Compressible Flow Over an Airfoil - Validation

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Verification

In order to verify that the simulation is accurate, it must be compared to a study that is similar in nature. We will compare the AIM results with results from Stanford University's Aerospace Design Lab. In that study, users were expected to become familiar with performing an optimal space design in a 2D space. The airfoil used was also the NACA 0012, which makes this a perfect example to compare ours to. Below is the pressure contour that was plotted as a result of the Stanford tutorial, which can be directly compared to the pressure contour found in the previous section.

Return to the **Results** panel in the **Workflow**. Click on **Results** in the panel.

Select the **Pressure** contour created in the Solution/Results section of this tutorial.

Below is the pressure contour plotted by AIM.

To make the comparison easier, expand the **Appearance** options and change **Coloring** to **Banded,** then change **Number of colors** to 20.
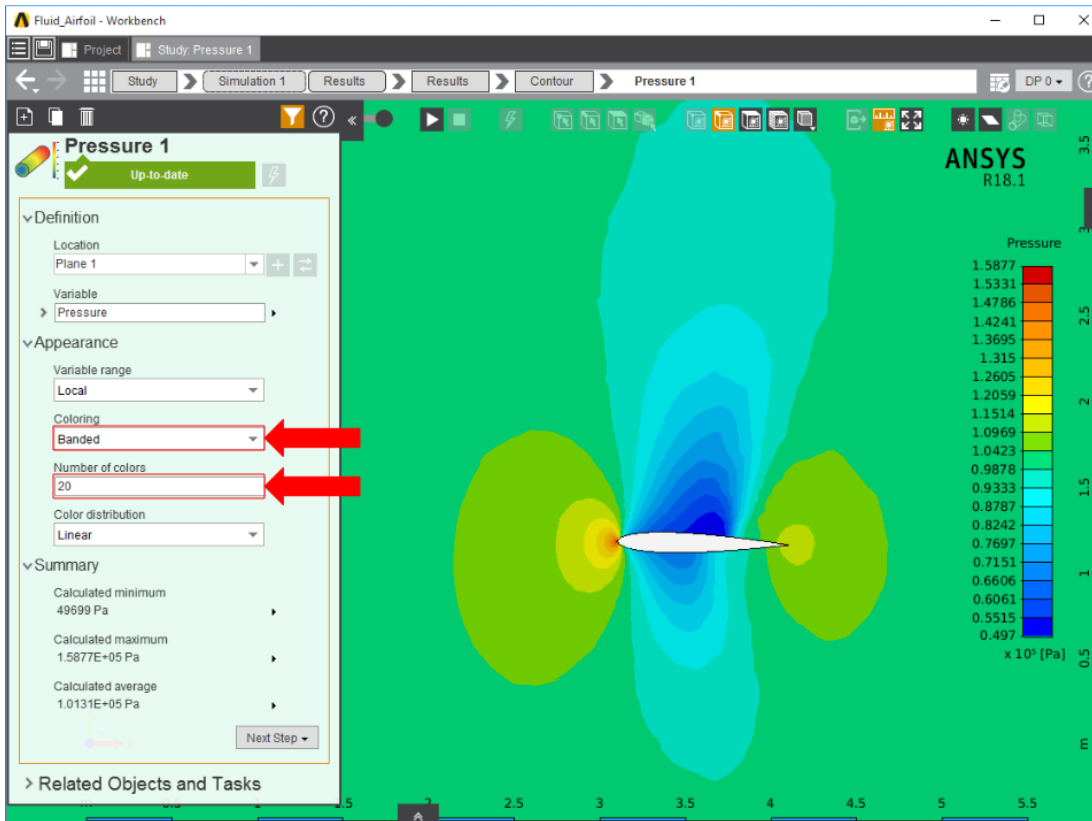
By comparing this to the Stanford's pressure contour, it is easy to see that they are similar. Also, the numerical minimum and maximum values are significantly close, within 10%.

References

Copeland, Sean and Econonom, Thomas. "Quick Start Tutorial - SU2 - ADL Software Documentation." Aerospace Design Lab. Stanford University, 1 July 2014. Web. 7 August 2017.

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