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A half century of partnerships in ice core sciences: evidence of progress and areas for improvement

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Ice core science benefits when cooperation and coordination amongst diverse scientific, demographic, and geographic communities prevail. Yet, the degree to which these ice core science “partnerships” have proliferated and expanded over time remains unquantified, hindering objective benchmarks for future comparisons. To remedy this knowledge gap, we have compiled and analyzed over 50 years’ worth of peer-refereed “ice core-related” abstracts ($n = 3,545$) from >100 leading journals, spanning back to the original Camp Century ice core study by Dansgaard et al. (1). This database of abstracts allows us to assess community-wide changes in ice core collaboration, international representation, gender parity, and scientific impacts over time. Overall, our results highlight a half-century of progress toward increased collaboration. We show a steady, nearly 4-fold increase in average authors per study; an average 3- (5-) fold increase in unique nationalities (institutions) per study; and an increase from 2 to ~40 nationalities across all studies published in 1969 vs. 2021. Nonetheless, considerable work remains for the ice core community to reflect the wider population. For example, although the inferred gender gap in ice core-contributing authors has declined (from 10:90%, women:men) since the 1970’s, a strong disparity of nearly ~30:70% remains. Similarly, ~9 out of 10 authors currently reside in <10 nations, despite the trend towards enhanced international representation across all abstracts. With these historical trends for context, we suggest establishing a targeted set of goals for continuing to advance partnerships and parity within ice core science.

1. Dansgaard, W., Johnsen, S. J., Møller, J. & Langway, C. C. One Thousand Centuries of Climatic Record from Camp Century on the Greenland Ice Sheet. *Science* (80-.). 166, 377–381 (1969).

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