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Nonlinear Processes in Geophysics
Discussions
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Interactive comment on "Optimal Precursors Identification for North Atlantic Oscillation using CESM and CNOP Method" *by* Bin Mu et al.

Anonymous Referee #1

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In this manuscript, the authors adopted a novel CNOP-based approach to study OPRs of the NAO using CESM. They presented a hybrid intelligence algorithm named PGAPSO to solve CNOP, and applied multiple parallel frameworks to improve efficiency. The effectiveness of the PGAPSO was validated by comparing to the BGM and random method, and the OPRs' structures for both NAO+ and NAO- in two different cases were analyzed. The work is interesting and the algorithm seems to be useful also in other studies of the climate sciences. The revised manuscript has been improved considerably. There are a few points that need to be addressed before I can recommend accepting this manuscript.

1, In this work, the authors studied two cases of different initial conditions. I would suggest the authors to provide more background information about the two cases.

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2, The authors explained the Parallelization methods in section 3.3 in great detail, and also presented the corresponding results in section 4.6 with three figures and one table. The contents are good and informative, but since the title of the work has been changed, probably the authors could consider shortening this part, or move some of the contents to supplementary materials?

3, In the Abstract, line 10, what is the last stage of the prediction period? Clearer information should be provided here.

4, On page 3, in line 9, “run” should be “running”.

5. On page 3, in line 13, a reference is need here in the end of this sentence.

6. On page 18, in line 19, what is the 25th layer? What is the constrained condition T’2<=100? More detailed information is needed here. For instance, it is better to point out clearly the height of the considered layer, instead of simply using the 25th layer.

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