

Responses to reviewer 2 (Stephanie Zihms)

Thank you very much for taking the time to review the article. We have carefully addressed all of your suggestions and believe they will help improve the article significantly. Below, please find the point-by-point responses to each of your comments.

You present a very interesting and important topic and I enjoyed learning about the Weather Stories format used in Spain. This research is well suited for the remit of the journal.

However, there are couple of things I would like you to address before this manuscript can be accepted for publication.

Firstly, I am a little confused about the link of the survey - I assume this was done to show a lack of climate education in the general public/population by using 600 students as a proxy? The general public doesn't exist - it is made up of a whole range of people and it would be beneficial if you would set boundaries around who you want to target with the Weather Stories approach. When using a group like this to establish a baseline of understanding it would be good to use a follow-up survey to show changes in their understanding due to the introduction of the Weather Stories approach. This feels incomplete.

Thank you for your comment. We would like to point out that the main point of the article is not to present the survey but a model of scientific communication on climate change that has very specific characteristics and is published every day in a newspaper. When we started with the article, we thought it would be a good idea to conduct a survey on knowledge and climate change in Galicia, which is where Weather Stories is published. We made a questionnaire on physical issues related to global warming and on sources of information. The chosen audience was university students, as explained in the methodology section, because we believe that this is an interesting sector of the population as they have access to many sources of information and given that, because of their age, will be those experiencing the consequences of climate change in their entire adult life. The survey data are very similar to many other studies that have been carried out in other countries in Europe and the United States. Results show that the population is very concerned, but literacy is very low. One fact that our survey highlights and that gives value to the work done is that young university students are mainly informed through television and digital and written media. These figures serve to support the need for communication formats such as Weather Stories, but the main objective of this research is not so much to analyze the problem of climate literacy as to propose a model to try to solve this problem.

Missing references

Line 22/23 Please back this claim with relevant references

“In the last five years, the science discourse on climate change has become more catastrophic . During this time, the scientific community has published several articles highlighting the urgency of the current situation, while pointing out that the progressive increase of greenhouse gases may trigger a domino effect in the global climate system that would make it unstable and raise the Earth’s average temperature beyond the limits established by the Paris Agreement which aims to prevent the increase in the average global temperature of the planet from exceeding 2°C compared with pre-industrial level (National Academy of Science, 2020) (Intergovernmental Panel on Climate Change, 2022)”

Line 56/57 Please back this claim with relevant references

“The effect that a wider knowledge about climate science may provoke on an individual is widely debated within the academic literature and has both supporters and detractors (Emily L. Howell, 2021)”.

Line 30. Possible to add reference to COP 26

We have now added the suggested reference:

“Since then, concepts such as ‘point of no return’ and ‘tipping point’ have been increasingly used. So much so that the Secretary-General of the United Nations, António Guterres, assured during the COP25 held in Madrid in 2019 that ‘the point of no return is no longer over the horizon. It is in sight and hurtling toward us’ (UN News, 2019). Guterres added in Cop26 in Glasgow ‘we are digging our own grave’ (UN News, 2021). The supporters of this theory say that climate triggers a domino effect so that, when one of the tiles collapses, it may end up knocking down the others”

Line 79. Consider adding more references to back this point e.g. Cooper 2011

<https://doi.org/10.1525/bio.2011.61.3.8> , Milér and Sládek 2011
<https://doi.org/10.1016/j.sbspro.2011.02.021>

We have now added the suggested references, as per the reviewer’s request.

“Current discussions on the effect of scientific literacy highlight the need to design an educational strategy supported by ‘a social experience’ (Gaudiano and Meira, 2009) (Cooper, Caren, 2011) (Milér and Sládek, 2011). Building on this idea, we argue that the scientific communication format presented in this article is actually inspired in a ‘experience’ created after a constant learning process with the added value provided by everyday testing within the meteorology forecast. In this sense, the characteristics of the dissemination format described and analyzed in this article can be considered rather unique and different from any other example taken from Spanish or international media. It would be a model designed to educate, rather than to raise awareness”

is it possible to link to an archive for the Weather stories linked to Jet Stream coverage or information how these could be accessed - website etc

In the article, all the articles published in Weather Stories about the jet stream and also in the bibliography are referenced and a link is included for easy access.

Please revisit the paper and explain who you mean by general population and why you considered 600 university students to be presentative? Reference to population etc should be considered with similar caution.

We agree with the reviewer. The term "general" has been changed to "specific" and information on the type of the target audience has been added in the methodology section.

“This population group is interesting because they are young, educated people who use several sources of information and who belong to one of the generations that will mostly suffer from the consequences of the increase in global temperature”

I see no reference to the survey having gained ethical approval from any of the institutions. Ensure you provide ethical approval information e.g., approving committee, project number linked to the approval. If approval wasn't sought before the study was conducted, then the survey results cannot be used in this manuscript and should be removed. If approval has been sought prior to conducting the survey, please provide the information.

Ethics approval was not sought for this research. Ethics approval in Spanish institutions is only necessary when carrying out medical research or research with animals or human samples. As for the kind of survey used in this project, neither the Spanish Research Agency (AEI), nor the University where this project was based (University of Santiago de Compostela) require ethics approval. According to Spanish science standards, the use of this survey is completely valid. In order to meet general ethics standards in sociological research, we have been thoroughly careful in preserving anonymity when using the results of this survey. In addition, the survey avoided collecting any sensitive information that was not directly connected to the objectives of this research and focused on general visions about climate change information. Information has been kept in an encrypted database, only accessible to the researcher.

I am not sure what the analysis of this paper is beyond the survey to show the climate understanding of 600 students and the examples given to show the Jet Stream example of Weather Stories. What is proposed we do going forward? Should researchers adapt this approach, if so how? Considering there is no analysis or follow-up data included regarding the students I am not sure how the claim that this format could be successful can be made. For now this study seems incomplete.

The aim of this article is to present a model of scientific communication on climate change that exists in a Spanish newspaper and that has some specific characteristics. Our hypothesis is that this format can be useful to promote a better understanding of the complexity of the climate crisis mostly by educating on climate science.

Many physical concepts in atmospheric science are not easily understandable by a public lacking proper education on the subject. As we show in our survey, even university students in science degrees show a lack of knowledge on this matter, even on relatively simple concepts such as the greenhouse effect. We claim that without a basic education on how climate works, one cannot have a founded opinion on climate change, and particularly on the means to avoid it. In the paper, we address how to deliver a complex physical concept such as the jet stream and its role on climate to the general public, with a scientific communication format that addresses all the important points related to this climate regulation mechanism. Thus, the purpose of this article is to bring out the importance of climate literacy and present an example on how we tackle this issue. We do not claim that it will be a success, but we do show that the newspaper section of Weather Stories is very popular on a regular basis and is likely having an impact on the readers' climate education. In the future we will address the possibility of trying to experimentally measure the effect it may have on a sector of the population.