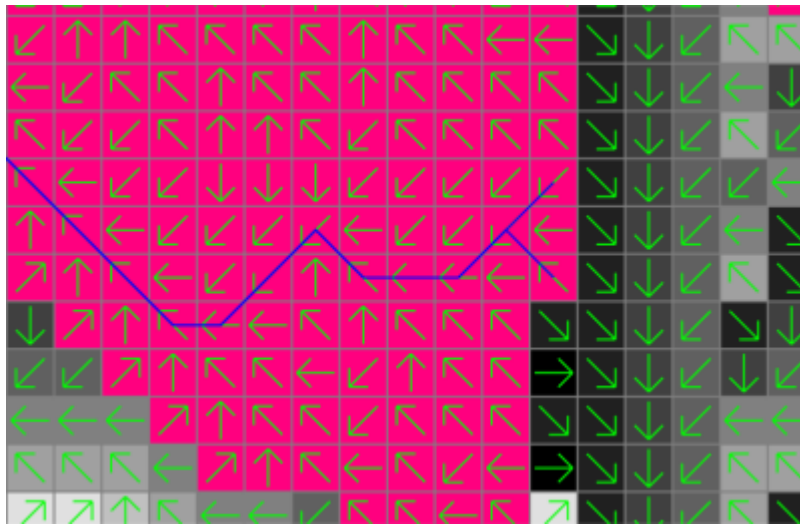


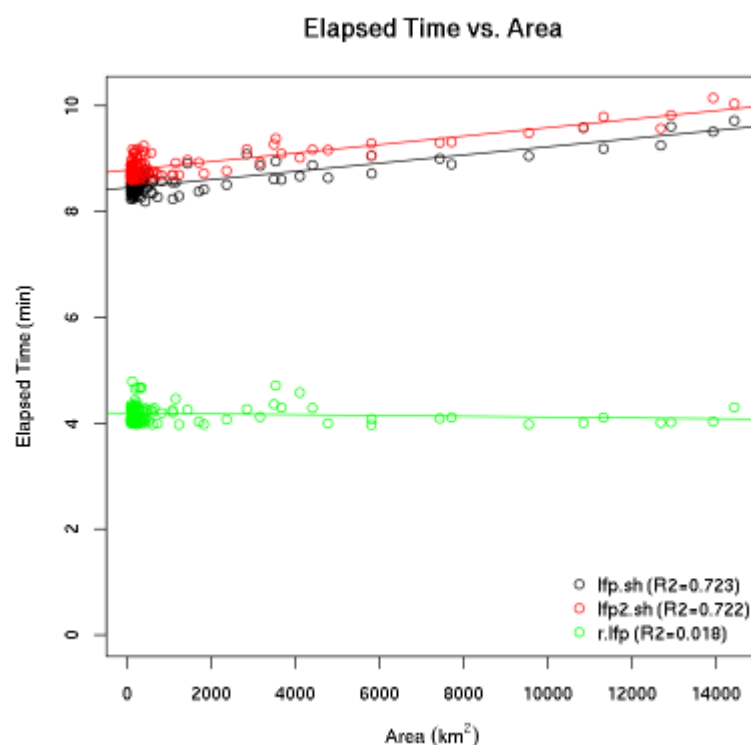
Efficient longest flow path algorithm


$$\begin{aligned} & \backslash \def LFP{\overrightarrow{\text{LFP}}} \def FP{\overrightarrow{\text{FP}}} \def FL{\text{FL}} \\ & \def DFL{\text{DFL}} \def UFL{\text{UFL}} \def LFL{\text{LFL}} \backslash \end{aligned}$$

A flow path $\text{\textit{FP}}_i$ is a watercourse between a pair of two points i within a watershed and the longest flow path $\text{\textit{LFP}}$ is defined as

$$\bigwedge \{ \text{LFP}_i \mid \text{middle} \mid \text{left} \mid \text{Vert} \text{FP}_i \mid \text{right} \mid \text{rVert} \geq \text{left} \mid \text{Vert} \text{FP}_j \mid \text{right} \mid \text{rVert} \mid \text{forall } j \neq i \}$$

The longest flow path plays an important role in hydrologic modeling, but its computation requires multi-step raster calculations for each watershed. This research project aims to improve the current process and efficiency of computing the longest flow path for a lot of watersheds.



Method	lfp.sh	lfp2.sh	r.lfp	Coming soon
Elapsed time	3h 48m	9h 8m	6h 46m	56s

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