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Earth System Science Data Discussions

Interactive comment on "A 439-year daily discharge dataset (1861–2299) for the upper Yangtze River, China" *by* Chao Gao et al.

Anonymous Referee #2

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Add the word "simulated" or something similar to the title. I know that with the dates it is clear that this is enough an actual 439 year dataset of measured data, but save the reader from momentary excitement at a record being found that goes back that far.

What is the target audience for this paper? I think the goals of the paper need to be more clearly stated.

Who do you envision using this dataset? For what potential purposes?

In the goals for ESSD, does this paper provide "original research data"? I am not a modeler and thus am not up to date on whether any of the methods presented are new or novel.

A lot of sentences in this paper start with a weak dependent clause and then leads

into the independent clause. I've tried to highlight some of them, but the language in the paper could be made stronger by reducing the number of these sentences. It's ok to have a short sentence every now and then, especially if it conveys important information.

Figure 1 is not referenced anywhere in the paper.

Make it clear what the period of daily measured discharge is.

1. Intro

First sentence of the intro should be stronger, don't start with "with".

Line 8 of the intro, don't start with "To date"

Line 17 needs a comma before "but"

Line 23 – "Could support the development. . ."? Is there not already hydraulic management strategies in place?

2. Study Area

Is the temperate trend linked to the East Asian monsoon and topography?

Don't say the temperate trend is obviously increasing, especially without showing a graph. By reporting a slope of "approximately 0.2C/10a" you are implying a linear trend, is this the case?

Are you referring to air temperature or water temperature?

Did precipitation decrease linearly (as implied by the slope)? Does this correlate with the wet period and dry periods previously mentioned?

3. Methods

I will let another reviewer determine whether the models were used appropriately.

3.2.

What do you mean the daily discharge data “were derived”?

Why was data from 1939-1969 not used for calibration and validation of the four hydrological models?

Reorder the first sentence of paragraph 2 on page 4.

Remove language from the next sentence than the disastrous floods should be mentioned.

How do you know that the 1870 flood was the most severe since 1153? What do you mean by “severe”?

The language in this paragraph could be cleaned up and made much tighter.

4.1

Reorder the first sentence

4.2

1986/1987 does not look like a turning point to me.

4.3

Why does the IPCL model only project a rapid decline (should be decrease?) in discharge. Seems like that would be an interesting point to discuss.

Is mean annual discharge really the best way to characterize the discharge with how much it fluctuates throughout the year?

Will you later go into why discharge is projected to decrease? This seems like an interesting conclusion to investigate further.

4.4

What do you mean 16 sequences of daily discharge?

5.

I would like to see discussion and conclusions separated unless this is the journal’s recommended style.

Is there no updated land use map since 1990? I would think the effects of human induced change could completely change the results and needs to be incorporated. There has been tremendous growth in the last (almost) 30 years in China.

Figure 3a could be a dynamic figure. Can you make it clearer? If it’s not possible in one graph, maybe split it up?

Figure 3 captions needs more information.

Figure 4 – why the two different average value lines? Needs to be discussed in the figure caption. Is this the wet/dry periods?

Figure 5 – include r values

Figure 8 – Does historical data only go to 2005? This needs to be mentioned earlier in the paper. Is there more data available ie through at least 2018 or whenever the analysis was started?

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