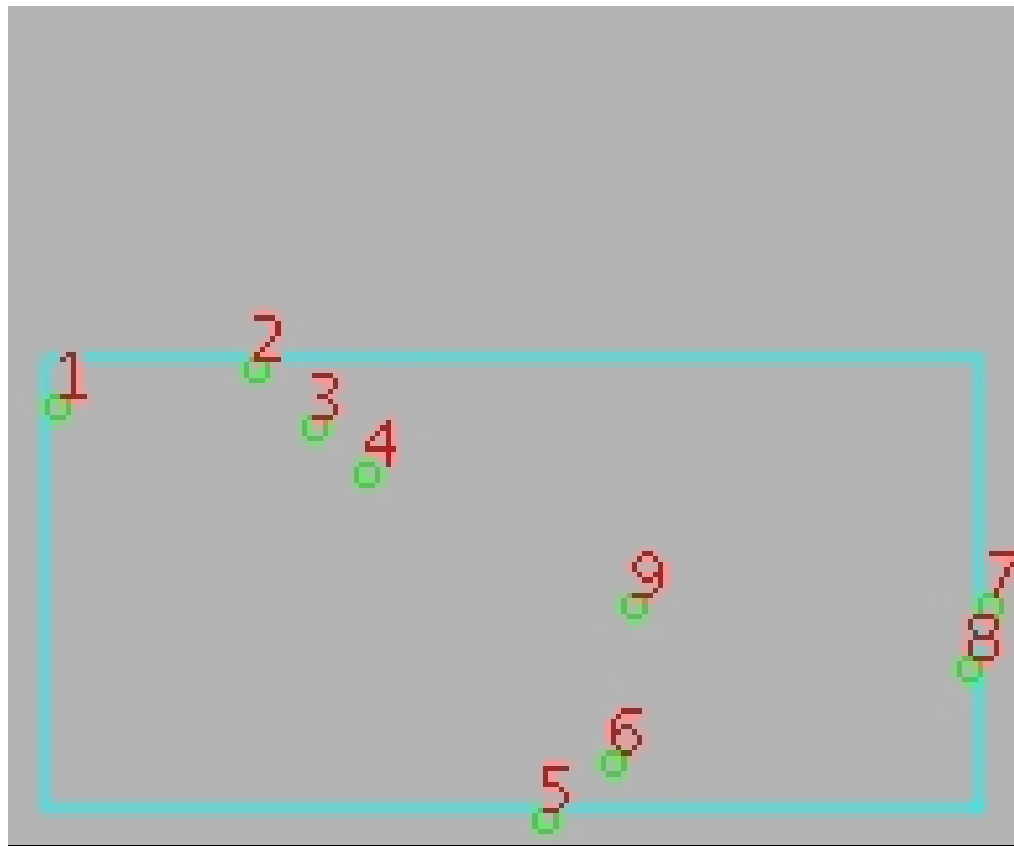


DQE Report: GDQE - Location parameters for INSAT-3DR-SND STANDARD Product 3RSND_02FEB2017_0630

Satellite INSAT-3DR **No Of Bands** 19 **Product Type** STANDARD
Sensor SND **LvlOfProcess** L1B **Selected Band** 2-LWIR3
DOP/Time 02-02-17/06:30 **Station ID** BES **Field View(deg)** 6.136
Res(Y,X) [Km] (10.0,10.0) **Res(Y,X) [uRad]** (280.0,280.0)

(41.405N,53.117W)

(41.405N,103.23E)



(6.923S,53.117W)

(6.923S,103.23E)

GCP Distribution overview for 3RSND02FEB20170630L1BSA1

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

GCP Coverage(%) 53.98 **(N-S)** 92.77 **(E-W)**

Location Error(E)

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

Location Error (Km)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|--------|
| Along | 9.833 | N | 5.289 | 11.165 |
| Across | -9.884 | W | 7.748 | 12.559 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.557 | 0.483 | 5.574 |
| Along | 11.108 | 2.013 | 11.080 |
| Across | 10.273 | 0.248 | 2.732 |

Internal Distortion (in Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 2.352 | -0.211 | 0.73 | 0.758 |
| Across | 2.419 | -0.844 | 0.73 | 1.114 |

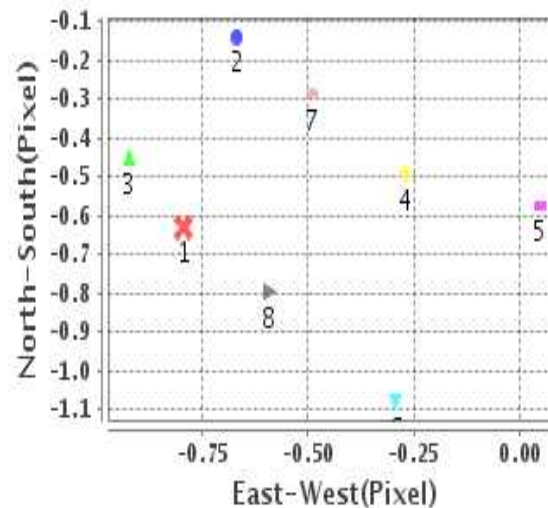
Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01611 | -0.01527 | 0.17287 |

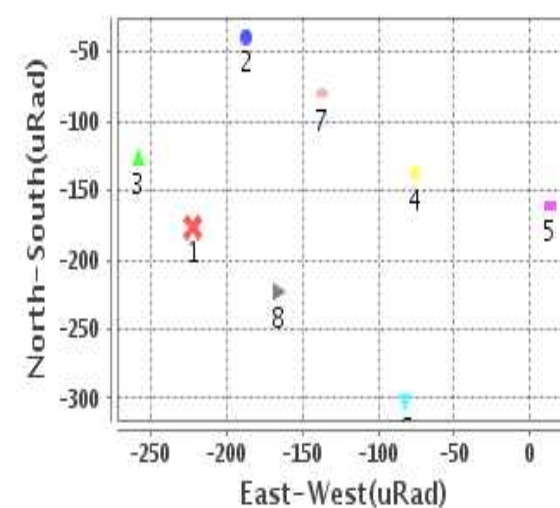
Reference Used

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

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|---------------|----------------------------------|------------|
| Satellite | INSAT-3DR | Generation Date | 02-02-17 |
| Sensor | SND | DQE Date | 09-02-2017 |
| PassType | NONE | Aquisition Date | 02-02-17 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 06:30 |
| Sat Altitude(m) | 3.6E7 | Nominal Altitude(Km) | 3.6E7 |
| Station | BES | Predicted Altitude(Km) | -1000.0 |
| Sat Location(deg) | 0.0 E | Nominal Center Lat(deg) | 0.0 |
| Format | hdf5-1.8.8 | Nominal Center Lon(deg) | 74.0 |
| LvlOfProcessing | STANDARD | Predicted Center Lat(deg) | 0.0 |
| DP JobId | 3RSND_02FEB20 | Predicted Center Lon(deg) | 0.0 |
| 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) | 24.164 |
| Center Lon(deg) | 78.174 |
| 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) | 41.405 |
| NW_Lon(deg) | 53.117 |
| SW_Lat(deg) | 6.923 |
| SW_Lon(deg) | 53.117 |
| NE_Lat(deg) | 41.405 |
| NE_Lon(deg) | 103.23 |
| SE_Lat(deg) | 6.923 |
| SE_Lon(deg) | 103.23 |

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 : 3RSND02FEB20170630L1BSA1

(-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

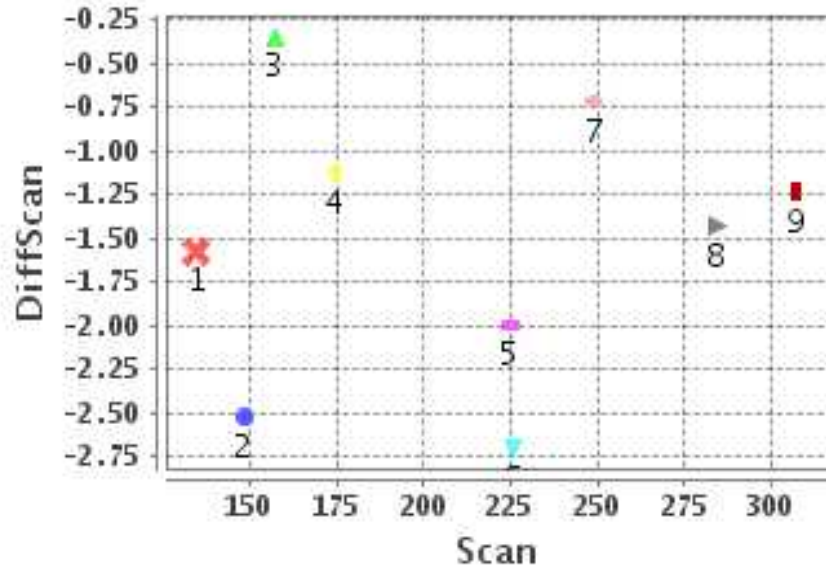
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 9

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 211.8 | 58.2 | 134.8 | 307.50 | 53.98 (N-S) |
| GCP Pix | 194.2 | 113.4 | 14.8 | 371.00 | 92.77 (E-W) |

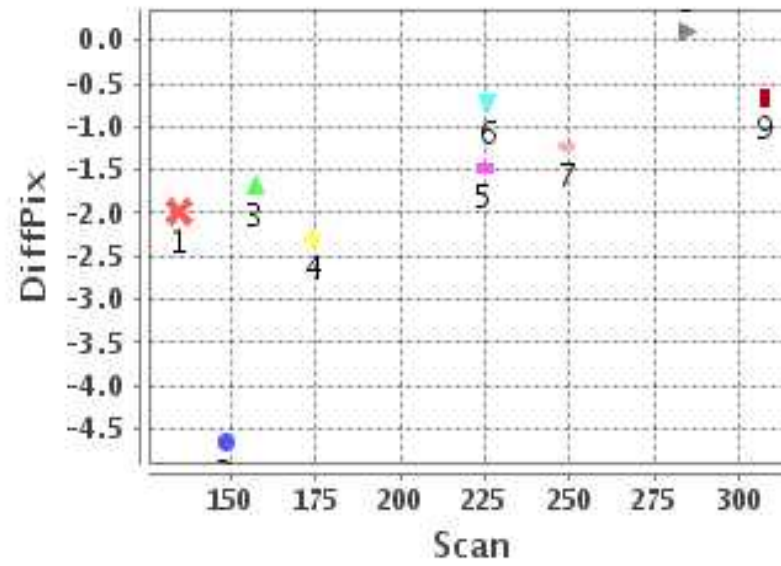
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 148.5 | 14.8 | -2.5 | -4.65 | 25.145 | N | 45.248 | W | Rejected |
| 2 | 134.8 | 91.5 | -1.6 | -1.98 | 10.098 | N | 17.115 | W | Accepted |
| 3 | 157.2 | 112.5 | -0.3 | -1.67 | 1.120 | N | 12.562 | W | Accepted |
| 4 | 174.5 | 132.2 | -1.1 | -2.31 | 7.133 | N | 21.843 | W | Accepted |
| 5 | 307.5 | 201.5 | -1.2 | -0.68 | 7.029 | N | 1.969 | W | Accepted |
| 6 | 284.2 | 226.2 | -1.4 | 0.11 | 12.054 | N | 3.779 | E | Accepted |
| 7 | 225.8 | 371.0 | -2.7 | -0.73 | 20.165 | N | 5.438 | W | Accepted |
| 8 | 249.0 | 363.0 | -0.7 | -1.22 | 7.370 | N | 12.151 | W | Accepted |
| 9 | 224.8 | 235.2 | -2.0 | -1.48 | 13.693 | N | 11.773 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



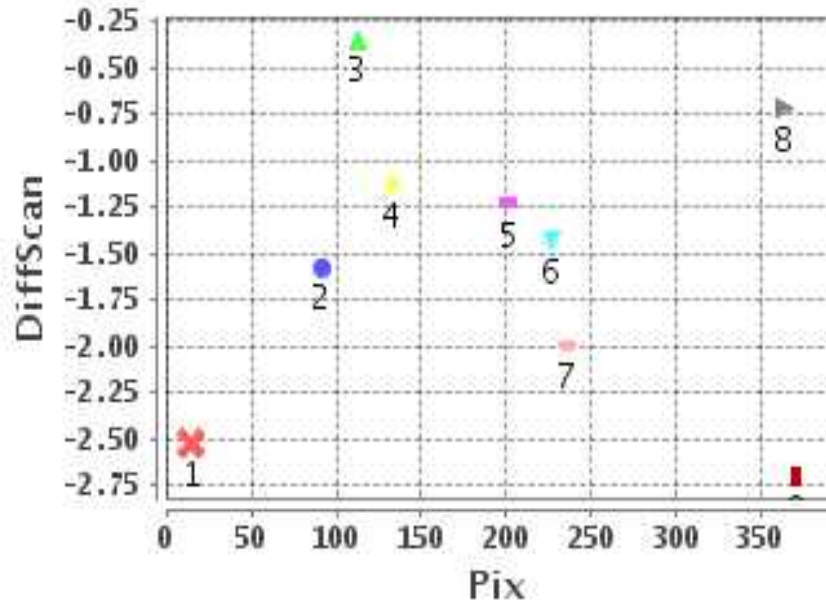
Number Of Points

| | |
|-------|---|
| North | 8 |
| South | 0 |
| East | 1 |
| West | 7 |

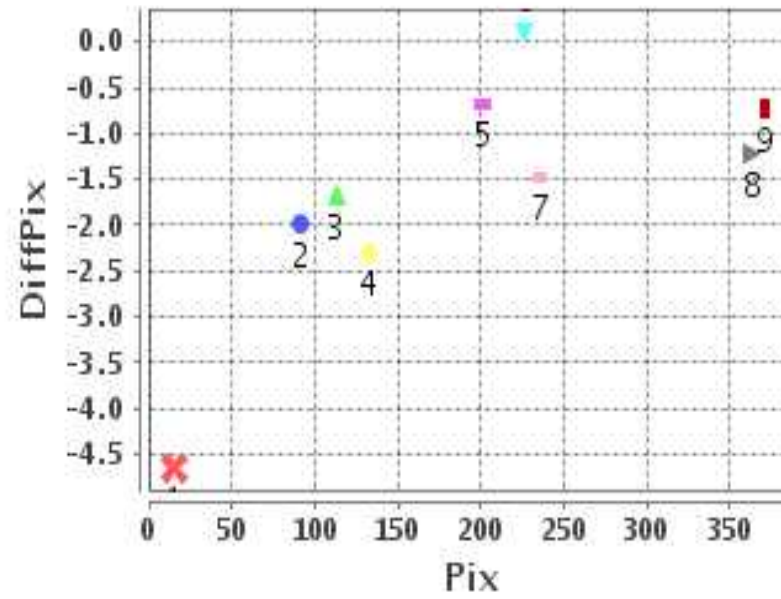
Radial Error (Km)

| | |
|------|--------|
| Mean | 16.069 |
| Min | 7.300 |
| Max | 22.979 |
| CE90 | 20.886 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|--------|-----|----------|----------|
| Along(Km) | 9.833 | 5.289 | 11.165 | N | 9.186 | 11.928 |
| Across (Km) | -9.884 | 7.748 | 12.559 | W | 10.588 | 13.406 |

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 | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 5.605 | N |
| Across(Mean,Dir) | -14.84 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 12.17 | 21.73 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -1.23 | 0.00 |
| Across(Mean,Stddev) | -0.31 | 0.00 |

| | | |
|--|---------|---------|
| Scan Range-105-212; Pix Range-127-255 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 7.13 | N |
| Across(Mean,Dir) | -21.84 | 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 | -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 | 3 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 10.9297 | N |
| Across(Mean,Dir) | -3.32 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 10.20 | 1.96 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.66 | 0.10 |
| Across(Mean,Stddev) | 0.00 | 0.80 |

| | | |
|--|-------|-------|
| Scan Range-212-320; Pix Range-255-384 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 13.77 | N |
| Across(Mean,Dir) | -8.80 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 11.90 | 19.01 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -1.99 | 0.00 |
| Across(Mean,Stddev) | -0.49 | 0.00 |

*-999 : no gcp available

* -999.99 : values are not computed