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Creating communities and communicating science during COVID-19: From Coast2Coast to Coast2Cast

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ABSTRACT

The global COVID-19 pandemic has seen extended lockdowns, isolation periods and travel restrictions across many countries around the world since early 2020. Some countries, such as Australia and New Zealand, closed their international borders in early 2020 preventing researchers travelling to other parts of the world. To facilitate the exposure of our students’ work, and for them to meet international researchers, as well as foster a sense of coastal community, we started a zoominar series (seminars via Zoom) in April 2020. The Coast2Coast zoominar series had therefore humble origins but we soon discovered that there was an appetite for more widely sharing science across the coastal research disciplines. The Coast2Coast zoominar grew rapidly, attracting researchers from many countries around the world who presented and attended fortnightly online seminars. In just one year and a half we had 38 presentations with roughly 1900 attendees, creating a sense of community and belonging for the researchers involved. In early 2021, two of the co-authors, Giovanni (GC) and Ana (AVC) decided to expand and take this sense of community further creating the Coast2Cast podcast series, where researchers are asked research and non-research questions. In only 7 months, the podcasts have attracted more than 3700 listeners. Importantly, while the main prerequisite was high-quality and impactful research, diversity and inclusion were also a priority in selecting and inviting speakers for the zoominars and guests for the podcast. Importantly, our survey results suggest that there is a place for online events similar to Coast2Coast and Coast2Cast in a pandemic-free future, and that the coastal community involved has greatly benefited from such initiatives.

1. Introduction

Attending conferences and giving external seminars are important parts of academia; this can be especially important for early-career researchers because doing so can assist with career progression and new opportunities (Hamant et al., 2019) and establish networks that have the power to shape their careers. Well before the COVID-19 pandemic began in early 2020, there were concerns about the impacts and equity related to high-profile face-to-face conferences, including (among other things) the significant upfront fees and travel costs imposed, the large impacts to the environment, and the barriers they represented to those with physical or other limitations (e.g., Hodge, 2014). Previous studies have indicated that associated travel of conference participants accounted for up to 96.3% of the total environmental impact of a conference, with long-distance participants (only 6% of the total participants) accounting for 58% of the travel impacts (Hischier and Hilty, 2002). The same authors concluded that minimising air travel was the only way to reduce the environmental load of a conference significantly and suggested running conferences online as an alternative. In their study highlighting the high-emissions caused by environmental scientists travelling to conferences Caset et al. (2018) also concluded that a significant reduction in flying was needed and proposed a self-imposing academic emission ceiling by which academic institutions would commit to decreasing their travelling emissions by 5% every year. Both Caset et al.

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The COVID-19 pandemic took the world by surprise in early 2020. Almost overnight, academics faced a sudden transition to remote teaching and learning and the loss of access to research resources (Malisch et al., 2020). With countries going into lockdown, academics all over the world were required to work from home and were prevented from travelling. The negative effects of lockdown in academic communities, especially those related to the gendered nature of the impacts of lockdown, have been well-documented in the literature (e.g., Fulweiler et al., 2021; King and Frederickson, 2021; Woolston, 2020). The remarkable pace at which academics adapted to using digital formats for academic interaction including lectures, meetings and conferences indicated that the technology was already available and that academics were willing to use these tools for scientific exchange (Schwarz et al., 2020). And some of the suggestions of researchers calling for more sustainable conferences (e.g., Caset et al., 2018; Hamant et al., 2019; Hischer and Hilty, 2002) and/or for more accessible and child-friendly places (Bazilli, 2011; Black et al., 2019) became a sudden reality. This paper focuses on some unexpected benefits that, academics mostly working in Australia and New Zealand have encountered with the establishment of a fortnightly seminar series Coast2Coast that led to a podcast in coastal science Coast2Cast, and how these two initiatives expanded to other parts of the world. In this paper, we reflect about the impact of online initiatives to keep people engaged during periods of lockdown and restrictions to face to face collaboration. While the main aim of Coast2Coast was to disseminate cutting edge coastal science during a time when face to face interaction was extremely limited, here we discuss how online communities can also be created through regular online meetings, and how online initiatives can be used to increase diversity and accessibility of science. We finish with a commentary on what we see as the future for these initiatives.

2. Brief history of Coast2Coast and Coast2Cast

Coast2Coast. As Australia and New Zealand closed their international borders in early 2020 and with the pandemic unfolding elsewhere in the world, it was clear that opportunities to travel to conferences and/or visit other research institutions were not going to be possible for quite some time. In April 2020, researchers from the University of Auckland (G. Coco) and the University of New South Wales (K. Splinter and M. Harley) conceived the idea of an informal seminar series via Zoom (a.k.a. zoominar) for the students in their respective research groups to have an opportunity to present to an external/international audience, and they invited some of their colleagues and collaborators who, in turn, invited theirs, leading to a long email list used to disseminate the events. Many universities and research institutions responded positively and the zoominar series quickly grew, with the University of Sydney (A. Vila-Concejo) joining the convening team in June 2020, and the University of Western Australia (R. Lowe) in January 2021. The first Coast2Coast zoominar was hosted on the April 20, 2020, as of December 2021, we have held 38 zoominars, which, with some short breaks, have been held fortnightly. Since late August 2020, we have also recorded the zoominars and made them freely available on YouTube and the Coast and Ocean Collective website. The Coast2Coast time slot was initially Mondays in the middle of the day in Eastern Australia, allowing for it not to be too late in New Zealand or too early in Western Australia. With increasing interest from our colleagues in the west coast of the Americas, for whom it was a Sunday, we moved the zoominars to Thursdays in the middle of the day. We have always allowed slight changes in the time of the seminars to facilitate participation from different timezones.

Coast2Cast. In early 2021, G. Coco and A. Vila-Concejo started a new podcast as a spin off of the zoominar series. The format of the podcast is interviews using a semi-fixed set of questions that are adapted depending on the interviewee, with the aim of limiting its duration to around 30 min. The podcasts are recorded using Zoom and edited by G. Coco using Audacity® open-source free software. The first podcasts were released on the May 27, 2021 and are released weekly. As of December 2021, there have been 30 episodes released. Our podcast is available via the Coast2Cast page at the Coast and Ocean Collective website and our podcast hosting website available via popular streaming platforms such as Spotify and Google podcasts.

3. Impact of Coast2Coast and Coast2Cast

This section outlines the impact that the 38 Coast2Coast seminars and 30 episodes of Coast2Cast have had in building communities and increasing diversity.

3.1. Coast2Coast

3.1.1. Speakers

The structure of the Coast2Coast zoominar includes a main seminar, which is preceded by the ‘100 seconds’ section. This section, often by PhD students, allows attendees to present a recent publication in less than 100 s, providing an opportunity to highlight and publicise recent publications and contributing to creating a sense of community with the audience.

The main seminar is presented by an invited international speaker who is selected based on his/her high-quality and impactful research. The Coast2Coast organisers have used their networks to create a diverse and inclusive list of presenters. We have had 40% female presenters vs. 60% males presenting from 11 different countries (Fig. 1). Most of the presenters were from Australia (39.5%) followed by the USA (25.3%) and New Zealand (7.9%). Two other countries, Mexico and Netherlands, contributed with two presenters each (5.3%). There was one presentation from Canada, Chile, Japan, Portugal, UK, and Northern Ireland. Time zone differences with Europe were challenging to accommodate the working hours of Australia and New Zealand. However, the early
success of Coast2Coast sparked a similar spinoff hosted in Europe (EuroCoast) that is not included in this paper.

### 3.1.2. Audience

The attendance of the 39 Coast2Coast zoominars was typically recorded by one of the organisers. For those events for which attendance was not recorded, an average of the previous and following seminar was calculated. The number of attendees to Coast2Coast has changed over the months. Attendance to the Coast2Coast was very high during the first few months, reaching 90–95 attendees between June and September 2020. Attendance diminished afterwards and has been oscillating between 30 and 50 attendees ever since. The overall average attendance to the zoominars has been 53 people. We estimate that a total of about 1900 people have attended live over the 38 seminars. While we did not record the nationality of the attendees, we know that while we started with an audience that was mostly composed of Australians and New Zealanders, the audience evolved to include many countries. While the audience numbers have declined, we found that participation with questions and discussions, where all participants are encouraged to turn cameras and mics on, is still active, with a community of highly specialised “Coast2Coasters” regularly joining from many countries including Australia, New Zealand, USA, Mexico, Chile, Japan, China, and Fiji.

The videos uploaded to You Tube in the C2C playlist have received a total of 2741 views (data from the December 15, 2021), and together with the online attendees represent a total of well over 4000 views, which is remarkable for a small field of research as coastal geoscience, engineering and oceanography. Recorded videos provide flexibility for interested people to watch at a time that is convenient for them and/or rewatch a seminar if needed. The average number of views per video is 98 views, with a maximum of 219 views for one of them. Understandably, the oldest videos typically have received the greatest number of views because of their longer public exposure. YouTube channel analytics reveal that, for the entire study period since August 2020, viewers mostly come from Australia, New Zealand, USA, China, and Mexico, with over 90% of the views taking place on computers as opposed to tablets, mobile phones, or other devices.

### 3.2. Coast2Cast

#### 3.2.1. Interviewees

On the May 27, 2021 the first two episodes of #Coast2Cast were published, since then we have published one episode per week and the podcast has had over 3700 downloads in only 6 months (data December 15, 2021). With scientific achievements being the key selection criteria of our guests, we have strived to have a mix of different researchers capturing not only the most famous or most cited researchers, but also early to mid-career researchers, and those from less well-known countries in an attempt to highlight the diversity in Coastal Geoscience and Engineering.

![Fig. 1. Upper row: Gender ratios for Coast2Coast (A) and Coast2Cast (B). Country of origin Lower row: Countries of origin for speakers/interviewees for Coast2Coast (C) and Coast2Cast (D).](image-url)
Engineering and to give a voice to the many academics that do great work, albeit on limited budgets and in less well-known areas. The gender ratio for our interviewees at Coast2Cast is 41% female vs. 59% male (Fig. 1). So far, we have had interviewees from 14 countries (Fig. 1) in all inhabited continents. We have plans to continue interviewing diverse researchers from different countries and cultural backgrounds in the future to fill some of the glaring geographic gaps. Most scientists have embraced the initiative and accepted to be interviewed. Out of the 5 negative responses received so far, 4 were female. No reason was usually provided.

By asking a set of semi-fixed questions (usually 10 to keep the length of the podcast below 40 min) dealing with either academic or human aspects, we are able to “go beyond published papers” (as we state in the podcast opening) and understand commonalities and disagreements among the researchers we interview. For example, one of the questions is about what can be done to make our field of research a better place, and the responses have some commonalities (e.g., increasing gender and cultural diversity) but they also highlight the contrasting experiences of researchers in the global south vs the developed world, for example in terms of funding or access to instrumentation. Another aspect that has come up several times is the dominance of the English language in science and how not being a native English speaker often represents a hurdle.

3.2.2. Audience

The Coast2Cast is a relatively young podcast about a niche field of research. It is developed and edited in-house, we have had no financial or technical support and yet we have surpassed 3700 downloads in only 6 months. Listeners are based in 65 identified countries in all inhabited continents, with 2.4% listening from devices where the country is not recognised. More than half of our listeners (51.7%) are based in four countries (USA, Australia, Netherlands, and Spain), followed by New Zealand, UK, France, Portugal, and Mexico, which comprise another 25% of our listeners.

4. Survey data

To understand how people have used the Coast2Coast seminar and Coast2Cast podcast in the past 20 months since the pandemic began, a formal anonymous survey was conducted (UNSW Ethics HC210760). The survey consisted of a set of 5 general demographic questions, 7 general questions on the user experiences with conferences/workshops, 4 questions directly related to Coast2Coast and 5 questions directly related to Coast2Cast. The survey finished with 5 questions related to post-pandemic engagements to better understand how users would like to see conferences and workshops run in the future. Invitees were limited to the Coast2Coast email list (roughly 260 people) with 54 responses provided (20.7% response rate).

4.1. Demographics

Survey respondents predominately identified as between the ages of 25–40 (56.6%), with the 2nd highest age bracket being 41–60 (30.2%) (Fig. 2). Gender balance was roughly in-line with the broader gender balance of the geosciences community (68.6% Male, 27.45% Female) (Vila-Concejo et al., 2018). In terms of the location of respondents, 62.75% identified as being from Oceania with 13.7% from Asia and another 13.7% from North America. South America (5.9%) and Europe (3.9%) represented the remaining respondents. The majority of the respondents identified as from the Higher Education Sector: Academics (52.9%) and students (17.6%), with Government (23.5%) and Industry (5.9%) also represented. Career stage was evenly split between the 4 categories of higher-degree research student, Early-career researcher (<10 years post-PhD), mid-career researcher (10–20 years post-PhD) and well-established (21+ years post-PhD).

4.2. General experiences

This part of the survey included questions about the general experiences of the respondents about attending multiday conferences or 1 h
seminars before the pandemic, during the pandemic, and what they expect for the future. The responses are summarised in Fig. 3.

4.2.1. Pre-pandemic

Of the survey respondents, a large majority (81.6%) attended at least one multi-day conference per year (46.9% - one or two and 34.7% two or more, Fig. 3A). Not unsurprising given that almost 63% identified as being from Oceania, 43.7% said that a main inhibitor to attending face-to-face conferences was that they were ‘too far/too expensive’ and another 28.7% listed ‘not enough time’ (Fig. 3B). ‘Caring responsibilities’ (17.2%) were also identified as a barrier for face-to-face conferences and, 10 out 14 people citing ‘Caring responsibilities’ identified as male. Notably – 5.8% cited that disability or other restrictions that made it hard to travel was a big inhibitor. When asked about engagement in local face-to-face seminars (1–2 h in length), 63.3% of respondents said they had attended them at work/locally pre-pandemic (Fig. 3C).

4.2.2. COVID-19 pandemic

Since the pandemic began and face-to-face conferences were put on hold, respondents did note a shift to attending online seminars/workshop/conferences to remain engaged with the research community during lockdown. Of the respondents, 57.1% said they attended events frequently (bi-weekly to monthly), with 24.5% saying they attended on occasion (only those of interest) and 18.4% attending in-frequently (bi-monthly) (Fig. 3D). The main reasons people chose to attend the seminars/conferences was ‘To learn from others on their work/research’ (91.8%); ‘To expand my networks’ (46.9%); and ‘To stay engaged with my profession’ (38.8%) (Fig. 3E).

When asked about their experiences, 57.1% responded positively, however 32.7% had ‘other’ experiences – citing their experiences were conference/seminar specific with IT/setup being a main factor in how enjoyable/successful the conference/seminar was (Fig. 3F). Some listed that the positives of online events included convenience to fit into their busy schedules, but a negative was the lack of satisfaction in online Q&A and participant interaction compared to face-to-face events.

Coast2Coast – While we were interested in the general feedback/experiences of people broadly, we were particularly interested to understand how this seminar series has been used by others. 91.8% of the respondents said they have attended a Coast2Coast online seminar since they began in March 2020. Of these, 62% have attended between 5 and 15 seminars, 13.3% attended more than 15, and 24% attended less than 5. The frequent attendees (more than 15) all cited it was ‘easy and friendly’, ‘free’, ‘only 1 h every 2 weeks’, and they felt ‘part of a community’, while 5/6 of them also said the seminars were ‘excellent and I am learning a lot’ and ‘a great way to keep up with the research’ as motivators for repeat attendance. Those that did not attend frequently (<15 seminars) noted time commitments as a barrier, although 29.7%...
said they watched the recordings when it was convenient for them. While one of the frequent attendees noted a motivator was the diversity of the topics, 35% of respondents noted that ‘only some topics interest me’.

Coast2Cast – Coast2Cast was launched in late May 2021. We asked questions regarding people’s listening preferences as well with respect to podcasts. 57% said that they listened to podcasts and of those, 67.9% had listened to Coast2Cast. The majority of listeners (70.4%) liked to listen to podcasts that featured both human focus as well as technical aspects. Within the Coast2Cast listeners, 63% have listened infrequently, listening only to the podcasts that interested them.

4.2.3. Post-lockdowns and travel restrictions
At the time of writing this paper it is not clear if we are starting to live in a post-pandemic world, however, most scientists in the world have experienced lockdown with limited mobility for some periods since early 2020 until present. With this experience and not knowing what the future will bring, or at which point life will go back to some kind of normality, there is the option to retain some of the benefits that online seminars and conferences provided. 71.4% of respondents wanted to see online formats of multi-day conferences/workshops continue while only 12.2% wanted them to stop (Fig. 3G). The remaining 16.3% were unsure. All respondents were in favour to some degree of online seminars (1–2hr talks) retaining an online format, with 65.3% being strongly in favour (Fig. 3H). This shows the value of having an online presence to disseminate research and grow communities while reducing barriers for access. We asked 3 open ended questions regarding respondents’ thoughts on the future of online conferences and seminars. For those that wanted them to continue, 4 broad themes emerged (Fig. 3I): Access; Climate Impacts; Affordability; and Time. Access (65.6%) focused on convenience, carer responsibilities, inability/constraints to travel. Affordability (43.8%) ranked the second highest and focused on the prohibitive costs and limited research budgets. Time (21.9%) had similar themes to Access being able to work around work/personal life, efficiency due to less travel. Climate Impacts (15.6%) focussed on the carbon impacts of flying domestically/internationally. Conversely, those that wanted face-to-face to resume overwhelmingly cited Networking as a key value of attending events in person.

The lower row shows the responses to online presence continuing post-lockdown and travel restrictions: (G) Online conferences; (H) Online Seminars; (I) Green – Reasons for online conferences and Blue – reasons for face-to-face.

5. Discussion

5.1. Creating communities through regular online seminars
The Coast2Coast seminar series has effectively achieved its objectives for over 18 months and has gone through periods of complete lockdown in some of the participant countries and periods during which researchers in the countries involved were allowed to attend their workplaces and even limited travel in some cases. The live attendance numbers, which were very strong in the beginning, have gone down but remain stable between 30 and 50, which is considerable given the small numbers in the community of coastal science and engineering in the countries involved. The decrease in attendees occurred over a period during which Australia and New Zealand started to open up after the 2020 lockdowns, the availability of the Coast2Coast seminar available on YouTube from late August 2020, and also with other online seminars arising. Inevitably, after months of all academic activity including lectures, practicals, committee meetings, selection panels, seminars, there is a clear “Zoom fatigue” (e.g., Shoshan and Wehr, 2021) by which academics become more selective in which seminars they attend virtually, often choosing only those directly related with their field of research. After learning about the success of Coast2Coast, our colleagues in Europe created a similar initiative a few months after us, the EuroCoast seminar series, which is very successful with about 100 attendees per seminar (Delgado-Fernández, personal communication), occurring every month. Their higher numbers can be explained with the larger populations in the countries involved, and the fact that all of them are in similar time zones. It is important to note that, despite Zoom fatigue and, arguably lockdown and pandemic fatigue, many of the regular attendees to the Coast2Coast zoominars state that attending these zoominars was almost as good as attending in person (Fig. 3F).

The 100s talks are largely done by PhD students and early career researchers in an effort to spread the word of their latest research through various social media channels and the broader scientific community. As such, the frequent attendees to Coast2Coast, many of whom are in younger career stages, have a sense of enhancing their networks, thus becoming a part of a community. Indeed, given the remoteness of both Australia and New Zealand and the cost in time and financially of travelling overseas (Black et al., 2019), many of the regular attendees who did not attend many conferences per year, have now the possibility of attending a high-quality international seminar every fortnight with the ability to ask questions live to the presenter much like they would at a face-to-face event. To encourage this sense of community, participants are asked to turn on cameras/mics for question time. The positive feelings of some of the regular attendees is summarised in the following quote:

- “Regular online seminars are really a joy, they are free, they are easy and it keeps me engaged with state-of-the-art research. The 100s section is also very useful for ECRs to promote their work.”

Recorded Coast2Coast Zoominars are freely available online and this constitutes an invaluable resource for education and outreach. The videos receive many views from people who could not attend the zoominar in person because of other commitment or because of time zone issues. Indeed, some respondents that stated that they could not attend all Coast2Coast because of time availability, stated that they enjoyed having the opportunity to watch the recordings later on. As an added benefit of these recordings, some of us have successfully used some of these zoominars as additional extension learning materials for our university students.

Finally, our experience and survey data show a clear difference in the reception of online 1-hr seminars versus multi-day conferences, with multi-day conferences being perceived as less manageable and more tiring. Indeed 98% respondents wanted online seminars to continue (65.3% answered definitely yes, Fig. 3H), while this percentage goes down to 71.4% wanting multi-day online conferences in the future, with 28.6% being ambivalent or not wanting these longer events to continue (Fig. 3G). There is also a clear sense in the academic community of having to pay large registration fees to attend a few online seminars/posters that are often recorded and thus provide little interaction.

5.2. Enhancing diversity and equity through online initiatives
While we acknowledge that there are many other diversity issues that need addressing that add important layers of intersectionality, we are pleased that both the Coast2Coast and the Coast2Cast have around 40% women presenters or interviewees, which is well above the roughly 30:70 F:M ratio identified in the population of Coastal Geoscience and Engineering (Vila-Concejo et al., 2018). Interestingly, our own anecdotal experience indicates that women, and other minorities, say no more often to invitations to present seminars or be interviewed for the podcast. This is possibly related to underrepresented groups being severely overburdened (Maas et al., 2020).

The importance of enhancing gender diversity in Coastal Geoscience and Engineering has been stated in the pre-pandemic literature (Vila-Concejo et al., 2018). Since the COVID-19 pandemic started in 2020, there have been several studies highlighting the gendered effects of the lockdowns, with significantly more papers submitted by men and less papers submitted by women (King and Frederickson, 2021), and with
evidence that the COVID-19 effects are causing a 30 year set back on the diversity advances of the last decades (Maas et al., 2020; Woolston, 2020). The sense of isolation during the pandemic lockdowns has been documented in the literature (Corbera et al., 2020; Kowal et al., 2020; Schwarz et al., 2020). Depending on their personal circumstances, some researchers become more productive while confined in their homes, with Isaac Newton being one of the most famous examples having developed much of his seminal ground-breaking work during the Great Plague of London in 1665 (Kowal et al., 2020). But staying engaged with the profession may become difficult under certain circumstances and it was cited by our respondents as one of the main reasons to attend online seminars and conferences. Overburdened minorities such as carers of young children have more difficulties to stay engaged and productive in research, as Kowal et al. (2020, p. 389) point out in their publication: “Indeed, it is difficult to picture Isaac Newton inventing calculus while cooking dinner with a preschooler tugging on his sleeve, followed by teaching an online class”. Interestingly, respondents in our survey who noted carer responsibilities as a hurdle to travel to conferences, were not gendered toward women, but more evenly split along the overall gender-divide of survey respondents. We did not ask any questions about carer responsibilities during the pandemic.

Additionally, Coast2Coast and Coast2Cast has had speakers from all inhabited continents on Earth. We have tried both for the speakers and interviewees to represent multiple regions across the world, including representation from the Global South, and have purposely avoided limiting our speakers and podcast guests to white-anglo-celtic cis men from developed countries that constitute the dominant group of researchers in Coastal Geoscience and Engineering. The use of online platforms has improved equity within the discipline and allowed us to invite researchers from distant countries to present online seminars to our audience, and through the podcast we have given them a chance to highlight their research and their views beyond published papers. We acknowledge that there is a long way to go to fully include researchers from more countries and cultural backgrounds and we aim towards increasing our diversity and inclusion in the future. Online seminars and podcasts provide a platform for scientists from underrepresented groups to speak and be heard and to remain engaged with their professional colleagues. Interestingly, survey respondents had mixed reactions to the diversity of topics: while frequent attendees thought the high diversity was a definite advantage, some respondents pointed out that they only attended those seminars directly related to their research. Equally, anecdotal feedback about Coast2Cast has shown some of our listeners really enjoy the diversity of voices and learning about different research and cultural experiences that help them contextualise and value research efforts by different groups. Other listeners, however, stated that they only listened to those podcasts where they knew the interviewee personally, or they were familiar with their work.

5.3. The future of online initiatives

Results from our survey highlight online seminars as a silver lining of the COVID-19 pandemic, with almost half of the respondents engaging with them to expand their networks and stay engaged with their profession. Indeed, our attendees seem to want a future where multi-day conferences become more productive while confined in their homes, with Isaac Newton being one of the most famous examples having developed much of his seminal ground-breaking work during the Great Plague of London in 1665 (Kowal et al., 2020). But staying engaged with the profession may become difficult under certain circumstances and it was cited by our respondents as one of the main reasons to attend online seminars and conferences. Overburdened minorities such as carers of young children have more difficulties to stay engaged and productive in research, as Kowal et al. (2020, p. 389) point out in their publication: “Indeed, it is difficult to picture Isaac Newton inventing calculus while cooking dinner with a preschooler tugging on his sleeve, followed by teaching an online class”. Interestingly, respondents in our survey who noted carer responsibilities as a hurdle to travel to conferences, were not gendered toward women, but more evenly split along the overall gender-divide of survey respondents. We did not ask any questions about carer responsibilities during the pandemic.

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Additionally, Coast2Coast and Coast2Cast has had speakers from all inhabited continents on Earth. We have tried both for the speakers and interviewees to represent multiple regions across the world, including representation from the Global South, and have purposely avoided limiting our speakers and podcast guests to white-anglo-celtic cis men from developed countries that constitute the dominant group of researchers in Coastal Geoscience and Engineering. The use of online platforms has improved equity within the discipline and allowed us to invite researchers from distant countries to present online seminars to our audience, and through the podcast we have given them a chance to highlight their research and their views beyond published papers. We acknowledge that there is a long way to go to fully include researchers from more countries and cultural backgrounds and we aim towards increasing our diversity and inclusion in the future. Online seminars and podcasts provide a platform for scientists from underrepresented groups to speak and be heard and to remain engaged with their professional colleagues. Interestingly, survey respondents had mixed reactions to the diversity of topics: while frequent attendees thought the high diversity was a definite advantage, some respondents pointed out that they only attended those seminars directly related to their research. Equally, anecdotal feedback about Coast2Cast has shown some of our listeners really enjoy the diversity of voices and learning about different research and cultural experiences that help them contextualise and value research efforts by different groups. Other listeners, however, stated that they only listened to those podcasts where they knew the interviewee personally, or they were familiar with their work.

5.3. The future of online initiatives

Results from our survey highlight online seminars as a silver lining of the COVID-19 pandemic, with almost half of the respondents engaging with them to expand their networks and stay engaged with their profession. Indeed, our attendees seem to want a future where multi-day conferences are offered face to face because of networking, but also because of access, affordability and time commitments (Fig. 3G–H). It is important to note here the demography of our respondents, with most of them being academics located in remote areas including Australia, New Zealand, and the Pacific. This coincides with findings by Black et al. (2019) who undertook related studies pre-pandemic in Australia. Understandably, the effort, time, and money commitment required from a researcher from Australia-Pacific to attend a conference in Europe is very different from that required from their European colleagues. Moreover, the effort required from researchers from developing countries in the Global South is even greater with conference costs possibly becoming unaffordable. As such, one might hope that online participation in seminar and conferences remain in the future. However, this will impact on networking possibilities; indeed, substituting casual encounters and conversations with planned virtual meetings is not easily done, something that has already been pointed out in the literature (e.g., Hischier and Hilty, 2002; Schwarz et al., 2020). This is particularly true for new people to the field that rely on chance encounters to introduce themselves to well established researchers in the field at conferences. It is important to note here that most of the literature about conferences relate to their contribution to climate change (reference) and/or their accessibility for carers and early career researchers without research funds (references). Only 15.6% of respondents to our survey cited climate change as a reason to retain online events, which is surprising given that most of our research revolve about the impacts of climate change. We expect the future will bring a return to face to face activities in academia that will lower Zoom fatigue and that might make online events appealing enough for researchers to consider climate change higher in their list of reasons to retain online or blended conferences and seminars. On the other hand, blended conferences may result in a division between in person attendees and online attendees, thus reducing drastically the networking possibilities. In the experience of the authors of this paper, blended attendance to conferences where the conference is run in an incompatible time zone makes the conference unenjoyable and hard to engage with. Solutions proposed in the literature include decentralising conferences over multiple sites that are interconnected (e.g., Caset et al., 2018; Hischier and Hilty, 2002).

Over the past 18 months researchers around the world have had to work and collaborate online in ways that were thought to be unworkable before the COVID-19 pandemic. Our experience shows that there is room for an online seminar series and that together with a podcast, bring researchers together creating a sense of community. While these events cannot substitute the spontaneity of in person interactions, they are an important contribution to reduce carbon emissions from travelling and to improve accessibility and affordability for everyone. The following quote from one of our survey respondents summarises our experience:

“Online delivery mechanisms are great not only for accessibility and inclusivity but also for sustainability - as scientists in the climate sphere I think it’s our responsibility to critically consider our need for travel.”

6. Conclusions

This paper presents data from speakers and attendees to a series of online seminars (Coast2Coast) and speakers and audience for a science communication podcast focused on coastal science (Coast2Cast); we also include the results from a questionnaire distributed to our mailing list where we asked questions about attendee response to online events.

Our results show that while attendance to the online seminars was the highest during the toughest lockdowns at the beginning of the pandemic, numbers of attendees have become stable with time, at around 30–50 people per seminar attending from different countries including Australia, New Zealand, Japan, China, Mexico, USA, and Chile. Survey respondents mentioned that by attending Coast2Coast they found that they could both expand their networks (46.9%) and stay engaged with their profession (38.8%). And frequent attendees clearly felt that they were part of a community.

Online seminars and podcasts can be an important contribution to diversity (gender and cultural in this case, but also others) and equity via improved access. The online resources analysed in this paper, Coast2Coast and Coast2Cast, have had speakers/interviewees from all inhabited continents on Earth, with a female to male ration of 40:60. While we acknowledge there is room for improvement, our strong commitment to diversity is producing good results.

Finally, survey responses show that respondents show strong endorsement online seminars and conference to continue. There was a difference in what respondents wanted for the future with the support being the strongest (98%) for 1–2 h online seminars to continue. When
considering multi-day online conferences, 71.4% of respondents wanted them to continue vs. 28.6% stating their disagreement. The reasons for retention on online activities included accessibility (65.3%), funding availability (43.8%) and time availability (21.9%). Only 15.6% of respondents cited travel contribution to climate change as a reason to support online events in the future. The main reason for face-to-face multi-day conferences in the future was networking and lack of satisfaction with participant interaction during online events.

Author contributions

AVC came up with the idea for this paper and led the writing. KS was the lead author of the survey and analysed the results. All authors contributed to the editing and writing of the paper and the survey questions.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The authors do not have permission to share data.

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