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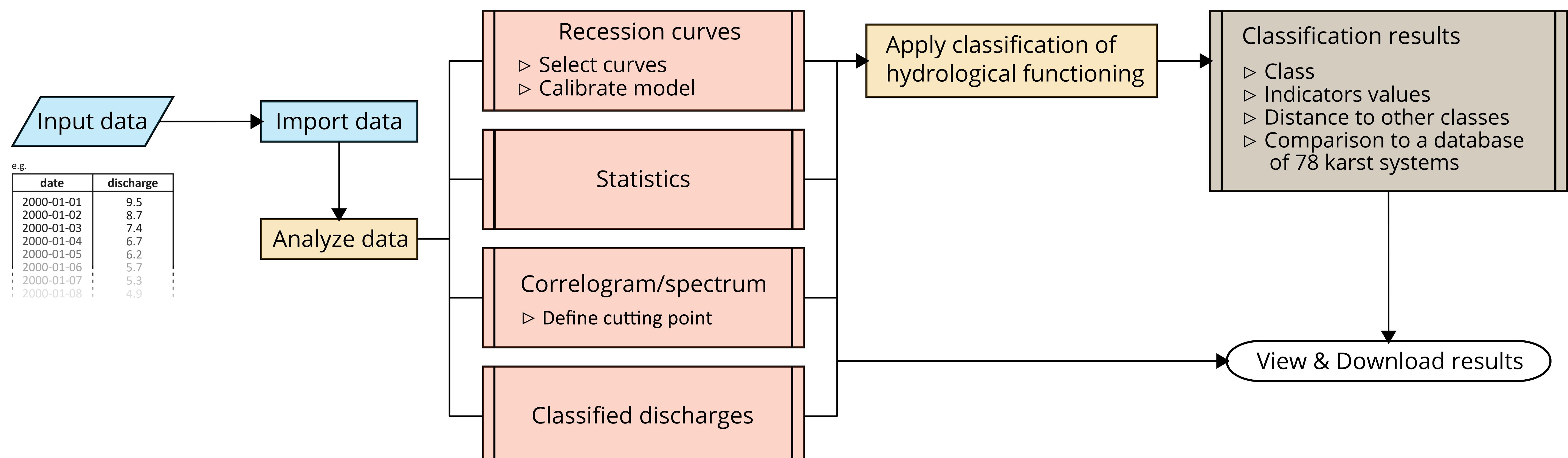
KarstID: An interactive R application for karst spring hydrograph analysis that also provides a classification of karst hydrological functioning

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Features

KarstID provides the user a toolbox to analyse karst spring discharge time series and characterize karst systems hydrological functioning. The application supports statistical, recession curves, classified discharges and signal (correlationnal and spectral) analyses. The completion of the analyses are facilitated with the graphical interface.

The classification is based on the proposal of Cinkus et al. (2021), which use three indicators of functioning derived from Mangin's recession model (Mangin, 1975). The typology consists of 6 classes accounting for 3 aspects of karst systems hydrological functioning: the capacity of dynamic storage, the draining dynamic of the capacitive function and the variability of the hydrological functioning.

Data Import

Plain text or Excel file with two columns referring to date and discharge. Several features are available to minimize the pre-processing of the data. Detection of missing date entries and choice between hourly or daily mean. Option to perform a spline interpolation over missing discharge values.

Software Availability

KarstID is build with the R Shiny framework (Chang et al., 2021) and is embedded into an R package (R Core Team, 2021), which make the installation and launch easy even for non-programmers. It is also free, open-source and actively developed on a developer community platform.



About KarstID

Developer
Contact
Code repository

Guillaume Cinkus
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Software required
Program language
Package size

R & Any browser
R (version 4.0.0)
4.6 Mo

Chang, W., Cheng, J., Allaire, J., Sievert, C., Schloerke, B., Xie, Y., Allen, J., McPherson, J., Dipert, A., Borges, B., 2021. shiny: Web Application Framework for R. R package version 1.6.0. <https://CRAN.R-project.org/package=shiny>.
Cinkus, G., Mazzilli, N., Jourde, H., 2021. Identification of relevant indicators for the assessment of karst systems hydrological functioning: Proposal of a new classification. Journal of Hydrology 603, 127006. <https://doi.org/10.1016/j.jhydrol.2021.127006>
Mangin, A., 1975. Contribution à l'étude hydrodynamique des aquifères karstiques (PhD). Université de Dijon, France.
R Core Team, 2021. R: A language and environment for statistical computing. R Foundation for Statistical Computing, Vienna, Austria. URL <https://www.R-project.org/>.

