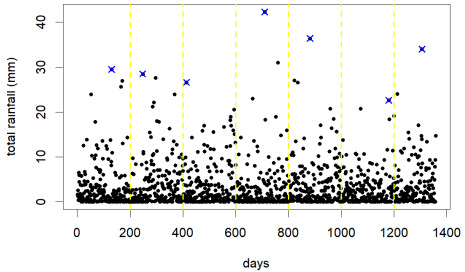
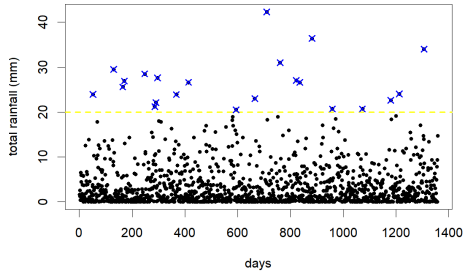
Convergence of Excesses Over a Threshold





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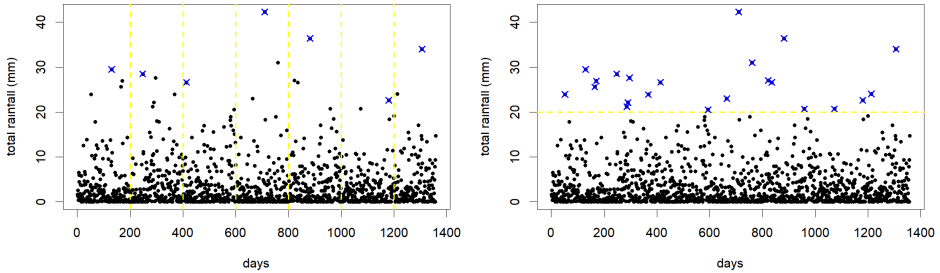
Convergence of Excesses Over a Threshold



Pickands-Balkema-de Haan Theorem

Let u be a suitably high level and denote $Y := X - u$ such that $Y|Y > 0$ is the r.v. of the conditional excesses over the threshold u, with d.f. F_u. Then, we have that

$$F \in \mathcal{D}_{\mathcal{M}}(G_\xi) \Leftrightarrow \lim_{u \to x^F} 1 - F_u(y) = (1 + \xi y)^{-1/\xi}$$

The Automatic L-moment Ratio Selection Method

Silva Lomba, J., & Fraga Alves, M. I. (2020). L-moments for automatic threshold selection in extreme value analysis. *Stochastic Environmental Research and Risk Assessment*, *34*(3), 465–491.

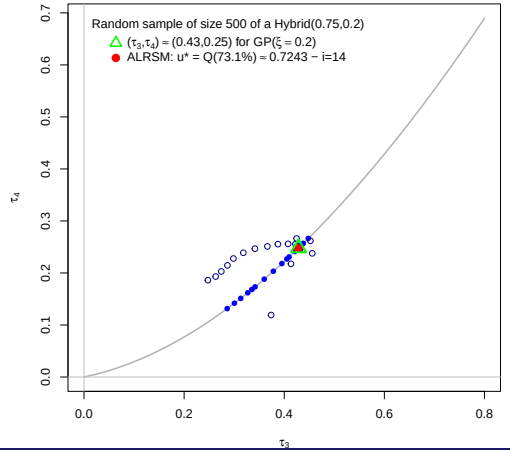


Figure 3.3, page 63 – Visual aid of ALRSM procedure for a simulated sample of size $n = 500$ from a Hybrid(0.75, 0.2) distribution, with sample quantile threshold candidates $\{u_i\}_{i=1}^{20}$.

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Dependence Analysis - III

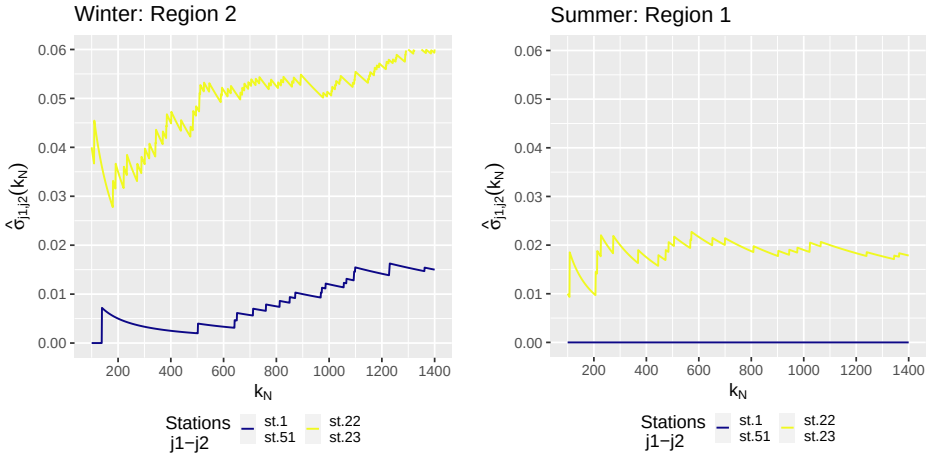

Figure 7.27, page 192 – Estimates of $\hat{\sigma}_{j_1,j_2}(k_N)$ for selected pairs of stations j_1, j_2 in both seasons, for $k_N = 100, \ldots, 1400$.

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