Every year, the North Atlantic Ocean is where many low-pressure systems, called cyclones, form. These structures are large, spinning storm systems that form in the atmosphere. They are usually associated with rainy and windy weather. Some cyclones may be very strong and drive extreme conditions (e.g. severe thunderstorms or floods). There are two main types of these cyclones: tropical and extratropical ones. Tropical cyclones develop over warm waters in lower geographical latitudes (close to the Equator) and can turn into destructive hurricanes. Some regions must be prepared for strong North Atlantic hurricanes outbreaks as they appear from June to November, mainly in south-eastern states of America (e.g. Florida) and Caribbean Islands. Extratropical cyclones, though, can be remnants of hurricanes migrating to higher latitudes (called post-tropical cyclones) or form independently in cooler, temperate regions, the most often in winter. Although their force isn't so big as in case of hurricanes, they can still break the weather not only in North America, but also in Europe as they migrate in north-eastern direction, in accordance with winds blowing at these latitudes. Extratropical cyclones are mainly determined by difference of temperature between higher and lower latitudes. They are associated with weather fronts - boundaries between two different air masses with different temperatures and humidity levels. Cyclones, in accordance with their strength, can bring many losses for people and economy. That's why they are studied by many scientists. Knowing their variability helps many regions to be prepared for their outcome. By studying factors steering activity of cyclones, we can tell if given season will be relatively stronger or weaker. However, in time of recent climate change, there is a large uncertainty about long-term behaviour of these structures. Early research by our team shows that the number of hurricanes and post-tropical cyclones has increased from 1970 to 2019, and there is a strong link between sea surface temperatures and the number of these cyclones each year. This link is also seen in where post-tropical cyclones reach their maximal range. Other scientists also try to predict impact of climate change on cyclones, nevertheless there are still many unknowns or uncertainties as cyclones are very complex structures. Moreover, there are some natural atmospheric patterns (for example El Niño) that can affect these cyclones in their global weather chain reaction, however we can't understand this relationship in the way that would satisfy us. That's why our project's main goal is to understand how different features of strong North Atlantic cyclones change over time and how some factors control these changes. We will look at many characteristics of cyclones and the extreme weather they cause, like strong winds and high storm surges. We think that climate change can alter how cyclones form and develop, affecting their strength, paths, range and many more features. The well-known fact of this relationship is increasing temperature of the oceans, which fuels tropical cyclones to born more often and intensify stronger. To achieve our research goals, we will collect data on strong North Atlantic cyclones from various databases and enhance this data with meteorological information, like wind gusts. We will use tools like ERA5 and NCAR reanalyses and data from weather stations, along with remote sensing and radar data. We will also calculate indices for annual and monthly atmospheric patterns. Next, we will analyze the relationship between cyclones and different environmental factors using statistical methods. We will also study the impact of climate change by creating models for different greenhouse gas emission scenarios. Our main tools will be R and Python programming languages, SQL databases, and QGIS software. This research is innovative and aligns with current scientific trends. Understanding how climate change affects these powerful storms will help improve disaster management systems in America and Europe, reducing injuries, deaths, and economic losses.