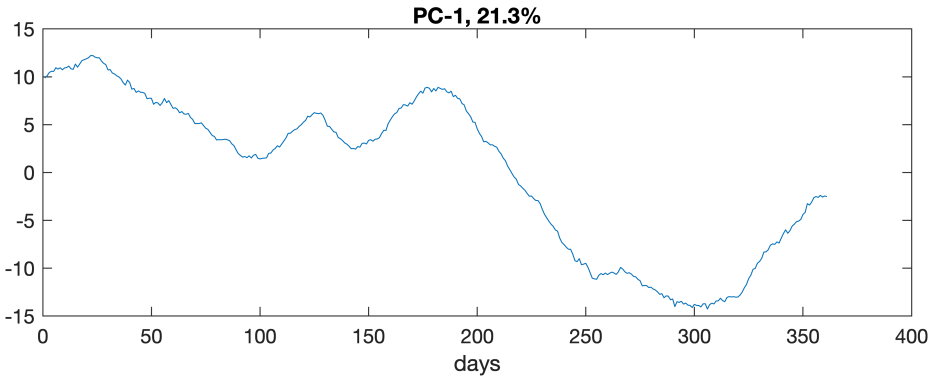
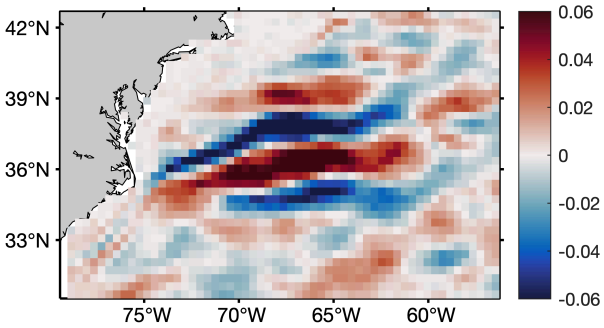
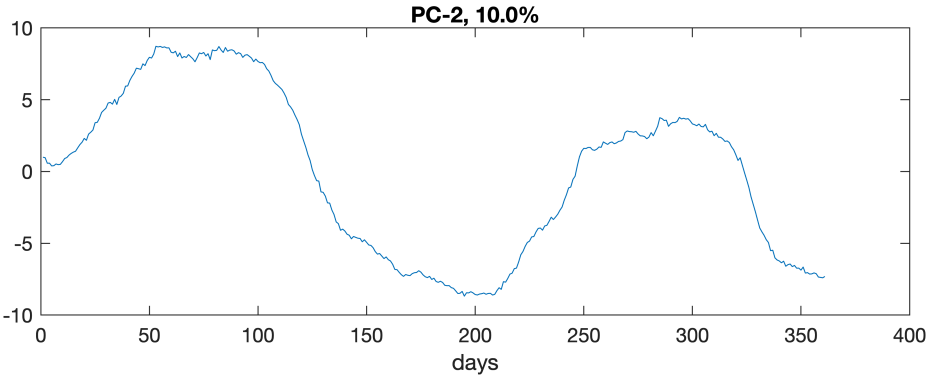
We explore the seperation of zonally elongated transients (Rudko et al., 2018) from the background turbulent flow by applying EOF to the zonal velocity field in the Gulf Stream region. The original data has a grid spacing of 2km and time step of 0.5d. Here the data we used are subsampled onto a corase grid with 40km and 1d.

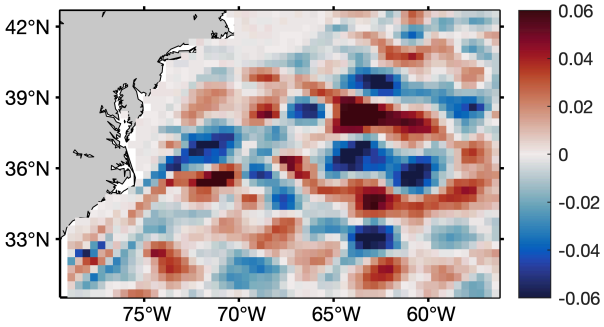
The first three components are shown below. They explain 40% of the total variance. The EOF maps are dimensionless.

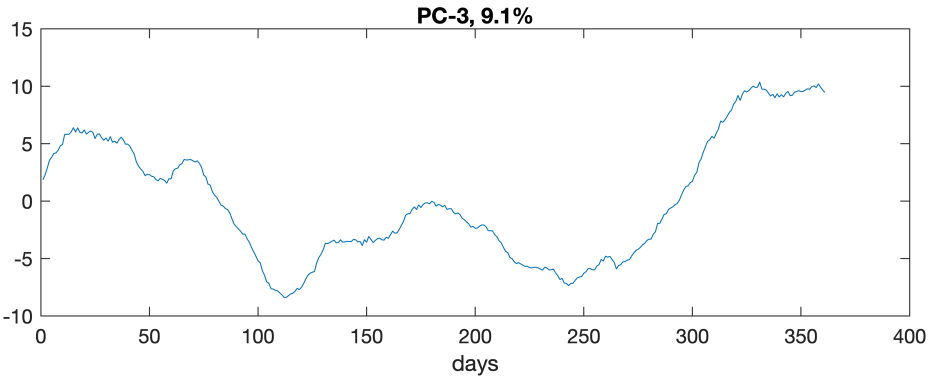
The zonally elongated transient flow patterns near Gulf Stream are extracted in the first component. Note that this structure should be distinguished from the stationary zonal jets which has been subtracted before applying EOF.

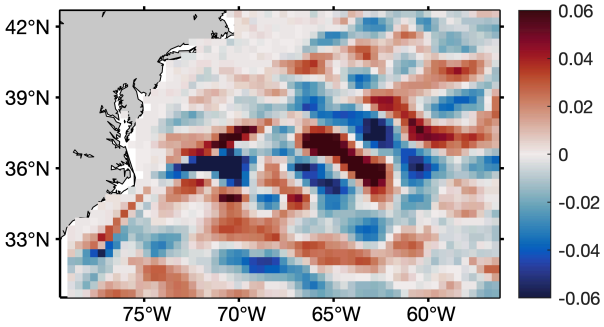


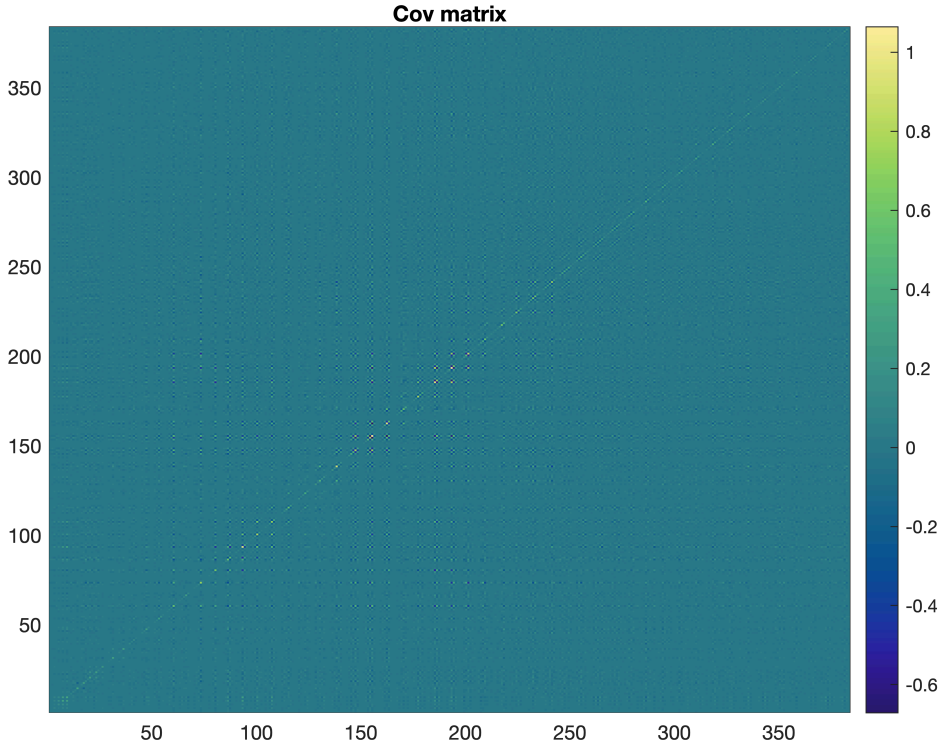


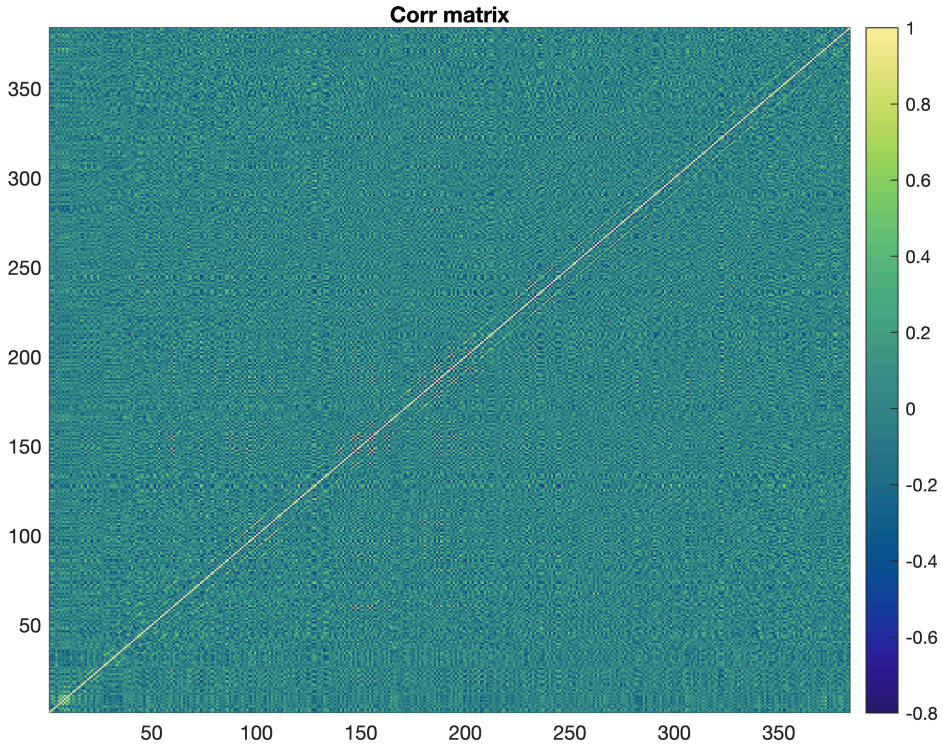




The covariance and correlation matrices are show below.


Cov matrix
350
300
250
200
150
100
50
50
100
150
200
250
300
350
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6


Corr matrix
350
300
250
200
150
100
50
50
100
150
200
250
300
350
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
-0.6
-0.8