Event based approach for small and ungauged basins: a web tool version

Salvatore Grimaldi1, Andrea Petroselli2,\*, Flavia Tauro1, Ciro Apollonio3

1 Department for Innovation in Biological, Agro-food and Forest systems (DIBAF), University of Tuscia, Via San Camillo de Lellis snc, 01100, Viterbo (VT), Italy. salvatore.grimaldi@unitus.it ; flavia.tauro@unitus.it

2Department of Economics, Engineering, Society and Business Organization (DEIM), University of Tuscia, Via San Camillo de Lellis snc, 01100, Viterbo (VT), Italy. petro@unitus.it

3Department of Agriculture and Forest Sciences (DAFNE), University of Tuscia, Via San Camillo de Lellis snc, 01100, Viterbo (VT), Italy. ciro.apollonio@unitus.it

\* Corresponding Author.

**Keywords.** EBA4SUB, rainfall-runoff modeling, ungauged basins, web tool.

**Abstract.** EBA4SUB (Event-Based Approach for Small and Ungauged Basins) is a rainfall-runoff model tailored for small basins (i.e. with a contributing area not greater than a few hundreds of km2) and optimized for hydrological studies that need as input the same information necessary for applying the rational formula. It consists of three modules: gross rainfall estimation, excess rainfall estimation, and rainfall-runoff transformation.

Its main advantages in particular regard the excess rainfall estimation (the mixed Curve-Number for Green-Ampt - CN4GA – procedure is implemented) and the rainfall-runoff transformation (the Width Function based Instantaneous Unit Hydrograph is applied, based on Digital Elevation Model and CORINE Land Cover data).

EBA4SUB is a calibration free model, so all the parameters necessary for running the model are automatically quantified using empirical formulas.

In this work, we describe the EBA4SUB implementation either as a simple web tool, freely available online, and in the user-friendly GIS version, that allows its immediate application.