

Name:

Simulation Post-Processing

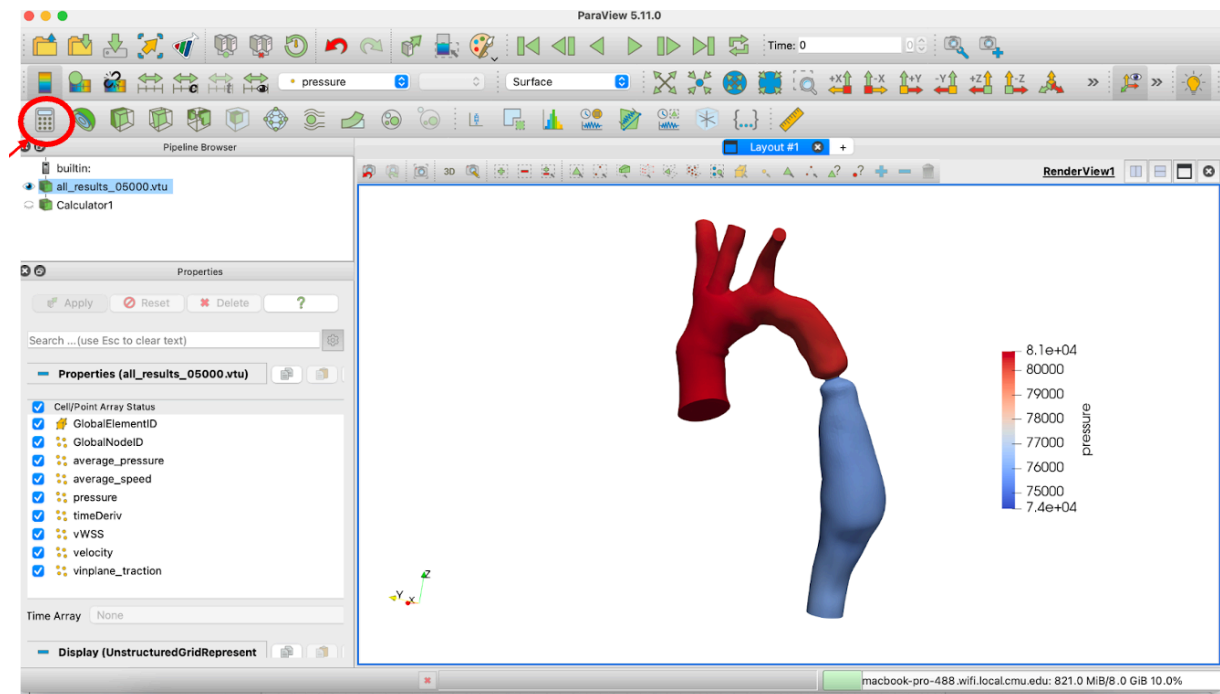
1. We will look at two aorta models with ParaView. What is different about the healthy and diseased geometries? Hint: Rotate to get a better look!



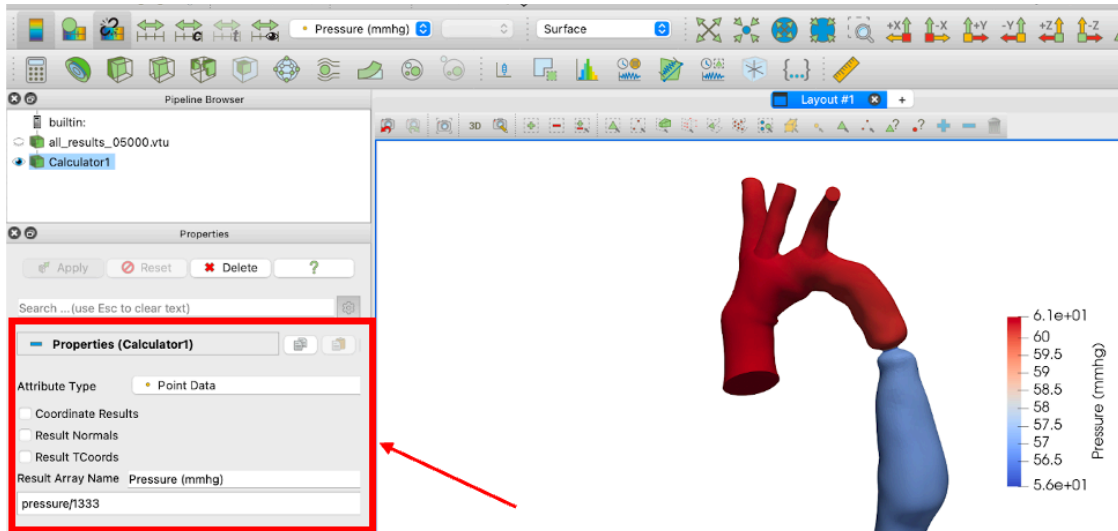
2. **Pressure:** Change the data you are looking at to pressure. Are the values large?



The values are quite high! They are in units dynes/cm². Doctors usually look at blood in mmHg, and it should be between 70 and 100mmHg. We will convert them to units of mmHg using the calculator at the top left in ParaView.



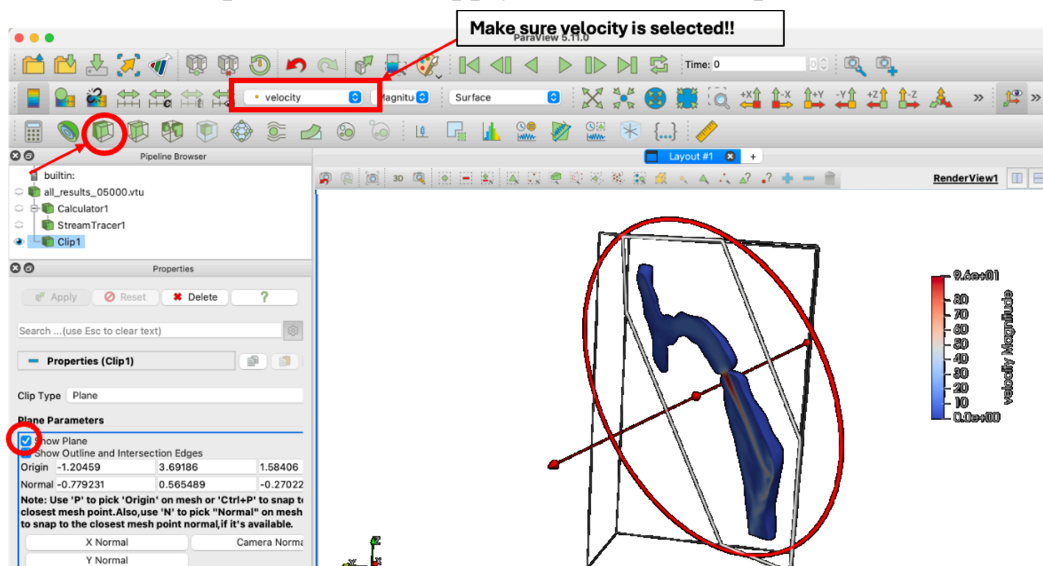
- a. Change Result Array Name to Pressure (mmHg), and in the equation box underneath that write pressure/1333. Click apply. $1 \text{ dynes/cm}^2 = 1333 \text{ mmHg}$. Repeat for healthy/diseased.



- b. What is different about the pressure of the two aorta models? How does pressure change in the diseased aorta with coarctation?



3. Now we will look at [velocities]. First, click clip (circle), and then align the plane as you can see in this picture. Click apply. **Unclick** show plane to view the model.

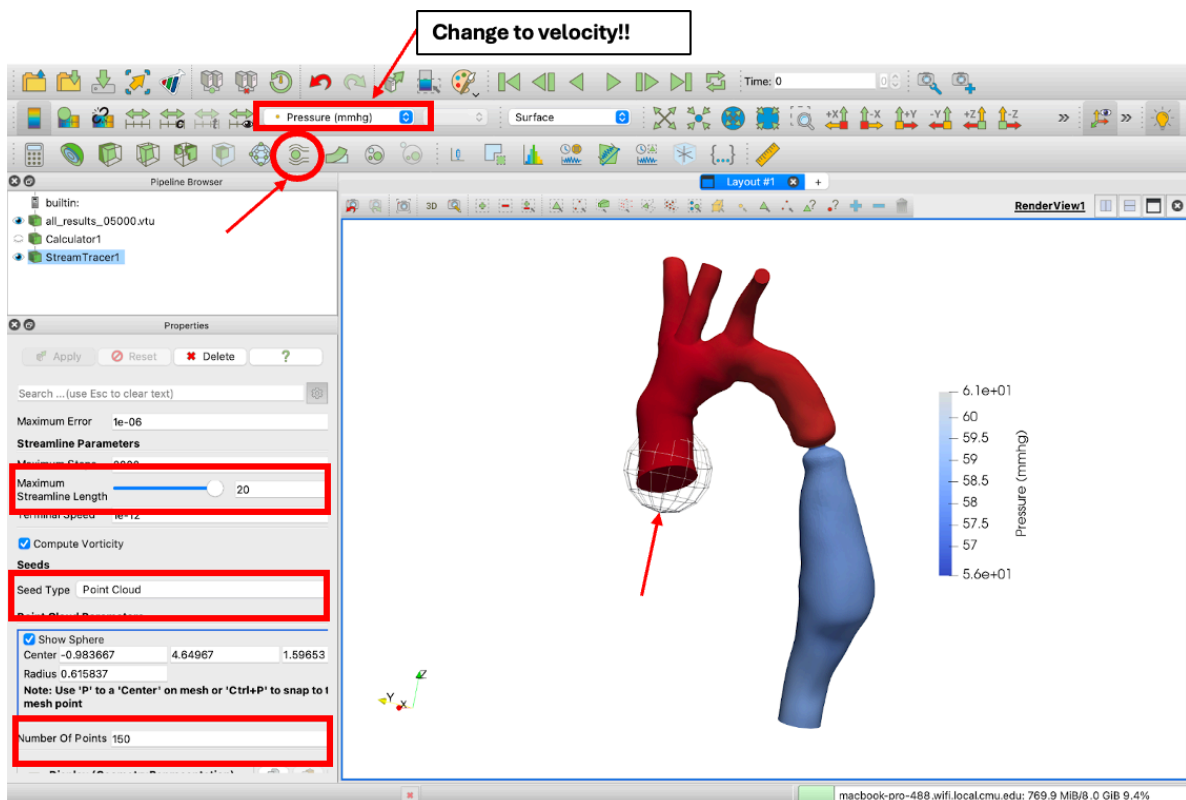


a. What do you notice about the velocities in the two different models?

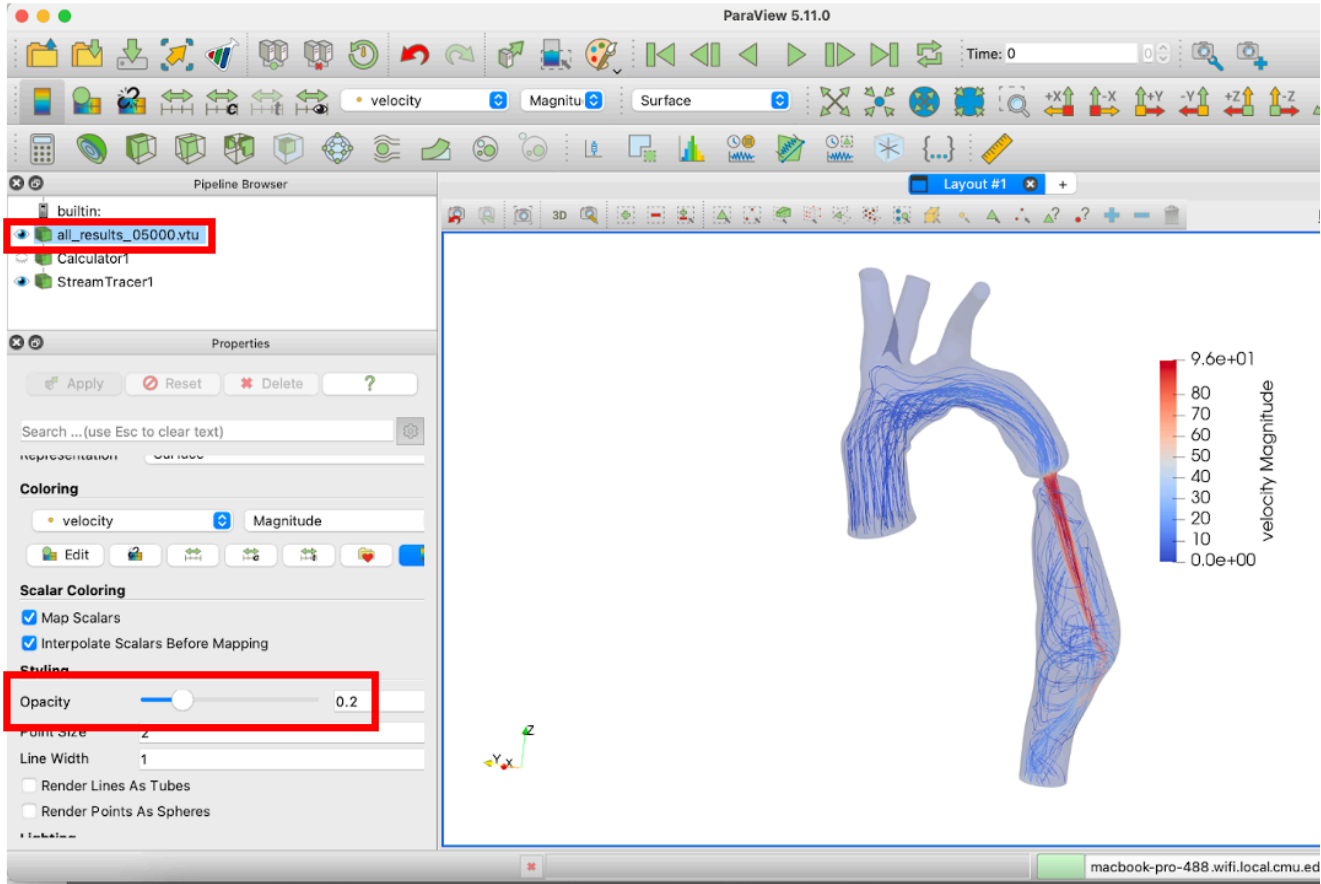


4. Next we will look at **[streamlines]**, this shows us where the blood flow is flowing.

- Click on the streamline tracer which is highlighted in the red circle.
- Make sure velocity is selected. Click the point cloud then position the circle around the inlet of the aorta as shown below.
- Change the number of lines to 200 and the maximum streamline length to 20. Click apply.



- d. Then change the opacity of the model by clicking on the very first item in your pipeline, **then** in the properties section (bottom left) you can change it to 0.2. That will help you see the streamlines.



- e. What do you notice about the streamlines between the two models? How is the blood flow different in each model?

