Package: Time.R (via r-universe)

June 20, 2026

Title Estimates Time of Concentration and Lag Time for Watersheds

Version 1.0.0

Date 2026-05-27

Description Estimation of time of concentration and lag times for watersheds based on their morphometric characteristics. It includes various methods for calculation and offers plotting functionalities for comparative analysis. For more details see Bransby-Williams (1922) <https://tonyladson.net/2017/03/04/bransby-williams-formula/>, Kirpich (1940) <https://ascelibrary.org>, Kerby (1959) <https://ci.nii.ac.jp/en/articles/10018665342>, Johnstone & Cross (1949, ISBN:9780823211234), California Division of Highways (1942) <http://catalog.hathitrust.org/Record/002017818>, Clark (1945) <doi:10.1029/TR020i002p00141>, Giandotti (1934) <https://archivista.it/annali1934>, Passini (1972, ISBN:84-7433-040-8), Témez (1978, ISBN:84-7433-040-8), Pérez (1962) <https://revistaobraspublicas.com>, Pilgrim (1977) <doi:10.1029/WR013i003p00587>, Bureau of Reclamation (1973, ISBN:9780913232123), Valencia-Zuluaga (1983) <https://repositorio.unal.edu.co/>, Ventura & Heras (1964) <https://revistaobraspublicas.com>, Soil Conservation Service (1972, ISBN:OL15009517M), Soil Conservation Service (1986) <https://www.ars.usda.gov/research/software/download/?softwareid=527>, U.S. Navy (1972) <https://standards.globalspec.com/std/1434360/navy-navfac-dm-26>, Federal Aviation Administration (1970, ISBN:9780913236543), Natural Environment Research Council (1975, ISBN:9780114501234), Mimikou (1984) <doi:10.1016/0022-1694(84)90123-4>, Watt & Chow (1985) <doi:10.1139/l85-031>, Haktanir & Sezen (1990) <doi:10.1080/02626669009492423>.

License GPL-3

Encoding UTF-8

Roxygen list(markdown = TRUE)

Imports ggplot2, readxl, utils

Suggests rmarkdown, knitr

VignetteBuilder knitr

Depends R (>= 2.10)

Config/roxygen2/version 8.0.0

Repository https://alobondo.r-universe.dev

Date/Publication 2026-06-01 16:22:18 UTC

RemoteUrl https://github.com/alobondo/time.r

RemoteRef HEAD

RemoteSha 4302d311fdc315cd55c61e2a174baed8cb97f304

Contents

`data` *Series of watersheds characteristics used for testing the functions of the Time.R package.*

Description

A dataset containing IDs, areas, slopes, basin lengths, elevations, curve numbers, manning coefficients, and paved status for a series of watersheds.

Usage

```
data(data)
```

Format

A data frame with 66 rows and 10 variables:

ID watersheds IDs

Area_km2 areas, in square kilometers

Slope_perc Slopes, in percentage

BasinLength_km Basin lengths, in kilometers

Z_max_masl Maximum elevations, in meters above sea level

Z_min_masl Minimum elevations, in meters above sea level

Z_ave_masl Average elevations, in meters above sea level

CurveNumber Curve numbers, dimensionless

ManningCoeff Manning coefficients, dimensionless

Paved Paved status, TRUE or FALSE

`Time.R_calc` *Calculate Time of Concentration and Lag Time*

Description

Estimates time of concentration and lag time for watersheds using various methods.

Usage

```
Time.R_calc(data, plot_watershed = FALSE, plot_formulas = FALSE)
```

Arguments

`data`	A data frame containing watershed morphometric information. Required columns: watershed ID, area (km2), mean slope (%), basin length (km), max elevation (masl), min elevation (masl), average elevation (masl), curve number, manning coefficient, paved (TRUE/FALSE).
`plot_watershed`	A logical value. If TRUE, plots a comparative ggplot for each watershed.
`plot_formulas`	A logical value. If TRUE, plots a faceted ggplot to compare each formula for all watersheds.

Value

A data frame with calculated time of concentration and lag times.

Index