



## **Enhanced seasonality of storm track intensity under global warming**

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The seasonal cycle of extratropical storms is an important determinant of climatic conditions in regions along mid-latitude storm tracks. Severe storms during winter can cause severe damages over continents, whereas summer storms can actually bring relief to continents subject to prolonged hot and dry periods. It is thus of crucial importance to gain greater insight into the underlying mechanisms driving the seasonal cycle, as well as to assess future scenarios.

Here we analyze the seasonality of extratropical storms in 20th and 21st century climates using CMIP5 model runs, based on different greenhouse gas emission scenarios. The synoptic-scale kinetic energy is derived for each individual month using a 2-6 day bandpass filter on daily wind fields. Intra-seasonal variations in storm track intensity are investigated using t-test analysis. The results indicate an enhanced seasonality in storm intensity under all future emission scenarios over both the Atlantic and Pacific region. Moreover, the amplification is significantly stronger for higher emissions. Differences in seasonality trends between the Northern and Southern Hemisphere as well as the underlying mechanisms will be discussed.