ESD Ideas: Planetary Antifragility: A new dimension in the definition of the Safe Operating Space for Humanity

Oliver López-Corona, Melanie Kolb, Elvia Ramírez-Carrillo, and Jon Lovett

Major revision round 2

Dear editor and reviewers, we deeply appreciate all your work, insights, recommendations and encouragement. No matter the result this has been some of the best scientific publishing experience, because there has been an honest interest in making a real innovating contribution. The process has been long, more than a year now, but it has involved high level scientific and philosophical interchange of ideas that has no doubt been invaluable for us.

Referee #1: Karo Michaelian	
Line 31: This sentence does not make any sense "eventually will undergo its competitors because time is the ultimate source of variability and so the system will accumulate any little gain."	We appreciate the time invested in spotting some examples of what must have been corrected and is now taken care of in the new version.
Line 73: Change " Ecosystems" to "ecosystems"	
Equations (3) and (4), and the variables included in the equations, should be carefully defined.	
Line 98: "Ahmad and Co-workers" to "Ahmad and co-workers"	
Figure 1 – the labels on the graphs should be larger.	
Figure-3 – change "maximum complexity nd Fisher information" to "maximum complexity and Fischer information". Change "to respond, cope an thrive" to "to respond, cope and thrive"	
References; The references are not complete or correctly formatted. For example, journal names are	Corrected

missing from most of the references. The phrase "et al." should be used in place of "and others", etc.

Liang, S., Zhao, X., Liu, S., Yuan, W., Cheng, X., Xiao, Z., Zhang, X., Liu, Q., Cheng, J.. Tang, H., and Others: A long-term Global LAnd Surface Satellite (GLASS) data-set for environmental studies, 6, 5–33, 2013. 13 330 Liu, Q., Wang, L., Qu, Y., Liu, N., Liu, S., Tang, H., and Liang, S.: Preliminary evaluation of the long-term GLASS albedo product, 6, 69-95, 2013. López-Corona, O. and Padilla, P.: Fisher information as unifying concept for criticality and antifragility, a primer hypothesis, 2019a Marcianesi, F., Aulicino, G., and Wadhams, P.: Arctic sea ice and snow cover albedo variability and trends during the last three decades, 100617, 2020 Michaelian, K.: Thermodynamic stability of ecosystems, 237, 323-335, 2005

Pineda, O. K., Kim, H., and Gershenson, C.: Antifragility of random Boolean networks, 2018

Michaelian, K.: HESS Opinions" Biological catalysis of the hydrological cycle: life's thermodynamic function," 16, 2629–2645,

2012.

Qu, B., Xi, Z., and Chen, C.: A method for TOA location based on scattering models in NLOS environments, 39, 27–30, 2014. Ramírez-Carrillo, E., López-Corona, O., Toledo-Roy, J. C., Lovett, J. C., de León-González, F., Osorio-Olvera, L., Equihua, 355 J., Robredo, E., Frank, A., Dirzo, R., and Others: Assessing sustainability in North America's ecosystems using criticality and information theory, 13, e0200382, 2018.

Rockström, J., Steffen, W., Noone, K., Persson, AAsa, Chapin, F. S., Lambin, E. F., Lenton, T. M., Scheffer, M., Folke, C., Schellnhuber, H. J., and Others: A safe operating space for humanity, 461, 472–475, 2009.

I emphasize again that these are only some of the corrections to be made. There are

We have carefully re-read the paper and improved the manuscript.

many others throughout the whole text. However, it is not the job of the reviewer to correct the technical issues. The authors must take responsibility and provide a polished paper before it could be acceptable to publish.

Anonymous referee #4

To me personally, the manuscript appeared really clear, albeit in its own exotically conveyed way. Nevertheless, I am strongly aware that to the broader readership this work will transmit lack of quality and depth of content simply due to the way the text is written and the overall manuscript is structured. Hence, more than an issue about the content, it is about the form. And an untidy form leads to the illusion that the content is much worse than it actually is.

Therefore, instead of arguing for or against specific technicalities, I urge the authors to further exert caution in how the manuscript is written, making sure that the revised work inches closer to scientific writing (albeit the nature of ESD Ideas).

We are very grateful for such kind words and we have gone through the paper with much attention to improved it and let the true value of it be much easily appreciated.