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Does the path of extreme North Atlantic storms depend more on the eddy-driven jet (atmosphere) or the Gulf Stream (ocean)?

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Recent studies have shown that extra-tropical cyclones in the North Atlantic almost always develop on precursor atmospheric fronts. This talk examines the relationship between the North Atlantic eddy-driven jet, the Gulf Stream and the variability of atmospheric fronts. It is found that the frequency of atmospheric fronts in different regions is dependent on the latitude of the eddy-driven jet. Interestingly however, the average strength of atmospheric fronts is influenced to a much lesser degree by the jet, instead appearing to align strongly with the Gulf Stream Front. This suggests not only that the intensification of atmospheric fronts is greatest when they propagate along the Gulf Stream, but also that the latitude distribution of the eddy-driven jet in any given winter can be related to the number of extreme storms one can expect to occur in the North Atlantic.