



Czech University of Life Sciences Prague

**Faculty of Environmental  
Sciences**

# Modelling Hydrological Balance Using Lumped and Semi-distributed Hydrological Model

**MASTER THESIS of**

**Hatice TURK**

A thesis submitted in partial fulfillment for the  
Master Degree

in the

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## appendix

## 1.1 Appendix

**Base flow calculation according to three different baseflow filter**

The figure 1.1 represent base flow calculation with three different base flow filters. Figure left side is correct representation of calculation on one of the catchments. However the figure on the right side shows the miscalculation of Line and Hollic filter that compiled in all scenarios of this study. The main reason of the difference is that the condition of  $f_k > 0$  is not taken into consideration while calculations. The figure 1.2 represent Boxplot and scatter plot of generated base flow with calibration of Weighted functions. The figure 1.3 shows boxplot and scatter plot of model total runoff generations after calibration with combination of weighted functions. Distribution of model total runoff and base flow generation efficiency Maps from scenario with calibration of linear combination of objective functions are represented in figures 1.4 and 1.5

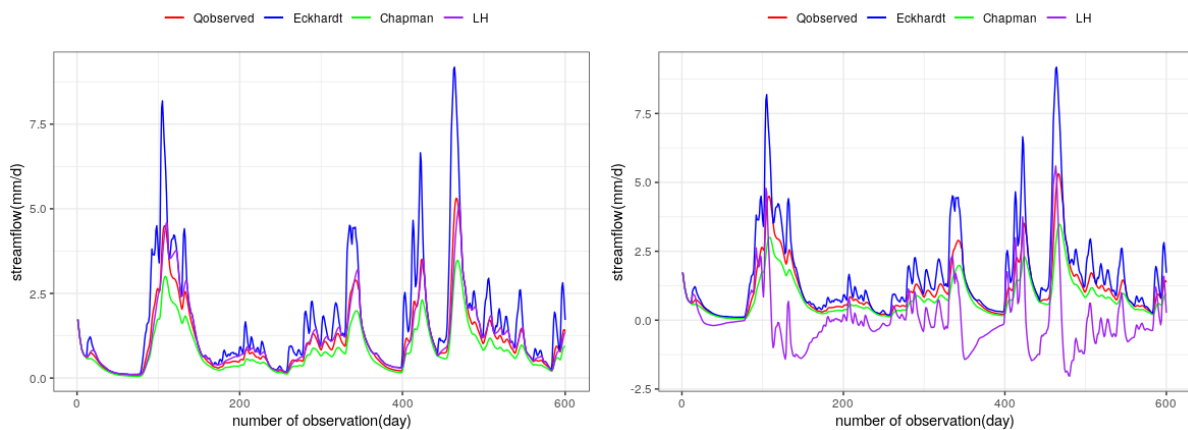


Figure 1.1: Calculated base flow with base flow filter

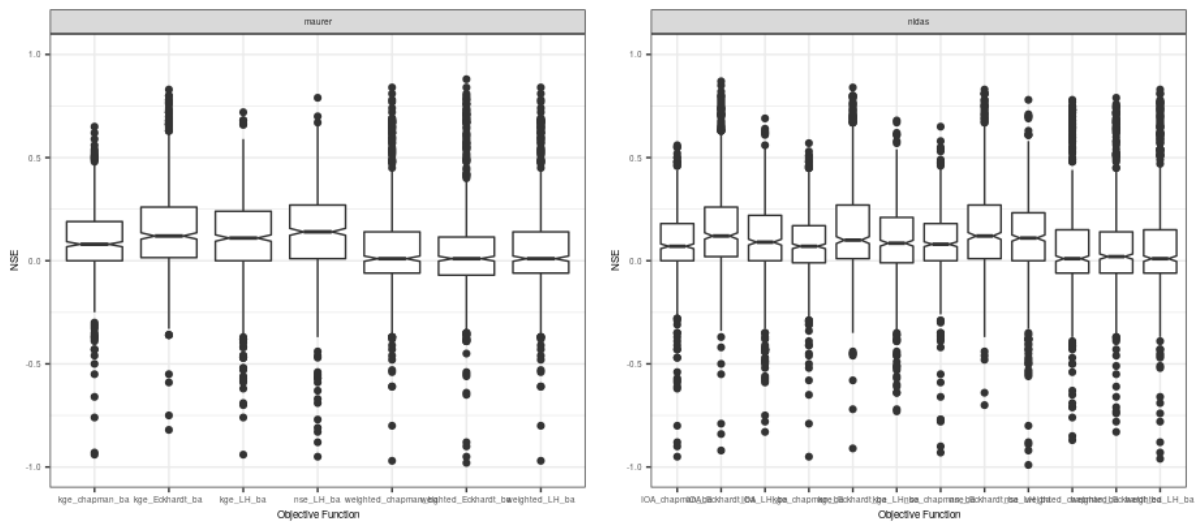


Figure 1.2: Boxplot and scatter plot of generated baseflow with calibration of Weighted functions

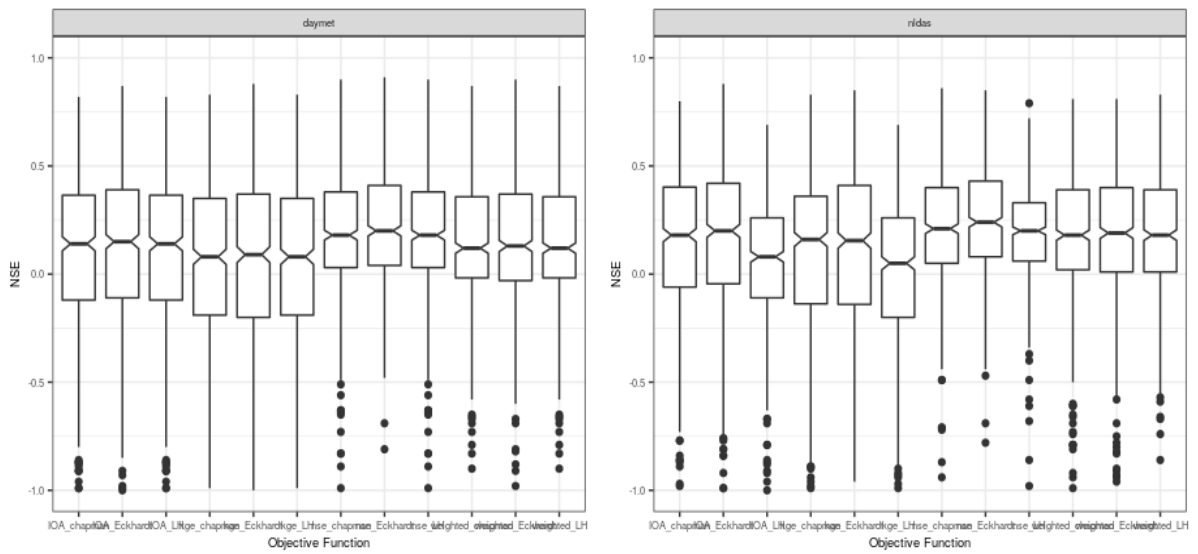


Figure 1.3: Boxplot and scatter plot of generated Total Runoff with calibration of Weighted functions

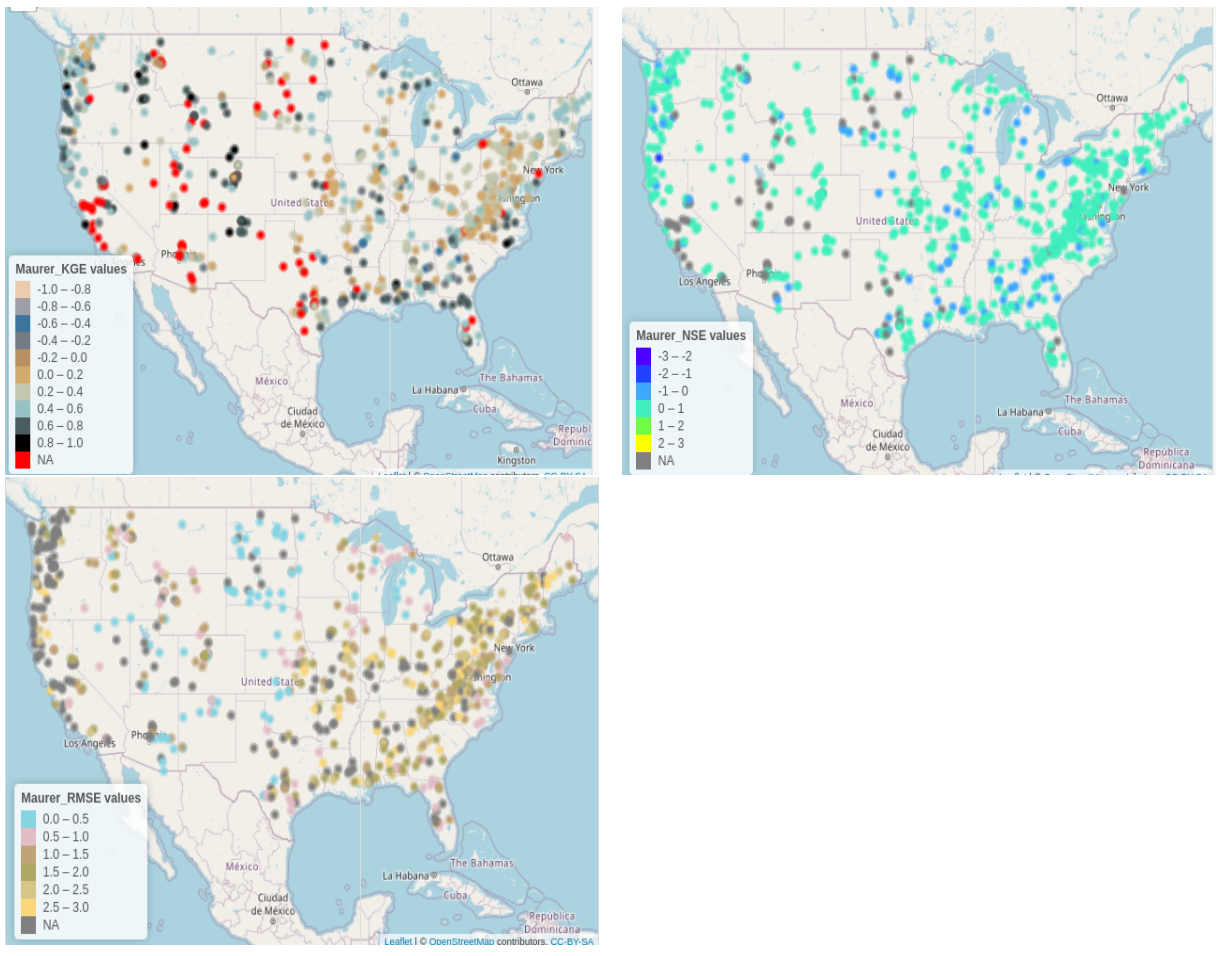


Figure 1.4: Distribution of model total runoff generation efficiency Map from scenario 3

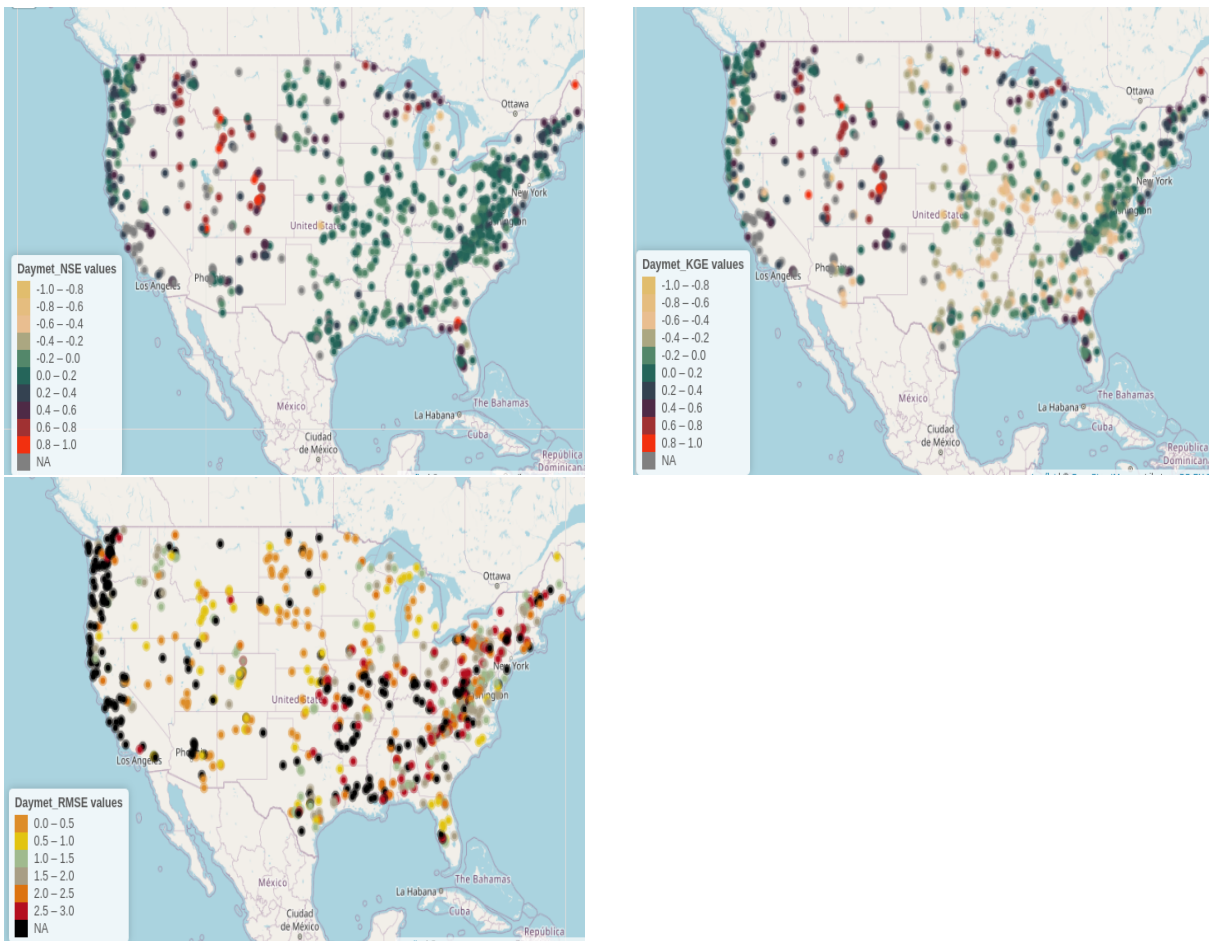


Figure 1.5: Distribution of model base flow generation efficiency Map from scenario 3