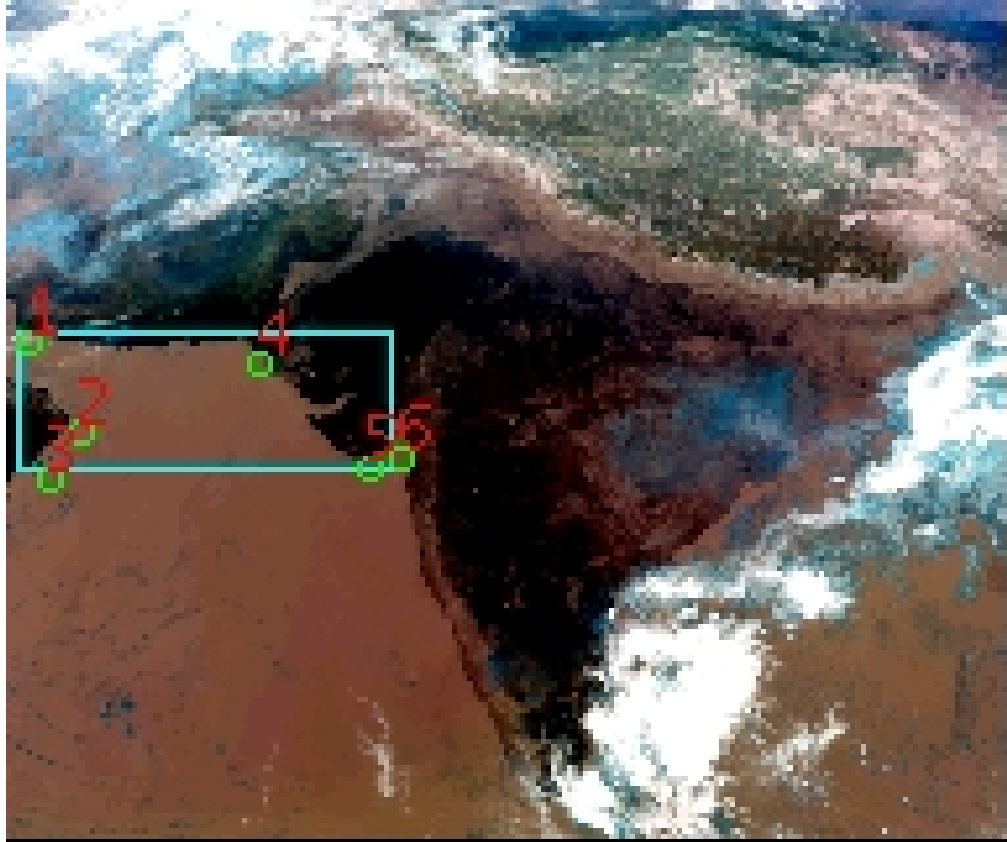


DQE Report: Location Accuracy of INSAT-3DR-SND STANDARD Product 3RSND_31OCT2018_0500

Satellite INSAT-3DR **No Of Bands** 19 **Product Type** STANDARD
Sensor SND **LvlOfProcess** L1B **Selected Band** 2-LWIR3
DOP/Time 31-10-18/05:00 **Station ID** BES **Field View(deg)** 6.136
Res(Y,X) [Km] (10.0,10.0) **Res(Y,X) [uRad]** (280.0,280.0)

(41.445N,51.868W)

(41.445N,102.043E)



(6.969S,51.868W)

(6.969S,102.043E)

GCP Distribution overview for 3RSND31OCT20180500L1BSA1

Image Width: 384 **Image Height:** 320 **No Of GCPs:** 6

GCP Coverage(%) 15.86 **(N-S)** 36.78 **(E-W)**

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|-------|-----------|--------|-------|
| Along | 0.420 | N | 0.384 | 0.569 |
| Across | 5.835 | E | 0.601 | 5.866 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 11.041 | 0.721 | 10.412 |
| Along | 12.197 | 0.110 | 21.968 |
| Across | 10.851 | 0.307 | 8.510 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 1.604 | -0.252 | 0.55 | 0.602 |
| Across | 1.575 | 0.589 | 0.50 | 0.774 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|---------|----------|----------|
| 0.07362 | -0.00320 | -0.09143 |

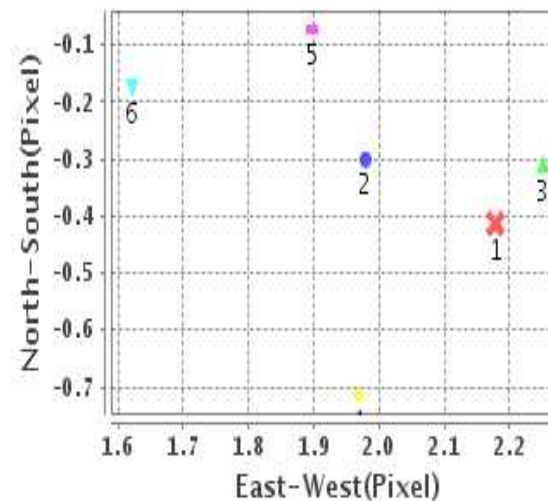
Reference Used

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

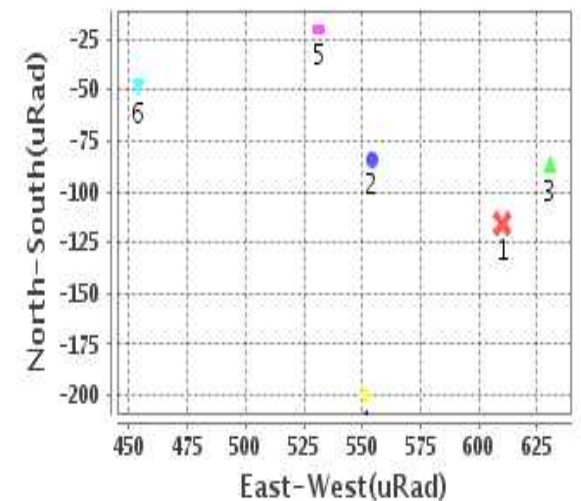
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 5.861 |
| Min | 4.717 |
| Max | 6.447 |
| CE90 | 6.336 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|--------------|----------------------------------|------------|
| Satellite | INSAT-3DR | Generation Date | 31-10-18 |
| Sensor | SND | DQE Date | 01-11-2018 |
| PassType | NONE | Aquisition Date | 31-10-18 |
| 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_31OCT2 | 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) | 24.207 |
| Center Lon(deg) | 76.955 |
| 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) | 41.445 |
| NW_Lon(deg) | 51.868 |
| SW_Lat(deg) | 6.969 |
| SW_Lon(deg) | 51.868 |
| NE_Lat(deg) | 41.445 |
| NE_Lon(deg) | 102.043 |
| SE_Lat(deg) | 6.969 |
| SE_Lon(deg) | 102.043 |

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 : 3RSND31OCT20180500L1BSA1

(-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

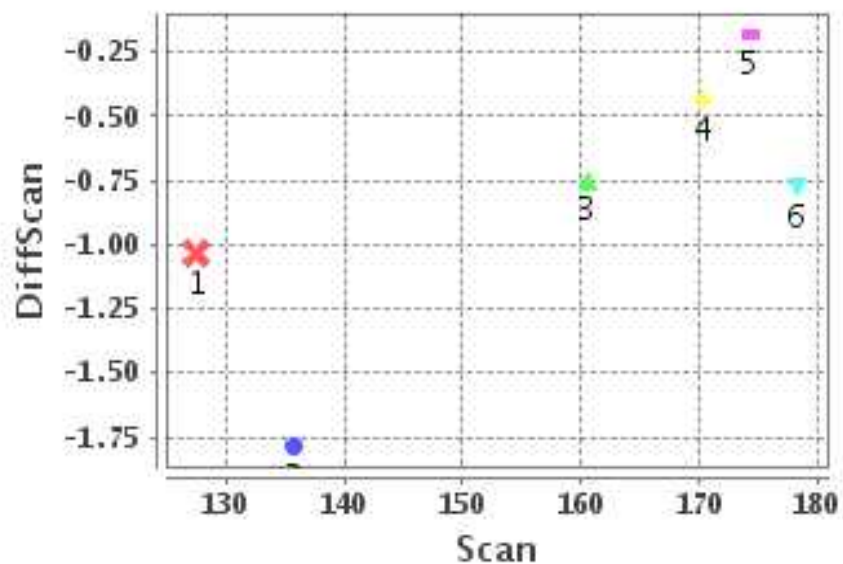
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 6

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 157.8 | 19.4 | 127.5 | 178.25 | 15.86 (N-S) |
| GCP Pix | 69.6 | 57.8 | 5.2 | 146.50 | 36.78 (E-W) |

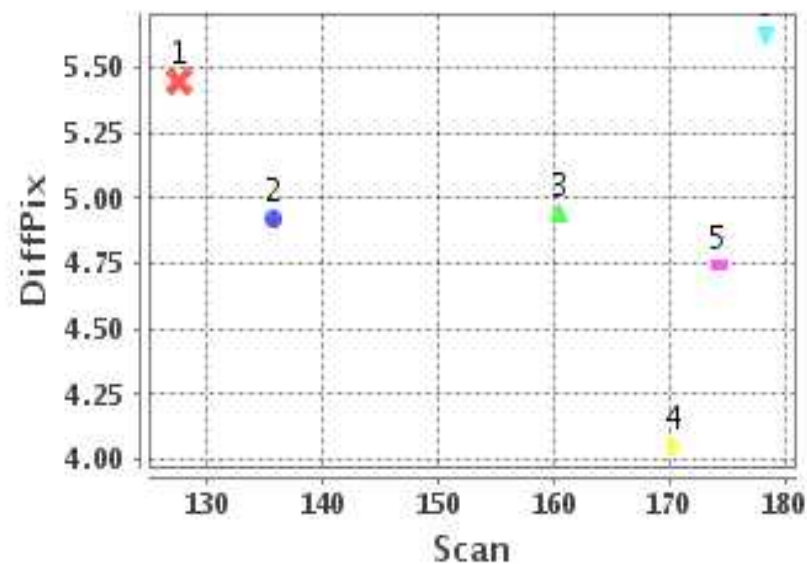
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 127.5 | 5.2 | -1.0 | 5.45 | 5.432 | N | 64.244 | E | Accepted |
| 2 | 160.5 | 24.5 | -0.7 | 4.95 | 2.215 | N | 61.781 | E | Accepted |
| 3 | 178.2 | 13.2 | -0.8 | 5.63 | 4.768 | N | 63.180 | E | Accepted |
| 4 | 135.8 | 93.8 | -1.8 | 4.92 | 11.507 | N | 59.777 | E | Accepted |
| 5 | 174.2 | 134.5 | -0.2 | 4.75 | 0.787 | S | 53.983 | E | Accepted |
| 6 | 170.2 | 146.5 | -0.4 | 4.05 | 2.050 | N | 47.121 | E | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



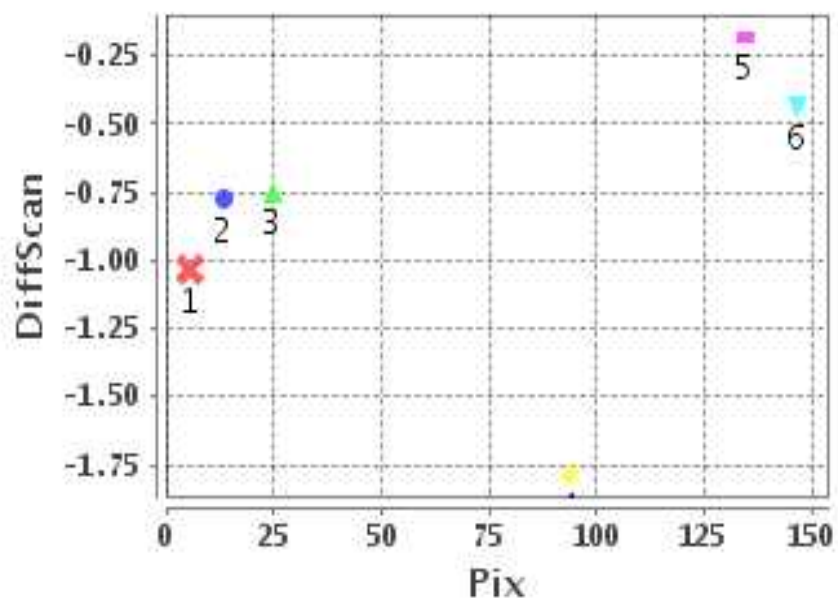
Number Of Points

| | |
|-------|---|
| North | 5 |
| South | 1 |
| East | 6 |
| West | 0 |

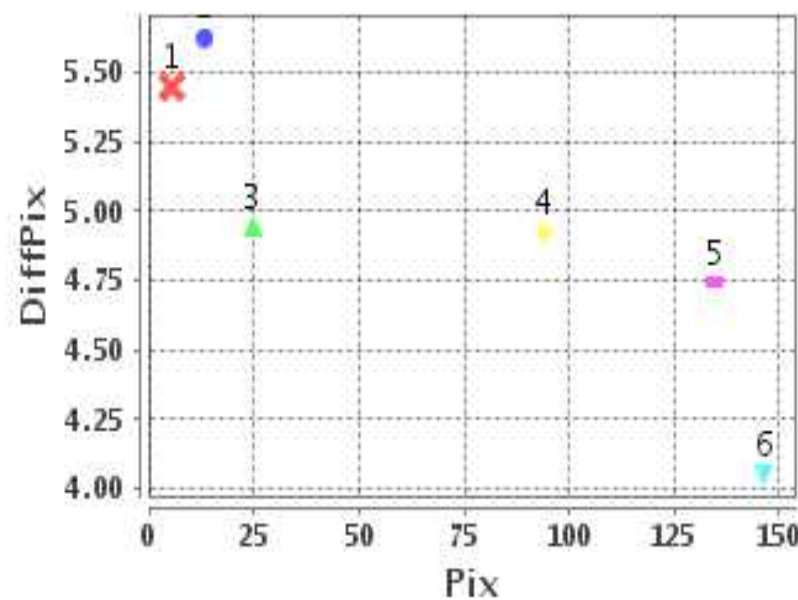
Radial Error (Km)

| | |
|------|-------|
| Mean | 5.861 |
| Min | 4.717 |
| Max | 6.447 |
| CE90 | 6.336 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|-------|--------|-------|-----|----------|----------|
| Along(Km) | 0.420 | 0.384 | 0.569 | N | 0.352 | 0.623 |
| Across (Km) | 5.835 | 0.601 | 5.866 | E | 5.747 | 6.070 |

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) | 5.98 | N |
| Across(Mean,Dir) | 62.24 | E |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 11.35 | 13.49 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 0.07 | 0.48 |
| Across(Mean,Stddev) | 0.28 | 0.33 |

| | | |
|--|-------|------|
| Scan Range-105-212; Pix Range-127-255 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 0.63 | N |
| Across(Mean,Dir) | 50.55 | E |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 9.98 | 0.22 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.25 | 0.00 |
| Across(Mean,Stddev) | 0.69 | 0.00 |

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