Title: 'On the Causes of the Late 20th Century North Atlantic Hurricane Drought'

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Abstract: Sea surface temperatures in the main tropical cyclone development region in the tropical North Atlantic peaked during the 1950s and then declined, reaching a minimum in the mid 1970s. Since then, they have risen, and quite rapidly during the 1990s and 2000s. Tropical cyclone power dissipation closely tracked these changes in ocean temperature. Here I address the possible reasons for the SST and tropical cyclone minimum of the 1970s - early 1990s. The low-pass-filtered SST over the period 1950-2010 is well predicted by a combination of CO2 radiative forcing and European sulfur emissions, which we take as a proxy for sulfate aerosols over the tropical North Atlantic in summer. The spatial pattern of the correlation of basin tropical cyclone power dissipation with low-pass-filtered potential intensity shows a broad maximum over the main development region, suggesting a large regional forcing consistent with aerosols and CO2. By contrast, the spatial correlation between power dissipation and the higher frequency residual potential intensity, obtained by subtracting the low-pass-filtered from the full potential intensity, strongly resembles the EOFs of unforced North Atlantic variability in CMIP5 models, which are generally ascribed to an Atlantic Multidecadal Oscillation. This analysis suggests that the North Atlantic Hurricane Drought was caused by European sulfate aerosols combined with African mineral dust, while the higher frequency (~7 year) oscillation is probably owing to an AMO-like free mode of the system.