AUIG2 User's Manual
(ALOS/ALOS-2 Consolidated Edition)

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Revision History

Ver. No.	Revision Date	Revised Pages	Revision Details
First edition	–	–	–
A	2014/11/19	1-1	It is described that Internet Explorer 8 means Windows Internet Explorer 8.
		2-7	Changed start of email transmission about expiration of the download period from 10 (TBD) days before to 3 days before.
		2-8	Table 2-3 Order history display list – Added "Product Count" and "Demander". – Deleted "Error".
		3-10	Figure 3-9 User Information Display screen – Added the "Back" button.
		3-10+1	Table 3-4 User information update – Item description – Deleted "Present Password".
		4-29	Deleted the explanation "(Additional information: Group functions of Search Results panel)".
		4-30	Figure 4-26 Search setting dialog – Added "Footprint display location".
		4-30,4-31	• Table 4-9 Items composing search setting dialog – Added "Footprint display location". – Changed the items that are displayed by default in Display Column List.
		4-32, 4-32+1	Table 4-10 Display items of Total Columns and Display Column List – Added items and changed the listing order of the items.
		4-36	Table 4-13 Cart operations – Changed scene information deletion so that the scenes that are deleted are those whose check box has been selected.
		5-1, 5-2, 5-7, 5-8, 5-16, 5-19, 5-21	• Changed design of order limit area. – Figure 5-1 Common menu – Figure 5-2 Overall composition of Product Order screen – Figure 5-10 Product order - Operational steps ⑦ – Figure 5-12 Product order – Operational steps ⑨ – Figure 5-17 Buttons of Order operation area – Figure 5-19 Order confirmation dialog – Figure 5-22 Display area of "Order limit" in Cart screen (Enlarged view) • Table 5-10 Items of Order limit area – Added "Satellite Name" as one of the screen items. – Modified description of Order Limit (A).

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		5-9, 5-14, 5-15	• Added the "Find Duplicate Scene (new order)" button as a function to check for duplicate items in the cart. – Figure 5-14 User interface of Cart operation – Table 5-2 Items composing Cart operation area – Added description of the "Find Duplicate Scene (new order)" button as section f. •Changed name of the Duplicate order check button to "Find Duplicate Scene (previous order)". – Figure 5 14 User interface of Cart operation – Table 5-2 Items composing Cart operation area – Changed title of section c.
		5-10	In the description of Section b Parameter Settings button, added "Figure 5-15" as the reference and modified part of the text.
		5-10, 5-11 5-13+1, 5-13+2	• Added the "Browse Image" and "Map" option buttons for scene displays as support for the PRISM triplet. – Figure 5-15 Parameter Settings dialog – Figure 5-16+1 Browse display parameter settings dialog box – Figure 5-16+2 Map display parameter settings dialog box – Table 5-3 Buttons in Parameter Settings dialog – Added Section iv. Switching Between Browse Display and Map Display. • Added description about pattern registration of processing parameters. – Table 5-3 Buttons in Parameter Settings dialog Added the "Load", "Register parameters", and "Delete patterns" buttons. – Added Section iii. Processing Parameters Pattern Registration.
		5-11+1, 5-13+1	• Added a description of the parameter settings and made changes to the existing descriptions. – Added Section i. Parameter Settings. – Added Figure 5-15+1 Processing parameters. – Changed the PRISM Triplet Order Parameter Settings from Section f to Section ii.
		6-1, 6-2, 6-4, 6-4+1, 6-6, 6-6+1, 6-11+1	Added the order limit area to the Order History screen and added a description of the order limit. – Figure 6-1 Common menu – Figure 6-2 Overall composition of Order History screen – Table 6-1 Items composing Order History screen – Figure 6-4 Product receiving – Operational steps ① – Figure 6-5 Product receiving - Operational steps ② – Figure 6-8 Order History list – Table 6-2 Items composing Order History list – Added Section c. Order limit area. – Figure 6-10+1 Composition of order limit area – Table 6-4+1 Items composing order limit area

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		6-8	• Changed the description of the display items of the order history list from a reference to Table 2-3 to Table 6-3+1 Display items of order history list. • Corrected the reference destination about ordered product files to Section 6.4.
		6-13	• Changed the title of Table 6-6 to "Buttons and Link of Order details list". • Corrected the reference destination for the description of HTTPS of Table 6-6 to Section 6.4.
		6-13, 6-14	• Deleted "Cancel Order" in Table 6-7 (a) Items displayed in Order information. • Revised Table 6-8(b) Items displayed in Order details – Added "Product ID", "Satellite Orbit Direction", "Sensor Orientation", "Observation Date", "Existence of L0 data", "Centre longitude", "Priority", "Reason for impossibility of delivery", and "Cancel". – Deleted "Capture date", "Catalog ID", and "Error".
		7-1, 7-5, 7-13	• Deleted language switching menu in another window due to limiting of Japanese/English language switching to the portal screen. – Figure 7-1 Observation Screen menu – Figure 7-3 Observation Plan screen – Figure 7-8 Map field
		7-2, 7-15, 7-16	• Added observation area information to the Details field of the Observation Plan screen. – Figure 7-2 Overall composition of Observation Plan screen – Figure 7-10 Observation plan - Details field
		Appendix 2-1	• Deleted ⑥ Batch order file and added ⑥ Ordered product file.
		Appendix 5	• Revised the following items of item list 08_01_Observation Plan – Limited the No. 1 Satellite name to "ALOS-2". – Limited the No. 3 Sensor type to "PALSAR-2". – Added the No. 25 Observation area.
B	2014/12/25	1-1	Added Internet Explorer 11 to the supported browser version.
		2-2, 2-4, 2-6	Changed the first row and/or title in the screens according to application of the standard JAXA logo. – Figures 2.2 to 2.4
		2-7	Deleted delivery delay from the email notification events.
		3-2	Changed the first row and/or title in the screen according to applying the standard JAXA logo. – Figure 3-1
		4-1, 4-2, 4-5 to 4-9, 4-14, 4-16, 4-18, 4-21 to 4-27, 4-32, 4-33, 4-36, 4-37	Changed the screen layout for operability improvement and the screen contents according to addition of screen operation features. – Figures 4-1, 4-2, 4-4 to 4-9, 4-16 to 4-25, 4-27, 4-28, 4-30, and 4-31 – Screen image of i. Function buttons group in b. Tool bar of Section 4.3.1

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		4-3+1 to 4-3+5	• Added descriptions about additional panel operation features for operability improvement, including: – Showing/hiding (iconizing) a panel/field – Moving a panel/field – Resizing a panel/field • Added descriptions about resetting the map field and Search panel.
		4-8	Deleted an explanation about satellite images.
		4-11	For "Selection of search method (File specification)" in i. Function buttons group in b. Tool bar of Section 4.3.1: • Added an explanation about an icon used to specify a KML file.
		4-9 to 4-12	Removed the parts unnecessary for operation explanation from the screens. – Figures 4-10 to 4-15
		4-12	For Table 4-2 Tool bar: • Changed the order of items according to the display order in the screen. • Changed from "Local Grid (Japan)" to "Japan Grid".
		4-12+1	Added explanations about the newly added buttons used for resetting the map field and resetting the display settings of Search panel.
		4-14 to 4-16, 4-18, 4-21 to 4-24, 4-29	4.3.2 Condition specification panel • Changed the description that five condition specification panels are integrated into one panel that contains five tabs, and conditions can be specified with these tabs. • Removed the panel open/close buttons ("+" and "–") from Table 4-6. • Changed the names of the following panels as follows: – Basic Search ⇒ Basic – Advance Search ⇒ Advance – Search by Id ⇒ Scene ID – Disaster product search ⇒ Topic – Filter Results ⇒ Filter
		4-16, 4-18, 4-21, 4-22	Added an explanation about the Reset button to the following screens. – Figures 4-17 to 4-20
		4-19	Changed the screens according to addition of 'CA' as search conditions. – Table 4-8 Sensor specific conditions that can be specified on Advance tab (1/2)
		4-20	Changed the screens so that the parts on the right of the input entry frame that have been hidden are shown – Table 4-8 Sensor specific conditions that can be specified on Advance tab (2/2)
		4-36, 4-37	Changed the check box image. – Tables 4-14 and 4-15
		4-33 4-37	• Added a reference to Table 4-15 Highlight list in Table. • Corrected explanations of each item in Table 4-15.

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		5-1, 5-2, 5-5 to 5-7, 5-15	Changed the screens according to addition of the duplicate order check box in Cart – Figures 5-1, 5-2, 5-6, 5-7, 5-9, 5-10, 5-17
		5-4	Changed the screens according to change of the format for the title and button field on the Search result tab. – Figures 5-4 and 5-5
		5-6, 5-7, 5-10, 5-12, 5-13+1, 5-13+2, 5-13+3, 5-16	Changed the screens according to the update of the Order parameter screen and order options. – Figures 5-8, 5-11, 5-15, 5-15+1, 5-16, 5-16+1, 5-16+2, 5-18
		5-8, 5-9, 5-18	Changed the sensor icon colors in the screens. – Figures 5-12, 5-14, 5-19
		5-11	Table 5-3 Buttons in Parameter Settings dialog • Changed the order of items according to the display order in the screen.
		5-12	i. Parameter Settings in b. Parameter Settings button of Section 5.3.1 • Added the description that the specifiable processing levels and parameter values vary depending on the user.
		5-12,5-13	Changed the default value of Orbit accuracy, a PALSAR-2 processing parameter, to "High precision orbit information" – Figure 5-15+1 Processing parameters – Table 5-4 Setting items of Parameter Settings dialog (Example of ALOS-2 PALSAR-2 Level 1.5)
		5-13+1	Added the following contents to b. Parameter Settings button of Section 5.3.1. – ii. Processing Algorithm Version – iii. Visual examination
		5-17, 5-17+1	Table 5-7 Set-up items in Order option • Changed the setting item names as displayed in the screen. – Product provision method ⇒ Provision Method – Zip file ⇒ Password Protection – Split order ⇒ Providing in Parts • Added "Delivery" to Provision Method. • Changed the option name for Password Protection. – With password ⇒ On – Without password ⇒ Off • Changed the default setting of Providing in Parts from "Off" to "On". • Added "Production Request Type" as the setting item.
		6-1	Changed the first row and/or title in the screen shown in Figure 6-1, according to application of the standard JAXA logo.
		6-2	• For the description for Figure 6-2, the number of areas that consists the Order History screen was corrected from two to three. • Updated Figure 6-2 in relation to the update of 6-1 (to match the display contents).

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		6-4 to 6-8, 6-15	• In the explanation for Figure 6-4, the filter item and selection value for narrowing down the items in the Order History screen are explained. • Changed the following screens accordingly. – Figures 6-4 to 6-8, 6-11
		6-10 to 6-12	• Added the contents of Table 6-4 to Table 6-3 and made Table 6-4 an unused number. • Added "Observation request rejected" and "Observation plan cancelled" to Table 6-3. • Corrected the explanation for "Uplink completed" status.
		6-16	Table 6-8 (b) Items displayed in Order details • Removed "Priority" and "Production results". • Added "Production results (details display button)" • Described that the Cancel Order is a button.
		6-17	• Added the following processing status to Table 6-9 List of processing status displayed in Order details list. – Downloadable – Providing period ended – Providing cancelled (other) • Changed "production status" and "order status" used in the description about Table 6-9 and in Table 6-9 to "processing status", according to Table 6-8.
		6-17+1 to 6-17+3	Added the explanations about work result codes and the reasons for production results that are displayed by clicking the Details Show button under "Production results" in the order details list.
		7-1, 7-2, 7-5, 7-6, 7-9 to 7-11, 7-12	Changed the screen layout for operability improvement and the screen contents according to addition of screen operation features. – Figures 7-1 to 7-4, 7-6, 7-7 (1/2) (2/2), 7-8
		7-3+1 to 7-3+3	• Added descriptions about additional panel operation features for operability improvement, including: – Showing/hiding (iconizing) a panel/field – Moving a panel/field – Resizing a panel/field
		7-5, 7-6, 7-8 to 7-11	Changed the two panels in the Observation plan operation panel to two tabs as follows. – Obs. plan search (simple) ⇒ s. search (tab) – Obs. plan search (advance) ⇒ ad. search (tab)
		7-7, 7-13, 7-13+1	• Changed the following screens according to addition of a feature to delete a selected observation plan from the observation plan list and check boxes used to select and deselect all items. – Figure 7-5, 7-9 (1/2) (2/2), 7-9+1 • Added the explanations of the features above in Section 7.3.3.
		7-11+1, 7-11+2	Added an explanation about Search setting dialog.
		Appendix 1-8 to 1-10, 1-13, 1-15	• Changed the default value of Orbit accuracy, a PALSAR-2 processing parameter, to "High precision orbit information".

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		Appendix 3-1 to 3-11	Modified the contents of the mail notification to be limited to users.
		Appendix 4-23	Added a term "User" in glossary and abbreviations.
C	2015/03/31	4-35+1, 5-4	Added a description about adding products to the cart for users for whom product provision is limited to Japan.
		6+15+1	Added a description about the button of Details Display on the order detail list that is used to display the production process work result codes and detailed reasons.
		Appendix 1-9	Added a description about Processing method in the processing parameters.
		Appendix1-9, 1-11,1-14,1-16	Added a description about the restriction of GeoPDF selection according to user permission.
		Appendix 1-13	Added a description of the GISMAP version.
		Appendix 3-8, 3-10, 3-11	Changed "Order Particular ID" to "Order details ID" according to the actual content of the mail notification.
		Appendix 3-11	Modified the description about the mail sent when provision is cancelled by the operator.
D	2015/03/31	1-1	Modified the description of the operating conditions.
		3-11	Added a description that the FTP site is only available for authenticated users.
		4-10	Modified the description about the operation to complete the creation of a polygon. Added a description about how to change the search range.
		4-20	Added a description of the abbreviations used for Ope Mode.
		5-5, 5-6, 5-12	Added a description that the default processing level is "1.5" or "1B2".
		5-11	Updated the description about the "Enable Auto Scene Shift" check box
		5-13	Added a description about limitations on usable file formats.
		5-13+1	Added a description about the "Enable Auto Scene Shift" check box.
		5-17	• Added a description that one product is provided for each order irrespective of the provision method when "Providing in Parts" is enabled. • Added indications to the provision methods that can only be used by limited users.
		5-19	Added where to reference the order cancellation method.
		6-15+1	Added a supplementary explanation to the processes in which an order can be cancelled.
		6-15+1, 6-17+1, 6-17+3	Added a description about individual downloading of files by using the "Split download" button.
		6-17+3	Added a description that the files are downloaded without being compressed in a zip file in the case of split download.
		7-12+1 to 7-13+3	Added a description about how to edit the search area.

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Table of Contents

1 Overview

1.1 What is AUIG2?

AUIG2 is an online service, related to ALOS-2 (Advanced Land Observing Satellite-2) and ALOS (Advanced Land Observing Satellite) in a WWW browser, which helps to use various services. ALOS-2 and ALOS related information can be browsed, and observation data can also be searched and ordered using AUIG2.

Further, within the satellite data providing services, there are services which require user registration.

The recommended operating conditions for AUIG2 are shown below. Note that the operation is not guaranteed if you use AUIG2 in an environment in which the following conditions are not satisified.

Recommended OS: Windows

Recommended browser: Windows Internet Explorer 8 and 11

1.2 Services provided by AUIG2

AUIG2 services are described below by bifurcating on the basis of guest user and registered user. The services available for registered users and those available for guest users are shown in Table 1-1 and Table 1-2, respectively.

Table 1-1 Services available for registered user

Service name	Availability	Overview
Product Search	Available	Refer to Chapter 4
Product Order	Available	Refer to Chapter 5
Product Receipt	Available	Refer to Chapter 6
Observation Planning List Display	Available	Refer to Chapter 7

* There are some screens where restrictions according to the level of registered users for various services have been applied.

Table 1-2 Services available for guest user

Service name	Availability	Overview
Product Search	Available	Refer to Chapter 4
Product Order	Unavailable	-
Product Receipt	Unavailable	-
Observation Planning List Display	Unavailable	-

1.3 Flow till the commencement of AUIG2 services

It is required that the registered user and the guest user performs steps shown in Figure 1-1 and Figure 1-2 respectively, to use AUIG2 services.

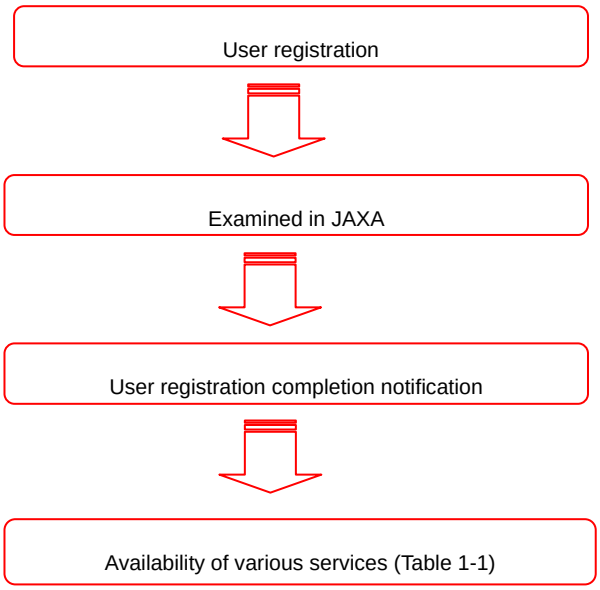


Figure 1-1 Flow from user registration till commencement of services

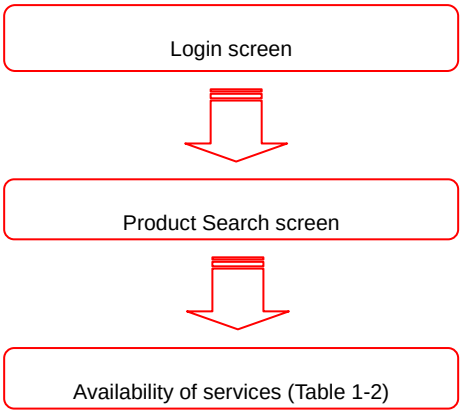


Figure 1-2 Commencement of services for guest user

2 User Portal

User portal is a page having information which the user is highly interested in, or links to the pages that are frequently visited. To use the user portal, the user must login from an account created after the user registration.

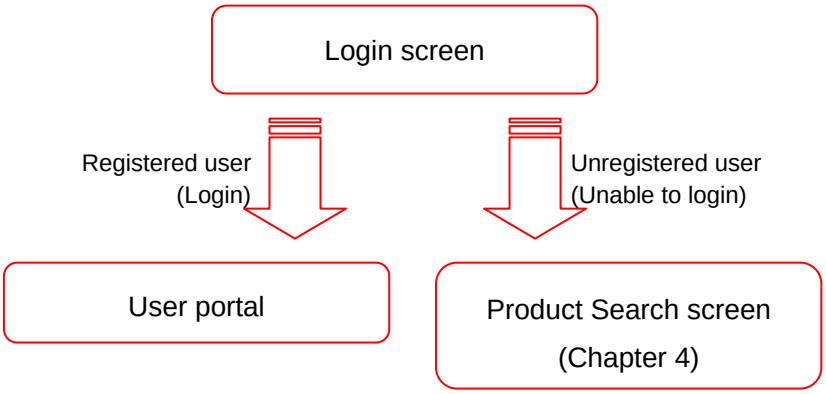


Figure 2-1 Position of User Portal

2.1 Login screen

Login screen is the top-page that is displayed in the beginning when a user uses AUIG2.

A registered user logs in to the AUIG2 on entering the USER ID and PASSWORD in login section shown as ‘a’ in Figure 2-2.

User registration for AUIG2 is required for JAXA officials and organization or agencies having an agreement with JAXA and conducting joint research. Other users need not be registered. Unregistered user can also search product shown as ‘b’ in Figure 2-2.

Information notification sent from the system is displayed at the bottom of the screen shown as ‘c’ in Figure 2-2.

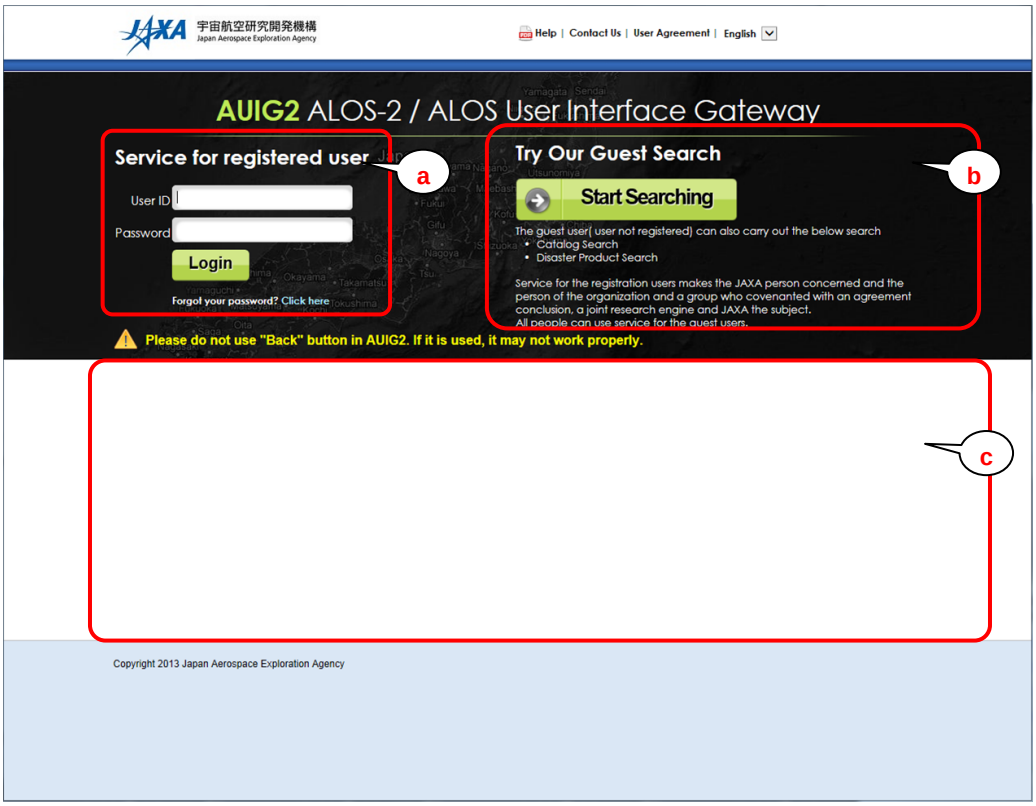


Figure 2-2 Overall composition of Login screen

Table 2-1 Items composing Login screen

Screen Items	Description
(a) Login section	Enter the USER ID and PASSWORD. When you login successfully, “User Portal screen” is displayed. A forgotten password can also be retrieved from here.
(b) Product Search button	A product can be searched without user registration. Some services such as Ordering a Product can only be used if you are a registered user.
(c) User notification area	All notifications sent from system for a user are displayed.

2.2 User Portal screen composition

When you login from the AUIG2 top-page, User Portal screen is displayed.

It is composed of namely three parts, the “Link for main function screens” shown as ‘a’ in Figure 2-3 that has links of frequently used screens, the “User notification area” shown as ‘b’ in Figure 2-3 that displays the information notification sent from the system, and the “Order status display area” shown as ‘c’ in Figure 2-3 that displays production status for the products ordered by a user till now.

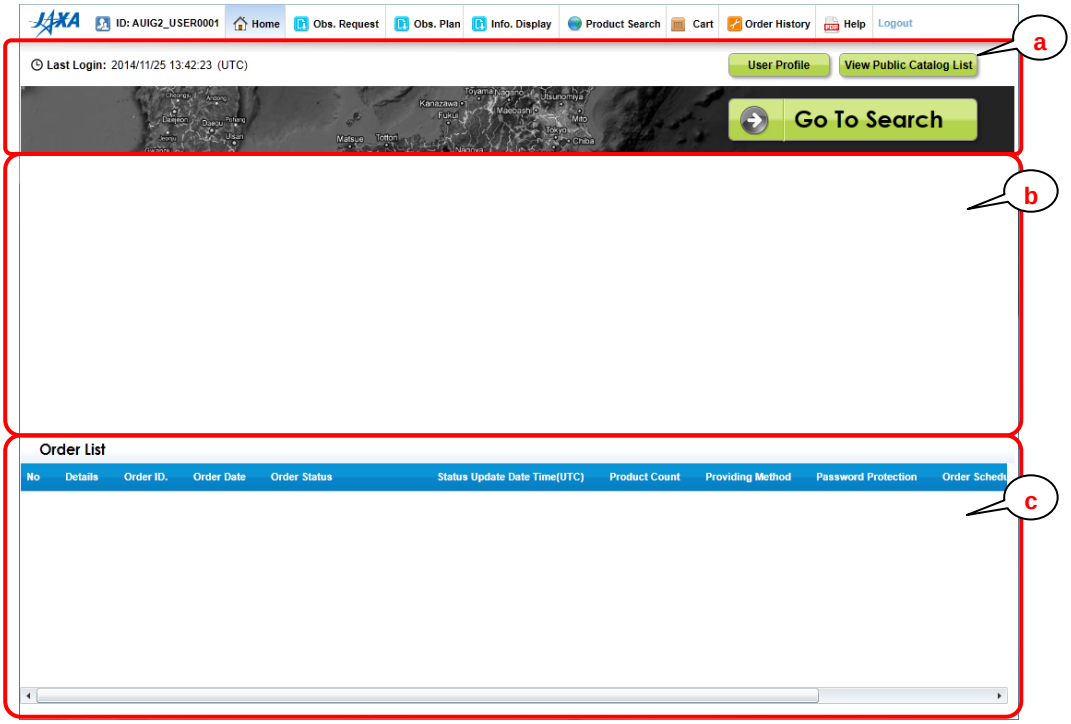


Figure 2-3 Overall composition of User Portal screen

Table 2-2 Items composing User Portal screen

Screen Items	Description
(a) Link for main function screens	Functions such as Search product, Browse and Update User Information, and View Public Catalog are performed.
(b) User notification area	Area which displays all information notifications sent from the system for all users.
(c) Order status display area	Displays status of the order for which availability period has not lapsed.

2.3 Description of screen

2.3.1 Links for main function screens

This is an area where links for the main function screens for the user are displayed.

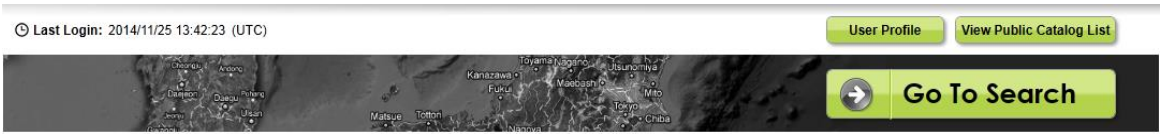


Figure 2-4 Links for main function screens

a. 

(Link for User Information screen)

Link for the screen displaying information of a registered user.
(Refer to Chapter 3 for details of user information)

b. 

(Link for Public Catalog List screen)

Link for the screen displaying public catalog list.

c. 

(Link for Product Search screen)

Link for the screen where products can be searched.
(Refer to Chapter 4 for details of product search)

2.3.2 User notification area

Area which displays all information notifications sent from the system for all users.

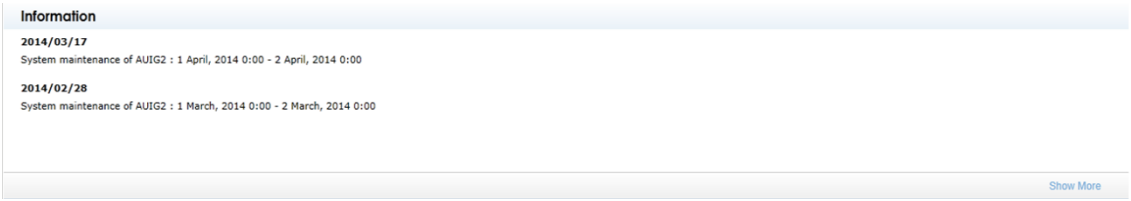


Figure 2-5 User notification area

Individual users are notified through email as per the timing given below.

- User registration (Appendix 3)
  - If user information is registered in the user registration section (password registration procedure)
  - If a user registration application is approved by the administrator

- Observation request
  - If an observation request adopted from the daily observation plan is rejected due to an emergency observation request
  - If the actual observation fails

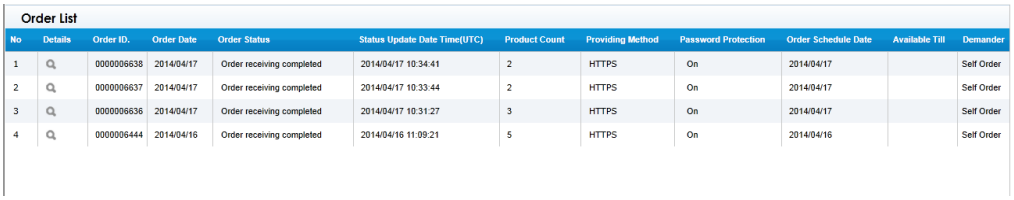
- Product order
  - If a product order is received
  - If an order is cancelled by the user

- Receiving product
  - If arrangement for delivery of a product is complete (if the product is received by downloading)
  - If a delivery record is registered (if the product is received as a DVD/hard copy)
  - If delivery using FTP-Put is complete
  - Three days before the download period expires and on the day the download period expires (if the product is received by downloading).
  - If product delivery is cancelled due to some reasons

2.3.3 Order status display area

Displays progress status of the order for which availability period has not lapsed, among the products ordered by currently logged in user.

Last available date (Available Till) is the time till when a product can be delivered. Last available date is not displayed for a product for creating or cancelling a product.


Order List

No	Details	Order ID.	Order Date	Order Status	Status Update Date Time(UTC)	Product Count	Providing Method	Password Protection	Order Schedule Date	Available Till	Demander
1		0000006638	2014/04/17	Order receiving completed	2014/04/17 10:34:41	2	HTTPS	On	2014/04/17		Self Order
2		0000006637	2014/04/17	Order receiving completed	2014/04/17 10:33:44	2	HTTPS	On	2014/04/17		Self Order
3		0000006636	2014/04/17	Order receiving completed	2014/04/17 10:31:27	3	HTTPS	On	2014/04/17		Self Order
4		0000006444	2014/04/16	Order receiving completed	2014/04/16 11:09:21	5	HTTPS	On	2014/04/16		Self Order

Figure 2-6 Order status display area

Table 2-3 Order history display list

Items	Description
No.	Number of orders
Details	Order details display icon
Order ID	ID having 10 digits numerals
Order Date	Date when order was received by AUIG2
Order Status	Current order status
Status Update Date Time (UTC)	Date and time when order status was updated
Product Count	Number of products included in the order
Providing Method	Providing method of product
Password Protection	Availability of password protection for product
Order Schedule Date	Order schedule date of product
Available Till	Last available date for product
Demander	*Self Order* or *Agent Order*

3 User Registration

This chapter explains about registration of user account required to use AUIG2 service meant for registered user and update of registered user account.

User registration for AUIG2 is required for JAXA officials and organization or agencies having an agreement with JAXA and conducting joint research. Other users can not be registered.

Generally, user himself registers and updates his information. It is necessary to agree with the Terms of AUIG2 Service to use it. Refer to top-page “Terms of AUIG2 Service” for Terms of Service.

(New User Registration)

User registers himself, by following the steps of AUIG2 user registration according to the notifications from AUIG2 interface. Refer to 3.2 Operational overview for registration of the user information for details.

(Update registration for an existing user)

In order to update the user information, login to AUIG2 by using the predefined User ID. When the “User Profile” button (Figure 3-1 a) displayed on the user portal is clicked, User Registration screen is displayed.

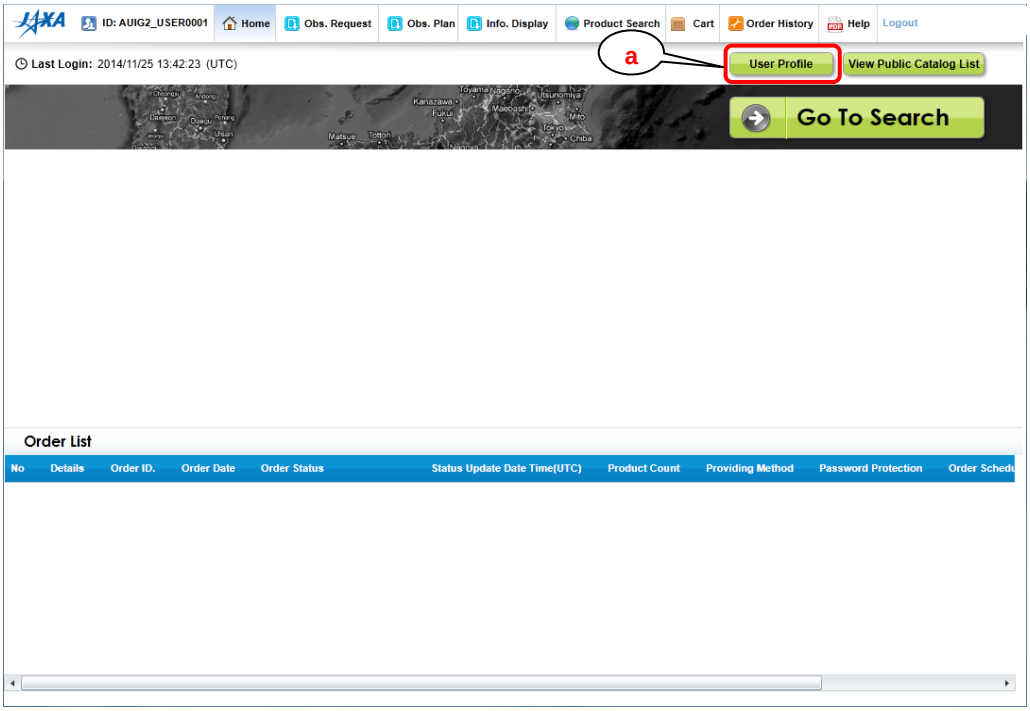


Figure 3-1 User Portal screen (Logged-in)

3.1 Composition of User Registration screen

User Registration screen is namely composed of three parts, the “User information entry dialog” shown as ‘a’ in Figure 3-2 where different type of information can be entered, the “Confirm information” button shown as ‘b’ in Figure 3-2 to register after confirming the information provided, and the “Cancel” button shown as ‘c’ in Figure 3-2 to cancel the registration.

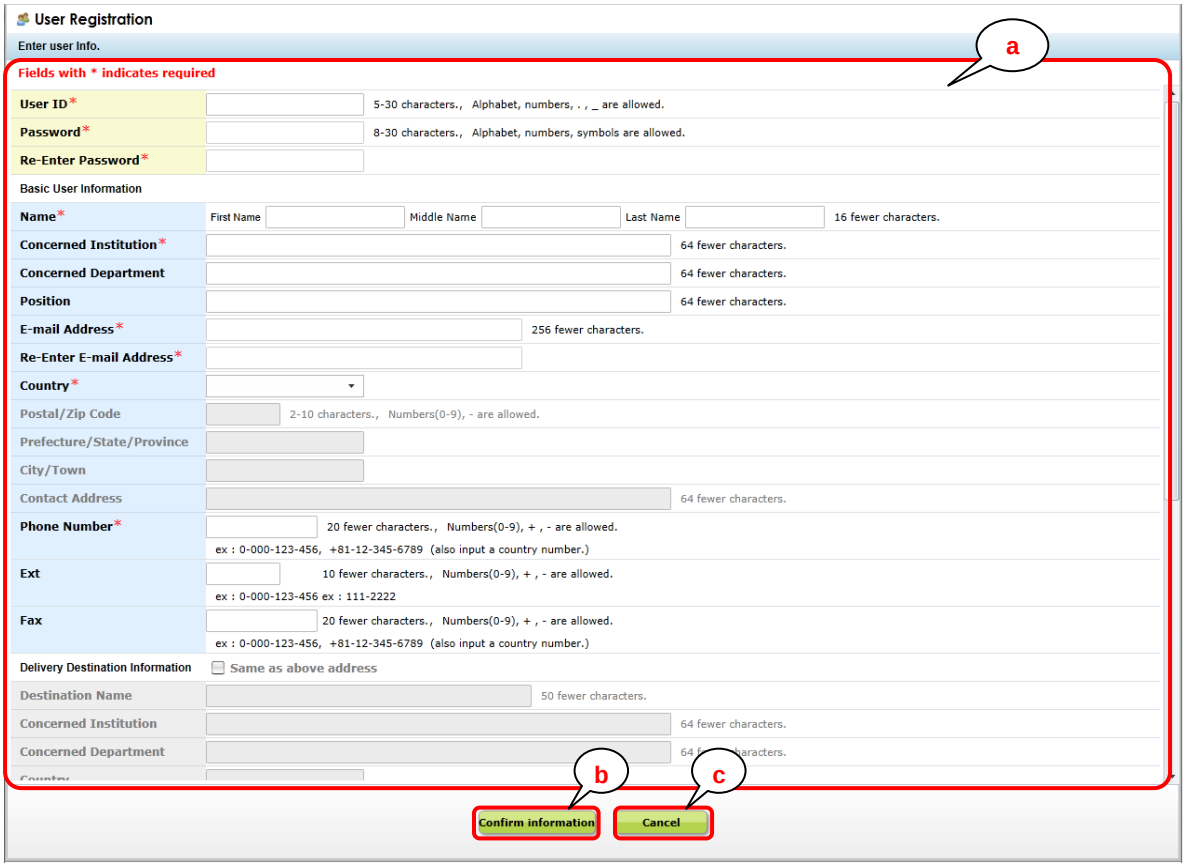


Figure 3-2 User Registration screen - Overall composition

Table 3-1 Items composing User Registration screen

Screen Items	Description
(a) User information entry dialog	To enter the information of user. Fields with “*” indicate required. However, Middle Name is optional (Table 3-2).
(b) Confirm information button	Confirms the entered user information, and registers the user on AUIG2.
(c) Cancel button	Cancels the user registration.

3.2 Operational overview for registration of the user information

The basic operational steps for user registration are as follows. Further, users to be registered are notified about steps to register themselves through a separate mail.

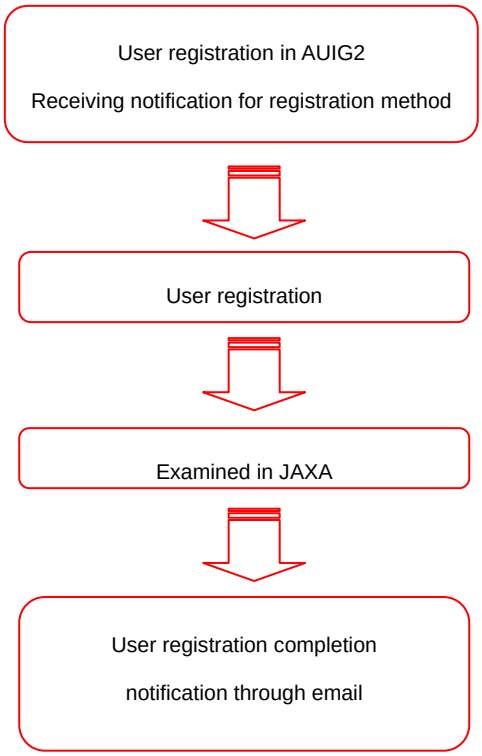


Figure 3-3 The basic operational steps for user registration

① After receiving notification about the application procedure, access the listed URL. AUIG2: Terms of Use (Figure 3-4) screen will appear. Read all the terms of use, and if you accept them, click the "Agree" button. If you do not accept the terms of use, click the "Disagree" button.

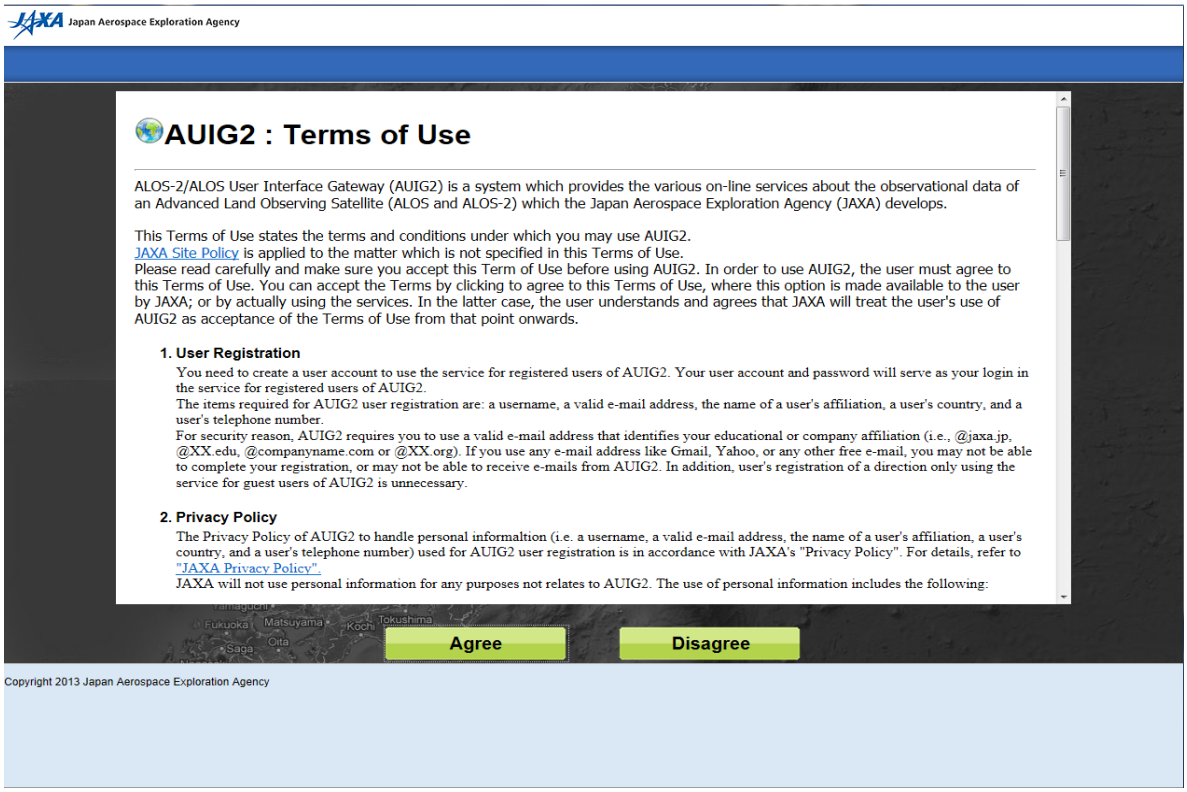


Figure 3-4 AUIG2: Terms of Use screen

If you click the “Agree” button, User Registration screen (Figure 3-5) will appear.

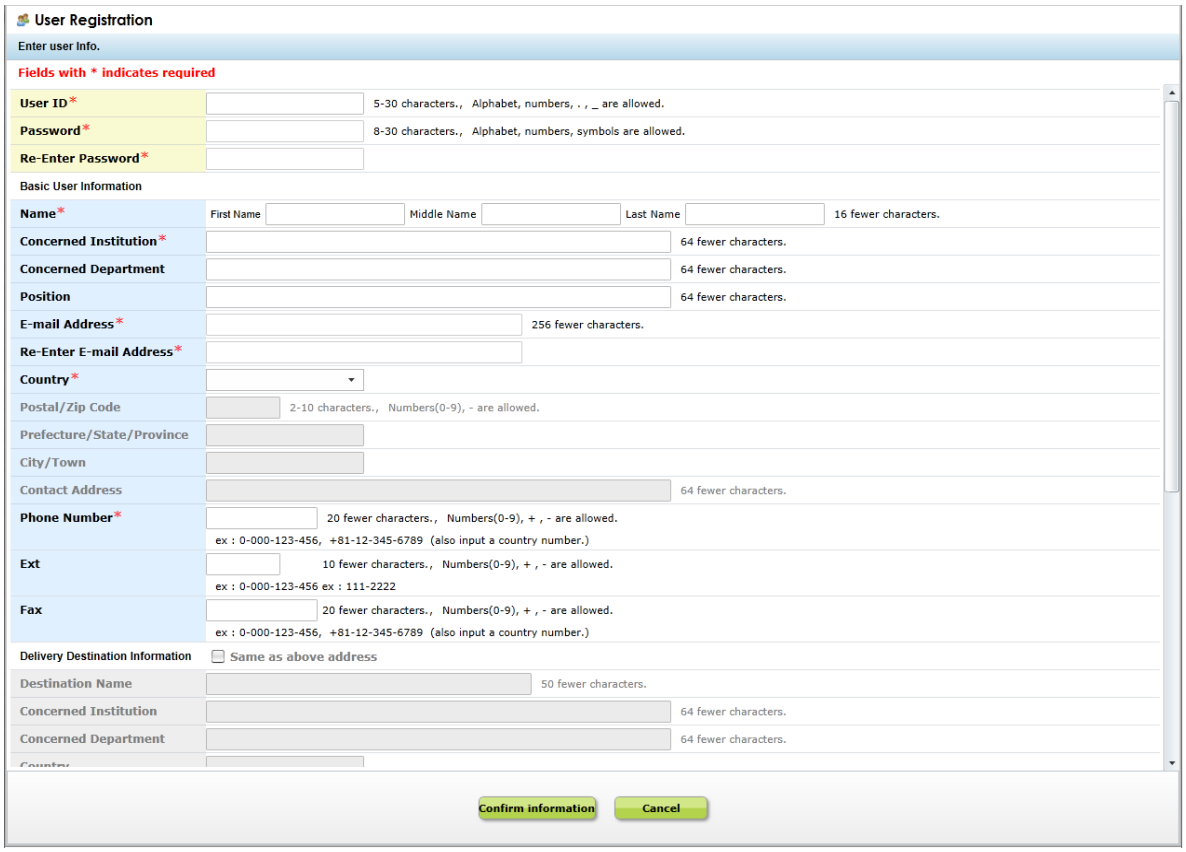


Figure 3-5 User Registration screen

If you click the "Disagree” button, user registration is cancelled and the screen changes to Login screen (Figure 2-2).

② On User Registration screen, enter the following user-related information (“*” indicates fields required).

Table 3-2 Registration of user information - Description of items

Items	Value to be entered and its meaning
*User ID	User ID used to login in to AUIG2
*Password	Password used to login in to AUIG2
*Re-Enter Password	Confirm password
*Name (First Name)	User name
*Name (Middle Name)	
*Name (Last Name)	
*Concerned Institution	Concerned institution, organization, workplace, etc.
Concerned Department	Department, division, group, etc., in the concerned institution
Position	Position, title, etc., in the concerned institution
*E-mail Address	Contact e-mail address
*Re-Enter Email Address	Re-enter email address for confirmation purposes
*Country	Country
Postal/Zip Code	Postal/zip code
Prefecture/State/Province	Prefecture/State/Province
City/Town	City/Town
Contact Address	Street, building name, condominium name, etc.
*Phone Number	Phone number of contract address
Ext	Extension number
Fax	Fax number
Delivery Destination Information (checkbox)	Select the checkbox if the product delivery address is the same as the above-listed address
Destination Name	Name of addressee listed at shipping
Concerned Institution	Name of organization, institution or company to which the shipment is addressed
Concerned Department	Name of section, department or group to which the shipment is addressed
Country	Country
Postal/zip code	Postal/zip code

Items	Value to be entered and its meaning
Prefecture/State/Province	Prefecture/State/Province
City/town	City/town
Contact address	Street, building name, condominium name, etc.
Phone number	Phone number of contact address
Extension number	Extension number of contact address
Fax number	Fax number of contact address
Url	Site name of delivery address when product is received through FTP
Username	User name to login FTP site
Password	Password to login FTP site
* Miscellaneous (Sent e-mail display format)	Language mentioned in sent e-mail from AUIG2 (Japanese/English)

Items in gray cells in the table need not be entered.

③ Click the “Confirm information” button and then confirm the content from User Information screen. Click the “OK” button to register the user information or else click the “Cancel” button to return to the previous screen.

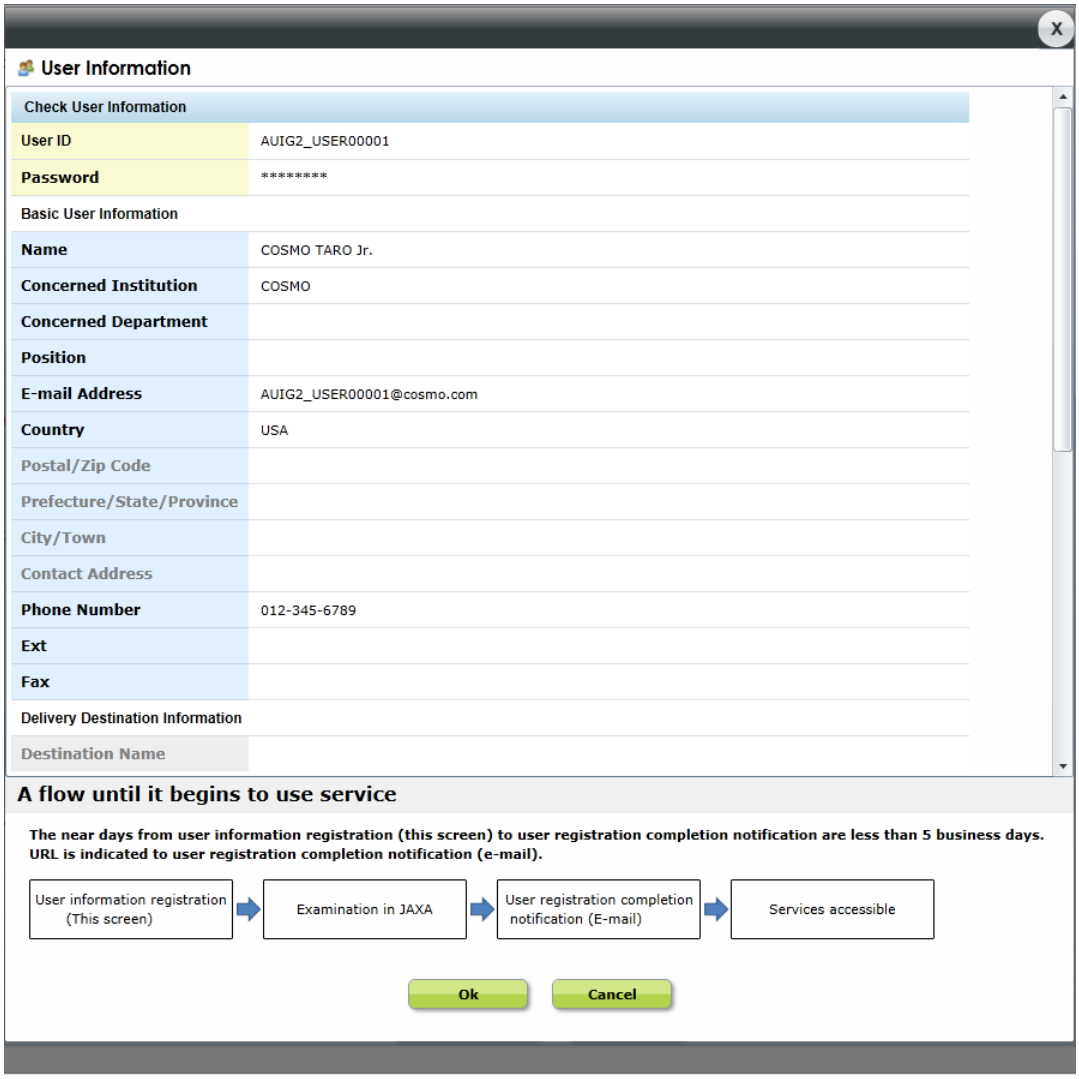


Figure 3-6 User Information screen

* Procedures of user registration are carried out by the system operator after registration.

Result of registration (approved/denied) is notified to the specified e-mail address in a separate e-mail.

3.3 Composition of User Information Update screen

User Information Update screen is namely composed of three parts, the “User information entry dialog” shown as ‘a’ in Figure 3-7 where different type of information can be entered, the “Confirm information” button shown as ‘b’ in Figure 3-7 to update the entered information and the “Cancel” button shown as ‘c’ in Figure 3-7 to cancel update.

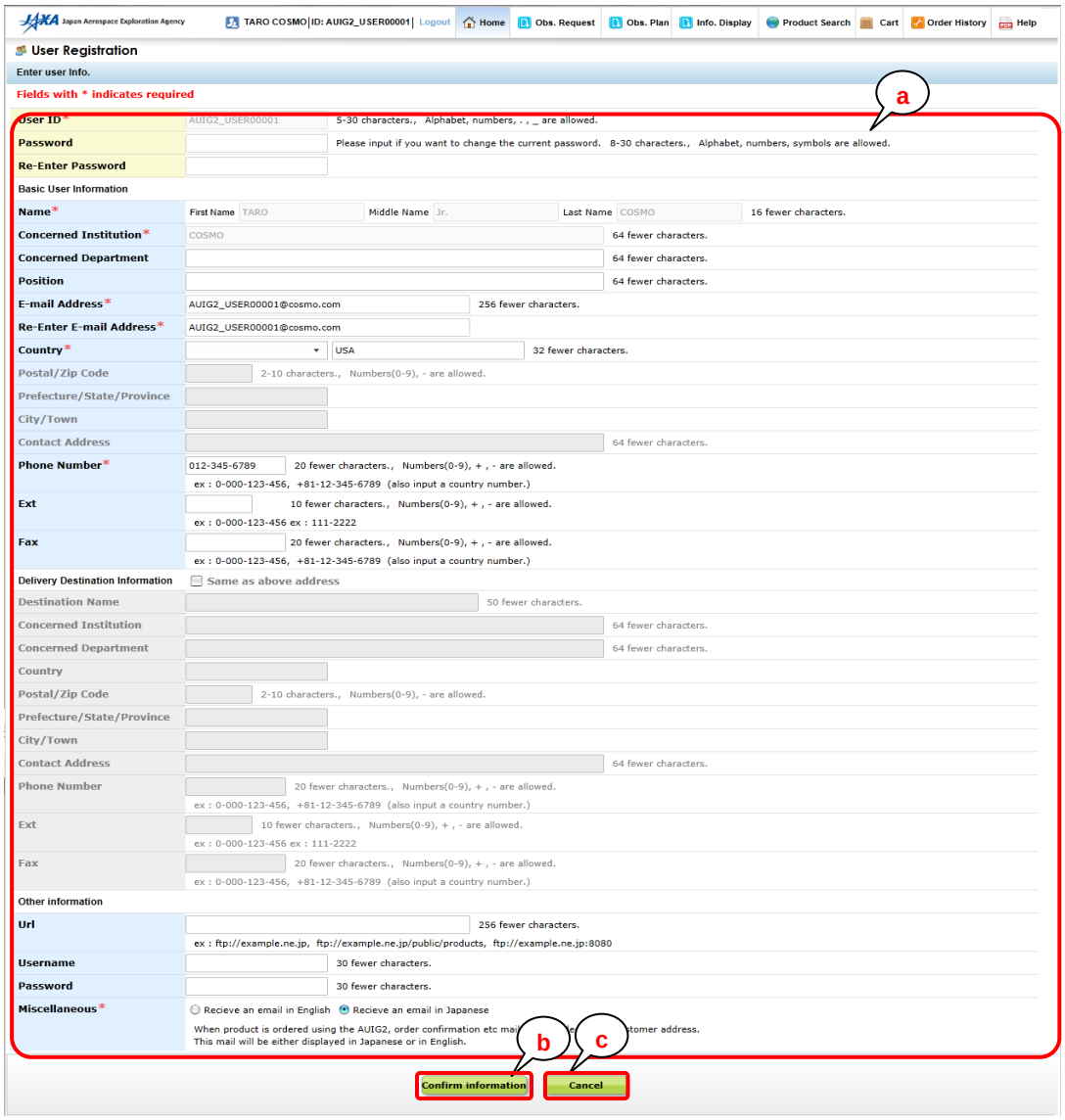


Figure 3-7 User Information Update screen - Overall composition

Table 3-3 Items composing User Registration screen

Screen Items	Description
(a) User information input field	Input the user information (partial or complete) to be modified. Fields with * mark are required.
(b) Confirm information button	Confirms the modified information and update.
(c) Cancel button	Cancels the user information update.

3.4 Operational overview of update user information

The basic operational steps to update various user information are as follows.

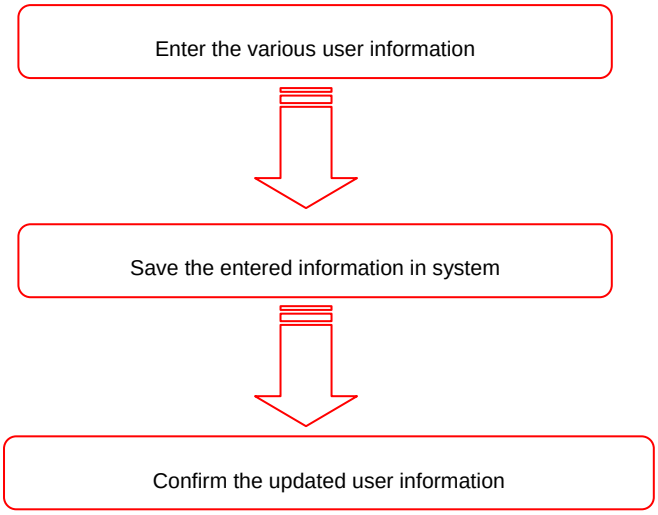


Figure 3-8 The basic operational steps to update user information

① Login to AUIG2 and click the “User Profile” button on User Portal screen.
User Information Display screen (Figure 3-9) appears.

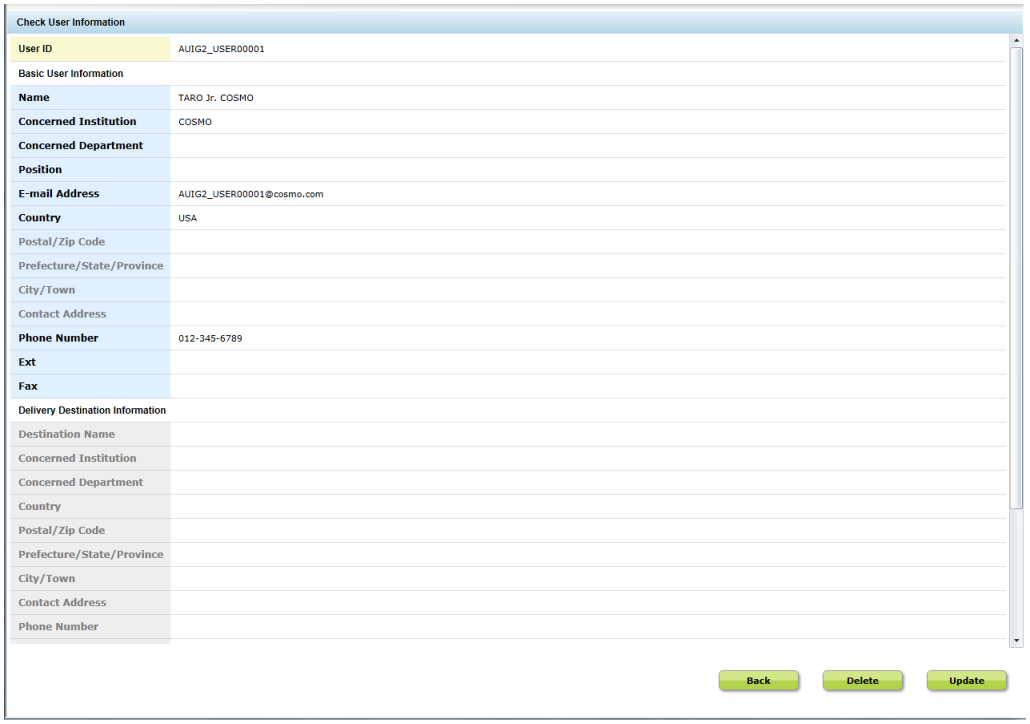


Figure 3-9 User Information Display screen

② Click the “Update” button on User Information screen.
User Registration screen (Figure 3-2) appears.

③ Enter the following user-related information (“*” indicates fields required).

Table 3-4 User information update - Item description

Item	Value and meaning to be entered
*User ID	*Input disabled (User ID cannot be changed)*
Password	Usually displayed as blank column.
Re-Enter Password	Enter these two items only when changing the password.
*Name (First Name)	*Input disabled (Name cannot be changed)*
*Name (Middle Name)	
*Name (Last Name)	
*Concerned Institution	*Input disabled (Concerned institution cannot be changed)*
Concerned Department	Department, division, group, etc., in concerned institution
Position	Position, title, etc., in concerned institution
*E-mail Address	Contact e-mail address
*Re-Enter Email Address	Re-enter email address for confirmation purposes
*Country	Country
Postal/Zip Code	*Input disabled* Postal/zip code
Prefecture/State/Province	*Input disabled* Prefecture/State/Province
City/Town	*Input disabled* City/Town
Contact Address	*Input disabled* Street, building name, condominium name, etc.
* Phone Number	Phone number of contact address
Ext	Extension number of contact address
Fax	Fax number of contact address
Delivery Destination Information (checkbox)	*Input disabled* Select the checkbox if the product delivery address is the same as the above-listed address
Destination Name	*Input disabled* Name of addressee listed at shipping
Concerned Institution	*Input disabled* Organization, institution or company listed at time of shipping
Concerned Department	*Input disabled* Section, department or group listed at shipping
Country	*Input disabled* Country

Item	Value and meaning to be entered
Postal/zip code	*Input disabled* Postal/zip code
Prefecture/State/Province	*Input disabled* Prefecture/State/Province
City/town	*Input disabled* City/town
Contact address	*Input disabled* Street, building name, condominium name, etc.
Phone number	*Input disabled* Phone number of contact address
Ext	*Input disabled* Extension of contact address
Fax	*Input disabled* Fax number of contact address
Url	Site name of delivery address when product is received through FTP*1
Username	User name to login FTP site*1
Password	Password to login FTP site*1
* Miscellaneous (Sent e-mail display format)	Language mentioned in sent e-mail from AUIG2 (Japanese/English)

*1: The FTP site is only available for authenticated users.

④ Click the “Confirm information” button and then confirm the content from User Information screen. Click the “OK” button to update the user information or else click the “Cancel” button to return to the previous screen.

* Update result (approved/denied) is displayed on the screen.

If update fails, modify the entered details with respect to the error message.

4 Method to Search Product

Product of ALOS-2 and ALOS can be searched in AUIG2.

Product Search screen opens when [Product Search] is selected from the Common menu on the top of the screen.

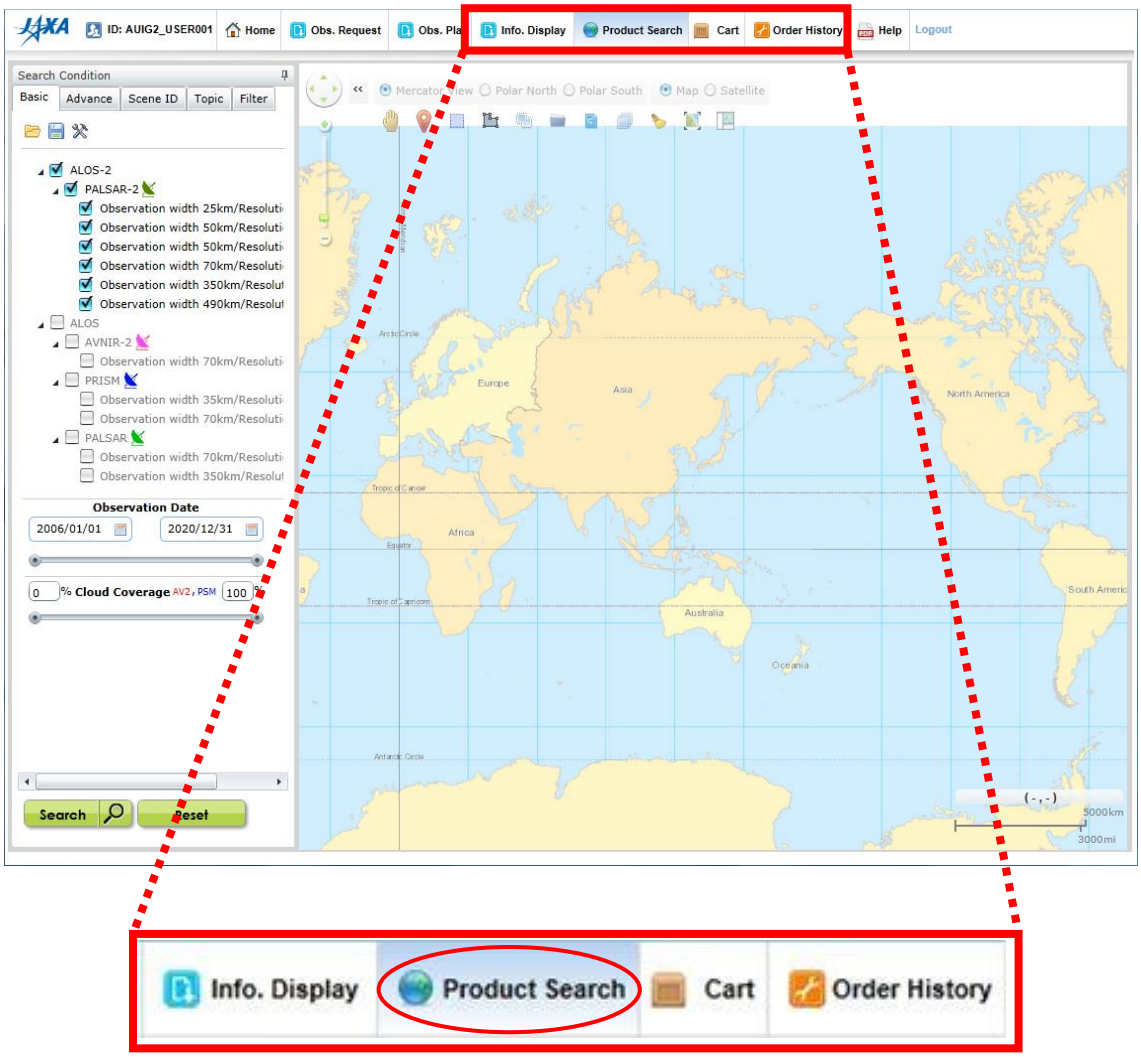


Figure 4-1 Common menu

4.1 Composition of Product Search screen

Product Search screen is namely composed of four parts, the “Map field’ shown as ‘a’ in Figure 4-2 which displays the map, the “Condition specification panel” shown as ‘b’ in Figure 4-2 which specifies the search condition, the “Search Results panel” shown as ‘c’ in Figure 4-2 which confirms the search results, and the “Scene details display panel” shown as ‘d’ in Figure 4-2 which displays the scene details information.

Each panel can be zoomed in and out by using mouse.

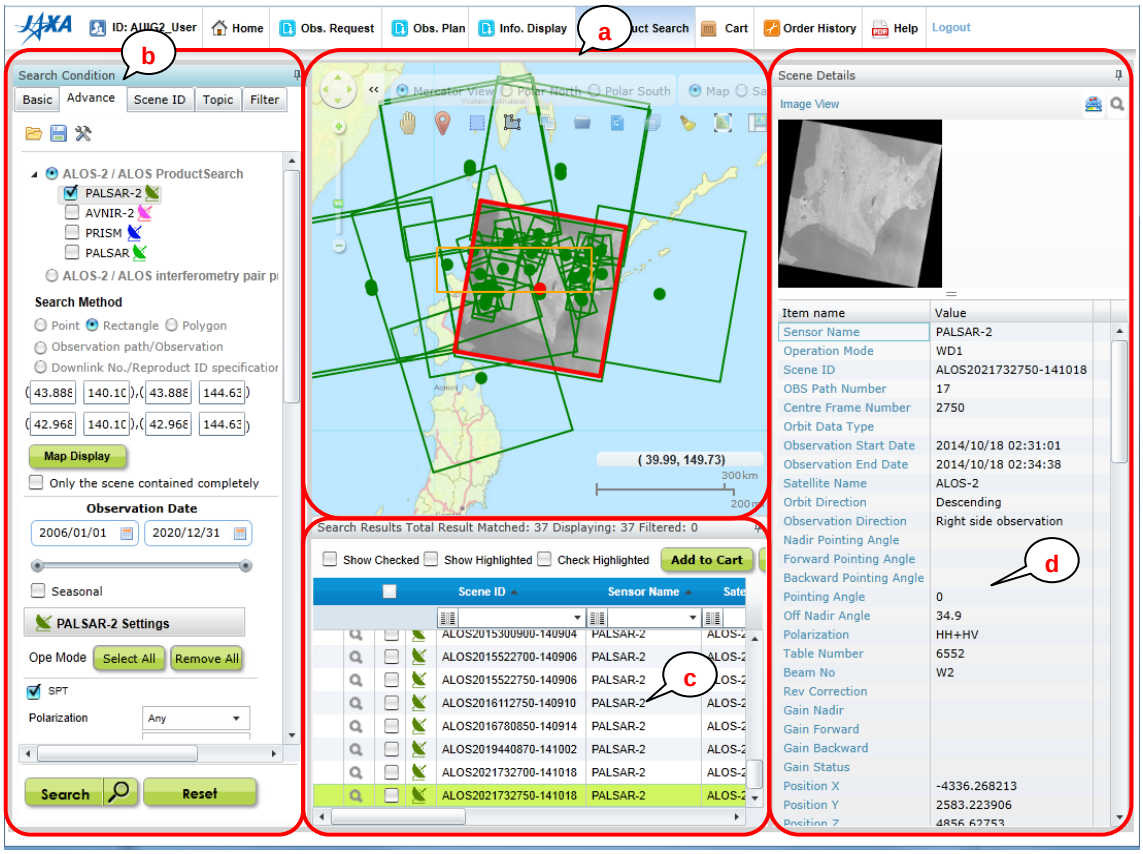


Figure 4-2 Overall composition of Product Search screen

Table 4-1 Items composing Product Search screen

Screen Items	Description
(a) Map field	Displays the map, specifications of search method, and the footprint of search results.
(b) Condition Specification panel	Specifies search conditions, and conditions to filter the search results.
(c) Search Results panel	Search results are shown in a list. Intended product is selected from the list, and saved in the cart for ordering.
(d) Scene Details Display panel	Displays the detailed information of the scene selected in Search Results panel.

➢ Panel operation

Each panel on the Product Search screen can be customized through operations such as moving, resizing, and showing/hiding by using the provided tool buttons, dragging the mouse, etc.

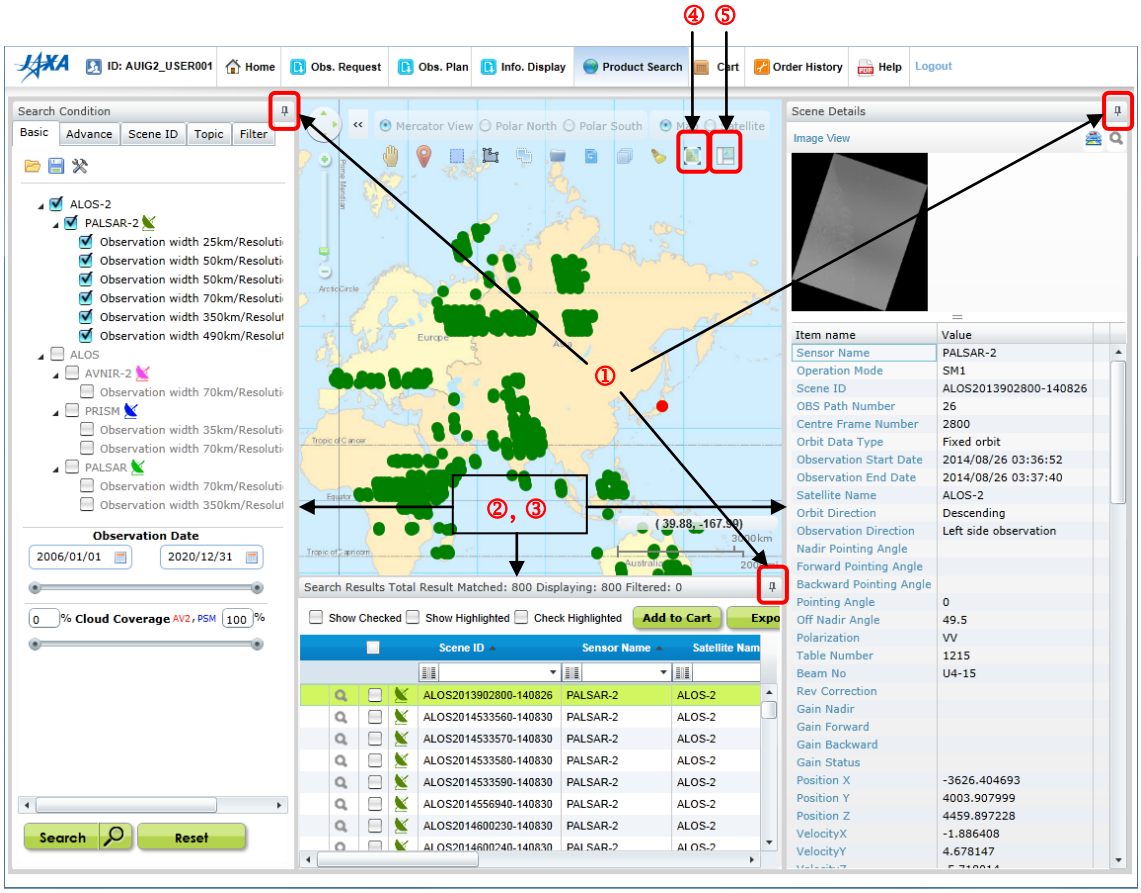


Figure 4-2+1 Panel operations

① Showing/hiding a panel

By clicking  at the upper right of each panel, you can iconize (hide) that panel. By clicking the icon, you can restore (show) the panel again.

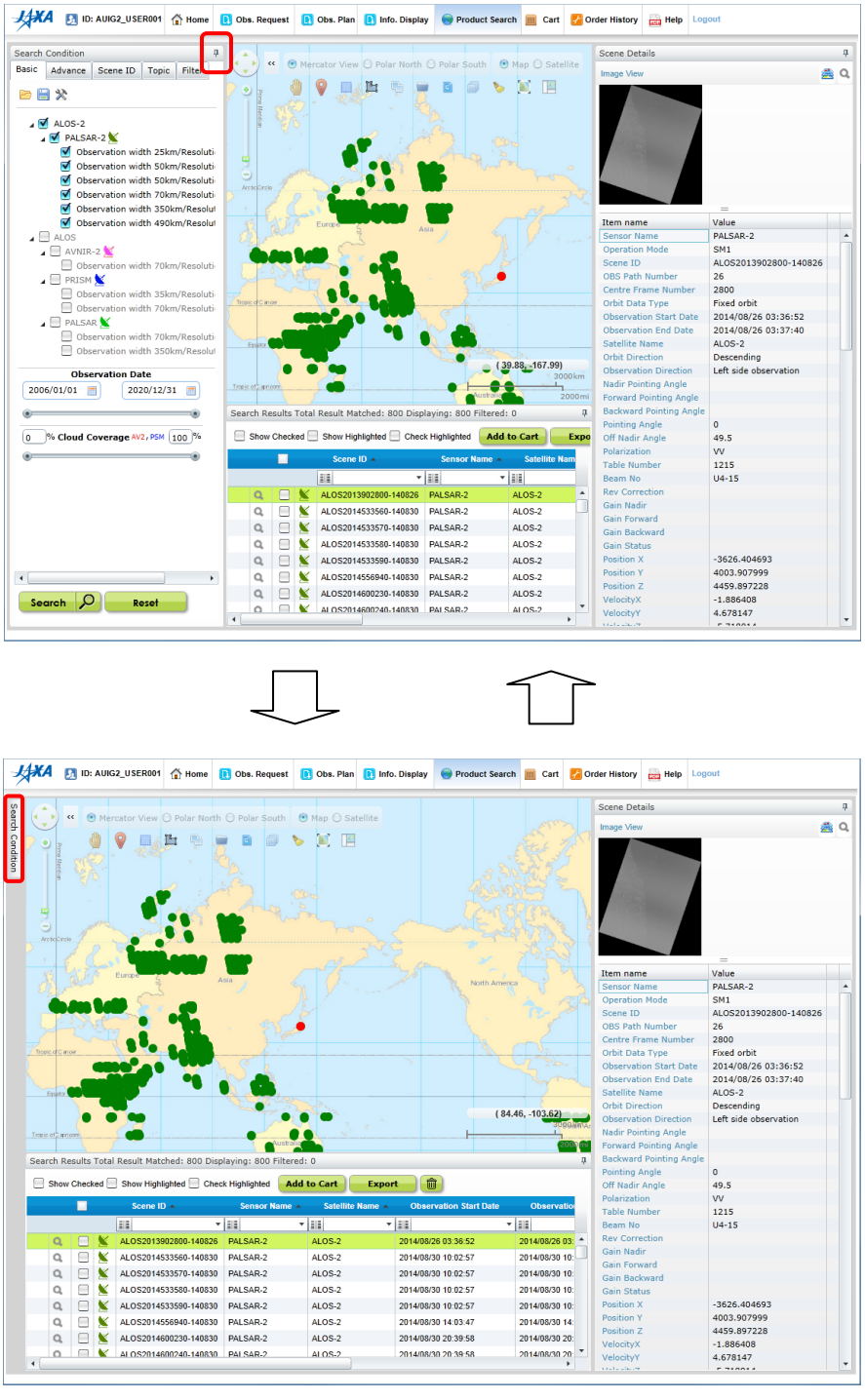


Figure 4-2+2 Hiding a panel

② Moving a panel

By using the indicator for moving panels, you can move a panel while automatically adjusting its size to that of the specified destination.

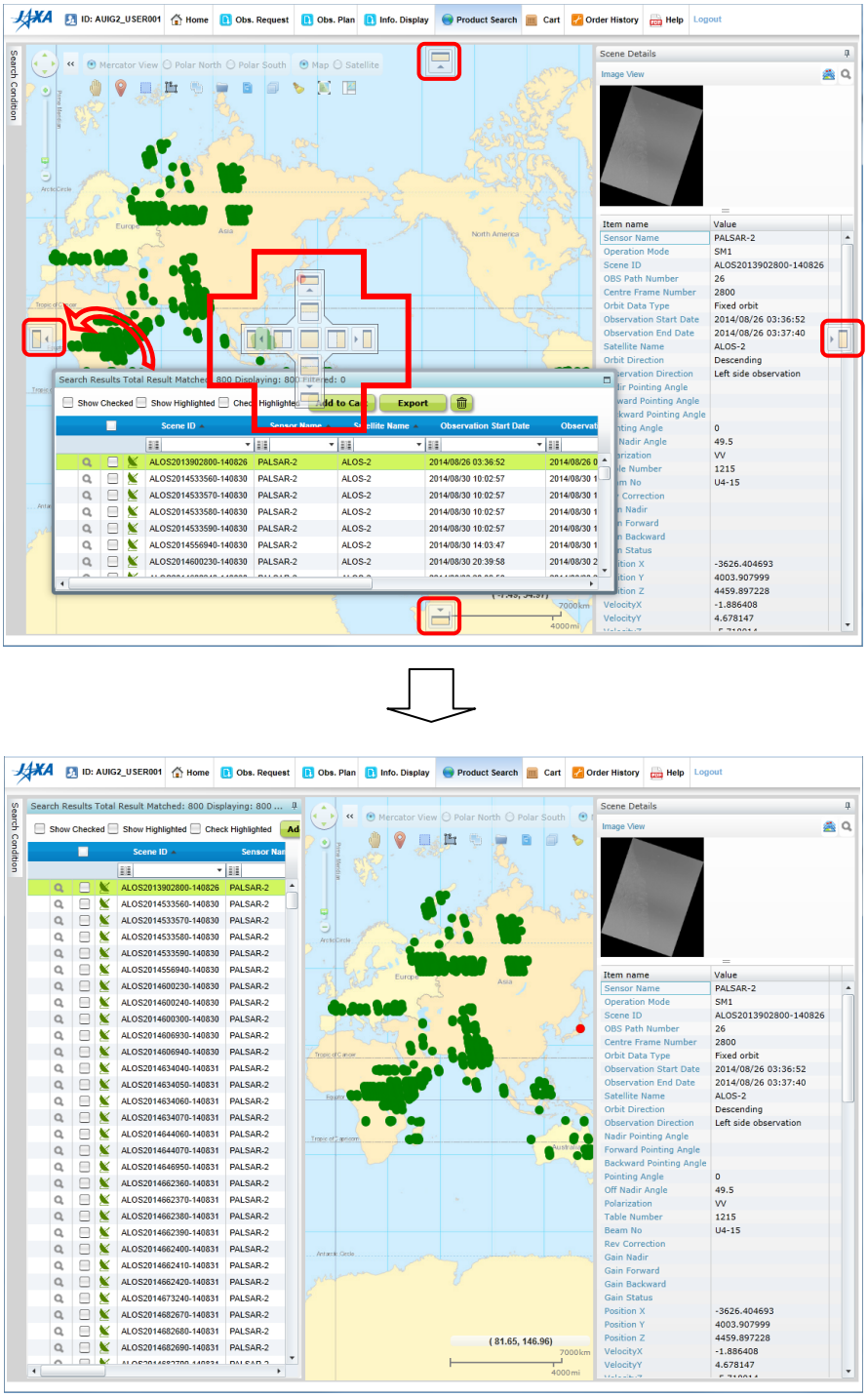


Figure 4-2+3 Moving a panel

③ Positioning/resizing a panel

Using the mouse, you can position a panel anywhere you want, as well as resize it to the desired size.

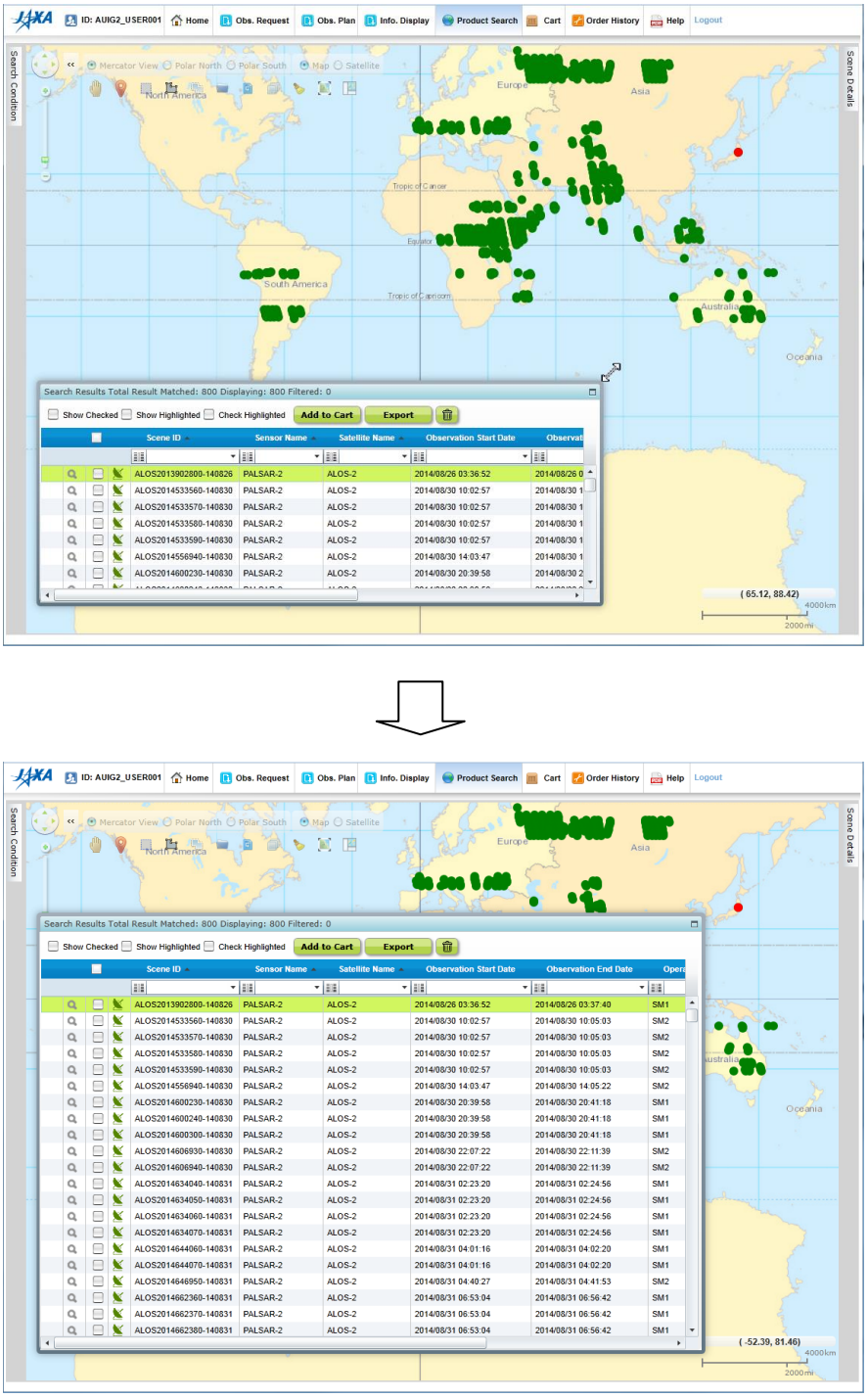


Figure 4-2+4 Expanding a panel

④ Resetting the map field

You can return the map display location to the initial location defined in the search settings by clicking the  icon for resetting the map display location and scale. The map scale will return to its minimum value.

⑤ Resetting the Search panel

You can return the display size, display position, show/hide and other settings of the panels that have changed as the result of various operations, by clicking the  icon for resetting the display size and position on the Search Conditions panel, Search Results panel, and Detailed Display panel.

4.2 Operational overview of Product Search

The basic operational steps to search products are given below:

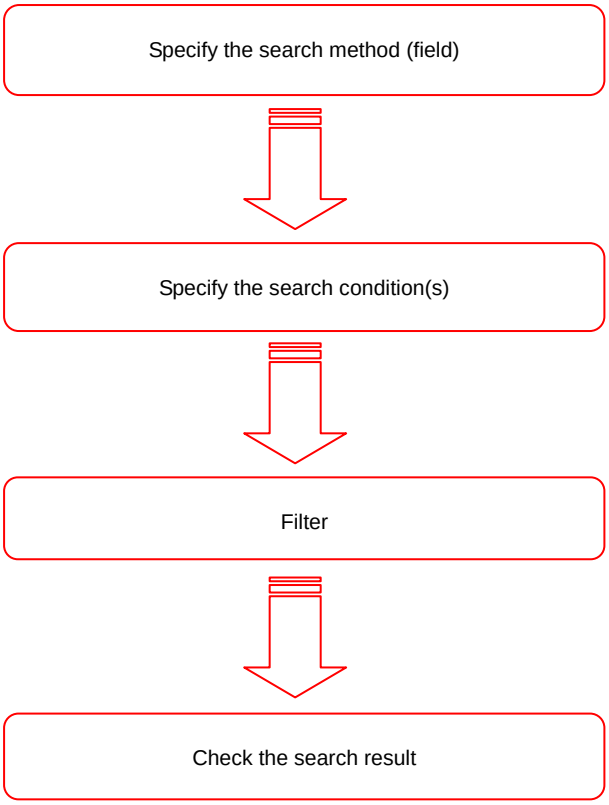


Figure 4-3 The basic operational steps for Product Search

① Move the mouse pointer on tool bar of the Map field, and select the method to specify the search.

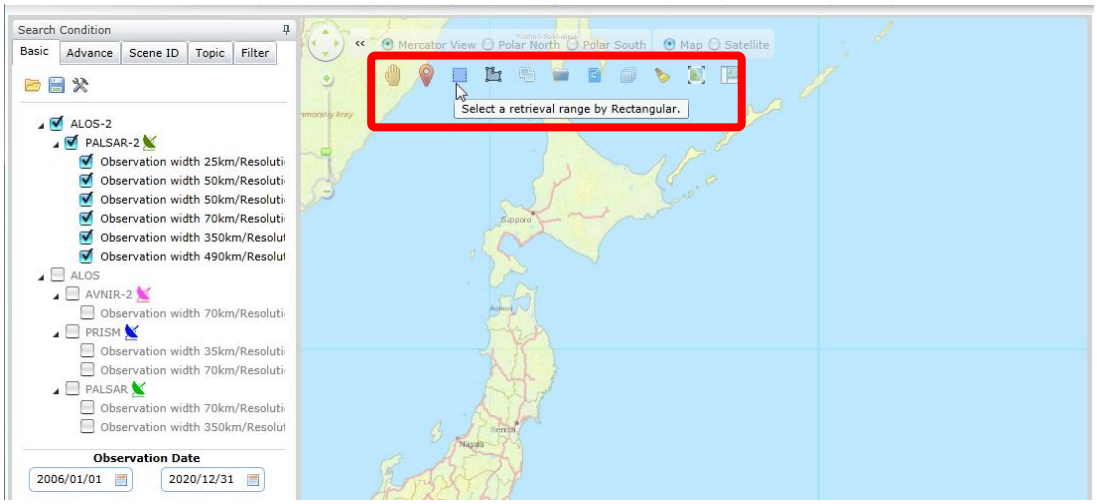


Figure 4-4 Product Search - Operational steps ①

② Search method can be specified by dragging the mouse on the Map field on clicking the right button. (Following figure shows the example of envelope specification)

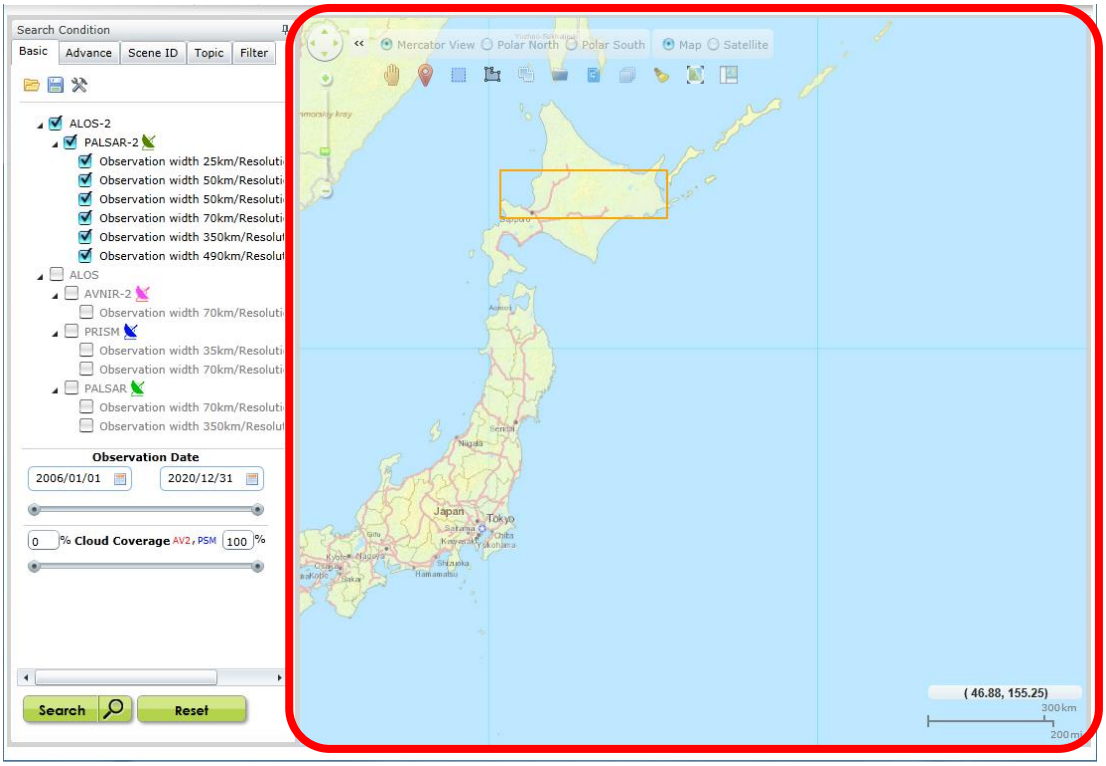


Figure 4-5 Product Search - Operational steps ②

③ Enter the search conditions (type of sensor or satellite, observation period etc.) in the Conditions Specification panel and click the “Search” button.

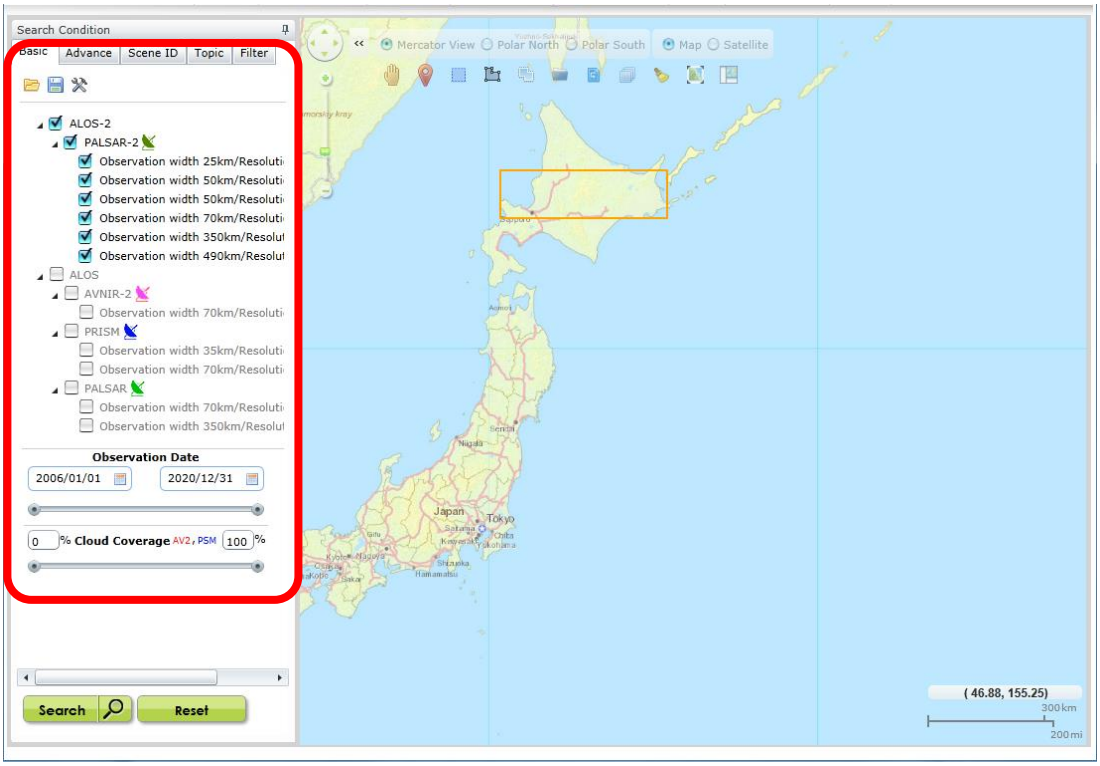


Figure 4-6 Product Search - Operational steps ③

④ The Search process will start. A dialog showing progress will be displayed. If you click the “Cancel” button, a search will stop in between.

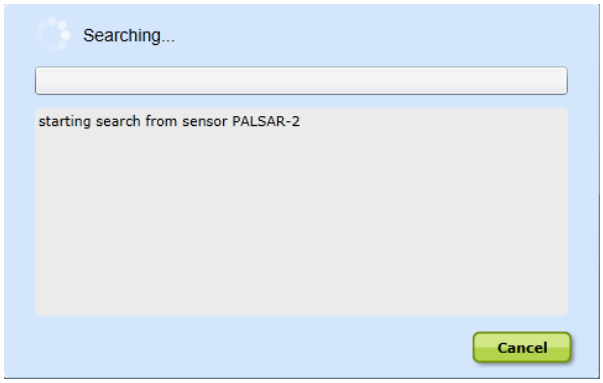


Figure 4-7 Product Search - Operational steps ④

⑤ When the search is completed, search results are displayed in Search Results panel. By using the Search Results panel, foot print will be displayed on the Map field and the details can be checked from Scene Details panel (Panel on the lower right of Figure 4-8).

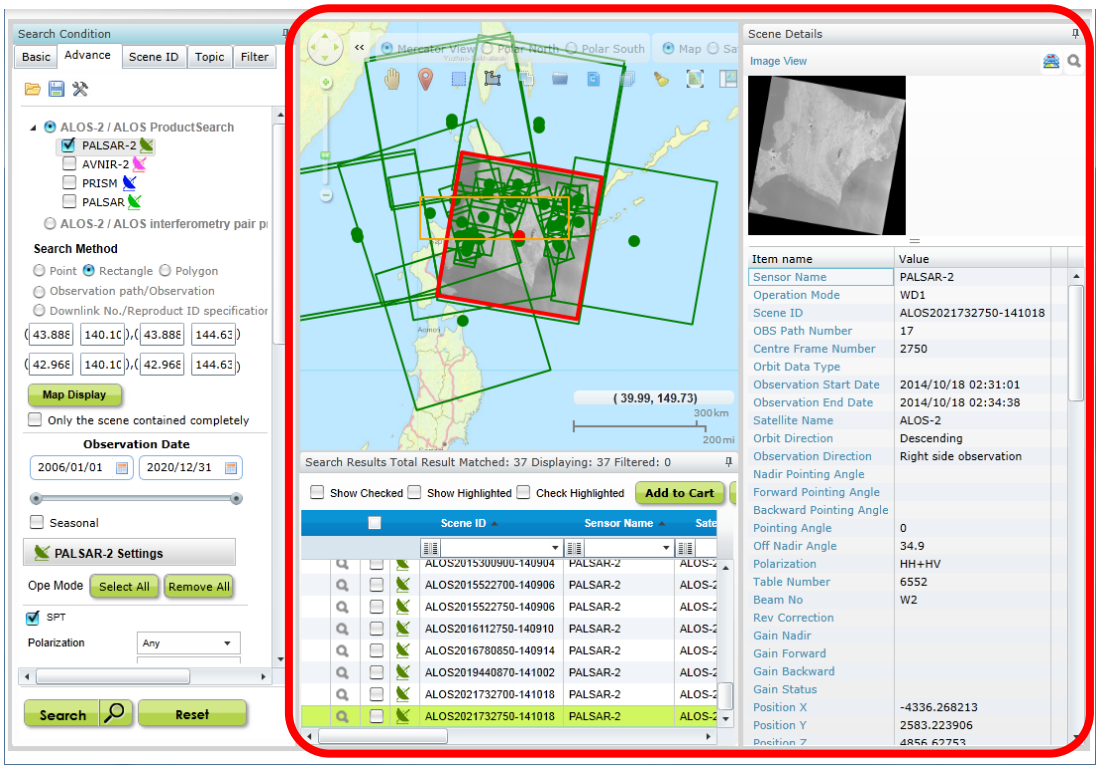


Figure 4-8 Product Search - Operational steps ⑤

4.3 Description of screen

4.3.1 Map field

Map field is an area which displays the map data and satellite image data in background image.

Footprint of search result products and specifications of search method are displayed in Map field. A “slider” shown as ‘a’ in Figure 4-9 for changing the scale or direction of the map and a “toolbar” shown as ‘b’ in Figure 4-9 for moving the map or selecting the search method are given in the map field.

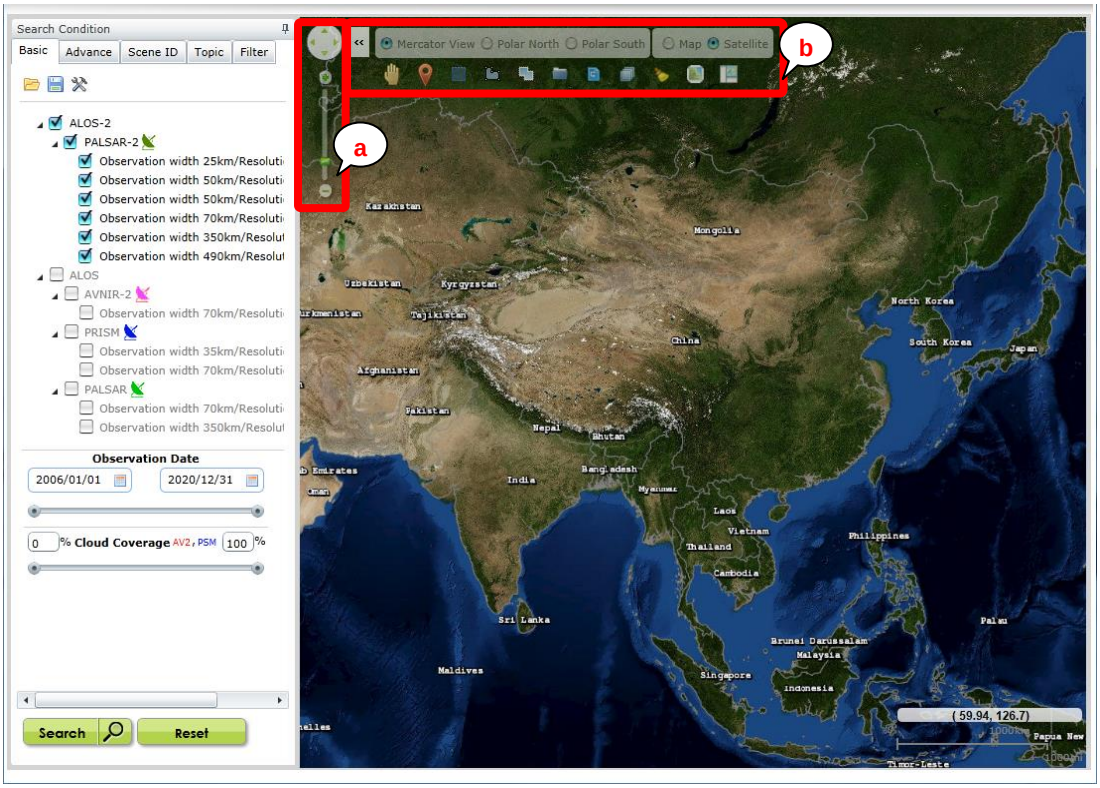


Figure 4-9 Map field

a. Slider

i. Slider to move map

The map can be moved by clicking the pan control.

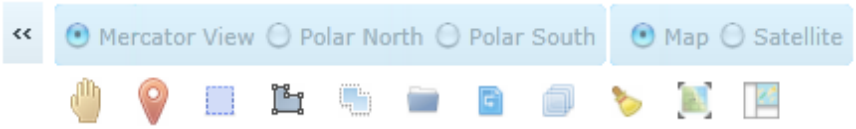
ii. Slider to scale down the map

Scale of the map can be changed by dragging the slider up and down by mouse.

b. Tool bar

i. Function buttons group

It specifies the movement when mouse is clicked or dragged on the map field. A Tool Tip appears by moving the mouse cursor over each icon.



Collapsing the tool bar

A tool bar can be collapsed (expanded) by clicking .

Movement of map

The map can be moved by clicking  and moving the mouse pointer over the map in the desired direction.

Selection of search method (Specifying the pointer)

Search method can be selected by specifying the pointer. Pointer can be specified by clicking on the point over the map field after clicking  .

When the icon is clicked twice, the below dialog is displayed and pointer can be specified by entering the longitude/latitude. Further, pointer can be specified by setting the radius.

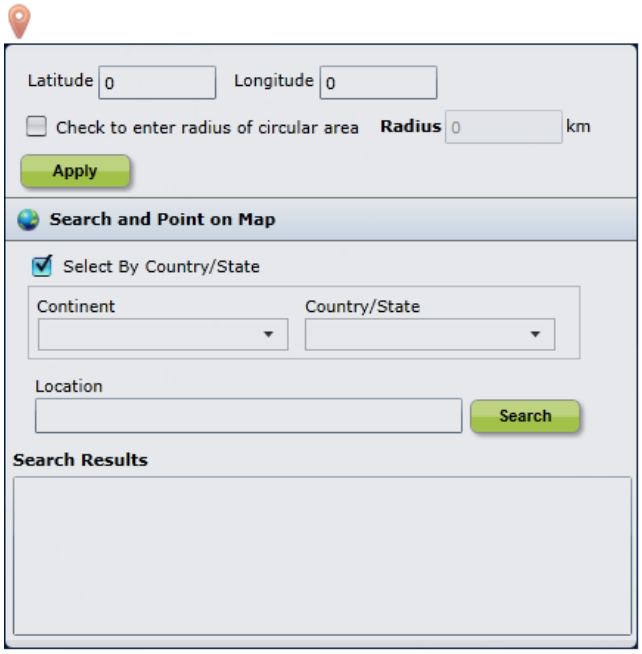


Figure 4-10 Text to be entered for specifying the pointer

If search range of circle is specified by specifying pointer, pointer cannot be specified once again in the circle. Please clear the field in advance by using the "Clear" button. (Other areas will also be selected in same manner)

Selection of search method (envelope specification)

Search method can be selected in rectangular shape. After clicking the icon , an envelope is displayed to enclose the area on the map field by dragging over the mouse. Double-click a line of the envelope to change the search range.

If you double-click the icon, the following dialog will appear. It can also be specified by keyboard entry.

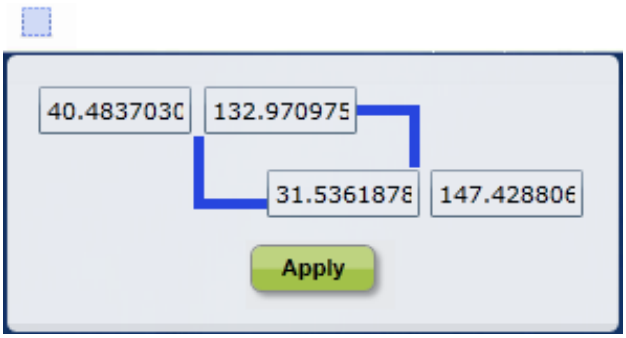


Figure 4-11 Text entry for envelope specification

Selection of search method (Polygon specification)

Search method can be selected through polygon. A polygon can be created by clicking on three or more points on the map field after clicking the icon . Double-click the mouse to complete the creation of a polygon. Double-click a line of the polygon to change the search range.

If you double-click the icon, the following dialog will appear. It can also be specified by keyboard entry. If you enter the numeric value in the row of dialog, the next row appears and then you can enter multiple longitudes & latitudes.

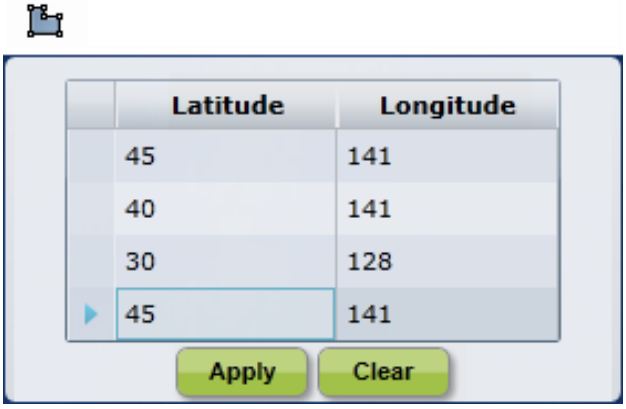


Figure 4-12 Text entry for polygon specification

Selection of search method (Polygon specification as per place name)

Search method can be selected as per place name. When is clicked, the following dialog appears, and the polygon is created by selecting place name and region.

Figure 4-13 Polygon specification according to a place name

Selection of search method (File specification)

Search method can be selected through file. File selection dialog appears if you click the “Open” button after clicking the icon.

The area (range) information mentioned in the external file can be displayed by specifying the Shape file (see Appendix 2) in dialog.

Click the icon to specify a KML file (see Appendix 2).

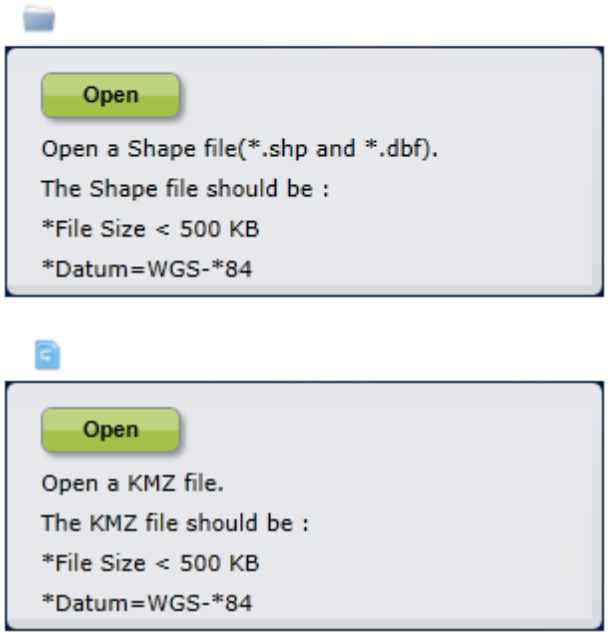


Figure 4-14 External file specification

Image display settings on map field

The image display and transmission can be set on map field. When icon is clicked, the following dialog appears and the Display Yes/No for each image and transmission can be specified.

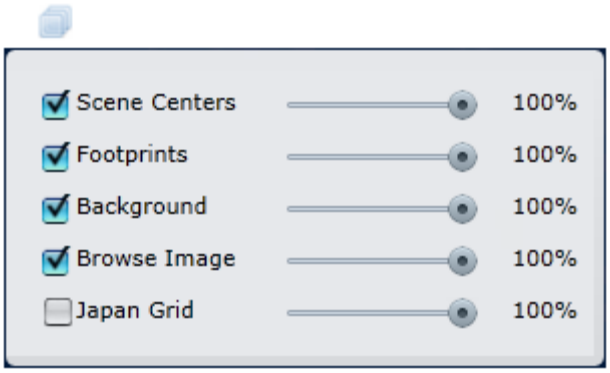


Figure 4-15 Display settings of map field

Table 4-2 Tool bar (Image display settings on map field) description

Items	Description
Scene Centers	It specifies Display Yes/No and transmission for center point on searched scene.
Footprints	It specifies Display Yes/No and transmission for foot print of searched scene.
Background	It specifies Display Yes/No and transmission for map data to be displayed in background.
Browse Image	It specifies Display Yes/No and transmission for browse image of searched scene.
Japan Grid	It specifies Display Yes/No and transmission for local grid (only Japan).

Resetting the map field

You can return the map display location to the initial location defined in the search settings by clicking the  icon for resetting the map display location and scale. The map scale will return to its minimum value.

Resetting the Search panel

You can return the display size, display position, show/hide and other settings of the panels that have changed as the result of various operations, by clicking the  icon for resetting the display size and position on the Search Conditions panel, Search Results panel, and Detailed Display panel.

ii. Change the Projected display

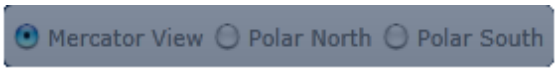


Table 4-3 Tool bar (Change the projected display) description

Selected items	Description
Mercator View	Change the map display to Mercator View.
Polar North	Change the map display to polar stereographic projection (Northern Hemisphere).
Polar South	Change the map display to polar stereographic projection (Southern Hemisphere).

iii. Change the background

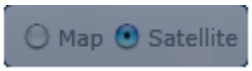


Table 4-4 Tool bar (background) description

Selected items	Description
Map	Change the background of map field to map data.
Satellite image	Change the background of map field to satellite image data.

4.3.2 Condition specification panel

In AUIG2, there are 4 tabs that provide different search methods, and one tab that filters the search results.

Users can carry out searches by selecting a conditions selection tab according to the objective or use. The default tab is “Basic” tab.

Table 4-5 Condition selection panel

Condition specification tabs	Description
Basic	It carries out a search by specifying observation time and search method.
Advance	It carries out a search by specifying the detailed conditions like sensor specific conditions.
Scene ID	It carries out a search of a product by specifying a scene ID.
Topic	It carries out a search of a product based on the basis of recorded disaster information[1].
Filter	It filters the display for search results.

Common buttons are displayed in the respective condition specification panel.

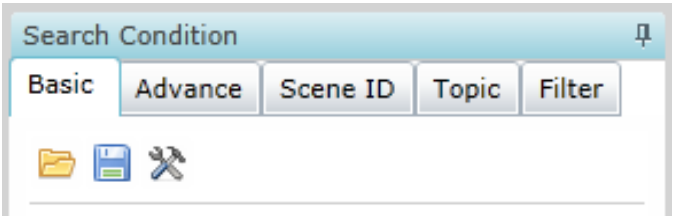


Figure 4-16 Common buttons of condition specification panel

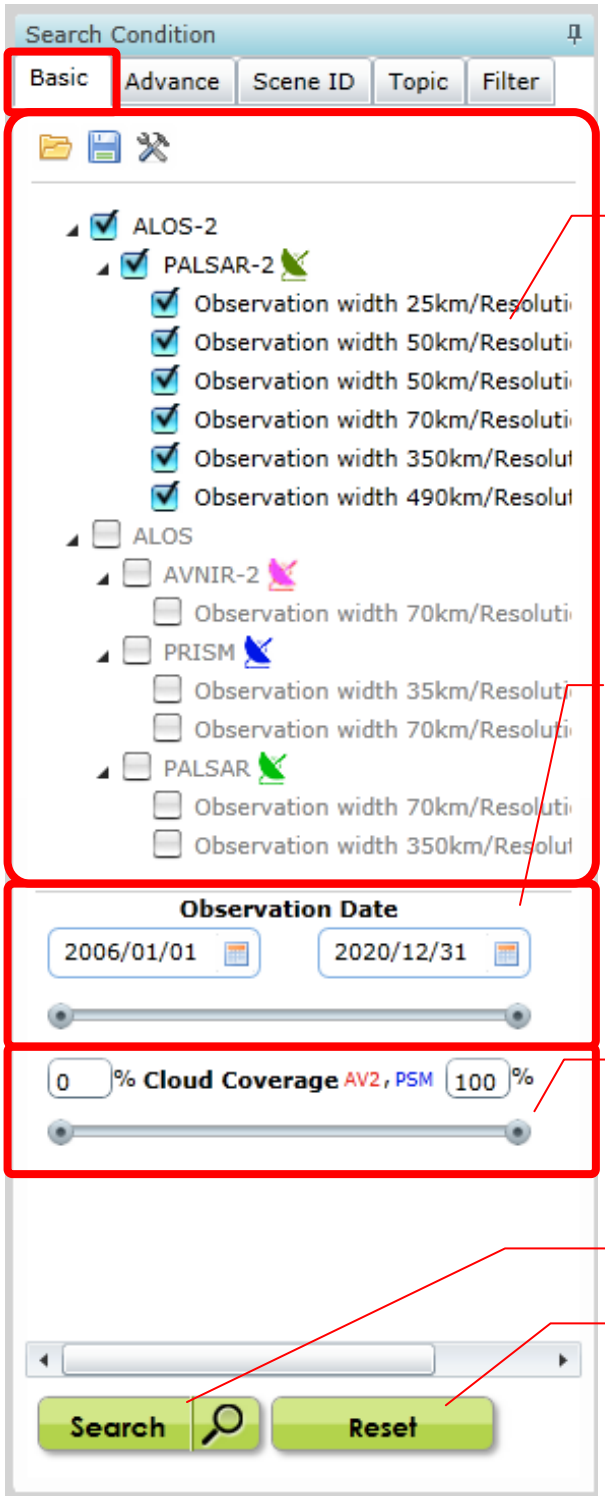
[1] Disaster information includes “Disaster occurrence place (Area, Country and local area) type (earthquake, tsunami etc.) name of the disaster and date of occurrence”.

Table 4-6 Common buttons of condition selection panel

Buttons	Description
(Refer to search conditions)	It restores the search conditions which are registered in the server.
(Saving search conditions)	It registers the current search conditions to the server. Maximum five conditions can be registered against each tab (Basic, Advanced, Scene ID, and Topic).
(Search settings)	It displays search setting dialog.

a. Basic tab

On the Basic tab, the observation period and search method can be specified.



① Specify the search target.

Select the target product from satellite, sensor, observation width, resolution.

If you select the upper check box to ON (☑), then the lower check box also becomes ON (☑) at the same time.

② Specify the search period with UTC.

Specify the scene observation time.

If you click , the date can be selected from the calendar.

If you move the slider left and right, the date range can be changed.

③ Specify other conditions.

If you include the optical sensor in search target, the cloud coverage can be specified.

④ Start the search.

⑤ Reset the search conditions.

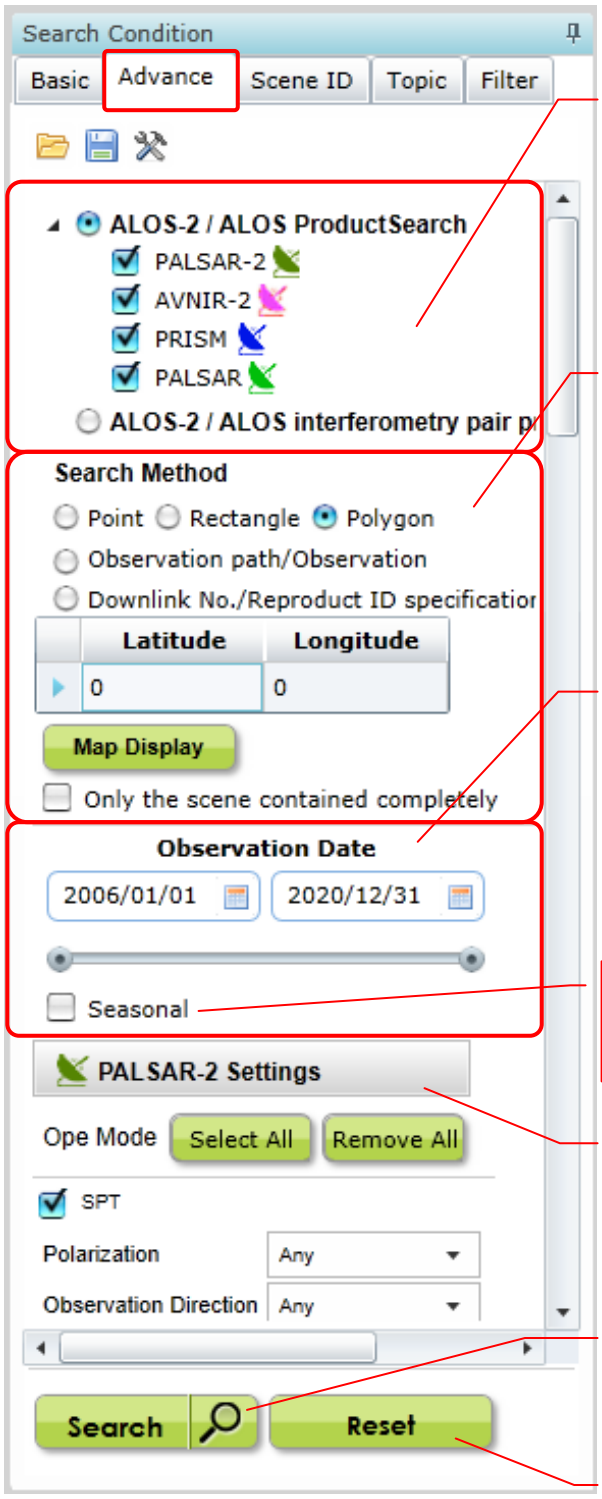
Figure 4-17 Basic tab

Table 4-7 Basic search item list

Satellite name	Sensor name	Items
ALOS-2	PALSAR-2	Observation width 25km/resolution 3m
		Observation width 50km/resolution 3m
		Observation width 50km/resolution 6m
		Observation width 70km/resolution 10m
		Observation width 350km/resolution 100m
		Observation width 490km/resolution 60m
ALOS	AVNIR-2	Observation width 70km/resolution 10m-20m
	PRISM	Observation width 35km/resolution 2.5m
		Observation width 70km/resolution 2.5m
	PALSAR	Observation width 70km/resolution 10m-20m
		Observation width 350km/resolution 100m

b. Advance tab

On the Advance tab, detailed conditions such as sensor specific condition can be searched. (Refer to Table 4-8 for sensor specific conditions.)



① Specify search target.
(Satellite, sensor)

② Specify search method.
(Point, Rectangle, Polygon, Observation path/frame and Downlink No./Reproduct ID specifications)
Input field can be changed as per specification method.
(This is an example of envelope specification)

③ Specify the search period with UTC.
Specify scene observation period.
If you click , the date can be selected from calendar.

If you move the slider left and right, the date range can be changed.

In Advance search, season (across the year) can be specified besides period specification according to the date.

④ Specify the sensor specific condition.
Sensor wise specific conditions (Table 4-8) can be specified according to search target specified in point ①.

⑤ Start the search.

⑥ Reset the search conditions.

Figure 4-18 Advance tab

Table 4-8 Sensor specific conditions that can be specified on Advance tab (1/2)

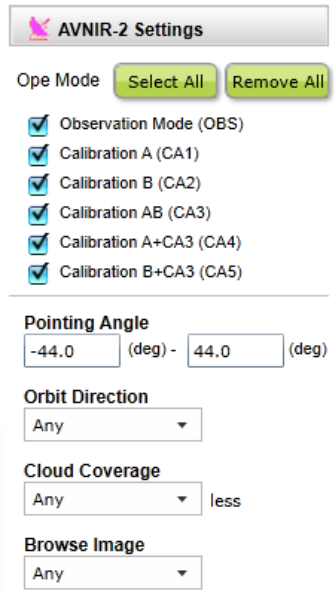
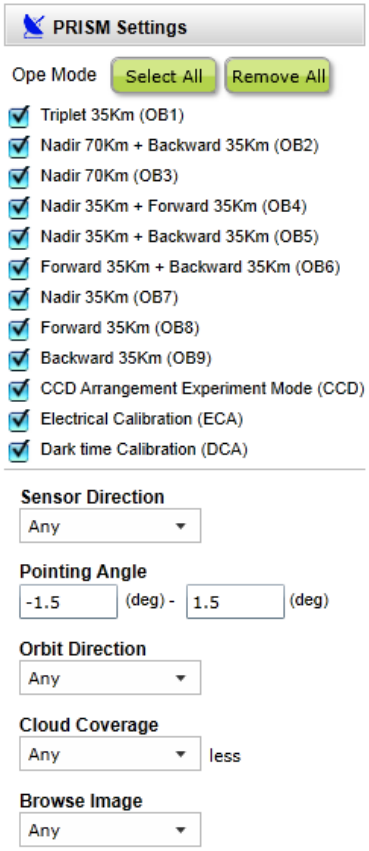
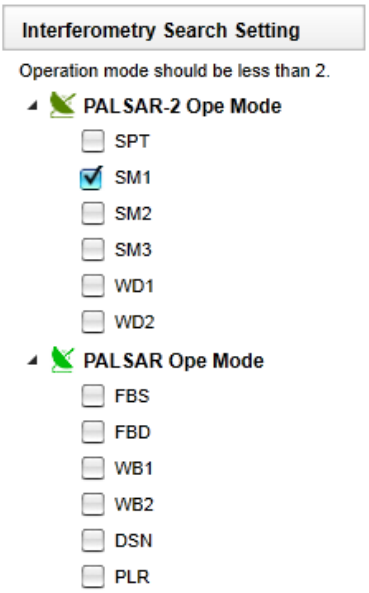
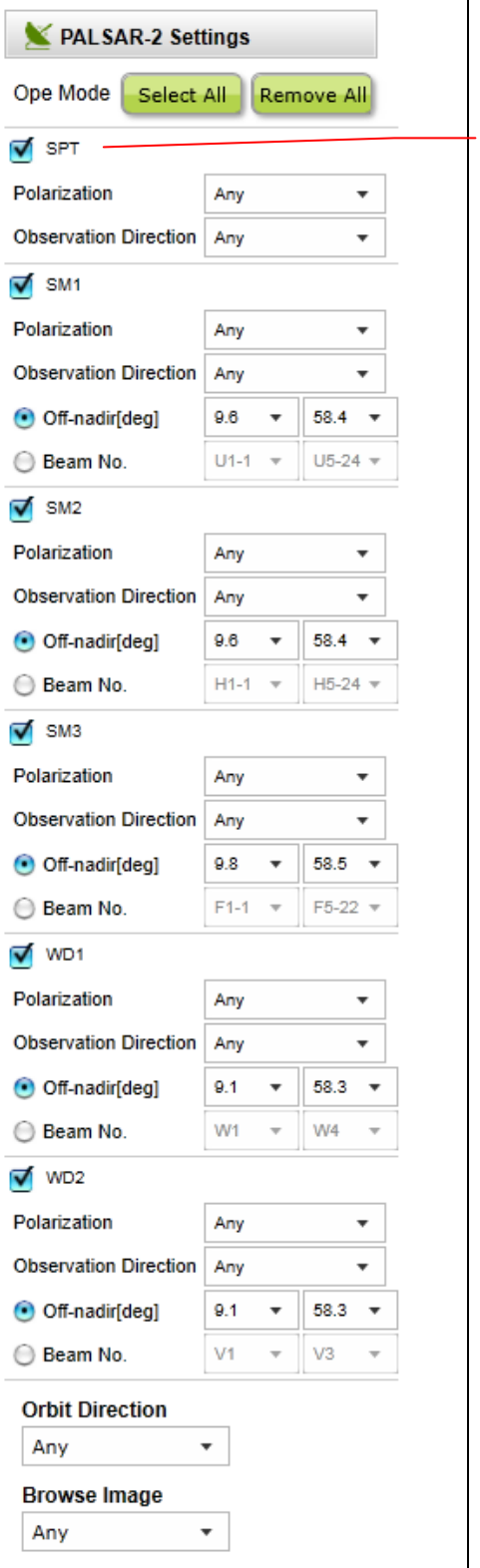
AVNIR-2 sensor	PRISM sensor
	
PALSAR sensor	**Interferometry Pair Proposed Search**
	

Table 4-8 Sensor specific conditions that can be specified on Advance tab (2/2)

PALSAR-2 sensor

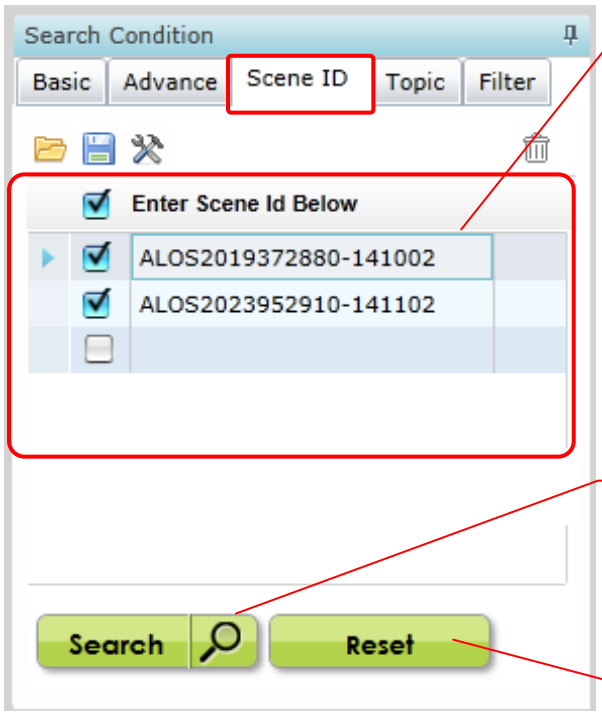


Abbreviations used for Ope Mode

SPT: Spotlight (Observation width 25km/ resolution 3m)
SM1: Stripmap1 (Observation width 50km/ resolution 3m)
SM2: Stripmap2 (Observation width 50km/ resolution 6m)
SM3: Stripmap3 (Observation width 50km/ resolution 10m)
WD1: ScanSAR1 (Observation width 350km/ resolution 100m)
WD2: ScanSAR2 (Observation width 490km/ resolution 60m)

c. Scene ID

On the Scene ID tab, a product can be searched by specifying a scene ID.



① Specify a scene ID.

If you enter a scene ID, a new row is displayed automatically.
If you want to delete the input box, check on the box (ON) of the row which you want to delete and click icon.
Multiple scene IDs can be copied in advance and the content of clip button can be pasted together.

② Start the search.

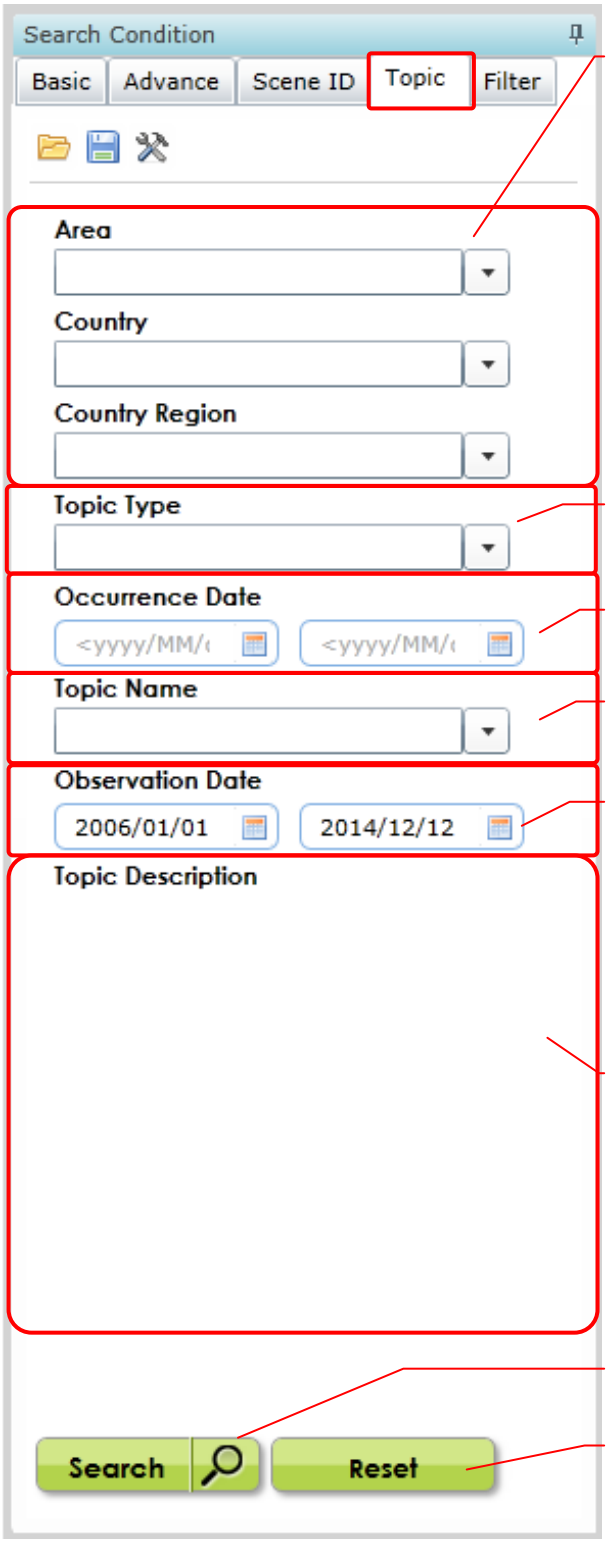
Search targets can also be listed, by selecting (turn ON) the check box of search target row.

③ Reset the search conditions.

Figure 4-19 Scene ID tab

d. Topic tab

On the Topic tab, a product can be searched on the basis of existing disaster information (Disaster occurrence place/type/disaster name/occurrence date).



① Select the disaster occurrence place.
If "Area" (collection of countries such as "Asia", "Europe" etc.) is selected, then "Country" is selected from the countries belonging to that area only. Further, if Japan is selected in "Country", then "Country Region" (region of "Hokkaido", "Tohoku" etc.) can be selected.

② Select the disaster type.

③ Specify the disaster occurrence date (date range) with UTC.

④ Select disaster name.

⑤ Specify observation date (date range) with UTC.
Specify observation period.
If you click , date can be selected from the calendar.

If you specify Topic Name, its details are displayed in Topic Description field at the bottom of the panel.

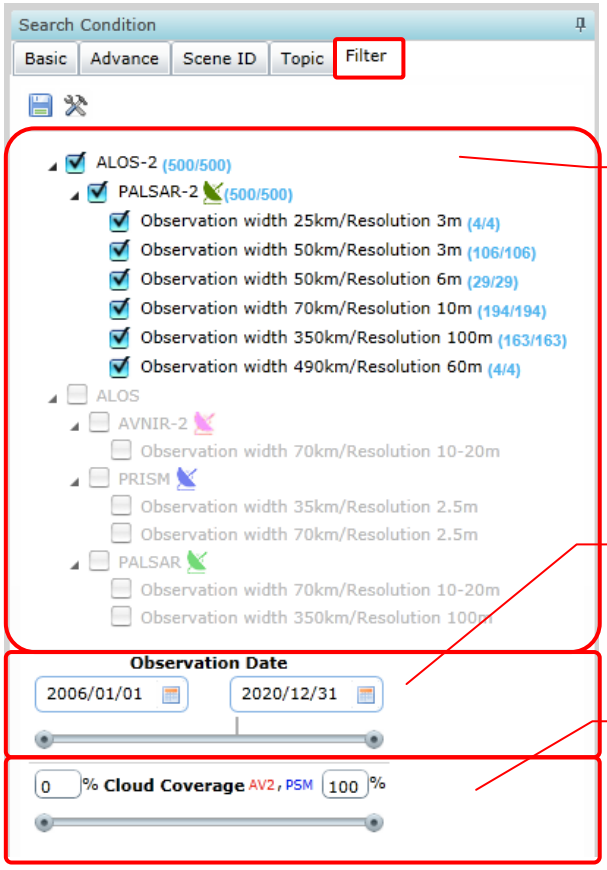
⑥ Start the search.

⑦ Reset the search conditions.

Figure 4-20 Topic tab

e. Filter tab

On the Filter tab, searched result can be filtered.



Filtering is done through sensor from search results displayed in the Search Results panel. Items are same as basic search (Table 4-7).
The figures in the ( ) shows the number of items in the list display of the items obtained through search. The number of items in the list display can be changed through removing the check and operating the slider of histogram. (Figure 4-22, Figure 4-23)

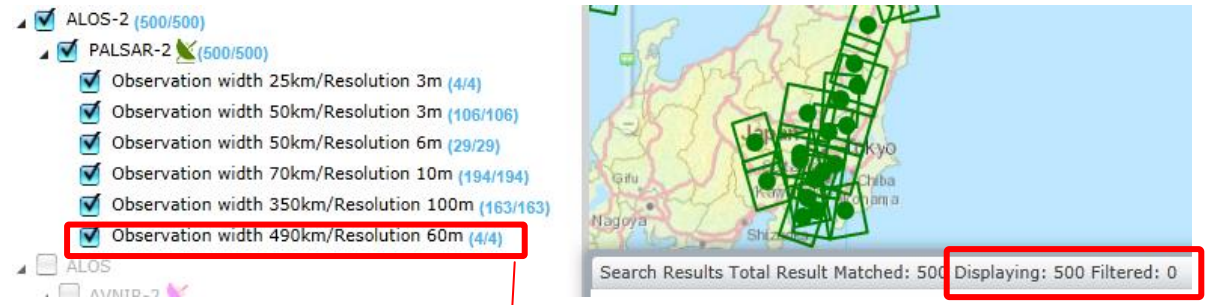
Search results displayed in the Search Results panel can be filtered by changing observation period to be displayed. Number of hits for every observation period is displayed as histogram.

Search results displayed in the Search Results panel can be filtered by changing the conditions of Cloud Coverage (When optical sensor is included in search target). Number of search hits for each cloud coverage, is displayed as histogram.

Figure 4-21 Filter tab

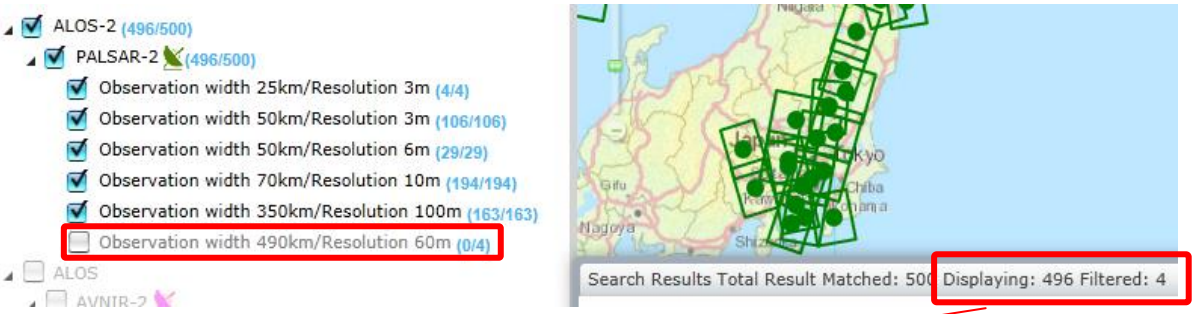
The Filter tab operates in real time with search results displayed in Search Results panel (c part of Figure 4-28). If the search result is filtered, it becomes easy to find the target product. For example, the sensor displayed in Search Results panel can be filtered (Figure 4-22) or observation date can be filtered (Figure 4-23).

Before filtering



If you clear the observation width 490km/Resolution 60m check box…

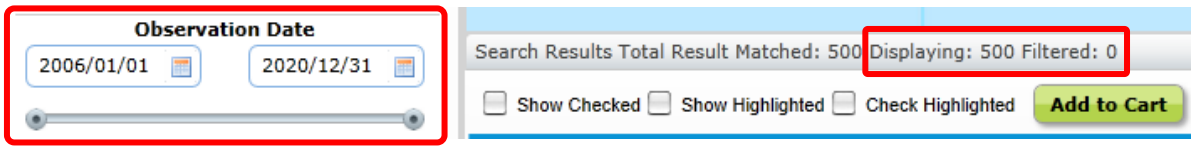
After filtering



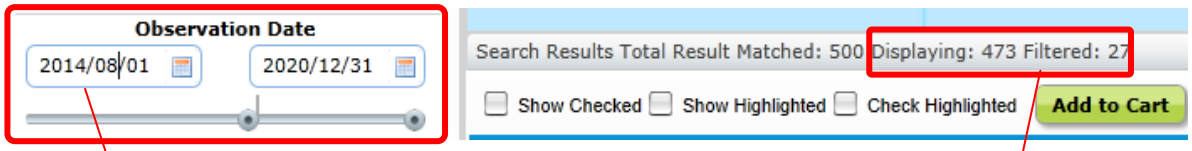
The data of observation width 490km/Resolution 60m (4 results) is removed from the search result list.

Figure 4-22 Filtering of search result list (1)

Before filtering



After filtering



For example, if you filter the search range of observation date…

The data falling outside the range (27 results) is removed from the search result list.

Figure 4-23 Filtering of search result list (2)

Search Results panel at the time of carrying out the interferometry pair proposed search

In product search (Advanced search), pair candidate having interference potential can be searched on the basis of scene information of PALSAR-2 and PALSAR.

The search conditions of interferometry pair proposed are as follows:

① The sensor is either PALSAR-2 (ALOS-2) or PALSAR (ALOS).

② A scene center frame number matches when being same operation mode of the pair. A scene center frame number is in the pre-defined range when being different operation mode of the pair.

③ A gap between off nadir angles of the pair is in the pre-defined range.

④ The beam directions (only PALSAR-2) of the pair match (*)
(*) PALSAR-2 can have two types of observation scenes, namely right-direction or left-direction.
PALSAR has a single observation scene i.e. right-direction.

⑤ The satellite orbit directions (ascending/descending) of the pair match.

⑥ The polarized waves of the pair match.

⑦ The angle θ between two vectors facing the satellite position at the time of observing two scenes from the center position of the area wherein scenes of the pair overlap are in the pre-defined range.

In interferometry pair proposed search, if there are two or more scenes matching with the conditions mentioned above, these are displayed as search results. (Figure 4-24, Figure 4-25)

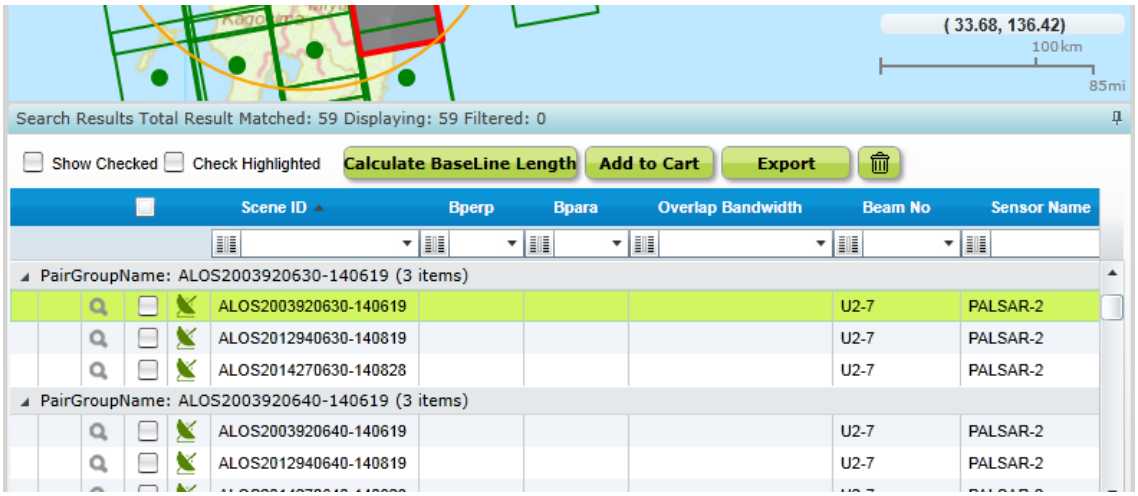


Figure 4-24 Example of search result display in case of interferometry pair proposed search

Interferometry pair proposed search is performed by specifying sensor to be searched, operation mode, search area and observation date range. BaseLine Length (Bperp and Bpara), Overlap Bandwidth and Beam No (only PALSAR-2) are displayed in Search Results panel as search result information specific to interferometry pair proposed search. Baseline length and overlap bandwidth are calculated on the basis of scene of the row selected by user. (Figure 4-25)

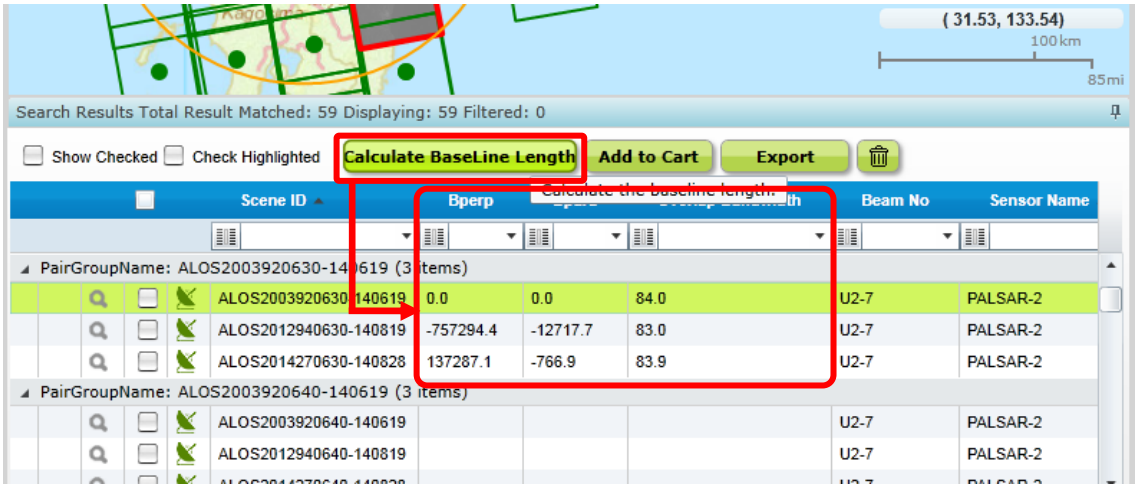


Figure 4-25 Zoomed-in image of Search Results panel

（Deleted page）

f. Search setting dialog

Search setting dialog is a panel for setting the display items of search result list screen or map default display of Product Search screen.

It is displayed by clicking icon of condition specification panel.

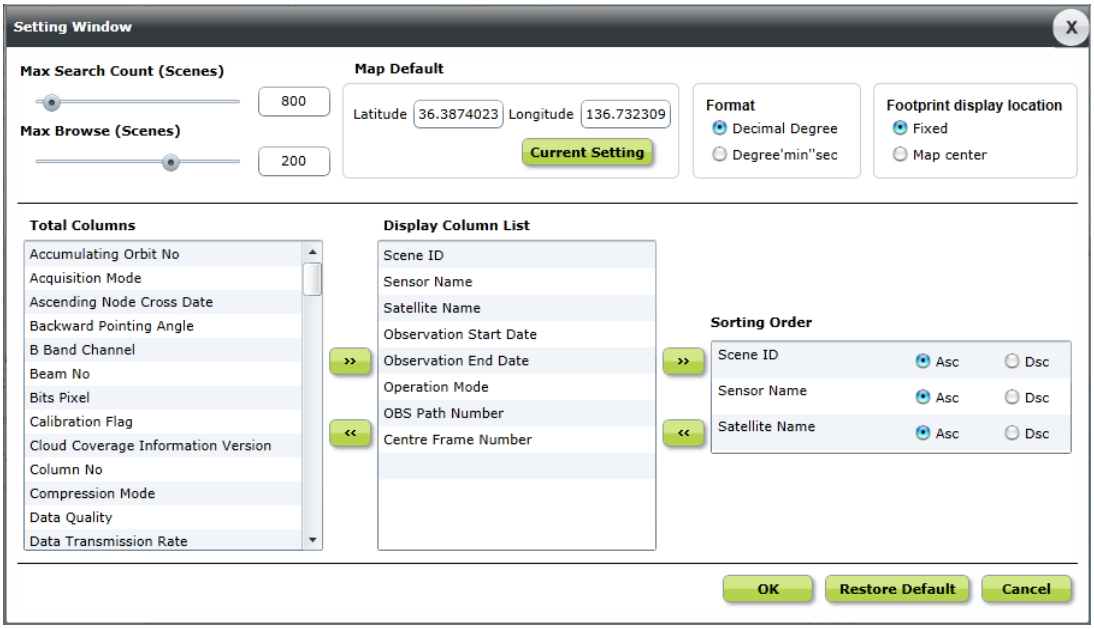


Figure 4-26 Search setting dialog

Table 4-9 Items composing search setting dialog

Screen Items	Description
Max Search Count (Scenes)	It sets the number of items (500 to 10000) obtained from search results at once. A default setting is 3000 scene.
Max Browse (Scenes)	It sets the maximum number (1 to 300) of browse image displayed in map field. A default setting is 100 scenes.
Map Default	It sets the default position of map display at the time of start. If you click the “Current Setting” button, center position coordinates of existing map field get entered in the text box automatically.
Coordinate notation method	It sets the geographic coordinate notation method in map field, Search Results panel and Advance (Search) tab. Either of decimal or hexadecimal (degrees minutes and seconds) can be selected. A default setting is decimal.
Footprint display location	When a line has been selected on the Search Results panel, selects whether or not to move the map field so as to display

Screen Items	Description
	the footprint of the product in question centered on the map.
Total Columns (Table 4-10)	It displays the list of column items which can be displayed in Search Results panel. All items which are registered in catalog DB are displayed in the list.
Display Column List (Table 4-10)	It sets the column items displayed in the Search Results panel. The items to be displayed are selected from the “Total Columns” list and added through «. Unrequired items are returned to “Total Columns” list through ». Selected items can be moved up and down by dragging the mouse. Scene ID, Sensor Name, Satellite Name, Observation Start Date, Observation End Date, Operation Mode, OBS Path Number, and Centre Frame Number are displayed by default.
Sorting Order	It specifies the ascending or descending order and key used in sorting among the display items. From “Display Column List”, select the items used in sorting, and add through ». The items which do not require sorting are excluded from sorting items through «. Selected items can be moved up and down by dragging the mouse.
OK button	If you click the “OK” button, the set content will be shown in the system and dialog will be closed.
Cancel button	If you click the “Cancel” button, set content is discarded and dialog is closed.
Restore Default button	If you click the “Restore Default” button, set value is returned to default state.

Table 4-10 Display items of Total Columns and Display Column List

#	Item	#	Item
1	Scene ID	2	Sensor Name
3	Satellite Name	4	Observation Start Date
5	Observation End Date	6	Operation Mode
7	OBS Path Number	8	Centre Frame Number
9	Accumulating Orbit No	10	Acquisition Mode
11	Ascending Node Cross Date	12	Backward Pointing Angle
13	B Band Channel	14	Beam No
15	Bits pixel	16	Calibration Flag
17	Cloud Coverage Information Version	18	Column No
19	Compression Mode	20	Data Quality
21	Data Transmission Rate	22	Division Scene Cloud Coverage Information
23	Down Link Path No	24	Down Link Segment No/Reproduct ID
25	Earth Rotation Correction	26	Effective Data End Date
27	Effective Data Start Date	28	Exposure Coefficient Status
29	Forward Pointing Angle	30	Gain Backward
31	Gain Forward	32	Gain Nadir
33	Gain Status	34	G Band Channel
35	Ground Station Code	36	GRS Line No
37	Image Catalog File Size	38	Image Catalog Processing Date
39	Image Catalog File Name	40	L0 Processing Result File Name
41	L0 Status	42	Line Loss No
43	Line No	44	Nadir Pointing Angle
45	Near Real Flag	46	Number of Pixels
47	Observation Direction	48	Operation Segment ID
49	Operation Segment No	50	Operation Type
51	Orbit Data Type	52	Path No To Calculate
53	Pointing Change Flag	54	Position X
55	Position Y	56	Position Z
57	R Band Channel	58	Reception Path No
59	Reference Ground Time	60	Reference Satellite Time

#	Item	#	Item
61	Rev Correction	62	Satellite Clock Cycle
63	Scene Centre Longitude	64	Scene Centre Time
65	Scene Centre Latitude	66	Scene Cloud Coverage Information
67	Scene Centre Date	68	Pointing Angle
69	Orbit Direction	70	Off Nadir Angle
71	Polarization	72	Scene Lower Left Latitude
73	Scene Lower Left Longitude	74	Scene Lower Right Latitude
75	Scene Lower Right Longitude	76	Scene Start Date
77	Scene Start Time	78	Scene Upper Left Latitude
79	Scene Upper Left Longitude	80	Scene Upper Right Latitude
81	Scene Upper Right Longitude	82	Set Pixel
83	Sunazimuth	84	Sunelevation
85	System Flag	86	Table Number
87	Processing Level 0	88	Disaster Area
89	Disaster Country	90	Disaster Region
91	Disaster Memo	92	Disaster Name
93	Disaster Accrual Date	94	Disaster Type
95	Total Orbit No	96	Transmission Start Date
97	Urgent Flag	98	UTC-GPS
99	Valid Data End Date	100	Valid Data Start Date
101	Valid Start Date	102	Velocity X
103	Velocity Y	104	Velocity Z
105	Yaw Steering Flag	106	File name of Thumbnail
107	Thumbnail Size	108	Processing Date of Thumbnail (UTC)

4.3.3 Search Results panel and Scene Details display panel

Search Results panel and Scene Details display panel are panels which display the catalog information of searched product.

Search Results panel is linked to map field and Scene Details display panel. When product (row) is selected from the list of Search Results panel, footprint of selected scene is displayed on the map field and detailed information is displayed on the Scene Details display panel. (Figure 4-27)

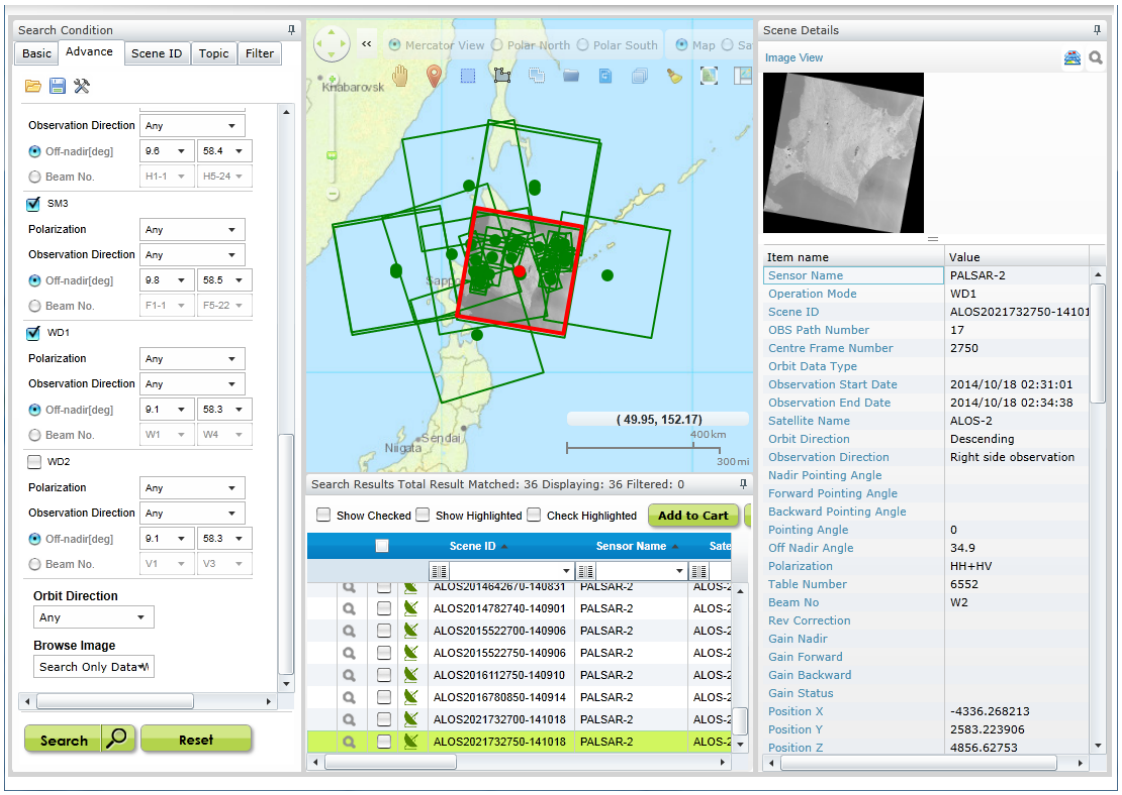


Figure 4-27 Search Results panel and Scene Details display panel

Moreover, Search Results panel and Scene Details display panel will be displayed in same manner even in case of “Disaster product search”.

Search Results panel (Figure 4-28) consists of “Display settings of search results list” shown as ‘a’ in Figure 4-28 that specifies the method to display search results, “Edit search results list” shown as ‘b’ in Figure 4-28 that edits the search results, “Search results list” shown as ‘c’ in Figure 4-28 that displays the search results, “Highlight list” shown as ‘d’ in Figure 4-28 that limits the data which shows footprint on the map field and “Scene Details panel” shown as ‘e’ in Figure 4-28 that displays the scene details.

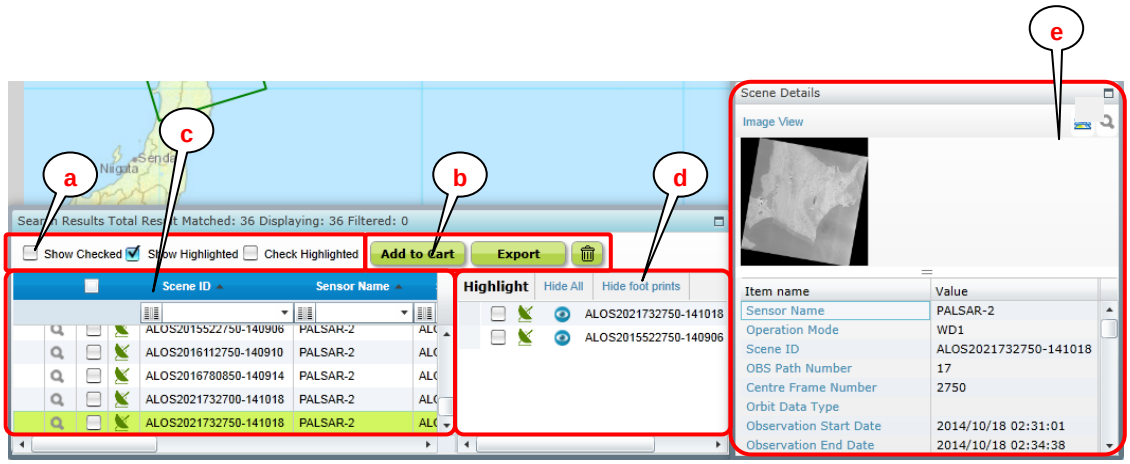


Figure 4-28 Search Results panel and Scene Details display panel (zoomed-in figure)

Table 4-11 Items composing Search Results panel

Screen Items	Description
(a) Display settings of search results list	Displays the checked search results only. Confirms the data overlapped with data of selected row. Checks the data of selected rows.
(b) Edit search results list	Adds the cart of the checked search results and generates the file.
(c) Search results list	Displays the list of search results. Executes filter condition and sort of search results.
(d) Highlight list	Specify the product which displays the footprint. This is assumed to be used, when products shown in the search results list are overlapped on the map field and then displayed. (See Table 4-15.)
(e) Scene Details display panel	Displays the detailed information of scene selected in the Search Results panel.

a. Search results list display method specifications

Table 4-12 Search results list display method specifications

Items	Description
Show Checked	Select this check box to display only the data of the check boxes selected on the current search results list (Part c of Figure 4-28) in the search results list and Map field. Clear this check box to display the data of all search results list.
Show Highlighted	Select this check box to display the highlighted list (Part d of Figure 4-28) is displayed. Clear this check box to hide the highlighted list.
Check Highlighted	Click this check box once to select all check boxes of the selected rows of current search results list (Part c of Figure 4-28). Click this check box once again to clear all check boxes of the selected rows of current search results list.

b. Cart operations

Table 4-13 Cart operations

Items	Description
	It adds the product selected on the search results list (Part c of Figure 4-28) to the cart. An  icon is displayed in the row of product which is added to the cart. In case of “Disaster product search”, the button will be greyed out. Add to cart operations cannot be used.
	Search results can be output to the file. Appendix 2 File format at the time of export can be selected from “Shape”, “KMZ” and “CSV”.  **Figure 4-29 Export dialog** As regards the search results data to be output, all rows (scene and product) displayed in the list will be output, regardless of whether search results list (Part c of Figure 4-28) is selected or not. If you want to output the data of the row selected in search results list, select (turn ON) the [Show Checked] check box and then click the “Export” button. Further, total columns of catalog will be output regardless of column display settings of search results list.
	It deletes the scenes whose the checkbox is selected from the search results list (Part c of Figure 4-28). Products added to the cart remain in the cart.

When a user for whom product provision is limited to Japan clicks the "Add To Cart" button, the Product select screen shown below is displayed. This screen is used to select products in scenes in Japan among the scenes selected on the Search Results panel.

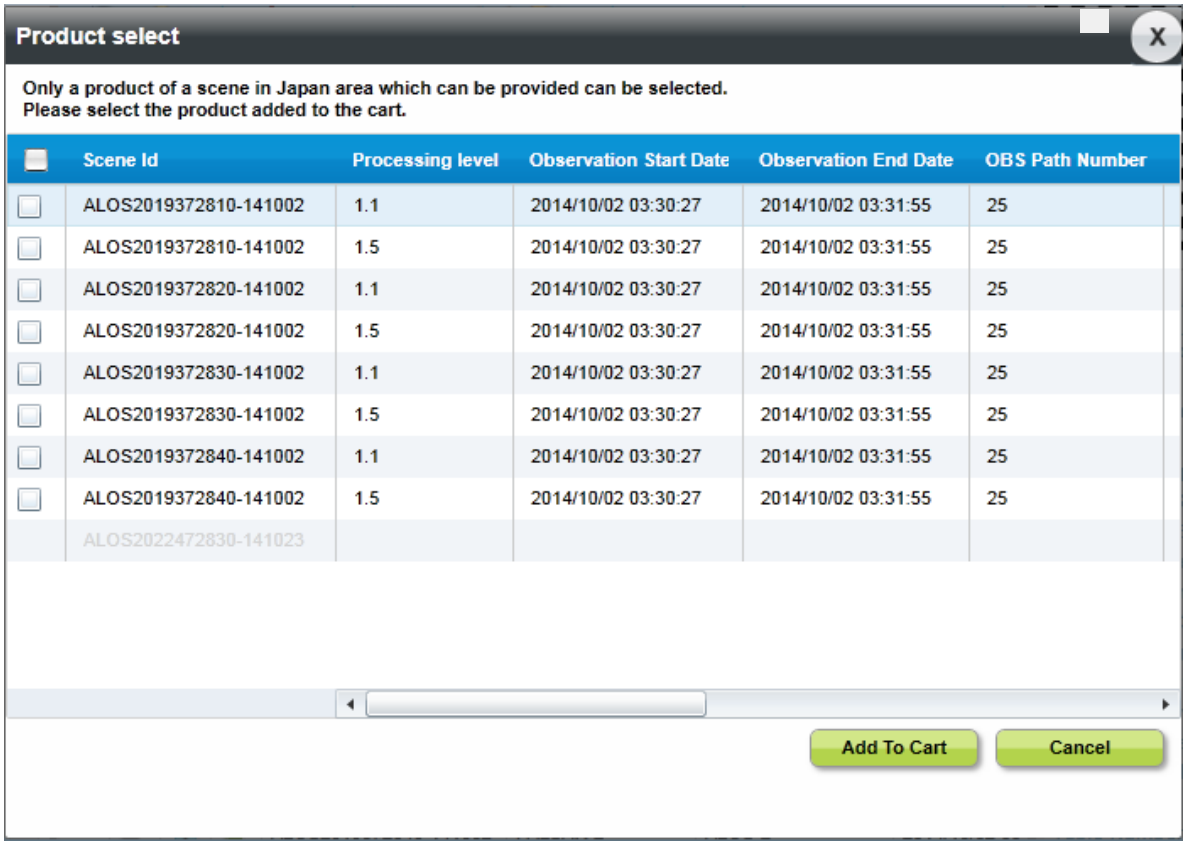


Figure 4-29 +1 Product select screen for Scenes in Japan

Note that scenes that contain no providable products cannot be selected on this screen.

When the Add To Cart button is clicked on this screen, products whose check boxes are selected are added to the cart.

c. Search results list

Table 4-14 Search results list

Items	Description
(Cart icon)	It shows that products of this row are added to the cart.
(Display icon)	In order to print the scene information etc., screen displaying the browser image and meta information of catalogue are displayed on independent window.
or (check icon)	Select any row from the search results list. Information of selected row linked with other functions (a. Search results list display method specifications b. Cart operations of panel.) Further, when icon of row header is checked as ON/OFF, all rows of search results list can be checked as ON/OFF in group.
Disaster information	It is displayed only in “Disaster product search”. Place, type, date, name of disaster are displayed. (Part ‘a’ of Figure 4-30)
Catalogue information	Column specified in search setting is displayed. Only in case of disaster product search, disaster information is displayed on priority (At the left side of display column of catalogue information)

When topic search is performed, information (Topic Location (Country, Region), of Occurrence Date and Time, and Topic Name) specific to topic search is displayed (Figure 4-30).

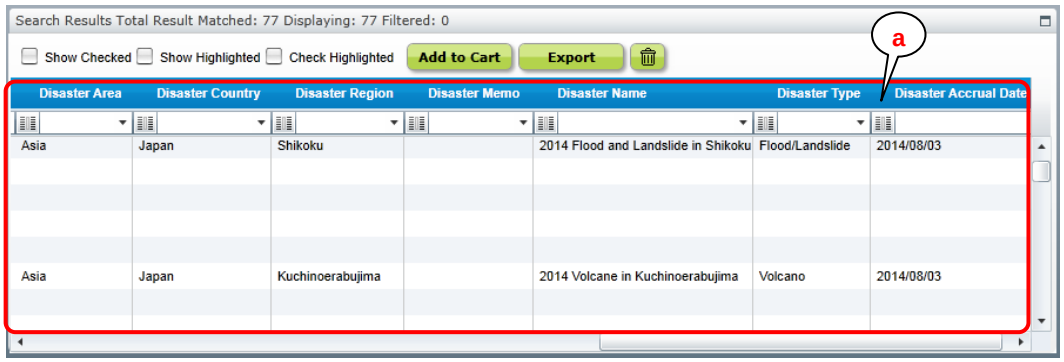


Figure 4-30 Topic information display

When PRISM triplet is included in search result, scenes having same representative direction get automatically displayed in a group (Figure 4-31).

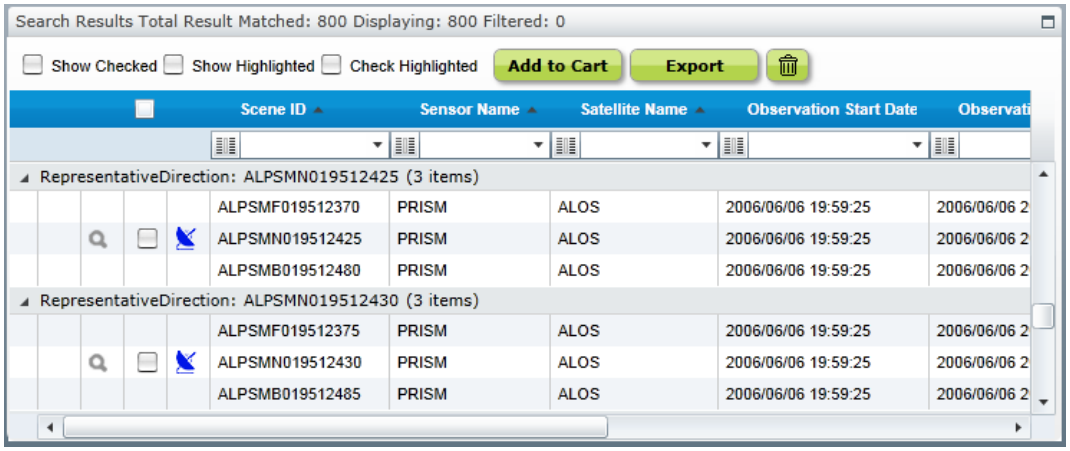


Figure 4-31 Display of search result of PRISM triplet

d. Highlight list

Table 4-15 Highlight list

Items	Description
Show All/Hide All	Shows/hides all the browse images of the highlight list.
Show foot prints/Hide foot prints	Shows/hides all the footprints on the map field.
or	Select any row of highlight list. The check box of the highlight list is linked to the check box of the search results list.
or (Browse image display switch button)	Specifies whether to display browse images on the map field. : Do not display browse images on the map field : Display browse images on the map field
Catalog information	Displays the scene ID and observation date and time.

e. Scene detailed information panel

Catalog information of scene (or product) selected in the search results list is displayed.

When icon is clicked, all screens are displayed on panel. Detailed information of scene can be printed by using the print function of browser.

5 Method to Order Product

Product added in the Cart is ordered.

Click on “Cart” from Common menu on the top of the screen to open Product Order screen.

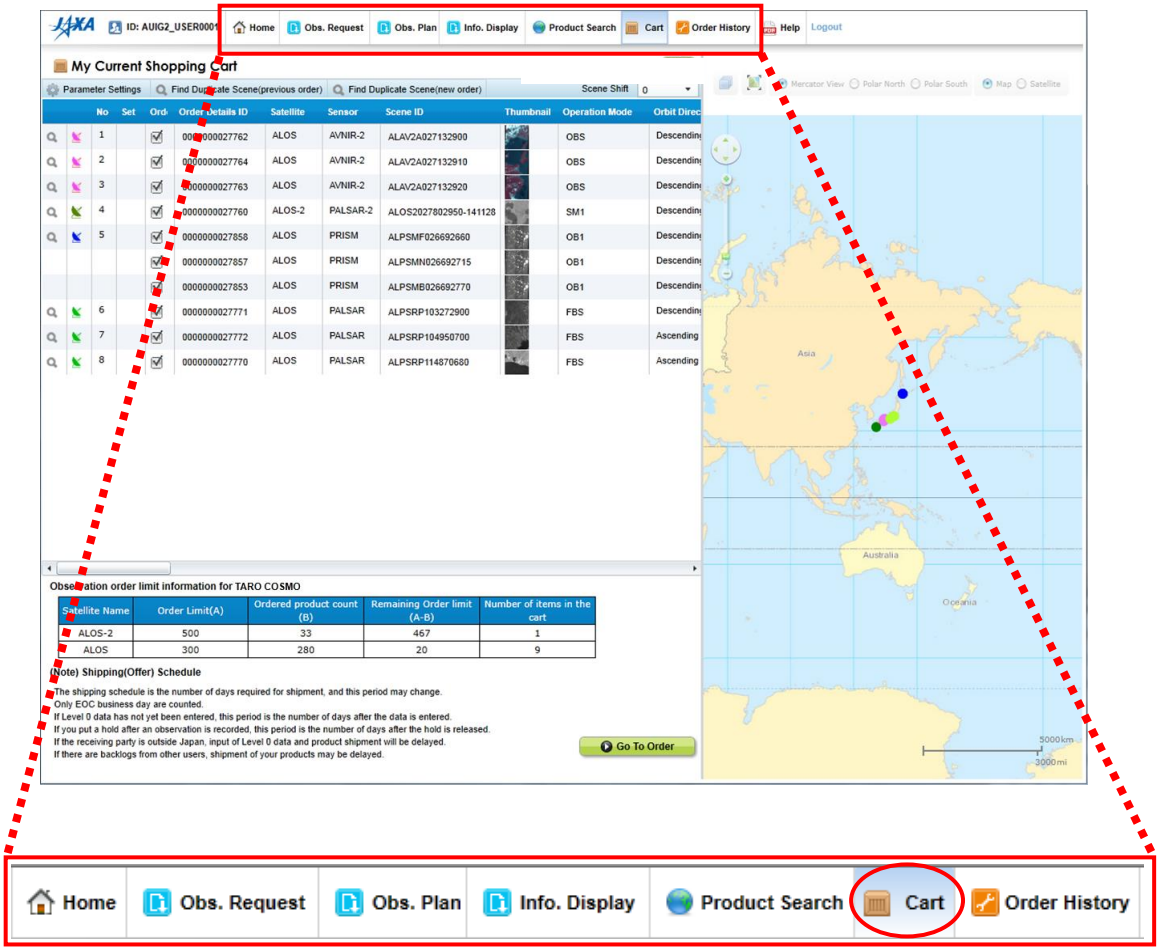


Figure 5-1 Common menu

5.1 Composition of Cart screen

You can confirm the products added to Cart, specify order option and place an order through Cart screen. The cart consists of three areas, namely "Cart operation area" shown as ‘a’ in Figure 5-2 where you can configure an order, "Product operation area" shown as ‘b’ in Figure 5-2 where you can place an order, and "Order limit area" shown as ‘c’ in Figure 5-2 that displays the user's order information.

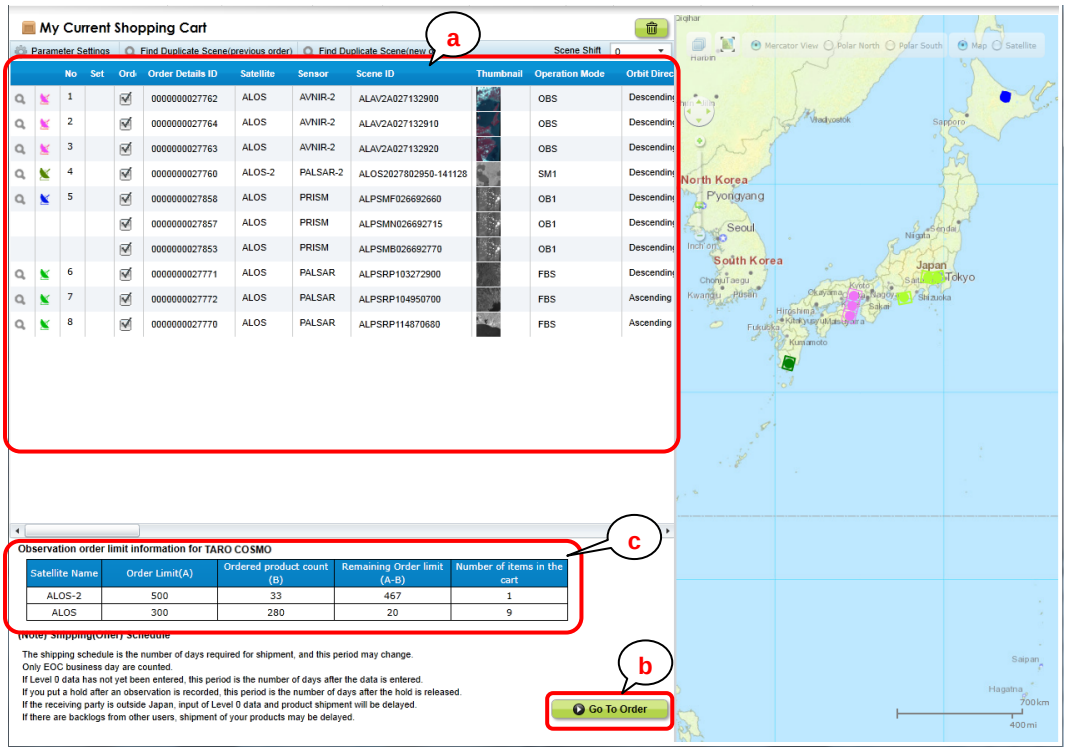


Figure 5-2 Overall composition of Product Order screen

Table 5-1 Items composing Product Order screen

Screen Items	Description
(a) Cart operation area	It confirms and edits Cart details. It displays order count in cart.
(b) Order operation area	It carries out order procedures on the basis of details currently entered in Cart.
(c) Order limit area	It displays the order limit information allocated to the user. Order limit is assigned on the basis of the agreement concluded separately. Order limit may be set for each satellite (ALOS, ALOS-2) depending on the agreement content.

5.2 Operational overview of product order

Basic steps to order are as follows.

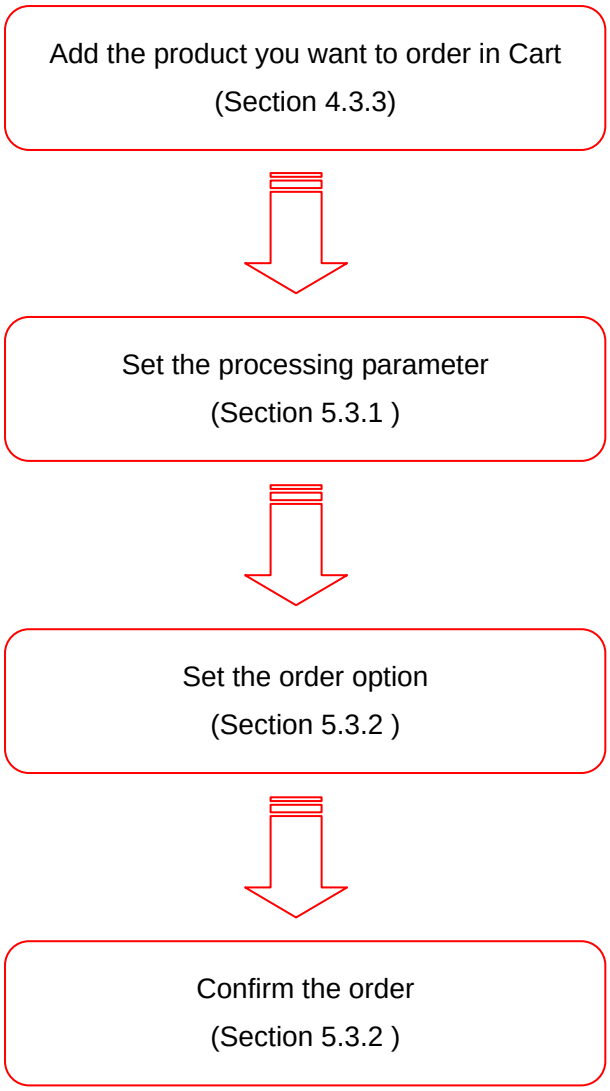


Figure 5-3 Basic steps for ordering product

① Select the check box (☑) for the product you want to order from Search Results panel.

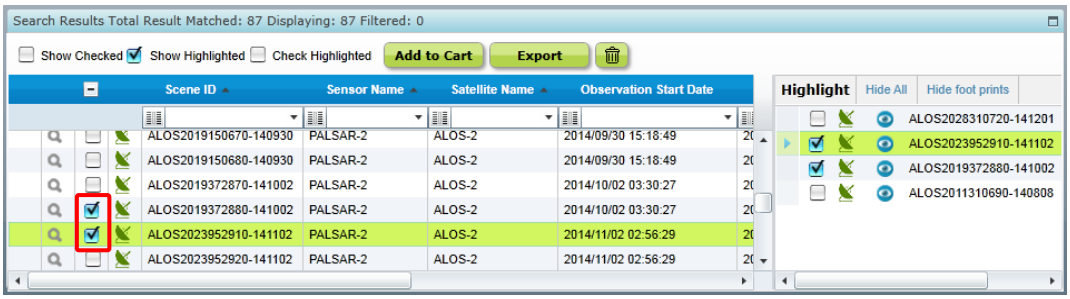


Figure 5-4 Product order - Operational steps ①

② When you click on the Add to Cart button, selected product will be added to Cart. Further, 🛒 icon appears in row of list which shows that product is added to Cart.

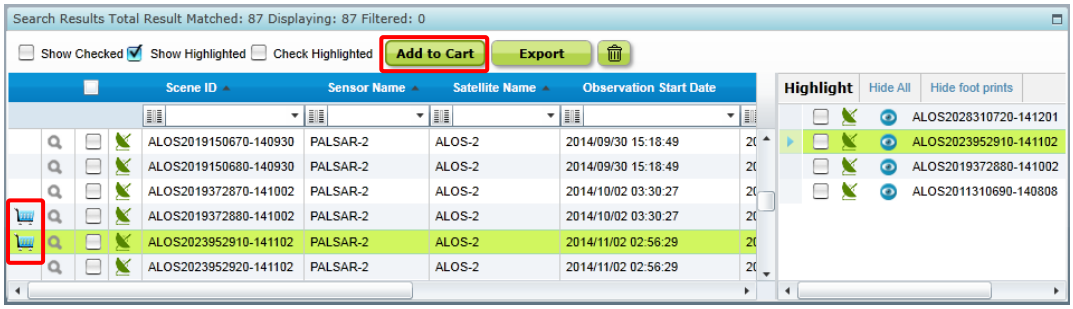


Figure 5-5 Product order – Operational steps ②

When a user for whom product provision is limited to Japan clicks the Add To Cart button, the Product select screen for scenes in Japan is displayed. See section 4.3.3 for details about the Product select screen for scenes in Japan.

③ Click on “Cart” in the common header to see the current product list added to Cart.

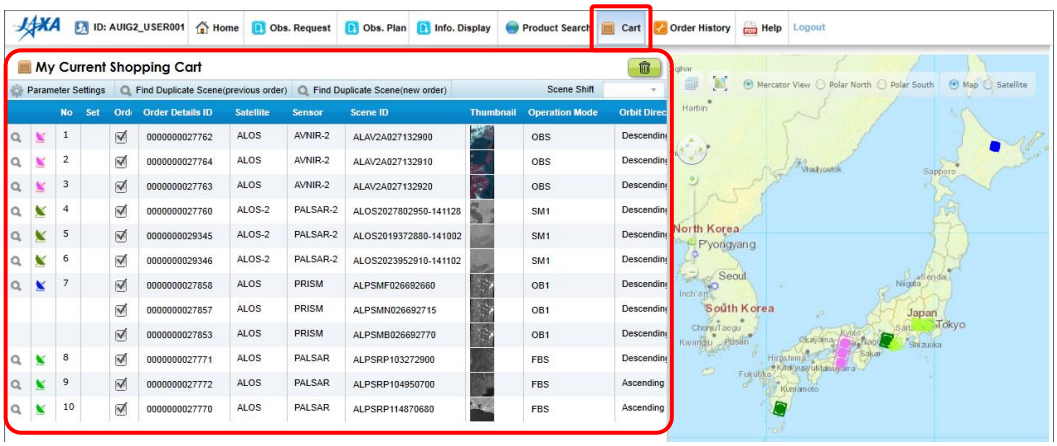


Figure 5-6 Product order – Operational steps ③

④ For Parameter Settings, select the order you want to set and click on “Parameter Settings”. (You can skip this step if you do not want to perform parameter settings.)

* If you skip this step, “1.5” or “1B2” is applied as the processing level.

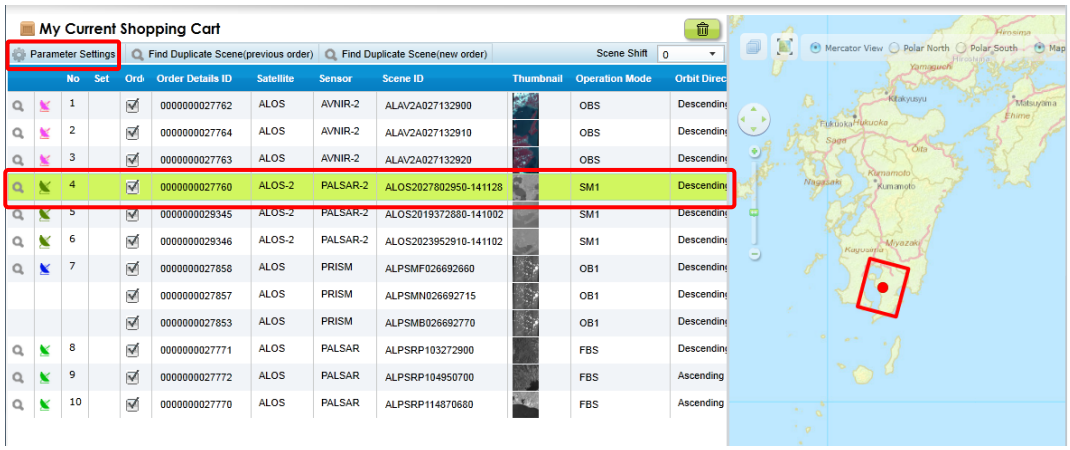


Figure 5-7 Product order - Operational steps ④

⑤ Parameter Settings dialog appears. Select (or type) scene shift and parameter items you want to set and confirm the settings by clicking “Update”. (You can skip this step if you do not want to perform Parameter Settings).

* The default processing level is “1.5” or “1B2”.

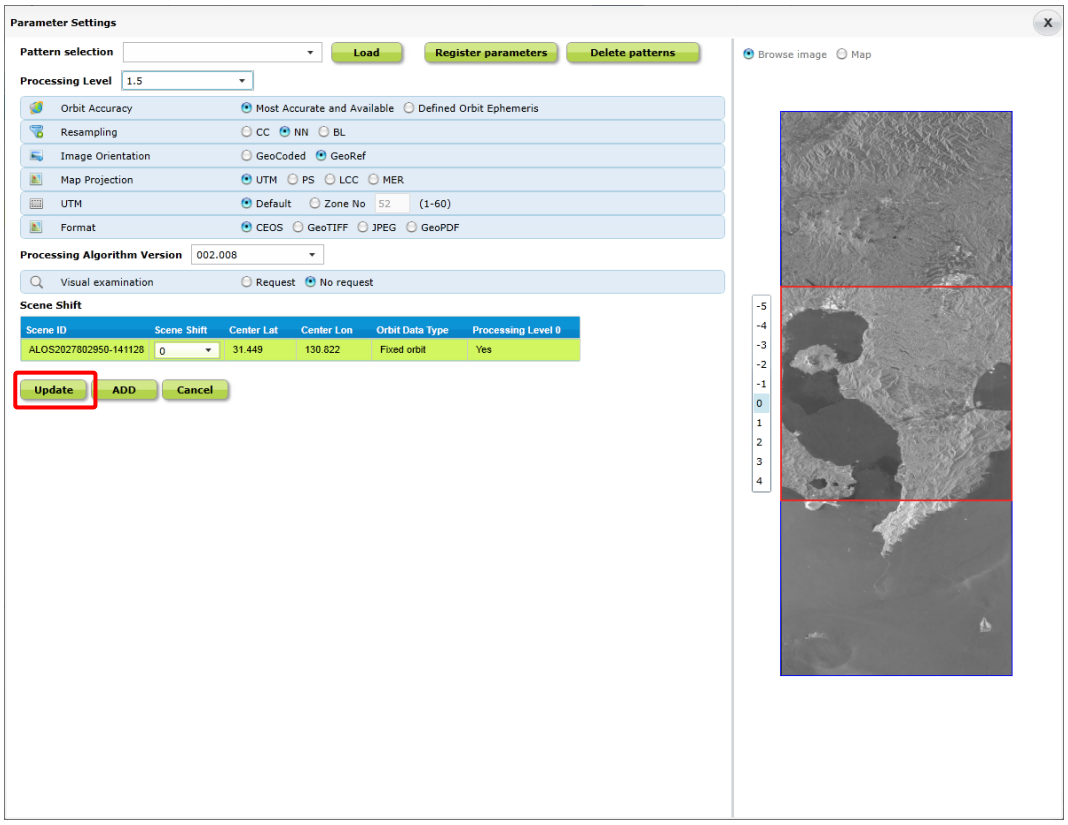


Figure 5-8 Product order - Operational steps ⑤

⑥ On the completion of Parameter Settings, it returns to Product Order screen.  icon shown in the list indicates that parameter setting is other than default value.

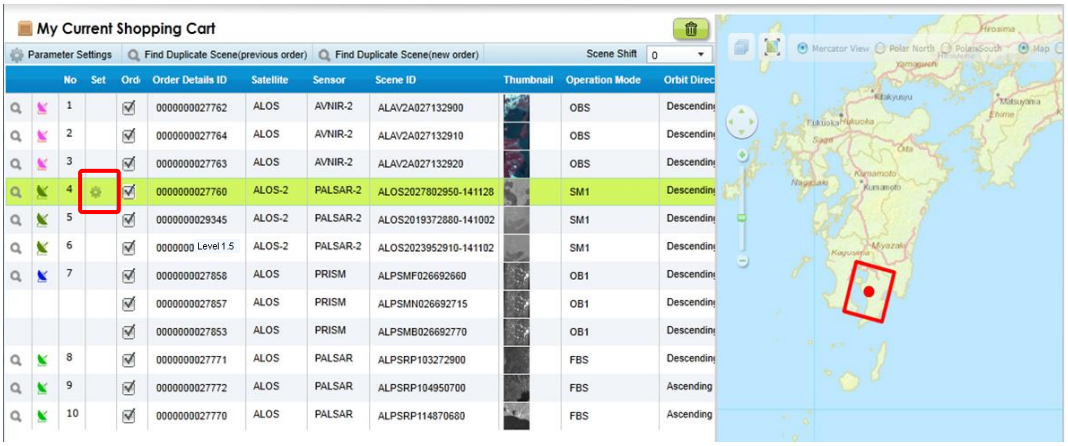


Figure 5-9 Product order – Operational steps ⑥

⑦ After confirming the Cart details and finishing the Parameter Settings, click on Go To Order to open Order flow.

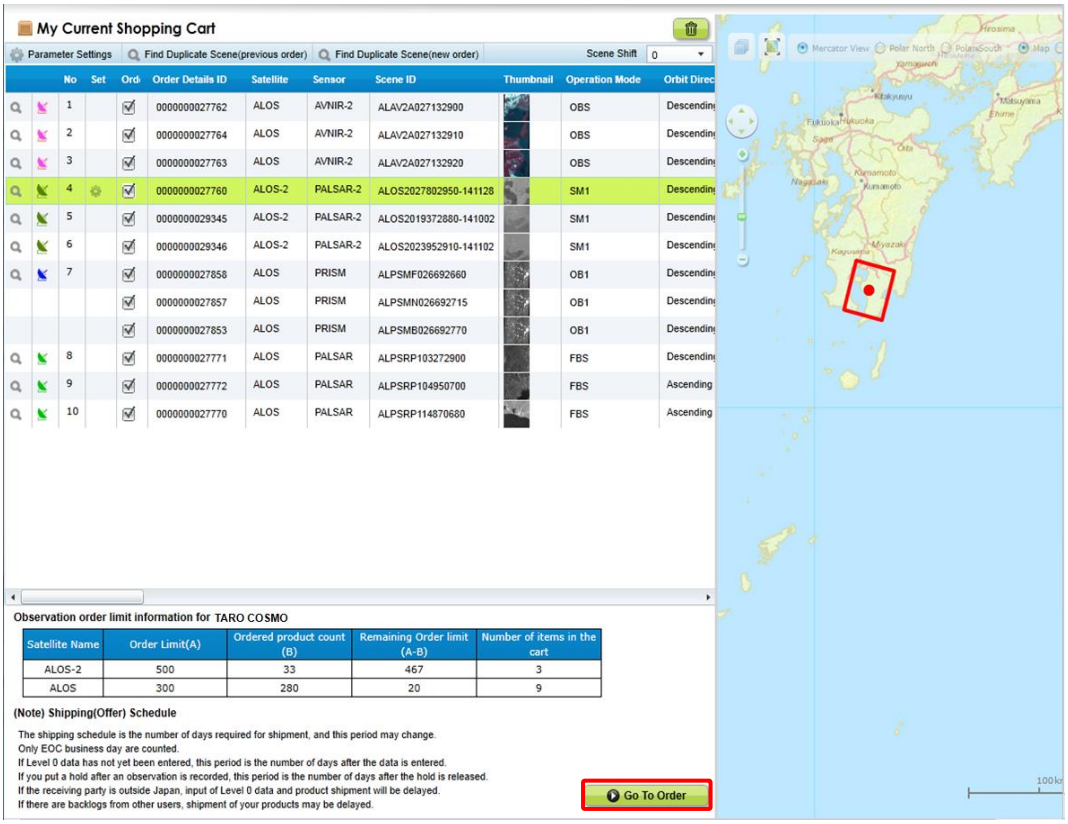


Figure 5-10 Product order - Operational steps ⑦

⑧ After specifying the order options, click on Next to move to next screen.

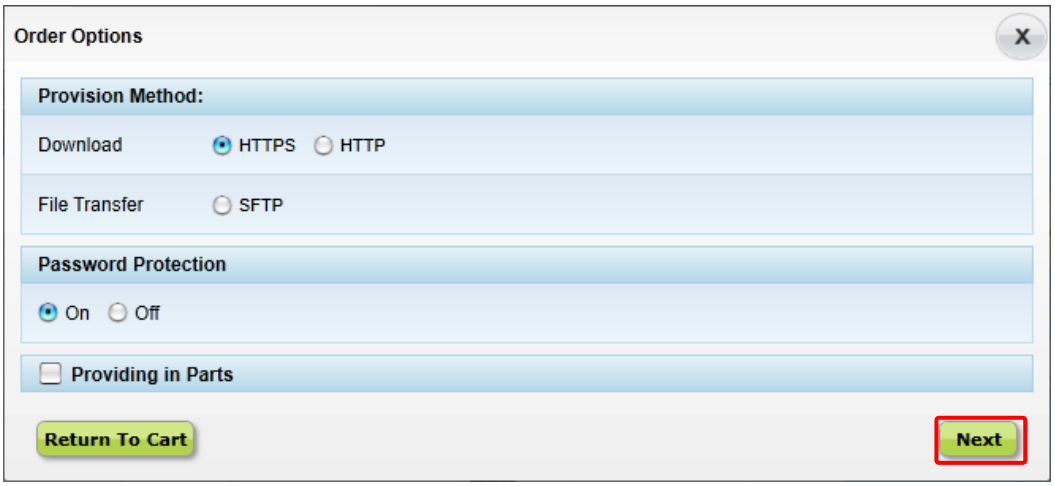


Figure 5-11 Product order – Operational steps ⑧

⑨ Click on 

after confirming the Cart details and order options. If you click [OK] in Confirmation dialog of final order, order is confirmed.

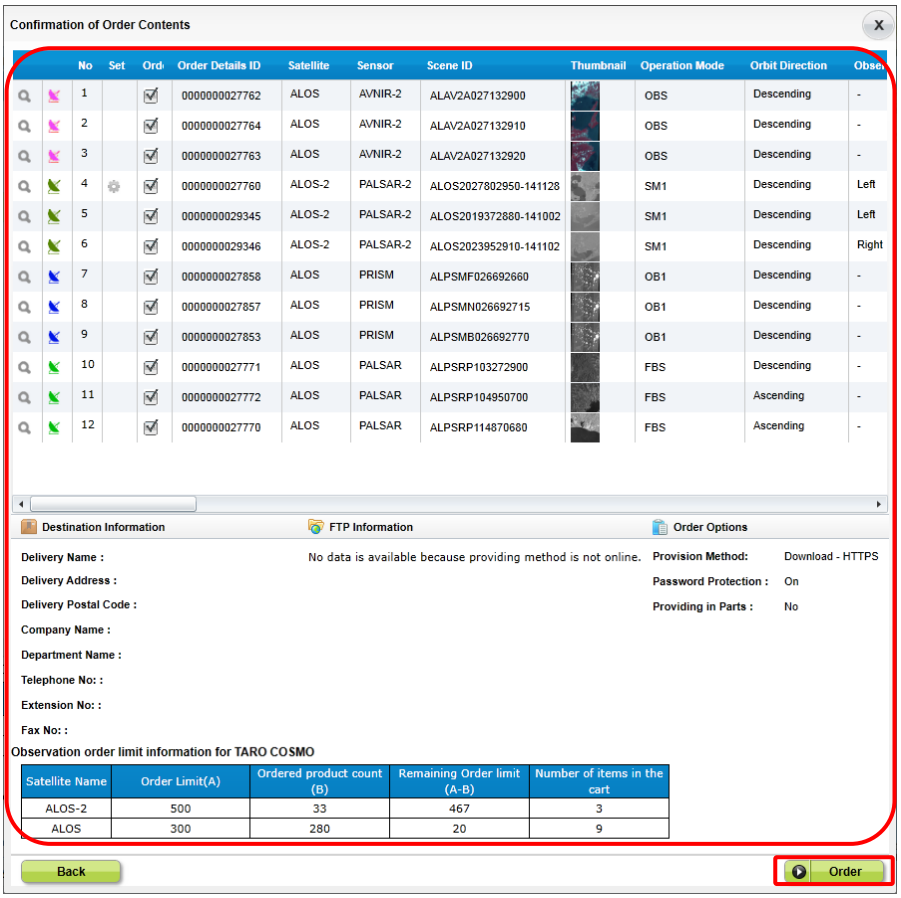


Figure 5-12 Product order – Operational steps ⑨

⑩ Order is complete now. Details of received order are shown in the screen. Click [Go To Order History] or [Go To Search Window] and close the screen.

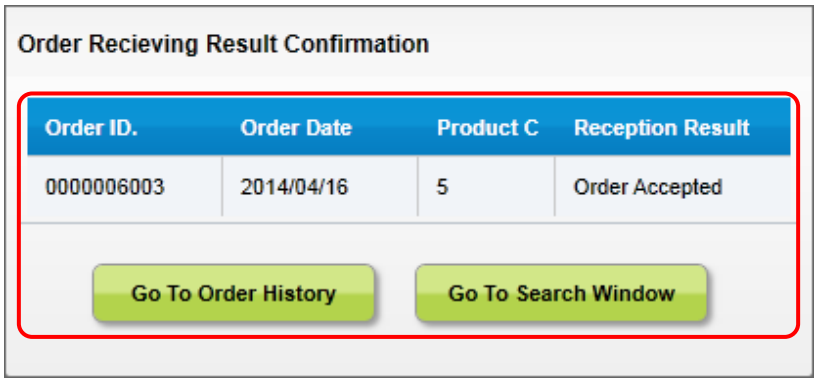


Figure 5-13 Product order - Operational steps ⑩

5.3 Description of screen

5.3.1 Cart operation area

Confirmation of details of all the products and parameter settings are performed for the products added to Cart.

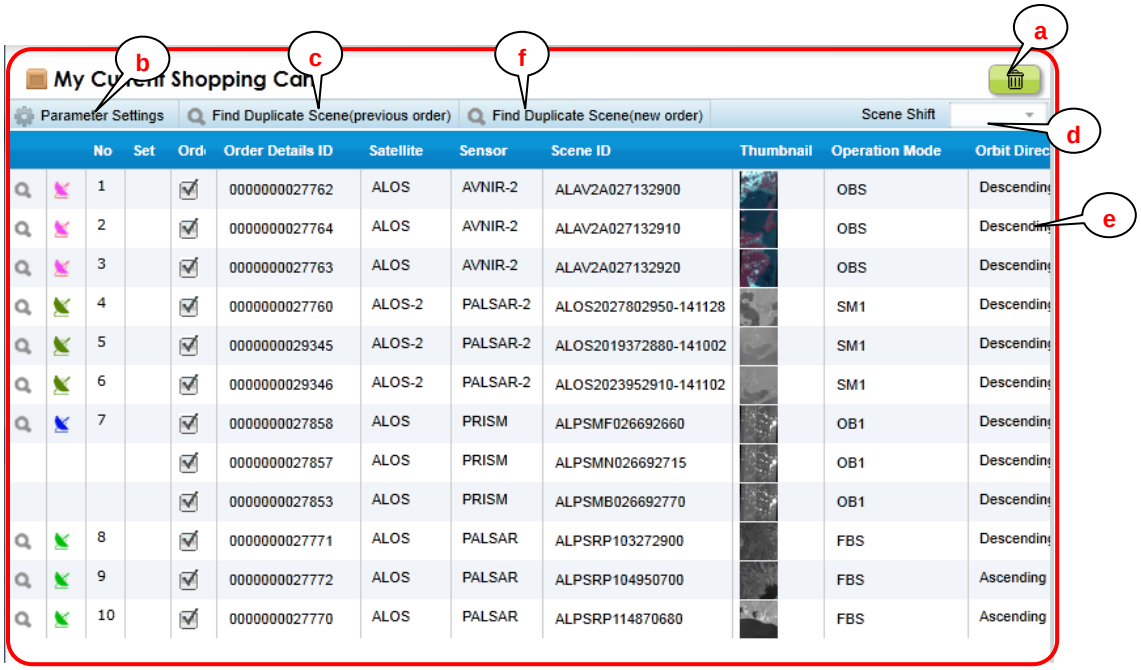


Figure 5-14 User interface of Cart operation

Table 5-2 Items composing Cart operation area

Screen Items	Description
(a) Recycle bin button	It deletes the selected products from Cart.
(b) Parameter Settings button	It performs parameter settings for the products selected in the Cart list.
(c) Find Duplicate Scene (previous order) button	It checks the duplicate order by comparing the products added to Cart and products ordered in the past.
(d) Scene Shift settings	It sets the scene shift value for the products selected in the Cart list.
(e) Cart list	It shows the list of products currently added to Cart. When list is long, content is displayed by page break.
(f) Find Duplicate Scene (new order) button	It checks for duplicate orders among the products added to Cart.

a.  (Recycle bin button)

You can delete the selected products from the Cart details list. Select the product you want to delete and click on Recycle bin icon, the corresponding product will be deleted from Cart.

b. Parameter Settings button

Specify the parameter for all the products added in Cart.

Select the product for which you want to perform parameter settings from Cart list. Click on “Parameter Settings” to open Parameter Settings dialog (Figure 5-15).

Items, which can be set, vary according to sensor and processing level (Appendix 1). In case multiple rows are selected in Cart list, only the common parameters can be set at once for all the selected rows. Processing parameter of 3 views (forward, nadir, backward) showing same point can be simultaneously specified for ALOS PRISM.

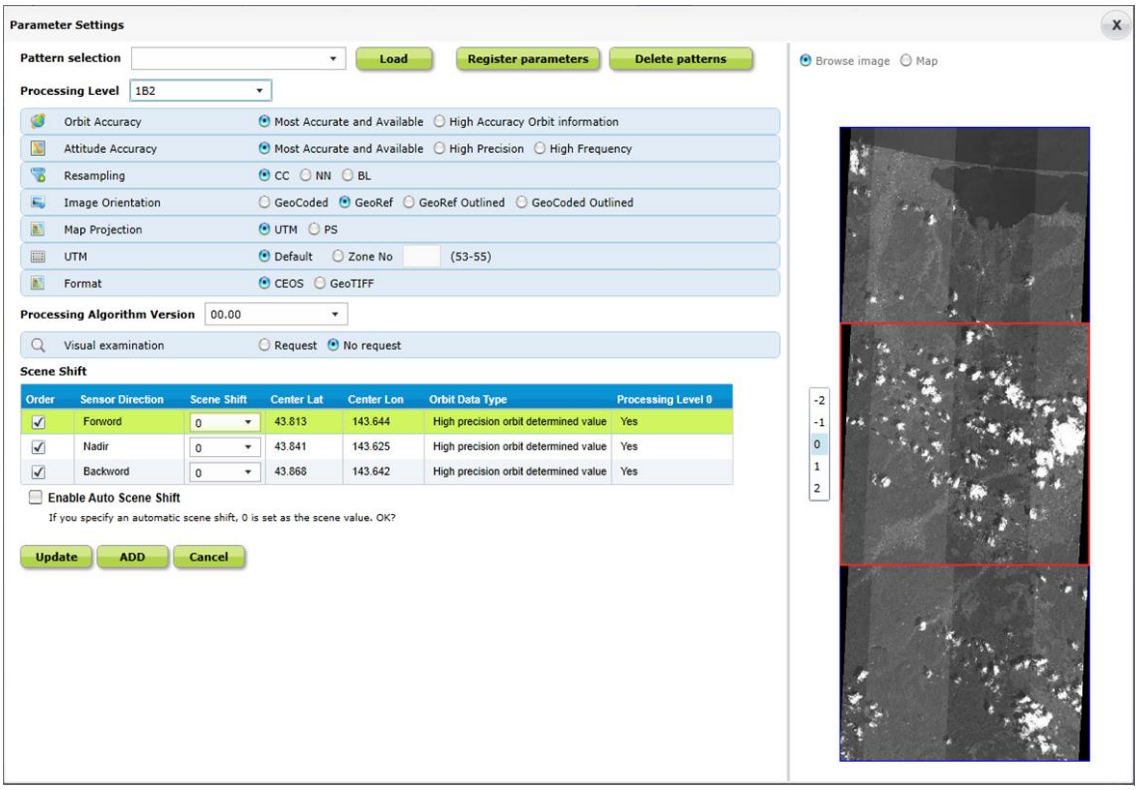


Figure 5-15 Parameter Settings dialog (example of ALOS PRISM level 1B2 setting)

Table 5-3 Buttons in Parameter Settings dialog

Buttons	Description
Load	Loads the pattern specified during pattern selection and reflects it to the parameter values on the screen.
Register parameters	Registers a pattern by assigning a name to the values currently set on the screen.
Delete patterns	Deletes the pattern selected from the list of registered user patterns.
Check box (Enable Auto Scene Shift)	If you select (turn ON) the check box, the amount of shift is automatically set in “Scene Shift” boxes of Forward and Backward so that the portions overlapping the Nadir scene become the maximum.
Update	It confirms the details of Parameter Settings dialog and returns to Cart screen. Original order for editing is overwritten depending on the modified processing level and parameters.
ADD	Order is added depending on current processing level and parameters. In such cases, original order for editing is not overwritten.
Cancel	It returns to Cart screen without saving the settings of the current Parameter Settings dialog.
Browse Image	Displays the browse image together with the adjacent scenes in order to adjust the scene shift value.
Map	Displays the currently selected footprint of the scene on the map.

i. Parameter Settings

For the file selected from the cart list, select a processing level and set the values of the parameters to be displayed. The processing levels and parameter values that can be specified vary depending on the user. The default processing level is “1.5” or “1B2”. The setting items when processing level 1.5 is selected for ALOS-2 PALSAR2 scenes are shown in Table 5-4.

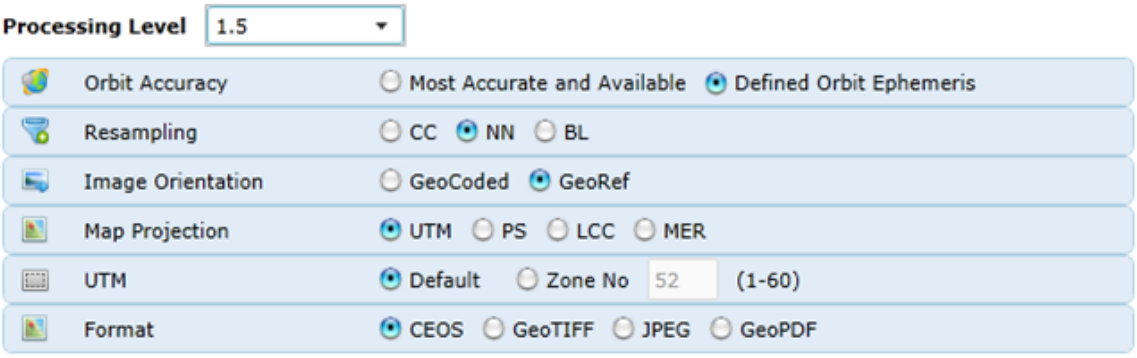


Figure 5-15+1 Processing parameters

Table 5-4 Setting items of Parameter Settings dialog (Example of ALOS-2 PALSAR-2 Level 1.5)

Setting items	Description (Underlined text represents default value)
Resampling method	It specifies the interpolation technique. • Nearest neighbor: Nearest Neighbor • Cubic Convolution: Cubic Convolution • Bi-Linear: Bi-Linear
Map projection	It specifies the Map projection method. • UTM: Universal Transverse Mercator • PS: Polar stereo • LCC: Lambert Conformal Conic • MER: Mercator
Image orientation	It specifies the image orientation. (For L1.5/L3.1) • Geo-reference:Projection towards orbit • Geo-code: Projection towards geographic coordinates
UTM zone number	It specifies the zone number to be projected when scene specified with Map projection “UTM” is extended in multiple UTM Zone. • Do not specify: Automatically decided by system • UTM zone number: Zone number specification

Setting items	Description (Underlined text represents default value)
PS standard longitude	It specifies longitude which becomes standard when Map projection “PS” is specified. • Do not specify: Automatically decided by system • Longitude specification: (-179.999°~180.000°)
LCC standard latitude	It specifies latitude which becomes standard when Map projection “LCC” is specified. • Do not specify: Automatically decided by system • Latitude specification 1 and latitude specification 2 : When Scene center latitude is northern hemisphere (0.000°≦ b < x < a < 90.000°) : When Scene center latitude is southern hemisphere (-90.000°≦ a < x < b < 0.000°) * a and b represent standard latitude 1 and standard latitude 2. * x is scene center latitude.
LCC source latitude	It specifies latitude which becomes standard when Map projection “LCC” has been specified. • Latitude specification : (-90.000°~90.000°)
LCC source longitude	It specifies longitude which becomes standard when Map projection “LCC” has been specified. • Longitude specification : (-179.999°~180.000°)
Orbit accuracy	Method to decide precision orbit data to be used • Most Accurate and Available • High precision orbit information
Scene shift	It specifies scene shift volume. • Scene shift volume specification : (-5~0~4)
Format	It specifies the file format used at the time of providing. (Note that some formats might not be available for some users.) • CEOS • GeoTIFF • JPEG • GeoPDF

ii. Processing Algorithm Version

Select the version of the processing software for the satellite/sensor/processing level from the pull-down menu. (This feature is available only for some authorized users.)

iii. Visual examination

When producing products, operators are requested to carry out quality check through visual examination. (This feature is available only for some authorized users.)

iv. PRISM Triplet Order Parameter Settings

These parameters can be batch set if PRISM triplet indicating the same scene position has been registered to the cart. Moreover, by selecting the check box(es) of the scenes to be ordered from the three views (for example, forward view only), it is possible to order only the required scene from the PRISM triplet set.

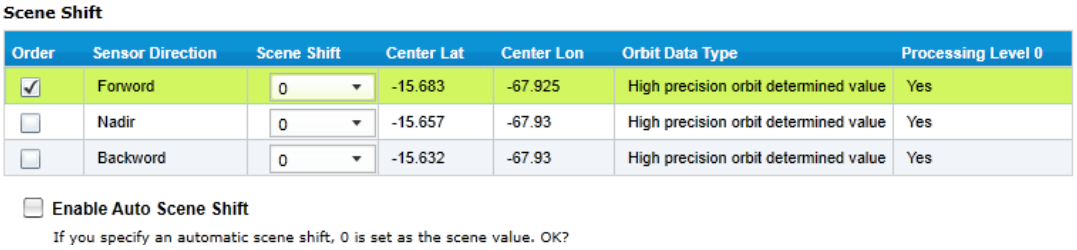


Figure 5-16 Order parameters setting of ALOS PRISM triplet

If the “Enable Auto Scene Shift” check box is selected, the amount of shift is automatically set in the “Scene Shift” boxes of Forward and Backward so that the portions overlapping the Nadir scene become the maximum.

v. Processing Parameters Pattern Registration

The combination of processing parameters selected according to the sensor, processing level, etc., and their values can be saved under a given name as a processing parameters pattern. The value settings of the parameters can be restored by loading the saved patterns. In addition to the patterns registered by the users, default and recommended patterns are available.

vi. Switching Between Browse Display and Map Display

By selecting the “Browse Image” and “Map” option buttons, it is possible to switch between the browse display screen showing the currently selected scene along with the browse images (Figure 5-16+1), and the map display screen showing the footprint on the map (Figure 5-16+2).

The overlapping status of the PRISM triplet can be checked on the map by using the map display screen.

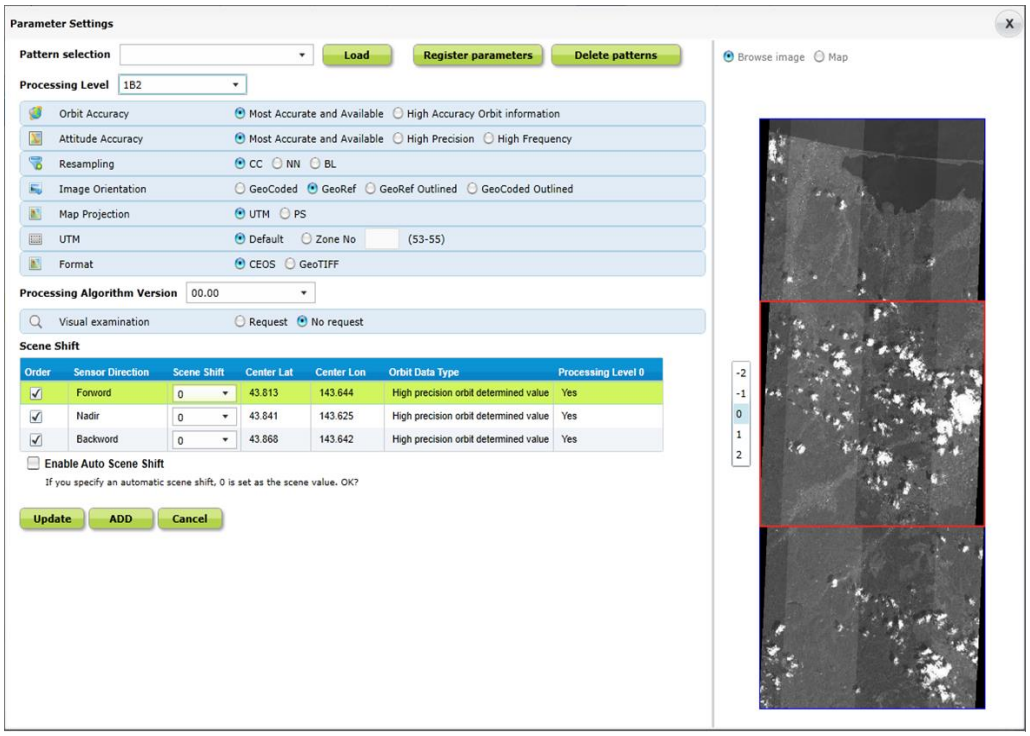


Figure 5-16+1 Browse display parameter settings dialog box

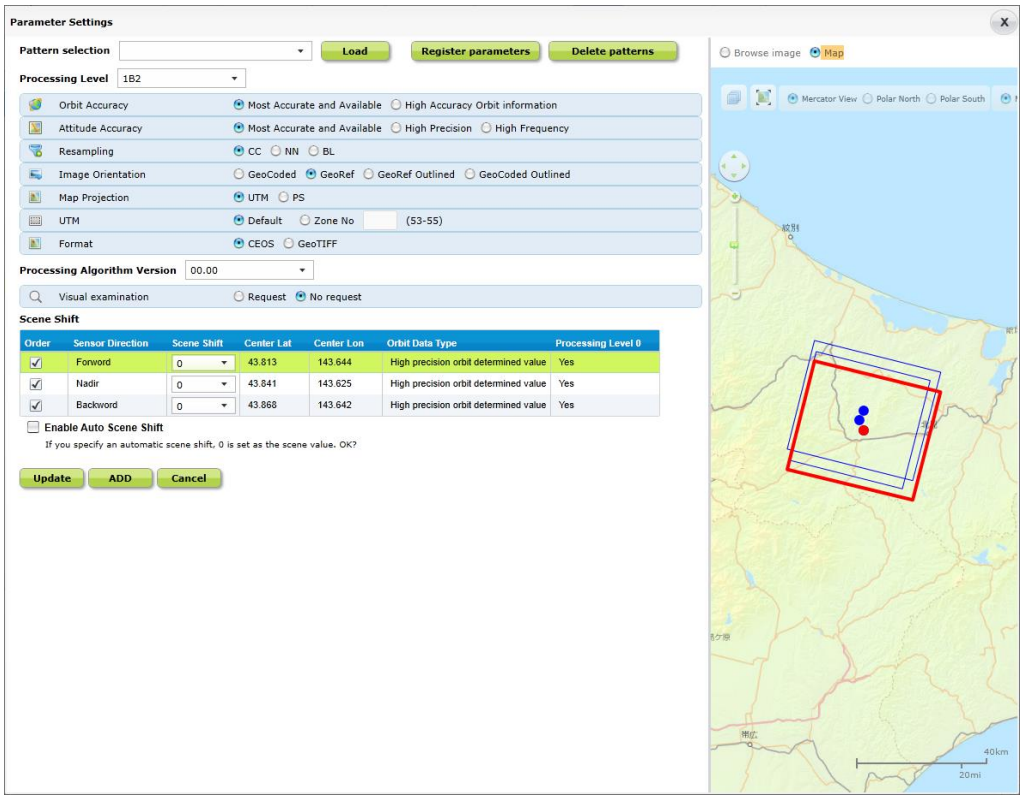


Figure 5-16+2 Map display parameter settings dialog box

c. Find Duplication Scene (previous order) button

It checks the order history. If purchase record of same Scene ID exists, it highlights the corresponding data row of same Scene ID.

d. Scene shift settings

It specifies the scene shift volume. You can specify the scene shift volume from the “Scene Shift” pull-down list by selecting the product for which you want to set scene shift from Cart list.

e. Cart list

It displays the list of the scenes (or products) currently added to Cart. When number of scenes (or products) added to Cart is more, page feeding is displayed at the bottom right of list, because number of scenes are displayed by filtering the number of rows to be displayed at once.

Table 5-5 Cart list display items

#	Items	#	Items
1	Product information details display button	2	Satellite icon
3	No.	4	Settings icon
5	Order details ID	6	Satellite
7	Sensor	8	Scene ID
9	Processing level	10	Format
11	Map projection	12	Path
13	Frame	14	Scene shift
15	Image orientation	16	Pixel size
17	Central latitude	18	Resampling
19	UTM zone	20	Map orientation
21	Orbit precision	22	Posture accuracy
23	Catalog ID	24	Upper left latitude
25	Upper left longitude	26	Upper right latitude
27	Upper right longitude	28	Lower left latitude
29	Lower left longitude	30	Lower right latitude
31	Lower right longitude	—	

f. Find Duplicate Scene (new order) button

It checks the orders for the products added in Cart list. If purchase records that have the same scene ID, processing level, and processing parameter are found, the corresponding data rows are highlighted.

5.3.2 Order operation area

It specifies the order method and then place an order.

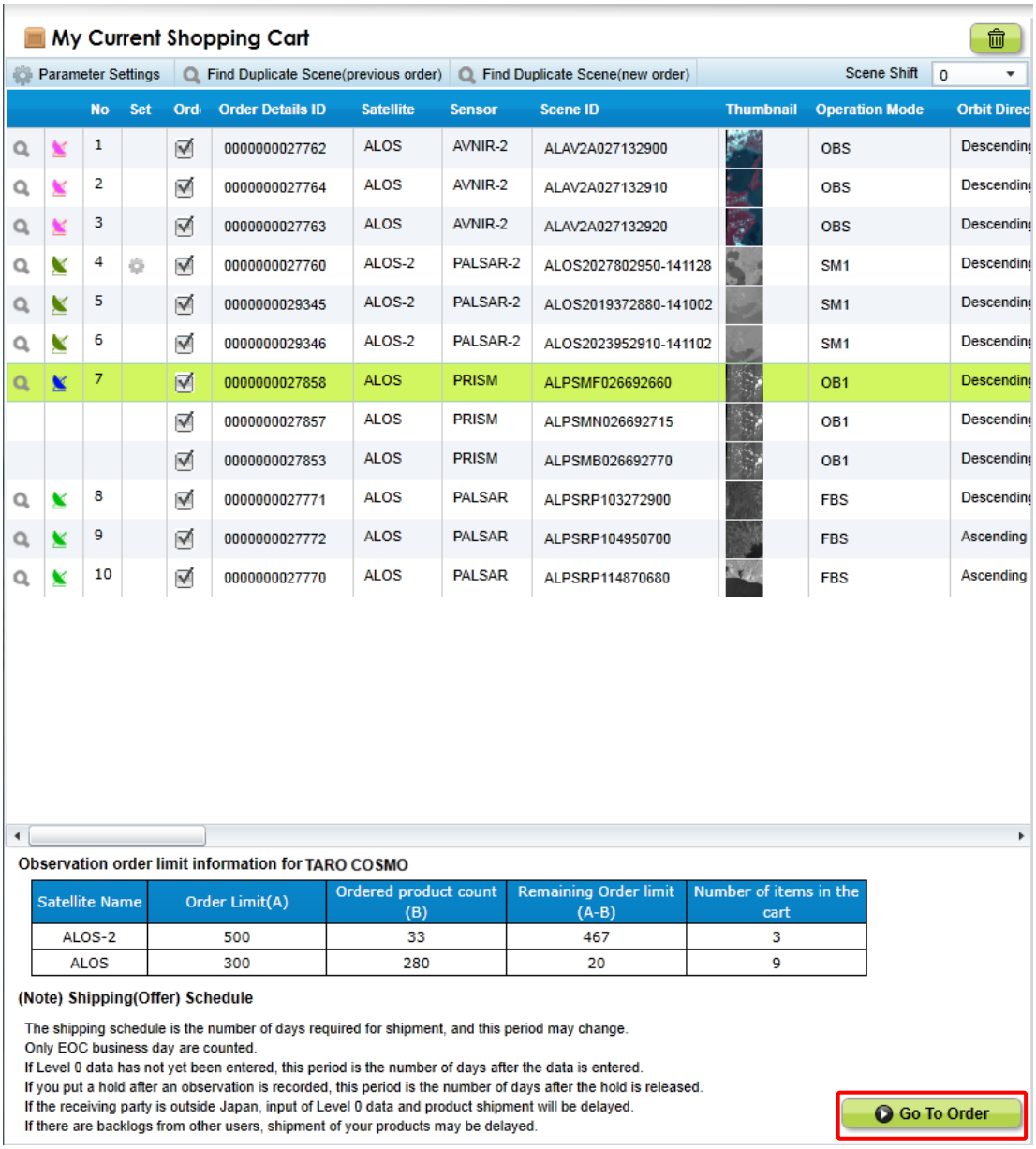
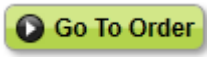
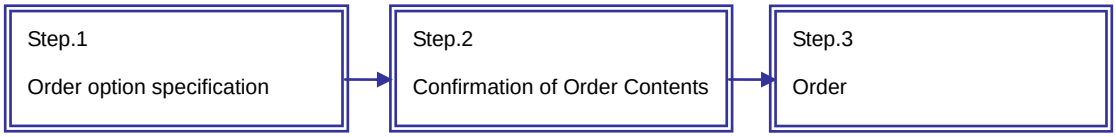


Figure 5-17 Buttons of Order operation area

When you click the 

button, order flow starts.

Order flow has 3 steps as mentioned below.



Step.1 Order option specification

In this screen, order option is specified. Order options such as Provision method and Delivery address are specified in the Order Options.

Click the Next button to move to “Step.2 Order confirmation”.

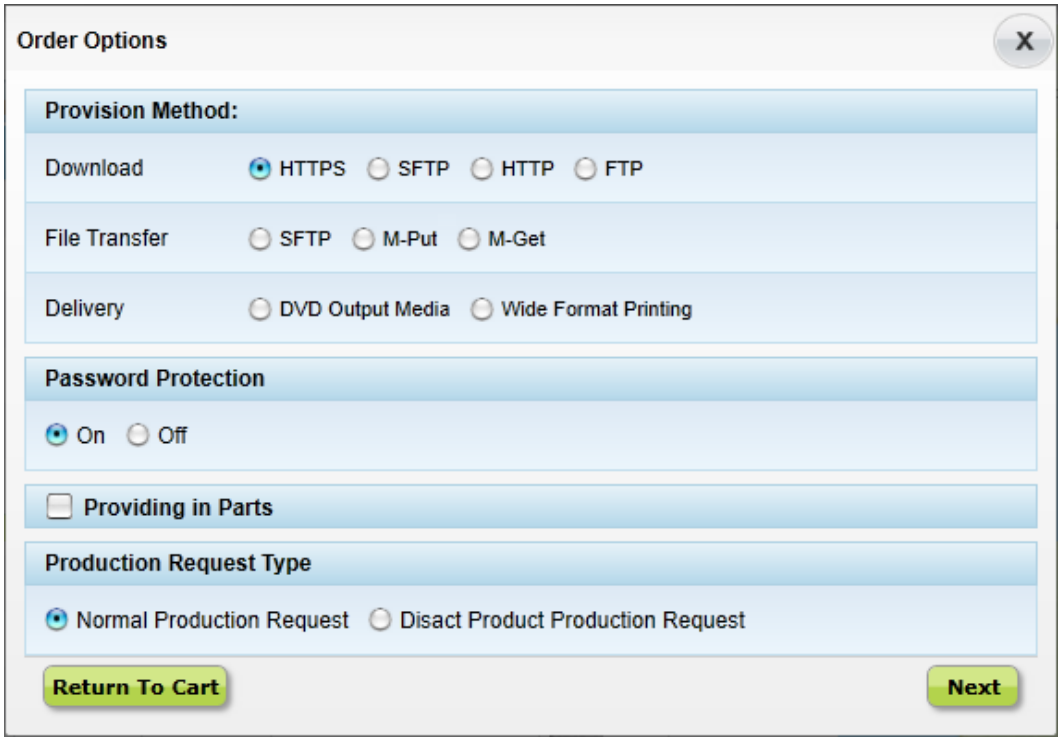


Figure 5-18 Order option dialog

Table 5-6 Button of Order option dialog

Button	Description
Next	It navigates screen to Order details confirmation dialog.
Return To Cart	Order flow is stopped, returns to Cart screen. Cart details are not deleted.

Table 5-7 Set-up items in Order option

Items	Description (Underlined text represents default value)
Provision Method	It specifies method for obtaining ordered product. (The provision methods indicated by "*" can only be used by limited users.) ■ Download • HTTPS: Manual downloads through browser etc. • HTTP: (Same as above) • SFTP: Manual downloads through FTP tool etc.* • FTP: (Same as above)* ■ File Transfer* • SFTP, M-Put, M-Get: It automatically forwards to FTP server registered in advance. ■ Delivery* • DVD Output Media • Wide Format Printing
Password Protection[2]	Specify whether to password protect or not the providing file. • On: Password protect • Off: Not password protected
Providing in Parts[345]	Specify whether to individually order the products in the Cart. • Selected: Products currently added to the Cart are ordered by splitting it as one order per product. It is enabled when you want to make the receiving faster even a little bit. • Cleared: Products currently added to the Cart are ordered as one order. All the products can be downloaded from the moment providing has become possible.

[2] Password to be set is shown in AUIG2 after placing the order.
[3] Product receiving (such as download) is performed per order. If two or more products are included in one order, it may take some time to receive the product. It is possible to make the receiving faster for the products which can be downloaded individually by dividing multiple products into one order.
[4] Maximum file size for one order is defined separately. Split order has to be performed for the order of file size exceeding the maximum limit.
[5] If this check box is selected, one product is provided for each order irrespective of the provision method.

Items	Description (Underlined text represents default value)
Production Request Type	Select whether to make the production type of an order the normal type or disaster type. (This feature is available only for some authorized users.). • Normal Production Request: Specify this option to perform normal production processing. • Production Request for a disaster: Specify this option only when placing order as a disaster product.

Step.2 Confirmation of Order Contents

In this screen, confirmation of order details (Cart details, parameter settings, order option) is performed.

Click the Order button for confirming the order process. You can check the result of Order confirmation process from the screen of “Step.3 Order”.

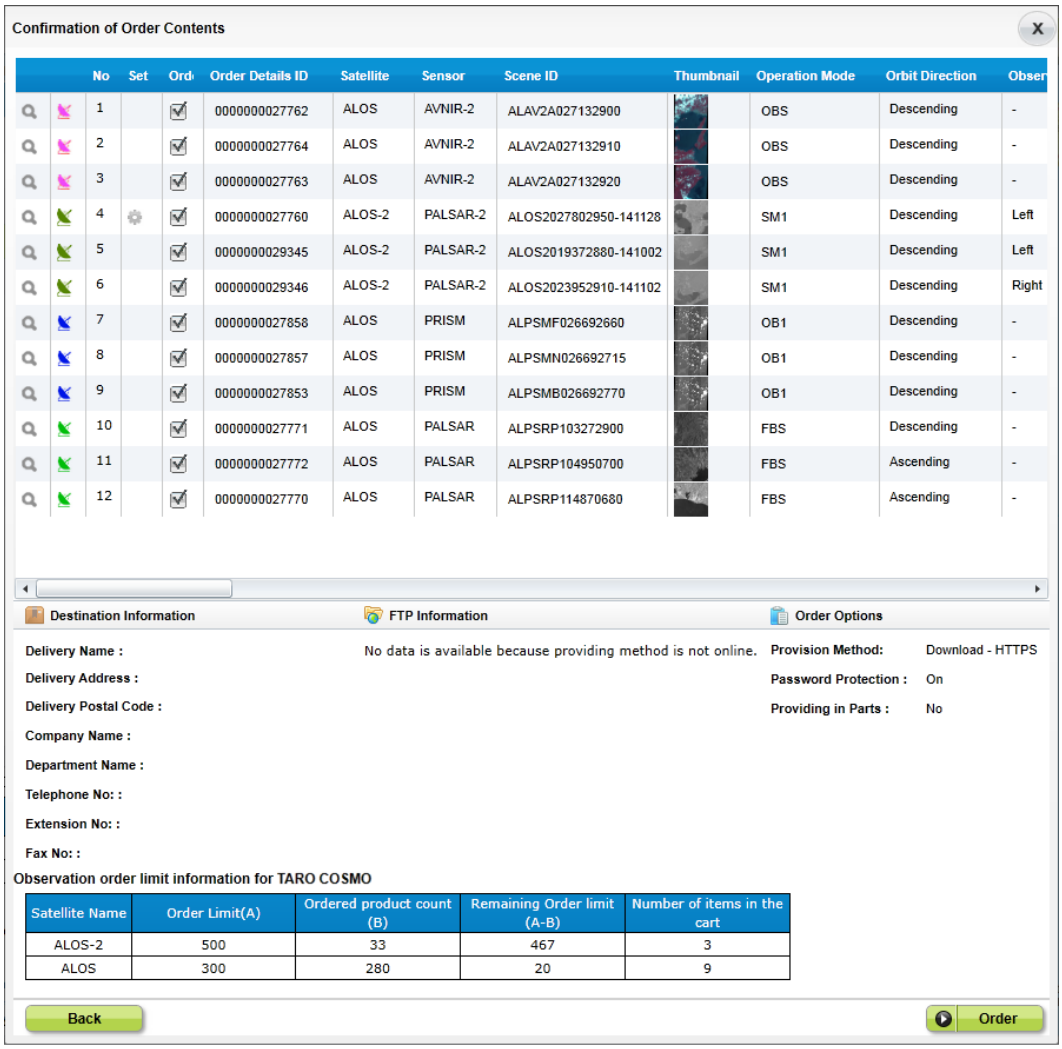


Figure 5-19 Order confirmation dialog

Table 5-8 Buttons of Order option dialog

Buttons	Description
Order	It confirms the order. (If you click “OK” in confirmation dialog, displayed after clicking this button, then order is confirmed)
Back	It returns to previous dialog (Order option).

Step.3 Order

It confirms order. If you click the “Order” button, dialog to confirm order is displayed. If you click the “OK” button of dialog, order is confirmed and Order Receiving Result is displayed. Order Receiving Result can also be notified via mail. (Appendix 3)

Please note that confirmed order cannot be changed. If it is required to change, you may have to place order again by cancelling the current order (Refer to Table 6-6 in Chapter 6).

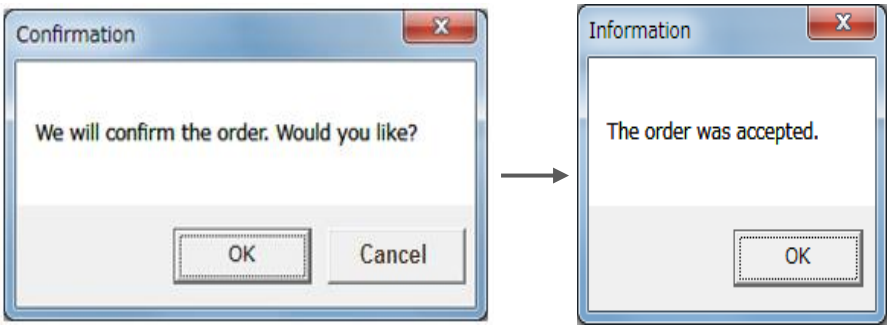


Figure 5-20 Confirmation dialog before order

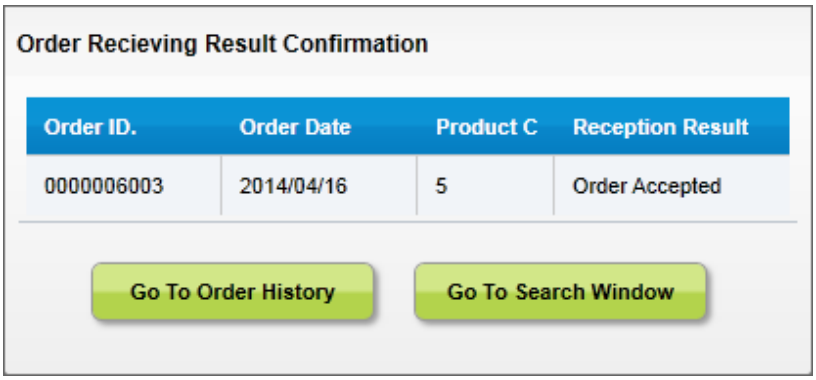


Figure 5-21 Order Receiving Result dialog

Table 5-9 Buttons of Order Receiving Result dialog

Buttons	Description
Go To Order History	Moves to Order History screen.
Go To Search Window	Moves to Product Search screen.

5.3.3 Order limit area

You can check the information of order limit allocated to yourself. Order limit is managed for each user. Order limit may be managed for each satellite (ALOS, ALOS-2) depending on the agreement content of AUIG2.

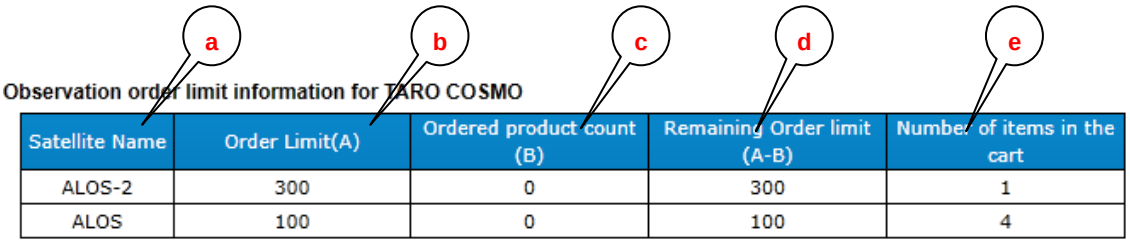


Figure 5-22 Display area of "Order limit" in Cart screen (Enlarged view)

Table 5-10 Items of Order limit area

Screen Items	Description
(a) Satellite Name	Name of the satellite for which the order is placed
(b) Order Limit (A)	Order limit value assigned on the basis of the agreement
(c) Ordered product count (B)	Value which is calculated by Ordered product count tabulation function
(d) Remaining Order limit (A-B)	(Order count maximum limit – Ordered product count)
(e) Number of items in the Cart	Number of products added to the Cart currently.

6 Method to Receive Product

This chapter explains the method to receive the ordered product.

From Order History screen, you can open Product Receiving screen.

Select “Order History” from Common menu at the top of the screen to open Order History screen.

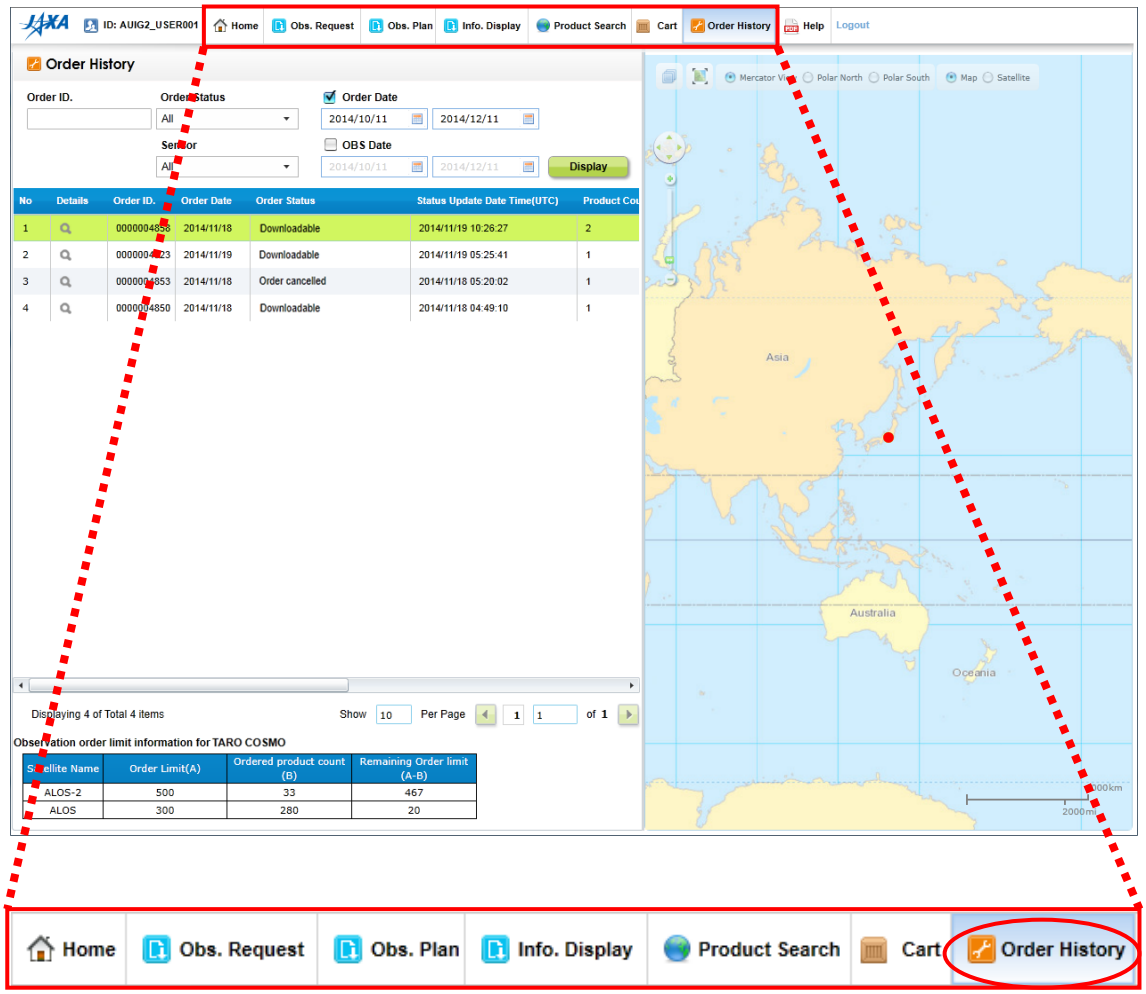


Figure 6-1 Common menu

6.1 Composition of Order History screen

This screen consists of three areas, “Order history filter” shown as ‘a’ in Figure 6-2 for filtering order information to be displayed, “Order history list” shown as ‘b’ in Figure 6-2 for displaying order information in list, and “Order limit information” shown as ‘c’ in Figure 6-2 for displaying order limit information.

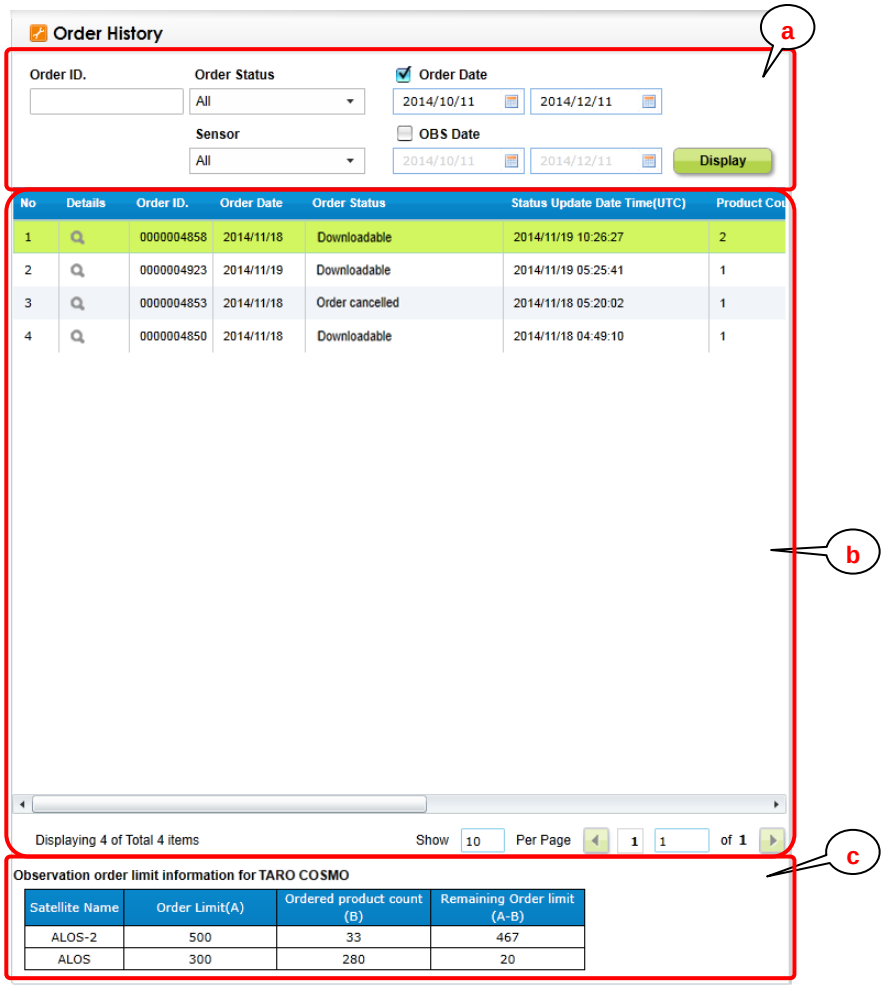


Figure 6-2 Overall composition of Order History screen

Table 6-1 Items composing Order History screen

Screen Items	Description
(a) Order history filter	Filter condition can be specified for filtering the order information to be displayed in Order history list.
(b) Order history list	Displays the order information. Select the order row to be downloaded.
(c) Order limit information	Displays the order limit information allocated to the user and the current ordered product count.

6.2 Operational overview of product download

Basic steps to receive the ordered product are as follows.

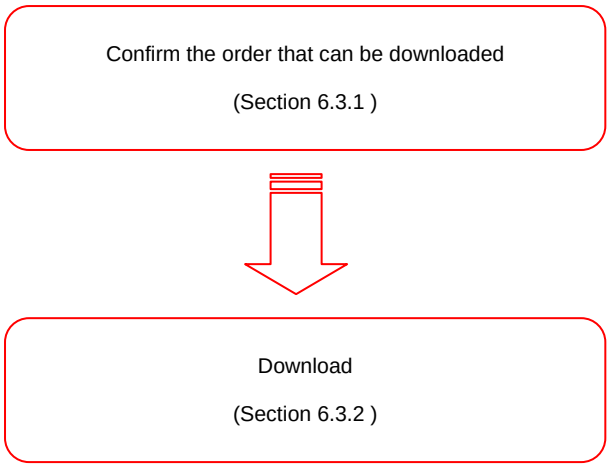


Figure 6-3 Basic steps for receiving product

i. To narrow down the downloadable orders, select “Downloadable/FTP transferred/Delivery arrangements complete” from of the Order Status list on the Order History screen, and then click the Display button.
(Order information can also be narrowed down by Order ID and Order Date.)

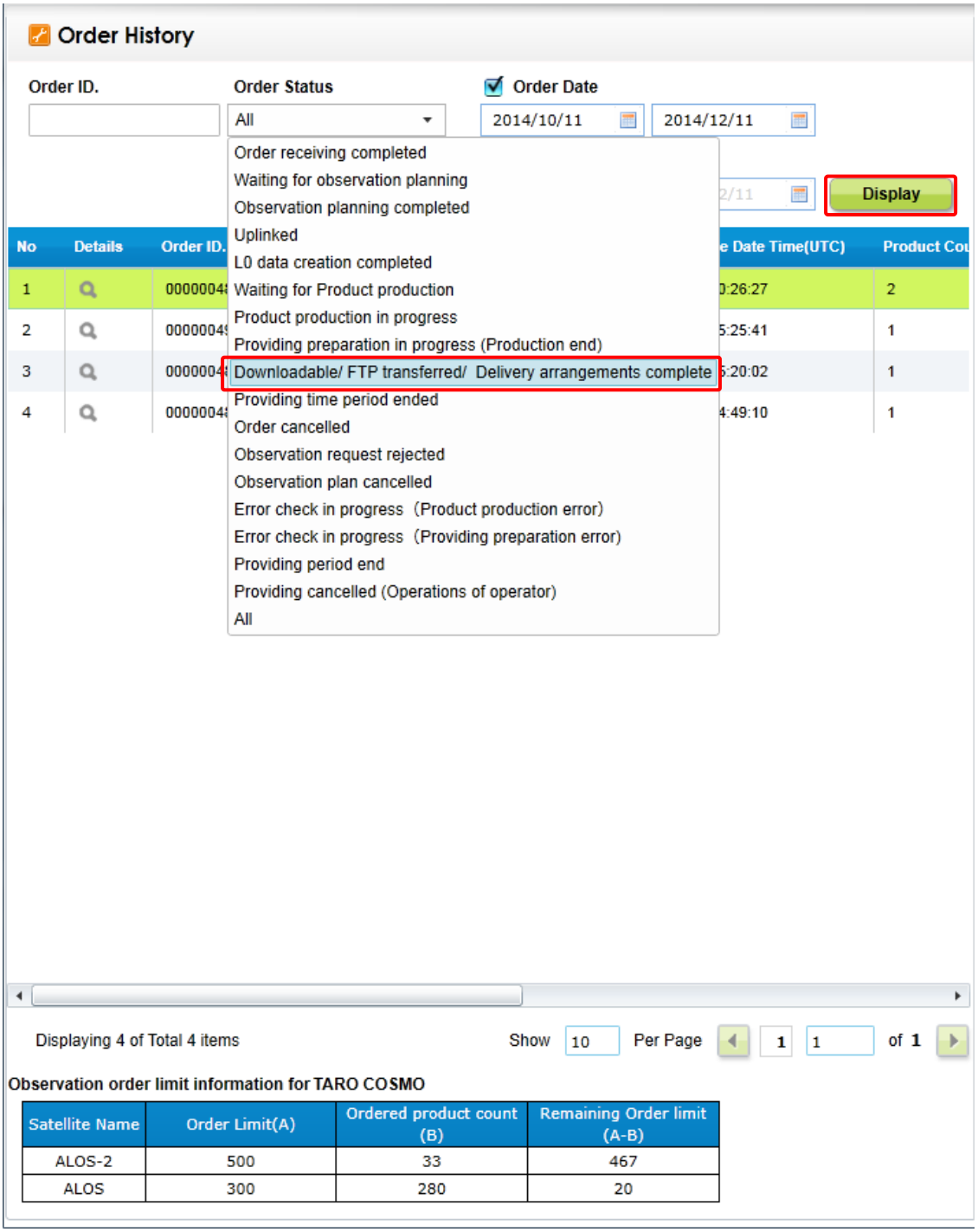


Figure 6-4 Product receiving – Operational steps ①

ii. Select the product you want to download and click icon.

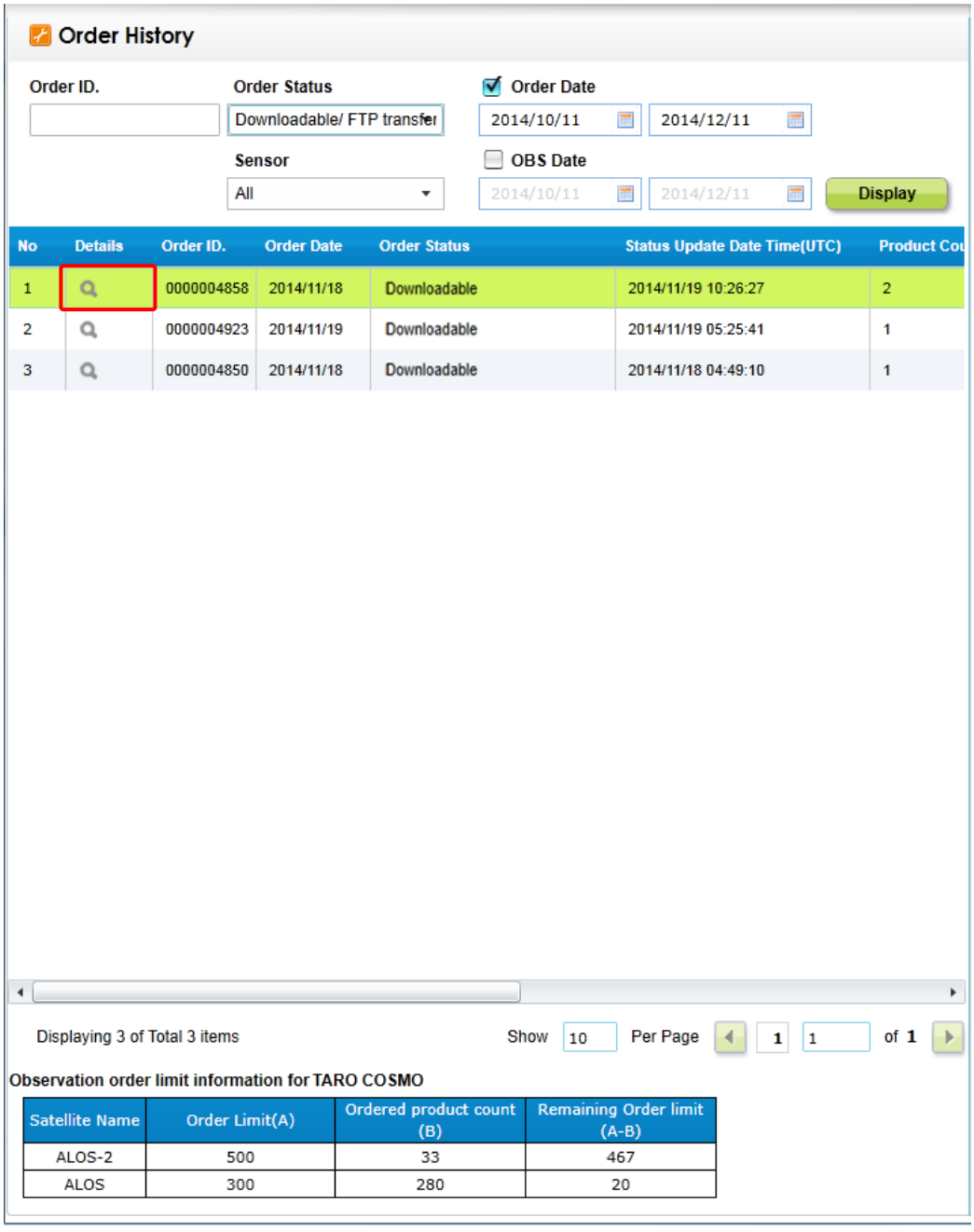


Figure 6-5 Product receiving - Operational steps ②

iii. Confirm the order details and click the HTTPS button.

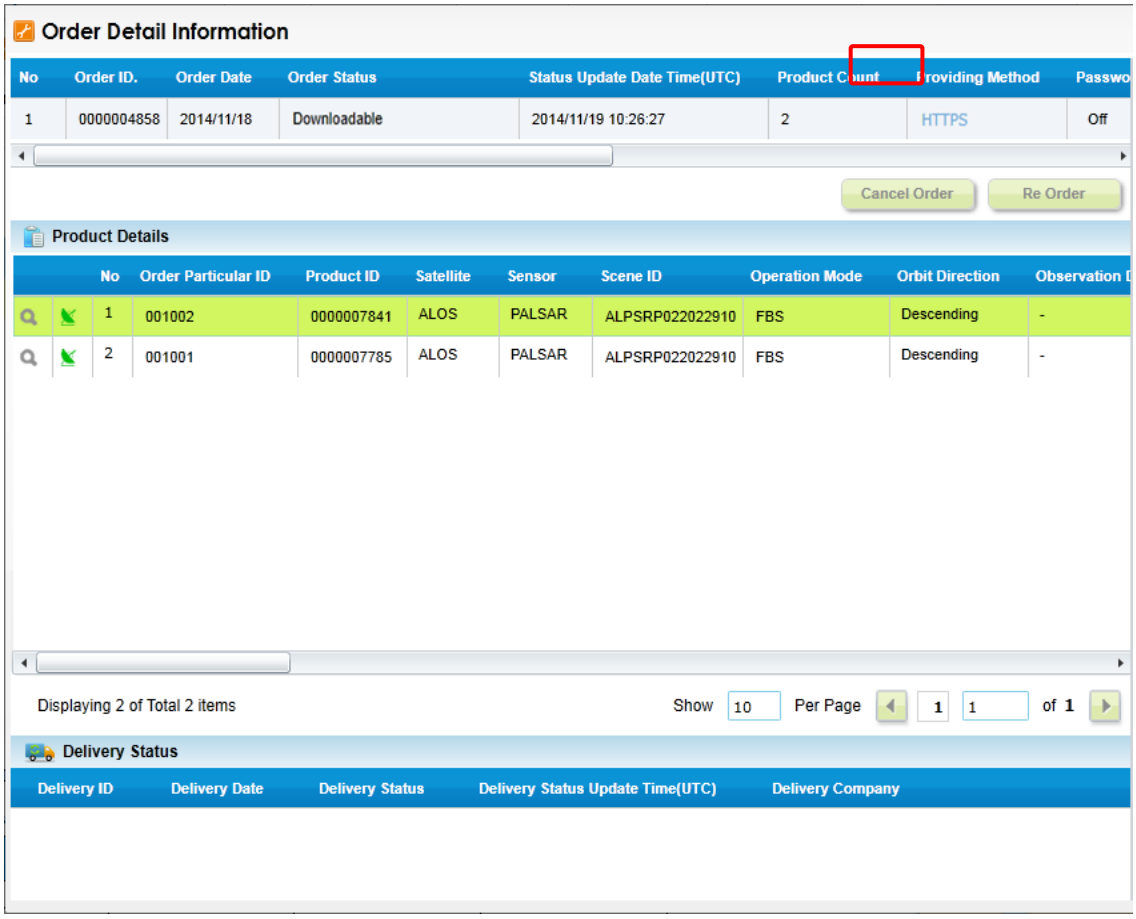


Figure 6-6 Product receiving – Operational steps ③

iv. Click the Save button in the “File Download” dialog and download the file.

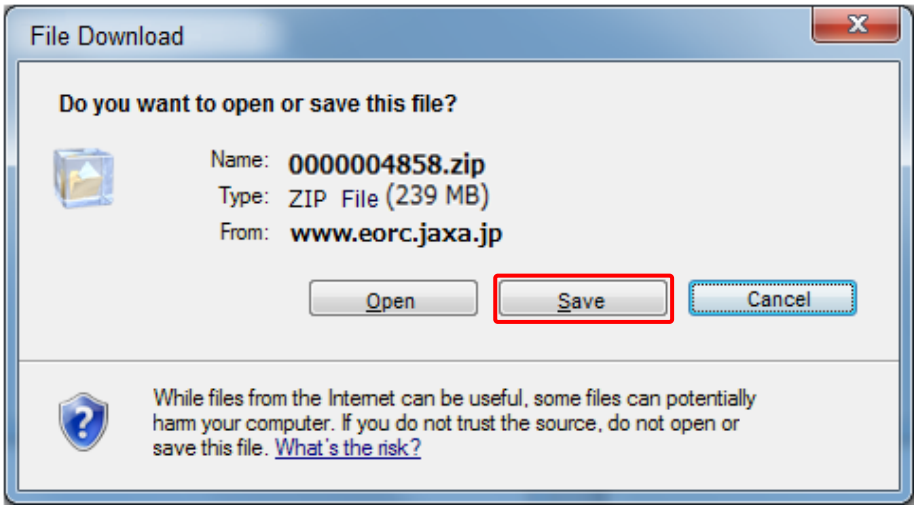


Figure 6-7 Product receiving - Operational steps ④

6.3 Description of screen

6.3.1 Order History list

You can confirm the history of all the products ordered so far.

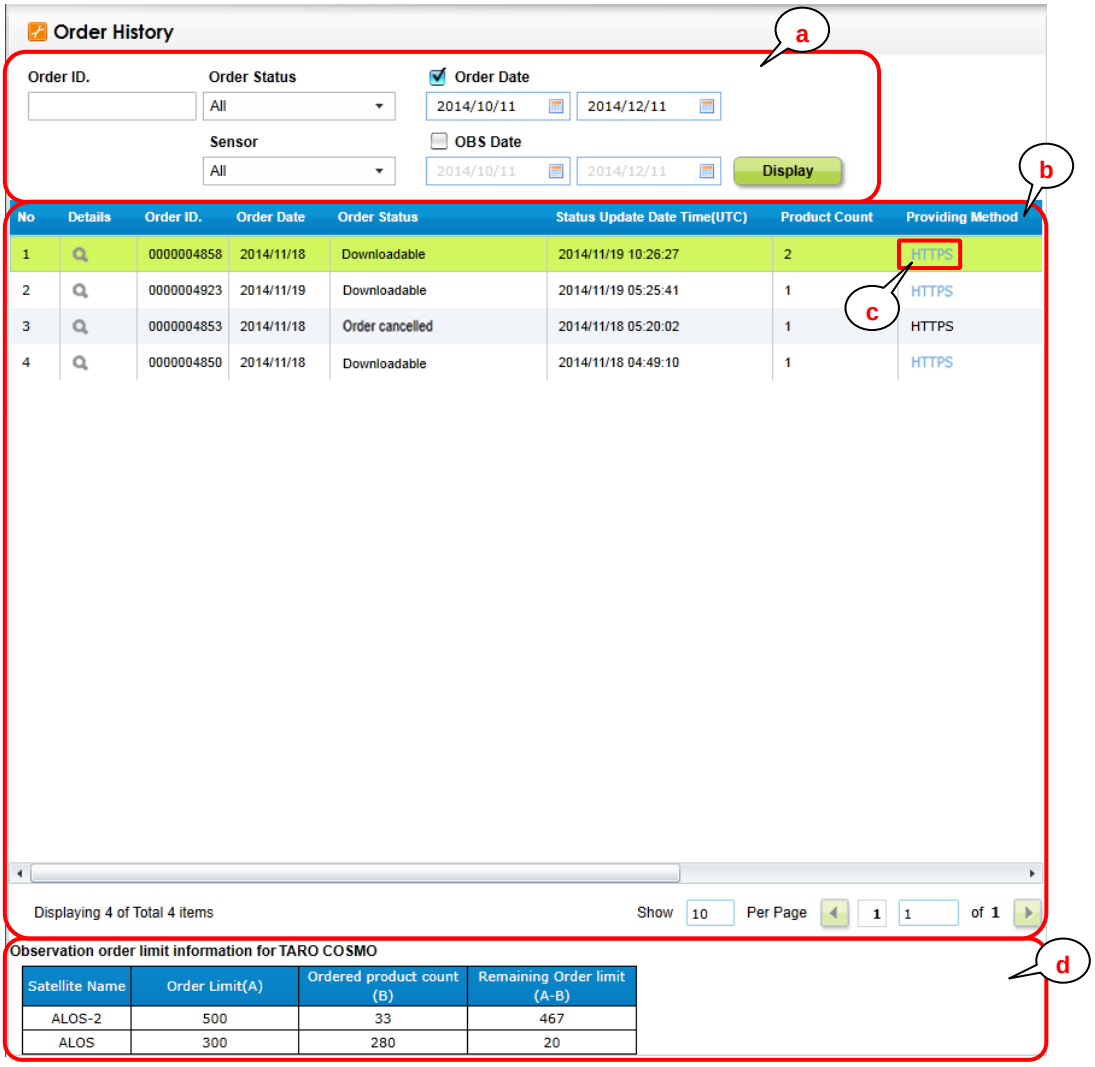


Figure 6-8 Order History list

Table 6-2 Items composing Order History list

Screen Items	Description
(a) Order history filter	It filters the order information to be displayed in the order history list by specifying the Order ID, Order Status and Order Date (Period).
(b) Order history list	It displays the order history matching with the filter conditions set in the list filter.
(c) Link for downloading	Link for obtaining the downloadable products that were ordered (only if you specified downloading as the delivery method)
(d) Order limit information	It displays the order limit information allocated to the user and the current ordered product count. Order limit is assigned on the basis of the agreement concluded separately. Order limit may be set for each satellite (ALOS, ALOS-2) depending on the agreement content.

a. Order history filter

You can set the filter condition for the order information to be displayed in order history list.

Order ID

Specify Order ID for the order you want to be displayed.

Order Status

Specify the status of order.

Table 6-3 List of statuses that can be selected

Status	Description
All	Filtering is not performed as per the status.
Order received	Status showing that order has received
Waiting for observation plan draft	Status when observation plan draft for more than one order details is awaited
Observation plan draft completed	Status when observation plan draft is completed for all the order details or status after that
Uplink completed	Status when the observation plan was sent to the satellite for all the Order details or status there after
L0 data creation completed	Status when L0 data is created for all the Order details or status there after
Waiting for product generation	Status when product generation for more than one Order details is awaited
Product generation in progress	Status when product generation is in progress for all the Order details or status after that
Providing-in-progress(Generation completed)	Status when product generation is completed for all the order details or status there after
Downloadable	(Manual providing via online) Status when preparation for providing the product is completed and providing is possible
FTP transmission completed	(Automatic providing via online) Status when preparation for providing product and transmission of data, which is beforehand requested to FTP server, are completed
Delivery arrangement completed	(Providing via online)

Status	Description
	Status when preparation for providing the product and delivery arrangement are completed
Providing period ended	Status when providing period for product has passed
Order cancelled	Status when user has cancelled the order
Observation request rejected	Status when an observation request has been rejected and the order has been cancelled
Observation plan cancelled	Status when an observation plan has been cancelled and the order has been cancelled
Error confirmation in progress (Product generation error)	Status when an error (See Table 6-4) has occurred in more than one order details and solution is waited from operator, etc.
Error confirmation in progress (Providing preparation error)	Status when providing preparation error has occurred in more than one Order details and solution is waited from operator, etc.
Providing cancelled	Status when providing has cancelled for all the Order details due to some reason and due to circumstances there is no product to be provided
Providing cancelled (Operator action)	Status when providing has cancelled through operator

Order Date

Specify the order date as a period (From ~ To).

This item can be enabled as a search condition by selecting the check box (☑).

Sensor

Specify the name of the sensor included in the order.

OBS Date

Specify the observation date for the scene included in the order as a period (From ~ To).

This item can be enabled as a search condition by selecting the check box (☑).

b. Order history list

It displays the information of orders placed so far in the list. In case condition is set in the order history filter, only the order information matching with the filter condition is displayed.

The display items in the order history list are shown in Table 6-3+1.

Table 6-3+1 Display items in order history list

Item	Description
No.	Number of orders
Details	Order details display icon
Order ID	10-digit ID
Order Date	Date when order was received by AUIG2
Order Status	Current order status
Status Update Date Time (UTC)	Date and time when order status was updated
Product Count	Number of products included in order
Providing Method	Providing method of product
Password Protection	Availability of password protection for product
Order Schedule Date	Order schedule date of product
Available Till	Last available date for product
Demander	*Self Order* or *Agent Order*

When provision method is download (HTTP, HTTPS, FTP, SFTP), it is possible to download ordered product (see 6.4 for details) by clicking on the link (shown as ‘c’ in Figure 6-8).

The details of ‘Order Status’ in the order history list are the same as those in the order history filter. See Table 6-3 for details.

Furthermore, status is notified via mail as per the order status (Appendix 3).

Table 6-4 (Deleted)

Transition in order status (in normal case), when provision method in Order Options is download (HTTP, HTTPS, FTP, SFTP), is shown in the below mentioned figures (Figure 6-9).

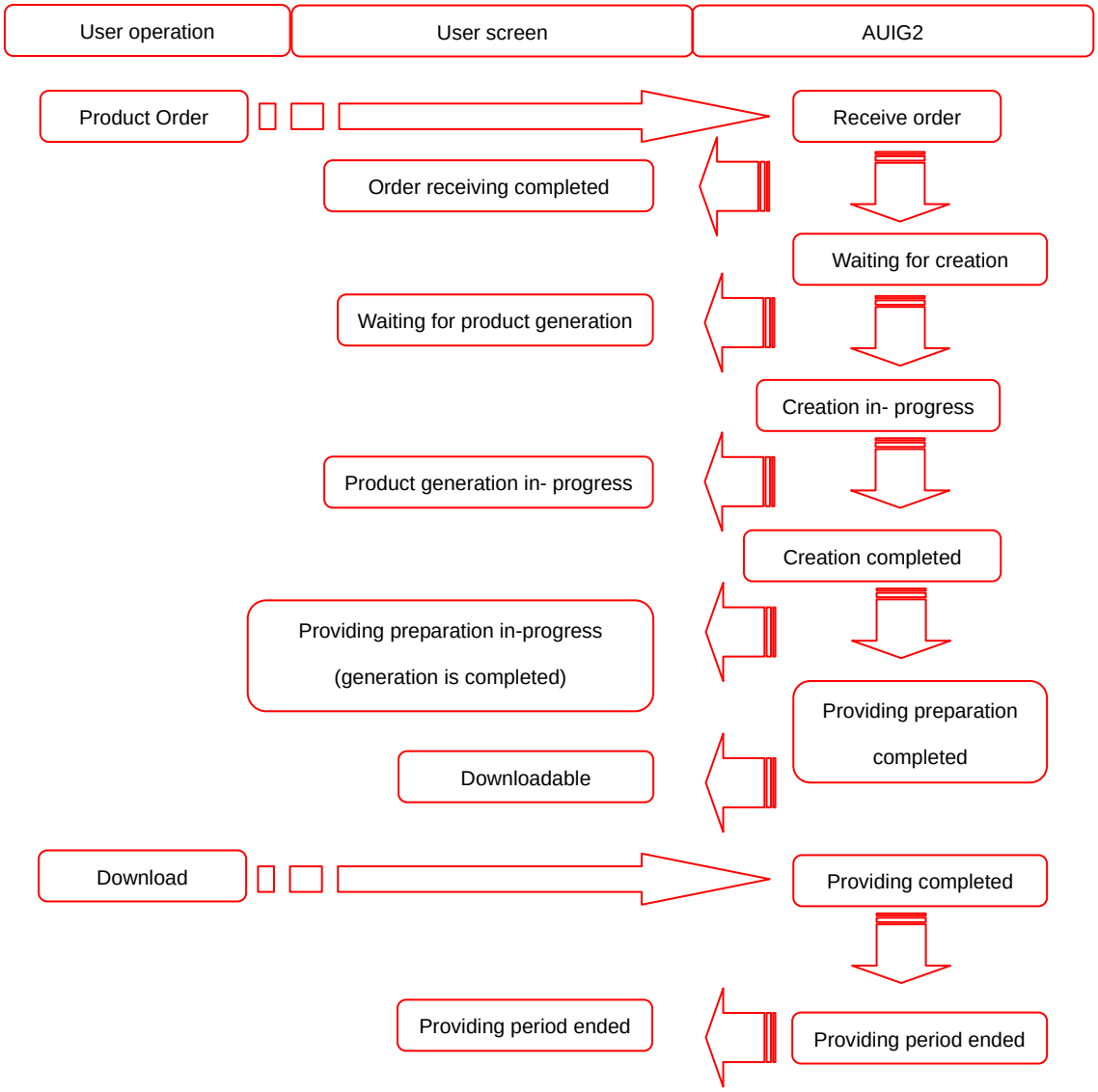


Figure 6-9 Order status transition targeting archive

Transition in order status at the time of cancelling observation plan is shown in below mentioned figure. Besides this, there is also another pattern for the observation request cancellation.

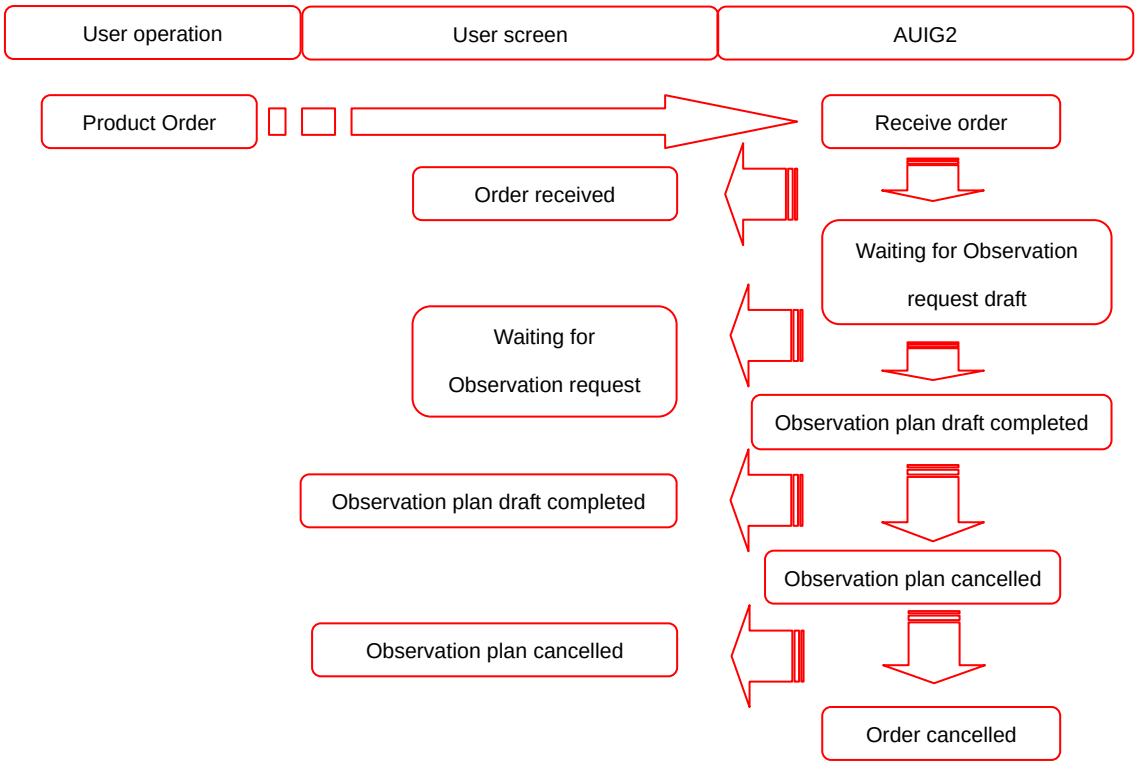


Figure 6-10 Transition in order status at the time of observation plan cancellation

c. Order limit area

The order limit information allocated to the user and the current ordered product count can be checked. Order limits are managed for each user, and order limits may also be managed for each satellite (ALOS, ALOS-2) depending on the content of the AUIG2 agreement. The items displayed in the order limit area are shown in Figure 6-10+1 and Table 6-4+1.

Observation order limit information for TARO COSMO

Satellite Name	Order Limit(A)	Ordered product count (B)	Remaining Order limit (A-B)
ALOS-2	300	4	296
ALOS	100	4	96

Figure 6-10+1 Composition of order limit area

Table 6-4+1 Items composing order limit area

Screen Items	Description
(a) Satellite Name	Name of the satellite for which the order is placed
(b) Order Limit (A)	Order limit value assigned on the basis of agreement
(c) Ordered product count (B)	Value which is calculated by Ordered product count tabulation function
(d) Remaining Order limit (A-B)	(Order count maximum limit – Ordered product count)

6.3.2 Order details list

It displays the details of order.

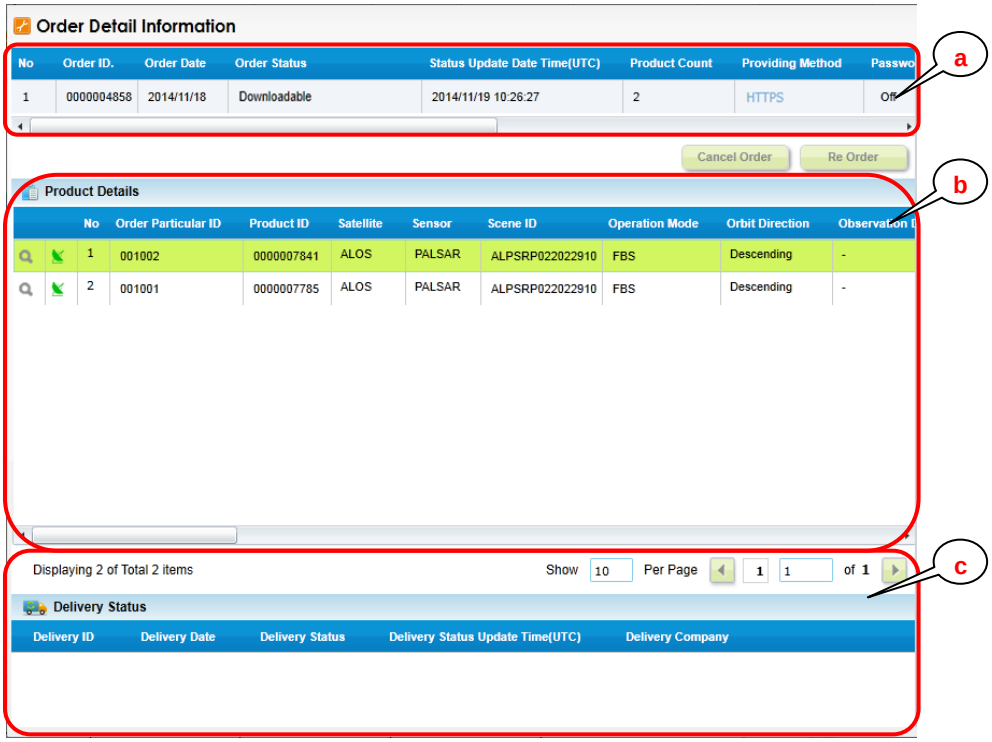


Figure 6-11 Order details list

Table 6-5 Items composing order details list

Screen Items	Description
(a) Order information	It displays the order information (Order ID, Order Date, Order Status, Status Update Date and Time, Product Count, Providing Method, Providing Limit).
(b) Order details	It displays the production status of product included in order separately.
(c) Delivery status	It displays the status of delivery procedure when ordered products are provided through delivery.

Table 6-6 Buttons and Link of Order details list

Screen Items	Description
HTTPS (Download)	It downloads the product. (Refer to 6.4 and Appendix 2 for details.)
Cancel Order	It cancels the order. Either all orders or detail wise order can be cancelled. Product having “Before starting production process” status (from “Order received” to “L0 data creation completed”) can only be cancelled.
Re Order	It places an order similar to the current order in the Cart.
Details Show	It displays the production process work result codes and detailed reasons.
Split download	It separately downloads the files contained in the product zip file.

Table 6-7 (a) Items displayed in Order information

#	Items
1	No.
2	Order ID
3	Order Date
4	Order Status
5	Status Update Date Time (UTC)
6	Product Count
7	Providing Method
8	Password Protection
9	Password
10	Planned Providing Date
11	Available Till
12	Requester
13	Reason for not providing

Table 6-8 (b) Items displayed in Order details

#	Items	#	Items
1	Product information details display icon	2	Satellite icon
3	No.	4	Order Particular ID
5	Product ID	6	Satellite
7	Sensor	8	Scene ID
9	Operation Mode	10	Orbit Direction
11	Observation Direction	12	Capturing date
13	Sensor Direction	14	Processing Level 0
15	Processing Level	16	Process Status
17	Format	18	Provided scheduled date
19	Processing status update date and time (UTC)	20	Map Projection
21	Path	22	Frame
23	Scene Shift	24	Image Orientation
25	Pixel Size	26	Center Lat
27	Center Lon	28	Resampling
29	UTM Zone	30	Map Direction
31	Orbit Accuracy	32	Attitude Accuracy
33	Production results (details display button)	34	Cancel Order (order cancel button)

The processing status in Order details list shows the processing statuses related to product generation, from “Order received” to “Product generation completed”. (See Table 6-9 and Figure 6-11.)

Table 6-9 List of processing status displayed in Order details list

Processing status	Description
Order received	Status showing that order has been received
Waiting for Observation plan draft	Status when observation plan draft is awaited for the corresponding order details
Observation plan draft completed	Status when observation plan draft is completed for the corresponding order details
Uplink completed	Status when uplink is done for the corresponding order details
L0 data creation completed	Status when LO data is created for the corresponding order details
Waiting for product generation	Status when product generation is awaited for the corresponding order details
Product generation in progress	Status when product generation is in progress for the corresponding order details
Product generation completed	Status when product generation is completed for the corresponding order details
Downloadable	Status when the corresponding order details can be downloaded
Providing period ended	Status when the providing period for the corresponding order details has expired
Product generation error (Checking)	Status when an error has occurred in product generation of the corresponding order details and action, etc., is being taken by operator
Providing cancelled (Observation request rejected)	Status when observation request is rejected and product providing is not possible for the corresponding order details
Providing cancelled (Observation plan cancelled)	Status when observation plan is cancelled and product providing is not possible for the corresponding order details
Providing cancelled (Operator action)	Status when providing has been cancelled due to operations of operator which is the result of action taken for error in product generation and providing preparation
Providing cancelled (other)	Status when provision of the corresponding order details has been cancelled by the operator

You can display the work result code and detailed reason by clicking the Details Show button under “Production results” in the order details list.

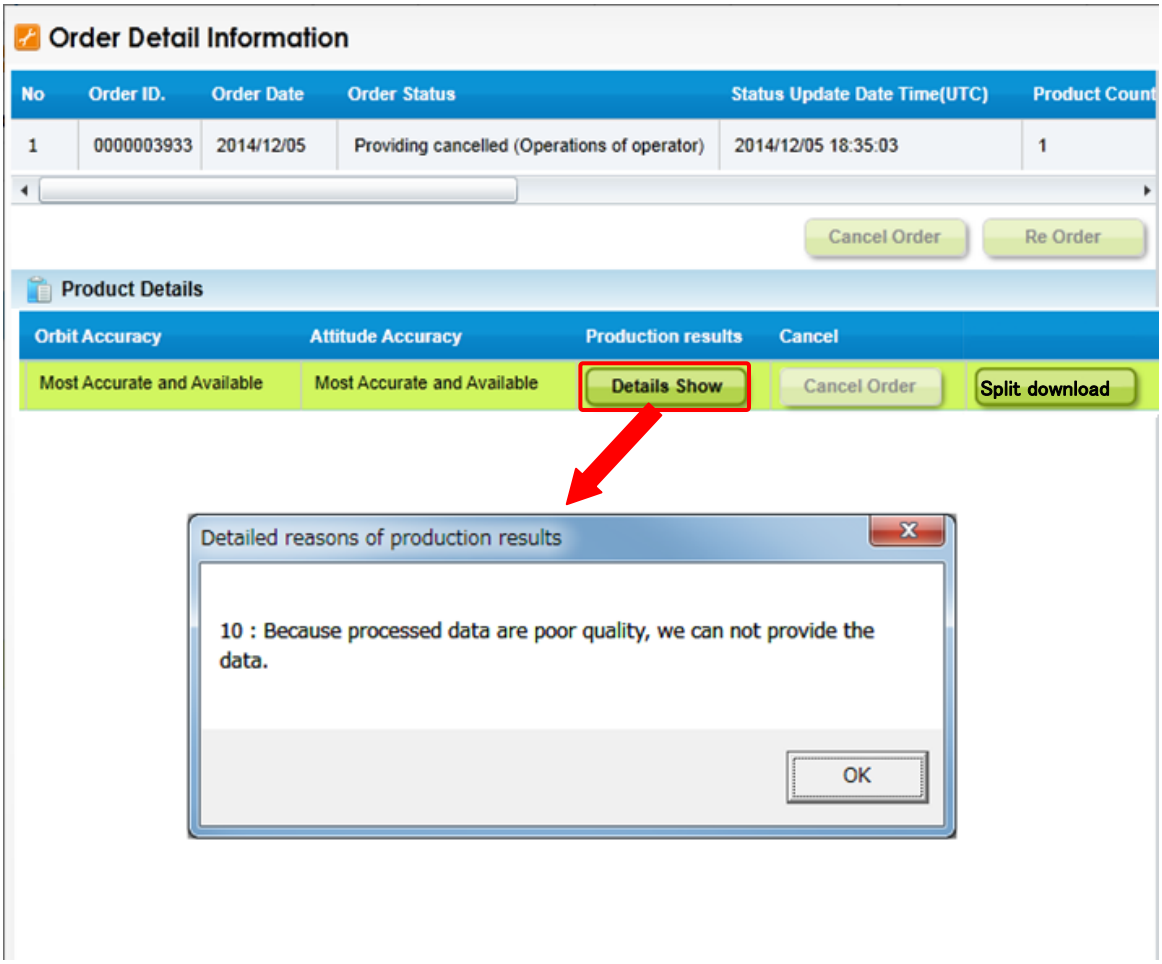


Figure 6-11+1 Detailed reasons of product results

The Details Show button becomes available when product generation processing has been completed or when provisioning has been cancelled due to visual examination in progress or occurrence of an error.

Table 6-9+1 shows a list of messages displayed for production results.

Table 6-9+1 Detailed reasons for production results

Work result code	Description
00	Process has been completed successfully
01	Process has been completed successfully
04	Process has been completed except Rough DEM Correction.
05	Process has been completed, but there may have occurred error caused by error in the part of time data.
09	Producing of PALSAR Browse Data was completed successfully
10	Because processed data are poor quality, we can not provide the data.
11	Because processed data include correction data, we can not provide the data.
20	Because processed data are poor quality, we can not provide the data.
30	Because processed data of PALSAR L1.0 are poor quality, we can not provide the data.
40	Producing of PSR Browse Data has failed
60	Because Level 0 data are not enough amount for process, we cannot provide the data.
61	Because there are no Orbit Data, we cannot provide the data.
62	Because there are no Precision Orbit Data specified, we cannot provide the data. In case specifying the most high accurate orbit data, we may provide the data.
63	Because there is no Coordinates Conversion Matrix, we cannot provide the data.
64	Because there are no Precision Attitude Data specified, we cannot provide the data. In case specifying the most high precision attitude data, we may provide the data.
65	Because there is no Time Difference Information, we cannot provide the data.
66	Because there are no Attitude Level 0 Data, we cannot provide the data.
67	Because producing of High Frequency Attitude Data has failed, we cannot provide the data.
68	Because process has failed due to data error, we cannot provide the data.
80	Because process has failed due to data error, we cannot provide the data.

Work result code	Description
90	Under conducting visual inspection
91	Under conducting visual inspection
92	Because process has failed due to data error, we cannot provide the data.

You can display a list of the files contained in the zip file of the product to be provided by clicking the Split download button under “Providing in Parts” in the order details list.

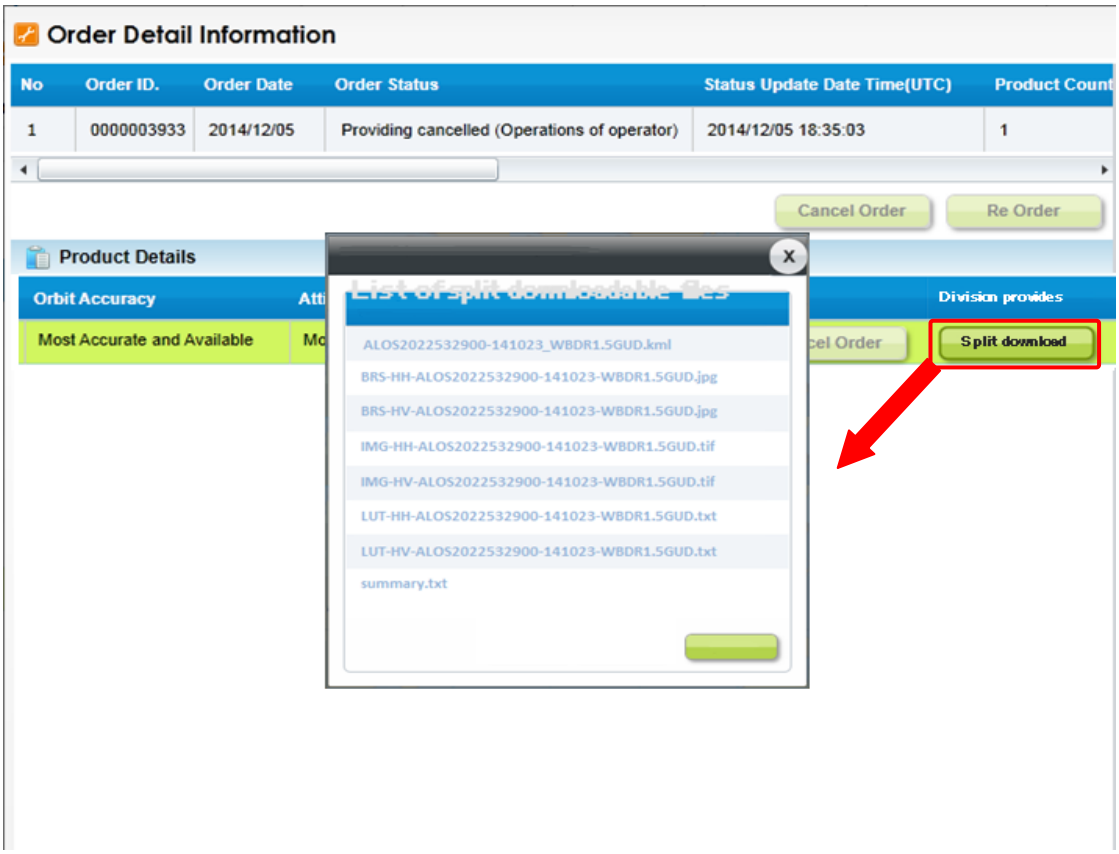


Figure 6-11+2 List of split downloadable files

Any file can be downloaded separately by clicking the file name on the list.

In the case of split download, the corresponding files are downloaded without being compressed in a zip file.

The Split download button is available if a PALSAR-2 product can be downloaded (only when a Download option button (HTTPS, SFTP, HTTP, or FTP) is selected for Provision Method).

6.4 File structure provided by AUIG2

Product provided by AUIG2 is compressed in one ZIP file.

Structure of ZIP file is shown in the image given below.

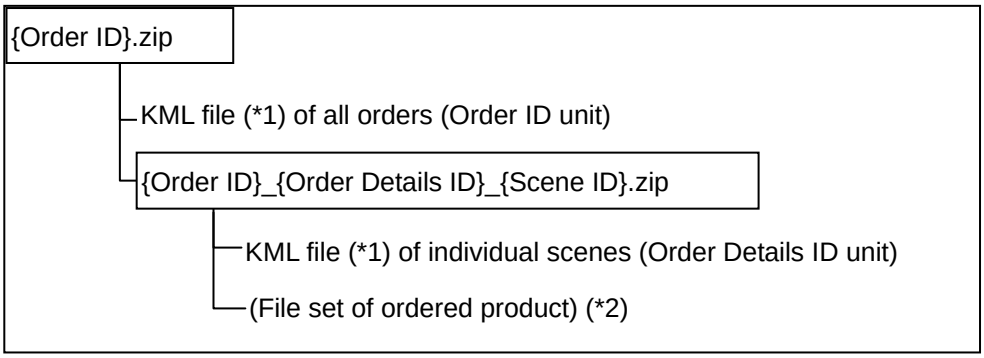


Figure 6-12 Structure of ZIP file provided by AUIG2

(*1) KML file is provided only when product of Table 6-10 given below is ordered.

Table 6-10 KML output target product

Satellite	Sensor	Product Level
ALOS-2	PALSAR-2	1.5, 2.1, 3.1
ALOS	AVNIR-2	1A, 1B1, 1B2
	PRISM	1A, 1B1, 1B2
	PALSAR	1.5

(*2) Refer to “Product Format Description” for details of file structure of product.

File names of KML files that are provided are shown in Table 6-11 given below.

Table 6-11 File name of KML file

File	File Name
KML file of all orders	{Order ID}.kml
KML file of individual scene	{Scene ID} – {Product ID}.kml

Display content of KML file is explained.

Image of order wise KML file as displayed in Google Earth is shown in Figure 6-13. Display image of scene wise KML file is also the same.

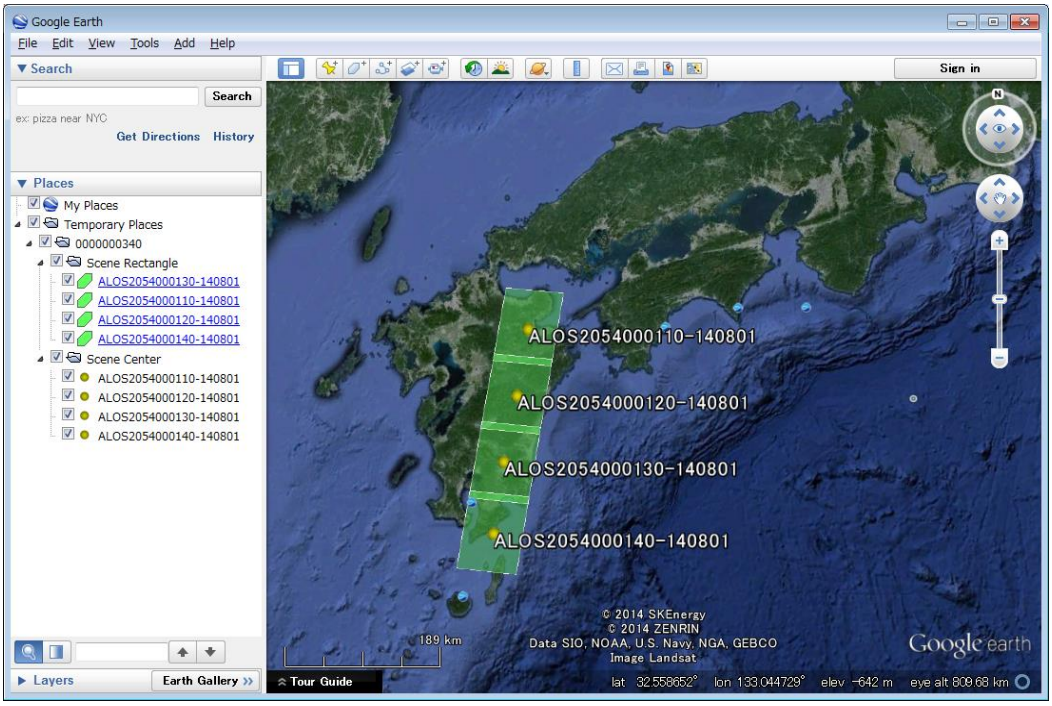


Figure 6-13 KML display image

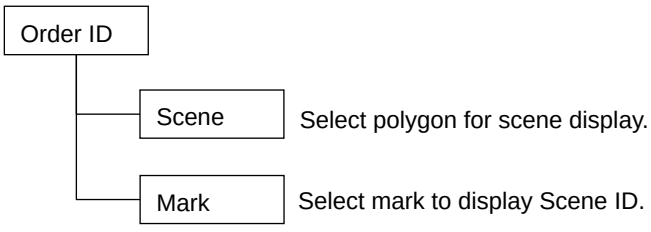
Content displayed on Google Earth is shown below.

a. Observation scene on map

Scene is displayed in rectangular shape with translucent outline.

b. Displayed content of “Places” folder

Folder tree is created and displayed in below structure under “Temporary Places” node.



c. Scene observation information display

If you click the scene, observation information of that scene is displayed in the call-out. Content displayed in call-out is shown in Table 6-12. Call-out display image when Google Earth is used is shown in Figure 6-14.

Table 6-12 Scene items displayed in call-out

Title	Content	Display Format	Remarks
Satellite	Satellite Name	Character String of Satellite Name in English	
Sensor	Sensor Name	Character String of Sensor Name	
SceneId	Scene ID	Character String of Scene ID	
ProductId	Product ID	Character String of Product ID	
Observation Date	Observation Date	YYYY-MM-DD	
Path No	Path Number	Path Number	
Frame (center)	Center Frame Number	0 – 7199	
Offnadir Angle	Off nadir Angle	99.9	[Degree] Only PALSAR-2/PALSAR
Incidence Angle	Incidence Angle	±9.9 (*1)	[Degree] Only PRISM.
Pointing Angle	Pointing Angle	±99.9	[Degree] Only AVNIR-2
Scene Time (Center)	Scene Center Date and Time	YYYY-MM-DD hh:m:ss	
Scene Time (Start)	Scene Start Date and Time	YYYY-MM-DD hh:m:ss	
Scene Time (End)	Scene End Date and Time	YYYY-MM-DD hh:m:ss	
Lat/Long (center)	Scene Center Latitude/Longitude	±99.999/±999.999	[Degree]
Lat/Long (Left Upper)	Scene Left Upper Latitude/Longitude	±99.999/±999.999	[Degree]
Lat/Long (Right Upper)	Scene Right Upper Latitude/Longitude	±99.999/±999.999	[Degree]
Lat/Long (Left Lower)	Scene Left Lower Latitude/Longitude	±99.999/±999.999	[Degree]
Lat/Long (Right Lower)	Scene Right Lower Latitude/Longitude	±99.999/±999.999	[Degree]

(*1) + Symbol is hidden. (Other items are also the same)

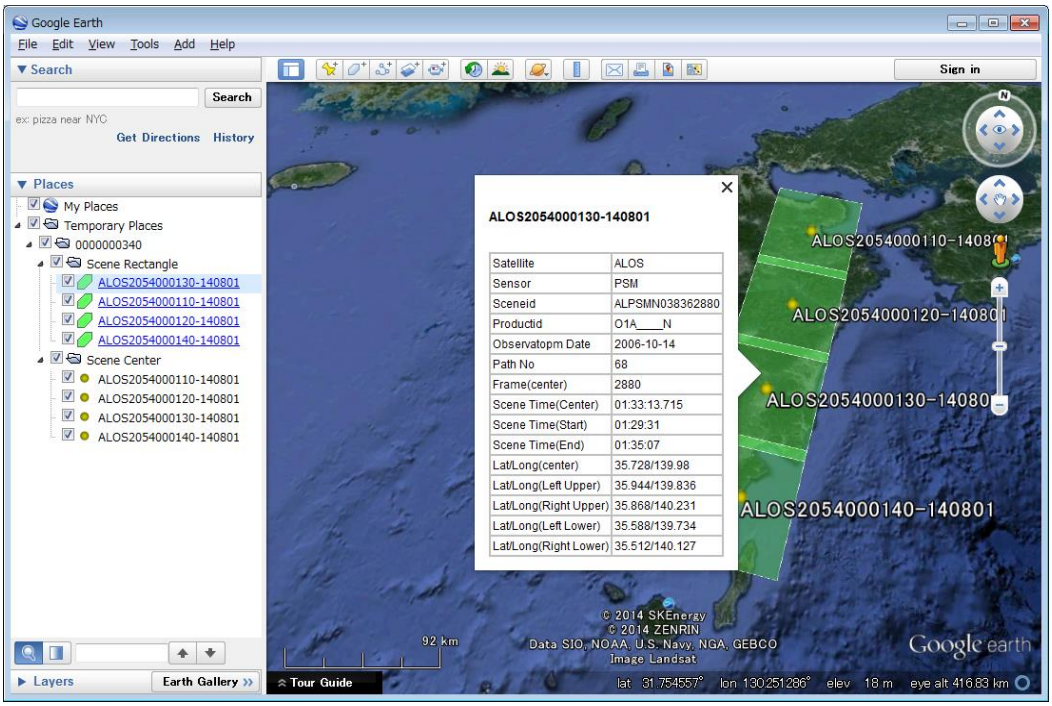


Figure 6-14 Scene information display image

7 Method to Display Observation Plan List

This chapter describes the screen operations for displaying the observation plans as a list.

List display of observation plans can be done from Observation Plan screen on Observation screen.

Observation Plan screen is displayed by selecting “Obs. Plan” from Observation Screen menu in the upper part of this screen.

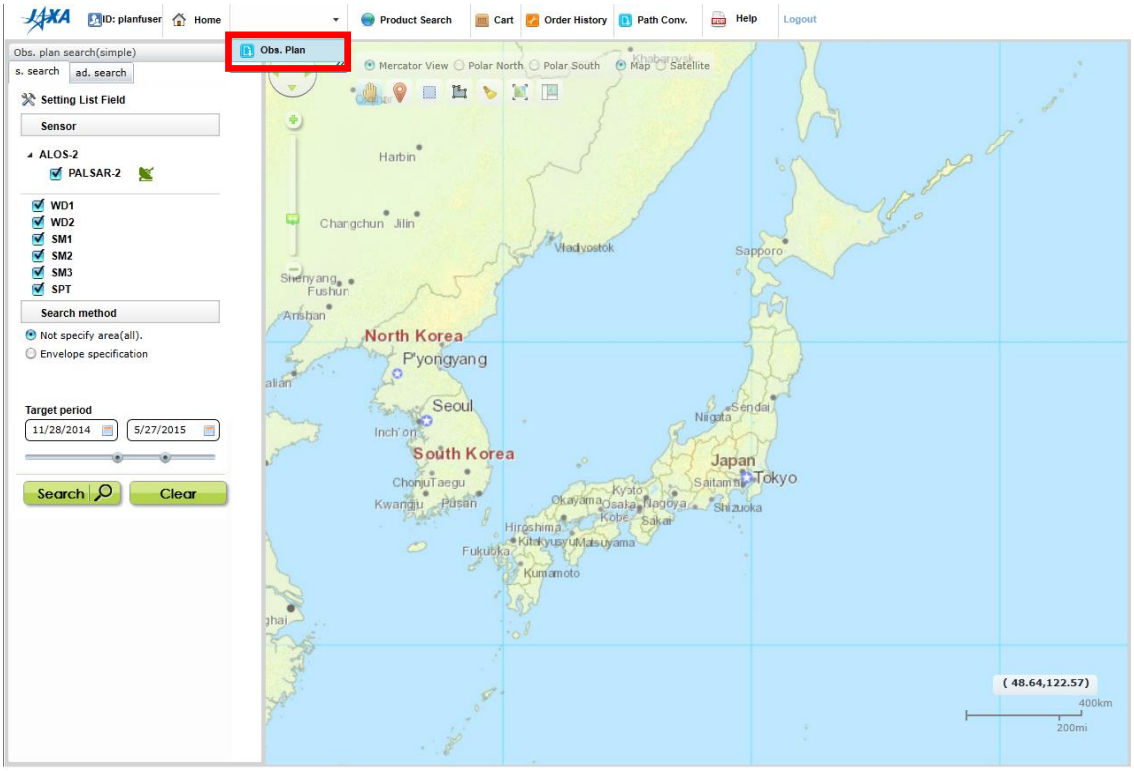


Figure 7-1 Observation Screen menu

7.1 Composition of Observation Plan screen

Observation Plan screen is composed of the following 4 parts.

- Observation plan operation panel
- Map field
- List of fields
- Details field

The overall composition of Observation Plan screen has been given in Figure 7-2. Items that form Observation Plan screen are given in Table 7-1.

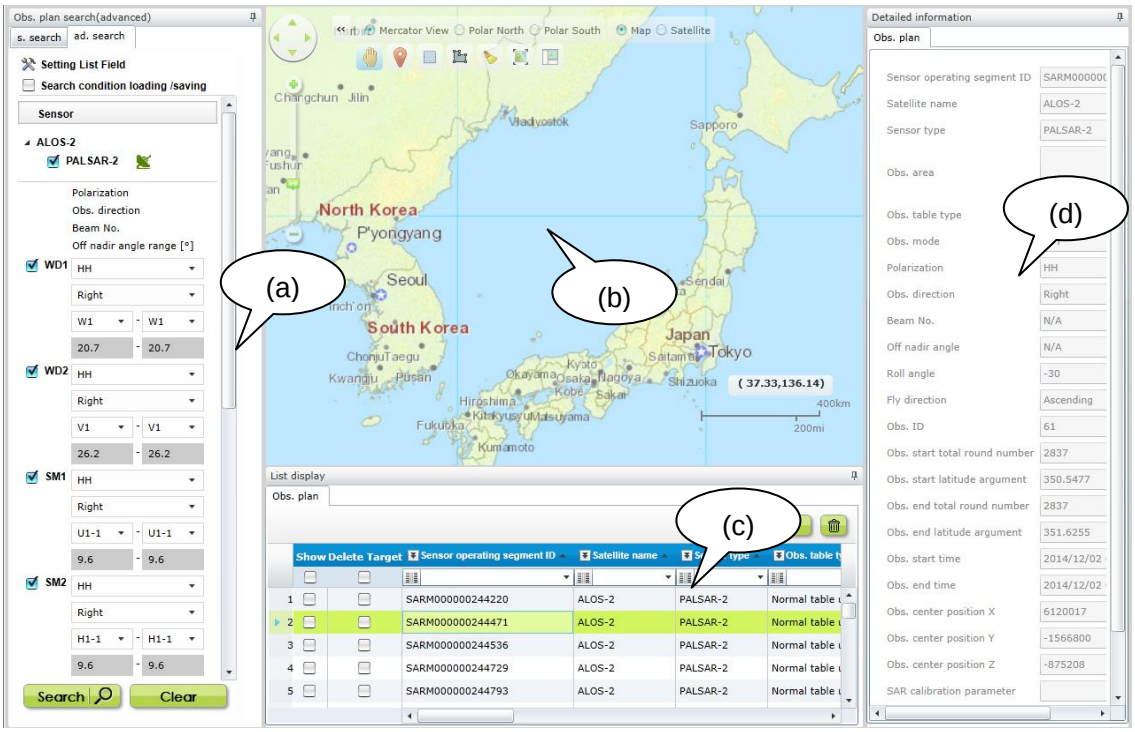


Figure 7-2 Overall composition of Observation Plan screen

Table 7-1 Items composing Observation Plan screen

NO.	Screen Items	Description	Remarks
a	Observation plan operation panel	Input parameter items required for searching observation plans are displayed.	
b	Map field	A rectangular box is displayed when an observation plan or a map display is selected.	
c	List of fields	List of observation plans, found by searching the observation plan are displayed.	
d	Details field	Detailed information is shown for the observation plan that is selected in the observation plan list.	

➢ Panel/field operation

With the exception of the map field in Table 7-1, the following operations can be performed for panels and fields.

- Moving panels/fields
- Resizing panels/fields
- Showing/hiding(Iconizing) panels/fields

(i) Moving panels/fields

You can move a panel/field by dragging the title bar of panel/field with the mouse.

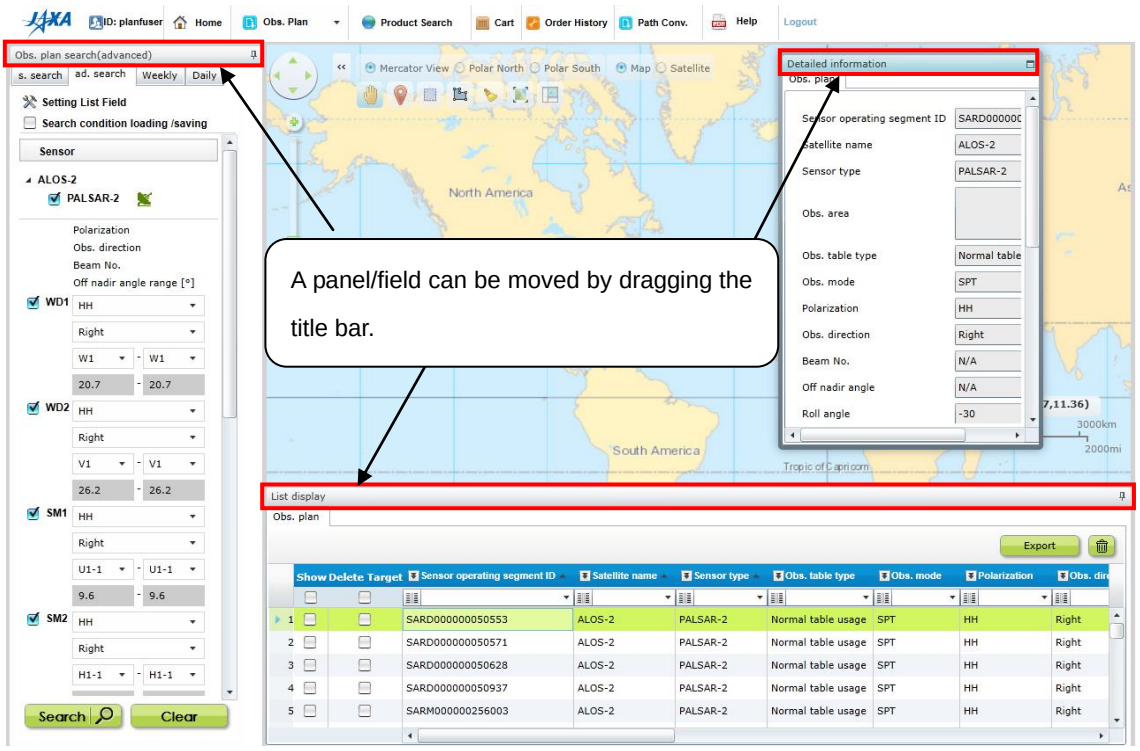


Figure 7-2+1 Moving a panel/field on Obs. plan search screen

To add a panel/field pulled out from the screen to the top, bottom, left, or right of the screen, drag it to the desired position as shown in Figure 7-2+2 with the mouse and then release the mouse. The panel/field will be moved to the location thus specified.

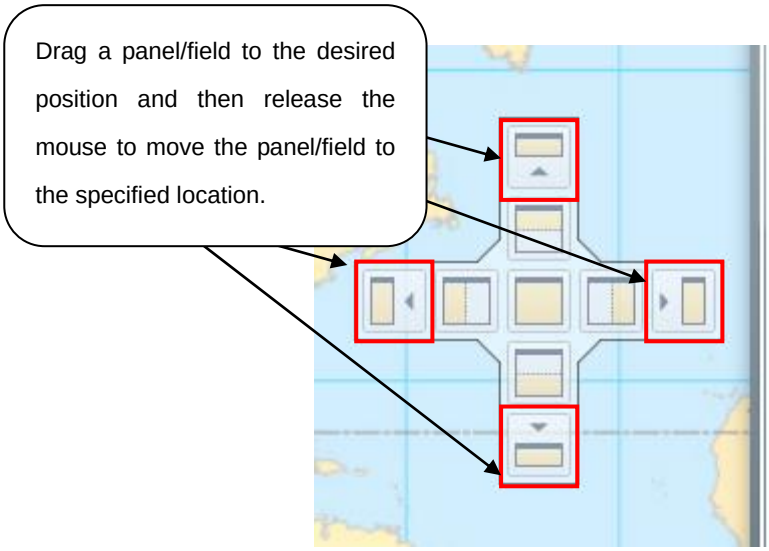


Figure 7-2+2 Adding a panel/field on Obs. plan search screen

(ii) Resizing panels/fields

You can resize a panel/field by dragging the outer frame of the panel/field either inside or out with the mouse.

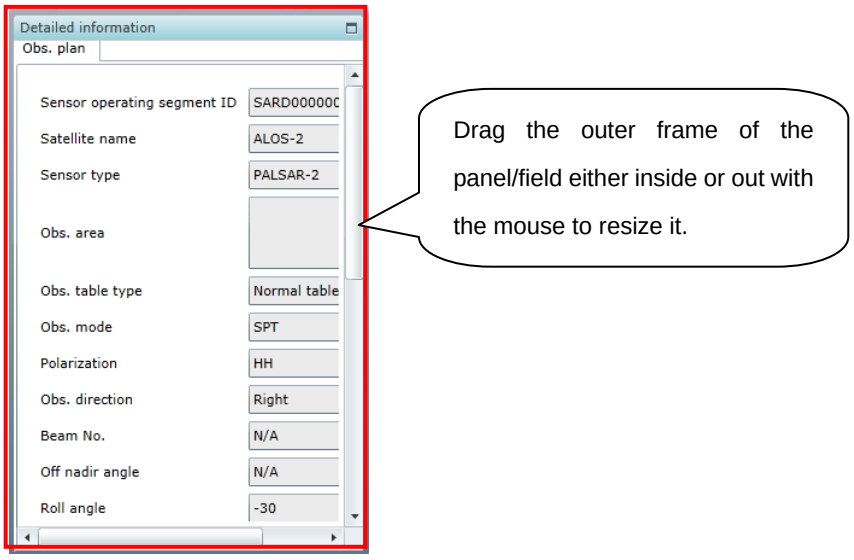


Figure 7-2+3 Resizing a panel/field on Obs. plan search screen

(iii) Showing/hiding (iconizing) panels/fields

You can iconize (hide) a panel/field by clicking  at the upper right of the panel/field and its icon is displayed at the top, bottom, left or right side of the screen. To show again the iconized panel/field, click its icon.

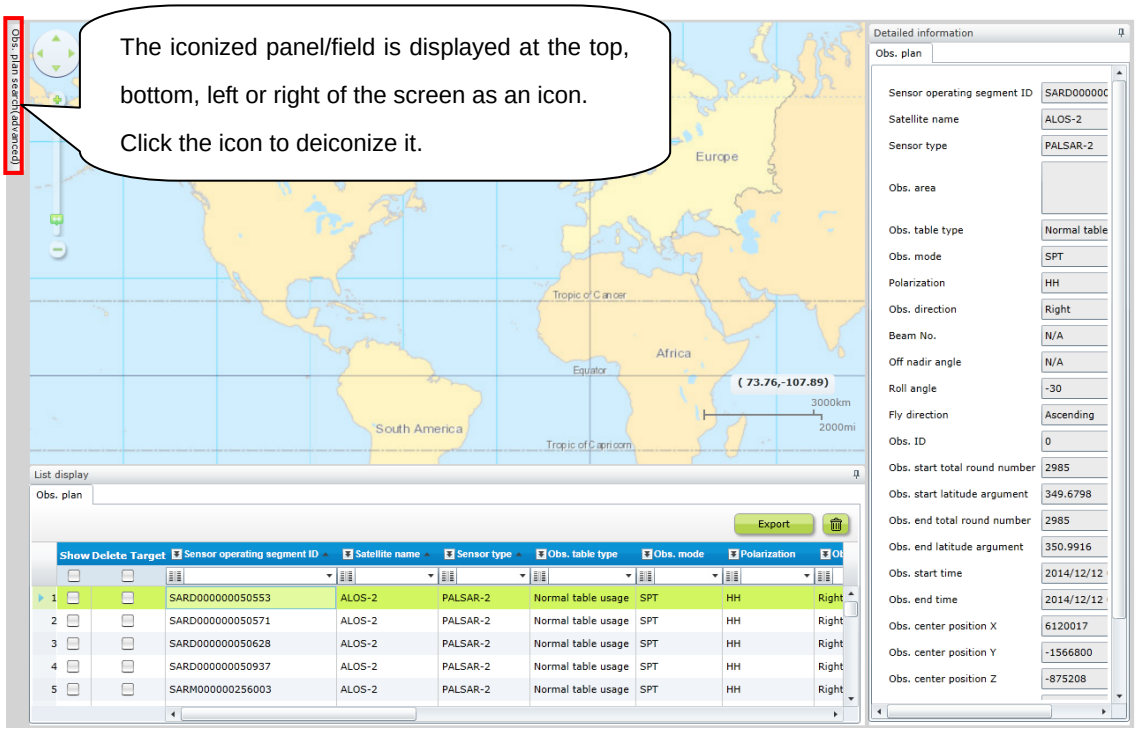


Figure 7-2+4 Iconizing panel/field on Obs. plan search screen

7.2 Observation Plan screen – Operational overview

Table 7-2 describes the steps for displaying observation plans in a list form.

Table 7-2 Steps for list display of observation plans

Steps	Operations Overview	Related fields	Description given in
1	Select ‘Observation Plan search’ in Observation plan operation panel.	Observation plan operation panel	Section 7.2.1
2	Enter the search conditions for Observation plan search.	Observation plan operation panel Map	Section 7.2.2
3	Check the list of Observation plans.	Observation plan list Map Detail Information	Section 7.2.3

7.2.1 Select ‘Observation Plan Search’ in Observation plan operation panel

In order to display a list of observation plans, select either “s. search” or “ad. search” tab in the Observation plan operation panel.

An example when the “ad. search” tab is selected in the Observation plan operation panel is described below.

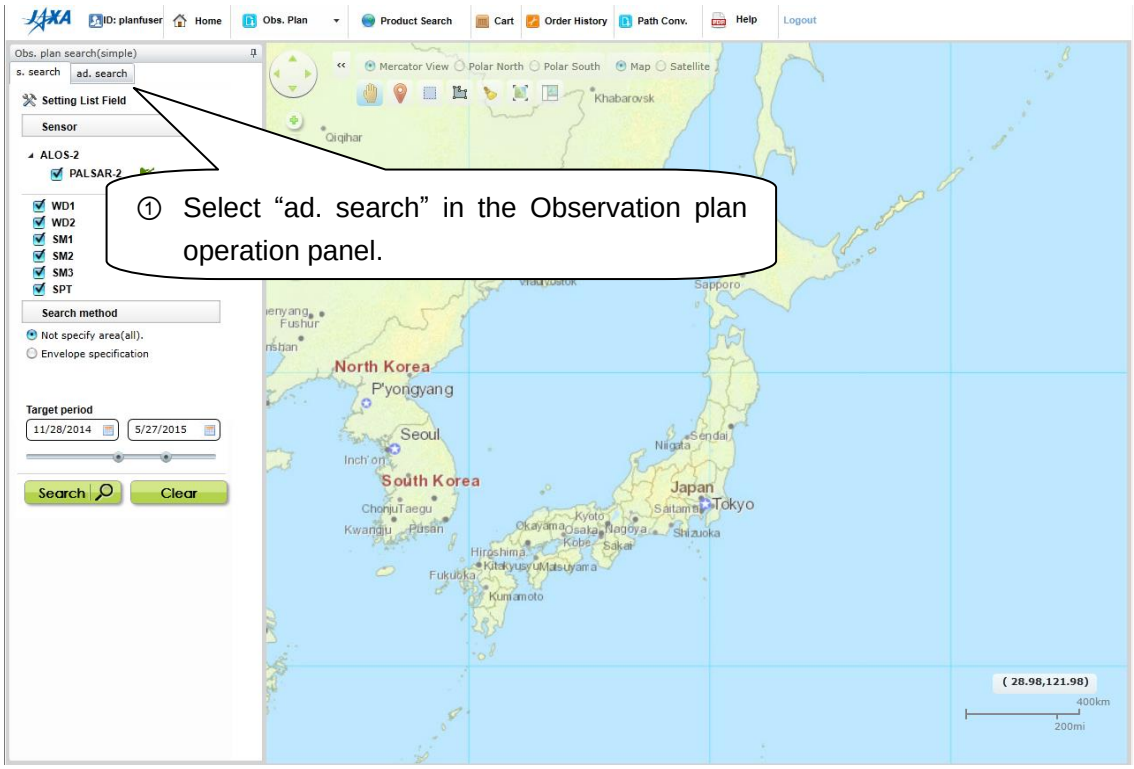


Figure 7-3 Observation Plan screen

7.2.2 Enter search conditions for Observation plan search

Enter search conditions in the window for entering observation plan search, and click the “Search” button.

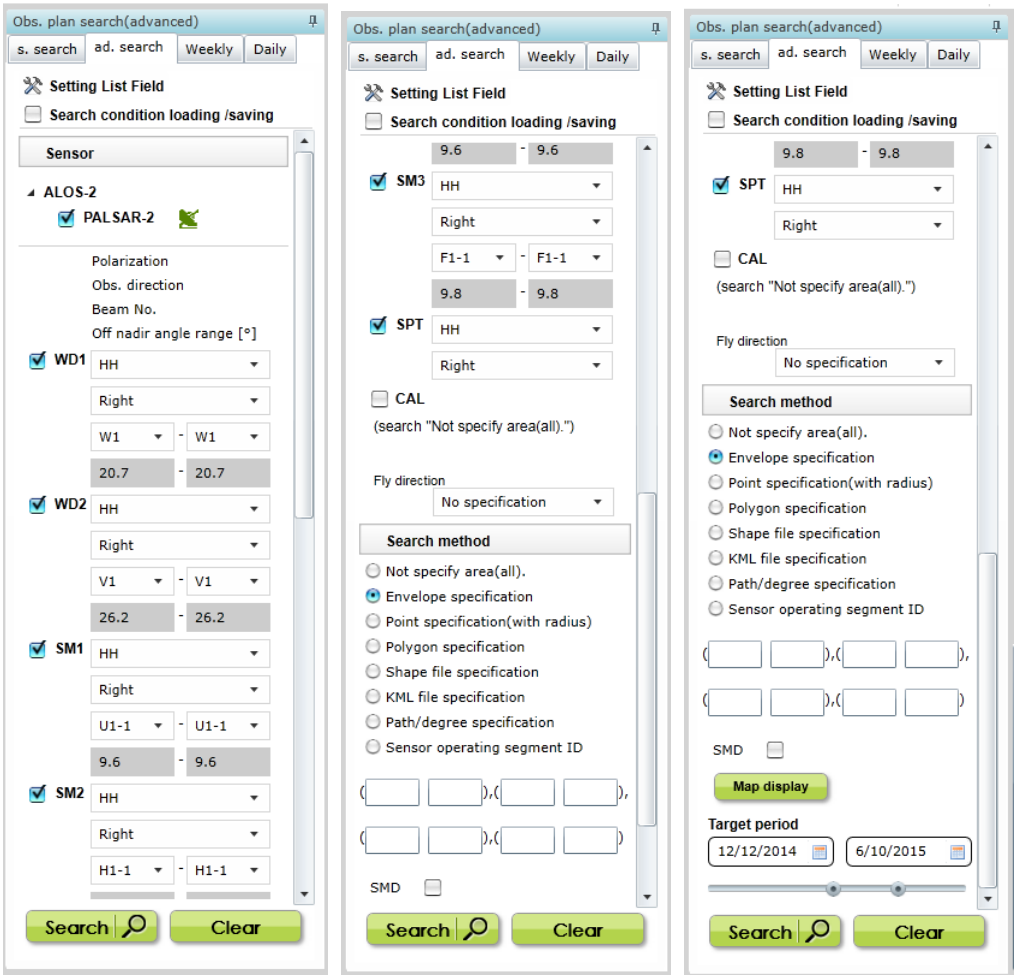


Figure 7-4 Observation Plan screen (ad. search tab)

7.2.3 Check the list of observation plans

When search is complete the results are shown in the observation plan list of fields. When an Observation plan is selected from the observation plan list of fields, the selected row is reversed.

Detailed information of the selected observation plan is shown in the details field.

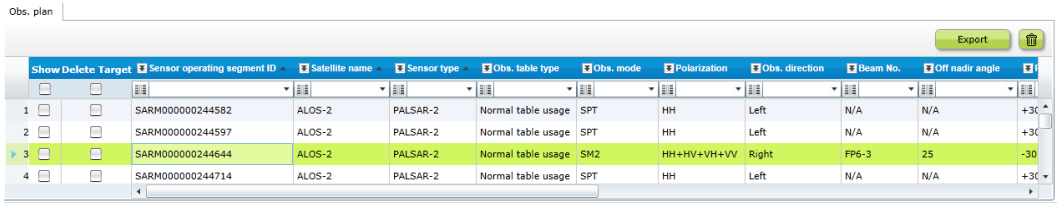


Figure 7-5 Observation Plan screen (List of fields)

7.3 Description of screen

7.3.1 Observation Plan screen - Operations panel

There are two tabs provided on the Observation Plan screen for displaying observation plans in a list form.

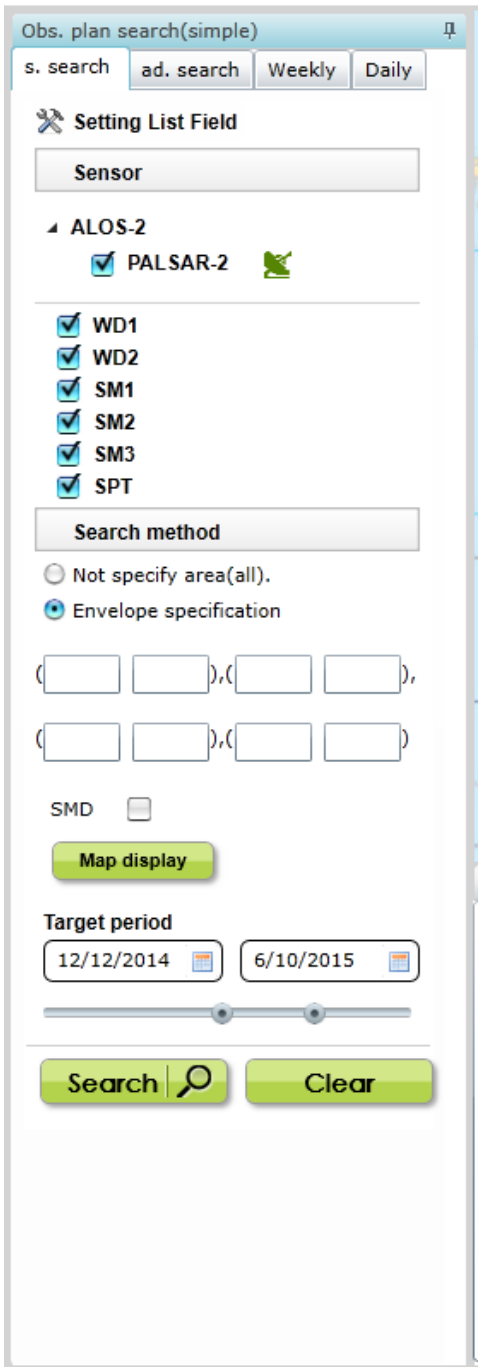
Users can perform Observation opportunity search for viewing observation plans.

Table 7-3 Observation plan list display – Operations panel

NO	Observation plan list display screen Operations panel	Description of Panel	Remarks
a	s. search (Observation plan search (simple))	Search is implemented where observation time or observation area is specified	
b	ad. search (Observation plan search (advance))	Search is implemented on specifying detailed conditions or sensor-specific conditions	

(a) Observation plan search (simple)

On s. search tab, a search can be performed for Observation plans on specifying the observation time, observation mode and search area.



Sensor

Only ALOS-2 can be specified as the satellite.

Operation mode can be specified.

Search method

Search method is specified. Only envelope format can be specified in the Observation plan search (simple).

Search period can also be specified.

Search button

A search is implemented with the entered conditions when

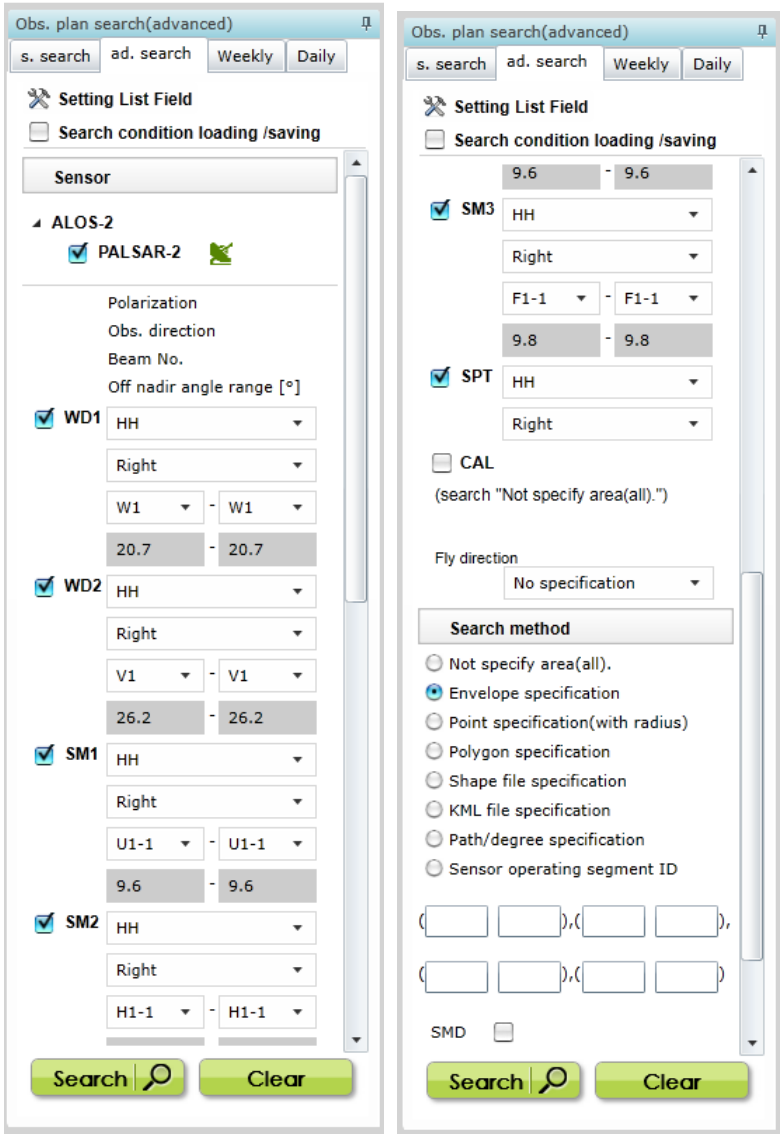
Clear button

Items entered for search conditions are cleared when the

Figure 7-6 s. search tab

(b) Observation plan search (advance)

On the ad. search tab, a search can be implemented for observation plans by specifying the conditions in detail, or the sensor-specific conditions.



'Search condition loading/saving' button Search conditions can be read and saved.

Sensor Only ALOS-2 can be specified as the satellite. Search conditions can be the input for a search for each operation mode.

Figure 7-7 ad. search tab (1/2)

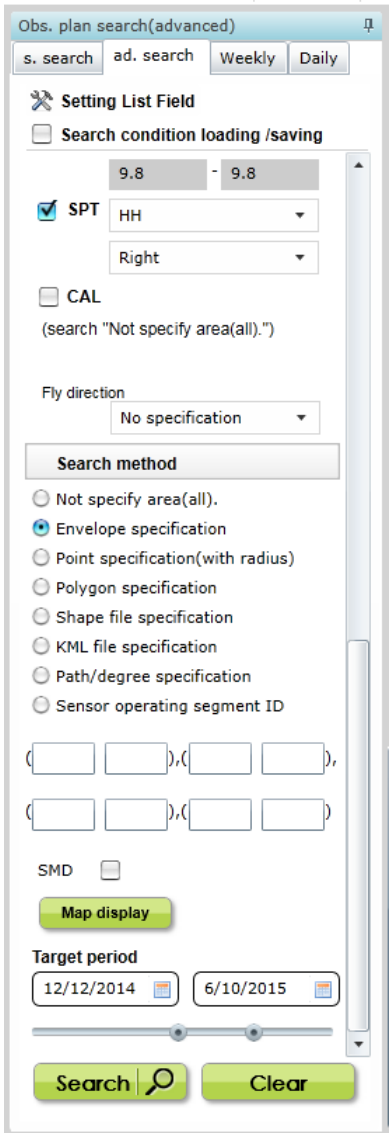


Figure 7-7 ad. search tab (2/2)

➢ Search setting dialog

Search setting dialog is a panel for setting the display items of search result list screen or map default display of Product Search screen.

It is displayed by clicking the icon of the Conditions selection panel.

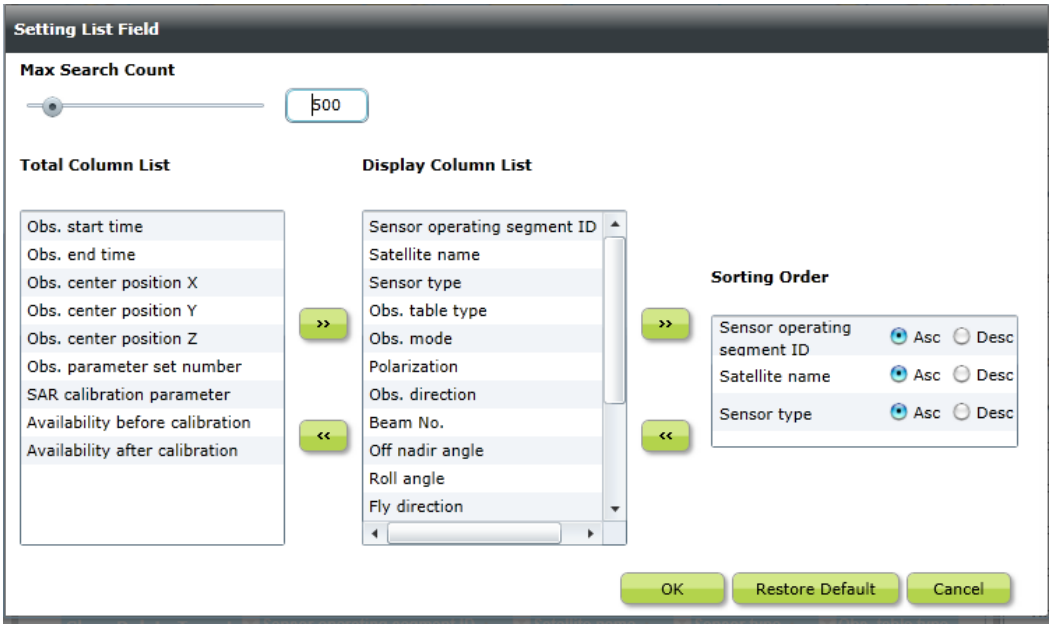


Figure 7-7+1 Search setting dialog

Table 7-3+1 Items composing search setting dialog

Screen Items	Description
Max Search Count	Sets the maximum number of items (1 to 5000) that can be obtained from the search results at one time. The default setting is 500 scenes.
Total Column List (See Table 7-3+2)	Displays the list of column items that can be displayed in Search Results panel. All the items registered in the database are displayed.
Display Column List (See Table 7-3+2)	Sets the column items displayed in the Search Results panel. The items to be displayed are selected from “Total Column List” and added by clicking ». Items that are not required can be returned to “Total Column List” by clicking «. Selected items can be moved up and down by dragging them with the mouse. Sensor operating segment ID, Satellite name, Sensor type, Obs. table type, Obs. mode, Polarization, Obs. direction,

Screen Items	Description
	Beam No., Off nadir angle, Roll angle, Fly direction, Obs. ID, Obs. start total round number, Obs. start latitude argument, Obs. end total round number, and Obs. end latitude argument are displayed by default.
Sorting Order	Specifies the ascending and descending order and key used for sorting the display items. Select the items used for sorting from “Display Column List”, and add them by clicking ». The items that do not need to be sorted can be excluded from sorting by clicking «. Selected items can be moved up and down the list by dragging them with the mouse.
OK button	Clicking the “OK” button applies the set content to the system and closes the dialog.
Cancel button	Clicking the “Cancel” button discards the set content and closes the dialog.
Restore Default button	Clicking the “Restore Default” button returns the set value to its default value.

Table 7-3+2 Display items of Total Column List and Display Column list

#	Item	#	Item
1	Sensor operating segment ID	2	Satellite name
3	Sensor type	4	Obs. table type
5	Obs. mode	6	Polarization
7	Obs. direction	8	Beam No.
9	Off nadir angle	10	Roll angle
11	Fly direction	12	Obs. ID
13	Obs. start total round number	14	Obs. start latitude argument
15	Obs. end total round number	16	Obs. end latitude argument
17	Obs. start time	18	Obs. end time
19	Obs. center position X	20	Obs. center position Y
21	Obs. center position Z	22	Obs. parameter set number
23	SAR calibration parameter	24	Availability before calibration
25	Availability after calibration	—	

7.3.2 Map field

Map field is an area where map data or satellite image data is displayed in the background image.

In the map field, rectangular boxes are displayed corresponding to the terrain of observation plan that includes search results and search method. A slider for changing the scale or direction of the map and a toolbar for moving the map or selecting the search area are given in the map field.

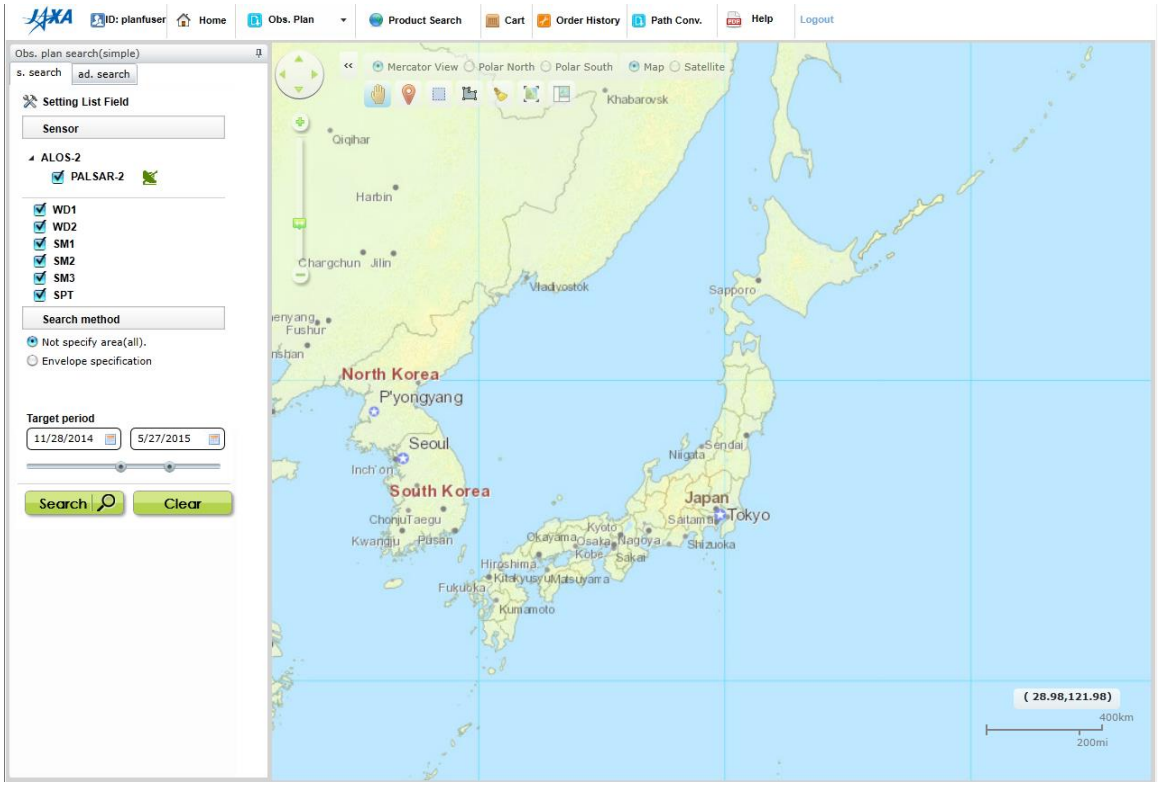


Figure 7-8 Map field

- How to change the search area on the map

  Follow the procedure below to change the search area on the map.

(a) Move the cursor to any place within the search area, and then double-click the mouse.
The search area enters the edit mode (the line changes to a broken line).

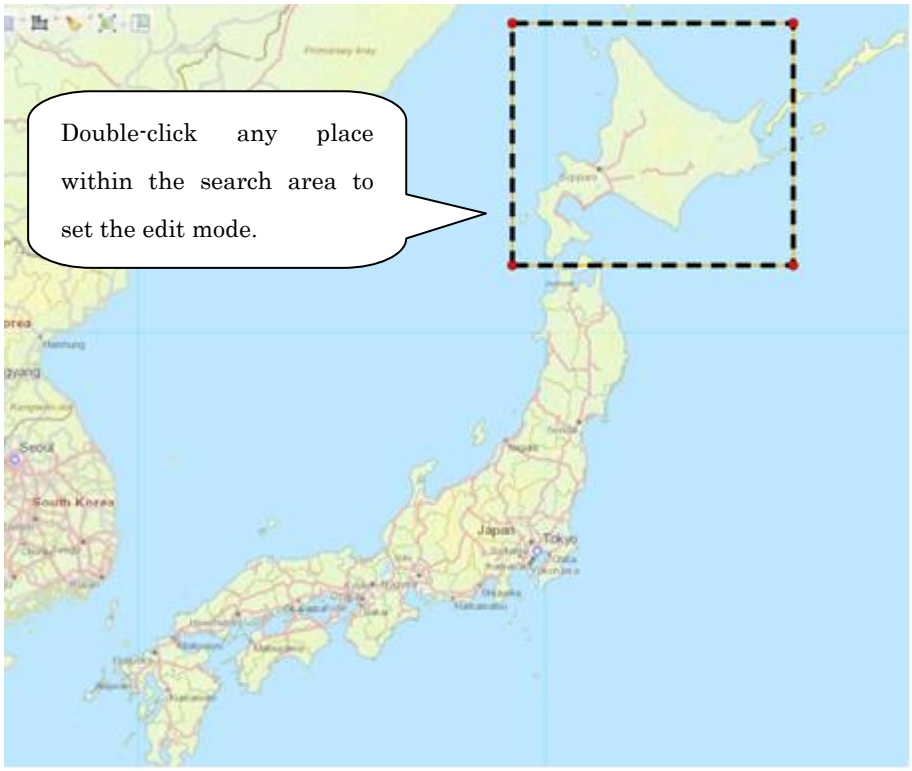


Figure 7-8+1 Map field (changing the search area to edit mode)

(b) Edit the search area in edit mode.

- Click any place within the search area and drag it to move its position.
- Click a corner of the search area ( ) and drag it to change its size.

Figure 7-8+2 Map field (moving/resizing the search area)

(c) After editing the search area, click any place on the map field to complete editing (the search area line changes to a solid line).

If the “Search” button on the operation panel is clicked while the search area is in edit mode, a search is executed for the search area selected at that time, not the area selected prior to entering edit mode.

Figure 7-8+3 Map field (determining the search area)

7.3.3 List of fields

The list of fields displays the result of observation plan in a list when observation plan are searched.

All the search results can be selected and deselected at one time by using the check boxes directly under “Show” and “Delete Target”, respectively.

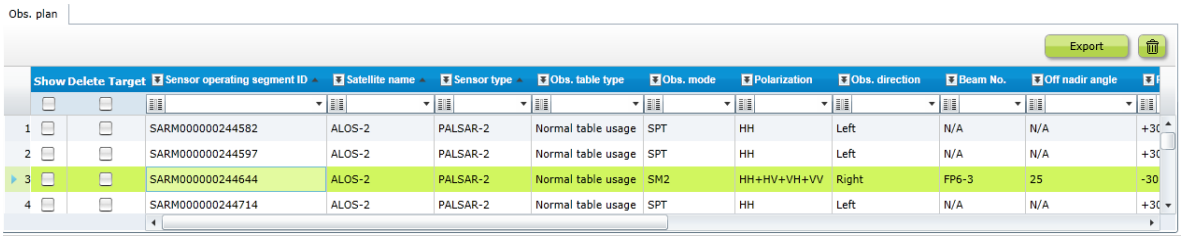


Figure 7-9 Observation plan - List of fields (1/2)

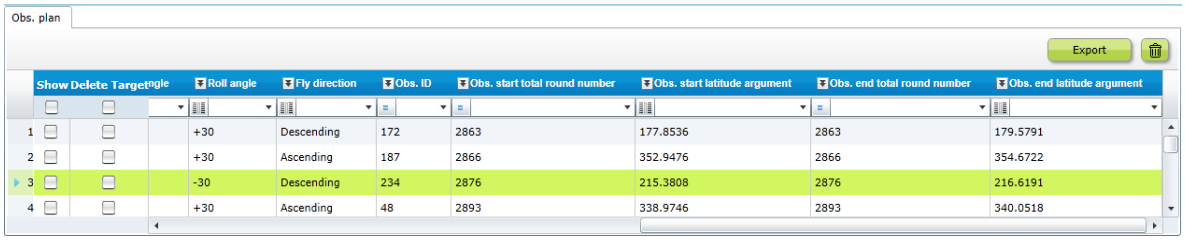


Figure 7-9 Observation plan - List of fields (2/2)

* Refer to ‘Appendix 5 List 08_01_Observation Plan’ for the possible values for each item of the observation plan - List of fields.

➢ Deleting items from the Observation plan list

You can delete observation plans whose deletion checkbox (on the left of each record) you have selected by clicking the icon at the upper right of the list field.

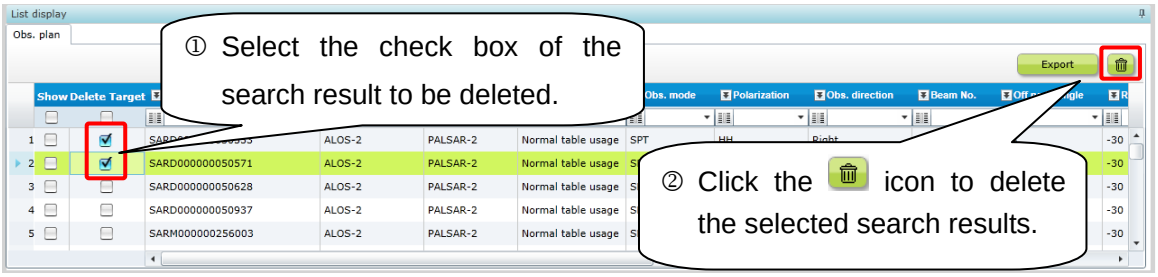


Figure 7-9+1 Deleting search results on Observation plan list field

7.3.4 Details field

Details field is a panel for displaying details of the information selected in the list of fields.

When observation plan list is displayed in the list of fields, detailed information will be displayed of the selected observation plan.

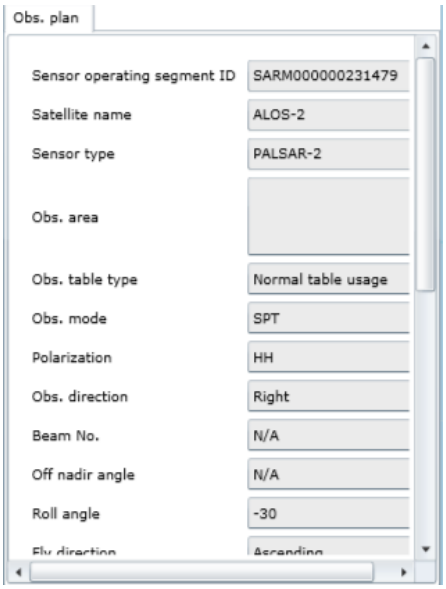


Figure 7-10 Observation plan - Details field (1/3)

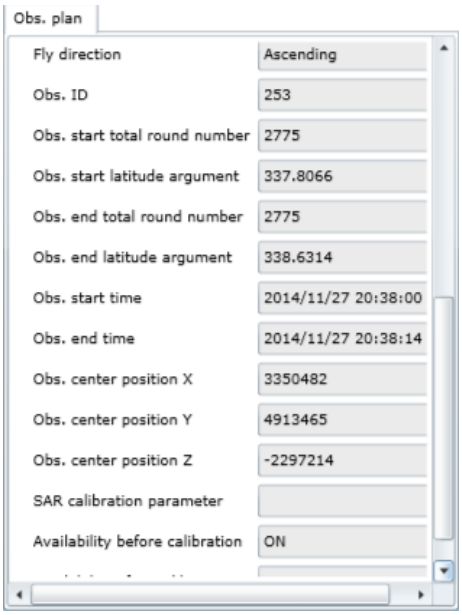


Figure 7-10 Observation plan - Details field (2/3)

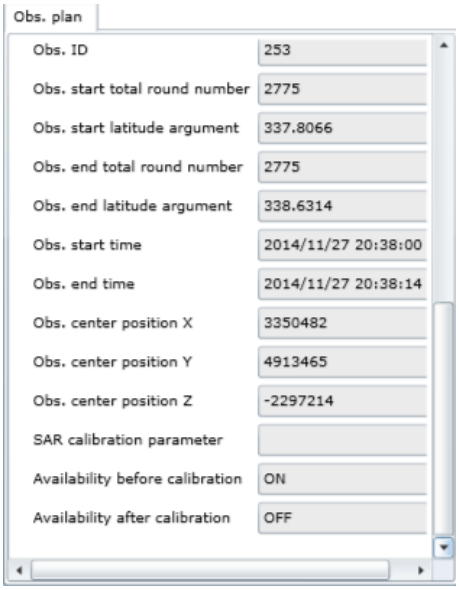


Figure 7-10 Observation plan - Details field (3/3)

* Refer to ‘Appendix 5 List 08_01_Observation Plan’ for the possible values for each item of the observation plan - Details field.

Appendix 1 Order parameters setting list

The values which can be set as per each sensor and level in parameters setting are given as below.

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
ALOS	PRISM	1A (1.0)	Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ High Frequency Attitude Data ▪ Precision Attitude Data	
			Scene shift volume	-2 ~ 2	
		1B1 (1.1)	Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ High Frequency Attitude Data ▪ Precision Attitude Data	
			Scene shift volume	-2 ~ 2	
		1B2 (1.5)	Resampling method	Radio button ▪ CC (default)	■ The items on left side refer to the following methods ▪ CC = Cubic convolution method

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ NN ▪ BL	▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Image Orientation	Radio button ▪ Geo-reference ▪ Geo-coded (default) ▪ Geo-reference (Rough DEM correction) (default) ▪ Geo-coded (Rough DEM correction)	Regarding rough DEM correction Since rough DEM correction is processed by using 50m mesh digital elevation data of Geospatial Information Authority of Japan, it is valid only for the vicinity of Japan. Therefore, if the area is other than the vicinity of Japan or if any other trouble has occurred, the product will be created without rough DEM correction.
			Map direction	Radio button ▪ Map North (default) ▪ True North	This item appears only when “Geo-coded (Rough DEM correction)” or “Geo-coded” is selected in “Image Orientation”
			Map projection	Radio button ▪ UTM (default) ▪ PS	UTM can be selected only when center of latitude on selected scene is within the range of -85.000°～85.000°
			UTM zone number	Radio button ▪ Zone number at the center of scene (default) ▪ Specify UTM zone number (→Enter)	▪ This item appears only when “UTM” is selected in “Map projection” ▪ Zone number has range and it varies by the area ▪ Value in the permissible range is entered in the spin box. Numbers cannot be specified beyond the range.
			PS standard latitude	▪ Don’t specify (default) ▪ -90.000° ~ 90.000° (Absolute value)	This item appears only when PS is selected in “Map projection”
			PS standard longitude	▪ Don’t specify (default)	(Same as above)

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ -179.999° ~ 180.000°	
			Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪Most Accurate and Available (default) ▪ High Frequency Attitude Data ▪ Precision Attitude Data	
			Scene shift volume	-2 ~ 2	
	AVNIR-2	1A (1.0)	Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Attitude Data	
			Scene shift volume	-5 ~ 4	
		1B1 (1.1)	Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪ Most Accurate and Available (default)	

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ Precision Attitude Data	
			Scene shift volume	-5 ~ 4	
		1B2 (1.5)	Resampling method	Radio button ▪ CC (default) ▪ NN ▪ BL	The items on left side refer to the following methods ▪ CC = Cubic convolution method ▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Map projection	Radio button ▪ UTM (default) ▪ PS	UTM can be selected only when center of latitude on selected scene is within the range of -85.000° ~ 85.000°
			Image Orientation	Radio button ▪ Geo-reference (default) ▪ Geo-reference (Rough DEM correction) ▪ Geo-coded ▪ Geo-coded (Rough DEM correction)	
			Map direction	Radio button ▪ Map North (default) ▪ True North	This item appears only when “Geo-coded (Rough DEM correction)” or “Geo-coded” is selected in “Image Orientation”.
			Pixel spacing	Radio button ▪ 10m ▪ 12.5m ▪ 15m	There is no default value. Default value is selected after setting and calculating from pointing angle.

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ 20m	
			UTM zone number	Radio button ▪ Zone number at the center of scene (default) ▪ Specify UTM zone number (→Enter)	▪ This items appears only when “UTM” is selected in “Map projection” ▪ Zone number has range, and it varies by the area ▪ Value in the permissible range is entered in the spin box. Numbers cannot be specified beyond the range.
			PS standard latitude	▪ Don’t specify(default) ▪ -90.000° ~ 90.000° (Absolute value)	This item appears only when PS is selected in “Map projection”
			PS standard longitude	▪ Don’t specify (default) ▪-179.999° ~ 180.000°	(Same as above)
			Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Attitude Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Attitude Data	
			Scene shift volume	-5 ~ 4	
	PALSAR	1.0	Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Scene shift volume	-5 ~ 4	
		1.1	Orbit Accuracy	Radio button	

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Scene shift volume	-5 ~ 4	
		1.5	Resampling method	Radio button ▪ NN ▪ CC ▪ BL (default)	■ The items on left side refer to the following methods ▪ CC = Cubic convolution method ▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Map projection	Radio button ▪ UTM (default) ▪ PS ▪ LCC ▪ MER	■ UTM can be selected only when center of latitude on selected scene is within the range of -85.000° ~ 85.000° ■ PS can be used only when center of latitude on selected scene is within the range of-90.000° ~ 90.000° (In case of High resolution mode and direct downlink mode, it should be within the range of -90.000°～-25.000, 25.000° ~ 90.000°only) ■ LCC ■ MER (Can be selected only when center of the latitude on the scene is within the range of-73.000° ~ 73.000°)
			Image Orientation	Radio button ▪ Geo-reference (default) ▪ Geo-coded	
			Map direction	Radio button ▪ Map North (default)	This item appears only when “Geo-coded” is selected in “Image Orientation”

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
			Pixel spacing	In case Operation mode is FBS ▪ 6.25m (default) ▪ 12.5m In case Operation mode is wide-area observation mode ▪ 100m (default) In case Operation mode is other than above mentioned modes ▪ 12.5m (default)	As mentioned on left side, the content has three variations depending on the operation mode
			UTM zone number	Radio button ▪ Zone number at the center of scene (default) ▪ Specify UTM zone number (→Enter)	▪ This item appears only when “UTM” is selected in “Map projection” ▪ Zone number has range, and it varies by the area ▪ Value in the permissible range is entered in the spin box. Numbers cannot be specified beyond the range.
			PS standard latitude	▪ Don’t specify (default) In case of high resolution mode, direct downlink mode ▪ -90.000° ~ -25.000°, 25.000° ~ 90.000° In case of other modes ▪ 90.000° in case of northern hemisphere, and -90.000° in case of southern hemisphere	This item appears only when PS is selected in “Map projection”
			PS standard longitude	▪ Don’t specify (default)	(Same as above)

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ -179.999° ~ 180.000°	
			LCC reference latitude line 1 latitude	When center of the latitude is in northern hemisphere 0 ≦ Reference latitude 2 < Center of the latitude < Reference latitude 1 < 90 When center of the latitude is in southern hemisphere -90 <Reference latitude 1 <Center of the latitude < Reference latitude 2 < 0	This item appears only when LCC is selected in “Map projection”
			LCC reference latitude line 2 latitude	(Same as above)	(Same as above)
			LCC origin point latitude	-90.000° ~ 90.000°	(Same as above)
			LCC origin point latitude	-179.999° ~ 180.000°	(Same as above)
			Orbit Accuracy	Radio button ▪ Most Accurate and Available (default) ▪ Precision Orbit Data	
			Scene shift volume	-5 ~ 4	
ALOS-2	PALSAR-2	1.0	Orbit Accuracy	Radio button ▪ Most Accurate and Available ▪ High precision orbit information (default)	
			Scene shift	-5 ~ 4	

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
			Format	Radio button ▪ CEOS (default)	
		1.1	Orbit Accuracy	Radio button ▪ Most Accurate and Available ▪ High precision orbit information (default)	
			Scene shift	-5 ~ 4	
			Format	Radio button ▪ CEOS (default) ▪ GeoTiff ▪ Jpeg ▪ GeoPDF	Only “CEOS” can be selected at the time of selecting wide-area observation mode. “GeoPDF” selection is restricted according to user permission.
			Processing method	Radio button ・Burst (default) ・Full-Aperture	This item appears only when wide-area observation mode is selected.
		1.5	Resampling method	Radio button ▪ NN (default) ▪ CC ▪ BL	■ The items on left side refer to the following methods ▪ CC = Cubic convolution method ▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Map projection	Radio button ▪ UTM (default) ▪ PS	■ UTM can be selected only when center of latitude on selected scene is within the range of -85.000° ~ 85.000° ■ PS can be used only when center of latitude on selected scene is

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ LCC ▪ MER	within the range of -90.000° ~ 90.000° (In case of High resolution mode and direct downlink mode, it should be within the range of -90.000° ~ -25.000, 25.000° ~ 90.000° only) ■ LCC ■ MER (Can be selected only when center of latitude on the scene is within the range of-73.000° ~ 73.000°)
			Framing	Radio button ▪ Geo-reference (default) ▪ Geo-coded	
			Map direction	Radio button ▪ Map (default)	This item appears only when “Geo-coded” is selected in “Framing”
			UTM zone number	Radio button ▪ Zone number at the center of scene (default) ▪ Specify UTM zone number (→Enter)	▪ This item appears only when “UTM” is selected in “Map projection” ▪ Zone number has range, and it varies by the area ▪ Range which can be set is ±1 of zone number at center of scene ▪ Value of permissible limit is entered in the spin box.
			PS standard default	Radio button ▪ PS standard is default ▪ PS standard is not default	ON: PS standard is default OFF: PS standard is not default
			PS standard longitude	-179.999° ~ 180.000°	This item appears only when PS is selected in “Map projection”.
			Orbit Accuracy	Radio button ▪ Most Accurate and Available	

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ High precision orbit information (default)	
			Scene shift	-5 ~ 4	
			Format	Radio button ▪ CEOS (default) ▪ GeoTiff ▪ Jpeg ▪ GeoPDF	“GeoPDF” selection is restricted according to user permission.
		2.1	Resampling method	Radio button ▪ NN ▪ CC ▪ BL (default)	■ The items on left side refer to the following methods ▪ CC = Cubic convolution method ▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Map projection	Radio button ▪ UTM (default) ▪ PS ▪ LCC ▪ MER	■ UTM can be selected only when the center latitude of the selected scene is in the range of -83° to 83°. ■ PS can be selected only when the center latitude of the selected scene is in the range of -25° to 83°. ■ MER/LCC can be selected only when the center latitude of the selected scene is in the range of -70° to 70°.
			Framing	Radio button ▪ Geo-coded (default)	
			Map direction	Radio button ▪ Map (default)	This item appears only when “Geo-coded” is selected in “Framing”

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
			Pixel spacing	In case of spotlight mode ▪ 0.625m(*) / 1.250m / 2.500m In case of high resolution mode (3m) ▪ 2.500m(*) / 5.000m / 10.000m In case of high resolution mode (6m) ▪ 3.125m(*) / 6.250m / 12.500m In case of high resolution mode (10m) ▪ 6.250m(*) / 12.500m In case of wide-area observation ▪ 25.000m(*) / 50.000m/ 100.000m	(*) is default value.
			UTM zone number	Radio button ▪ Zone number at the center of scene (default) ▪ Specify UTM zone number (→Enter)	▪ This item appears only when “UTM” is selected in “Map projection” ▪ Zone number has range, and it varies by the area ▪ Range that can be set is ±4 of zone number at the center of scene ▪ Value of permissible limit is entered in the spin box.
			PS standard default	Radio button ▪ PS standard is default ▪ PS standard is not default	ON: PS standard is default OFF: PS standard is not default
			PS standard latitude	-90.000°~90.000°	This item appears only when PS is selected in “Map projection”
			PS standard longitude	-179.999° ~ 180.000°	(Same as above)
			LCC reference longitude	Radio button ▪ LCC Reference is default	ON: LCC Reference is default OFF: LCC Reference is not default

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ LCC Reference is not default	
			LCC reference latitude line 1 latitude	When center of the latitude is in northern hemisphere 0 ≦ Reference latitude 2 < Center of the latitude < Reference latitude1 < 90 When center of the latitude is in southern hemisphere -90 <Reference latitude 1 < Center of the latitude < Reference latitude 2 < 0	This item appears only when LCC is selected in “Map projection”
			LCC reference latitude line 2 latitude	(Same as above)	(Same as above)
			LCC origin point latitude	-90.000° ~ 90.000°	(Same as above)
			LCC origin point latitude	-179.999° ~ 180.000°	(Same as above)
			Orbit Accuracy	Radio button ▪ Most Accurate and Available ▪ High precision orbit information (default)	
			Use DEM default flag	Radio button ▪ Use default (default) ▪ Don’t use default	The DEM that is used by default is as follows. ・In the case of wide-area observation mode, SRTM90 ・In all cases other than wide-area observation mode, GISMAP in Japan and SRTM90 in other countries
			Use DEM	Radio button	This item appears only when “Don’t use default” is selected in “Use DEM

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
				▪ GISMAP ▪ SRTM90	default”
			GISMAP version	Pull-down list ▪ Any (default) ▪ v01 2014/03/01	This item appears only when “GISMAP” is selected for “Use DEM”.
			Scene shift volume	-5 ~ 4	
			Format	Radio button ▪ CEOS (default) ▪ GeoTiff ▪ Jpeg ▪ GeoPDF	“GeoPDF” selection is restricted according to user permission.
		3.1	Resampling method	Radio button ▪ NN (default) ▪ CC ▪ BL	■ The items on left side refer to the following methods ▪ CC = Cubic convolution method ▪ NN = Nearest neighbor method ▪ BL = Bilinear method
			Map projection	Radio button ▪ UTM (default) ▪ PS ▪ LCC ▪ MER	■ UTM can be selected only when center of the latitude on selected scene is within the range of -85.000° ~ 85.000° ■ PS can be used only when center of the latitude on selected scene is within the range of -90.000° ~ 90.000° (In case of High resolution mode and direct downlink mode, it should be within the range of -90.000° ~ -25.000, 25.000° ~ 90.000°only)

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
					■ LCC ■ MER (Can be selected only when center of the latitude on the scene is within the range of-73.000° ~ 73.000°)
			Framing	Radio button ▪ Geo-reference (default) ▪ Geo-coded	
			Map direction	Radio button ▪ Map (default)	This item appears only when “Geo-coded” is selected in “Framing”
			UTM zone number	Radio button ▪ Zone number at center of the scene (default) ▪ Specify UTM zone number (→Enter)	▪ This item appears only when “UTM” is selected in “Map projection” ▪ Zone number has range, and it varies by the area ▪ Range that can be set is ±1 of zone number at center of the scene ▪ Value of permissible limit is entered in the spin box.
			PS standard longitude	Radio button ▪ PS standard is default ▪ PS standard is not default	ON: PS standard is default OFF: PS standard is not default
			PS standard longitude	-179.999° ~ 180.000°	This item appears only when PS is selected in “Map projection”.
			Orbit Accuracy	Radio button ▪ Most Accurate and Available ▪ High precision orbit information (default)	
			Scene shift volume	-5 ~ 4	

Satellite name	Sensor name	Processing level	Processing parameter	Items	Remarks
			Format	Radio button ▪ CEOS (default) ▪ GeoTiff ▪ Jpeg ▪ GeoPDF	“GeoPDF” selection is restricted according to user permission.

Appendix 2 File specification

Following are the files used in AUIG2.

① Search condition file (KML file)

Items	Description
Extension	Any
Supported version	version 2.2

② Search condition file (Shape file)

Items	Description
Extension	2 files i.e. *.shp and *.dbf
Supported version	

③ Search result file (KML file)

Items	Description
File name	output.kmz
Supported version	version 2.2

④ Search result file (Shape file)

Items	Description
File name	outputShape.zip
Supported version	

⑤ Search result file (CSV file)

Items	Description
File name	To be specified by user
File format	CSV

⑥ Ordered product file

Items	Description
Extension	*.zip
File format	Refer to 6.4 File structure provided by AUIG2.

Appendix 3 Mail notification list

The time of sending mails to the users by AUIG2 is as follows:

NO	Mails to be sent	Description
1.	User registration completion	Sent when clearing examination in JAXA
2.	Password regeneration	Sent at the time of password regeneration request
3.	Receiving of order	Sent when the order is accepted
4.	Order cancellation completion	Sent when order is cancelled
5.	Order cancellation completion (individual)	Sent when order is cancelled individually
6.	Providing preparation completion	Sent when product providing preparation is completed
7.	Delivery schedule mail	Sent at the time of product delivery
8.	FTP transmission (Notification that FTP has been provided)	Sent when FTP transmission is completed
9.	Product providing validity expire notice	Sent before product providing validity expires
10.	Expired validity of providing the product	Sent when the product providing validity is expired
11.	Provision not possible (observation request rejected)	Sent when observation request has been rejected
12.	Provision not possible (observation failed)	Sent when observation failed
13.	Provision not possible	Sent when product provision is not possible

The time, subject, and body shall be displayed for each email that is sent. The body of the email shall be placed inside the "Body" portion of the following common format (except for No. 1” User registration completion”, No. 2” Password regeneration” and No. 12 “Provision not possible (observation failed)”).
The contents of mail notification can be changed by the operator.

Dear XXXX XXXX XXXX

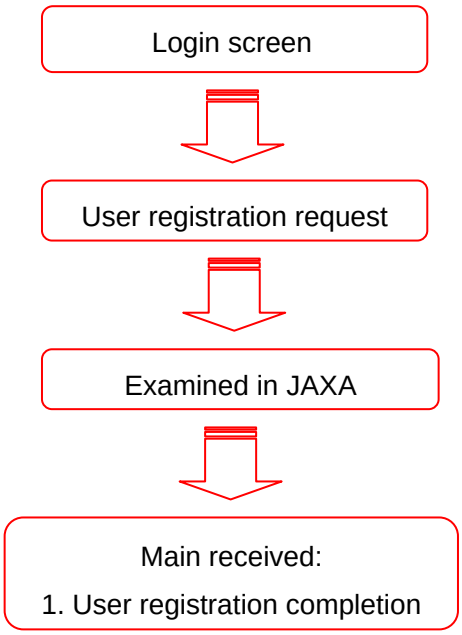
Body

https://auig2.jaxa.jp/ips/home

* This email was sent from a send-only address.

Each “{information}” as the contents of following mails shows a just example.

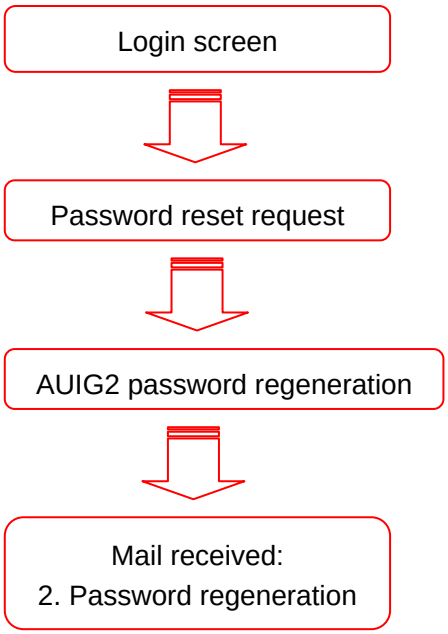
① Mail received at the time of user registration



Received mail	Subject	Body
1. User registration completion	Notification of user registration for AUIG2	Dear {XXXX XXXXX XXXX} Your AUIG2 (ALOS User Interface Gateway2) user account has been registered successfully. You can login and use the AUIG2 from the following URL. Your user ID : {XXXXXXXX} AUIG2 URL : https://auig2.jaxa.jp/ips/home You can get your password from the following procedure. < The procedure of getting your password > 1. Access to the AUIG2 (the above-mentioned URL) 2. Click "Forget your password? Click here" in AUIG2 Login page.

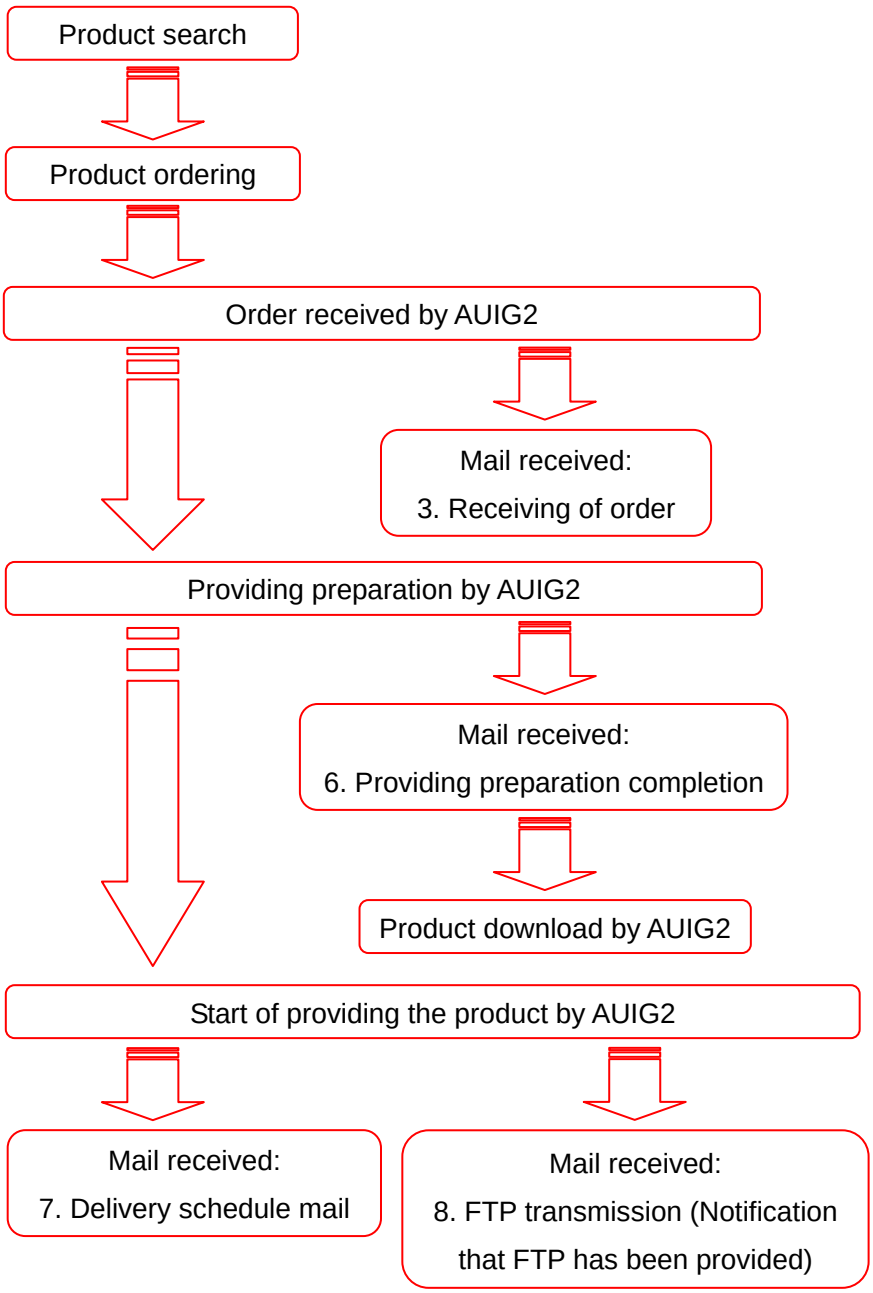
		3. Follow the on-screen instruction, and enter your user ID and your email address that is received this email, and click "Send" in sub-window. 4. Your password will be sent to your email address. If you have any questions, please do not hesitate to ask to the following inquiries. Inquiries - For AUIG2 Service Contact: ALOS-2 orderdesk E-mail: Z-ALOS-2_ORDERDESK@jaxa.jp - For Principal Investigators, Researchers Contact: EORC orderdesk E-mail: Z-orderdesk@jaxa.jp * This email was sent from a send-only address. * This is an automated message, please do not reply to this email.

② Mail received at the time of password regeneration



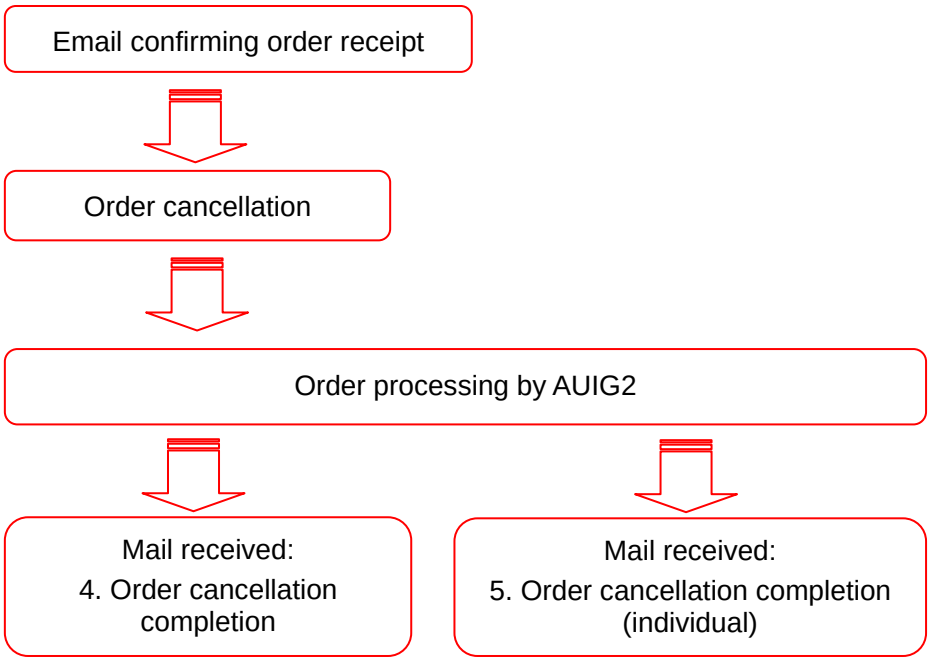
Received mail	Subject	Body
2. Password regeneration	Password was reset	Dear Dr. {XXXX XXXX XXXX}, I have reset the password for AUIG2. New Password : {Cba@6846068028719178740} https://auig2.jaxa.jp/ips/home Inquiries - For AUIG2 Service Contact: ALOS-2 orderdesk E-mail: Z-ALOS-2_ORDERDESK@jaxa.jp - For Principal Investigators, Researchers Contact: EORC orderdesk E-mail: Z-orderdesk@jaxa.jp * This email was sent from a send-only address. * This is an automated message, please do not reply to this email.

③ Mail received from product order to product receipt



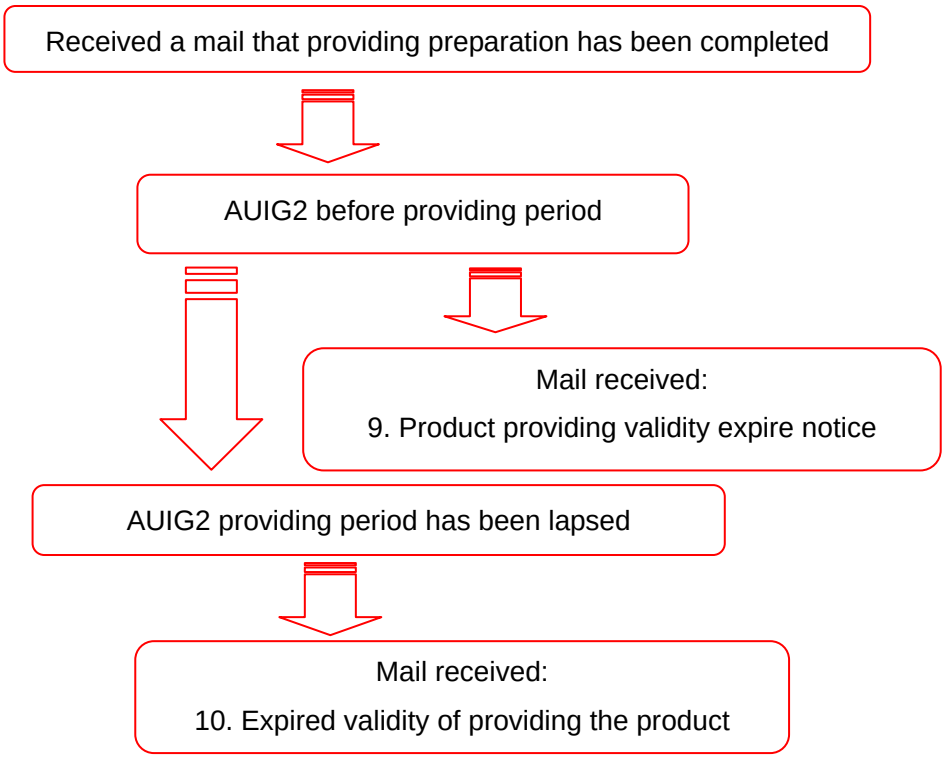
Received mail	Subject	Body
3. Receiving of order	Order Received (order ID: {0000007020})	Your Order has been received successfully. Order ID : {0000007020} AUIG2 Login page
6. Providing preparation completion	Providing Preparation Complete (order ID:{0000007020})	Providing Preparation of Order has been completed. Order ID :{0000007020} password :{ k2pjve*F} available Till : {2014/12/10} AUIG2 Login page
7. Delivery schedule mail	Providing Preparation Complete (order ID:{0000007020})	We have delivered the products that you have ordered Order ID : {0000007020} password : {k2pjve*F} AUIG2 Login page
8. FTP transmission (Notification that FTP has been provided)	FTP Transmission Successful (order ID: {0000007020})	FTP Transmission is executed successfully. Order ID : {0000007020} password : {k2pjve*F} AUIG2 Login page

④ Mail received at the time of cancelling the order



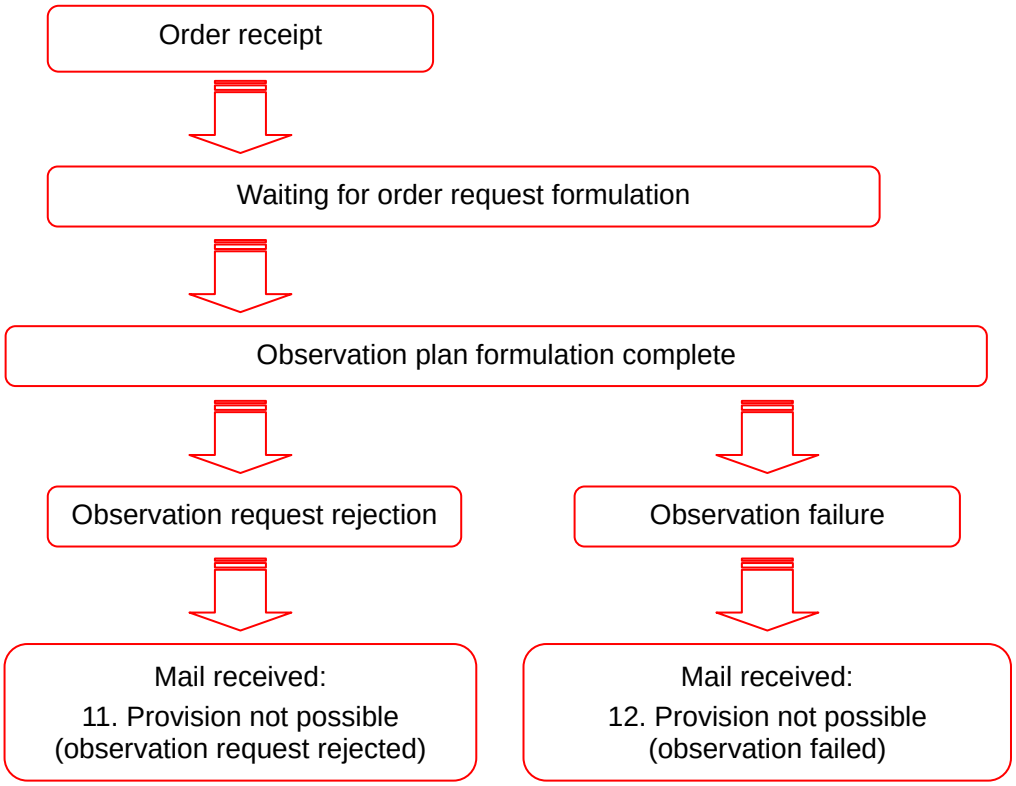
Receive mail	Subject	Body
4. Order cancellation completion	Order Cancellation Success (order ID: {0000007020})	Your have cancel your order successfully Order ID : {0000007020} AUIG2 Login page
5. Order cancellation completion (Individual)	Order Cancellation Success (order ID: {0000007020})	Your have cancel your order successfully Order ID : {0000007020} Order details ID : {001001} AUIG2 Login page

⑤ Mail received during provision period



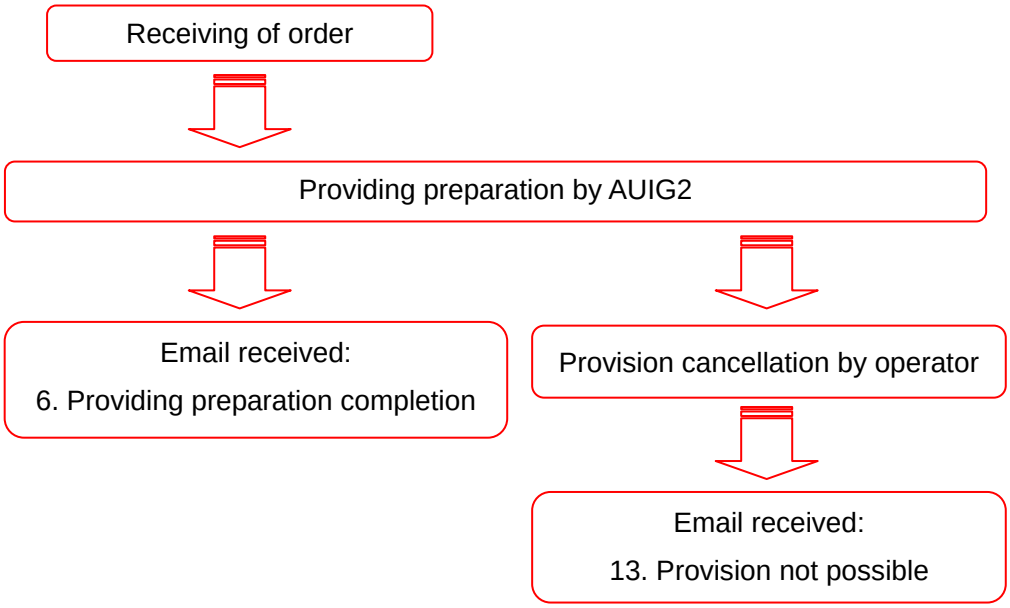
Received mail	Subject	Body
9. Product providing validity expire notice	Please receive your order before expiry date (order ID: {0000007020})	Your order is prepared. Please receive before available till date. Order ID : {0000007020} available Till : {2014/12/10}
10. Expired validity of providing the product	Order is Expired (order ID:{0000007020})	Your order has been expired. Order ID : {0000007020} available Till : {2014/12/10} AUIG2 Login page

⑥ Mail received due to rejection of observation request and cancellation of observation plan



Received mail	Subject	Body
11. Provision not possible (observation request rejected)e	Capture request cancel (order ID: {0000007020})	For the following reasons, your order cannot be provided Order ID : {0000007020} Order details ID : {001001} Reason : Capture request cancel
12. Provision not possible (observation failed)	*Created by an operator*	*Created by an operator*

⑦ Provision cancellation by operator



Received mail	Subject	Body
13. Provision not possible	Some Product of order can not be provided (order ID: {0000007020})	Some Product of order can not be provided. Order ID : {0000007020} Order details ID: {001001}*1 Rejection Reason: {*2}

*1: The order details ID is not output to the body if data transfer has failed.

*2: The Rejection Reason indication differs depending on the reason why product provision is not possible, as shown below.

Reason why product provision is not possible	Rejection Reason indication
Product creation has failed.	Product Creation Error
A visual quality check resulted in “Fail”.	Quality Check NG
Data transfer has failed.	Data Transmission Error
Product provision was cancelled during provisioning.	Cancelled Provision

Appendix 4 Glossary and abbreviations

Glossary and vocabulary are provided in the next page.

Abbreviation and Glossary	English	Japanese	Description	Remarks
A				
Active sensor	-	能動センサ	This is a sensor which irradiates the routine electromagnetic waves from satellites etc. to objects and collects scattered and reflected waves from objects. Some sensors are of the scanning type such as SAR, laser radar, microwave scatterometer or altimeter, while some are of non-scanning type such as laser spectrometer or laser rangefinder.	
Algorithm	-	アルゴリズム	It signifies the formulation and expression of steps for solving the problem in mathematics, computing or related field. Further, program is the way to instruct the algorithm in the computer.	
ALOS (DAICHI)	Advanced Land Observing Satellite	陸域観測技術衛星	Advanced Land Observing Satellite (ALOS: DAICHI), which was launched in 2006 is a man-made satellite for land observation. It has solar battery paddle on one wing and three sensors PRISM, AVNIR-2 and PALSAR on-board.	
ALOS-2	Advanced Land Observing Satellite-2	陸域観測技術衛星2号	Advanced Land Observing Satellite-2 is the successor satellite to the “DAICHI”, which is in operation. It can take images of Japan approximately within 12 hours and of Asia region approximately within 24 hours. To allow mutually complementary relationship (Observation Frequency Improvement), orbit of ALOS-2 is set in noon as against (Orbit-6:00 am) of the foreign satellite SAR. L band SAR is the only sensor on-board. However, the aim is to achieve a resolution of 1 ~ 3m by adding new observation mode “Spot light mode” for PALSAR of resolution around 10m.	
Ambiguity	-	アンビギュイティ	High resolution of SAR range and Azimuth direction are achieved by compression processing of the respective directions. The response function of SAR corresponding to point target, is generally in SINC function format (sinmx/x) depending on the above mentioned compression processing. The video of point target becomes ambiguous since this function has the peak corresponding to multiple x values. This is called ambiguity, it can also be seen in any of the range and Azimuth direction. Through this feature of SAR, for example, in case of observing target near the extremely big point of radar cross section, the peak (ghost) of periodic image intensity is seen in the range and Azimuth direction by taking that target as a center. Normally, the occurrence of ambiguity can be controlled with the appropriate tapper to the signal.	
Angle of incidence	Incidence angle, Angle of incidence	入射角	See [Off-nadir angle]	
Annotation	-	アノテーション	It is additional information written alongside the image. The central coordinate, date of taking photograph, sensor type, sun angle, processing parameter etc. are written at the lower part of photograph or header portion of electromagnetic tape etc.	
ARC	Active Radar Calibrator	能動型レーダ校正器	ARC (Active Radar Calibrator) is a device used in calibration of synthetic aperture radar installed in satellite or aircraft. Internally, it has radar reflector equipped with amplifier. The ability to enlarge radar cross section area, irrespective of antenna beam width is a major advantage compared to passive reflector (such as corner reflector). Further, in ARC various types of processing can be carried out for radar signals within the device. For example, temporal delay can be provided and frequency can be shifted for radar signal.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Ascending node orbit, Descending node orbit	-	昇交軌道、降交軌道	Orbit where satellite passes equator from south to north is known as ascending node orbit, and orbit where satellite passes equator from north to south is known as descending node orbit. Even from the same point on earth, the visibility from sensor varies for each orbit, therefore observation data is different.	
Auxiliary data (DEM etc.)	-	補助データ（DEMなど）	In ALOS-2 Information System, ortho processing is provided as one of the observation data processing. Ortho processing performs geometric corrections (ortho corrections) using digital elevation data (Digital Elevation Mode: DEM). In ALOS-2 Information Systems, the DEM used in ortho processing is called as 'Auxiliary data' (DEM).	
AVNIR-2	Advances Visible and Near Infrared Radiometer Type 2	高性能可視赤外放射計2型	One of the sensors installed in ALOS. Sensor which generates color image with four types of wavelengths.	
Azimuth	-	アジマス、方位、方位角	The traveling direction of a flying object such as a satellite or an aircraft is called Azimuth direction and perpendicular direction is called range direction.	
Azimuth Compression	-	アジマス圧縮	It is a process that is carried out while changing SAR signal to an image that is understood just by seeing through eyes. It is a signal process that obtains the sharp resolution from pulse amplitude information corresponding to Azimuth direction (orbit direction of satellite).	
B				
Basic observation	-	基本観測	Basic observation when common mode is selected to fulfill the requests of as many users as possible. The objective is to reduce overall amount of requests and improve request fulfillment level as a whole.	
Basic observation scenario	-	基本観測計画	It is formed with an objective of basic observation. See "Basic observation".	
C				
CEOS	Committee of Earth Observation Satellites	地球観測衛星委員会	A committee established in 1984 on the recommendation from Panel of Experts on Remote Sensing from Space under the aegis of the G7 Economic Summit of Advanced Nations. Mission of this committee is to increase the advantages of earth observation from space for its member as well as international user community. In addition to this, they discuss regarding the technical information exchange in order to facilitate the complementarity and compatibility between the systems in operation or systems being developed. It does not have any legal validity, since the points agreed upon in CEOS do not cover the existing agreements among all the members.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
CEOS Format	COES Format	CEOSフォーマット	CEOS format is created in compliance with CCT format that was created by Committee on Earth Observation Satellites. CEOS-BSQ format (Band Sequential) wherein files are divided in each band and CEOS-BIL format (Band Interleaved by Line) wherein multiple bands are overlapped in CEOS format. Standard format of ALOS (DAICHI) is CEOS-BSQ format. CEOS format is composed of following items. 1. Volume directory file 2. Leader file 3. Image file 4. Trailer file 5. NULL volume directory file	
Change extraction processing	-	変化抽出処理	This is the processing for identifying differences and variations by extracting the differences of color composition and image intensity or threshold value by using Level 1 data of pre and post disaster.	
Chirp modulation	-	チャープ変調	It refers to linear frequency modulation used in the pulse compression technology to improve the axial resolution of radar. The name is a reference to chirping in analogy to the sound made by some birds. Since it is required to narrow down the pulse width because the axial resolution of the radar is determined by the effective pulse width, Pulse compression technology is used to maintain the required average power without increasing the peak transmit power. This technique is modulated through specific signal as transmitted pulse, and receives high resolution by demodulation (compression) at phase of receiving data processing by using the broadband pulse with spread spectrum. Chirp modulation is widely used as identification signal. Scattered waves received from targets are passed through the distributed delay line having a characteristic opposite to that of frequency versus time delay characteristic, or equivalent FFT processing (matched filtering) is done, then the energy included in all spectrums of point targets which are scattered temporally gets piled up at single point, and a sharp pulse is output. By pulse compression, amplitude of the receiving pulse of pulse width T becomes double, and pulse width becomes 1/ (TB), and range resolution and S/N improves by increasing the T and B (bandwidth).	
CMD	Command	コマンド、指令	Signal sent from ground to control the satellite or on-board devices.	
CNES	Centre National d'Etudes Spatiales	フランス国立宇宙研究センター	An agency established in December, 1961 to implement space policy of France. Its task is to analyze nation's space activities in long-term perspective and then propose involvement with Europe in this respect to the government. It also leads important development plan in nation policy or within ESA framework. CNES headquarter is in Paris and Rocket Development Centre is located in Evry, a suburb in Paris. Large-scale test facilities are in Toulouse and Guyana has rocket launch and test facilities.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Coherent	-	コヒーレント	The concept is called as excellent coherence, when interference can easily take place in two waves. Wave in which interference takes place is called as coherent wave and the one in which it does not is called as incoherent wave.	
Common information	-	共通情報	Common information refers to information of 1. High precision orbit information 2. Orbit event 3.Coordinates Conversion Matrix 4.Time Difference Information for providing which are used for processing the mission data in the ALOS-2 usage information system.	
Coordinates Conversion Matrix	-	座標変換情報	It is used in transformation of coordinate system during image processing.	
Corner reflector	-	コーナーリフレクタ	It is a reflector that reflects the incoming radio waves in its incident direction. This reflector consists of 2 to 3 metal sheets attached to one another in order to form 90 ° angle at each other. Depending on the number of surfaces and shape, it is called as dihedral and trihedral corner reflector. Corner reflector has a simple structure and is widely used as a calibration target of SAR as it can be produced at relatively low cost. However, in order to obtain large reflected radar power in relatively low frequency, quite large corner reflector needs to be made. In near future, it may also replace Active radar calibrator (See [ARC]) which uses electronic component.	
COSMO-SkyMed	COSMO-SkyMed	-	High-resolution SAR satellites (SAR satellites) owned by Italian government. COSMO 1 to COSMO 3 was launched till October 2008. COSMO 4 was launched in November 2010. Land images of Japan can be captured around 8 times (average 5~6 times for same place) in a day by using a 4 satellites system. Quick support such as emergency imaging in the event of disaster can be provided.	
D				
Daily observation plan	-	日々観測計画	Observation plan for the next day created on the basis of basic observation requests and individual observation requests. See [Basic observation request] and [Individual observation request].	
Data distributors, data providers	-	データ配布業者、データプロバイダ	Private operators that commercially provide to general users.	
Data relay satellite	-	データ中継衛星	This is a type of a communication satellite which relays communication between ground stations and space crafts that revolve low-to-medium altitude (300 to 1000 kilometers) (satellites etc.). This relay dramatically expands the coverage area for real-time communication between ground stations and low-to-medium altitude space crafts.	
DEM	Digital Elevation Model	数値標高モデル	Elevation data excluding woods and aboveground structures. See [Digital Terrain Model (DTM)].	
Domestic S/X station (Katsuura))	-	国内S/X局（勝浦）	Katsuura Tracking and Communication Station (Katsuura, Chiba prefecture) is scheduled to be the country's internal sending & receiving station for X-band and S-band signal of ALOS2 & ALOS 3.	
Domestic X station (Hatoyama)	-	国内X局（鳩山）		

Abbreviation and Glossary	English	Japanese	Description	Remarks
DTM	Digital Terrain Model	数値地形モデル	In digital terrain data, elevation at lattice point, elevation and Latitude/Longitude at random point are the main contents. However it may also include digital data of slope and its direction, crest line, trough line, geological features, vegetation. Only the elevation data is known as DEM (digital elevation model), and it is classified. Elevation at lattice point and random point is measured through auto system or manually from contour of existing topographic map, or determined through stereo plotter which uses stereo photographs obtained from aircraft and man-made satellite.	
E				
EO Profile	Earth Observation Profile		It refers to OGC ebRIM Earth Observation Profile. It is one of the metadata standards. Created by OGC. Mechanism of XML schema and extensions are defined by standard. It is best to define only individual item.	
EOC	Earth Observation Center	地球観測センター	Earth Observation Center. Agency of JAXA in Hatoyama town, Hiki gun of Saitama Prefecture.	
EORC	Earth Observation Research Center	地球観測研究センター	It was established in April, 1995 as the core of analysis and research on Earth-observation satellite data. Starting with Advanced Land Observation Satellite (ALOS) "DAICHI", it is involved in calibration and validation of Earth observing satellite observation devices on-board and observation data, development of advanced algorithm and trial of research product. In addition, it is promoting emergency observation and providing information through “DAICHI”. It is located in Tsukuba. Main duties are as follows. (1) Development of advanced algorithm for advanced processing of Earth observation data and publication of result (2) Conducting research and providing geoscience dataset creation (3) Research on mission requirement analysis for successive Earth observing system (4) Providing (Satellite data, computing environment, environment research support, training and consultation) exchange opportunities for researchers working together on global environmental problem	
F				
Footprint	-	フットプリント	This is the range in which main beams of antenna are expected on the target surface when microwave sensors observe a target which is wide. Usually the size of a footprint is defined by using antenna pattern’s 3dB width. If footprint’s diameter is d, antenna’s 3dB width is θ (radian) and space between the antenna and the target surface is R, then $d=R\theta$.	
Foreshortening	-	フォアショートニング	This is a phenomenon in microwave imaging radars, such as SAR etc., wherein slopes inclined towards the orbit relatively are portrayed in the image steeper and shorter than they actually are and slopes inclined in the opposite direction are portrayed in the images longer and gradually sloping according to the effects of layover.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
G				
GCP	Ground Control Point	地上基準点	A point on the ground with the coordinates associated to the pixels of the image. It doesn't use the information such as position of the platform related to the cause of geometric distortion. It is used in the geometric correction of the system which determines the coordinate transformation system between the map coordinate system to be output and image coordinate system. The determination of the coordinate conversion relation depends on GCP and shape of the adopted conversion formula, and because the final decision is entirely depends on GCP, the accuracy of the GCP is directly affected. Generally while selecting the GCP, it is necessary to select the scenes which are completely same so that there is no unevenly distribution. In precise correction of TM, MSS of LANDSAT, GCP is used and data such as position (pitch, roll, yaw) which causes geometric distortion is corrected, therefore in data, error is less as compare to bulk correction.	
General Observation	-	通常観測	Refers to Peacetime Observation. See [Peacetime Observation]	
General user	-	一般ユーザ	There is no direct relation with the mission accomplishment of ALOS-2. These users use the observation data of ALOS-2. Data distributor provides data to general users.	
Geo-reference	-	ジオリファレンス	A function to bring the scanned images of paper map and any obtained map image file on the GIS map screen and to display after superimposing on the same location. Map data on GIS has information of all the positions (Coordinates) that should be displayed by it. On the other hand, image file which is uploaded from the outside doesn't have location information of place and range which should be displayed by it; hence display position and size cannot be decided. By providing the information of position (Coordinates) that should be displayed on image file, normal display is possible on GIS. This function is known as Geo-reference.	
Geocode (Geocoding)	-	ジオコード（ジオコーディング）	Geocoding is generally known as a technique which correlates the remote sensing images with specified geographic coordinates system. If various types of image data are matched with respective coordinates on map, super positioned on topographic map, and made to data base, the altitudes and the positional relationship between place name and each location will not only become easy to understand, but various space analysis will also become possible by Geographic Information System (GIS). More information can be acquired at once by color display of superimposed data which has different optical sensor and SAR images. In order to superimpose the heterogeneous data, it is necessary to correct the volume and various types of data included in each screen. The technique which is useful in this type of case is known as Geocoding. Geocoding is a process of geocoding the images.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Geometric correction	-	幾何補正	It refers to removal of geometric distortion of an image. In other words, it means geometric correction and geometric distortion correction. The geometric distortions included in the remote sensing image are of two types, internal distortion that is originated from sensor and external distortion that is originated from platform or object. Distortions relating to optical axis and film orthogonality, flatness of lens and film in optical camera etc., variation in viewing angle or scanning speed in scanner and changes of beam width and the sampling rate etc., in radar are the main factors of internal distortion. Further, position of platform, altitude, position, variation in speed, ups and downs in the ground level, earth curvatures, and rotation etc., are the main factors of external distortion.	
GeoTIFF	GeoTIFF	ジオティフ	Geographical information embedded in TIFF (Tagged Image File Format) is known as GeoTIFF and basically it complies with TIFF. TIFF developed by Aldus (No more in existence) and Microsoft is a format to record image data. Every image related information is noted in tag. File extension is ".tif" (available for ".tiff"). Since monochrome 1 pixel 1 byte data as well as 1 pixel 2 byte data can be used in TIFF, it is used as a standard format for IKONOS satellite. Raw data (11 bit data) of IKONOS satellite image cannot be used directly in bit map because only 1 pixel 1 byte data in monochrome can be used in bit map format. TIFF has Motorola method and Intel method. Further, for image data positioning, IBM method and other method are available. One must take care while reading image data.	
GPS Data			Generic term for GPS navigation data and GPS signal data. GPS navigation data is the time-series data of satellite positioning calculated on the basis of GPS data provided by satellite device on-board. GPS signal data is positioning signal data of carrier phase GPS received by satellite GPS reception device on-board.	
Ground range	-	地表距離	Projected distance for ground surface of slant range.	
H				
High-latitude station	-	高緯度局	Overseas station situated at high-latitude. It is a backup of data broadcast satellite interface in ALOS-2.	
High precision orbit information	-	確定軌道暦	High precision orbit information on the basis of orbit determination which is based upon GPS positioning signal data. Time series data related to position and speed of satellite orbit.	
Housekeeping	-	ハウスキーピング	Optimal state of usage is maintained in the satellite by monitoring the status of the satellite equipment by telemetry from the satellite and managing power, temperature, position and remaining fuel. In other words, the status of each equipment and the satellite is managed by monitoring data such as the installed equipment's temperature, consumption (current, power), each equipment's' on/off status, generation of solar cells (voltage, current, power), transmit power, position and propulsion. In a broad sense, it also includes keeping the satellite on the predetermined orbit with orbital data.	
I				
Imaging process	-	可視化処理	Process to make PDF, JPEG and Geo Tiff of standard processing data (L1.5 or above).	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Interferometry	-	インターフェロメトリ	The technology of obtaining three-dimensional information of topography by combining the technique of interferometer in SAR is called SAR interferometry and SAR performing that kind of observation is called interferometer SAR (interferometer SAR, INSAR). The following two things can be realized at present as the configuration of interferometer. Specifically, one is mounting of two antennas in an aircraft and another is using of image data of two orbits close to satellite. In the former case, along with the primary receiving antenna of radar, the reflected signals of radar are received through another established antenna by sliding the position in vertical and horizontal direction. Interference pattern can be seen in the image, if the image (data is a complex number) created by both signals is made to interfere (This image is called interferogram). An altitude of earth surface can be obtained from interference pattern. This approach was first attempted by Graham in U.S.A early in the year 1970. TOPSAR is a recent typical interferometric SAR, in which JPL added the function of interferometer in Synthetic Aperture Radar AIRSAR mounted in an aircraft. In the latter case, interferogram is created by making SAR image (complex image) of two parallel adjacent paths interfere. In the year 87, JPL made a successful attempt of making SAR image of SEASAT interfere. Map of altitude was created from interferogram. After that the research of interferometry started in full swing along with the launch of ERS-1 of ESA. In the experiment of SIR-C/X-SAR conducted in the year 94, the image of SAR of short wavelength X band was successfully caused to interfere. Further, there is an issue related to interferometric SAR that detects the shift of earth crust caused due to earthquake. In June 1992, when the Landers earthquake that occurred in the state of California, the gap appeared as an interference pattern due to earthquake, when the difference of two images taken by SAR of ERS-1 of before and after the earthquake were seen. It is an interesting two dimensional and a wide measurement technique.	
J				
JAXA	Japan Aerospace Exploration Agency, JAXA	独立行政法人宇宙航空研究開発機構	The Japan Aerospace Exploration Agency (JAXA), an independent administrative institution is the aerospace agency responsible for Japan aerospace development policy. It is an independent administrative institution of Ministry of Internal Affairs and Communication and Ministry of Education, Culture, Sports, Science and Technology. It is the largest organization amongst such administrative institutions. On October 1, 2003, the Institute of Space and Astronautical Science (ISAS), the National Aerospace Laboratory of Japan (NAL) and the National Space Development Agency of Japan (NASDA) were merged into one independent administrative institution, i.e. the Japan Aerospace Exploration Agency (JAXA). It's headquarter is in Choufu, Tokyo (NAL, first called the National Aeronautical Laboratory). In newspaper, abbreviations such as space agency, space development agency and aerospace agency are also used for JAXA.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
JAXA internal user	-	-	It refers to JAXA officials and agencies having an agreement with JAXA and conducting joint research as given below. ① Within JAXA: JAXA officials. ② Agency user: Agencies which are involve in research after concluding a contract or an agreement with JAXA. ③ PI: Researchers who are indulge in joint-research after concluding a contract or an agreement with JAXA.	
K				
Ka band	K-above band	Kaバンド	Ka band refers to radio frequency band of 27GHz~40GHz used mainly in satellite communication. High frequency is used in Ka band and large amount of data of approximately 188GHz~20.2GHz can be communicated in downstream speed. It has less chances of congestion with frequency band which is used as ground wave. However, communication speed of Ka band is easily affected by weather. Same as Ka band, amongst the frequency bands used in satellite communication,12GHz~18GHz is called as Ku band. It is mainly adopted in satellite broadcasting.	
KML	Keyhole Markup Language	-	Keyhole Markup Language (KML) is an XML based markup language, developed to manage display of three-dimensional geographical information in application and program. In April, 2008, version KML 2.2 was adopted as OGC KML standard by Open Geospatial Consortium, Inc. (OGC), a group aiming at open sourcing of geographical information system. (KML is the acronym of Keyhole Markup Language. However, this word went out of vogue when it was taken over by OGC. Currently famous software Goggle Earth was formerly known as Keyhole. The name originated from a company called Keyhole that developed the Keyhole Markup Language, which was later acquired by Google. The origin of Keyhole is associated with model name (KH) of spy satellite Corona.) KML files are in text format and specify elements (landmark, image, polygon, three dimensional model, details, etc.) to be displayed in Google Earth, Google Maps and Google Mobile. 3D models can be specified in COLLADA format. Each point has longitude and latitude information of right handed system. It can also specify detailed information such as tilt, camera direction, and altitude necessary in the composition of “camera view”. KML has same text composition as GML. Some part of information specified in KML cannot be displayed in Google Maps and Google Mobile. KML file is the text file having .kml extension. Frequently, it is distributed as KMZ file having compressed .kmz extension. When KMZ file is decompressed, one “doc.kml’ file is extracted. Image file for overlay and image file for icon shown within “doc.kml” file also get extracted.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
L				
L band	L band	Lバンド	It is a bandwidth of UHF band in one of the bandwidth of microwave. 1 02GHz (15 030cm). For example, L1 radio wave (1575.42MHz) of GPS comes under this bandwidth. This term was originally used by U.S. armed forces in code language. Therefore, L does not have any deep meaning.	
Latitude argument	-	緯度引数	x-axis, y-axis, z-axis are present in the orbit plane when geo-center, the center of earth it considered as the origin. When x-axis plus is in ascending node direction, the angle from that position till the satellite is an angle of perigee argument plus true anomaly and that is called latitude argument.	
Layover	-	レイオーバ	In microwave imaging radars such as SAR, this refers to geometric distortion peculiar to radar images wherein surface components are shown to be falling towards the orbit on range direction. Since the linear distance (round-trip time of microwave) from sensor to the object is measured in radars, microwave pulses, propagating concentrically from antenna, often reach the top of the object before its base and therefore it appears to be even closer to the orbit in the image. Layover increases the smaller the look angle or bigger the earth's relief.	
Long term plan	-	長期計画	Basic observation plan targeted for long term period (2 years or so). Refer to [Basic observation plan].	
M				
Map projection method	-	地図投影法	Method by which surface comes near to the virtual base level such as spheroid, and that base level is represented on the plane. Recently, not only the earth, but celestial bodies other than moon and mars etc. are also included in its target range. There are many methods to classify the projection method, however, from the view point of (1) projection plane, (2) projection point, (3) characteristics of map, classification method performed from the difference of projection plane, is used most frequently.	
Meta Information Data (Meta data)	-	メタ情報データ(メタデータ)	This is information related to the data (for e.g. creation date/creator/title/comments etc.) and it is used in order to effectively manage and search the data.	
Mid term plan	-	中期計画	Basic observation plan targeted for mid term period (3 months or so). Refer to [Basic observation plan].	
Mosaic	-	モザイク	Images that cover a wide area by joining multiple adjacent images are called 'Mosaic images' and joining the images is called 'Mosaicking'. Revision of the map coordinate system and adjustments in the color tone at the joints are the problems that are faced while creating mosaic images. Satellite images use digital mosaicking for converting coordinates and adjusting the color tone. Color correction for path direction is not required for data of the same orbit which is taken in continuation. However, adjustments are done for data which is acquired on different dates by the normalization processing or other join processing.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Multi-look (processing)	-	マルチルック	In Synthetic Aperture Radar's (SAR) image reproduction processing, synthetic aperture length L is divided by N. Image reproduction processing is performed separately at the aperture of each L/N and N number of reproduced images are superimposed in order to reduce speckle noise. If the division number is N, it is called as 'N look processing' and N is called as 'number of looks'. The general term, 'Multi-look processing', is used in case N is 2 or more. The bigger the N, more effective is the reduction of speckle noise (In N look images, it is the standard deviation of fluctuation); however, spatial resolution degrades by N times. In actual multi-look processing, azimuth direction's frequency spectrum is divided into N number of frequency bands and N types of images, obtained by separate azimuth compression, are added.	
N				
Number of Multi-look	-	マルチルック数	In the course of SAR image processing, number of multi-looks in multi-look processing is indicated in order to reduce speckle noise. Superimposing several images, which do not have any particular phase relation, is effective in reducing speckle noise. This is known as multi-look. The methods are as follows. 1. Frequency division method: During azimuth compression, azimuth direction's frequency spectrum is divided only for the number of multi-looks and images of each look, which is obtained by separate compression, are added. This method is used most widely. The same technique is considered for range compression as well and is known as 'Range multi-looks'; however there are very few examples of it being actually used. 2. Method of averaging reproduced images locally: Method wherein local average is obtained by taking a pixel as the center. Both methods have a similar effect on reduction of speckle noise. If N look processing is implemented, there is a reduction in the speckle noise, but the resolution degrades by N times.	
O				
Observation mode (including definition of each mode)	-	観測モード（各モードの定義含む）	Satellite observation modes. ALOS-2 has 3 types of observation modes as given below. Spot light : Resolution : 1×3m Swath width: 25km High resolution : Resolution : 3m~10m Swath width: 50km,70km Wide area observation : Resolution : 100m Swath width: 350km	
Observation request	-	観測要求	Request to specify the observation points.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Off-nadir angle	-	オフナディア角	Generally, off-nadir angle refers to an angle which is formed between straight line joining sensor and object on the surface of earth, and normal line on that surface. This term is used in the context of monitoring side. In the microwave imaging radar, it refers to an angle that forms between arrival direction of incoming beam and its normal line. However, if the earth surface is inclined, local angle of incidence should be different from the one which is mentioned earlier. A related term is called as grazing angle which refers to an angle that forms between arrival direction of this beam and earth surface and it has relation with an angle of incidence and supplementary angle. On the other hand, off-nadir angle and depression angle are the terms used in the context relating to sensor i.e. SAR. These terms are used for radar. Off-nadir angle is also called as look angle as it is formed between the radar's vertical downward and monitoring direction. Depression angle is an angle between horizontal including radar and observation direction and both these angles are supplementary to each other. Generally, angle of incidence is always bigger than off-nadir angle. Topography view from the off-nadir angle is different, for example, the larger the off-nadir angle, geometric distortion such as foreshortening becomes shorter whereas shadow effect increases.	
OGC	Open GIS Consortium (Open Geospatial Consortium, Inc.)	-	It is an employer's organization to promote the standardization of technology related to Geographic information system (GIS). It was established in 1994 in America and more than 200 organizations such as global vendors of product related to GIS, user's enterprise, government institutions, research institutions, etc., have been participated. A standard related to linkage method of GIS compatible software, space data model or its format of expressions are developed. The sequence norm is given under the name of "Open GIS". Following is an example of OGC standards. ■Geographical space data exchange format/expression model - GML (Geography Markup Language, ISO 19136:2007): Exchange format between various services such as WFS, detailed management of features including tropology and attribute - KML (Keyhole Markup Language): Exchange format between light weight protocol/services such as simplified 3D visualization, mobile - CityGML: 3D City data description, GML extended format for GIS&CAD&CG linkage (Application Schema) ■Web service interface (OWS:OGC Web Services) - WMS (Web Map Service, ISO 19128:2005): Raster map delivery service - WFS (Web Feature Service): Vector map delivery (Update) service - WCS (Web Coverage Service): Image data delivery service - CS-W (Catalogue Service for Web): Catalog search service such as Meta data - WPS (Web Processing Service): Geographical space data processing service - WCPS (Web Coverage Processing Service): Image data processing service ■Others (Simple Features, Abstract Specification etc.)	
OGC CSW	OGC Catalog services for the web	-	See [OGC]	

Abbreviation and Glossary	English	Japanese	Description	Remarks
OGC WMS	OGC Web Mapping Service	-	See [OGC]	
On-Duty	-	運用デューティ	It refers to section in which basic observation scenario has not been drafted and the section in which a separate observation plan can be drafted additionally from the aspect of timeline for satellite observation.	
Orbit information	-	軌道情報	See "Direct receiving station forecast value".	
Orbital elements	-	軌道要素	Orbit means “Path through which celestial body moves”. In other words, it refers to “Parameter that represents route through which artificial satellite travels”. Satellite travels according to law of motion, therefore, if the speed and position at a given time are known, then past and future position of satellite can be calculated. Space is 3-dimensional, therefore, it is possible to represent position and speed of artificial satellite in 6 independent parameters namely 3 elements for position and rest 3 for speed through the help of inertial coordinate system. Furthermore, position of artificial satellite changes hourly so speed as well as size and direction change accordingly. However, shape of orbit and orbital plane do not change in two-body problem so size, shape and its orientation, inclination of orbit and its direction as well as position on orbit at specified time can be used as 6 parameters that represents orbit. One group of parameter is called as 6 elements of orbit and they are explained as follows. (1) Semi-major axis: a Center of the earth, nearest perigee and furthest apogee in earth on orbit are in the straight line. Line segment from perigee to apogee (major axis) represents the size of orbit. It is called as semi-major axis because one half of major axis is used as orbital elements. (2) Eccentricity: e According to Kepler’s law, center of the earth is focal point of elliptic orbit. Therefore, shape of orbit is decided according to distance between center of elliptic orbit and focal point. If this distance is same as shape of orbit, it is proportionate to a, the size of orbit, so if it is taken as ae, the e in this represents eccentricity of eclipse and as orbital elements, it is called as eccentricity. (3) Orbital inclination: I It is an angle which is formed between equatorial plane and orbital plane.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
			(4) Longitude of ascending node: Ω Angle revolving in east direction from vernal equinox on equatorial plane to ascending node. It represents position and orientation with right ascension and declination by taking direction of vernal equinox in the inertia space as standard (5) Argument of perigee: ω It is fine to represent the orientation of the orbit with the orientation of the diameter of the orbit. Standard orientation is taken as ascending node (point where a satellite passes an equatorial plane from south to north at the point of intersection with the equatorial plane and satellite orbital plane. Its opposite side is called as descending node) when it comes to orientation of orbit in the orbital plane. It is an angle measured from the ascending node to the perigee. (6) Mean anomaly: Position of satellite on orbit at specific time which is represented as f, E, M. and is correlated with e. It becomes f=M only in an apogee and the perigee f: True anomaly (represents true position of a satellite). Speed of change varies according to the position on an orbit so it is inconvenient to calculate. E: Eccentric anomaly (it is used for middle parameter computation) M: Mean anomaly (Movement is constant). Here, vernal equinox means the intersection which exists in the direction of the sun at the time of the vernal equinox among the intersections of a solar ecliptic side and the equatorial plane of the earth.	
Ortho processing and image	-	オルソ処理･画像	Process wherein geometric correction (ortho correction) is carried out by using Digital elevation data (PRISM DEM, Japan's Geospatial Information Authority digital terrain map, SRTM etc.) and process result.	
Overseas receiving station	-	海外受信局	Stations which receive data from overseas satellite.	
Overseas satellite ground system	-	海外衛星地上局	Ground system for overseas satellite.	
P				
PALSAR	Phased Array type L-band Synthetic Aperture Radar	フェーズドアレイ方式バンド合成開口レーダ	It is an active radio wave (microwave) sensor which has improved the functionality and performance of Synthetic Aperture Radar (SAR) that is equipped to Earth resources satellite 1 (JERS-1). PALSAR operates on observation mode (Scan SAR) which possesses the wide swath width or function that changes off-nadir angle. It has the feature of measurement without being largely affected by weather and without any distinction of day or night and 10m resolution can be achieved in high resolution mode. The PALSAR has been jointly developed by Japan Aerospace Exploration Agency (JAXA) and Japan Resource Observation System and Space Utilization Organization (JAROS).	
Path, path number	-	パス、パス番号	Nominal orbit (predetermined orbit) of one rotation of the satellite is called as the ‘path’ and the number allocated to identify it is called the ‘path number’.	
PD	Primary Distributor	データ配布事業者	See [Data distributer and Data provider].	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Peacetime observation	-	平時観測	This refers to observation for requests by ALOS-2 users other than the disaster-response requests. There are 2 types of peacetime observations – basic observation and individual observation. See [Disaster-response requests], [Basic observation] and [Individual observation].	
Peacetime observation request	-	平時観測要求	Request for peacetime observation. See [Peacetime observation].	
PI	Principal Investigator	研究代表者	Researcher carrying out the joint research by concluding the contract with JAXA. See [JAXA internal user].	
Point specification	-	点指定	This is one of the formats to represent the shape and position of spatial data in geographic information systems. Points (or circles with a point in the middle) are specified as search areas.	
Polarimetry (SAR)	-	ポラリメトリ	This is a technique to completely measure the variations in the state of polarization when electromagnetic waves are scattered by an object and to thoroughly utilize the information of polarization. Polarimetry in synthetic aperture radars (SAR) has been described here. In mid- 1980s, a SAR was devised at JPL that would perform polarimetric observations. This acquires 4 types of complex amplitude image data by alternately repeating horizontally polarized transmissions and vertically polarized transmissions and receiving backscatter waves for each of them with 2 orthogonal polarizations. The 4 types of data correspond to 4 components of the scattering matrix. Images for any received/transmitted polarization can be synthesized by merely calculating from this set of image data.	
Polygon	-	ポリゴン	This is one of the formats to represent the shape and position of spatial data in geographic information systems. Vector format is one of the methods of representing spatial positions and relation of data. In this method, spatial shapes and positions are represented by a combination of points with positional coordinates, lines defined by linking the points and closed regions surrounded by the lines. Such closed regions are referred as ‘polygon’ or ‘area’.	
Precise ephemeris	-	精密暦	Precise ephemeris is created by using IGR data (0:00-23:59) of the previous day which is provided once in a day at 17:00. In ephemeris, data of 1 day is divided in 4 files of 18:00-1:00, 0:00-7:00, 6:00-13:00, 12:00-19:00 (6h+ margin 1h is in the 1 file) of previous day, and provided at 19:00 on the next day of targeted date of data. In ALOS, the data of last 2 days is provided in 1 file, however in ALOS-2, it is assumed that the data (4 files+margin) from 18:00 (2 days back) to 19:00 (previous day) will be provided. (By setting the data storage period as 18:00 (2 days back)-19:00 (previous day), the data can be provided much faster than ALOS.	
Preliminary ephemeris	-	-	Preliminary ephemeris is created by using IGU which is provided 4 times in a day i.e. at 3:00, 9:00, 15:00, 21:00. This ephemeris provides data of previous day in 4 timings i.e., the data of 18:00-1:00 at 5:00, the data of 0:00-7:00 at 11:00, the data of 6:00-13:00 at 17:00, and the data of 12:00-19:00 at 23:00. The preliminary ephemeris cannot be sent in ALOS. Further, as compared to precise ephemeris, the orbit determination accuracy falls in preliminary ephemeris and therefore it has rough information till precise ephemeris is provided.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
PRF	Pulse Repetition Frequency	パルス繰り返し周波数	In pulse radars like SARS, transmission pulse is repeatedly sent and reflected. The frequency of repetition of this transmission pulse is called 'Pulse Repetition Frequency'. Basically the maximum and minimum visual distance is taken into consideration for the intervals of pulse repetitions and the intervals should be such that pulse should not come in between the swath width. Sampling criteria of Nyquist needs to be taken into consideration if there is relative movement between targets.	
Priority Observation	-	優先観測	Observation that is to be done on priority in case there is a conflict in the contents of observation.	
PRISM	Panchromatic Remote-sensing Instrument for Stereo Mapping	パンクロマチック立体視センサ	It is one of the sensors equipped in ALOS. In an optical sensor, having wavelength of visible range, ground surface can be observed by 2.5 m resolution. Image is in black and white (not colored). Highly accurate topology data is acquired by taking images of three directions of the movement i.e. forward, backward and just below of a satellite simultaneously.	
Process level (Definition of each level as well)	-	処理レベル(各レベルの定義も)	In Mission data processing, processing level is defined as per process details. [L1.0 processing] Scene extraction. Segregation of each polarization data by multi-polarization observation mode. [L1.1 processing] Complex data on slant range after the range compression and one-look azimuth compression (Includes phase information). However, wide-area observation mode is not targeted. [L1.5 processing] It is the map projected data (Geo-reference and Geo-code) that is selected after projecting the amplitude data on ground range. Range compression and multi-look azimuth compression has been performed on this amplitude data.	
PS	Polar-Stereographic Projection	ポーラステレオ図法	It is one of the map projections. It is projected as a visual point on the surface of the earth (pole) of projection plane and the opposite side.	
Public user (Land management user, Resource management user and Resource probe user)	-	公共ユーザ(国土管理ユーザ、資源管理ユーザ、資源探査ユーザ)	User from government department who has supported in the mission of ALOS-2. See "Land management user", "Resource management user" and "Resource probe user".	
Pulse compression	-	パルス圧縮	Modulating with specific signals as transmission pulse (chirp modulation) and demodulating at the stage of data processing after reception by using spread spectrum broadband pulse in order to enhance radar's distance resolution is known as 'Pulse Compression'.	
R				
RCS	Radar Cross Section	レーダ断面積	This is an amount which shows the degree to which an object scatters electromagnetic waves. Usually when a target with plane electromagnetic waves is hit, size of the electromagnetic energy which is scattered due to it is expressed in scattering cross section. When direction of incident and direction of observation match, it is called 'primary radar scattering cross section' and it is usually abbreviated to 'backscattering cross-sectional area' or 'radar cross section (RCS)'. When observation directions are different, it is called as 'secondary radar scattering cross section'.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
RADARSAT-1			It is a SAR based satellite, developed by Canada, which was launched successfully on 4th November, 1995 in U.S.A. The greatest feature is that optimum resolution, swath width & cycle etc., can be selected depending upon the intended usage, since the mode of microwave beam varies into 5 types. Especially SCANSAR of 500km swath width is the first attempt in the world. Further, it has many innovative points such as adoption of dawn-dusk orbit in which power can be operated 24 hours besides the selection according to unevenness of terrain since the angle of incidence can also be changed within the range of 10° to 60°, or financial planning of a part of total 620 million dollars by four state governments.	
RADARSAT-2			RADARSAT-2 is a next generation commercial Earth observation radar satellite jointly developed by MDA and Canadian Space Agency. RADARSAT-2 has the ability to provide high resolution image data which is called Terrain identification capability: 3m while maintaining all the features of currently operated RADARSAT-1 (Terrain identification capability: 10m), as a successor machine. RADARSAT-2 can take pictures all over the world, day and night without being affected by the clouded weather and therefore it is the commercial radar satellite, having best performance globally.	
Range - Doppler Method	-	レンジ・ドップラ法	While processing raw data (unprocessed data) of SAR, range compression is carried out in frequency domain first and then azimuth compression is executed in the frequency domain after performing corner-turning to obtain SAR image data. This method of regenerating images is called Range-Doppler Method. Processing flow of the typical Range-Doppler method has been given below. In case of range compression, range direction's reference function (replica of SAR's transmitted waves) and cross-correlation processing with SAR raw data (matched filter processing) are performed in the frequency domain by using Fourier transformation, in order to compress information of the target, which is spread in 2 dimension into range direction. In case of corner-turning, data arranged in range direction is rearranged in azimuth direction. Compression of target information which is spread in azimuth direction is performed by azimuth compression. Here, however, the azimuth direction reference function, created by calculating the phase variation between SAR antenna and surface target, and cross-correlation processing with azimuth direction's SAR data are performed in the frequency domain by using Fourier transformation. At this time, 'Range Migration Correction' is performed wherein frequency is shifted so that azimuth direction's frequency spectrum completely falls in the scope of processing and sample position of range direction is changed so that the information of the target to be compressed can be correctly used for calculating correlation.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Range Compression	-	レンジ圧縮	If we assume a case in which a pulse of short duration is irradiated from satellite to the ground, the pulse reflects from various positions on the earth's surface and returns to the satellite, but, the time at which it arrives at the satellite differs depending on the difference in the distance from the satellite. That is, it is possible to identify targets of range direction by sending the pulse only once. The ability to identify targets improves the more narrow the pulse's time-width is, however, it is difficult to send waves of sufficient intensity within a short time. So, a chirp signal, whose frequency increases as a linear function of time is sent for a certain period of time. A 'matched filter' is used for the reflected waves which has the property of the frequency decreasing as a linear function of time. Output of chirp signal through matched filter has increased amplitude and reduced pulse width. As a result, we can achieve same effect as sending/receiving strong pulse of short duration. This operation is called 'Pulse Compression'. Processing performed for the data column of range direction (satellite's travelling direction and the perpendicular direction) for this pulse compression is referred as 'Range Compression'.	
Range Migration (Curvature)	-	レンジマイグレーション (カーバチャ)	SAR requires a lot of time for integration in order to attain high lateral resolution. Change in the distance between the target and the SAR platform (satellite) within this integration time may be equal to or more than the distance resolution. This effect is called 'range migration' or 'range curvature'.	
Recurrent orbit	-	回帰軌道	It refers to orbit in which satellite comes back to its original position in one day or in one cycle. Orbit which comes back again to its original position after fixed no. of days is called as semi-recurrent orbit, and number of days required for this are called as revolution cycle and revolution number of days.	
Resolution. Ground resolution, Spatial resolution	Spatial (ground) resolution (SAR)	分解能、地上分解能、空間分解能	In Synthetic Aperture Radar (SAR) images, this refers to the ability to separate and identify 2 adjacent small objects, with similar brightness, which are in the same dynamic range. Usually it is also referred as spatial resolution and the minimum distance between objects. High resolution is achieved in SAR by using the aperture synthesis technique in the direction of travel of platform (azimuth direction) and the pulse compression technique to the perpendicular direction (distance or range direction). The theoretical resolution is equal to half of the length of antenna of the travelling direction in azimuth direction and it is equal to half of the product of pulse width and speed of light after compression in the distance direction.	
RCS	Radar Cross Section	レーダ断面積	This is an amount which shows the degree to which an object scatters electromagnetic waves. Usually when a target with plane electromagnetic waves is hit, size of the electromagnetic energy which is scattered due to it is expressed in scattering cross section. When direction of incident and direction of observation match, it is called 'primary radar scattering cross section' and it is usually abbreviated to 'backscattering cross-sectional area' or 'radar cross section (RCS)'. When observation directions are different, it is called as 'secondary radar scattering cross section'.	
RNG	Range	レンジ、距離	Means range (distance). Direction in which flying objects such as satellites or airplanes move is referred to as 'Azimuth direction' and the direction orthogonal to it is referred to as 'Range direction'.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
S				
S/A ratio	Signal to Ambiguity Ratio	信号対アンビギュイティ比	It is a ratio (S/A) for ambiguity A of signal volume S. It is also called S-A ratio. See [Ambiguity] for ambiguity.	
S/N	Signal-to-noise ratio	信号対雑音比	It is a ratio (S/N) for noise quantity N of signal volume. Also called as S-N. Although, various noise components exist in remote sensing data, but there are many instances where only noise at detector stage is handled, when there is a conflict over signal to noise ratio of sensor. In case of optical sensor, it is evaluated by comparing output against incident light quantity volume (signal current) and noise current. Noise current differs according to the sensor element to be used. In case of photomultiplier tube, noise of external amplification device can be ignored due to big current multiplication factor and in case of photodiode, on the contrary there is a big impact of subsequent amplifier. In CCD, dark current and shot noise is evident. The variation (Δρ) in reflectance producing the signal variation similar to noise level is called noise equivalent reflection ratio (NEΔρ) and similarly temperature variation (ΔT) producing signal variation similar to noise level is called noise equivalent temperature (NE ΔT). These are the indicators at the time of evaluating energy resolution of sensor. In case of SAR, noise equivalent scattering coefficient is used.	
SAR Interference processing, Interferometry			See [Interferometry].	
Satellite control and mission operation system	-	衛星管制･ミッション運用システム	A system in which plan drafting, command creation, satellite status monitoring, observation data reception and Level 0 processing, and Level 1 processing for emergency observation data are performed.	
Scene	-	シーン	The size of the satellite image which is configured as required.	
Scene specification	-	シーン指定	One of the methods used when selecting a product. To select the desired scene directly specify its ID.	
Segment (Observation segment)	-	セグメント（観測セグメント）	Divides observation area into information by which observation is possible.	
			・FORMOSAT-2 (Taiwan) ・THEOS (Thailand) ・XSAT (Singapore) ・ Others (24 aircrafts of the International Charter. An International Charter has 28 aircrafts; but 4 aircrafts are redundant with Sentinel-Asia)	
Separate observation	-	個別観測	Observation which is carried out separately besides basic observation. See "Basic observation".	
Separate observation request	-	個別観測要求	Request for separate observation. See "Separate observation".	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Shape file	-	-	It is a map data file having graphic information and attribute information. It is a file which displays the information such as the location of graphic on the earth, its shape, the attribute (nature/feature/value etc.) of that graphic, as information to be shown. Shape file has been introduced by American ESRI, which acquired the top share in the global market of GIS and is a recording format of vector data. Generally, it is open to public and is also known as standard format of GIS industry. It can also be used in ESRI & LGGI products and many GIS softwares. Output is also possible in KML format used in Google Earth depending on the data conversion tool etc.	
Slant range	-	視線距離	Distance between antenna and object at ground surface.	
SOA	Service Oriented Architecture	サービス指向アーキテクチャ	It is a technique to build the system as the collection of “Services”. The software products, built and arranged according to the construction unit of business process, are published on the network based on standard interface. And it has the merit of executing the process change such as installing new “Service” easily and flexibly by interlinking.	
Spatial frequency	-	空間周波数	This terminology is used in Fourier transform of function which deals with space with respect to the term of frequency used in Fourier transform for normal time function. It becomes two dimensional in case of dealing with screen. Two-dimensional Fourier transformation (coefficient of Fourier expansion) is carried out for the sequence provided in scattered form.	
Speckle noise	-	スペックルノイズ（スペックル雑音）	Variations in the concentration of random black and white spots observed in the SAR image. Since it is same as speckle which is well known in optics (spot pattern generated when light with good coherence is transmitted through the object as laser, and scattered by the object), it is one of the major obstacles in using the SAR images. Speckle is generated when there is an overlapping of many waves which have same wavelength but have different phases in the random, and it is unique to the coherent image generation system. In case of SAR, the density value of one pixel of the image is proportional to the power of the scattered waves from the area of one spatial resolution of the ground surface which is corresponding to that pixel. The speckle is formed because scattered waves are received and detected as a coherent sum of scattered waves from many scattering points, which are scattered within the area. Since, the reception of coherent is the principle for the establishment of SAR a speckle cannot be avoided here.	
Spotlight	-	スポットライト	In comparison to common observation method, it is a format to acquire the higher azimuth resolution in Synthetic Aperture Radar (SAR). By continuously directing the antenna beam to a point on the ground to be observed along with the progress of platform, the Synthetic Aperture Length can be obtained, which is greater than the common SAR. As a result, higher azimuth resolution can be acquired. When using the spotlight the front and back images on the observation area cannot be captured and, therefore the coverage is limited.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Standard processing data (Providing product)	-	標準処理データ(提供プロダクト)	Standard processing data (providing data) refers to the following: • System correction data (L1.0, L1.1, L1.5) • Ortho data (L2.1) • Image correction data (L3.1) * The results of study will be taken as standard processing data.	
Sub-recurrent orbit	-	準回帰軌道	In this orbit, the satellite revolves the earth several times in a day and then returns to the same place above the earth at a certain interval. Every time there is little shift in position when this orbit moves around the earth and return to original place after number of fixed rounds. In this orbit, there is a merit to observe the same area at regular intervals, and it is also suitable for the observation of same area at regular intervals in long duration. For example, earth observation satellite Landsat is also in this orbit. It covers 680 km at perigee and 700 km at apogee, in 98.5 minutes, and orbits the earth 15 times in a day. It returns to its original footprint after 16 days. This is known as “Sub-recurrent orbit of 16 regression days”.	
Sun synchronous orbit	-	太陽周期軌道	“Orbit where rate of change of (Ω) ascending node longitude Ω of satellite and angular velocity of revolution of earth are matched". It should be set to $\dot{\Omega} = 2\pi / Y\theta \,(\mathrm{rad}/\mathrm{day})$ $Y\theta = 365.25636$日 so that Ω source is changed to 360 degrees. The characteristic of the sun synchronous orbit is that the solar altitude (local solar mean time) of satellite nadir node is constant. This orbit is important for the optical sensor to capture the sun light.	
Superposition process	-	重畳処理	Process to add feature information, Latitude/Longitude information etc.	
Swath (width)	-	走査幅	It also called as cutting width and swath width. It is a width of orthogonal direction and traveling direction by which man-made satellite can observe the ground surface. The same concept is also applicable to aircrafts. In case of optical sensor, a certain range can be scanned through vibration and rotation of optical sensor mirror, in the direction which is perpendicular to movement of man-made satellite. Therefore, in terms of reducing the imaging time, the wider swath width is better. However, the scanning width is limited depending upon the amount of information transmitted to ground, and ground resolution (fall enough to deviate from satellite nadir). In case of SAR, since the microwaves having a fixed beam diameter are emitted obliquely downward, the regions are irradiated in the surface. Therefore, irradiated range of the microwave is the scanning width in the regions which are perpendicular to the traveling direction of the satellite. To increase the resolution of the surface in the traveling direction, it is better to irradiate diagonally downwards, if the beam diameter is same (to increase the off-nadir angle). However the scanning is limited because of the requirement of high-power due to weak backscattering and reflection, and lack of information as the microwave is not irradiated to a portion of the surface due to excess oblique incidence.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
Synthetic Aperture Radar (SAR)	-	合成開口レーダ（SAR）	Synthetic Aperture Radar is high resolution microwave image radar. It is mounted in aircraft and satellite to project vivid images of topographical features, forest, waves, sea ice etc. The quality, to capture images in all-weather conditions, is considered to be its strongest utility feature. Even the image information possesses various signature features which are not present in optical sensor and the research and development for utilization of this technology is growing rapidly. SAR is a type of side-looking radar. The principle of its operation is as follows. Radar sends microwave pulses horizontally and obliquely downwards, and receives reflection pulses from ground surface while moving in a straight line at a fixed altitude. Diagram depicts spatial relationship between radar and ground. Time required in to-and-fro movement of pulse with respect to perpendicular direction (range direction) in travelling direction is directly proportional to position of range direction on ground. As a result, two-dimensional scanning is possible with the movement of radar if antenna beam width (θ in diagram) is adequately small (equivalent to aperture radar). In the SAR, radar synthesizes a long antenna effectively by sending and receiving pulses while reading different positions one after another. Thereby, it effectively narrows down the beam width (direction parallel to the travelling direction of radar) in azimuth direction. Synthesized maximum antenna length is equal to Lsa as one point on the ground is continuously observed while radar moves the distance of Lsa (beam width in the azimuth direction of the ground by the actual antenna) in the diagram. Here, it indicates that spatial resolution in the azimuth direction is half of the actual antenna length D. Lsa is called as synthetic aperture length. In the case of space borne SAR, the ratio of D and Lsa is several 1000's.	
T				
Terrain information	-	地勢情報	Information to show geographical events related to mountains, rivers, plains, ocean, relief, slope, and state of land.	
TerraSAR-X	TerraSAR-X	-	German government owns the high resolution Synthetic aperture radar satellite (SAR satellite). It was launched in June, 2007. It is the first Earth observation satellite to provide the service which uses microwave sensor of x band. It can observe an object or earth's surface by penetrating through the cloud.	
THEOS	Thailand Earth Observation Satellite	タイ地球観測衛星	THEOS is the Thailand's first Earth observation satellite, which operates for the survey of natural resources using remote sensing. In the year 2004, Thailand's Earth observation system plan was formulated, in which map creation, national land planning, land use, resource management, calamity monitoring etc. were performed. It is built by EADS Astrium. It was launched through Dnepr rocket from Dombarovskiy launch facility on 1st October, 2008 and it is still operational. THEOS is pronounced as Tio in the Thai accent.	
Time at descending node	Time at descending node (equatorial crossing)	降交点時刻	Time taken by satellite in the orbit to travel from North Pole to South Pole of earth to cross the equator. As against this, the term "Time at ascending node" is used for the satellite which travels from South Pole to North Pole.	
Time Difference Information for providing	-	提供用時刻誤差情報	Data used for calculating ground time (represented in UTC) from the satellite counter installed in the satellite.	

Abbreviation and Glossary	English	Japanese	Description	Remarks
TKSC	Tsukuba Space Center	筑波宇宙センター	Tsukuba Space Center. JAXA faculty located in Tsukuba city, Ibaraki prefecture.	
TLM	Telemetry	テレメトリ	Telemetry is a House keeping data of satellite bus such as Real time telemetry and stored telemetry. Real time telemetry is a telemetry which is transmitted in real time while it is visible. Stored telemetry is a data that is transmitted to earth station through the command by storing telemetry in a data recorder.	
Tracking and Control	-	追跡管制	Acquiring data such as a satellite's status, location or position etc. is known as "Tracking" and regulating it such as controlling the position by sending command signals to satellite is known as "Control". Carrying out both shall be referred to as "Tracking and Control".	
Tracking network	-	追跡ネットワーク	Data required for monitoring the status of satellites is received, it is determined/predicted in which orbit the satellite is revolving, which orbit it will take in the future and then command data is sent to the satellite. Hence earth station(s) perform stable operations domestically as well as overseas.	
U				
USB band	Unified S Band	USBバンド	Since it is developed by Apollo plan, various functions such as voice, telemetry, command, R&RR (ranging and Doppler measurement) are executed in carrier (S band: 2.1-2.3GHz) of up-down pair of frequency ratio 221:240. It is a main channel as a communication method for tracking and control and recently it is also adopted for almost all the satellites in Japan. Multiplexing of R&RR ranging signals, commands (uplink) and telemetry (downlink) are executed in S band frequency.	
User	-	利用ユーザ	(1) Disaster Users (Disaster Management Headquarters, International Charter on Space and Major Disasters, Sentinel Asia etc.) (2) Public Users 1. Land management users (for e.g. Ministry of Land, Infrastructure, Transport and Tourism) 2. Resource management users (such as Ministry of Agriculture, Forestry and Fisheries) 3. Resource exploration users (Ministry of Economy, Trade and Industry) (3) Internal use at JAXA (including PI) (4) General users (5) Global environment users (such as users for forests) * Data for (4) will be provided by data distribution operators. * Data for (5) will be provided from JAXA's ALOS-2 Analysis & Research Systems.	User

Abbreviation and Glossary	English	Japanese	Description	Remarks
UTM	Universal Transverse Mercator	ユニバーサル横メルカトール図法	It is a coordinate system (creating an image) projecting the intersection of equator with central meridian of each zone as origin by dividing the whole earth in the 6° zones in longitudinal direction through the Gauss-Kruger coordinate system which is a kind of isometric horizontal axis cylindrical coordinate system. It is most widely used as a medium scale topographic map projection technique of 1/10,000, 1/25,000, 1/50,000 etc. of satellite image or Geospatial Information Authority of Japan. The classification of each zone is done by the eastbound increasing number, like the zone of west longitude 180° to 174° shall be No.1. Tokyo will come in No. 54 zone which makes east longitude 141° the central meridian.	
W				
WebGIS	Web Geographic Information System	Web版地理情報システム	Web based GIS See [GIS].	
Weekly observation plan	-	週間観測計画	Observation plan for the next week which will be created on the basis of basic observation request and special observation plan. Refer to [Basic observation request], [Special observation request].	
WMS	Web Map Service	-	It is a standard protocol to provide geo-referenced graph image generated over the internet through map server using the data from GIS database. The specification was developed and released earlier in the year 1999 by Open Geospatial Consortium.	
X				
X band	X band	Xバンド	It is a bandwidth of SHF band which is one of the bandwidth of microwave. 8 012GHz (2.5 03.75cm). Uplink 8GHz and downlink 7GHz in satellite communication band. This bandwidth is often used for the communication with ground in observation satellites or probe vehicles. This term was originally used by U.S. Armed Forces in code language. Therefore, X does not have any deep meaning.	
Figures and symbols				
σ_0 (sigma naught, sigma zero, sigma-o)	Sigma naught (sigma zero sigma-o)	シグマノート、シグマゼロ、シグマオウ	It is backscattering coefficient/amount representing the degree where the extended target scatters the radio wave of radar in incident direction (direction of radar) of radio wave and abbreviated as σ_0. Quantitatively it is defined as “Backscattering cross-sectional area per unit” (Dimension is m2/m2). σ_0 varies by combining sending and receiving polarization, angle of incidence, internal non-uniformity or frequency, electrical conductivity, dielectric constant, inclination, roughness of scattering surface.	

[Reference] ASTER SCIENCE PROJECT Glossary, 2008 publication - New Edition Remote Sensing Terminology Dictionary, Sentinel Asia’s webpage etc.

Appendix 5 Items list

08_01_Observation plan

* Acquired values are shown as it is, for the items for which no possible values are defined.

No.	Display location		Item name	Possible value
	List	Details		
1	O	O	Satellite name	ALOS-2
2	O	O	Sensor operation segment ID	
3	O	O	Sensor type	PALSAR-2
4	O	O	Observation mode	WD1 (28MHz)
				WD1 (14MHz)
				WD2
				SM1
				SM2
				SM3
				SPT
				CAL
5	O	O	Observation table type	Emergency table use
				Normal table use
6	O	O	Observation start total number of revolutions	
7	O	O	Observation start latitude argument	
8	O	O	Observation end total number of revolutions	
9	O	O	Observation end latitude argument	
10		O	Observation start time	
11		O	Observation end time	
12		O	Observation center position X	
13		O	Observation center position Y	
14		O	Observation center position Z	
15	O	O	Observation ID	
16		O	SAR calibration parameters	
17		O	Pre-calibrated or not	ON
				OFF
18		O	Post-calibrated or not	ON
				OFF
19	O	O	Roll angle	
20	O	O	Off-nadir angle	
21	O	O	Fly direction	Ascending
				Descending
				Any
22	O	O	Polarization	HH
				VV
				HV
				VH
				HH+HV
				VV+VH
				HH+HV+VH+VV
				Levorotation H+Levorotation V
				Dextrorotation H+Dextrorotation V
				Direct H+Direct V
				N/A
23	O	O	Beam No.	
24	O	O	Observation direction	Left
				Right
				N/A
25		O	Observation area	