Assignment 6

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We have 5 data types for our paraview state. They are land cover, wind, temperature, pressure, and potential temperature.

We first use the original file, dorian.vti, as beginning. We create the land cover type and change the color of the land and the ocean. We have the land color as dark green and have the ocean as dark blue. The land cover part is done.

The second part the wind part. We first create the wind type and then from the filters->common insert the streamtracer to have the wind streamline in the view. We keep the color of the wind and stream as blue to red. For the streamtracer, we set the integration direction as BOTH and the intergrator type as Runge-Kutta 2. Then, to make the view consistent to the image in the example, we set the line parameters from the center to the lower left corner, which has length 15. The wind and streamtracer are done.

The third part is the temperature. We create it from the original file and do not change.

The third is the pressure part. We first create the pressure from the file and then insert the Contour from the filters->common to have the contour of pressure into the view. We set the color as three-part color, which is left (black), mid (red), and right (orange). To have the full view of contour, we generate 50 samples from the range between 90071.1 to 104231. That gives a detail view of contour of pressure. The pressure and contour are done.

The final part is the potential temperature and the Glyph part. We create the potential temperature from the file and then insert the glyph from the filters->common. We first set the color as blue-white-red for these two to make them visible in the land cover. For glyph part, we first set the glyph type as line. Then, we set the orientation array and scale array as wind. We also have the scale factor as 0.04 for easier to see. Then we set the humber of sample points as 3000. We tried 5000 or 1000. 5000 sample points is too much, and 1000 is too less, so we choice 3000. The glyph part is done.

The left screen shoot is the final result we get. The left is the combination of land cover, wind streamline, and glyph. The right is the land cover and the contour. The color for both of them are set to be consistent to the example given.