Reviewer 1:

Comments and Suggestions for Authors

In general, the application of this known method to Sentinel-2 has some merit. The study design does however not allow too many conclusions.

Some of your conclusions are not supported by your results. Using just 1 year for calibration and 1 year for validation is rather week. Do therefore not oversell your results.

Remove unsupported statements or where possible extent the methods and results part to support them.

English language editing is required in many places.

Response: Thank you very much for your helpful comments and suggestions. We have carefully rephrased or removed the unsupported statements and checked the English writing as much as possible. Below are our responses to each of your comments.

Detailed comments:

Abstract

Line 16: A representative one is to -> An example is the (or: For example, the use of …)

Response: Revised. "An example is the use of Near Infrared (NIR) …"

Line 19: fitting a linear regression -> fitting a linear function OR applying a linear regression

Response: Revised.

Line 72: the NIR band is the easy required input of C/M method, -> rephrase

Response: Thanks. This sentence has been rephrased as "While using optical data, the NIR band is the only required input of C/M method, which is easily available."

Figure 1: partially lacks features required for maps (grid, scale (on right))

Response: Figure 1 has been revised as suggested.

Line 113: flow -> discharge (also later on)

Response: Thanks. As you suggested, it is indeed proper to use "discharge" rather than "flow" to express the gauge data. We have replaced these "flow" with "discharge". However, some sentences were representing the continuous situation of water volume variation (e.g. annual flow, low/high flow, base flow, flow peak, flow period). Thus, those 'flow' are preserved.

Line 135: return period -> repeat interval / revisit interval

Response: Revised

Line 136 – 142: It somehow is clear what you mean, but it needs rephrasing

Response: Thanks. They have been rephrased as "Flowchart of methodology used in this study is shown as in Figure 3, which mainly contains two parts, discharge modelling and result validation. Discharge modelling applies a linear regression between input NIR image series in the 2017 (modelling) water year and corresponding gauge observations to construct the estimation formula. Result validation computes the bias between the observed and estimated discharges in the 2018

(validation) water year."

Figure 3: explain C, V and M in the caption
Response: The caption of figure 3 has been revised as "Figure 3. Flowchart of methodology (C stands for Calibration pixel, M stands for Measurement pixel, and CV stands for Coefficient of Variation)"

Figure 4: Explain C etc. in caption, add scale; where is the gauge located
Response: Figure 4 and its caption have been revised as suggested.

Line 223: 'Successfully utilizing Harmonized Landsat and Sentinel-2 product here suggests' ->rephrase
Response: Thanks. They have been rephrased as "The successful use of Harmonized Landsat and Sentinel-2 product in this study implies that …"

Line 237: 'our study implies that a regression model established for a single water year is robust enough for modelling discharges for other time periods, ', you only proof that for one year, what is not sufficient. Rephrase this or validate this for more years.
Response: Rephrased. "our study demonstrates that a regression model established for a single water year is able to generate proper discharge estimation for another independent year …"

Line 238: extend -> extended
Response: Revised.

Line 264 in Discussion: 'We conducted a rough multiple M …', either drop this or include it properly in the methods and results section
Response: Thanks for pointing this out. The multiple M strategy was proposed by Li et al (2019), which selects a set of candidate M pixels based on their r values, and taking their average reflectance as the virtual M pixel, in order to alleviate the affection of cloud coverage and reserve as many input images as possible. We think this strategy is inconsistence with our study, as we have actually conducted a filter on the initial images and their quality were quite good which ensures enough amount of usable images. Therefore, we decide to delete this part, and stick to the original C/M method proposed by Tarpanelli, which uses the single M strategy.

292: proves -> demonstrates (you do not really proof it, 1 year is not sufficient)
Response: Revised.

293: 'Further, it demonstrates that the C/M method can be applied to completely ungauged basins ..' This statement is not supported by the results, just speculation based on discussion of a different study. Remove this.
Response: Thanks. This has been removed.