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Interactive comment on "Geochemistry of the dissolved loads of rivers in Southeast Coastal Region, China: Anthropogenic impact on chemical weathering and carbon sequestration" *by* Wenjing Liu et al.

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General comments:

This study estimated the chemical weathering rates and atmospheric CO2 consumption rates in the coastal catchments of SE China, based on the chemistry and isotopes of dissolved inorganic carbon in the coastal rivers. The most important finding of this work is the sulfuric acid plays an unignored role in chemical weathering of carbonate and silicate rocks, which has to be more carefully considered in the calculation of

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weathering rates and carbon cycling in the catchments where strong human activities occur. Overall, the paper was well organized and structured, and the major research conclusion will increase our better understanding of weathering process in river catchments. I basically agree with the major research findings of these study based on the high data quality and interpretation. My minor concern is about the influence of extreme climate events on weathering processes. As some studies suggest, the SE China is subject to strong typhoon impact every year, which could significantly alter the river water chemistry and probably weathering process in the catchments during typhoon season. This impact could not be ignored in the discussion part.

More specific comments and suggestions:

1) L97-100: How did you define the sizes (small, medium, large) of these different rivers in SE China? Based on their catchment areas, lengths or riverwater and sediment discharges?

2) On River settings: I suggest this part should include the mean water (and sediment) discharges of these rivers investigated.

3) L109: Data source?

4) L126: No influence of the Pacific Plate?

5) L141-142: To my knowledge, the estuaries and lower reaches of most of these river studied are subject to strong tidal influence. Based on the sampling locations on the map of Figure 1, it seems that some riverwater samples were taken much closer to the river mouths. Please make sure that all these samples were not influenced by tidal-pumped sea water, or you have some special method to correct this kind of influence.

6) L177: change to “Compared”

7) L181-182: Where are these rivers located?

8) L248-249: Considering the sizes of these rivers investigated, it may be more rea-

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sonable to compare them with those small- or medium-sized river systems.

9) L271: Do you mean the source rock types? To my knowledge, the tectonic settings of these rivers are much different. The climate regimes and anthropogenic activities as well are also much variable among these river catchments.

10) L322-324: What are the major reasons for the different silicate weathering rates observed in these river catchments? If the monsoon climate dominates the weathering process, the Xijiang in the southernmost should have the highest silicate weathering rates while the Huanghe in the northernmost has the lowest?

11) L401-402: How about the influence of seawater intrusion into the lower reaches of these rivers?

12) On the spelling of river names: It always should keep in consistence in the text, figures and tables, e.g. Min, Jin, Han, Jiulong rivers, not "Minjiang, Jinjiang, Hanjiang. . ."

13) Table 1: The full names of TZ, EC, NICB and TDS should be given with the table. It's better to include the localities of these riverwater samples.

14) Table 3: Sources of riverwater discharges and runoff?

15) Figure 1: You'd better to mark the major names of rivers, and geographic localities, and tectonic units you mentioned in the text, e.g. Huanghe, Cathaysia and Yangtze blocks, Zhejiang and Fujian Provinces.

16) Figure 4: Wrong spelling of "Contribution" in Y axis. Add a name of "Rivers" to X axis. The spelling of river names should be keep in consistence.

17) On all figures: The fonts used in the diagrams should be consistent.

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