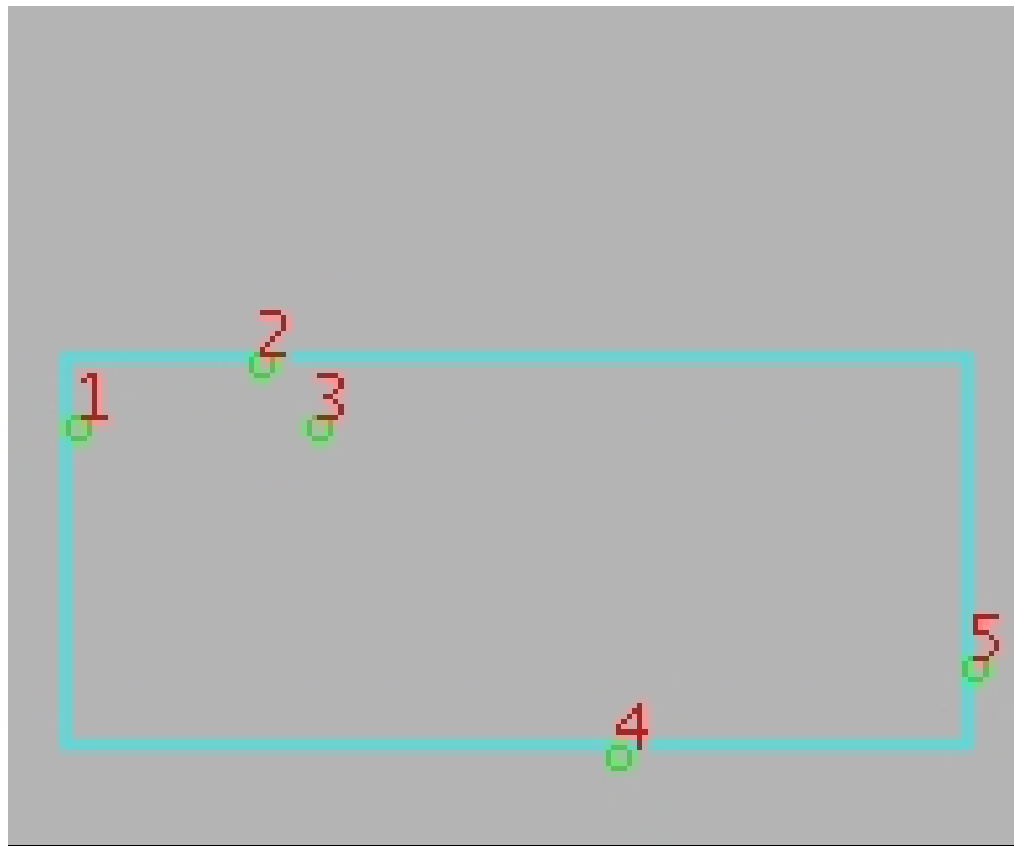


DQE Report: GDQE - Location parameters for INSAT-3DR-SND STANDARD Product 3RSND_02FEB2017_0330

Satellite INSAT-3DR **No Of Bands** 19 **Product Type** STANDARD
Sensor SND **LvlOfProcess** L1B **Selected Band** 2-LWIR3
DOP/Time 02-02-17/03:30 **Station ID** BES **Field View(deg)** 6.136
Res(Y,X) [Km] (10.0,10.0) **Res(Y,X) [uRad]** (280.0,280.0)

(41.342N,52.996W)

(41.342N,103.04E)



(6.851S,52.996W)

(6.851S,103.04E)

GCP Distribution overview for 3RSND02FEB20170330L1BSA1

Image Width: 384 **Image Height:** 320 **No Of GCPs:** 5

GCP Coverage(%) 47.03 **(N-S)** 88.93 **(E-W)**

Location Error(E)

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

Location Error (Km)

| | Mean | Direction | Stddev | RMS |
|--------|---------|-----------|--------|--------|
| Along | 7.224 | N | 5.089 | 8.836 |
| Across | -13.010 | W | 7.637 | 15.086 |

Radial Error (Km)

| | |
|-------------|--------|
| Mean | 16.856 |
| Min | 9.111 |
| Max | 23.456 |
| CE90 | 18.183 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.608 | 0.465 | 6.084 |
| Along | 10.582 | 0.131 | 5.819 |
| Across | 10.372 | 0.174 | 3.725 |

Internal Distortion (in Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|-------|--------|-------|
| Along | 1.221 | 0.420 | 0.49 | 0.648 |
| Across | 2.688 | 0.064 | 1.01 | 1.009 |

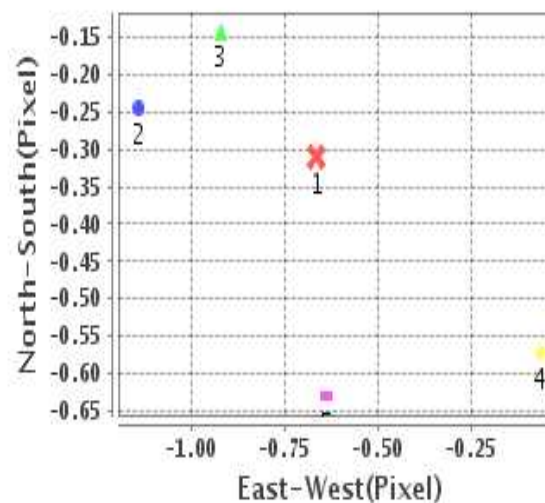
Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01733 | -0.01342 | 0.14790 |

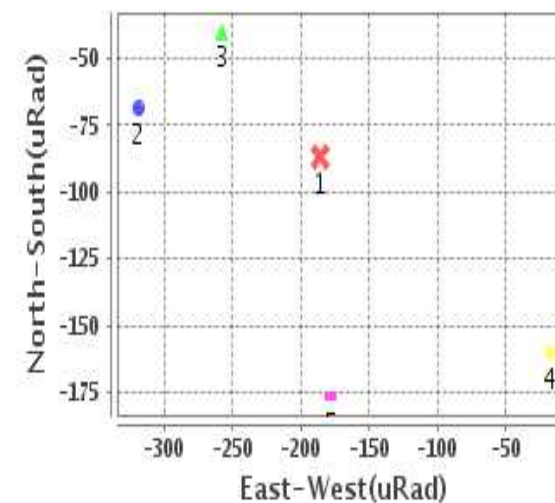
Reference Used

| 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) | 03:30 |
| 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) | 24.096 |
| Center Lon(deg) | 78.018 |
| 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) | 41.342 |
| NW_Lon(deg) | 52.996 |
| SW_Lat(deg) | 6.851 |
| SW_Lon(deg) | 52.996 |
| NE_Lat(deg) | 41.342 |
| NE_Lon(deg) | 103.04 |
| SE_Lat(deg) | 6.851 |
| SE_Lon(deg) | 103.04 |

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 : 3RSND02FEB20170330L1BSA1

(-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

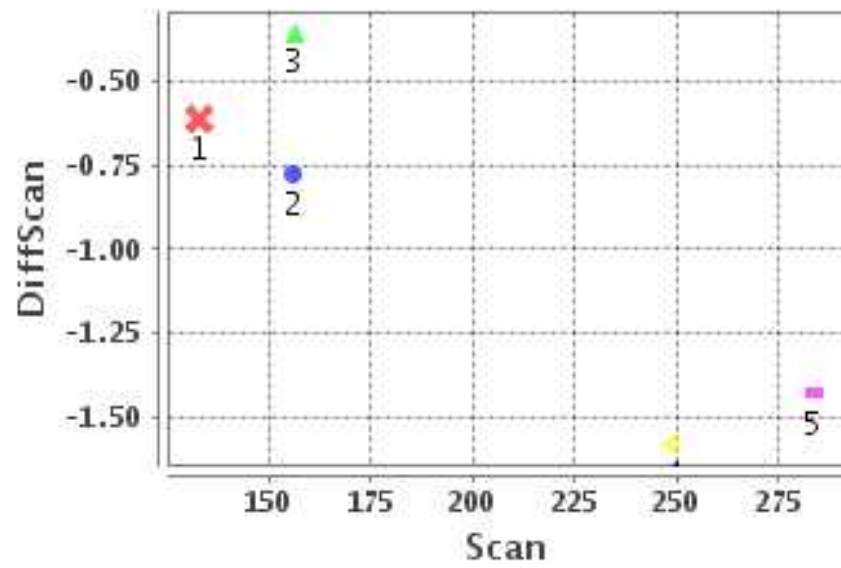
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 5

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 195.7 | 59.3 | 133.0 | 283.50 | 47.03 (N-S) |
| GCP Pix | 164.8 | 119.7 | 23.2 | 364.75 | 88.93 (E-W) |

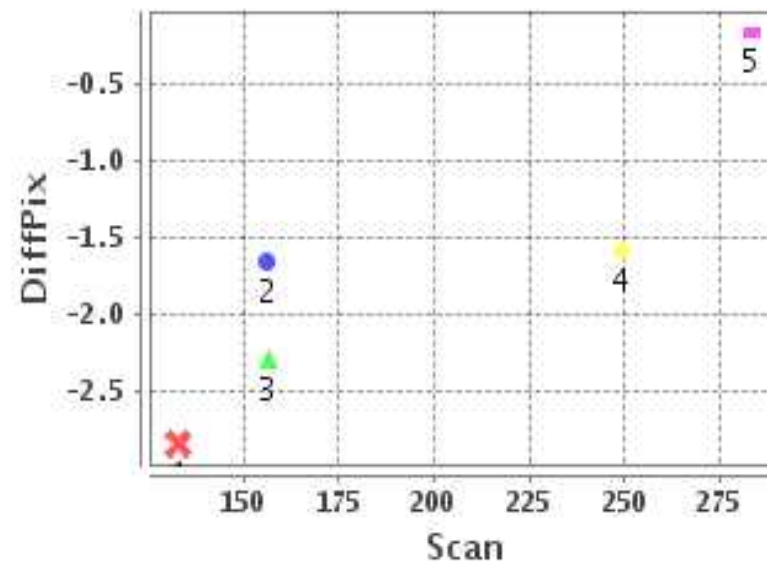
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 156.2 | 23.2 | -0.8 | -1.66 | 7.139 | N | 16.352 | W | Accepted |
| 2 | 133.0 | 93.8 | -0.6 | -2.85 | 7.522 | N | 22.217 | W | Accepted |
| 3 | 156.5 | 114.5 | -0.4 | -2.30 | 1.647 | S | 18.108 | W | Accepted |
| 4 | 283.5 | 228.0 | -1.4 | -0.16 | 8.979 | N | 1.545 | W | Accepted |
| 5 | 249.2 | 364.8 | -1.6 | -1.59 | 14.125 | N | 6.827 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



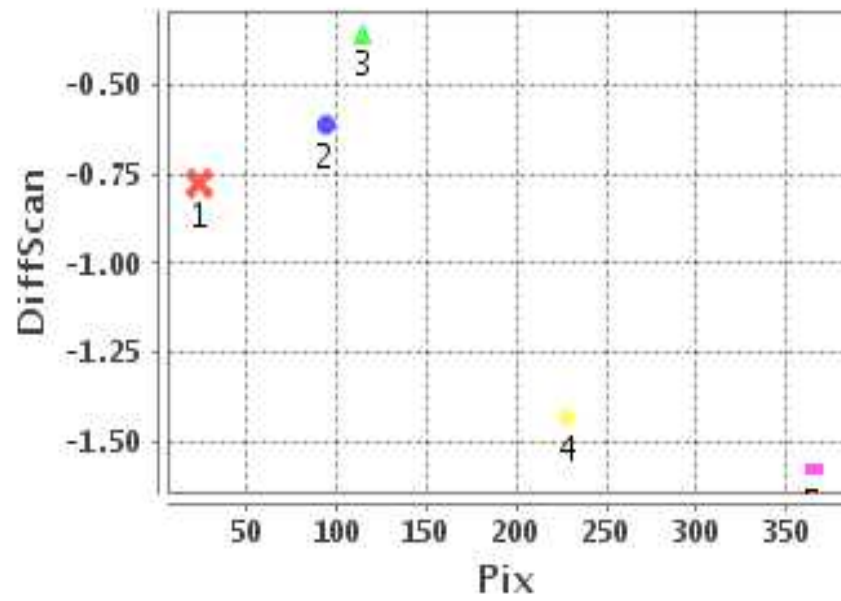
Number Of Points

| | |
|-------|---|
| North | 4 |
| South | 1 |
| East | 0 |
| West | 5 |

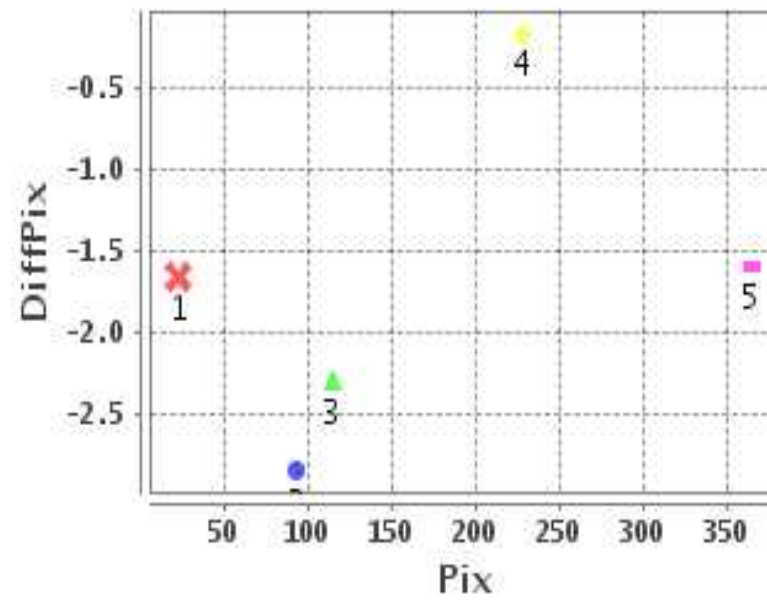
Radial Error (Km)

| | |
|------|--------|
| Mean | 16.856 |
| Min | 9.111 |
| Max | 23.456 |
| CE90 | 18.183 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|---------|--------|--------|-----|----------|----------|
| Along(Km) | 7.224 | 5.089 | 8.836 | N | 6.908 | 9.845 |
| Across (Km) | -13.010 | 7.637 | 15.086 | W | 12.691 | 16.849 |

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) | 4.33667 | N |
| Across(Mean,Dir) | -18.89 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 11.03 | 10.33 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.05 | 0.21 |
| Across(Mean,Stddev) | 0.91 | 0.27 |

| | | |
|--|---------|----------|
| 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 | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 8.97 | N |
| Across(Mean,Dir) | -1.54 | 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-255-384 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 14.13 | N |
| Across(Mean,Dir) | -6.82 | 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