

Letters

[Editor's note: Richard Parncutt is affiliated with the Centre for Systematic Musicology at the University of Graz. After sending this letter, he supplied the following reference for further information: <https://stay-grounded.org/get-information/#impact>.]

Grounding the ICMC

For decades, I traveled regularly to academic conferences, including the International Computer Music Conferences (ICMCs) in 1988, 1990, 1991, and 1997. Conferences were one of the best things about academic life, and the ICMC was one of the best. After all that work sitting alone behind a computer screen, I got to talk to other people with similar ideas, hear some weird and wonderful music, and travel to interesting places.

Back then, few of us realized that flying would become a big environmental problem. As academics and musicians, we were more aware of the role of intercultural communication in promoting world peace. And that was a good reason to fly. Many of us had been concerned about acid rain's killing of forests and about ozone depletion caused by chlorofluorocarbons, but both problems had been largely solved by international negotiation. Previously, in the late 1970s, I had studied physics at two universities in Australia. I don't remember anyone mentioning anything about anthropogenic climate change. That is surprising, given that scientists had been investigating and modeling the phenomenon for decades (history.aip.org/climate).

Global warming is one of a few leading global catastrophic risks, alongside nuclear war and pandemic.

A meteorite collision could be more devastating but is less likely. The biggest global protests of 2019 were about climate, suggesting that it is currently humanity's biggest threat. A possible reason is the catastrophic uncertainty and irreversibility of positive climate feedbacks and tipping points (Lenton et al. 2019). Astonishingly, positive feedbacks and tipping points have traditionally been omitted from reports by the Intergovernmental Panel on Climate Change, which instead have tended toward conservative predictions and language (Herrando-Pérez et al. 2019). Tipping-point scenarios (e.g., Bathiany et al. 2018) suggest that the probability of human extinction or mass death is higher for climate change than for nuclear war or pandemic.

Global mean surface temperature is now 1°C above pre-industrial levels and will reach +1.5°C between 2030 and 2052 (Masson-Delmotte et al. 2018). Even if warming is eventually limited to +2°C, a billion people could die prematurely as a result (Parncutt 2019)—an unprecedented calamity. For the survivors and their progeny, things will never be the same. A million species could die out (Tollefson 2019), billions of people will have inadequate food and water (Rasul and Sharma 2016), and vast areas will become less habitable, causing mass migration and conflict (Brzoska and Fröhlich 2016). Civilization itself could break down (Oreskes and Conway 2013).

Solutions such as planting a trillion trees or investing enormous amounts in carbon capture and storage will be partial at best and suffer from negative byproducts (Seddon et al. 2019). Similarly, the global environmental impact of aviation can hardly be reduced by biofuels, hydrogen, or electrification (Allwood 2020).

The most reliable solution is the simplest: Reduce emissions. Given

the persistent difficulty of forcing governments and corporations to reduce, we must empower individuals to change their behavior and influence government decisions. The moral obligation to reduce is higher for individuals with higher emissions (for practical reasons). It is also higher for the better educated (we can understand and explain the problem better, rejecting denialist arguments), those with better communication networks, and those with more money. The obligation to act is also arguably higher for musicians (if indeed music promotes empathy [Clarke et al. 2015]) and those with useful technical skills (to implement creative solutions).

Which brings us back to ICMC. Flying to academic conferences is a luxury and privilege (Grant 2018; Langin 2019) and must in any case be drastically reduced (Baer 2019). A long flight produces a few tons of CO₂ per economy-class passenger. That's like driving a car for a year or eating meat for five years.

Why then are many of us still flying to conferences, justifying our behavior with misleading arguments? Is this "hypocrisy" (Higham and Font 2020)? Or willful neglect? Social psychosis? Whatever the underlying pathology might be, the solution is the same: Stop flying. The time for therapy is over. Above all, conference organizers must stop inviting hundreds of colleagues to burn a ton of carbon each.

These arguments are not intended as opinions with which readers of *CMJ* can agree or disagree. Nor are we about to start discussing whether humans and monkeys have a common ancestor or whether the Holocaust really happened. Those who "disagree" with the scientific consensus on climate change and aviation are either uninformed or in denial. Consider this: Given the catastrophic global consequences

of “only” 2°C warming (Masson-Delmotte et al. 2018), and the near impossibility of negotiating a fair global agreement that will actually materialize (Spash 2016), those of us who actually intend to solve this problem must aim higher than the average person would do in a fictional world of honesty and cooperation. An appropriate goal (even if it is already practically unreachable) is to limit warming to 1.5°C, which means limiting emissions to the corresponding budget (Tokarska and Gillett 2018). If any academic flying at all is possible in such a scenario, it can only include conferences of the urgent life-saving variety.

Miracles may have happened. But no angel is going to descend to earth and miraculously remove anthropogenic CO₂. Nor is the international fossil fuel industry about to experience a pang of conscience and remorse, quickly closing down almost all oil, coal and gas extraction, so that aviation can continue to grow without blowing the global carbon budget for a given limit (1.5°C or 2°C). Although some billionaires are doing some good, the distinction between billionaire philanthropy and philanthrocapitalism is unclear (Rhodes and Bloom 2018). Global capitalism is not about to collapse, and even if it does most emissions will continue.

What can realistically happen is that musicians and academics can contribute to a global outcry that will accelerate progress toward global emission reductions. We can do that by first reducing our own emissions and then insisting that others do the same. If a smoker tells me to stop smoking, I am unlikely to take much notice—but when a lot of people stop, there is a domino effect. Having stopped flying to conferences in 2016, I can write texts like this one and be taken seriously, although my life-

time footprint is still embarrassingly high.

So please let’s not descend into a long, sophisticated discussion about who deserves to fly and who does not. The simple truth is that nobody does. The only morally defensible kind of academic or musical conference in the year 2020 and beyond is a decarbonized one. I respectfully invite those readers who believe that they “must” fly to think for a moment about what they mean by “must” What we “must” do is drastically reduce emissions. Not by 10 percent here and 5 percent there, but 90 percent.

The silver lining is that low-carbon conference formats can have interesting benefits. Our vibrant culture of international communication and musical/technological creativity can continue to flourish and even intensify. Consider the following two broad options:

The first option is the multilocation semi-virtual conference (Parnutt et al. 2019), which the music cognition community successfully implemented in 2018 (International Conference on Music Perception and Cognition 15 / European Society for the Cognitive Sciences of Music 10). The idea is to maintain face-to-face contact at each physical location (“hub”) while opening the conference to colleagues from countries around the world—including non-wealthy countries whose citizens usually cannot afford the high costs of travel, accommodation and registration in a rich country. Our hubs were located in Graz, Montreal, La Plata, and Sydney. Each hub communicated toward the East in the morning and toward the West in the afternoon or evening. In retrospect, there could have been many more hubs in more diverse places, each independently contributing material to a 24-hour

program. Of the 600 colleagues who participated, a majority approved of the new format.

Our next multihub conference will be the European Society for the Cognitive Sciences of Music triennial in 2021. Currently, hubs are planned for the UK, Azerbaijan, Lithuania, Colombia, Poland, and India. Hundreds of colleagues at or near these locations will experience an international conference for the first time. The UK hub will organize the event, but during the conference all hubs will have the same status. Each hub will both send and receive talks in parallel sessions. In parallel sessions, participants will choose between live and virtual presentations. All presentations will be recorded and made available to all participants.

The second option is a fully virtual conference, in which colleagues stay at home or in their offices. This idea is not only interesting as a fallback during the COVID-19 crisis, which has merely lent the idea urgency and credibility. Beyond promoting alternative ways of communicating, perhaps the most interesting advantage of a fully virtual conference is its inclusiveness. It would be open to colleagues from non-wealthy countries (improving cultural diversity), students who can’t afford a conventional conference (flattening the age distribution), colleagues with caring commitments (improving the gender balance), and those with disabilities. That’s a lot of new artistic and academic potential.

There are other options, of course. I have focused on the above two because they treat all participants equally. They have the potential to expose and overcome implicit privilege and discrimination. That is not necessarily the case for “hybrid” conferences and other compromise solutions that tend to emerge from

democratic processes in academic committees.

A virtual or semi-virtual conference can be organized in different ways, but before discussing them there needs to be a political will to change, starting with the individual. In my experience, the biggest challenge is to respond appropriately to negative reactions from within the community. For those of us who are used to flying anywhere we want and meeting whomever we want over coffee, a proposal of this kind feels like a threat. It is like someone is pulling the carpet out from under our feet. But the problem may lie in our attitude (Michael Jackson's "Man In The Mirror") and not in the exact conference format. It may simply be a matter of getting used to something new. Besides, if the next ICMC is virtual, it doesn't mean the one after that will be the same. The 2020s will see many new conference formats. Trying them out will contribute positively to musical and technological creativity.

Allow me to close with an ethical point (Parncutt and Seither-Preisler 2019). The survival of humanity and the right to life of billions of people are obviously more important than our right to fly to conferences. That may seem overly dramatic, but it has to be said. It's the elephant in the room during any discussion of this issue. Luckily, the available low-carbon options are interesting both artistically and technologically, so we can be motivated by self-interest (De Dominicis et al. 2017). Our students, children, and grandchildren will wonder why we took so long to take the plunge.

Acknowledgment

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[Editor's note: We posted Richard Parncutt's letter to the e-mail list of the International Computer Music Association, the parent organization of the ICMC. The British composer Natasha Barrett, a professor at the Norwegian Academy of Music who is on *Computer Music Journal's* editorial advisory board, sent a response, as did composers Kari Väkevä of Finland and Richard Garrett of Wales.]

I essentially agree with all the general matters that Richard elaborates concerning the CO₂ footprint of flying, global warming, and the need to change our lifestyles. Indeed, academic conferences of the paper-presentation type are likely to succeed in some kind of virtual mode. Some have already started as such this year.

There is, however, a central matter concerning Richard's theme of "grounding the ICMC" that I would hereby like to counterbalance. The discussion has omitted the side of the ICMC that sets it, as well as a few other similar conferences, apart: the artistic program.

Experiencing live electroacoustic music in ICMC concerts—especially those using immersive audio of some kind, requiring large spaces or fantastic performers—was my inspiration for years. These events remain

the driving force for many young computer music composers and technologists. The experience directs an understanding and motivation to push further, to strive for more, to solve, to achieve, and to express what seemed unattainable. It is an experience that is only understood by being present in person.

In recent months, concerts have found a new platform in streaming. After being involved in this concert approach as audience, composer, and performer, to me it is clear that streaming or virtual concerts work for some formats—for example, popular music, where the audience can now see their favorite artist on stage, unobscured from view. But for electroacoustic music this approach is generally inappropriate, and for some formats it is a disaster. Sound installations, interactive sound-art, multichannel music, spatialization performance, and even the fabulous demos that are presented at our music conferences are obliterated unless the artistic concept is specifically designed for streaming, virtual reality, or networked interaction. The works in question cannot be communicated in a video-audio stream, even if using the latest binaural rendering in real time over a high-speed network. This technique is a poor substitute to the "real McCoy," although it is useful as a temporary measure to sustain the community through the current pandemic restrictions.

The point I hereby hope to bring forth is that a virtual ICMC would kill the artistic program. I already know of student composers who, because the streaming solution offers an inappropriate representation of their work, have withdrawn pieces from conferences and festivals during the recent months of COVID-19, awaiting better times.

Do we really want this drastic cut in artistic expression to be perma-

nent? Maybe Richard's text would be more appropriate targeting a different reader and context. The number of delegates who fly to an ICMC and to other conferences featuring artistic programs is minuscule compared with the thousands who fly around the world to attend large conferences and commercial meetups.

In terms of a general attitude towards flying and its CO₂ footprint, for my part, Richard is preaching to the already converted. Yet, although every little bit counts in the climate fight, we also need to be careful not to undermine the foundation of an artistic genre that has been a fragile fringe of contemporary music and is only now gaining momentum.

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In my humble opinion, *CMJ* is a scientific journal. Therefore, I think it should not publish political propaganda.

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Regarding the recent letters from Richard Parncutt and Natasha Barrett on the subject of "Grounding the ICMC": although I agree with Natasha Barrett's argument that a permanent fully virtual conference would cause untold damage to the artistic program, I feel that the distributed semivirtual model to which Richard Parncutt refers offers much to support and perhaps even enhance performances in a post-COVID world.

Imagine a distributed ICMC held at a number of "hubs" spread around the globe and across the 24-hour day. If performance spaces at these

hubs were each equipped with a high-density loudspeaker array, audio and video recording equipment, and streaming technology, then we might envisage various concert modifications.

Fixed-media works could be rendered for each array and performed either simultaneously across multiple hubs or at different times to suit local time zones. Diffusion works could be performed by the composer at one hub and by trusted colleagues at others to give multiple interpretations of the same piece. Mixed works (instrument and electronics) could be watched live at one hub, streamed to another, and recorded for delegates at other hubs to watch when they were awake. Internet connections between hubs might also afford new opportunities for networked performance.

Thus, a single concert shared between adjacent hubs might include parallel performances of fixed-media and diffused works, live and streamed performances of mixed works, and networked performances featuring artists in both locations. All these elements could be live-streamed (with the limitations this implies) to participants outside the concert halls and recorded both for participants at other hubs and as a longer-term resource.

For sound art or installations, although it would be impossible for all delegates to experience the same set

of exhibits “in real life,” the simpler logistics of the semivirtual model might encourage a wider variety of such contributions from regions nearer to each hub. Documentation of these exhibits could be displayed at the other hubs during the conference.

Most of the points made regarding access and inclusion in virtual conferences also apply to a semivirtual event. Hub performances and presentations could be opened to a broader audience (including undergraduates, enthusiasts, and the general public) than can currently access an international meeting. Furthermore, dividing the conference into hubs might make hosting more feasible for smaller institutions, by placing less demand on facilities and accommodation. Combined with shorter travel distances for delegates, this could mean that distributed conferences would not be restricted to the summer months, outside of university semesters, and that those with a specific need to attend a distant hub might find it easier to take in other nearby teaching or concert opportunities, going “on tour” instead of making multiple long-haul flights.

From watching the video documentary (<https://youtu.be/TPtDHidVyZE>) describing the ICMPC15/ESCOM10 conference organized by Richard Parncutt, it seems that the biggest drawback of a semivirtual conference over a

centralized one was loss of personal contact with friends and colleagues from across the world, but that this was compensated for, at least in part, by more “intimate, intensive” gatherings offered by smaller groups joining together at hubs. This could seem a big sacrifice but, weighed in the balance with this conference’s 70 percent reduction in greenhouse gas emissions and 50 percent increase in attendance over the previous event, it is worth considering.

On a personal note: In 2019, I had a paper accepted by ICMC/New York City Electroacoustic Music Festival. After much thought, I decided that I could not justify the 1.7 tons of greenhouse gas emissions (CO₂e, carbon dioxide equivalent) required for my flight and that I would therefore withdraw from the conference. When I informed the organizers of my intention, they kindly allowed me to present from home in Wales using YouTube and Skype. I was sad to miss all the concerts and the time spent with friends and colleagues, but on reflection I still think it was the right decision. It is unlikely that I will fly to any international conferences in the future, but if a semivirtual ICMC included a hub I could reach by train, then I should love to attend.

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