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# An analysis of extreme hydro-meteorological events with climate big data

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The concept of using climate big data to study water risks, especially the risk of extreme hydro-meteorological events, has received increasing attention in recent years. Because of the limited observation on extreme data, the traditional at-site analysis methods often lead to a result with high uncertainty, which brings big challenges for stakeholders or governors to prepare mitigation strategy or engineering design. The study aims at discussing some ideas of how to make a full use of the spatio-temporal information contained in the observed extreme data and to incorporate the climate data sets, such as the field of geopotential height, sea surface temperature, as additional knowledge of extreme events. Through several examples, we demonstrate that appropriately digging information in the existing data and/or adding new knowledge from climate data can improve the understanding of the process and the reduce the result uncertainty. As a result, the characteristics of extreme events, such as spatially coherent trends and the effects of large climate mode, can be better identified and quantified. The high quantile levels (e.g. 1 in 100 year events) can also be predicted with a lower uncertainty.