

Highlighting the future of past global change research

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Early-career researchers (ECRs) are an important driving force of past global change research and often responsible for the bulk of data production and scientific output. ECRs of today also play a major role in shaping the future of science as they advance in their careers toward leadership positions. It is therefore in the interest of the community to enable ECRs to develop their full potential. Yet, ECRs across the globe tend to work under precarious conditions, lacking visibility, opportunity, and recognition amid an uncertain job market. Ways to support them include setting up networking and collaboration opportunities, providing training, and sharing advice on how to navigate the science world within and outside of academia. In addition, an important effort we can make as a community is to recognize and highlight the value of the work ECRs are doing today.

Over the course of the past 30 years, PAGES has been increasingly proactive in providing opportunities for ECRs. For instance, a large portion of financial support for PAGES' meetings is now designated for ECR attendance, particularly for those from developing countries, to encourage their participation in working groups (WGs). Perhaps the best example to illustrate the efforts by PAGES

to support ECRs is the Young Scientists Meeting (YSM). Starting in 2009 and occurring every four years, the YSM brings ECRs from different parts of the world together to provide training and networking opportunities. It was at the third YSM (Zaragoza, Spain, 2017) that discussions about the need for stronger ECR representation within PAGES led to the creation of the PAGES Early-Career Network (ECN). The ECN officially launched in 2018 with the main goals of connecting ECRs to promote the exchange of ideas and skills, and to provide a framework for community support and collaboration.

The articles in this section illustrate advances in past global change research by ECRs active in the PAGES community. The individual contributions were selected in an effort to represent the diversity in scientific scope and geographic distribution of PAGES' members.

The first eight contributions in this section summarize recent developments and findings in original research. Grant and Naish kick things off with a visit to the Pliocene and new estimates for global sea-level variability and ice-volume sensitivity (p. 34). Next, King and Tetzner explain how novel ice-core

proxies in the form of marine-sourced organic compounds and diatoms can improve our understanding of sub-Antarctic climate (p. 36). From here, we move to the Northern Hemisphere, where Chaudhary assesses peatland carbon dynamics across the pan-Arctic and its potential effects on climate (p. 38), while Liang et al. share recent advances in eolian processes and landscape dynamics research in Chinese deserts (p. 40). Three contributions present the multifaceted applications of lake sediments – from erosion patterns and flood chronicles in Europe (Rapuc et al. p. 42), to baselines for conservation efforts in Mount Kenya (Omuombo p. 44), to the question of the onset and magnitude of human influence in central Chile (Fuentealba et al. p. 46). Lawman et al. conclude the original data contributions with a look into coral proxy system modeling and the fidelity of tropical Pacific corals as archives of ENSO variability (p. 48).

The final two articles demonstrate excellent ways for ECRs to collaborate and advance their respective research fields. In an elegant metadata analysis, Kaushal et al. assessed the availability of terrestrial Indian paleoclimate records to identify data gaps and list recommendations on how these can be improved (p. 50). In the closing article of this section, Mette et al. describe their experience coordinating a horizon-scanning project in which they defined priority research questions in the field of sclerochronology with input from the research community (p. 52).

For ECRs, it is particularly important to build a track record of international collaborations beyond their own research departments. This can seem like a daunting task for those who have yet to establish a wide research network or access to ongoing projects. Fortunately, PAGES and the PAGES ECN provide organized structures that lend themselves to establishing international science projects. The potential for high-impact and cutting-edge research coordinated and driven by ECRs within PAGES is growing, and will no doubt continue to do so in future generations.

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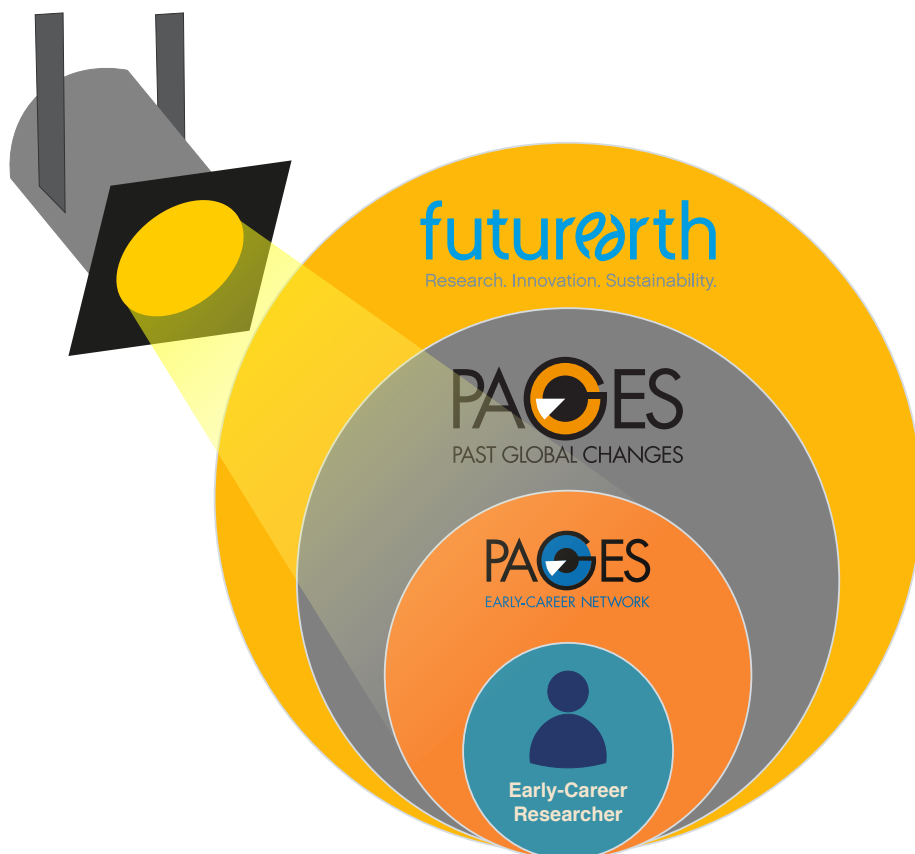


Figure 1: Early-career researchers are an important part of the PAGES community. This special section of the magazine puts a spotlight on their work.