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Comment on gc-2021-34

Louise Arnal (Referee)

Referee comment on "A physical concept in the press: the case of the jet stream" by
Xavier Fonseca et al., Geosci. Commun. Discuss.,
<https://doi.org/10.5194/gc-2021-34-RC1>, 2022

In this manuscript entitled "A physical concept in the press: the case of the Jet Stream", Fonseca et al. provide a well-structured overview of the role of education to empower informed and responsible decisions that may affect climate. They argue that the media can play a vital role in educating the public about climate change processes, towards climate literacy. They showcase the need for better education using survey results from university students. Finally, they illustrate how better education can be achieved using an existing climate science dissemination section, Weather Stories, from a Galician newspaper. The examples chosen to illustrate their points are well-chosen and captivating. However, the manuscript still lacks a hypothesis testing methodology, and a more thorough acknowledgement of the wider literature is required in places. Please find a series of comments below which will hopefully help improve this manuscript for publication in Geoscience Communication.

Main comments:

- The manuscript needs a hypothesis testing methodology. Currently, you introduce a hypothesis on page 6 only. I think this should be introduced right after the context has been laid out. Additionally, I think the elements you present that are part of your hypothesis (i.e., daily section, scientific dissemination, historic perspective, teleconnections, and specialization) should be introduced within the context of your paper, based on the wider literature. Here, you explain each element through the Weather Stories experience, which should be part of the results. Introducing these elements at the start of your manuscript would help the readers understand what they are and why they are important. In your results, you can then refer to these elements and show how Weather Stories fulfills those points.

- It is also important that you explicitly mention how the examples you use in Section 7 tackle the elements you introduce in Section 6. E.g., "a volcanic cloud had covered the

whole planet" (P9 L280-281) illustrates the importance of teleconnections.

- The methodology section requires more information, for example regarding the dissemination method used for the survey, the exact questions asked as part of the survey, and the method used to "analyse the content of a model" (P5 L 141) to improve climate literacy. I suggest adding a copy of the survey to your manuscript for more clarity and transparency.

- In the results Section 5 you refer to information from the wider literature (e.g., P5 L152-154, see other instances throughout Section 5). These references to outside results should be included instead at the start of the manuscript when you introduce these points, or in a discussion section, to keep the results section for your own study results only.

- Section 7 is presented as a mix of narratives (7.1 to 7.3) or contextualized narratives (i.e., why was a certain narrative selected for the readers, e.g., P10 L301-302). For more conciseness, I suggest using the same style throughout. I think contextualized narratives is more appropriate for this manuscript as it provides a more critical overview of the Weather Stories articles.

- It would be great if you could please provide a more critical outlook of future steps for the community to tackle the ongoing climate illiteracy challenge. Please provide a reflection at the end of the manuscript and perhaps a couple of suggested steps going forward. Examples of questions you could tackle are: What would you like to see happen in the world/Spain to improve climate literacy moving forward? Should other countries/regions of Spain adopt a similar concept to the one you present? What are some of the challenges with using media as a dissemination format? Will you evaluate the impact of this dissemination to see if it works?

- The points you raise throughout the manuscript are excellent, but they require more references to the literature in some parts. I.e., P1 L22-23 ("the scientific community has published several articles highlighting the urgency of the current situation", please cite a few examples), P2 L34-43 (this paragraph requires more references to the literature regarding lack of climate education in the general public, people remaining unaware of how the greenhouse effect works, and the media being the main source of public opinion information), P2 L57-58 ("widely debated within the academic literature", please provide examples of articles), P8 L245-255 (the Jet Stream concept requires citations to the relevant literature), and P14 L361-362 ("as shown by different surveys all around the world", please refer the reader to a few examples).

Specific comments:

- P1 L13: Suggest changing "knowledge" to "climate literacy" to clarify that you are not

referring to scientific knowledge but to that of the wider public. (Same on P4 L104).

- P1 L16-17: Their characteristics allow taking on which challenge? That of science communication? Please specify in the manuscript.

- Introduction: You only introduce why it is important for the public to understand climate change in Section 2. I think this needs a line or two in the Introduction as well as it is an important point that frames the rest of your paper.

- P1 L22: Suggest changing "harsher" to "more catastrophic".

- P1 L25: What are the limits established by the Paris Agreement? Please specify.

- P1 L25: Please explain very briefly what the "Hothouse Earth" hypothesis is in the manuscript.

- P2 L32-33: This would be a good point to briefly introduce what the Jet Stream is.

- P2 L46-47: Suggest changing "the generation" to "one of the generations".

- P3 L66: This hypothesis is not tested in your manuscript, please change the word, or provide a test for this hypothesis in your manuscript. I would suggest the latter as you already have one main hypothesis explored.

- P3 L68-69: Do you have any references for this that you could add in the manuscript? I find this point surprising as academia is a center of learning.

- P3 L73-74: "the effect vanishes soon" is an excellent point. However, you are not arguing that this is not the case for the media. Please address this point in the manuscript.

- P3 L80: I find the idea of "social experience" fascinating, but I don't quite understand what you mean by that. Since it is an important point, please provide a clear explanation of what this is in the manuscript.

- P3 L80-82: by "everyday testing within the meteorological field" do you mean that this experience is backed up by constant progress within the field of meteorology. Please clarify/rephrase.

- P4 L106-107: Is there anything you can cite in the manuscript to back up the point that the greenhouse effect is not well understood by the public? I find it surprising since it is a concept taught at school.

- P4 L116-117: Please explain briefly in the manuscript the 3 crisis points faced by journalism.

- P4 L113-127: This paragraph is a repetition of many elements introduced in Section 2. I suggest reviewing for more conciseness.

- P4 L120: Does the percentage of fake news in social media and Whatsapp not suggest a change in information source as well?

- P5 L135-137: For readers unfamiliar with the history of climate in Galicia, it would be helpful to give an overview of the climate change background in this region of Spain. E.g., sea level rise, droughts, floods... This context is very important to frame the survey results you mention later.

- P5 L156: You report 'quite a lot' and 'a lot' as most selected answers by survey participants. However, readers do not know what options were provided to the participants and cannot judge the impact of this answer. More instances throughout Section 5. Please see my main comment about the methodology section above. As an example of why this matters, when mentioning the various sources of information reported by survey participants about climate change, were options such as "a friend", "family" and "social media" options participants could also choose from?

- P6 L169: "more than 40% believe", is this number from the survey?

- P6 L184: I would argue that the daily provision of information additionally constitutes a reliability, important to build public trust.

- P7 L201: Where did storm Filomena occur?

- P7 L207: By "own personality" do you mean that it is a unique medium? Please rephrase.

- P7 L209: The historic perspective additionally frames broader concepts in a locally relevant context for the public.

- P7 L217: "it can also be linked to a war like Syria's", this requires more explaining in the manuscript.

- P8 L235-243: To understand this paragraph readers require more information about Weather Stories, such as who contributes to it, how often issues are published, what the range of topics is. This could be introduced in more details in the introduction section.

- P8 L260: Suggest changing "air navigation" to "air circulation".

- P8 L262: The various viewpoints mentioned here is important but is not introduced earlier. Please introduce this point earlier in the manuscript. Should this also be an additional model element introduced in Section 6?

- P9: Suggest moving 7.2 and 7.3 as sub-sections of 7.1 as they fit within the theme of "a current with plenty of history".

- Section 7: These narratives are very interesting but are presented somewhat arbitrarily. Please explicitly mention how they link back to the model elements introduced in Section 6 (see main comment section above). You could also report the dissemination/publication dates for each story, with links to these publications so the readers can read them if they are interested.

- P14 L365: Suggest changing "often invisible" to "often invisible to the untrained eye" to highlight that it is invisible if the person is not aware of what to look for.

- P14 L381: "Belenguer, 2003" should be introduced earlier on in the manuscript if referred to in the conclusions.

Technical corrections:

- P1 L13: "To advance the learning" (without "in").

- P2 L63: The quote is not closed.

- P7 L215: "to assimilate" (without "a").

- P12 L345: "on the planet".