GCOM-C Update

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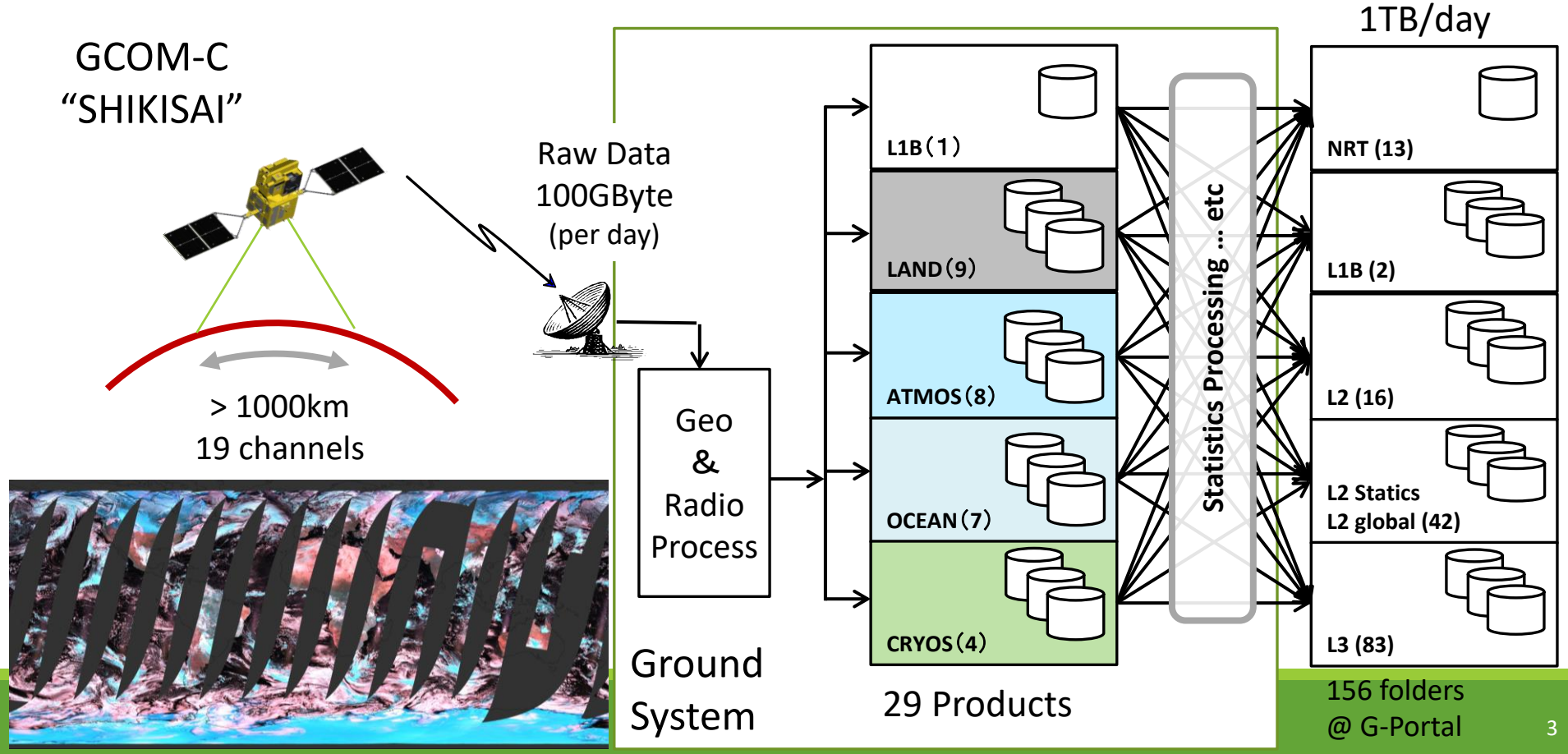
GCOM-C Status

- Successful launch on Dec. 23, 2017
- SGLI First Light on Jan. 1, 2018. → stable operation in 3 years
- SGLI ALL 29 products are in public since Dec. 20, 2018 as Ver.1.
- Ver.2 data release on June 29, 2020 as planned

Everything is nominal
as planned.

GCOM-C Products

- Approx. 100GB/day data is downlinked via Svalbard Station.
- Approx. 1TB/day products in 156 folders are generated in GCOM-C ground system.



Satellite operation

- Satellite system is stable since launch.

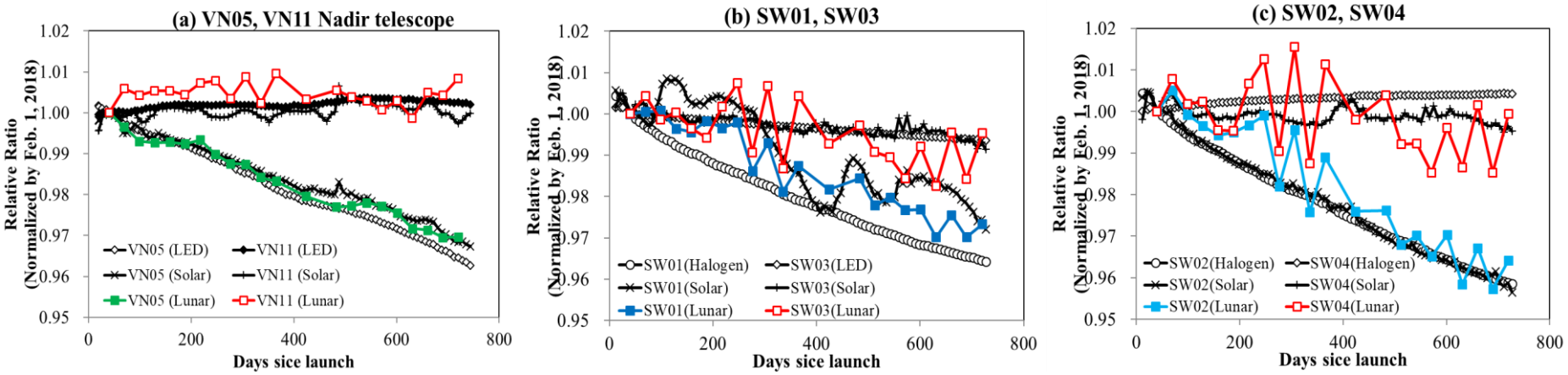
Satellite System	Normal	
TTC-RF, MDHS-RF	Normal	
MDHS-DH	Tentative stop of MDR operation on May 21, 2018	No MDR recording for 10hours Radiation effect is suspected
TTC-DH	Normal	
AOCS, RCS	Normal	
EPS, PDL	Normal	
TCS	Normal	
SGLI VNR	Tentative stop of PL Tilt operation 6 times over SAA region.	No tilting for 10-14 hours Radiation effect is suspected
SGLI IRS	Normal	Regular TIR health check with 3 months interval

Satellite & ground system information such as products, status and obs. plan is available at “SHIKISAI Portal”. **https://shikisai.jaxa.jp/index_en.html**

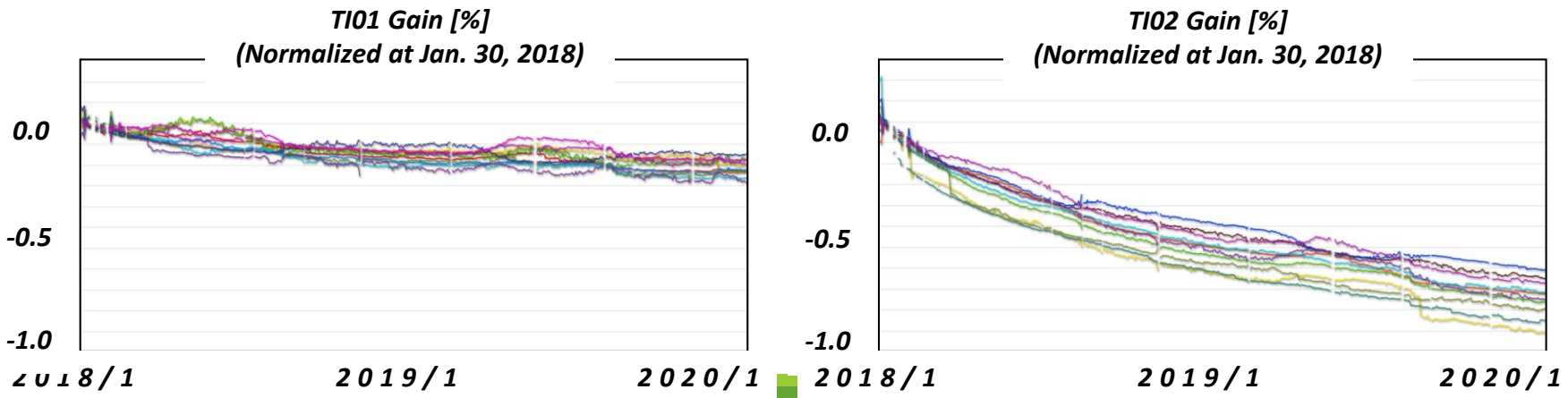
SGLI Calibration

VN & SW Cal. Coefficients is reflected to products since Ver.2 data processing

- LED(Halogen), Solar & Lunar Cals are consistent for VNR & SWI.

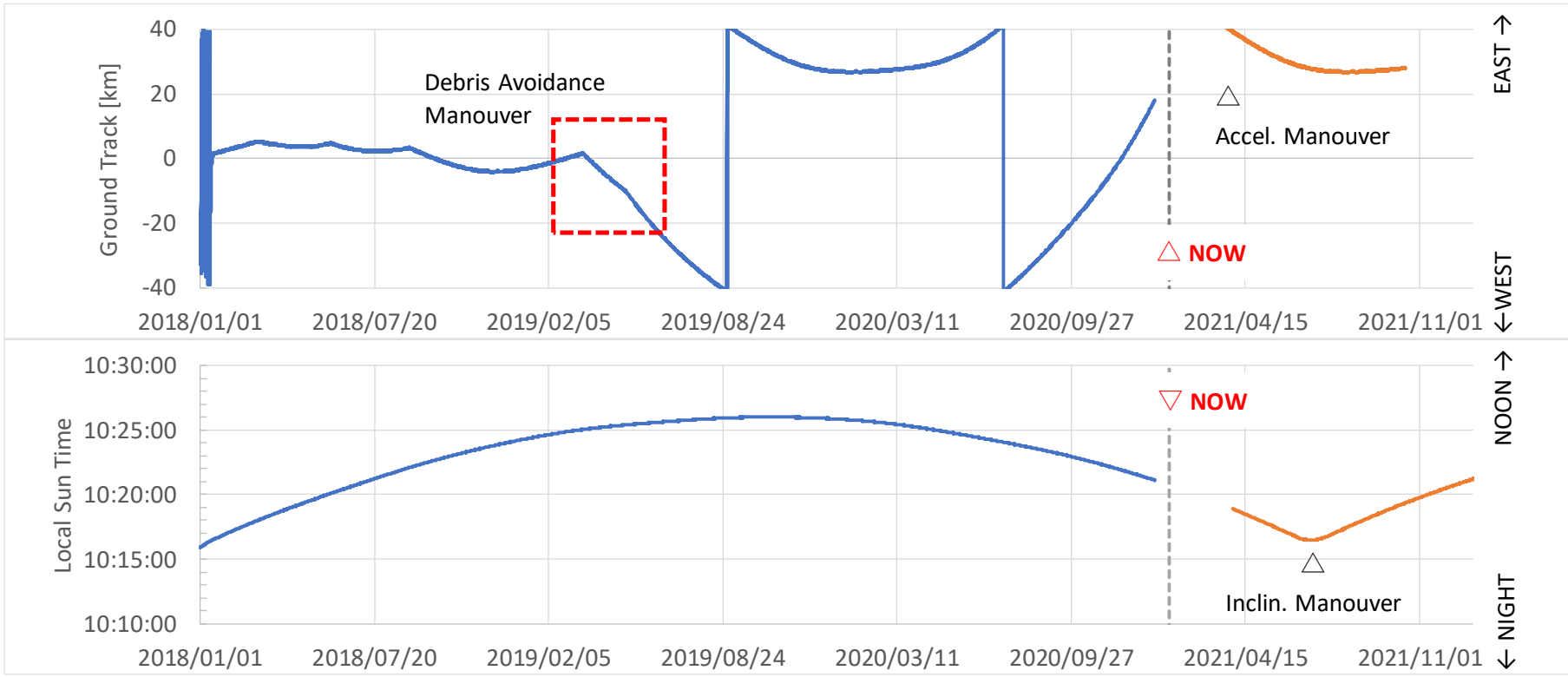


- TIR is calibrated using black body & deep space in real time, degradation is very small.



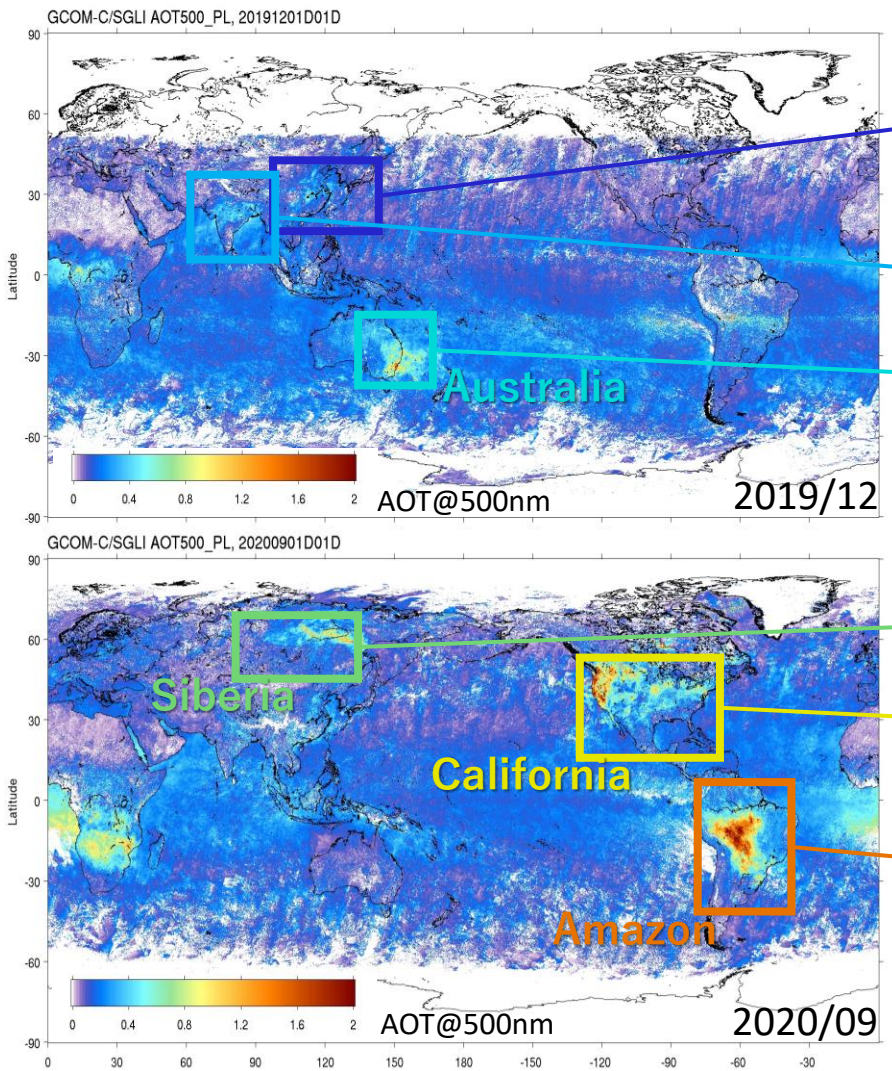
GCOM-C satellite orbit

- Orbital debris avoidance maneuver on March 15 & May 05, 2019.
- Acceleration maneuver is planned in early Feb. 2021.
- Inclination maneuver for Local Sun Time is planned in June 2021.

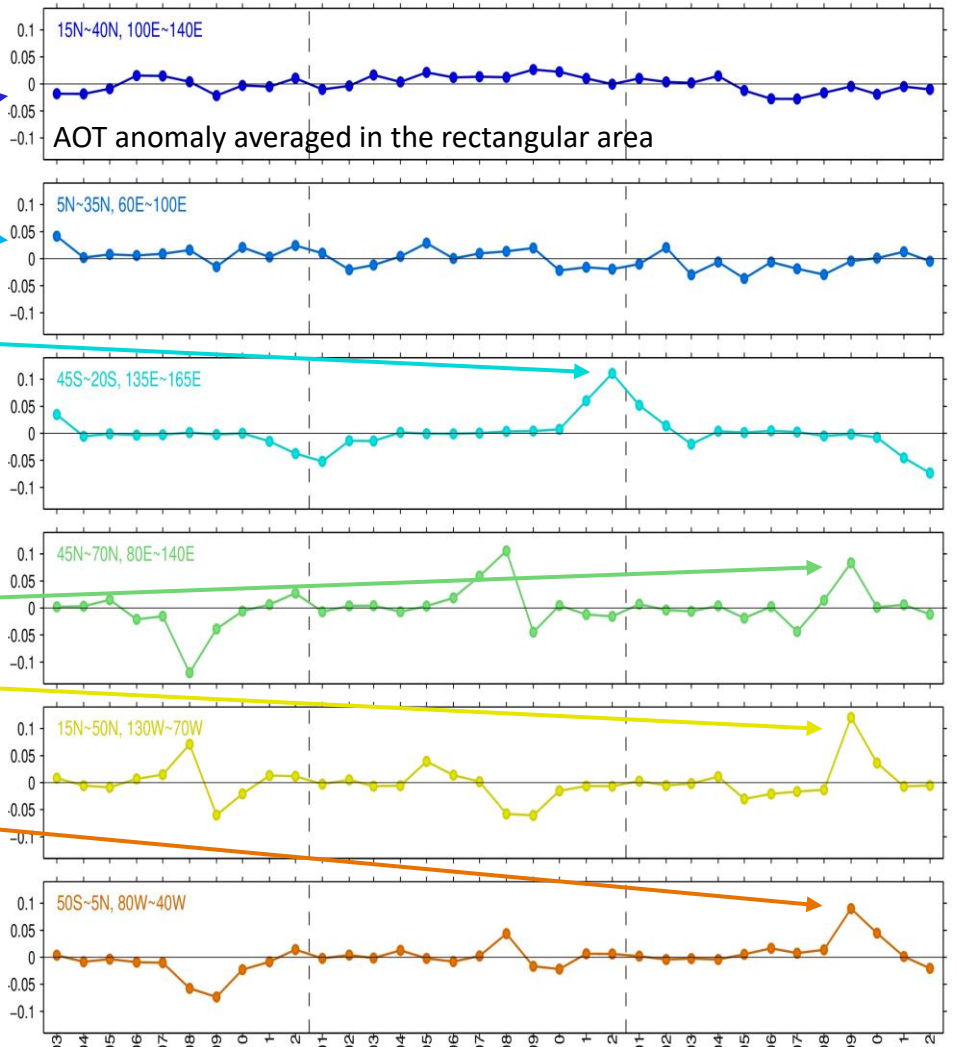


Optical thickness of fine-mode aerosols by SGLI polarimetry

- ✓ Aerosol anomalies are clearly captured by the three-year observation of SGLI polarimetry in Australia, Siberia, California, and Amazon areas
- ✓ SGLI will contribute to understanding of the climate system including the aerosol-cloud-radiation processes

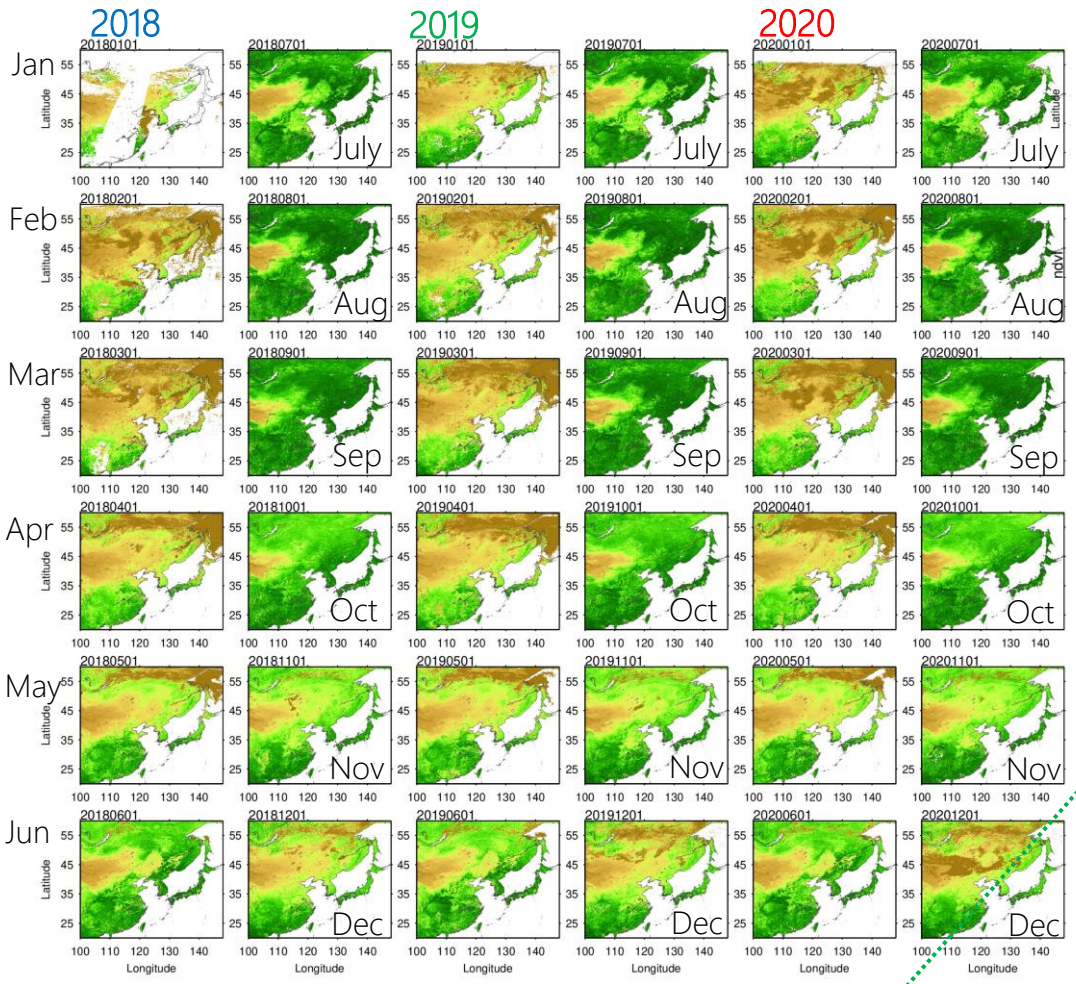


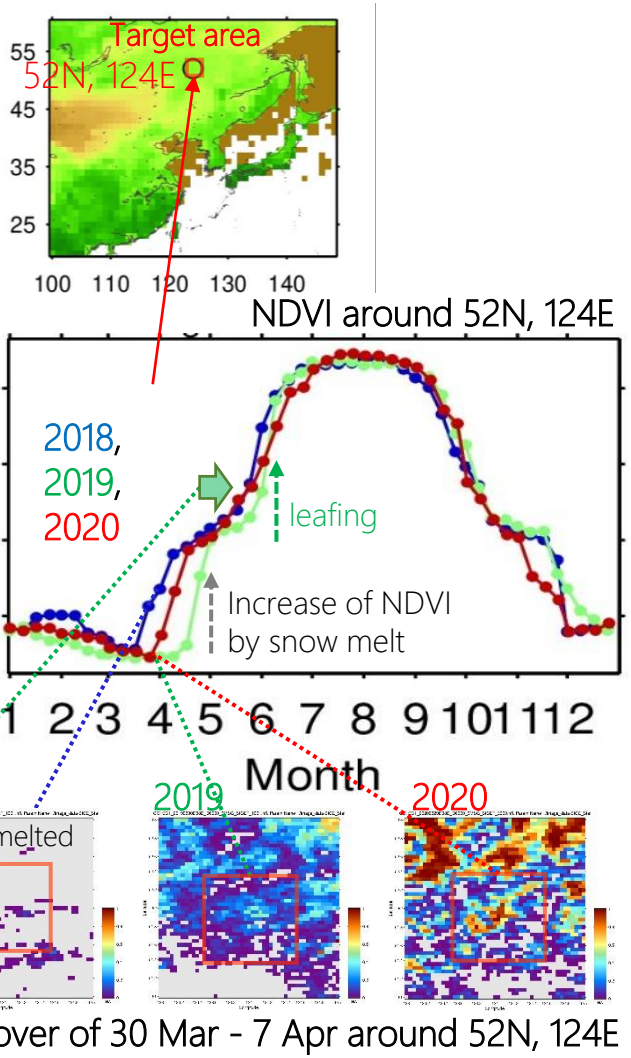
SGLI fine-mode aerosol anomaly (difference from 2018-2020 average)



SGLI polarimetry is sensitive to the fine mode aerosols including fire-smoke and urban aerosols.

Year-to-year change of NDVI



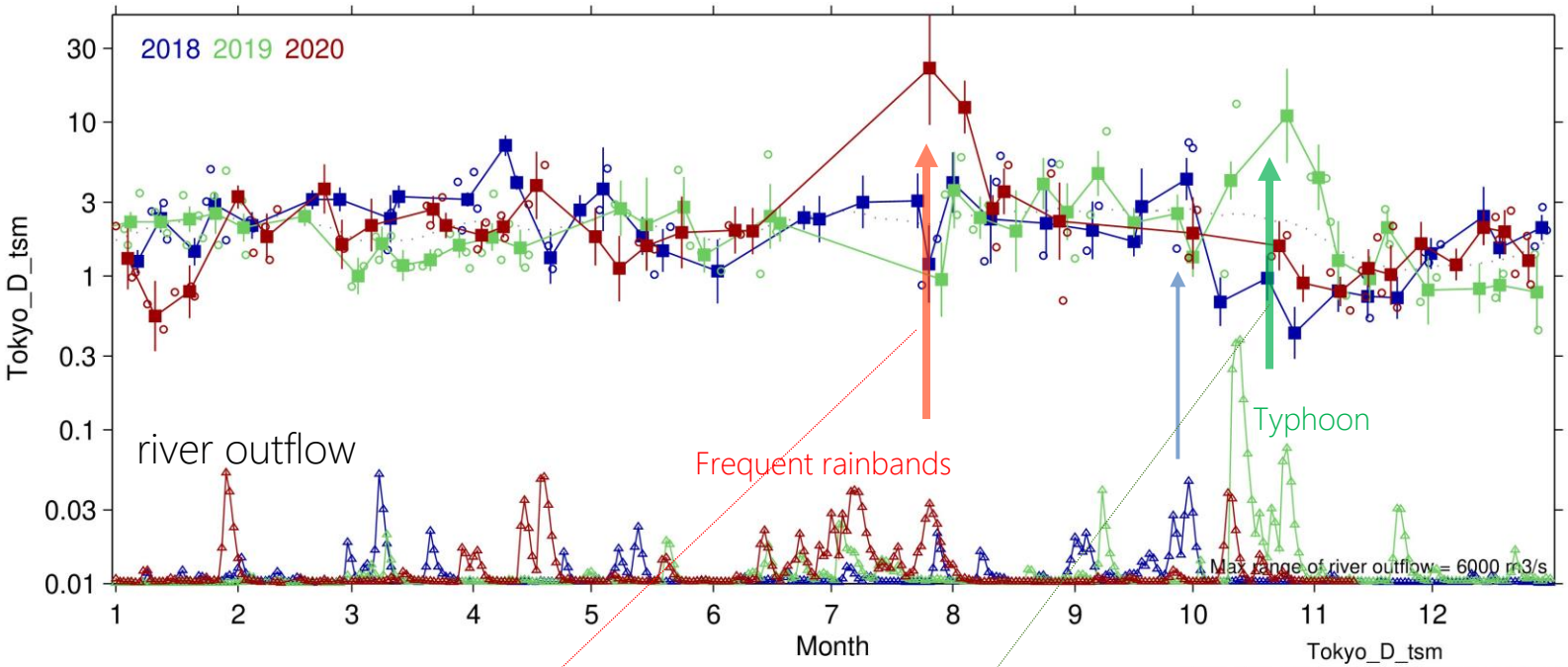


In the northeast Asia, the spring leafing in 2019 was later than one in 2018 by about 1-2 weeks corresponding to the late melting of snow cover in the early spring

✓ SGLI will contribute to understanding of the earth system including the vegetation-carbon processes and improvement of the related parameters in ecosystem models

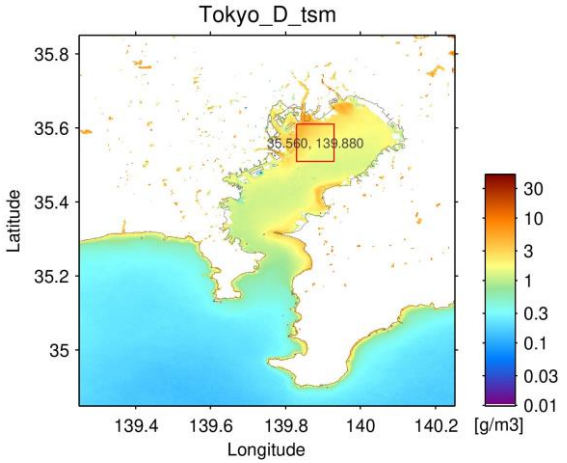
Year-to-year change of coastal ocean color

(Total suspended matter concentration)



Ocean color (Total suspended matter concentration, TSM) in Tokyo bay seems influenced by the river outflow increased by heavy rainfall in the drainage basin, e.g., the end of Sep. 2018, Oct. 2019, and the end of Jul. 2020

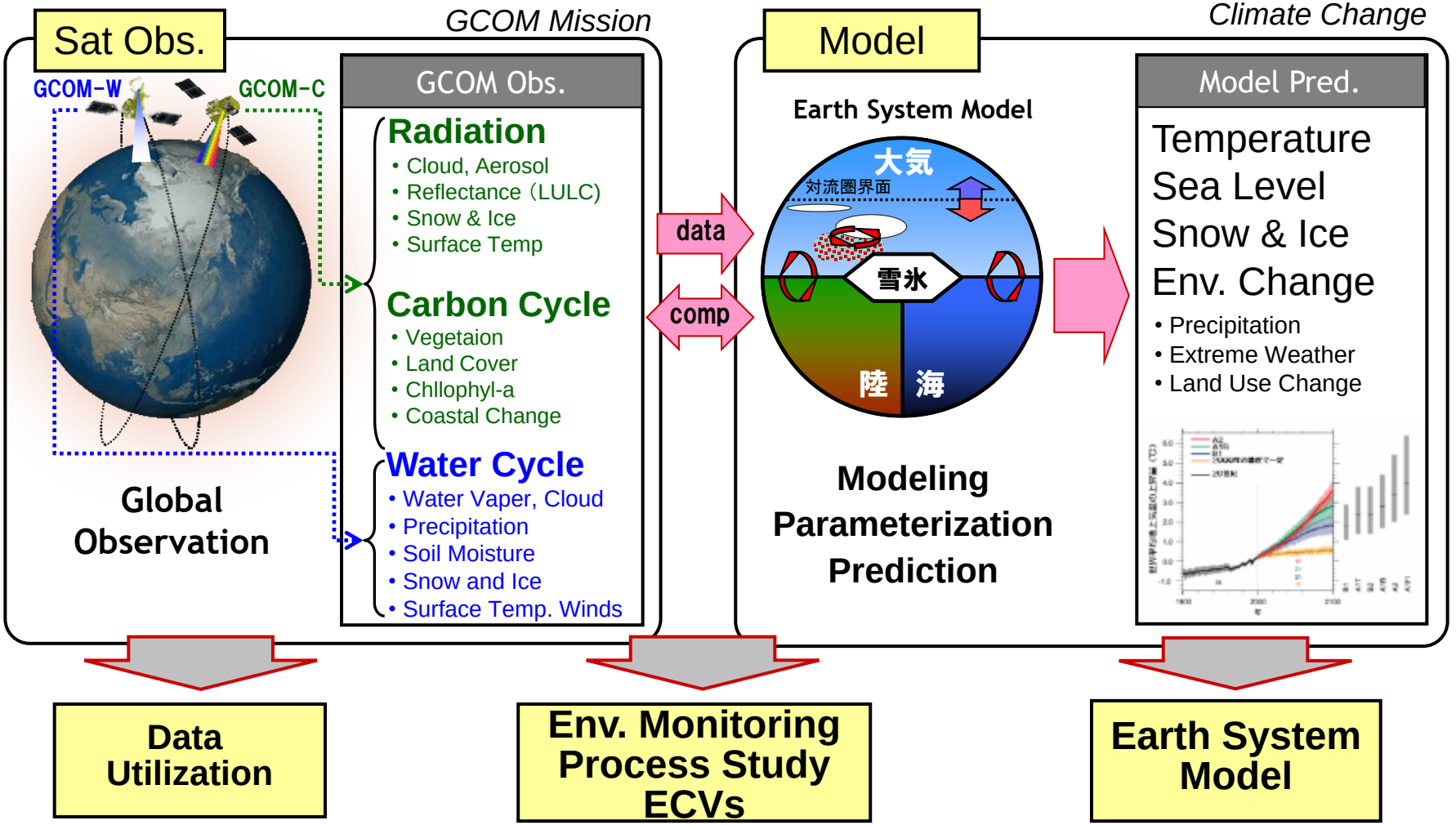
The river outflow data is obtained from JAXA's land surface & river simulation system, "Today's Earth (TE)": https://www.eorc.jaxa.jp/water/



✓ SGLI will contribute to understanding of the coastal land-ocean interaction and improvement of the related parameters in coastal numerical models

GCOM Mission

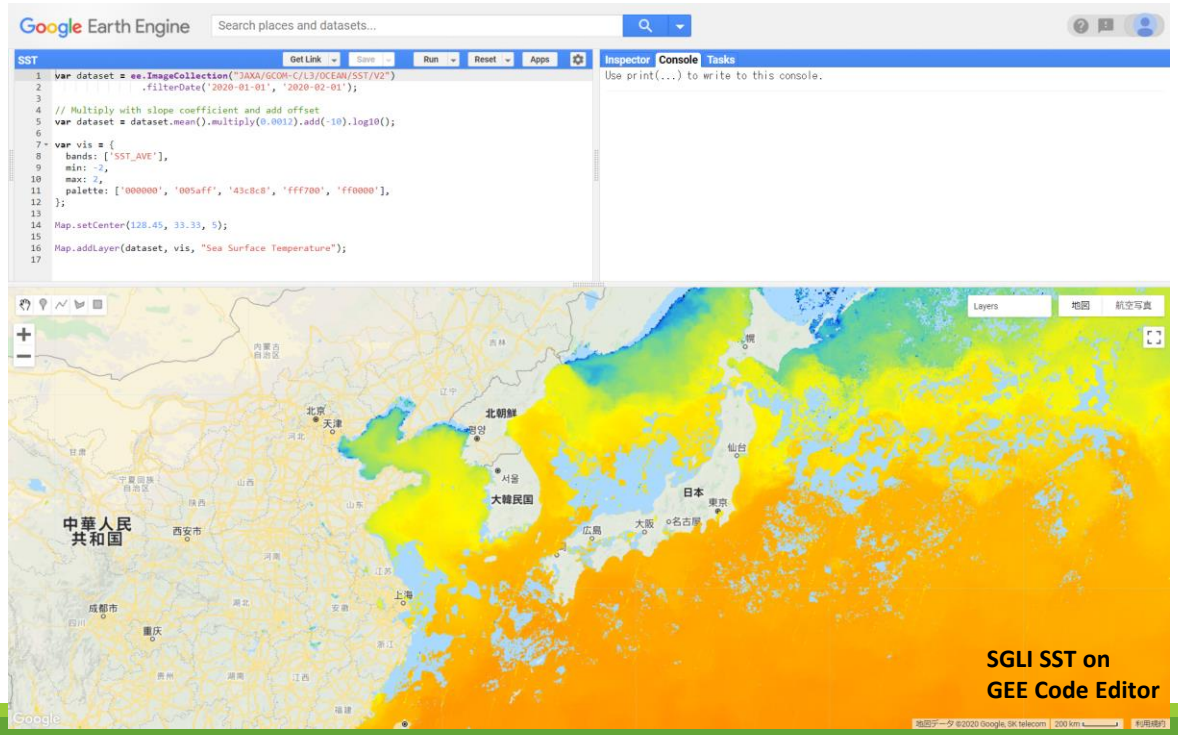
✓ GCOM mission is in the execution phase.



Data utilization on platform (tellus, GEE)

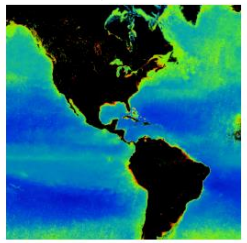
- ✓ Data delivery to tellus since 2019.
- ✓ Level-3 data delivery to Google Earth Engine (GEE) since Nov. 2020.
- ✓ Data application activities are encouraged.

https://developers.google.com/earth-engine/datasets/tags/gcom-c



GCOM-C/SGLI L3 Chlorophyll-a concentration (V2)

Chrollophl a

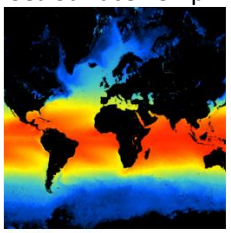


This product is the concentration of the photosynthetic pigment (chlorophyll-a) in phytoplankton in the sea surface layer. This is an ongoing dataset with a latency of 3-4 days, with only 2020 data currently available. The provider has released a schedule for the reprocessing of entire ...

climate ocean ocean-color chlorophyll-a chla g-portal

GCOM-C/SGLI L3 Sea Surface Temperature (V2)

Sea Surface Temp

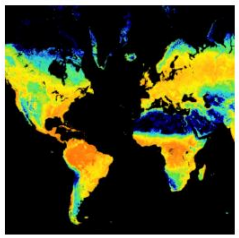


This product is the temperature of sea surface. This is an ongoing dataset with a latency of 3-4 days, with only 2020 data currently available. The provider has released a schedule for the reprocessing of entire backlog.

climate ocean sea-surface-temperature sst g-portal gcom

GCOM-C/SGLI L3 Leaf Area Index (V2)

Leaf Area Index

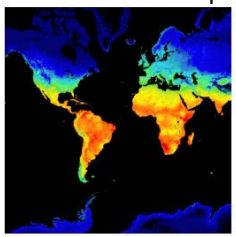


This product is the sum of the one-sided green leaf area per unit ground area. This is an ongoing dataset with a latency of 3-4 days, with only 2020 data currently available. The provider has released a schedule for the reprocessing of entire backlog.

climate land leaf-area-index lai g-portal gcom

GCOM-C/SGLI L3 Land Surface Temperature (V2)

Land Surface Temp.



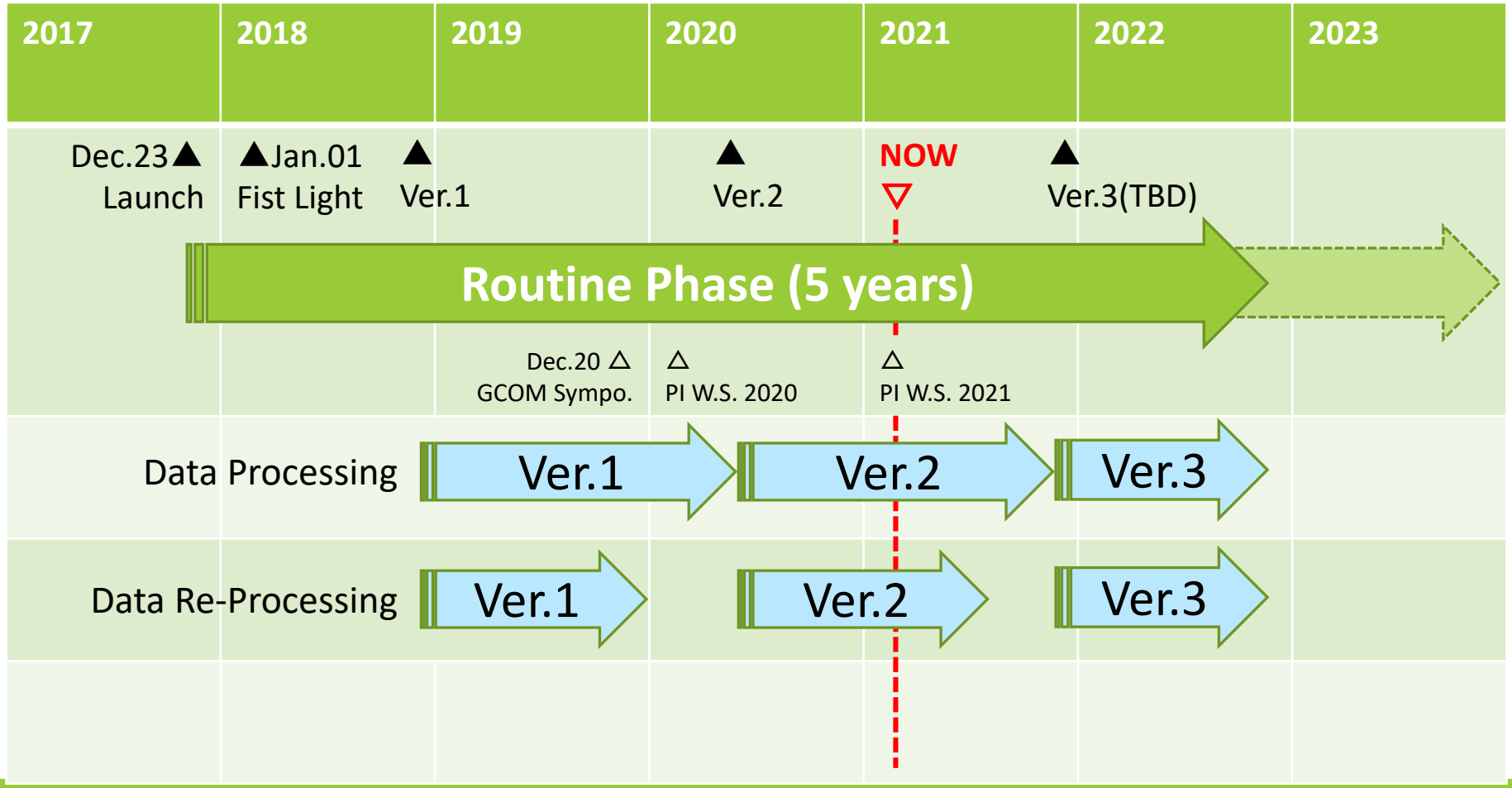
This product is the temperature of terrestrial land surface. This is an ongoing dataset with a latency of 3-4 days, with only 2020 data currently available. The provider has released a schedule for the reprocessing of entire backlog.

climate land land-surface-temperature lst g-portal gcom

Schedule

- Three years from first light

  → Such as seasonal change data analysis is encouraged



Summary

- GCOM-C satellite and SGLI are stable.
- GCOM-C data has been provided to the public continuously since Dec. 20, 2018.
- GCOM-C routine phase operations for 5 years (Dec. 2017 – Dec. 2022)
- GCOM mission is in the execution phase
- Encouragement to the practical use for the social benefits.
- Encouragement to the climate research for GCOM mission.

- Thank you

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https://shikisai.jaxa.jp/index_en.html