Ibracs dataset (wind and pressure)

Holland model

Reconstructing historical TCs

The Delft3D FM model for Shanghai

Peak water level

Astronomical tide

Storm surge = Peak water level – Astronomical tide

Dependency analysis and select the highest correlation peak water level (RSLR) and rainfall pairs

Estimating marginal distributions of the peak water level

Estimating marginal distributions of rainfall

Estimating parameters of Copula functions by AIC BIC and Log-likelihood method

Calculating correlation and goodness-of-fit indices for selecting best copula function

Determining the most appropriate copula functions

Calculating the copula joint distributions

Contributions of storm surge, astronomical tide and RSLR to peak water level