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A multivariate statistical framework for mixed storm types in compound flood analysis

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Supplementary

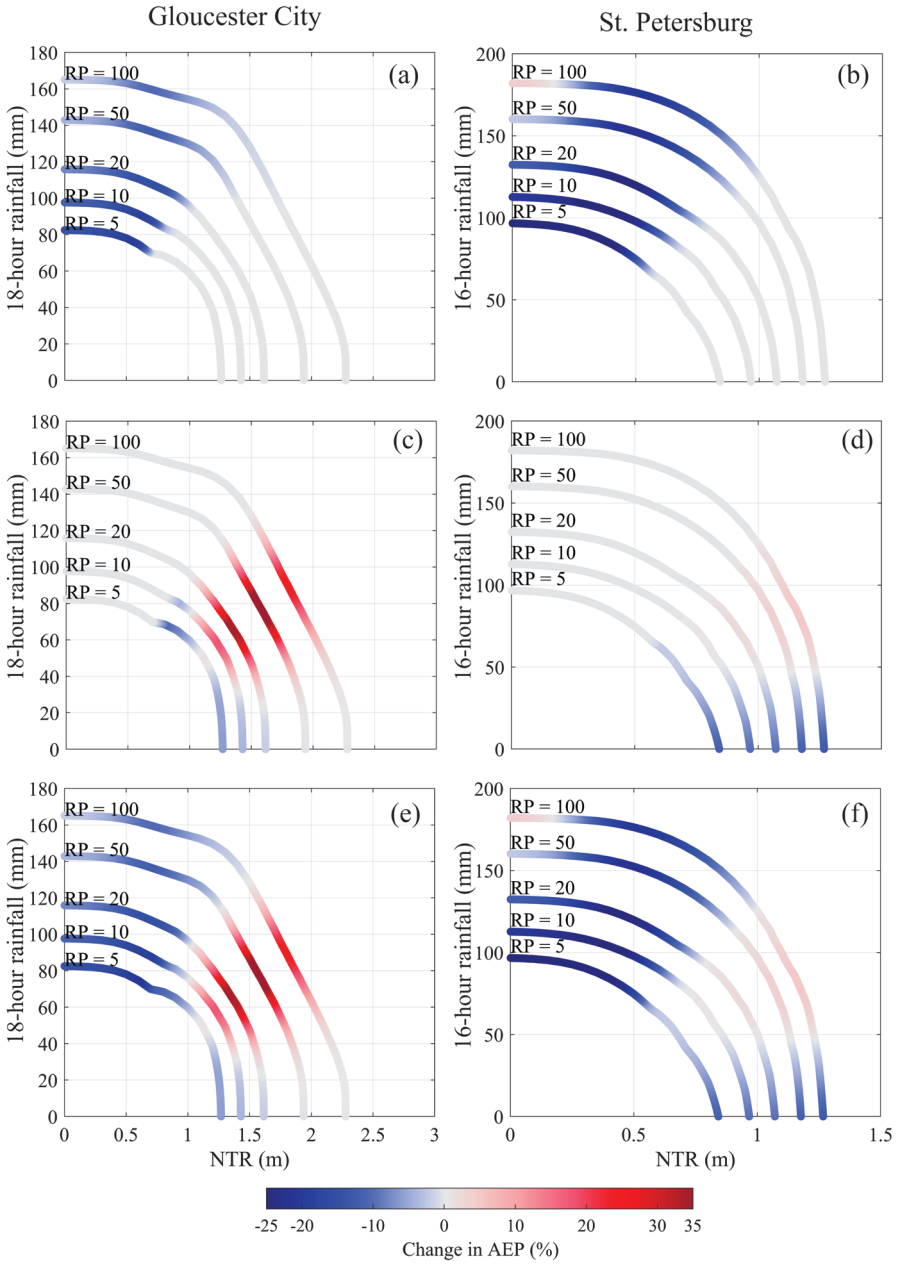

Figure S1: Change in AEP of combined populations in Gloucester City (left) and St. Petersburg (right), allowing the selected copulas to be changed. (a), (b) when omitting the non-classified POT RF events; (c), (d) when omitting the non-classified POT NTR events; and (e), (f) when omitting all non-classified events. The change in AEP was calculated along the joint probability isolines derived for the analysis where events are stratified as TC and non-TC.

Table S1: Number of events and the selected copula families for each conditional sample

	Gloucester City				St. Petersburg			
	TC		non-TC		TC		non-TC	
	con. NTR	con. RF	con. NRT	con. RF	con. NTR	con. RF	con. NRT	Con. RF
Number of events	38	43	542	537	37	47	318	308
Selected copulas family	Rot. Tawn type 2 (180^0)	Rot. Tawn type 2 (180^0)	Frank-Joe	Clayton	Frank	Frank	Survival BB7	Survival Clayton

Table S2: Selected copula families for each conditional sample for the analysis from 1950 to 2021

	Gloucester City				St. Petersburg			
	TC		non-TC		TC		non-TC	
	con. NTR	con. RF	con. NRT	con. RF	con. NTR	con. RF	con. NRT	Con. RF
Stratifying as TC & non-TC	Rot. Tawn type 2	Rot. Tawn type 2	BB8	Gaussian	Frank	Frank	Sur. BB7	Sur. Clayton
Removing non-classified POT NTR events			Gumbel	Gaussian			Gaussian	Sur. Clayton
Removing non-classified POT RF events			BB8	Clayton			Sur. BB7	Gaussian