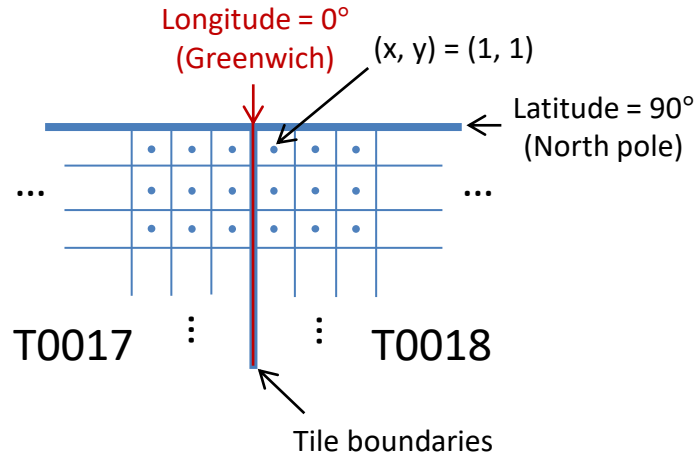


Half-pixel shift of LTOAQ/K:

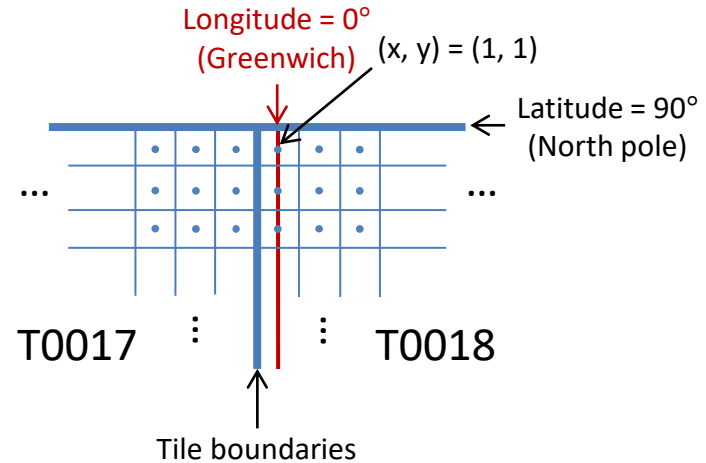
The Half pixel shift is found in the GCOM-C ortho-corrected tile-map data

- Influenced data period:
 - -0.5 line shift in the first version data of LTOAQ/K, v1000 (process dates before 2018/12/06)
 - +0.5 column shift in the LTOAQ/K version of v1001-v2004 (process dates after 2018/12/06)
- Influenced data:
 - Following LTOAQ/K and the tile-type products processed using the LTOAQ/K
 - LTOA(Q, K), RSRF(Q), VGI_(Q), AGB_(Q), LAI_(Q), LST_(Q),
 - CLFG(Q, K), CLPR(K), ARNP(K), ARPL(K), (the influence on AR**F products is very small)
 - SICE(Q, K), SIPR(Q, K),
 - The error shift of 250-m tile LTOAQ is +0.5 column (eastward) correspond to about 125 m
 - The error shift of 1km-tile LTOAK is about 125 m when the LTOAK is made by averaging LTOAQ, i.e., most of land and coastal areas, or about 500m in the offshore areas
- Revision plan:
 - The issue will be corrected in the next algorithm revision in June 2021 (TBD); reprocessing will be in the next major version-up in the winter 2021 (TBD)

Proper projection



0.5-pixel shift along the column



Coordinates transform between Latitude (φ), Longitude(λ) in degrees and Column (x), Line (y) in pixels for tile (v , h)

Proper projection

$$x = \frac{m}{10} (\lambda \cos \varphi' - 10h + 180) + 0.5$$

$$y = \frac{n}{10} (90 - 10v - \varphi) + 0.5$$

$$\varphi = 90 - 10v - \frac{10}{n} (y - 0.5)$$

$$\lambda = \frac{\frac{10}{m} (x - 0.5) + 10h - 180}{\cos \varphi'}$$

$$\varphi' = \varphi \cdot \frac{\pi}{180} \quad m = n = \begin{cases} 4800 & (250\text{m}) \\ 1200 & (1\text{km}) \end{cases}$$

0.5-pixel shift along column

$$x = \frac{m}{10} (\lambda \cos \varphi' - 10h + 180) + 1.0$$

$$y = \frac{n}{10} (90 - 10v - \varphi) + 0.5$$

$$\varphi = 90 - 10v - \frac{10}{n} (y - 0.5)$$

$$\lambda = \frac{\frac{10}{m} (x - 1.0) + 10h - 180}{\cos \varphi'}$$

Example

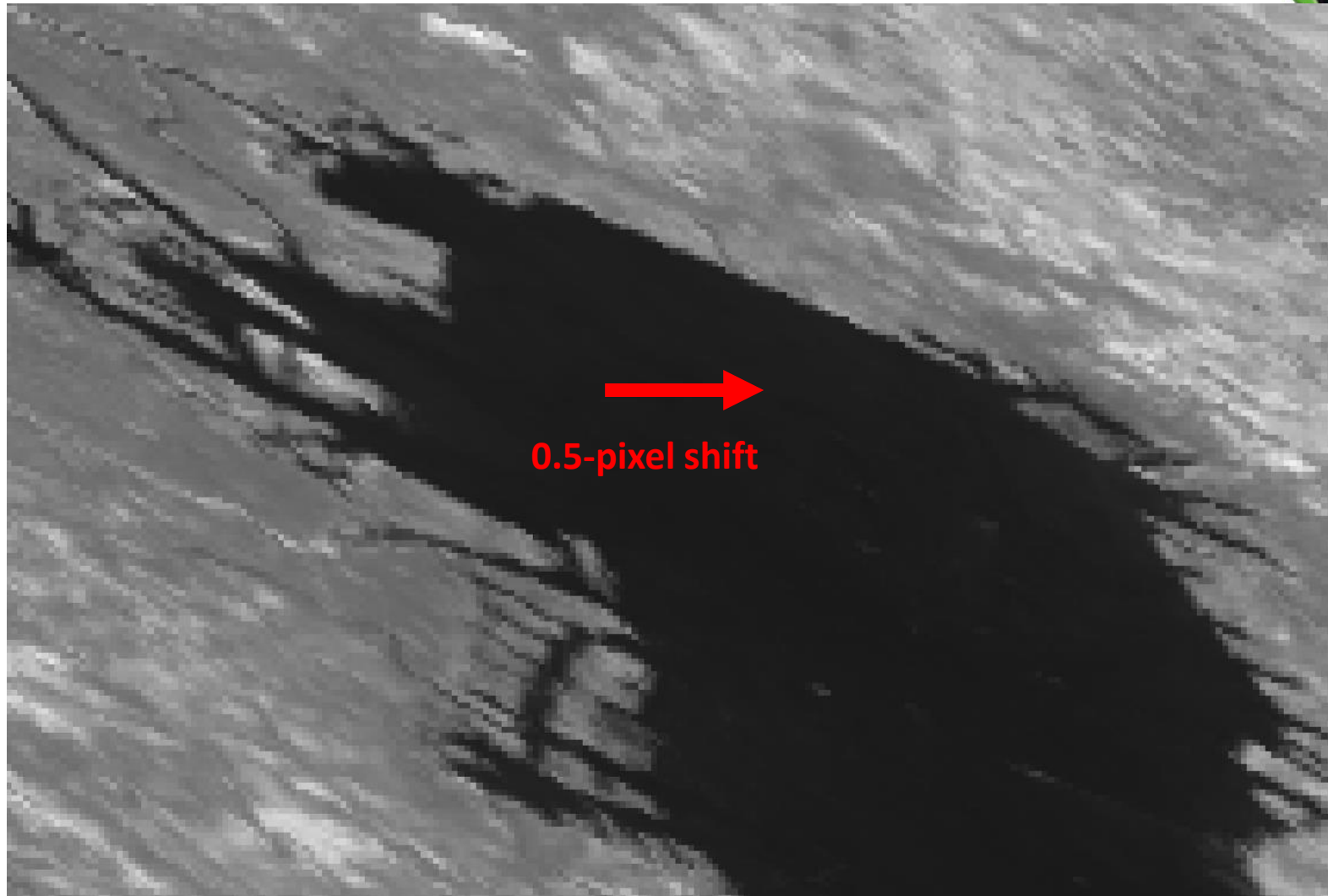
GC1SG1_20180625D01D_T0529_L2SG_LTOAQ_0102.h5 (Lt_VN11)



Proper projection

Example

GC1SG1_20180625D01D_T0529_L2SG_LTOAQ_2004. h5 (Lt_VN11)



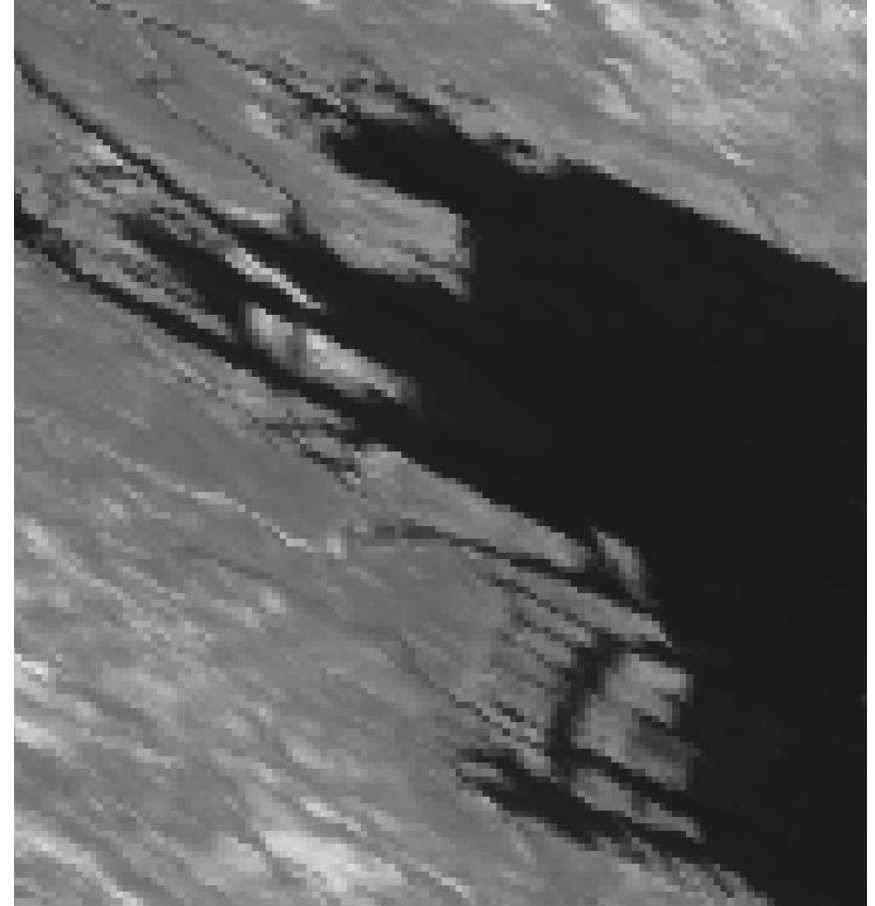
Current product Ver.2 (v2004)

Example

GC1SG1_20180625D01D_T0529_L2SG_LTOAQ (Lt_VN11)



v0102

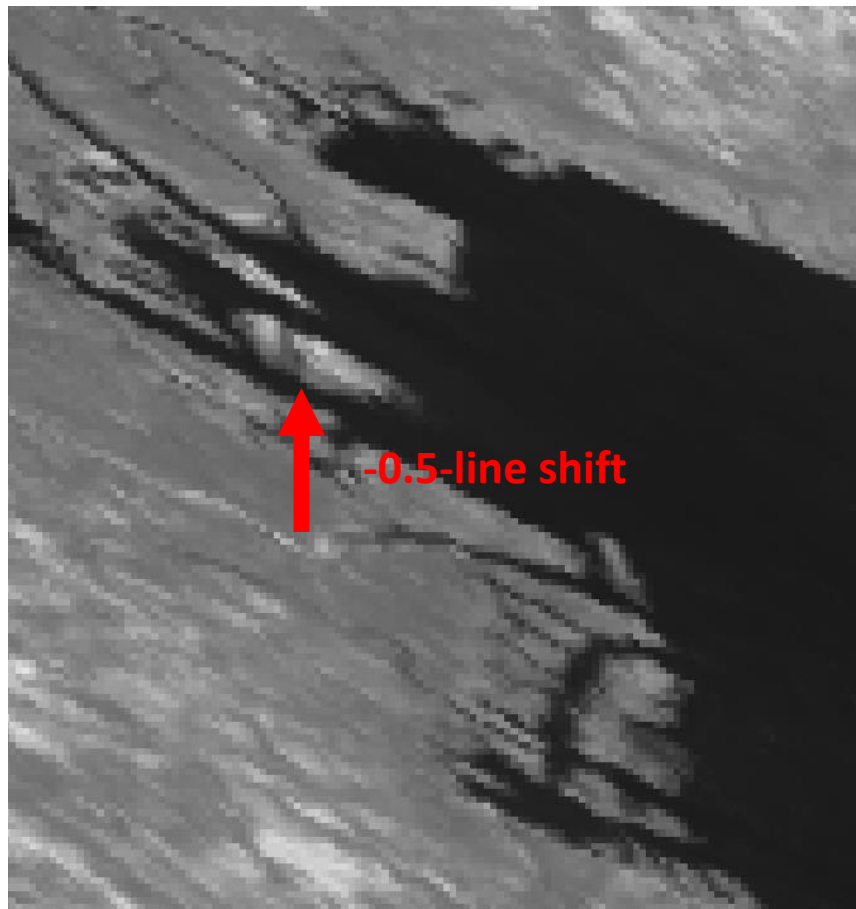


v0102

Proper projection

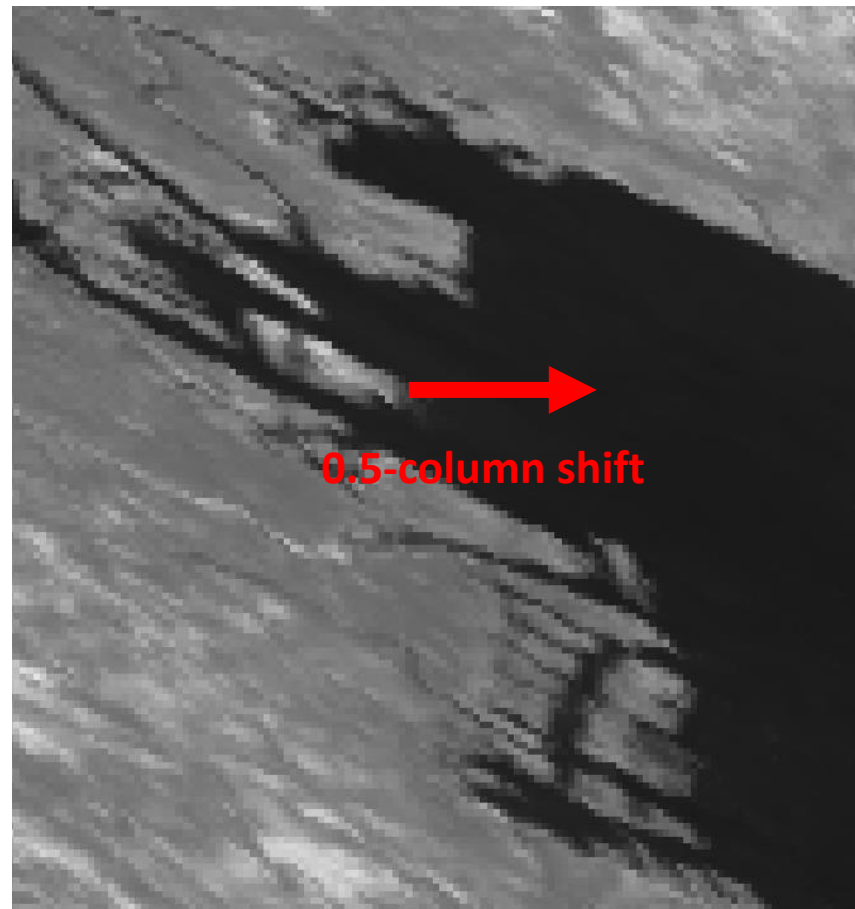
Example

GC1SG1_20180625D01D_T0529_L2SG_LTOAQ (Lt_VN11)



v1000

Processed before 2018/12/06



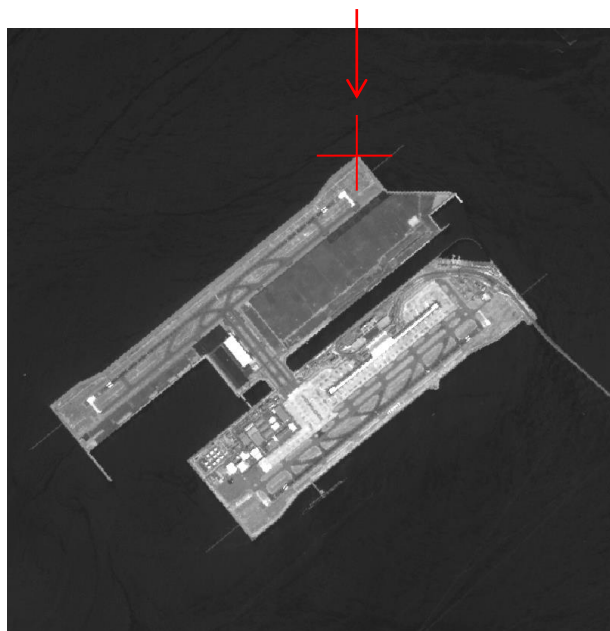
v1001 ~ v2004

Processed after 2018/12/06

Example:

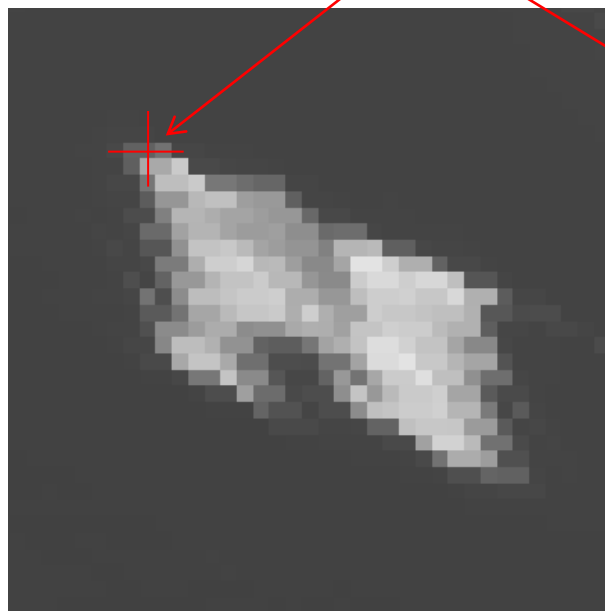
difference of the SGLI LTOA pixel correspond to a GCP (AVNIR-2)

(latitude, longitude) = (34.45521, 135.24115)



AVNIR-2 image (as GCP)
on UTM53N

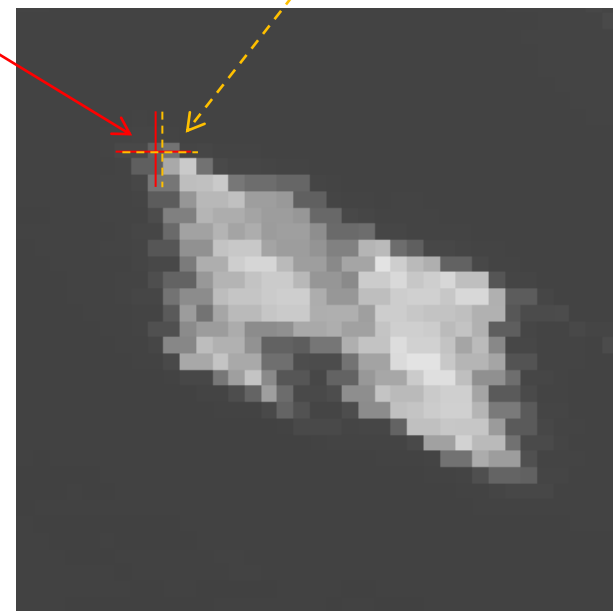
Proper projection
(column, line) = (728.0, 2662.0)



Proper projection

GC1SG1_20180625D01D_T0529_L2SG_LTOAQ
Lt_VN11

Wrong projection
(column, line) = (728.5, 2662.0)



v2004