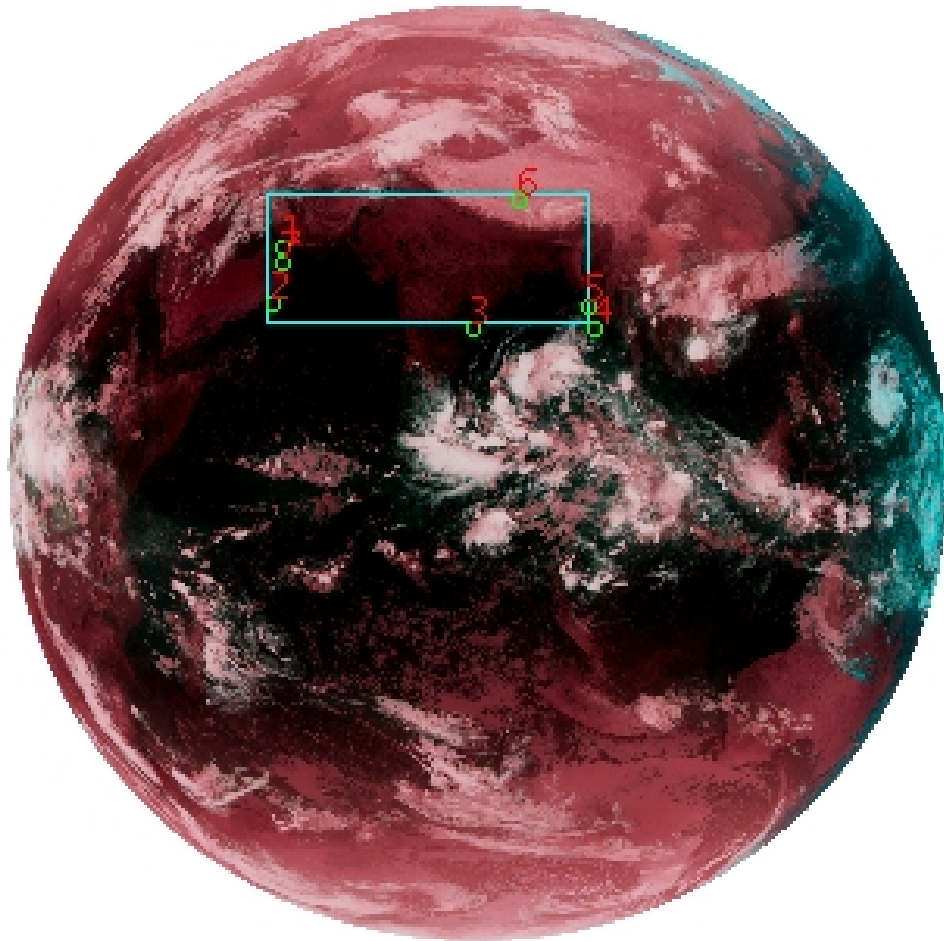


DQE Report: Location Accuracy of INSAT-3D-IMG STANDARD(FULL DISK) Product 3DIMG_12APR2017_2130

Satellite INSAT-3D **No Of Bands** 6 **Product Type** STANDARD
Sensor IMG **LvlOfProcess** L1B **Selected Band** 2-TIR1
DOP/Time 12-04-17/21:30 **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 3DIMG12APR20172130L1BSTD

Image Width: 2805 **Image Height:** 2816 **No Of GCPs:** 7

GCP Coverage(%) 13.23 **(N-S)** 32.83 **(E-W)**

Location Error(E)

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

Location Error (In IR Pixels)

| | Mean | Direction | Stddev | RMS |
|--------|--------|-----------|--------|-------|
| Along | 0.253 | N | 1.676 | 1.695 |
| Across | -2.238 | W | 0.432 | 2.279 |

Scale (Km)

| | Pixel Size | Stddev | %variation |
|---------|------------|--------|------------|
| Average | 4.476 | 0.227 | 11.902 |
| Along | 4.853 | 0.081 | 21.320 |
| Across | 4.297 | 0.175 | 7.435 |

Internal Distortion (in IR Pixels)

| | PeakToPeak | Mean | Stddev | RMS |
|--------|------------|--------|--------|-------|
| Along | 3.867 | 1.587 | 1.48 | 2.167 |
| Across | 1.484 | -0.296 | 0.50 | 0.585 |

Attitude Residuals (Deg)

| Pitch | Roll | Yaw |
|----------|----------|---------|
| -0.01422 | -0.00364 | 0.18774 |

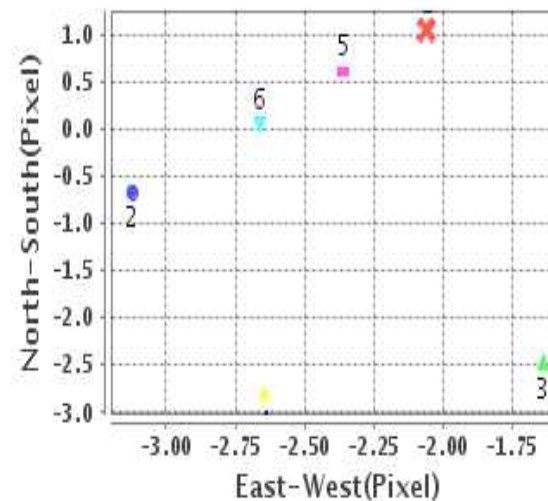
Reference Used

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

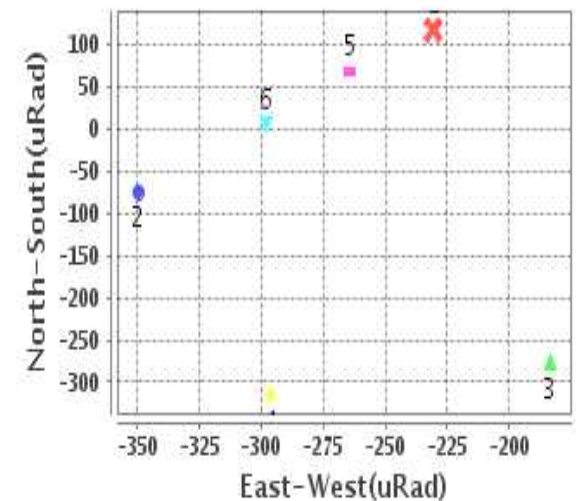
Radial Error (in IR Pixels)

| | |
|-------------|-------|
| Mean | 2.815 |
| Min | 2.395 |
| Max | 3.584 |
| CE90 | 2.945 |

Location Error For GCPs(Pixel)



Location Error For GCPs(uRad)



Detailed Product Information

Ancillary Info

| | | | |
|--------------------------|----------------|----------------------------------|------------|
| Satellite | INSAT-3D | Generation Date | 13-04-17 |
| Sensor | IMG | DQE Date | 19-04-2017 |
| PassType | NONE | Aquisition Date | 12-04-17 |
| Imaging Mode | FULL_FRAME | Aquisition Time(GMT) | 21:30 |
| 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_12APR20 | 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 : 3DIMG12APR20172130L1BSTD

(-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

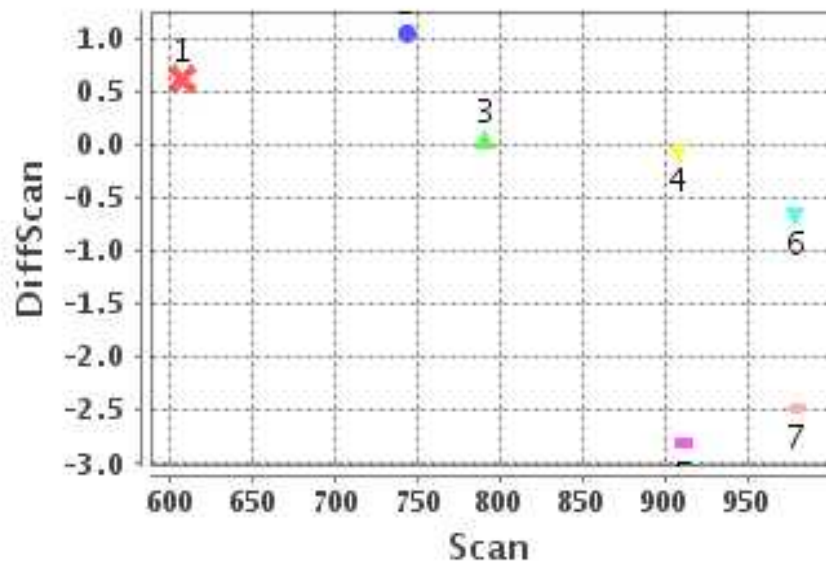
Image Width (pixels) : 2805 Image Height (pixels) : 2816 No of GCPs : 7

| | Mean | StdDev | Min | Max | Coverage(in %) |
|-----------------|--------|--------|-------|---------|----------------|
| GCP Scan | 845.4 | 127.7 | 607.0 | 979.50 | 13.23 (N-S) |
| GCP Pix | 1250.9 | 392.3 | 800.2 | 1721.00 | 32.83 (E-W) |

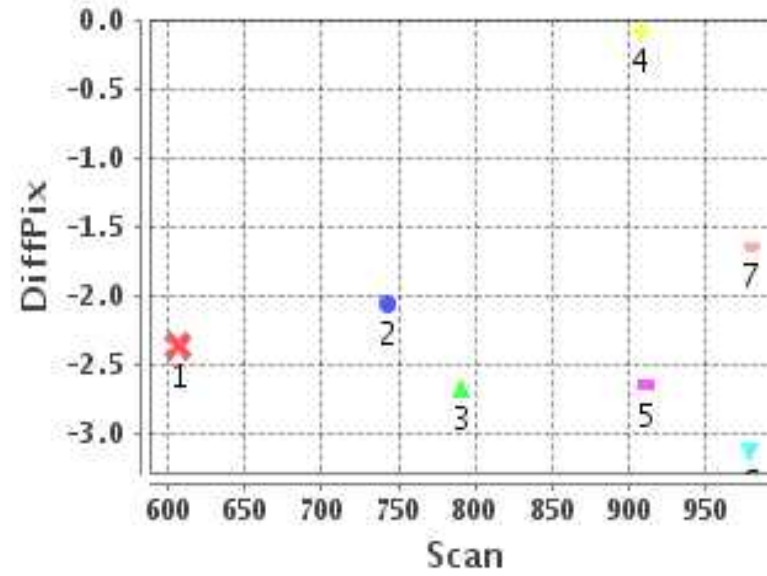
Identified Control Point details : (Differences are Reference - Product)

| No | Scan | Pix | DiffScan (line) | DiffPix (pixel) | DifLat (Km) | Dir | DifLon (Km) | Dir | Status |
|----|-------|--------|-----------------|-----------------|-------------|-----|-------------|-----|----------|
| 1 | 743.2 | 824.2 | 1.1 | -2.06 | 6.575 | S | 7.944 | W | Accepted |
| 2 | 907.5 | 800.2 | -0.1 | -0.08 | 2.001 | S | 0.739 | E | Rejected |
| 3 | 978.8 | 1370.2 | -0.7 | -3.12 | 0.377 | S | 11.773 | W | Accepted |
| 4 | 979.5 | 1721.0 | -2.5 | -1.64 | 8.704 | N | 6.281 | W | Accepted |
| 5 | 911.2 | 1705.2 | -2.8 | -2.64 | 11.453 | N | 8.620 | W | Accepted |
| 6 | 607.0 | 1511.2 | 0.6 | -2.36 | 3.440 | S | 10.248 | W | Accepted |
| 7 | 790.8 | 823.8 | 0.0 | -2.66 | 3.682 | S | 8.844 | W | Accepted |

Error(Pixels) Vs. GCPScan



Error(Pixels) Vs. GCPScan



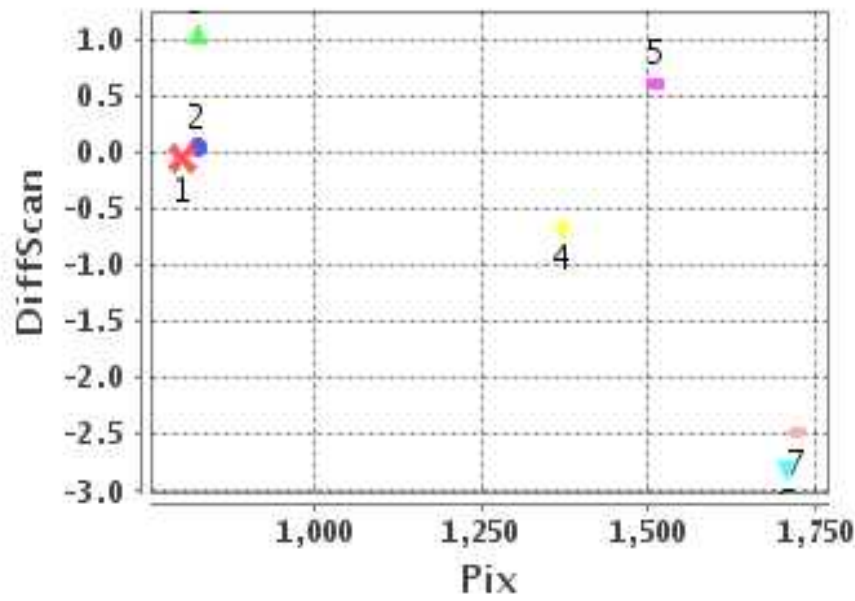
Number Of Points

| | |
|-------|---|
| North | 2 |
| South | 4 |
| East | 0 |
| West | 6 |

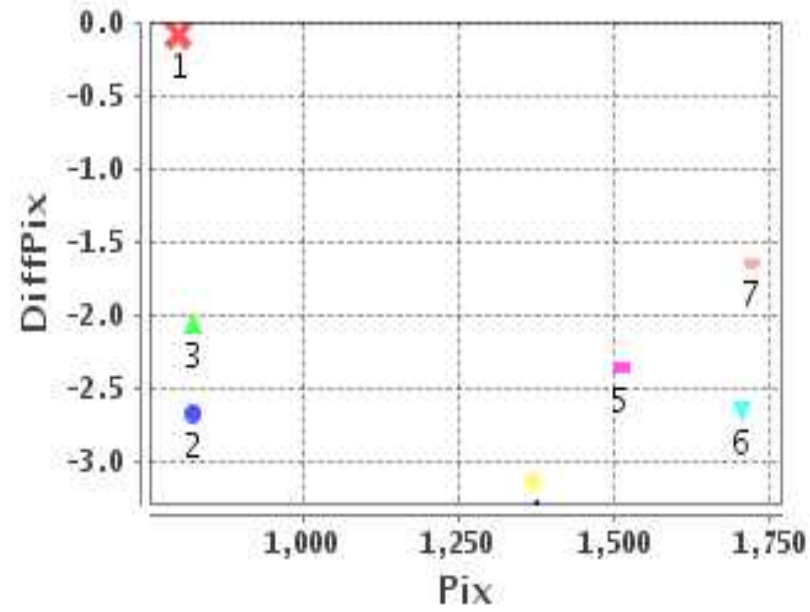
Radial Error (Km)

| | |
|------|-------|
| Mean | 2.815 |
| Min | 2.395 |
| Max | 3.584 |
| CE90 | 2.945 |

Error(Pixels) Vs. GCPPix



Error(Pixels) Vs. GCPPix



Location Accuracy

| | Mean | StdDev | RMS | Dir | * MinRMS | * MaxRMS |
|---------------|--------|--------|-------|-----|----------|----------|
| Along(Km) | 0.253 | 1.676 | 1.695 | N | 1.344 | 1.856 |
| Across (Km) | -2.238 | 0.432 | 2.279 | W | 2.122 | 2.396 |

Block-Wise Geo location Error Statistics

Location Accuracy,Scale,ID

| | | |
|--|--------|-------|
| Scan Range-0-937; Pix Range-0-934 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | -5.135 | S |
| Across(Mean,Dir) | -8.40 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 5.00 | 25.00 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 1.01 | 0.00 |
| Across(Mean,Stddev) | -0.60 | 0.00 |

| | | |
|---|-------|-------|
| Scan Range-0-937; Pix Range-934-1869 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 4.01 | N |
| Across(Mean,Dir) | -9.43 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.61 | 15.29 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 3.43 | 0.00 |
| Across(Mean,Stddev) | 0.28 | 0.00 |

| | | |
|--|---------|----------|
| 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 | -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-934-1869 | | |
| Number of GCPs | 2 | |
| Location Error(Km) | | |
| Along(Mean,Dir) | 4.17 | N |
| Across(Mean,Dir) | -9.03 | W |
| Scale(Km) | | |
| Average Scale (Mean,%Variation) | 4.07 | 1.87 |
| Internal Distortion(Pixel) | | |
| Along(Mean,Stddev) | 1.81 | 0.00 |
| Across(Mean,Stddev) | -1.48 | 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