

February 13, 2021

Dear Prof. Dominic Mazvimavi,

Thank you very much for your letter and for the reviewers' constructive and valuable comments concerning our manuscript entitled "The precipitation variability of wet and dry season at the interannual and interdecadal scales over eastern China (1901–2016): The impacts of the Pacific Ocean" (Manuscript ID: hess-2020-102). In the revised version, we have carefully revised the paper to address all comments, and hope you and the reviewers find the revision satisfactory. Point-to-point responses to reviewers' comments are included in the following pages.

We look forward to hearing from you!

Sincerely yours

Fuqiang Cao

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Responses to the Comments

Thanks for your encouragement and constructive comments. We have followed your suggestions and carefully revised the manuscript to address the issues raised by you.

1. *Line 43, In -> During*

Response:

Modified as suggested. Please see Line 43 on Page 2 in the revised manuscript.

2. *Line 43, exerts -> exerted*

Response:

Modified as suggested. Please see Line 43 on Page 2 in the revised manuscript.

3. *Line 44, decrease -> decreased*

Response:

Modified as suggested. Please see Line 44 on Page 2 in the revised manuscript.

4. *Line 45, shift -> shifted*

Response:

Modified as suggested. Please see Line 45 on Page 2 in the revised manuscript.

5. *Line 45, accessing -> assessing*

Response:

Modified as suggested. Please see Line 46 on Page 2 in the revised manuscript.

6. *Line 48, “Precipitation over eastern China” —This cannot be a keyword. This is almost a sentence.*

Response:

We have divided this sentence into “Precipitation” and “Eastern China” according to your suggestion. Please see Line 48 on Page 2 in the revised manuscript.

7. *Line 53, derived from -> due to the*

Response:

Modified as suggested. Please see Line 53 on Page 2 in the revised manuscript.

8. *Line 68, delete “While”*

Response:

Modified as suggested. Please see Line 68 on Page 3 in the revised manuscript.

9. *Line 71, delete “Moreover”*

Response:

Modified as suggested. Please see Line 71 on Page 3 in the revised manuscript.

10. *Line 77, for -> of*

Response:

Modified as suggested. Please see Line 76 on Page 4 in the revised manuscript.

11. *Line 79, , it -> . It*

Response:

Modified as suggested. Please see Line 79 on Page 4 in the revised manuscript.

12. *Line 81, delete “the”*

Response:

Modified as suggested. Please see Line 81 on Page 4 in the revised manuscript.

13. *Line 90, delete “be”*

Response:

Modified as suggested. Please see Line 90 on Page 4 in the revised manuscript.

14. *Lines 90-91, Sentence not clear. Do you mean the amount of rainfall increases?*

Or the relationship between amount and ENSO strengthens/weakens?

Response:

Thank you for your suggestion. We have changed this sentence according to your advice as follows:

“Moreover, the summertime rainfall amount over the YRB and to its south is expected to increase (decrease) during El Niño (La Niña) years.”

15. Line 95, delete “plausibly”

Response:

Modified as suggested. Please see Line 95 on Page 5 in the revised manuscript.

16. Lines 96-97, not very clear

Response:

Thank you for your advice. We have changed this sentence according to your suggestion as follows:

“because the western Pacific warm pool shifts the WPSH northward”

17. Line 102, dry and wet alternations -> the alternating of dry and wet years

Response:

Modified as suggested. Please see Line 101 on Page 5 in the revised manuscript.

18. Line 112, strengthened -> relatively high; weakened -> low

Response:

Modified as suggested. Please see Line 111 on Page 5 in the revised manuscript.

19. Line 119, also -> been

Response:

Modified as suggested. Please see Line 118 on Page 6 in the revised manuscript.

20. Line 124, the -> a

Response:

Modified as suggested. Please see Line 123 on Page 6 in the revised manuscript.

21. Line 143, not clearly written. are you referring to the variability of the seasonality of precipitation? how did you define seasonality for analytical purposes?

Response:

Thank you very much for your good suggestion. We have changed these sentences according to your advice as follows:

“Moreover, the variations in climatological seasonal rainfall are employed in aforementioned analyses, while the main rainy season in China, in particularly for eastern China, does not follow conventional seasonal boundaries, since the rainfall in eastern China is principally concentrated during April–September”

22. Line 150, to characterize the -> characterisation of

Response:

Modified as suggested. Please see Line 148 on Page 7 in the revised manuscript.

23. Line 151, delete “While up to now, the issue on whether”

Response:

Modified as suggested. Please see Line 149 on Page 7 in the revised manuscript.

24. Line 151, the -> The contribution of both

Response:

Modified as suggested. Please see Line 149 on Page 7 in the revised manuscript.

25. Line 152, delete “can contribute”

Response:

Modified as suggested. Please see Line 149 on Page 7 in the revised manuscript.

26. Line 153, utilize -> consider

Response:

Modified as suggested. Please see Line 151 on Page 7 in the revised manuscript.

27. Line 155, to fill the gap of detecting robust signals of the -> to examine the

Response:

Modified as suggested. Please see Line 152 on Page 7 in the revised manuscript.

28. Line 162, developed at -> managed by the

Response:

Modified as suggested. Please see Line 159 on Page 7 in the revised manuscript.

29. Line 165, delete “The accurate”

Response:

Modified as suggested. Please see Line 162 on Page 8 in the revised manuscript.

30. Lines 166-170, Did the author do this quality control or this was done by the
National Meteorological Centre?

Response:

Thank you for your suggestion. We conduct these works of quality control, and we have changed these sentences according to your advice as follows:

“We conduct the accurate quality control procedures to check the temporal inhomogeneity and missing values, and screen the related stations in the following analyses”

31. Line 175, more -> Further; referred to -> available in

Response:

Modified as suggested. Please see Line 172 on Page 8 in the revised manuscript.

32. Line 192, delete “the”

Response:

Modified as suggested. Please see Line 189 on Page 9 in the revised manuscript.

33. Line 197, The -> A; delete “the”

Response:

Modified as suggested. Please see Line 194 on Page 9 in the revised manuscript.

34. Line 198, refers to -> is available in

Response:

Modified as suggested. Please see Lines 194-195 on Page 9 in the revised manuscript.

35. Line 199, are you referring to temporal or spatial changes?

Response:

Thank you for your advice. We have changed these sentences according to your suggestion as follows:

“To identify the effects of climate variability modes on spatio-temporal changes in rainfall over eastern China”

36. Line 201, which variables are these?

Response:

Thank you for your suggestion. We have changed these sentences according to your advice as follows:

“variables (e.g., sea surface temperature, sea level pressure and vertically integrated water vapor)”

37. Line 206, access -> assess

Response:

Modified as suggested. Please see Line 205 on Page 10 in the revised manuscript.

38. Lines 209-235, All symbols and letters used in equations should be defined. Avoid having the same letter representing different variables, constants or coefficients in different parts of the paper, e.g. y and x .

Response:

Thank you so much for the good suggestion. We have changed these according to your advices. Please see Lines 208-205 on Pages 10-11 in the revised manuscript.

39. Line 264, Not clear what you are referring to

We have changed these sentences according to your suggestion as follows:

“In addition, the spectral analysis is also performed using the time series of mean rainfall based on the two datasets”

40. Line 273, correct this phrase. Not clear.

We have changed these sentences according to your suggestion as follows:

“which is well consistent with the spatial mean rainfall”

41. Line 335, add “The”

Response:

Modified as suggested. Please see Line 336 on Page 16 in the revised manuscript.

42. Lines 351-352, Not clear

We have changed these sentences according to your suggestion as follows:

“The solid line indicates the decadal smoothing average of first PC”

43. Line 358, add “a”

Response:

Modified as suggested. Please see Line 359 on Page 17 in the revised manuscript.

44. Lines 360-361, Sentence incomplete

Thank you for your suggestion. We have changed these sentences according to your advice as follows:

“early summer rainy season presents in southern China, then the mei-yu season occurs over the Yangtze-Huai river basins, and the late summer rainy season

ultimately forms over northern China”

45. Line 379, , *this* -> . *This*

Response:

Modified as suggested. Please see Line 380 on Page 18 in the revised manuscript.

46. Line 397, delete “*lightest*”

Response:

Modified as suggested. Please see Line 398 on Page 18 in the revised manuscript.

47. Line 403, delete “*highest*”

Response:

Modified as suggested. Please see Line 404 on Page 19 in the revised manuscript.

48. Line 406, *suitably* -> *conducive*

Response:

Modified as suggested. Please see Line 407 on Page 19 in the revised manuscript.

49. Line 408, *light* -> *low*

Response:

Modified as suggested. Please see Line 409 on Page 19 in the revised manuscript.

50. Line 418, *season* -> *seasons*

Response:

Modified as suggested. Please see Line 419 on Page 19 in the revised manuscript.

51. Line 430, *accessed* -> *assessed*

Response:

Modified as suggested. Please see Line 431 on Page 20 in the revised manuscript.

52. Line 446, *are* -> *have*

Response:

Modified as suggested. Please see Line 447 on Page 21 in the revised manuscript.

53. Line 460, *season* -> *seasons*

Response:

Modified as suggested. Please see Line 461 on Page 21 in the revised manuscript.

54. Line 467, *season* -> *seasons*

Response:

Modified as suggested. Please see Line 468 on Page 22 in the revised manuscript.

55. Line 474, delete "*occurred*"; *study* -> *the study*

Response:

Modified as suggested. Please see Line 475 on Page 22 in the revised manuscript.

56. Line 480, *season* -> *seasons*

Response:

Modified as suggested. Please see Line 481 on Page 22 in the revised manuscript.

57. Line 481, *with that during dry season* -> *from the dry seasons*; *the lightest* -> *low*

Response:

Modified as suggested. Please see Lines 481-482 on Page 22 in the revised manuscript.

58. Line 489, *to* -> *in*

Response:

Modified as suggested. Please see Line 489 on Page 23 in the revised manuscript.

59. Line 511, *These* -> *The results*

Response:

Modified as suggested. Please see Line 511 on Page 24 in the revised manuscript.

60. Line 541, heartily -> very

Response:

Modified as suggested. Please see Line 541 on Page 25 in the revised manuscript.

61. Line 800, delete “climatological”

Response:

Modified as suggested. Please see Line 800 on Page 37 in the revised manuscript.

62. Line 815, in -> by the

Response:

Modified as suggested. Please see Line 815 on Page 39 in the revised manuscript.