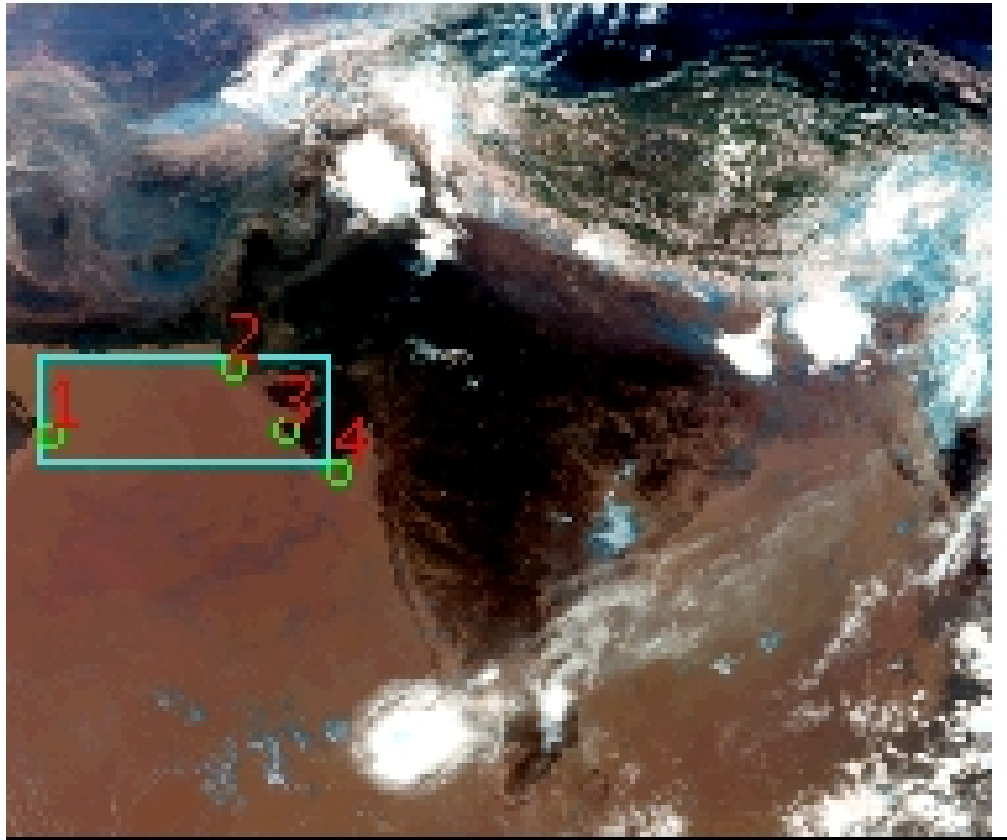


DQE Report: Location Accuracy of INSAT-3DR-SND STANDARD Product 3RSND_02MAY2018_0300

| | | | | | |
|---------------|----------------|-----------------|---------------|-----------------|----------|
| Satellite | INSAT-3DR | No Of Bands | 19 | Product Type | STANDARD |
| Sensor | SND | LvlOfProcess | L1B | Selected Band | 2-LWIR3 |
| DOP/Time | 02-05-18/03:00 | Station ID | BES | Field View(deg) | 6.136 |
| Res(Y,X) [Km] | (10.0,10.0) | Res(Y,X) [uRad] | (280.0,280.0) | | |

(41.628N,54.417W)

(41.628N,105.016E)



(6.922S,54.417W)

(6.922S,105.016E)

GCP Distribution overview for 3RSND02MAY20180300L1BSA1

Image Width: 384 Image Height: 320 No Of GCPs: 4

GCP Coverage(%) 12.34 (N-S) 28.58 (E-W)

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 3.622 | N | 0.338 | 3.638 |
| Across | -2.373 | W | 0.310 | 2.394 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 11.092 | 0.506 | 10.925 |
| Along | 13.932 | 2.073 | 39.315 |
| Across | 8.972 | 1.692 | 10.278 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 0.687 | -0.312 | 0.29 | 0.428 |
| Across | 0.676 | -0.119 | 0.28 | 0.302 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|----------|
| -0.03338 | -0.04897 | -0.22256 |

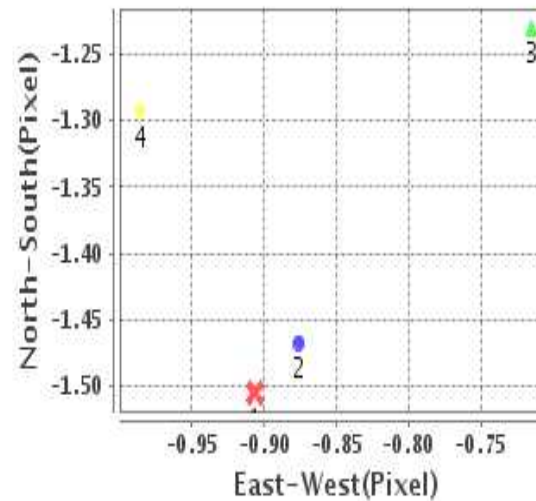
Reference Used

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

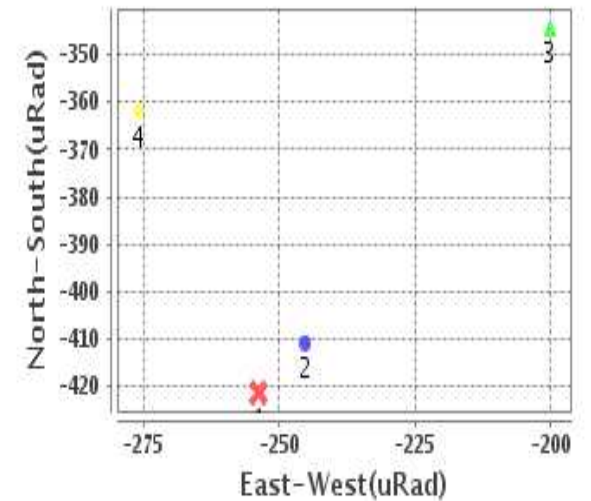
Radial Error (in IR Pixels)

| | |
|------|-------|
| Mean | 4.333 |
| Min | 3.578 |
| Max | 4.655 |
| CE90 | 4.596 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|--------------|----------------------------------|------------|
| Satellite | INSAT-3DR | Generation Date | 02-05-18 |
| Sensor | SND | DQE Date | 03-05-2018 |
| PassType | NONE | Aquisition Date | 02-05-18 |
| 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_02MAY2 | 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) | 24.275 |
| Center Lon(deg) | 79.717 |
| 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) | 41.628 |
| NW_Lon(deg) | 54.417 |
| SW_Lat(deg) | 6.922 |
| SW_Lon(deg) | 54.417 |
| NE_Lat(deg) | 41.628 |
| NE_Lon(deg) | 105.016 |
| SE_Lat(deg) | 6.922 |
| SE_Lon(deg) | 105.016 |

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 : 3RSND02MAY20180300L1BSA1

(-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

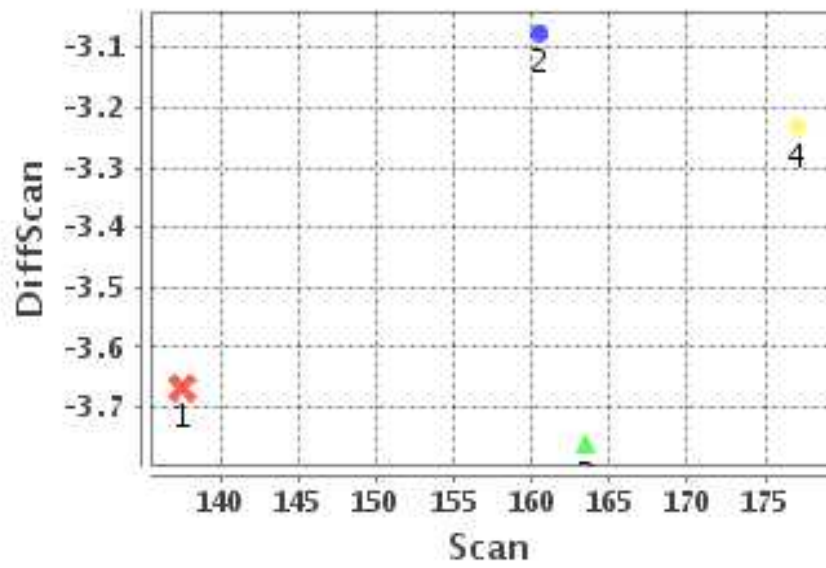
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 4

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 159.6 | 14.2 | 137.5 | 177.00 | 12.34 (N-S) |
| GCP Pix | 80.4 | 41.4 | 13.2 | 123.00 | 28.58 (E-W) |

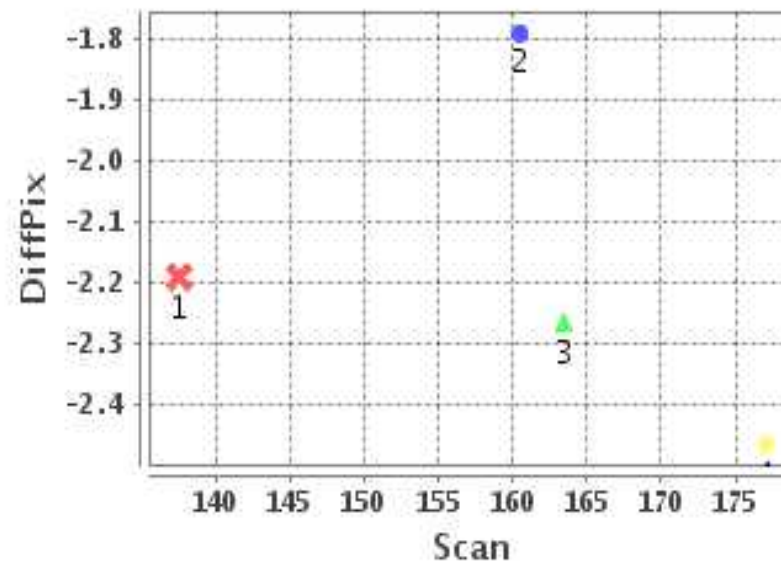
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 163.5 | 13.2 | -3.8 | -2.27 | 38.776 | N | 25.759 | W | Accepted |
| 2 | 137.5 | 82.2 | -3.7 | -2.19 | 38.978 | N | 24.347 | W | Accepted |
| 3 | 160.5 | 103.2 | -3.1 | -1.79 | 30.620 | N | 18.508 | W | Accepted |
| 4 | 177.0 | 123.0 | -3.2 | -2.46 | 36.519 | N | 26.325 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



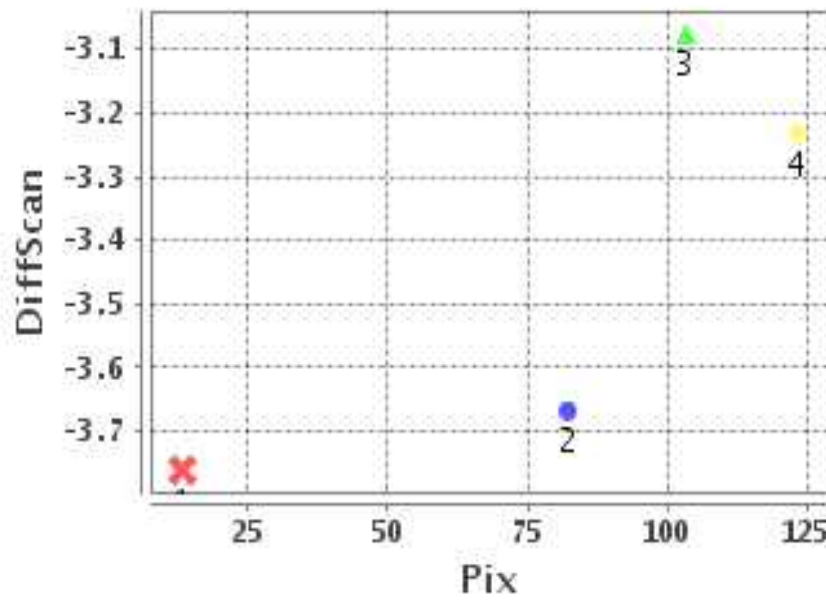
Number Of Points

| | |
|-------|---|
| North | 4 |
| South | 0 |
| East | 0 |
| West | 4 |

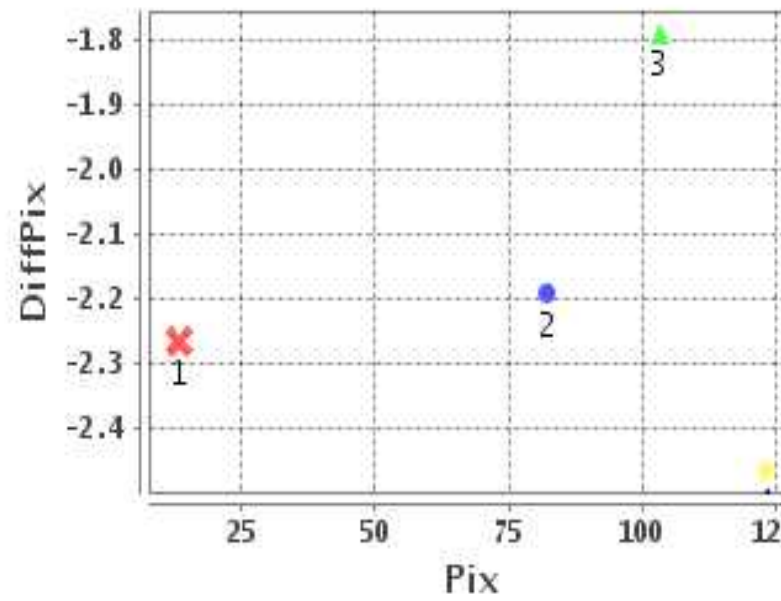
Radial Error (Km)

| | |
|------|-------|
| Mean | 4.333 |
| Min | 3.578 |
| Max | 4.655 |
| CE90 | 4.596 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 3.622 | 0.338 | 3.638 | N | 3.547 | 3.811 |
| Across (Km) | -2.373 | 0.310 | 2.394 | W | 2.309 | 2.549 |

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 | 4 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 36.225 | N |
| Across(Mean,Dir) | -23.73 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 11.09 | 10.92 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.31 | 0.29 |
| Across(Mean,Stddev) | -0.12 | 0.28 |

| | | |
|--|-------------|----------|
| 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 | -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-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