Multi-year prediction skill of Atlantic hurricane activity in CMIP5 decadal hindcasts using a statistical index

Louis-Philippe CARON

Meteorology Department, Stockholm University, Sweden, caron@misu.su.se
Colin G. Jones, Francisco Doblas-Reyes
Presenter : Louis-Philippe Caron

Using a statistical relationship between simulated sea surface temperature and Atlantic hurricane activity, we estimate the skill of a CMIP5 multi-model ensemble at predicting multi-annual level of Atlantic hurricane activity. The series of yearly-initialized hindcasts show positive skill compared to simpler forecasts such as persistence and climatology as well as non-initialized forecasts and return anomaly correlation coefficients of ~0.6 and ~0.8 for five and nine year forecasts, respectively. Some skill is shown to remain in the later years and making use of those later years to create a lagged-ensemble yields, for individual models, results that approach that obtained by the multi-model ensemble. Most of the skill is shown to come from the ability of the forecast systems at capturing change in Atlantic sea surface temperature. The failure of most systems at reproducing the observed slow down in warming over the tropics in recent years leads to an underestimation of hurricane activity in the later period.