

# Enhancing a Real-Time Flash Flood Predictive Accuracy Approach for the Development of Early Warning Systems: Hydrological Ensemble Hindcasts and Parameterizations

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## Supplementary Table S1

**Supplementary Table S1.** Initial set of parameters and minimal and maximal searching ranges for the SCE-UA parameter

Optimized parameter/Condition	Initial	Minimum	Maximum
Soil roughness coefficient $N_{slo} [m^{-1/3}s]$	0.6	0.1	1
River roughness coefficient $N_{riv} [m^{-1/3}s]$	0.03	0.01	0.1
Effective porosity of non-capillary subsurface layer $\theta_a [ / ]$	0.4	0.1	0.7
Saturated hydraulic conductivity $k_a [ms^{-1}]$	0.05	0.005	0.5
Canopy interception and evaporation factor $F1 [ / ]$	1	0.6	1
Effective porosity of capillary subsurface layer $\theta_m [ / ]$	0.4	0.1	0.7
Degree of reduction of permeability due to the volumetric water rate decrease $\beta [ / ]$	4	2	10

calibrations. The first five parameters are used in 5-CPM.