

Title: PixelSWAT

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PixelSWAT is a Python toolbox designed to enhance the capabilities of ArcSWAT, a semi-distributed hydrological model utilized within the ArcGIS framework. Its principal objective is to empower ArcSWAT to function as a distributed model by facilitating the preparation of user-defined gridded watershed and streamflow features. This methodology holds promise in enabling ArcSWAT to furnish high-resolution hydrological data spatially, encompassing precise delineation of surface water networks, sediment transport, nutrient distribution, pollutants, and more. Leveraging advancements in remote sensing technology, along with the expanding database and improved quality of remote sensing data, the distributed approach to SWAT holds significant potential for incorporating a wealth of information into hydrological simulations in future endeavors. The SWAT model necessitates the preparation of weather input files, which are integral to the model's configuration. Predominantly, these model data are accessible in NC formats, requiring the user to manually prepare the weather input files from these data sources, a process that demands a certain level of expertise. However, PixelSWAT offers an alternative solution. With little information provided, PixelSWAT can automate the process of preparing these weather files in the requisite SWAT format directly from the NC files. This automation not only saves time but also significantly reduces the labor involved, thereby enhancing the efficiency of the model setup process.

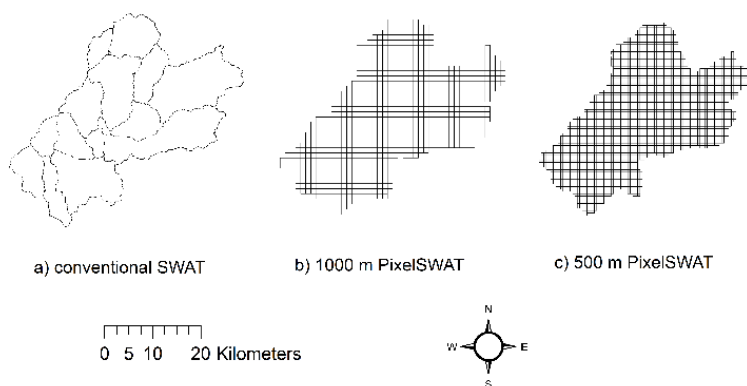


Fig. 1 conventionally delineated watershed (a) and distributed discretized watershed (b and c)

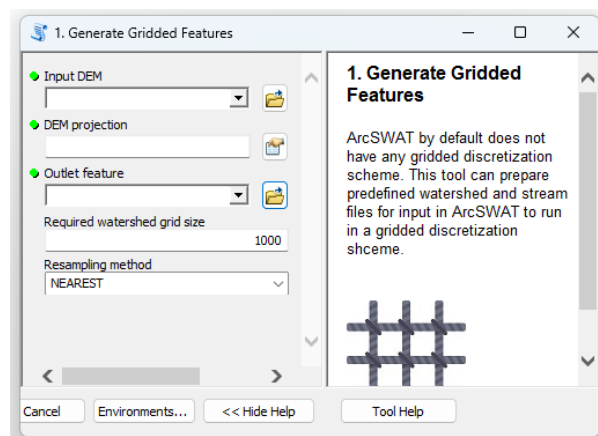


Fig. 2 GUI to created user-defined gridded watershed and streamline features