

## *Running\_Instructions\_ReconAnalog*

This file tells you how to use downloaded Reconanalog.R and associated files (GitHub) to duplicate the sample illustration in section 4.0 of Prusevich et al. (submitted) on your laptop in RStudio. It is assumed you have downloaded a zip file with ReconAnalog.R and associated files from GitHub. It is also assumed you have R and RStudio installed and working on your laptop. The folder names "C:/trish/" folder name is arbitrary and is used just as an example.

1. Create empty folder C:/trish/ and subfolder C:/trish/test\_out on your laptop.
2. Unzip the downloaded zip file into C:/trish/
3. Install the R packages require by ReconAnalog (see "PackagesNeeded.txt")
4. Edit the first 6 lines of the json file Recon\_Katun.init so that the path names match the setup on your computer (do not change the filenames)
5. Save a copy of Recon\_Katun.init as "Recon.init" overwriting the existing Recon.init. ReconAnalog expects input specification in a file with name "Recon.init." For meanings of the settings in Recon.init, see "Recon\_init\_explanation.pdf."
6. In RStudio, do the following
  - Create new project in C:/trish/
  - Open ReconAnalog.R
  - Run ReconAnalog.R
  - After successful run, you should see the output files in "C:/trish/test\_out/"

## **Tips**

- Tailored ".init" files. If running multiple analyses, each with different reconstruction settings (e.g., lags vs no lags) or different input data (e.g., Katun River vs Yenisei River) you will want to have dedicated ".init" file -- for example, Recon\_Katun.init and Recon\_Yenisei.init. Be sure to copy the desired file for a particular run as "Recon.init" before running ReconAnalog, because ReconAnalog reads from "Recon.init"
- Tailored paths. For simplicity, the instructions above have all files needed for the analysis in "C:/trish/." With experience, you will generally want to arrange the input in different paths by modifying the first 6 lines of Recon.init. The only file that actually needs to be in the R project folder is Recon.init. ReconAnalog.R and functions it calls can be a separate folder, input data files can be in another folder, and output can be specified to go to some folder other than "C:/trish/test\_out"

## **References**

Prusevich, A. A., Meko, D. M., Panyushkina, I. P., Shiklomanov, A. I., Lammers, R. B., Glidden, S., & Thaxton, R. D. (submitted). TRISH: Tree-Ring Integrated System for Hydrology, a web-based tool for reconstruction. Environ. Model. Softw.. (Submitted 29 October 2024)