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ICESat (GLAS) Science Computing Facility Document Series

Volume 3a
SCF Data Request Software User's Guide
Version 200907.0

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Summary of Changes since Version 200105.0

p. 1 The data request Graphical User Interface (GUI) can be run from anywhere using the command /SCF/bin/V2_prelim/run_data_request.ksh.

Figures were updated as appropriate.

Summary of Changes since Version 200110.0

Figures were updated as appropriate:

p.2 Put the updated pictures for the front end data request. (figures 2.1 2.2)
p.5 Added the description of the pass option button.

Summary of Changes since Version 200112.0

p.2 Updated the front end data request. (figure 2.2)
p.6 Added the description of the quick look button.

Summary of Changes since Version 200208.0

p.2 Updated the front end data request. (figure 2.2)
p.5 “Apply Time” button added.
p.7 Updated the help map window. (figure 2.3)
p.7 On the map display, the user can now select low or high resolution maps.

Summary of Changes since Version 200212.0

p.2 Updated the front end data request. (figure 2.2)
p.5 Added select products window (figure 2-3)
p.6 Added data release field

Summary of Changes since Version 200302.0

Updated figures as necessary

Summary of Changes since Version 200304.0

- Updated figures as necessary

Summary of Changes since Version 200306.0

- Added scroll bars to the GUI if the page size is greater than the screen size.
- Replaced the 91 day repeat tracks with 91 day repeat tracks and updated the figures as necessary.

Summary of Changes since Version 200308.0

- Removed the Yes/No option for the 8-day and 91-day repeats in the GUI. Therefore, to request data, the user must specify the tracks. If no tracks are selected a warning window pops up.
- Added minutes to the data_request time span.
- Added a scroll bar to the product window.
- In the product window, added the label, "Make Sure To Press The Done Button". The done event ensures that if the user selects GLA04 then GLA01 is automatically selected also. If the “Done” button is not pressed then a warning window pops up.
- Modified the submit window to specify GLA04 as GLA04-LPA.
- Added optional due date and justification. Justification is mandatory if a due date is requested.
- Described “Upload Lat/Lon to Main Window” button in map window.
- Updated figures.

Summary of Changes since Version 200311.0

- Remove the Available PassID button from the front-end GUI.

Summary of Changes since Version 200401.0

- New “Browse Products” buttons for special requests and subscriptions:
  Select “Yes” if want browse products (png files) with data files
  Select “No” (default) if do not want browse products (png files) with data files

Summary of Changes since Version 200405.0

- Moved the output directory widget from the first GUI window to the main window.
- Added the output directory to the parameters list so it can be saved into a parameter file and be loaded from a parameter file.

Summary of Changes since Version 200501.0

- Removed “Target of Opportunity” button since never implemented.

Summary of Changes since Version 200502.0

- Updated Figure 2.2: Submittal window for special requests
- Added Figure 2.5: Submittal window for subscription requests
- Added commentary about updated figures

Summary of Changes since Version 200609.0

- When plotting user locations on the map, can add optional station names after the lat/lon pairs to be displayed next to the plotted points on the map.
- Added Figure 2.5: Displaying User Locations on Map.

Summary of Changes since Version 200701.0

- p. 6: New features added to Map Display:
  - Select or unselect a track by directly clicking on it on the map
  - Select an area on the map and then click one of the following buttons:
    - Select Tracks - to select all tracks within the selected area
    - Unselect Tracks - to unselect all tracks within the selected area
    - Zoom Map – to zoom the area on the map
  - Multiple areas can be selected
  - Selected tracks are saved among maps

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1.0 Related Documentation

- *SCF Architectural Design Document*
- *SCF Data Request Software Detailed Design Document*
- *SCF Data Request Software User's Guide*
- *SCF Data Visualization Software User's Guide*
- *SCF Operator's Guide*
- *SCF Interface Control Document*
- *SCF Interface Software Update Document*
- *SCF Interface Software Installation Guide*
- *SCF Interface Software Detailed Design Document*
- *SCF Interface Software Operator's Guide for rSCF*
- *SCF Interface Software Operator's Guide for mSCF*
- *I-SIPS Interface Software Operator's Guide for ISF*
- *I-SIPS Interface Software Operator's Guide for UTCSR*
- *Interface Control Document Between I-SIPS/ISF and CSR*

2.0 Running the Data Request GUI

The data request Graphical User Interface (GUI) can be run from anywhere using the command /SCF/bin/*latest_version*/run_data_request.ksh or by typing glas_data_request as long as /opt/bin is in your path. One does not need to be under a specific account or in a specific directory to run the software.

The data request GUI allows the user to select ICESat products by region, time, and/or set of tracks. The most restrictive information will be used - for example, if the user selects a time span or region, and a set of tracks, he or she will receive only the subset of the tracks that are within the time span or the region.

There are two modes in data request: the subscription and the special data request. The main window (see Figure 2-1) has two buttons from which to select the mode. After the user selects one, the window disappears and the user interface specific to the selected data request mode is displayed.

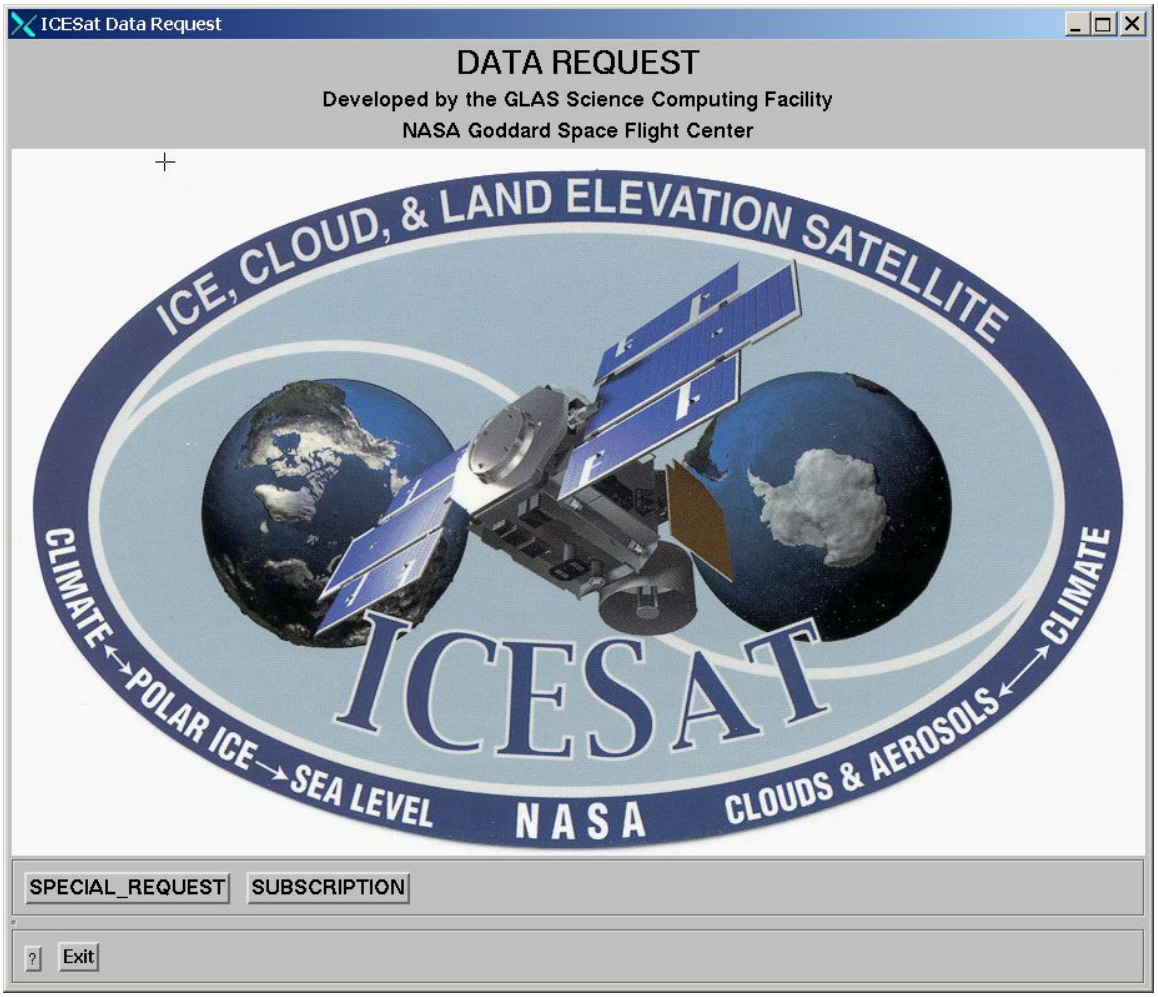

Figure 2-1: ICESat Data Request main window

Both the subscription and special request GUIs have two more windows: the first window defines selection criteria and submits requests; and the second is a map window in which the user can see a map or Digital Elevation Model (DEM) of his/her selected region and the 8 or 91 day GLAS coverage within it. The user is also able to load the tracks selected from this window to the submittal window.

2.1 Special Requests

For special requests, the submittal window is shown in Figure 2-2. The selection options in this window are described in this section.

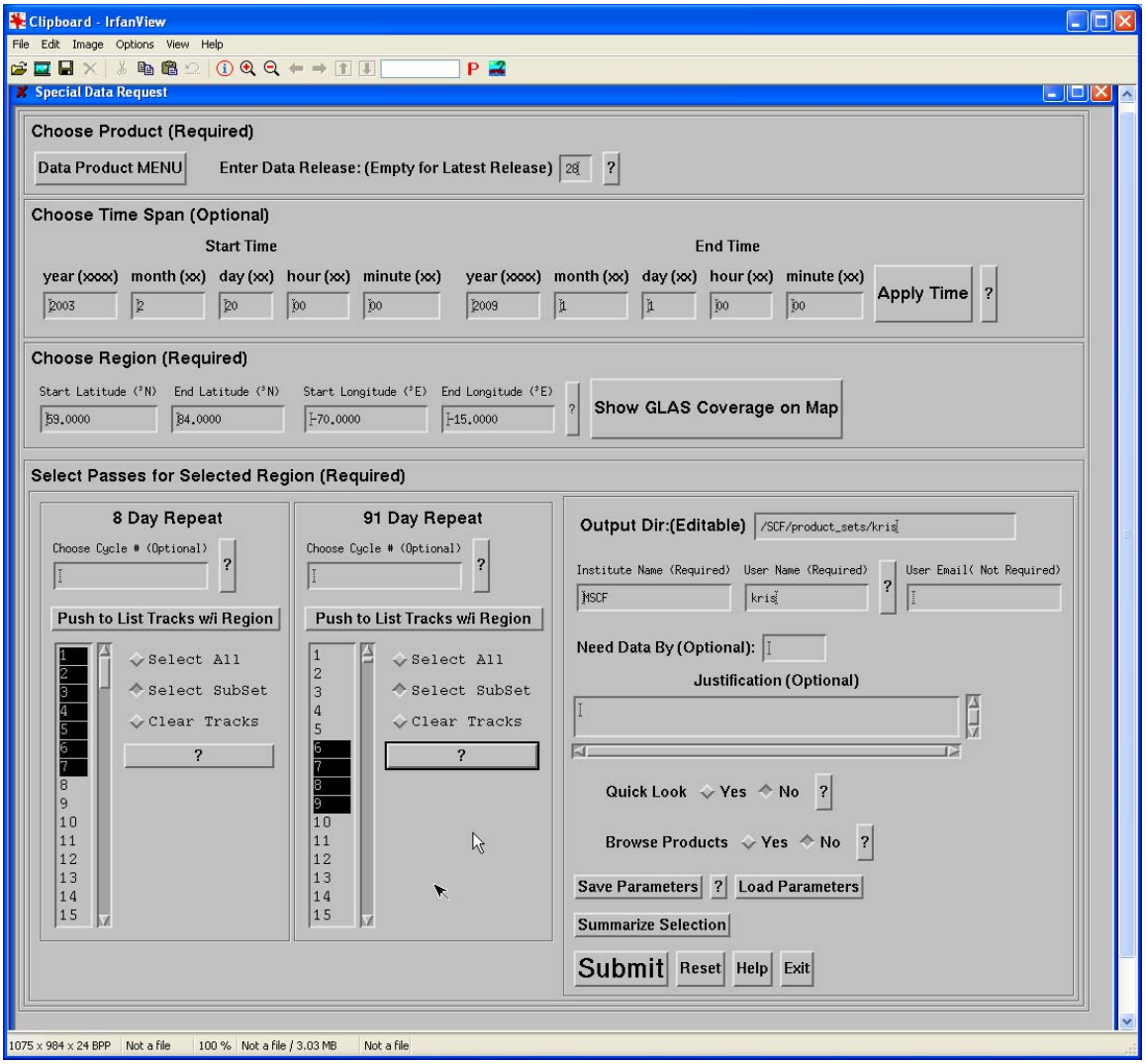

Figure 2-2: Submittal window for special requests

<u>Data Product Menu</u> – Required - Pushing this button opens a new window depicted in Figure 2-3 which gives a menu of GLAS products. You must select one or more products from this list.

The products are grouped by type and if one pushes the "Product Description" button a short description of each product is displayed.

NOTE: The user must select another product file that overlaps in time along with GLA03 or 04. If the user selects only GLA03 or 04, GLA01 will automatically be selected also. This requirement is necessary because GLA03 and 04 lack the location information

required in the data subsetting process. Selecting GLA04 that is **not** LPA will bring up a window asking the user to request the data directly from the SCF manager.

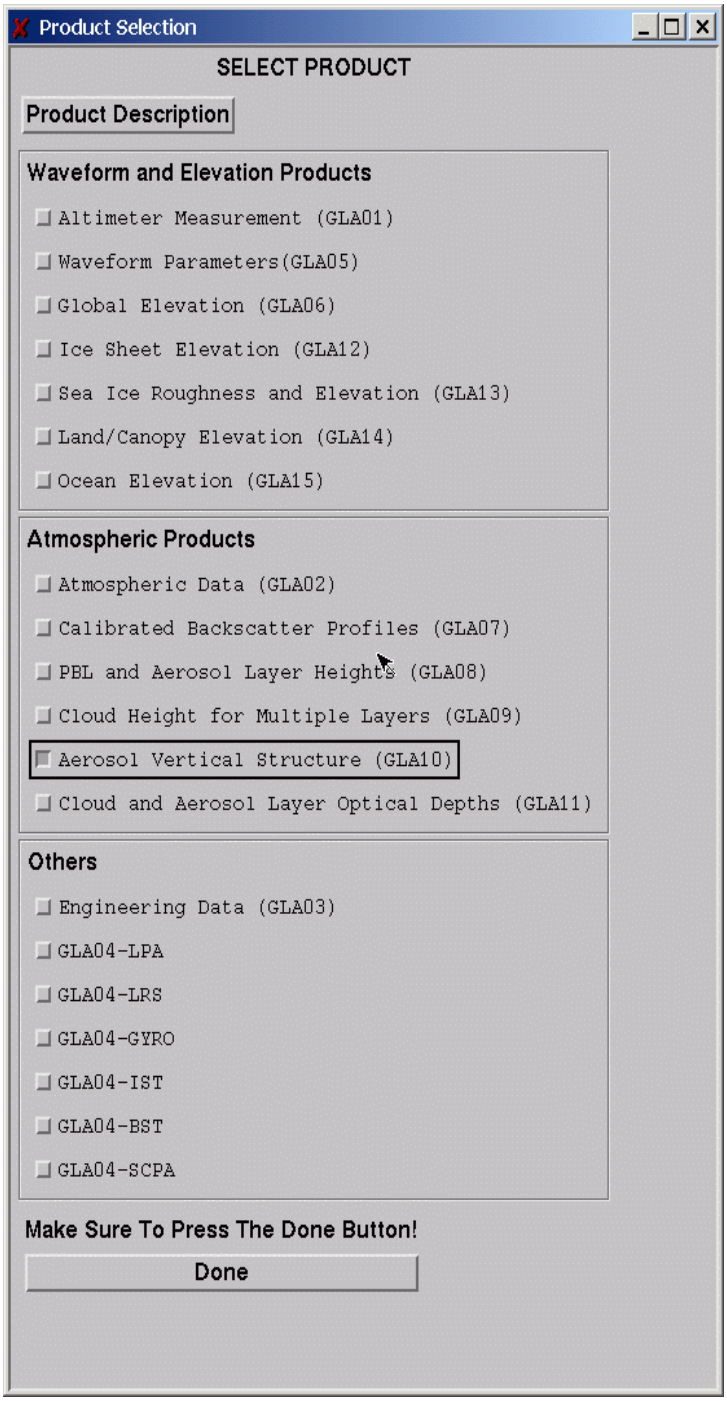

Figure 2-3: Select products window

<u>Enter Data Release</u> - Optional - The user has the option to request data for a specific release number. Not filling in the release field means getting the data from the latest release(s).

<u>Choose Time Span</u> – Optional - The user selects a start time and end time. If the user changes the time selection from the default, he needs to push the "**Apply Time**" button.

<u>Choose Region</u> – Required - The user can select start and end latitude and longitude in either this window or the map window as a rectangle in latitude and longitude. The latitude range is from -90 to 90 North, and the longitude range is from -180 west to 180 East of Greenwich in units in units of East longitude. The default is the entire world.

<u>Show GLAS Coverage on Map</u> – Optional – This button brings up the map and ground track display window shown in Figure 2-4. This is a tool to help the user select the proper tracks over his area of interest. The user can display a region map or zoom a region and display the tracks over this region to see the coverage. Only tracks that have been processed and are available at the main SCF are displayed, however they will be displayed as if data exists for the whole pass, whereas a product may only contain a small portion of the pass.

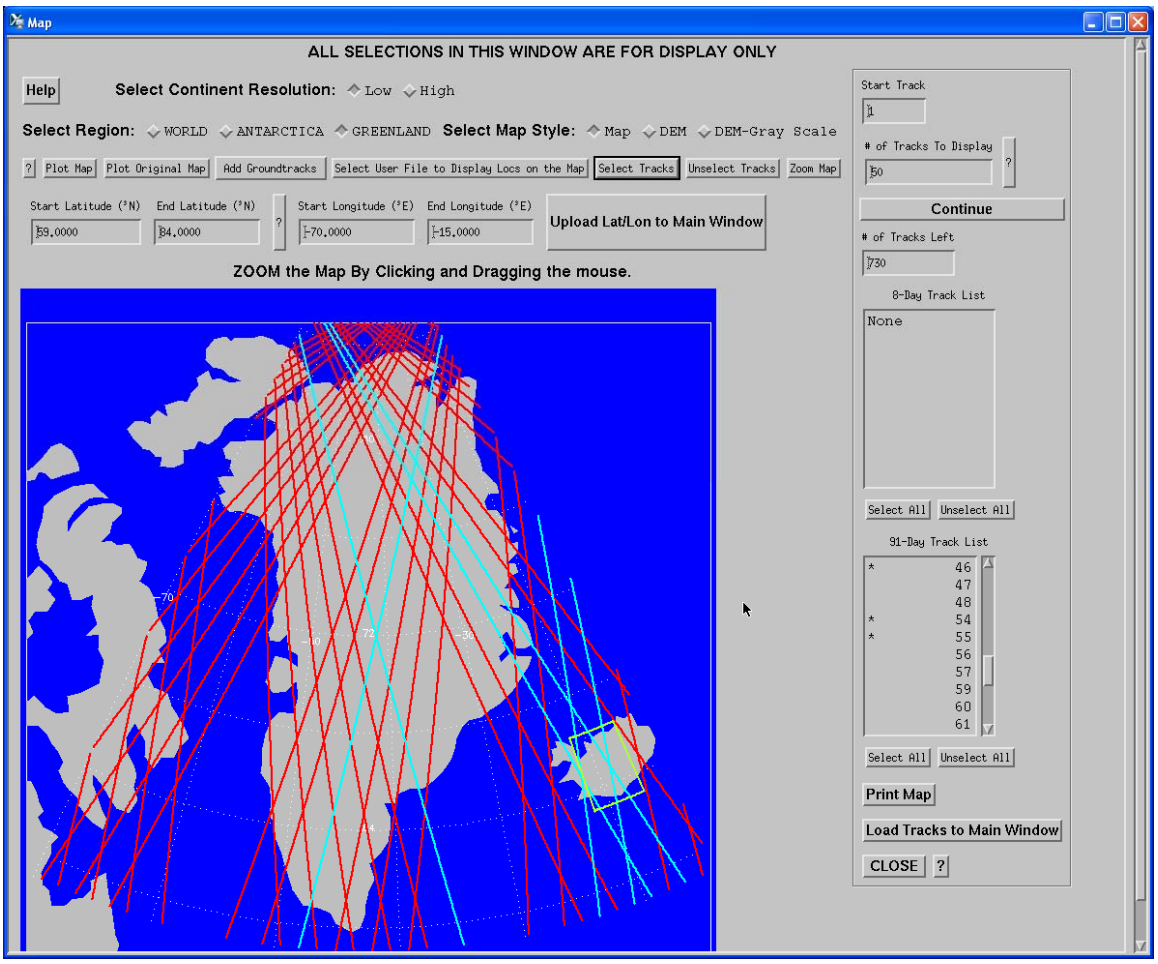

Figure 2-4: GLAS coverage on map display

Select Continent Resolution – Select low or high resolution, for map display only.

Select Region – The user can display Greenland, Antarctica, or the whole world. Press the "Plot Map" button after making your selection. Further refinement of the region is accomplished by using the left mouse button to click and drag to select an area outlined in green. Clicking the "Zoom Map" button will then zoom that area. To get back to the original map you started from before zooming, press the "Plot Original Map" button. The user may also just type in the desired starting and ending latitudes and longitudes in the appropriate boxes. To transfer these new lat/lon values to the main window, the user must press the "Upload Lat/Lon to Main Window" button.

Select Map Style – Map is the default. Pressing the DEM button will plot a shaded-relief Digital Elevation Model instead of the continental outlines. A high resolution DEM is used: GSFC Greenland and Antarctic 5km, or USGS 30 second for all other regions. Tracks can then be displayed on top of this DEM model. The resolution of the DEM is chosen based on the area displayed. The smaller the area, the finer the resolution will be, down to the finest resolution of the DEM. **DEM-Gray Scale** plots elevation in shades of gray.

Add Ground Tracks – Press this button and select either the 8-day or 91-day repeat from the pull down menu to add ICESat ground tracks on the map display. You can only display tracks from either the 8-day or 91-day reference orbit, but not both at the same time. By default, only 50 tracks are displayed at a time. Pushing the" Continue" button will display the next 50 tracks. If you wish to display more or less than 50 tracks at a time just change the number in the text box. Once the next batch of tracks has been displayed, if you want to see the first batch again, you have to press the "Add Groundtracks" button again. A list of the displayed tracks is shown in a list box to the right of the map. Only tracks that are processed and available at the main SCF are displayed. (See section below, "How to Select Ground Tracks" for methods of selecting ground tracks.) After selecting tracks, the user can load them to the track list of the submittal window by pushing the "Load Tracks to Main Window" button. Select "Close" when done to be brought back to the main menu.

How to Select Ground Tracks

- Unselected tracks are red on the map, and have nothing beside their numbers in the track list window.
- Selected tracks are cyan on the map and have asterisks (*) beside their numbers in the track list window.
- For reference, selected tracks are saved among maps!

There are several ways to select tracks:

Select tracks from list – In the track list window, click on a track number with the left mouse button. Unselect the track number by re-clicking on it.

- Click the “Select All” button under the track list window to select all the tracks in the track list.
- Click the “Unselect All” button under the track list window to unselect all the tracks in the track list.

Select tracks from map – In the map window, click on a track with the left mouse button. This may take some practice! Since the track lines on the map are actually interpolations of data points, sometimes clicking on a track will not work, if you are not hitting the actual data point. Unselect the track by re-clicking on it.

Select tracks from map within selected area - In the map window, select an area by clicking and dragging with the left mouse button. The selected area will be green on the map. If it is not correct, reselect it. Once the area is selected, there are three things you can do:

- Click the “Select Tracks” button to select all the tracks within the selected area.
- Click the “Unselect Tracks” button to unselect all the tracks within the selected area.
- Click the “Zoom Map” button to zoom the selected area on the map.

When you’re done with an area, you may select another area. If you’re having trouble clicking on a track (especially in a zoomed region), select an area around the track then click the “Select Tracks” or “Unselect Tracks” button.

Remember that to retrieve data for the selected tracks, you must load them to the main window by pushing the "Load Tracks to Main Window" button.

Plotting User Locations on the Map – Push the “Select User File to Display Locs on the Map” button to bring up a window that allows the user to select an existing user location file or Target of Opportunity (TOO) file. User location files should be ASCII text with the following structure:

- The first line is 1 or 0:
  1: Connect the points
  0: Don't connect the points (plotted as asterisks).
- The second line is the number of location pairs (latitude, longitude) that follow.
- Subsequent lines are the location pairs: north latitude, east longitude (-180 to 180).
- If station names are included after the lat/lon pairs, they will be displayed next to the plotted points on the map. You can mix lines with and without station names.

  Example:

  0

3
64, -60, Station A
75, -50, Station B
80, -20, Station C

The automatically generated TOO files can also be displayed. TOOs will normally plot as thick cyan lines. However, they may cover a very short range and not be easily seen until zoomed in.

Example of a TOO file: 2006-06-11_stations.txt_chk:
Haughton_NWT,2006-06-11,07:52,75.867,74.867,270.96315,269.77685,1
Gr_030515_01,2006-06-11,15:47,75.96641,79.47025,300.61213,294.54386,1

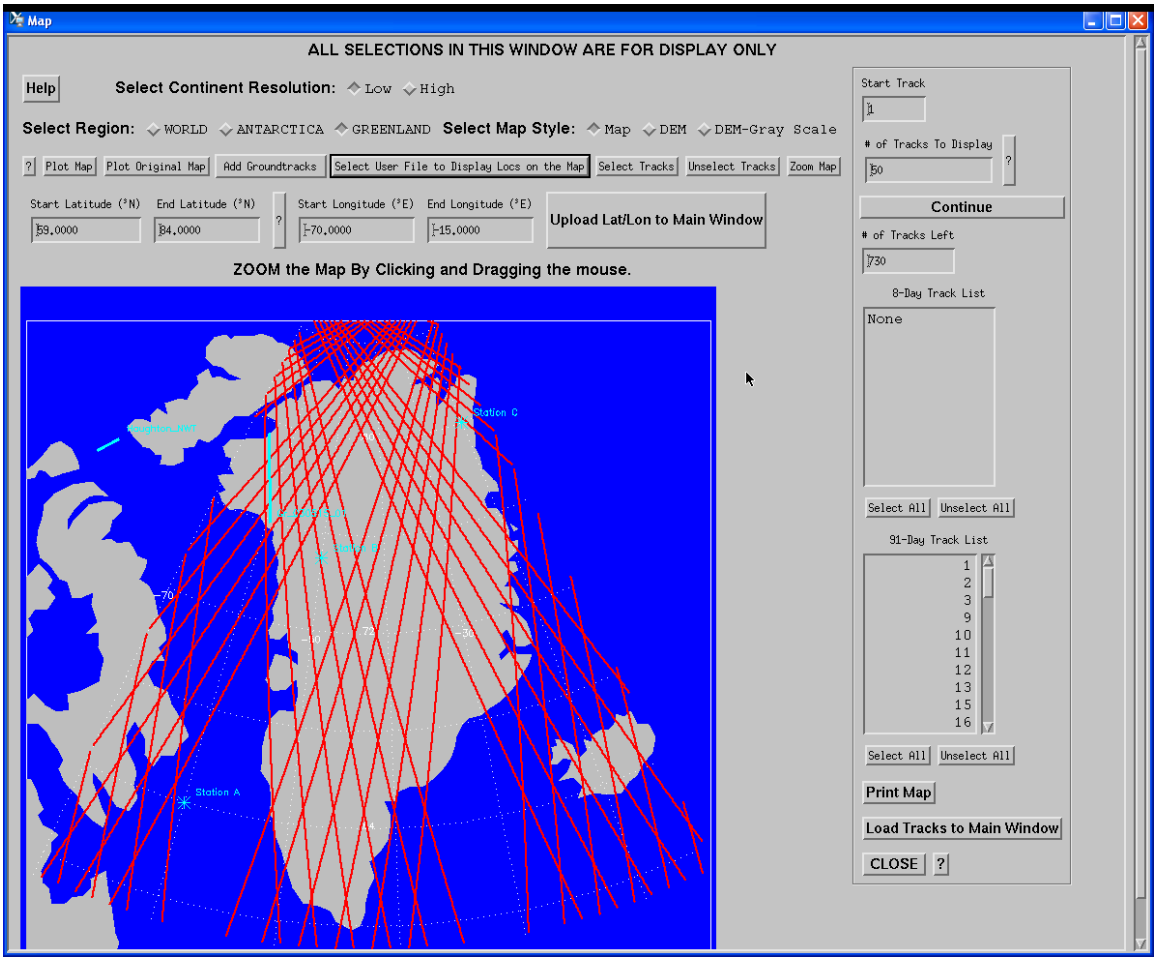

Figure 2-5: Displaying User Locations on Map

Print Map – Pressing this button creates a PostScript file of the map. “Create File” must be pressed to create the file. Subsequent plots will overwrite the first one unless a different file name is created.

Load Tracks to Main Window – Loads selected tracks to main data selection window. Only the selected (*) tracks listed in the track window are loaded. If you need to press the "Continue" button to select more tracks, then you need to load those tracks as well. Therefore, if you want to select all the tracks (> 50) in a large area, close the map window and select them directly from the data selection window.

Close - Upon closing the map display window, the user returns to the main data selection window.

Select Passes for Selected Region – Required – The program will process only selected tracks.

If tracks were already selected and loaded through the map interface, they should be highlighted in black in the track window. If nothing is highlighted, then tracks must be selected.

Passes are defined by reference orbit (8 or 91 day), cycle number, and track number.

The user must select tracks for either the 8-day or 91-day repeat track reference orbit (or both). The selection of cycles is optional.

To select a specific cycle, merely type it in the appropriate box. More than one cycle can be selected by separating the cycle numbers with commas (,) or dashes (-).

Push to List Tracks w/i Region – **Required if tracks were not selected via the map display -** Press to display the list of tracks available for the selected region and time span, for the 8 or 91 day repeat. Only tracks that are processed and available at the main SCF are displayed. Clicking the "Select All" button highlights all the tracks. Clicking the "Select Subset" button allows the user to select discrete tracks or sets of tracks within that list. To select multiple discrete tracks, hold down the Ctrl key while selecting the tracks individually with the left mouse button. To select a set of tracks hold down the shift key, use the left mouse button to sweep out the set of tracks.

Output Dir – Optional **-** The directory where the subset files are going to be stored on the remote site. The default is /SCF/product_sets. It is highly recommended to specify a subdirectory under this directory since several users at one institution may be storing data.

Institute Name – Required – The institute name is loaded automatically, based on the user's hostname. This field cannot be changed.

User Name – Required - This information is used to identify users and link them with requests in the mSCF data request database. If a user inputs his/her name differently each time, then he/she will have multiple entries in the database.

User Email – Optional **–** if an email address is given, then the user will get an email once the request is submitted at the mSCF and another when the request has been fulfilled. This email address is associated with the User Name given in the previous box. Therefore, if the box is left blank, but the user has previously given an email address for the same user name, then it is stored in our database and emails will be sent. If an email address has never been given for the user name, then no emails can be sent.

Need Data by – Optional **–** If the user needs the data by a specific date then include it here so we can better schedule the request amidst our processing.

Justification – Optional **–** If the user specifies a need-by date than give the justification (i.e. paper due, conference, etc.). This gives us more information about how to schedule the request.

Quick Look - Optional **-** Quick look data request is for data that have not yet been processed. The request will require sign off by a board that will also set the priority. The request is submitted in the same method as for a regular special request, except it will use a priority level that forces data to be expedited. Based on this priority, the I-SIPS will force processing of the requested files out of order, using expedited data if necessary, or processing of partial granules if all the input data does not exist. Granules that can be created will be processed immediately. The default of the quick look button is "No".

Browser Products – Optional **-** Browse products are viewable png images from which the user can discern the overall quality of the science data granule. The process of getting these files is time-consuming so if you don't need these files and would like to get the data more quickly then select "No" to the browse product option. If you find them useful and would like to receive them along the data products then select "Yes".

Save Parameters – Optional **-** Push this button to save all the current selected parameters into a file designated by the user. Very convenient if requesting similar parameters multiple times.

Load Parameters – Optional - Push this button to load a previously saved parameter file.

Summarize Selection – Optional **-** Push this button to see your selected parameters before you submit them.

Submit – Required - Pushing this button submits the request via email to the main SCF. If there is not enough information to submit, an error message will be displayed that prompts for the missing information. Only when all required information is selected will the request be submitted. The data selection window will exit when the data have been submitted.

Reset – Optional **–** This button will clear the time span, region, product, and pass selections.

Help – Optional **–** This button will bring up help documentation.

Exit – Optional **–** Exits from the GUI so no request is submitted.

2.2 Subscriptions

The GUI for the subscription mode looks similar to the special request GUI:

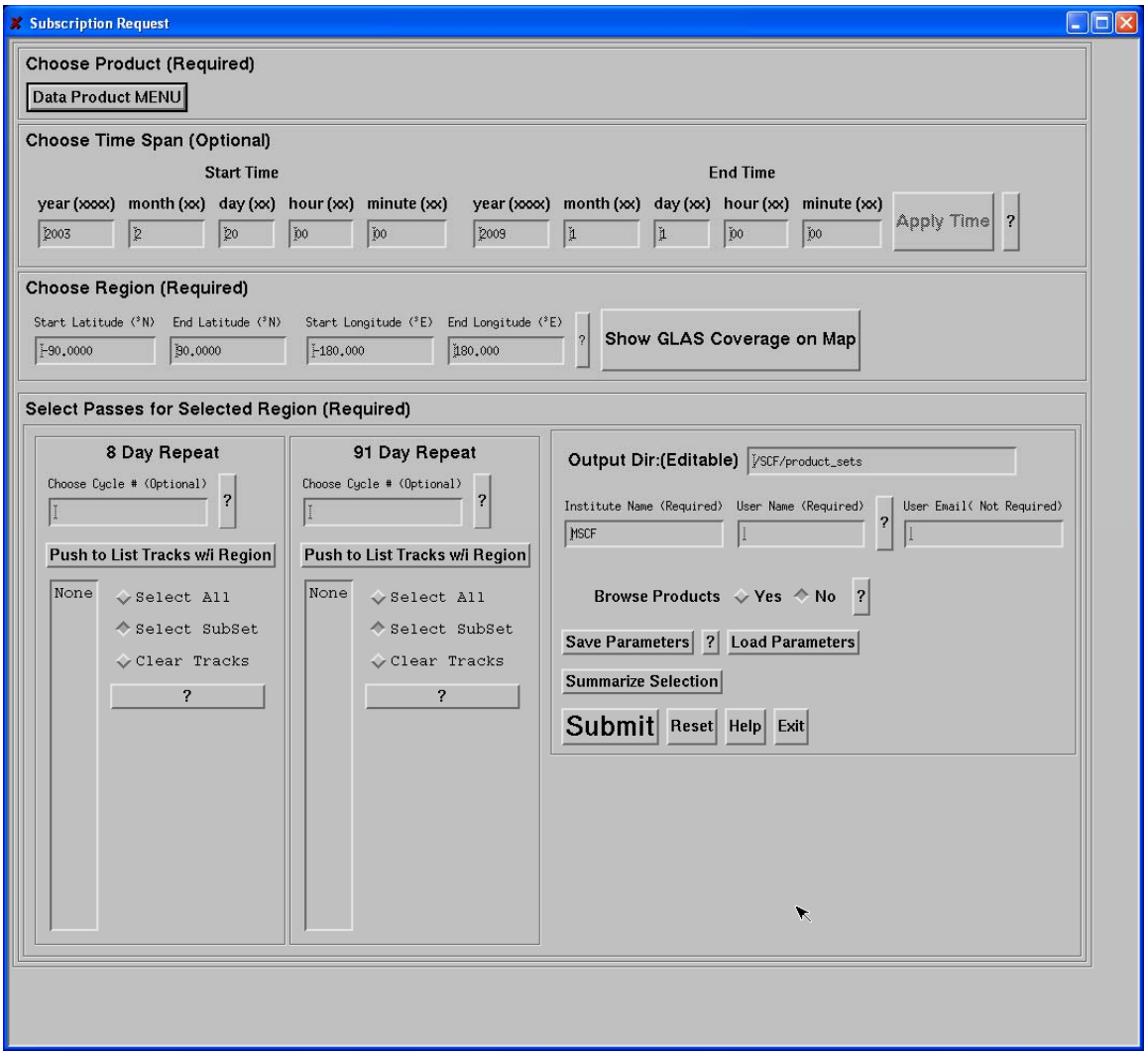

Figure 2-6: Submittal window for subscription requests

The difference is in the omissions. The subscription GUI does not include:

- Release
- Need Data by
- Justification
- Quick Look

The other boxes/buttons have the same descriptions as those on the special request GUI.

There is, however, a notable difference in the selection of passes. For a special request, the tracks listed are only those processed and available at the main SCF, while for a

subscription, all predicted tracks for the mission are listed. Note that this can take a long time to display on the map, especially the 91 day tracks.

Appendix A: Abbreviations & Acronyms

GLAS	Geoscience Laser Altimeter System
GSFC	Goddard Space Flight Center
ICESat	Ice, Cloud, and land Elevation Satellite
ISF	Instrument Support Facility
I-SIPS	ICESat Science Investigator-led Processing System
LIDAR	LIght Detection And Ranging
MIT	Massachusetts Institute of Technology
mSCF	Main Science Computing Facility
NASA	National Aeronautics and Space Administration
OSU	Ohio State University
rSCF	Remote Science Computing Facility
UCSD	University of California at San Diego
UTCSR	University of Texas Center for Space Research
UW	University of Washington
WFF	Wallops Flight Facility