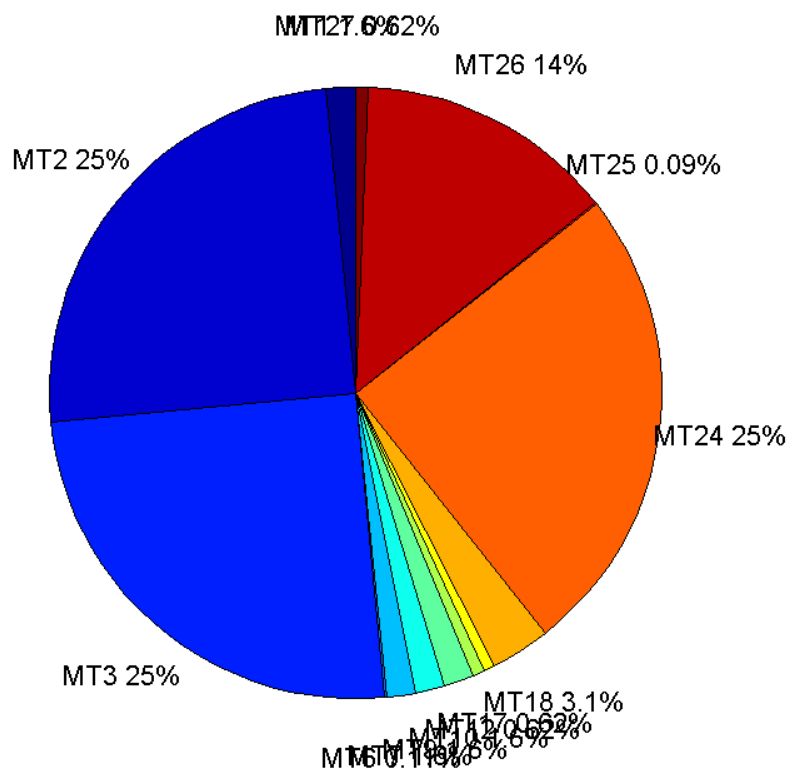
| | number of messages | % |
|------|--------------------|----------|
| MT 0 | 0 | 0 |
| MT 1 | 330 | 1.55565 |
| MT 2 | 5296 | 24.9658 |
| MT 3 | 5297 | 24.9705 |
| MT 4 | 0 | 0 |
| MT 5 | 0 | 0 |
| MT 6 | 24 | 0.113138 |

| | | |
|--------------|--------------|------------|
| MT 7 | 329 | 1.55094 |
| MT 9 | 329 | 1.55094 |
| MT 10 | 330 | 1.55565 |
| MT 12 | 132 | 0.62226 |
| MT 17 | 132 | 0.62226 |
| MT 18 | 660 | 3.1113 |
| MT 24 | 5296 | 24.9658 |
| MT 25 | 19 | 0.0895677 |
| MT 26 | 2907 | 13.7039 |
| MT 27 | 132 | 0.62226 |
| MT 28 | 0 | 0 |
| MT 62 | 0 | 0 |
| MT 63 | 0 | 0 |
| Total | 21213 | 100 |

Update intervals :

| | Minimum [s] | Maximum [s] | Mean value | Exceed Max update | Exceed NPA timeout | Exceed PA timeout |
|-------|-------------|-------------|------------|-------------------|--------------------|-------------------|
| MT 0 | -- | -- | -- | -- | -- | -- |
| MT 1 | 64 | 73 | 64.3465 | 0 | 0 | 0 |
| MT 2 | 4 | 7 | 4.00548 | 6 | 0 | 0 |
| MT 3 | 4 | 8 | 4.00529 | 6 | 0 | 0 |
| MT 4 | -- | -- | -- | -- | -- | -- |
| MT 5 | -- | -- | -- | -- | -- | -- |
| MT 6 | 1 | 4432 | 443.565 | 5 | 5 | 5 |
| MT 7 | 64 | 73 | 64.3476 | 0 | 0 | 0 |
| MT 9 | 64 | 71 | 64.3476 | 0 | 0 | 0 |
| MT 10 | 64 | 71 | 64.3465 | 0 | 0 | 0 |
| MT 12 | 156 | 173 | 160.595 | 131 | 0 | 0 |
| MT 17 | 156 | 173 | 160.565 | 0 | 0 | 0 |
| MT 18 | 4 | 153 | 31.9545 | 0 | 0 | 0 |
| MT 24 | 4 | 8 | 4.00548 | 0 | 0 | 0 |
| MT 25 | 92 | 3493 | 1051.72 | 0 | 0 | 0 |
| MT 26 | 4 | 51 | 7.29732 | 0 | 0 | 0 |
| MT 27 | 156 | 177 | 160.595 | 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:/PegasusDat/Jobs/2015_09_22EGNOS/01_User/01_User |
| Outputfile | System | D:/PegasusDat/Jobs/2015_09_22EGNOS/02_Convertor/02_Convertor |

Configuration

| Name | Section | Value |
|-----------------|---------------|---------------|
| Receiver | Configuration | Novatel OEM4 |
| Leap_Seconds | Configuration | 15 |
| Correction_mode | Configuration | SBAS MODE 0/2 |
| Dual_Frequency | Configuration | no |

Position Domain

start: 07:34:15 22.09.2015 (week: 1863 sec: 200055)
end: 13:27:47 22.09.2015 (week: 1863 sec: 221267)
duration: 05:53:33 ..

quality

valid samples 20852

total samples 21213

Event tables

Position discontinuity events type no (0)

APV-I discontinuity events type long

APV-35m discontinuity events type long

LPV-200 discontinuity events type long

CAT-I discontinuity events type long

extremes :

| | Epoch | HPE | HPL | HPE/HPL | VPE | VPL | VPE/VPL |
|-------------|--------|----------|---------|-----------|-----------|---------|-----------|
| max normHor | 213483 | 1.33902 | 10.0961 | 0.132628 | 1.01315 | 18.7313 | 0.0540889 |
| max normVer | 211780 | 0.720279 | 9.90951 | 0.0726856 | 2.26455 | 17.1246 | 0.132239 |
| max HPE | 220682 | 2.55472 | 72.0464 | 0.0354594 | 3.46051 | 62.044 | 0.055775 |
| max VPE | 220682 | 2.55472 | 72.0464 | 0.0354594 | 3.46051 | 62.044 | 0.055775 |
| min HPL | 219347 | 0.441583 | 8.52013 | 0.0518282 | 0.478302 | 12.2576 | 0.0390209 |
| min VPL | 216449 | 0.492516 | 10.0842 | 0.0488404 | -0.586369 | 11.7864 | 0.0497497 |

APV-I discontinuity events :

| # | Epoch | duration | stable period |
|---|--------|----------|---------------|
| 1 | 208655 | 583 | 8239 |
| 2 | 209362 | 96 | 1 |
| 3 | 220383 | 434 | 10925 |

APV-35m discontinuity events :

| # | Epoch | duration | stable period |
|---|--------|----------|---------------|
| 1 | 202552 | 39 | 2136 |
| 2 | 208489 | 161 | 5898 |
| 3 | 208655 | 583 | 1 |
| 4 | 209362 | 96 | 1 |
| 5 | 220383 | 434 | 10925 |

LPV-200 discontinuity events :

| # | Epoch | duration | stable period |
|---|-------|----------|---------------|
| | | | |

| | | | |
|---|--------|-----|-------|
| 1 | 202552 | 39 | 2136 |
| 2 | 208489 | 161 | 5898 |
| 3 | 208655 | 583 | 1 |
| 4 | 209362 | 96 | 1 |
| 5 | 220383 | 434 | 10925 |

First Glance analysis

| | |
|---|--------|
| Duration | 21213 |
| Number of Samples | 21213 |
| Number of invalid sample | 361 |
| Number of no position solution samples | 0 |
| Number of missing sample | 0 |
| Logging Loss | 0 |
| Processing Loss | 1.7018 |
| Number of Misleading Information | 0 |
| Data gaps | 0 |
| Discontinuities | 0 |

Number of Samples :

| Valid | APV-1 | LPV-200 | CAT-1 | APV-35m |
|-------|-------|---------|-------|---------|
| 20852 | 19695 | 19493 | 85 | 19493 |

Accuracy statistics :

| | Valid | APV-1 | LPV-200 | CAT-1 | APV-35m |
|---------------------|---------|---------|---------|----------|---------|
| HPE 95% | 1.0539 | 1.03279 | 1.03393 | 0.504127 | 1.03393 |
| HPEscale 95% | NaN | 3.18812 | 3.19167 | 1.98967 | 3.19167 |
| VPE 95% | 1.89529 | 1.88076 | 1.8834 | 0.675039 | 1.8834 |
| VPEscale 95% | NaN | 4.93972 | 3.46296 | 0.681283 | 3.46296 |

Availability :

| | Valid | APV-1 | LPV-200 | CAT-1 | APV-35m |
|------------------------|----------|----------|----------|------------|----------|
| Signal in Space | 1 | 0.944514 | 0.934826 | 0.00407635 | 0.934826 |
| measurements | 0.982982 | 0.92844 | 0.918918 | 0.00400698 | 0.918918 |
| Operational | 0.982982 | 0.92844 | 0.918918 | 0.00400698 | 0.918918 |

Discontinuity events :

| | Valid | APV-1 | LPV-200 | CAT-1 | APV-35m |
|------------|-------|-------|---------|-------|---------|
| All | -- | 27 | 30 | 48 | 30 |

| | | | | | |
|--------------------|-----|------------|------------|----------|------------|
| Long | -- | 3 | 5 | 0 | 5 |
| Independent | -- | 2 | 3 | 0 | 3 |
| P(disc.) | NaN | 0.00152323 | 0.00230852 | 0 | 0.00230852 |
| P(slide) | NaN | 0.00482356 | 0.00579695 | 0.976471 | 0.00579695 |

Integrity events :

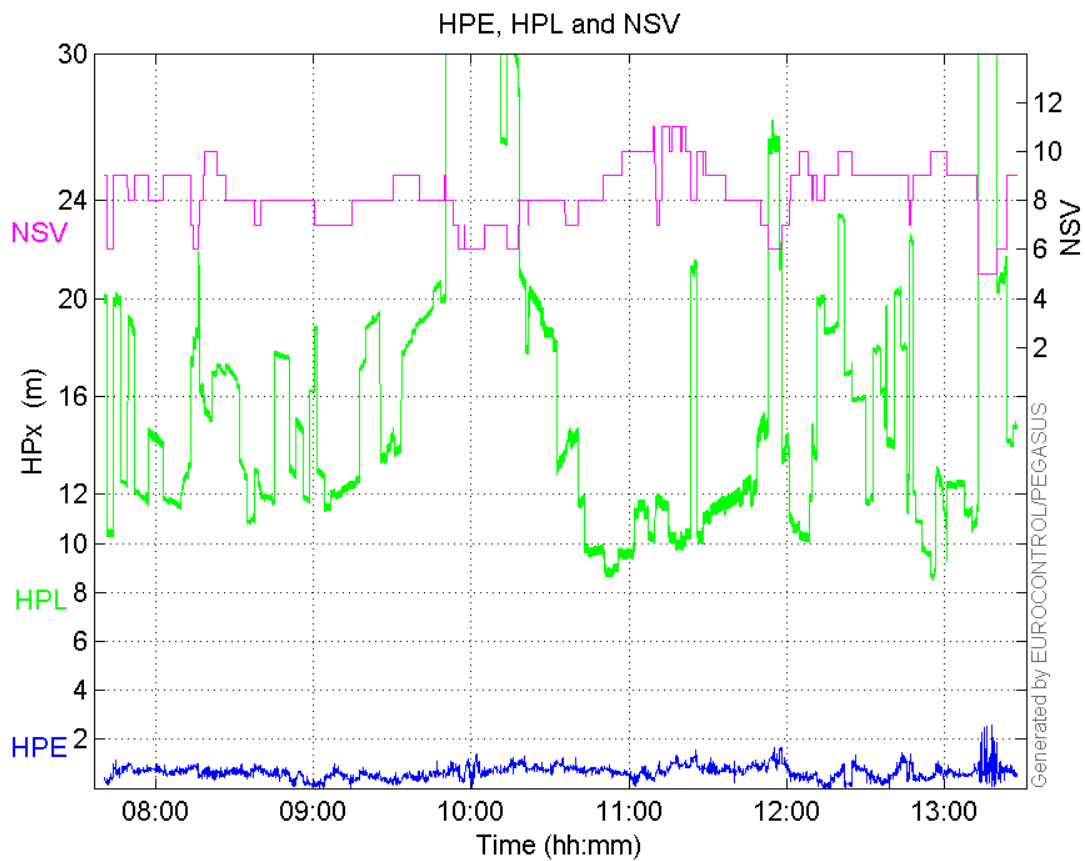
| | MI | HMI APV-1 | HMI LPV-200 | HMI CAT-1 | HMI APV-35m |
|-------------------|----|-----------|-------------|-----------|-------------|
| Total | 0 | 0 | 0 | 0 | 0 |
| Horizontal | 0 | 0 | 0 | 0 | 0 |
| Vertical | 0 | 0 | 0 | 0 | 0 |

Performance Summary :

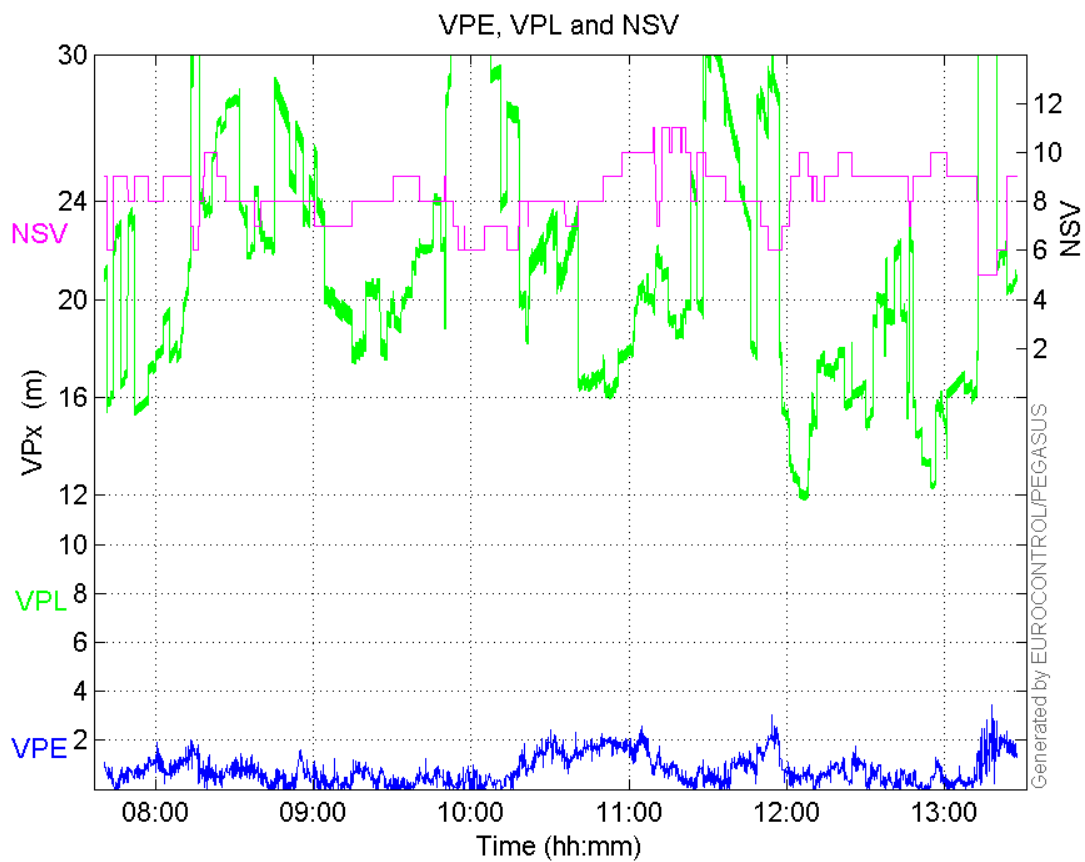
| | Valid | APV-1 | LPV-200 | CAT-1 | APV-35m |
|---|----------|------------|------------|------------|------------|
| Samples | 20852 | 19695 | 19493 | 85 | 19493 |
| SIS Availability | 1 | 0.944514 | 0.934826 | 0.00407635 | 0.934826 |
| Local Availability | 0.982982 | 0.92844 | 0.918918 | 0.00400698 | 0.918918 |
| Operational Availability | 0.982982 | 0.92844 | 0.918918 | 0.00400698 | 0.918918 |
| HPE 95% | 1.0539 | 1.03279 | 1.03393 | 0.504127 | 1.03393 |
| HPEscale 95% | NaN | 3.18812 | 3.19167 | 1.98967 | 3.19167 |
| VPE 95% | 1.89529 | 1.88076 | 1.8834 | 0.675039 | 1.8834 |
| VPEscale 95% | NaN | 4.93972 | 3.46296 | 0.681283 | 3.46296 |
| All Discontinuity Events | -- | 27 | 30 | 48 | 30 |
| Long Discontinuity Events | -- | 3 | 5 | 0 | 5 |
| Independent Discontinuity Events | -- | 2 | 3 | 0 | 3 |
| P(discontinuity) | NaN | 0.00152323 | 0.00230852 | 0 | 0.00230852 |
| P(sliding window) | NaN | 0.00482356 | 0.00579695 | 0.976471 | 0.00579695 |
| 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

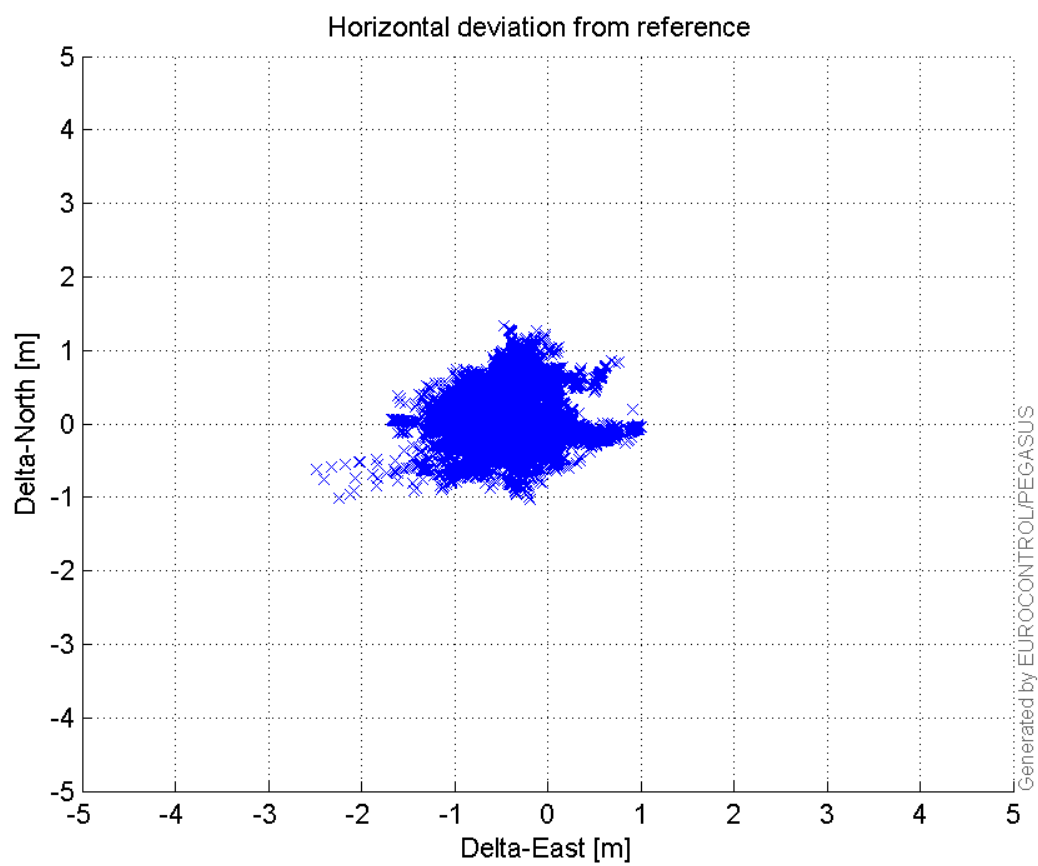
HPE, HPL and NSV:



VPE, VPL and NSV:

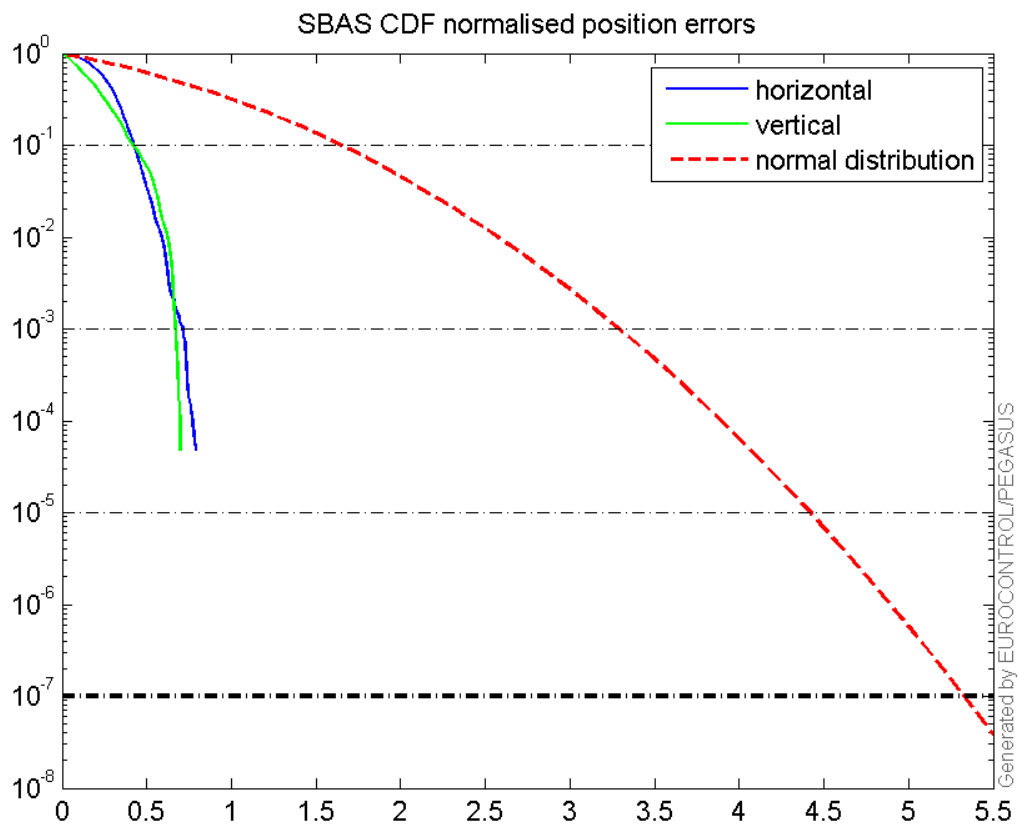


Horizontal deviation from reference :



CDF position

SBAS CDF position domain:



Statistics

```

number 19695
sum    12709.557
sum2   9344.0107
prctile95 1.0327924
prctile99 1.2445575
number 19695
sum    15369.561
sum2   18096.178
prctile95 1.8807602
prctile99 2.117703
number 19695
sum    301704.42
sum2   5221302.8
prctile95 26.416975
prctile99 37.44041
number 19695
sum    412707.09
sum2   9107491.6
prctile95 29.1516
prctile99 37.41427
number 19695
sum    902.33187
sum2   49.23245
prctile95 0.079703014
prctile99 0.098468506
number 19695

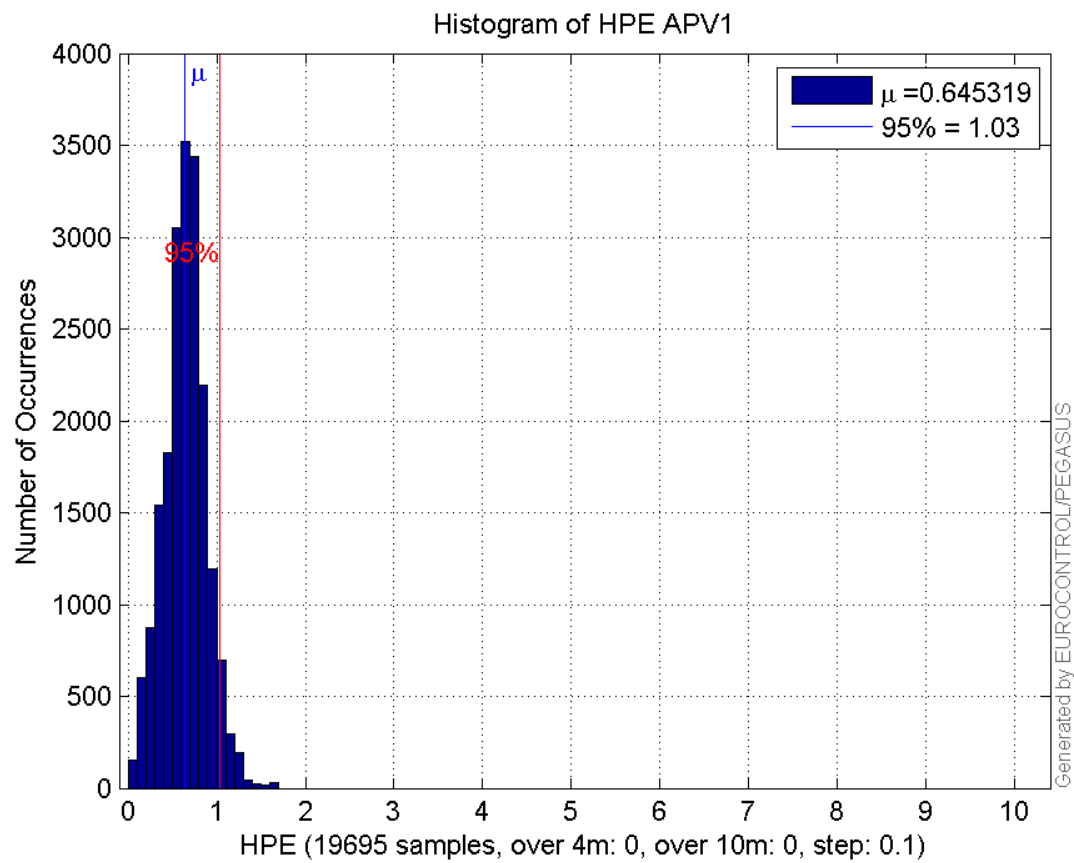
```

sum 767.40276
sum2 46.049948
prctile95 0.098794389
prctile99 0.11726797
number 19493
sum 12612.755
sum2 9292.7968
prctile95 1.0339328
prctile99 1.2458285
number 19493
sum 15299.918
sum2 18046.583
prctile95 1.8834008
prctile99 2.1185886
number 19493
sum 294713.91
sum2 4970994
prctile95 26.162105
prctile99 34.140013
number 19493
sum 404956.8
sum2 8810034.9
prctile95 28.85096
prctile99 32.466918
number 19493
sum 899.30369
sum2 49.175721
prctile95 0.079791669
prctile99 0.098607933
number 19493
sum 765.5963
sum2 46.016804
prctile95 0.09894177
prctile99 0.11730738

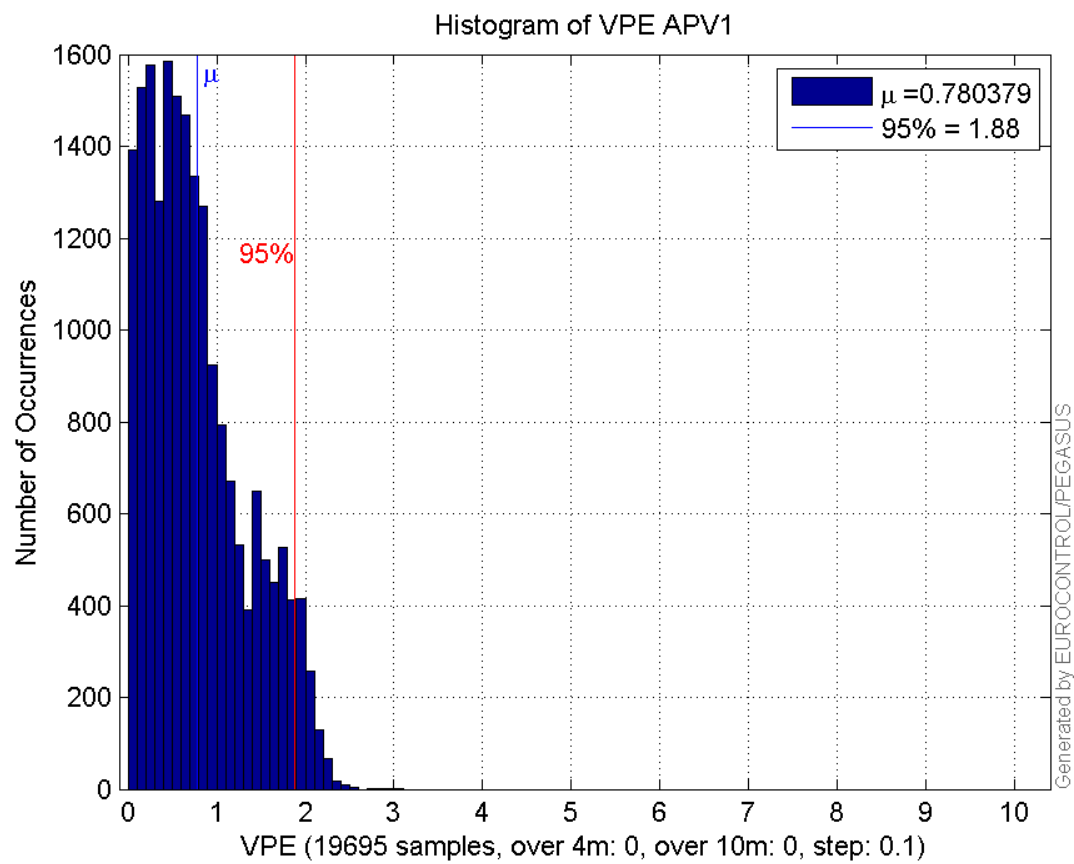
Error and XPL Statistics :

| | Mean Value | Standard Deviation | 50% Value | 95% Value | 99% Value | RMS Value |
|------------|------------|--------------------|-----------|-----------|-----------|-----------|
| HPE | 0.645319 | 0.240836 | 0.652186 | 1.03279 | 1.24456 | 0.688793 |
| HPL | 15.3188 | 5.51751 | 13.5234 | 26.417 | 37.4404 | 16.2821 |
| VPE | 0.780379 | 0.556638 | 0.662521 | 1.88076 | 2.1177 | 0.958551 |
| VPL | 20.9549 | 4.829 | 20.1504 | 29.1516 | 37.4143 | 21.5041 |

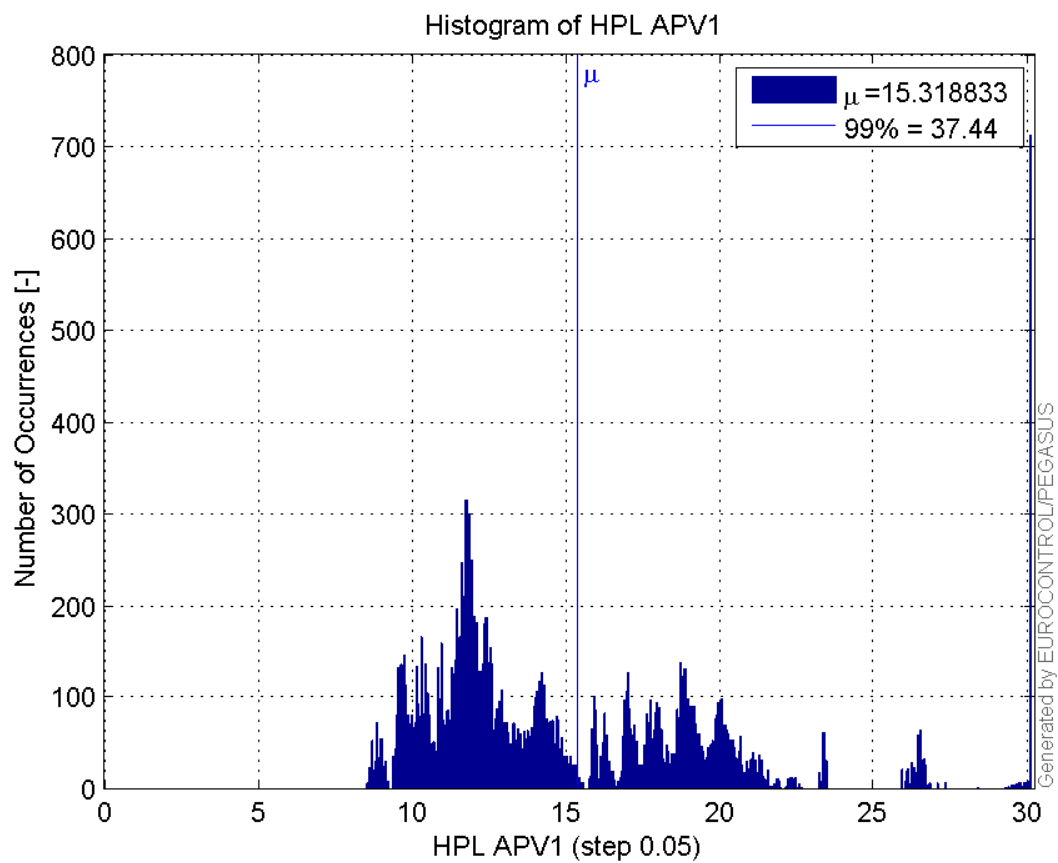
Histogram of HPE APV1:



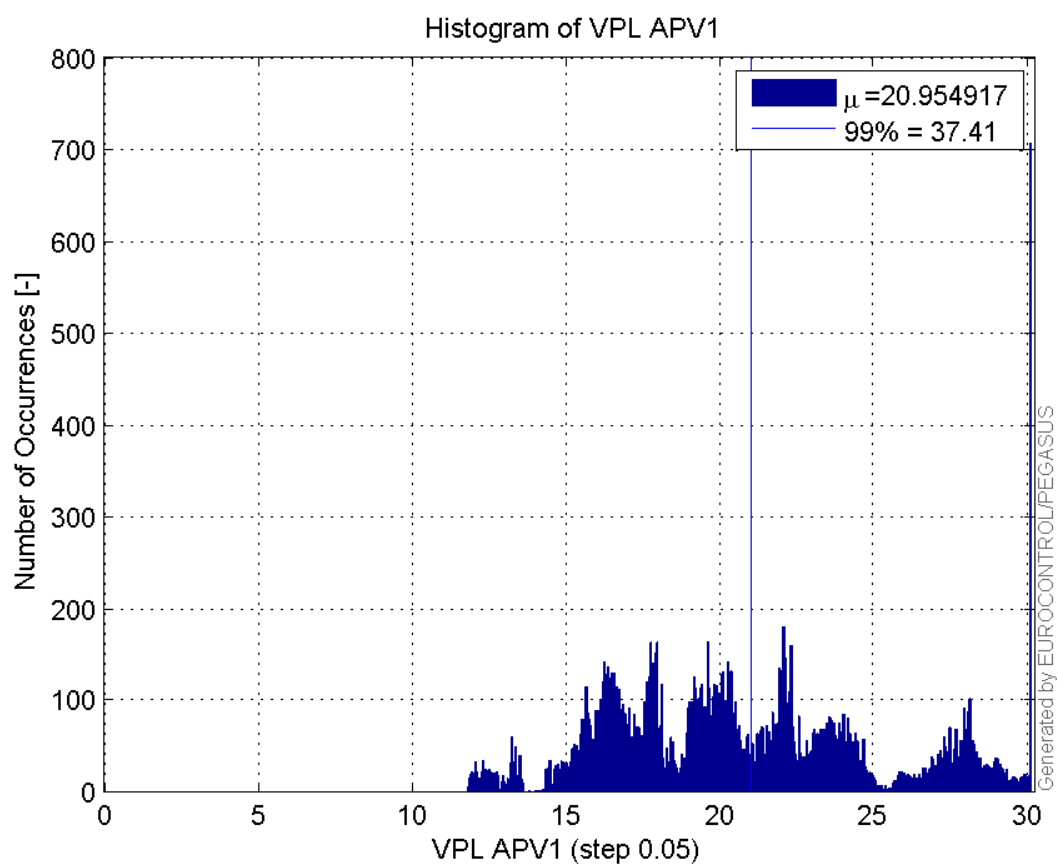
Histogram of VPE APV1:



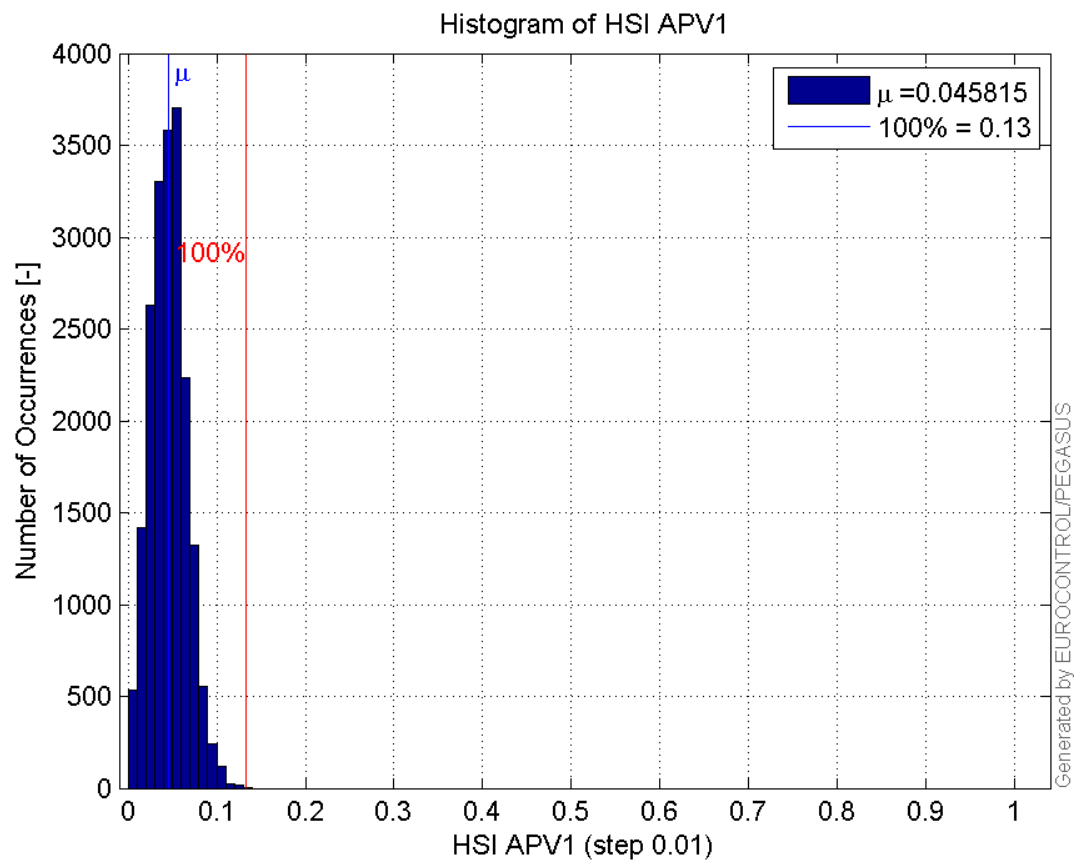
Histogram of HPL APV1:



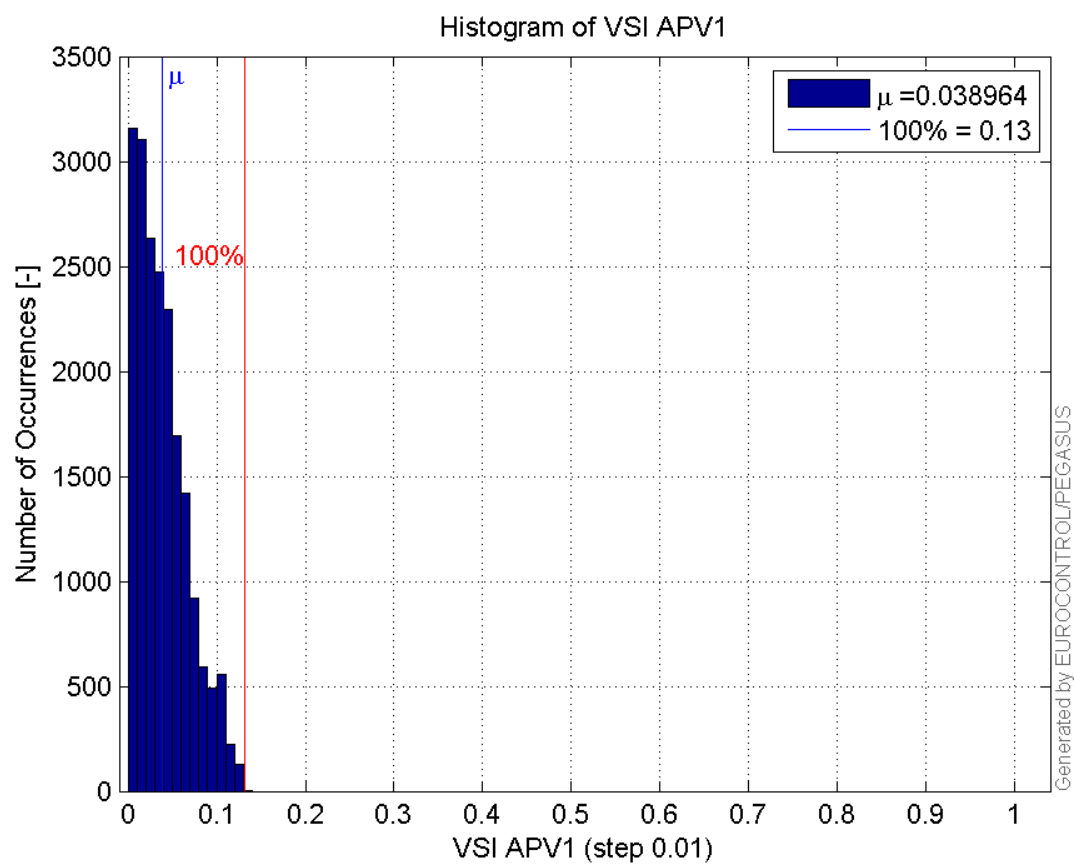
Histogram of VPL APV1:



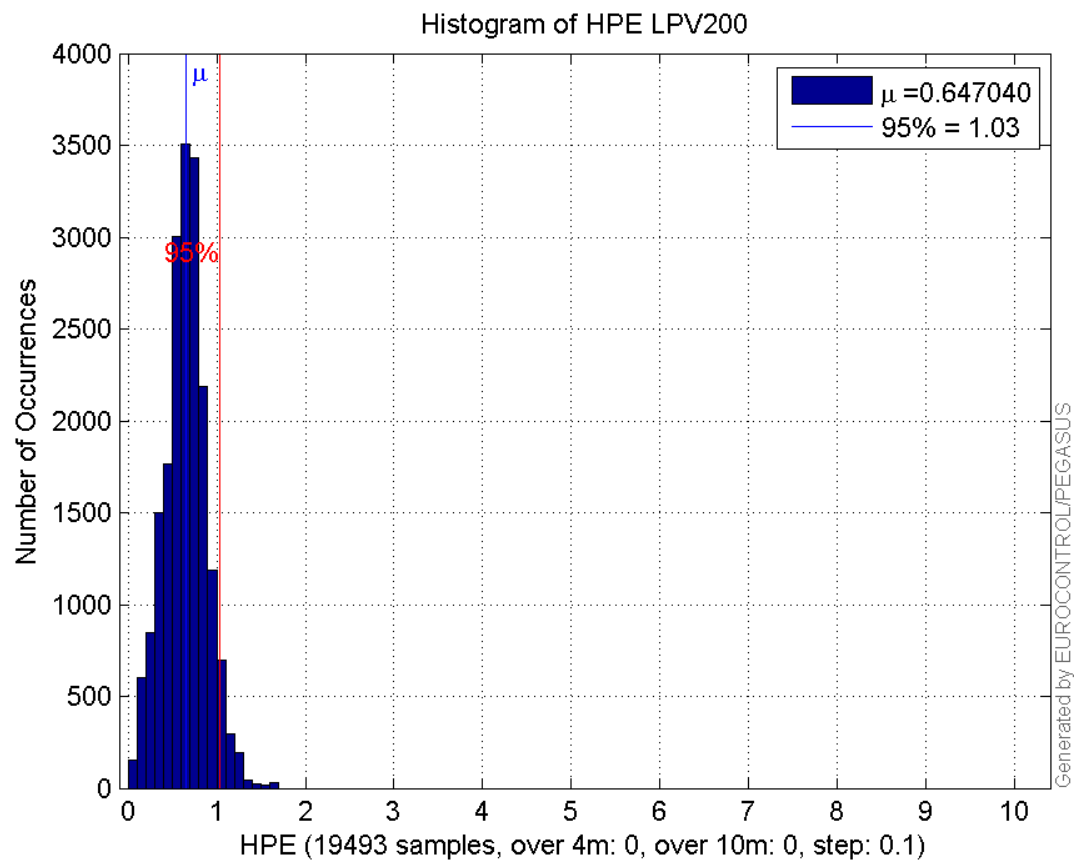
Histogram of HSI APV1:



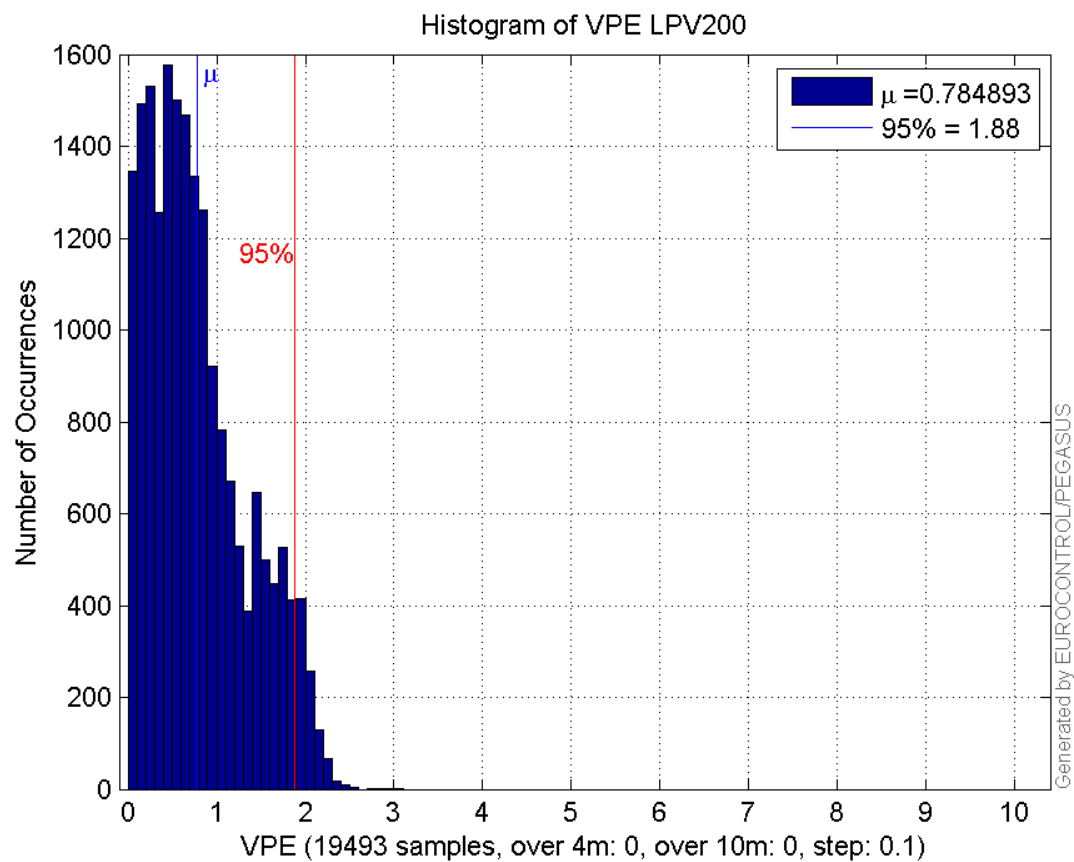
Histogram of VSI APV1:



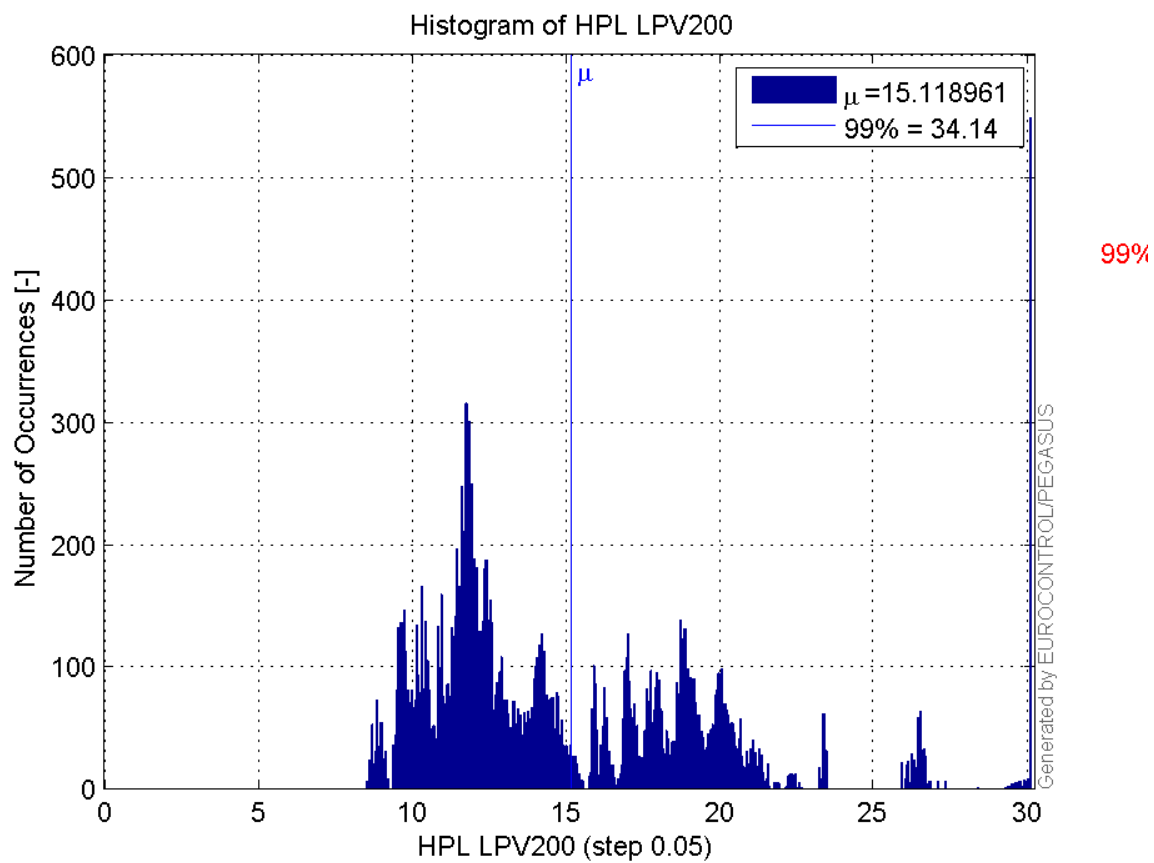
Histogram of HPE LPV200:



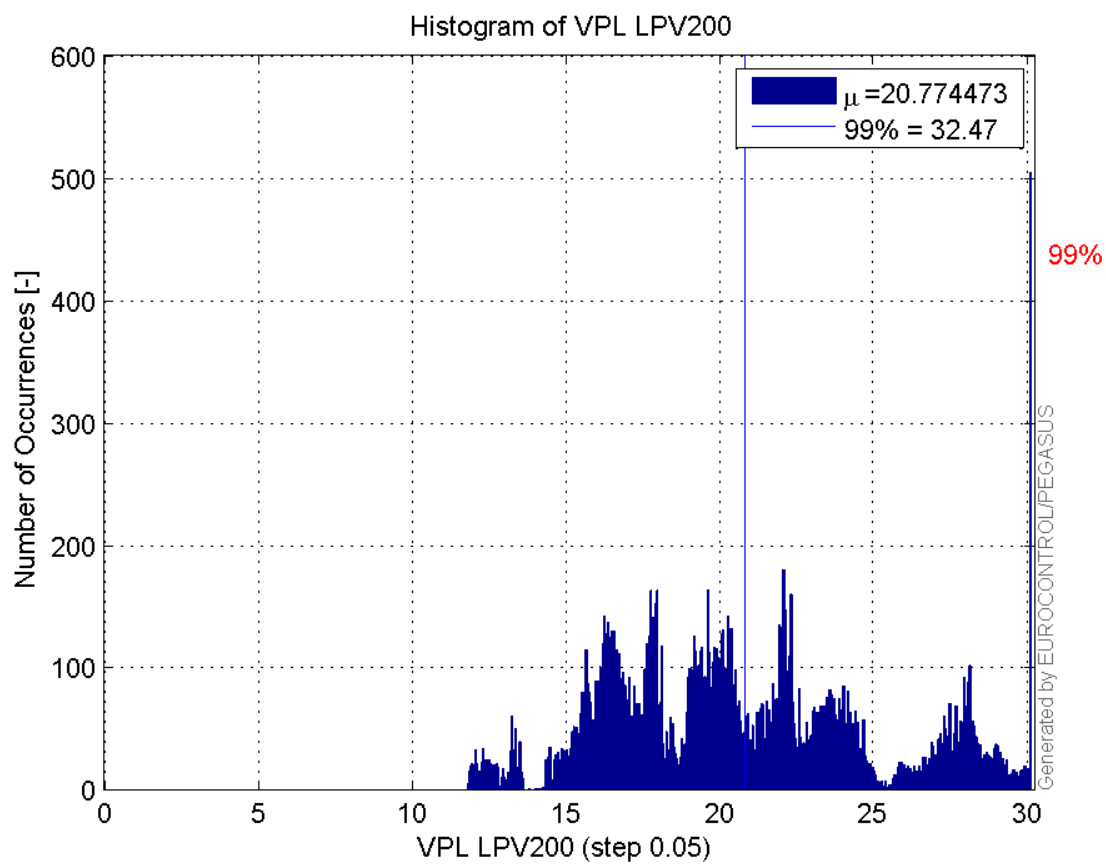
Histogram of VPE LPV200:



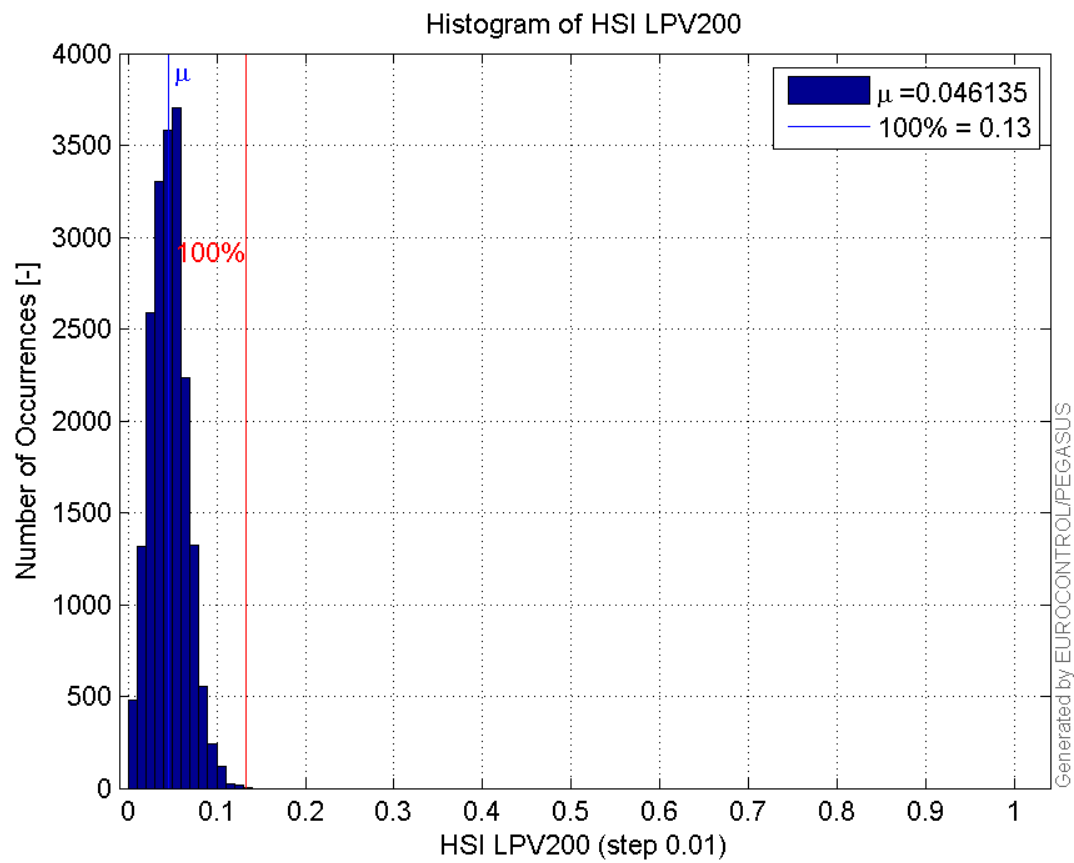
Histogram of HPL LPV200:



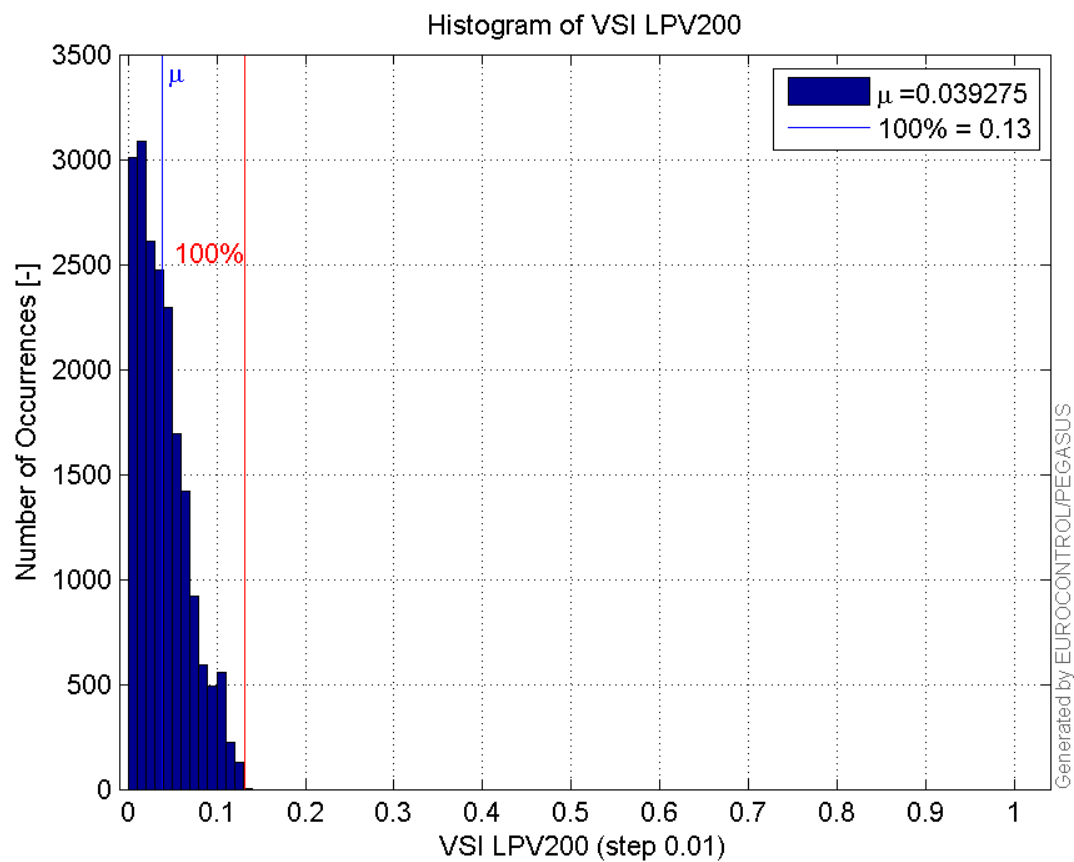
Histogram of VPL LPV200:



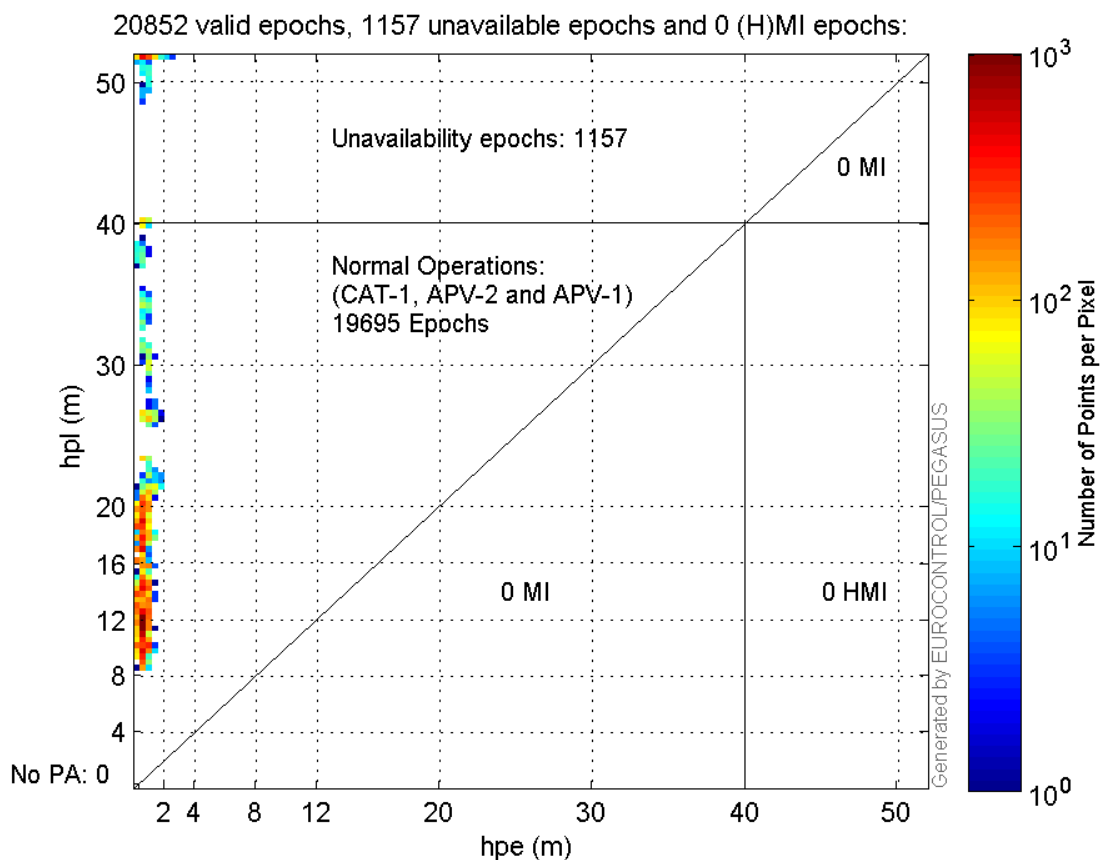
Histogram of HSI LPV200:



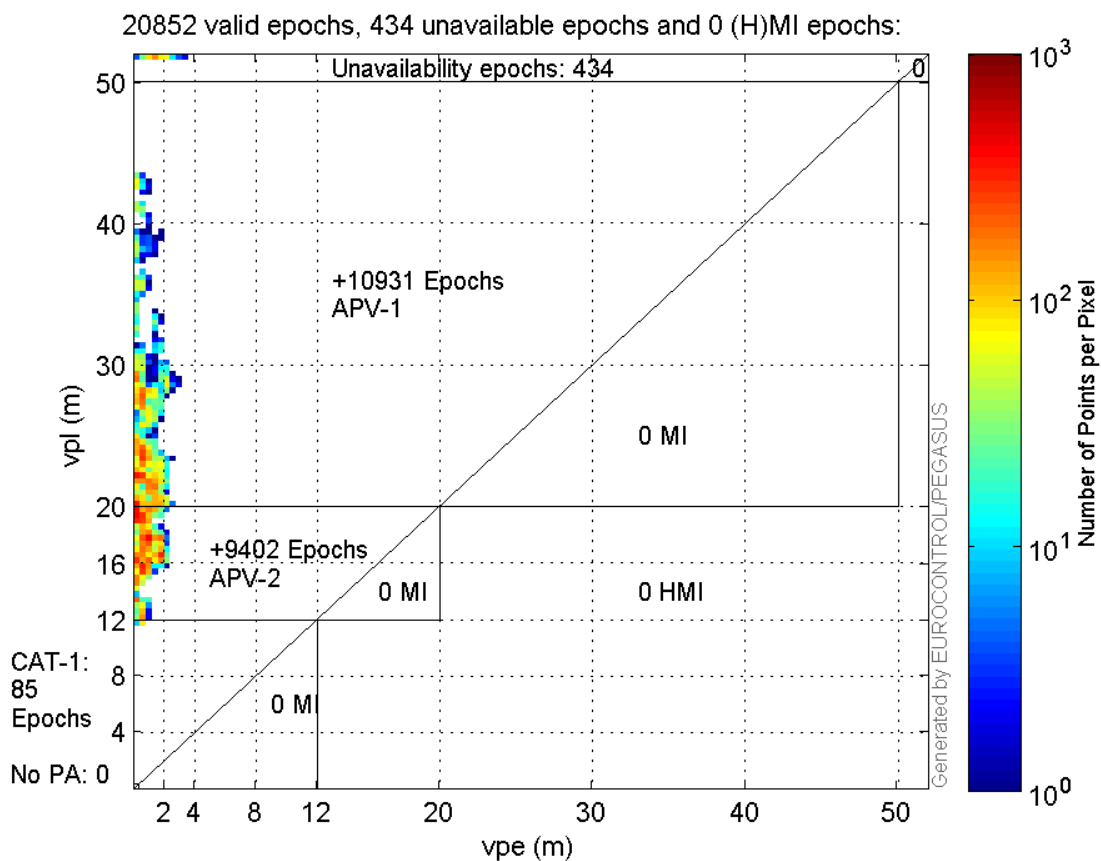
Histogram of VSI LPV200:



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:/PegasusDat/Jobs/2015_09_22EGNOS/02_Convertor/02_Convertor |
| output_prefix | system | D:/PegasusDat/Jobs/2015_09_22EGNOS/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 | 50.4388 |
| init_lon | results | 30.4294 |
| init_alt | results | 240.2168 |
| mi_numbers | results | 0 |

Range Domain

start: 07:34:15 22.09.2015 (week: 1863 sec: 200055)
end: 13:27:47 22.09.2015 (week: 1863 sec: 221267)
duration: 05:53:33 ..

quality

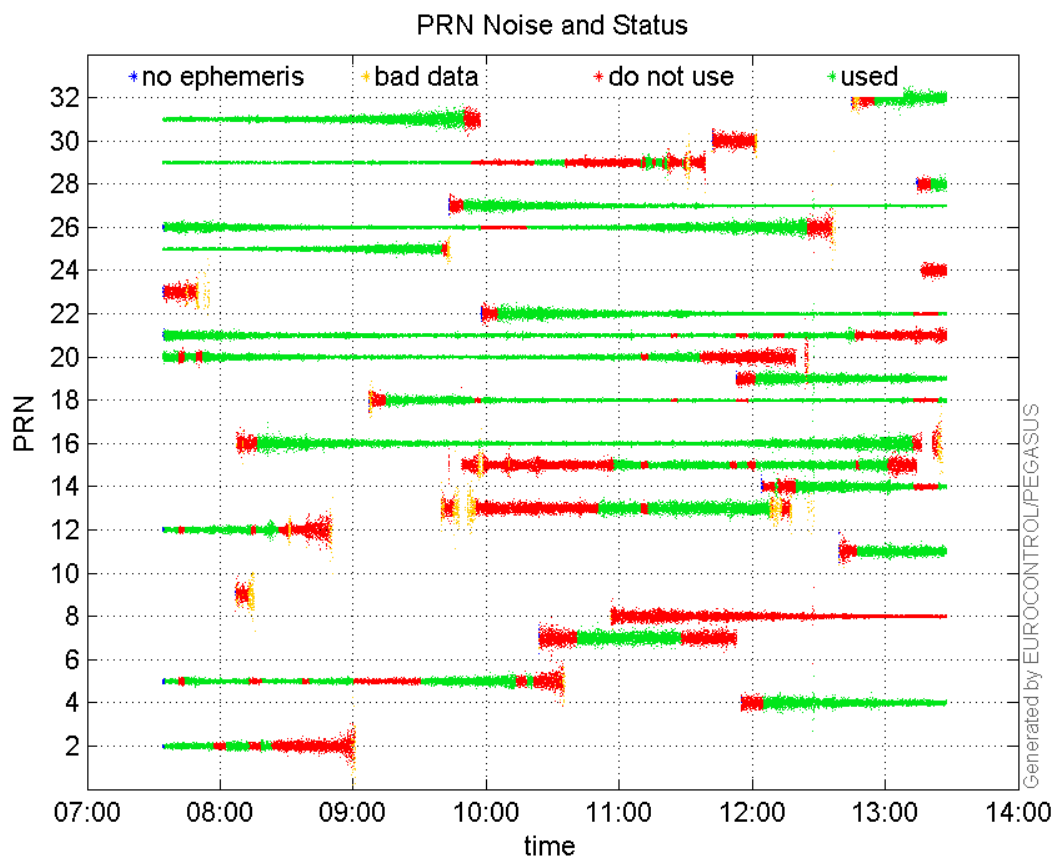
valid samples 21213
total samples 21213

PRN overview

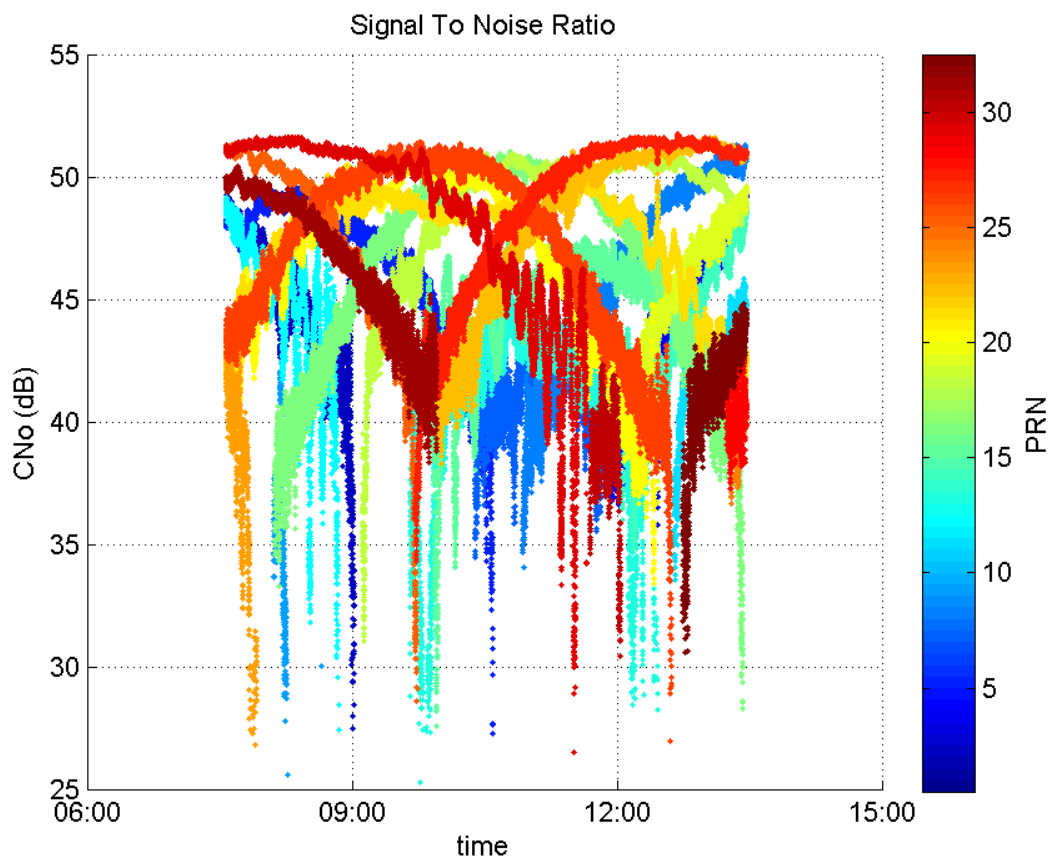
Number of Visible GPS Satellites 27
Number of Visible SBAS Satellites 2

signal quality and status

PRN Noise and Status:



Signal To Noise Ratio:



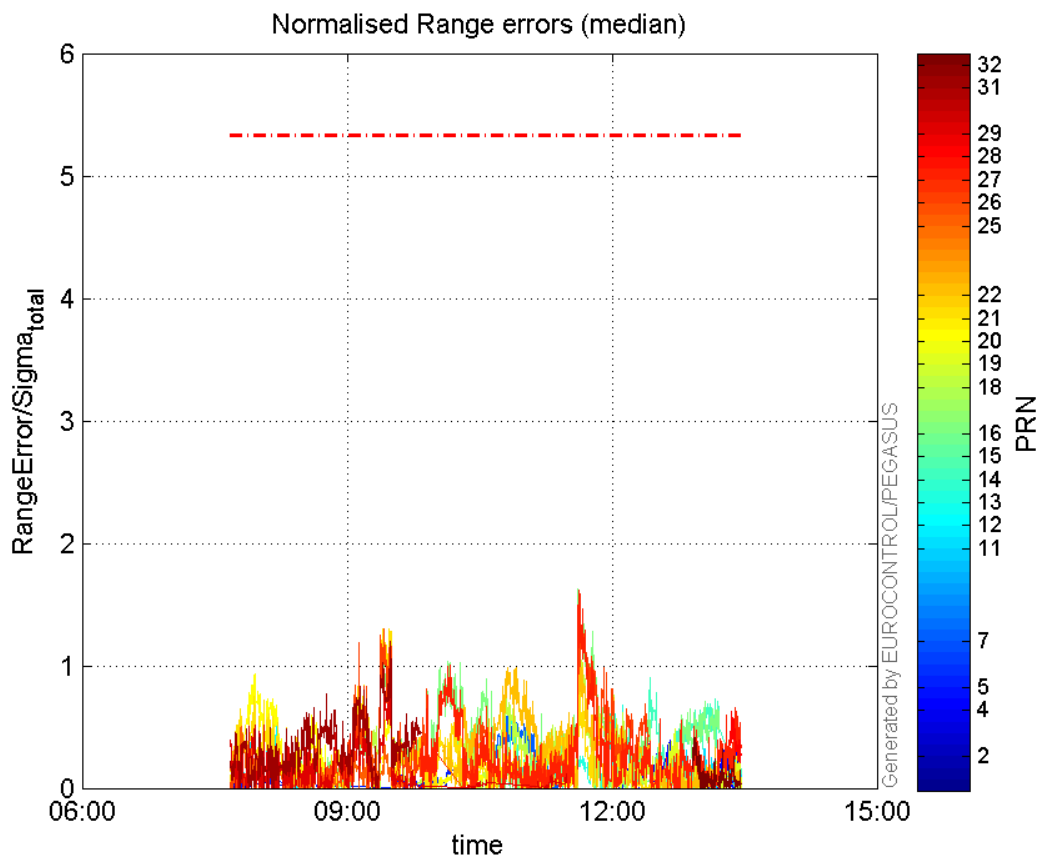
range errors

Number of Overbounding Norm Errors 0

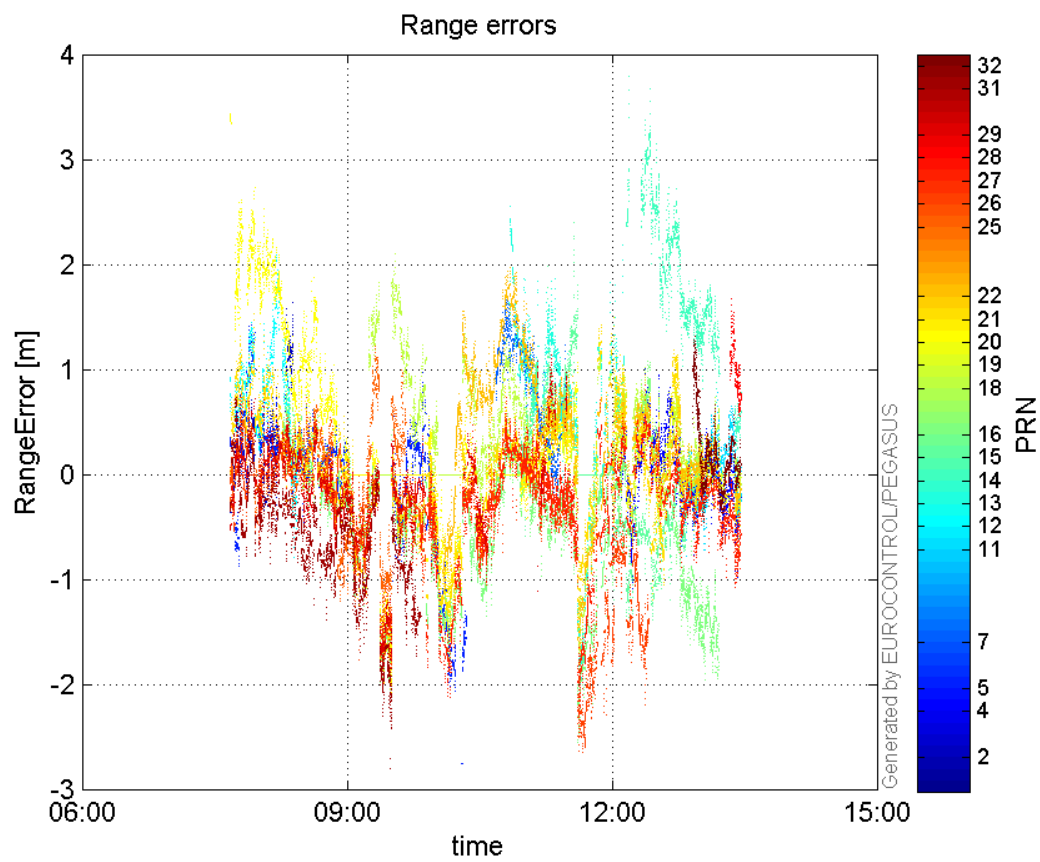
Max Norm Errors :

| GPS Week | GPS Second | PRN | Norm Error | Range Error | Sigma |
|----------|------------|-----|------------|-------------|---------|
| 1863 | 200835 | 2 | 0.232536 | 0.873826 | 3.75781 |
| 1863 | 221122 | 4 | 0.552375 | -0.983549 | 1.78058 |
| 1863 | 201289 | 5 | 0.219241 | 1.41906 | 6.4726 |
| 1863 | 211730 | 7 | 0.598531 | 1.65165 | 2.75951 |
| 1863 | 221150 | 11 | 0.397308 | -0.81184 | 2.04335 |
| 1863 | 202342 | 12 | 0.520984 | 2.09292 | 4.01724 |
| 1863 | 216454 | 13 | 0.680671 | 2.18868 | 3.21547 |
| 1863 | 217578 | 14 | 0.899459 | 3.67856 | 4.08975 |
| 1863 | 217869 | 15 | 0.331648 | -1.1025 | 3.3243 |
| 1863 | 214599 | 16 | 1.6293 | -2.52619 | 1.55048 |
| 1863 | 214689 | 18 | 1.16999 | -1.7116 | 1.46292 |
| 1863 | 218572 | 19 | 0.482643 | 0.958546 | 1.98603 |
| 1863 | 201431 | 20 | 0.92864 | 2.7324 | 2.94237 |
| 1863 | 206720 | 21 | 1.30409 | -1.94432 | 1.49094 |
| 1863 | 214657 | 22 | 1.19686 | -1.80726 | 1.50999 |
| 1863 | 200891 | 25 | 0.506585 | 0.767346 | 1.51474 |
| 1863 | 214813 | 26 | 1.38792 | -2.64563 | 1.90619 |
| 1863 | 214657 | 27 | 1.61337 | -2.26288 | 1.40258 |
| 1863 | 220877 | 28 | 0.631284 | 1.67423 | 2.6521 |
| 1863 | 206721 | 29 | 0.865149 | -1.88519 | 2.17903 |
| 1863 | 206971 | 31 | 1.20032 | -2.80436 | 2.33634 |
| 1863 | 219349 | 32 | 0.414961 | 1.2766 | 3.07643 |

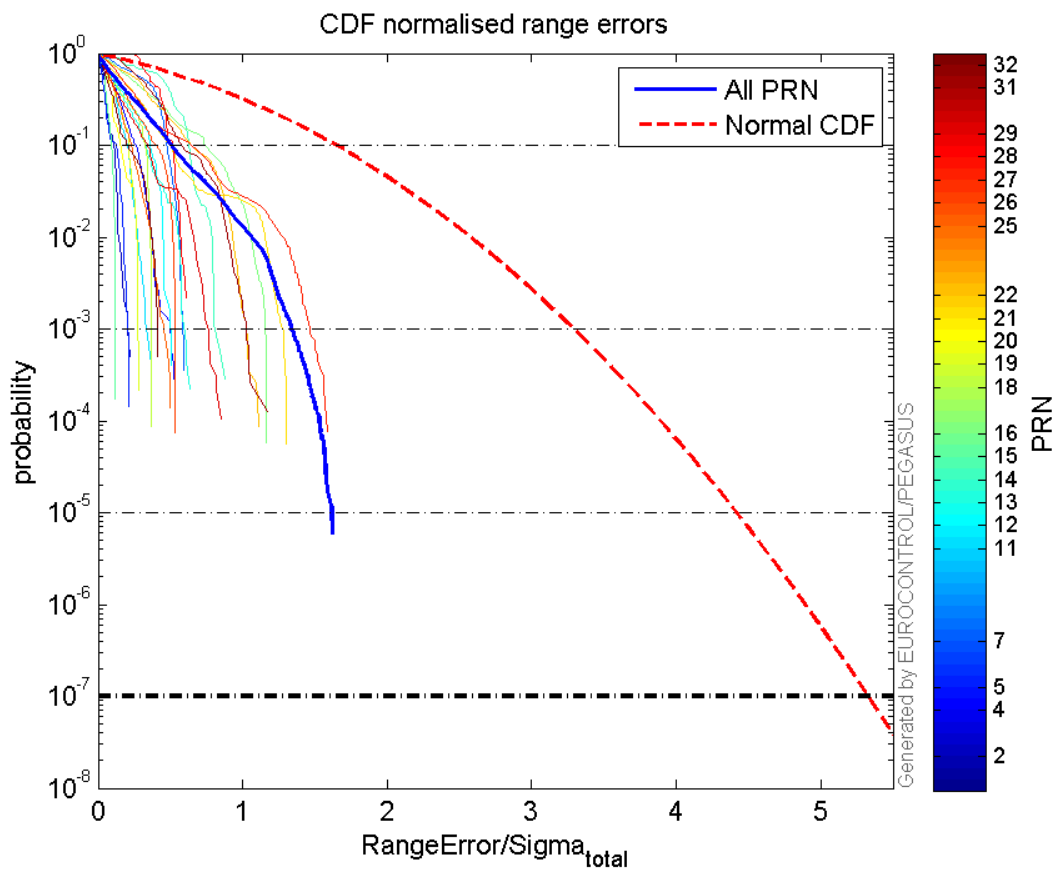
Normalised Range errors (median):



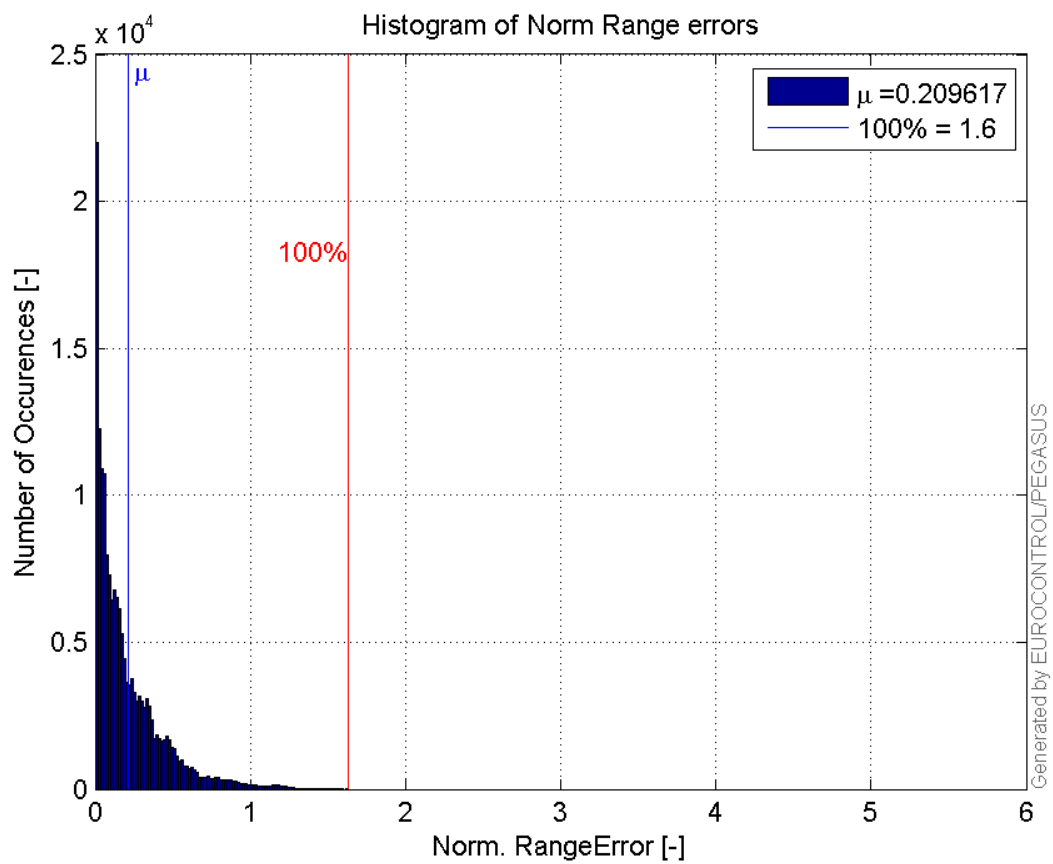
Range errors:



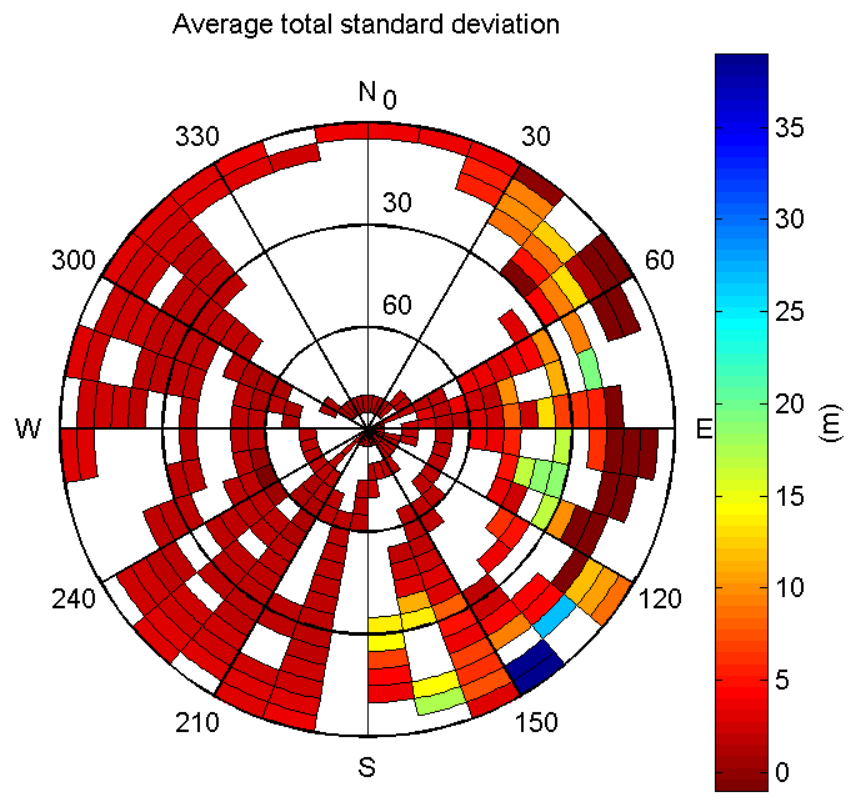
CDF normalised range errors:



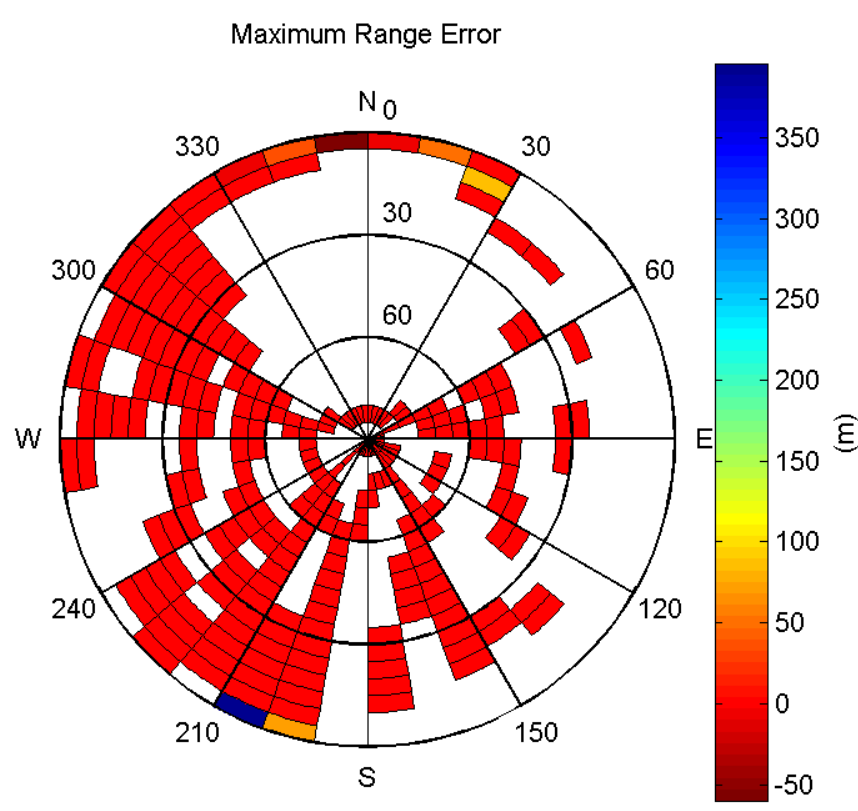
Histogram of Norm Range errors:



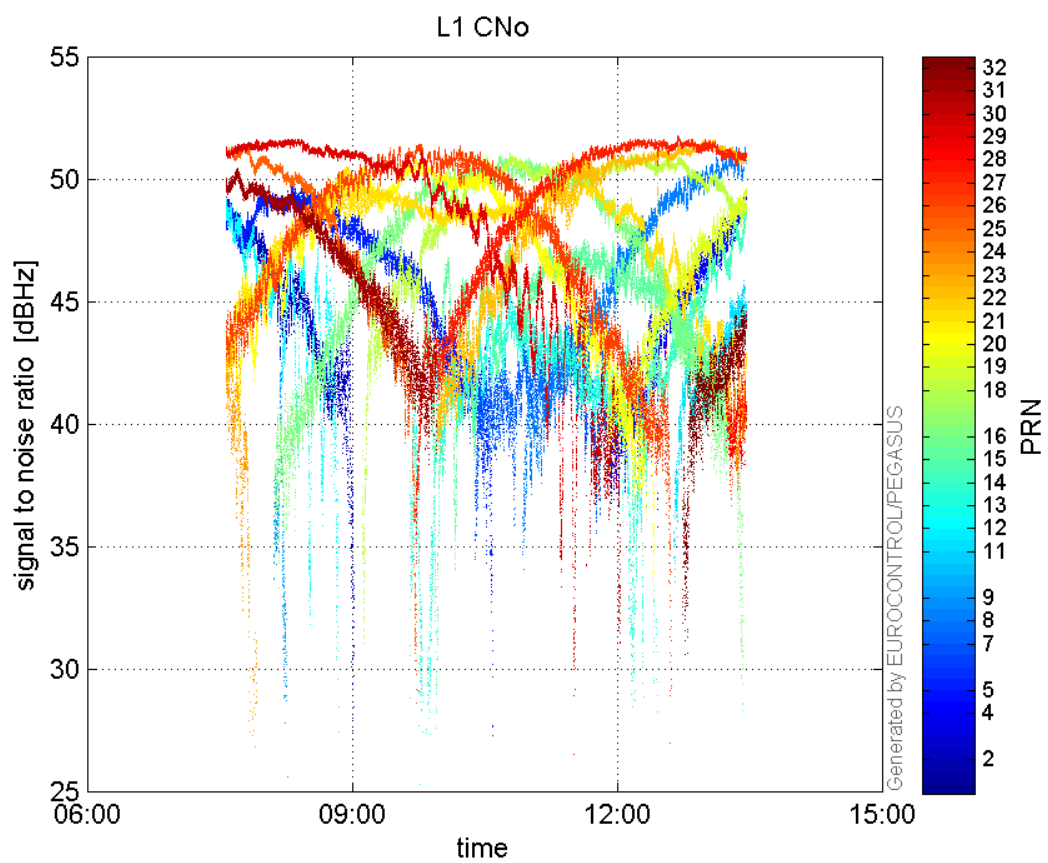
Sigma Sky Plot:



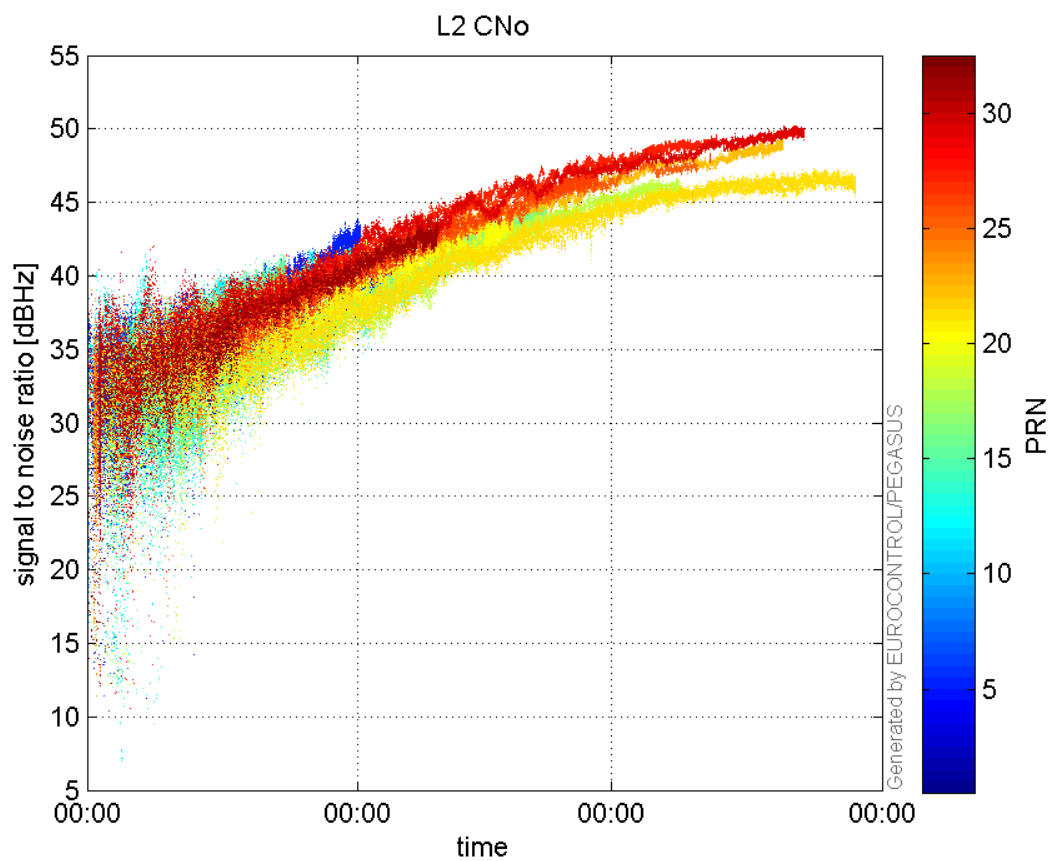
Norm Error Sky Plot:



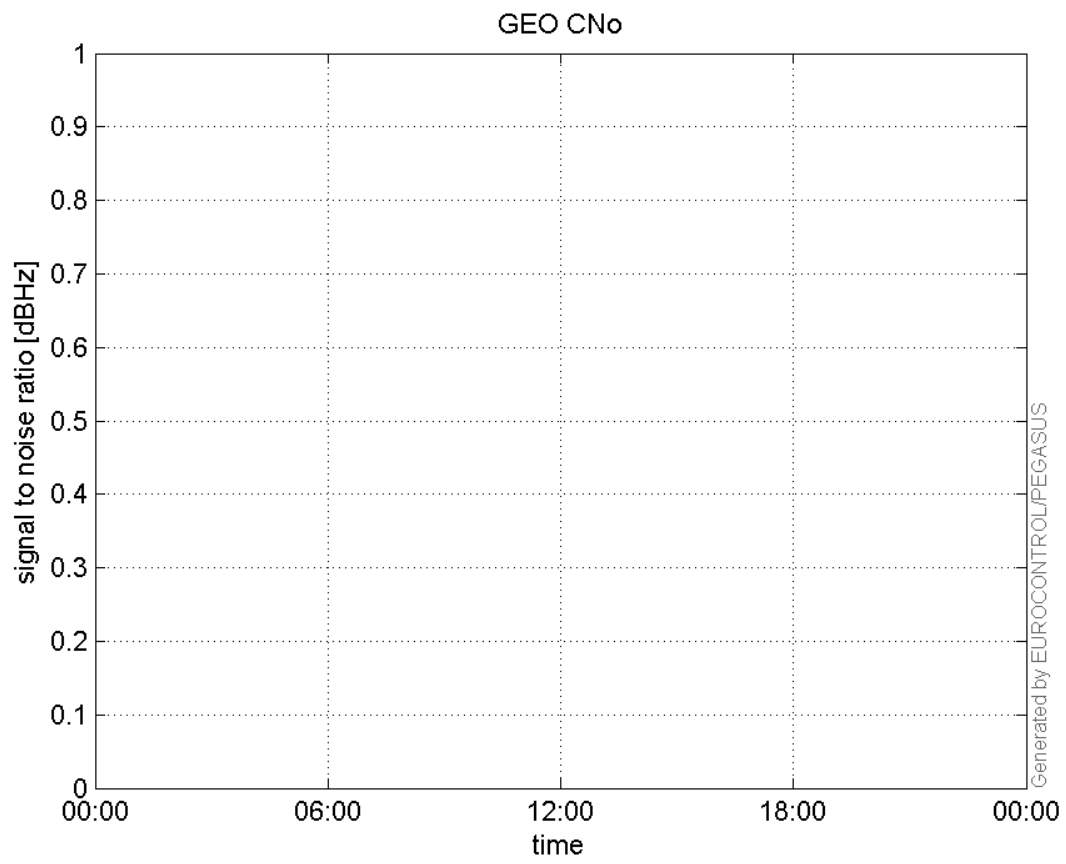
L1 CNo:



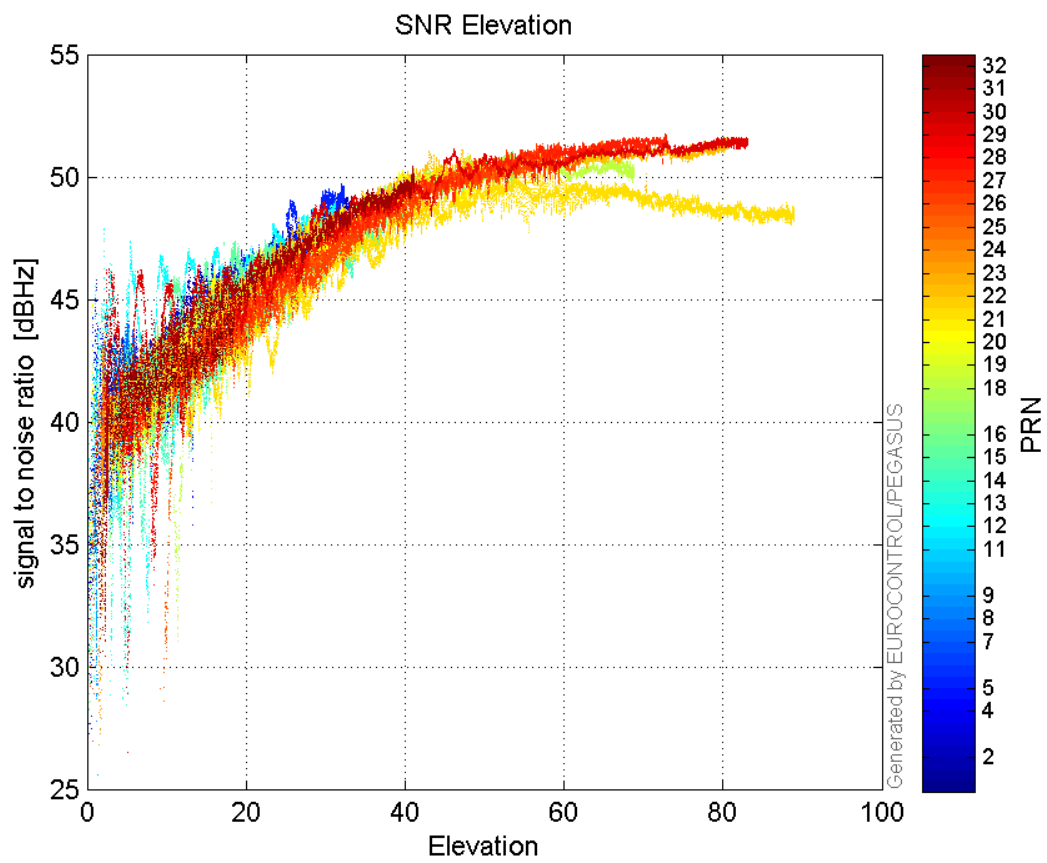
L2 CNo:



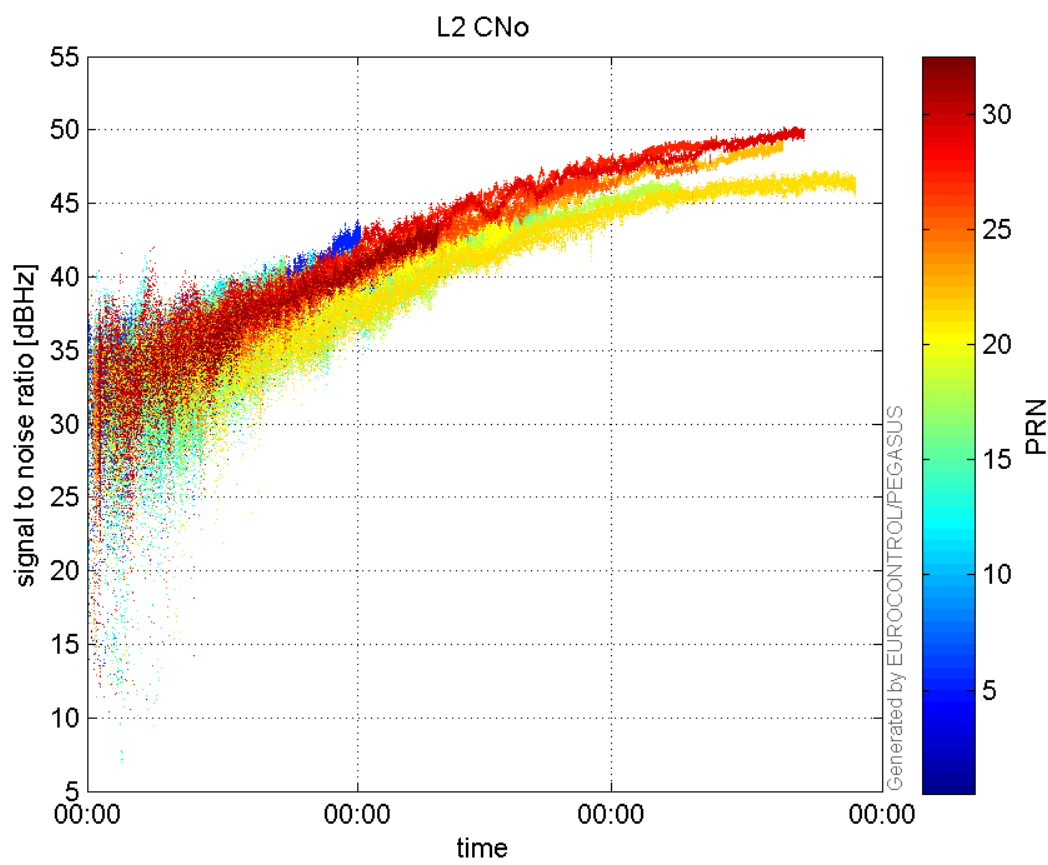
GEO CNo:



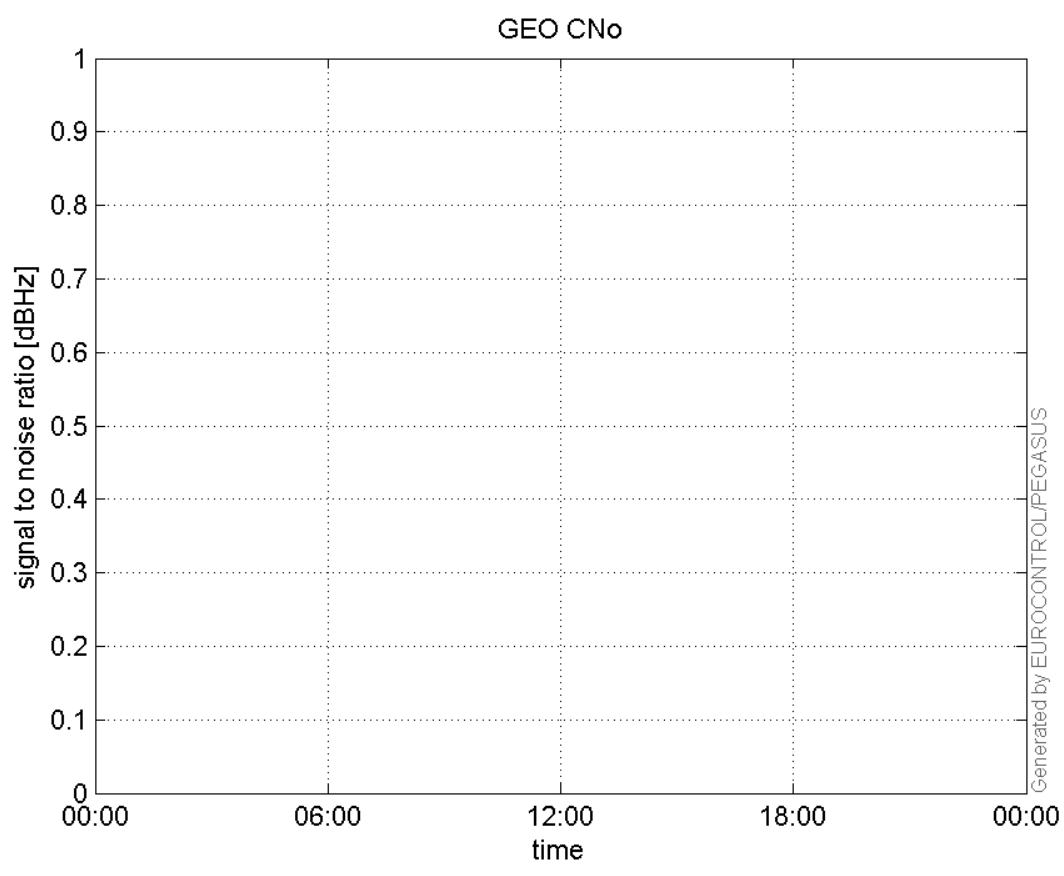
SNR Elevation:



L2 CNo:

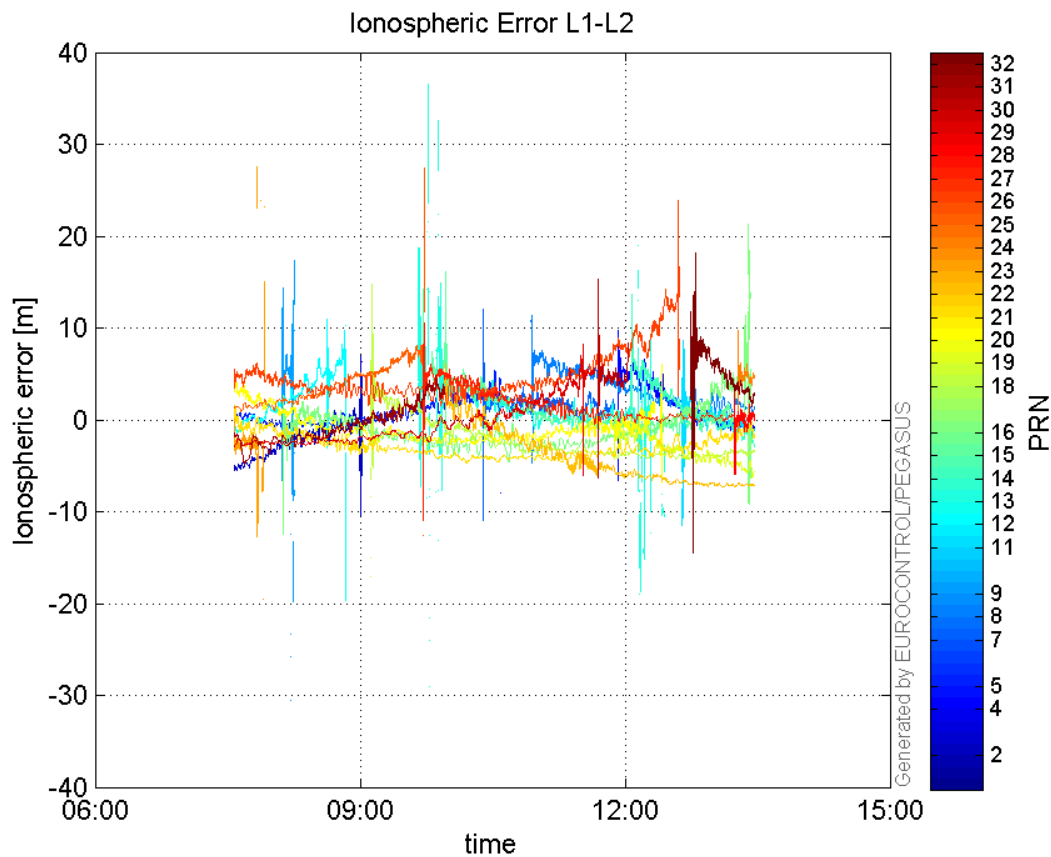


GEO CNo:



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:/PegasusDat/Jobs/2015_09_22EGNOS/02_Convertor/02_Convertor |
| output_prefix | system | D:/PegasusDat/Jobs/2015_09_22EGNOS/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 | 50.4388 |
| init_lon | results | 30.4294 |
| init_alt | results | 240.2168 |
| mi_numbers | results | 0 |