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## From climate variability to heavy precipitation – Learning transfer functions from data

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The contribution deals with spatial extremes of intense precipitation at the global scale, with the help of data-driven modelling. We ask whether the inter-annual and inter-decadal climate variability track plays a dominant role in the interpretation of the variability of heavy precipitation, globally. The study aims at discovering spatially and temporally organized links between climate oscillation indices, such as El Niño-Southern Oscillation, North Atlantic Oscillation, Pacific Interdecadal Oscillation, Atlantic Multidecadal Oscillation and heavy precipitation. To this aim, we induce a range of machine-learning models, primarily recurrent neural networks, from multiple sources of global observations, including E-OBS data set from the UERRA project, GPCC Full Data Daily, and climate variability indices. The models are thoroughly tested and juxtaposed in hindcasting mode on a separate test set and scrutinized with respect to their statistical characteristics. We expect to identify climate-oscillation drivers for spatial dependence of heavy precipitation.