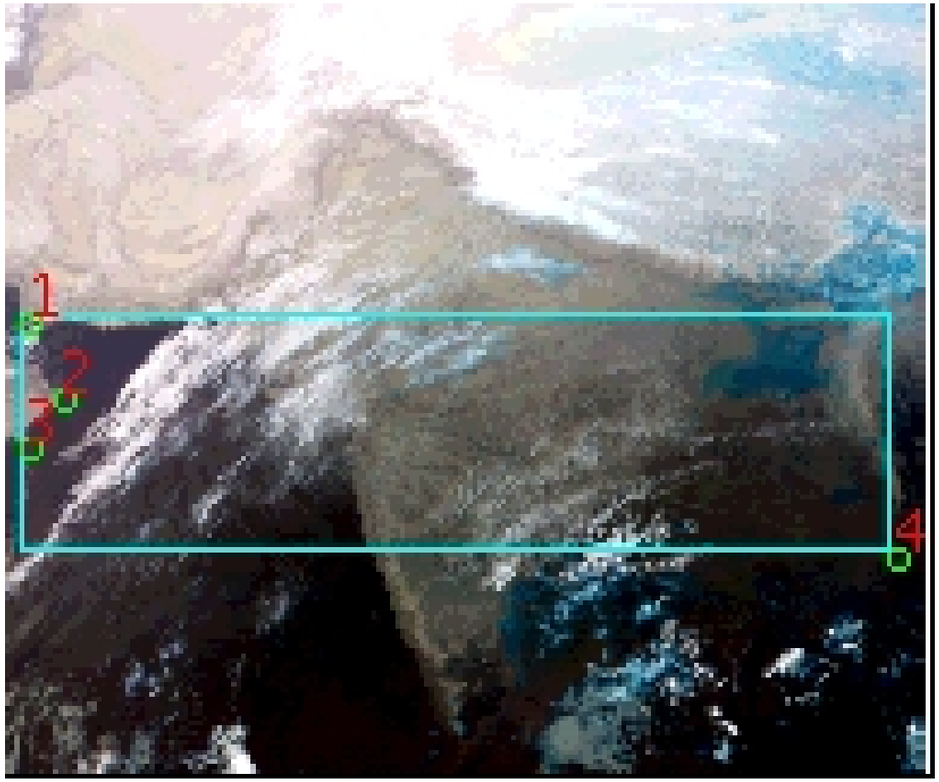
# DQE Report: Location Accuracy of INSAT-3D-SND STANDARD Product 3DSND_05FEB2018_0200

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

(41.695N,49.897W) (41.695N,100.59E)




(6.893S,49.897W) (6.893S,100.59E)

GCP Distribution overview for 3DSND05FEB20180200L1BSA1

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

**GCP Coverage(%)** 30.47 **(N-S)** 93.95 **(E-W)**

**Location Error(E)**

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

## Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|---|---|---|---|---|
| Along | 2.225 | N | 1.384 | 2.620 |
| Across | -1.924 | W | 0.565 | 2.006 |

## Radial Error (in IR Pixels)

| | |
|---|---|
| **Mean** | 3.069 |
| **Min** | 1.841 |
| **Max** | 5.051 |
| **CE90** | 2.960 |

## Scale (Km)

| | Pixel Size | Stddev | %variation |
|---|---|---|---|
| Average | 11.498 | 1.009 | 14.977 |
| Along | 12.240 | 0.000 | 22.399 |
| Across | 13.272 | 0.000 | 32.725 |

## Internal Distortion (in IR Pixels)

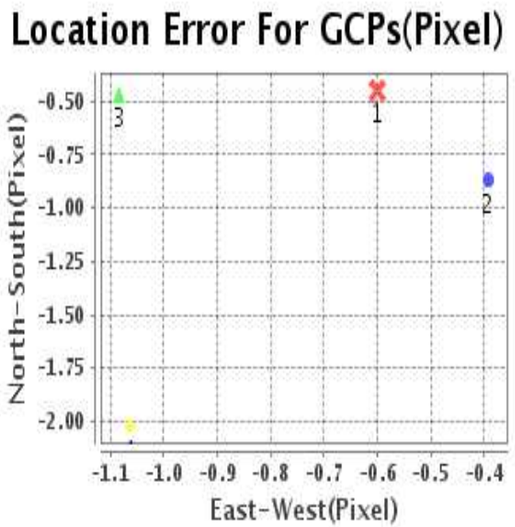
| | PeakToPeak | Mean | Stddev | RMS |
|---|---|---|---|---|
| Along | 3.879 | 1.680 | 1.64 | 2.350 |
| Across | 1.727 | 0.616 | 0.80 | 1.012 |

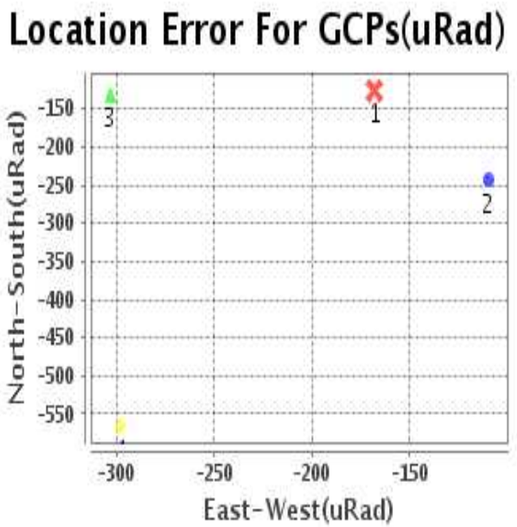
## Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|---|---|---|
| -0.03191 | -0.04638 | 0.47128 |

## Reference Used

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



# Detailed Product Information

## Ancillary Info

| | | | |
|---|---|---|---|
| Satellite | INSAT-3D | Generation Date | 05-02-18 |
| Sensor | SND | DQE Date | 07-02-2018 |
| PassType | NONE | Aquisition Date | 05-02-18 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 02:00 |
| 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) | 82.0 |
| LvlOfProcessing | STANDARD | Predicted Center Lat(deg) | -999.99 |
| DP JobId | 3DSND_05FEB20 | 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) | 24.294 |
| Center Lon(deg) | 75.244 |
| 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) | 41.695 |
| NW_Lon(deg) | 49.897 |
| SW_Lat(deg) | 6.893 |
| SW_Lon(deg) | 49.897 |
| NE_Lat(deg) | 41.695 |
| NE_Lon(deg) | 100.59 |
| SE_Lat(deg) | 6.893 |
| SE_Lon(deg) | 100.59 |

## 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 -sigma | SemiMajorAxis(m) | 6378137.00 | Mode Of Computation | grid |
| Ellipsoid | WGS_84 | | | 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 :** **3DSND05FEB20180200L1BSA1**

(-999.99 - Not Available/Not Computed)

| Ref.No | Source | File Name | Resolution ( m ) | Projection |
|---|---|---|---|---|
| 1 | ETM | world_Band1.img | 500.0 | GGP |

# Location Accuracy

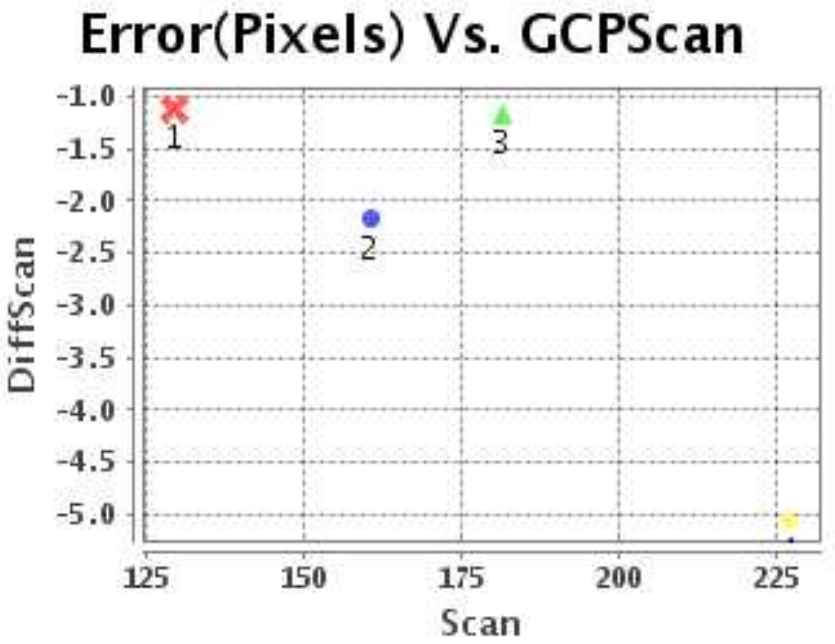
## GCP Distribution Statistics

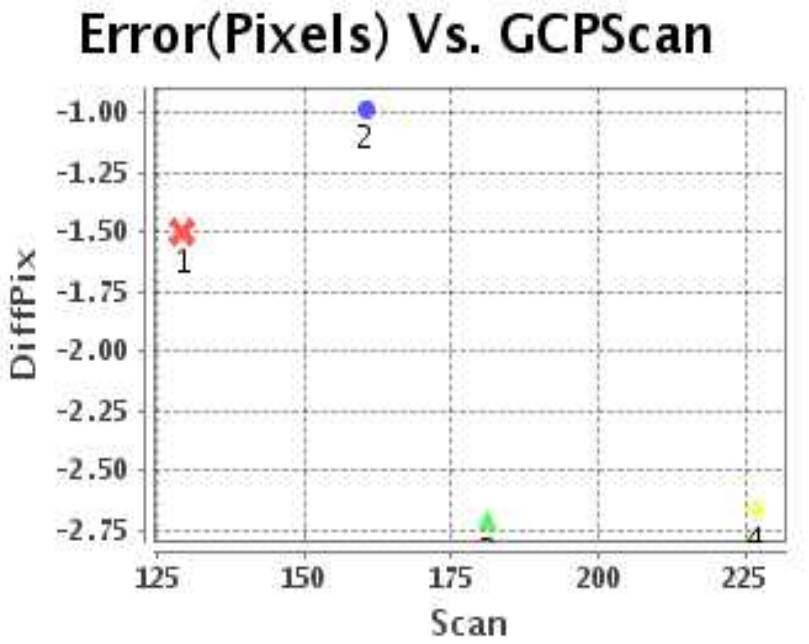
**Image Width (pixels) :** 384 **Image Height (pixels) :** 320 **No of GCPs :** 4

| | Mean | StdDev | Min | Max | Coverage(in %) |
|---|---|---|---|---|---|
| **GCP Scan** | 174.4 | 35.4 | 129.2 | 226.75 | 30.47 (N-S) |
| **GCP Pix** | 100.3 | 154.2 | 6.5 | 367.25 | 93.95 (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 | 129.2 | 6.5 | -1.1 | -1.50 | 11.554 | N | 14.333 | W | Accepted |
| 2 | 160.5 | 21.0 | -2.2 | -0.98 | 20.165 | N | 13.468 | W | Accepted |
| 3 | 181.2 | 6.5 | -1.2 | -2.71 | 11.816 | N | 27.142 | W | Accepted |
| 4 | 226.8 | 367.2 | -5.0 | -2.66 | 45.450 | N | 22.032 | W | Accepted |



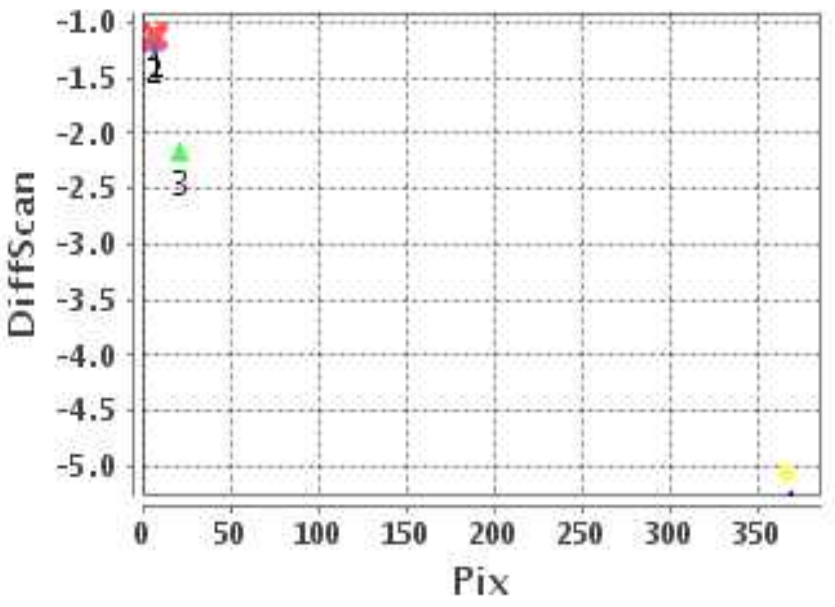



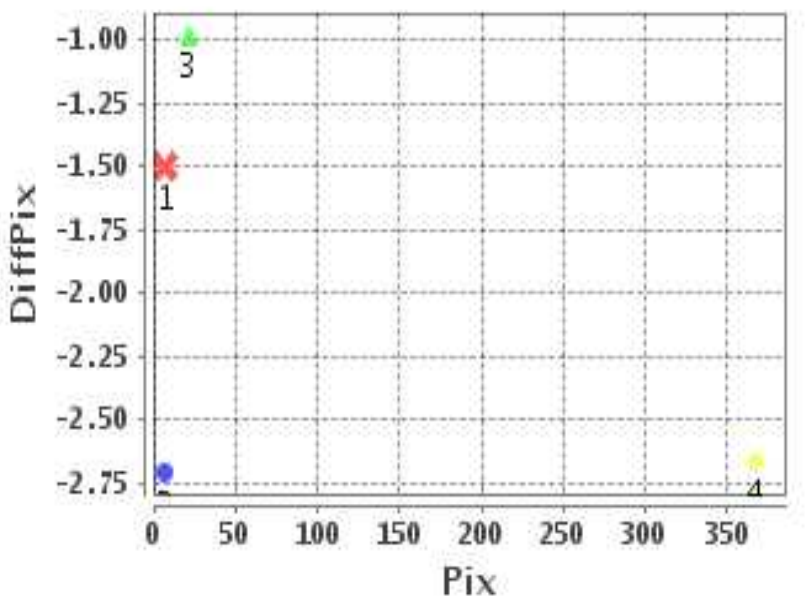

**Number Of Points**

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

**Radial Error ( Km**

| | |
|---|---|
| Mean | 3.069 |
| Min | 1.841 |
| Max | 5.051 |
| CE90 | 2.960 |




**Location Accuracy**

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---|---|---|---|---|---|---|
| Along( Km ) | 2.225 | 1.384 | 2.620 | N | 1.505 | 2.951 |
| Across ( Km ) | -1.924 | 0.565 | 2.006 | W | 1.705 | 2.181 |

# 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)** | 14.51 | N | |
| **Across(Mean,Dir)** | -18.32 | W | |
| **Scale(Km)** | | | |
| **Average Scale (Mean,%Variation)** | 12.32 | 23.19 | |
| **Internal Distortion(Pixel)** | | | |
| **Along(Mean,Stddev)** | 0.56 | 0.50 | |
| **Across(Mean,Stddev)** | 0.34 | 0.86 | |

**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** | 1 | | |
| **Location Error(Km)** | | | |
| **Along(Mean,Dir)** | 45.45 | N | |
| **Across(Mean,Dir)** | -22.03 | 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