

Tourism, Sustainability and Recovery

Asia Pacific Expert Outlook

Wakayama-CTR Webinar Series 2020 Vol.4

Decarbonising academic conference travel

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@Zoom Webinar(online)**

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Speakers:



James Higham

(Professor, Otago Business School, University of Otago)



Debbie Hopkins

(Associate Professor, School of Geography and the Environment, University of Oxford)

Moderator:



Joseph M. Cheer

(Professor, Center for Tourism Research, Wakayama University)

Date: Wednesday, October 21, 2020

Time: 5:00 – 6:00 PM (JST, GST+9)



Please visit our website for details: <https://www.wakayama-u.ac.jp/ctr/>

Speakers



James Higham

Professor, Otago Business School, University of Otago, NZ



Debbie Hopkins

Associate Professor, School of Geography and the Environment, University of Oxford, UK

Joseph M. Cheer:

Welcome to the fourth webinar in the series Tourism Sustainability and Recovery, Asia-Pacific Expert Outlook. My name is Joseph Cheer, I will be moderating this webinar this evening, here in Wakayama. I am a professor at the Center for Tourism Research at Wakayama University. Tonight we go to both ends of the world. We extend a warm welcome and a huge thanks to our presenters, Prof. James Higham from the University of Otago in New Zealand, in the southern hemisphere, and then we go to the northern hemisphere where we welcome Associate Professor, Debbie Hopkins from the University of Oxford. Thank you both for joining us.

As always, we welcome an international audience with participants from many countries across the Asia and the Pacific region, Europe and the Americas, and tonight, in particular, we have participants from over 30 countries, including Great Britain, U.S.A., Australia, the Philippines, New Zealand, Cypress, Germany, Malaysia, Taiwan, Uzbekistan, Indonesia, China, Brazil, Nepal, and India among others. So, we are very grateful that you have joined us, especially for those who had to get up very early or staying awake way beyond your usual bedtime, like Prof. Higham is.

Here, at the Center for Tourism Research at Wakayama University, our aim is to be a key hub for tourism research in the Asia-Pacific region and today's webinar is part of that mission. So, this webinar series features presenters at the leading edge of tourism research and practice, like the two presenters we have this evening. And while our focus is on the Asia-Pacific region, we also have an overarching emphasis on global tourism because the two are inseparable. We

also acknowledge support of tourism industry partners, the Pacific Asia Travel Association, the UNWTO regional office here in Japan and the KANSAI Tourism Bureau.

So, with that welcome done, today's webinar is titled 'Decarbonizing Academic Conference Travel'. It's a topic that's very dear to a lot of us because in 2020 we haven't been able to go to conferences, right? So, this topic is very relevant. We're very fortunate to have two speakers both exceptional scholars in their own right and with a track record of collaborating on research and examine sustainable tourism as well as more nuanced insights into particular aspects of transport, climate change and behavior change.

Importantly, both speakers undertake research that makes important contributions to tourism and practice, and tonight we will be going to New Zealand first and then to Great Britain. At the end of the speaking section of the webinar, there is an opportunity to have your questions answered. So, please send your questions through, using the chat function.

So, without further ado, let me introduce today's speakers before handing over to them to speak. To begin with, Prof. James Higham will start. James is professor of Sustainable Tourism at the Otago Business School, at the University of Otago in New Zealand. He has longstanding interest in the broad field of tourism and global environmental change which his researches explored at the global, national, and local scales of analysis. Over the course of the last decade, James' research has addressed aspects of high carbon tourist transportation, with a particular focus on aviation emissions. James is also part of an international research collaboration with Associate Professor Debbie Hopkins, our second speaker, investigating academic air travel emissions. James has served as the co-editor of the Journal of Sustainable Tourism.

So, you've probably got emails from James if you have published in the Journal of Sustainable Tourism, saying 'welcome,' 'congratulations.' He has been co-editor since 2015 and in 2019, we had James here at Wakayama University as a visiting distinguished professor, and one of the key outcomes was his 2018 book, *Sport Tourism Development* – the Japanese translation of that book, with Associate Professor Eiji Ito. He also worked closely with Prof. Kumi Kato and addressed the Japan National Tourist Office in the Tokyo Symposium of Sustainable Tourism Development. So, welcome, James, and thank you again. So, I'd like to also introduce Debbie Hopkins and then the two speakers will take it away.

Debbie is an Associate Professor in Human Geography, jointly appointed between the School of Geography and the Environment and the Sustainable Urban Development Program at the University of Oxford. Debbie has a Masters' degree in geography from King's College, London. She also completed a PhD at the University of Otago, supervised by James. And during her post-doctoral position at the Center for Sustainability at the University of Otago, James and Debbie began their research into academic mobility. So, Debbie is also the editor-in-chief of the Association of American Geographers, review of books; Associate Editor of *Transport and Mobility* in the Journal of Sustainable Tourism, and sits on the editorial board of the Journal of Transport Geography. Debbie's research is broadly concerned with low carbon transitions and Debbie has co-edited two books. The first one, *Low Carbon Mobility Transitions*, co-edited with James, and *Transitions in Energy Efficiency and Demand*, co-edited with Kirsten Jenkins.

So, enough from me. I hand you over to the two speakers this evening. James and Debbie, welcome.

Decarbonising academic conference travel

James Higham & Debbie Hopkins

James Higham:

Thank you, Joseph. Thank you for that kind invitation, if you can hear me. It's an absolute delight to have the opportunity to speak to such an international audience, particularly from the comfort of my own living room, no carbon emissions and no jet lag, and a great opportunity to connect with people in the global academic community. So, thank you, Joseph. I want to begin by acknowledging the Center for Tourism Research and the University of Wakayama for this opportunity to speak and the various sponsors you have mentioned, Joseph. We're very grateful that you've invited us, Debbie and myself to present to this webinar audience.

Let me begin with some acknowledgements. Debbie and I initiated this research programme some six or seven years ago when we were colleagues at the University of Otago with some of our other colleagues, Sarah Tapp, Caroline Orchiston and Tara Duncan, and it's proved to be an timely programme of research. We'd also like to acknowledge our colleagues who we've collaborated with and whose collaborative work we are presenting this evening. We both like to acknowledge Milan Klöwer and Myles Allen from the University of Oxford. Much of the work that I'm presenting this evening was led by Milan and his analyses. Debbie, of course, would like to also thank Noah Birksted-Breen and Milan, colleagues of hers at Oxford.

So, we are very much speaking on behalf of past and current collaborators with whom we've worked on this rather timely area of research. The context, of course, is that we live in a very high carbon transportation regime; very dependent,

historically, on high carbon transportation and we list here, on this slide, some of the inescapable realities of the transportation regime, increasing demand for high speed, long haul travel. Globally, when we talk about tourism, the trends have been towards short length of stay, decrease in value tourism with high environmental externalities, and perhaps most critically those externalities have been omitted from measures to mitigate the global impact of high carbon transportation in terms of climate change.

This slide, I find particularly useful. It comes to us courtesy of our colleague Paul Peters in the Netherlands, and I find this particularly useful. I often use this in discussions with students. So, very briefly, we have intersection of lines here. The bold line demonstrates the energy intensity of aviation from the 1940s and '50s, with piston powered airlines, propeller-powered airlines, through into the '60s and the subsequent decades, moving into jet aviation, and we can see that solid black line moving from top left to bottom right indicates increasing energy efficiency of jet aviation over those decades from the '60s, particularly through into the '80s. But at a steadily decreasing rate of increasing efficiency gains, to the point that the airline designs that are most efficient in our skies, Airbuses A380 and A350, and also Boeing's Dreamliner, the 787.

At the most, energy efficient planes, jet aircrafts are flying but their energy efficiency gains have become more and more marginal with the progression of time and so, Paul explains to us that the jet engine has achieved its evolution re-sophistication, and there are such marginal further gains available that really, over the coming decades, unless there's a radical shift in aviation technologies, we cannot expect technologies to provide a silver bullet solution to the high carbon output of air transportation.

Then, we also have depicted here global

aviation emissions, the dotted line moving from bottom left to top right, which illustrates the global carbon footprint of aviation. So, obviously, despite the increasing efficiency gains over those decades, the sheer increase in volume of air passenger transportation has resulted in this skyrocketing carbon footprint. So, these are inescapable realities that we really have to confront. This led to a paper that some colleagues and I published, led by Paul, published I think in 2016, looking at technology myths and how aviation technology myths were being perpetuated in print media, offering hope, what we claimed was false hope, of technology solutions to relieve us of environmental burden and our environmental stresses associated with the global aviation regime.

So, we need solutions other than relying on the possibility that technologies will solve this problem for us. Of course, amongst the high air travel population, our academics ourselves, and we've known this for some considerable time, there's been obviously a delay in our reaction to this, the status quo has perpetuated. Now, of course, COVID provides us with this unanticipated, unexpected, but incredible opportunity to rethink the way that we function as academics. This article from the Chronicle of Higher Education, January 2008, 12 years ago, nearly 13 years ago, claiming that academic travel causes global warming. Of course, the small print recognizes that this is a bit of a stretch, but a really important point nonetheless. Academics do fly and they do fly a lot and we found it within us to turn a blind eye to the high environmental cost of our academic aeromobilities.

But this is something that Debbie and I became acutely aware of and very, very conscious of when we were collaborating and when we were colleagues here at the University of Otago, which rightfully claims to be perhaps the most geographically distant and remote internationally

recognized institution in the world, and when we or our colleagues flew to attend conferences, typically we were flying vast distances. That leads us to the analysis that we are going to present in the first part of this webinar and this is the paper recently published in July this year that, as I said, led by Milan and his analysis of ways to decarbonize conference travel and the timeliness of his analysis which was conducted in the very late stages of 2019, has been really highlighted by the COVID pandemic and how academic conferencing practices have been forced to change in light of the COVID-19 pandemic.

So, just by way of context, academics are very frequent fliers. Pre COVID we flew a lot and, of course, our flying practices are enormously inequitable. A data here from general tourist transportation in the UK, about 15% of the population is responsible for approximately 70% of flights. And if you look at other mature, highly aeromobile societies, such as the USA, exactly the same, a very small proportion of the total population consuming the vast majority of flights. So, academics are a part of this hypermobile minority and, of course, academics, particularly climate scientists are acutely aware of the negative impacts of their air travel but prior to COVID, as I say, we were able to turn a blind eye to that and to continue to not question those flying practices.



The analysis that Milan led, focused on the AGU, the American Geophysical Union,

the world's largest earth and space science conference. The analysis focused on the 2019 meeting of the AGU, hosted in San Francisco, attended by 28,000 delegates who, between them, traveled 285 million kilometers, the equivalent of flying from the earth to the sun twice, emitting, in doing so, an eye-watering 80,000 tons of carbon dioxide. So, very large conference, of course, very large carbon footprint and very worthy of critical analysis in terms of how to reduce that carbon footprint.

The analysis focused on the travel patterns of the conference delegation, based on some assumptions that those who traveled more than 400 kilometers were likely to have flown 92% of the total delegation, the remaining 8 were assumed to have used car, bus, or train. We found that 75% of the emissions arose from long haul or multiple long haul intercontinental flights of distances 8,000 kilometers or more and you can see here the proportion of attendees and the distances flown and the emissions produced. Thirty-nine percent of emissions produced by 17% of delegates, those traveling furthest obviously, from places such as India and Australia.

This figure, I think, really nicely illustrates it. At the very center, of course, we have San Francisco, the host city, and you can see that the radius of 4000 kilometers traveled or 8000 kilometers traveled and here you can see the sheer volume of conference delegates, traveling across those distances to attend the conference in San Francisco. We found that by focusing on those closest to the host city, only 2% of emissions were generated by the 22% of delegates who traveled the least distance. These people who took flights of less than 1500 kilometers or used surface transportation. And this, I think, is of course really insightful because often we might think about using conference venues that are well served by, for example, regional rail networks, such as places like Vienna or Paris in Europe, but

the reality is that using those sort of conference venues to allow those who traveled the least distances to attend conferences will only ever reduce the carbon footprint of the conference by a relatively insignificant amount.

The analysis looked at modeling different host cities to see if different host cities, in this particular case within North America, might alleviate the carbon footprint and here you can see the potential to reduce the carbon footprint by 8% or 12% if the conference were hosted elsewhere, Washington, D.C., or Chicago. Within North America, Chicago offered an optimum location. By contrast, if the North American conference was hosted in Hawaii, the carbon footprint of the 2019 AGU would have increased by 42%. Of course, Hawaii is 4000 kilometers from the western coast of the USA. So, the vast majority of delegates would have to fly at least 4000 kilometers. This is really interesting in terms of New Zealand's place in the world. If we are talking about the least sustainable conference hosting cities, New Zealand would be alongside Hawaii for the very same reasons. The vast majority of international delegates would have to fly great distances to attend conferences in New Zealand.

Then, of course, there are variations on the calculations. Here you can see various alternative scenarios or additional scenarios. I've mentioned the host cities, what about having 17% of the conference delegation attend virtually. That would bring the conference carbon footprint down by 39%. And, of course, biennial conferences, why should we host these conferences annually? Is that necessary? If we would host them every other year, in alternate years, of course, that would immediately reduce the carbon footprint of the conference by 50%. And now, you can see on the slide combinations of steps that we might take to reduce the carbon footprint.

So, moving towards the right of the slide, a biennial conference, i.e., a conference hosted in alternate years, with 36%, those who traveled the greatest distances, actually attending virtually rather than in person and hosted in Chicago, that combination of steps would reduce the carbon footprint of this conference by 91% and, of course, fully virtual does have a carbon footprint but so insignificant that essentially a fully virtual conference or the sorts of interactions that we are engaging in this evening, in this webinar, almost completely eliminates the carbon footprint of such meetings. So, here again a summary slide that illustrates various options, on the left hand side, combination of options, modeling the carbon footprint of different host cities, assuming the same delegation, encouraging virtual participation and moving to biennial conferences which clearly allows to reduce almost entirely the carbon footprints of these conferencing activities. So, this led to further consideration of a three hub model of conferencing activities.

So, let me just summarize the thinking here. Of course, the AGU is one of several geophysical conferences each year. The AGU was hosted this year in Vienna. The Japan Geoscience Union in Tokyo scheduled for May and – sorry, this is last year, and the AGU fall meeting in the latter part of 2019. How about combining all of these geosciences conferences into a single world geoscience union. So, here we are talking about a three hub model where these conferences would be scheduled to coincide, they will take place simultaneously in three hub locations.

Again, those locations, those host locations can be modeled to reduce the carbon footprint. And you can see here, by doing so, in combination with dedicated virtual room facilities to allow everyone to participate, encouraging attendees to travel to their nearest hub to attend the conference in that hub in person, but reducing the need for intercontinental long haul travel, would reduce

the carbon emissions of all three of these unions by a combined 80%. And so, again, if I return to this slide very briefly, you can see in fact that the conference delegation actually lends itself very conveniently to hubs in Asia, in Tokyo; in Europe, a hub in Paris; and in North America. And if further hubs were required, again, an analysis like this highlights the fact that a fourth hub might be located in South Asia, if needed, to further reduce the carbon footprint of this conference.

So, of course, there are disadvantages and may be disadvantages, for example, academics in the southern hemisphere, given that all three hubs proposed here are in the northern hemisphere. This model may privilege academics who already benefit from access to these sorts of conferences. But, of course, fully virtual conferences may provide more equity in some respects and it's really important, I think, that we think about this. This, of course, is going to lead into some of Debbie's very recent analysis. Equally, virtual conferences would help young researchers to gain global exposure, particularly those who, perhaps, may be unable to normally attend conferences, lack resources to network globally through conferences. So, the three hub model may in fact help academics, perhaps, particularly young academics from developing world countries to overcome barriers to attendance. But these sorts of questions, of course, are really critical. We're finding ways now to radically reduce the carbon footprints of our conferencing activities, but we need to do so in ways that are also conscious of overcoming existing inequalities, but also anticipating emerging or new inequalities.

And I'll just finish with this slide from a paper published recently in the *Journal of Cleaner Production*, a very interesting paper based on analysis from the University of British Columbia by Seth Wynes and colleagues. This paper was particularly interesting because it disproved the relationship in an analysis of colleagues from the

University of British Columbia that those who traveled more actually advance or accelerate their careers faster than those who traveled less. So, really drawing into question that relationship between academic air travel and career progression and advancement. I will hand over to you now, Debbie.

Debbie Hopkins:

Okay. So, as far as I know you can see my slides, if anyone can't see my slides, please let me know. So, lovely to be here with you all today from Oxford. So, this is an image of some of the congregation of Oxford, which is sort of the governing institution of the university. And each year, the vice-chancellor gives an oration. And this is the vice-chancellor in 2019, Professor Louise Richardson and giving that oration in which she reflects on the previous year and the year to come. At that point in time, she could never have really known what was going to happen in this last year, with Coronavirus coming shortly afterwards. But she did set in motion, during this presentation, and some of the work that I'm going to be talking about now. So, in this oration, Professor Richardson spoke about climate change as a challenge that the university had to meet. And I quote, she said, "it is time to ask ourselves what we should do. At an individual level, we can reduce our carbon emissions by how we live, what we consume and how we travel. At an institutional level, we can examine our own practices and targets and ask if they are enough. The university has committed to halve our emissions by 2030, from a peak in 2010, and notwithstanding extensive growth of the university." She listed a number of actions that were already underway and noted, I quote, "it is worth asking ourselves whether we believe these commitments are equal to the gravity of the threat. Personally, I'm not convinced they are. I think we can do more, and over the next year, I believe that we will." She said, "This is not a time for gestures. This is not a time for aspirational

targets with no means to achieve them. It is time for evidence based policymaking” but it was from here that things became a little bit complicated. She said and I quote, “it is important to remind ourselves that whatever we do in our personal behaviour and whatever institutional actions we take to make ourselves more sustainable, it will have insufficient impact on climate change itself at a time when global emissions of carbon are 35 billion tons a year. I believe that when confronting a problem on the scale of climate change, our primary responsibility as a university is to do what we do best – research, teach, and translate the findings of that research for the betterment of society.”

And this reminded me of something that I saw in the university magazine of the University of Otago where James and I met, also with Adam Doering who I know is at your university, and this is the magazine that I received in October 29, 2019. And the vice-chancellor, Professor. Harlene Hayne talked about the importance of travel. So, you can see here from the quote here: “I’m a firm believer that travel broadens the mind.” And she goes on to say, “I’ve had the great pleasure of hosting a large number of international visitors to New Zealand.” It was at the same time that the oration was happening in Oxford and also that the New Zealand government passed the climate change response Zero-carbon Amendment Act.

My point here is that travel and the right to mobility seems to have become so deeply embedded in academic practice that it’s hard to detangle. For the University of Oxford, there is this conversation about reducing carbon emissions, without actually acknowledging the very system of academic practice is so entrenched in carbon emissions and in the practice of flying that actually making meaningful change in the timescale that’s required, is going to be immensely challenging.

So, today I’m going to be talking about a pilot study that we have been running over the last couple of months in Oxford. This is on the back of the Oxford Sustainability Strategy, which has emerged from the vice-chancellor’s oration in 2019, with desire to reduce carbon emissions across the university and at the moment, it is reported that around 30,000 tons of carbon could be attributed to staff flying on business travel. But there are many issues associated with this. So, what constitutes work-related travel? What happens to university teaching and student emissions? How does the structure of teaching and various accommodation regulations and such like mean that we entrench further mobility of students? And how does reporting and recording of flights take place? The University of Oxford also has the college system which means that we have a strained relationship between the university colleges and the university itself, and actually this creates some gray areas over where emissions are allocated and who is responsible for them because it’s not one legal entity.

So, what we did was we focused on one university college. So, within this college it’s become somewhat of a microcosm of the wider university because there’s multiple disciplines and the university divisions represented, there are staff that are employed solely by the college, some that have split appointments between the college and the university and there’s obviously the students and professional administrative staff there as well. So, we used this as a pilot study to test this mixed method approach that we did an online survey, which was between July and August in 2019, and then we followed that with interviews which were run on teams. Our intention is to scale this up to the whole institution in the coming year.

So, this is the sample, and probably, as expected, we ended up receiving responses from survey, from more students than staff. But to this

point, student perspective on academic travel have been largely omitted and because of what James was talking about in terms of junior colleagues, early-career researchers, and their needs around expanding networks, increasing precarity of academic job market, and there's a really good reason for including students in this conversation. We also include professional and administrative staff because a lot of travel also occurs not by academics but by people in positions around the university, doing activities for outreach and with alumni associations and so on. And the sample was geared towards younger age demographic because of the student focus.

So, what did we find? Very simply, we found that an awful lot of people weren't traveling particularly. So, we found that 57% hadn't flown at all in the year before COVID, so in the 12 months preceding the end of March 2020. We found that over 50% of these have not flown or just didn't want return flight in that period. And then we found that 15%, so 15 people within the survey had flown over – well, say 18% or 19% had flown over five or ten flights in that previous 12 months. So, I should say here that this is very preliminary analysis. We've only just started going through this, and this is just indicative findings at the moment. Of course, it is probably to be expected and those are difference between contract type.



So, at the college level many of the academic staff will still be on fixed term contracts. At the University of Oxford, on average, I think it is

believed that something around 80% of academic staff are on fixed term contracts. So, there is a high proportion of academic staff that are still on some sort of precarious contracting system. So, what we found here is that those that were taking the most flights from just the academics, were actually those on permanent contracts. So, that would have been associate professors and professors at the university level. Because of this it raises a series of questions about how that mobility then becomes entrenched in the mindset of success and prestige that once you've become more senior, you'll be traveling more. So, then it's an aspirational mobility for more junior colleagues who are wishing to replicate and to get more secure contracts.

So, 70% of the flights in the survey had just one trip purpose. And this was interesting to us because from the work in New Zealand that James and I had done with our colleagues, we had found that actually many people spoke about multiple reasons for doing travel in New Zealand. In Oxford we found that a lot of these trips were for a single purpose. And so, we did this based on three previous trips that we asked them specific details about where they had gone to, what they had done, and actually on a particular travel period. So, this shows us the importance of different types of participation at conferences, and we split it up by the humanities and social science and the hard sciences, and the medical sciences, and what we found was that for the medical sciences and for physical sciences, academic meetings seemed to be far more important and actually we found conferences across the board were relatively important for all academics. Obviously, here at the end, we can see the social reasons for traveling – for visiting friends and relatives and leisure, which often intersected with the academic or the professional purposes for travel.

What we found also, so we asked – from those three trips that we asked the participants to

report on, we then asked them to reflect on that trip and asked how productive they felt the trip had been and how important it was. So, upon reflection, having returned from that journey, how important was it that you went and did that trip, how productive do you think the trip was, did it achieve its purposes and what you wanted to achieve from it. You can see the vast majority of respondents are in that top left corner, so saying that it was very important and it was very productive. But actually, what we can also see from this is that there are a number of trips for which the respondents did not feel they were particularly productive and did not feel they were particularly important. And whilst this is a minority of trips articulated in this formulation, it's worth figuring out what it was about those trips and that meant that they weren't perceived to be productive, they weren't perceived to be important and whether they were trips that academics might feel that they could forego in the future or use different types of travel for, and we're going to talk about that a little bit more and with some of the qualitative findings.

We tried to uncover what constituted necessary travel for particular purposes. So based on your contract type, based on your discipline and your area of research, whichever it might be, how do you think – what do you think necessary in that context? And what we found was a range of perspectives, but I thought this one was particularly good and I'm not going to read all of it, but it was a critique of our question, which, if anyone has ever done research on academics, they'll find that this always comes up, there's always a critique of the terms that you've used. And this person actually really accurately articulated why we cared, why we actually were asking them the question about necessity in the first place. He said people have managed to do science during this pandemic, but it's almost certainly the case that science has been hampered significantly in its progress.

He goes on to suggest that the only reason somebody might argue that travel is necessary is that not attending may be seen as losing ground in comparison with scientific competitors. So, he was talking not only about the problems associated with not being able to travel, but also that there's a competitive advantage attached to traveling, so that if some institutions prevent travel and others allow it, that that might lead to a dual system. That might lead to winners and losers and this is really problematic and suggests roles for other actors beyond the institutions themselves.

This slide shows a series of quotes that came from our interviews that we conducted after the survey. Again, asking them to pick what it was about flying that was particularly important or travel in general, but also flying. And they said things like 'flying is often unavoidable,' 'nothing is strictly necessary, but I would consider international conferences a valid reason for flying,' 'not being able to fly would be a significant headwind for dissemination,' and 'face-to-face communication is necessary for scientific ideas.' We found that many of our respondents hadn't considered an alternative form of transport. So, they hadn't considered whether they could go by a mode other than flying, and also they didn't necessarily feel, on the whole, that they could replicate the purpose of their trip using virtual technology. Again, it does show that there's some clustering that some parts of travel might be replicated, but those that have multiple purposes, it becomes harder to disentangle and say, 'well, if some of this could happen virtually, would it mean that other travel wouldn't happen at all?' And this is something that James and I have talked about in our previous work, we've had the connection between personal travel and our professional travel.

So, thinking about video conferencing and

the value of virtual engagements, we found that there were largely negative perceptions. So, bearing in mind that these interviews happened in August and September, so, we've had a period of six months of these types of webinars, online engagements, and across the board, there were these perceptions that video conferencing just doesn't cut it, in-person conferences are much better. And much of this was about the random encounters that might happen, the potential for encounters, not necessarily the expectations that they would but if they did, how important those encounters might be. And there was a fear of missing that randomness, that happenstance where you might come across somebody and build a collaboration or have an opportunity arise from it. And because of that, there was a lack of willingness to stop traveling, just in case – just in case that could happen.

And after COVID, we asked many questions about what might happen in a potentially post-COVID or living-with-COVID in different ways kind of world. And across the board again, there were perceptions that people just wanted to get back to traveling. So, here, one of our academics spoke about just sort of the small sample conversations with colleagues where most people were excited to go traveling again and looking forward to being back, going to conferences, going to meetings and how significant that might be for travel in the future. In our survey, we did ask about this, and we found very random responses. So with some people saying that they actually thought their travel would increase after COVID because they had travel that they wanted to make up on or they had promised to travel as part of grant applications that they then needed to do, so they were going to accelerate and to accommodate that. A lot of people felt they would do about the same but we did find proportions for both activities where people said that they would probably travel less, and it will be interesting to see how this plays out in the next 12 months to

two years.

So, in conclusion, from our survey and from these very preliminary insights that I presented today, it becomes clear that it's a multi-actor, multi-institutional intervention that's required. Individual institutions on their own are going to struggle to get by and from academics who may feel that they are being disadvantaged in comparison to their colleagues overseas or at different institutions domestically.

From our work, the paper that James described with Milan and Myles, we talked about how we might embed this new conference convention. So, thinking about conferencing differently. So, James showed that there are gains to be made from thinking about conferences in different ways and I've shown that there is still – there remains pushback to having conferences in different ways, that people want the random encounters that can happen from personal engagement. So, the model that we proposed in the Nature paper, offers some of this because it offers hubs where people can still have random chance encounters and whilst preventing the long haul air travel, of having traveling to North America from the UK, for example.

So, some of these points to these different institutions, these different people that need to be involved in the conversation, academic institutions and professional bodies. For example, moving to biennial conferences, so removing the lock in to these annual habitual meetings; funding bodies, considering carbon budget is part of the grant applications, we are already doing budgeting for our financial commitments. How about we think about how carbon fits into our research practices as well?

Academic institutions investing in virtual technologies, this is a conversation we're having at Oxford all of the time, about whether we

have sufficient support to allow us to do our work online, with the quality that we want to do it. And I think that's really important. The support that we've had today around running these types of events is just so important and it means that things run smoothly. The research is about role modeling. This is really significant. If senior academics are seen to always be mobile, there is a motivation for junior colleagues to be aspiring for that mobility in their own practice. And conference organizers, thinking about these hubs, thinking about having regional hubs that will reduce the distance that academics need to travel to, to go to these conferences, to still get these random encounters, these face-to-face interactions.

So, in our paper we conclude by saying that only through concerted and coordinated effort will the transition take place. COVID19 has taught us that changes do happen at remarkable speed when they need to, but we don't have any evidence to suggest that this is going to maintain in the long term. Things actually need – the actions need to be taken to allow this to continue, and I'll finish with this from Twitter. Thinking about the conversation moving within one year, so before COVID19 the work that James has led looking at virtual attendance, where people were just saying virtual doesn't work.

“During corona, while it brings so many benefits, and yes it does work actually”.

“Post corona how dare we to have exchanged in such a sustainable and non-inclusive way.

I think this is a really lovely idea; however, from a, albeit, very small sample in the UK at the moment. We're still finding major pushback and some of that could be fatigue from teaching, researching, and engaging online all day, every day. Thank you very much.

Cheer:

Thank you Debbie, thank you James. Much to think about there as I look at my conference calendar that was for 2020. But, we have a few questions that have come through, and I don't think we will be able to get to all of them. So, I'll just paraphrase some of them and to some degree, as your talk went on, you answered a lot of the questions but I will try and go through some of them now.

The first one I will ask is to both of you. So, feel free to chip in. Ayako Ezaki from TrainingAid or TrainAid, has asked a very important question that James had touched on, the question about equity. She says that wealthy people in rich countries have been using up most of the world's carbon budget by enjoying the privilege of flying and leading high emission lifestyles. To achieve equity while trying to decarbonize travel, could there be some kind of carbon budget-balancing system where we encourage and prioritize air travel by those from disadvantaged context?

Higham:

I think that's a really good question and I think it's a very, very fair comment. There are all sorts of existing inequities, and we have to be conscious of these. In fact, I've been looking at some of the questions that were coming through while Debbie was speaking and some fantastic comments. There are all sorts of inequities, historical inequities, and we need to be really conscious of this. I'm also conscious, for example, of junior colleagues who may potentially be denied the enormous benefits that I enjoyed in my own early career of traveling to conferences and networking and building collaborations and building profile and having those serendipitous conversations that Debbie alluded to. These are very real inequities, and one of the things that we did think about

when we were working on the paper in the earlier part of this year was the potential for merging inequalities.

It may be that the way you have three hubs in the northern hemisphere that there will be new emerging inequalities associated with those who are privileged by proximity to those hubs, having greater access to those conference venues, whereas people, again, in the southern hemisphere may have less access to those conferences. But I've mentioned another thing, something really interesting. The European Geosciences Union moved online with COVID and with the move online, the number of delegates increased from 16,000 to 22,000, including attendees from 28 previously unrepresented countries. So, the question is a very real one, and there'll be shifting inequities and we need to be very conscious of these.

Cheer:

Debbie, did you want to add?

Hopkins:

Yeah, I will just quickly add to it. I completely agree and I think it's a brilliant question, and I think it's a really important question, and certainly I think that we need to have ways of – accounting for the fact that all historical inequities and how that plays out at the moment. So, when we were doing the paper with Milan and Myles, we had conversations about this, about are we doing these hubs on the basis of where is the most – where it would reduce the carbon emissions or do we add an equity component to this? And I think the growing work around just transitions and other associated bodies of literature really point us to the fact that we can't look at climate change in isolation from other issues, from a range of inequalities across a broad spectrum of issues that need to be a part of our responses and carbon alone, it just cannot be understood in isolation from all of that, I guess.

Cheer:

Okay, thank you, both. The next question comes from one of your colleagues, Debbie, Hannah Dagleish. She posed the question that University of Ghent has a rule that people can't fly when the location is reachable by train in less than six hours. Can we somehow encourage other universities to do this and what are your opinions of hybrid conferences and this makes me think of colleagues in Tahiti, two weeks ago had advertised call for papers for a conference in Tahiti right? So, but those of us who live in Australia or New Zealand or even in Japan, you know, this is something that is more difficult for us to reconcile. So, what do you both think about the opinions of hybrid conferences and transport mobility?

Hopkins:

Do you want me to go first, James?

Higham:

Do you want to lead that one, Debbie?

Hopkins:

Yeah. The train thing, if I understood correctly, so, Hannah's university encourages train travel because of its – function of it. So, Oxford, actually there's a very interesting anecdote that Oxford is a really frustrating place to get to by train because the powers to be, in the years that they were putting in the train network, said 'trains will never take off, we have canals.' So, we are actually a very difficult place to get to by train. So, for many people, actually accessing Oxford by train is very frustrating although that is the main way we access it.

But coming from New Zealand where we had no opportunity, so, at The Center for Sustainability, we looked into how to get to Wellington, and on the bottom of the North Island and not using airplanes and we found it would take basically 24 hours. It required buses, trains,

and boats to get there and we would arrive at 3 o'clock in the morning. It was so infeasible. And coming back to the UK and seeing the train network, I thought, brilliant, I'm going to get to use it loads. Actually it's really expensive and it's really tricky to use.

So, in our work in Oxford, we've looked specifically at using alternative modes to get to Europe. The barriers we found are that it's so much more expensive than aviation, and we still have university policies that prioritize the cheapest fair which means that they end up automatically going by plane, that it takes longer but that's not necessarily such a barrier but there needs to be university support for the additional travel time and that the booking systems could be incredibly complicated, but actually being in Europe now means that we are able to use trains to get to a range of different places on the continent and domestically but still we have all of these barriers that sit in place, and I've been really surprised about these since I moved back to UK.

Higham:

I would just chip in and say that it's great to hear that train travel is being encouraged in Europe. We hosted a conference in Freiberg, in 2012, which we repeated biennially two other times and the conference venue was quite deliberate, to encourage people to use the rail network in Europe to travel to and from the conference. But we were really disappointed to find that most of the delegates at our workshop had actually flown because their institutions didn't allow them to book conference travel by any other transport mode other than plane. So, that is a step in the right direction. Of course, when we are talking about conference destinations like Tahiti, and certainly when we are talking about academics traveling from places like New Zealand to attend international conferences, you know, I think it's just impossible for us to deny the ineluctable nature of that air travel.

I've had colleagues and I've done it myself, fly to Europe for a conference and literally turned around and come back straight away and, you know, that's a form of conference travel just is unacceptable in this day and age. So, the move to hybrid conferences, I'm not familiar with that terminology, Joseph, but I'm guessing a hybrid combination of in-person and virtual attendees. Certainly from New Zealand, far flung New Zealand perspective it's absolutely essential of way to remain connected globally and if we are going to continue to disseminate knowledge. I think it's fantastic to be talking on this platform right now. It's nearly 10 p.m. here but to be able to speak to a global audience without having to relocate is just an absolute privilege.

Cheer:

Okay. The next question, if I may, comes from STIES College in Banda Aceh, Indonesia. And it goes along – feeds off your last comment, James, the question is this decarbonization approach, does it weaken the motivation of academics in terms of disseminating their knowledge and would it make spread of knowledge slower and more constrained than before?

Higham:

No, I don't think so. The transitions that I've been making in recent years have encouraged me to think of all sorts of different ways of disseminating knowledge and, in fact, I haven't used conferences as a principal means of disseminating research finding for well over a decade, many years. I find that my evolving strategy is far less reliant on travel and far more targeted at a diverse range of outlets, reaching a diverse range of audiences. So, my dissemination practices, of course, have focused on journal publication and other academic outlets, but have diversified to policy outlets, media outlets, broader public audiences, film, other media, instantaneous communications that don't require us to register in advance for a conference, wait for

a conference and travel to the conference. Debbie finished the presentation with some quotes from Twitter, to have papers that can be published quickly and then disseminated and go viral via Twitter is an incredibly powerful way of reaching broad, global and diverse audiences.

Hopkins:

I just have a small addition to this. One is to say there are huge disciplinary differences, and I think we always need to be very careful not to overlook those some disciplines for whom conferences and conference presentation are the primary source of dissemination and we do need to pay attention to that. So, institutions looking at putting in strategies to reduce travel, need to pay attention to the fact that for some divisions it might be different and there need to be some thought put into that about may be using the model that we described about, using different types of models and not just prioritizing international conferences. I know in our early work in New Zealand we found university policy that basically entrenched this idea that domestic conferences were subpar, that they weren't as good, they weren't as rigorous, they weren't as important and that needs to be done away with.

But also the conferences, like James said, actually they probably aren't the main source or primary place for dissemination for many people. They actually have such a range of purposes and for many people it is actually less about disseminating their own research or learning from other people, but more about kind of getting scope of the discipline or meeting people or all of these, you know, looking for jobs, and particularly the AAG, the Association of American Geographers is where geography students go to get jobs. So, they have all of these different purposes that we need to be thinking about as well, not just dissemination. But many of those purposes can also be replicated in other models and I think we just need to think creatively about what

opportunities there are.

Cheer:

Okay. This is a question that goes beyond academic travel and traveling more generally. Robert Kiss from I-Shou University in Taiwan, I'll paraphrase his question, in a way he is asking what if we priced in the real cost of this travel, can we still travel because one of the things that you argue when you work is that this is one of the main reasons, right? The real cost of travel is rarely priced in.

Higham:

Yeah, it's a really interesting thought and I really welcome these sorts of ideas. Of course, the price of air travel goes up, that will influence demand for air travel. But we've already talked about equity and skyrocketing prices associated with air travel will only further privilege those who have been privileged historically. So, I don't see it as a solution on its own. I think it is inevitable that the cost of air travel will increase, but we do need to engage in the opportunities presented to us by COVID, to rethink our conference conventions in ways that will, we hope, create more equitable future for conference engagement.

Hopkins:

I agree with all of that. I think that financial mechanisms on their own aren't going to do much. I think that there needs to be a balancing act where we are talking about train travel. The fact that trains are so much more expensive than air travel in Europe and is mindboggling and I think there needs to be some reconciliation around that and I think in the UK, the fact that I can fly to Edinburgh from London, cheaper than I can catch the train, is just nonsensical and I do think that there's probably something in that. But, interestingly, so I have this book here, not on purpose to advertise it, because it's not mine, it's David Bannister's book, but it was on the floor

because I was teaching from it the other day, and it – he does analysis in this that shows that low-cost air travel, so when we got all the low-cost carriers around Europe, actually only served to benefit middle class and upper middle class families who were already traveling anyway.

So, basically, it didn't increase the spread of people that were accessing aviation, but instead the people that were flying anyway were flying more using low-cost air travel. So, in terms of like budget airlines, there actually isn't an equity argument in the UK, based on his analysis. There isn't this argument that actually it allows more people to travel. And this is short-medium haul sort of travel. And actually it's just helping those to travel, those who are already traveling, to travel more. But, I completely agree with what James is saying in so much as we certainly don't want it to become that academics are unable to travel from institutions where they don't get large budget, where they haven't got big grants to fund this travel and because aviation has become so expensive they are unable to do it. And then we just create more of a distinction between those who can and those who can't travel.

Cheer:

Okay, the next question is a really interesting one because it highlights how in tourism, different parts of tourism will be impacted by this decarbonization agenda and COVID-19. It's from Natsumi Koike. She asks, the question is about the MICE industry. Some cities and countries have built a reputations on hosting large meetings, incentives, conferences, and exhibitions. This disruption is going to be quite considerable for them, what do they do, how do they – how do they continue?

Higham:

Again, a really good question, and they are going to have to adapt to the new world order and that may be that they need to rethink their target

markets. Certainly, COVID has required us here in New Zealand to deeply reflect upon the future of tourism. And that's not to say that there will necessarily be less tourism in this country, and this may also be the case for urban destinations that have pinned their hopes on the MICE sector. But what we seek, I think, in future, the very research that we've been reporting and talking about this evening, moves in this direction, is less regular air travel but not an angst to air travel but a change in the way that we choose to travel.

In our part of the world, I'd like to see us move from a conference, a traditional conference model of air travel where we travel every year, recurrently, multiple times a year, long haul, very fast, short duration, to what I refer to as a sabbatical or resurgent study leave model of air travel where when we do travel, we travel less frequently but for much longer and much richer engagements in the places that we're visiting and in both of those models, the net tourism can actually be very similar. So, we are traveling less frequently, but for much longer, means that the total number of visits a night, if you like, may be exactly the same. The volume of tourism doesn't change but we seek more regular short haul, nearby travel, to hubs, for example, and when we do travel long haul, we do so for a variety of reasons and for longer duration. So, the patterns, I hope, will change, but not necessarily the volume of tourism.

Hopkins:

Yeah, I completely agree with that. I think that there are some questions about how that's supported, and so, I think the universities need to be thinking about how they actually support this model because at the moment, we have these annual travel funds that expire, so we're encouraged to spend all of our money within one particular year or we lose it. So, we end up going places we don't necessarily want to go and just to ensure that we haven't lost that money.

So, actually having a different relationship with how funding is given. And I do think it requires different business models. I don't necessarily think that, you know, these conference venues, I think it needs some creative thinking about what can happen and how they can accommodate these types of new ways of doing business. And exactly, as James said, I think it's the scale of focus.

So, for so long we've focused so much on this so called shrinking world for some people and accessing places and going as far as we can, you know, going to conferences in Hawaii from Europe and wherever it might be, and even when we are thinking about our leisure activities now, thinking differently, New Zealand is now actually prioritizing domestic tourists. For a long time domestic tourists were just priced out of so many of the activities they wanted to do. And I'm seeing my friends all over Twitter and Instagram showing photos of – they are actually out, exploring their own country. In the UK that was what happened last summer.

Everybody started traveling around the country and going and seeing the beaches and realizing that UK isn't that terrible and actually may be we don't need to go to Spain all the time. And so, this might happen, I hope that this happens with conferences as well, where we start to see that our local networks are still powerful, they're still valuable, we still have random encounters, we can still thrive academically, we can still share and learn, but we do it closer to home. We don't necessarily need, all the time, to be doing these long haul flights.

Cheer:

So, really we are rapidly running out of time, but one question. And did you mention the necessity for multi-actor, multi-institution cooperation. How can we achieve that because in the academic environment we are all very competitive and everyone's going off in different

directions, doing different studies, how do we bring everyone together and Hannah Dalgleish asks a similar question. How do we get all of these different societies and scientific organizations to put their heads together and say we're all in this together rather than competing against each other.

Hopkins:

Yeah, I think that that is so – I mean that's a great question and it's really important and I wish that I knew the answer to that. And I've heard of so many examples in the UK of institutions not working together because they want to keep propriety knowledge in their institution or whatever it might be. So, some institutions are doing very, very good work that they are just not prepared to share and about how they're calculating their emissions, and actually this only works if we all do it together. And, you know, I think that there are roles and so, James and I have had some conversations about disciplinary bodies and what their role is.

So, for example, I mentioned AAG before, like getting those types of bodies together because it needs to happen in all of these different domains and all these different scales because we need – say, in the UK we need universities to come together and talk to each other, both in groups like the Russell Group, but also more generally across all universities, but then we also need it to happen on a disciplinary level because, like I said, some disciplines have different relationships with conferences, they have different needs for field work, whatever it might be. So, then we need disciplinary bodies to come into as well. We need funding agencies. I don't actually know how we go about coordinating this multi-scale governance of responses but I would hope that there are more intelligent people than me out there that will actually have an answer to this.

Higham:

I'm sorry to say, there aren't, Debbie, but we

just have to live with that constraint. I think that starting with the academic association is a really great start. In my own field, if the leading academic associations, CAUTHE in this part of the world, decrees to move as they are (and credit to them) to increasing virtual interactions, biennial rather than annual conferences, these sorts of initiatives will affect all academics in my country, in this discipline, equally. And so, there may be some equity approach across institutions in that sense. I was also just reading a chat comment from Natania Wong, who asks a really good question about should universities revise their KPIs. And I think that's a really good point because, yes, they should, and part of the argument that we're putting forward now is that academics should be able to apply for conference leave to attend virtual conferences, not try and squeeze them into their daily schedule. And in fact, perhaps also apply for virtual conference leave that allows them to be away from their



place of employment and not subject to daily interruptions when they are trying to attend conference sessions.

Perhaps including conference, virtual conference funding to allow them to stay in a hotel nearby where they live. So, they are not at home and they are not at work but they are attending the conference virtually from within their own home region. And Debbie mentioned that domestic conferences historically have been devalued and institutions have strived for internationalization and driven academics to attend and contribute

and participate in international conferences. Well, we need to rethink those KPIs and this then extends into our research assessment practices. How we confirm staff, how we tenure them, how we promote them, how we evaluate the impact of their research? All of these sorts of things need to be changed through, I think, university policies. And as Debbie has said, we need to be doing this collaboratively and I'm pleased to say that in this country I've had, in recent weeks, some fantastic conversations with a colleague at Massey University in the North Island, and we want to move forward side-by-side, so that there is equity between institutions and that we move forward collaboratively to address these conference conventions that we've been talking about tonight.

Cheer:

Debbie, any final comments? Thanks, James. That's a good wrap up actually.

Hopkins:

Yeah, I think James did a great job there. I think we will leave it there. Thank you.

Cheer:

All right. Can I remind everyone, if you want to know more, there's a paper in Nature, it's available, open access, I believe; if not, Debbie or James, I'm sure, will be able to find it – to get it to you. So, before we finish, I think everyone's giving you virtual claps. So, on behalf of everyone here, thanks James and Debbie.

Acknowledgments

James and Debbie would like to recognise their colleagues **Milan Klawer** and **Professor Myles Allen** with whom they collaborated to produce some of the research presented today.

Debbie would like to thank **Dr Noah Birksted-Breen** and **Milan Klawer** for their substantial efforts on the 'Cultures of Flying at the University of Oxford' project, and the **Oxford Green Travel Fund** for funding the research.

Decarbonizing academic conference travel

Wakayama-CTR webinar series – Vol. 4.
 Wednesday 21 October 2020

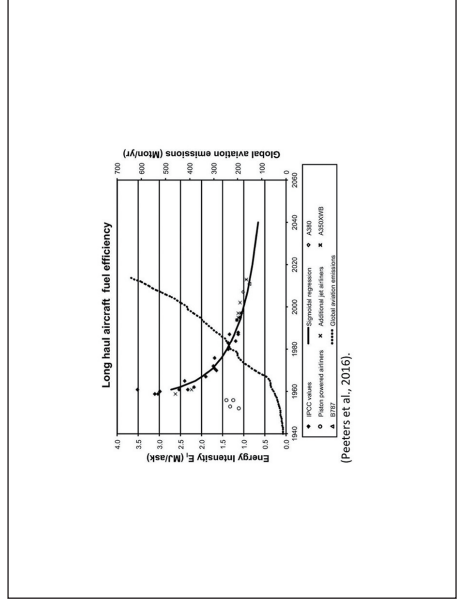
Prof. James Higham
 (University of Otago)

A/Prof. Debbie Hopkins
 (University of Oxford)

Logos: Massey University, University of Otago, Oxford University, Massey University, University of Oxford.

High-carbon mobility

- Dependent on high-carbon transport modes;
- Increasing demand for high-speed, long haul air travel;
- Short length of stay - low value - high impact;
- Omitted from meaningful global efforts to mitigate climate change



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Transportation Research Part D

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Are technology myths stalling aviation climate policy?

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ABSTRACT

Emissions from aviation will continue to increase in the future, in contradiction of global climate policy objectives. Yet, airlines and airline organisations suggest that aviation will contribute to climate change mitigation through efficiency gains since the 1950s in comparison to aviation growth, and by linking these results to technology disclosures, based on a two-tiered approach tracing ‘technology’ to growing emissions from aviation have been presented by industry, hyped in global media, and subsequently, ‘validated’ to be replaced by new technology disclosures.

5

THE CHRONICLE OF HIGHER EDUCATION

Advice

Academic Travel Causes Global Warming

By Helen Peabody

OK, the headline is a stretch. However, it is true that air travel puts large amounts of carbon dioxide, nitrogen oxides, and water, some, into even more of the atmosphere. And that, in turn, contributes to global warming. And academics do fly – a lot. As the environmental writer and author Mark Lynas argued in the *New Scientist*: “Probably the single most polluting thing you as I will ever do is to go on a plane.”

Medical journals like *Nature* (reporter of medical conferences), *The British Medical Journal*, and *The Lancet* have all published articles on the topic. The European Respiratory Society and the American Thoracic Society put 11,000 carbon dioxide tons into the atmosphere that do 110,000 pounds or 50,000 kilograms of carbon dioxide into the atmosphere. Schools of all sizes and universities, more than ever, are more than ever, pushing the paper of sustainability.

1. Why have I been here for the last 10 days?
2. Why have I been here for the last 10 days?
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10. Why have I been here for the last 10 days?

6

Some 26,000 people travelled to the American Geophysical Union's 2019 fall Meeting, resulting in 60,000 tonnes of carbon emissions.

An analysis of ways to decarbonize conference travel after COVID-19

Milan Klöwer, Debbie Hopkins, Myles Allen & James Higham

Emissions associated with large academic meetings could be slashed by boosting virtual attendance and regional hubs, new calculations suggest.

Before the pandemic, many academics attended conferences and board meetings. To conduct a conference, organizers would typically invite a large number of attendees. Many of those attendees would fly to the conference, and then stay in hotels. The result is a large carbon footprint. A 2018 study by the University of Exeter found that academics are responsible for 20% of the flights to air. The study also found that academics are responsible for 20% of the flights to air. The study also found that academics are responsible for 20% of the flights to air.

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Academic travel

- Academics were very frequent fliers before the pandemic
- Enormous inequities (UK 15% responsible for 70% of flights)
- Academics are part of the hypermobile minority
- Despite being acutely aware of the negative impacts of flying

8

American Geophysical Union (AGU)

- World's largest earth and space science conference
- 28,000 delegates attended in December 2019 (San Francisco)
- Travelled 285 million km (return)
 - Twice the distance from Earth to the Sun
- Emitted 80,000 tonnes of carbon dioxide
- Conducted an analysis of actions that can reduce travel emissions.

9

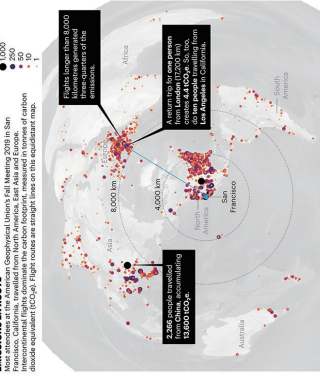
Methods and analysis

- Analysed the travel patterns of all 2019 AGU delegates.
 - Assumed typical mode of travel based on distance.
 - 92% travelled further than 400km (assumed to have flown)
 - Car, bus or train was assumed for the remaining 8%
 - 75% of AGU emissions arose from intercontinental flights.
 - One way distances of 8000km+ (36% of attendees; 10,000 delegates)
- 39% of emissions produced by 17% of delegates (India, China, Aust).

10

EMISSIONS EN ROUTE

Most attendees at the American Geophysical Union's Fall Meeting 2019 in San Francisco travelled from other continents. The carbon footprint of intercontinental flights dominates the carbon footprint, measured in tonnes of carbon dioxide equivalent (CO₂e). Light markers are strategic hubs and dark markers are attendees at the



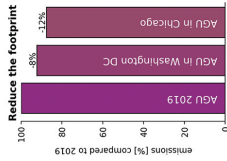
11

Methods and analysis

- 2% of emissions were generated by 22%
- They took flights of less than 1500km
- If they used surface transport (trains, cars) it would only save 1%
- Regional conferences on rail networks (e.g., Vienna) can only save 10%

12

Moving to different host cities?

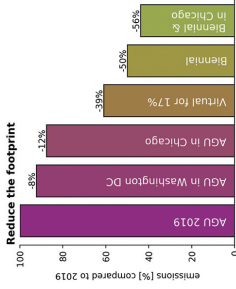


- A central location reduces total emissions
- Chicago offers the optimum location (-12%)
- Hawaii increases emissions by 42%
 - Everyone would need to fly 4000km+

13

Conferences reimaged....

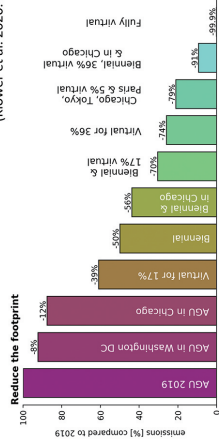
- Three measures:
 1. Choose accessible venues:
 - Modelling delegates journeys
 - Encouraging low carbon modes
 2. Increase virtual attendance
 - Presentation and interaction
 - Reduce registration costs
 3. Become biennial
 - Online in alternative years



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"By following all 3 steps, we calculate that travel-related carbon emissions for the AGU Fall Meeting could be lowered by over 90% if the meeting is held biennially in Chicago and with about a third of the participants, responsible for most of the emissions, attending virtually".

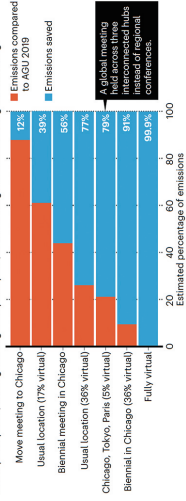
(Klöwer et al. 2020: 358)



15

SHRINK THE FOOTPRINT

The travel-related carbon footprint of the American Geophysical Union (AGU) annual meeting is equivalent to the travel-related carbon footprint of the average American household. AGU could reduce its carbon footprint in the field, usually held in San Francisco, California. Emissions could be cut by relocating the event, increasing virtual participation, holding meetings every two years, or connecting three venues using live-streaming.



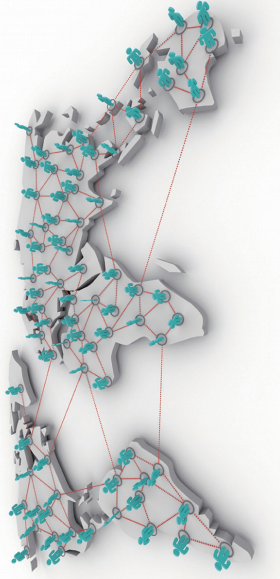
A global meeting interconnected hubs instead of regional conferences.

16

- The downside is that this would exclude many scientists based outside the USA from attending in-person:
 - May result in a two-tier conference system, conflicting with aspirations for a *global* scientific community.

17

The three hub model



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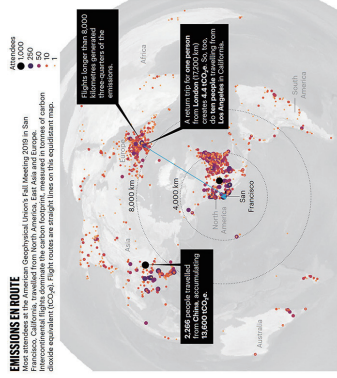
The three hub model

- Merging regional annual conferences to lower emissions and maintain equity.
 - EGU (Vienna in April), Japan Geosciences Union (Tokyo in May), AGU Fall Meeting.
- Combined into a single *World Geosciences Union* (WGU)
 - Take place simultaneously in three hub locations
 - Linked by dedicated virtual-room facilities to allow anyone to participate
 - Attendees would travel to their nearest hub.
 - Chicago, Tokyo and Paris would be suitable host cities, based on current attendance.
 - Reduce travel emissions of all three unions combined by about 80%.

19

EMISSIONS EN ROUTE

Most attendees at the American Geophysical Union's Fall Meeting 2019 in San Francisco flew from Los Angeles, California, to the conference. In-person attendees' international flights dominated the carbon footprint, measured in terms of carbon dioxide equivalent (CO₂e). Light trails are average in-flight CO₂e requirements.



20

The three hub model

- May disadvantage some (e.g., southern hemisphere) academics.
- Academics from already-privileged parts of the world may benefit
- Fully virtual conferences provide more equality in this respect.
- But virtual attendance would help young researchers gain global exposure
- May overcome many barriers to attendance.
- Questions of equity are critical.
- Virtual conferences must extend to networking and socialising opportunities.

21

The immediate move to online conferences in response to COVID-19 will not set a new conference convention by default, but regular and recurrent in-person conference attendance is one of the least necessary reasons for academics to travel, as academic success is generally not increased with an individual's air miles.
(Klöwer et al. 2020: 359)



Academic air travel has a limited influence on professional success

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ABSTRACT

Lowering the growth in greenhouse gas emissions from air travel may be critical for avoiding dangerous

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Academic Travel at Oxford



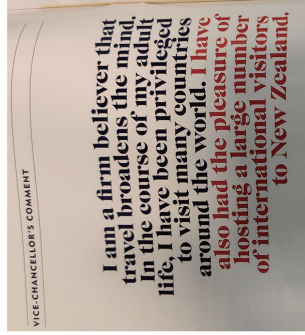
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University of Otago Magazine,
October 2019

Antburn says New Zealand on 'right side of history' as MPs pass zero-carbon bill

https://www.ottago.govt.nz/news/2019/10/16/antburn-zero-carbon-bill/



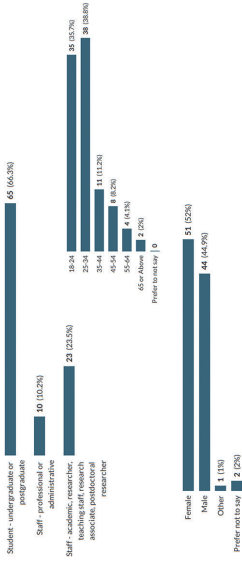
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The Oxford Academic Travel Pilot

- One Oxford College
 - Academic Staff
 - Professional Staff (administrative, management, service)
 - Students (postgrad and undergrad, domestic and international)
- Mixed method approach
 - Online survey (July-August 2020) n=98
 - Teams interviews (August-September 2020) n=7
- Hopes to scale up to whole institution in 2021/22

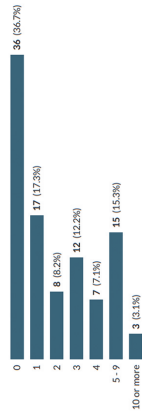
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Our sample (n=97)



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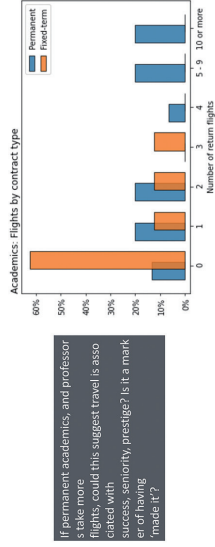
Whole sample travel practices



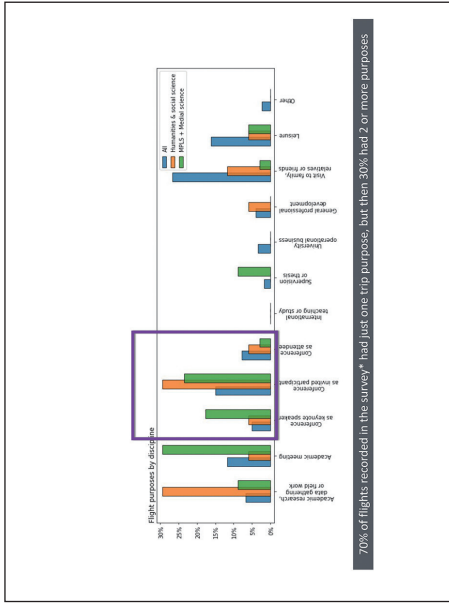
Question: How many return flights did you take in the 12 months preceding 23 March 2020?

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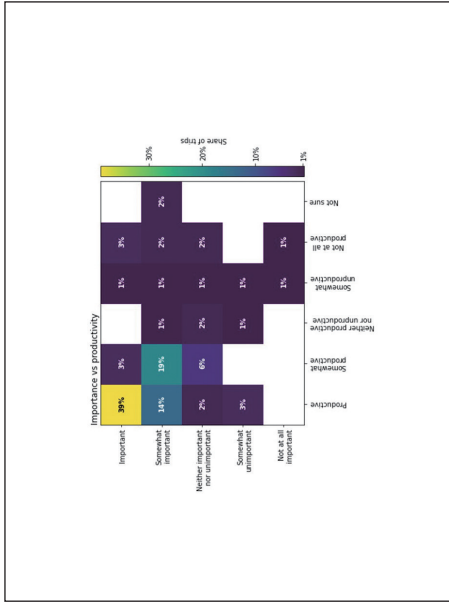
Academic travel practices



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Q: What constitutes 'necessary flying' in your specific the role(s) at the University and/or College?

Define 'necessary'. The role of a researcher is to further the knowledge in their field. In the case of scientific fields, this process is strongly reliant on interaction with other scientists, and travelling to common locations facilitates that process tremendously. People have managed to do science during this pandemic, but it is almost certainly the case that the science (at least in non-pandemic areas) has been hampered significantly in its progress. Nevertheless, it would not be correct to say that flying is strictly speaking 'necessary'. The only reason someone might argue that travel is 'necessary' is that not attending any particular international conference may be seen as losing ground in comparison with scientific competitors. However, if we all collectively agree to travel less, this argument falls flat, at least in terms of such strong language as being 'necessary'.

(Academic, Associate Professor, Mathematical, Life and Physical Sciences)

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The 'necessity' of conference travel for academic work

Debate and discussing ideas are essential for science. Flying is often unavoidable.

(Assistant Professor, Medical Sciences)

Were I not able to fly to present my research it would be a significant headwind for dissemination.

(Academic, Assistant Professor, Mathematical, Physical and Life Sciences)

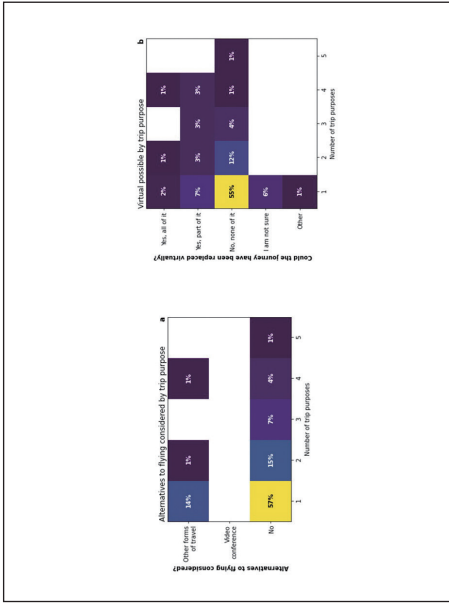
Nothing is "strictly necessary" but I would consider international conferences a valid reason for flying.

(Postdoc)

Scientific ideas need necessary face-to-face communication.

(Associate Professor, Medical Sciences)

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In-person or virtual

It is completely essential to fly for many purposes for an academic, and there are very few viable substitutes at this time. **Video-conferencing doesn't cut it**, and trains and boats are either not sufficiently reliable or take far too long.

(Academic, Professor, Mathematical, Physical and Life Sciences)

In person conferences are **much better** than virtual ones when it comes to talking with people and networking.

(PG Student)

A large part of a conference consists of the **meetings and conversations that take place outside of the papers themselves**. This cannot be replicated on-line and an "on-line conference" is something very different to a real conference.

(Academic, Associate Professor, Humanities)

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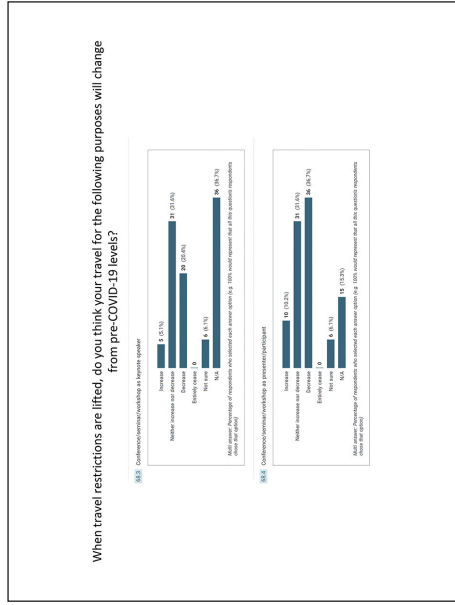
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(Academic, Associate Professor, Humanities)

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Multi-actor, multi-institutional interventions to reduce (conference-travel) emissions



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Embedding a new conference convention

1. Academic associations and professional bodies
 - Support the reorganisation of conferences around carbon emissions, virtual participation and inclusivity.
 - Conferences that ignore emissions targets should not be supported.
 - **Move immediately to biennial conferences** with fully-virtual meetings in alternate years.
2. Research funding bodies
 - Supporting virtual conference presentations;
 - Rewarding regional attendance.
 - **Consider carbon budgets as part of grant applications.**

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Embedding a new conference convention

3. Academic institutions
 - **Investment in virtual technologies, technical support.**
 - Conference funding should cover expenses for virtual attendance
 - Conference leave to allow full virtual participation.
 - Promotion and PBRF should recognize conference virtual contributions.
 - Differentiated carbon budgets (by career stage, and other criteria)
4. Researchers
 - Promote and support virtual conferences wherever possible.
 - Accept opportunities to present at virtual (or demand them)
 - **Role model e.g., insist on presenting invited keynotes virtually.**

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Embedding a new conference convention

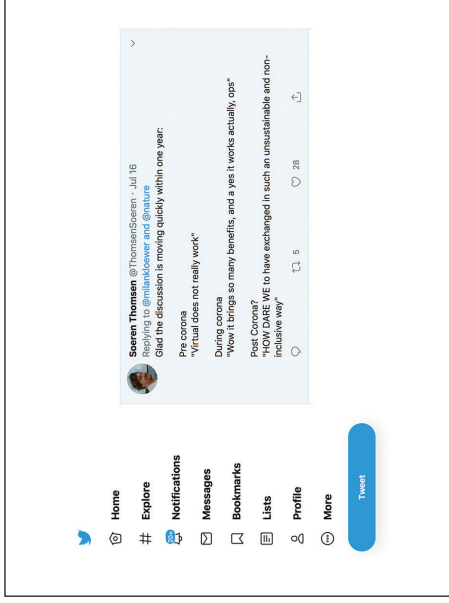
5. Conference organisers
 - Model delegate travel emission profiles when selecting host cities.
 - **Create conference hubs to eliminate long-haul flights.**
 - Move most aspects of conference participation online
 - Encourage virtual presentation and accommodate time slot preferences accommodated.
 - Build connections with similar conferences
6. Virtual technology providers
 - Develop virtual conferencing solutions with the academic community.

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Only through a concerted and coordinated effort will the transition towards a new model of academic conferencing gain traction. Yet as COVID-19 has taught us, changes to deeply embedded and seemingly intractable practices can happen with remarkable speed.

(Klöwer et al. 2020: 359)

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Decarbonizing academic conference travel

Wakayama-CTR webinar series – Vol. 4.
Wednesday 21 October 2020

Prof. James Higham
(University of Otago)

A/Prof. Debbie Hopkins
(University of Oxford)



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