June 2023

Climateurope2

Workshop 'Art & climate': summary report

Barcelona Supercomputing Center
Centro Nacional de Supercomputación

Diana Urquiza, Marta Terrado

Objectives and general outcomes 3

Workshop programme 4

Session report 5

Main points discussed 13

Next steps 20

The main objective of the 'Art & climate' workshop was to make a first contact with the world of arts, a group of potential users of climate information that work in an artistic context.

The workshop aimed to define the main climate information needs of this stakeholder group, their challenges interacting with climate information and to co-explore possible research interests.

The activity was focused on solving the following questions:

1. Have you used climate information in the past to inform your work? If yes, please elaborate
2. Which climate information sources have you used?
3. What has been your biggest challenge using/approaching climate information?
4. Which audience does your work target? (focus on the climate information body of work)
5. What kind of climate information would be interesting for you? Any specific format? any specific geographic domain? any specific temporal scale?
6. What kind of work would you like to create/explore that could be informed by climate information?

After the time for answers, the activity focused on elaborating and creating a conversation between the different participants that allowed us to explore their attitudes and needs regarding climate related projects.

Workshop schedule

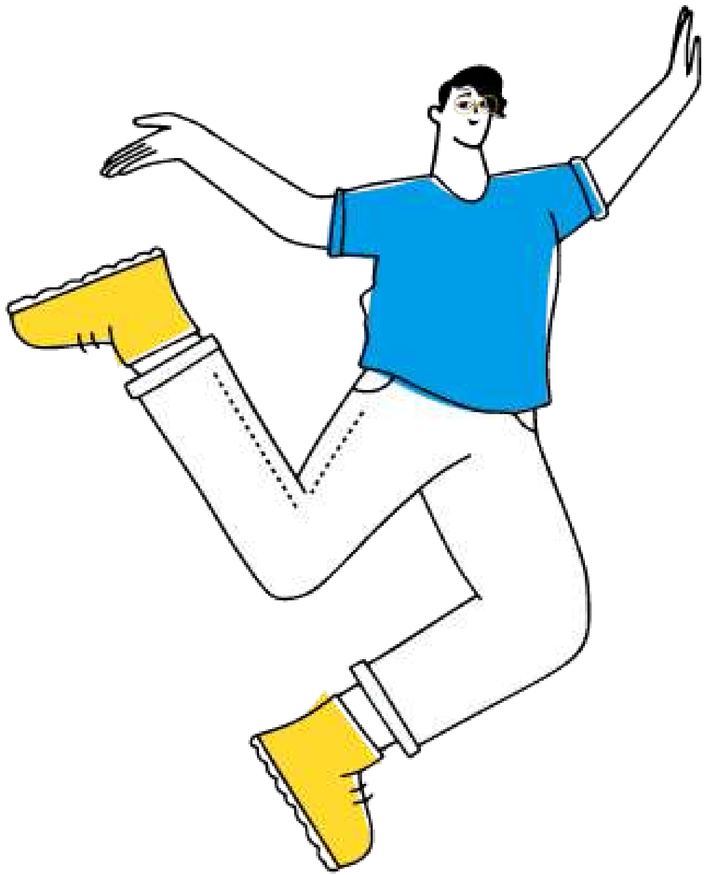
No	Section title	Objectives	Responsible	Time
0	Welcome from CCCB and BSC		Elisabet Goula, CCCB Marta Terrado - BSC	9:30h-9:45h
1	Introduction to Climateurope2 - BSC	Introducing the Climateurope2 project and its objectives. Introducing the Barcelona Supercomputing Center. Provide an overview of the climate and society research performed	Ángel Muñoz - Verónica Torralba - Marta Terrado, BSC	9:45h-10:15h
2	Introduction of participants	Participants introduce themselves and the motivations to attend the workshop (5 mins per participant)	Diana Urquiza - Julieta Rosenbluth, BSC	10:15h-11:00h
3	Coffee Break		Provided by BSC	11:00h-11:20h
4	Open questions (empathy map)	Understand the participants' contexts, objectives and challenges	Julieta Rosenbluth - Diana Urquiza, BSC	11:20h-12:00h
5	Open Conversation	Wrap up and discussion on potential collaboration	Julieta Rosenbluth - Diana Urquiza, BSC	13:00h-13:30h

Art & climate workshop

26 May 2023, 9:30 - 13:30h CEST

Barcelona Centre of Contemporary Culture (CCCB)

Number of participants: 9



Experience of participants and potential ideas for using climate information

We asked each participant to explain some projects that they have developed, or would like to develop, that make use of climate data or information. Here there is a summary of some of the ideas that were discussed during the workshop.

In order to respect the privacy of participants, we have anonymized the responses.

Summary

Sea level rise :

Idea for a project to be developed in one neighbourhood in the city of Tarragona (barri del Serrallo) showing the height that could be reached by the sea level in 50 or 60 years from now. This would be a visual way to show to the population which parts of their neighbourhood may be under water in the future. The artist had the idea of drawing a red line on building walls and infrastructure in different parts of the neighbourhood to make somehow tangible for the population the magnitude of future sea level rise. A challenge for obtaining this information is that on the internet different information about sea level rise can be found, but it is not clear which the best data source is for this purpose and what is the uncertainty attached to this data. In addition, the numbers found are very broad, with an increase in the sea level that ranges from 50 cm to 2 metres, and even 4 metres depending on the data one looks at. This guided the discussion to a brainstorming about uncertainty and how to represent it when drawing the sea level line. During the workshop, it was mentioned that the IPCC provides some numbers about sea level rise, even disaggregated by regions (the Mediterranean, the Poles, etc.), and that a range is also indicated between the lowest and the highest sea level rise predicted by different models. Participants discussed the convenience of drawing a strip rather than a line, with the width of the strip indicating this possible range of options. It would be great if scientists at BSC could indicate the values of this range, specifically for the city of Tarragona.

Changes in nature:

Interest in natural processes that used to happen in our vicinity in the past, but that are now changing due to climate change and will probably continue changing in the future. This includes the frequency of snow events, blossoming and the plant phenology cycle, the migration of birds, the distribution of fish species, the spread of climate-related diseases, etc.

Spatial and temporal zones sacrificed in favour of unlimited growth:

It is important to consider which shared zonesbelong to the whole society, and which ones belong only to responsible agents. And to look for methodologies for (partial) reparation and remediation.

They are also interested in how to write "Queering Damage" formulas for attendingcomplexity and using different tools to express suchcomplexity and the specific damages made onnaturecultures. Mention to the co-constitutive relation between nature andculture (including computational cultures, such as volumetric regimes or service-based clouds), and added a comment on a parallelism between the novel ‘La tempestad from W. Shakespeare, "Una Tempestad" by Aimée Cesair and ascientific paper which explains the historical economicsituation in the archipelagos in the mid of the colonized oceans (i.e.the relationship with wind routes that favoured trade shipsgoing through them and hence increased).

Sounds of the sea/ocean:

There are many recordings available from the sea and the ocean but, apart from scientists that try to give answers to particular research questions, nobody else listens to them.
Regarding the sounds of the sea a participant mentioned the detachment of humanity from nature, the lack of connection with our environment. The example that many people cannot recognise the sound of the sea whereas a coastal community identified in a remote area immediately could, showed evidence of this detachment.

Penjant d’un fil:

Project by the organisation Pulmons de barri in which using Dali, an AI algorithm, they are recreating how different natural spaces will be in a few years under climate change (https://ca.goteo.org/project/penjant-d-un-fil). They develop an exhibition about how people feel in specific spaces characterised by particular conditions of temperature, precipitation, wind, aesthetic, aeration, etc.

Responses

Have you used climate information/data in the past?

Yes, for reading the confort levels in university classrooms (temp, humidity, precipitation, and happiness state of the users)

For scientific posters and cool presentations

Yes, in the projects:
- Llums de Montserrat
- Montberrat
- Batalla del Bruc
- Nivel del mar

Yes,
- Interviews with communities
- Information from local institutions
- Webs
- Books and essays centered in the caterés region

Yes, stories from "tonas de sacrificio"

Yes for the project "a tempest"

Yes, for the project penjant d'un fil

Yes, to make Infographics or explore visual representations of future predictions

Yes, working with institutions like OMSs, Unicef, Nasa, etc

Yes, for cinetic art

Yes, 3d models and cartographies

Yes, vocabularies and gramatic, like words of weather

Yes, Wind and pressure (data)

Yes, for research, dissemination, user interfaces and data-design experimentation

Main sources of climate information

We observed the main sources of climate information used by the participants are:

- Scientific publications
- Books
- Open science portals
- Interviews
- Collective or personal memory
- Journals
- IPCC reports / Copernicus

Responses

Which has been your information/data sources?

open data barcelona

specific websites and papers (for example a certain wolf species)

NASA, Copernicus

Socio economic databases

open data, conferences, open tables, exchanges

Peers

Software (Gplates)

Interviews with communities

Experience in the place where it took place

Books

Funding bodies (NextGeneration EU, Horizon 2020, etc)

We've integrated the scientist quotes in our informative instalations

Books, poetry, philosophy, human-plant sources

meteocat

collective memory

Image archives

Coppernicus Climate Data Store

Scientific articles

Data provided by research groups

Academic publicati ons

Interviews to scientists, trying to change the way of communicating not only from sciencist

journalist sources, it's really important!

from expereince feeling the climate change

I created my own sensors and a platform to review the twitter mention of users for a project

talks with scientists and people involved in these topics

Scientific articles

Dissemination books, exhibitions

Information heard through non-human beings like plants to see the change in weather

scientific commun ity

IPCC reports

Scientific articles, public data and podcasts

Sometimes from artistic research (artist also make research work)

Open science

Main challenges while using climate information

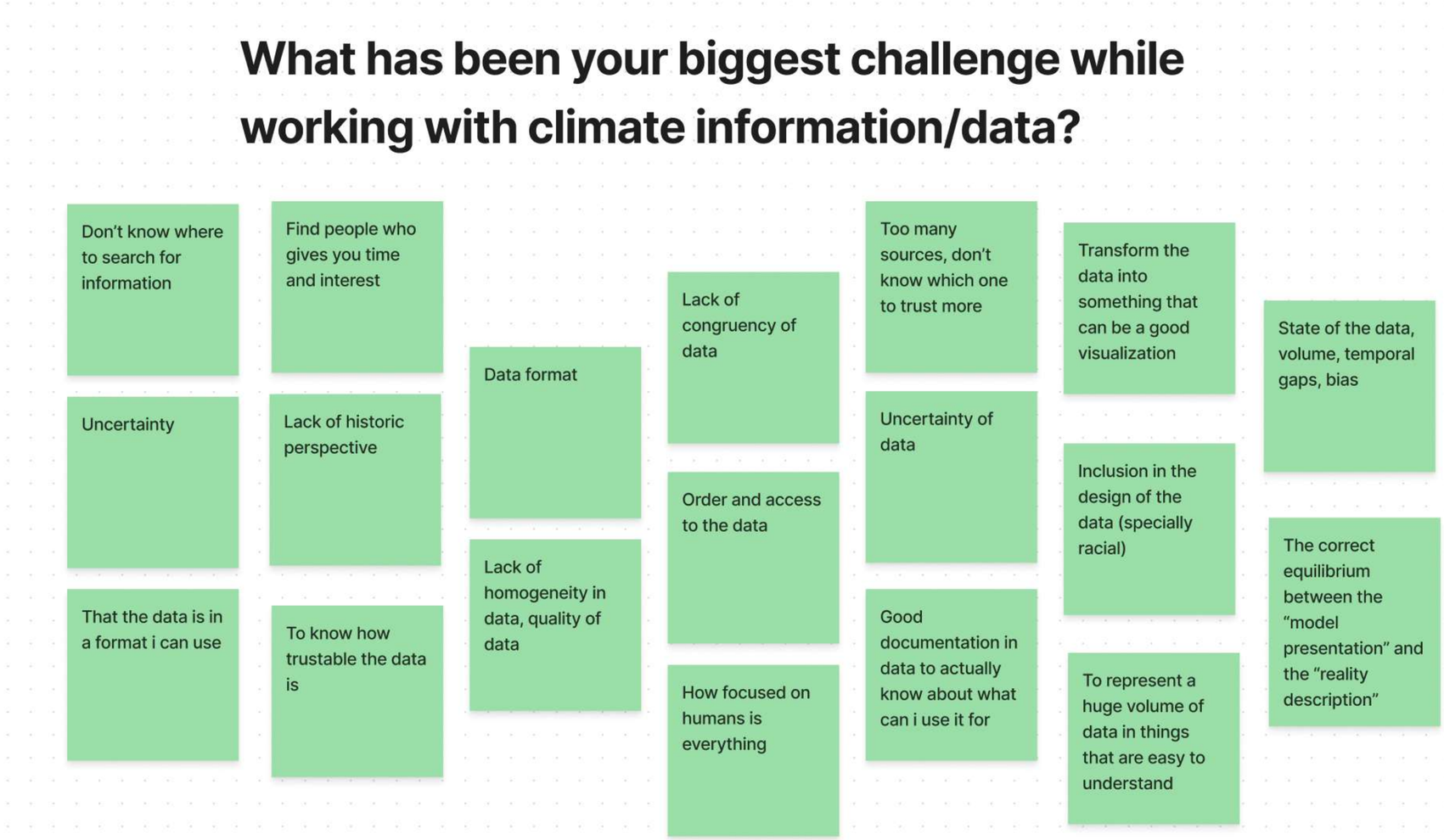
We observed the main challenge to use climate information is the accessibility, how easy it is to find data and in which formats it is available

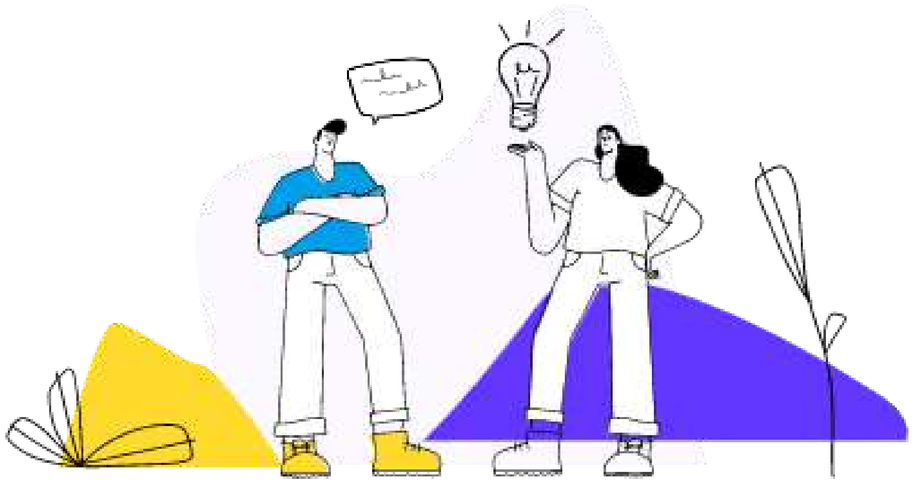
Uncertainty is another topic that was explored. While it is important, it has been approached differently from non-scientific contexts. The uncertainty in climate data doesn't need to be a limitation for using these data, as long as suitable ways to deal with it are found.

Participants highlighted a lack of historical perspective in climate data. Also, many information they could find only focus on humans, while non-anthropogenic approaches are also demanded.

Climateurope2

Responses





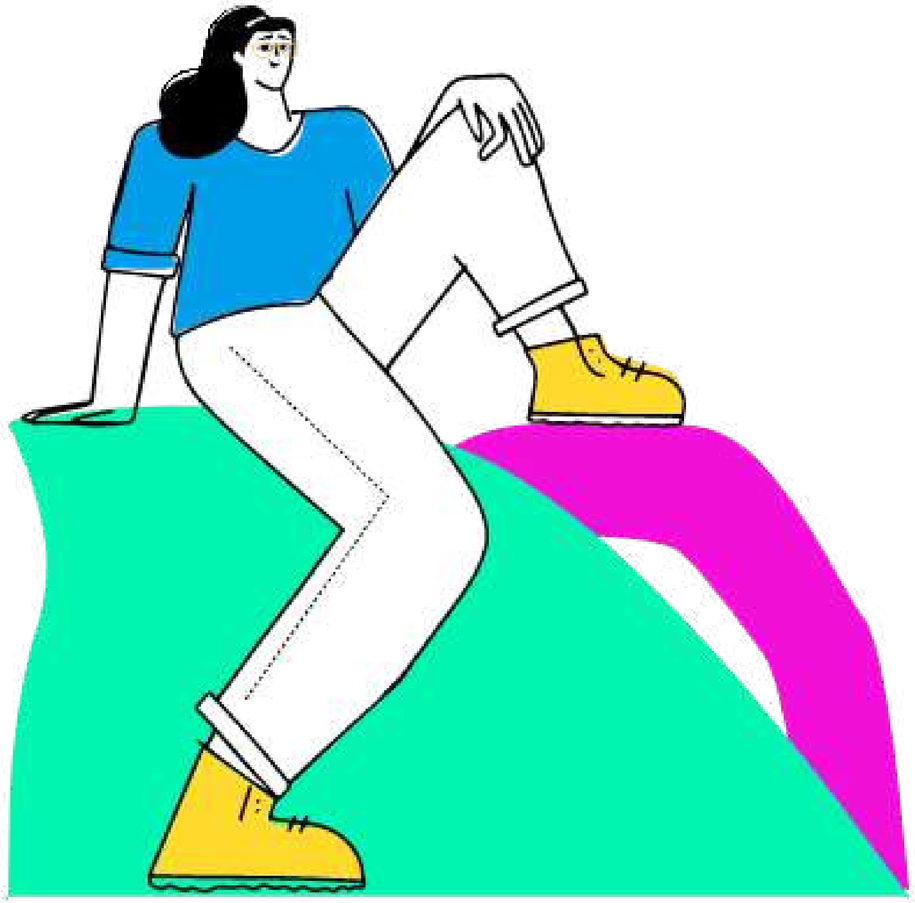
Main target audience

The general public is the most popular target audience or intended viewership of the different artworks.

This means the artists are used to creating artworks with the intention of appealing to a wide range of individuals without necessarily targeting a specific socio-demographic group.

Climateurope2

Responses



Interest in specific types of climate information

Sea Level rise was the most requested data by the participating group, followed by sea ice, extreme events, heatwaves, ocean data.

There was an interest in comparing past data with the present situation. Also, there is a need for having more information about the process of data collection

Responses

What kind of information/data would be interesting for you? any specific format? any specific geographical domain or temporal scale?

High resolution satellite images

Sea level rises

Heatwaves

I'd like to know more about the recollection of the data, who is doing it? who and how are we getting data from the environment?

- Daily data
- Century

10×10km granularity would be interesting

Frecuency, duration and intensity of extreme events

Temperature evolution for the next 50 years

Sea ice

Audio data

Sea level rise

Impacts of climate change

Global level, and data related to specific ecosystems : deep sea, coral, etc)

Urban heat island information for the next five years

Global data related to tropical forests

Climate related pests

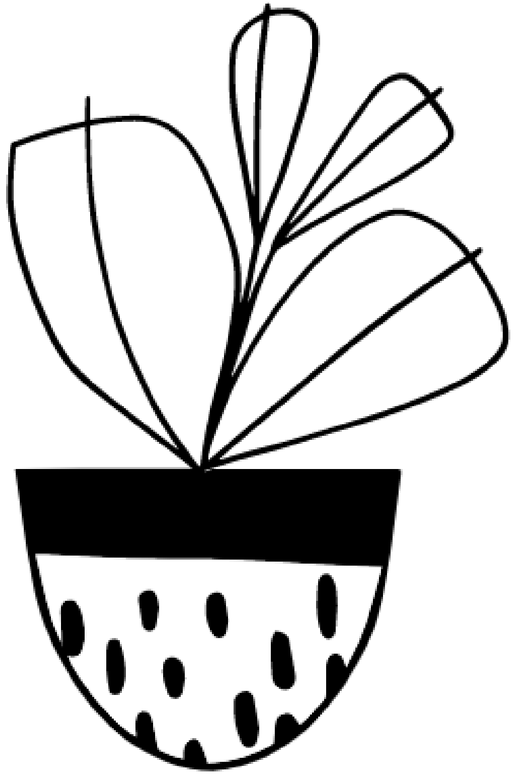
Multiple temporal scales

Sea data
- Real time data
- Present and 10 years ago

Ocean data, extreme temperature in desert areas

sometimes the urban scale from street to street

Yes, forest conditions: population, conditions, pests, and their relationship with climatic conditions



Line of work that participants would like to explore

When artists are asked about the work they'd like to create, their responses vary a lot. Some artists expressed a desire to continue and build upon the work they have been doing, striving to improve their accuracy, or techniques.

On the other hand, some participants expressed a strong inclination to venture into completely new artistic directions. This can involve exploring different mediums such as installations, books, data visualisation and more.

Climateurope2

Responses

What kind of work would you like to explore that could be informed by climate nformation/data?

Any specific objective?

- I'd love to explore if clouds could be created with colour for public instalations
- I'd like to recreate my project "nivel del mar" with more exactitude
- Book of invisible latin american animals
- For a documentary with testimonies and oportunities that arise with the climate emergency
- Scientific work that explores exactly the aesthetic / artistic dimention
- for my website libernatura
- for my nobel "profundo calado naturalista"
- Yes, for interactive installations in the city in walking streets providing information
- Working with human and not human populations, migrations, health, water reservoirs, water quality
- Artistic work that could be read by only scientist
- Social presenting theatre
- A "feeling" apartment that lets you think about more before turning on the air conditioning
- Something that explores: informative, aesthetics, reflexive and propositive topics
- Luminic instalations and written work
- I'd like to explore with non-human relations to climate change, for now I'd keeo exploring with emobolism but I like the approach of something non human to change the paradox

Main points discussed on using climate information

- ‘Positivise’ uncertainty
- Use rigour sensibly
- Tackle issues in data quality, quantity and availability
- Use positive narratives

‘Positivise’ uncertainty

The discussions highlighted uncertainty as an interesting aspect, which adds complexity to climate and environmental data, but that is regarded as interesting (as opposed to certainty, which may be seen as boring). It was mentioned that after the pandemics, society has learned to better accept and embrace uncertainty. There was an intervention about the fact that the world is perceived as a more comfortable place now than a few years ago (i.e. before the pandemics). Also, the idea that historically science has considered true things that with time were revealed to be false (e.g. that the Earth was flat, that the sun turned around the Earth, etc.), was mentioned to stress the idea that science is evolving and acquiring new knowledge.

Use rigour sensibly

The difficulty to find certainty in climate science due to the high level of uncertainty, especially as we go into the future, may provide arguments for climate deniers. Rigour is a needed element but being too rigorous may prevent climate scientists from making more categorical statements. On the other hand, topics other than climate change use rigour in a looser way. As mentioned by one participant, where is the rigour in the unlimited growth fostered by capitalism? The anthropogenic perspective of capitalism contrasts with the more urgent needs of protecting nature and fighting against climate change. In this sense, exploring viewpoints different to the current anthropocentrism has effects in the ecological conscience and may offer different opportunities for a better future.

Tackle issues in data quality, quantity and availability

There are many biased studies, either because data is not always complete or does not have enough quality. This can difficult the extrapolation of specific use cases to a broader context. In addition, data availability is another factor that can limit the use of climate information. Sometimes, it is difficult to find reliable data regarding the social component of climate change, and therefore, it is necessary to reach out to local communities directly (e.g. through interviews). Other times, some data may be hidden or not easy to find. A participant mentioned that, for instance, in the UK there is a lot of information available about biodiversity whereas this is not the case in Spain.

Use positive narratives

The use of tales and legends as a source of knowledge was also mentioned and identified as an invaluable resource, especially in cases in which it is difficult to find an empirical explanation for some (nature- and climate-related) phenomena. People may have their own speculations that can be useful to generate a plausible narrative. Therefore, if we want to give society a positive message about the future, it is key to start by generating a positive narrative. Eventually, people will incorporate this narrative and will help to populate it with content. Data – specifically data generated by the supercomputer – can help to create this narrative, being understood as a unit that makes sense for society. Finally, narratives need to be contextualised. A different narrative should be used in Catalonia and in Colombia, for instance, since the way of engaging with people should be different. Hence the importance of qualitative and quantitative user research.

Climateurope2

How do we continue from here?

From the workshop discussions, it emerged that stakeholder from the world of arts may be interested in different types of collaboration with climate scientists: co-creation and/or consultation

Co-creation

Would you like to co-create a project with climate scientists from the Climateurope2 project?

CONTACT FOR CO-CREATION

Consultation

Would you like to make a consultation to a climate scientist from Climateurope2 to inform your future work?

CONTACT FOR INTEREST

We'd love to invite you to a second workshop, for this we are collecting ideas, please let us know if you'd be interested and,if you have some ideas in mind to the email: **infoclimateurope2@bsc.es**

Extra information

Art and Science Open Call

Climateurope2 will invite artists and scientists to an open call to co-create and exchange scientific and artistic perspectives regarding climate challenges and opportunities for transformational approaches.

The call will be launched in September 2023 and will welcome submissions from artistic performers, visual arts, multimedia, sound, and more. The projects will be supported and remunerated, and selected applicants will be awarded with a residency during one month in a scientific institution in Belgrade, Serbia. Travel and accommodation will be also covered.

Further details and instructions will be soon available on the project website.

Find more information in https://climateurope2.eu