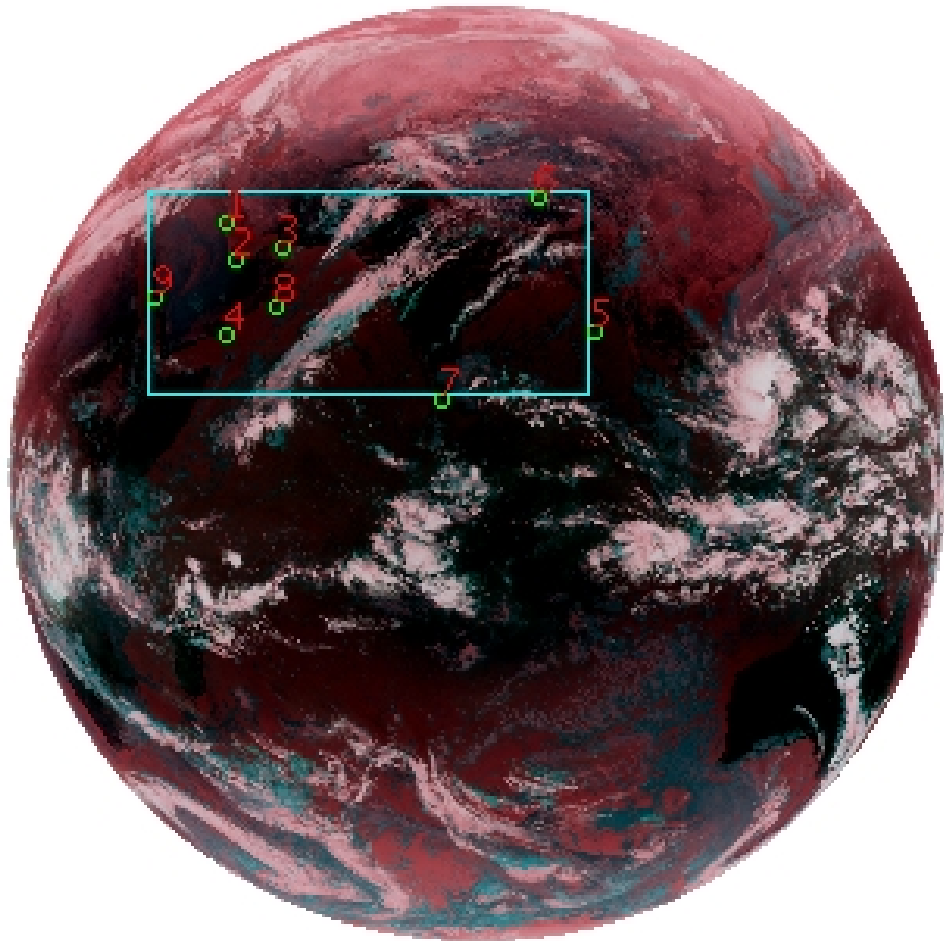


DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG_19DEC2017_0600

Satellite INSAT-3D **No Of Bands** 6 **Product Type** STANDARD
Sensor IMG **LvlOfProcess** L1B **Selected Band** 2-TIR1
DOP/Time 19-12-17/06:00 **Station ID** BES **Field View(deg)** 17.974
Res(Y,X) [Km] (4.0,4.0) **Res(Y,X) [uRad]** (112.0,112.0)

(81.042N,0.843W)

(81.042N,163.157E)



(-81.042S,0.843W)

(-81.042S,163.157E)

GCP Distribution overview for 3DIMG19DEC20170600L1BSTD

Image Width: 2805 **Image Height:** 2816 **No Of GCPs:** 9

GCP Coverage(%) 20.84 **(N-S)** 45.17 **(E-W)**

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 0.944 | N | 1.878 | 2.102 |
| Across | -2.033 | W | 1.534 | 2.547 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.793 | 0.528 | 19.829 |
| Along | 4.817 | 0.411 | 20.416 |
| Across | 4.801 | 0.652 | 20.021 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|-------|--------|-------|
| Along | 5.547 | 1.090 | 1.68 | 2.003 |
| Across | 3.883 | 0.121 | 1.28 | 1.284 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01299 | -0.01120 | 0.09186 |

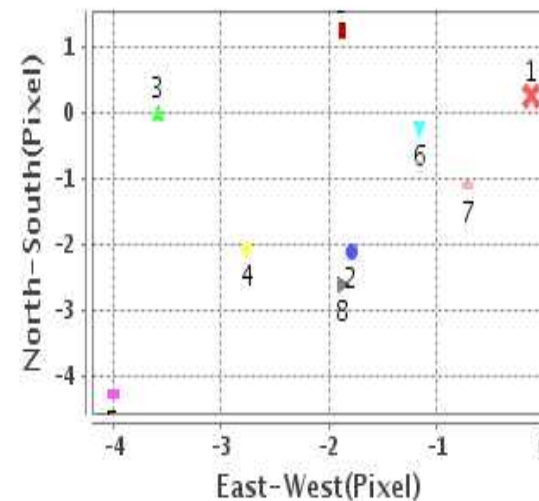
Reference Used

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

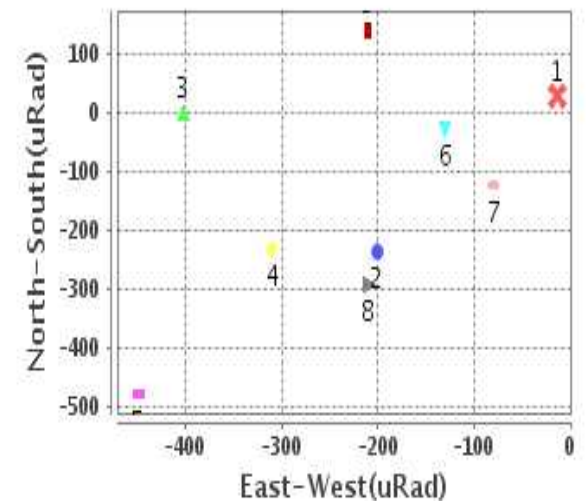
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 2.974 |
| Min | .928 |
| Max | 5.464 |
| CE90 | 4.042 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|----------------|----------------------------------|------------|
| Satellite | INSAT-3D | Generation Date | 19-12-17 |
| Sensor | IMG | DQE Date | 22-12-2017 |
| PassType | NONE | Aquisition Date | 19-12-17 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 06:00 |
| 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(FULL) | Predicted Center Lat(deg) | -999.99 |
| DP JobId | 3DIMG_19DEC20 | Predicted Center Lon(deg) | -999.99 |
| ProductCode | NONE | | |
| Field View(deg) | 17.974 | | |

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) | 0.0 |
| Center Lon(deg) | 82.0 |
| 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) | 81.042 |
| NW_Lon(deg) | 0.843 |
| SW_Lat(deg) | -81.042 |
| SW_Lon(deg) | 0.843 |
| NE_Lat(deg) | 81.042 |
| NE_Lon(deg) | 163.157 |
| SE_Lat(deg) | -81.042 |
| SE_Lon(deg) | 163.157 |

Band Wise Details

| | Res_AL(Km) | Res_AX(Km) | Image Height | Image Width |
|-------------|------------|------------|--------------|-------------|
| MIR | 4.0 | 4.0 | 2816 | 2805 |
| SWIR | 1.0 | 1.0 | 11264 | 11220 |
| TIR1 | 4.0 | 4.0 | 2816 | 2805 |
| TIR2 | 4.0 | 4.0 | 2816 | 2805 |
| VIS | 1.0 | 1.0 | 11264 | 11220 |
| WV | 8.0 | 8.0 | 1408 | 1402 |

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 : 3DIMG19DEC20170600L1BSTD

(-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

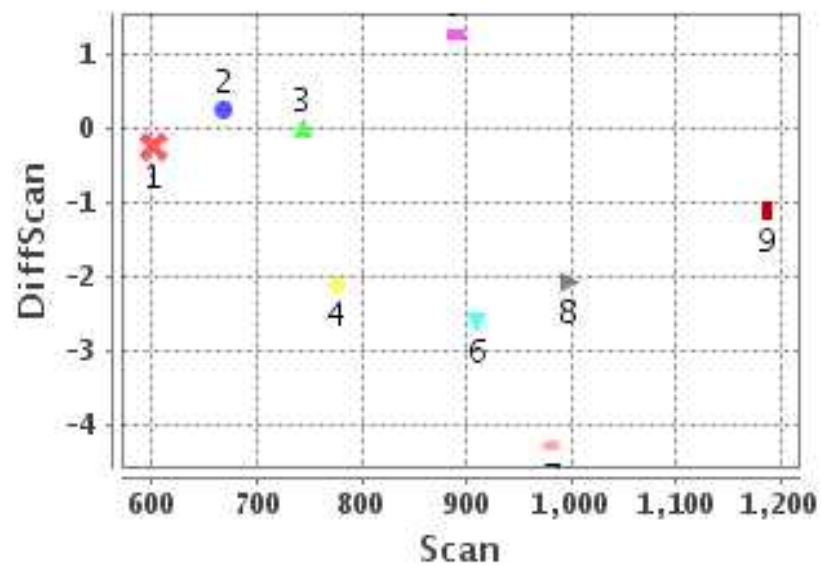
Image Width (pixels) : 2805 Image Height (pixels) : 2816 No of GCPs : 9

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|-------|--------|-------|---------|----------------|
| GCP Scan | 861.8 | 172.7 | 600.5 | 1187.25 | 20.84 (N-S) |
| GCP Pix | 962.4 | 420.7 | 456.2 | 1723.25 | 45.17 (E-W) |

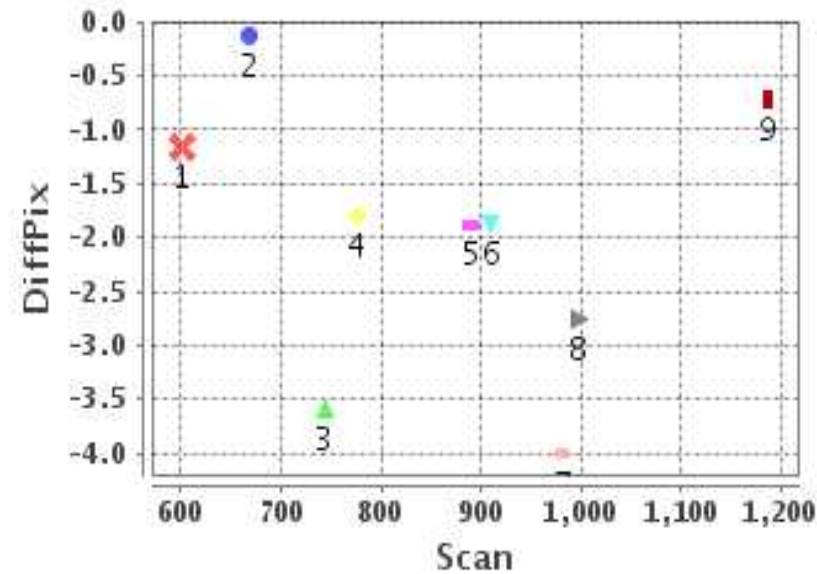
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|--------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 668.5 | 663.5 | 0.3 | -0.12 | 5.163 | S | 4.158 | E | Accepted |
| 2 | 776.2 | 685.0 | -2.1 | -1.79 | 9.459 | N | 13.048 | W | Accepted |
| 3 | 744.2 | 825.8 | 0.0 | -3.59 | 0.448 | S | 13.490 | W | Accepted |
| 4 | 997.5 | 665.5 | -2.1 | -2.76 | 6.855 | N | 12.419 | W | Accepted |
| 5 | 981.2 | 1723.2 | -4.3 | -4.00 | 16.636 | N | 14.178 | W | Accepted |
| 6 | 600.5 | 1561.5 | -0.2 | -1.16 | 2.102 | S | 3.832 | W | Accepted |
| 7 | 1187.2 | 1278.5 | -1.1 | -0.71 | 3.601 | N | 0.904 | W | Accepted |
| 8 | 910.0 | 802.0 | -2.6 | -1.87 | 11.662 | N | 11.196 | W | Accepted |
| 9 | 890.2 | 456.2 | 1.3 | -1.88 | 6.526 | S | 8.269 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



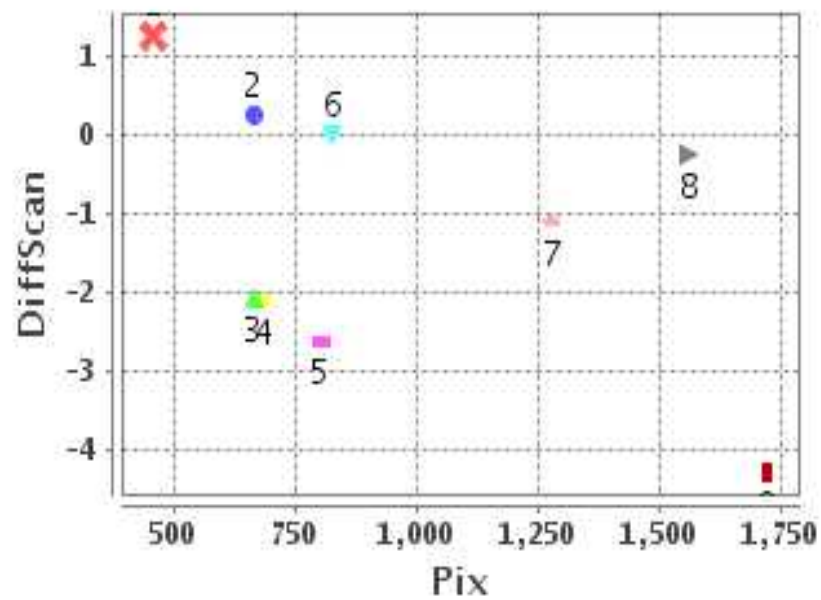
Number Of Points

| | |
|-------|---|
| North | 5 |
| South | 4 |
| East | 1 |
| West | 8 |

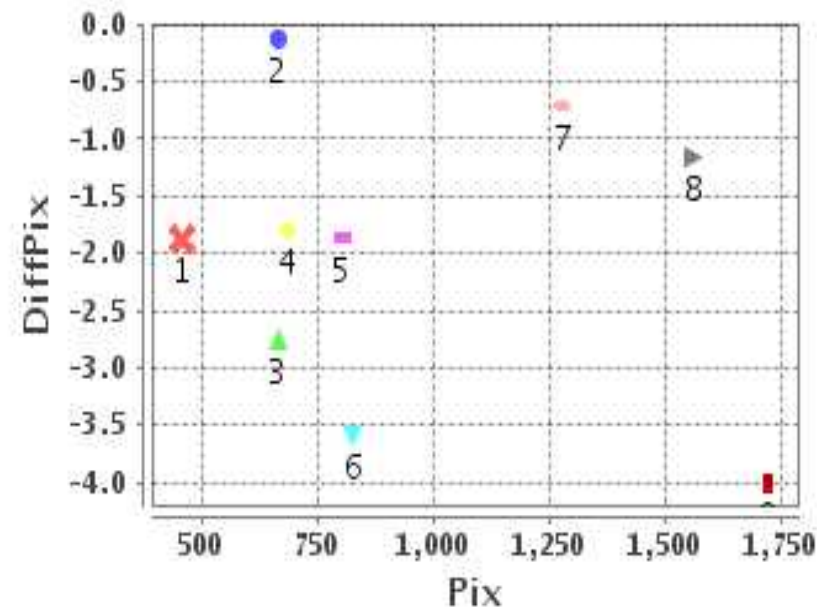
Radial Error (Km)

| | |
|------|-------|
| Mean | 2.974 |
| Min | .928 |
| Max | 5.464 |
| CE90 | 4.042 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 0.944 | 1.878 | 2.102 | N | 1.675 | 2.229 |
| Across (Km) | -2.033 | 1.534 | 2.547 | W | 2.393 | 2.700 |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

| | | | |
|--|-------|-------|--|
| Scan Range-0-937; Pix Range-0-934 | | | |
| Number of GCPs | 5 | | |
| Location Error(Km) | | | |
| Along(Mean,Dir) | 1.8 | N | |
| Across(Mean,Dir) | -8.37 | W | |
| Scale(Km) | | | |
| Average Scale (Mean,%Variation) | 5.30 | 32.62 | |
| Internal Distortion(Pixel) | | | |
| Along(Mean,Stddev) | 1.13 | 1.57 | |
| Across(Mean,Stddev) | -0.04 | 1.23 | |

| | | | |
|---|---------|---------|--|
| Scan Range-0-937; Pix Range-934-1869 | | | |
| Number of GCPs | 1 | | |
| Location Error(Km) | | | |
| Along(Mean,Dir) | -2.1 | S | |
| Across(Mean,Dir) | -3.83 | 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-0-937; Pix Range-1869-2805 | | | |
| 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-937-1876; Pix Range-0-934 | | | |
| Number of GCPs | 1 | | |
| Location Error(Km) | | | |
| Along(Mean,Dir) | 6.85 | N | |
| Across(Mean,Dir) | -12.42 | 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-937-1876; Pix Range-934-1869 | | | |
| Number of GCPs | 2 | | |
| Location Error(Km) | | | |
| Along(Mean,Dir) | 10.121 | N | |
| Across(Mean,Dir) | -7.54 | W | |
| Scale(Km) | | | |
| Average Scale (Mean,%Variation) | 4.02 | 0.40 | |
| Internal Distortion(Pixel) | | | |
| Along(Mean,Stddev) | -3.19 | 0.00 | |
| Across(Mean,Stddev) | 3.29 | 0.00 | |

| | | | |
|---|---------|----------|--|
| Scan Range-937-1876; Pix Range-1869-2805 | | | |
| 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-1876-2816; Pix Range-0-934 | | | |
| 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-1876-2816; Pix Range-937-1869 | | | |
| 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-1876-2816; Pix Range-1869-2805 | | | |
| 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