GOSAT-GW TANSO-3 Data Policy

(Date)　March 18, 2025

National Institute for Environmental Studies
Global Environment Bureau, Ministry of the Environment of Japan

1.　Purpose

This document sets forth the terms and conditions for the provision and use of data collected by the Total Anthropogenic and Natural emissions mapping SpectrOmeter-3 (hereinafter "TANSO-3") onboard the Global Observing SATellite for Greenhouse gases and Water cycle (hereinafter "GOSAT-GW") based upon the Agreement on the Development, Operation and Use of GOSAT-GW concluded on November 11, 2019 between the Japan Aerospace Exploration Agency, the Global Environment Bureau of the Ministry of the Environment of Japan, and the National Institute for Environmental Studies (hereinafter "NIES").

2.　Basic policies

(1) The products generated from data collected by GOSAT-GW TANSO-3 (hereinafter "TANSO-3 products") are distributed on a non-discriminatory basis as provided for in the United Nations Principles Relating to Remote Sensing of the Earth from Space.

(2) TANSO-3 products are promptly processed with the help of collaborators in and outside of Japan, and are widely provided to promote their use.

(3) In order to carry out the GOSAT-GW greenhouse gas observation mission (hereinafter the "Mission"), the Ministry of the Environment of Japan (hereinafter "MOE"), and NIES (hereinafter collectively the "Two Parties") give utmost consideration to fulfilling their respective roles as specified in the following items.

　i)　MOE contributes to improving the accuracy of TANSO-3 products through Level 1 data processing, and further contributes to environmental administration by promoting the use of TANSO-3 products for research and development for greenhouse gas emission monitoring and verification, as well as for global warming countermeasures in various countries.

　ii)　NIES contributes to deepening the scientific understanding of the spatial distribution of greenhouse gases, air pollutants and related substances, and the global carbon cycle, as well as to improving the accuracy of future climate predictions through the high level processing of GOSAT-GW data, the validation of processing results, and the distribution of GOSAT-GW products and promotion of their use. Concurrently, NIES develops satellite-based technology to improve accuracy in verifying the greenhouse

gas emissions inventories of each country thereby contributing to MOE's global warming-related measures.

3. Definitions of product types and categories

TANSO-3 products provided by NIES are listed in Table 1. TANSO-3 products are processed at progressive levels; Level 1 products have physical quantities converted from voltage and current values measured by TANSO-3 and Level 2 products are processed from Level 1 products and include column abundances of greenhouse gases. TANSO-3 products are also classified into three product categories: standard, research and internal, as described below.

(1) Standard products

Standard products are Level 1 or Level 2 products that are routinely generated and made available to the public, with the documentation on their algorithms, formats, and results of accuracy assessment[1] open to all users.

1) Accuracy assessment here refers to assessing the accuracy of certain physical quantities stored in TANSO-3 products using data acquired by independent observation instruments with a higher accuracy (calibration/validation) or using data by independent observation instruments/models with a similar accuracy (comparison).

(2) Internal products

In principle, internal products are used only within the Two Parties and are not available to the public.

4. User categories

The user categories of TANSO-3 products are shown in Table 2.

5. Product distribution method

In principle, NIES distributes TANSO-3 products to users online. Each user enters into an agreement, a contract, online terms and conditions, or other agreement process with NIES, and shall comply with Article 8. Terms and conditions for data use.

6. Expenses associated with product delivery

NIES provides TANSO-3 products to users free of charge; however, in the event of any additional expenses incurred in providing products, NIES may charge such users the actual cost thereof.

7. Rights to TANSO-3 products

(1) MOE and NIES shall hold all intellectual property rights to all TANSO-3 products, related documents and works created by MOE or NIES and provided through NIES; however, this shall exclude intellectual property rights held by third parties.

(2) When a user creates high-level value-added data/products[2] based on TANSO-3 products, the Two Parties will not exercise the copyrights they hold (the rights as the copyright

holders of the primary products) to said high-level value-added data/products, and the user may use the high-level value-added data/products under the copyrights held by the creator of the data/products.

2) High-level value-added data refers to data that has been modified through advanced data processing (e.g., data analysis or the combination of data from several satellites, image processing based on external information other than the data, or the conversion of physical quantities) and is irreversible to the original data.

8. Terms and conditions for data use
   (1) Any use of TANSO-3 products contrary to peaceful purposes is prohibited.
   (2) Users shall include any one of the following source attributions when publishing results achieved using TANSO-3 products:

   NIES/MOE
   National Institute for Environmental Studies/Ministry of the Environment of Japan

   When creating high-level value-added data/products based on TANSO-3 products and providing any third party with such data/products (including publications), the user shall also indicate that NIES and MOE are the providers of the original data. However, if it is difficult to indicate the source for each item, such as when publishing academic papers or when releasing materials under the Paris Agreement, the user shall indicate the source information at the end of the document or in an appropriate place.
   (3) Users may redistribute TANSO-3 standard products to third parties; however, this shall be limited to the standard products already published by the Two Parties. In such cases, the distributor shall ensure that the recipients of the products comply with the GOSAT-GW TANSO-3 Data Policy (hereinafter the "Data Policy"). Users shall not use any other TANSO-3 products for purposes other than those agreed upon with the Two Parties and shall not redistribute them to third parties.
   (4) The Two Parties shall not be liable for the inability to provide TANSO-3 products due to missing data, degradation in data quality, data delivery delays, or other circumstances involving problems with the satellite or ground facilities.

9. Other
   The Data Policy is applicable to GOSAT-GW TANSO-3 data but not applicable to GOSAT and GOSAT-2 data. For the data policy concerning GOSAT and GOSAT-2 data, refer to the GOSAT and GOSAT-2 Data Policy.

Table 1 List of TANSO-3 Products

Product Level	Observation Mode	Calibration Type	Product Name (Japanese)	Product Name (English)	Product Name (Abbreviation)	Main Contents	Product Category	Provision Unit	Provision Data Format	Remarks
L1A	Wide		GOSAT-GW TANSO-3 広域観測モード L1A プロダクト	GOSAT-GW TANSO-3 Wide-mode L1A Product	GWT3W_L1A	Sensor output values	Internal	Site (observation request unit, same as day light areas in one orbit)	HDF5	
		Lunar Bright Dark	GOSAT-GW TANSO-3 広域観測モード L1A 校正プロダクト	GOSAT-GW TANSO-3 Wide-mode CAL L1A Product	GWT3W_CAL_L1A		Internal	Site (observation request unit)		Binning width depends on observation conditions.
	Focus	-	GOSAT-GW TANSO-3 精密観測モード L1A プロダクト	GOSAT-GW TANSO-3 Focus-mode L1A Product	GWT3F_L1A		Internal	Site (observation request unit)		
		Solar Diffuser Lunar Bright Dark	GOSAT-GW TANSO-3 精密観測モード L1A 校正プロダクト	GOSAT-GW TANSO-3 Focus-mode CAL L1A Product	GWT3F_CAL_L1A		Internal	Site (observation request unit)		Binning width depends on observation conditions.

Product Level	Observation Mode	Calibration Type	Product Name (Japanese)	Product Name (English)	Product Name (Abbreviation)	Main Contents	Product Category	Provision Unit	Provision Data Format	Remarks
L1B	Wide	-	GOSAT-GW TANSO-3 広域観測モード L1B プロダクト	GOSAT-GW TANSO-3 Wide-mode L1B Product	GWT3W_L1B	Spectral radiance	Standard	Scenes (observation request units, same as day light areas in one orbit)	HDF5	Provided in multiple files if the site exceeds 4GB.
		Lunar Bright Dark	GOSAT-GW TANSO-3 広域観測モード L1B 校正プロダクト	GOSAT-GW TANSO-3 Wide-mode CAL L1B Product	GWT3W_CAL_L1B		Internal	Scenes (observation request units)		Binning width depends on observation conditions.
	Focus	-	GOSAT-GW TANSO-3 精密観測モード L1B プロダクト	GOSAT-GW TANSO-3 Focus-mode L1B Product	GWT3F_L1B		Standard	Scenes (observation request units)		
		Solar Diffuser Lunar Bright Dark	GOSAT-GW TANSO-3 精密観測モード L1B 校正プロダクト	GOSAT-GW TANSO-3 Focus-mode CAL L1B Product	GWT3F_CAL_L1B		Internal	Scenes (observation request units)		Binning width depends on observation conditions.

Product Level	Observation Mode	Processing Type	Product Name (Japanese)	Product Name (English)	Product Name (Abbreviation)	Main Contents	Product Category	Provision Unit	Provision Data Format	Remarks
L2	Wide	One Month	GOSAT-GW TANSO-3 広域観測モード L2 温室効果気体 プロダクト	GOSAT-GW TANSO-3 Wide-mode L2 GHG Product	GWT3W_L2_GHG	XCO2, XCH4, Chlorophyll fluorescence intensity	Standard	Daily	HDF5	
			GOSAT-GW TANSO-3 広域観測モード L2 二酸化窒素 プロダクト	GOSAT-GW TANSO-3 Wide-mode L2 NO2 Product	GWT3W_L2_NO2	NO2 (Column abundance)				
	Focus	One Month	GOSAT-GW TANSO-3 精密観測モード L2 温室効果気体 プロダクト	GOSAT-GW TANSO-3 Focus-mode L2 GHG Product	GWT3F_L2_GHG	XCO2, XCH4, Chlorophyll fluorescence intensity	Standard	Scenes (observation request units)		
			GOSAT-GW TANSO-3 精密観測モード L2 二酸化窒素 プロダクト	GOSAT-GW TANSO-3 Focus-mode L2 NO2 Product	GWT3F_L2_NO2	NO2 (Column abundance)				
		Quick Delivery	GOSAT-GW TANSO-3 精密観測モード L2 温室効果気体 プロダクト (速報版)	GOSAT-GW TANSO-3 Focus-mode L2 GHG Product Quick Delivery	GWT3F_L2_GHG_QD	XCO2, XCH4, Chlorophyll fluorescence intensity	Standard	Scenes (observation request units)		
			GOSAT-GW TANSO-3 精密観測モード L2 二酸化窒素 プロダクト (速報版)	GOSAT-GW TANSO-3 Focus-mode L2 NO2 Product Quick Delivery	GWT3F_L2_NO2_QD	NO2 (Column abundance)				

Table 2 User categories

User category	Description
Project Staff (PS)	Staff members of the Two Parties (the implementing entities of the project carrying out the Mission) who engage in the project; or employees of any organization or company involved in the project under an agreement with one of the Two Parties. All products are available for Project Staff.
Authorized User (AU)	Users who fall into the following user type. Authorized users are eligible to receive standard products prior to public release as needed. · Staff members of collaborating organizations Staff members of organizations that collaborate in aspects of sensor development, calibration/validation, research or data processing, provide data essential for data processing, or collaborate in product distribution, who are authorized by the Two Parties. In addition, persons who contract with a collaborating organization solely for the purpose of carrying out such work and who are known to the Two Parties[1], are considered to be staff members of the collaborating organization.
General User (GU)	General users who do not fall into the above user categories.

1)   Such persons also include those who use high-level value-added data/products processed by collaborating organizations.