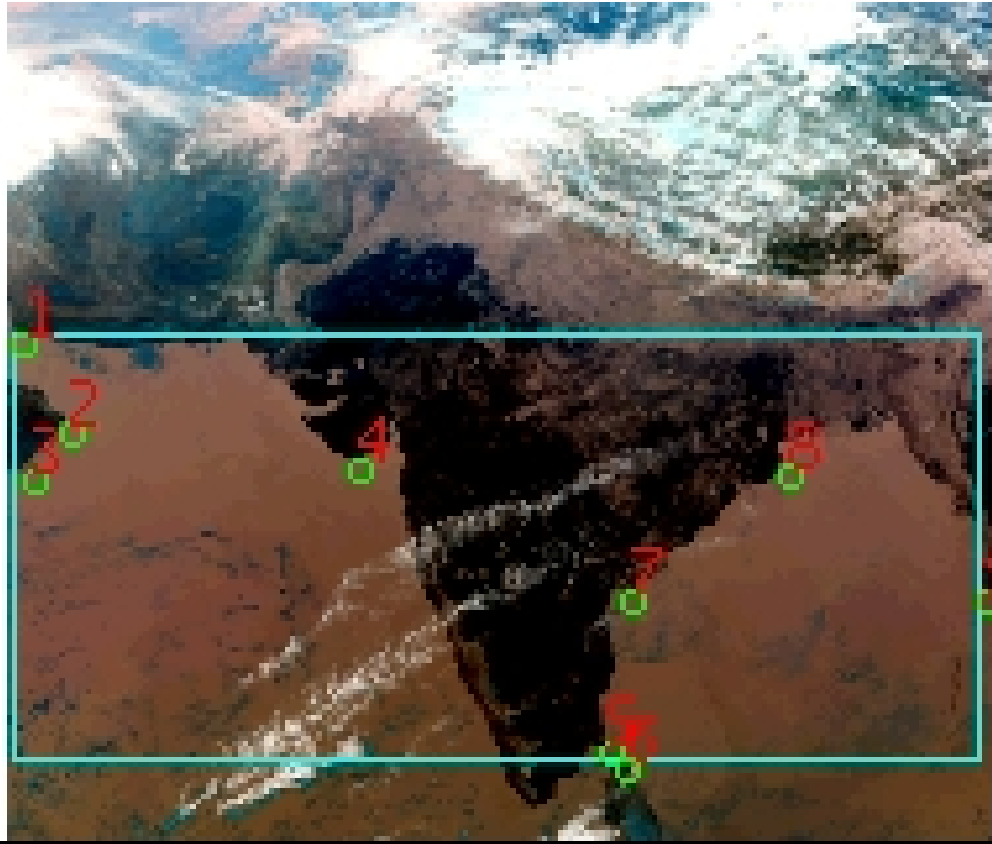


DQE Report: Location Accuracy of INSAT-3DR-SND STANDARD Product 3RSND_16FEB2018_0500

| | | | | | |
|---------------|----------------|-----------------|---------------|-----------------|----------|
| Satellite | INSAT-3DR | No Of Bands | 19 | Product Type | STANDARD |
| Sensor | SND | LvlOfProcess | L1B | Selected Band | 2-LWIR3 |
| DOP/Time | 16-02-18/05:00 | Station ID | BES | Field View(deg) | 6.136 |
| Res(Y,X) [Km] | (10.0,10.0) | Res(Y,X) [uRad] | (280.0,280.0) | | |

(41.297N,52.117W)

(41.297N,102.143E)



(6.864S,52.117W)

(6.864S,102.143E)

GCP Distribution overview for 3RSND16FEB20180500L1BSA1

Image Width: 384 Image Height: 320 No Of GCPs: 9

GCP Coverage(%) 50.55 (N-S) 95.96 (E-W)

Location Error(E)

Legend — 0Km < E <= 50Km — 50Km < E <= 100Km — E >100Km

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 1.200 | N | 0.597 | 1.340 |
| Across | -1.244 | W | 0.580 | 1.372 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.642 | 0.573 | 6.415 |
| Along | 10.881 | 1.142 | 8.809 |
| Across | 10.686 | 0.700 | 6.856 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 1.957 | 0.618 | 0.55 | 0.828 |
| Across | 1.615 | -0.118 | 0.53 | 0.540 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01859 | -0.02036 | 0.14790 |

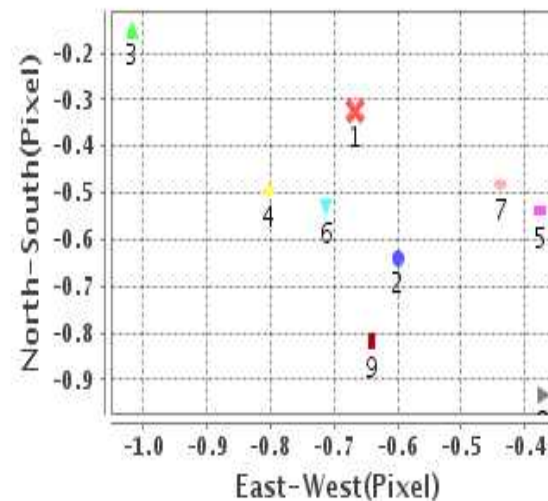
Reference Used

| Sensor | Resolution | Projection |
|--------|------------|------------|
| ETM | 500.00 | GGP |

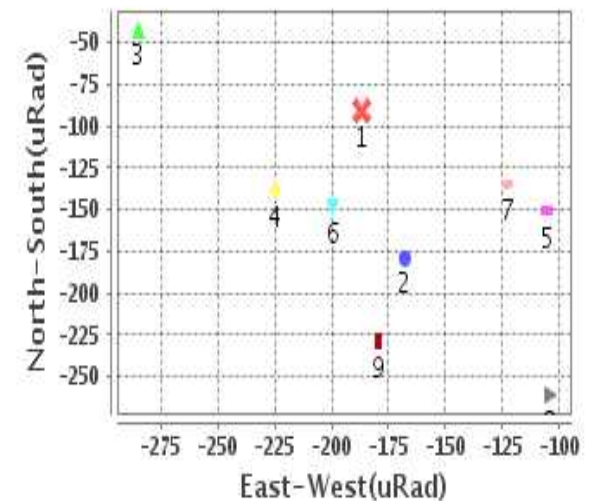
Radial Error (in IR Pixels)

| | |
|------|-------|
| Mean | 1.873 |
| Min | 1.218 |
| Max | 2.354 |
| CE90 | 2.210 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|---------------|----------------------------------|------------|
| Satellite | INSAT-3DR | Generation Date | 16-02-18 |
| Sensor | SND | DQE Date | 21-02-2018 |
| PassType | NONE | Aquisition Date | 16-02-18 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 05:00 |
| Sat Altitude(m) | 3.6E7 | Nominal Altitude(Km) | 3.6E7 |
| Station | BES | Predicted Altitude(Km) | -999.99 |
| Sat Location(deg) | -999.99 E | Nominal Center Lat(deg) | 0.0 |
| Format | hdf5-1.8.8 | Nominal Center Lon(deg) | 74.0 |
| LvlOfProcessing | STANDARD | Predicted Center Lat(deg) | -999.99 |
| DP JobId | 3RSND_16FEB20 | Predicted Center Lon(deg) | -999.99 |
| ProductCode | NONE | | |
| Field View(deg) | 6.136 | | |

Projection Parameters

| | |
|--------------------------------------|----------|
| Projection | None |
| Ellipsoid | WGS_84 |
| Datum | WGS_84 |
| Zone | NotAvail |
| Semi_Major_Axis(Km) | 6378.14 |
| Semi_Minor_Axis(Km) | 6356.75 |
| Standard_Parallel1(deg) | -999.99 |
| Standard_Parallel2(deg) | -999.99 |
| Projection_Origin_Lon(deg) | -999.99 |
| Projection_Origin_Lat(deg) | -999.99 |
| Projection_False_Easting(Km) | -999.99 |
| Projection_False_Northing(Km) | -999.99 |

Scene Center Desc

| | |
|--------------------------|---------|
| Centre Lat(deg) | 24.08 |
| Center Lon(deg) | 77.13 |
| Centre Roll(deg) | -999.0 |
| Centre Pitch(deg) | -999.0 |
| Center Yaw(deg) | -999.0 |
| SunElevation(deg) | -999.99 |
| SunAzimuth(deg) | -999.99 |
| SatElevation(deg) | -999.99 |
| SatAzimuth(deg) | -999.99 |

Scene Corner Desc

| | |
|--------------------|---------|
| NW_Lat(deg) | 41.297 |
| NW_Lon(deg) | 52.117 |
| SW_Lat(deg) | 6.864 |
| SW_Lon(deg) | 52.117 |
| NE_Lat(deg) | 41.297 |
| NE_Lon(deg) | 102.143 |
| SE_Lat(deg) | 6.864 |
| SE_Lon(deg) | 102.143 |

Band Wise Details

| | Res_AL(Km) | Res_AX(Km) | Image Height | Image Width |
|--------------|------------|------------|--------------|-------------|
| LWIR1 | 10.0 | 10.0 | 320 | 384 |
| LWIR2 | 10.0 | 10.0 | 320 | 384 |
| LWIR3 | 10.0 | 10.0 | 320 | 384 |
| LWIR4 | 10.0 | 10.0 | 320 | 384 |
| LWIR5 | 10.0 | 10.0 | 320 | 384 |
| LWIR6 | 10.0 | 10.0 | 320 | 384 |

GDQE Computation Base

| | | | | | | | |
|-------------------|----------------|--------------------------------------|--------|-------------------------------|------------|----------------------------|-----------|
| Projection | MER | Wildpoint Rejection Threshold | 2.60 | SemiMajorAxis(m) | 6378137.00 | Mode Of Computation | grid |
| Ellipsoid | WGS_84 | | -sigma | SemiMinorAxis(m) | 6356752.31 | Used Reference Type | REFINSREF |
| Datum | WGS_84 | Unit | pixels | Standardparallel1(deg) | 17.0 | | |
| Zone | Not Applicable | | | Standardparallel2(deg) | 17.0 | | |

* -999.99 : Not Applicable/Not Available

References

JobId : 3RSND16FEB20180500L1BSA1

(-999.99 - Not Available/Not Computed)

| Ref.No | Source | File Name | Resolution (m) | Projection |
|--------|--------|-----------------|------------------|------------|
| 1 | ETM | world_Band1.img | 500.0 | GGP |

Location Accuracy

GCP Distribution Statistics

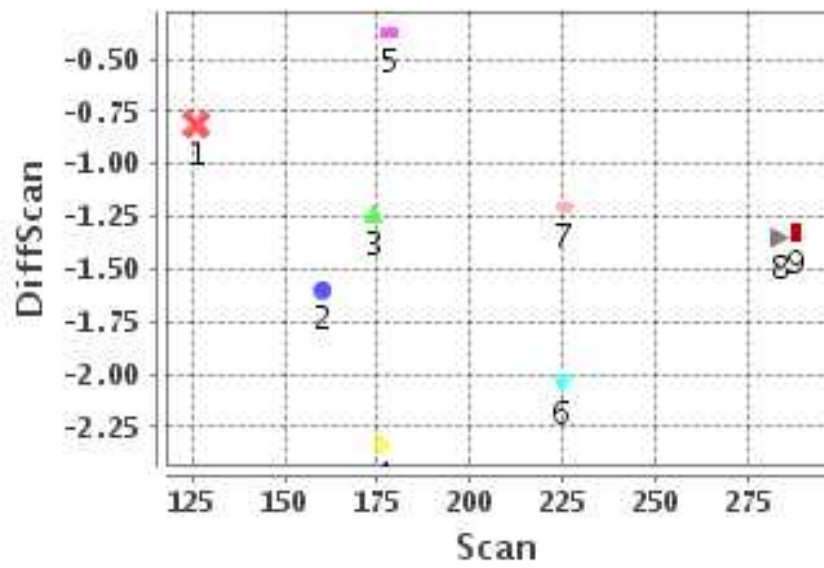
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 9

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 204.1 | 52.2 | 126.2 | 288.00 | 50.55 (N-S) |
| GCP Pix | 177.2 | 127.3 | 10.8 | 379.25 | 95.96 (E-W) |

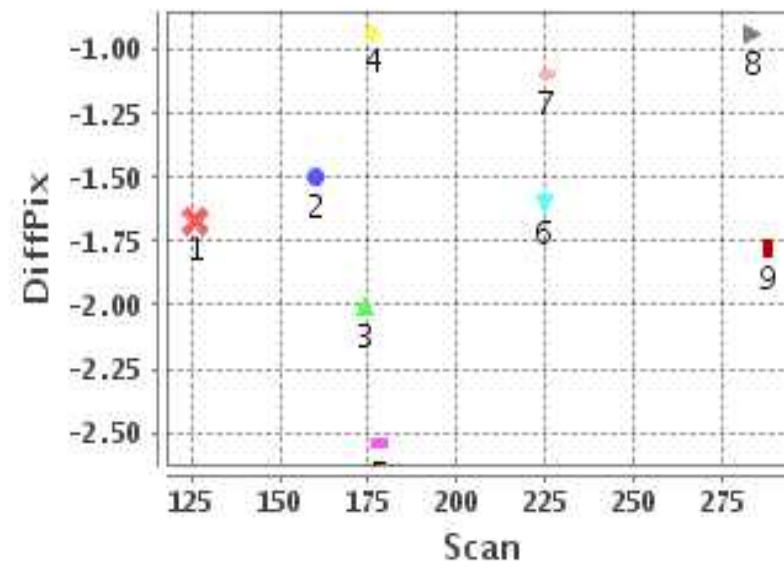
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 126.2 | 10.8 | -0.8 | -1.67 | 7.097 | N | 12.425 | W | Accepted |
| 2 | 160.2 | 29.2 | -1.6 | -1.50 | 16.412 | N | 14.268 | W | Accepted |
| 3 | 178.2 | 14.5 | -0.4 | -2.54 | 1.659 | N | 22.039 | W | Accepted |
| 4 | 174.2 | 139.5 | -1.2 | -2.01 | 11.186 | N | 16.297 | W | Accepted |
| 5 | 283.5 | 235.0 | -1.3 | -0.94 | 8.203 | N | 8.999 | W | Accepted |
| 6 | 288.0 | 240.0 | -1.3 | -1.78 | 13.467 | N | 17.439 | W | Accepted |
| 7 | 225.2 | 243.2 | -1.2 | -1.10 | 10.246 | N | 8.048 | W | Accepted |
| 8 | 176.2 | 303.5 | -2.3 | -0.93 | 23.524 | N | 0.808 | W | Accepted |
| 9 | 224.5 | 379.2 | -2.0 | -1.60 | 16.177 | N | 11.605 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



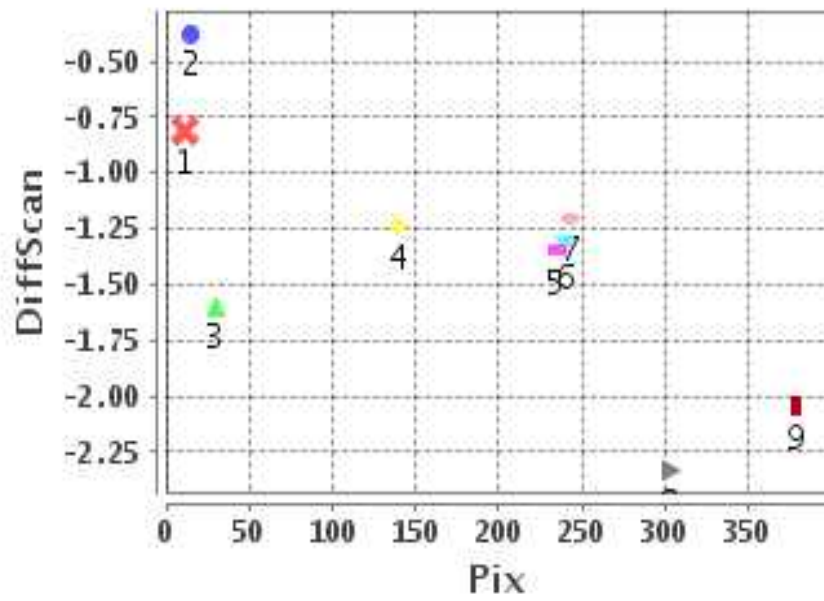
Number Of Points

| | |
|-------|---|
| North | 9 |
| South | 0 |
| East | 0 |
| West | 9 |

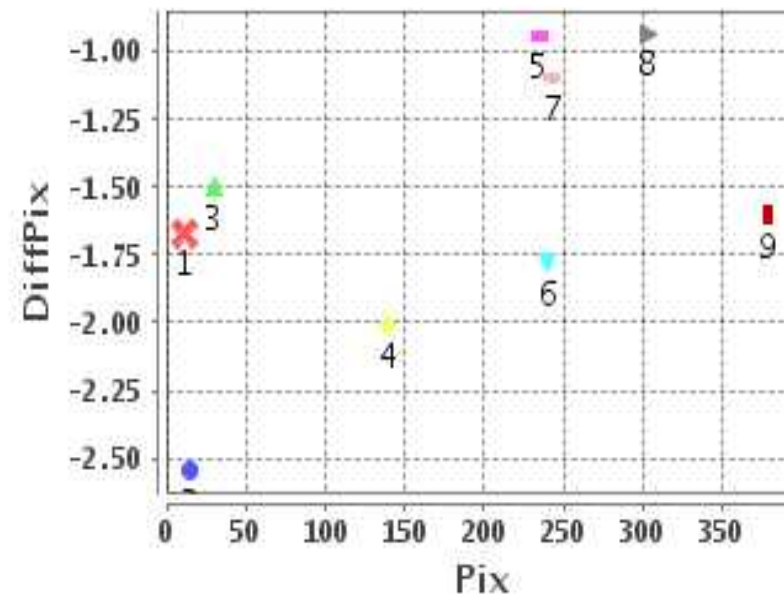
Radial Error (Km)

| | |
|------|-------|
| Mean | 1.873 |
| Min | 1.218 |
| Max | 2.354 |
| CE90 | 2.210 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 1.200 | 0.597 | 1.340 | N | 1.153 | 1.420 |
| Across (Km) | -1.244 | 0.580 | 1.372 | W | 1.229 | 1.455 |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

| | | |
|--|---------|----------|
| Scan Range-0-105; Pix Range-0-127 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|----------|
| Scan Range-0-105; Pix Range-127-255 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|----------|
| Scan Range-0-105; Pix Range-255-384 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|-------|
| Scan Range-105-212; Pix Range-0-127 | | |
| Number of GCPs | 3 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 8.39333 | N |
| Across(Mean,Dir) | -16.24 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 12.03 | 20.25 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 0.17 | 0.61 |
| Across(Mean,Stddev) | 0.35 | 0.52 |

| | | |
|--|---------|---------|
| Scan Range-105-212; Pix Range-127-255 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 11.19 | N |
| Across(Mean,Dir) | -16.30 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|---------|
| Scan Range-105-212; Pix Range-255-384 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 23.52 | N |
| Across(Mean,Dir) | -0.81 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|---------|----------|
| Scan Range-212-320; Pix Range-0-127 | | |
| Number of GCPs | -999 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -999.99 | NotAvail |
| Across(Mean,Dir) | -999.99 | NotAvail |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

| | | |
|--|--------|------|
| Scan Range-212-320; Pix Range-105-255 | | |
| Number of GCPs | 3 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 10.64 | N |
| Across(Mean,Dir) | -11.50 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 9.79 | 2.10 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 0.13 | 0.01 |
| Across(Mean,Stddev) | 0.50 | 0.34 |

| | | |
|--|---------|---------|
| Scan Range-212-320; Pix Range-255-384 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 16.18 | N |
| Across(Mean,Dir) | -11.60 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | -999.99 | -999.9 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -999.99 | -999.99 |
| Across(Mean,Stddev) | -999.99 | -999.99 |

*-999 : no gcp available

* -999.99 : values are not computed