An automated system of the NRT background flash flood forecasting

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Our research group works at the Russian State Hydrometeorological University (RSHU) and performs a wide range of scientific and engineering works from basic researches to development of hydrological software. Our main attention is focused on developing training and operational software for automated or partially supervised modeling and background forecasting runoff in poorly gauged regions. The group's latest product is an automated forecasting system (AFS), called 'SLS+', which is based on the Sacramento Soil Moisture Accounting model (SAC-SMA) and Multi-Layer Conceptual Model (MLCM). In AFS, SAC-SMA and MLCM are used as principal and substitute models, respectively. The latter requires less forcing data and is used in regions with scarce data, where the Sacramento model cannot be properly forced and, therefore, loses its efficiency. Both models are instantly recalibrated by using the SLS-E optimization algorithm based on the Stepwise Line Search applied for various ensembles of adjustment factors for precipitation and evaporation time series. As a result, the models can be quickly and efficiently calibrated even in poorly gauged basins.

The developed software can be used in such operational systems as DOS, UNIX, Linux and Windows. Its testing Internet compatible version is also available at http://www.slsplus.net along with relevant information in English, Russian, Japanese, Spanish and Chinese.