

Missed conference connections

The COVID-19 pandemic has forced many scientific meetings online. Virtual conferences can increase access, but community engagement is needed to foster inclusivity.

In April 2020, we wrote¹ that, although the pandemic presented an opportunity to test virtual meeting technologies, it was hard to imagine a geoscience mega-conference such as the American Geophysical Union (AGU) Fall Meeting operating online. We were wrong. Following the online-only and hybrid AGU meetings of the past two years, virtual meetings remain firmly on the menu for 2022. Many scientists want virtual meetings to stay. A *Nature* poll of readers² found that 74% of respondents wanted virtual conferences to continue, with 49% finding them more accessible. However, virtual technology does not guarantee accessibility — and certainly not inclusivity — without an active and engaged community.

The traditional conference format is hindered by inequities in access³. With lower travel costs and registration fees, fewer logistical hurdles, and more flexibility in attendance, virtual scientific conferences potentially welcome a broader representation of researchers than in-person meetings. Virtual meetings can boost participation, especially by early career scientists and those from non-research-intensive universities, and increase gender and geographic diversity (for example, see ref. ⁴).

Aside from making attendance easier, virtual conferences can also remove or lower some barriers to active participation. For some, asking a question in a chat-box is less daunting than stepping up to a microphone in a crowded room. The ability to watch talks and look at posters online allows participants to accommodate other responsibilities in their jobs and lives, and there is the potential for more open science if presentations are made available beyond conference attendees.

Virtual conferences do not guarantee inclusivity, however. High-speed internet is required, which not everyone has. Different time zones can make attending sessions impractical. And, although many conferences in 2020 kept registration fees

low or waived them altogether, substantial registration fees are now being requested, limiting gains in participation from those without available funds.

The top complaint regarding virtual scientific conferences is the limitation for networking². As editors, this is what we have missed most. Virtual networking can also be more exclusive than in person meetings (which are far from perfect). The norms of interacting online can make communication less cordial, which may exacerbate inequalities in participation and make it harder for junior or underrepresented community members to network³. It may be easier to attend a virtual meeting, but active and useful participation can be more difficult. Without a physical poster hall to wander through and in-person networking opportunities, it can be harder for an early career researcher and their work to be noticed in a virtual setting. Although small meetings have had some success with virtual breakout rooms, chat boxes, and social spaces, not all participants may be interested in or comfortable socialising as an avatar. The opportunities for networking are also limited by a lack of participation and engagement of more senior scientists, who hold the keys to career development. For example, although attendance at the 2020 Goldschmidt conference showed gains for students, professional attendance was down — particularly for men, who dominate at more senior levels⁵.

Whatever the axis of diversity — gender, career stage, geography, and so forth — virtual conferences can be socially exclusive as they reinforce existing networks, creating echo chambers (just like other online social networks). Exclusion is not only a problem for the career progression of individual scientists, but for the progression and communication of science, particularly for increasingly urgent fields. So many scientific findings are a result of a casual chat or chance meeting at a conference. There are some intangibles of a scientific meeting — such as serendipity and the

cross-fertilization of ideas — that are hard to reproduce online. But in-person events can be difficult to navigate without a pre-existing network to make introductions: virtual networking has amplified and exacerbated division that has long been entrenched at conferences. With the grand challenges facing the planet, we need these events to deliver.

Improved technology will not be enough to overcome the shortcomings of virtual conferences, nor do hybrid conferences necessarily provide both greater access and improved networking. Instead, it has proved difficult to ensure an equally rewarding experience for both types of attendees. Whatever the conference format, more community engagement is needed to make conferences more accessible and inclusive. Senior scientists need to embrace virtual participation and engage as mentors. The scientific community must adapt to conference formats as they evolve so that online and virtual can best complement each other, and actively engage beyond existing networks.

Like many geoscientists, we have struggled navigating virtual conferences throughout the pandemic and engagement has been difficult during a stressful and busy time. One of our editors went to AGU in person last month and it was invigorating to meet geoscientists and hear about their research-in-progress. Meeting up in person is great and hopefully there will be more of it in the near future, but community engagement is needed for inclusive and productive conferences, whether online or not. □

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References

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