

Response to Reviewer 1:

This is an insightful paper that leaves me wishing for a more extensive investigation on this topic. Assuming that in this case there are space limitations, I encourage the authors to expand and deepen their analysis in future publications. Similarly, given more space, I would recommend a deeper engagement with the games and nature/environment/ecology/climate change literature, which has been growing steadily in the past five years or so.

We would like to thank the reviewer for their overwhelming positive reception to the paper as well as the direction we hope our work will continue to go. As the reviewer points out, due to space limitations we were restricted with regards to the amount of content to include and would like to acknowledge that ongoing and future work will expand upon this piece.

Find below some notes that may improve the paper:

The authors say "In many cases, the graphical quality of games has made it possible for game environments to be indistinguishable from their real-world counterparts (Hut et al., 2019)." I do not think that this sentence is accurate, especially given that the reference provided does not seem to indicate anything of the sort, as it concludes: "We have demonstrated that while geoscientists might be slightly, but statistically significantly, better at separating real world photos of landscapes from video game screenshots, non-geoscientists are still capable of identifying landscapes from a video game, even when both the real world photos and the video game screenshots are filtered through an artistic "van Gogh" filter. This suggests that people recognize the natural features in video game worlds for the fantastical settings that they are..." I would suggest that the sentence is either clarified and properly justified with a reference (what is meant by indistinguishable? In terms of photo-realism? Plausibility of visible geological features? Complexity of ecological modeling?) or dropped altogether.

After feedback from the editor and the reviewers we have heavily revised the text content and made the overall message clearer. In this effort to streamline the paper, this section has now been removed.

"... how have they mirror public discourse and priorities?" -> mirrored

This has been corrected.

In the methods, please clarify what is meant by "game scripts." Are these complete transcripts of all the textual content that players encounter, summaries...?

As we have edited the content of the manuscript, we now only consider the narratives of the games and no longer include results of the game script analyses. We have edited the statement so that it now simply reads "To answer this, we played the main series Pokémon games released from 1996 to 2023, and thematically analysed driving narratives as well as notable instances of anthropogenic impacts in the games (Bulbapedia, 2024)."

"The coral Pokémon Corsola, previously depicted as a healthy pink coral, appears in Galar as a white bleached coral" -> I would also add that its type changes from water and rock to ghost, quite overtly implying that the coral is not only bleached but dead.

After this sentence we have now added: "For example, the coral Pokémon Corsola, previously depicted as a healthy pink coral, appears in Galar as a white bleached coral, and changes from rock and water type to ghost type, as the "living" version was wiped out by ocean acidification driven by climate change."

"The franchise's use of morally ambiguous storylines to present the nuance and complexity of environmental 100 change and associated decision-making in an increasingly politically polarized world." -> Revise grammar (perhaps "the franchise uses").

The sentence has now been edited to read: *“The franchise goes on to use ever-growing morally ambiguous storylines to present the nuance and complexity of environmental change and associated decision-making in an increasingly politically polarized world.”*

"The conclusion of this story notes that in order to create a better world, people must cooperate globally, which is often quoted as a necessary approach to lessen climate impacts, with the COP26 meeting being subtitled Together for our planet (TheUnitedNations, 2021)." -> Beyond the framing of conferences and their messaging, the authors could cite the latest IPCC synthesis report and its insights on climate justice and cooperation as the mitigation and adaptation strategies advocated for.

We have further expanded this sentence to include a comment on the IPCC synthesis reports.

“... with the COP26 being subtitled Together for our planet (TheUnitedNations, 2021), and cooperation being explicitly cited as a means of climate resilient development in recent IPCC reports (IPCC, 2023).”

"Maintaining hope that we can overcome modern environmental challenges if we want to continue to push for improvement, rather than collectively default to hopeless catastrophism." -> Revise grammar, since I am not sure this expression works as a standalone sentence.

The sentence has been revised as follows: *“The existence of these utopian games promotes and maintains hope that we can overcome modern environmental challenges if we want to continue to push for improvement, rather than collectively default to hopeless catastrophism.”*

Response to Reviewer 2:

This paper poses an interesting question of increased environmentalism in the Pokémon franchise but fails to move beyond conjecture in answering it. I strongly encourage the authors to edit their methodology and reveal the results of their currently described methods (e.g., results of searching environment-related terms in Bulbapedia) in order to provide evidence of escalation of environmental thoughts in Pokémon and overall video game industry. This paper would also benefit from a wider focus beyond only main English-language video game releases to include shows, movies, and other pop culture impacts to definitively analyze increasing environmentalism within the Pokémon brand.

We appreciate the reviewer’s interest in our paper. We do acknowledge that due to text limitations we aren’t able to further expand beyond this main series of Pokémon games. Further investigation into non-English-language releases as well as the video game industry as a whole seems like a very worthwhile avenue for future work.

With regards to revealing the results, based on feedback from the reviews and editors suggestions, we have heavily edited the text of the manuscript and no longer collect data in this way, and instead purely discuss narratives in the games.

Notes that would improve the paper (specific edits, grammar, etc...)

Abstract, line 17: Is your focus on Pokémon the franchise, or “video game narratives”? Both are mentioned throughout the paper, but only video games appear in Figure 1.

We mainly focus on the main-line of videogames. We would also like to note that the other Pokémon distributions (TV, film, cards etc.) are all based on the preceding video games so their initial development is used as the point of time comparison.

Abstract, line 18: You state you find both “greater and more explicit acknowledgment” – no results are shown to support this. Results that would be convincing are 1) more occurrences of environmental-related terminology in video game scripts or articles, and/or 2) more frequent (percentage of words) environmental references.

The terminology used here has been amended to simply state “*greater acknowledgement*”. As mentioned we have now removed the approach previously taken with regards to keywords and now simply address the narratives in the games.

Introduction, line 43: Should likely be “have they mirrored public discourse”.

This has been corrected.

Methods: what defines a “main series” Pokémon game? How were the search terms chosen? How were queries performed (e.g., exact match, entry heading only, separate words vs combinations, etc...)? How are these search terms compared across timelines of public perception and climate policy? How is public perception of anthropogenic change measured? Why are major events in climate policy limited to IPCC Assessment Reports and UN decisions? There are many country-specific rulings that could be used here, including Japanese policy changes that may affect Pokémon development more than UN-specific decisions.

The main series games are defined as the core series of games within the franchise. We have clarified this and provided a reference (https://bulbapedia.bulbagarden.net/wiki/Core_series).

As mentioned above, due to heavy revisions after reviewer and editor comment we no longer include a study of the search terms.

Public perception of change isn’t directly measured. We assume that discussions around UN negotiation periods and IPCC reports drive a broad perception increase. Because of this we limit our findings to these two primary events as they are generally thought to be the two largest entities focusing on this topic.

While we acknowledge that as the games are made in Japan, Japanese policy may impact the developers perception of the games. However, as far as our understanding goes, the Act on Promotion of Global Warming Countermeasures that Japan follow is a result following the Kyoto and Paris Protocol guidelines (<https://www.iea.org/policies/277-act-on-promotion-of-global-warming-countermeasures>; https://www.amt-law.com/asset/pdf/bulletins12_pdf/210623.pdf). The act is due to the reviewed and updated, again in line with the Paris Agreement (<https://news.un.org/en/story/2020/10/1076132>).

Methods, line 51: Should likely be “anthropogenic climate change”

The statement has been removed during text edits.

Figure 1: Unclear on the relation between the antagonist motivations and climate-change related policies and events. Also, what scale are you using to define “escalation”? It is unclear how the 2006 motivation of “Destory the Universe and start again” has a lower escalation measure than the 2010 motivation of “Stop Pokémon fighting”, for example.

We are not necessarily trying to demonstrate that there is a lesser escalation, but we are trying to demonstrate that conversations and narratives around climate change are becoming more prevalent in the games. We have amended this terminology and instead of escalation, have referred to the acknowledgement of anthropogenic impacts.

Figure 1: “Pokemon” in Black/White(2010) label should be Pokémon

This has been corrected.

Anthro-Pokécene, line 72: Observatory reference does not include pre-2004 papers, which therefore invalidates the claim “climate change was not the most central environmental topic in virtually all discourse”, as there is no data in the reference to support or deny this.

We now provide the following reference to discuss pre-2004 environmental concerns.

<https://www.enotes.com/topics/social-political-change-modern-america/questions/what-were-some-environmental-issues-during-1990s-343179>

Anthro-Pokécene, lines 75-76: The Red/Yellow/Blue series is singled out for being different because it was completed before the Kyoto Protocol, but in Figure 1, it has the same theme as the Gold/Silver series. Why do you distinguish between pre- and post-Kyoto game development in this case?

This is true that it is difficult to gauge the correlation between the release date and the Kyoto protocol. However, we have now noted that the initial development of Gold/Silver began prior to the Kyoto protocol. Gold/Silver were originally announced in 1997 but was delayed a further 2 years due to development issues. Therefore the development of the narrative of the game likely took place prior to the Kyoto protocol.

Anthro-Pokécene, lines 78-86: The Kaliroff citation, in addition to being an un-peer reviewed opinion article, does not include any direct quotes or other direct evidence linking Isahaya Tidal Flats to Ruby/Sapphire game development. I agree there could be a link between the two, but the direct relationship implied by this paragraph is misleading.

In order to streamline the paper following the editors guidance, this section is now no longer present in the paper in its current form.

Anthro-Pokécene, lines 88-97: Once again, I agree that there is an environmentalist leaning to the Alola and Galar settings, but the link between them and the Paris Agreement is circumstantial at best.

We appreciate the concern here but we feel the reviewer may be misunderstanding the main message of our paper. We are not saying there is a direct link between the Paris Agreement and the games, nor are we even sure how it would be possible to make this claim. E.g. we make no claims in the paper that states that the Paris Agreement came out and the developers immediately responded by writing X lines in the script. This is unquantifiable. The link between the plot of the Pokémon games following the release of Paris Agreement and what is included in the agreement is circumstantial, and we make no claims otherwise.

The argument we are making is that globally, the impacts of climate change are increasing and in response, society as a whole discusses these issues more, and this discussion becomes more prominent over time in the Pokémon video games. The acceleration of climate change is well documented; it has been quantified in tens of thousands of scientific articles in fields ranging from atmospheric climate modelling to forest ecology to aquatic biogeochemistry to socioeconomics. As a result of the growing impacts of climate change, the global discourse about climate change has evolved and accelerated as well, because when something impacts people's lives, they talk about it more, and climate change is impacting everyone's lives. It is not possible to reliably quantify the global collective societal escalation in "how much" we are talking about climate change. Conversations happen everywhere, publicly and privately, in all manner of media, in classrooms, at dinner tables, on local news, on national news, in books, movies, pop culture, podcasts, protests, emails, press releases, in all aspects of society, in all languages. Some of the global discourse on climate change can be tracked in a semi-quantitative way using different proxies. Because of the very short nature of GC Insights papers, we have chosen to use UN climate agreements and IPCC reports as proxies for the escalation of the whole-world societal discussion of climate change, as each agreement and report is associated with an increased urgency regarding the escalating effects of climate change and the consequences of not acting. Popular media and acknowledgement of climate change and anthropogenic impacts in the public eye in turn grows in response to each agreement.

Anthro-Pokécene, lines 99-108: COP26 was in 2021 – how does the title of this summit apply to the motivations of the developers for a game released in 2013? If you are arguing for the escalation of

environmental meaning across Pokemon games, then a direct link between a Pokémon game in 2013 and a UN summit in 2021 should be provided.

For this, we are not suggesting a link. We are highlighting that the means of combating climate change are the same for both the real and fictional worlds.

Anthro-Pokécene, lines 123-131: It is worth noting that dystopian video games are often the opposite of nihilistic and can be hopeful & progressive – for example, see Perez-Latorre & Oliva’s 2017 analysis of Bioshock Infinite. The Change citation covers the usefulness of exploring and modeling future worlds, but only covers one side without exploring how we as an audience are meant to interact with dystopic games as well.

We have added an additional sentence to include that additional dystopian games exist that also promote hope and progressive futures.

“Notably, Pokémon presents a hopeful balance between humans and the environment, similar to other hopeful and progressive narrative worlds created in games (e.g. Anno 2070). These hopeful scenarios currently exist alongside numerous and popular nihilistic, post-apocalyptic games and stories (which can maintain underlying hopeful messages regarding humanity’s ability to recover from apocalypse, despite rather bleak world views regarding the present climate crisis, e.g. Perez-Latorre & Oliva’s 2017. The existence of these utopian games promotes and maintains hope that we can overcome modern environmental challenges if we want to continue to push for improvement, rather than collectively default to hopeless catastrophism.”