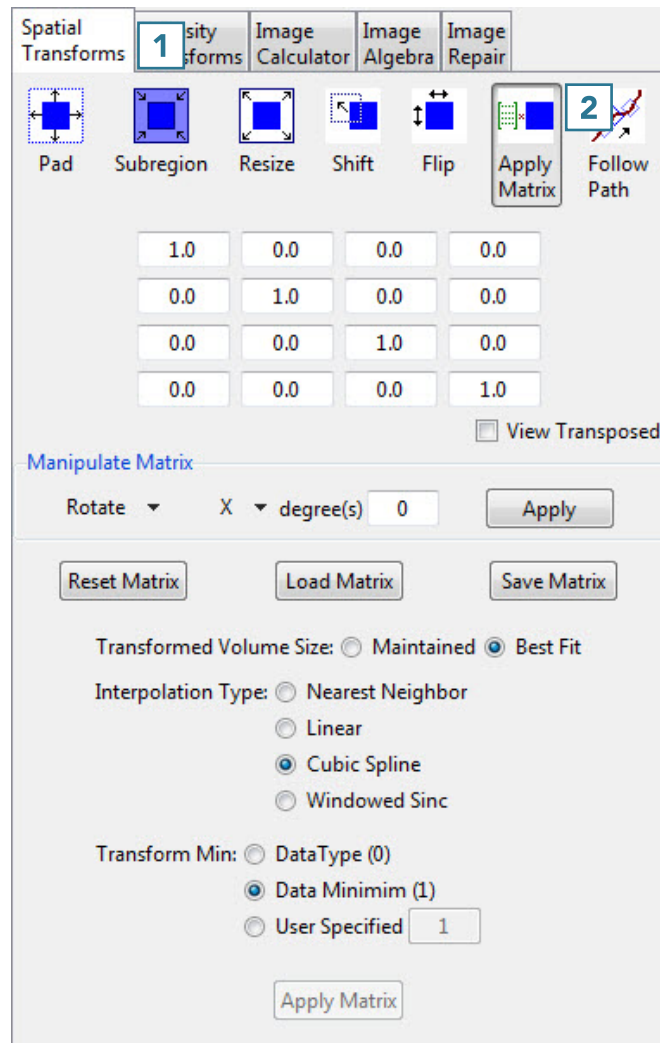# 3. AC-PC Alignment of Brain Data

- Select the data set to align along the AC-PC axis and open Transform.
- Navigate to Spatial Transforms. **1**
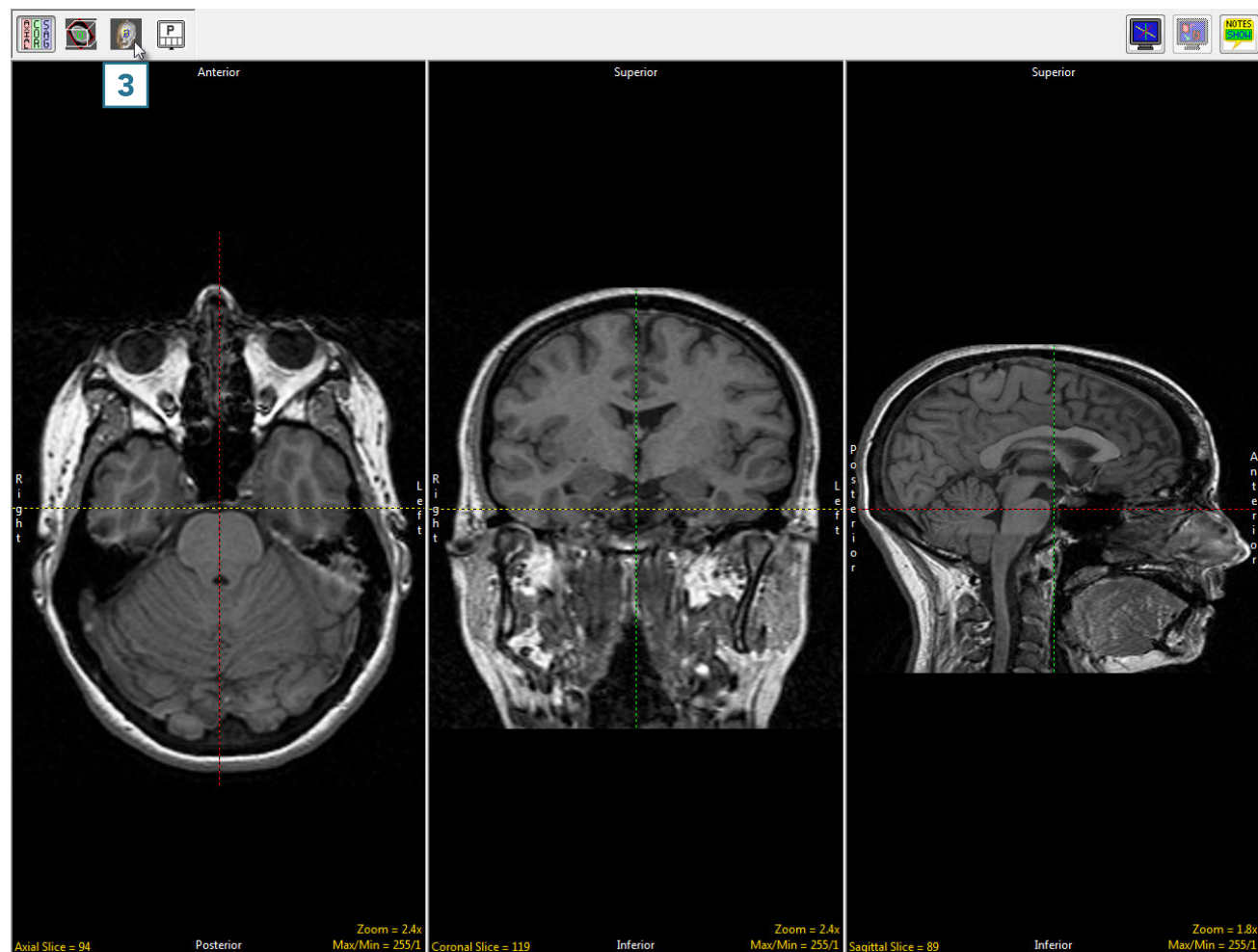- Select the Apply Matrix tool. **2**

Download the MRI_3D_Head data set to follow along http://analyzedirect.com/data/

The optimal display settings for AC-PC alignment or any other manipulation of an oblique plane are as follows:

- Switch off the rendering [3] (unless an object map is loaded, which might help visualize the oblique). Now the three orthogonal views are shown.
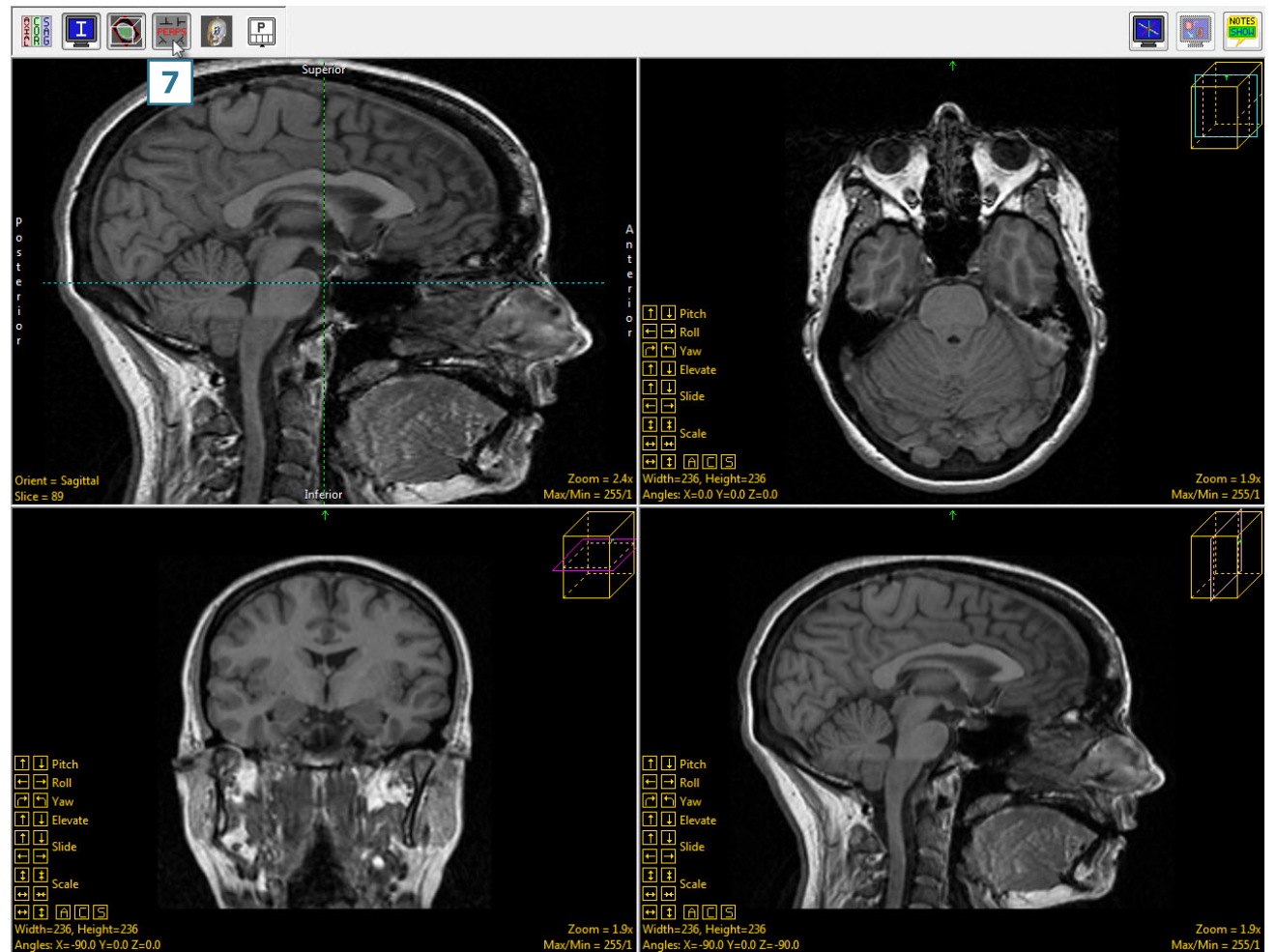
- Switch on the oblique. **4** Now, the oblique and the three orthogonal views are shown.
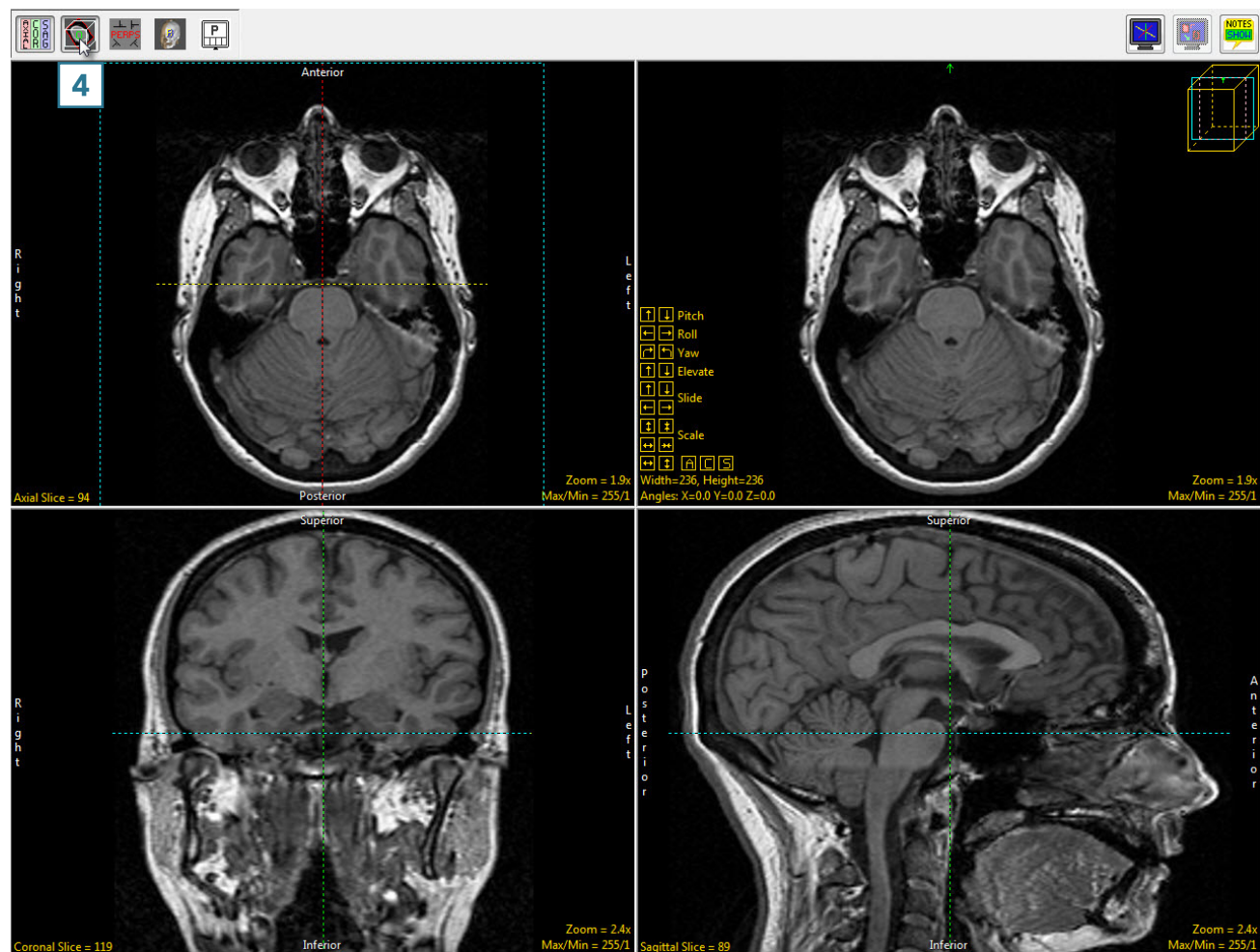
- Toggle the orthogonal orientations to a single image. **5**
- Set this image to the sagittal view by clicking twice on the Orient parameter. **6**
- Now the sagittal orientation and the oblique image are shown.
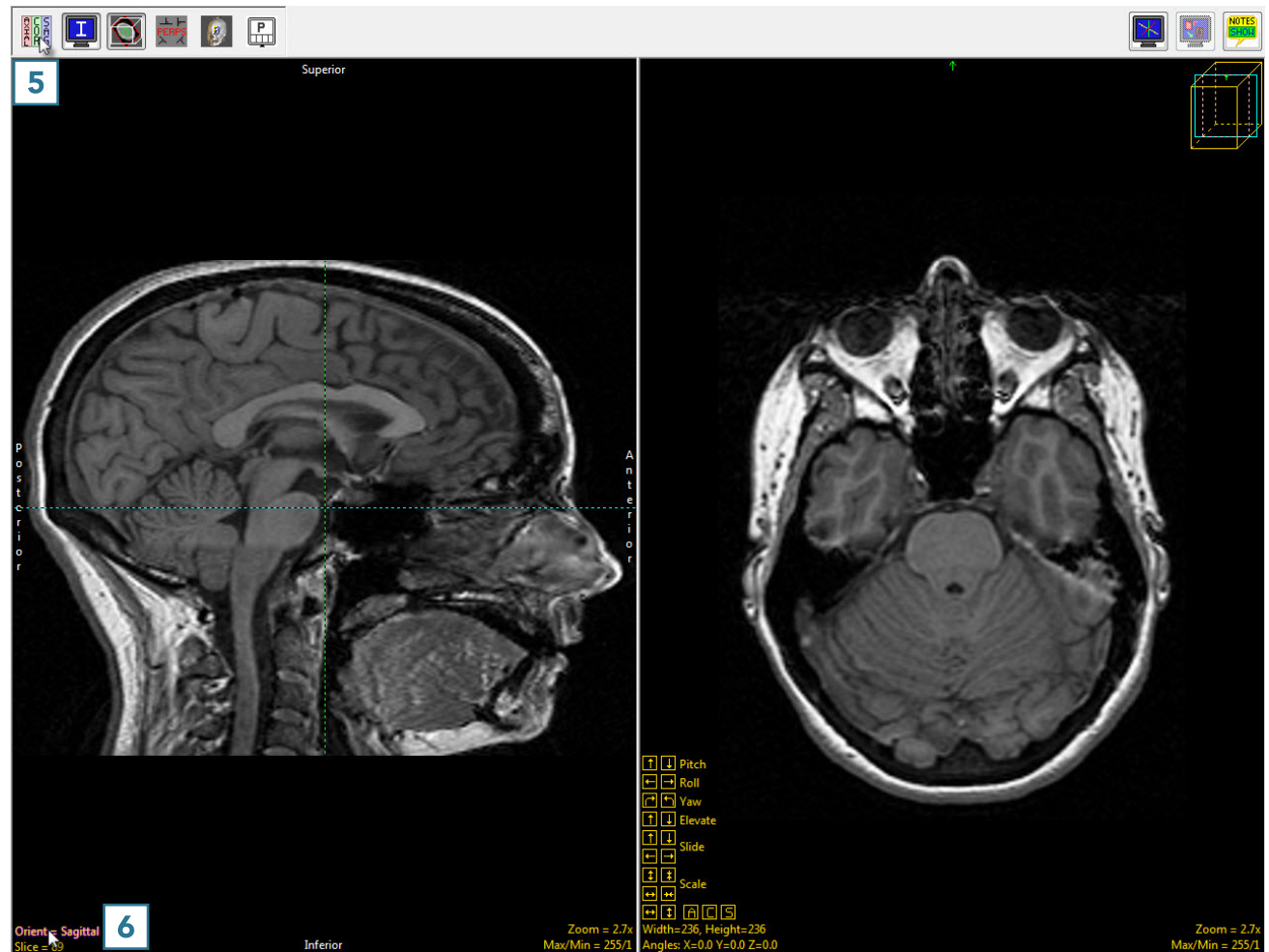
- Switch on the perpendicular images. **7**

- The AC-PC line will be defined on the sagittal view, so double-click the sagittal image or select Image as Primary in the drop-down menu. **8**
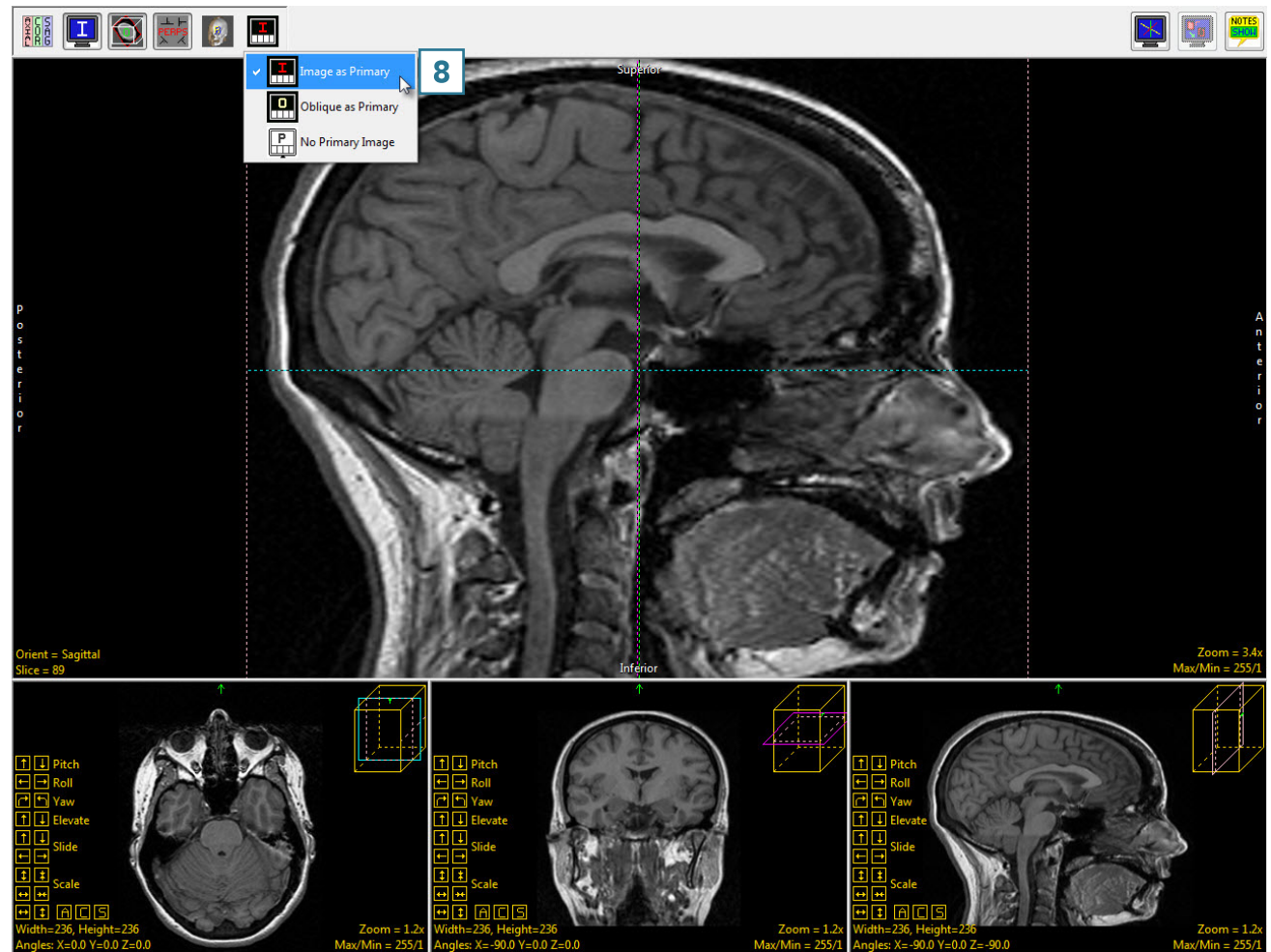
- Right-click on the sagittal image and select Perpendicular Axis [9] to turn on the perpendicular axis tool.

- Navigate to the mid-sagittal slice, which for this data set is slice 90. [10]

- Drag the left endpoint of the perpendicular axis to the posterior commissure. [11]

- Drag the right endpoint of the perpendicular axis to the anterior commissure. [12]
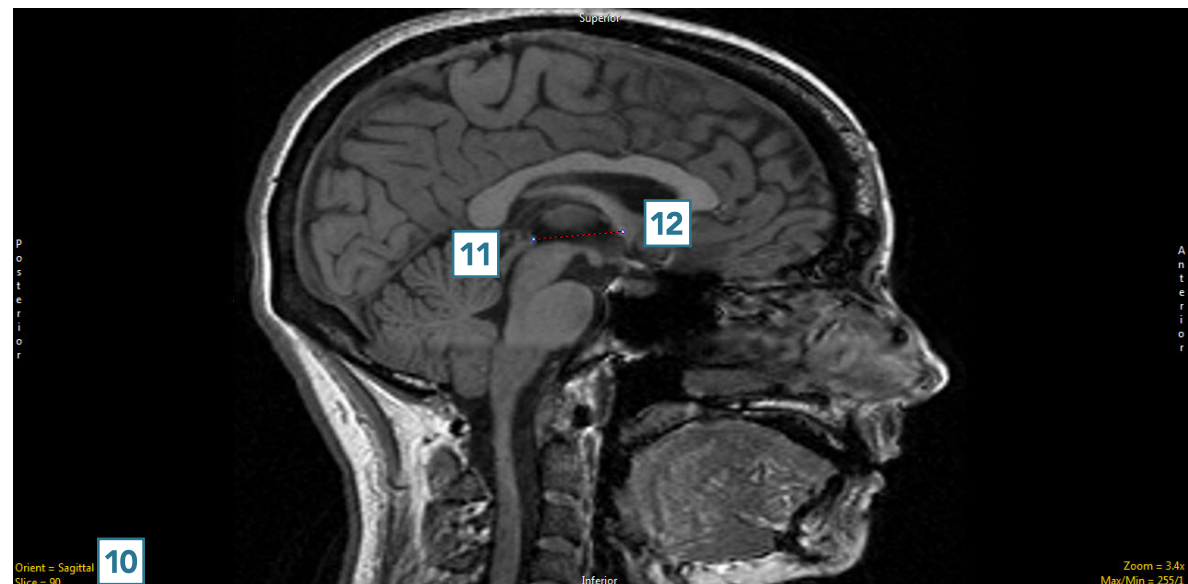
• To set the oblique plane to be parallel, rather than perpendicular, to the AC-PC plane, right-click on one of the perpendicular axis endpoints and set the Matrix to Create to Parallel. **13**
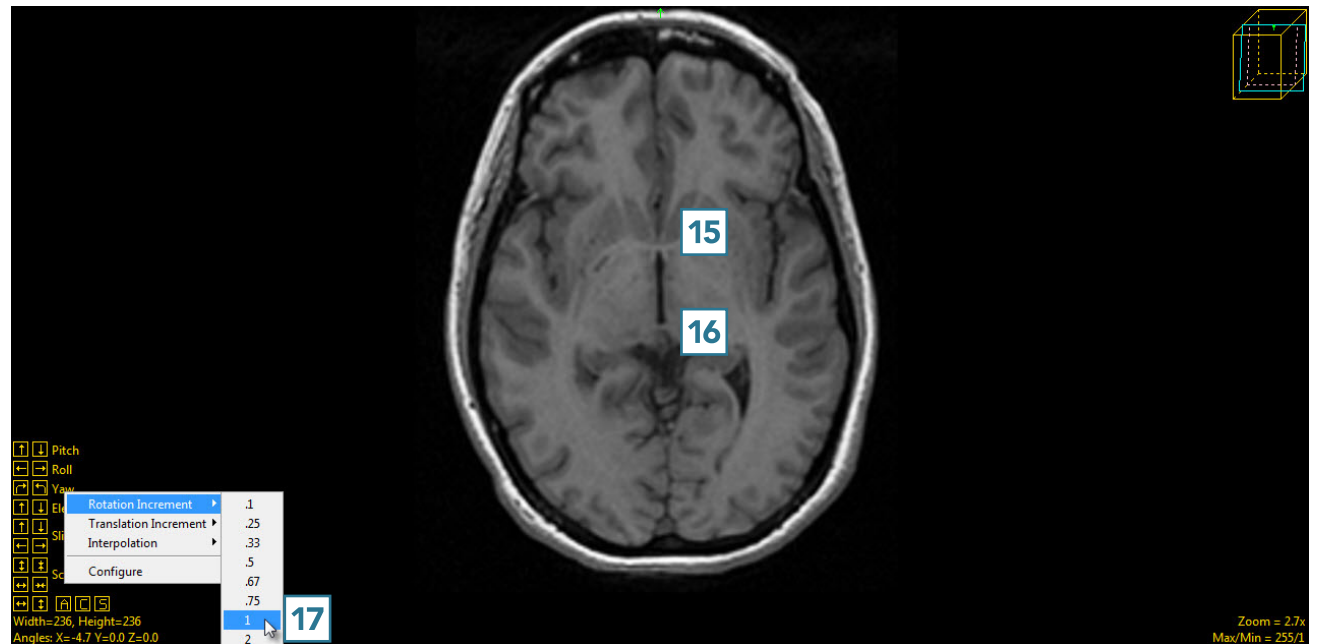
- Now the main oblique image (the leftmost of the three) is an AC-PC aligned axial image. 14
- Double-click this image to make it the primary image.
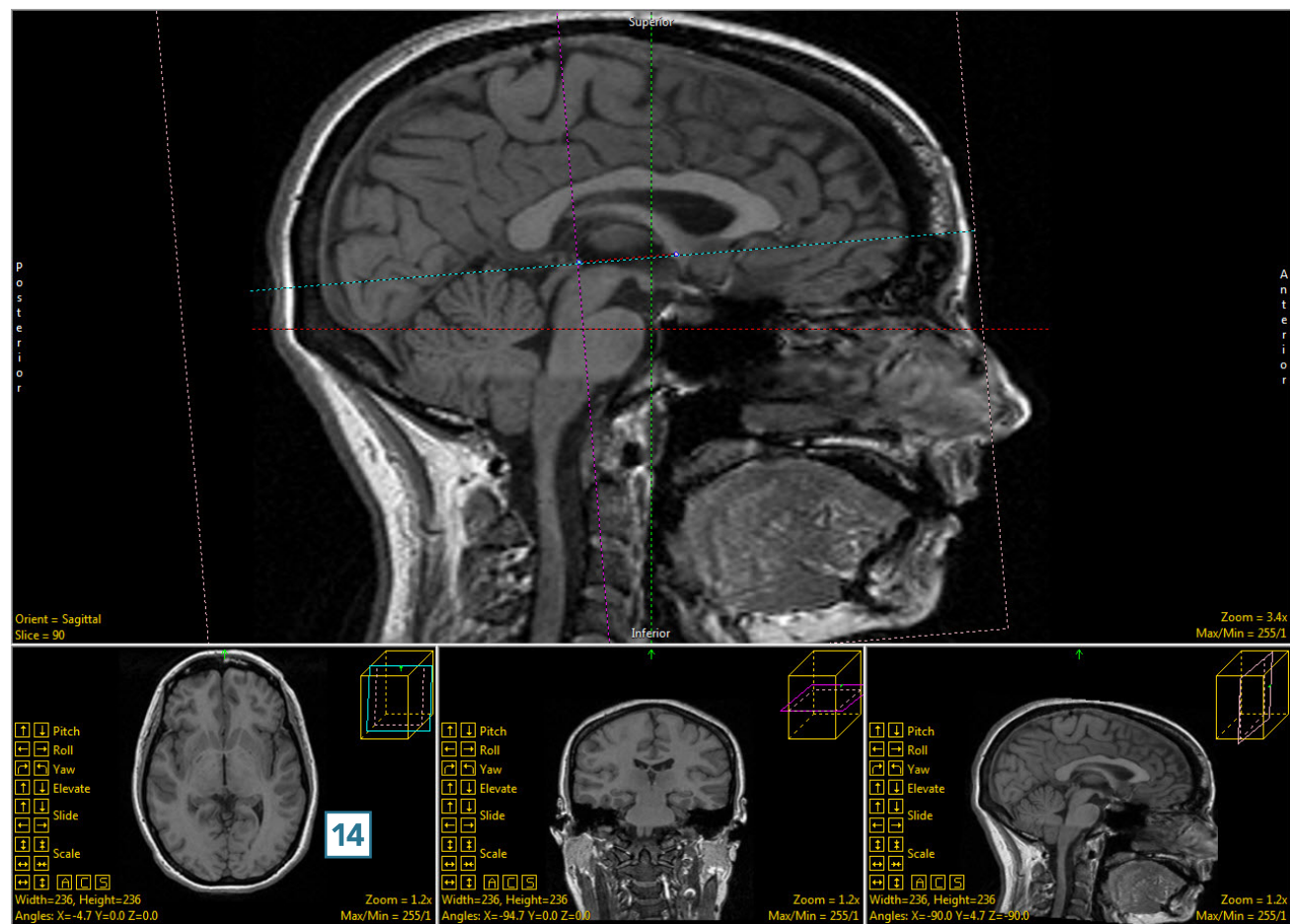
- The AC 15 and PC 16 can both be seen on the same oblique slice, indicating good AC-PC alignment.
- To adjust vertical alignment of the data set, right-click Yaw and set the Rotation Increment to 1. 17
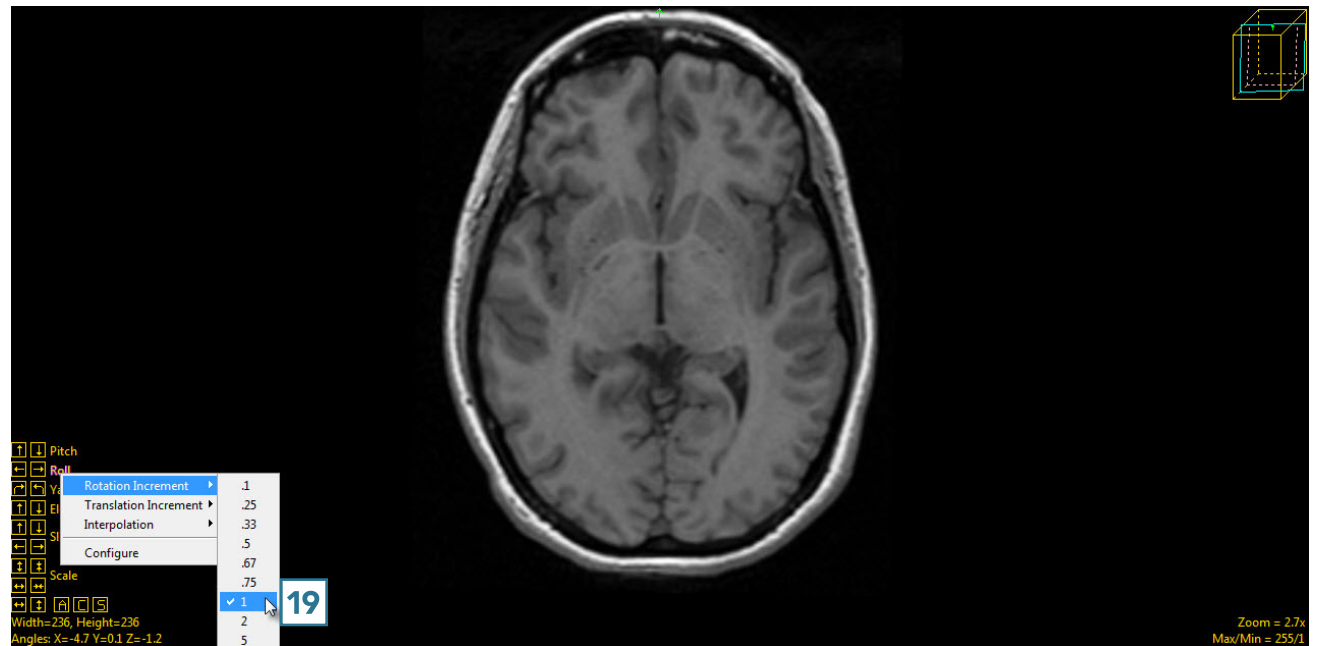
- Use the left and right Yaw
  buttons to align the data set
  vertically. 18 The increment can
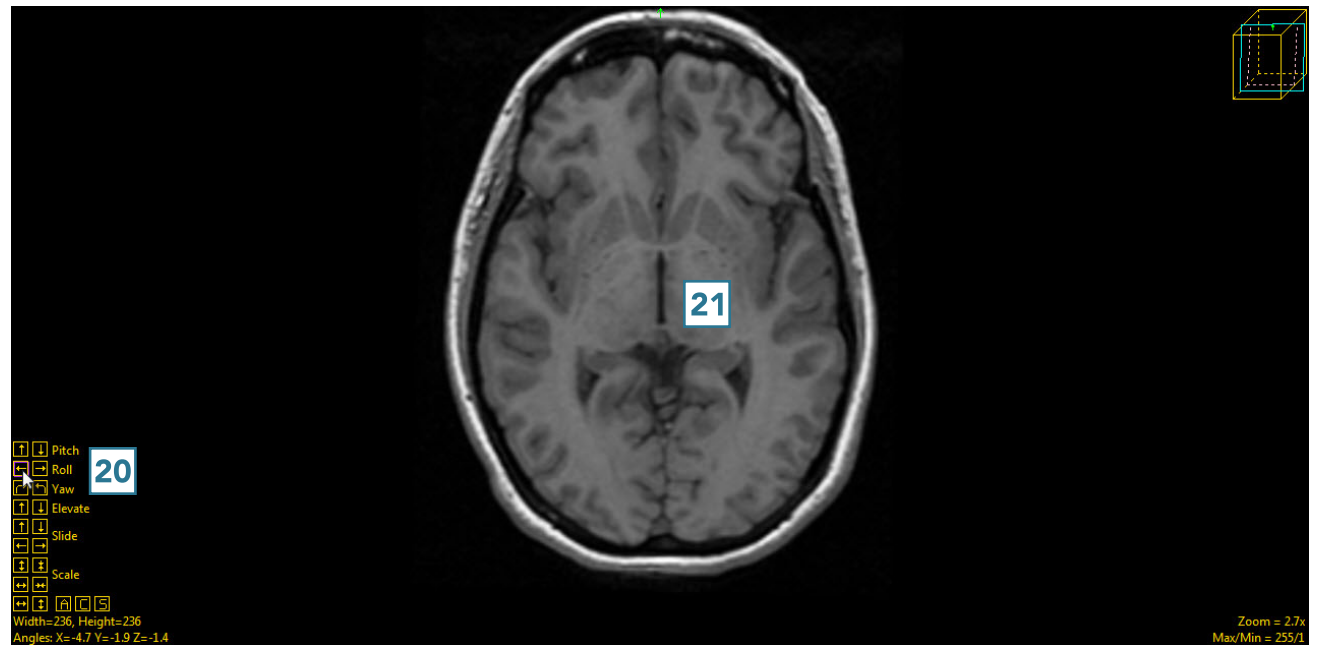 be made even smaller to make
  smaller adjustments as needed.
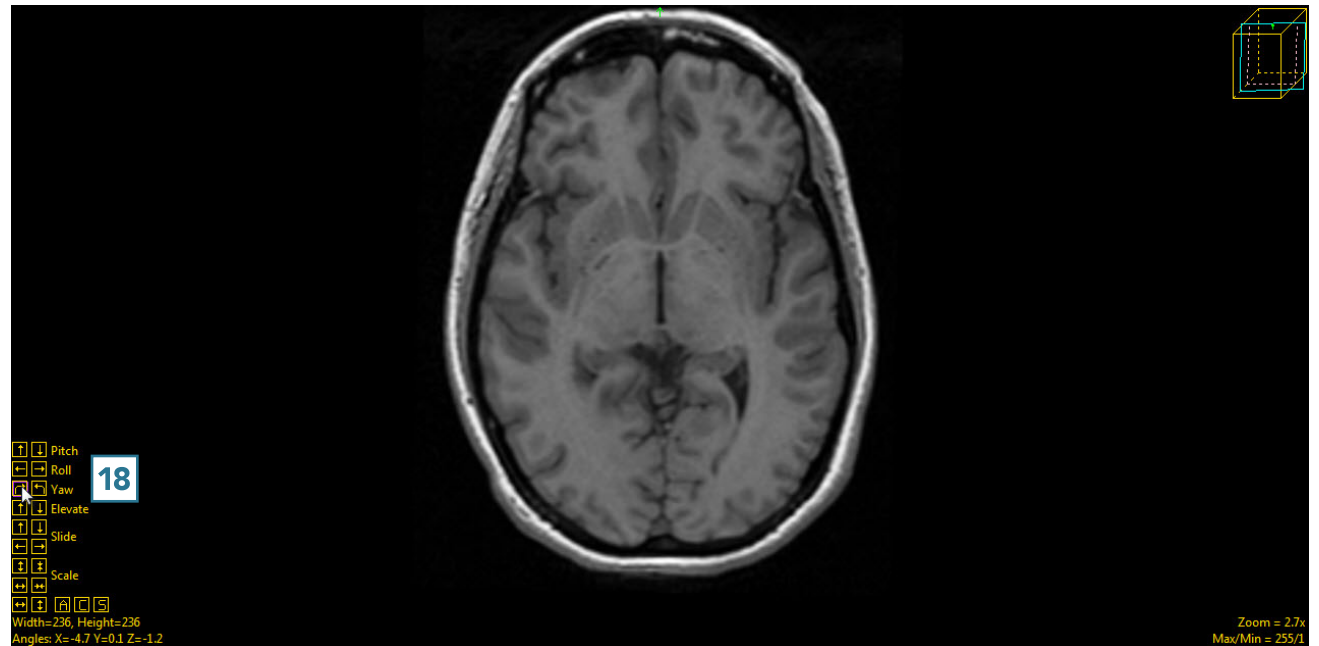
• The last adjustment to be made to the oblique plane will be done using the Roll function. Right-click on Roll and change the Rotation Increment to 1. **19**

- Click on the left and right roll buttons **20** to adjust the data set until the anatomical structures appear symmetrical. **21**

- Click Apply Matrix 22 to apply the transformation.

- Click Save Volume **23** to save the transformed data set.
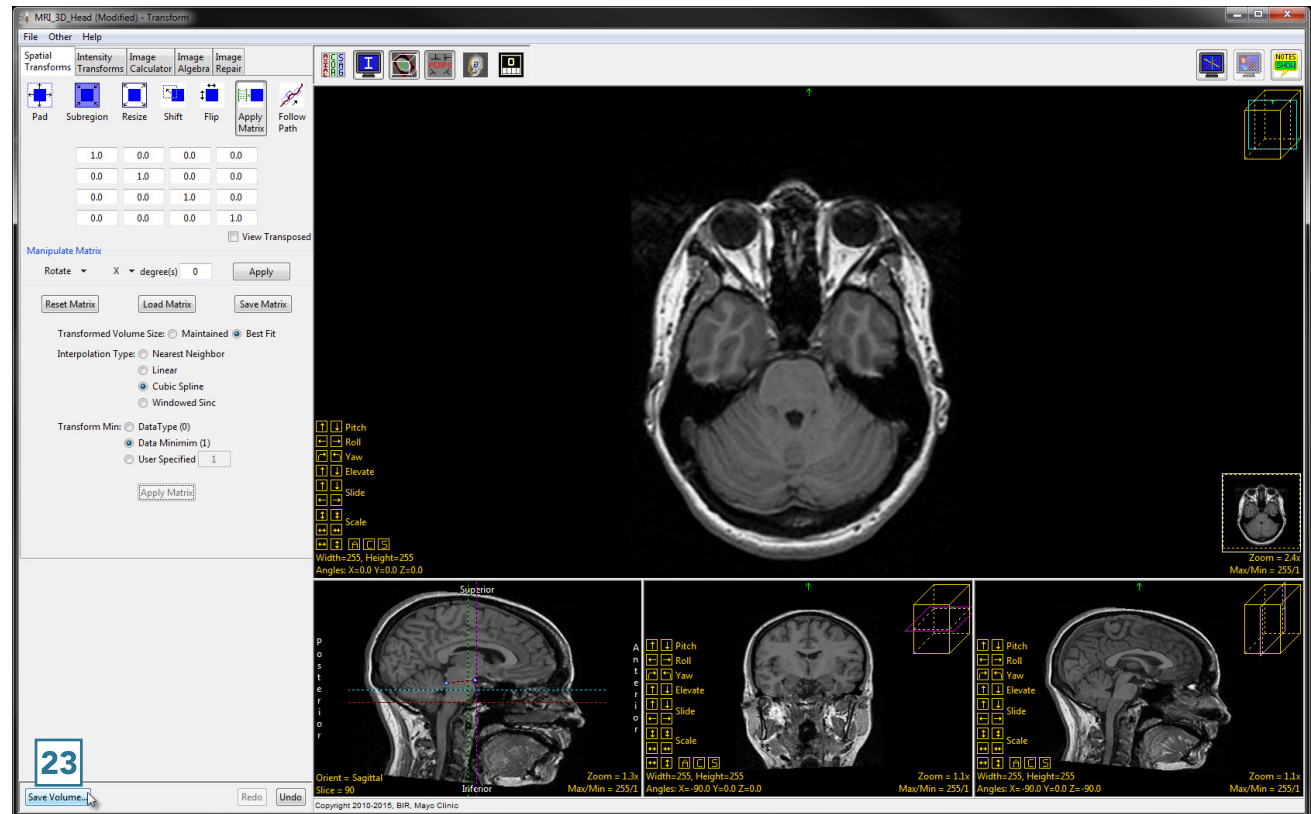
- In the Save Transformed
  window, choose to create a new
  workspace volume. 24
- Rename 25 and click Save
  Volume. 26
- Close Transform.

Save Transformed - Transform

○ Replace contents of 'MRI_3D_Head'.

● Create a new workspace volume. 24

Workspace Main

File MRI_3D_Head_ACPC 25

Save Volume 26