## 1. train-data

**Name:** \*.txt

**Introduction**: GNSS error + features file, map GNSS positioning error to accuracy classes, choose the features for model training.

**Contents**: 59 columns

|  |  |  |
| --- | --- | --- |
| contents | units | columns |
| weeksec | s | 1 |
| gnss\_poserr (N, E, D) | m | 2-4 |
| latstd | m | 5 |
| lonstd | m | 6 |
| altstd | m | 7 |
| number of all satellites |  | 8 |
| number of GPS satellites |  | 9 |
| number of BeiDou satellites |  | 10 |
| PDOP |  | 11 |
| CA\_RMS |  | 12 |
| Dop\_RMS |  | 13 |
| L1RMS |  | 14 |
| ambiguity (fixed or float) | Fixed=1; Float=2 | 15 |
| HDOP |  | 16 |
| Elevation angle (min, mean, max) | deg | 17-19 |
| carrier-to-noise density ratio (min, mean, max) | dB-Hz | 20-22 |
| number of N1 satellites |  | 23 |
| N1 elevation (min, mean, max) | deg | 24-26 |
| N1 carrier-to-noise density ratio (min, mean, max) | dB/HZ | 27-29 |
| number of N2 satellites |  | 30 |
| N2 elevation (min, mean, max) | deg | 31-33 |
| N2 carrier-to-noise density ratio (min, mean, max) | dB/HZ | 34-36 |
| number of E1 satellites |  | 37 |
| E1 elevation angle (min, mean, max) | deg | 38-40 |
| E1 carrier-to-noise density ratio (min, mean, max) | dB/HZ | 41-43 |
| number of E2 satellites |  | 44 |
| E2 elevation (min, mean, max) | deg | 45-47 |
| E2 carrier-to-noise density ratio (min, mean, max) | dB/HZ | 48-50 |
| NDOP |  | 51 |
| EDOP |  | 52 |
| HDOP |  | 53 |
| projection of North carrier-to-noise density ratio (min, mean, max) |  | 54-56 |
| projection of North carrier-to-noise density ratio (min, mean, max) |  | 57-59 |

## 2. test-data

**Name:** 0121-1-1-result0116.txt

**Introduction**: Same as above

**Name:** gnss\_7\_original.txt

**Introduction**: original GNSS positioning result,

**Contents**: 7 columns

|  |  |  |
| --- | --- | --- |
| contents | units | columns |
| weeksec | s | 1 |
| lat | deg | 2 |
| lon | deg | 3 |
| alt | m | 4 |
| latstd | m | 5 |
| lonstd | m | 6 |
| altstd | m | 7 |

**Name:** gnss\_7\_optimized.txt

**Introduction**: optimized GNSS positioning result,

**Contents**: Same as above

**Name:** imu.bin

**Introduction**: IMU data file, incremental IMU data，

**Contents**: 7 columns

|  |  |  |
| --- | --- | --- |
| contents | units | columns |
| weeksec | s | 1 |
| gyrx | rad | 2 |
| gyry | rad | 3 |
| gyrz | rad | 4 |
| accx | m/s | 5 |
| accy | m/s | 6 |
| accz | m/s | 7 |

**Name:** ref.nav

**Introduction**: The projected reference file

**Contents**: 11 columns

|  |  |  |
| --- | --- | --- |
| contents | units | columns |
| week |  | 1 |
| weeksec | s | 2 |
| lat | deg | 3 |
| lon | deg | 4 |
| alt | m | 5 |
| V\_N | m/s | 6 |
| V\_E | m/s | 7 |
| V\_D | m/s | 8 |
| roll | deg | 9 |
| pitch | deg | 10 |
| heading | deg | 11 |

## 3. Installation parameters

**antenna lever**: [0.5, 0.32, -1.25] (m)

**Introduction**: In the coordinate system of the IMU, where the X-axis is pointing forward, Y-axis is pointing right and Z-axis is pointing down.

## 4. IMU parameters

|  |  |  |
| --- | --- | --- |
| Device | ADIS16460 | |
| arw | 0.2 | deg/sqrt(h) |
| vrw | 0.2 | m/s/sqrt(h) |
| std\_gb | 12 | deg/h |
| std\_ab | 100 | mGal |
| correlation time | 1 | hr |