### Some limitations of LTOA



2025/9/26

#### Limitations

- 1. <u>In the tile product, "observation start time" may differ between the</u> attribute information and dataset.
- 2. The stored observation date and time may differ from the file name.
- 3. The QA flag may be stored in a different area than the observation data.
- 4. LTOA data may not be created due to special observation operations.

### **Known Problems** (under investigation)

- 5. Older version products are available.
  - 5-1. Insufficient L1B input
  - 5-2. There is a uniform position shift of Half-pixel in the column direction.
- 6. There are some un-generated LTOA data during the Initial Checkout Period.
- 7. Land products with incorrect flags
- 8. Some products that have not been generated. (Update: 2025/9/26)
- 9. The certain product contains invalid values.



1. In the tile product, "observation start time" may differ between the attribute information and dataset.

"Image\_start\_time" in the attribute of the LTOA product stores the smallest value (earliest time) from "Geometry\_data/Obs\_time" or "Geometry\_data/Obs\_time\_PL" in the product.

### (Example)

GC1SG1\_20221108D01D\_T0524\_L2SG\_LTOAK\_2012.h5

Minimum value of "Geometry\_data/Obs\_time": 5238
Minimum value of "Geometry\_data/Obs\_time\_PL": 5201 ★This is smaller

Stored value of "Image\_start\_time" : 20221108 05:12:03.600  $\langle \neg | 5201 | = 5.201 \text{hour} = 5:12:03.6.$ 

※In subsequent tile products (e.g. ARNP), since LTOA's "Image\_start\_time" is used as is, it may differ from "Geometry\_data/Obs\_time".

## 2. The stored observation date and time may differ from the file name.



2025/2/21

The observation date recorded in the file name (Granule ID) and the observation date stored in the file may be offset by one day. Please take note of this when referencing the data.

### [Details]

The L1B product used for daily tile processing is input based on the scene range and observation start time (first record).

Since the processing extracts data from the full input results based on the tile area, the generated product may contain only the observation data from the following day.

<u>In this document (P2: Japanese)</u>, an example using the tile from December 31, 2019, is explained. (The tile product for December 31, 2019, contains only observation data from January 1.)

### (Example)

File Name:

GC1SG1\_20191231D01D\_T0734\_L2SG\_LTOAQ\_2002.h5

Stored Attributes:

Image\_start\_time = **20200101** 00:00:57.600

Image\_end\_time = **20200101** 00:03:43.200







The observation data range is extracted from VNR/IRS, but QA flags are excluded. As a result, some input data areas may remain during processing. Please take note of this when referencing the data.

### [Details]

This document (P3: Japanese) explains an example using the tile from **December 31, 2019**.

# 4. LTOA data may not be partly created due to special observation operations.



LTOA products using POL as input may not be generated.

Both global (1km resolution) and tile (250m resolution) products are affected.

For periods in which the tilting-operation is stopped, please refer to the <u>SGLI Missing Data List</u>.

# 5. Older version products have been released.



2025/3/7

Older version products are displayed in <u>the Version history table</u> of LTOA on the SHIKISAI-Portal. (<u>Known problems List</u>: PRDT\_0056)

Period: 2018 [April-June, October, December]

2019 [January-August, October, December]

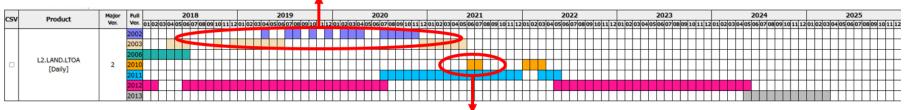
2020 [February-April, July-December]

2021 [January-July]

Additionally, the issues described in sections 5-1 and 5-2 have already been fixed. However, older version products may still be publicly available, so please take caution when using the data.

There is a possibility of uniform position shift of Half-pixel.

2025/3/7



There is a possibility of insufficient L1B input.

For more details on the version history, please refer to the <u>FAQ: "How to</u> read the version history".

### 5-1. Insufficient L1B input



Some LTOA products created by reprocessing, do not have enough L1B input.

[Target Product] LTOA and its subsequent products [Target Version] Ver.2010 and 2011 [Target Period] 2020/06/28 - 2021/12/30

Here is the list of products (LTOA) with insufficient input.

### [Details]

POL data containing multiple observation dates in the same scene was missing from the input. This case applies only to products created by reprocessing after Ver.3 release and does not occur in products created by on-time processing and reprocessing before Ver.3 release.

The reprocessing method was already fixed on May 30, 2022, and no have occurred in the reprocessing after fixed.



# 5-2. There is a uniform position shift of Half-pixel in the column direction.

2025/2/21

A uniform shift of Half-pixel in the column direction was found.

### [Target Products] LTOA and subsequent products (\*)

(\*) LTOA(Q,K), RSRF(Q), VGI\_(Q), AGB\_(Q), LAI\_(Q), LST\_(Q), CLFG(Q,K), CLPR(K), ARNP(K), ARPL(K), (The impact on AR\*\*F products is small), SICE(Q,K), SIPR(Q,K)

[Target Versions] Ver.1001 - 2003

[Affected Period] December 6, 2018 - May 25, 2021

### [Details]

- For 250m tiles (Q), there is a shift of 0.5 pixels (125m) in the column (longitude: eastward).
- For 1km tiles (K), in areas where 250m observations exist (such as land and coastal areas), there is a shift of 125m, while in offshore areas without 250m observations, the shift is 500m.

Version 2006 (corrected version of the position shift) was released on May 26, 2021. Since then, data processed has been correctly projected.

For more details, please refer to this page.

# 6. There are some un-generated LTOA data during the Initial Checkout Period.



There are un-generated LTOA data during the Initial Checkout Period (January 1, 2018 – March 28, 2018).

Observation dates: 2018/1/8, 1/14, 2/11, 2/19, 11/22

Products: LTOAQ, LTOAK (total 33 products), and high-level products to

input these data

For details on the target products, please refer to the <u>List of Uncreated</u> LTOA Products.

These products will not be recovered because the Initial Checkout Period.



### 7. Land products with incorrect flags



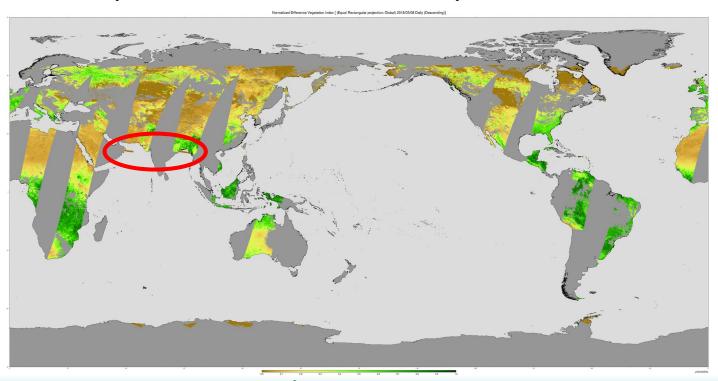
There was an error in the land flags in March 2018. (Known problems List: PRDT\_0049)

Observation Dates: 2018/3/8, 2018/3/17

Products: L2 LTOA and subsequent land products (LST, NDVI, LAI, FPAR)

Tile Numbers: T0623, T0726, T0727, T0822, T0923, T0217

(Additional tiles under review)



# 8. Some products that have not been generated.



2025/9/26

There are some products that were not generated in LTOA and its subsequent products. (Known problems List: PRDT\_0039)

#### Observation Dates:

```
12023/4/16 (UT 09:00-14:59), 2023/4/26 (UT 06:00-20:59),
2023/4/27 (UT 09:00-11:59), 2023/5/26 (UT 01:00-06:59)
The identified GIDs are as follows:
    GC1SG1_20230426D01D_T0117_L2SG_LTOAQ_2012
    GC1SG1_20230426D01D_T0118_L2SG_LTOAQ_2012
    GC1SG1_20230426D01D_T0216_L2SG_LTOAQ_2012
    GC1SG1_20230426D01D_T0217_L2SG_LTOAQ_2012
    GC1SG1_20230426D01D_T0317_L2SG_LTOAQ_2012
    GC1SG1_20230426D01D_T0318_L2SG_LTOAQ_2012
    GC1SG1_20230427D01D_T0318_L2SG_LTOAQ_2012
    GC1SG1_20230427D01D_T0717_L2SG_LTOAQ_2012
    GC1SG1_20230427D01D_T0817_L2SG_LTOAQ_2012
    GC1SG1_20230427D01D_T0817_L2SG_LTOAQ_2012
    GC1SG1_20230427D01D_T0818_L2SG_LTOAQ_2012
    GC1
```

### Products:

Standard products LTOA (Q and K) and subsequent products

#### Status:

- ①Currently under recovery.
- ②Investigation in progress.



### 9. The certain product contains invalid values.



There is data containing invalid values. (Known problems List: PRDT\_0039)

**GID:** GC1SG1\_20230426D01D\_T0218\_L2SG\_LTOAQ\_2012

Currently under recovery.