18 YEARS OF LPSC ATTENDACE AND PRESENTATION DATA: WHO'S INCLUDED? N. E. B. Zellner[1], J. A. Rathbun[2], A. M. Seidel[3], N. L. Martindale[3] [1]Department of Physics, Albion College, Albion, MI USA 49224 (nzellner@albion.edu), [2]Planetary Science Institute, Tucson AZ USA 85719, [3]Department of Chemistry, Albion College, Albion, MI USA 49224.

Introduction: Multiple studies have attempted to understand how well STEM (science, technology, engineering, mathematics) conferences include white women, women and men of color, and people in other marginalized groups in speaking roles during the topical sessions. All of the reports have shown that members of these groups are less likely to be selected to give oral presentations [1,2]. In this study, we build on previous results in which we examined gender demographics at the annual Lunar and Planetary Science Conferences (LPSCs) between 1999 and 2017. Here we describe the distribution of male and female participants as speakers at the LPSCs.

Background: Scientific conferences can be important places to develop professional skills, find mentors, and seek employment opportunities. An important part of this kind of networking is the ability to present research via talks and subsequently answer questions about that research. Though conference organizing committees endeavor to construct programs that show a diverse range of speakers who can present on a diverse range of research topics, it has been shown, regardless of STEM conference, that many sessions lack a representative number of underrepresented minority (URM) and women speakers. Consequences of low visibility at conferences may be that women and URMs are less likely to advance or be retained in the field [3,4,5].

Though there are already low numbers of URM and women in STEM fields, we note that implicit and explicit biases inherent in all of us may be important factors that negatively affect speaker selection [1,2]. For example, Ford et al. [6] reported that male session conveners at the fall American Geophysical Union (AGU) meetings allocated invited abstracts and oral presentations to women less often and below the proportion of women first authors (32% of all submitted abstracts).

Analyses: Publicly available data of attendees, abstracts, and oral presenters at 18 LPSCs between 1999 and 2017 were provided to us by the Lunar and Planetary Institute; a subset is presented in Table 1. More than 28,600 names (including duplicates) are included in the data and are currently being sorted in an Excel spreadsheet [7]. At the time of this abstract submission, we are determining the gender presentation of each person in the spreadsheet using available public information, such as photographs and personal and professional bios [as practiced in 1]; almost 85% of the names have been assigned "M" (male), "F" (female)" or "ND" (not assigned). Gender is not a binary and is not always the same as gender presentation, but given that self-reported data are not available, this is the only way to understand gender differences at this time.

We also have LPSC program index data and are able to identify the names of those who gave an oral presentation. We took the last names of attendees for whom we had assigned a gender and determined if it matched the last name of someone with a talk. These results are very preliminary while we determine a better way to match names of attendees (which include first names) to names of speakers (which use only first and middle initials).

There were ~1200 professional planetary scientists working in the United States in 2011, and 27% of them identified as female [8, 10, 11]. We expect to see similar percentages in conference attendance and speaker selection if gender parity is achieved.

Previous Findings in LPSC Data In 2019, we presented preliminary results based on 67% of the names assigned "M" or "F" [7]. It was clear how conference participation changed over time, with more women participating, more international scientists presenting data, and distinct attendance spikes during significant LPSC events, such as sessions dedicated to presenting the first results from the Spirit and Opportunity Mars rovers. It was also shown that LPSCs attract a higher percentage of women compared to similar meetings and responses collected in professional studies. Our results also agreed with a recent NSF study [9] that reported that the number of women with PhDs in science, engineering, or health has more than doubled since 1997.

New Results: Currently, nearly 85% of the names have "M" or "F" assigned to them. Meeting attendance has increased over time but the number of available talk slots has remained nearly constant. Thus the number of oral presentations has not kept pace with the increase in attendance, and the percentage of attendees with talks has decreased. Trends in the gender of speakers show that, for most LPSCs, there were more male speakers than female speakers (as a function of attendance). Most recently, however, the percentages of male and female attendees with talks were nearly identical for 2013-2017 (Figure 1).

In collating and sorting the data, it became apparent that men are more likely to submit multiple 1st-author abstracts. Data are currently being evaluated to see how often women submit 1st-author abstracts leading to talks in a given conference.

Conclusion: Continued analyses of the LPSC data support previous findings that the LPSC is a conference that strives to include women at numbers representative of those in the general field of planetary science. Without clearly available demographic data that allow us to understand general participation at the LPSCs, however, it is challenging to determine who are session chairs, speakers, and poster presenters. This kind of data collection is not unusual: the AGU has asked its members to self-report this information since 2013 [6]. We recommend that LPSC organizers follow the practice of AGU and allow self-reporting of demographic information which would allow the representation of women to be studied more closely. Such data would also enable studies of the representation of other genders and racial and ethnic minorities as well as other underrepresented groups. Additional recommendations have been previously suggested [7].

The current data have allowed us to begin to understand the degree to which unconscious bias is affecting whose research is being presented. Current trends suggest that women are speaking as often as men and LPSC organizing may be a model for other conferences. The difference in representation of session speakers at LPSCs compared to other conferences may be due to having a central organizing committee as opposed to separate session organizers, such as used by AGU.

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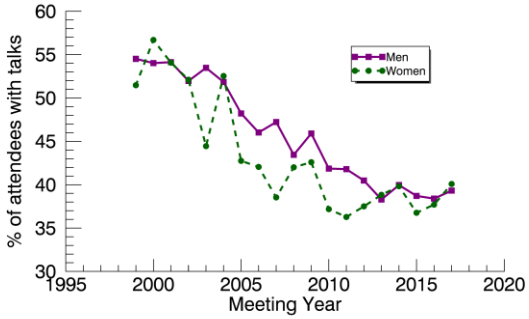

Figure 1. The percentage of attendees of different genders who gave at least one talk during the LPSC meeting.

Table 1. Preliminary data that show the number of attendees and number of oral presentations at 5 LPSCs.

	1999	**2005**	**2009**	**2013**	**2017**
# Attendees	1082	1460	1520	1823	1792
# Speakers	429	497	526	577	568