

Comments for your paper

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The contents in this paper is interesting and it is not so difficult to imagine how hard work you did to make this paper.

However, the title and object is not clear and the conclusion is not acceptable.

I understand the object of your paper is to clear or estimate the purification capacity in this area. In order to estimate this capacity, you used two NANI method, area-weighting and land use-weighting, to compare the Nitrogen riverine export amount. So, two figures in fig.5 are most important one in this paper.

My wondering point is why you used date of catchment 4, 8 and 14 to make this figure. The catchment of 4, 8 and 14 are exactly different to others in population density and the percentage of urban area. Further, in these catchments, the distance from water treatment plant to water sampling point looks too close to discuss the purification capacity. If you make figure 5 without these three catchments, you will find more good fitting line between NANI and Riverine Export in Fig.(b). Also you will find different value of slope, and y-intercept of the linear fit function.

For my roughly estimation, the slope value looks around 0.2 that is not so different value in North America and Europe (the last line of page 6).

Also, intercept of X axis might be shift to small value. If so, your discussion in page 7 will be no point.

This is a reason that I cannot accept your discussion and conclusion.

I think that your mistake to make Fig.5 with all catchment data itself is showing one kind of important reminder or carefully point for using NANI to small area.

Another small point that is needed to check is as follows.

- In Table 1, total Area is 2920.0. There are 15 catchments, so average value might be 194.7 Km². This value is not fit the value in manuscript that is 175 Km², for example line 24 in page 2.
- In Fig.4, the unit of Area basis should be change from kg km² yr⁻¹ to kg km⁻² yr⁻¹.