Does the solution of an inverse problem allow us to have a new knowledge about the runoff formation?

The solution of the inverse problems is usual way in hydrological calculation. We evaluate a lot of parameters of runoff’s equation with help of back calculation. This parameters have an empirical character and reflect all factors of runoff and all errors of the models together. Some times we try to solve more complicate problems. We try to reduce some differential or integral equations into the system of algebraic equations and after that we solve the system of such equation. Some times (very seldom) the results are stable but in a many others cases the results are not stable (chaotic). To do the results more real and useful some methods of stabilization are applied and we have possibility to receive a new knowledge about the hydrological processes. Of course, the stabilization allows us to have the good solution, but we need to remember that stable equations and initial equations are not the same. There is an element of arbitrary during the selection of the stabilization procedure, but we have to do it.

In the report one of the inverse hydrological task and some results of its solutions will be discussed.