Third international ECSA conference 2020

Conference report

Encounters in citizen science

Trieste, Italy
6 - 11 September

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Encounters in Citizen Science, the third international ECSA conference, aimed to bring together the citizen science community - citizen scientists and practitioners, researchers and policymakers - to share the latest knowledge and ideas from the field. The conference was due to be held in Trieste, Italy, in May 2020, but as Covid-19 swept across the world, it soon became clear that we would need to move the conference online.

While this presented some challenges in terms of logistics and the loss of face-to-face networking, it also created opportunities. Notably, more people were able to get involved, including those from outside of Europe and those who may not have been able to attend an onsite conference.

Spread across five days, the online conference saw 507 participants involved in 30 sessions, 64 posters, three keynote speeches, three side events, numerous Zoom chats and hundreds of tweets. It would be difficult to capture everything that took place in one document; instead, this report aims to give you a flavour of the ECSA 2020 conference.

Links to the videos for each session are provided, except for those where they cannot be shared for some reason (e.g. the presentations included unpublished research).

Credits
Written by Holly Woodward, Barbara Carneiro, Smriti Safaya and Tim Woods. All images are taken from the session presentations, unless otherwise stated.

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www.ecsa-conference.eu

Participants
www.ecsa-conference.eu/participants

Conference programme
www.ecsa-conference.eu/programme

Content

Forewords

Dorte Riemenschneider, ECSA

"In preparation for the third ECSA conference, 'Encounters in Citizen Science', I visited our conference partners, Sissa Medialab and the University of Trieste, in spring 2019. In the impressive conference rooms by the sea, we started to plan procedures and room allocations. We had no idea of the twists and turns that 2020 would bring. The submissions for the conference had already been received and selected, but everything turned out quite differently to how we had planned, as the Covid-19 pandemic spread rapidly across Europe.

The conference working group discussed extensively whether the conference could still take place, whether we should postpone it to later, or cancel it altogether. With the decision to hold the conference online, we broke new ground in planning, organisation and implementation. Looking back, I am happy to say that we made a good decision.

I am very grateful and proud of the entire Sissa Medialab team in Trieste and the working group that supervised the conference. Everyone involved worked very hard to make the conference happen, and together, they put on the first ECSA online conference. Through the livestreamed city tour and the daily menu of Trieste dishes, the conference kept a nice local flair.

In recent years, interest in citizen science has grown rapidly, both locally and globally. ECSA has set itself the goal of supporting and strengthening this momentum. With its biennial citizen science conference, ECSA creates a space for scientists, researchers and practitioners to exchange ideas, and also to be inspired. It supports networking with each other and, last but not least, creates the opportunity to learn about current research and new guiding ideas in the field.

As you can see from the numerous and diverse topics in this report, there is a lot to learn and new developments to observe. It is very pleasing that the team behind this conference report has created a great overview of the processes and contributions."

Enrico M. Balli, Sissa Medialab

"Being in charge of the ECSA 2020 conference was a challenging and enriching experience at the same time. It started with the aim of organising an onsite event that would have brought citizen science practitioners and researchers, from Europe and across the world, to Trieste; it ended up becoming the first ECSA conference to be held exclusively online.

As local organisers, we worked hard to make sure that the transition from onsite to online was as smooth as possible. We provided participants with plenty of networking opportunities - from traditional coffee breaks to the more innovative disco party - and made sure to include 'a local touch' that gave everybody the chance to virtually 'get a flavour' of Trieste: through the conference bags sent to attendees, the virtual visit of Trieste, and daily recipes with typical local dishes.

Overall, I am satisfied with how the conference went. It featured high-quality academic content (the conference proceedings will be published in a JCOM Special Issue) while, at the same time, it managed to enable Encounters in Citizen Science, which was the theme of the ECSA 2020 conference."

The conference in numbers...

ECSA 2020 had **507** participants, with **60%** female participants…

… who came from
46 countries
in **six** different continents...
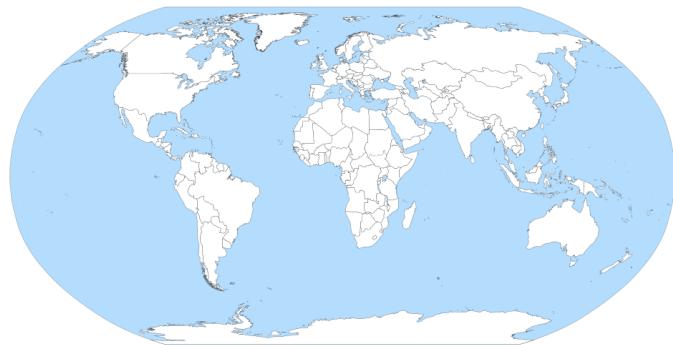
… and took part in:
- **3** keynote sessions with **9** speakers
- **30** presentation and workshop sessions
- **64** e-posters
- **3** side events
- **lots** of networking lunches, coffee break chats, Pilates sessions - and a citizen science disco!

Safe space policy

For the first time, ECSA put in place a **safe space policy**, a commitment to take action against harassment during its 2020 international conference. The policy aimed to ensure that the conference was enjoyable and productive for all participants, where they could come together and express themselves freely. Members of the safe space support team worked together to implement the measures during the conference.[1]

The safe space policy was created as part of **a series of measures** for making the ECSA 2020 conference more inclusive. The work was carried out on a voluntary basis by the Working Group on Empowerment, Inclusiveness and Equity in Citizen Science and Community-Based Research. The group is jointly hosted by ECSA and the Living Knowledge Network. Many people contributed[2] and our work builds on leading examples.[3]

The **safe space policy was needed** because at ECSA conferences, we come together in less hierarchical and more informal ways than people usually experience at their workplace or in their home countries. While this is great in principle, it also entails new challenges. Hierarchies and dependencies still exist in these new joint spaces, and people do not come in with equal positions. This means they do not enjoy the same degree of freedom to express themselves, including the freedom to say "no" to unwanted behaviour. People have felt unsafe, and harassment has happened, at past ECSA conferences. But without an explicit organisational stance against harassment and no infrastructure in place, reporting and responding to incidents in adequate ways was not possible. This was not acceptable, and we needed to change it.

Citizen science is an important opportunity for opening up how science is done - and doing it in a more equitable way. Considering the structural inequities and racism operating in (citizen) science worldwide, there is a lot of work to do if we are serious about wider participation and more democratisation of research - so the opportunities are vast. This work starts with how we build our associations.

- Claudia Göbel, conference committee member for the safe space policy, and co-chair of the Working Group on Empowerment, Inclusiveness & Equity

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[1] The importance of codes of conduct and safe space policies is being acknowledged widely, for example in science, the museum sector, the tech industry, civil society and the United Nations.

[2] We need to mention at least the working group members, safe space support team, Trieste conference organising team, ECSA HQ team, Shannon Dosemagen and Jennifer Shirk.

[3] Sources we drew on are from the Cos4Cloud project, CSA's CoC and implementation measures, Gathering of Open Science Hardware CoC, International Marine Conservation Congress CoC, Public Lab's CoC, Geek Feminism Wiki and the Ada Initiative. It was inspired by many more organisations that have started to position themselves for inclusiveness and justice, such as disciplinary collectives like BARC, Hackdays, scientific societies and technology-focused conferences and collectives.

Day 1, Sunday 6 September

Public event in Trieste

ECSA 2020 began with a public event in Trieste, at which three citizen science apps were shared with the public.

(1) avvistAPP is a freely downloadable app developed to collect sightings of marine organisms, where citizen scientists can simply send a picture of the animal. The app was initially developed to monitor the invasion of the ctenophore Mnemiopsis leidyi (sea walnut) in the northern Adriatic Sea, but can be used to collect sightings of other species, such as dolphins and sea turtles, whose monitoring is often challenging for researchers.

(2) Noixapp is a crowdsourcing/citizen-science solution to measure acoustic pollution in urban areas. It uses mobile phone microphones to acquire data on background noise and send it to an integration platform, which reconstructs a full picture of the area's acoustic space.

(3) SeaWatcher is a new app for collecting geo-referencing observations of marine litter, invasive and protected species, developed by INFO/RAC.
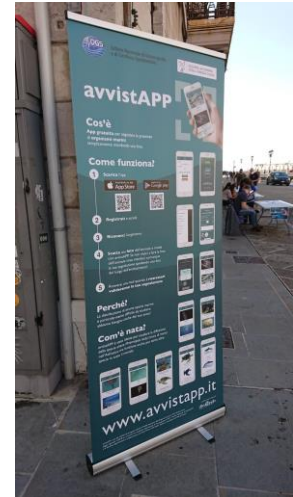
Virtual tour of Trieste

We would have loved to be in Trieste, that beautiful city on the Adriatic! Despite the travel restrictions that prevented this, our hosts made sure everyone got a glimpse of their home city. A virtual tour of the main sights and hidden corners was streamed live via the Trieste Città della Conoscenza's Facebook page.

"Walking around without getting tired!"
@juacochero on Twitter

Opening ceremony

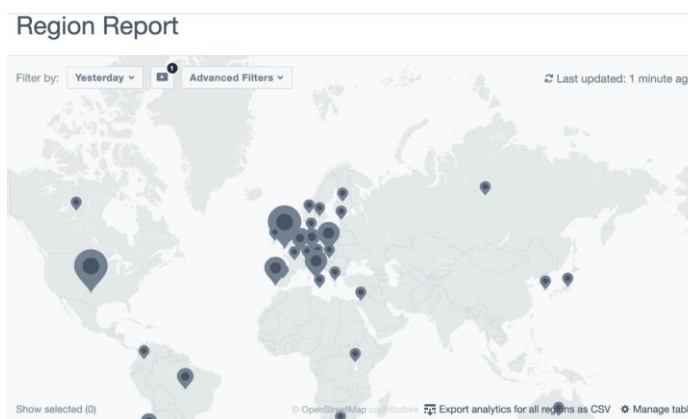The conference was officially opened at 20:45, as a global audience (see opposite) tuned in to hear ECSA's chair, Johannes Vogel, welcome participants. Next, Dorte Riemenschneider, ECSA's managing director, explained why the conference is so central to what ECSA does.

Keynote speech 1: Citizen science in the times of Covid-19

One issue has dominated 2020: the Covid-19 pandemic. Its impact meant our conference had to move online, and it was essential to reflect this. The conference committee therefore added an extra keynote speech to focus on this theme, chaired by Enrico M. Balli.

During the first part, Lucile Ottolini and Jérôme Tricomi introduced Petits Débrouillards, which believes that science and scientific controversies can help people to understand the world and take an active part in social change. The Covid-19 lockdown forced them to shift from practical activities and sensorial experiences to online activities, which were screened and distanced but could reach a wider audience. They explained how this helped them to reconsider the place of volunteers in Petits Débrouillards, from kids and young people to well-educated activity organisers. The popularity of their 17 events, which attracted 850 participants and 39 speakers, demonstrated the need for the community to engage in these issues, and for scientists to connect with the public they serve.

In the second half, Marc Santolini and Thomas Landrain introduced Just One Giant Lab, the first research and innovation laboratory operating as a distributed, open and massive mobilisation online platform for collaborative task-solving. In March 2020, in response to the Covid-19 pandemic, they launched the OpenCovid19 programme, which develops open-source and low-cost tools and methodologies that are safe and easy to use. Their talk shared lessons from the initiative, with insights into how data-driven approaches can help monitor and engineer encounters in digital open science setups. With more than 180 countries getting involved, the goal was to find solutions rather than race to a project first. This meant that some projects expanded while others banded together to become further refined to address the issues at hand.

Session video: watch online

"Interesting approach from #OneGiantLab to broaden the base for participation in #CitSci @EuCitSci #CitSci2020. Lockdown providing more opportunities to develop digital communities"
@Rick_Hall on Twitter

Day 2, Monday 7 September

Session 1: Citizen science and the SDGs I

How citizen science can support the Sustainable Development Goals (SDGs) is a major theme in the field of citizen science at the moment. Indeed, the 'Knowledge for Change: Citizen Science and the SDGs' conference was held in Berlin shortly after ECSA 2020.

Reflecting its prominence, one of our opening sessions focused on this theme. The presenters showed that citizen science could contribute to 33% of the SDGs indicators. And, considering the SDG principle to "leave no one behind", it drew on recent research to ask: who is still being left behind by citizen science?

Rosy Mondardini, from the Citizen Science Center in Zürich, started her presentation with an overview of the SDGs and how citizen science can help with defining, monitoring and implementing them locally. This was followed by Madeleine Cléa Montanari, who presented the UN Agenda 2030's overarching principle (Goal 17 "Leave no-one behind"), stating that all goals should be achieved by all human beings, to address the issues of inequality.

"A great session from @MontanariClea on identifying who's being "left behind" in #CitizenScience projects (around SDGs) & presenting a framework to integrate more inclusionary practices
@EuCitSci #citsci2020 #ECSA2020"
@ShlinVR on Twitter

Session video: watch online
Session slides: available here

Session 2: Citizen science and nature

This panel session discussed how citizen science can connect people to nature, and empower them to understand and protect it. The presenters used a Mentimeter poll (below) to ask participants their views and kick-start conversations. Rachel Kelly then highlighted the importance of the three dimensions of nature connectedness: (1) feelings towards nature; (2) knowledge and belief about nature; and (3) actions and experiences in nature. Her research investigates the social dimensions of natural resource use and management from an interdisciplinary perspective, and ways to combat the increasingly disconnected relationship with nature from which many people – and especially urban populations and youths – suffer.

Referencing research showing the positive relationship between time spent in and around nature and well-being, Aletta Bonn posed the question of whether citizen science could act as a trigger to encourage greater connections with the environment. This linked to further queries about ways to measure the impact on well-being of different types of citizen science activity, and the demographic and cultural contexts of participants.

Similarly, Assaf Schwartz acknowledged in his presentation the danger inherent in the positive feedback loop between increasing urbanisation and reduced access to nature. A study of 303 students and their differing styles of interacting with nature revealed meaningful engagement with nature had a greater psychological impact than if they simply walked more slowly with their phones turned off in a natural setting.

Michael Pocock seconded Aletta Bonn's reference to nature and well-being with anecdotal examples from the UK, where increased informal experiences in nature during the Covid-19 lockdown acted as a form of stress relief. Sven Schade argued for the importance of green infrastructural design to increase the quantity and quality of nature connectedness in urban settings, keeping in mind the varying cultural contexts within cities, and the opportunities that citizen science initiatives can create to bring people to nature.

This dialogue will be combined with a literature review to develop an article about how to link and empower people to protect nature through citizen science.

> *"We [Scivil] have a very engaging project in Belgium called Vespa-Watch: it only focuses on one single species, which makes the whole thing a bit more 'easy' for people to grasp. Especially if it is an invasive species. They feel like they are protecting Belgium from dangerous animals"*
>
> Session chat[4]

Session video: watch online

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[4] Each session had a chat function for participants to make comments. A selection of these have been included in this report.

Session 3: Citizen science and the SDGs II

Discussions on how citizen science can support the SDGs continued after the coffee break. Linda See and Dilek Fraisl from IIASA presented recent research about the value of citizen science for the SDGs, with examples of how it currently contributes to SDG monitoring, and where it has the potential to contribute. A key idea was that citizen science can help to define the challenges and set priorities that are closely linked to people's lives; to monitor the factors with high-quality data at higher spatial and temporal resolutions; and to help implement specific goals.

> *"How can we add #CitSci to the official local, state & federal government's @UN statistics? It's really all about #communication. Does #scicomm need to be added for politicians?"*
> @CitSci_Geek on Twitter

Following this, Marijn van der Velde, Jacob van Etten and Anett Richter honed in on food and agriculture, and proposed the formation of an ECSA working group on this theme. The response from participants was largely in favour, with several potential benefits being highlighted. The presenters invited people to be part of the process of setting up this working group, and to co-author a paper on the subjects discussed, which will be presented at the next ECSA conference in 2022.

> *"Very much support such a working group Marijn and Jacob; I feel this group is really needed and has big potential"*
> Session chat

Session video: watch online

Session 4: Citizen science and health I

The potential for citizen science and health is another rapidly growing area of interest within the field of citizen science, and this was reflected in the conference programme, with many presentations and e-posters on health-related subjects. Our first session on this theme included four separate presentations.

In 'Serious games and public health citizen science', Ann Borda explained how this public participation approach can support public health outcomes, including through citizen science. Drawing on a recent research study, there is evidence of an increase in higher agency participation (of those with lived experience) in serious game design for supporting public health interventions (e.g. mental health, hygiene) using forms of localised participatory action research, co-design and participatory epidemiology.

Next, Nils Heyen talked about 'patient science', a new citizen science approach for medical and health research. He detailed a project in which professional and citizen (patient) scientists jointly planned, implemented and evaluated a study on a chronic disease from which the patient scientists themselves suffer. He also reflected on the potential and limits of this patient science approach. The limits include the lacking physical resilience of the patient scientists that affects the project management as a whole; whereas one of the main areas of potential is the systematic use of the patients' expertise in everyday life and coping with the disease.

This was followed by another project case study, presented by Kirsten Bevelander. The platform 'Crowdience' was used to crowdsource knowledge and experiences from people suffering chronic pain. The crowd-generated insights were compared to insights from traditional focus group sessions. The study shows that crowdsourcing can reveal more sensitive insights about people dealing with chronic pain (e.g. depression, (sexual) relationships), probably due to the anonymity of participants on the platform.

The final presentation, by Antonella Ficorilli, focused on ethical approval in citizen science research, focusing on environmental epidemiology. The presentation provided information about the strategies envisioned by the CitieS-Health project to address the main ethical issues identified. Among these is the adoption of a two-step ethical process to ensure the full involvement of citizen scientists, and the introduction of new elements in the study protocol and related documents that take into consideration their new and active role. Also, this presentation discussed the feedback provided by some ethics committees during the process of ethical approval.

The participants in attendance had many questions, highlighting the depth of interest in this field – and suggesting this could be an even more significant field of study for citizen science in the future. One welcome feature of this online conference was participants responding to each other's questions in the session chat feature, while the presentations took place.

Lunchtime events

To give everyone a taste of Trieste, our hosts provided a daily menu of local dishes to prepare. The dishes for the first full day of the conference were *gnocchi de susini*, *chifeleti* and *palačinke*.

During the lunch break, two networking events also took place. At one, the new EC project Crowd4SDG, one of our conference sponsors, introduced their project and the #Open17Water challenge, in which young innovators aged 16-26 can pitch their ideas. Those selected will receive online and in-person coaching, provided by the Crowd4SDG partners, to develop their idea into a sustainable project.

Meanwhile, the ECSA networking lunch gave participants the chance to ask ECSA people – HQ staff, board members and working group chairs – about their role in the association and their own background in citizen science.

"Very much enjoyed the #citsci2020 lunch session. Thanks for this format."
@Anett77Richter on Twitter

Vegetarian Jota (cat not included!)
Photo: Smriti Safaya

Session 5: Networks and communities of practice

This session began with a discussion about how we can co-create value with participants in communities of practice (CoPs) on citizen science. Led by Uta Wehn, Dilek Fraisl and Joan Masó, the presenters shared their own experiences of CoPs before responding to questions from the session's global audience.

This discussion was followed by two specific examples of network-building in citizen science. The first presented lessons from the WeObserve project to strengthen the awareness, acceptability and sustainability of citizen observatories in Europe. Next, the ECSA working group on citizen science networks shared the inclusion criteria for projects that they are developing through an open process, and invited participants to provide feedback on their first draft of these criteria.

"#CitSci2020 Networks and communities of practice - Uta Wehn talks about not leaving out people (collaborators) whose primary interest is not publishing papers"
@PrivacyHCI on Twitter

"Everyone on the #CitSci2020 Vimeo chats are saying "Hi from London!" "Hi from Argentina!" "Hi from Amsterdam!" "Hi from Norway!" "Hi from Brazil!" "Hi from Maryland US!" Citizen science is such a worldwide thing :-)"
@PenguinGalaxy on Twitter

"Glad also to see participants from Africa (Uganda & South Africa) in the 'Networks and communities of practice' session."
@jakojellema on Twitter

Session video: watch online
Session slides: Part Two / Part Three

Session 6. Air quality and citizen science

There is an ECSA working group on air quality, which consists of people active in a great diversity of citizen science projects that measure air quality. At this session, members of the working group presented the work they do, such as European Clean Air Day, and debated whether air quality data is available to everyone.

One of the talks in this session was about AIRbezen, which measures pollution on the streets of Antwerp by planting strawberries near roads. Citizens plant the strawberries and, after two months, cut off some leaves for researchers at the University of Antwerp, who measure particulate matter concentrations on the leaves.

Leisbeth Cuyers shared the results of a survey of the opinions of Flemish people on environmental science, which indicated that the success of this air quality project hinged on the issue being of significant concern to participants. The citizen science experience allowed them to learn more about local air quality and take further action with their policymakers. The session concluded with a panel discussion.
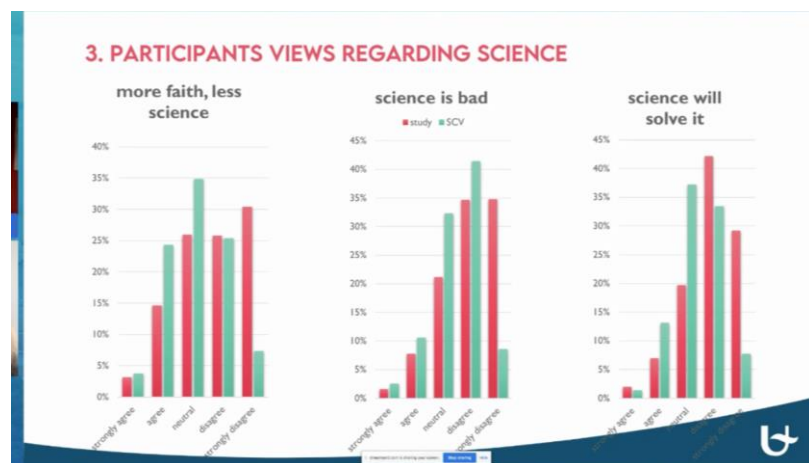
"Nice seeing this after the establishment of the Air Quality Working Group in 2018
- at the last ECSA conference!"
Session chat

Session video: watch online
Session slides: available here

Session 7: Citizen science and humanities

Session 7 opened with Barbara Heinisch presenting 'citizen linguistics' and a case study of the dialect of the German language in Austria. The project aimed to get citizens to design research questions in linguistics and included a 'treasure hunt' to collect data.

Next, Rita Campos from CES-UC in Portugal spoke about citizen social science and their internship programme, which allows students to design and implement social science research projects. She highlighted the limited participation of the social sciences and the humanities in citizen science, and advanced the idea of a new project on citizen social science, aiming to widen this participation while promoting an active engagement and shared responsibilities between scientists and citizens.

To end the session, Matthijs Begheyn spoke about the Citizen Science Lab Leiden, which has a range of projects that encourage interdisciplinarity and referenced resources to provide training and co-created learning materials, as well as criteria to review citizen science proposals.

> *"It is so nice to see the framing of a research process in contexts that are different from natural sciences. The methodological challenges seem similar."*
>
> Session chat

Session video: watch online
Session slides: Part Two

Session 8: Citizen science case studies: insect monitoring

Anne Bowser began Session 8 by talking about the Global Mosquito Alert Consortium, and how the project has grown to include more species, as well as data on mosquito bites and breeding sites. This network has helped new projects to establish, such as a malaria control project in Rwanda and the Three Mosquiteers project in Cyprus.

> *"How does Mosquito Alert handle the issue of potentially putting recorders at risk of being bitten by mosquitos? I am asking as we are planning a CS project with allergic plants. Do you have any specific policies in place to "protect your recorders"?"*
> Session chat

This was followed by Roberto Torres' presentation about Melanogaster: Catch the Fly!, the first European network of citizen science in adaptation genomics. Based in Spain, it works with citizens in rural areas to collect Drosophila for at least five years: not just to gather data, but to engage people in science and help them realise they are part of something big.

Nadja Pernat then introduced Mückenatlas, which tracks invasive and native mosquitoes in Germany, with citizens being called upon to catch mosquitoes for science. Her talk explained how news coverage of the Mückenatlas has affected the number of submissions, both in terms of time and space, thus demonstrating the value of time spent on media engagement.

> *"Some people feel guilty about killing the insects, but appreciate that it has a value"*
> Nadja Pernat, presenter

The session concluded with Susanne Hecker and Anders P. Tøttrup sharing InsectMobile, a citizen science insect-monitoring project which uses car nets and engaged volunteers to sample insects in various land-use types. After starting in Denmark, the methodology has been adopted and run as a scoping study in Germany. The speakers shared the preliminary results, which are linking insect biomass and land cover type, while also exploring motivations for taking part.
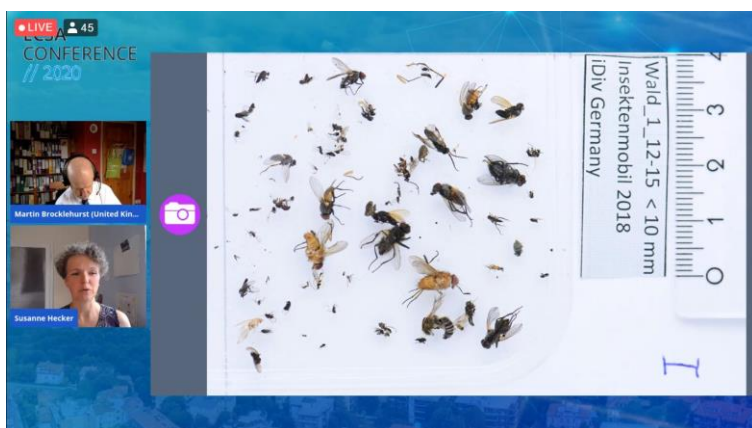

Photo: @Spotteron

Keynote 2: Interaction Design Encounters Citizen Science: Seeing Eye to Eye!

Muki Haklay chaired our second keynote talk, but first he thanked the conference team, organising committee and sponsors for the time and effort invested in organising the conference, first in Trieste and then later moving it online. He also highlighted the importance and need to work on inclusion, as well as the conference safe space policy.

The keynote session that followed was divided into two parts. Firstly, Muki talked to Jennifer J. Preece about encounters in citizen science: specifically human-computer interactions. She explained how interaction design and citizen science are two communities that encourage broad participation, and that when everyone commits to understanding each other, and each other's disciplines, new ideas emerge. This was followed with a discussion, held on the conference's Zoom channel, about the journal *Citizen Science: Theory and Practice*, of which Jennifer is the editor-in-chief.

Photo: @MICSproject

Usually, such evening debates and deliberations would take place at the venue and with something refreshing to hand. Yet, despite our concerns about whether it would be possible to recreate social environments in an online conference, these virtual social channels proved popular, and even brought their own benefits, as the flash feedback from the first two days of the conference highlighted (next page).

Session video: watch online

Thoughts and reflections on Days 1 & 2

Here are some of the comments and feedback we received during days 1 and 2, in the session chats and on Twitter.

"It's less intimidating to paste your questions on the chat."

"There's more chance to get conversations going during the sessions [than in a face to face setting]"

"I like that the questions are answered in some kind of community effort."

"I was so excited to go to Trieste! Someday ... :)"

"I love the little coffee spots and chillout spaces."

"It's great to have so many Australians present ... they deserve a medal for staying up so late!"

"We are definitely getting global with this conference"

"The side chat is very enjoyable and possible to discuss with the participants. Opportunity for different types of personality, for extroverted people that just can type what comes to their mind and introverted ones that can think about and formulate questions."

"Superb use of a variety of online platforms and keeping the programme well paced"

"Fantastic performance by the core team - the ECSA Conference will never be the same again - the new normal will be very different."

"Congrats to all for making this possible despite all of the odds. It is a wonderful set of talks and a very easy to navigate set of experiences."

Day 3, Tuesday 8 September

Session 9: Participation in citizen science

Volunteers are an essential component of any citizen science project. In this workshop on participation, the early focus - in the presentations and the session chat - was on 'superusers': those making thousands of nature observations throughout the year, rather than just a few. But what are the motivations of these superusers? What are their typical demographics? Do they take on additional roles beyond data collection and reporting?

As well as superusers, there are those who contribute and want to take things further through various forms of activism. Furthermore, engagement with project participants can go beyond what was initially planned. The presentations in this workshop covered different scientific fields – biodiversity, chemistry and hazard mapping – but all asked: for what reasons do people take part in citizen science projects?

After the presentations, the discussion moved to Zoom. The breakout rooms hit a technical hitch, but this allowed more time to respond to questions raised during the presentations, such as the benefits and challenges of managing 'dabbler' communities and superuser communities; whether data quality is an issue for dabblers; the barriers to becoming a superuser; how we inspire people to move along the 'journey'; and whether projects should even being doing this.

🔒 9. Participation in citizen science [LIVE]
Live at 3:58 AM September 8, 2020 | More

"#CitSci2020 "Participation in citizen science"
session today at @EuCitSci conference. So inspiring and engaging to see efforts worldwide"
@web2learn_eu on Twitter

Session video: watch online
Session slides: Part Two

Session 10: Citizen science and health II

This interactive session discussed citizen science and health, with the focus on opportunities and project design. The panellists included Gaston Remmers, Sabine Wildevuur, Lea den Broeder, Bastian Greshake Tzovaras and Martijn de Groot.

The presenters ran an interactive questionnaire on Mentimeter to involve the session audience (see image below), and it was interesting to see questions being answered in real time. Questions included: what background people had; which country they were from; which issues were unique to health domains in citizen science; how people felt their citizen science health programme was managed and directed; and what made their projects successful, as well as what the shortcomings were.

> *"Great session 'Enhancing health through citizen science' by @BeyondRCT @grootm75 @leadenbroeder Sabine Wildevuur and @gedankenstuecke Thanks a lot, nice to see these insights on where we stand and the next steps for CS4H."*
> @Crowdience_NL on Twitter

> *"Great workshop session on#CitizenScience and #health at #citsci2020 very interactive, showing the importance of #citizenscience in #health #research"*
> @bkieslinger on Twitter

Session video: watch online

Session 11: Data issues

Session 11 comprised four talks about a key issue in citizen science: data. Anne Bowser and Peter Brenton started the discussion by talking about how data flows from collection, through data aggregators and on to applied uses by third parties – and the importance of data quality and standards in streamlining and maximising the value of this data. They recognised that "no data is perfect", but "fitness for use" should be the aim when managing issues about data quality.

Next, Andreas Matheus explained the GDPR and how this affects citizen science, drawing on the LandSense project's experiences, especially Authentication as a Service (AaaS), which the project used to support logins from social media and academic institutions globally via eduGAIN, and ensure users' personal data was secure and remained private. It wasn't easy, but it did work
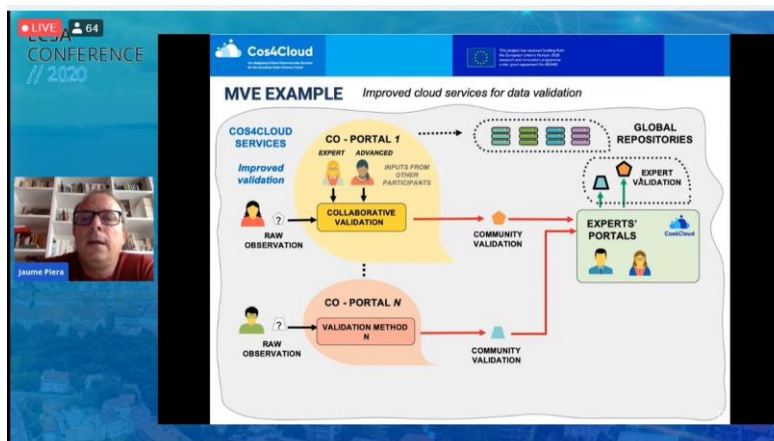
Jaume Piera then presented the Cos4Cloud project, and how it aims to address the challenges facing citizens' observatories, such as the need for more data, and the need to make data collected more accessible, through interoperability and ensuring platforms are "talking the same technical language".

Wrapping up the session, Bastian Greshake Tzovaras talked about empowering individuals and communities to use personal data for citizen science, offering a more positive perspective on the often thorny issue of personal data. Building trust and communities are important attributes of the project's governance, as is ensuring there are discussions about what participants are comfortable with. He shared the example of Open Humans, a community-based platform that allows members to collect their data and gives them tools to explore it, along with controls on their data – all of which supports participant-led citizen science.

"This user guide on Data Management Planning for Citizen Science might be helpful? Link here: http://www.ukeof.org.uk/our-work/citizen-science"

Session chat

Session video: watch online

Session 12: The EU-Citizen.Science platform

Session 12 provided participants with a closer look at a major new initiative in the field of citizen science: the EU-Citizen.Science platform. Members of the team behind the platform, including people from ECSA, guided the audience through the services the platform provides, and the very broad community of users for which it has been built. There was also an introduction to the high-quality resources, training and networking opportunities that the platform will host.
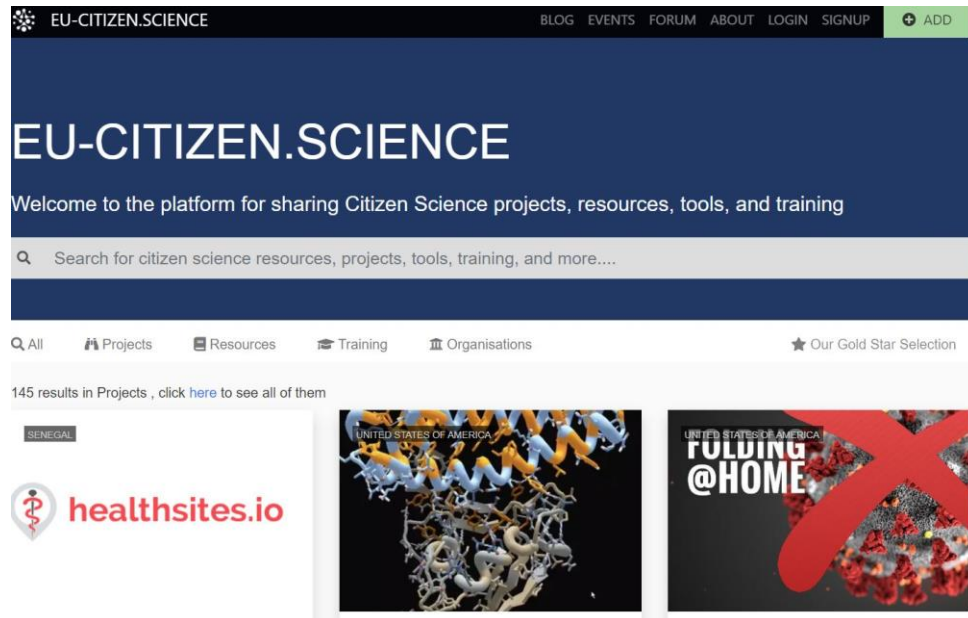
"My question to the platform people: How can EU policy makers use the platform? I wish to see more uptakes of CS findings by policy/ decision makers."

Session chat

Session video: watch online

Sponsored lunch with JCOM

The Tuesday lunch break was hosted by one of our conference sponsors, the *Journal of Science Communication* (JCOM). Held on Zoom, the journal's editors shared the virtual stage with a number of guests, who shared their views on how the Covid-19 pandemic has reshaped social relations in many ways, including the flow of information around the globe.

Joseph Roche presented the EU-Citizen.Science platform and discussed how this can foster engagement and participation for citizen science. He noted how the platform will hopefully support engagement across many countries, especially those that don't yet have their own networks for citizen science. Next, Luisa Massarani talked about the impact of Covid-19 on publishing, highlighting how the pandemic has affected countries and sexes differently. Concluding the talks, Marina Joubert shared how South African newspaper cartoonists portray the coronavirus. Padraig Murphy moderated these talks.
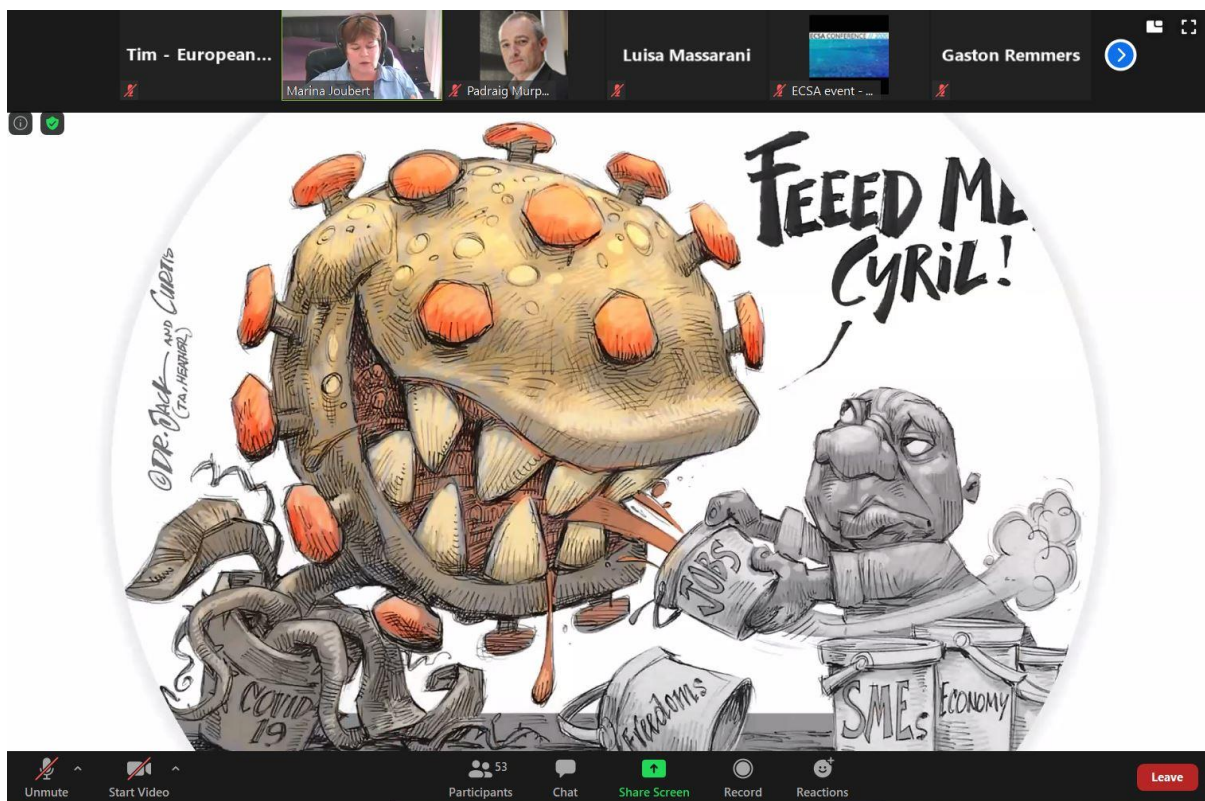
A cartoon used to portray the COVID-19 pandemic in South Africa.

"Importance of colour and detail in the illustrations, but cartoonists simplify and exaggerate structures. Importantly, they also anthropomorphise the virus."
@e_weitkamp on Twitter

Session 13. Citizen science case study: cross-cultural settings

The focus for this session was the X-Polli:Nation project. This National Geographic-funded project 'cross-pollinates' knowledge and technology to achieve three aims (the 3 P's): recording Pollinating insects; improving citizen science Practice to create a global pollinator network; and supporting People to gain the confidence to become passionate pollinator stewards in their local communities. The session was fully interactive, with the presenters responding to queries in Padlet, on Twitter and in the conference chat box.

After providing an overview of progress to date, the presenters introduced the project's innovative tools, such as the pollinator ID kit, which citizens can use, for example, to tell one bee from another. The presenters then explained how the project moved to Italy – a launch that has been delayed thanks to Covid-19! The project will pick up again once the schools reopen, raising awareness of the problems pollinators face, and providing ideas to help address this, such as creating pollinator-friendly habitats.

The final part invited delegates to comment on the potential for setting up a pollinator citizen science community across Europe, before discussing the topic in more detail in a breakout Zoom session.

Photos: X-Polli:Nation Booklets in English and Italian and the Padlet chat on creating a pollinator citizen science community

Comments from the session chat:

"Inspired project. I'd love to have something like that for our stingless bees in Brazil."
"That's fantastic that an educator is helping to make the tools and resources for other educators!"
"I hope that you'll share all of these great projects and resources on the EU-Citizen.Science platform!"

Comments from ECSA organisers:

"Thank you very much for a highly interesting session: very well presented and chaired and appreciated by the attendees"
"Thank you for your session today, it was really inspiring and I loved the Pollipromises! I will do my best to share it!"

Session video: watch online

Session 14: Citizen social science

The focus of this session was citizen social science methodology, and examining the cultural and social practices of citizen science research. The talks focused on ethics, journals and the definition of social sciences in citizen science.

One presentation focused on ethics and the boundary framework. This consisted of invisibility (the citizen scientist being made invisible), autonomy and insufficiency. Next, the talk on artificial intelligence (AI) highlighted how AI projects create a disparity between those who have technology/access and understanding, and those who don't. There are also questions to be asked about ethical engagement and how project design can be inclusive.

The session closed with a proposal for seven principles for citizen social science. Most important is that citizen social science must focus – beyond the objective givenness – on the social construction of social reality that requires interpretation and understanding of socio-cultural meaning, communication and social action. As a consequence, citizen social science should take citizens' social concerns and issues as its main thematic focal point, and consider citizens' participation as a key feature of all stages of the research process.
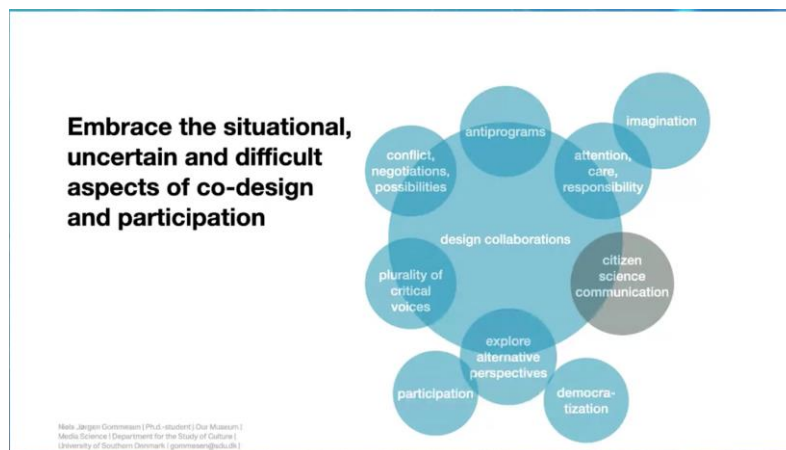
Session video: watch online

Session 15: Citizen science and environmental policy

Jennifer Shirk (Citizen Science Association, USA) opened this session on environmental management and regulatory agencies, with perspectives from US agencies that provide infrastructure for effective projects; fisheries were used as an example.

> *"Think about the value of investing in citizen science, not just the cost"*
> Jennifer Shirk, presenter

Next, José Miguel Rubio (European Environment Agency) talked about the European Environmental Protection Agencies (EPAs) Network, in particular its Interest Group on Citizen Science, as a forum working with government agencies across Europe to engage in citizen science and environmental policy. He pointed out the UKEOF Citizen Science Working Group as an example of a similar forum at the national level (UK). The next example was given by Hester Volten (RIVM), who shared updates about air quality initiatives by the Netherlands' National Institute for Public Health and the Environment (RIVM).
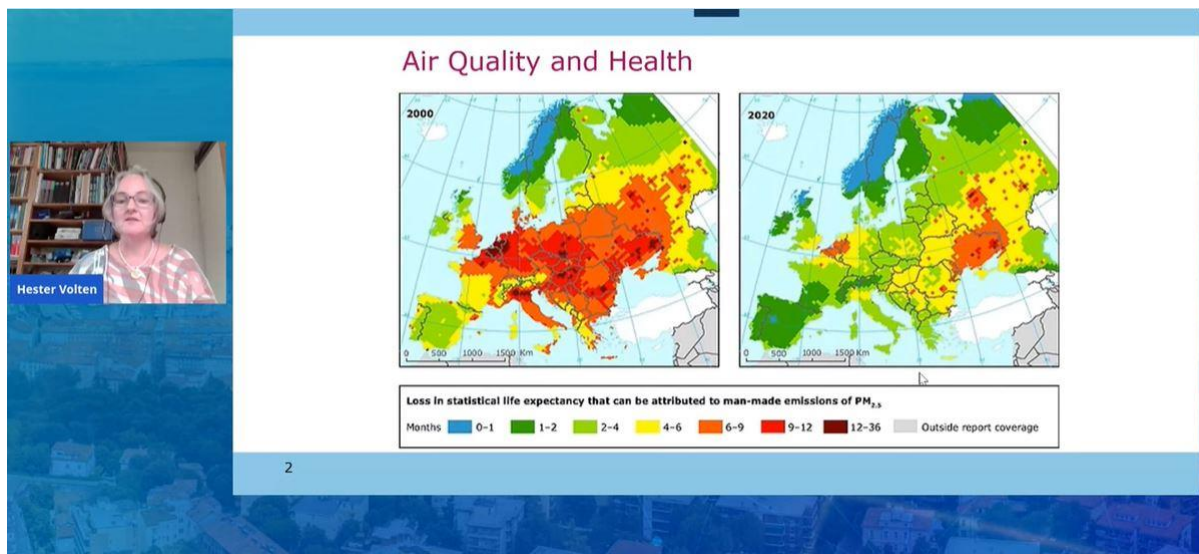
The session was closed by Kim De Rijck (European Commission), who presented the recently published EC document 'Best practices in citizen science for environmental monitoring', which targets both public authorities and citizen science communities in order to maximise the impact of citizen science activities in environmental monitoring and policy.

> *"Everything has a cost and creating the communities is highly costly... it is a pity that the projects die after the funding is over if they are valuable for environmental monitoring/policies"*
> Session chat

Session video: watch online
Session slides: Part One / Part Two

Session 16: Citizen science and mobile apps

Mobile apps are used in a number of citizen science projects, and the talks in this session covered themes such as app design, communication through app development, and potential problems.

There was a focus on the importance of app development in terms of design, not just technical development. Sven Schade highlighted this by presenting the typical myths associated with citizen science projects and mobile apps. The talks focused on trying to communicate the importance of design, which includes proper data intake, a purpose and a meaning.

Other aspects of mobile apps covered during the session included multi-way conversations, knowing one's audience to create the most appropriate app or design, and always having a plan for adaptation to ensure the success of a citizen science project.

"@Friederike, it's quite neat to learn about the meteor app you have worked on! I have only previously heard about the Fireballs in the Sky project here in Australia (http://fireballsinthesky.com.au/). It was also brilliant to learn of your tech design process!"
Session chat

Session video: [watch online](#)

E-poster sessions 1-12

Our first batch of e-posters covered several themes:
- Citizen science centres
- Biodiversity
- Digital and technology
- Environment
- Ecology

With only five minutes per poster, there was little time for 'live' questions, but a lot of discussion took place in the chats for each session, as well as on social media. Here are just a few of the questions, suggestions and responses from participants.

P1.1 "Thank you Ricardo! Well done for doing so much in a science centre!"

P1.2 "I think one the great strengths of US libraries is that they are one of the few places where all socioeconomic segments of the community still gather together."

P2.1 "If you want to have a look at some of our results, you can check our website https://www.natura-alert.net/explore."

P2.3 "Project-specific content knowledge is the main learning outcome from participating in online citizen science projects. But there is not much literature about young volunteers and online informal settings out there."

P4.1 "We looked at the design of CS projects, at what we called project factors, we are still analysing the data. I am already very curious about the results. Ask me again in a month or so…"

P5.2 "I'm using Marine Debris Tracker right here in Belgium, great app :-)"

P6.1 "@Liselotte: thanks a lot for the presentation! Would be very interested in the interaction with local policymakers you have had!"

P6.2 "We hope that you can help us map odours all around the globe through odourcollect.eu (either via web or by downloading our App). Thanks so much!! :)"

P7.2 "We love OSM, it's so great what you do not only for Citizen Science, but for the whole web community! #fanpost"

8.2 "Thanks @Michael are you planning to work with the new EU.Citizen.Science platform?"

10.1 "Beautiful project and poster Federica!"

10.3 "Patricia, these audiences are quite different. Is there any potential for conflict, e.g. between hunters and birdwatchers?"

"@Kate, there are for sure but with education we believe that can reach a commitment"

11.2 "Crowdsourced imaging is such as useful tool"

11.3 "very interesting game. Which are the main goals of the game? Participations, engagement, cooperation, competitively, etc."

12.2 "Really nice project Onno! We are developing a platform to share similar reports worldwide in coordination with the local communities and indigenous peoples platform. https://opentek.eu/licci"

Session videos (1/3/5/7/9/11): watch online
Session videos (2/4/6/8/10/12): watch online
E-posters: available on the conference website

Thoughts and reflections on Day 3

At the start of Day 3, we asked StickyDot to create a Padlet where people could add anonymous feedback. This was done to ensure we got to hear the criticisms as well as the praise! A selection of comments are shared below.

"It's harder to attend later sessions when you are at home,
when the kids come back and you need to prepare meals.
A 9 to 5 format might make it easier to plan the day."

"I miss the applause at the end of the sessions…"

"I would like to thank everyone who contributes to the chat conversations.
You do not only get replies from the speakers but also from other
participants and this has been very valuable. So thanks everyone!"

"I keep missing live talks as I get my time zones muddled or forget them.
Having a calendar subscription or similar to automatically update my diary
would be really helpful for future events."

"I think having some more testing time would have helped the chairs
and presenters to be better prepared for the online format. Also
maybe support groups for those of us that struggle with some of
the programs used"

"I wouldn't have been able to come if not for the online and reduced rates,
so this is awesome! I hope to be able to go in person at some point."
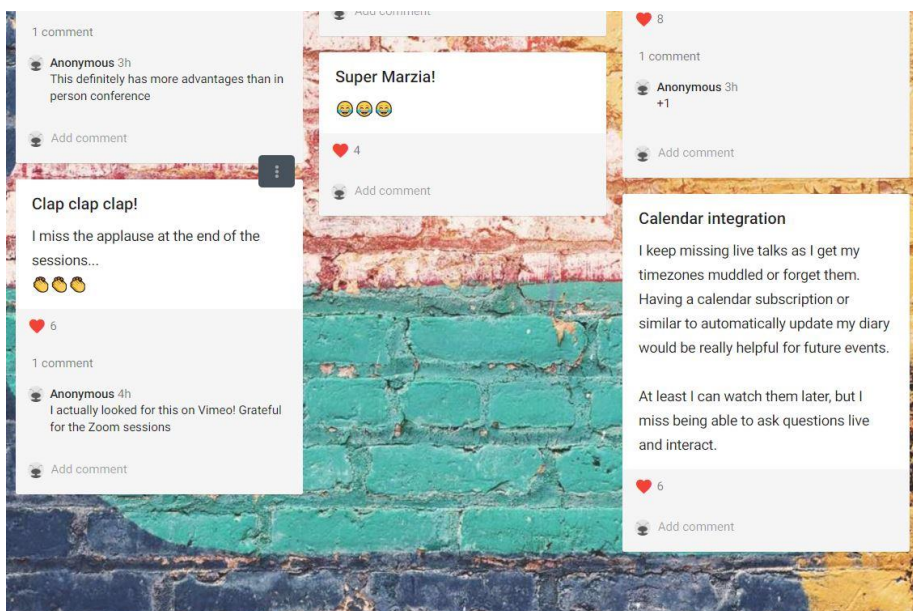
Day 4, Wednesday 9 September

Session 17: Engagement in citizen science

This workshop was titled 'You've got the buzzwords, have you got the people? A highly inclusive engagement model to tackle socio-environmental issues using citizen science'. Speakers included Maria Alonso Roldán, Lucía Errandonea, Simone Rüfenacht and Nora Salas Seoane.

It opened with a video about the D-NOSES project, explaining what odour pollution is and what the main issues are around this topic. Next, the speakers discussed the project's quadruple helix stakeholder approach, co-creation and data collection design, focusing on the aspect of inclusiveness throughout. The session also featured Mentimeter polls to engage the audience in thinking about how they would have approached such a project.

The speakers discussed one of the project's pilot studies, explaining how they applied the D-NOSES methodology in an odour-impacted community. The session finished with discussions around ethical issues, challenges that have come up in the different pilot studies, and how these were addressed. In this way, the speakers covered the full process of a project: from project design and launch, through the engagement and data collection, to the lessons learned - with D-NOSES being the example. Throughout the session, inclusiveness in a citizen science project was at the centre of the discussions.

"Thank you for the presentation, your project is the closest I heard about "how CS projects should really be done"! However, I wonder ... how many people where involved from the CS team? How many resources?"
Session chat

"Whoever we engage first, we are transparent and share our plans and manage expectations. Likewise, we are open about who we have already engaged."
Hannah, D-Noses

"Many countries don't have any odour regulations at all, and there's no EU-wide approach yet. You can start collecting data and reporting at http://odourcollect.eu. In fact, our noses are better sensors than any machine we know of. #CitSci2020"
@PenguinGalaxy on Twitter

Session video: watch online
Session slides: available here

Session 18: Evaluation in citizen science

To begin this session, Katja Mayer explained how the CoAct citizen social science project uses a co-evaluation approach. Co-evaluation is a form of participatory evaluation initiating the conversation on expectations, objectives and impact at the very start of the project already in research design. The main difference between co-evaluation and conventional types of research evaluation is that participants are also involved in the decision on project goals and evaluation instruments. Besides all the benefits, with the Covid-19 the challenges and limitations of this approach moved into focus, such as the transfer of co-creation activities to online spaces and related ethical and legal issues.

Luigi Ceccaroni was the next to present, talking about developing metrics and instruments to measure the impacts of citizen science – on society, governance, the economy, the environment and science.

> *"Think about impact at every stage of your project design ... what will be the change in society, the change in policy, from your actions?"*
> Luigi Ceccaroni, Earthwatch

To wrap up the session, Anna Cigarini shared some findings about measuring impact in participatory research, using the InSPIRES Open Platform evaluation tool as an example. She stressed the need to understand evaluation as an harmonised, co-learning process among all actors involved, through: (1) open, shareable and comparable data that allow the identification of commonalities and differences between projects as a reference point for overarching cross-projects discussion and analysis, and with a privacy-by-design approach; (2) real-time feedback on the research process and the results obtained, as 'payback' to project members; and (3) a strong focus on collective discussions with project participants, to build reflective and evaluation capacity, as an integrated activity and not separate from other projects tasks. This may help to overcome the perceived burdens often associated with evaluation tasks, and the sceptical beliefs and negative attitudes towards evaluation.

Discussions then shifted to a Zoom social room, in which the presenters answered more of the questions raised by participants.

Session video: watch online
Session slides: Part One / Part Two

Session 19. Fragile contexts and indigenous communities

Session 19 opened with a talk about indigenous communities and environmental justice. Artemis Skarlatidou, chairing the session, began with a talk on extreme citizen science, and how citizen science needs to be adapted in non-western contexts to be deployed effectively with indigenous communities and in fragile contexts. This was followed by a talk about tools, methods and protocols that can be employed with indigenous communities. Examples were given from the Democratic Republic of Congo and Brazil.

Next, there was a talk from Petra Benyei on how non-western knowledge can be integrated into citizen science. The case study presented was OPENTEK, an open source platform for documenting traditional ecological knowledge. Rick Hall and the presenters then discussed the NightWalks project, where refugees walked in woods and green lands at night.

Dimitris Argyriou presented a case of an ICT-based forest-monitoring approach led by indigenous communities in the central plains of Cambodia. The project is supported by an innovative partnership that has led to a robust advocacy approach. Nerea Turreira Garcia concluded the session by laying out the common challenges and opportunities faced by all projects that apply citizen science in fragile contexts and with indigenous communities.

Good practices I

- Involve local people right from the start: bottom-up approaches, address local needs, co-design, build trust
- Understand local context fully
- Take a transdisciplinary approach
- Promote local knowledge and agendas
- Pay close attention to how global CitSci initiatives intersect with local ontological propositions about the world and local epistemic practices

Good practices II

- Follow research ethics and codes of conduct (FPIC, respect customs, ...)
- Think of low tech solutions and solutions that allow data sovereignty
- Follow iteration loops, and constantly re-examine the goals and the means
- Be humble, climb off the scientific pedestal and recognise and allow other forms of knowledge, patience

The projects involving indigenous groups are vast, from salmon fishing to illegal logging in Cambodia and other parts of the world. This diversity was thoroughly discussed in this session, leading to a fascinating discussion with a very active session chat where people shared their own experiences of working with such groups and in these contexts. Participants were invited to be part of further discussions by responding to a survey, which will potentially lead to a research paper about citizen science in fragile contexts.

"In Namibia, participants were people (local eco-guides/rangers) who were already engaged in monitoring and reporting efforts and had existing relationships with anthropologists (in this case, me) who were connected to ExCiteS in some capacity."

Session chat

Session video: watch online

Session 20. Inclusiveness and equity in citizen science

The discussion in this session began with a talk by Michael Søgaard Jørgensen and Marta Câmara Oliveira about framing inclusiveness and empowerment within environmental citizen science. How can empowerment, inclusiveness and equity be strengthened as aspects and results of citizen science? One of the main findings was that different geographies and fields of study present different definitions of citizen science. To be inclusive and equal requires time and knowledge of the different social-cultural-political contexts, as well as a willingness to adapt to these, and to listen and communicate, not simply inform.

The session moved on to focus on methods of communication and the ways in which you can get involved in citizen science. Caroline Nickerson looked at using open-access science communication for widespread inclusiveness and empowerment in citizen science. She gave examples such as blogging, and helpful tips and advice about how to communicate clearly.

The panellists finished with a quiz about engagement examples, followed by an interesting discussion, moderated by Ayelet Baram-Tsabari, including questions on imposing values to others (or not) within a citizen science project.

Slide from Caroline Nickerson's talk

"Plain language is super important I think! Letting citizens tell the story - invite them to blog or write tutorials - is super useful. It gets you used to non-academic language, and what they write will probably be clearer to newcomers to projects."

Session chat

Session video: watch online
Session slides: Part One / Part Two

Sponsored lunch with EU-Citizen.Science

Wednesday's lunch break was sponsored by the EU-Citizen.Science platform, and the focus was its latest version release. A host of new features were presented, including the API to share project and resource information across platforms, the community forums, the possibility to create institutional profiles, and a fully refreshed design.

Silke Voigt-Heucke announced the new platform release by sharing a teaser video that explained the new functionalities of the platform and the importance of the new features to reinforce the links with different stakeholders. Next, Linden Farrer from the European Commission talked about their strategy in the Science with and for Society (SwafS) part of Horizon 2020 to explore and support citizen science. He also explained how the next Framework Programme, Horizon Europe, should offer exciting opportunities to scale up citizen science practice.

Margaret Gold then presented the key new functionalities of the EU-Citizen.Science platform in more detail, including the community forum that provides a virtual space for the whole community to connect and discuss. And Colombe Warin from the European Commission presented some key examples of citizen science projects funded under Horizon 2020, and the importance of sharing information, toolkits and best practices among them. She explained how the platform can foster those synergies among projects.

Lastly, Francisco Sanz Garcia described the API and offered technical guidance for its use, focusing in particular on aspects of interoperability with existing citizen science repositories. Throughout the lunch session, participants were invited to share feedback and suggestions on future developments for the EU-Citizen.Science platform.

> *"Linden Farrer on #CitSci2020 conference: The Horizon Program will include #CitizenScience as one of the suggested methodologies for R&I projects, not yet applying Citizen Science yet - great news for more society engagement!"*
> @spotteron on Twitter

> *"Now Q&As session with a lot of super interesting questions and comments in the chat! Congratulations @EUCitSciProject, @marziuk and the #citizenscience community for this brilliant session! @EuCitSci #CitSci2020"*
> @firenzesoundmap on Twitter

Keynote 3: Encounters in citizen science

Our third keynote followed a different format: four speakers, each interviewing another in turn. First of all Nuria Castell asked Jacob Sherson about his career, particularly his project ScienceAtHome. The chat moved on to how machines and AI can support humans as a service, and how to ensure we continue to value humans even as technology develops apace: "Technology should be an enabler of human interaction".

Next, Jacob took over the host's chair and interviewed Katja Mayer about her career at the interface of science, technology and society, and her experiences in citizen social science. Katja revealed that the general public don't necessarily care about the terminology between citizen science or citizen social science, because that isn't what draws them into participating; instead, it is a distinction to be debated by researchers, policymakers and funders. She continued by stating the importance of researchers seeing their public participants "eye to eye" and recognising their contribution as equal partners in research; perhaps some training is required for researchers to truly appreciate that. She concluded with a call to reveal what we learn from projects that didn't meet expected outcomes, and to be open to achieving otherwise unforeseen goals – and proposed the creation of a space that incentivises and encourages such receptiveness.

Pietro Michelucci then stepped into the hot seat, as Katja asked him about his career, which has been spent combining humans and machines to solve problems. One example is his work with StallCatchers, which uses citizen science to help research into Alzheimer's. The discussion circled back to the themes from Nuria and Jacob's discussion, and how machines fit in with science and citizen science: "Humans do what they want, machines do what they're told".

To round the keynote off, Pietro spoke to Nuria about her own encounters with citizen science in the field of air quality, how she works with children in her research, and the challenges she faced early on: "I thought I was contributing to society. But I was just doing my research, and cities were still polluted."

This roundtable approach allowed for a conversation that switched between a number of different themes, and proved popular with the audience, judging by the comments in the session chat.

"These interviews are a very nice idea."
Session chat

"What a great keynote session at @EuCitSci conference #CitSci2020 with brilliant speakers interviewing each other!!! "
@_CitizenScience on Twitter

Session video: watch online

Session 21. The science of citizen science I

This session began with something a little different: live music from Andrea Giacomelli and the Metalliferous Hills Jug Band, which led into a discussion about how music can be used for environmental research. The talks by Claudia Göbel (SoCiS project) and Pia Viviani (catta) then focused on how citizen science can exist in 'other' worlds, outside of academic spheres. This includes creating open spaces for people from different backgrounds with different skills. One focus point was what makes projects succeed, and which factors can facilitate successful cooperation between people and organisations.

The session then moved to Zoom to allow for an interactive format. This part of the session also used a shared Google doc to record ideas about how to co-create a space for citizen science: spaces where everyone can feel comfortable, accepted and part of the process. What kind of places and spaces do we want to create for citizen science, and who do we want to meet there? The presenters will be taking these questions forward in their future research, and practical and artistic work.

"Having live music was a really great idea!"
Session chat

"#CitSci2020 How to find accessible, inclusive & fun space for finding the right people to start #CitizenScience activities when existing places often function very academically & can be an obstacle for citizens? Let's find out with @claugobel, Pia Viviani & Andrea Giacomelli"
@spotteron on Twitter

Session slides: available here

Session 22. Young people and citizen science in education

There is growing recognition of the importance of student agency and voice, and in Session 22, three presenters shared their work with young people, and how citizen science impacts their environmental values and actions, and motivation to conduct scientific research. Nadja Kerschhofer-Puhalo talked about the value of placing young students in the roles of co-creators and co-researchers for multimedia literacy, and noted the organisational constraints in conducting research using such an approach. The research, a collaboration between universities and primary school students in grades 3-4, prompted questions about educational and scientific mindsets. Interesting distinctions were considered, such as the difference between the terms 'childhood', a social construct, and 'children', a biological status. The talk also raised the question of vulnerabilities: Do we risk underestimating the capacity of young children by seeing them as vulnerable, if we don't consider that vulnerability could be more about the situation they are in, rather than the context of the individual? She closed by noting the impact adult researchers can have on young participants by respecting their contributions and opportunities, which demonstrates empowerment.

Next, Josephine Berndt presented an intervention study with adolescents, and recognised the potential of citizen science to influence scientific literacy, content knowledge, and values and attitudes. Using a pre- and post-intervention research design based on a river health project that traversed the spectrum of contributory, collaborative and co-created types of citizen science projects, she found that one's understanding of the nature of science improved – yet attitudes towards science decreased. Given the wide range of student grades and ages (from grades 7-12), there were significant differences between the more and less motivated students, though motivation was not necessarily a driver for behaviour change. Her findings were in line with other recent research in the field, which presents opportunities for further investigation into the level of participation and its impact, especially since co-created citizen science projects have been studied less frequently.

Lastly,, Jessica Wardlaw talked about how informal science education can be evaluated using a design-based citizen science approach. A major objective was to determine the kind of engagement young people have with informal learning opportunities, such as the UK Natural History Museum's citizen science programme, and how it influences their sense of agency to act on what they learn. Opportunities included using iNaturalist, the Zooniverse platform, and specific initiatives like the Big Seaweed Project. She talked about the environmental science agency, as developed by previous work carried out by researchers at the UC Davis's Center for Community and Citizen Science. This relates to one's understanding of environmental science content and its processes, one's identity as a 'doer' of science, and a sense of one's capacity to act in a pro-environmental manner. Using in-field observations and a pre-/post-citizen science activity research design, this research sought to understand what works and what doesn't work with this collaborative design-based research approach.

Session slides: available here

Pilates

The ECSA 2020 conference was a learning experience in many ways. As our first fully online event, we were constantly seeing what worked and what didn't in a virtual setting. We created opportunities for participants to give us feedback on this throughout the event and, where possible, responded to suggestions as they came in.

One example was feedback from a number of participants that they were sitting down a lot! Holding all sessions online – including the coffee and lunch breaks – meant that the opportunities to move about that are found in onsite conferences were missing. There was no need to move between rooms in a venue, no chances to take a coffee outside to chat to someone, or to take a walk around the host city before or after the day's proceedings.

To address this, the organising team in Trieste arranged for a local Pilates teacher to host a session on days 4 and 5 of the conference. While still held on Zoom, this did at least provide participants with a chance to do some stretching and moving, and have a little 'pause' during the day. This was a useful lesson for us, and will be taken forward in future online events.

"I am sharing a very personal experience here: I miss some physical exercise between the sessions. Usually at a conference, at least you change rooms from time to time - now I am installed in front of my computer the whole day. Maybe we could use one of the coffee breaks and have a guided stretching session or the like?"

Padlet feedback

E-poster sessions 13-24

Our second batch of e-posters were split into seven themes:
- Health
- Project profiles
- Policy
- Education
- Methodology
- Motivations
- insights & reflections

Session videos (13/15/17/19/21/23): watch online
E-posters: available on the conference website

Again, we have collected just a few of the questions and responses from the session chats and Twitter.

13.1 "Gyorgyi - what are the links to the national environment protection bodies? Are there guidance on what to do if they find radiation?"

13.3 "Elisabetta @elibroglio presenting the Genigma project at the #ECSA2020. Super short, but positive and intense experience! #CitSci2020" - @Genigma3D on Twitter

15.1 "Gaston - this is quite valuable for Pietro's workshop on Friday about the ethical issues. This looks very important"

15.3 "@gaston - it will be great to have a special working group on health. At UCL, we also see growing interest in health and CS"

16.1 "I love this idea! Not all of my citizen science projects worked out, and when I was discussing that in my PhD defence my examiner had similar experiences and did suggest we write an opinion piece on mistakes in citizen science but we haven't got around to it."

17.1 "GeoVin has similarities with Tekenradar.nl - but the photo aspect is innovative and super!"

17.2 "Thanks Sabine, let's join forces in this SIG on citizen science & health!"

17.3 " It is already amazing how many people have shown their interest in CS4Health but there is still a lot of work to be done!"

18.1 "The 5 finalists representing France, UK, Serbia, Nepal and Zimbabwe. Ideas range from using citizen science and satellite data for land tenure mapping, community forest mapping and allergenic plant monitoring"

19.1 *"Kim - Really great to see this document published"*

19.2 *"Where can I get more info for this work @Abeer"*

20.1 *"Felicitaciones! - y muy bueno ver la contribucion de RICAP aqui!"*

20.2 *"@leonie - interesting to see how participation can be integrated in a formal and legal area - thank you for sharing your survey"*

22.2 *"Very interesting Pavel! Would be interesting to share findings from a similar survey made in Portugal."*

23.1 *"I'd love to hear more from Yael! 'Question - what big lessons do you have for future research on children doing citizen science in schools?"*

24.1 *"Thank you Thea - nQuire is a great education resource!"*

24.2 *"Great, Thibaud! Very interesting and necessary approach"*

24.3 *"Thank you Veronica, very valuable for designing initial communication for recruitment as well!"*

Thoughts and reflections on Day 4

Our participants continued to share their feedback and suggestions on the fourth day of the conference. Here is a selection of their comments - from session chats, social media and our Padlet wall.

"It is amazing how these chat interactions allow for this sharing of knowledge! Thank you to all :)"

"This format is the best alternative to a traditional keynote ever!"

"Sometimes the ppt becomes dominant with the person speaking very small next to the large ppt. It depends on whether a lot is happening on the ppt, otherwise it is nicer to have a large part of our screen devoted to the person actually speaking."

"Are only white people engaged in the field of citizen science? What is the community doing to change that?"

"Vimeo chats are great but I'm getting comments that there is less live tweeting of the conference, so people who could not afford to come are missing out more. I think, where it is possible, we should try to make some talks and posters public, and have one or two representatives take live tweeting shifts!"

"There is a certain melancholy that comes when the day is over and you've been through 9 intensive hours of virtual social interaction, and then you are suddenly alone in front of your computer's screen and there is no one to share the experience - as you would in a physical conference of going for a drink. My solution is to go out for a long walk, listen to music, and try to digest the day. Maybe we should have a collection of guidance about 'wellbeing in a virtual or hybrid conference'."

Day 5, Thursday 10 September

Session 23. Technology design

This workshop focused on technology design in citizen science projects. With better technologies, interfaces and design participation can be greater and more effective in citizen science. The first example, by Martin Serrano and Achille Zappa, examined a project focused on healthy living, specifically the aging population and their quality of life. They used citizen science methods to approach and teach citizens how to use the technology.

"Great presentation Martin. Do you only collect objective data (i.e. wearables), or do you also collect some subjective/qualitative data (i.e. experiences, feelings... of participants)? If you do so, how?'
Thanks"
Session chat

The second presentation, by Jessie Oliver and Philipp Hummer, explored considerations for the design and development of citizen science technologies. Jessie shared key findings from her own research, which tackles the challenge of designing fun and useful technologies for finding Eastern bristlebird calls in environmental audio data. She found that providing people opportunities to be creative and to have fun holds promise for bird calls to become more meaningful and memorable, which is likely to help with call identification. Then, Philipp shared important considerations for developing citizen science technologies. He provided a live demonstration of different citizen science apps on the SPOTTERON platform, to show how features can manifest in practice and how particular technologies can be used in different ways to enhance data collection and community engagement.
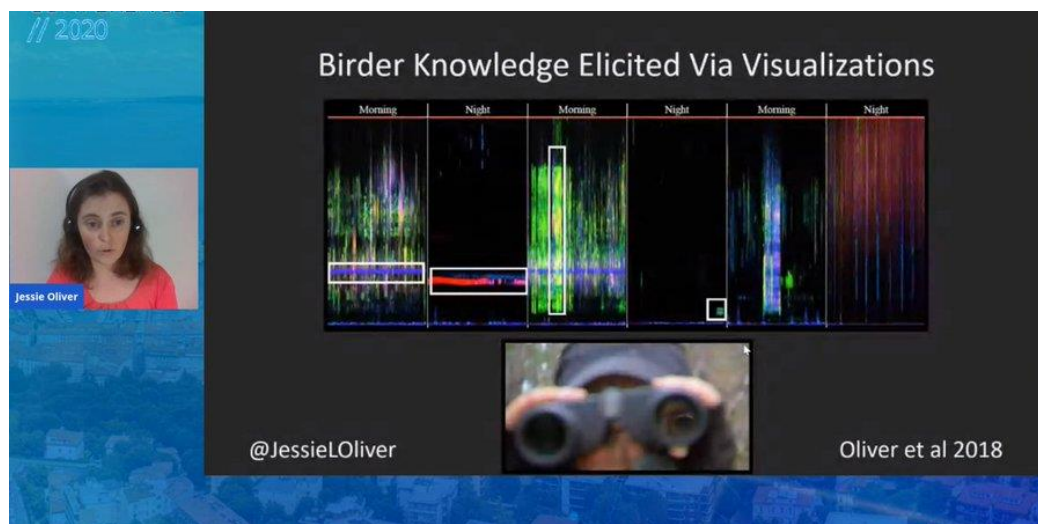

Photo: @Spotteron on Twitter

Session video: watch online
Session slides: Part Two

Session 24. Citizen science in conflict zones

This workshop, led by CEOBS, looked at civilian science as an approach to studying environmental change in conflict zones. This approach can help to support recovery and assistance, and also empower communities, increase visibility and accountability, and promote environmental cooperation and peacebuilding.

> *"Citizen science is already taking place in conflict areas."*
> Doug Weir, presenter

The first example was water-quality monitoring in post-conflict regions of Colombia, presented by Mirella Di Lorenzo from Bath University. This project used a participatory design approach with communities, one that combined top-down and bottom-up approaches to ensure a mutual understanding of needs. Next, Mazim Qumsiyeh from Bethlehem University spoke about citizen science for biodiversity in Palestine, and how it is helping people to respect themselves, respect others and respect the environment.

Mohamed Farah then presented about ECOSOC in Mogadishu, Somalia, and how they are raising public awareness of environmental issues such as plastic pollution, and engaging people in the country. The session was wrapped up with a Q&A among the panellists about some of the common challenges of civilian science in conflict and post-conflict zones, such as building trust and the lack of resources (both locally and internationally). The rich content of the presentations saw a lively set of questions from the audience, all shared through the session chat.

> *"How do you protect citizen scientists in conflict zones (e.g. protect their identity, provide secure communication channels, etc.)? I wonder if there are synergies or even collaborations between CS and citizen journalism in conflict zones?"*

> *"@Mazin, given the multiple threats (poverty, occupation, violence) I guess it's harder to make biodiversity an interesting/motivating topic, any tips on motivations of participants?"*

> *"This (not getting to connect with some speakers) are unfortunately the drawbacks of online conferencing and digital CS... a big issue for inclusiveness!"*

> *"Do explore some of the scenarios in Bangladesh. There are so many synergies with the project design issues you've mentioned particularly in the Chittagong Hill Tracts and the Cox's Bazaar region which are sites of localised conflict."*

> *"Thank you for this beautiful session to bring attention on these areas and on people that unfortunately sometimes are forgotten."*

Session video: watch online
Session slides: available here

Session 25. Citizen science, AI and algorithms

Session 25 opened with an audience vote on whether AI use affects accountability, and how machine learning could result in the democratisation of research, as routine procedures could be carried out by machines. These questions prompted an interactive debate via a related Google document, and promoted an emotive discussion among participants.

Following this, the first of the session's talks focused on using human measurements to 'train' a machine to be able to identify plastics. The machines were trained based on methods that humans use to train their brain, and the resulting information collected by Zooniverse. The positives were presented as a hybrid human-machine approach, for use when humans could not get through the data fast enough. Indeed, machines will not only be able to process large amounts of data, but also at a speed that is beyond humans. An example of where this brings benefits is weather data for first responders to emergencies.

The talk highlighted that machines should augment human actions instead of replacing them. Another example given was machine training to identify galaxies and objects in space. Volunteers help identify space objects, including planets, as humans are extremely good at pattern recognition, but there is too much of space for human volunteers to get through.

The session concluded with a panel discussion about the results of the questions raised at the start. This brought up interesting insights into what people with different involvements in AI think about its accountability, and its role in research and society.

> *"I believe the answer very much depends on the context AI is applied…"*
> Session chat

> *"Grant Miller @the_zooniverse explains how humans + machines will beat just machines in so many ways - from chess to Snapshot Serengeti's 'zorilla problem' (we recognise a zorilla after seeing 2 photos - computers really can't!). Citizen scientists remain invaluable! #CitSci2020"*
> @Ottercivet on Twitter
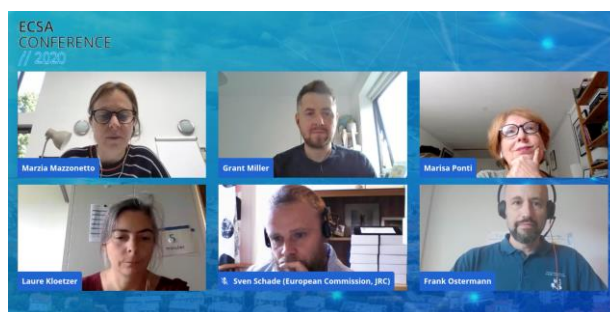
Panel discussion from Session 25

Session video: watch online

Session 26. Citizen science and regions

With presentations from across the time zones, the chair Michael J. Pocock started by thanking the presenters for staying up or getting up! The first talk from Sarita Albagli looked at citizen science in Brazil, with a focus on social cartography and responding to the SDGs in developing countries. Citizen science in Brazil, like all countries, is affected by local ethics and problems. The climate change project presented looks at the 'right to research', meaning everyone has the right to participate. This brings problems such as how to include a diverse population, and meeting socially responsible goals.

"Question: the slide says that CS and participatory approaches aren't enough when there is a huge power imbalance. Is there anything that *can* help, where power relations is a problem? Did you say this was government relations?"
Session chat

Jiyeon Kim then gave us a review of citizen science in South Korea, from its beginnings and achievements so far, right through to how she hopes it will be in the future, and how they are aiming to establish a framework for the country. In South Korea, there have been issues with expansion, including different ethical laws and professionalism, and the science exceptionalism that is embedded in Korean culture. Despite this, citizen science in South Korea has produced many results, including increasing awareness and public participation in government models.

"Wonderful to hear about CS from Korea."
Session chat

The third talk took us to South Africa and explored how citizen science is helping to monitor biodiversity across the country's diverse ecosystems. SANBI is a major player here, providing sector-specific knowledge in a country where the reduction of government resources demands the optimal use of human capacity and technologies for species monitoring to inform policy. Suvarna Parbhoo-Mohan shared case studies from across the country, such as the CREW project to monitor plants, which has been running for more than 17 years and seen over 900 citizens take part.

"#CitSci2020 We're now hearing case studies - not just current ones, but some from the 1980s - of biodiversity monitoring, eg wildflower or bird monitoring, in South Africa. There has also been some aquatic biodiversity monitoring to help people make sustainable seafood choices."
@PenguinGalaxy on Twitter

Session video: watch online

Session 27. Citizen science and policy

The ECSA Policy Committee and US Citizen Science Association Law & Policy Working Group jointly co-hosted the workshop on citizen science and policy, which was chaired and moderated by Niall Ó Brolcháin (Insight Centre for Data Analytics). The workshop was divided into two panel sessions. During the first panel, Dr Sven Schade (Joint Research Centre - JRC) offered a European perspective on the impact of citizen science on policy. Lea Shanley (Nelson Institute, University of Wisconsin-Madison) gave the US perspective on federal law, policies, and initiatives supporting citizen science, such as Citizenscience.gov. Dr Alice Motion talked about the citizen science policy priorities in Australia, including the increasing role for citizen science in government strategies.

Together, they explained the connection between citizen science and policymaking, and gave examples of this in practice, such as the European Commission's recently published document on citizen science policy and environmental monitoring. Other examples where citizen science has been used in policymaking in Europe include the research policy (especially on Open Science) and various 'State of the Environment' reports.

> *"#CitSci2020 Lea Shanley: sharing information with policymakers does not mean that they will use this information to make decisions; we must connect policymakers with citizen scientists - working both top-down and bottom-up to create impact"*
> @PrivacyHCI on Twitter

In between the sessions, there was a feedback form asking participants to add their policy priorities. These priorities were discussed by the panellists during the latter part of the workshop. During the second session, Martin Brocklehurst (Citizen Science Global Partnership) discussed how citizen science can be effective in addressing global issues, such as climate change, disaster management and the SDGs. Scientific facts, he noted, are not sufficient to make effective change; citizen science also must help to inform policy change. There was also discussion of the global goals of citizen science, and the need for collaboration to find solutions and accelerate policy shifts.

Prof. Muki Haklay (UCL) talked about the need for research in science communication and policy, and offered examples of governance roles and the role of citizen science in relation to that role. The final talk, by Dr Anna Berti Suman (University of Tilberg), looked at citizen rights and highlighted the importance of citizen scientists knowing about the legal issues around their projects, for example complying with privacy laws and regulations, such as the GDPR.

> *"Great to see @EuCitSci Policy Working Group relaunching and welcoming new members today #CitSci2020"*
> @littlelocket on Twitter

Session video: watch online

Session 28. Citizen science and higher education

Tiberius Ignat greeted us from a castle (or, at least, a video background of a castle) and introduced the speed talks that kicked off the session. Thomas Kaarsted went first, talking about networks around research libraries and how they can broaden citizen science participation. The presentation presented results from a survey suggesting there is a potential role for libraries in Denmark to bridge the gap and expand citizen science. Examples were presented from both a national and international level.

Henk Mulder then talked about current teaching on citizen science in higher education and posed the question: what are the best practices in curriculum development around citizen science, and how to assess and grade students? He discussed teaching citizen science within a science communication setting, and the different ways it can be integrated within this setting. This includes placing citizen science projects within taught modules, and students volunteering for citizen science and working on projects within their studies. An example was given of an engineering lecture that incorporated a citizen science project about air pollution within its teaching.

Next, Jacob Buur reported on a citizen science talent programme at the University of Southern Denmark. This has nine pilot projects and aims to build a community of practice. Lastly, Isabelle Bonhoure talked about how public libraries could embrace citizen science, following the idea that they gather spaces, infrastructures and communities. She described the Citizen Science in Action project that consisted of capacitating librarians in citizen science and in co-creating a citizen social science project with library users. She then explained how the librarians and libraries' users changed their perceptions of citizen science during the course of the project. She then linked this project to higher education, in terms of the scientific contribution made by graduate students and the possibility to involve research libraries in citizen science capacitation activities.

> *"#CitSci2020 For citizen science to become sustainable, there is a lot of academic legwork that needs to be done in Denmark. They've got a model for it, which involves libraries playing a part at least at national level and perhaps international."*
> @PenguinGalaxy on Twitter

The discussions then moved to Zoom breakout groups, where the participants could discuss the themes raised in each session, before coming together again for the plenary. Some of the main points raised in these groups include:

- There is a diverse citizen science teaching community out there, and diverse programmes in place
- Libraries can play an advocacy role for citizen science
- There are barriers to citizen science in teaching, such as so many themes to consider!

Session video: watch online
Session slides: Part Two / Part Four

Session 29. Science of citizen science II

Session 29 was structured as four fifteen-minute presentations around the topic of 'the science of citizen science'. The first speaker, Heidi Ballard, opened by speaking about participation in citizen science and science identity. During her talk, she spoke about her research on the science identity outcomes for participants in six different citizen science projects. She then presented a discussion around citizen scientists identifying as scientists before and after those projects, and whether they believed that people perceived them as scientists. This led to more discussion about whether citizen science participants feel like they are part of the scientific community, and whether they feel they are contributing to science, all of which were outcomes for participants in the projects under study.

The second presentation, given by Bradley Allf, looked at SciStarter, a third-party platform for citizen science. The platform hosts projects, and also allows institutions such as National Geographic to create pages on which they can keep track of their contributions to citizen science. He shared examples of some of the listed projects, such as the Christmas Bird Count Survey, and explained how SciStarter can influence the mode of participation in a project (e.g. office vs online). He concluded by saying that third-party platforms can increase diversity and participation in citizen science.

The third speaker, Mohammad Gharesifard, presented an analysis of community-based environmental-monitoring initiatives. The project was designed through a collaboration between various groups of people, and he described the factors they considered when designing the projects. The cases that were presented were a biodiversity project in Kenya and a flooding project in the Netherlands. In both, public participation had been minimal and decision-making processes limited to elected representatives. In Kenya, access to data is a problem as it can be denied by the government. The conclusion was that contextual analysis can be important when implementing citizen science projects around the world.

The final speaker was Kristian Neilson, who discussed scientific citizenship. This includes science literacy, environmental awareness, science policymaking and technological development. The speaker gave two examples of projects, one focused on policy and the other a biodiversity project in Denmark. These give people access to information about science, and therefore the capacity to speak about science. It was argued that citizen science projects should promote engagement and scientific citizenship, including membership, as a right to science and participation in the institution of science.

> *"Science identity" of people is an interesting coined concept, currently in the talk by Heidi Ballard - do we have a "science identity"? I guess yes, e.g. when being active in #CitizenScience Apps or when talking to friends about science facts & knowledge."*
> *@spotteron on Twitter*

Session video: watch online

Session 30. Citizen science toolkits

Giovanni Maccani and Valeria Righi from Ideas4Change started proceedings by explaining how toolkits are often seen as a legacy of citizen science projects, in the hope that others will take them up and replicate them. They considered crucial aspects of toolkits, such as their scalability, and pointed out that many are context-specific, which can limit this. In light of this, toolkits that are flexible and adaptable are important. Using the Cities-Health toolkit as a case study, they shared some experiences of, and best practices for, creating toolkits.

> *"Our D-NOSES toolkit is being used in our 10 pilots but anyway it is continuously adapted (and improved) according to the local constraints!"*
> Session chat

> *"Would love to use this frame and test if/how we might actually replicate a successful CS activity."*
> Session chat

> *"Toolkits" are becoming more and more popular in citizen science. They are often offered as an output or legacy with the hope that someone (institution? community? student?) will replicate the practice beyond the funded period. So this session is about replicability."*
> @PenguinGalaxy on Twitter

During the second part of the session, Mel Woods introduced 'Co-designing Environmental Solutions for a Changing Climate', starting with a video about the project. Through citizen sensing and citizen observatories, this project helps people to move from data into knowledge for change, and addresses climate change and design for climate services. It is also a tool to support storytelling and role-play in an emergency disaster scenario.

> *"Great presentation Mel - super nice to see this in action!"*
> Session chat

> *"Amazing work Mel! Is the tool (cards, instructions, etc.) available to be downloaded or checked out?"*
> Session chat

> *"In what language is it available? Do you need help translating?"*
> Session chat

Session video: watch online

Closing ceremony

After five days of talks, workshops, e-posters and coffee chats, the ECSA 2020 conference was formally closed by our hosts in Trieste, along with members of the ECSA board. As they thanked the many, many people who had worked to make the conference a success, the gathered participants shared their own thoughts in the session chat.

A global event

"It's been great to meet and catch up with so many people even from afar! I am tired though, being in Australia, so it's likely for the best it's not longer, so I can get normal sleep again."

"Cannot believe how slick and successful the event was. Tremendous lessons learnt and a great way to get participation from across the globe. Of course I missed the social interaction but more people could attend from places across the globe who could not have attended otherwise."

"I'm so pleased people from all over the world came to attend."

"Certainly a plus of online meetings: people from all over the globe can join (although the time differences). Also the dynamics of the chats were simply great."

"Just like any good (growing) conference, there are so many people I did NOT get to connect with! Hello to all, glad that these events around the globe give us touchstones to inspire each other and follow up by email, even if not in person."

Our hosts in Trieste – and their technical team

"Shout out to the @control room, they did amazing work."

"My heartfelt congratulations to everyone involved in this conference! Truly amazing!"

"Great conference - the organisation team did a fantastic job and congratulations to the speakers too!"

"Really nice conference! Congratulations everyone made it possible.)"

"Really brilliant conference. Thanks again to all the organisers and to the control room and tech support."

"This was an excellent experience! Thanks to the hardworking team that made it possible :)"

"Thanks for a great conference! great organisation, great panels!"

"Really wonderful event. Congratulations on all of your hard work to make the difficult decisions and changes. Very well worth the experience."

"We will be standing on the shoulders of giants in learning from the wonderful event you have just put on."

"Thank you very much to the ECSA team for this great conference! With the hope that everyone can meet face to face next time. Well done!"

"Many many thanks @Enrico and the entire (hard working) team!!"

"It has been a big challenge, you made it the best, it was great to have the opportunity to participate. Many thanks to the organisers!"

"A big applause to all the team!"

Moving online

"Very creative way to do an online event. I recorded short videos on my Instagram to talk about this experience."

"Great conference! But I hope we will meet face to face next time ... I really miss this "human" interaction!"

"I've had a great time and I wouldn't have been able to come if it wasn't online, so thanks!"

"It was an excellent conference despite the physical distance! Congratulations to everyone!"

"This conference was also about MULTI TASKING - chatting online, listening, reading, thinking…"

"I agree, also cooking, making coffee, managing the family in the background…"

"It was great to see old citizen science friends and meet new ones, albeit online."

"The chat [feature] is something that even in 'present' conferences should be maintained."

"Thanks to everyone for making it a very welcoming and safe space."

"The online format was very smooth and really well organised, thank you to everyone involved!"

Advancing the field of citizen science

"A little sad that it ends ;) Love the open minded spirit and participation, the wonderful flood of information and all the new things to learn here!"

"Indeed many thanks to the organisers. I've learnt a lot, this being my first event of the kind. Glad to have participated from Uganda!"

"Congratulations and well done everyone! Fantastic conference with incredibly inspiring speakers and sessions."

"Amazing conference, well organised, I have learned so much! Thank you all for sharing projects, comments and advice! A beautiful experience! Thank you very much!"

"It was a really great online conference, I learned so much and got lots of insights and inspiration, looking forward to seeing you all in person the next time :) Thank you to all speakers and organisers!"

Saying goodbye - for now

"Is it really the end? I'm sad…"

"Not the end! The beginning of great collaborations!"

"The band [from Session 21] should have come through for the closing as well :-)"

"So great to see so many people from around the world here - I look forward to the future when we can meet in person again."

Zoom disco

With the conference formally closed, it was time to party! The citizen science disco has become a tradition at ECSA conferences, and being spread across the globe was no excuse not to continue this! Many participants joined in the first ever Zoom Citizen Science disco, brought to us with music from Sisters Cap, two famous sister DJs born in Puglia, Italy.

Thoughts and reflections on Day 5

As well as the comments shared during the closing ceremony, our Padlet was open to feedback right until the end, while some people also took to Twitter to have their say.

> "*Last #ECSA2020 session, it's been such an amazing conference I've learnt so much. Thank you to everyone for sharing your experiences and studies*"
> @becgoz on Twitter

> "*Does anyone else hear the Vimeo intro music as they close their eyes to go to sleep at night?*"
> @PenguinGalaxy on Twitter

> "*It's been a busy week, with many hours online. But we did meet. Exchanging experiences. Worthwhile. Thanks everyone at #CitSci2020.*"
> @jakojellema on Twitter

> "*Is it possible to extend the availability of conference videos? Catching up with all fabulous sessions by 13 will be really tricky especially for people joining from tricky time zones.*"
> Padlet feedback

> "*IMHO it is a contradiction to have citizen science without openness. Having a paywall to see the presentations is really sad. A lot of people would like to attend. Hope the following ECSA conference will be free to see the presentations and content.*"
> Padlet feedback

Friday 11 September

Conference side events

While the conference had officially closed, there was still an opportunity for the citizen science community to meet and engage further with three conference side events.

Global perspectives on citizen science and open science

The [Community of Practice (CoP) on citizen science and open science](#) held a side event to provide information about a new initiative from UNESCO to develop a global recommendation on open science, to be released in 2021. The CoP invited citizen science practitioners to collaborate in the development of this recommendation.

The session also outlined the first steps of the CoP, as well as a series of lightning talks from practitioners working at the nexus of citizen science and open science. To conclude, there was a roundtable discussion to identify key considerations and next steps for the common future of citizen science and open science.

The LandSense Online Innovation Challenge

This event, [organised by the LandSense project](#), invited individuals, web entrepreneurs, start-ups and SMEs to present innovative IT solutions that addressed one of the three LandSense domains: (1) urban landscape dynamics; (2) agricultural land use; and (3) forest and habitat monitoring. The five finalists, from France, Nepal, Serbia, the UK and Zimbabwe, presented their ideas for user-oriented solutions for environmental monitoring to the expert panel. The winners were:
- 1st prize: Geospatial platform for allergenic plant monitoring and management (Minučer Mesaroš, Serbia)
- 2nd prize: Monitoring of community forestry on bio-physical parameters through geospatial approach (Him Lal Shrestha, Nepal)
- 3rd prize: iShow Tenure - iST (Freeman Ali, Zimbabwe)

Toward reinventing institutional review boards for citizen science

Institutional and ethical review boards play an important role in ensuring ethical compliance in research projects, and that human subjects are protected. Citizen science, however, introduces a grey area, because of the many new ways in which members of the public can now engage in the scientific process. This one-hour virtual workshop aimed to kick off an open discussion on this issue, identify the moral underpinnings of online citizen science, and establish relevant and actionable ethical guidelines.

Results from the conference evaluation survey

As well as the feedback gathered during the conference, we wanted to give all participants the opportunity to share their thoughts after the event: what worked and what didn't; what was missing, and what could have been improved; and which elements they would like to see at future ECSA events. This feedback will prove invaluable as we shape future ECSA events.

Before the conference

How did you hear about the ECSA 2020 conference?
109 responses
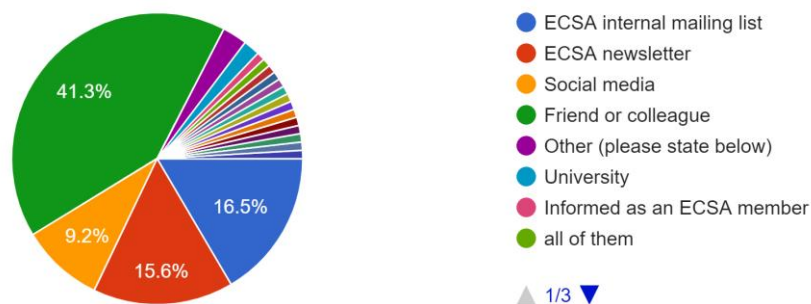
Other responses given (all <1%): Google search; BES email; conference committee; From all channels; Website; newsletter of Bürger schaffen Wissen; JCOM; Platform "Bürger schaffen Wissen"; Looking for resources on CS on the web; searching for citizen science conferences on Google; ECSA website

The responses indicate that while ECSA's communications channels and social media were significant channels for promoting the event, recommendations by friends or colleagues were the most important way in which people found out about the conference. This reinforces the perception that ECSA is a network of practitioners, not simply an organisation.

If you submitted an e-poster or session (workshop or presentation) to the conference, how did you find this process?
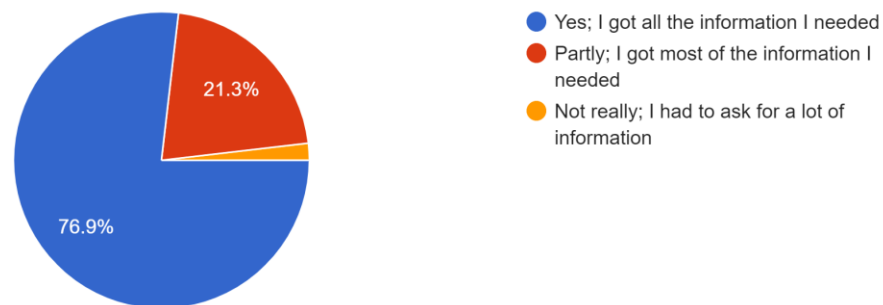103 responses
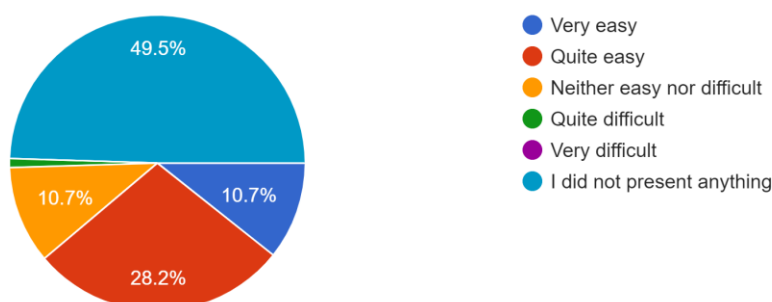
We used EasyChair to prepare for the conference, and the results here indicate that this works well for those who submitted to the conference. There were, however, a few areas for improvement – especially regarding the timing of the process – as indicated in the comments:

- *Information about the uploading system, and all the platforms involved, was a bit confusing (just because it was new). But the biggest challenge was to meet the deadlines (during summer period). We had to coordinate the session among panelists from different countries who were on holidays in different periods.*
- *The submission process was easy for me until I realised I didn't upload my poster properly and it was not present on the e-poster section of the website. This problem was resolved soon by the technical group however, it should be clear if a document was not uploaded properly in the website.*
- *The submission was easy, but the transition to a virtual event was challenging for all.*
- *I moved jobs, and it was impossible to change my email address in the EasyChair system after leaving and there was no good support on how to do that – thus I could not go back in and it took Tim Woods messaging me on Twitter to get my updated information. Thus not great. I would recommend from all my experiences with it to look for another system.*

Do you feel you received enough, and the necessary, information about the conference beforehand (e.g. about registering, proposal acceptance/rejection, the online platform, etc.).
108 responses

- Yes; I got all the information I needed
- Partly; I got most of the information I needed
- Not really; I had to ask for a lot of information

76.9%
21.3%

The responses here indicate that, generally, participants were well informed in the run-up to the event. Again, though, respondents noted a few areas for improvement in the comments:

- *A lot of information regarding the online platform was missing and only came in very late. It would have been good to have more info earlier and if possible a "tutorial video" about how the online platform works for better and earlier preparation/adjustment of the presentations/workshops.*
- *I would have liked to see the programme in more detail earlier.*
- *Registration and paying was very difficult. The information was not right.*
- *For a long time it was not clear how long our session would be and what exactly the procedure would be.*
- *I was unable to attend as PayPal is not operative from Pakistan.*
- *The information of some parts was a bit confusing, i.e. the time for e-poster presentation would be only 2-3 min, which was quite a challenge to prepare, in reality there were almost 5 mins for every presentation.*
- *I submitted an abstract and I only got the rejection answer after I asked the organizing committee (more than 20 days after the deadline given by them to provide the feedback to participants). No comments were made on the work, only that it was rejected... I found it very disappointing.*

However, many others found the information provided to be fine.
- *The support team was great and answered my questions very quickly; on the website there could be more information about how the process of registration and technical issues look like.*
- *Communication was very well done!*
- *It was very handy to be able to access the platform days before the conference to get familiarized and to know what to expect. My emails were always quickly answered with proper information.*

Moving online

If the upcoming ECSA conference were to be held both online and onsite (i.e. at a venue), I would prefer to participate:

108 responses

- online
- onsite
- not at all

65.7%

34.3%
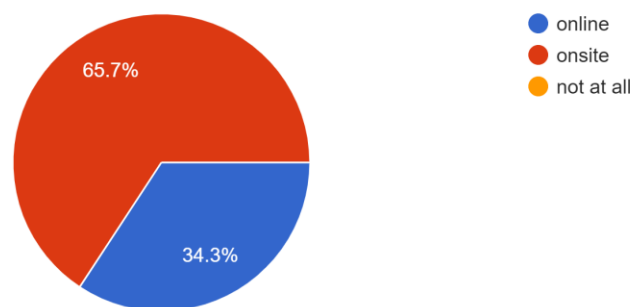
The responses to this question are very useful for planning future events. While many people enjoyed the online format, and some even stated that it was easier for them to participate online, there remains a strong preference for onsite events; the comments given in response to this question (see a selection below) highlight some of the trade-offs, such as the environmental and financial costs of travelling, set against the more limited social connections in online events.
- *Depending on the location. If travel would be far (and not environmentally friendly), then I might decide to join online instead.*
- *I miss the social interactions and the opportunities to build social connection.*
- *Depends on the situation and also on the location it takes place. Online is the better option to minimize CO_2 waste by travelling (and food waste by buffets, etc) and it can help to reduce the contribution to the destruction of the climate by participants. Onsite is better for networking and exchange but always should be in train travelling distance for (mostly) everyone.*
- *Online as an emergency measure OK, otherwise for me personally I find it worse in all possible respects. I cannot socialise in the online format. But yes, it reduces environmental impact and some people do prefer online participation.*
- *I probably could not attend onsite due to pricing, but if I could I would love to.*
- *I'd prefer onsite events, but due to the costs of travelling (and now the impossibility to travel), I think it is a wonderful idea to hold both online and onsite events and I would be glad to participate online if the onsite option is not possible for me for some reason.*
- *I marked "onsite" but I really like your decision for an online + onsite conference.*
- *Ideally onsite, but there are a lot of barriers to that (travel cost, pandemics, etc.) which I'm not sure which would be relevant at future conferences.*
- *Participating from home leaves room for distractions. Networking is easier onsite than online.*
- *If I am ever in Europe when the next ECSA conference happens, I would love to attend in person.*

- *The online version was overwhelming and distracting my attention with the ongoing chat conversations, which would be different in a face-to-face workshop.*
- *I prefer online as travel/accommodation fees are too expensive for me (a postdoc). I would appreciate it if I could choose online or onsite.*
- *It's a question of if I want to network actively or if I have time to travel - online is very useful to get information and insights about projects and allows me to be flexible when I log in into the sessions. As well, it was very useful after the conference to have access to the videos, so I could watch parallel sessions.*
- *I think I like both options, online and onsite each one has different advantages. Onsite conference, you can meet and do better networking, however in an online conference you get a lot of information that directly you can find, download articles, check websites.... I would go for two different events, the big conference onsite and next event online to allow more people to join, reduce pollution in travels and at the same time enjoy a conference sharing ideas and new projects.*
- *Physical interactions are essential.*
- *Actually I would like to choose both onsite/online - it depends on so many things; as we have learned, online is sometimes the best way (maybe to record the sessions anyway) - but it is hard to get out from the everyday routine without travelling onsite.*
- *Of course this depends on the world health situation and on funding which was cut in most institutions.*
- *Although I'm an advocate of face to face, I was very positively surprised by the performance and effectiveness of this ECSA conference.*
- *This would depend on the location of the event, and travel restrictions due to CV-19 as I am based in Australia.*
- *It is very expensive for me, as I do not live in Europe, to travel so far to participate in the discussions.*
- *The online conference was very convenient, and in this case it was fantastically organized so I got the feeling that I learnt and networked in the online conference as much as it would have been an onsite conference. Therefore, if next time an onsite conference is not possible, I would be good with an online conference. However, if possible (no corona times), I would prefer to participate on an onsite conference.*
- *I really liked the online conference, and I think it went really well, however nothing compares to meeting face to face.*

The trick will be to maintain the most useful aspects of online events, and combine them with an onsite event. It seems likely that hybrid events of that nature will become the standard, for ECSA and many others.
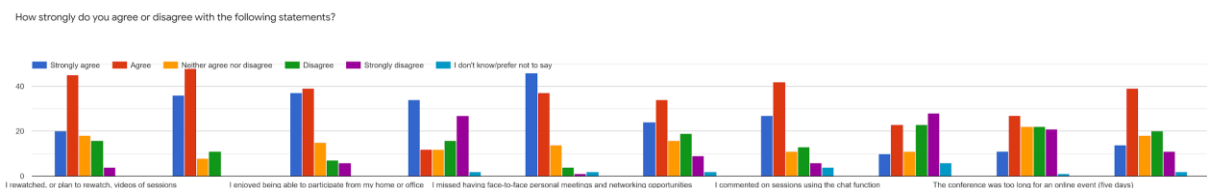
The responses here reinforce several of the views shared during the conference itself about the pros and cons of online events:

- People appreciated the flexibility of having the session videos available on demand, whether this was due to being in a different time zone, or so that they could watch sessions that ran in parallel.
- The interactive elements, especially the session chat function, was a popular way of getting involved.
- However, the packed conference days were too long for many, as online events lack the opportunities to move about (compared to onsite events).
- There was also a strong sense that the social and networking aspects of an onsite event are near impossible to replicate online.

What do you think would have improved the online event?
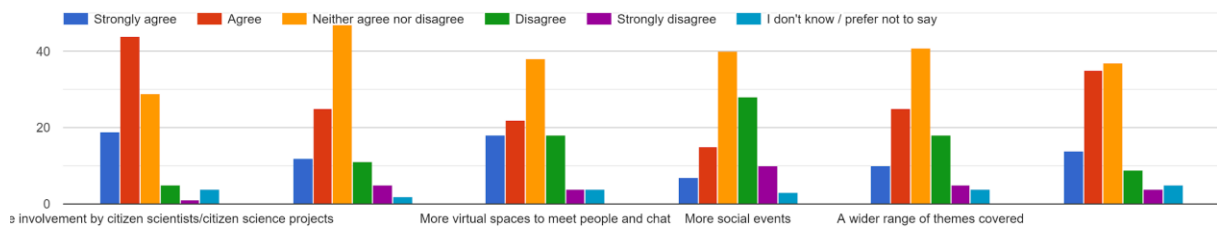
One of the clear takeaway messages from these responses is the need for greater participation by citizen scientists and citizen science projects. Unfortunately, some citizen science events that were planned for the onsite conference in Trieste could not take place. Even so, this represents a clear task for future events: to identify why citizen scientists don't attend ECSA conferences in great numbers, and to identify feasible ways to address this.

The networking aspects of the online conference were
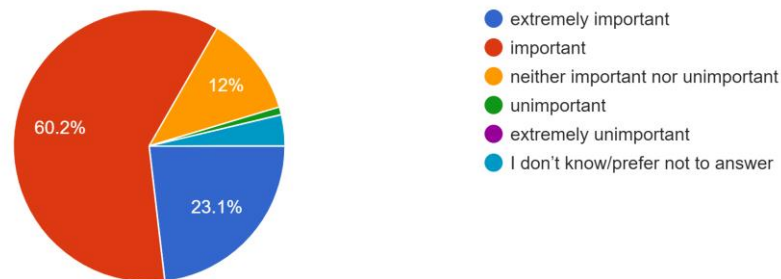107 responses
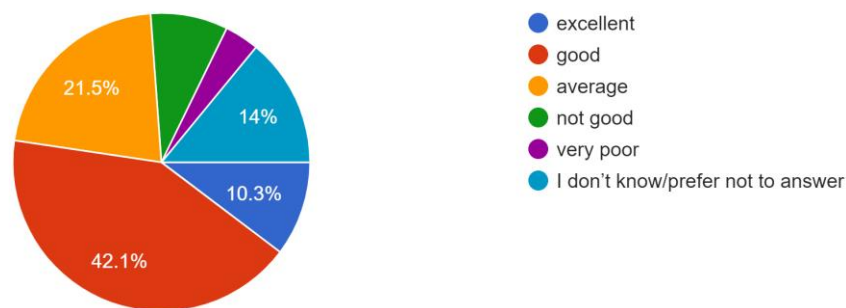
Over half of respondents felt the networking aspects were 'good' or 'very good' - but, as other questions have revealed, nothing matches a face to face meeting for many people.

Academic progress

In terms of progressing the field of citizen science academically, the ECSA 2020 conference was:
108 responses

- extremely important
- important
- neither important nor unimportant
- unimportant
- extremely unimportant
- I don't know/prefer not to answer

Advancing the field of citizen science is one of the main reasons for holding a conference every two years, so it is encouraging to see that the majority of respondents felt that the progress achieved was either 'important' or 'extremely important'.

Do you feel any themes around citizen science were missing or under-represented?
106 responses

- Yes (please write these in the comments)
- No
- I don't know/prefer not to answer
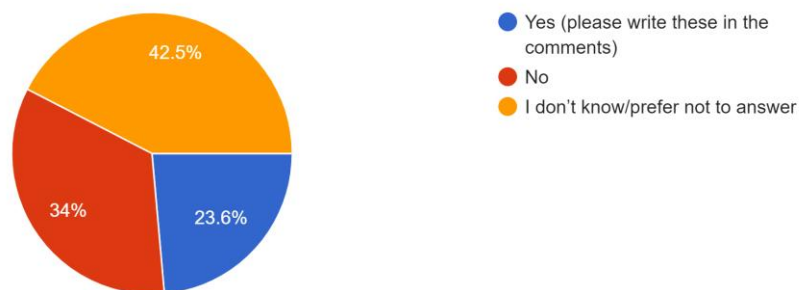
Despite this, there was some feedback about the thematic balance of the conference. Respondents identified the following themes as missing or under-represented - a useful starting point for planning future events.

- *Citizen science projects led by citizens were not much represented - there was only one session that included that.*
- *Bottom-up approaches, transdisciplinary projects and knowledge co-production were barely touched upon.*
- *Bottom-up approaches in the design of citizen science projects. Also, I missed a clear impact session to measure the impacts that such projects have.*
- *I can't find bottom-up citizen sciences experiences, only up-bottom.*
- *Non-academic projects.*
- *Volunteer management is an important part of citizen science that I think is/was overlooked.*
- *Starting citizen science issues - how to find the target group.*
- *I would have liked to see more presentations on projects and their results.*
- *Citizen science data collection projects were under-represented.*
- *Learning evaluation.*
- *Too little outcomes of citizen science projects (real data, results, publications, tools to handle data bias or best-practice, respectively).*

- *More science on citizen science needed.*
- *The power relations in citizen science projects / citizen science as reinforcing power structures.*
- *Legal issues.*
- *Ethics in citizen science / ethical challenges.*
- *More Citizen Social Science, more on the connection of social movements and citizen science and more on how artists contribute to citizen science.*
- *Citizen science in Asia and other non-English speaking countries.*
- *The Global South and eco-social justice as such was under-represented. It is a direction that should be emphasised more in the future in terms of transformative power of citizen science.*
- *I suggest more sessions related to interdisciplinary and international/multicultural topics, regulation and policies for citizen science.*
- *Education.*
- *Communication.*
- *Citizen science and culture.*
- *Projects related to the inclusion of people with disabilities (e.g. eye related disabilities).*
- *Citizen science and accessible software.*

Do you feel any themes around citizen science were over-represented?
105 responses
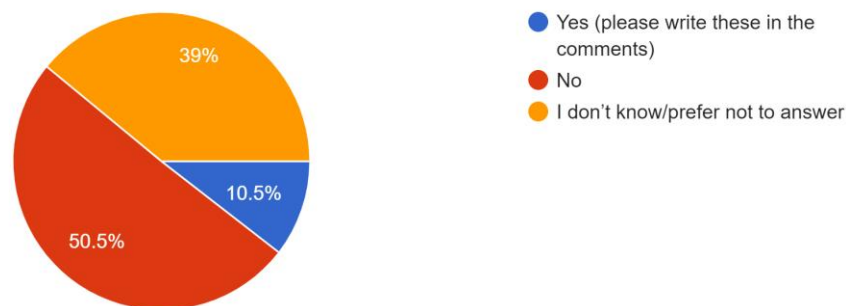
Only 10.5% of respondents felt that particular themes were over-represented; those noted are listed below.

- *Too much policy (x2).*
- *The sessions I attended were mostly dealing with one specific topic, e.g. social science, environmental science. It would be great to have more interdisciplinary sessions so people can learn from the experiences from disciplines other than their own.*
- *I feel that there was one field overrepresented: The creation of projects without input from society, or the citizen scientist. Most projects had a top-down approach hence the problem of participation from people.*
- *There was a lot of social science, which may be a good thing.*
- *Eco in the field of citizen science seemed to dominate.*
- *Data management and quality issues.*
- *Inclusiveness (a really important topic, but not the only one...)*
- *Citizen science for the sake of itself, without true projects.*
- *Social Citizen Science.*

Final comments and feedback

The final survey question was open, inviting respondents to have their final say. We have listed the comments provided here.

- *Virtual was wonderful: great organisation! do it again online*
- *Thank you for your effort. It was an awesome event, and I really appreciate your effort in trying to make it fun, warm and welcoming by preparing social events, menus (that I think it could be made available beforehand so we could shop and prepare the meals before each day) and even exercise breaks! I think it was lovely. I also thank you for making available a reduced rate. And I believe many like me just had the opportunity to participate in the event because of that. Just one more thing: I just didn't understand why we need to make an additional registration for side events (and why it was restricted to them). I didn't notice it was necessary until the morning of the 11th, so I felt sad about it. :(Anyway, congratulations!*
- *Well done team, fantastic event!*
- *I really loved the recipes.*
- *I hope to attend this conference the next year too.*
- *I'd like to have more time to watch the videos I missed online.*
- *I'd like more interaction, different ways of sharing...the conference is in excess academic....*
- *I enjoyed the conference very much, and the ideas with the online sightseeing tour through Trieste as well as the workouts in the coffee breaks, which were a very good idea.*
- *The organisation was really good, everything was sent on time with links and all information. I felt super good and well informed every day. Thank you for your job.*
- *I did not like the poster sessions as much as the other session. People were rushing to present and it was very difficult to discuss particular posters.*
- *Loved the use of Vimeo - worked really well for viewing the presentations.*
- *Great event, would love to be in Trieste but times did not allow that.*
- *The online events went really smoothly; I had no issues holding a session from my home and participating in the discussions afterwards.*
- *The social events (city tour, recipes, Zoom disco) were great, I guess there could be a bit more in the future.*
- *Considering the fact that this had to be planned and rescheduled from an onsite to an online event - great success!*
- *Vielen Dank!*
- *I would like to express my gratitude towards the organizers and the speakers, moderators, developers etc. I'm relatively new to citsci and have gained a tremendous amount of knowledge during those few days. It was a great experience and a top quality online event.*
- *I'm not sure if possible, but may be worth ensuring the conference falls at times suitable for most countries (e.g. including Australia and New Zealand) or providing additional provisions for those joining from these countries (e.g. allowing recordings to be accessed for a longer period following the conference).*
- *Having the conference bag sent to participants with coffee and goodies was a wonderful idea.*
- *I am already waiting for the next one. It would be interesting if a certificate of participation be provided.*

- *The conference exceeded my expectations. 1) The bag with information and coffee received at home was a great and connecting gesture. 2) The conference was clear, excellent regarding logistics, technicalities and content. 3) Good options to network. 4) The options to watch the recordings weeks after the conference was handy. 5) I have mentioned to many people (even from completely other fields of expertise) how well organized the online conference was. I think it should serve as "best practice" for online conferences in general. 6) The only negative point was that it was very long, difficult to keep up with all the sessions, and some presenters difficult to follow.*
- *Congratulations for the ECSA2020 Conference, it was fantastic!*

A huge thank you to…

- Our (virtual) hosts in Trieste, Sissa Medialab and the University of Trieste
- The technical team at Sissa Medialab for setting up the conference platform so well
- Our ECSA 2020 sponsors
- Our conference committee, who helped organise the event
- Our programme committee, who reviewed all the submissions
- The team at ECSA HQ
- The ECSA Executive Board
- Everyone who presented at the conference
- Everyone who took part in the conference
- Everyone who submitted a proposal to ECSA 2020
- The people who live tweeted the conference sessions
- The session hosts, who all volunteered their time at very short notice!
- The organisers of the lunchtime events
- Our Pilates instructor
- The Sisters Cap DJs

We look forward to seeing you all again in 2022!