From Classroom to Career: Changing the Culture of Geoscience (We're Quite Aware of What We're Going Through). J. L. Piatek[1], A.M. Marshall[2], C. Cervato[3], M.L. Cooke[4], S. Jackson[5], and E.C. Sibert[6] [1]Dept. of Earth & Space Sciences, Central Connecticut State University, New Britain, CT (piatekjel@ccsu.edu), [2]Dept. of Geological Sciences, University of Florida, Gainesville, FL [3]Iowa State University, Ames, IA. [4]University of Massachusetts at Amherst, Amherst, MA. [5]CUNY York College, Jamaica, NY. [6]Yale University, New Haven, CT.

Introduction: Today's early career scientists are the vanguard of the "ADA Generation" - born after the Americans with Disabilities Act (ADA) passed in 1990 - and therefore have an expectation, not a hope, that their education and workplaces will be accessible. Fostering inclusive and accessible classrooms and career spaces improves diversity and benefits everyone.

Background: Demographic studies of college students and employed scientists document an underrepresentation of people with disabilities in the physical sciences, including the disciplines that include many planetary scientists (geosciences and physics /astronomy). Survey results from the National Science Foundation indicate that individuals who identified with the survey definitions of disability make up 10% of those employed in these fields [1] vs. 12.6% for the general population [2], and that employed disabled scientists are likely to earn 5% less than their peers. This difference only increases when focusing on physics and astronomy employment (disabled scientists making up 5% of those employed in these disciplines [1]). In addition, the metrics for "disability" used in these surveys may be undercounting many "invisible" disabilities such as color vision deficiency, severe dietary allergies, chronic illnesses, and/or neurodivergence. (The referenced NSF study, for example, defines disability as "moderate/severe difficulty" or "unable to do" tasks such as seeing with glasses; hearing with hearing aids; walking without assistance; lifting 10 pounds; or concentrating, remembering, or making decisions [1]). In addition to underrepresentation in employment, demographics indicate that disabled graduate students are less likely to receive fellowships or research assistant positions, and are more likely to self-fund their graduate studies. The statistics on the number of doctorates awarded to students with disabilities increased only 0.009% between 1985 and 2010, despite the fact that this time period includes passage of the ADA and the Individuals with Disabilities Act [3].

(Roll for) Initiatives: The effects of inaccessibility and strategies for creating more inclusive workplaces within the astronomy and physics workforce were considered in the compilation of the latest decadal surveys in Astronomy [4] and Planetary Science [5], and were included in the consensus report from the 2022 Advancing IDEA in Planetary Science conference [6]. In this abstract, we will describe some specific efforts aimed at increasing the accessibility of geoscience education and careers, directly relevant to the planetary science workforce that draws much of our community from geoscience degree programs and career paths.

Accessible Field Education: Hands-on experiences in the field are, for many geoscience degree programs, cornerstone requirements - but are very likely to be inaccessible to all students [e.g. 7], despite the fact that planetary scientists study some of the most remote and inaccessible field sites. Geoscientists Promoting Accessible Collaborative field Experiences (GeoSPACE) is a fully accessible two week field course in planetary volcanology that uses a planetary mission paradigm to design field exercises that allow students to participate in-person or remotely [8]. In-person students act as "astronauts" who collect data at field sites to expand on and address hypotheses developed by virtual students in "mission control" based on remote sensing datasets. The initial program grant provided full support (travel, lodging, meals, and a stipend) for students in the pilot field season in spring 2022 and the upcoming 2023 debut of the full two-week field course; we are exploring avenues to continue to provide this support for students, as the cost of field experiences can be as much of a barrier as a remote field site might be. For more information about GeoSPACE, see the presentation by Meier et al., at this conference.

(Re)Building a Culture of Access: As a group of disabled geoscientists with diverse academic experiences and life paths, we realize that we need more than anecdotes and advocacy to redirect the culture of geosciences. We describe here a funded initiative to identify and characterize the experiences of people with disabilities in geoscience career paths, including those in planetary science disciplines. There is also a need to examine the biases faced by disabled individuals across axes of diversity, particularly those of race, as little is known about how racism impacts students and professionals in the geosciences [9].

We intend to solicit input from - and build community with - geoscientists from diverse backgrounds, all career stages, and work sectors. The first year of this project will involve an IRB-approved survey of former and current geoscience professionals and students who identify as d/Disabled. By first

identifying and characterizing significant barriers faced by people with disabilities on geoscience career paths, we can then strategize specific actions that could address those barriers. We will be presenting at conferences such as this one to publicize the survey and to engage in informal outreach with fellow geoscientists to develop a network of like-minded geoscientists. We will leverage the connections built by outreach activities and the survey to develop a hybrid-format workshop attached to the 2024 meeting of the Geological Society of America, intended to bring together a diverse community of disabled geoscientists, advocates, researchers, and policy makers to explore the outcomes of the survey and devise strategic initiatives intended to address some of the barriers faced by disabled individuals in geoscience career paths.

For more information and to sign up for project updates, please see the project webpage at https://theiagd.org/classroom-to-career-research-project-culture-change-in-the-geosciences/.

Ch-ch-changes: Inaccessible workplaces and barriers to access in degree programs are reducing the diversity of our geoscience workforce, including planetary science. We outline here some projects intended to initiate change in the culture of the geosciences, focusing on providing access in field education and developing community-driven initiatives to chronicle and address barriers faced by disabled individuals in geoscience career paths.

If we do not change how we do things, then things will never change.

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