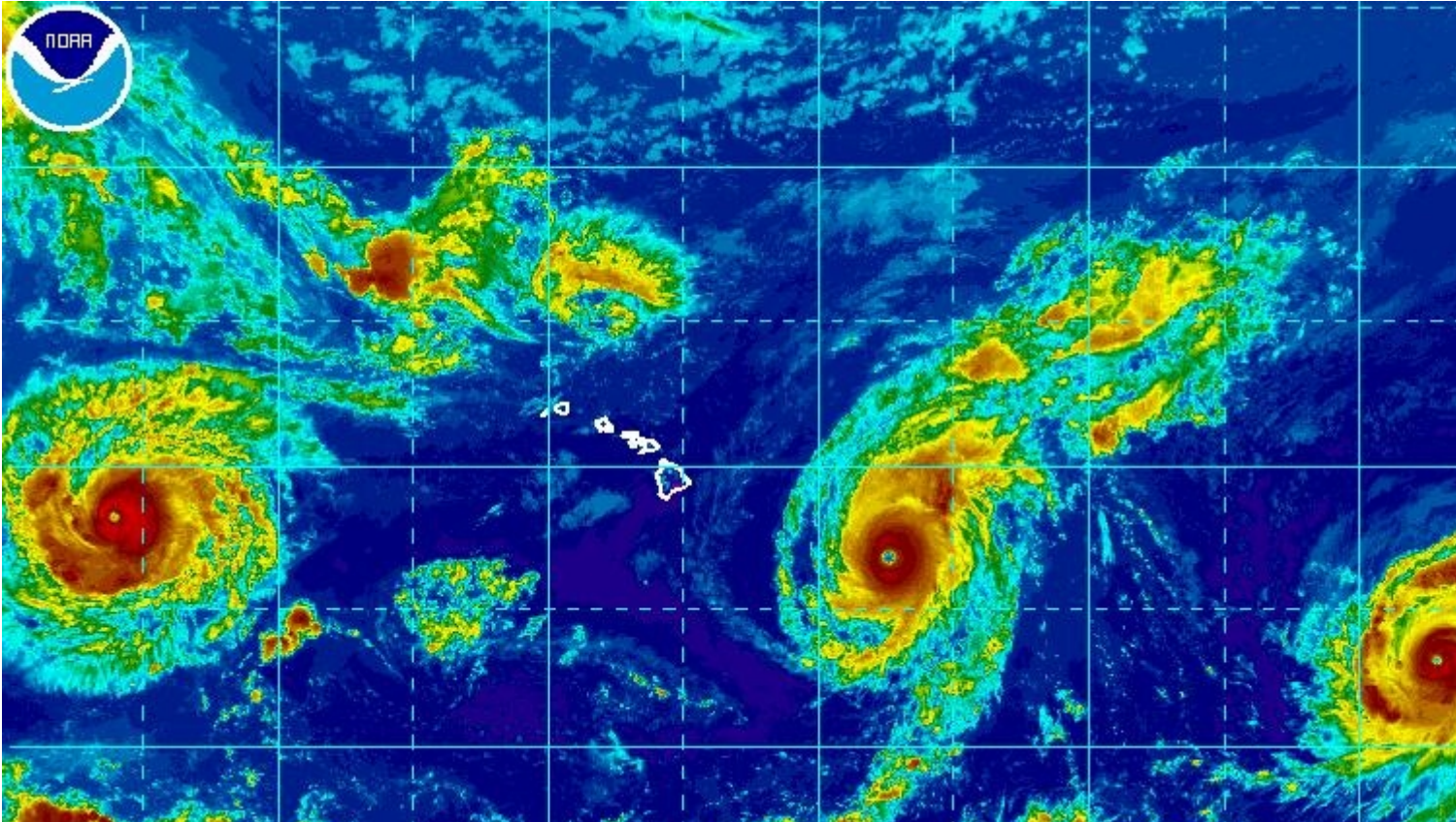


## Tropical Cyclones



Tropical cyclone activity can vary significantly from one year to the next, and even from one decade to the next. Scientists from the BSC work to understand this variability and to develop forecasting tools to predict the level of cyclone activity over a period of one to five years.

### **Summary**

Over seasonal timescales (from 3-10 months in advance), predictions can be made for the level of cyclone activity to occur during a given season. Such predictions will indicate, for example, the expected number of cyclones that will form or the number of days that there will be cyclones during a season. Such predictions are typically issued in the months leading up to each tropical cyclone season by a range of national agencies and research centres and also by some private firms.

Seasonal tropical cyclone predictions are possible since cyclone activity is known to be influenced by predictable climate factors, such as the El Niño Southern Oscillation (ENSO), which impact the atmospheric circulation in the regions where cyclones develop. Knowing the state of ENSO at the beginning of a tropical cyclone season as well as its likely evolution throughout a season provides information on whether the risk

of cyclone activity is heightened or lowered. ENSO is known to influence cyclone activity in the Atlantic, western and eastern North Pacific and around Australia.

Some studies have recently suggested that it is also possible to predict cyclone activity over multiple years in the Atlantic. This ability has been linked to slow changes in the Northern North Atlantic ocean circulation, which in turn impact the atmospheric circulation over the tropical Atlantic and, consequently, tropical cyclone formation.

The climate prediction group works at developing new hurricane forecasting products for both the seasonal and multi-annual time scales, understanding the skill and limitations of current forecast systems and works with private sector actors in order to integrate these forecasts into a decision making process.

## Objectives

- To develop seasonal and multi-annual forecast products of tropical cyclone activity.
- To analyse and understand the skill of currently available seasonal hurricane forecasts
- To study the ability of current global climate models at representing observed characteristics of tropical cyclone activity
- To understand the interannual and multi-annual variability of tropical cyclones

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