Update

First at all, we changed our proposal a little bit. Originally, we planed to only calculate lyapunov exponent at certain point due to the expensive computation. However, after we vectorized all the data, and optimized program, we have been gain enormous amount of speed up. Before optimization, it took about 0.2 second to get 1 mapping data point, which says in order to get a 200 by 400 graph, we need to run simulation for over 50 hours. Now, it only takes about 2 minutes to compute a 200 by 400 mapping data points.

Due to the huge boost on our program, we decide to add more stuff on our project. In other word, we are gonna make FTLE field of size 200 by 400 instead only computing few FTLE data points. This is pretty much finished at this stage: we got 100 data files, each of which contains 200 by 400 FTLE data points.

The next step is that we are going make a short animation for FTLE field that evolves from 0 to 10 seconds.