3D Data Loading and Visualization

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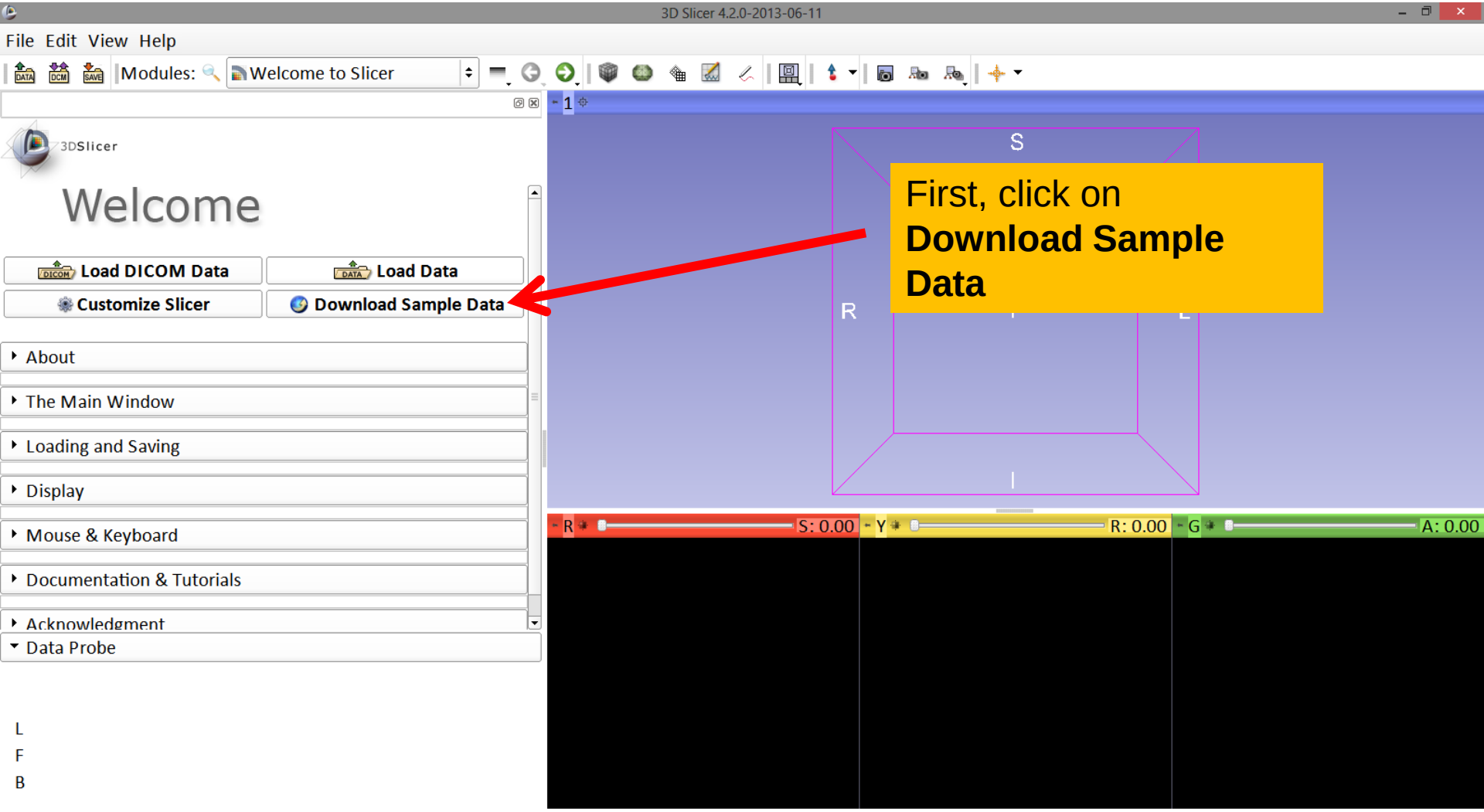
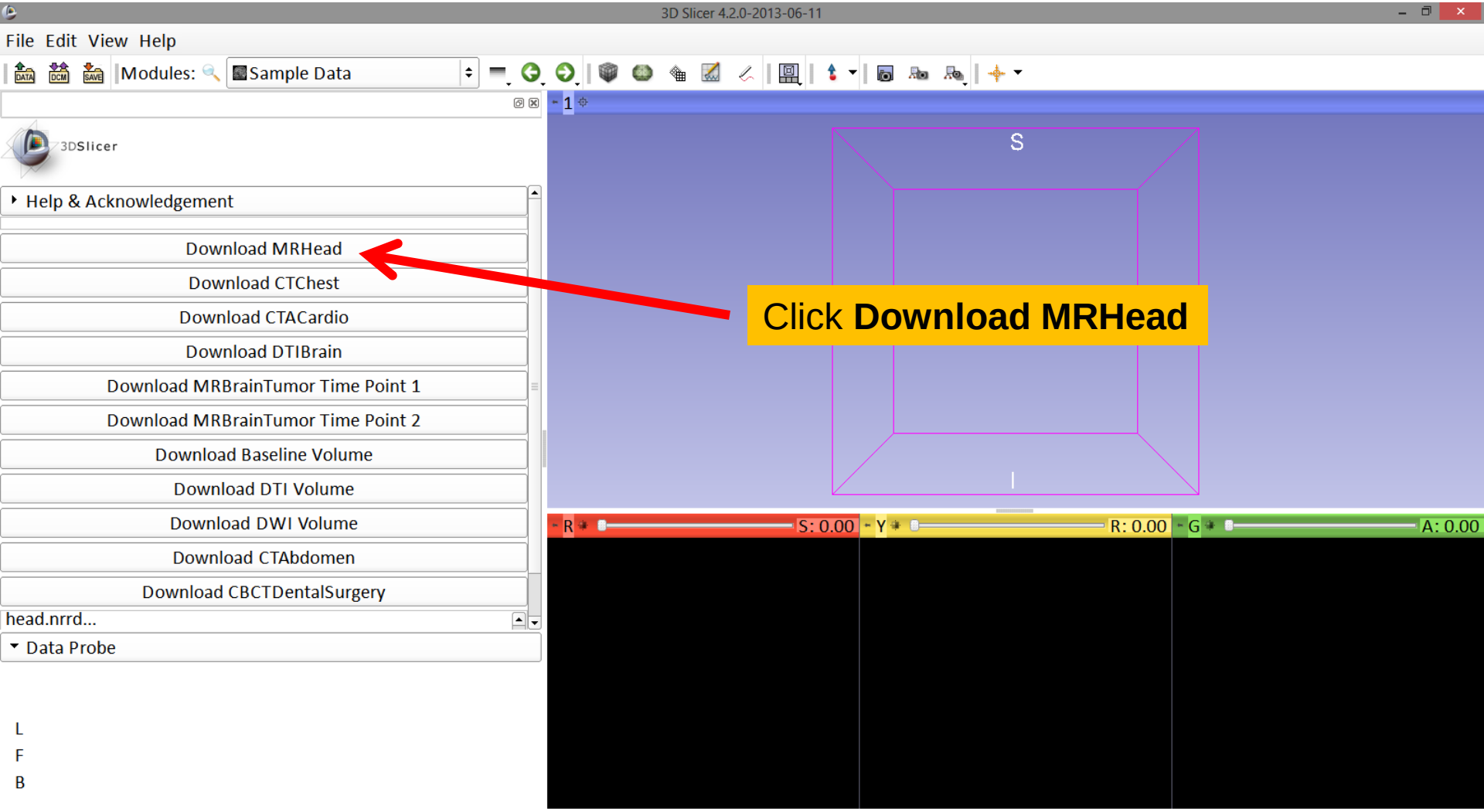
Surgical Planning Laboratory

Harvard University

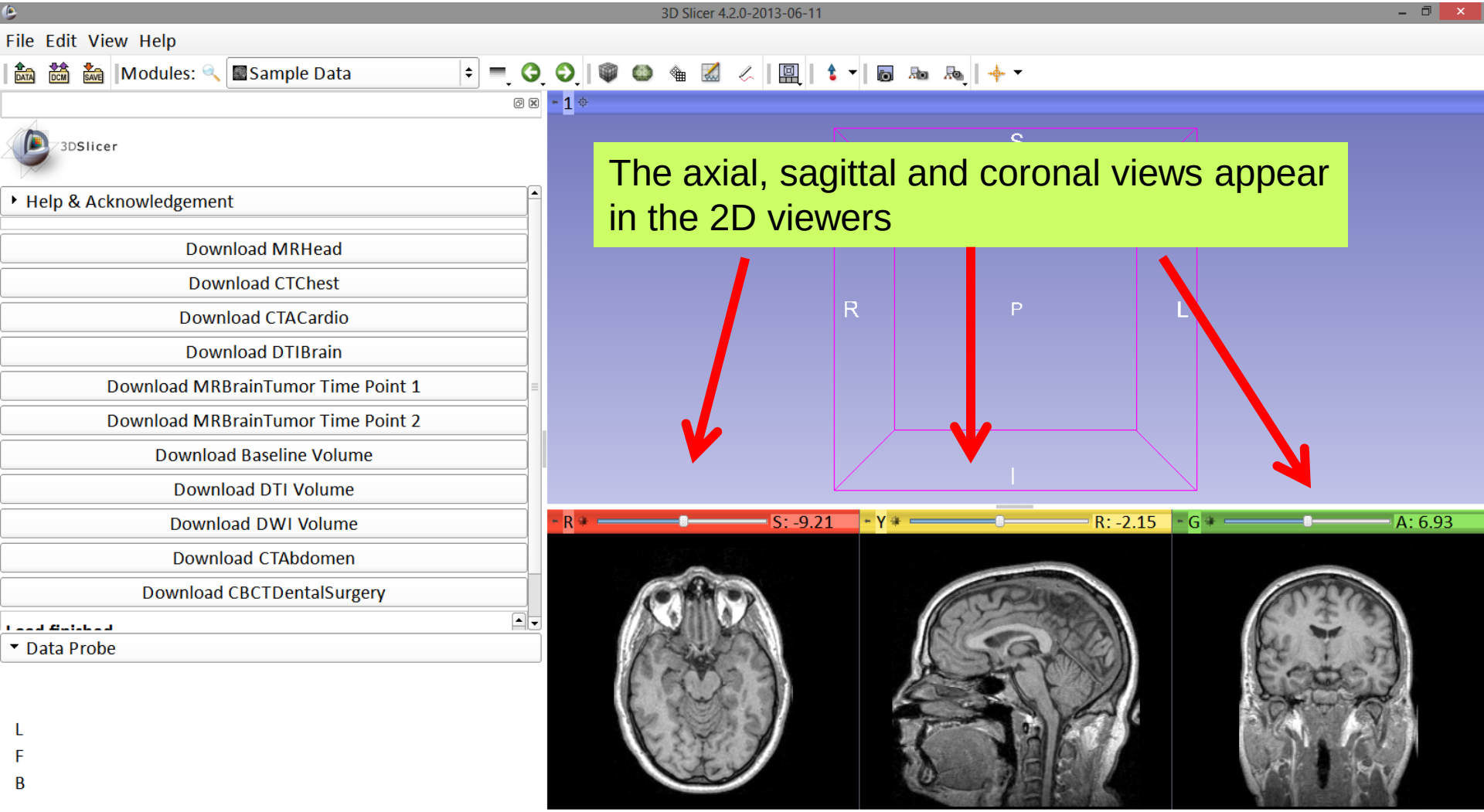
Loading a volume



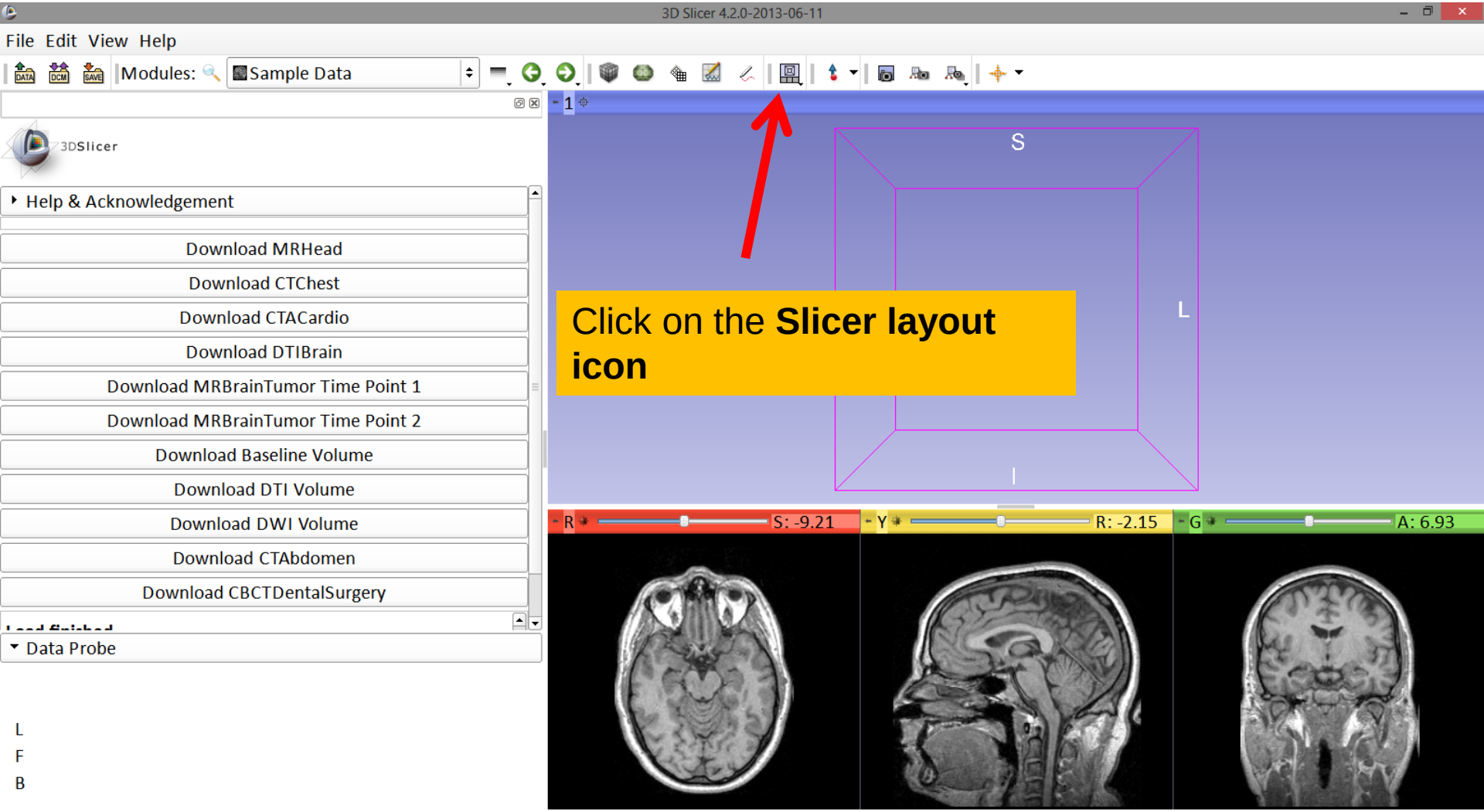
Loading a volume



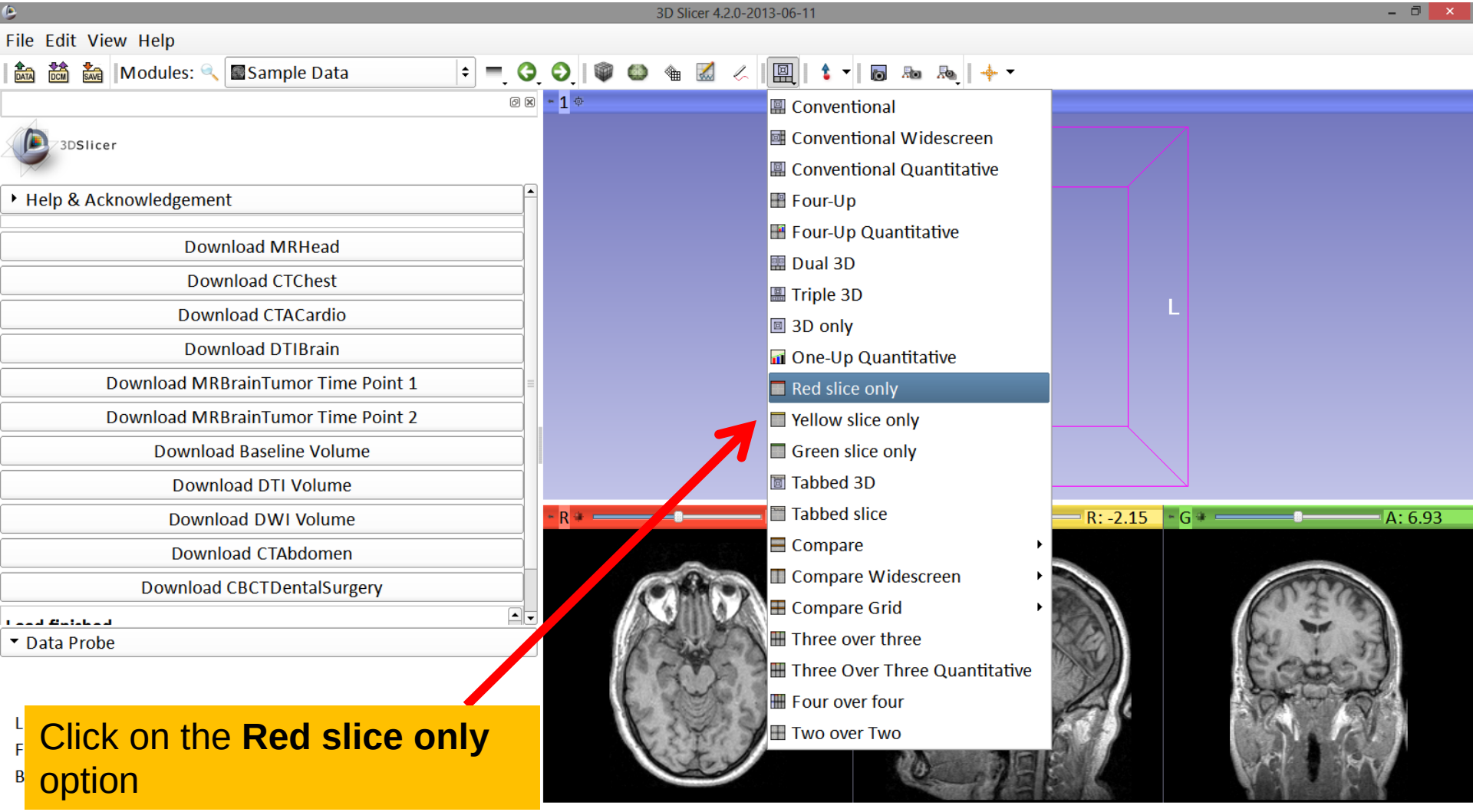
Loading a volume



Loading a volume

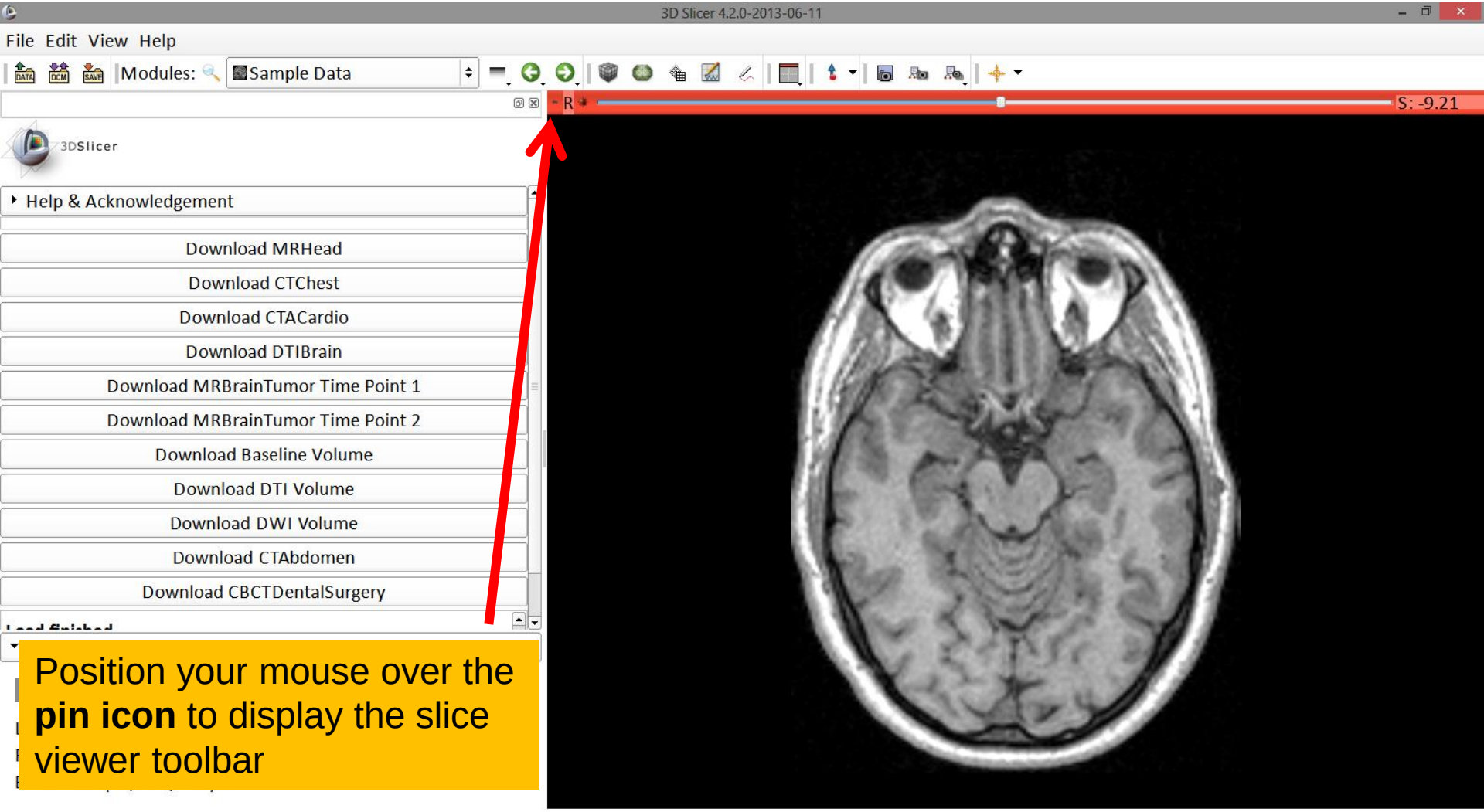


Loading a volume

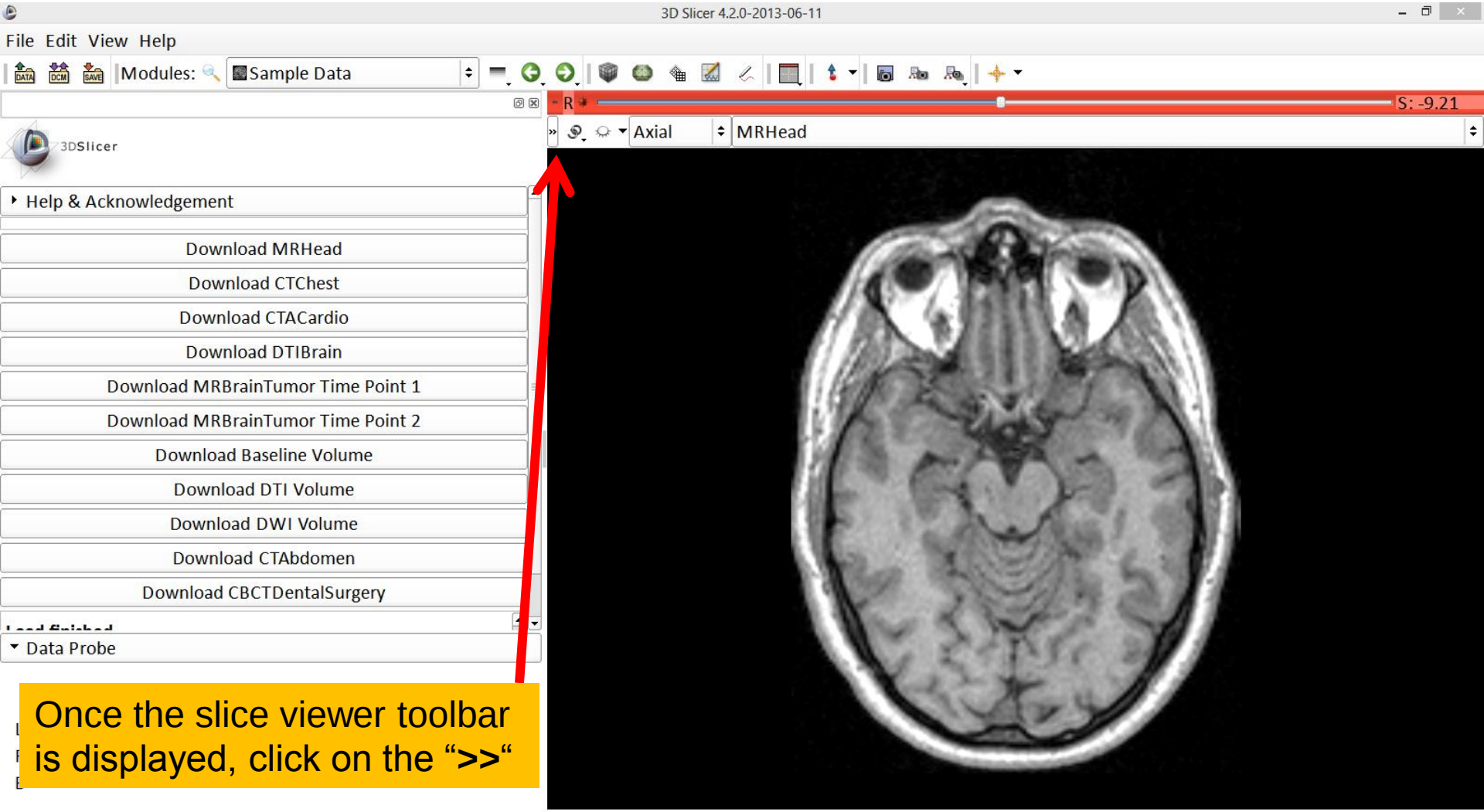


Click on the **Red slice only** option

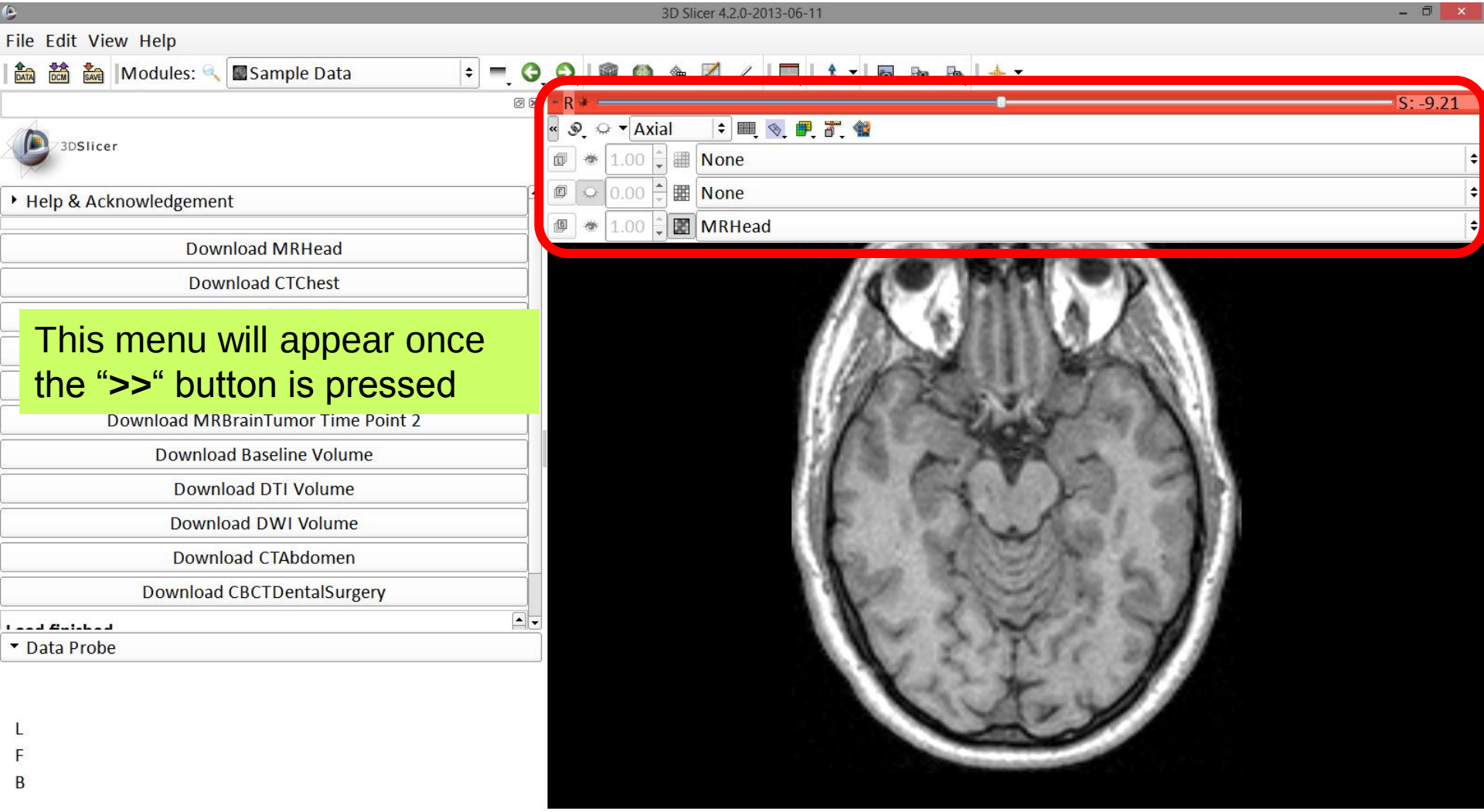
Loading a volume



Loading a volume

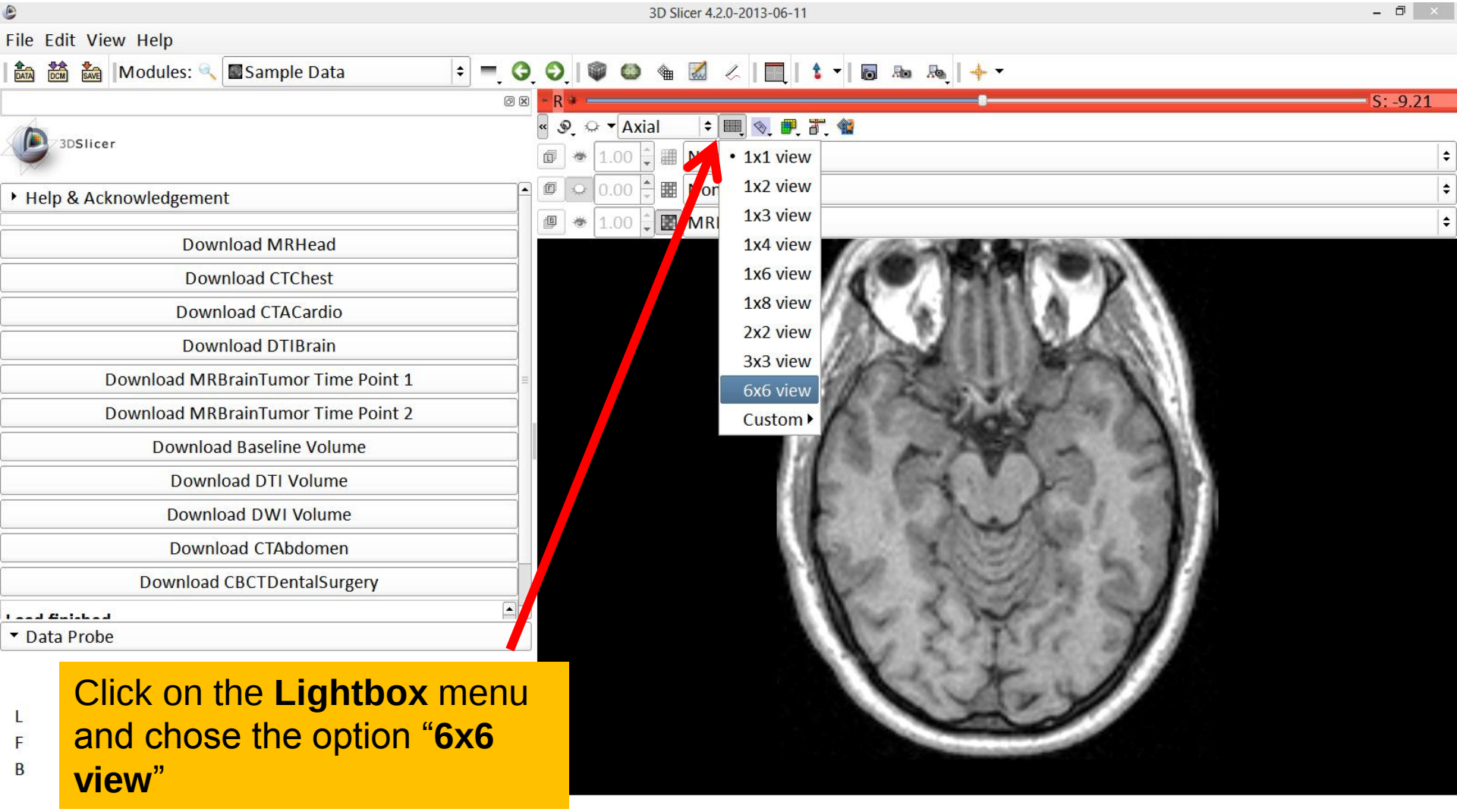


Loading a volume



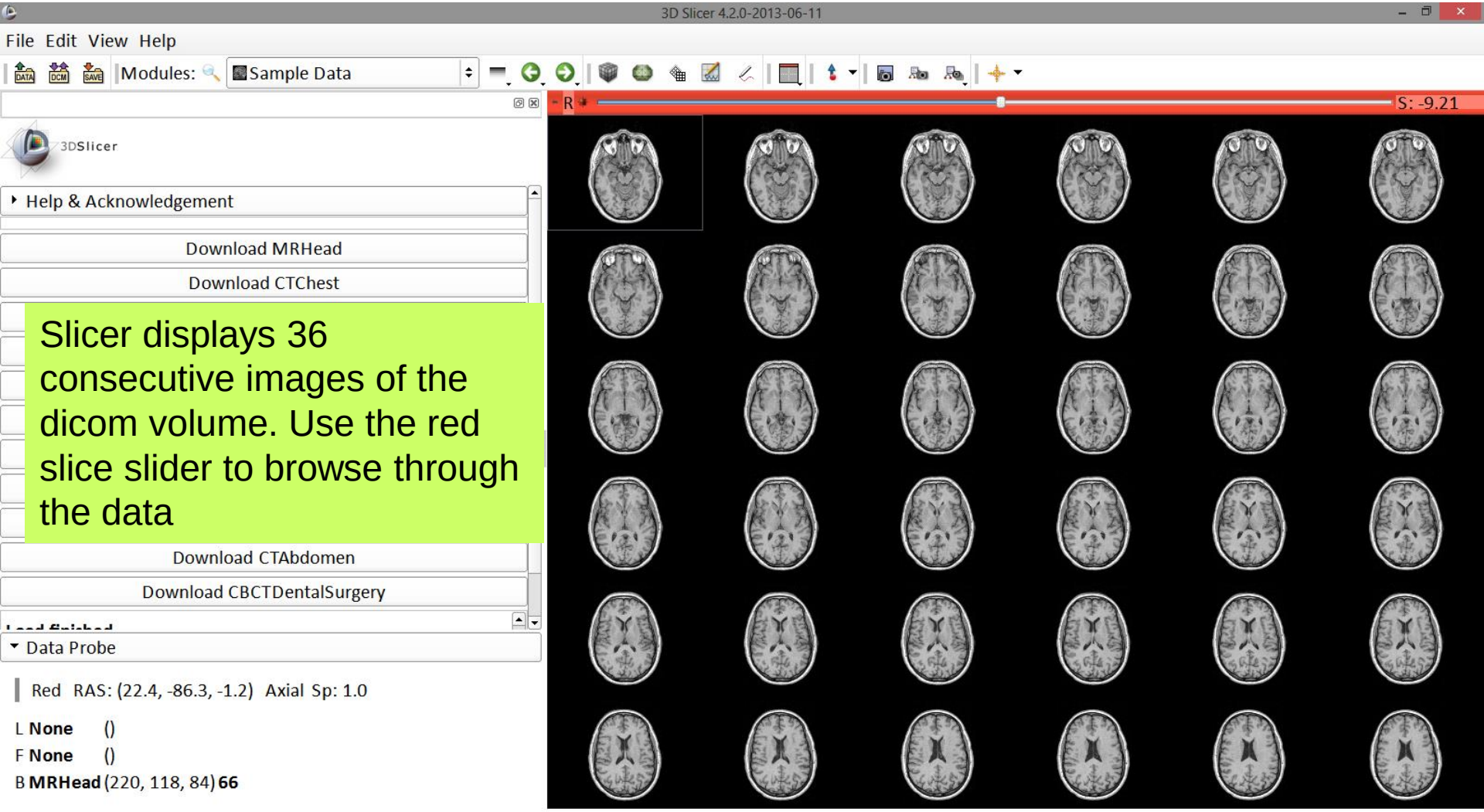
This menu will appear once the "**>>**" button is pressed

Loading a volume



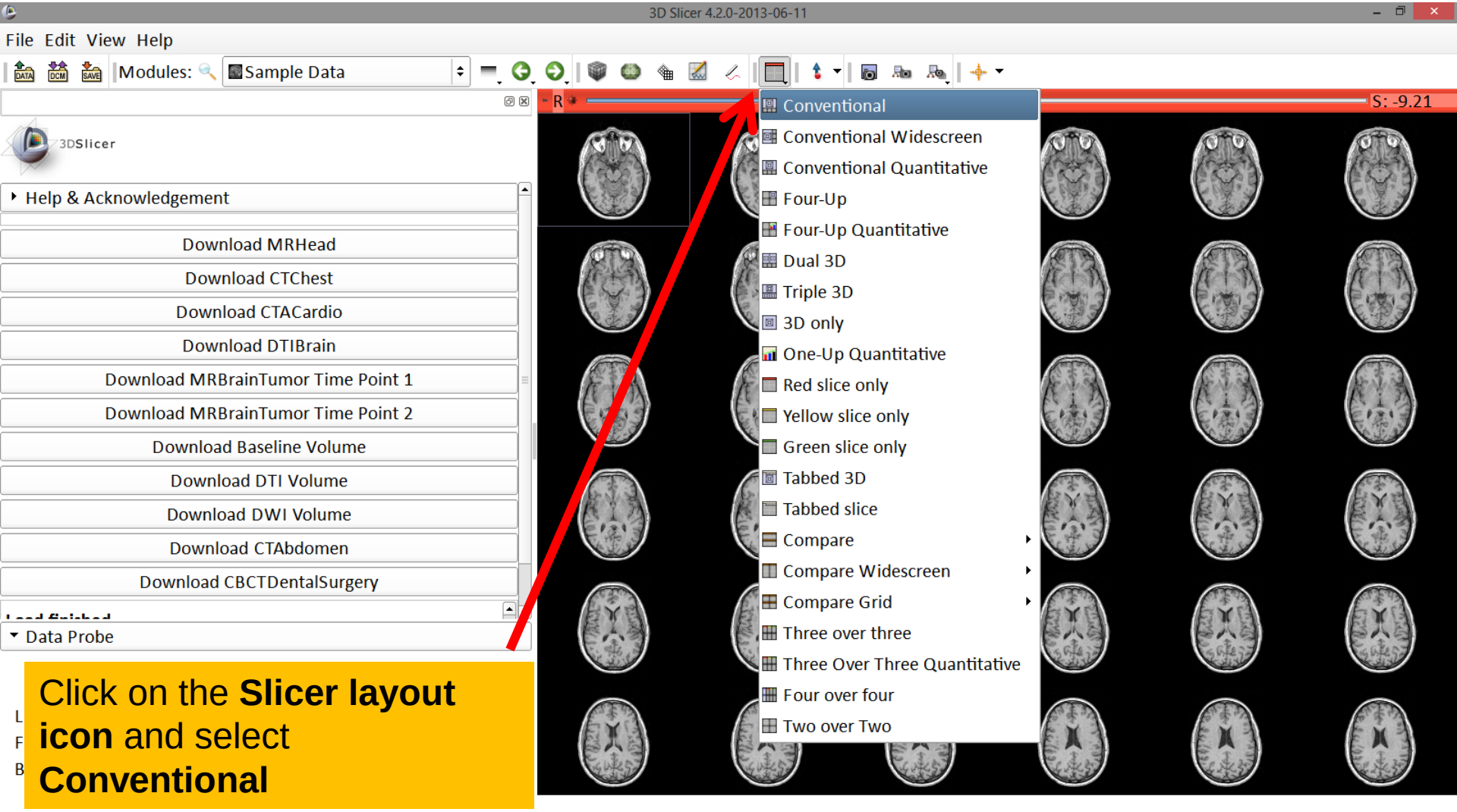
Click on the **Lightbox** menu and chose the option "**6x6 view**"

Loading a volume



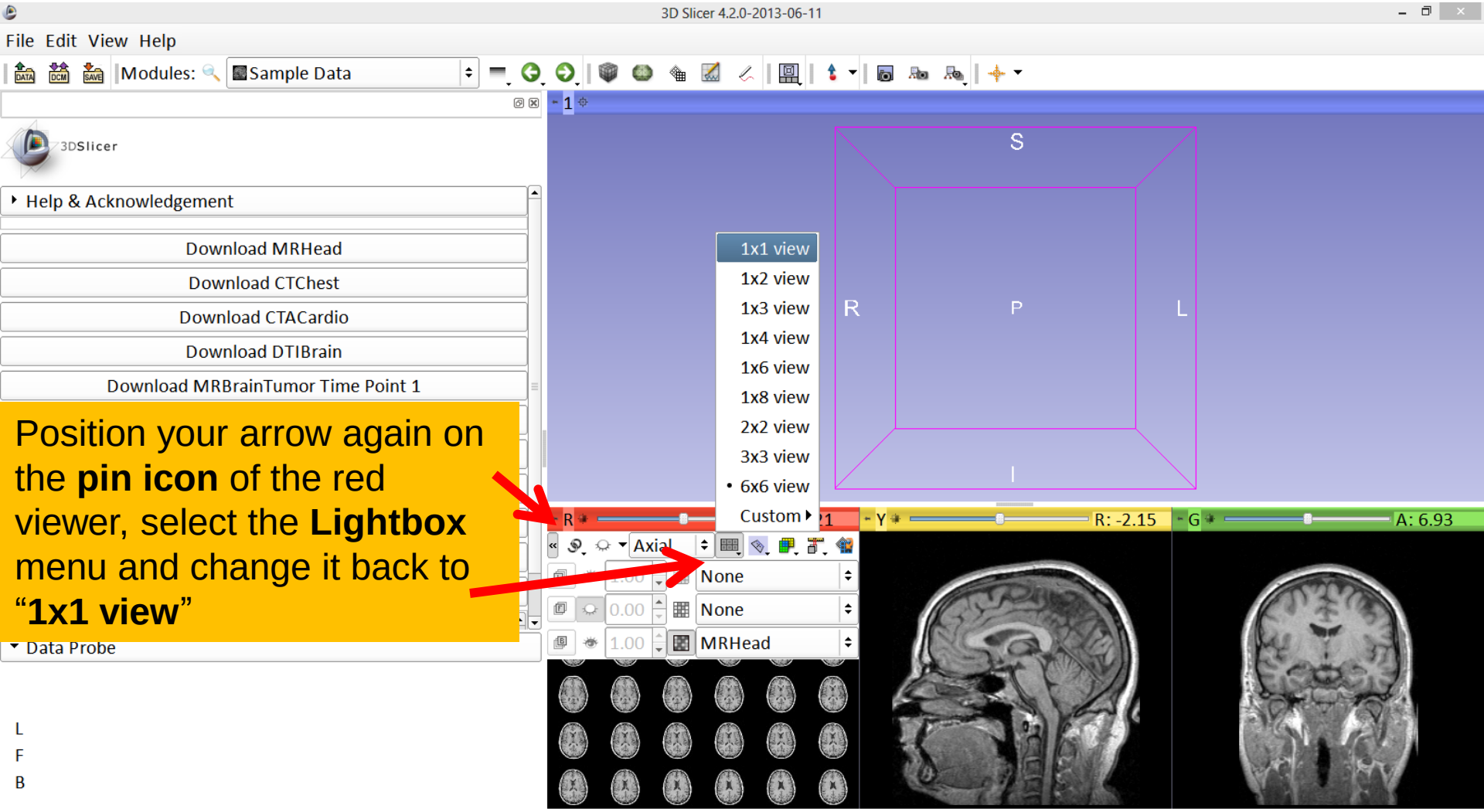
Slicer displays 36 consecutive images of the dicom volume. Use the red slice slider to browse through the data

Loading a volume



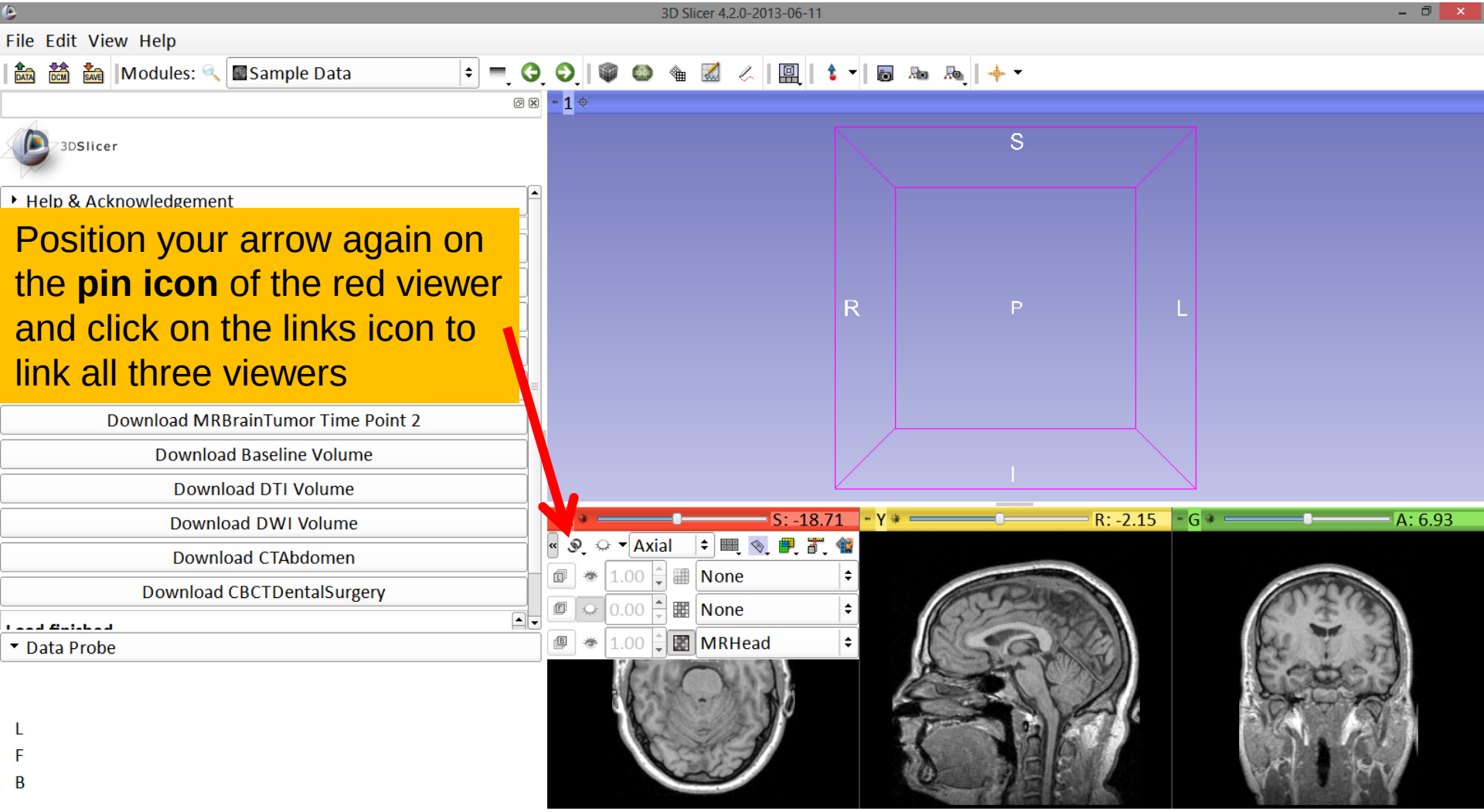
Click on the **Slicer layout icon** and select **Conventional**

Loading a volume

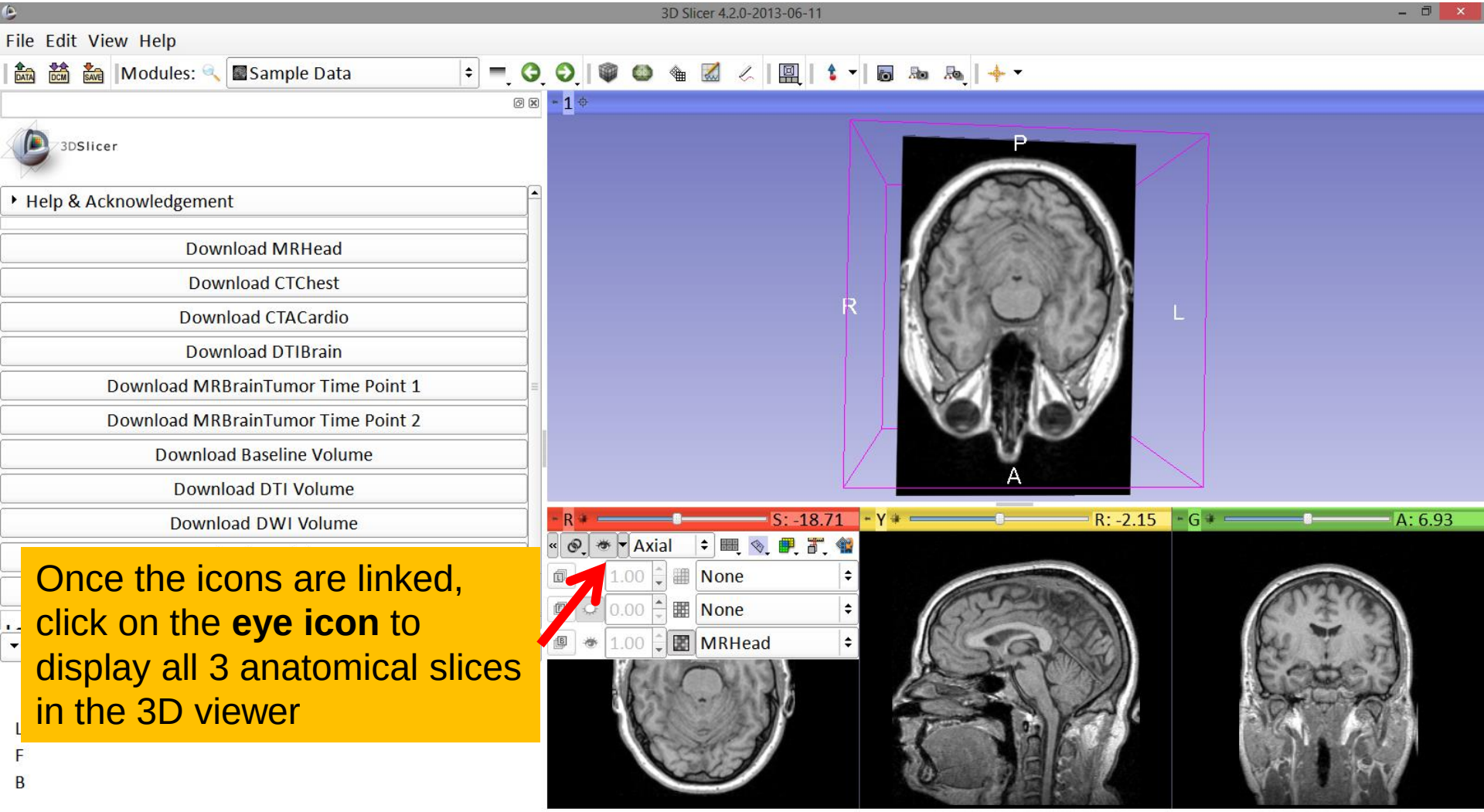


Position your arrow again on the **pin icon** of the red viewer, select the **Lightbox** menu and change it back to "**1x1 view**"

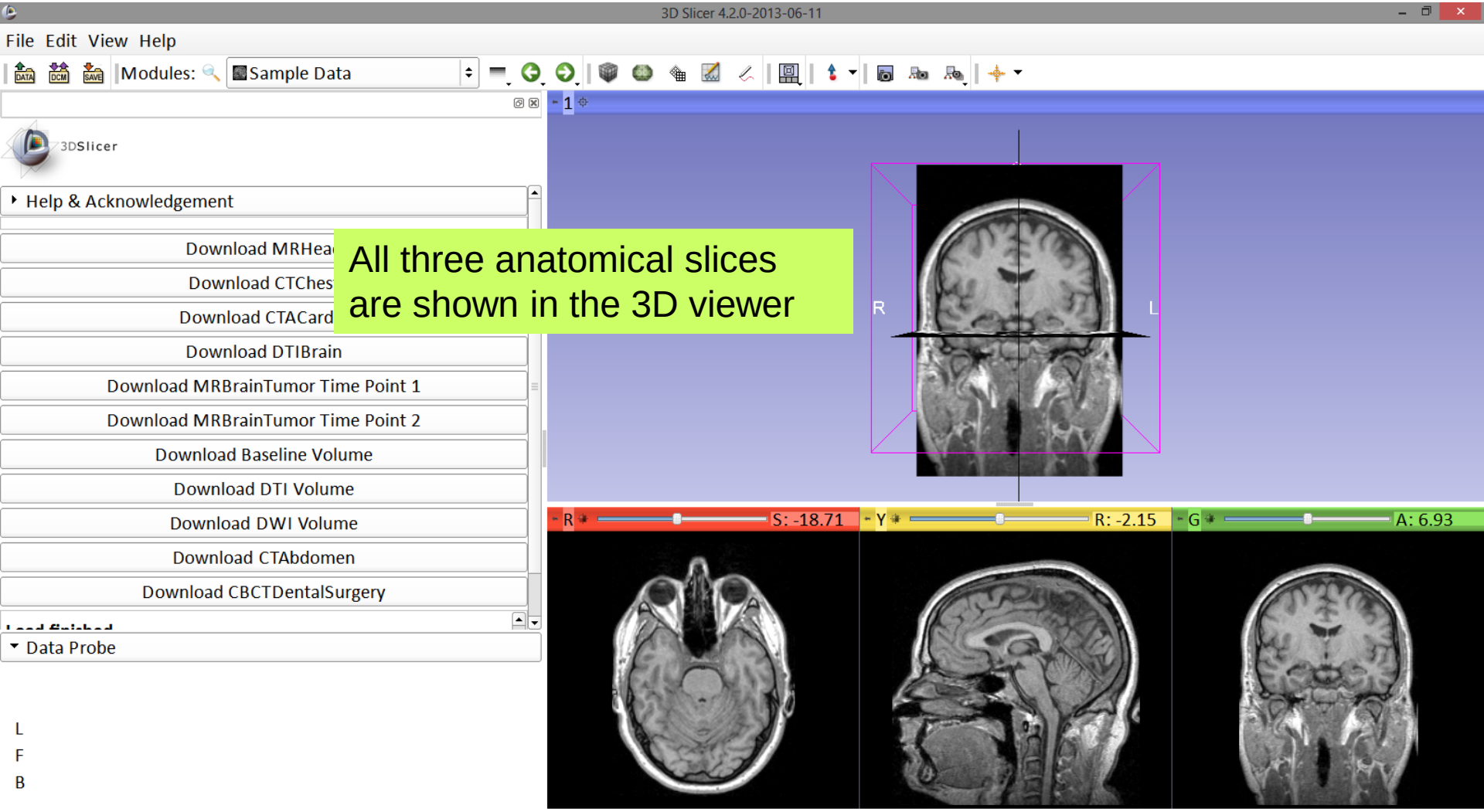
Loading a volume



Loading a volume

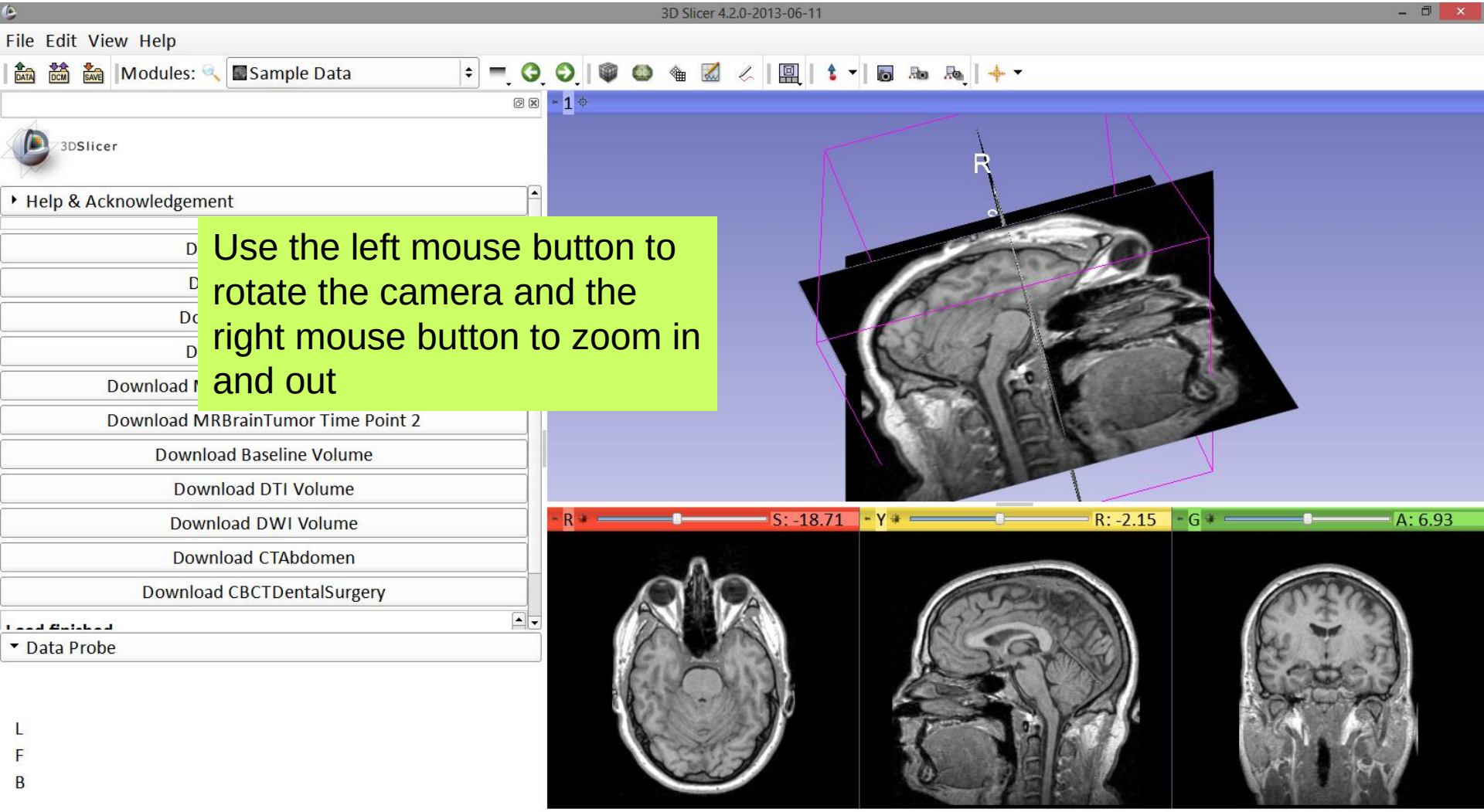


Loading a volume



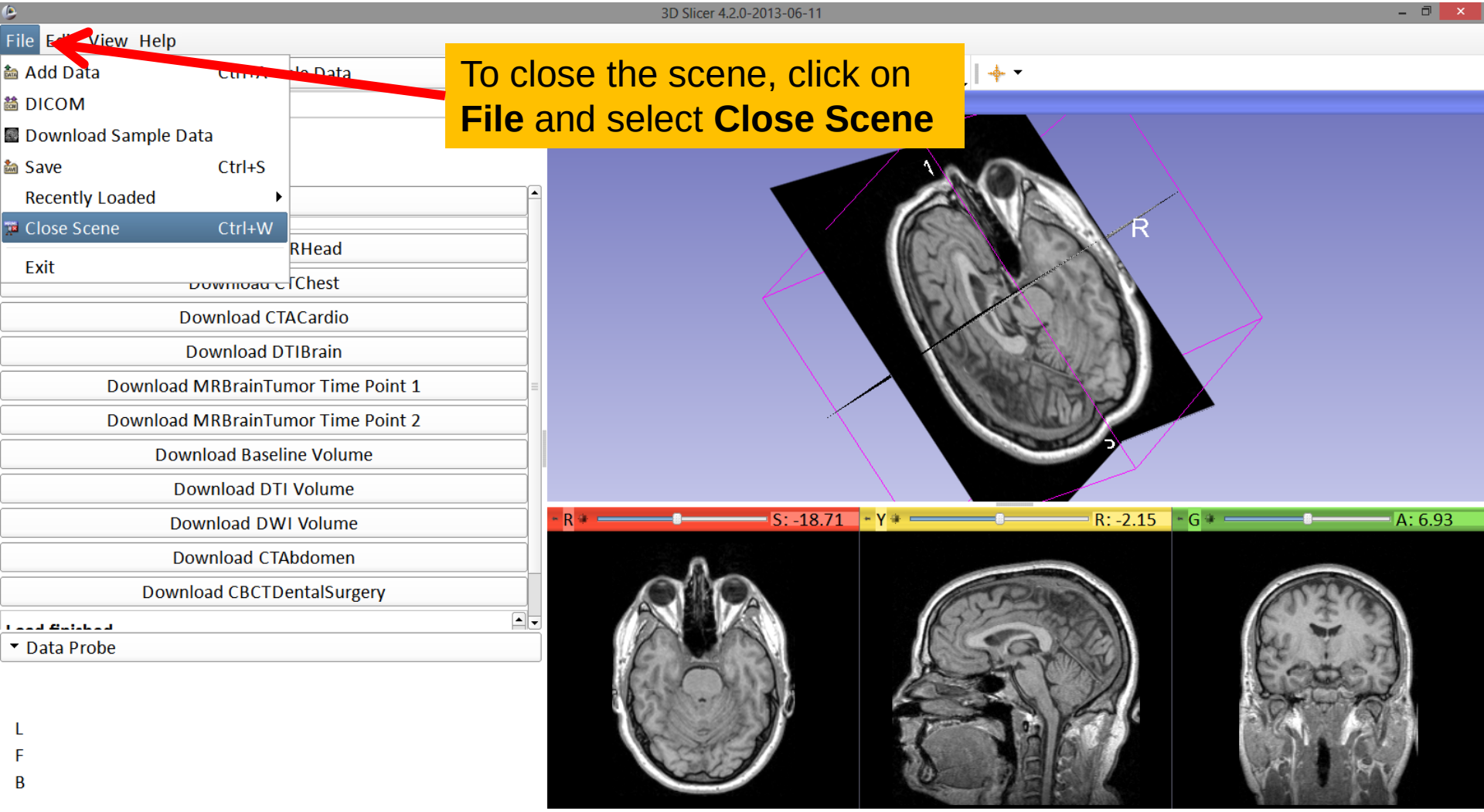
All three anatomical slices are shown in the 3D viewer

Loading a DICOM volume

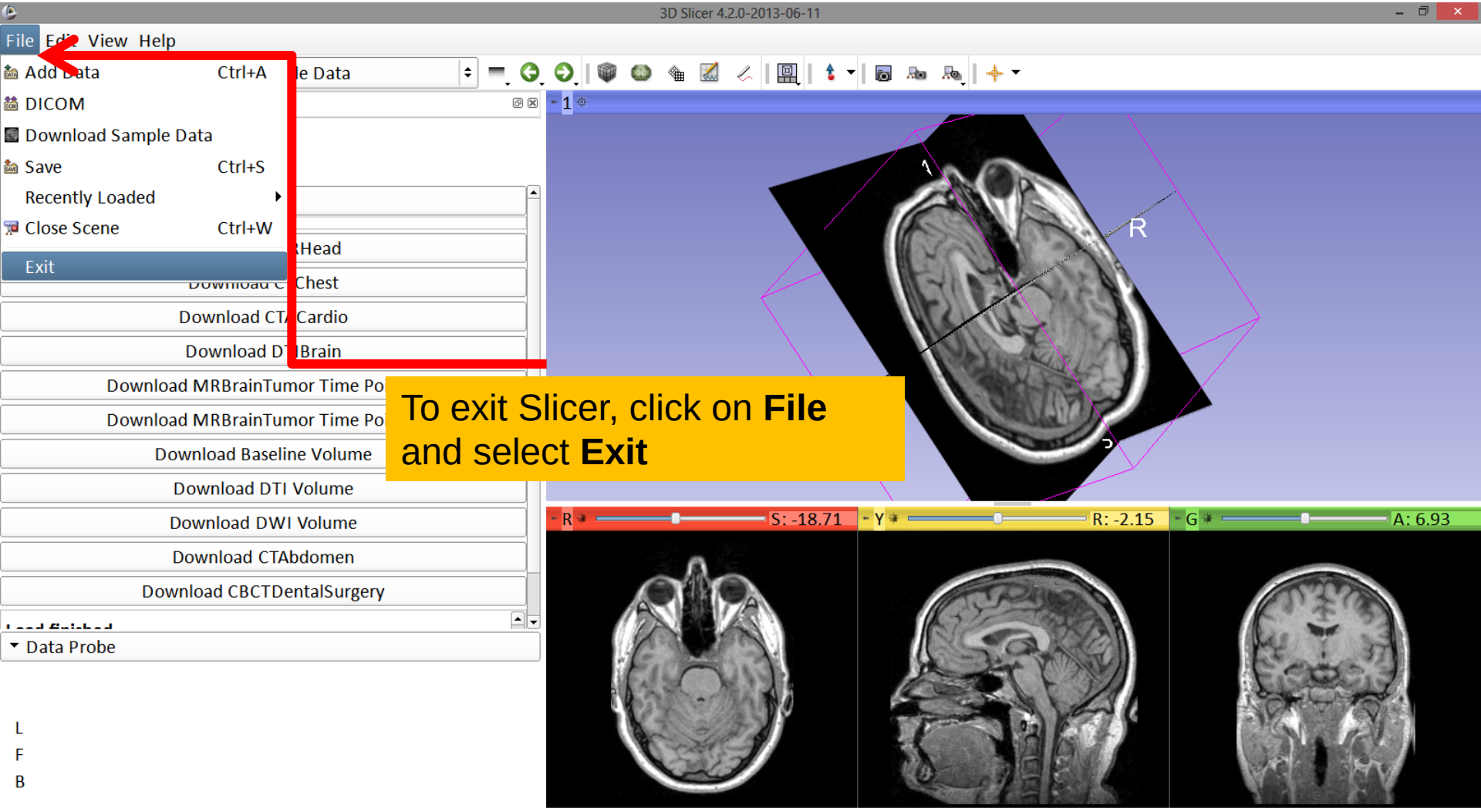


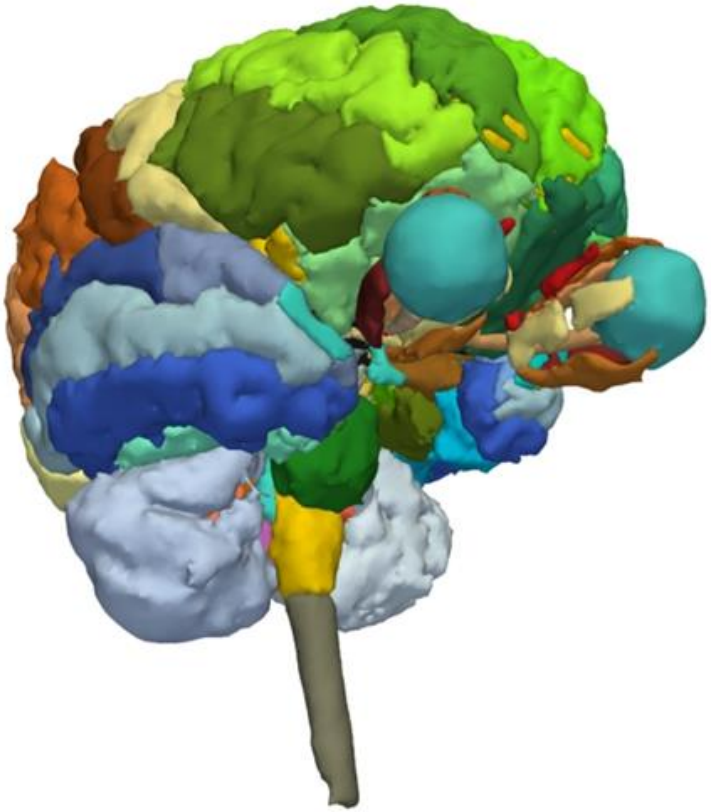
Use the left mouse button to rotate the camera and the right mouse button to zoom in and out

Close the scene



Exit Slicer

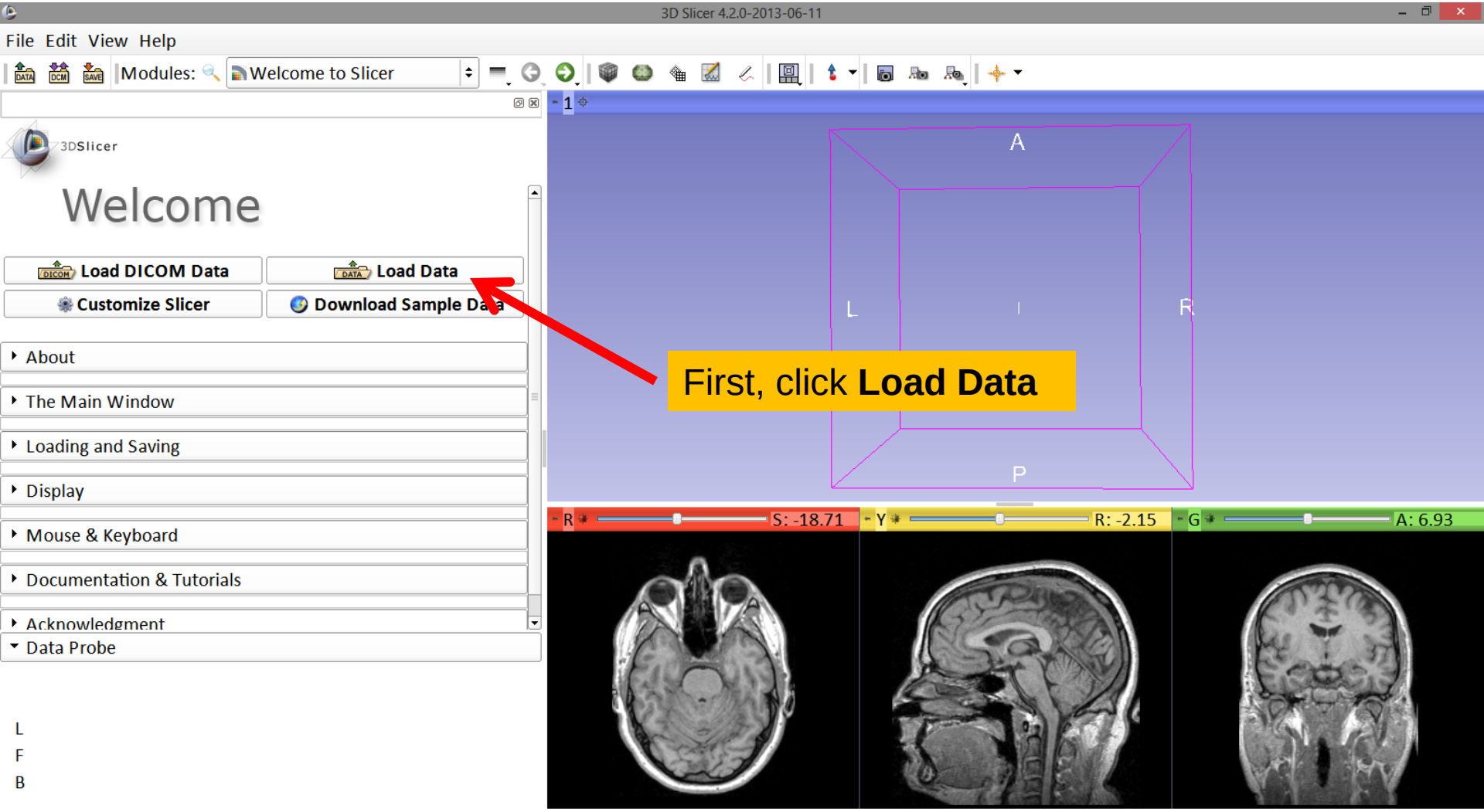

3D Slicer 4.2.0-2013-06-11
File
Edit
View
Help
Add Data Ctrl+A
DICOM
Download Sample Data
Save Ctrl+S
Recently Loaded
Close Scene Ctrl+W
Exit
Download Chest
Download CTA Cardio
Download MRBrainTumor Time Po
Download MRBrainTumor Time Po
Download Baseline Volume
Download DTI Volume
Download DWI Volume
Download CTAbdomen
Download CBCTDentalSurgery
Data Probe
L
F
B
R
S: -18.71
Y
R: -2.15
G
A: 6.93
To exit Slicer, click on **File** and select **Exit**



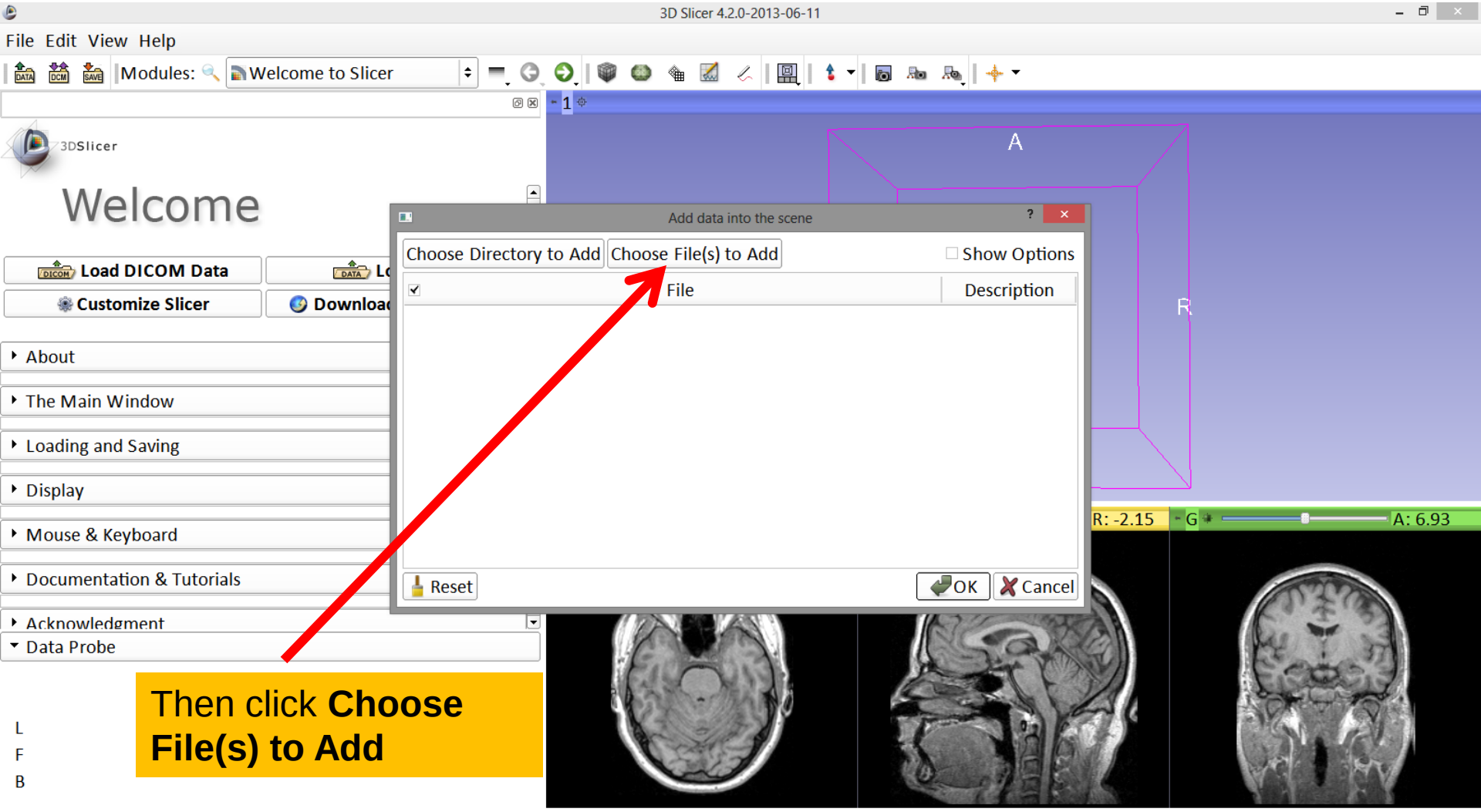
Part 2:

3D visualization of surface models of the brain

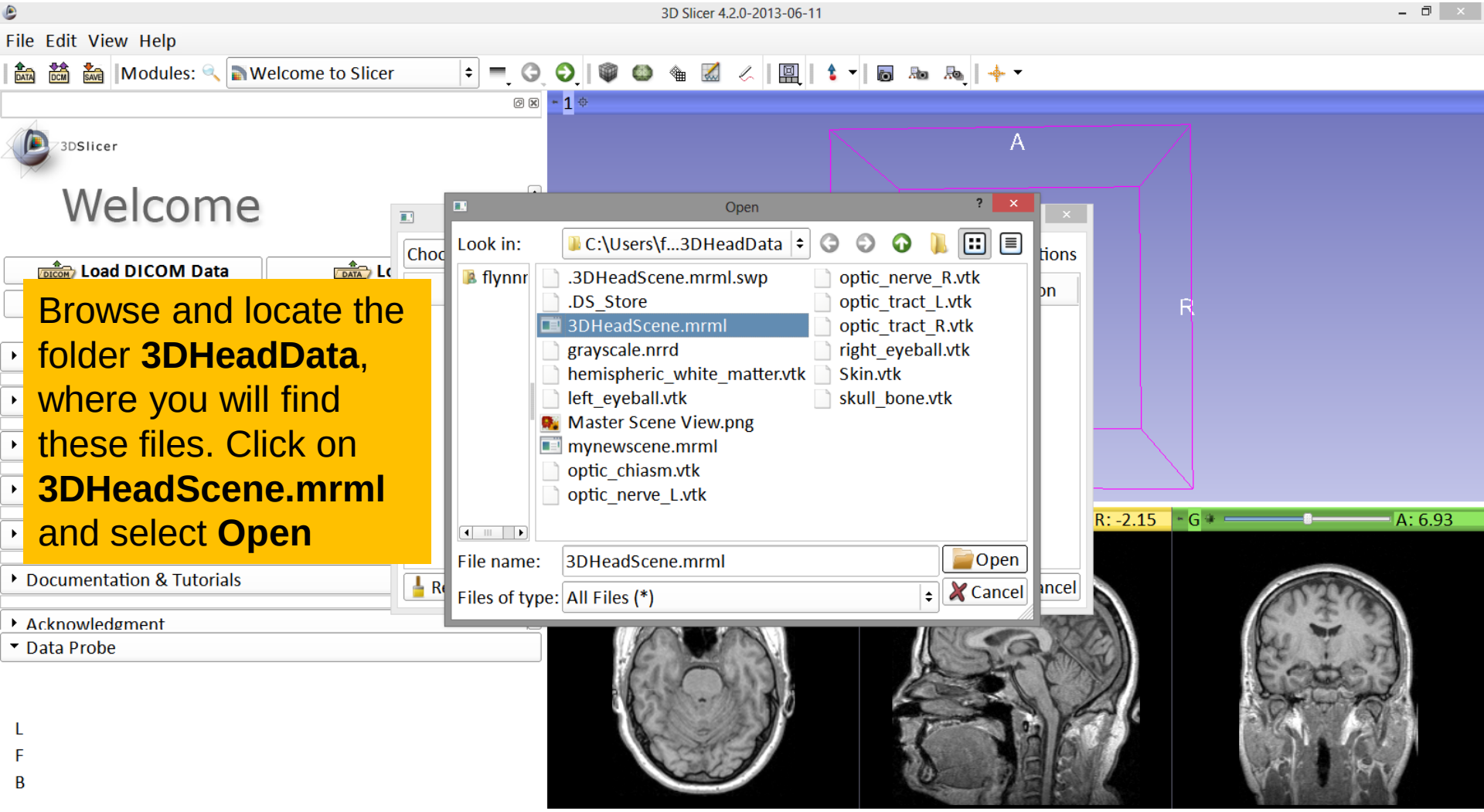
Loading a Scene



Loading a Scene

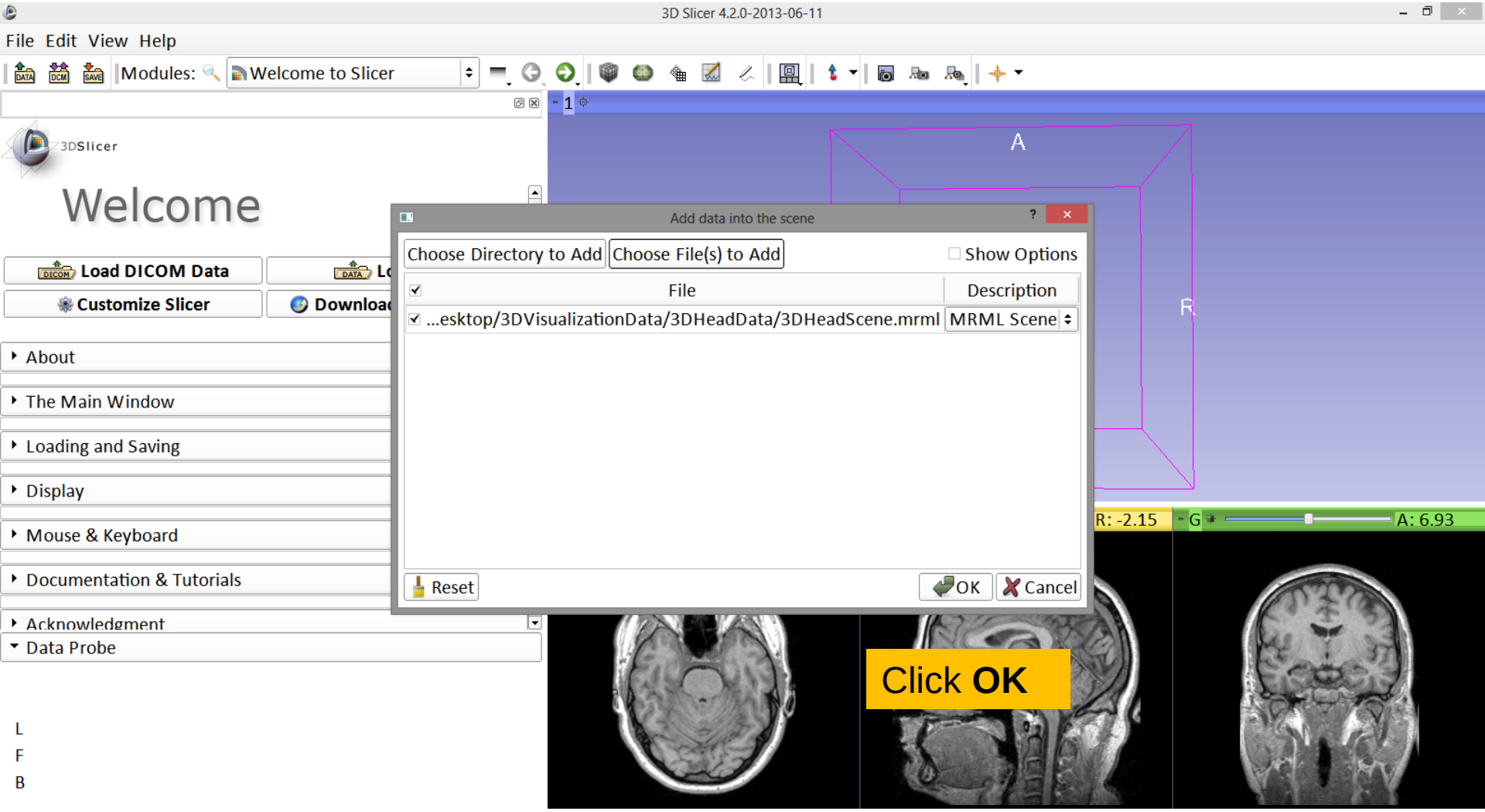


Loading a Scene

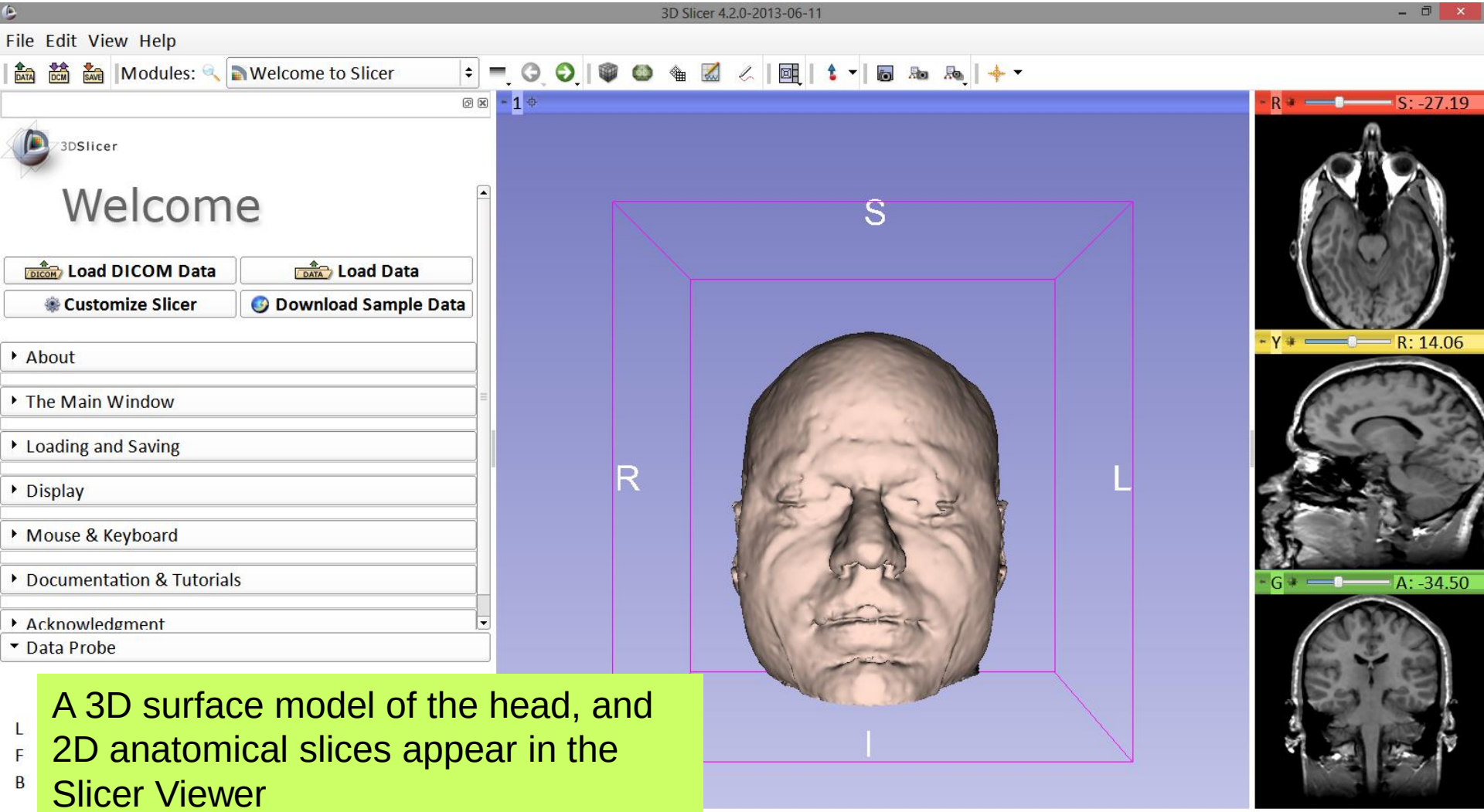


Browse and locate the folder **3DHeadData**, where you will find these files. Click on **3DHeadScene.mrml** and select **Open**

Loading a Scene

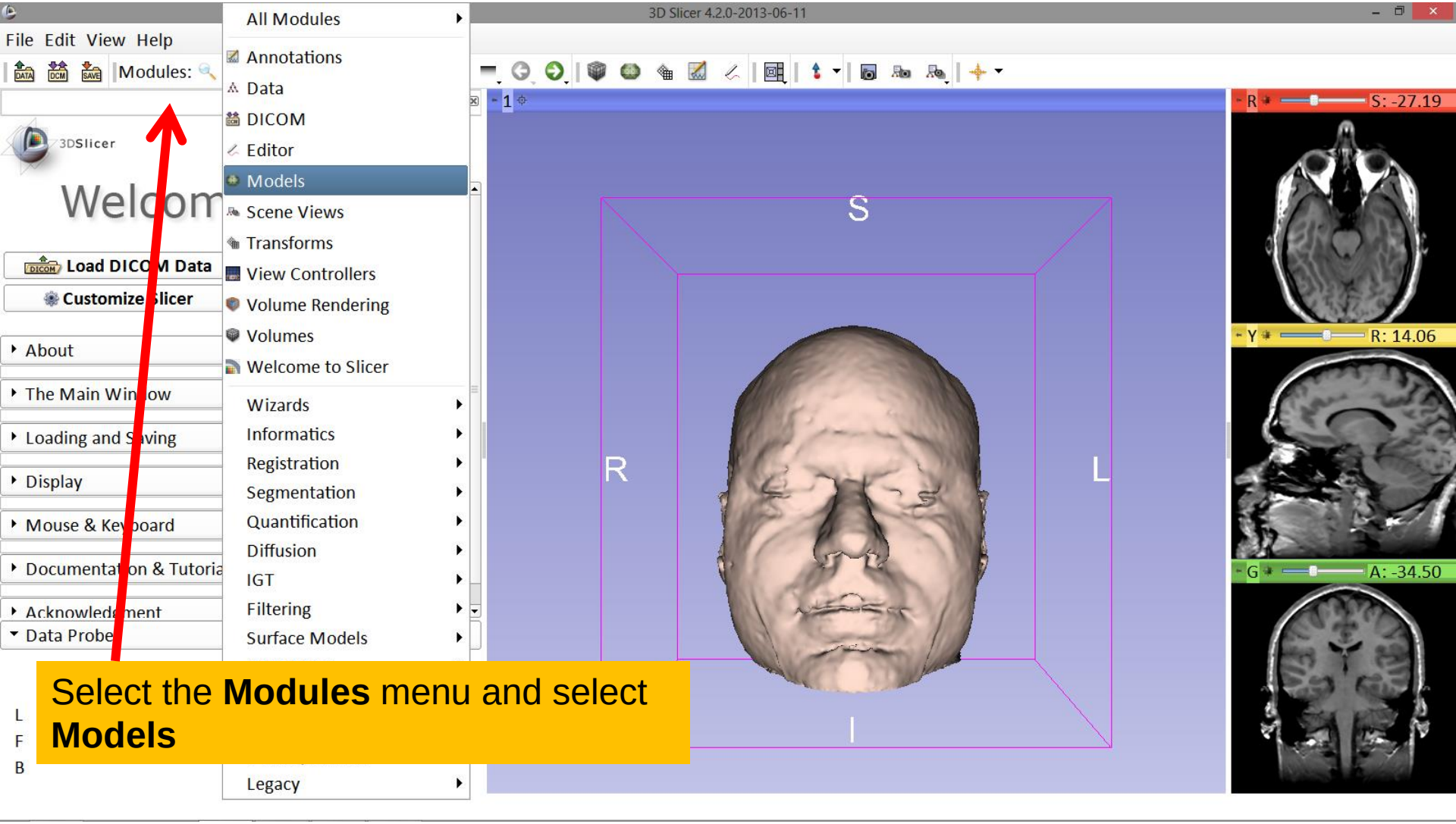


Loading the Slicer Scene

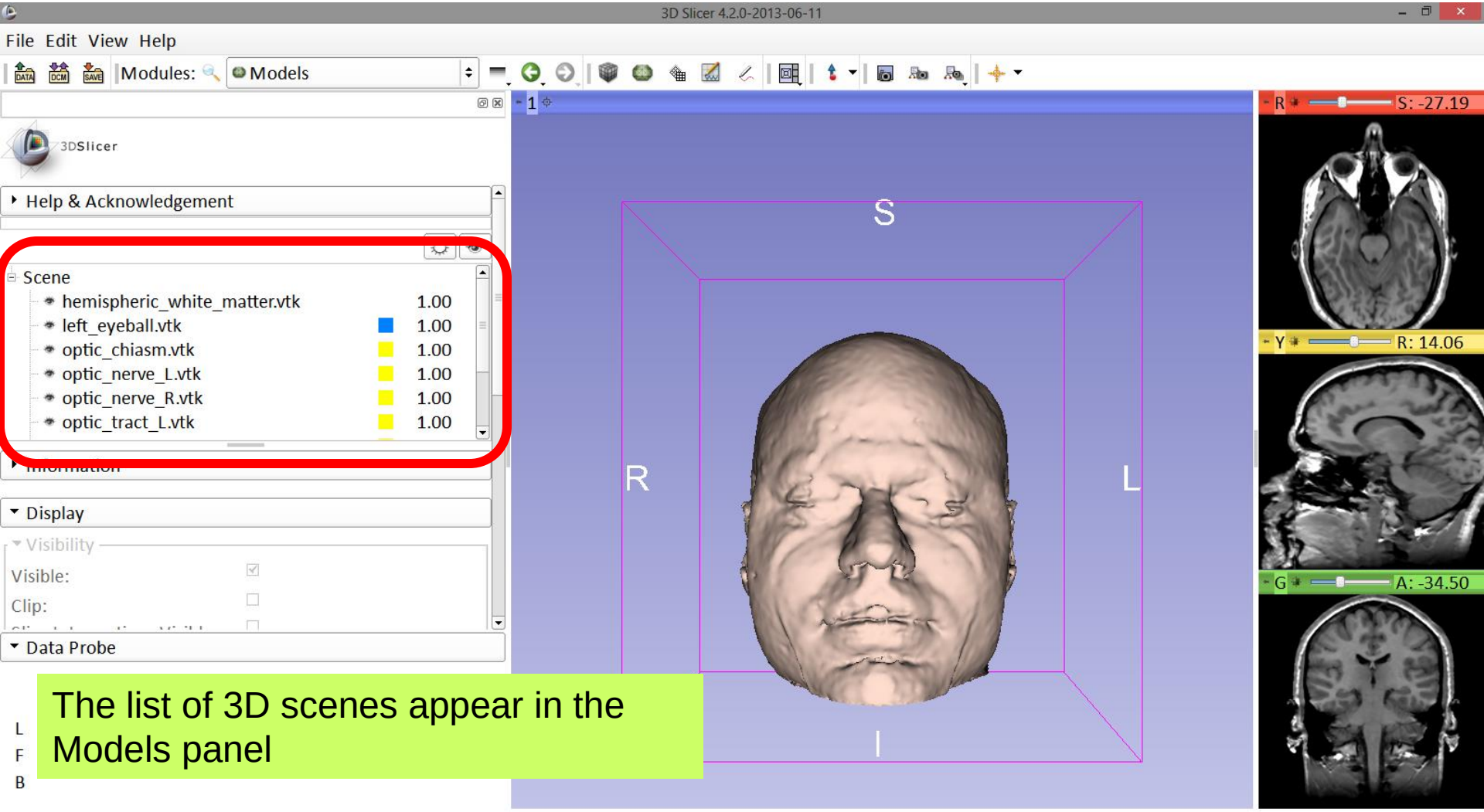


A 3D surface model of the head, and 2D anatomical slices appear in the Slicer Viewer

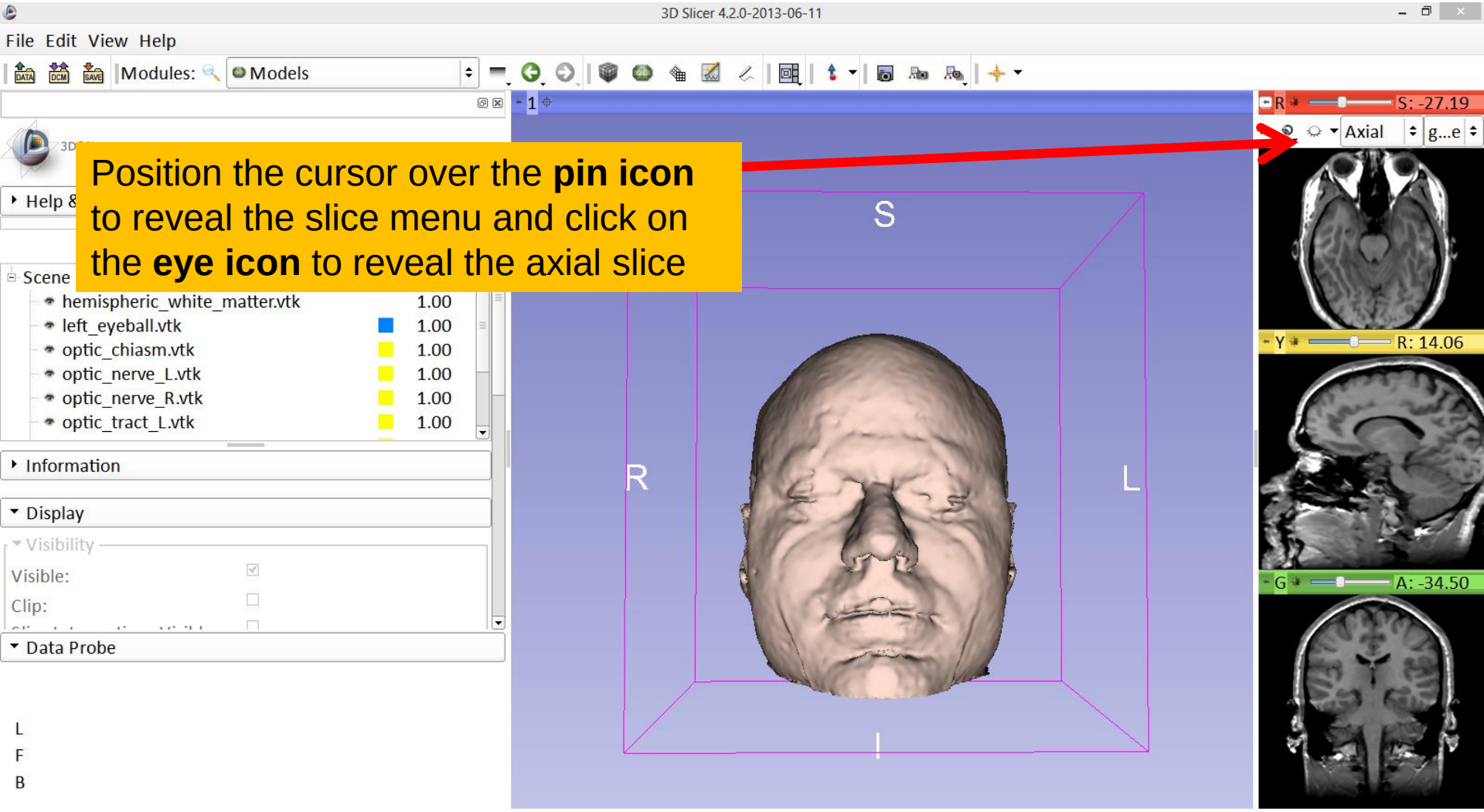
Loading the Slicer Scene



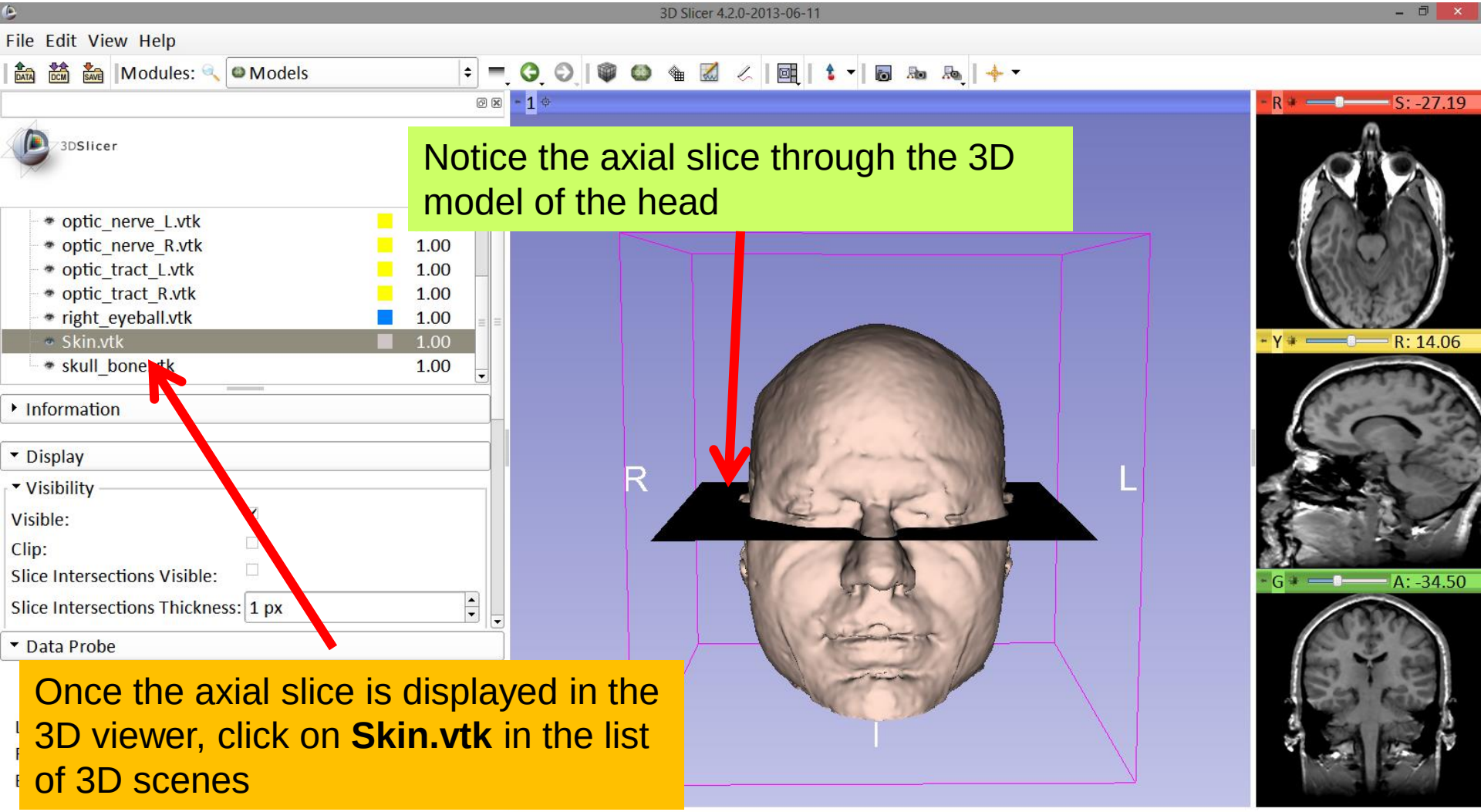
Models Module



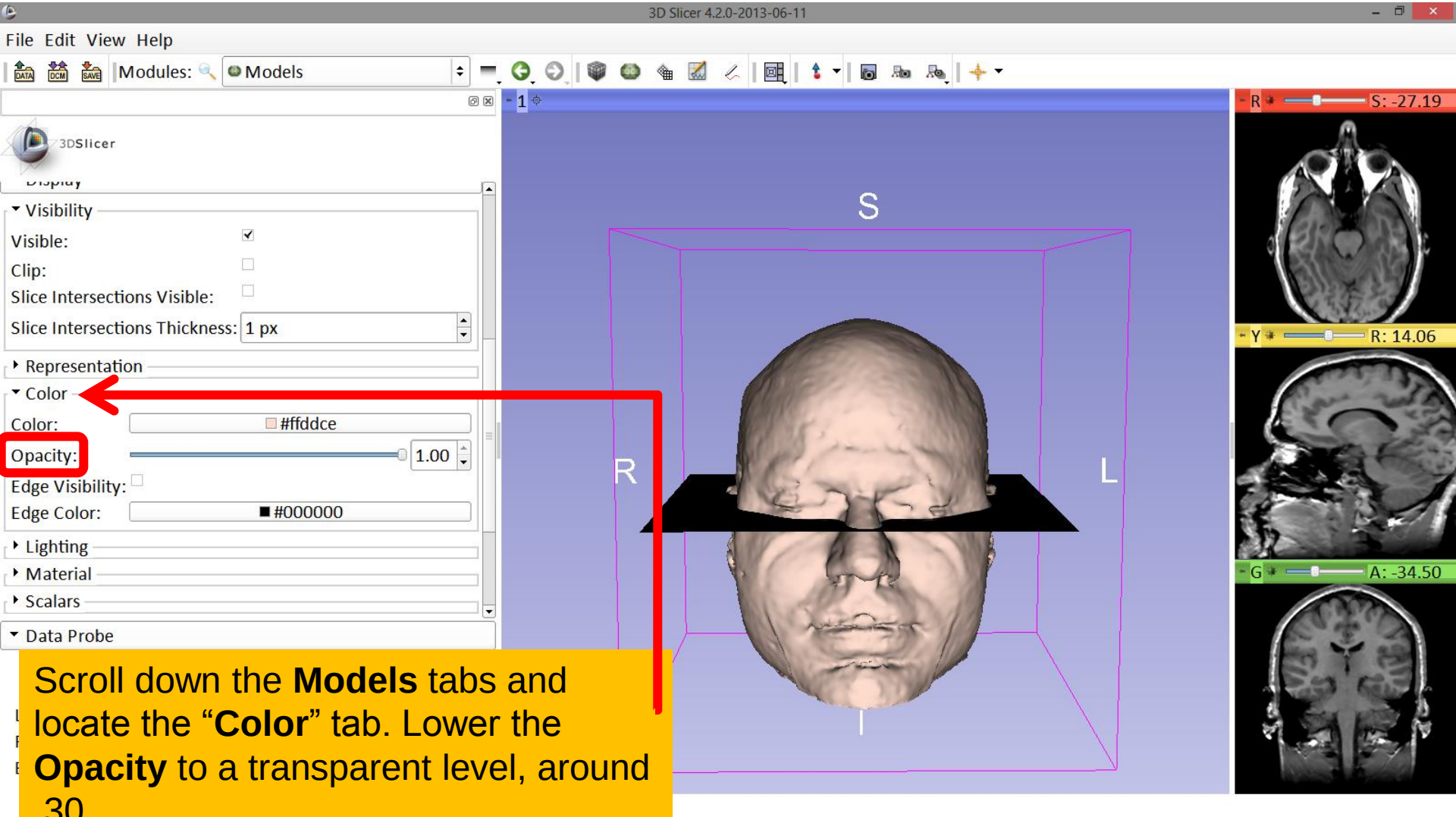
3D Visualization



3D Visualization

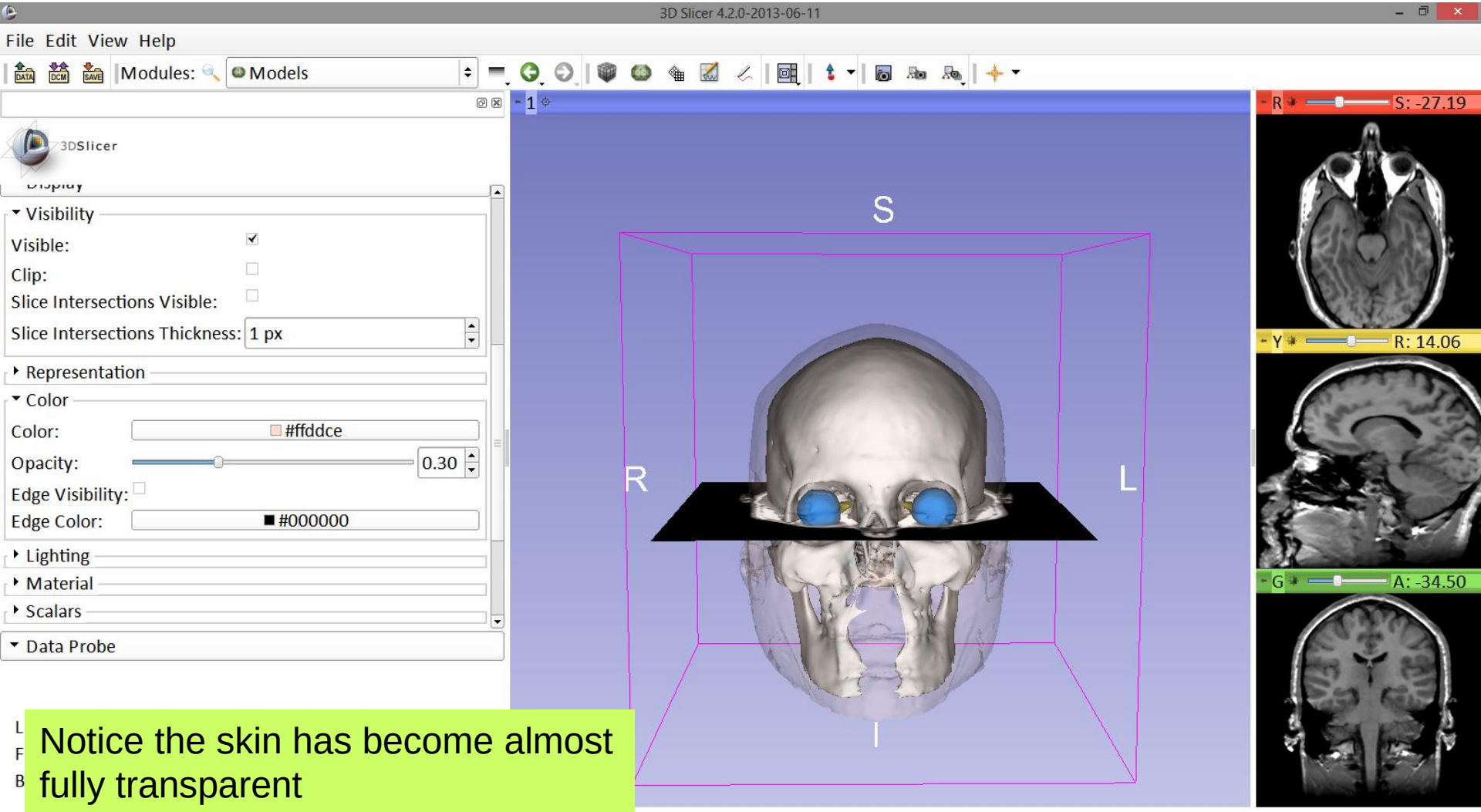


3D Visualization



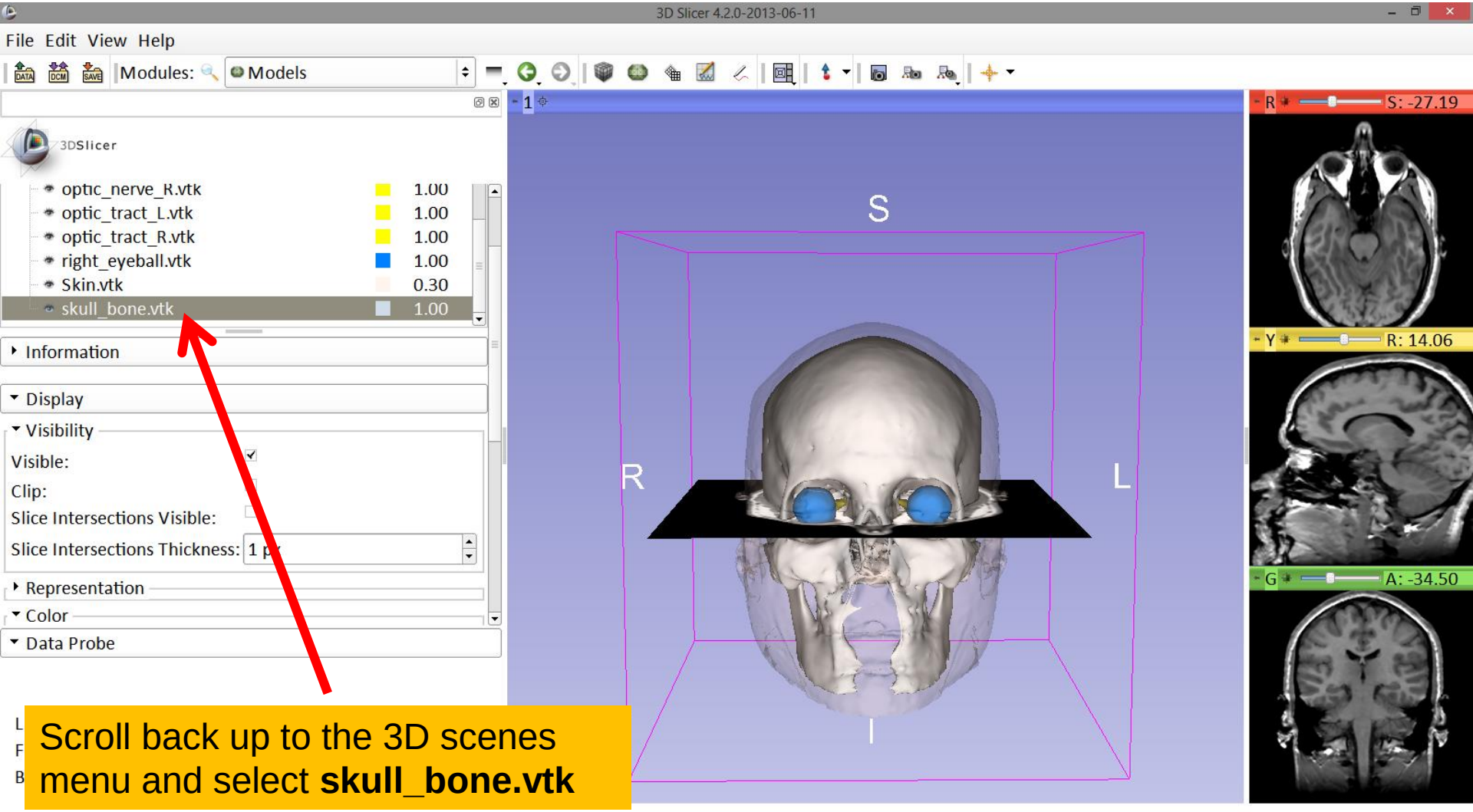
Scroll down the **Models** tabs and locate the "**Color**" tab. Lower the **Opacity** to a transparent level, around .30

3D Visualization

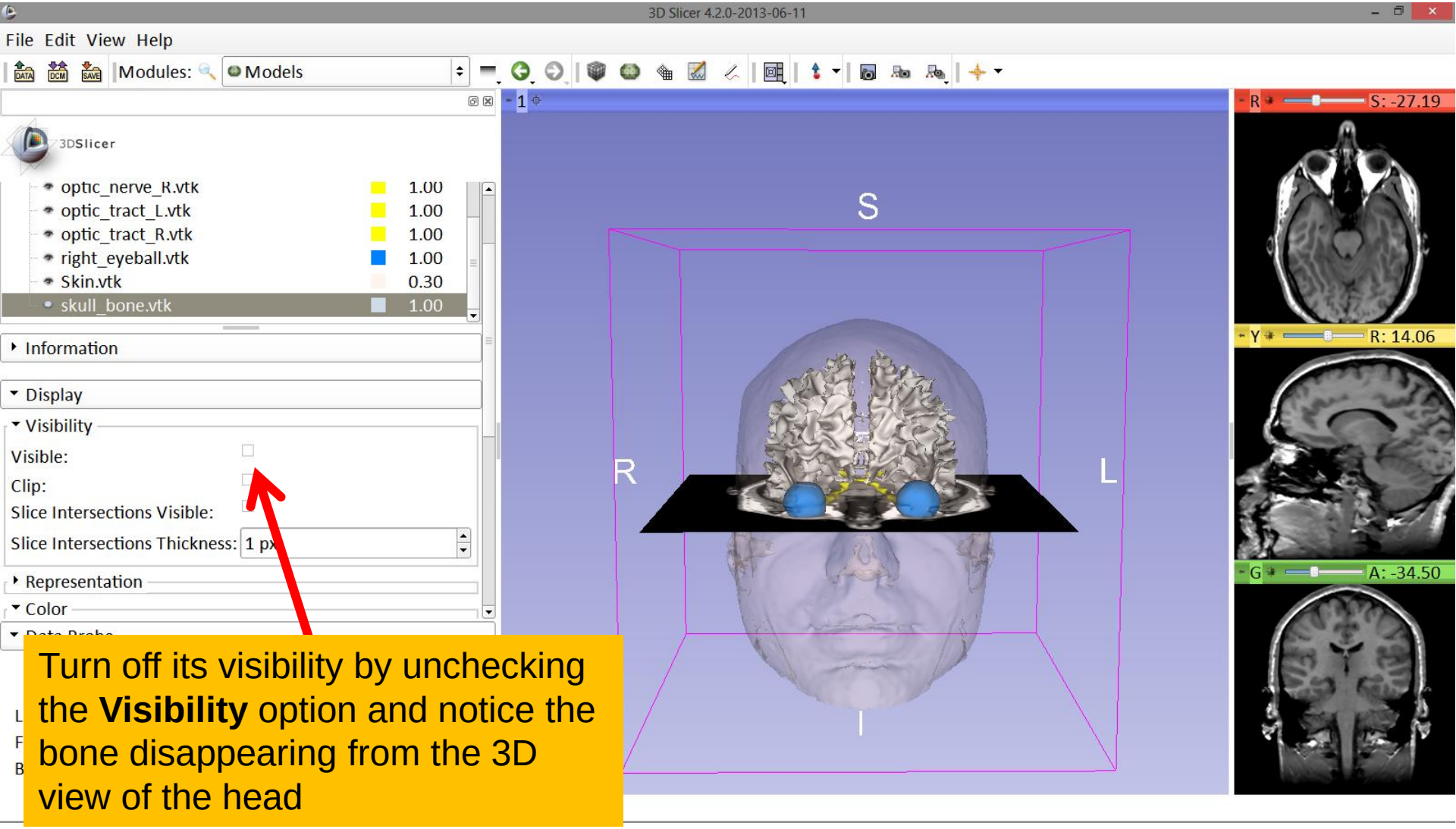


Notice the skin has become almost fully transparent

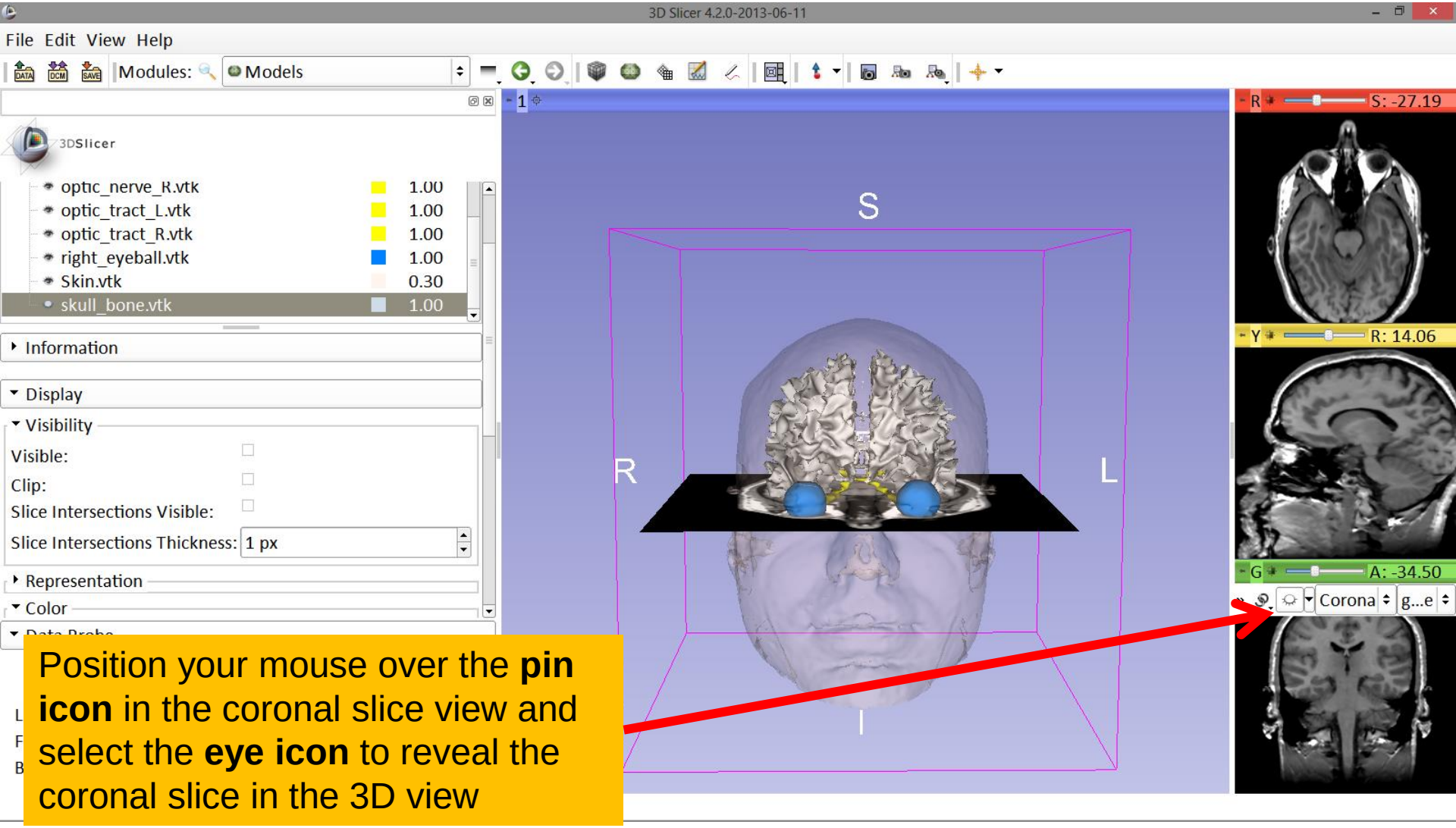
3D Visualization



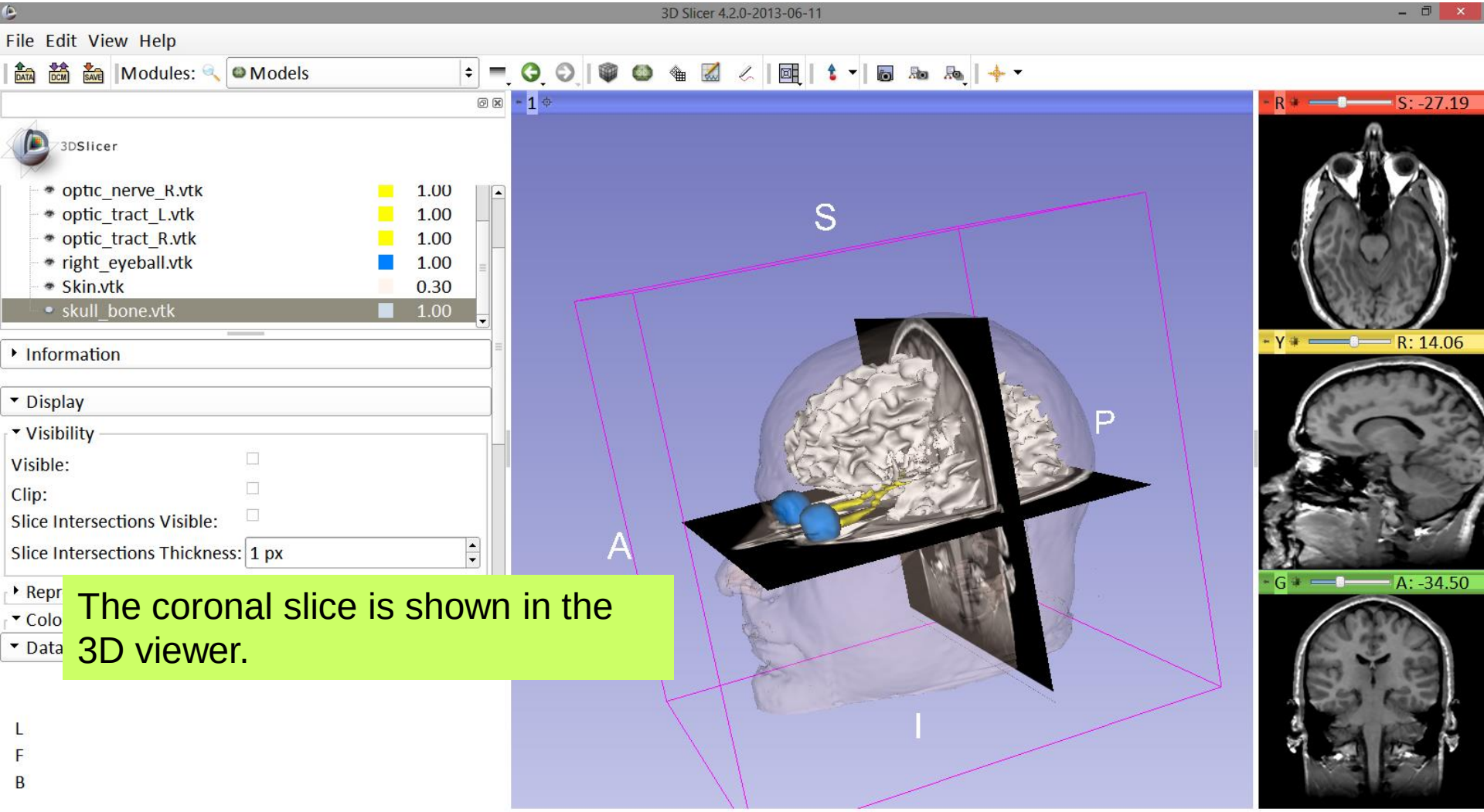
3D Visualization



3D Visualization

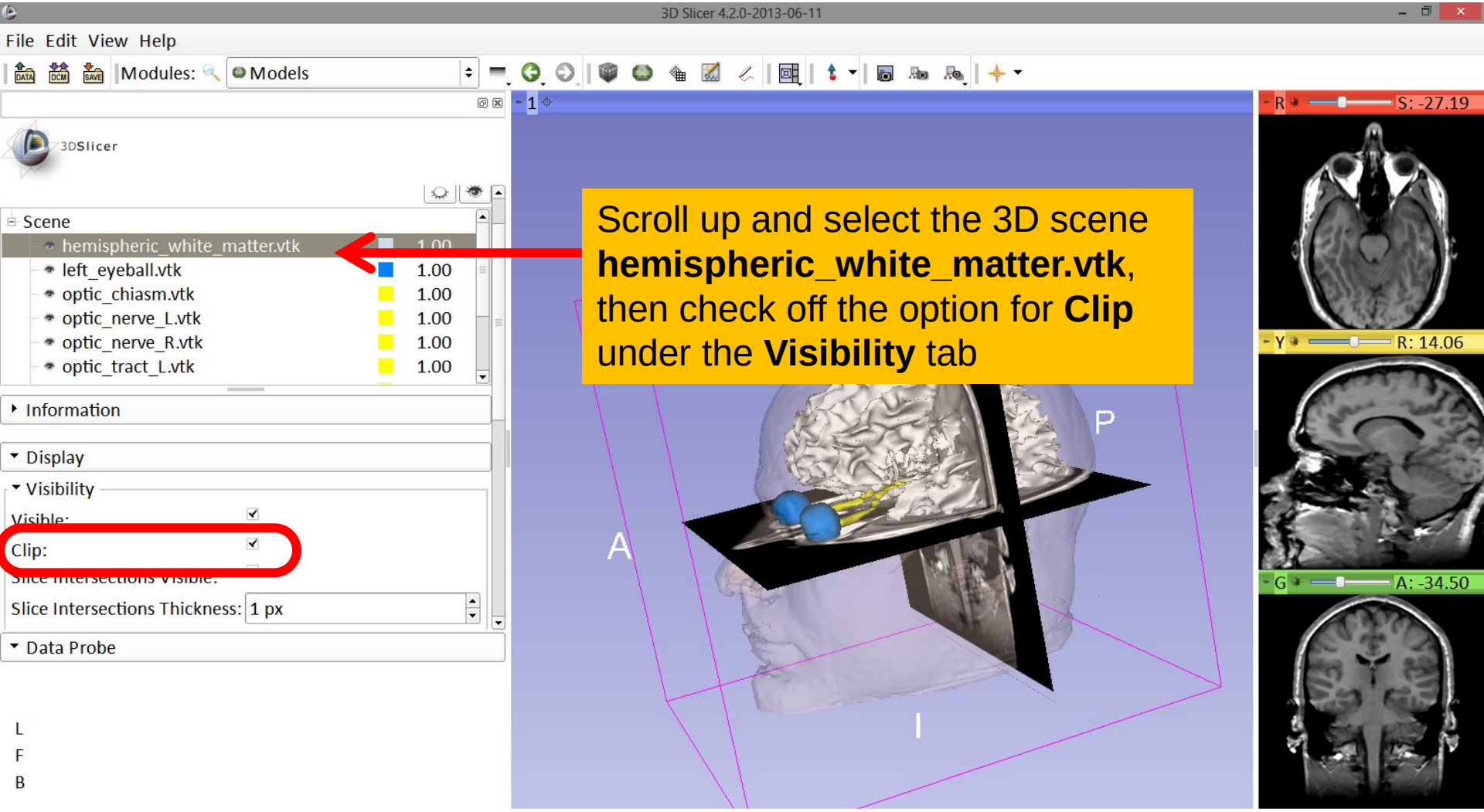


3D Visualization

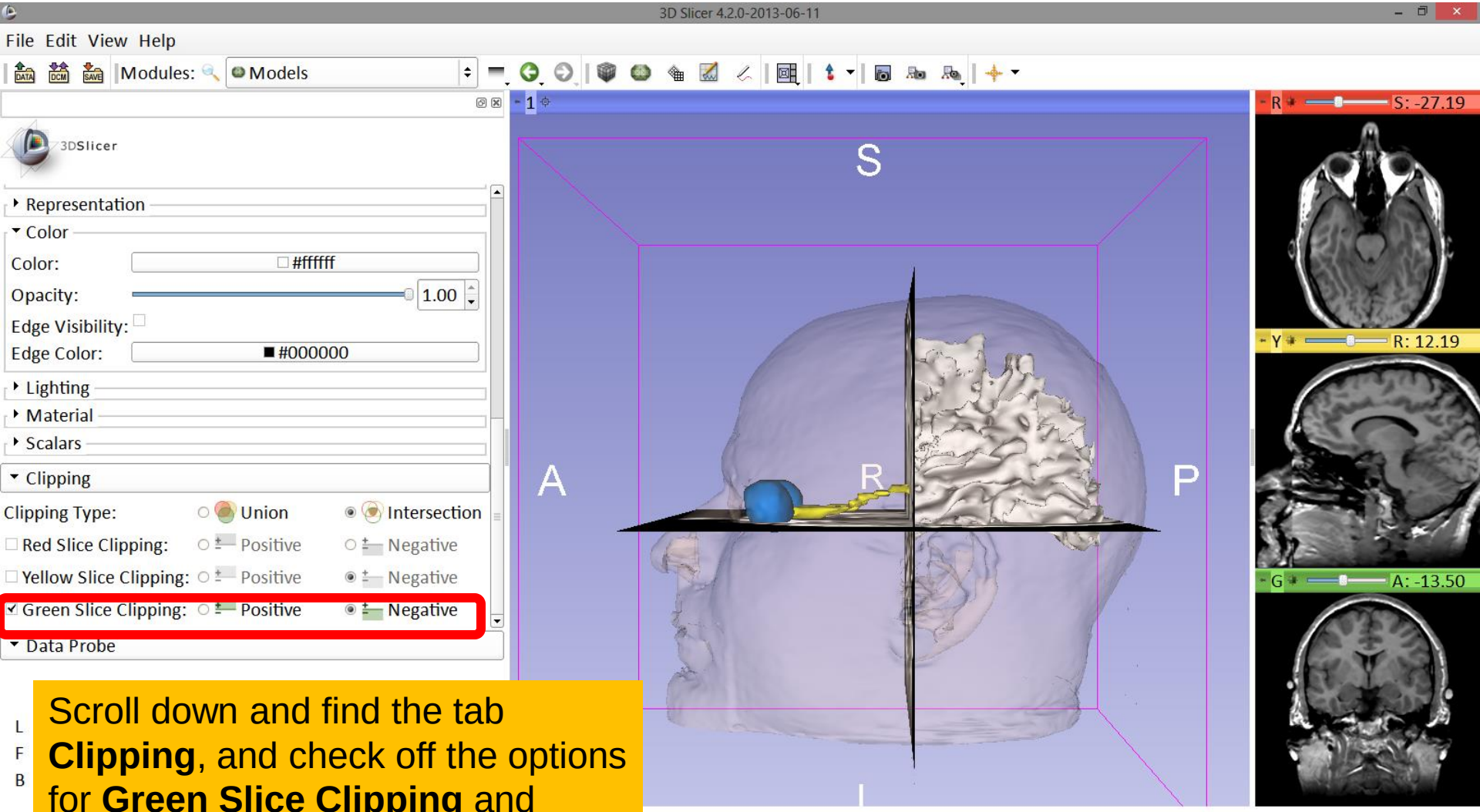


The coronal slice is shown in the 3D viewer.

3D Visualization

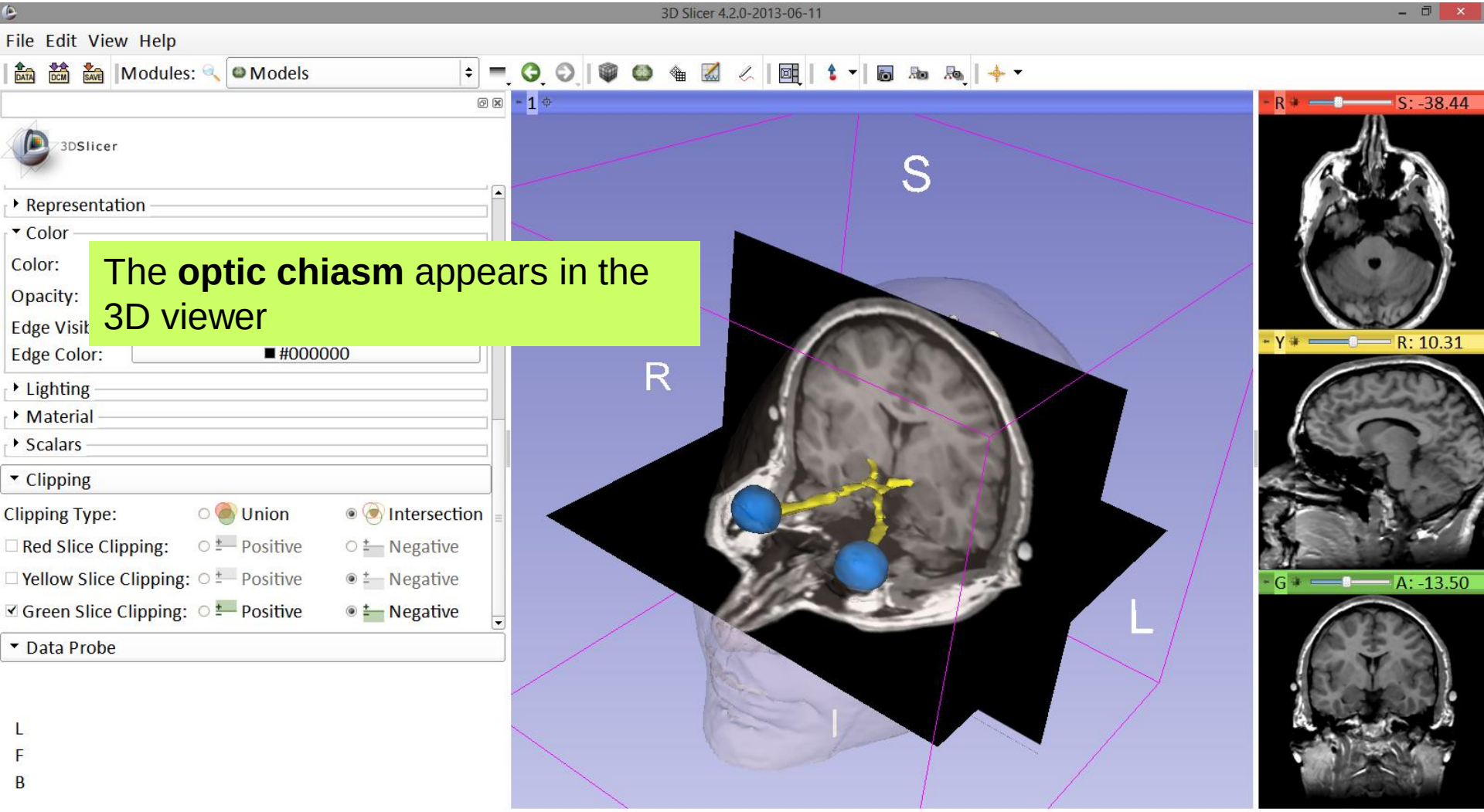


3D Visualization



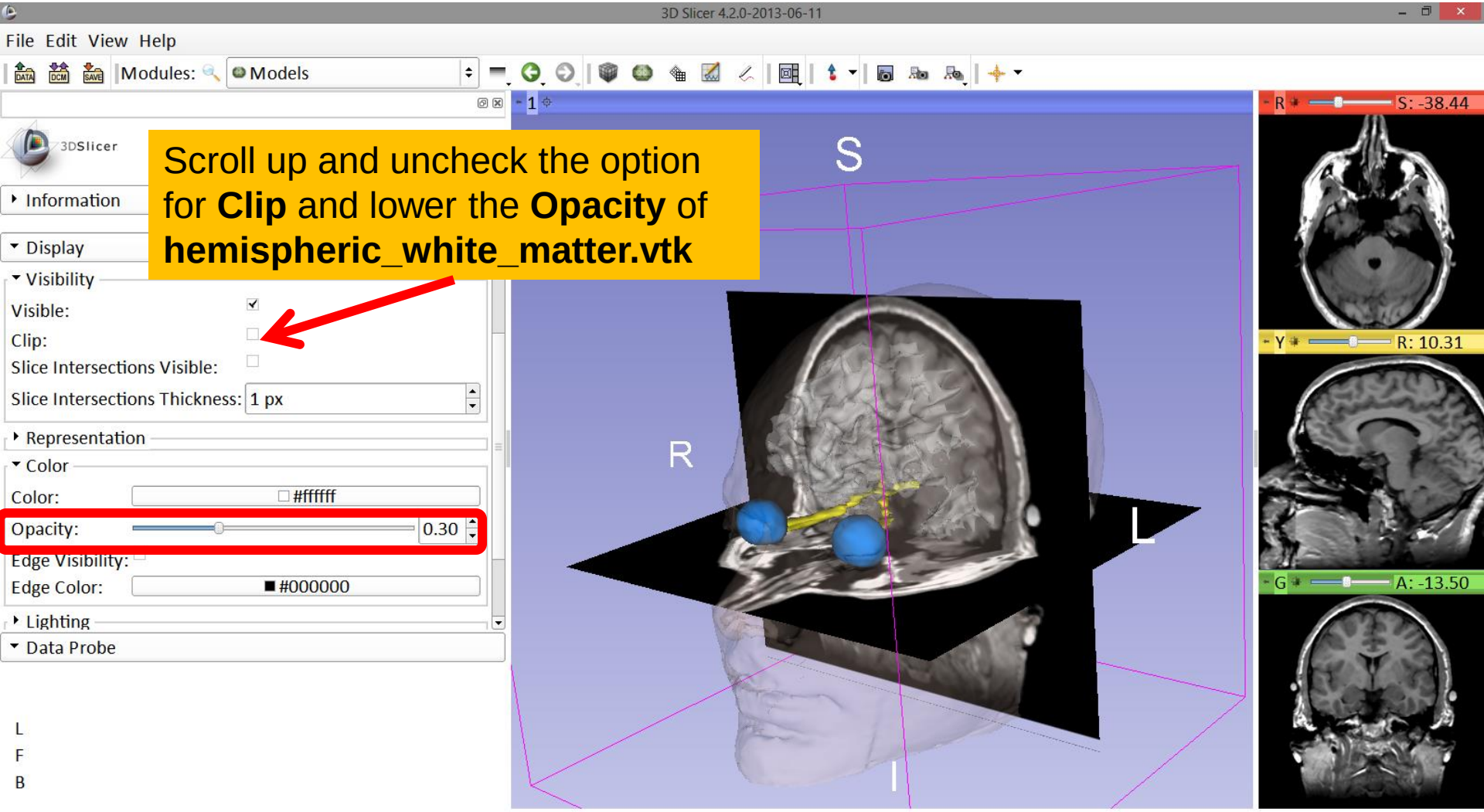
Scroll down and find the tab **Clipping**, and check off the options for **Green Slice Clipping** and **Negative Space**

3D Visualization

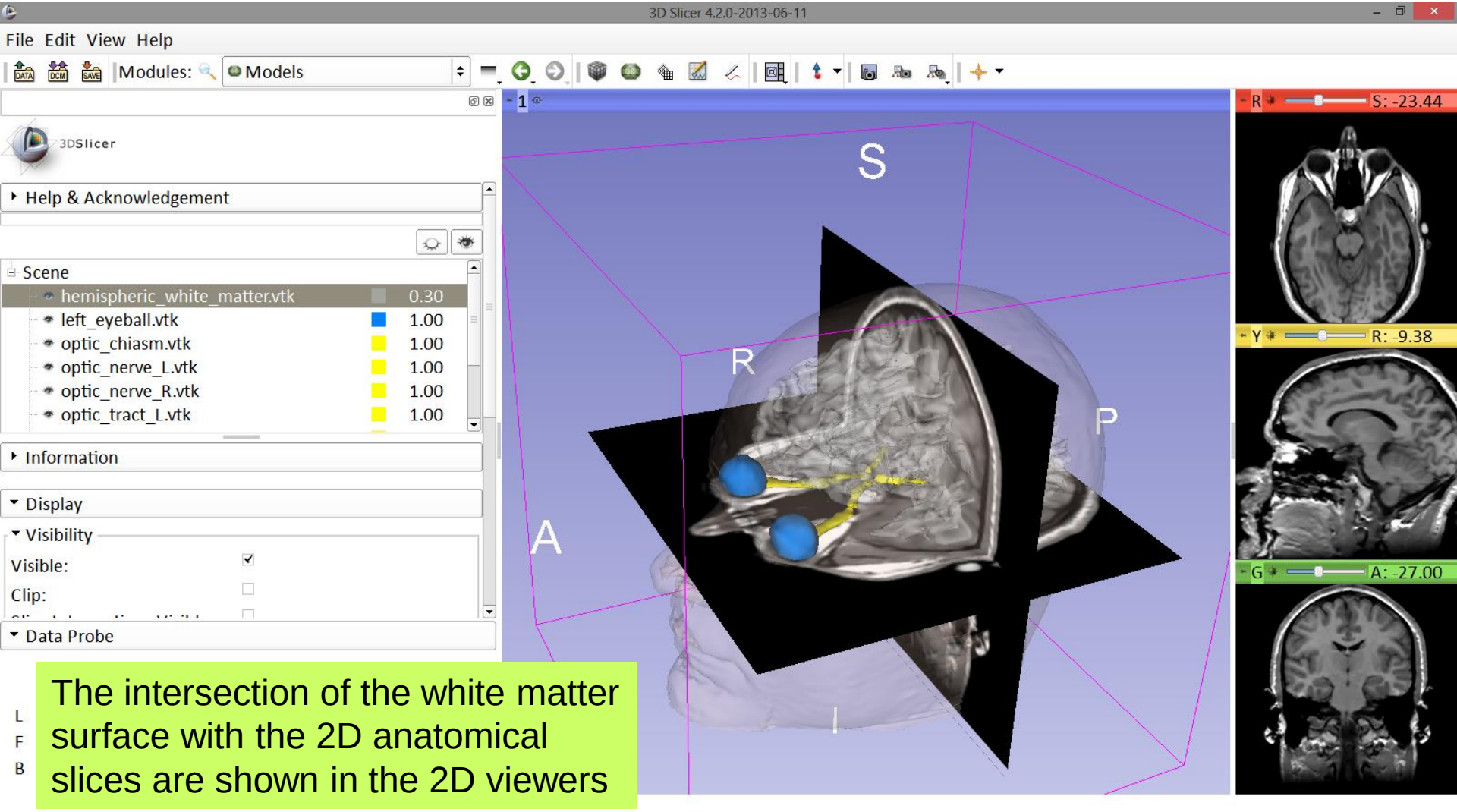


The **optic chiasm** appears in the 3D viewer

3D Visualization

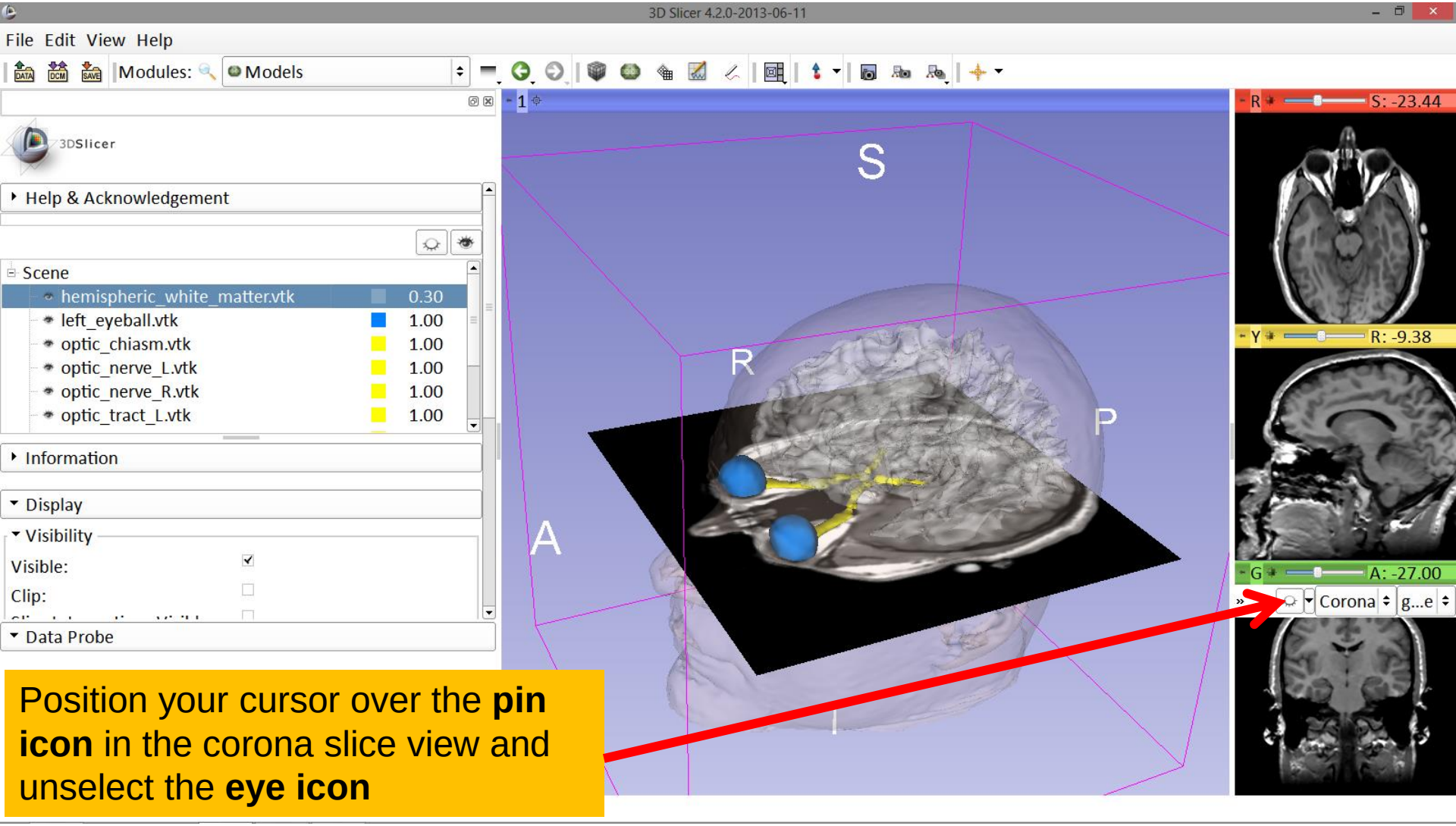


3D Visualization

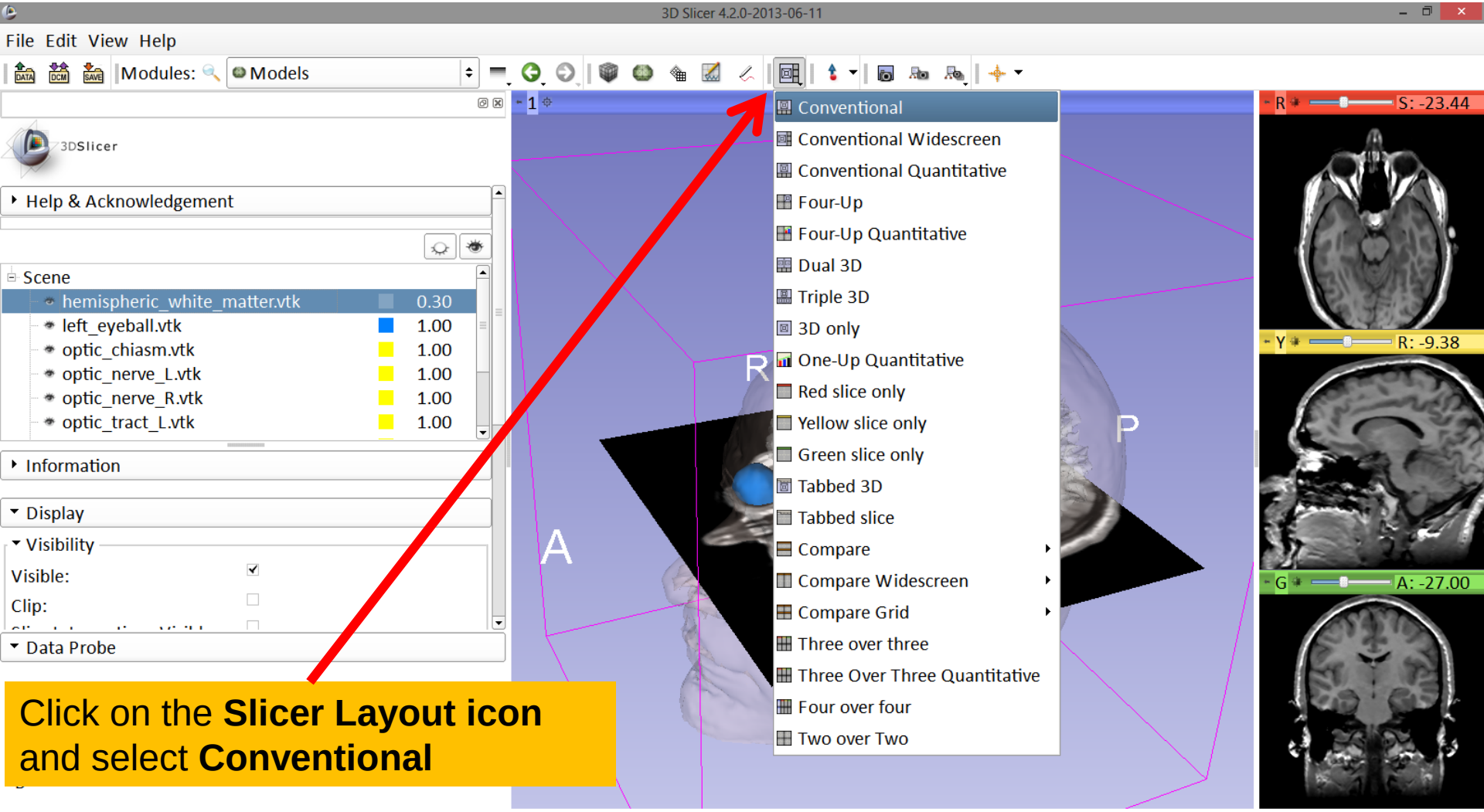


The intersection of the white matter surface with the 2D anatomical slices are shown in the 2D viewers

3D Visualization

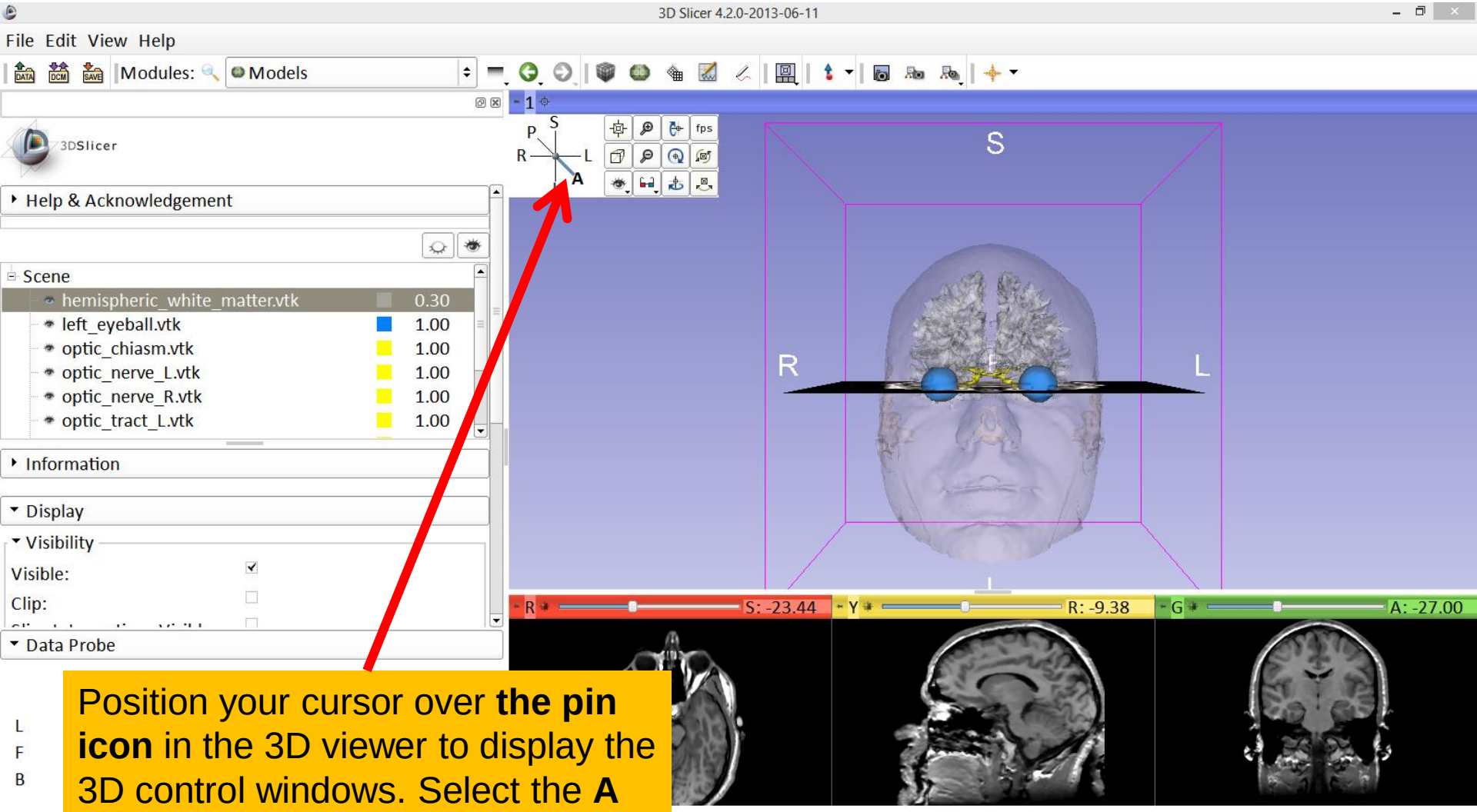


3D Visualization

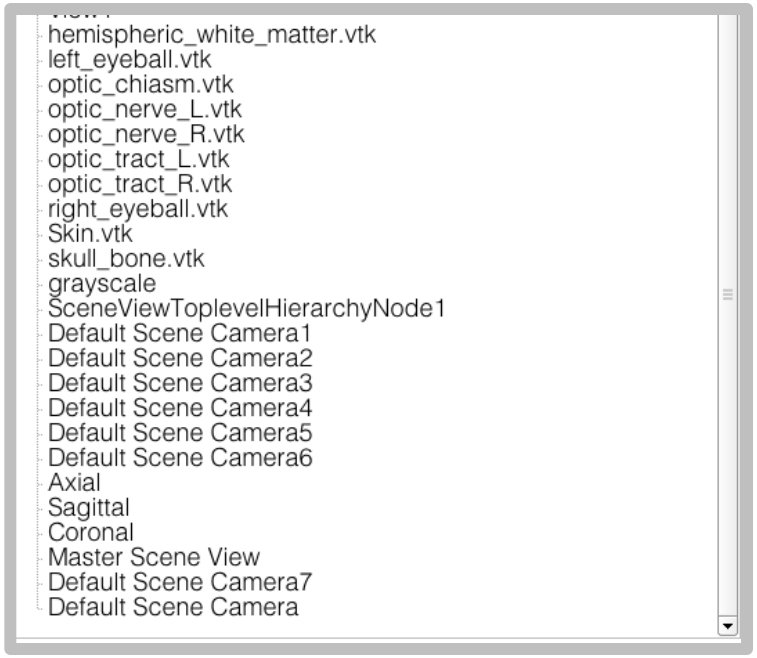


Click on the **Slicer Layout icon** and select **Conventional**

3D Visualization



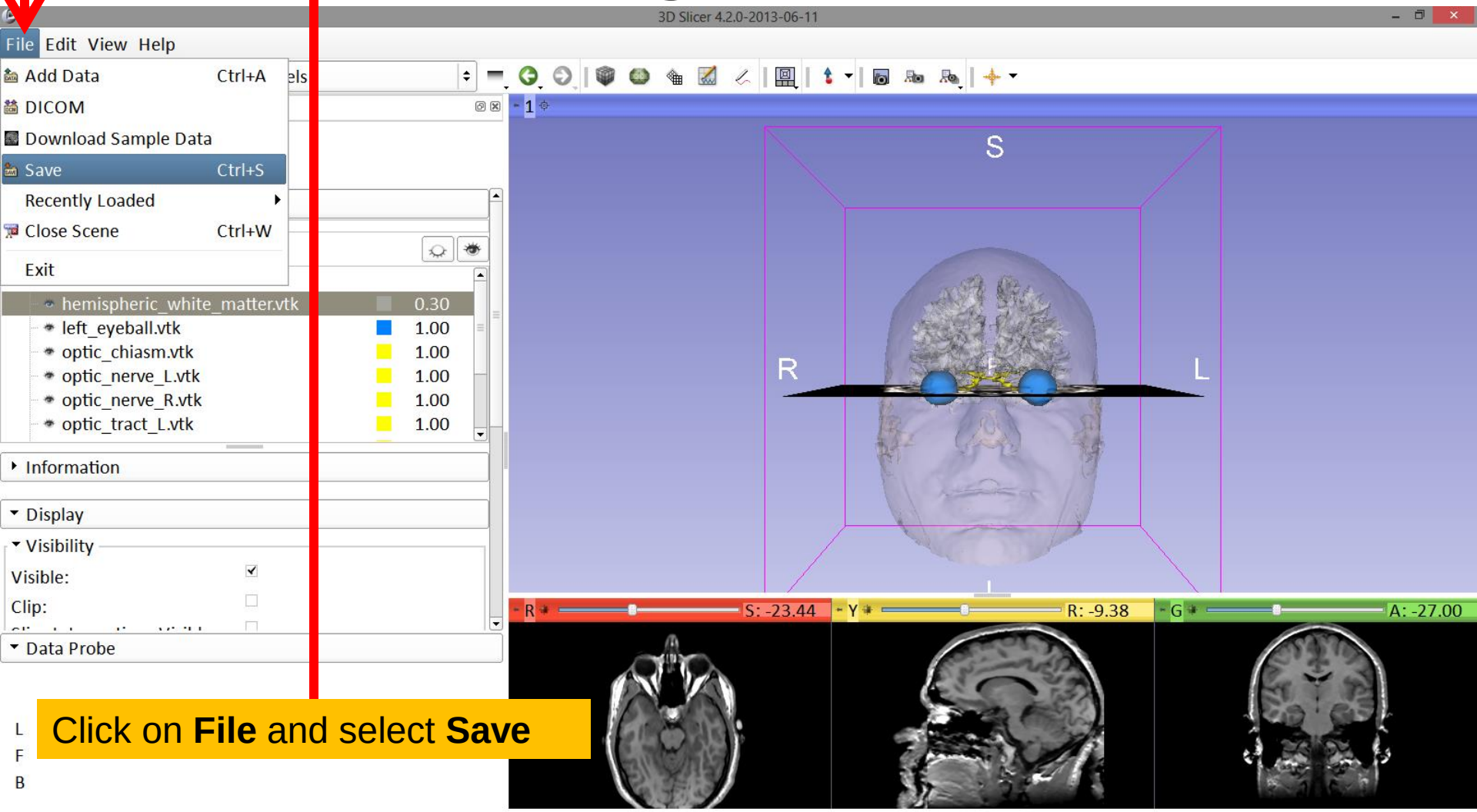
Position your cursor over **the pin icon** in the 3D viewer to display the 3D control windows. Select the **A (Anterior) view** of the 3D models



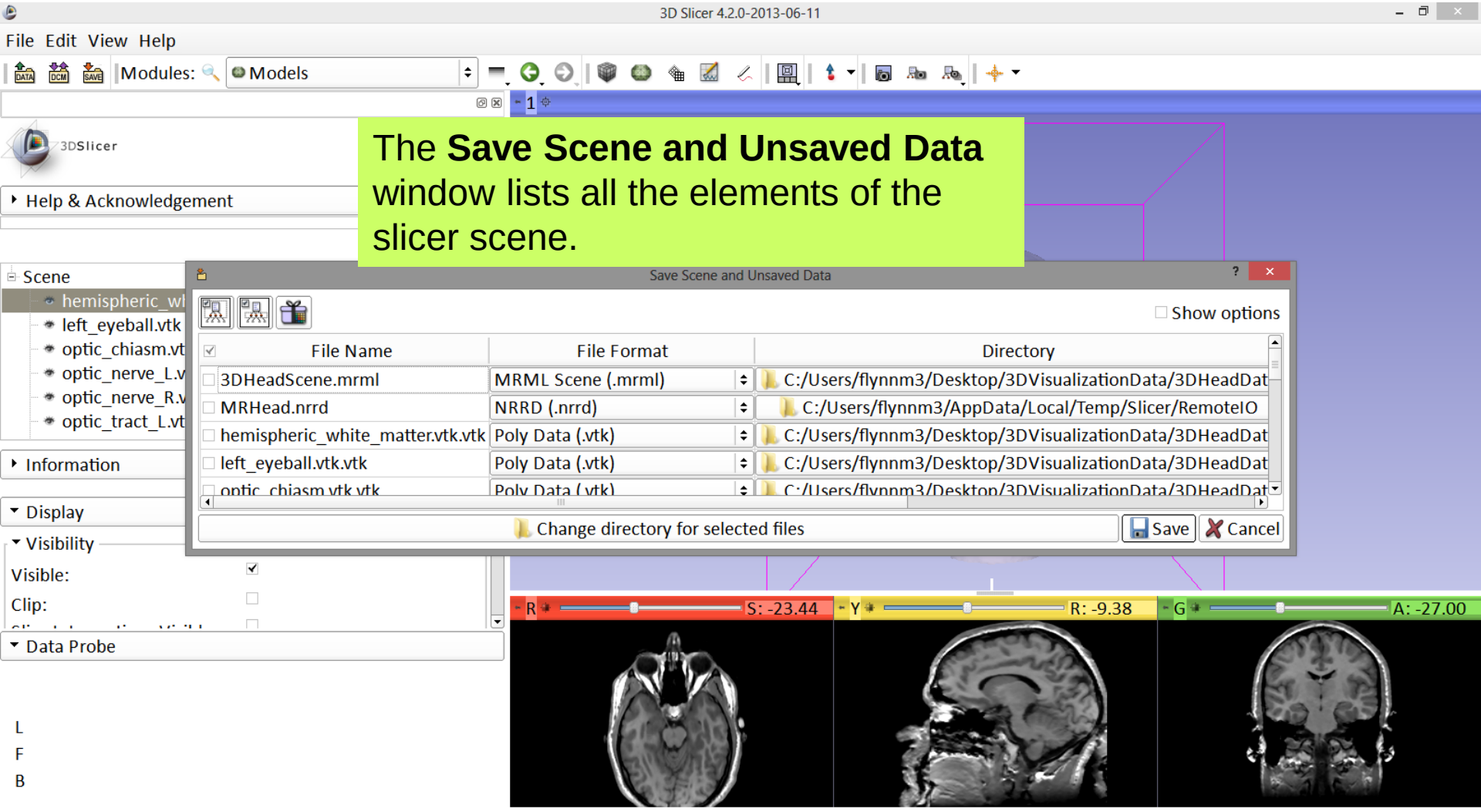
Part 3:

Saving a scene

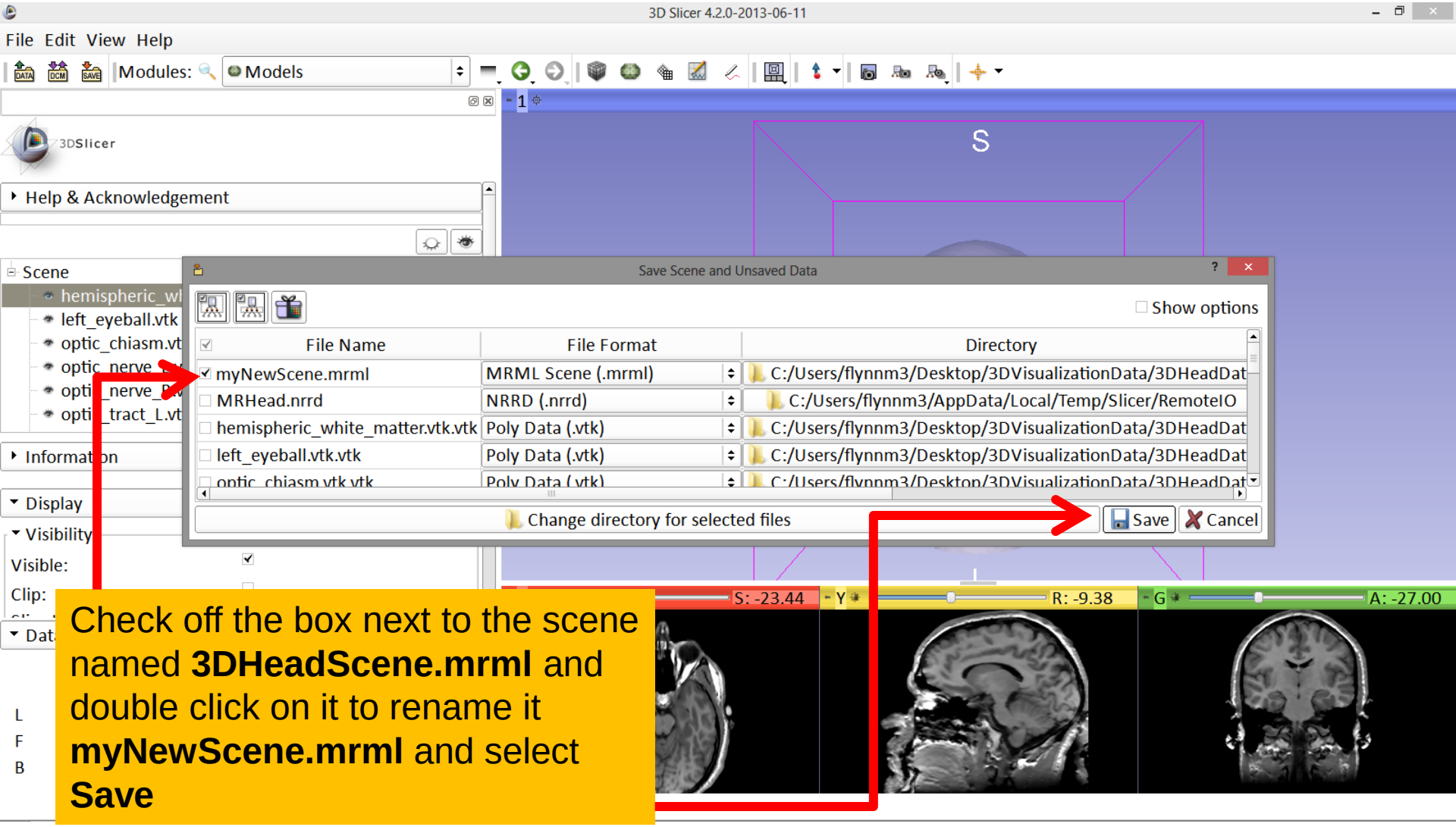
Saving a Scene



Saving a Scene

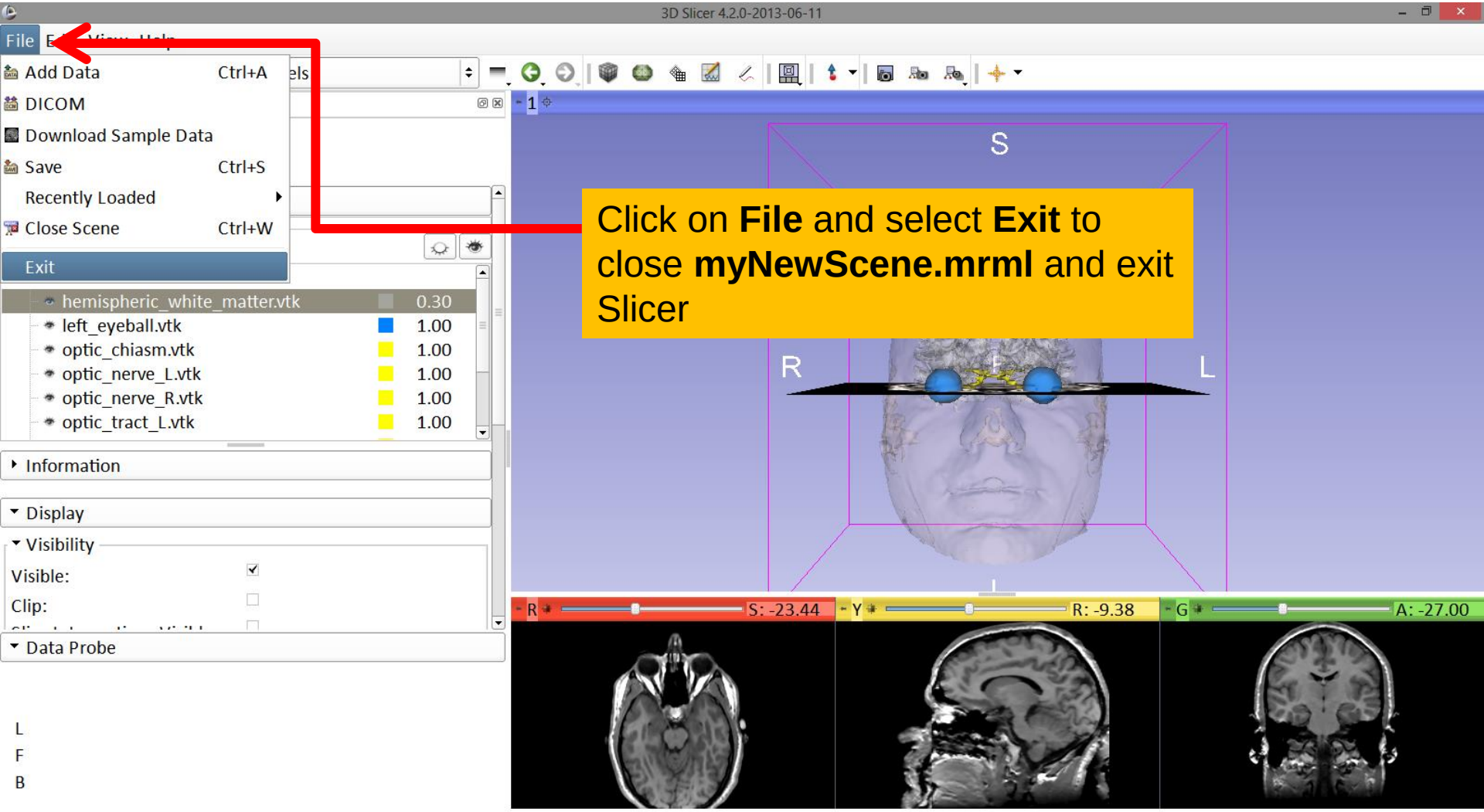


Saving a Scene

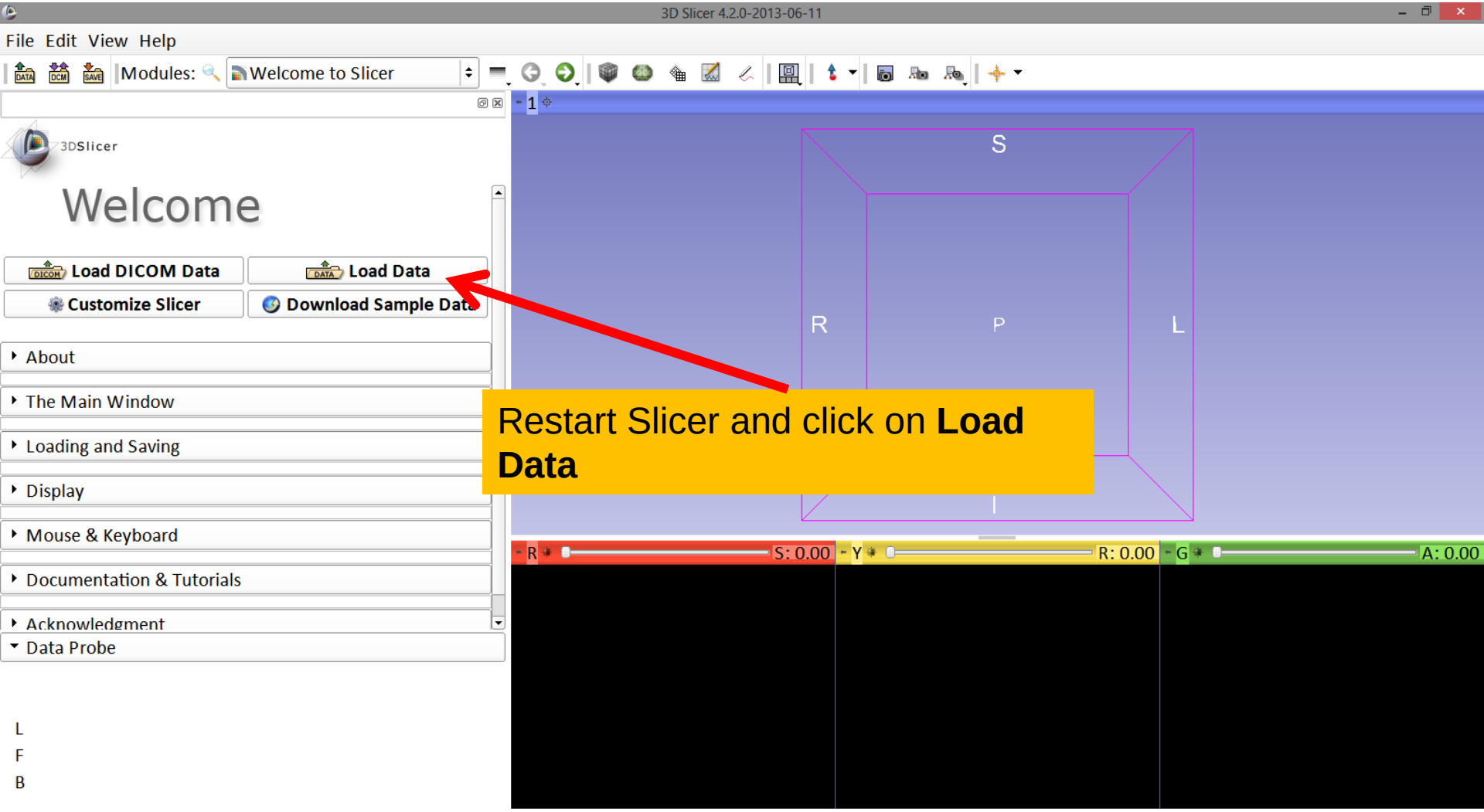


Check off the box next to the scene named **3DHeadScene.mrml** and double click on it to rename it **myNewScene.mrml** and select **Save**

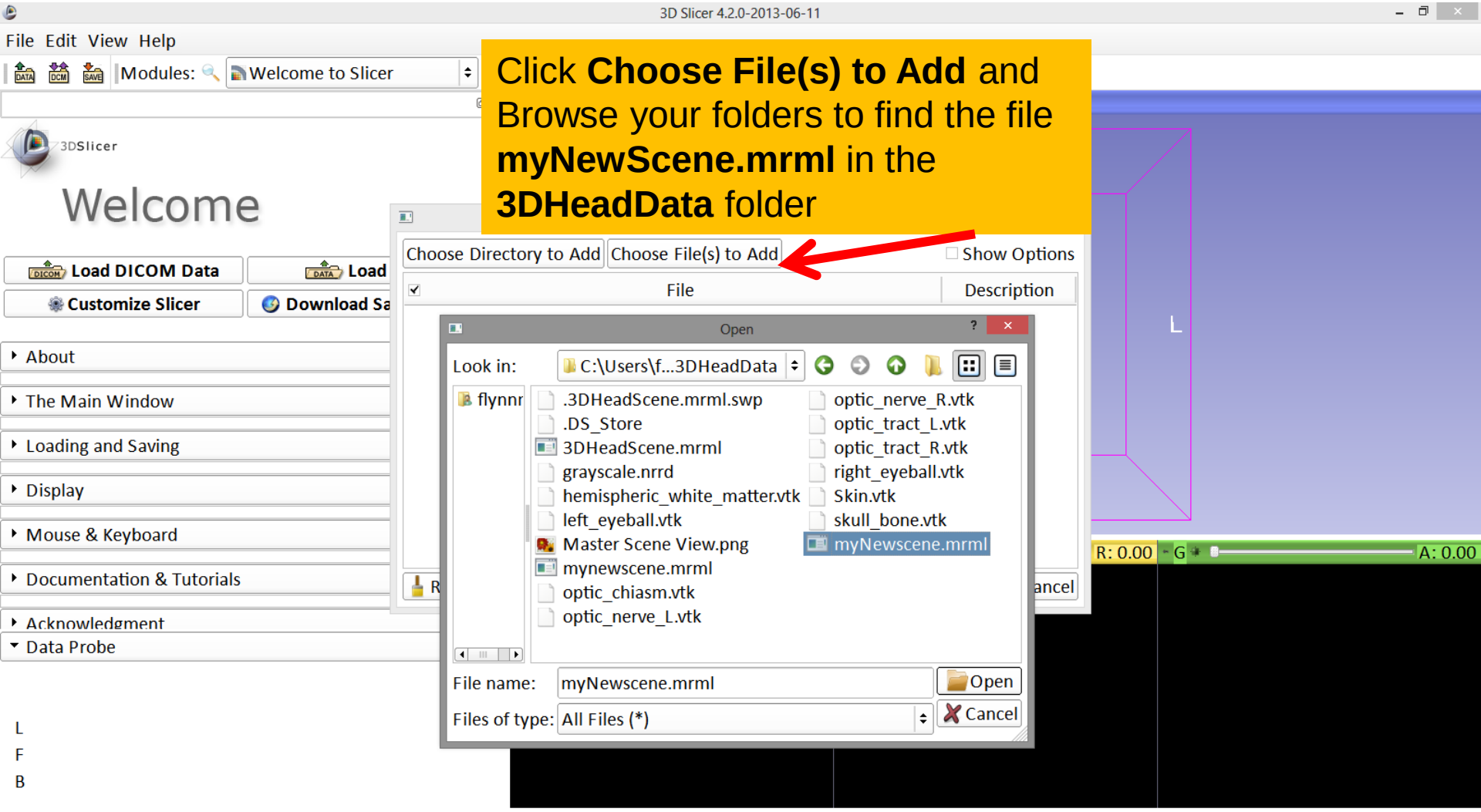
Saving a Scene



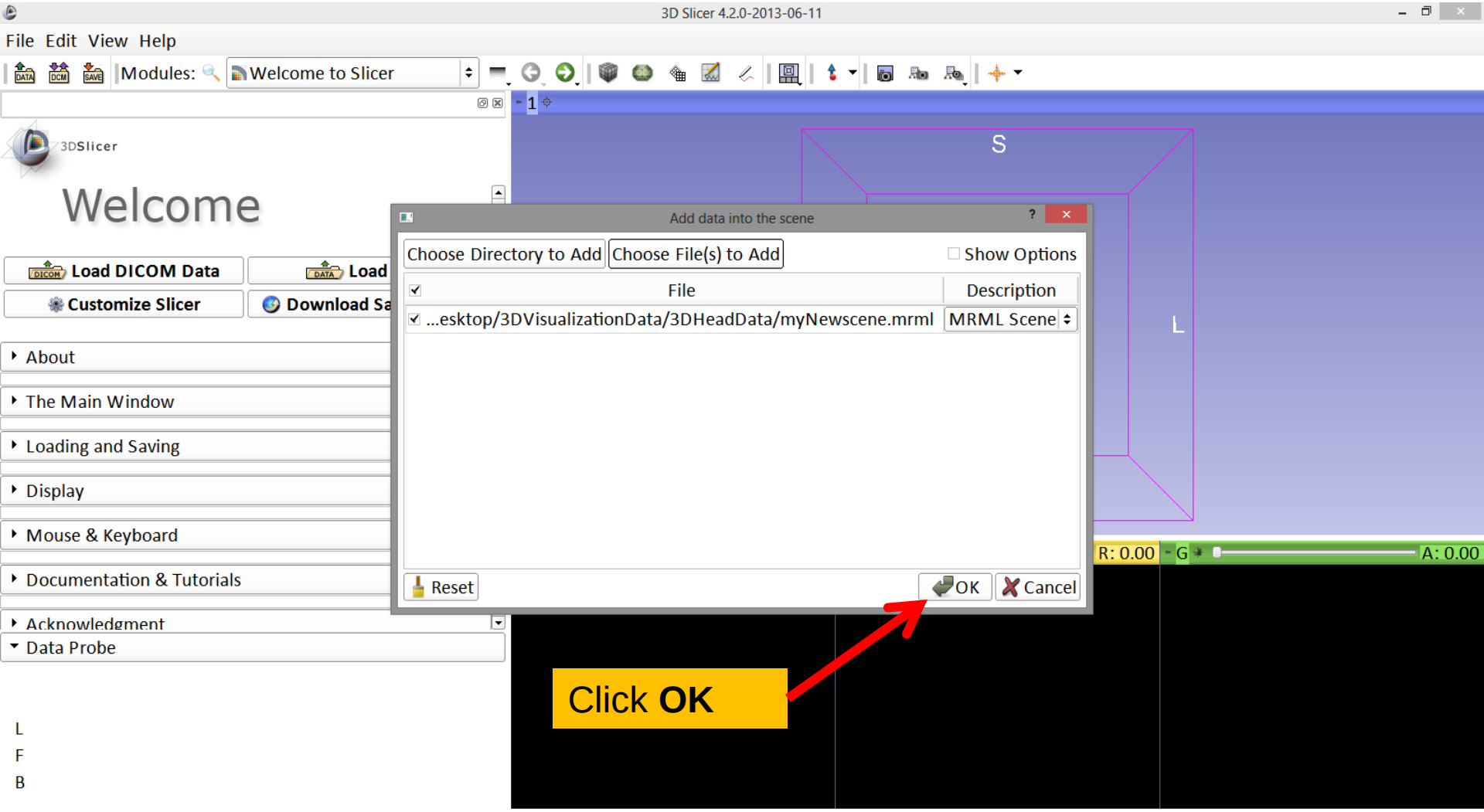
Scene Restore



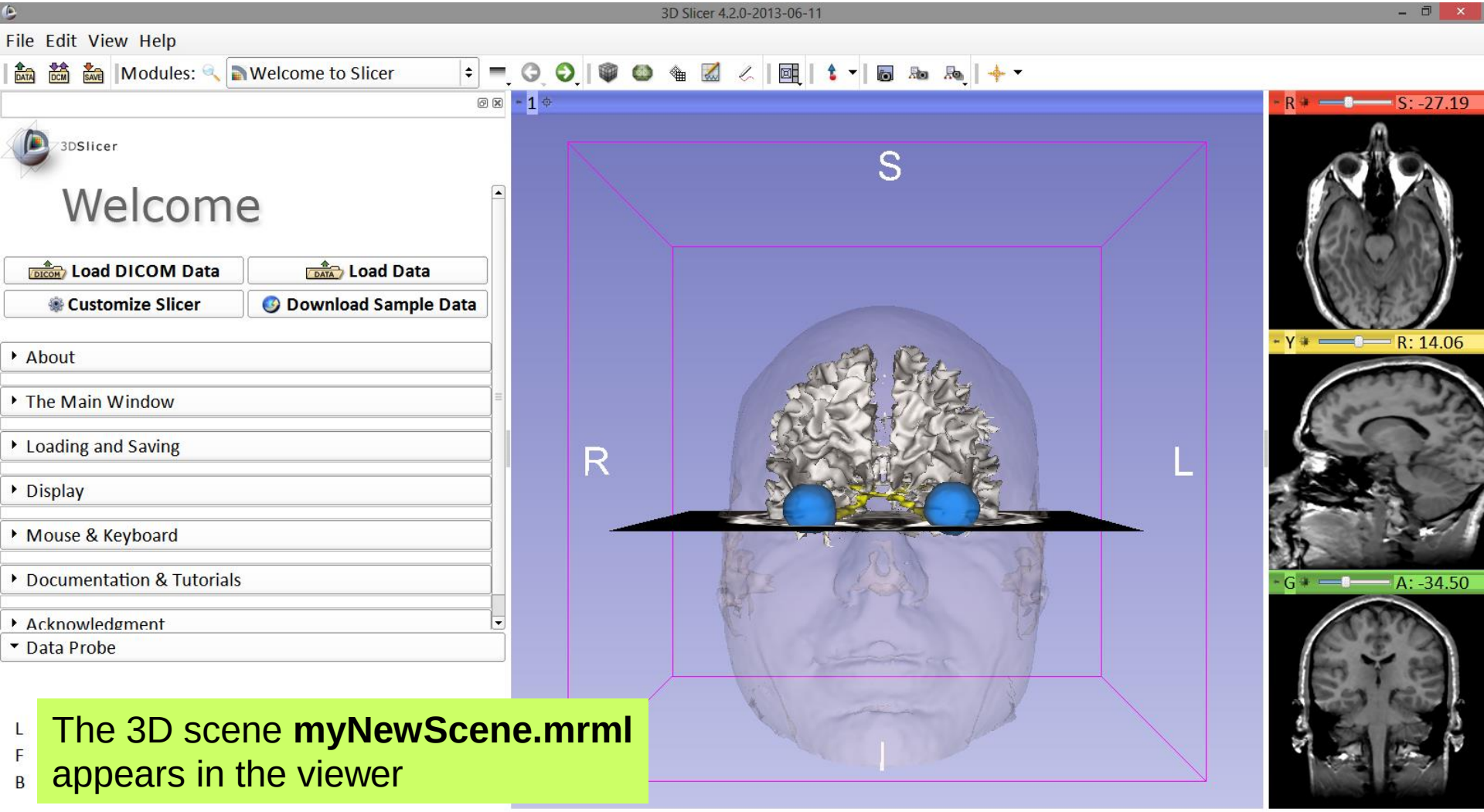
Scene Restore



Scene Restore



Slicer4



L
F
B

The 3D scene **myNewScene.mrml** appears in the viewer

Acknowledgments

- National Alliance for Medical Image Computing (NA-MIC)

  NIH U54EB005149

- Neuroimage Analysis Center (NAC)

  NIH P41RR013218

- Parth Amin, WIT ’16
- Matthew Flynn, WIT ‘16