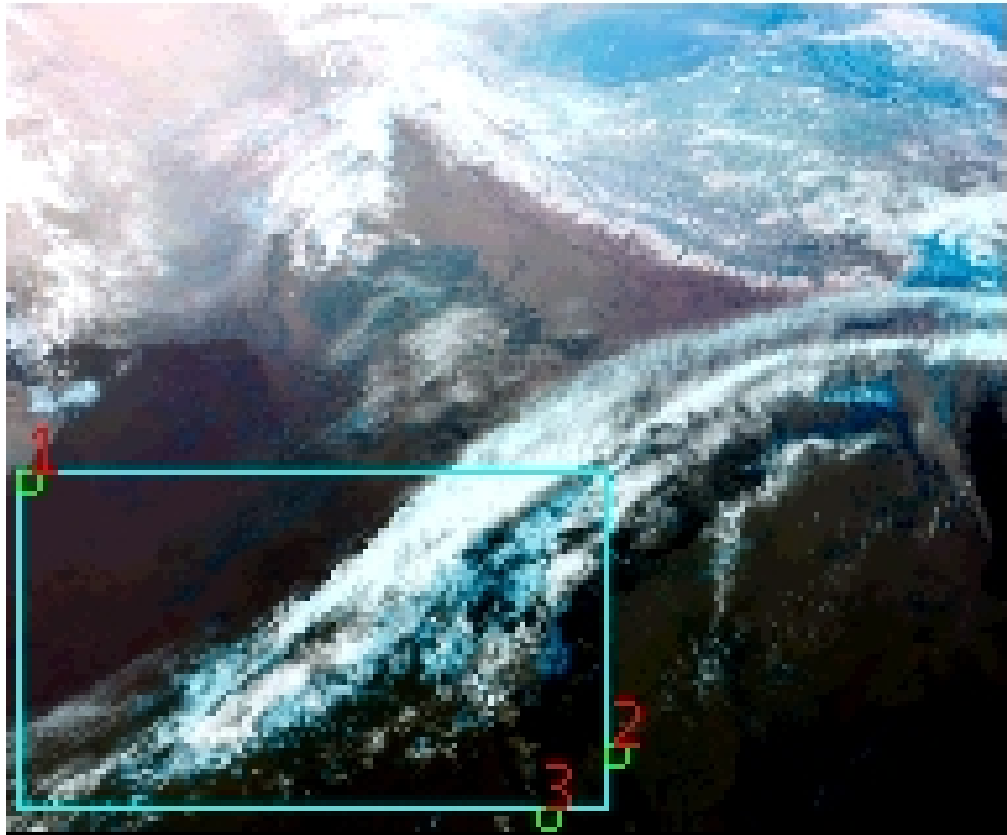


DQE Report: Location Accuracy of INSAT-3DR-SND STANDARD Product 3RSND_10FEB2018_0300

| | | | | | |
|----------------------|----------------|------------------------|---------------|------------------------|----------|
| Satellite | INSAT-3DR | No Of Bands | 19 | Product Type | STANDARD |
| Sensor | SND | LvlOfProcess | L1B | Selected Band | 2-LWIR3 |
| DOP/Time | 10-02-18/03:00 | Station ID | BES | Field View(deg) | 6.136 |
| Res(Y,X) [Km] | (10.0,10.0) | Res(Y,X) [uRad] | (280.0,280.0) | | |

(41.287N,52.044W)

(41.287N,102.059E)



(6.844S,52.044W)

(6.844S,102.059E)

GCP Distribution overview for 3RSND10FEB20180300L1BSA1

Image Width: 384 **Image Height:** 320 **No Of GCPs:** 3

GCP Coverage(%) 40.08 **(N-S)** 58.33 **(E-W)**

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|-------|-----------|--------|-------|
| Along | 5.001 | N | 0.367 | 5.015 |
| Across | 6.651 | E | 0.403 | 6.663 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.206 | 0.282 | 2.058 |
| Along | -1.000 | -1.000 | -999.990 |
| Across | -1.000 | -1.000 | -999.990 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 0.450 | 0.165 | 0.23 | 0.279 |
| Across | 0.760 | -0.907 | 0.38 | 0.983 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|---------|----------|----------|
| 0.10877 | -0.07707 | -0.16350 |

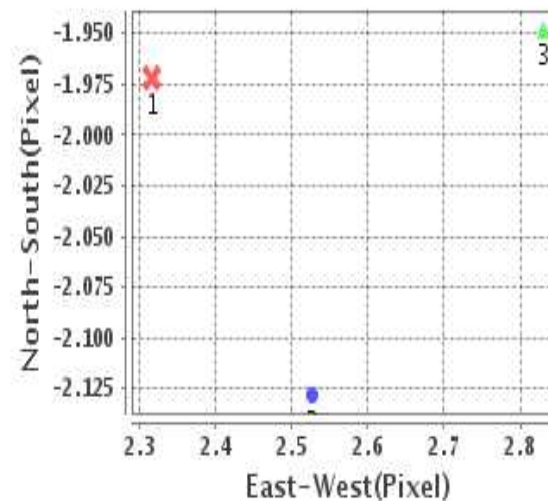
Reference Used

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

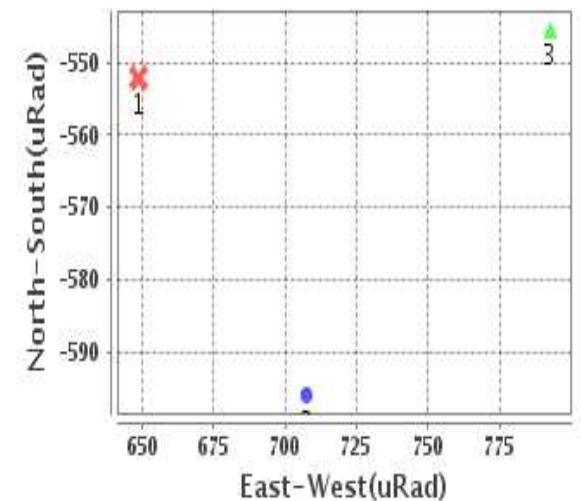
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 8.339 |
| Min | 8.210 |
| Max | 8.455 |
| CE90 | 8.352 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|---------------|----------------------------------|------------|
| Satellite | INSAT-3DR | Generation Date | 10-02-18 |
| Sensor | SND | DQE Date | 13-02-2018 |
| PassType | NONE | Aquisition Date | 10-02-18 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 03:00 |
| 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_10FEB20 | 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) | 24.065 |
| Center Lon(deg) | 77.052 |
| 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) | 41.287 |
| NW_Lon(deg) | 52.044 |
| SW_Lat(deg) | 6.844 |
| SW_Lon(deg) | 52.044 |
| NE_Lat(deg) | 41.287 |
| NE_Lon(deg) | 102.059 |
| SE_Lat(deg) | 6.844 |
| SE_Lon(deg) | 102.059 |

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 : 3RSND10FEB20180300L1BSA1

(-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

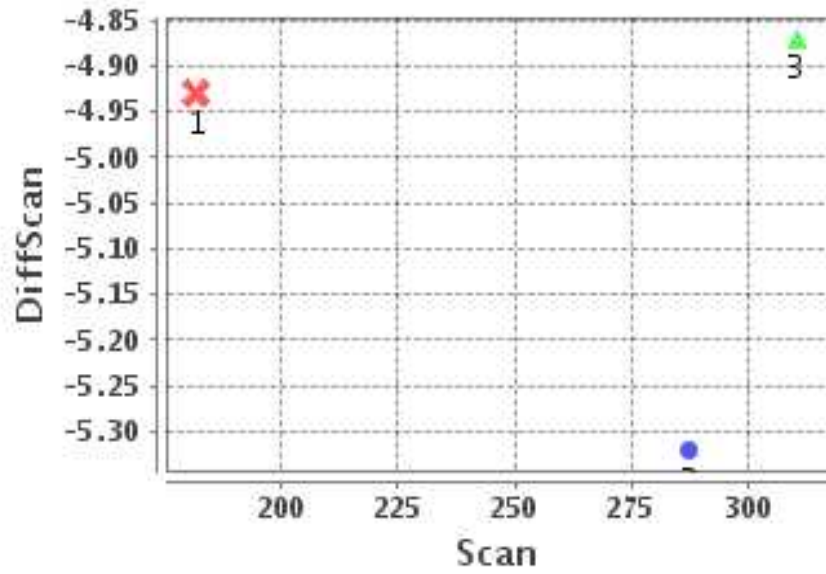
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 3

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 259.8 | 55.8 | 182.0 | 310.25 | 40.08 (N-S) |
| GCP Pix | 145.1 | 100.0 | 4.5 | 228.50 | 58.33 (E-W) |

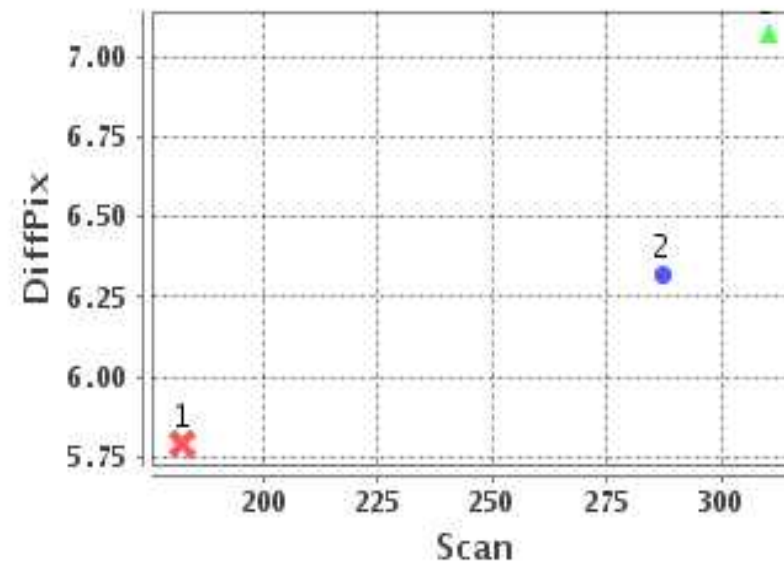
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 182.0 | 4.5 | -4.9 | 5.79 | 54.470 | N | 61.426 | E | Accepted |
| 2 | 287.2 | 228.5 | -5.3 | 6.32 | 50.096 | N | 66.828 | E | Accepted |
| 3 | 310.2 | 202.2 | -4.9 | 7.08 | 45.472 | N | 71.284 | E | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



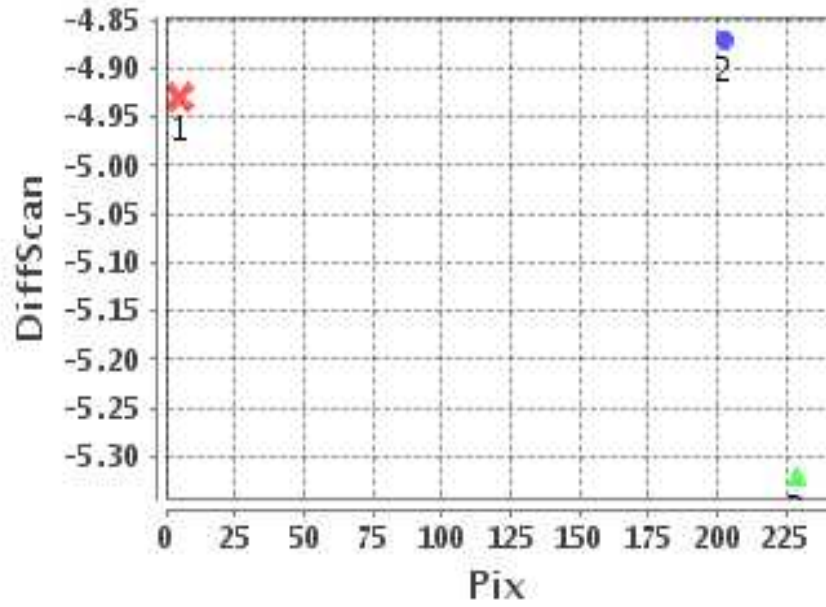
Number Of Points

| | |
|-------|---|
| North | 3 |
| South | 0 |
| East | 3 |
| West | 0 |

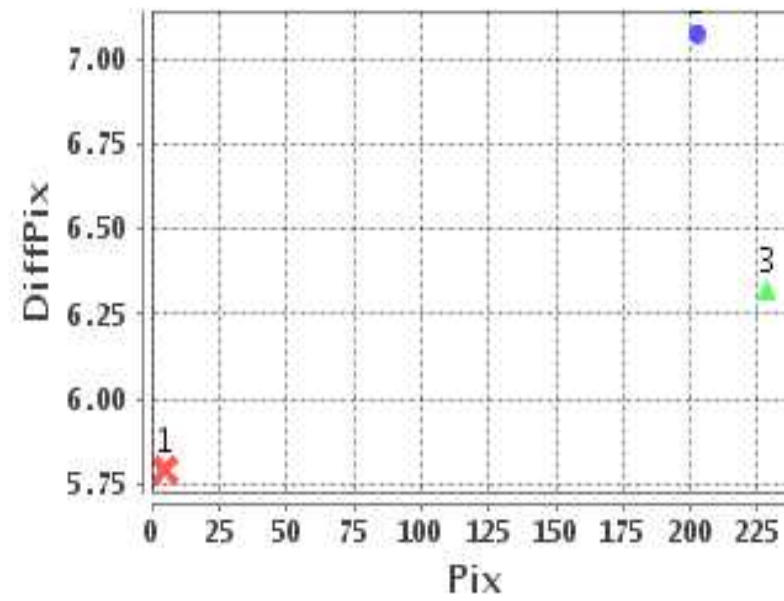
Radial Error (Km)

| | |
|------|-------|
| Mean | 8.339 |
| Min | 8.210 |
| Max | 8.455 |
| CE90 | 8.352 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|-------|--------|-------|-----|----------|----------|
| Along(Km) | 5.001 | 0.367 | 5.015 | N | 4.784 | 5.233 |
| Across (Km) | 6.651 | 0.403 | 6.663 | E | 6.418 | 6.909 |

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 | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 54.47 | N |
| Across(Mean,Dir) | 61.43 | E |
| 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-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-105-212; 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-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 | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 47.7805 | N |
| Across(Mean,Dir) | 69.06 | E |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 9.81 | 1.91 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.45 | 0.00 |
| Across(Mean,Stddev) | 0.76 | 0.00 |

| | | |
|--|-------------|----------|
| Scan Range-212-320; 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 |

*-999 : no gcp available

* -999.99 : values are not computed