



Does climate change lead to the alteration of the lengths of persistent periods?

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The observed and forecasted mean global warming is the easiest factor to be measured but not the only changing factor which can be expected due to climate change. Even if the mean global temperature would not vary, its temporal or spatial distribution could differ. A change in the spatial temperature distribution on the Earth can be understood as an alteration in the forcing of the atmospheric dynamics. This is assumed to appear in a smaller region in the length of periods of days with similar weather, which can be relevant in hydrological or agronomical aspects.

In our work we study persistence indicators and properties in various spatial scales. First we considered the Rossby-wave movements using NCEP reanalysis data. Change in their angular velocity is assumed to lead to the alteration of cyclone or anticyclone frequency. These frequency changes can be measured in continent scale by evaluating the persistence of circulation patterns or finding modification in the length of persistent series derived from autocorrelation time series of sea level pressure data. Elongation of persistent period lengths are also expected to appear in on surface measured temperature and precipitation data.