

2nd Review of: Rainfall-runoff modeling using Long-Short-Term-Memory (LSTM) Networks
By Kratzert et al, submitted to HESS, 2018

The revised version of this manuscript is greatly improved, and I appreciate all the efforts the authors took to make improvements and corrections. This time when I read it, the experimental setup and results were overall more convincing, and the explanations of the LSTM method was a lot better for readers not extremely familiar with machine learning methods. Below I list some minor corrections that are mainly related to wording/typos/grammar, but otherwise I feel this paper is an interesting and novel contribution and would be ready for publication.

Page 2, Line 14: “been used”

Lines with extraneous commas (where either a comma could be removed or sentence reformatted to not need it):

Page 2, Line 23

Page 8, Line 9

Page 11, Line 4

Page 11, Line 16

Page 11, Line 18

Page 14, Line 30

Page 25, Line 1

Lines to change phrase “or less” to “or fewer”

Page 21, Line 20

Page 15, Line 26

Page 7, Line 17: Currently says “a visualization is visualized” – recommend saying “an illustration is provided”, and also change the first word of Fig 3 caption to “illustration”

Page 10, Line 11: recommend to rewrite sentence to remove parenthesis

Page 11, Lines 4-5: re-write awkward sentence that starts “As final model”

Section 2.5.2: At the beginning of this section, you mention “2 ideas” but the second idea (ungauged basins) comes very late after the first – should briefly state the 2 motivations early in the first paragraph, then spend next two discussing them in more detail.

Page 13, Line 22: “as described”

Page 13, Line 33: “fewer epochs”

Page 14, Line 23: recommend to re-write sentences to omit “;”. Also the phrase “Afterwards, we start by” is contradictory.

Page 15, Line 31: “were” instead of where

Page 15, Line 32: rephrase “it shows very well the problem”

Page 16, Line 11: remove also, and add “either” at end of sentence

Page 17, Lines 1-3: This was brought up and addressed in the previous round of comments, but here I still feel that the “surprise” could be toned down, and this aspect could be posed more as a potential benefit of this type of model, in that it is able to simulate long-term processes. E.g. instead of noting your surprise compared to what you expected, discuss that feature as a notable benefit of the LSTM approach, where the example shows how it can learn long-term dependencies with ease.

Page 19, Line 9: “models perform”

Page 21, Line 4: “trend toward”

Page 21, Line 7: combine paragraphs here

Page 21, Line 9: change “plot is a different one” to “much different”

Page 21, Line 9: re-word phrase “while there exist some basins”

Page 23, Line 16 – Page 24, Line 7: This paragraph seems a bit casually written compared to the rest of the paper – contains several typos and grammar errors and should be somewhat re-written.

Line 25, Line 3: I would remove “it bears repeating” (since it is going to be repeated anyway)