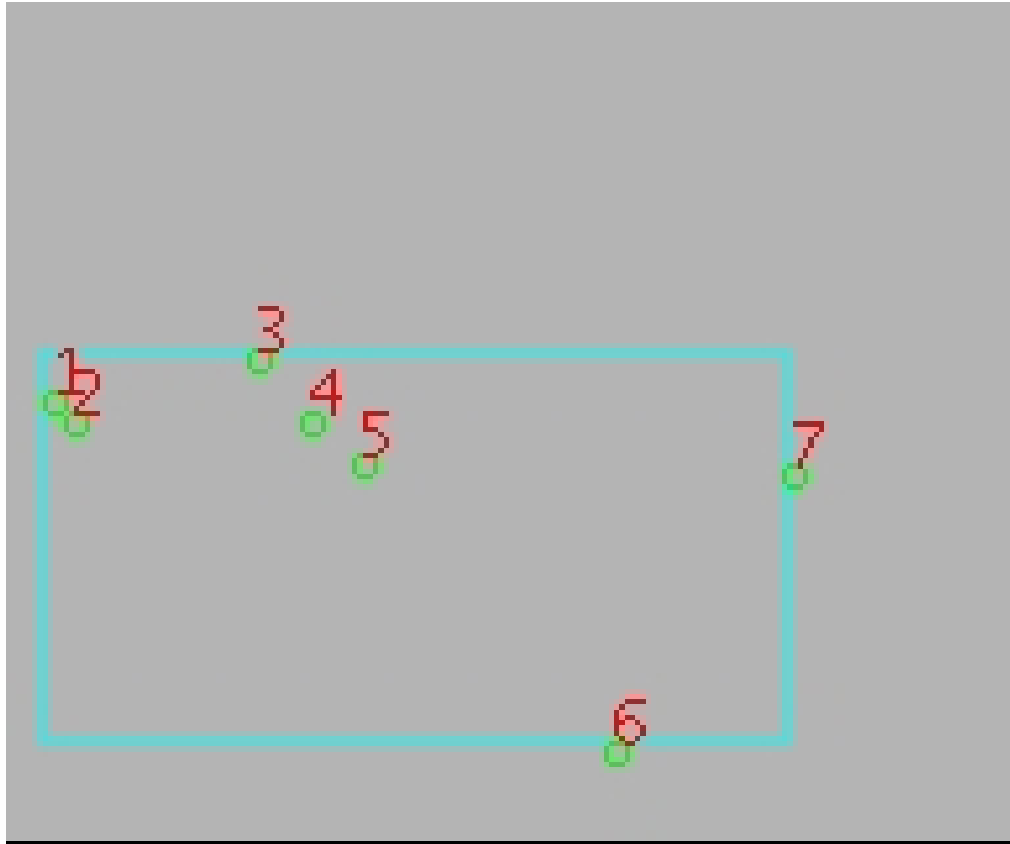


DQE Report: GDQE - Location parameters for INSAT-3DR-SND STANDARD Product 3RSND_09JAN2017_0630

Satellite INSAT-3DR **No Of Bands** 19 **Product Type** STANDARD
Sensor SND **LvlOfProcess** L1B **Selected Band** 2-LWIR3
DOP/Time 09-01-17/06:30 **Station ID** BES **Field View(deg)** 6.136
Res(Y,X) [Km] (10.0,10.0) **Res(Y,X) [uRad]** (280.0,280.0)

(41.312N,53.073W)

(41.312N,103.097E)



(6.84S,53.073W)

(6.84S,103.097E)

GCP Distribution overview for 3RSND09JAN20170630L1BSA1

Image Width: 384 **Image Height:** 320 **No Of GCPs:** 7

GCP Coverage(%) 46.95 **(N-S)** 73.18 **(E-W)**

Location Error(E)

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

Location Error (Km)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|--------|
| Along | 9.309 | N | 8.339 | 12.498 |
| Across | -9.604 | W | 6.820 | 11.779 |

Radial Error (Km)

| | |
|-------------|--------|
| Mean | 16.302 |
| Min | 11.498 |
| Max | 26.900 |
| CE90 | 19.674 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 10.787 | 0.483 | 7.870 |
| Along | 12.211 | 3.287 | 22.113 |
| Across | 10.724 | 0.212 | 7.238 |

Internal Distortion (in Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 2.679 | 0.260 | 0.90 | 0.934 |
| Across | 2.263 | -0.319 | 0.76 | 0.821 |

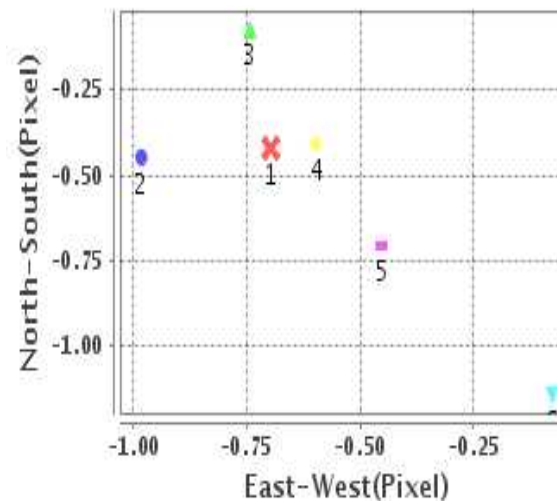
Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.00932 | -0.02159 | 0.38712 |

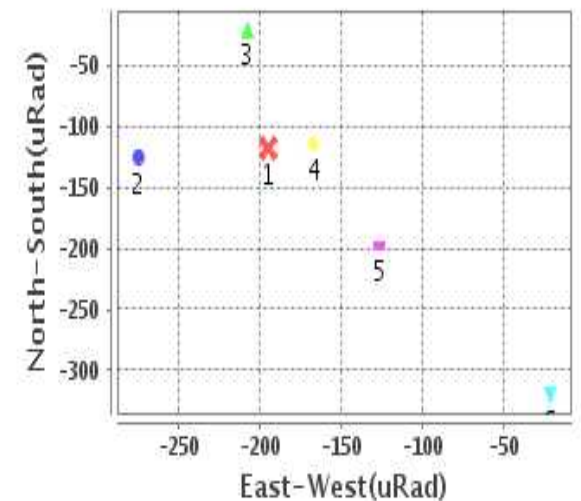
Reference Used

| 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 | 09-01-17 |
| Sensor | SND | DQE Date | 17-01-2017 |
| PassType | NONE | Aquisition Date | 09-01-17 |
| 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_09JAN20 | 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) | 24.076 |
| Center Lon(deg) | 78.085 |
| 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) | 41.312 |
| NW_Lon(deg) | 53.073 |
| SW_Lat(deg) | 6.84 |
| SW_Lon(deg) | 53.073 |
| NE_Lat(deg) | 41.312 |
| NE_Lon(deg) | 103.097 |
| SE_Lat(deg) | 6.84 |
| SE_Lon(deg) | 103.097 |

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 : 3RSND09JAN20170630L1BSA1

(-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

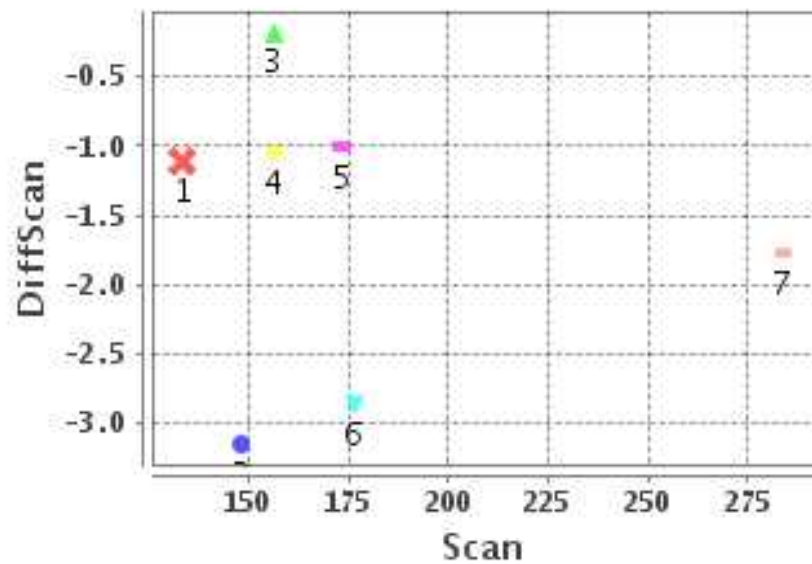
Image Width (pixels) : 384 Image Height (pixels) : 320 No of GCPs : 7

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|--------|----------------|
| GCP Scan | 175.5 | 46.2 | 133.5 | 283.75 | 46.95 (N-S) |
| GCP Pix | 128.8 | 95.4 | 15.2 | 296.25 | 73.18 (E-W) |

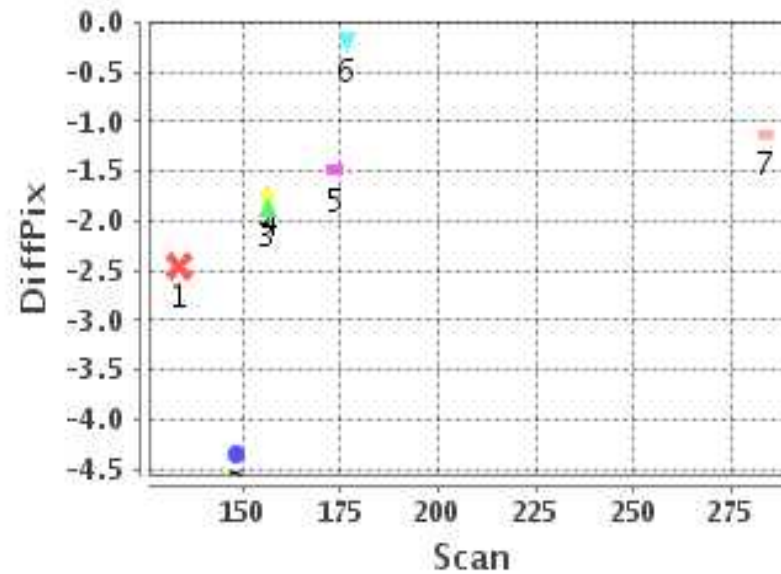
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|-------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 148.2 | 15.2 | -3.1 | -4.34 | 36.006 | N | 49.729 | W | Rejected |
| 2 | 156.5 | 22.8 | -1.1 | -1.74 | 6.471 | N | 11.028 | W | Accepted |
| 3 | 133.5 | 92.8 | -1.1 | -2.46 | 7.522 | N | 18.180 | W | Accepted |
| 4 | 156.2 | 113.5 | -0.2 | -1.86 | 0.263 | S | 13.405 | W | Accepted |
| 5 | 173.5 | 132.2 | -1.0 | -1.49 | 5.766 | N | 12.260 | W | Accepted |
| 6 | 283.8 | 228.5 | -1.8 | -1.13 | 9.680 | N | 6.204 | W | Accepted |
| 7 | 176.5 | 296.2 | -2.9 | -0.19 | 26.677 | N | 3.452 | E | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



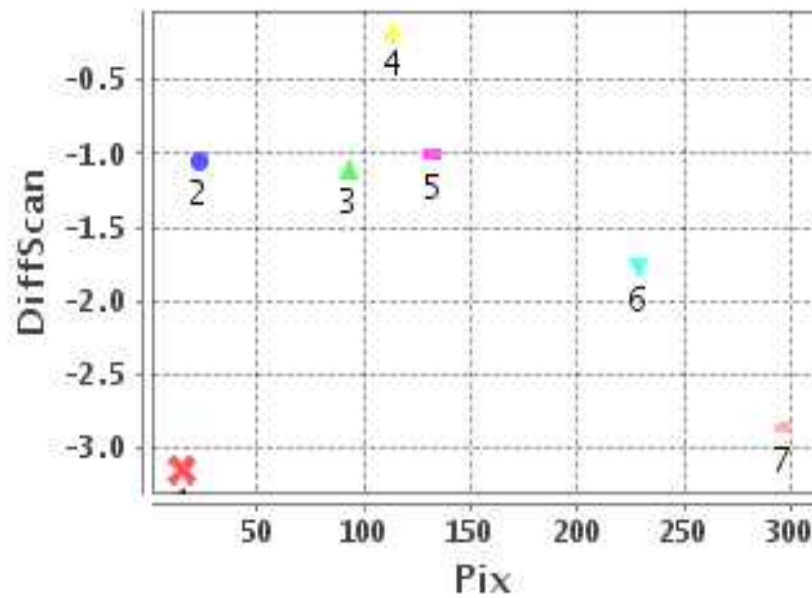
Number Of Points

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

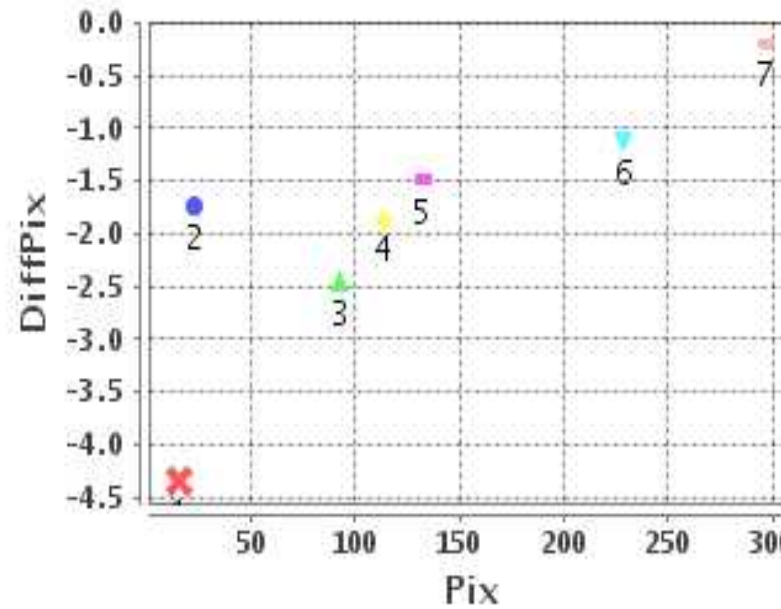
Radial Error (Km)

| | |
|------|--------|
| Mean | 16.302 |
| Min | 11.498 |
| Max | 26.900 |
| CE90 | 19.674 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|--------|-----|----------|----------|
| Along(Km) | 9.309 | 8.339 | 12.498 | N | 6.715 | 13.690 |
| Across (Km) | -9.604 | 6.820 | 11.779 | W | 10.020 | 12.811 |

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) | 4.57667 | N |
| Across(Mean,Dir) | -14.20 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 11.15 | 11.54 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | -0.50 | 0.44 |
| Across(Mean,Stddev) | 0.41 | 0.30 |

| | | |
|--|---------|---------|
| Scan Range-105-212; Pix Range-127-255 | | |
| Number of GCPs | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 5.76 | N |
| Across(Mean,Dir) | -12.26 | 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 | 1 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 26.67 | N |
| Across(Mean,Dir) | 3.45 | 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-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) | 9.68 | N |
| Across(Mean,Dir) | -6.20 | 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 | -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