SBMT

Importing Custom Data

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APPLIED PHYSICS LABORATORY

This SBMT tutorial explains how to:

- Import a custom shape model.
- Import custom images.
- Import custom altimetry tracks.

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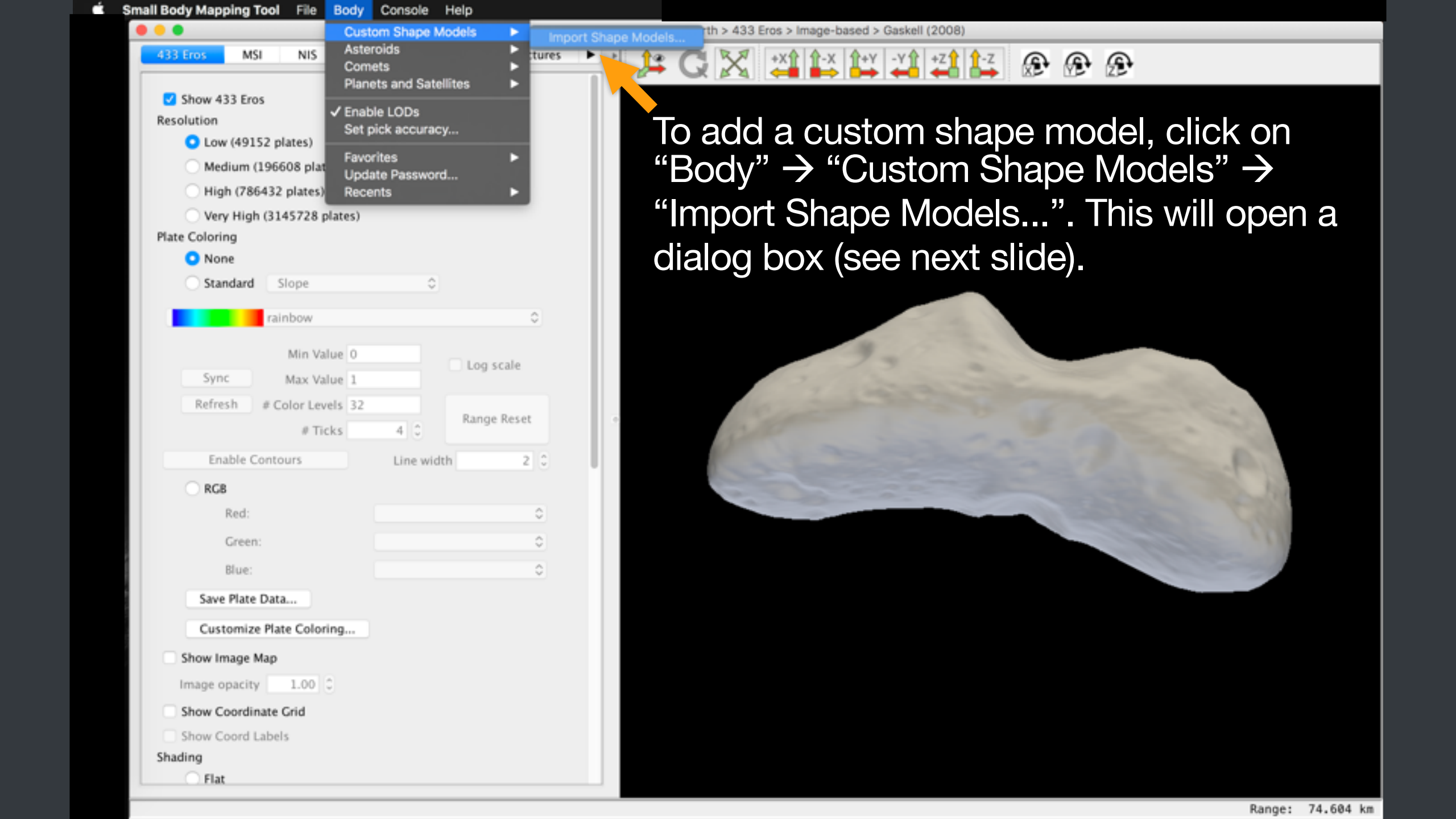
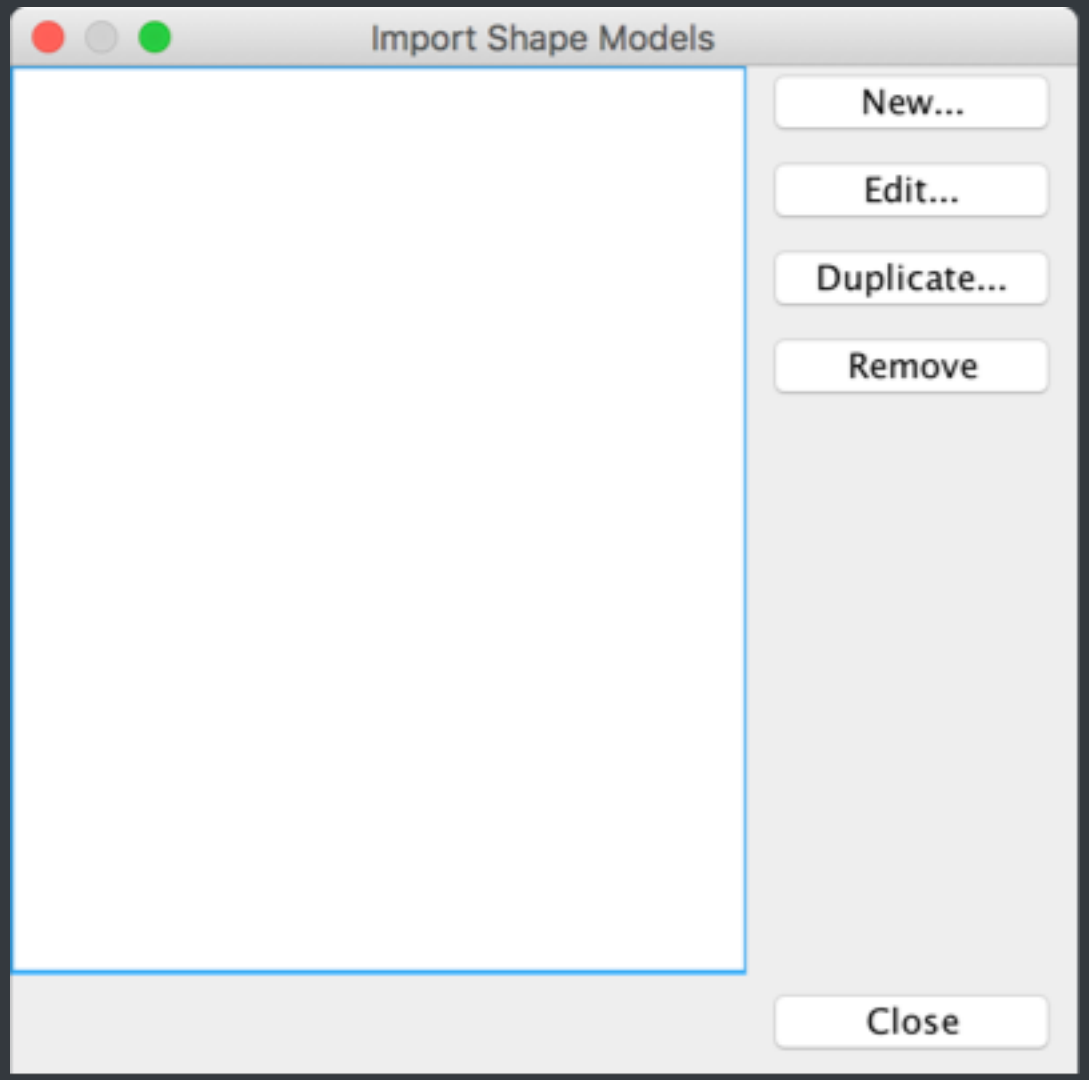
- Import a custom shape model.
- Import custom images.
- Import custom altimetry tracks.

Adding a new custom shape model

- Users can import custom shape models of their choice (e.g., add a body that doesn't exist in the SBMT or add a different model for an existing body).
- Custom shape models have some, but not all, of the functionality available for built-in bodies (e.g., the structures tab works, but spacecraft data are not available unless imported as custom data).


Small Body Mapping Tool
File
Body
Console
Help
Custom Shape Models
Asteroids
Comets
Planets and Satellites
Enable LODs
Set pick accuracy...
Favorites
Update Password...
Recents
Import Shape Models...
433 Eros
MSI
NIS
Show 433 Eros
Resolution
Low (49152 plates)
Medium (196608 plat
High (786432 plates)
Very High (3145728 plates)
Plate Coloring
None
Standard
Slope
rainbow
Min Value 0
Max Value 1
Sync
Refresh
Color Levels 32
Ticks 4
Log scale
Range Reset
Enable Contours
Line width 2
RGB
Red:
Green:
Blue:
Save Plate Data...
Customize Plate Coloring...
Show Image Map
Image opacity 1.00
Show Coordinate Grid
Show Coord Labels
Shading
Flat
433 Eros > Image-based > Gaskell (2008)
+X
-X
+Y
-Y
+Z
-Z
To add a custom shape model, click on "Body" → "Custom Shape Models" → "Import Shape Models...". This will open a dialog box (see next slide).
Range: 74.604 km



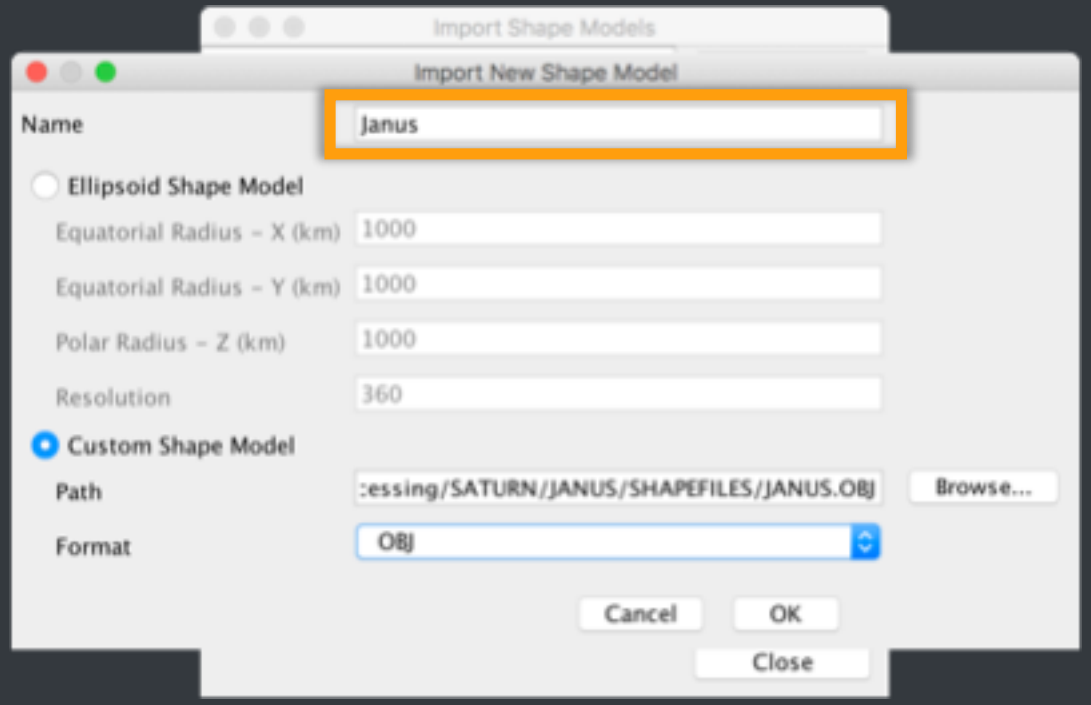
Click “New...” to add a new custom shape model.

Click “Edit...” to edit an existing custom shape model.

Click “Duplicate...” to duplicate an existing custom shape model.

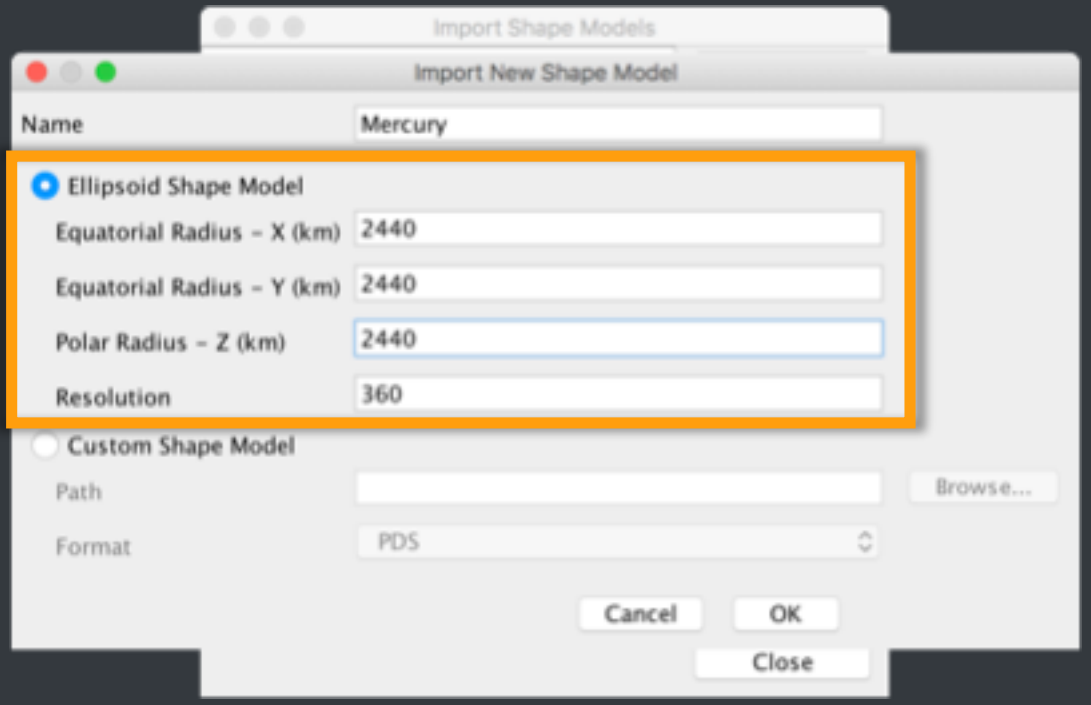
Click “Remove” to remove an existing custom shape model.

Click “Close” to close the dialog box.

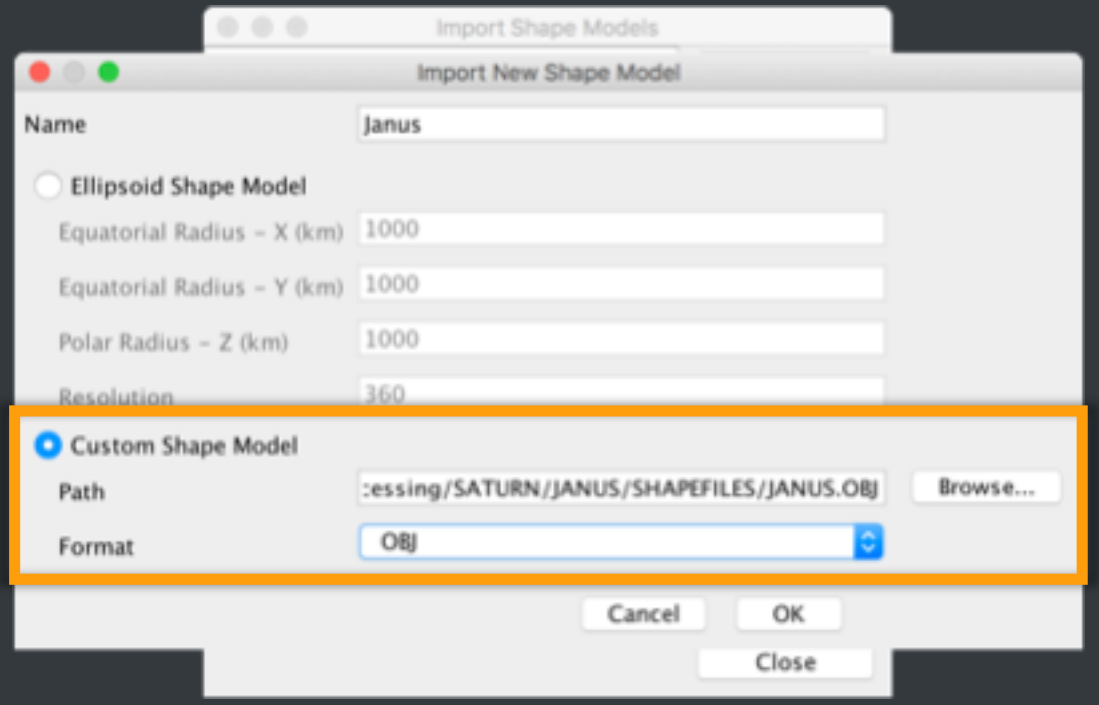


Clicking “New” opens this dialog.

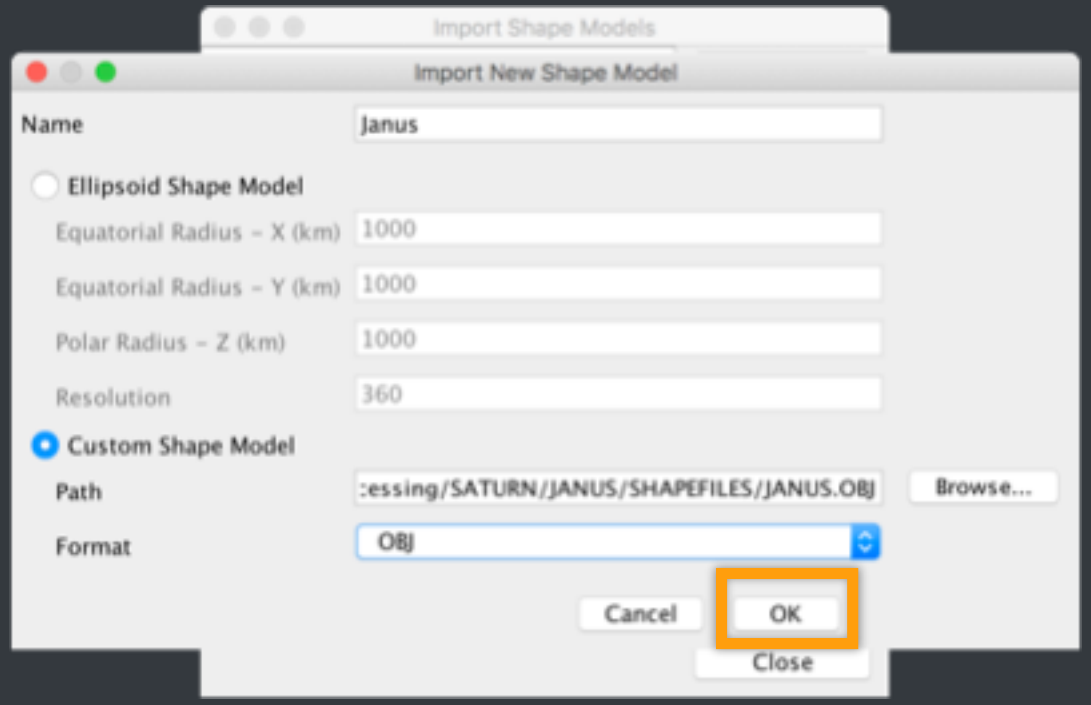
Give the body a name (e.g., Janus).



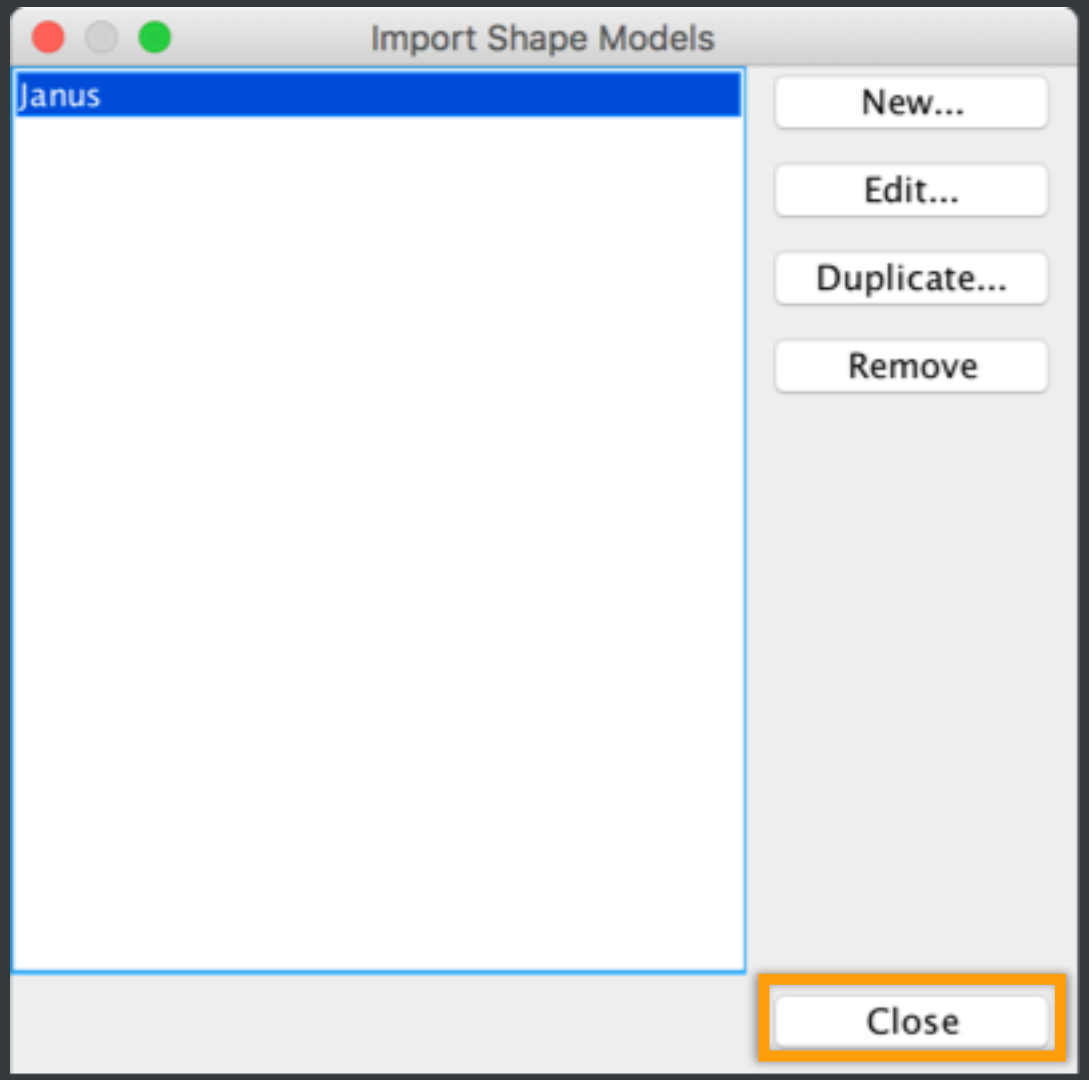
Users can create a triaxial ellipsoid to represent a ellipsoidal body, such as Mercury. The default resolution of 360 works well in most cases.



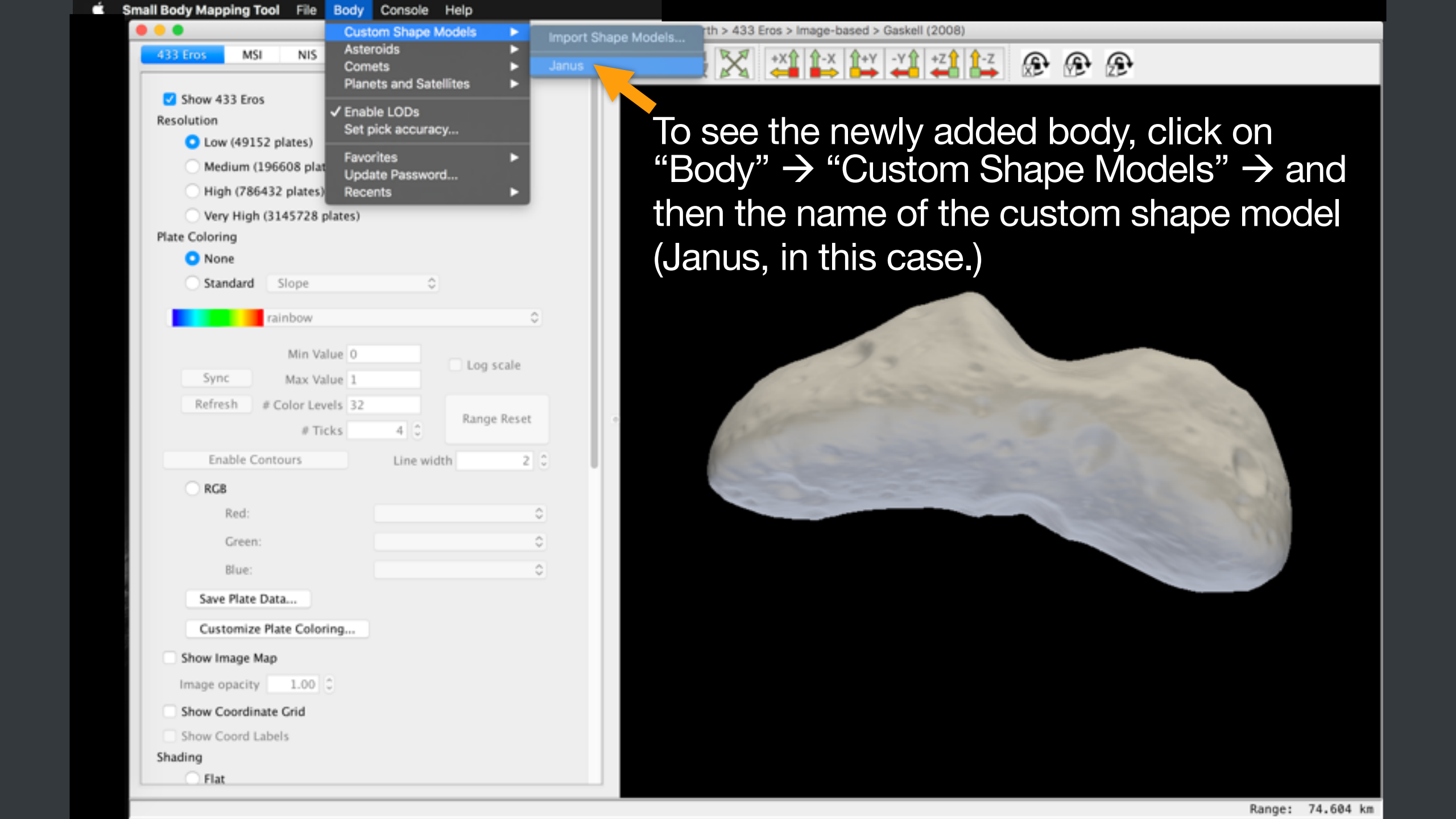
Alternatively, users can import a 3D shape model in PDS, OBJ, VTK, or FIT formats. Use the “Browse...” button to navigate to the file to be imported, and use the “Format” dropdown menu to select the correct file format.



Click “OK” to finish.



Click “Close” to close the Import Shape Models dialog.

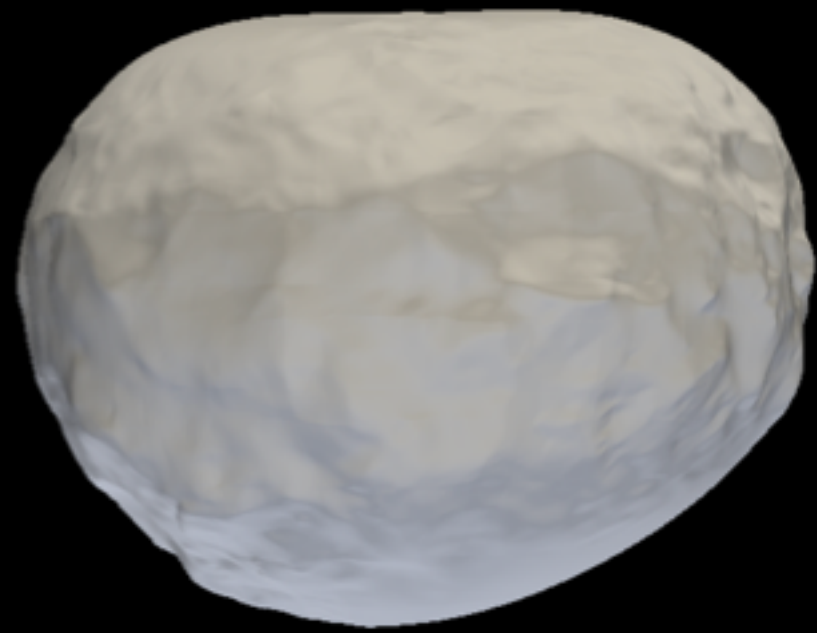

Small Body Mapping Tool
File
Body
Console
Help
Custom Shape Models
Asteroids
Comets
Planets and Satellites
Enable LODs
Set pick accuracy...
Favorites
Update Password...
Recents
Import Shape Models...
Janus
433 Eros
MSI
NIS
Show 433 Eros
Resolution
Low (49152 plates)
Medium (196608 plat
High (786432 plates)
Very High (3145728 plates)
Plate Coloring
None
Standard
Slope
rainbow
Min Value 0
Max Value 1
Sync
Refresh
Color Levels 32
Ticks 4
Log scale
Range Reset
Enable Contours
Line width 2
RGB
Red:
Green:
Blue:
Save Plate Data...
Customize Plate Coloring...
Show Image Map
Image opacity 1.00
Show Coordinate Grid
Show Coord Labels
Shading
Flat
th > 433 Eros > Image-based > Gaskell (2008)
+X
-X
+Y
-Y
+Z
-Z
To see the newly added body, click on “Body” → “Custom Shape Models” → and then the name of the custom shape model (Janus, in this case.)
Range: 74.604 km

SBMT - Custom > Janus

Janus | Structures | Custom Data | Regional DTMs

Show Janus
Plate Coloring
None
Standard
rainbow
Min Value 0
Max Value 1
Sync
Refresh
Color Levels 32
Ticks 4
Log scale
Range Reset
Enable Contours
Line width 2
RGB
Red:
Green:
Blue:
Save Plate Data...
Customize Plate Coloring...
Show Coordinate Grid
Show Coord Labels
Shading
Flat
Smooth
Representation
Surface
Wireframe
Points
Surface with Edges
Point Size 1.00

The body now appears in the rendering panel. The control panel has the main body tab, the structures tab, custom data tab, and regional DTMs tab.



Note: Custom models do not have standard plate colorings, but users can use the “Customize Plate Coloring...” option to add their own plate colorings.

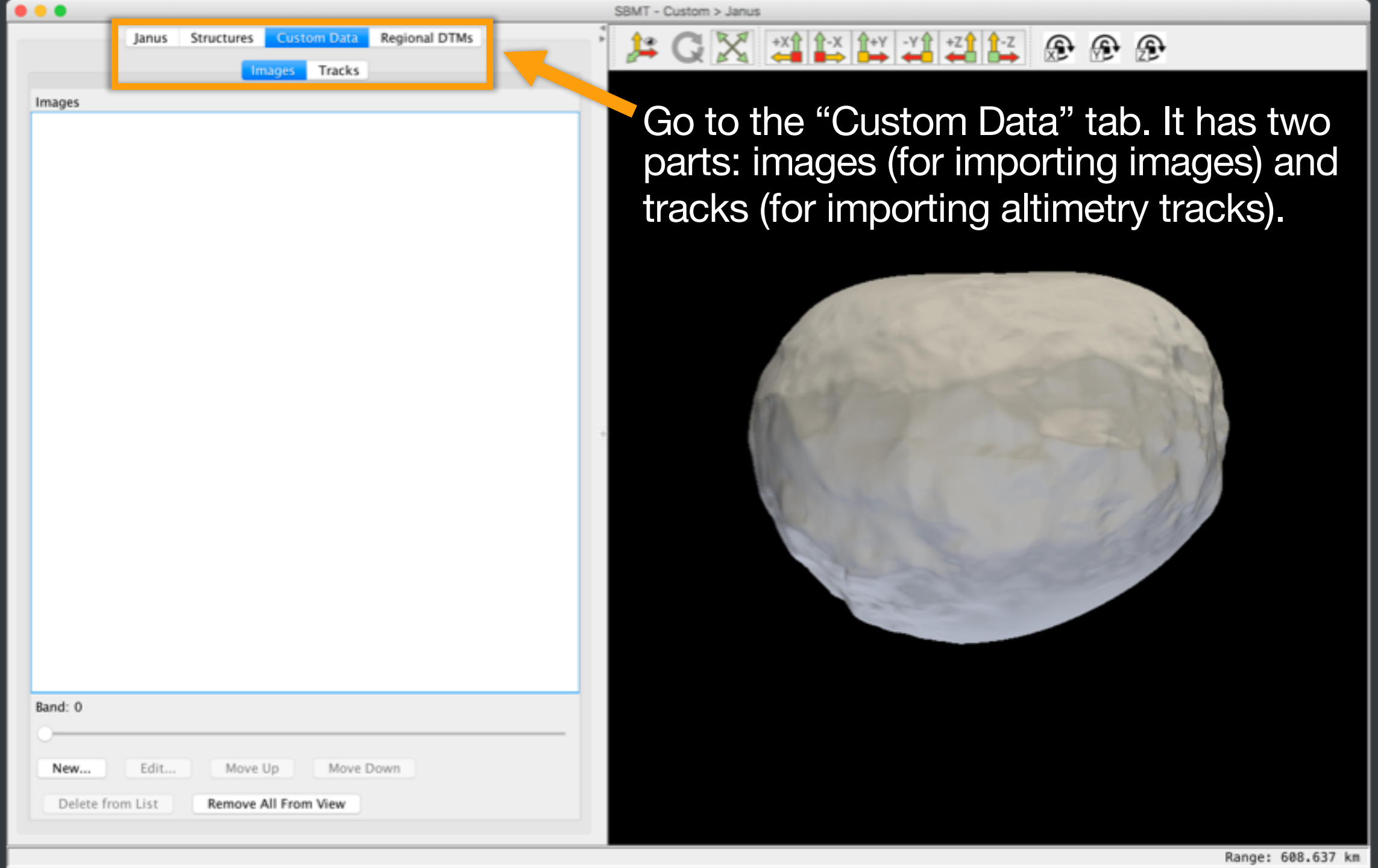
Range: 608.637 km

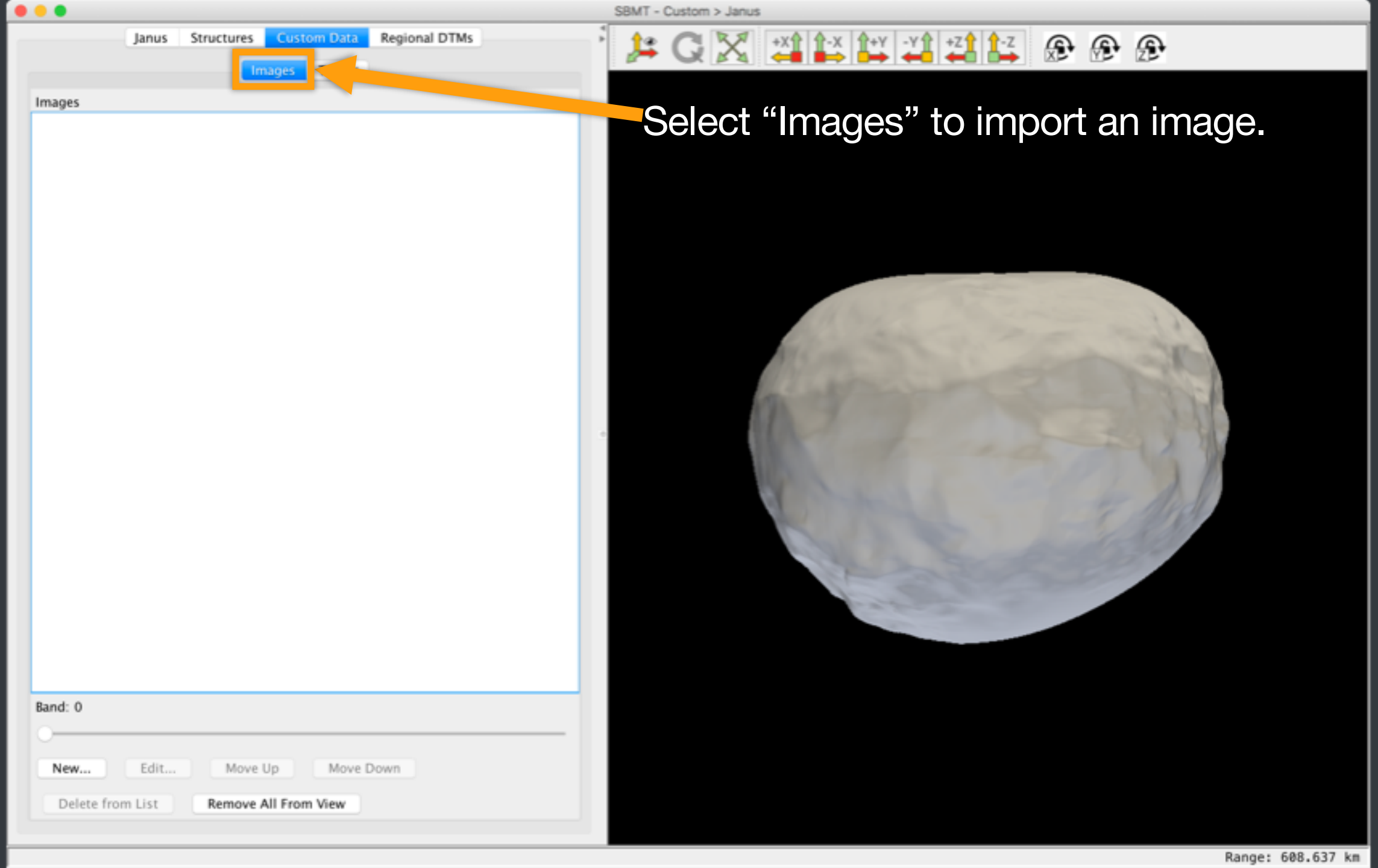
This SBMT tutorial explains how to:

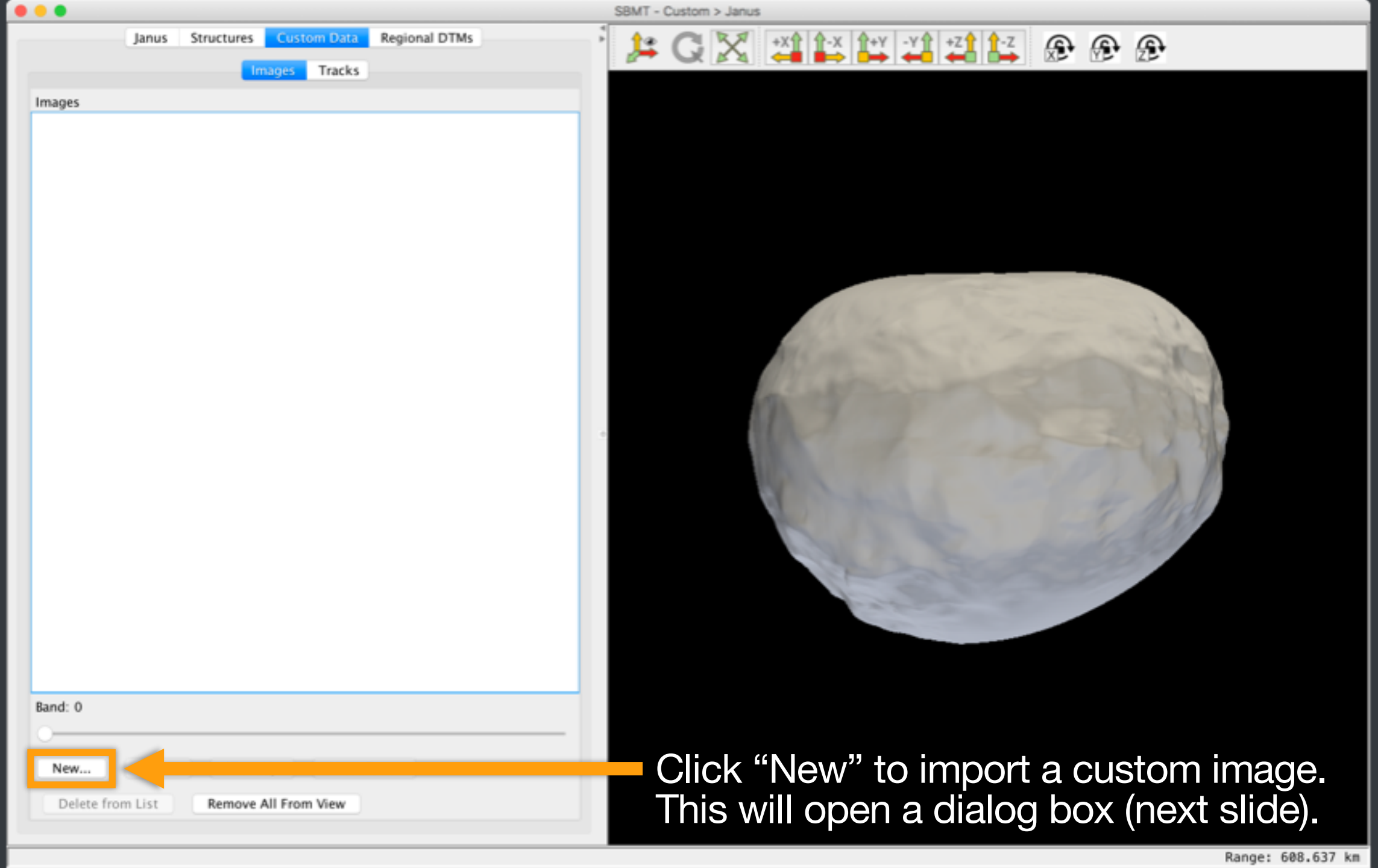
- Import a custom shape model.
- Import custom images.
- Import custom altimetry tracks.

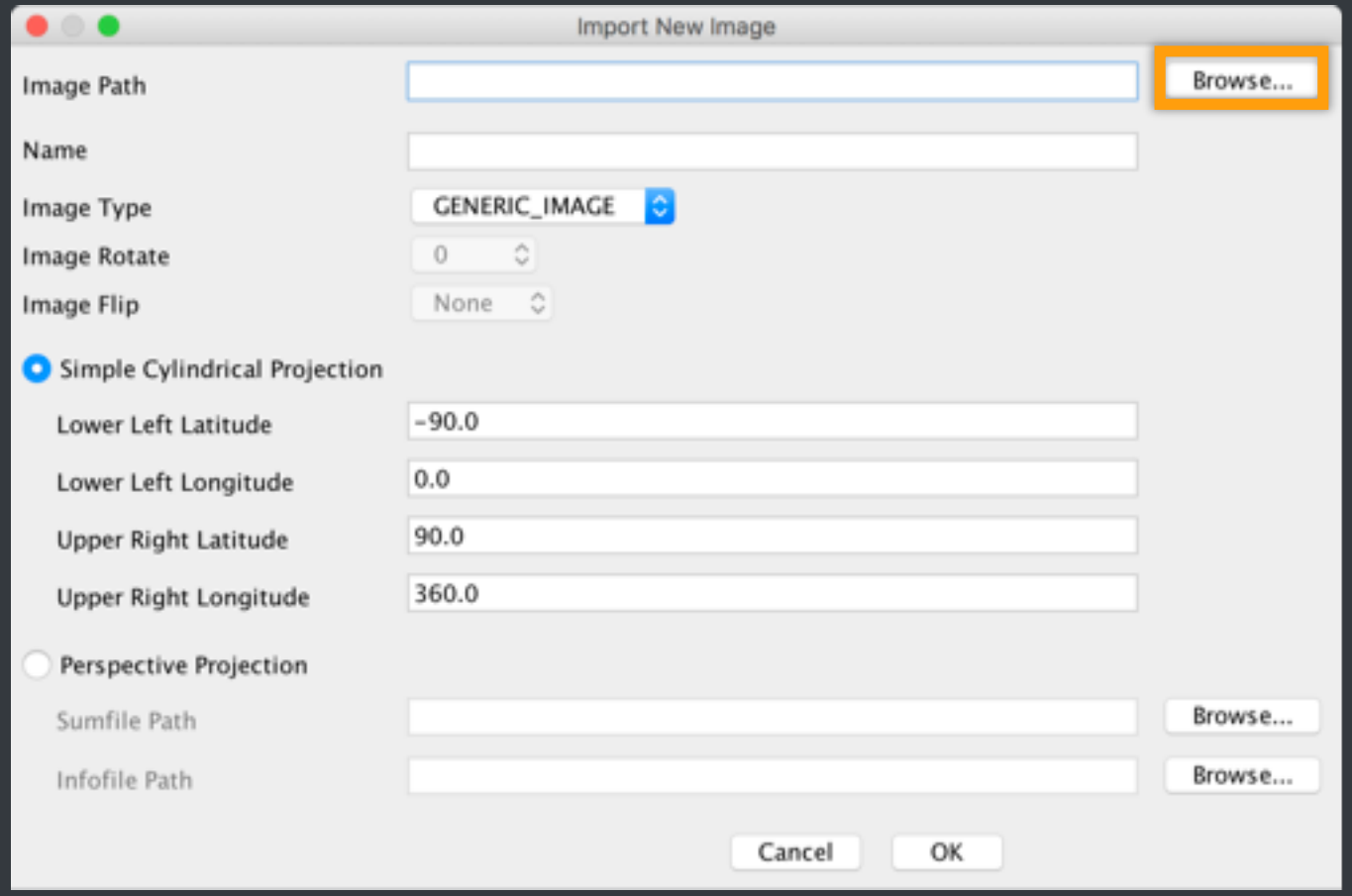
Adding custom images

- Users can import custom images for bodies that already exist in the SBMT (e.g., to visualize an image that the user has stretched or processed).
- Users can also import custom images to see images on bodies that the user imported as a custom shape model (see previous section of this tutorial).
- The process is the same in either case.

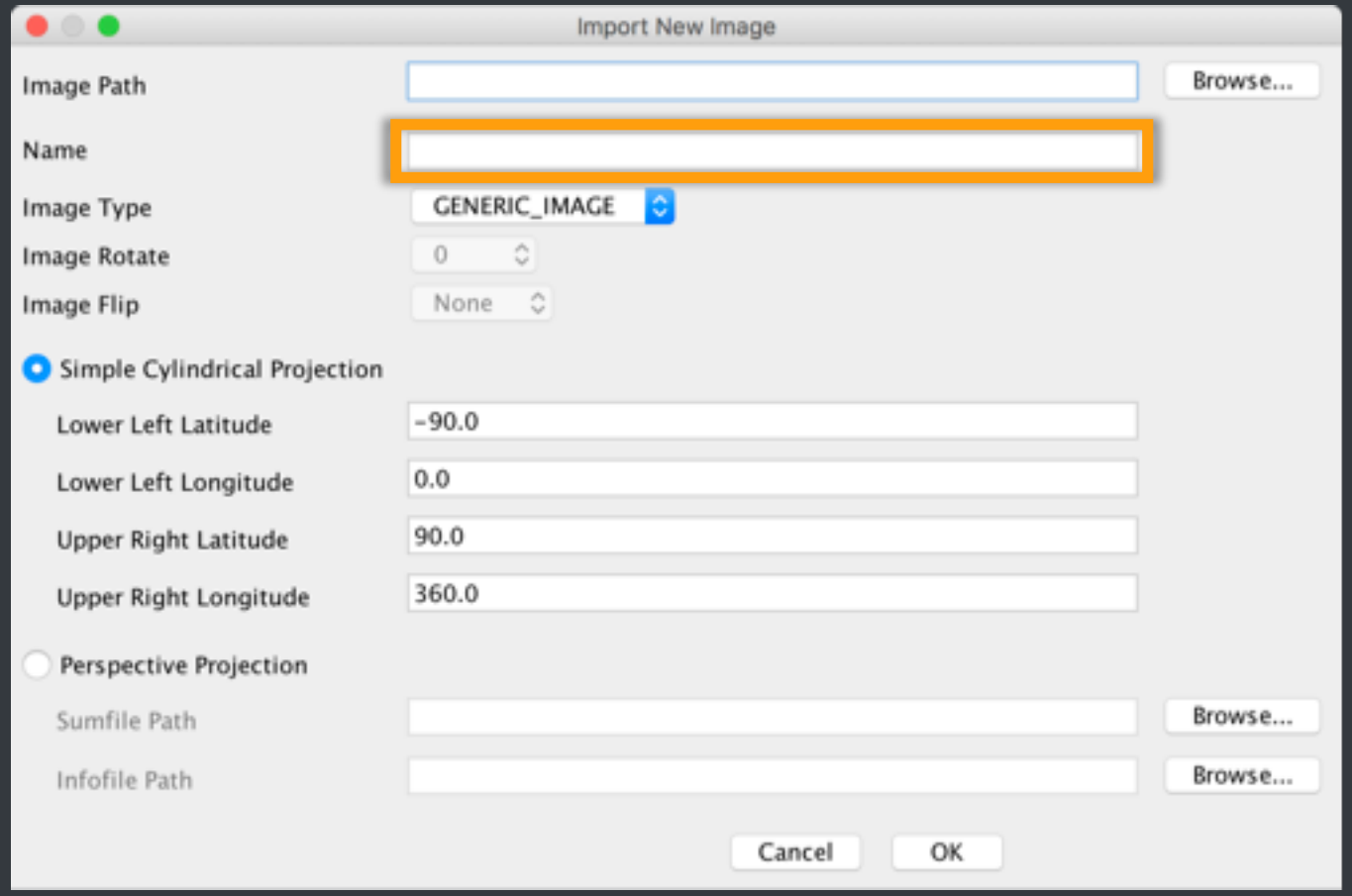

SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Tracks
Images
Band: 0
New...
Edit...
Move Up
Move Down
Delete from List
Remove All From View
Go to the “Custom Data” tab. It has two parts: images (for importing images) and tracks (for importing altimetry tracks).
Range: 608.637 km


SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Images
Band: 0
New...
Edit...
Move Up
Move Down
Delete from List
Remove All From View
Select “Images” to import an image.
Range: 608.637 km

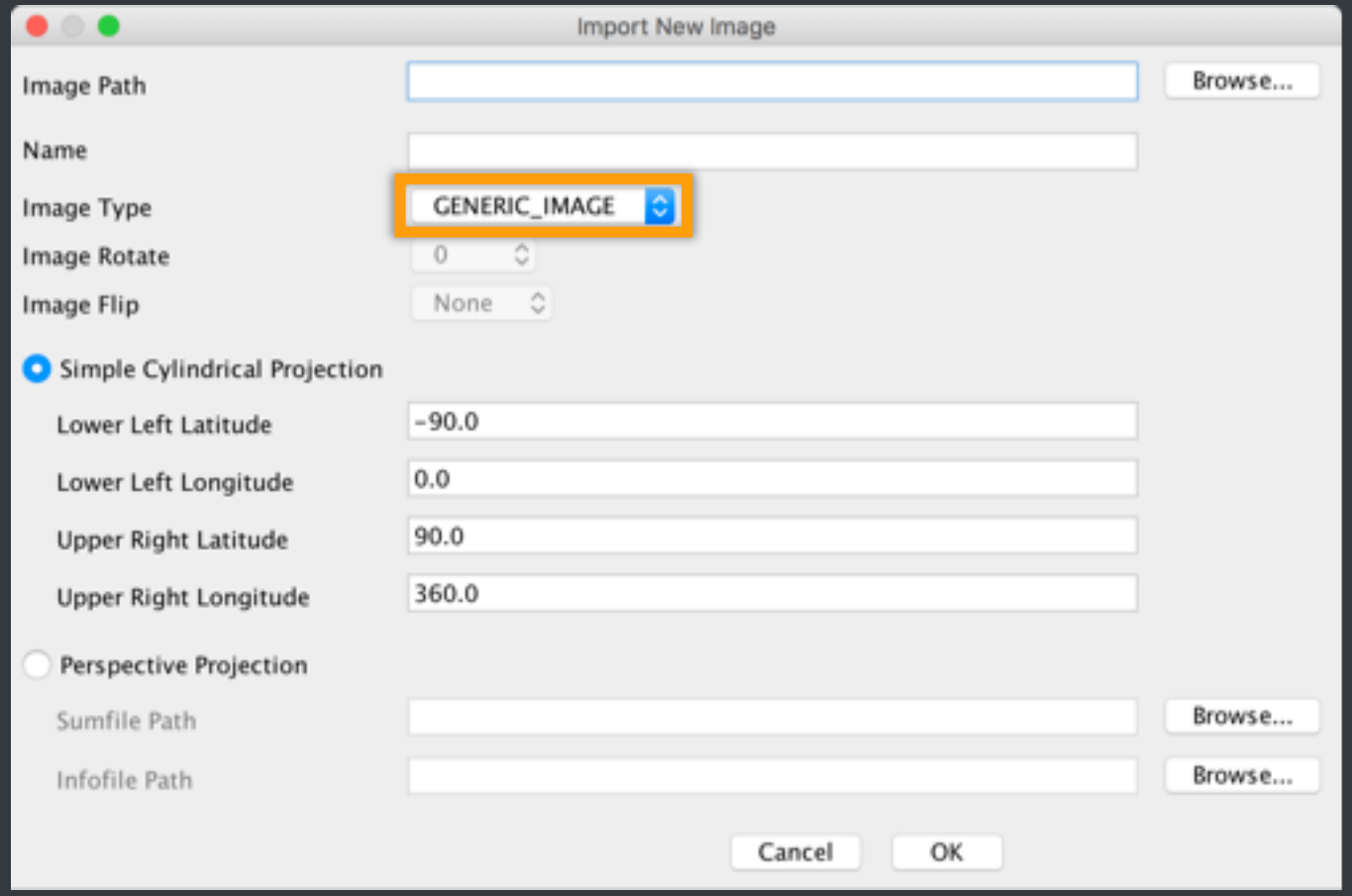

SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Tracks
Images
Band: 0
New...
Delete from List
Remove All From View
+X
-X
+Y
-Y
+Z
-Z
Click “New” to import a custom image.
This will open a dialog box (next slide).
Range: 608.637 km



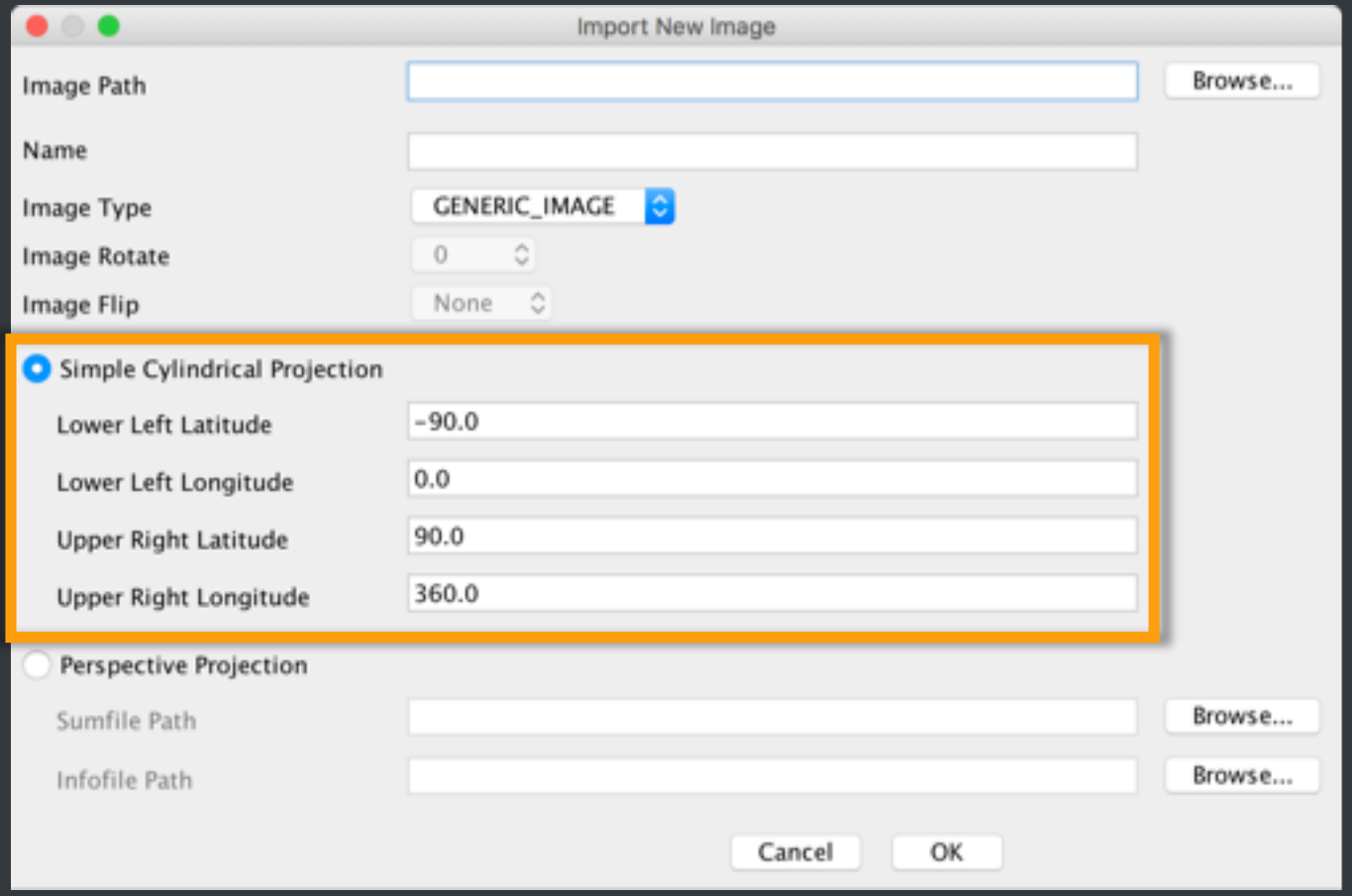
Click “Browse” and navigate to the image to be imported.



Give the image a name.

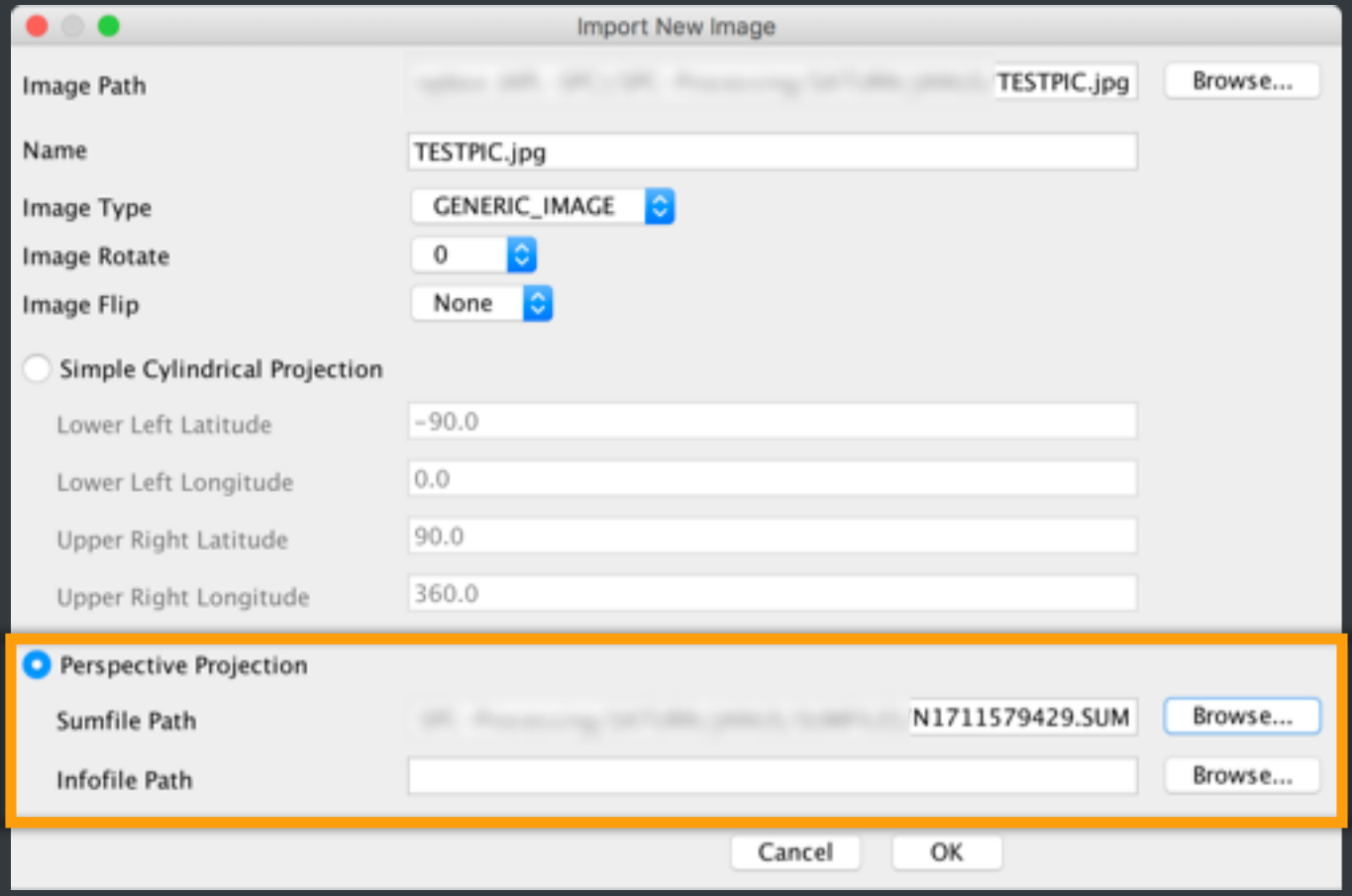


GENERIC_IMAGE is currently the only option. Users can import JPG or PNG files. Support for other file types may be forthcoming.



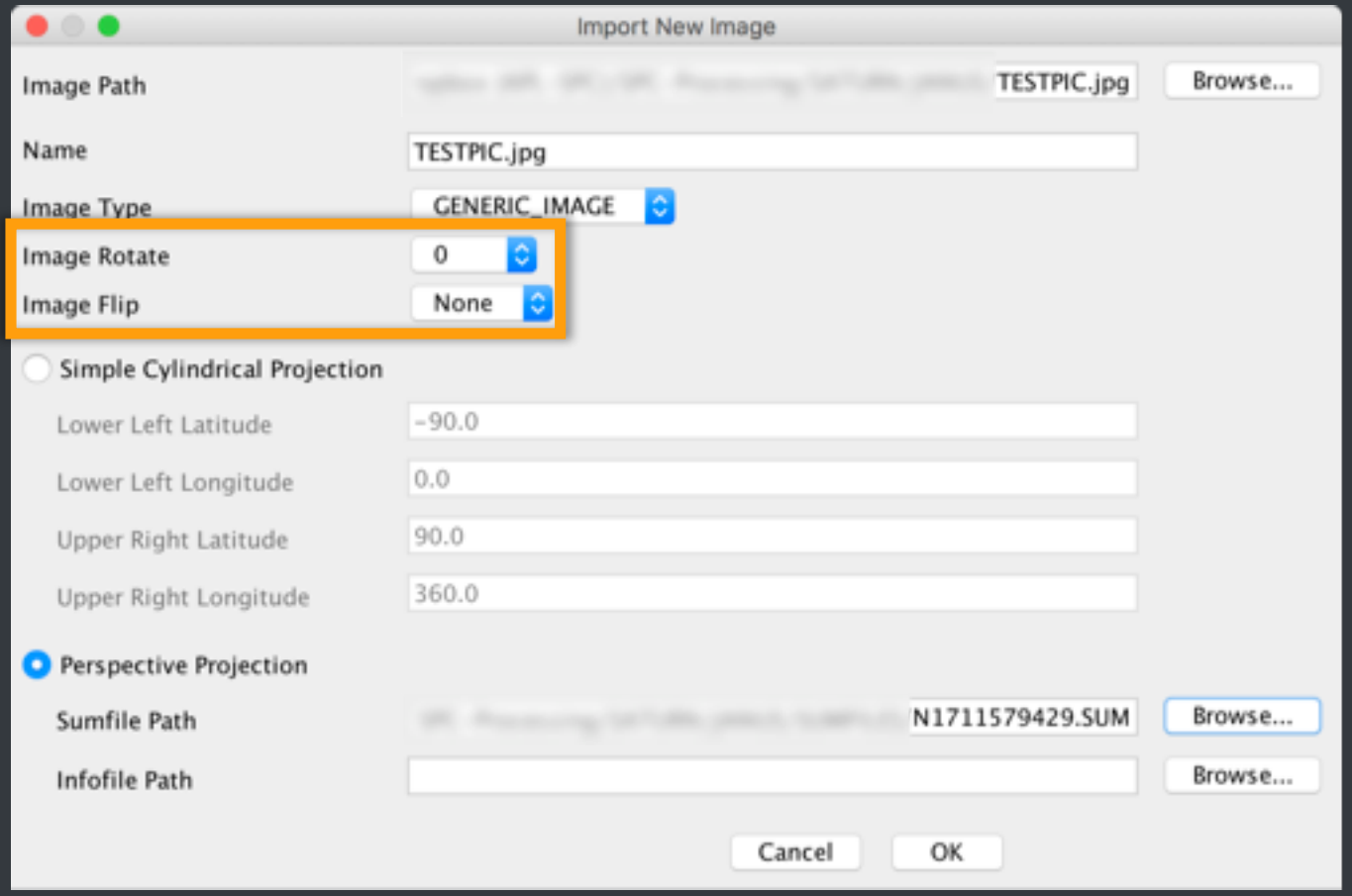
Users can choose to show the image using either a simple cylindrical projection or a perspective projection.

To use a simple cylindrical projection, ensure the image to be imported is in that projection. Then specify the latitude and longitude of two corners of the image, as requested.



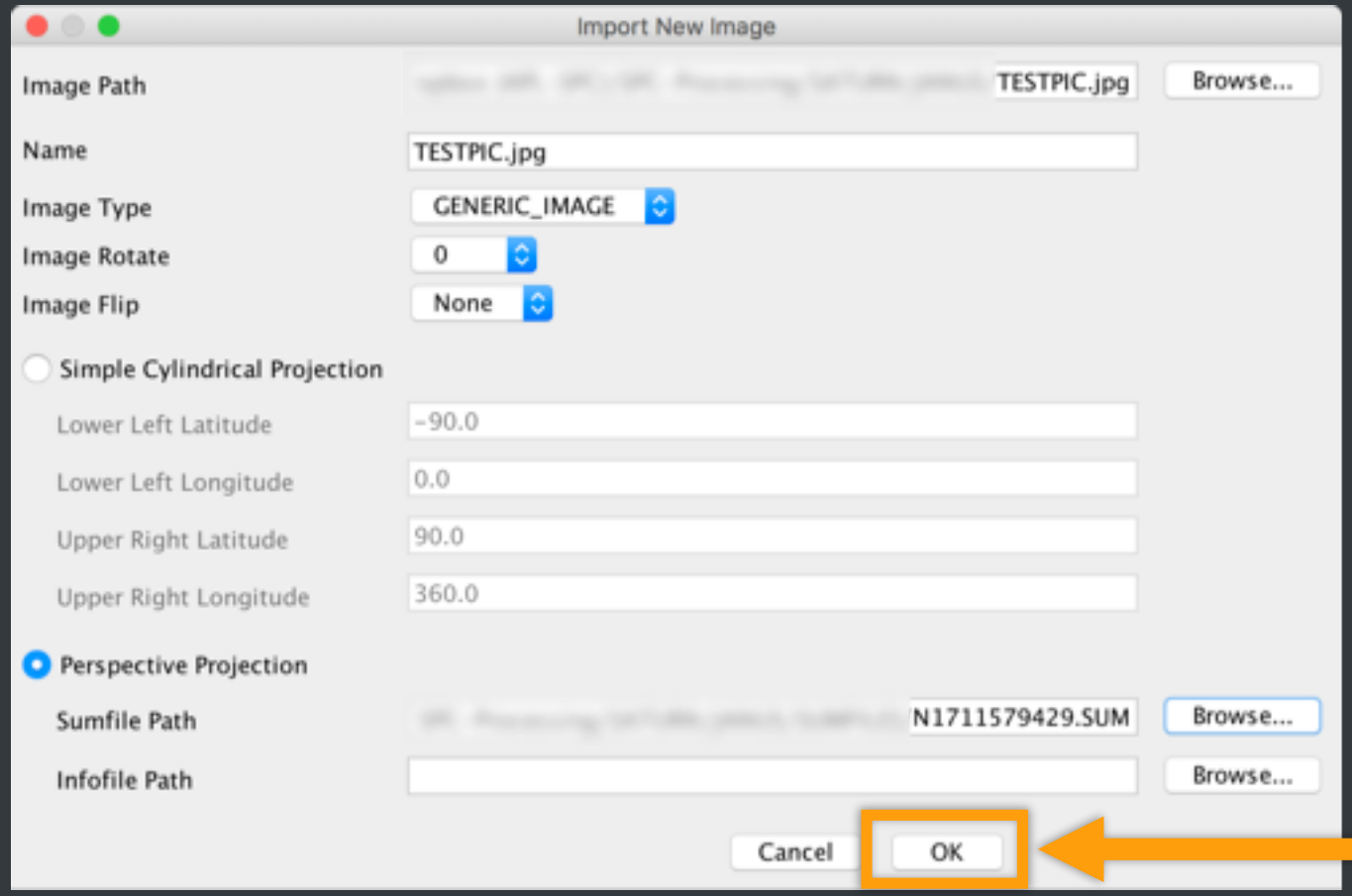
To use a perspective projection, the user must provide a file with pointing information. The SBMT accepts two types of files that contain such information: sumfiles and infofiles. Users need to provide one of these, not both.

Users can export an info file for any image already in the SBMT. Please see the “Searching for Data” tutorial for details.

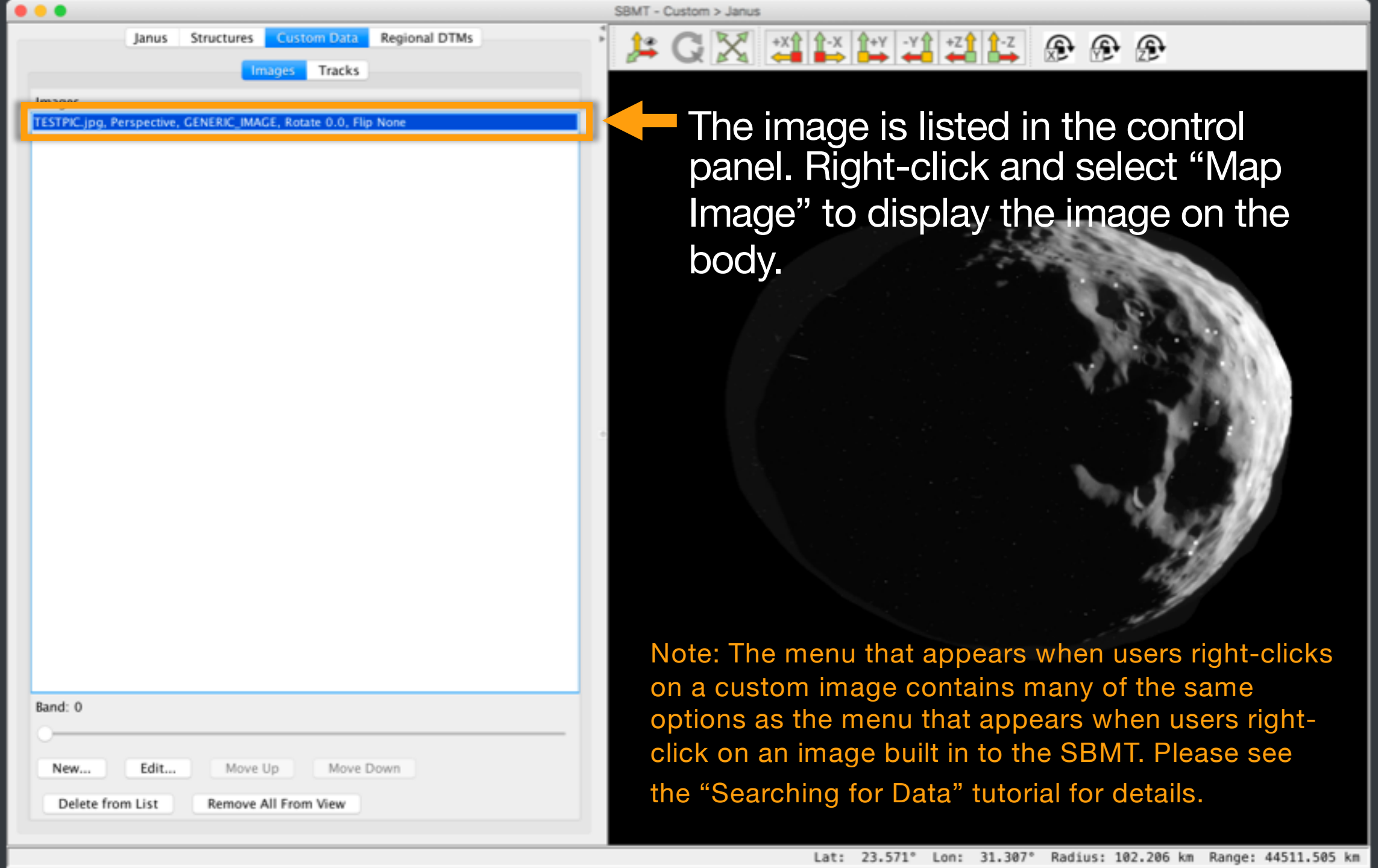


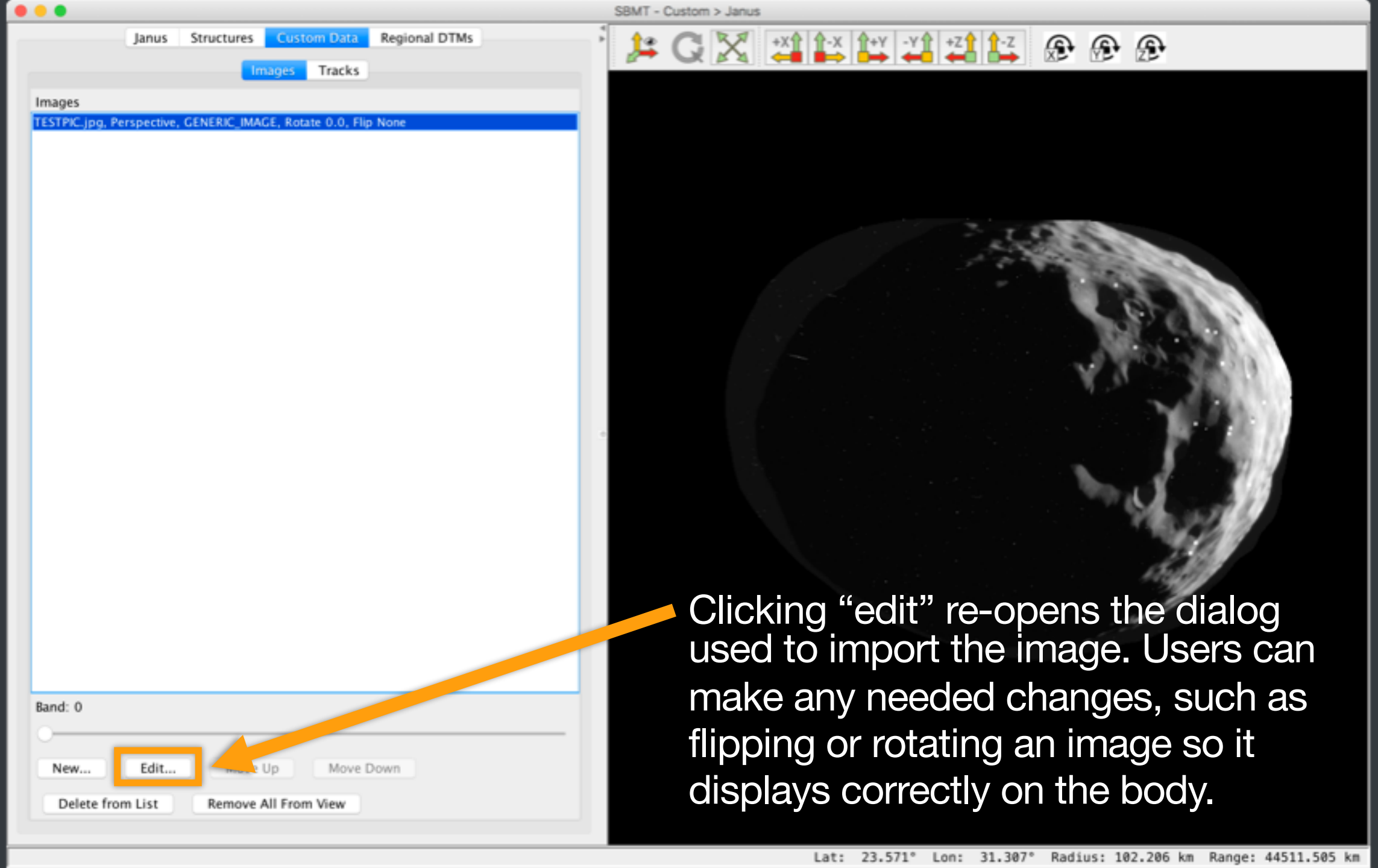
If the user chooses a perspective projection, the user can also specify an image rotation or flip, which in some cases may be needed in order for the image to display correctly on the body.

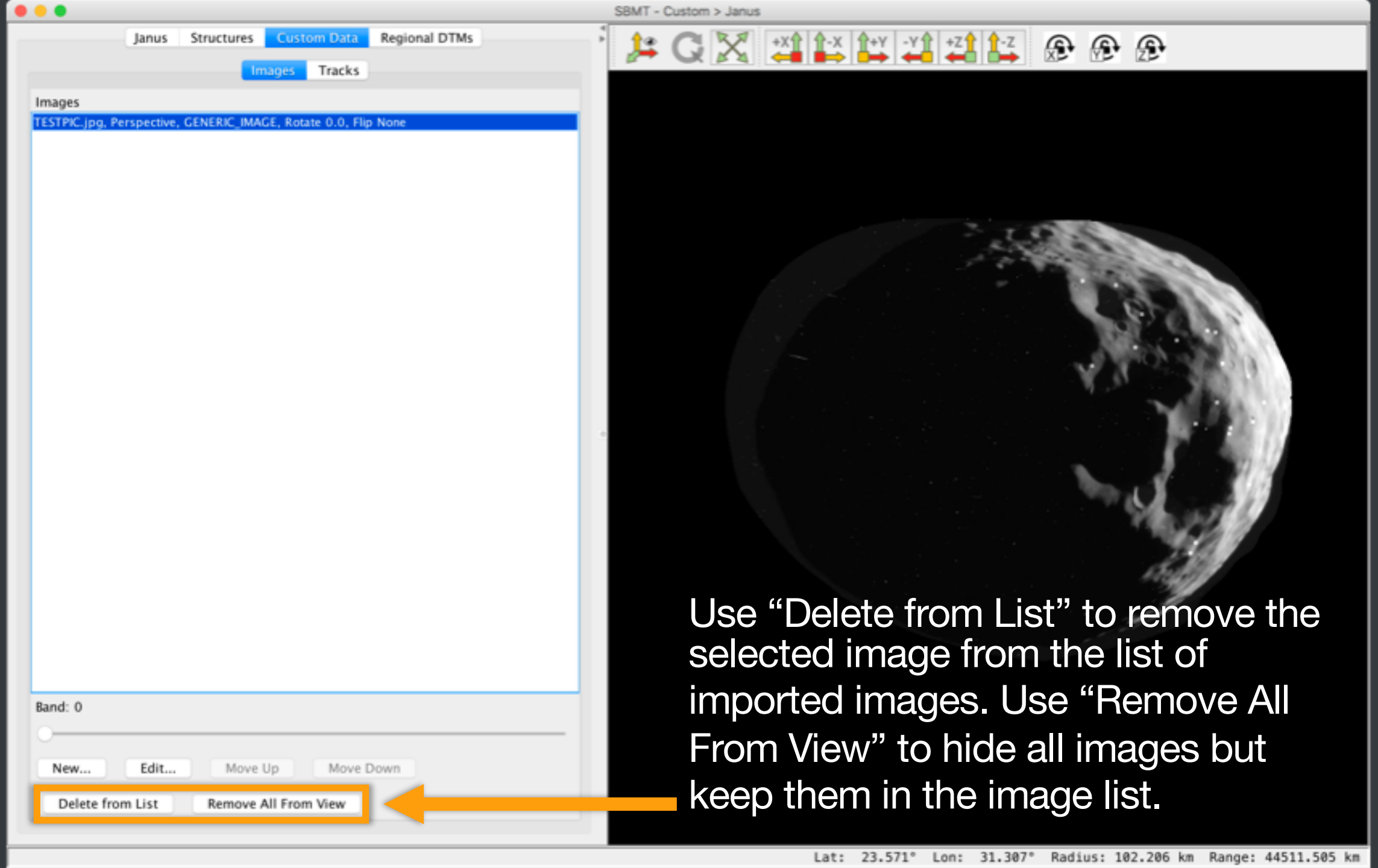
Leave these unchanged if unsure whether the image to be imported needs to be rotated or flipped.



Then click “OK”.


SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Tracks
TESTPIC.jpg, Perspective, GENERIC_IMAGE, Rotate 0.0, Flip None
Band: 0
New...
Edit...
Move Up
Move Down
Delete from List
Remove All From View
+X
-X
+Y
-Y
+Z
-Z
The image is listed in the control panel. Right-click and select “Map Image” to display the image on the body.
Note: The menu that appears when users right-clicks on a custom image contains many of the same options as the menu that appears when users right-click on an image built in to the SBMT. Please see the “Searching for Data” tutorial for details.
Lat: 23.571° Lon: 31.307° Radius: 102.206 km Range: 44511.505 km


SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Tracks
Images
TESTPIC.jpg, Perspective, GENERIC_IMAGE, Rotate 0.0, Flip None
Band: 0
New...
Edit...
Move Up
Move Down
Delete from List
Remove All From View
Clicking “edit” re-opens the dialog used to import the image. Users can make any needed changes, such as flipping or rotating an image so it displays correctly on the body.
Lat: 23.571° Lon: 31.307° Radius: 102.206 km Range: 44511.505 km

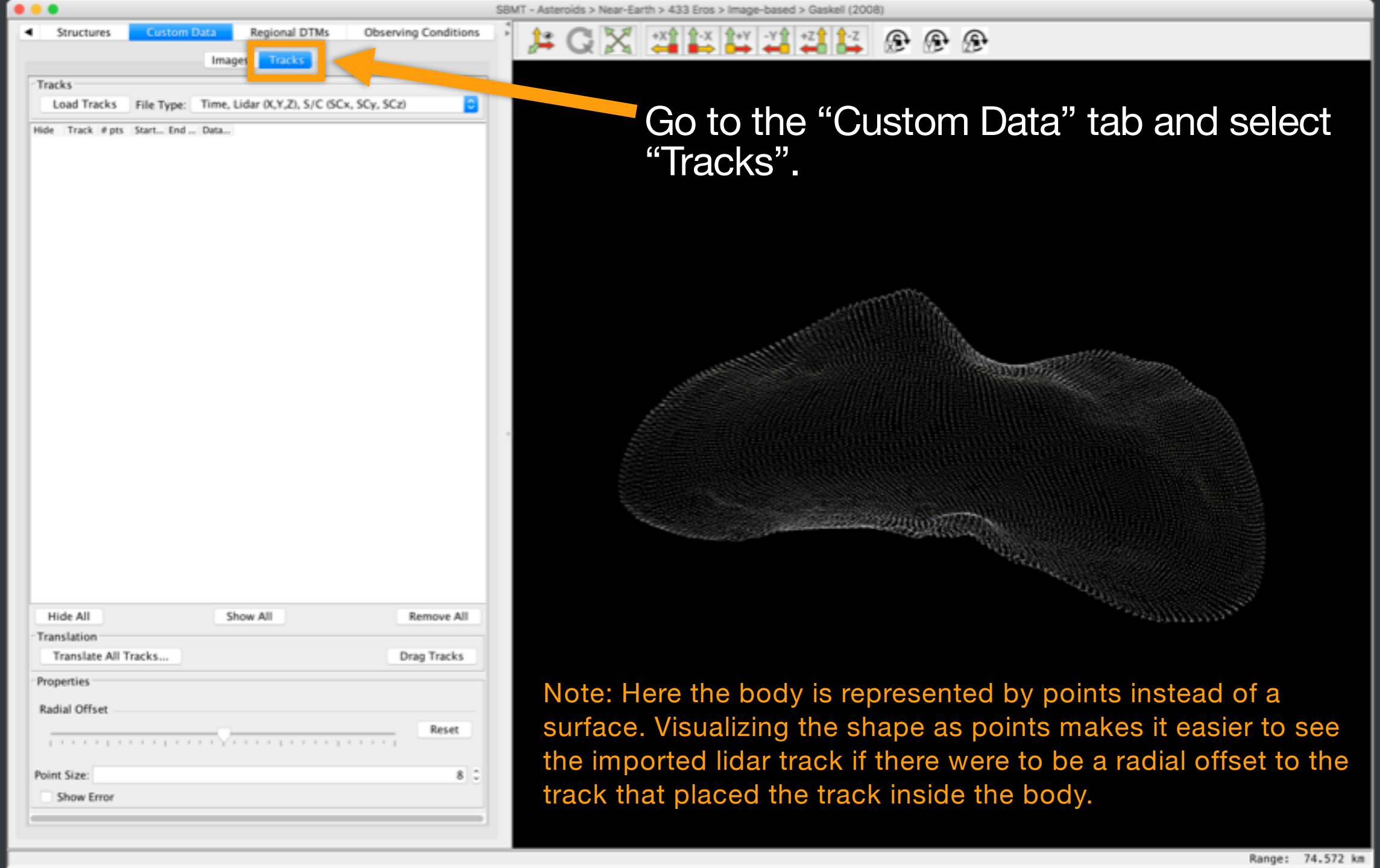

SBMT - Custom > Janus
Janus
Structures
Custom Data
Regional DTMs
Images
Tracks
Images
TESTPIC.jpg, Perspective, GENERIC_IMAGE, Rotate 0.0, Flip None
Band: 0
New...
Edit...
Move Up
Move Down
Delete from List
Remove All From View
Use “Delete from List” to remove the selected image from the list of imported images. Use “Remove All From View” to hide all images but keep them in the image list.
Lat: 23.571° Lon: 31.307° Radius: 102.206 km Range: 44511.505 km

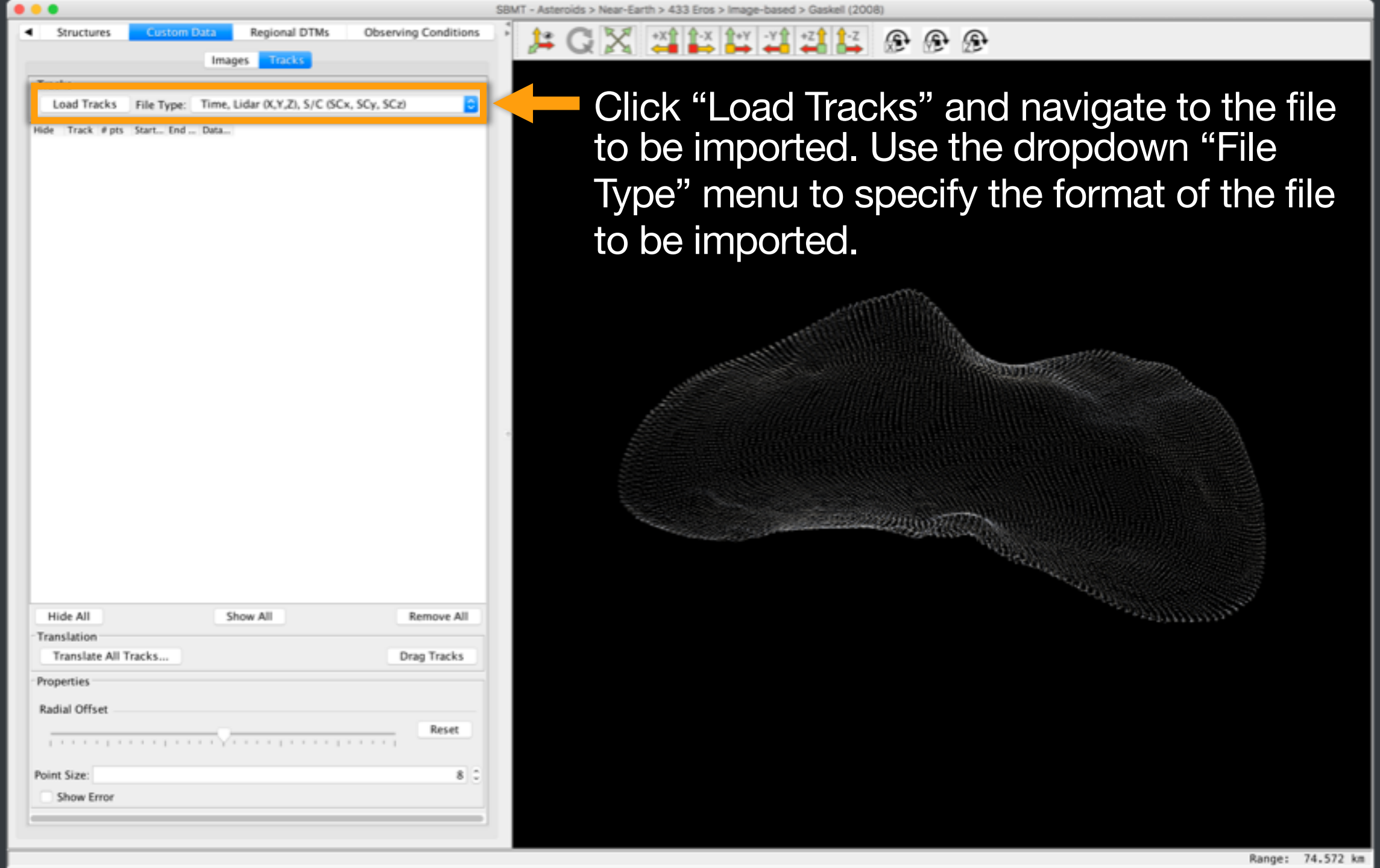
This SBMT tutorial explains how to:

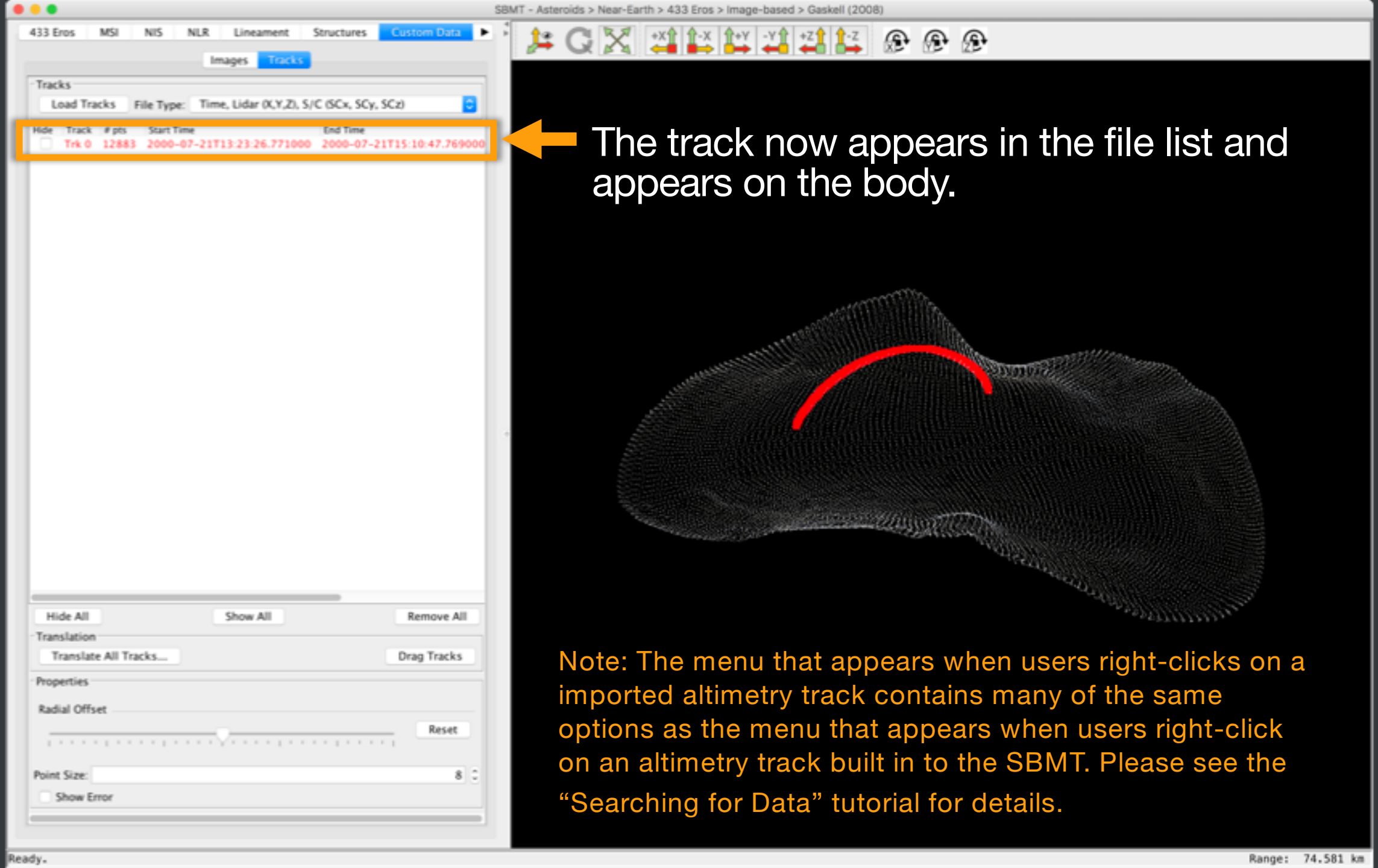
- Import a custom shape model.
- Import custom images.
- Import custom altimetry tracks.

Importing custom altimetry tracks

- Users can import custom altimetry tracks for bodies that already exist in the SBMT (e.g., to load a track that the user has processed in some way).
- Users can also import for custom bodies created using the “Import Custom Bodies...” feature.
- The process is the same in either case.

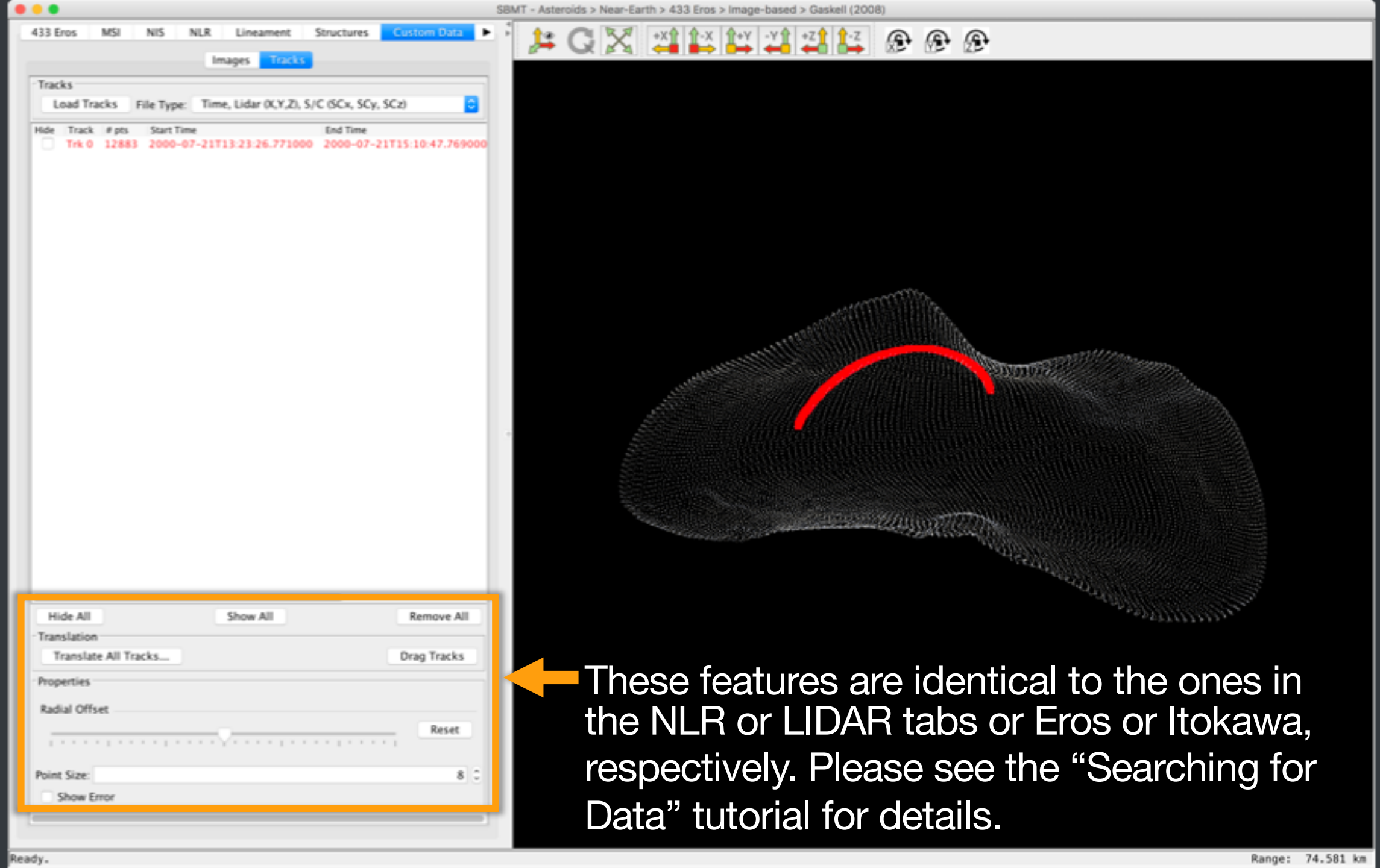

SBMT - Asteroids > Near-Earth > 433 Eros > Image-based > Gaskell (2008)
Structures
Custom Data
Regional DTMs
Observing Conditions
Images
Tracks
Tracks
Load Tracks
File Type:
Time, Lidar (X,Y,Z), S/C (SCx, SCy, SCz)
Hide
Track
pts
Start...
End ...
Data...
Hide All
Show All
Remove All
Translation
Translate All Tracks...
Drag Tracks
Properties
Radial Offset
Reset
Point Size:
8
Show Error
Go to the “Custom Data” tab and select “Tracks”.
Note: Here the body is represented by points instead of a surface. Visualizing the shape as points makes it easier to see the imported lidar track if there were to be a radial offset to the track that placed the track inside the body.
Range: 74.572 km


SBMT - Asteroids > Near-Earth > 433 Eros > Image-based > Gaskell (2008)
Structures
Custom Data
Regional DTMs
Observing Conditions
Images
Tracks
Load Tracks
File Type:
Time, Lidar (X,Y,Z), S/C (SCx, SCy, SCz)
Hide
Track
pts
Start...
End ...
Data...
Hide All
Show All
Remove All
Translation
Translate All Tracks...
Drag Tracks
Properties
Radial Offset
Reset
Point Size:
8
Show Error
Click “Load Tracks” and navigate to the file to be imported. Use the dropdown “File Type” menu to specify the format of the file to be imported.
Range: 74.572 km



The track now appears in the file list and appears on the body.

Note: The menu that appears when users right-clicks on a imported altimetry track contains many of the same options as the menu that appears when users right-click on an altimetry track built in to the SBMT. Please see the "Searching for Data" tutorial for details.



These features are identical to the ones in the NLR or LIDAR tabs or Eros or Itokawa, respectively. Please see the “Searching for Data” tutorial for details.

SBMT

For more information, visit sbmt.jhuapl.edu.

JOHNS HOPKINS
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