

What defines an "early-career researcher" in the paleosciences?

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Early-career researchers (ECRs) are important contributors to global change research (e.g. Andersen 2023). To support the development of ECRs, there are funding and opportunities available only to ECRs. Additionally, "early-career" status allows researchers the freedom to gain experience across various aspects of their careers and provides a foundation for a global community of developing paleoscience researchers.

However, the definition of "early-career researcher" varies between relevant scientific organizations. For example, PAGES defines an ECR as an undergraduate or postgraduate student, or a scientist within five years of completing their PhD. The European Geosciences Union defines an ECR as a student, PhD candidate or practicing scientist who received their highest degree within the past seven years. The American Geophysical Union defines an ECR as a scientist who received their highest degree within the past 10 years. Each institution allows flexibility for career breaks.

In 2023, the PAGES Early-Career Network (ECN) ran a survey seeking input from self-identified paleoscience ECRs on what they consider to be the meaning of the term "early-career researcher" (Fig. 1). The 66 responses were highly varied, falling into three broad groups. Approximately one quarter of respondents defined ECR based

on employment status. Another quarter suggested a more nuanced definition. Most of the remainder based their definition on a certain number of years since award of a researcher's highest degree (ranging from three to 15 years). Among those defining ECR by "years post degree", only two explicitly mentioned career interruptions (e.g. parental or carer leave, or COVID-19).

Of the respondents defining ECR by employment status, most suggested that ECRs are researchers who have not secured permanent jobs. By contrast, respondents suggesting more nuanced definitions generally felt that ECR status can result from more qualitative indicators, including a limited publication record, working under more senior academics, having limited experience, still developing skills and collaborations, and still establishing their research direction and identity.

Several respondents stated the importance of self-identification, implying there is a strong mentality component to being an ECR. A further 10 respondents indicated that part of being an ECR is the requirement of support from ECR groups and/or more experienced academics – and that ECRs are researchers who are still learning, and who have the right to make mistakes.

An important question, then, is: What distinguishes early- from mid-career researchers? One key aspect is eligibility

for opportunities only available to ECRs. But evidently, there are more nebulous aspects to this transition, such as a feeling of readiness and independence, or acquiring a certain level of knowledge and experience. In any case, we would argue that: 1) the need for support; and 2) continued learning are constants throughout an academic's career. In the words of the lead author: "As someone who is approaching five years post-PhD, I am still learning as much as I did as a student, and I certainly still make mistakes."

Finally, there is also variability as to when members of the ECR community believe one becomes an ECR. Survey responses ranged from "when you start doing research" to "recently finished a PhD". The prevailing opinion was that any student undertaking research – including undergraduate researchers, Masters students, and PhD candidates – should be considered an ECR until they stop active research, or transition to mid-career researcher.

In summary, results of our survey demonstrate that paleoscience ECRs lack a coherent global identity. It is possible that this reflects variability in institutional definitions of an ECR, which may in turn be because the definition needs to be somewhat fluid. "Hard" definitions (accounting for career breaks) are required to ensure funding reserved for ECRs is awarded to ECRs, but on the other hand, guidance, mentoring and peer support should be available to anyone who feels they need it. Understanding that there is variability within the way the global paleoscience ECR community views itself may help ECRs better understand their "place" in the academic community, and to modulate their expectations of themselves, and of their peers.

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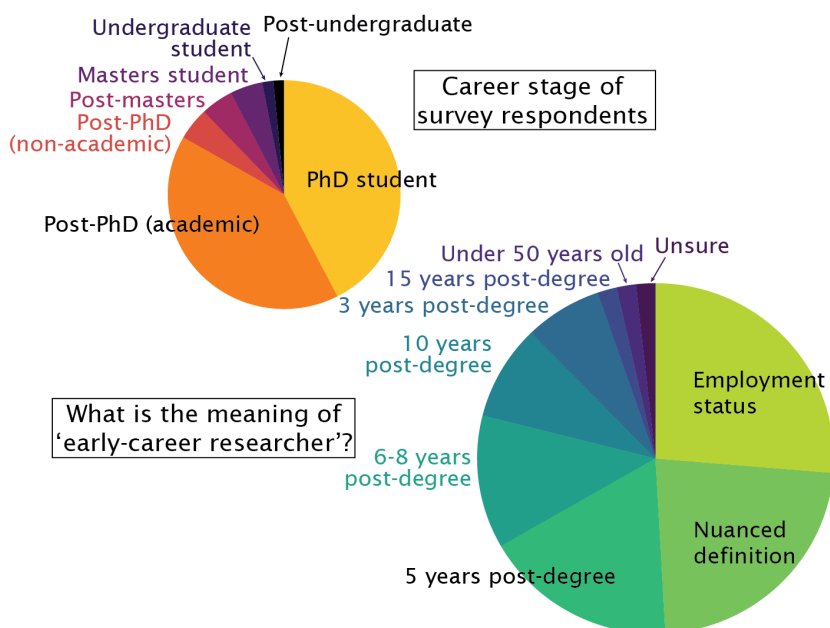


Figure 1: Career stage of the 66 survey respondents, and summary of responses to the question: In your own words, what would you consider to be the meaning of "early-career researcher"?