

Dear Editor,

we are thankful for the interest in our paper and for the very positive evaluation. As listed below, we have addressed every comment and suggestion of Reviewer #1. We have also implemented your spelling suggestions.

Best wishes,
Vera Melinda Galfi (for all authors)

Reviewer #1

We would like to thank the Reviewer for their very positive review of our paper and for their editing suggestions, which have helped to polish our text. We detail the changes that have been made to the manuscript below.

1. L1. 58 and 173, I suggest ... the practical impossibility of ...

We have updated these as suggested.

L. 101-102, I do not think the climate (if defined as the whole attractor of the system) can be said to be chaotic. I suggest The atmosphere is a chaotic dynamical system, given its sensitive dependence of its evolution on initial conditions.

We thank the reviewer for pointing this out. We refer here to the dynamics of the climate system itself, i.e. the coupled system including the atmosphere, hydrosphere, biosphere, lithosphere and cryosphere, which does exhibit sensitive dependence on the initial conditions (Ghil and Lucarini, 2020). We do not use the word “climate” in its conventional sense, i.e. referring to the statistics over a period of several decades of the climate system. We express this clearer in the new version of the manuscript.

2 L. 103, ... Henri Poincaré [...] knew already [...] that the weather is chaotic. I would rather suggest Henri Poincaré [...] had already explicitly considered [...] the possibility that the weather is sensitive to initial conditions.

We have updated these as suggested.

L. 106, I would suggest ... until the work of Ed Lorenz (1963) and the works that followed, all strongly connected ...

We have updated these as suggested.

Ll. 173-174, ... the stochastic perspective indispensable for accurate weather predictions ... I think it is more a question of usefulness of the weather predictions than of strict accuracy.

We agree with the reviewer and have changed this sentence accordingly.

L. 175, The word parametrisations has not been defined at this stage. I would suggest for instance parametrisations (i.e. representation of the impact of structures that are not resolved by the numerical model onto structures that are resolved)

We have implemented these as suggested.

L. 98, expand CMIP (Coupled Model Intercomparison Project) and give reference

We have implemented these as suggested.

L. 106, paper Lorenz (1963) is missing from the list of references.

We have added the corresponding reference.

Reviewer #2

We would like to thank the Reviewer for their interest and very positive review of our paper.

References

M. Ghil and V. Lucarini. The physics of climate variability and climate change. *Rev. Mod. Phys.*, 92:035002, Jul 2020. <https://doi.org/10.1103/RevModPhys.92.035002>.