

Response to Reviewer 1:

“I enjoyed reading this paper and thank the authors for their work. The authors report on a survey within the German Geo.X research network which aimed to understand facets of interdisciplinary working in the geosciences. It is a very interesting and well-written article, which makes a valuable contribution particularly in identifying ways in which early career scientists would benefit from support in interdisciplinary working and exploring the complexities of interdisciplinarity (and cross-disciplinary working more generally). The approach and methods used are valid and are described clearly and in detail. The paper’s conclusions follow on appropriately from the results presented and are discussed in the context of relevant literature. Appropriate figures are used to present the results and the paper is appropriately structured.

I would recommend publication, subject to the minor corrections suggested below.”

Thanks a lot for your positive feedback to the manuscript. We really appreciate your comments and suggestions and will use your suggestions to improve the manuscript.

Title: should there be a ‘the’ before ‘Geosciences’? Later on line 32 ‘the geosciences’ is used.

Thank you for the suggestion. We have added “the” to Geosciences.

Abstract:

Line 25: rephrase ‘the increasing coordination efforts’ to ‘the increasing efforts to coordinate interdisciplinary work’ or similar.

Thanks a lot for this suggestion, we have adjusted this accordingly in the manuscript.

Line 26: add ‘and’ after ‘initiating’?

Thanks a lot for this suggestion, we have adjusted this accordingly in the manuscript.

Figure 1: Should ‘sectorial’ be ‘sectoral’? Would it be possible to give some examples of the ‘hybrid fields’ noted here?

Thank you for this comment. The wording in our figure followed the source from which it was adapted (Morton et al., 2015). However, we agree that "sectoral boundaries" is the more common usage and have updated the figure accordingly.

Examples of hybrid fields are for example ecohydrology (combining ecology and hydrology) or geomicrobiology, biogeochemistry or hydrogeophysics). It is important to mention here that these fields do not just combine different disciplines, but look also at

interactions within the continuum (e.g. in ecohydrology, the interaction between water and vegetation and governing processes are studied). We adjusted this in the caption of the figure: “... which are hybrid fields that emerge around particular issues (e.g. ecohydrology, geomicrobiology, biogeochemistry or hydrogeophysics).”

Line 55: Would it be worth adding ‘physical geography’ or ‘geography’ after ‘Earth Sciences’ here? In the UK, at least, many if not all of the disciplines would be grouped in geography departments.

Thanks a lot for the suggestion, the sentence now reads as follows:

“Sometimes, notably in English-speaking countries, these disciplines or at least a subset are grouped under the umbrella of Earth Sciences, physical geography or geography (Orion, 2019; Orion and Libarkin, 2023).”

Line 72: Add a definition of early career scientists here.

This is indeed a good point to provide a definition. We decided to use a relatively broad definition (without a statement about the number of years after the PhD). This is adjusted to the text as follows:

The network has a strong focus on early career scientists (ECS), defined as researchers in the early stages of their professional careers who have not yet reached a permanent or fully independent research position. The Geo.X ECS section is a self-governed structure, managed by doctoral and postdoctoral researchers (<https://www.geo-x.net/ecs/>; The Research Network for Geosciences in Berlin and Potsdam (2026a)).

Line 74: Specify when the retreat took place.

The retreat took place between the 12th to 15th of October, 2022 at Waldhotel Schmöckwitz in Berlin. This is now added to the manuscript and reads as follows:

“During a Geo.X ECS science retreat held in October 2022 in Berlin-Schmöckwitz, participants exchanged experiences and perspectives on interdisciplinary research.”

Line 81: delete ‘where we intend’.

This was adjusted accordingly. Thanks for the suggestion.

Line 84: replace ‘interdisciplinary’ with ‘in interdisciplinary ways’ or similar.

Thanks for the suggestion, the research question now reads as follows:
“Do (Geo.X) ECS work in interdisciplinary ways, and what benefits or challenges do they encounter?”

Line 103: Rephrase start of sentence to ‘Data collection and processing...’

Thanks for this suggestion. We have adjusted this accordingly.

Lines 112-113: How does academic age relate to the definition of ECS?

We explicitly avoided excluding responses from scientists more than 8–10 years post-PhD (although the majority of our responses was from ECS with an academic age of 0 to 10 years). While ECS status is primarily defined by career stage rather than academic age alone, the survey also captured responses from participants beyond the typical ECS academic age range.

This was clarified in the manuscript as follows:

“To ensure the survey reflected the views of ECS, academic age was used as an operational proxy for career stage. Mind that ECS are defined as researchers in the early stages of their professional careers who have not yet reached a permanent or fully independent research position. A maximum academic age of 20 years was set to ensure broad inclusion, based on the distribution of participants (Fig. 2).”

Line 258-260: This is an important point – would you then expect more interdisciplinary collaboration by established researchers because they have more control over the nature of their projects?

This is an interesting perspective, but it is probably difficult to test it with the current dataset, as it do not include responses from very established researchers. We have incorporated this thought into the manuscript as follows:

*“Such arrangements can influence patterns of cross-field engagement, emphasizing the role of project structure in shaping interdisciplinary activity. **Greater autonomy in project design, which is more typical for established researchers, may enable more self-directed interdisciplinary collaboration, although this cannot be tested with the present dataset.** Additionally, collaboration data were self-reported, so the degree of methodological or conceptual integration may be under- or overestimated, affecting the reported level of interdisciplinarity.*

Line 357: add ‘with’ after ‘ECS.’

Thanks, this was adjusted in the manuscript as requested.

Response to Reviewer 2:

“This is a very timely article given that many (all) of us are grappling with interdisciplinarity and interdisciplinary ways of working. I very much enjoyed reading this from the perspective of ECRs. The approach/methodology utilised was appropriate, and it was good to see the team were aware of potential biases in their dataset. There is a good number of response on which the findings are based. This is a well-written piece. I particularly liked the 'sankey' diagrams for displaying the findings - visually these were very effective.”

We sincerely thank Reviewer 2 for the positive evaluation of the manuscript and for the relevance of the topic and the appropriateness of the methodology & result figures. These comments are greatly appreciated.

This article should be accepted for publication, with a few minor points to consider:

1. Could 'within' replace 'in' in the article title, and perhaps add 'the' before Geosciences.

We have added “the” to Geosciences. The “within” is perhaps not fully suitable, as we are discussing collaboration with neighbouring (adjacent) disciplines.

2. Within the Ethic Statement, is there an internal ethics approval code that can be quoted? This is typical in my institution, but I appreciate this may not be universal.

Thanks a lot for the question, yes there are some codes that can be quoted. In this case, we can connect directly to German law regulations. The text is adjusted to include this information:

“Data collection and processing complied with the German and European General Data Protection Regulation and the privacy and ethics agreement (in accordance with articles 12–14 GDPR) and followed standards at the GFZ Helmholtz Centre for Geosciences. The data privacy statement was developed with the help of the respective data protection officer. Participants were given the option to skip questions or withdraw from the survey at any time.”

3. Should Earth Sciences be defined to include physical geography, environmental sciences, and geology?

Based on a similar comment made by reviewer 1, we adjusted the sentence about the “umbrella of earth sciences” as follows:

“Sometimes, notably in English-speaking countries, these disciplines or at least a subset

are grouped under the umbrella of Earth Sciences, physical geography or geography (Orion, 2019; Orion and Libarkin, 2023).

4. Why a maximum 'academic age' of 20 years to reflect ECRs? Many funding schemes have a cut-off for ECRs of 8 years post-PhD. Can this be clarified?

A similar point was made by Reviewer 1. As mentioned in the reply to comments by reviewer one, we explicitly avoided excluding responses from scientists more than 8–10 years post-PhD (although the majority of our responses was from ECS with an academic age of 0 to 10 years). While ECS status is primarily defined by career stage rather than academic age alone, the survey also captured responses from participants beyond the typical ECS academic age range.

This was clarified in the manuscript as follows:

“To ensure the survey reflected the views of ECS, academic age was used as an operational proxy for career stage. Mind that ECS are defined as researchers in the early stages of their professional careers who have not yet reached a permanent or fully independent research position. A maximum academic age of 20 years was set to ensure broad inclusion, based on the distribution of participants (Fig. 2).”

5. As AI wasn't used to automatically extract categories (lines 128-130), does this need to be stated?

We agree that this can be omitted and have removed this sentence from the manuscript.

6. When did the Geo.X ECR retreat take place (line 74)? Can this be stated?

The retreat took place between the 12th to 15th of October, 2022 at Waldhotel Schmöckwitz in Berlin. This is now added to the manuscript and reads as follows:

“During a Geo.X ECS science retreat held in October 2022 in Berlin-Schmöckwitz, participants exchanged experiences and perspectives on interdisciplinary research.”

7. Replace 'roughly' with approximately, too colloquial, i.e., line 355.

Thanks. We substituted “roughly” with “approximately”.