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## Multivariate GP distributions: portfolio risk estimation, prediction of flu epidemics, spatial rainfall modelling

*Abstract:* This talk surveys work in progress on new parametric multivariate generalized Pareto models for extreme episodes. These models, perhaps surprisingly, have simpler and more tractable likelihoods than standard max-stable models, and permit use of the entire maximum likelihood machinery for estimation, testing, and model checking. I will show how the models can contribute to three areas. The first one is fast and consistent risk estimation aimed at aiding financial portfolio selection. Influenza is a main cause of death, and a major cause of stress on the health care system. The second contribution is models and prediction methods for the development of flu epidemics. Finally, I will discuss how GP distributions can provide spatial models for extreme environmental events.

*The talk is based on a joint work with Anna Kiriliouk, Maud Thomas, Johan Segers, and Jennifer Wadsworth*