Improved 21st century projections of sub-daily extreme precipitation by spatio-temporal recalibration

Brynjólfur Gauti Guðrúnar Jónsson

In this talk, I will present my PhD research on incorporating data-level spatial correlations in the Generalized Extreme Value (GEV) distribution for improved modeling of extreme precipitation in large datasets. Using the Max-and-smooth method of Hrafnkelsson et al. (2020) we can add spatial correlations to the parameters governing each location's GEV distribution *(i.e. the time between extreme events is similar in nearby locations)*, but we also need to model the correlations in the observed data itself *(i.e. extreme events happen at similar times in nearby locations)*. By using copulas, multivariate distributions with all univariate margins being Uniform(0, 1) distributed, we might be able to more accurately represent the data-level correlations while aiming to keep the computation-time feasible.