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hydroPASS: a newly developed R package to go through the regional calibration of distributed catchment models

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Large scale hydrological modelling requires the estimation of model parameters across a variety of different environments. To deal with this issue, robust parameter estimation procedures, able to exploit observed patterns of climate and geomorphological characteristics, must be considered. This contribution presents hydroPASS, a newly developed R package available in GitHub, which automatically implements the PArameter Set Shuffling (PASS) method in around 100 catchments over North-Western Italy. This was developed and tested for SALTO (SAme Like The Others) model, but in principle is valid for every distributed or semi-distributed catchment model. In particular, the package contains the function to run SALTO model (Fortran code), the function for PASS application (R code) and functions for data pre-processing and post-processing (R codes). To ease the repeatability and reproducibility of experiments, examples are provided with full documentation. An example of how to use PASS for the regional calibration of other models (e.g., TUW model), is also provided. From the source package, installation packages have been built for Windows, Linux and Mac operating systems and can be freely downloaded from GitHub.