

Package ‘sara4r’

July 23, 2025

Type Package

Title An R-GUI for Spatial Analysis of Surface Runoff using the NRCS-CN Method

Version 0.1.0

Depends R (>= 4.3.0), tcltk, tcltk2

Imports terra

Maintainer Rafael Hernandez-Guzman <rhernandez.g@gmail.com>

Description A Graphical user interface to calculate the rainfall-runoff relation using the Natural Resources Conservation Service - Curve Number method (NRCS-CN method) but include modifications by Hawkins et al., (2002) about the Initial Abstraction. This GUI follows the programming logic of a previously published software (Hernandez-Guzman et al., 2011)<doi:10.1016/j.envsoft.2011.07.006>. It is a raster-based GIS tool that outputs runoff estimates from Land use/land cover and hydrologic soil group maps. This package has already been published in Journal of Hydroinformatics (Hernandez-Guzman et al., 2021)<doi:10.2166/hydro.2020.087> but it is under constant development at the Institute about Natural Resources Research (INIRENA) from the Universidad Michoacana de San Nicolas de Hidalgo and represents a collaborative effort between the Hydro-Geomatic Lab (INIRENA) with the Environmental Management Lab (CIAD, A.C.).

License GPL (>= 3)

Encoding UTF-8

URL <https://hydro-geomatic-lab.com/>,
<https://hydro-geomatic-lab.com/sara4r.html>

VignetteBuilder knitr

Suggests knitr, rmarkdown

RoxygenNote 7.2.3

NeedsCompilation no

Author Rafael Hernandez-Guzman [aut, cre] (ORCID:
<<https://orcid.org/0000-0002-2711-9015>>),
Arturo Ruiz-Luna [aut] (ORCID: <<https://orcid.org/0000-0001-6878-0929>>)

Repository CRAN

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Description

a raster-based GIS tool that outputs runoff estimates from Land use/land cover and hydrologic soil group maps.

Usage

sara4r()

Details

Package:	sara4r
Type:	Package
Version:	0.0.9
Date:	2022-01-31
Depends:	R(>= 4.1.2), tcltk, tcltk2
Imports:	raster,sp,rgdal
License:	GPL (>= 3)
LazyLoad:	yes

Note

<http://hydro-geomatic-lab.com/sara4r.html>

Author(s)

Rafael Hernandez Guzman, Arturo Ruiz Luna
Maintainer: Rafael Hernandez Guzman<rhernandez.g@gmail.com>

References

- [CN-Idris, Hernández-Guzmán et al., 2011 - CN-Idris: An Idrisi tool for generating curve number maps and estimating direct runoff. *Environmental Modelling & Software*, 26(12), 1764-1766](<https://doi.org/10.1016/j.envsoft.2011.09.001>)
- [SARA, Hernández-Guzmán and Ruiz-Luna, 2013. SARA – An enhanced curve number-based tool for estimating direct runoff. *Journal of Hydroinformatics*, 15(3), 881-887](<https://doi.org/10.2166/hydro.2013.145>)
- [SARA4R, Hernández-Guzmán et al., 2021. Sara4r – an R graphical user interface (GUI) to estimate watershed surface runoff applying the NRCS – curve number method. *Journal of Hydroinformatics*, 23(1), 76-87](<https://doi.org/10.2166/hydro.2020.087>)

Examples

```
sara4r()
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