



Quasi-stationary waves and their connection to oceanic and atmospheric anomalies

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Strong quasi-stationary atmospheric waves are known to be associated with persistent extreme weather events. We are especially interested in possible oceanic drivers for such quasi-stationary waves over the European-Atlantic region. The existence of such oceanic drivers would suggest potential predictability, or at least a better risk assessment of such events, on a timescale of several weeks or more. We define quasi-stationary waves by the longitudinal envelope of the lowpass filtered meridional wind. For a deeper understanding of these waves and the associated large-scale weather, we created and analysed a climatology of these waves. Besides a clear connection between quasi-stationary waves and persistent extreme temperature and precipitation events, these waves are strongly associated with well-known global pattern indices, especially the Arctic Oscillation/North Atlantic Oscillation and the El Niño-Southern Oscillation. An extensive analysis of the connection between these waves and oceanic anomalies further revealed a connection between Pacific surface heat fluxes and large scale quasi-stationary waves over the Atlantic and Europe. We investigate these connections to better understand the evolution of such quasi-stationary waves and the importance of oceanic anomalies as possible drivers.