Climate communication in practice: how are we engaging the UK public on climate change?

CLIMATE outreach

CLIMATE COMMUNICATION

THE CLIMATE COMMUNICATION PROJECT

Climate Outreach were commissioned by the Climate Communication Project to produce a report summarising the key findings from a survey of UK climate change communicators, and an 'Expert Elicitation' workshop (both carried out during 2018).

Climate Outreach

Climate Outreach is a team of social scientists and communication specialists working to widen and deepen public engagement with climate change. Through our research, practical guides and consultancy services, our charity helps organisations communicate about climate change in ways that resonate with the values of their audiences. We have 15 years experience working with a wide range of international partners including central, regional and local governments, international bodies, charities, businesses, faith organisations and youth groups.

www.climateoutreach.org

The Climate Communication Project

The Climate Communication Project is a collaboration between academics and practitioners working on public engagement with climate change. Through an 'audit' of UK capacity and expertise on climate change communication, a synthesis of key research findings, and by listening to a range of community groups' views and needs, the Climate Communication Project is producing a new resource that will help catalyse public engagement with climate change.

theclimatecommsproject.org

Project team

Report authors and survey design

Niall McLoughlin, Research Intern, Climate Outreach
Adam Corner, Research Director, Climate Outreach
Stuart Capstick, Research Associate, School of Psychology, Cardiff University
Harriett Richardson, Communications Manager, National Centre for Atmospheric Science
Dr Alice Bell, Director of Communications, 10:10
Catherine Muller, Head of Public Engagement, Royal Meteorological Society
Sam Illingworth, Science Communication Lecturer, Manchester Metropolitan University

Niall McLoughlin and **Adam Corner** led the report writing, with additional input and materials provided by the CCP team.

Editing & Production

Anna Stone, Project Manager, Climate Outreach
Léane de Laigue, Head of Communications, Climate Outreach
Elise de Laigue, Designer, Explore Communications - www.explorecommunications.ca
Digitronix, Infographics - www.digitronix.co.uk

Acknowledgements

Many thanks to the other members of the Climate Communication Project team:

Professor Piers Forster, Director of Priestley International Centre for Climate
Dr Rosie Leigh, Centre and Engagement Manager at the National Centre for Earth Observation
Dr Emily Shuckburgh, Deputy Head of the Polar Oceans Team at British Antarctic Survey

We would like to thank all of the climate communication specialists who have given their time to provide thoughtful responses to the survey and expert elicitation workshop that form the basis of this report.

We'd also like to thank the funders of this research, the Natural Environment Research Council (NERC).

NERC SCIENCE OF THE ENVIRONMENT

Cite as: McLoughlin, N., Corner, A., Capstick, S., Richardson, H., Bell, A., Muller, C. and Illingworth, S. (2018). Climate communication in practice: how are we engaging the UK public on climate change? Oxford: Climate Outreach.

Cover: Performance watchers at the River Thames Festival in London, England. Photo: Chris Harvey

NOVEMBER 2018

CLIMATE COMMUNICATION IN THE UK

There is a growing appreciation of the need to engage the public around climate change, but how much do researchers and practitioners agree on how to go about this? How do they approach communicating climate change, and what are their motives for doing so? The Climate Communication Project[1] aims to understand and evaluate existing expertise in the UK on communicating and engaging the public with climate change. By bringing together the key findings from a survey of 178 climate communicators and a one-day 'expert elicitation workshop', this report explores consensus and disagreement around some key principles of climate communication and engagement. It captures some key findings about how we are engaging the UK public on climate change, and points towards possible next steps to improve public engagement on climate change.

KEY FINDINGS

THERE ARE DIFFERENT REASONS TO ENGAGE, AND DIFFERENT PURPOSES OF ENGAGEMENT

There is no single, shared reason why practitioners carry out public engagement around climate change. Instead there are a cluster of motivations and rationales that range from inviting the audience to consider for themselves the implications of climate change, to challenging misinformation, to encouraging people to take actions in their own lives in response to climate change. Some of the most popular principles and purposes noted by participants in our research included 'resonating' and connecting with an audience's interests, nurturing a sense of optimism, communicating facts as clearly as possible, and focusing on dialogue and participation.

THERE IS A LOT OF COMMUNICATION, BUT LESS DIALOGUE

Over a quarter of the people surveyed were 'highly active communicators', carrying out twelve or more activities per typical year (such as public talks, report launches, discussion events, or exhibitions). There is widespread recognition of the importance of participatory approaches, but 'one-way' public presentations and talks were still the norm for communicators. A significant minority are using more engaging and dynamic elements, such as a 'two-way' dialogue and visual elements like photography and film.

THE ASPIRATION TO REACH NEW AUDIENCES IS WIDESPREAD BUT CONNECTING WITH THE 'GENERAL PUBLIC' IS MORE COMMON

There is a clear understanding and sense of excitement around the importance of reaching out to new audiences and tailoring engagement to audience needs, although most activities recorded were for a general audience, rather than a specific one.

MUCH COMMUNICATION IS INFORMED BY THE EVIDENCE BASE

There was widespread agreement around some key climate communication principles (and evidence of them being used in practice). For example, understanding the audience's values and interests, tailoring messages for different audiences, and utilising creative/storytelling approaches are all being applied widely in communications practice. It is unclear how often practitioners engage with the research literature around communicating climate change, nevertheless much public engagement is in line with good practice recommendations.

BUT THERE IS ALSO SOME DISAGREEMENT ABOUT BEST PRACTICE

Reflecting wider debates about the effectiveness of rebutting false claims and addressing misinformation, some of the strongest disagreement (i.e. a split between for and against) we observed was around whether 'myth busting' was a productive, or counterproductive method of public engagement (with some arguing instead that correcting false beliefs should not be a central part of a dialogue with the public). There was a similar level of disagreement around the value of communicating the scientific consensus on climate change as a tool for engagement.

CHANGING BEHAVIOUR IS A CONTESTED AIM OF CLIMATE COMMUNICATION

There was disagreement about whether changing behaviours was an *appropriate* aim for climate communication (reflecting perhaps the strong representation in the survey sample of scientists and academics), but also limited agreement with the idea that focusing on individual behaviours was an *effective* way of communicating climate change.

KEY RECOMMENDATIONS

RESONATE WITH THE AUDIENCE: POSITION CLIMATE CHANGE AS PART OF EVERYDAY LIFE

Find out what the audience knows; what their values, beliefs and attitudes are, and build/tailor engagement around this. Connect with what matters to them, use shared language and trusted, credible communicators where possible. Make communications personally relevant and familiar. Show how it will affect the audience directly (e.g. make links to human health, politics, everyday activities).

SHIFT FROM THE GENERAL PUBLIC TO SPECIFIC AUDIENCES

A shift towards more specialist or targeted activities is a potentially important future direction for the field. Practitioners highly valued receiving positive responses, high turnouts, stimulating engagement and dialogue, reaching a new audience and successfully tailoring engagement. Currently however, practitioners are mainly reaching out to the general public.

BE ENGAGING AND BUILD BALANCED OPTIMISM: FOCUS ON DIALOGUE AND CO-PRODUCTION

Hold people's attention, be concise, get to the crux of the communication quickly and make it interesting. Practitioners recommended using visuals, stories, narrative, humour and other creative forms of engagement to build a sense of optimism about tackling climate change. Two-way dialogue is crucial: learn together, avoid preachy, 'didactic' communication, and don't persuade forcefully.

INCREASE AWARENESS AND UNDERSTANDING: PROVIDE SCIENTIFIC CLARITY AND ACCURACY

Stick to the well established areas of science, repeat the basics, and be accurate. Be as simple and direct as the science allows.

CATALYSE CHANGE: NURTURE AGENCY AND EMPOWERMENT

Help the audience to realise what they can do themselves and realise key actions they can take; encouraging a sense of control and efficacy. Catalysing change could be a conversation, a behaviour or getting politically active.

SCIENTISTS CAN HAVE OPINIONS

Robust scientific evidence should be at the heart of climate communication, but this doesn't mean scientists can't advocate for policies or use evocative communication methods. Engaging with audience values, and using creative and storytelling approaches were judged by most as being valid and effective approaches to climate change communication - not simply 'sticking to the facts'.

INVESTING IN THE INFRASTRUCTURE FOR PUBLIC ENGAGEMENT ON CLIMATE CHANGE IS IMPORTANT

One of the key areas for improvement that practitioners identified was around the frequent absence of evaluation or longer term follow-ups to measure whether activities were effective or not. But evaluation requires investment in the infrastructure for public engagement, and support for communicators from across a range of sectors to do their work effectively.

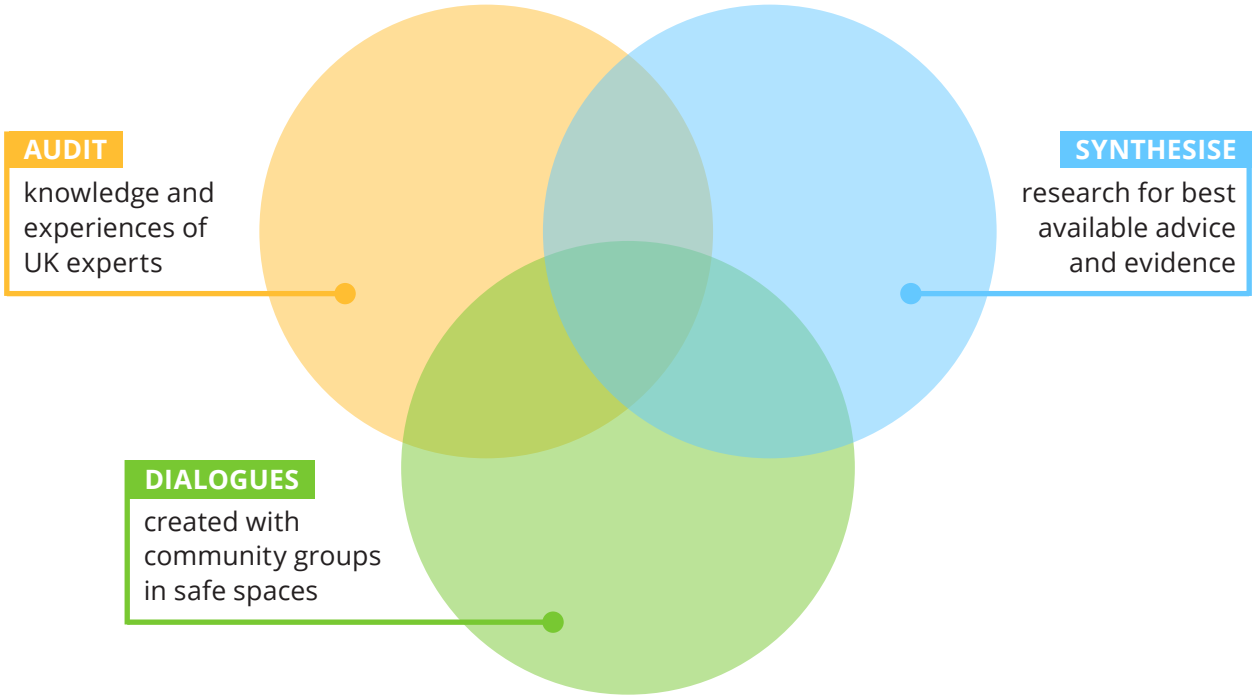
MAINTAIN AND BUILD LINKS BETWEEN RESEARCH AND PRACTICE

As the Climate Communication Project moves forward, with the aim of securing further support to build on our initial conclusions over the coming years, we will continue to provide evidence-based resources for climate communicators, maintaining and strengthening links between research and practice around public engagement with climate change.

BACKGROUND AND METHODS

The Climate Communication Project (CCP) is a collaboration[2] between academics and practitioners who share a focus on public engagement with climate change. The principle at the heart of the CCP is that the social science of communicating climate change is just as important as the climate science that tells us about the environmental problems we face. The CCP has three key strands:

1. Conducting an audit of UK capacity and expertise on climate change communication
2. Listening to a range of community groups' views and needs
3. Synthesising key research findings and collecting expert opinions on public engagement



The findings from the community group discussions were written up into an open-access academic paper that can be downloaded for free.[3] The purpose of this short report is to capture and discuss some key findings from the two other sets of data we collected through the CCP:

- A survey of UK climate change communication specialists, exploring views on best practice in public engagement (and inviting reflections on climate communication they have been involved with)
- An 'expert elicitation' workshop exploring climate communication specialists' judgments about the climate communication evidence base: is the social science of climate communication settled?

Audit survey

Between Feb-April 2018, we asked climate communication researchers and practitioners from a variety of backgrounds and specialisms (178 in total) to participate in the survey.[4] Most respondents identified as being from an academic or research organisation (including Higher Education) (49%), followed by members of non-governmental organisations (NGOs) and the charity sector (19%) and freelancers (11%).[5] Our sample included a mixture of relevant specialisms, from science communicators (21%), to climate scientists who practice climate communication (19%), other specialisms (e.g. media producer, climate adaptation advisor, psychotherapist) (19%), physical/natural scientists (17%) and social scientists (13%). There were low numbers of artists (7%), campaigners (3%) and journalists (2%) within the sample.[6] In the future, we hope to carry out further research that better assesses the views of these groups.

A significant minority were 'highly-active communicators' within the sample. Within a typical year, over a quarter of respondents (26%) carried out twelve or more planned activities (e.g. a public talk, release of a report, an exhibition, etc.) designed to communicate climate change to a public audience, or to engage people with this topic. On average, the practitioners carried out six events per typical year.[7]

Participants in the survey were asked to respond to a series of *quantitative* questions (where they provided numerical judgments on response scales). These questions covered the type of communication activities they carry out, their views on communicating and engaging the public with climate change (e.g. what is appropriate and what is effective), and their experiences of conducting different activities. There were also three *qualitative* (or 'open ended') questions. The questions asked about the key principles that participants saw as important for public engagement, their understanding of the purpose of communication and engagement activities, and prompted them to evaluate a memorable activity.[8]

Expert elicitation workshop

In June 2018, we convened a meeting of 15 climate change communication specialists with expertise spanning social science, climate science, science communication, climate campaigning and strategy. The workshop asked: How much agreement is there among climate communication specialists on what works, and what doesn't? Is the science of climate change communication 'settled'?

As part of a day of discussion and debate, we asked workshop participants to draw on their own knowledge, experience and expertise and provide some judgments about a series of statements about communicating climate change. This 'expert elicitation' task was based on

the (much more involved) process that IPCC authors follow when assessing the academic evidence base on climate change.[9] The task employed in this case was a little different, in that we wanted to include different types of expertise (i.e. not just people who were familiar with the academic literature, but also people whose expertise was based on their experiences as a practitioner).

Splitting people into three groups, with a mixture of types of expertise in each, we asked participants to discuss a set of six broad 'propositions' about climate change communication (e.g. *"Climate communication should start with the values of the audience – i.e. the things that matter to them"*). Each proposition (or rule of thumb) was accompanied by some more specific supporting statements (e.g. *"An individual's values are likely to have a bigger influence on their attitudes towards climate change than the amount they know about climate science"*).[10]

Participants then individually gave a rating to each *proposition* (using a traffic light system) and each supporting *statement* (this time using a matrix to give an assessment of the amount of evidence and level of agreement - together giving a 'confidence statement' - see *Fig 1*). As far as we know, it is the first time something like this has been attempted for the practice of public engagement with climate change.

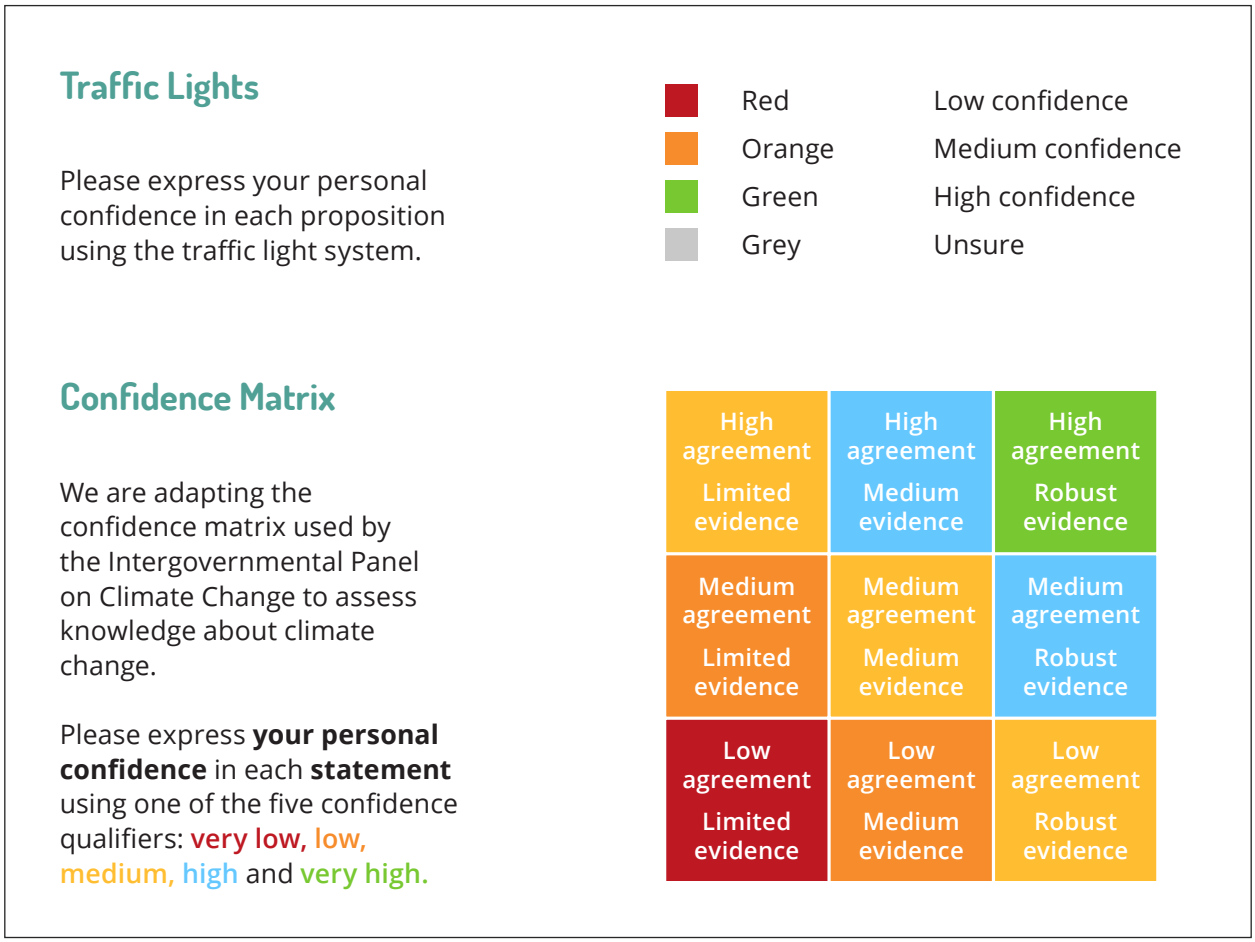


***FIG 1:** The methods used to elicit expert opinions on a range of climate change communication topics.*

KEY FINDINGS

What factors matter for climate change communication?

We asked participants to rate a list of possible reasons for undertaking public engagement on climate change, shown in *Fig 2*. Some of the most popular responses involved communicating facts in a clear way, providing an opportunity for people to discuss climate change, challenging misinformation, inviting the audience to consider for themselves the implications of climate change, and encouraging people to take actions in their own lives - that is, a wide range of different rationales for undertaking public engagement. One clear conclusion from the survey is that even for individual communicators, there is **typically no single, consistent reason for undertaking public engagement**, but instead a cluster of related reasons and motivations.

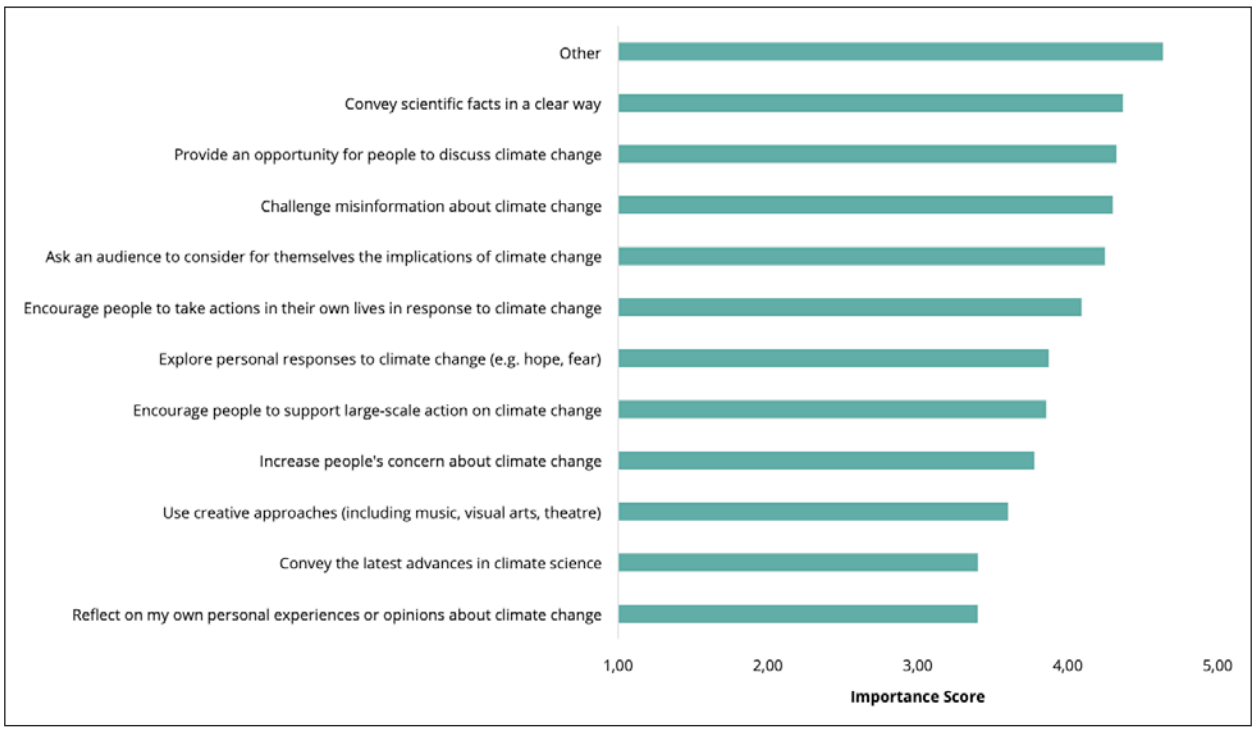


FIG 2: ***Practitioners' perceived importance of different aspects of climate change communication.*** *The survey question asked "From your own personal experience and perspective, to what extent do you think the following are important to do in climate change communication and/or public engagement?" Answers were scored from (1) 'Not at all important' to (5) 'Extremely important'. Bars represent mean scores, ranked from high to low importance.*[11]

Interestingly though, as shown in *Figure 2*, the response receiving the highest average importance score was 'other' - i.e. something that wasn't in the list of preselected answers to our question about 'important things to do in climate change communication'. Responses to the open-ended questions - where we invited participants to discuss their views on the **purpose** and **principles** underpinning climate change communication - shone a light on what these other factors influencing public engagement were. *Table 1* captures some of the key themes our analysis identified, plus illustrative quotes showing how survey participants talked about the principles and purpose of public engagement with climate change.

It was clear from the open-ended questions that practitioners felt it was important to **resonate** with the audience, **be engaging** and **build optimism** (often through **dialogue and co-production**), increase **awareness and understanding** through **clear science communication**, and **nurture agency and empowerment** with a view to **catalyse change**.[12]

***TABLE 1:** Key themes that emerged from practitioners' open ended survey responses around the purpose and principles of climate change communication*

What is the purpose of climate communication and what principles underpin it?	Key quotes
1 - Resonate with your audience: position climate change as part of everyday life	
Find out what the audience knows, what their values, beliefs and attitudes are and build/tailor engagement around this. Connect with what matters to them, use shared language and trusted, credible communicators where possible. Make communications local, personal and relevant, relatable and familiar. Show how it will affect the audience directly (e.g. make links to human health, politics, everyday activities). Be entrepreneurial with engagement activities, taking it to new groups, or targeting specific industries, in order to be inclusive. Amplify new voices. Humanise climate science and the climate movement, by showing that climate scientists and those involved are normal people.	"[It's about] tailoring messages depending on the audience, being aware of the many different values that drive people and tailoring messages accordingly." "For some, rejecting climate change is part of their social and political identity. Try to engage with those folks in a way that avoids immediately brushing up against political identity." "Climate change needs to be brought into the mainstream of public awareness – normalised as an undeniable part of our everyday life. Climate change needs to be incorporated into everyday narratives which people can engage with." "It is important to show the general public who climate scientists are and why we do what we do, i.e. that we are regular people and our interest is driven by curiosity primarily."

2 - Be engaging and build optimism: focus on dialogue and co-production

Hold people's attention, be concise, get to the crux of it quickly and make it interesting. Use visuals, stories, narrative, humour and other creative forms of engagement.

Build a sense of optimism about tackling climate change.

Two-way dialogue is crucial and active co-creation of knowledge and outputs with audience members is desirable. Learn together - avoid preachy, 'didactic' communication. Don't persuade forcefully.

"[Use your] passion, knowledge and good communication skills."

"Enthusiasm: If you're obviously excited by what you're talking about, others will be too. If you apparently couldn't care less, why should anyone else?"

"Tell me, I'll forget. Show me, I'll remember. Involve me, I'll understand."

"Don't leave people with a depressing thought: end with a positive note about the difference people can make."

"Two-way discussions are more fruitful at getting engagement than a one-way lecture."

"Take your audience seriously: listen and take your time to understand them. Don't treat them as puppets whose strings we might want to pull."

3 - Increase awareness and understanding: provide scientific clarity and accuracy

Increase the audience's knowledge base around climate change: the science, its implications, policies and related actions.

Stick to the well established areas of science, repeat the basics, and be accurate. Nevertheless, it's also important to communicate uncertainties where they exist.[13]

Be as simple and direct as the climate science allows.

"Emphasise the key facts: the greenhouse effect is basic physics, we have direct evidence that CO_2 is increasing."

"[Communicate] how the greenhouse effect works and that it happens naturally and is necessary for the planet to be warm. How increases in GHGs cause increased warming, and there's no other feasible explanation for increased warming (can be demonstrated by models with different climate forcings). How climate models work – i.e. physics."

"Communicate uncertainties."

4 - Catalyse change: nurture agency and empowerment

Help the audience to realise what they can do themselves and realise key actions they can take; encouraging a sense of control and efficacy.

Catalyse individual and collective level changes, boost political engagement around climate change. Broader socio-political structures and power dynamics should also be reflected upon.

"To allow participants to make more informed choices where their actions have climate implications. To create a more educated and empowered public when it comes to climate change."

"To listen to what the needs and experiences of different communities are so that they can help to develop and implement climate change mitigation strategies."

"Personally, I think the most important thing right now is to change behaviour and support for climate policy."

WHY ENGAGE ON CLIMATE CHANGE?

RESONATE WITH YOUR AUDIENCE

"Climate change needs to be incorporated into everyday narratives which people can engage with."

66.8% somewhat disagree / strongly disagree that scientists should be neutral and just 'stick to the facts'

FOCUS ON DIALOGUE AND CO-PRODUCTION

"Tell me, I'll forget.
Show me, I'll remember.
Involve me, I'll understand."

think it is very important / extremely important to provide an opportunity for people to discuss climate change

PROVIDE SCIENTIFIC CLARITY AND ACCURACY

"Emphasise the key facts: the greenhouse effect is basic physics, we have direct evidence that CO2 is increasing."

86% believe it is very important / extremely important to convey scientific facts in a clear way

CATALYSE CHANGE, NURTURE AGENCY & EMPOWERMENT

"To allow participants to make more informed choices where their actions have climate implications. To create a more educated and empowered public when it comes to climate change."

71.9% think it is very important / extremely important to encourage people to take action in their own lives

CLIMATE COMMUNICATION

Key findings from the report: Climate Communication in Practice | For more information: **theclimatecommsproject.org**

Successes and failures: memorable examples of public engagement

Participants in the survey were asked to consider a communication or engagement activity they had been involved with that was especially memorable. More than half (52%) of the events that practitioners recalled were public talks or presentations, although a significant number also included video, photography or VR (28%), or a discussion element (26%).[14] This suggests that practitioners are applying some of the principles around making activities **engaging** and embracing **dialogue and co-production** described in *Table 1*.

Broad, untargeted communication was the norm of these memorable events, however. Almost two-thirds targeted the general public (60%), while only very small numbers of practitioners targeted faith groups (6%), retirees or elderly people (6%) or minority groups (4%). A significant minority (24%) did note they had targeted specialist groups such as parents, airline staff, farmers, or sports fans.[15]

This suggests that specialist or tailored events are not as common as events for general audiences. This is worth reflecting on, given that a key principle the practitioners identified drew on the need to reach out to new audiences and be inclusive. Given that some of the most positive appraisals of events recalled by practitioners related to targeting very specific groups (see *Table 2*, where we have highlighted key quotes about how rewarding different experiences had been) a shift towards more specialist or targeted activities is a potentially important future direction for the field.

The responses also showed the sorts of things practitioners highly valued about public engagement activities, and the areas that were more challenging. Key achievements included getting **positive responses** or feedback, **reaching new audiences** and successfully **tailoring engagement**. The aspects practitioners found particularly challenging were when the **audience didn't seem satisfied** (despite best efforts), **lack of dialogue** or audience participation, or if **no evaluation** had been carried out afterwards. This highlighted that many practitioners have a good sense of where efforts should be targeted in the future, to build on their past activities.

Reaching new audiences, using creative forms of engagement, positioning climate change as part of everyday life and ensuring 'two-way' interaction with new audiences are important principles highlighted in this research. This image shows a 'Pot Gan' performance about climate resilience in Dkaha, Banglasdesh. Rather than a static performance, Pot Gan involves active participation from audience members. Photo: The Lived Experience of Climate Change.

***TABLE 2:** Key achievements and key challenges identified by climate change communications practitioners.*

Key achievements	Key quotes
Positive response	
The activity received a good appraisal and feedback from the people who were engaged with. Many practitioners spoke of the success of getting a good turnout or reaching lots of people.	"It was particularly memorable because many more people turned out than expected and the hall was full, the discussion took on a life of its own and led many people to consider a new aspect of their carbon footprint." "The event was memorable because it attracted far more people than we were expecting, and their feedback forms were incredibly positive about the interactions that they had with the scholars."
Inclusivity / reached new audiences	
New voices and highly specific audiences were engaged in the activity. Practitioners often mentioned the audience they engaged with as being a positive aspect. Specific examples practitioners recalled were engagement activities with refugees and asylum seekers, BME groups, people with mental health needs, interfaith groups, schools, actors, and sports fans.	"One of my main activities was the Green and Black Conversation and Ambassadors (more environmental than climate, but definitely includes climate). This centred on why BME voices were not being included in the green movement and the pre-conceptions that arose from (BME people are not engaged) and that it fosters (climate change is a white, middle class issue). This has helped create wider dialogue and greater political unity among different groups. It has showcased BME led initiatives. It has legitimised my own communications about the social justice implications of climate change."
Met audience needs	
The activity was tailored or adjusted to suit the requirements of the audience.	"It became apparent that they were very concerned about air pollution, and so by listening to the audience we were able to change the focus of the sessions so that they addressed this issue and provided actionable steps that they could take to protect themselves against some of the negative effects of air pollution in the local area. Poetry allowed the participants to speak freely about the topics, without worry that they would be judged for their awareness of any particular study."

Catalysed dialogue	
The activity was successful in promoting discussion and two-way engagement.	“The audience was very engaged - it wasn’t hard to keep the momentum going [...] I think our audience appreciated simply having access to a few climate scientists. They were curious. In some way they had a real human experience with the scientists - it was a genuine back-and-forth, as opposed to simply being lectured to. Based on this experience, I’d say that there’s a lot of value in putting climate scientists and the general public in the same (smallish) room together and simply letting them talk with each other.”

Key challenges to address	Key quotes
Activity did not go as expected	
Negative appraisals often concerned aspects that did not go according to plan. This included when high amounts of effort had been invested but ended with poor outcomes, poor turnout or low reach.	“Feedback was good, but there were no questions afterwards. More interactive group activities may have encouraged greater discussion at the end.”
Audience needs not met	
In keeping with the practitioners’ principles for communication, one of the key problems practitioners mentioned was when audience needs could not be met. Examples include activities not being tailored, or being pitched at the wrong level.	“The text provided alongside activities was largely ignored by the younger audience.” “It would have been helpful to also have a short written summary of each poster to make it more accessible for people with (for example) dyslexia.”
No evaluation carried out	
A follow up was not conducted	“One thing that was missing from this activity was a longitudinal evaluation to see if there was any lasting impact.” “There was no follow up with these people. Such a shame because they all left chatting and it was hard work to actually get them out of the building.”

Is the science of climate communication settled? Agreement and disagreement about approaches to public engagement

Survey participants were asked to indicate their agreement with a range of statements relating to climate change communication (see *Fig 3*, below). A similar set of six 'propositions' about climate change communication, plus a set of 'supporting statements' were explored in the expert elicitation workshop. Within the following discussion, the key findings from this workshop have been colour-coded and labelled with 'confidence statements' to represent experts' sense of agreement and certainty. This colour coding represents the position of statements and propositions within the traffic light and matrix coding system (as detailed in the methods section). Drawing on the findings from both of these data sets, some interesting patterns emerged.

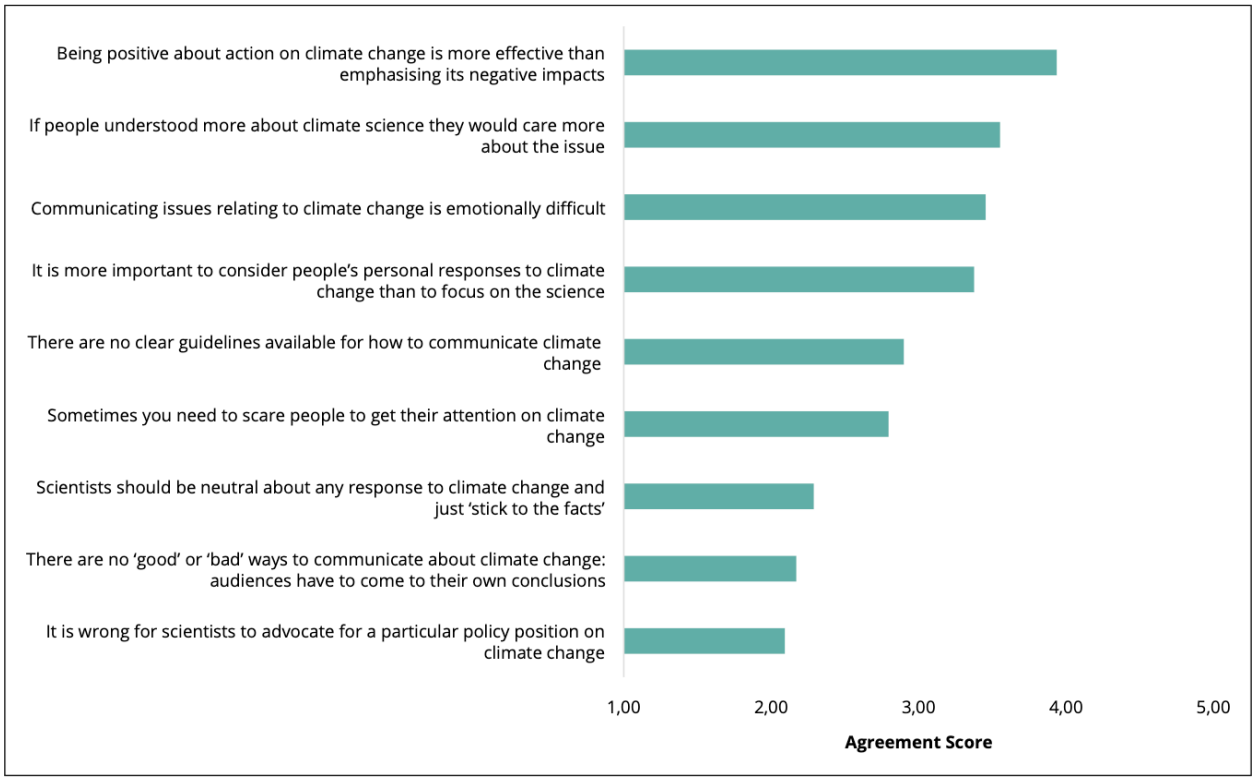


***FIG 3:* Practitioners' agreement with statements related to the practice of climate change communication.** *The survey question asked "From your own personal experience and perspective, to what extent do you agree or disagree with the following statements?" Answers were coded from (1) 'Strongly disagree' to (5) 'Strongly agree'. Bars represent mean scores, ranked from high to low agreement.*[16]

Neither survey nor workshop participants felt that it was wrong for scientists to advocate for a particular policy position on climate change. The notion that 'it is wrong for scientists to be policy advocates' ranked lowest in average agreement out of nine statements in the survey - and the idea that scientists should be 'neutral' was not far behind (as shown in *Fig. 3*).[17,18] In the workshop, the two most supported propositions were that *"Climate communication should start with the values of the audience (i.e. the things that matter to them)"* **[high confidence]** and that *"Creative methods (e.g. poetry, visual arts) & storytelling are an effective way of reaching beyond the 'usual suspects' (i.e. the already engaged) on climate change"* **[high confidence]**. There was clear disagreement with the statement *"A scientist using a storytelling approach to communicate climate change (rather than presenting facts and figures) will be distrusted by the audience"* **[low-to-medium agreement, limited-to-medium evidence]**.

0 red, 0 orange, 15 green
→ See *Fig 1*, traffic lights

1 red, 1 orange, 13 green
→ See *Fig 1*, traffic lights

5 red, 7 orange, 2 yellow, 1 blue, 0 green
→ See *Fig 1*, matrix

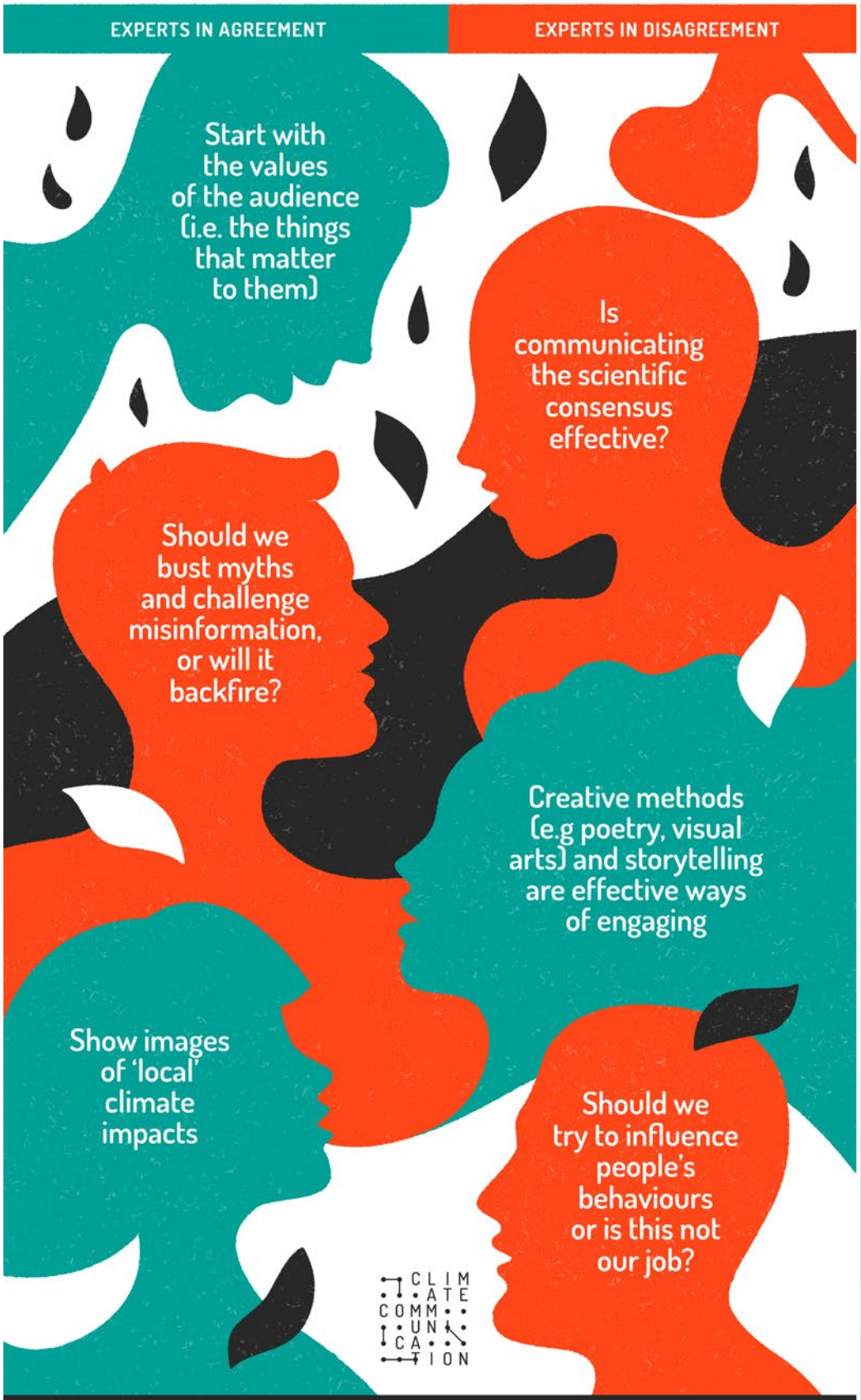
Taken together, this suggests an attitude towards engagement that challenges the notion that climate change communication should simply 'stick to the facts'.[19] Robust scientific evidence should be at the heart of climate communication, but engaging with audience values, and using creative and storytelling approaches[20] were judged by survey and workshop participants as being valid and effective approaches to climate change communication. The fact that people with such diverse expertise and experience nevertheless provided such consistent judgments is a strong indication that – at least in some cases – the science of climate communication seems fairly settled.

There was obvious agreement at the workshop with the statement *"Showing images of 'local' climate impacts is an effective way to engage public audiences"* **[medium-to-high agreement, medium-to-robust evidence]**, which fits with the guidance provide by the 'Climate Visuals' project (an evidence-based library of climate images for use in engagement).[21] The proposition that was (consistently) given the most red and orange ratings (and not a single green) read *"Focusing on individual behaviours (e.g. eating meat or recycling) is an effective way of communicating climate change to public audiences"* **[low-to-medium confidence]**. Fittingly, ambiguity over whether engagement processes should aim to change behaviours was reflected in survey responses too, with debate about whether behaviour change was an appropriate goal. Whilst some survey respondents judged behaviour change to be important, others felt that it was unnecessary or undesirable to target behaviour change.[22]

0 red, 0 orange, 1 yellow, 9 blue, 4 green
→ See *Fig 1*, matrix

6 red, 9 orange, 0 green
→ See *Fig 1*, traffic lights

IS THE SCIENCE OF CLIMATE COMMUNICATION SETTLED?



Key findings from the report: Climate Communication in Practice | For more information: **theclimatecommsproject.org**

Do change behaviour	Don't change behaviour
"[The purpose is] to raise awareness, to empower people to take action, to effect behaviour change."	"Understand that we are individuals who play different roles in society, that it's not an issue of individual behaviour change..."
"Addressing climate change is not possible without some serious shifts in systems, individual behaviour, political motivations, etc."	"Structural analysis - recognise climate change as a multidimensional issue requiring collective action and political engagement, not individual lifestyle choice."

One other aspect of climate communication that 'split the crowd' was around the efficacy of communicating the scientific consensus on climate change as a tool for engagement. At the workshop, the statement *"Communicating the level of scientific consensus is an effective way to build public engagement with climate change"* produced inconsistent ratings across participants, with confidence judgments ranging from 'very low' to 'very high' and every other response category in between! The question of whether (and how) to use the level of scientific consensus in climate communication is a topic that has attracted a lot of debate among researchers, and this seems to be reflected in the judgments our participants gave at the workshop and on the survey. On the one hand, there is clearly evidence[23] that when people understand the level of consensus on climate change among scientists, they are more likely to express concern and other measures of engagement. But there is also a sense that a focus on 'getting people to understand the consensus' represents an old-fashioned way of approaching public engagement, based on teaching audiences facts rather than connecting with their values and concerns.

Communicate the consensus	Don't focus on the consensus
"[Communicate that] the basic principles of climate change are well established, and within the scientific community the vast majority are in agreement that the climate is changing and that this is due to human activity."	"Saying 'the majority of scientists agree' doesn't work - people often aren't convinced by a majority argument."

There was a similar ambiguity around 'mythbusting'. Although ranking highly in terms of perceived importance (*Fig. 2*), one of the most controversial issues in survey responses appeared to be around the need to challenge myths, misinformation and denial (and whether this was effective or not). While some respondents came out strongly in favour of actively debunking myths and 'calling out' unsupported views, others remarked that it was ineffective, or undesirable to apply this strategy. This suggests that the literature about effective strategies for challenging misinformation (e.g. on providing alternatives to myths, avoiding backfire effects and reactance)[24] may not have fully found its way into the practice of climate change communication quite yet.

Bust myths and challenge misinformation

“How to defend against misinformation [is a key principle].”

“It is important to reach out to new audiences and climate skeptics as much as possible - this is a problem that could affect us all.”

“Mythbusting [is a key principle].”

Mythbusting doesn't work

“Mythbusting doesn't work - it just reinforces ideas in the mind (e.g. the £350m Brexit bus claim).”

“I stopped engaging on an 'argument/ debate' basis with climate deniers in the late 1990s. My approach with the public these days is to say that I am not selling anything but explaining our understanding as revealed by the latest science. I do answer questions including of the sort 'some say that warming has stopped', etc.”

One area of high agreement in this report was around the need to show 'local' images of climate impacts. This image shows a local resident being interviewed following the 2007 UK floods. Photo: Iain Cuthbertson (CC BY-SA 2.0)

CONCLUSION AND FUTURE DIRECTION

This research shows that there is a high level of enthusiasm around climate change communication in the UK today, as well as some widespread good-practices. Some long-standing approaches to science communication were re-affirmed, such as conveying the science simply and clearly. But there was also widespread endorsement by practitioners of approaches that nurture agency, empowerment and encourage dialogue. There is no one view on these matters: some of those we surveyed favoured fact-based approaches, while others highlighted the limitations of doing so. Likewise, whereas some communicators set out with an explicit aim to change behaviour, others elected not to do so (or questioned its effectiveness).

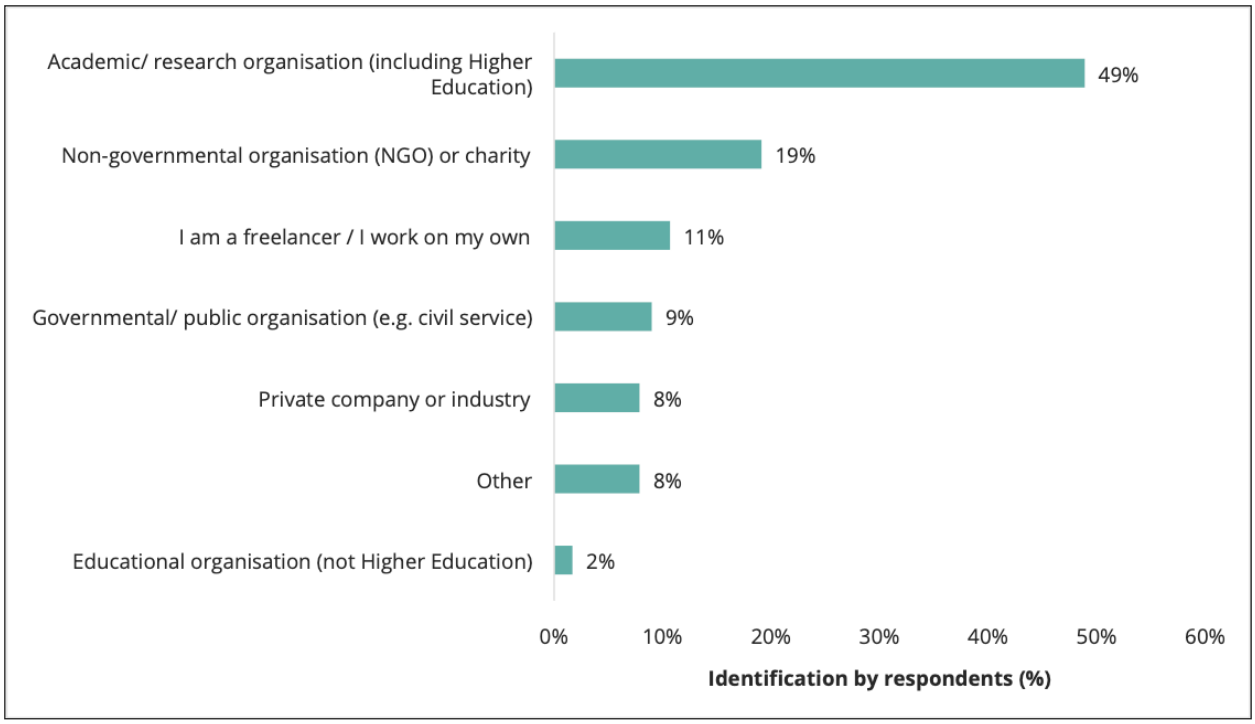
It is encouraging that many of those involved in climate change communication recommended using approaches that resonate with different audiences, and recognised the importance of people's values and emotions for climate engagement. The value of creative approaches and two-way dialogue was widely affirmed, as was presenting climate change in ways that are personally relevant to audiences. It is critical that any climate change communication is grounded in the science, but this does not mean that scientists can't have opinions, or that they shouldn't talk about what climate change means to them as an individual.

The research reported here has enabled us to present an overview of climate communication in the UK today, drawing mostly on the experiences and perspectives of academics and researchers. It is likely that the work of artists/creatives, journalists and campaigners is not reflected as strongly in our findings, as relatively few survey respondents identified themselves in this way. Given the central role that these practitioners play in structuring the national dialogue and public perceptions of climate change, we hope in future to better identify the practice and perspectives of these communicators.

More information about the Climate Communication Project, together with a series of blogs from expert practitioners, can be found at www.theclimatecommsproject.org.

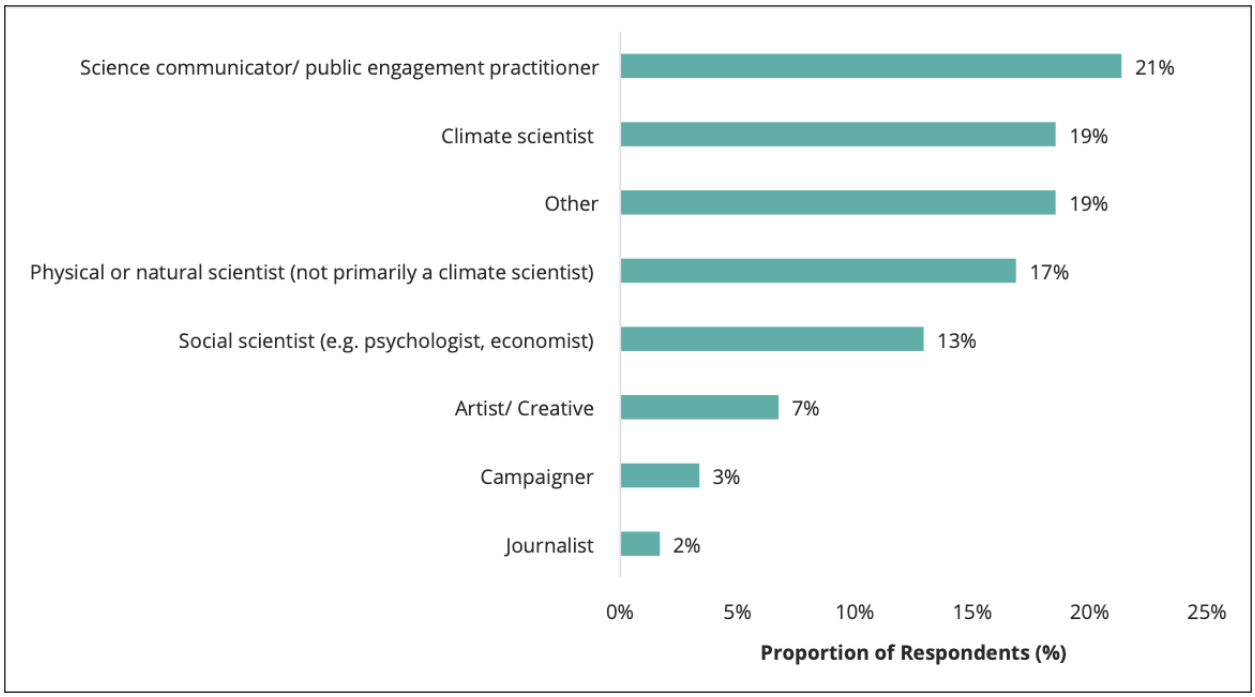
APPENDICES

A. What were the professions of our survey respondents?



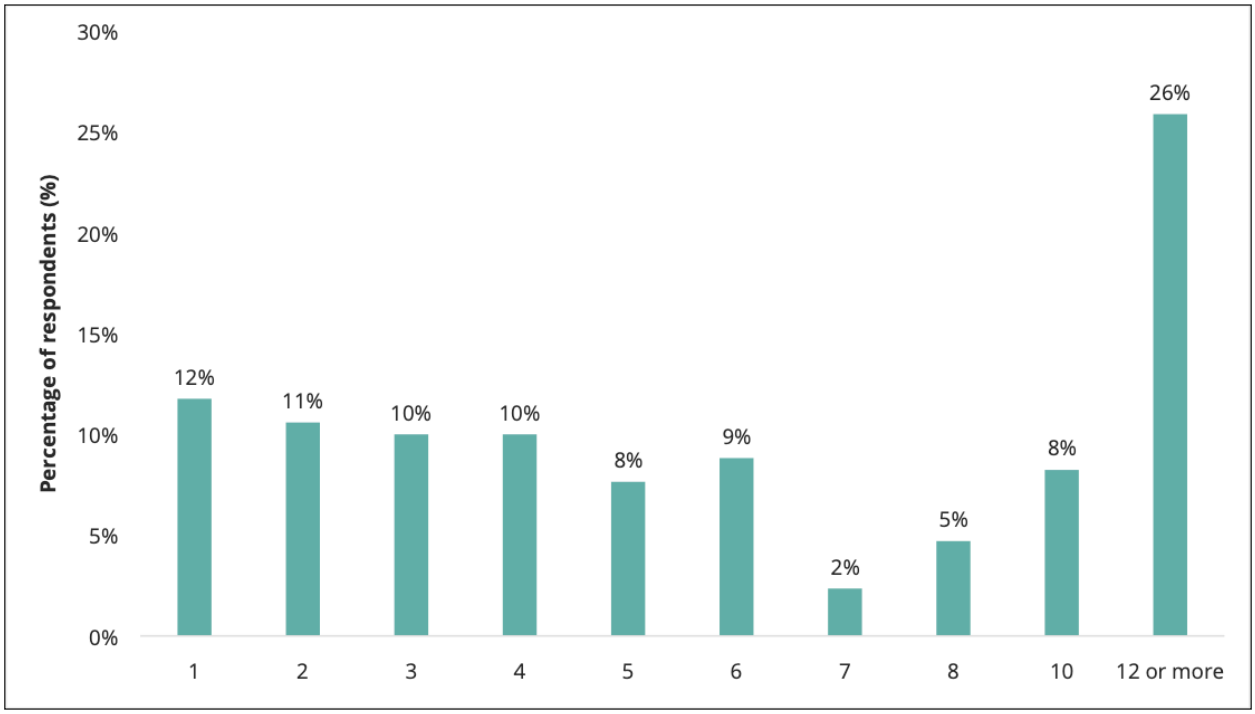
Professional identity. *Most respondents identified as being from an academic or research organisation (including Higher Education) (49%), followed by members of non-governmental organisations (NGOs) and the charity sector (19%) and freelancers (11%). Lower numbers of respondents identified as working for governmental or public organisations (9%), private companies or industry (8%) working in other roles (8%) or for a non-higher education educational organisation (2%). We allowed practitioners to select multiple answers to this question. As some individuals had more than one professional identity, the total percentages do not sum to 100% for this question.*

B. What were the specialisms of our survey respondents?



Specialism. *Our sample included a mixture of relevant specialisms, from science communicators (21%), to climate scientists who practice climate communication (19%), other specialisms (e.g. media producer, climate adaptation advisor, psychotherapist) (19%), physical/natural scientists (17%), social scientists (13%). There were low numbers of artists (7%), campaigners (3%) and journalists (2%) within the sample.*

C. Number of climate engagement activities per typical year



Activities. *Just over a quarter (26%) of the survey respondents were highly active communicators, carrying out twelve or more climate change engagement activities in a typical year.*

D. Open-ended question wording and analysis method

There were three key open-ended questions in the practitioner survey.

1. **Purpose***:* "From your own personal experience and perspective, what do you feel is the main purpose of communicating climate change, or engaging a public audience with this topic?"
2. **Principles***:* "Please describe up to three concepts, principles or approaches that you think are important to consider when communicating climate change, or engaging a public audience with this topic."
3. **Memorable activity evaluation***:* "Thinking about a memorable activity you have carried out, please describe the activity (e.g. the main aims, description of activity, the topic/ message) and why you think it was memorable or noteworthy (for example, why the activity was effective, lessons you learned or anything that could have been improved)."

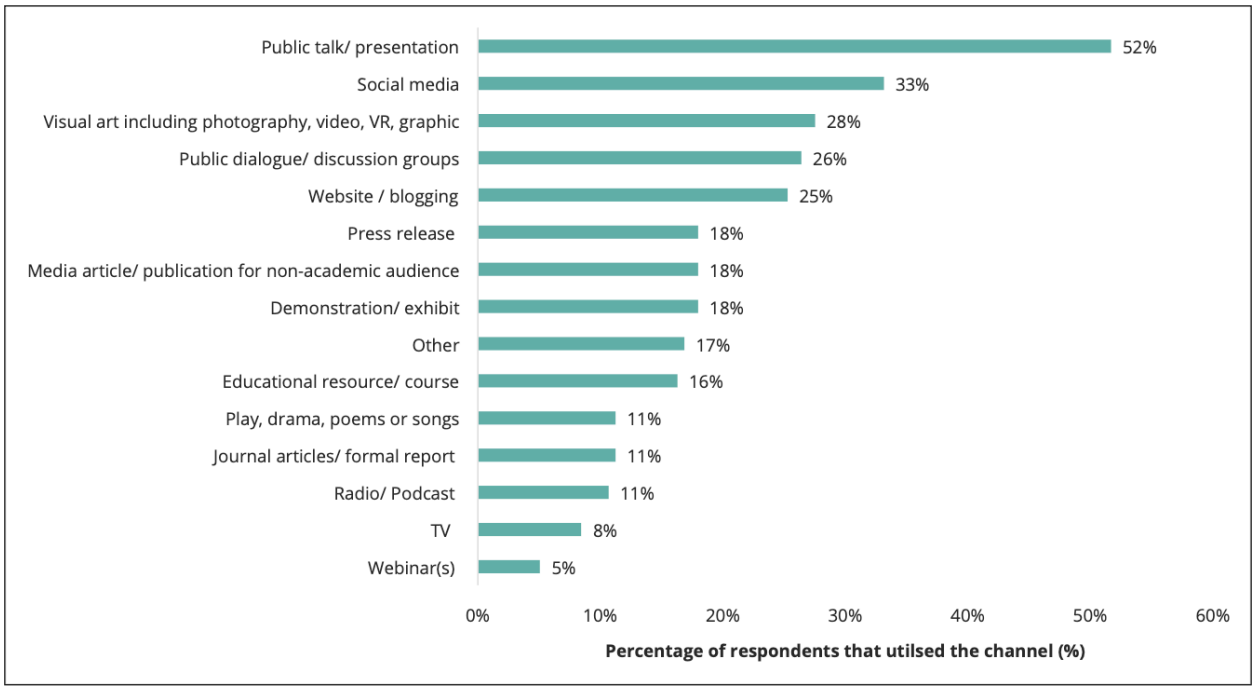
An inductive thematic analysis was conducted with the open-ended data following the 3 open-ended questions (above), and was carried out 'blind' before the quantitative analysis. This helped to ensure that the quantitative survey findings did not influence the qualitative interpretations. The key themes are discussed in this report and illuminated with symbolic quotes from participants.

E. Table of propositions and statements reviewed in the expert elicitation workshop

Propositions (traffic light review)	Statements (confidence matrix review)
Proposition 1 Negative messages that only describe the risks of climate change without referring to possible solutions/ways forward should generally be avoided as a strategy for engaging public audiences.	**Statement 1.1** Evoking positive emotions (e.g. hope) is more effective for engaging the public than evoking negative ones (e.g. fear). **Statement 1.2** Distressing climate images (e.g. people or animals being affected by climate change) are an effective way to communicate climate change.
Proposition 2 Increasing knowledge about climate science is not very important for building wider public engagement and concern about climate change.	**Statement 2.1** The more people know about climate change, the more people care about it. **Statement 2.2** Communicating the level of scientific consensus is an effective way to build public engagement with climate change.

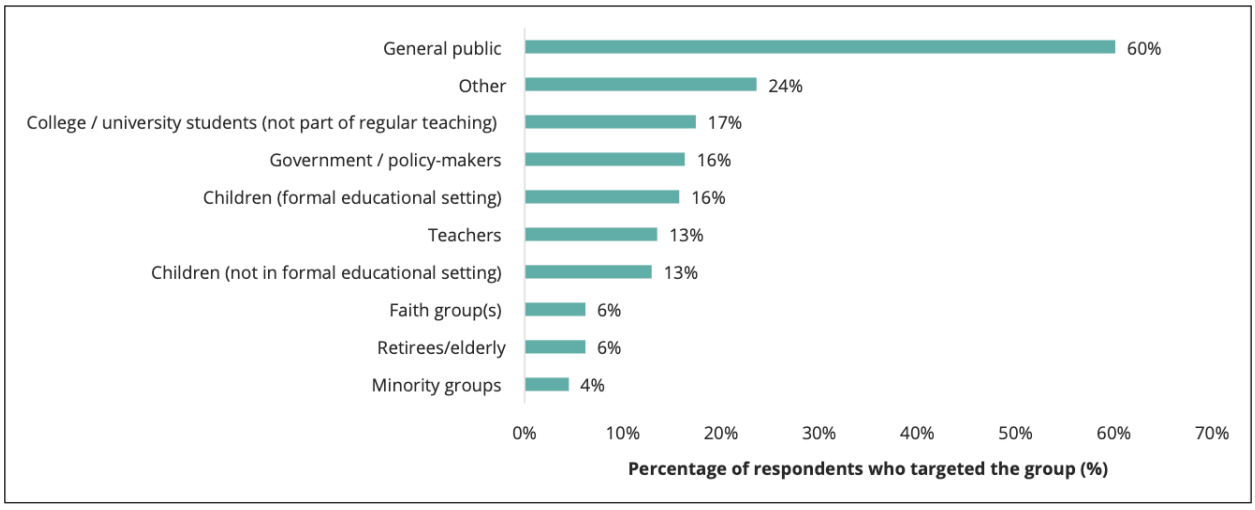
Proposition 3 Creative methods (e.g. poetry, visual arts) & storytelling are an effective way of reaching beyond the 'usual suspects' (i.e. the already engaged) on climate change.	**Statement 3.1** When public groups are engaged on climate change through creative methods (rather than a presentation of evidence) it leaves a deeper and more long lasting impression. **Statement 3.2** A scientist using a storytelling approach to communicate climate change (rather than presenting facts and figures) will be distrusted by the audience.
Proposition 4 Climate communication should start with the values of the audience (i.e. the things that matter to them).	**Statement 4.1** An individual's values are likely to have a bigger influence on their attitudes towards climate change than the amount they know about climate science. **Statement 4.2** To communicate effectively with a politically conservative audience, it is important to frame a message about climate change using politically conservative values.
Proposition 5 Communication around climate impacts (e.g. floods or heatwaves) is a good way of making climate change more meaningful to people's lives.	**Statement 5.1** If people experience extreme weather they become more concerned about climate change. **Statement 5.2** Showing images of 'local' climate impacts is an effective way to engage public audiences.
Proposition 6 Focusing on individual behaviours (e.g. eating meat or recycling) is an effective way of communicating climate change to public audiences.	**Statement 6.1** Framing messages about behaviour change around saving money/personal financial gain is more effective than emphasising the environmental benefits. **Statement 6.2** It is better to focus climate communication on high-impact but challenging behaviours (e.g. flying) than low impact but simpler behaviours (e.g. reusing carrier bags).

F. Channels used for memorable activity



Methods/channels used for memorable activity. *The most popular approach was a public talk/presentation (52%), followed by social media (33%), and visual art (including photography, video, VR, or graphic (28%). Around a quarter used public dialogue or discussion groups (26%), or a webiste/blogging (25%). Lesser used approaches include plays/drama/songs (11%), radio/podcast (11%), TV (8%) and webinars (5%). Please note that multiple items could be selected by respondents (e.g. theatre piece followed by a discussion group, or presentation alongside a video). This means totals will not sum to 100% for this question.*

G. Target audience for memorable activity



Target audience for memorable activity. *Most targeted the general public (60%), though around a quarter detailed reaching other groups not listed, including: parents, airline staff, farmers, sports fans, teenagers (24%). College/ university students were the next highest targeted (17%) followed by government/policy-makers (16%), children in a formal education setting (16%), teachers (13%) children (not in a formal education setting) (13%). Least targeted were faith groups (6%), retirees (6%) and minority groups (4%). For this question, multiple items could be selected by respondents (e.g. targeted the general public and policy makers) so reported percentages will not sum to 100%.*

H. Descriptive statistics relating to Fig. 2

"From your own personal experience and perspective, to what extent do you think the following are important to do in climate change communication and/or public engagement?"

Answers were scored from (1) 'Not at all important' to (5) 'Extremely important'.

Statements are ranked in the following table by mean score.

	N		Mean	Std. Deviation
	Valid	Missing		
Reflect on my own personal experiences or opinions about climate change	173	5	3.40	1.19466
Convey the latest advances in climate science	175	3	3.40	1.01143
Use creative approaches (including music, visual arts, theatre)	173	5	3.60	1.07151
Increase people's concern about climate change	170	8	3.78	1.04203
Encourage people to support large-scale action on climate change	173	5	3.86	1.13963
Explore personal responses to climate change (e.g. hope, fear)	172	6	3.87	0.98879
Encourage people to take actions in their own lives in response to climate change	174	4	4.09	0.95726
Ask an audience to consider for themselves the implications of climate change	174	4	4.25	0.82017
Challenge misinformation about climate change	177	1	4.30	0.88269
Provide an opportunity for people to discuss climate change	176	2	4.32	0.81605
Convey scientific facts in a clear way	177	1	4.37	0.80174
Other	72	106	4.63	0.55428

I. Descriptive statistics relating to Fig. 3

"From your own personal experience and perspective, to what extent do you agree or disagree with the following statements?"

Answers were coded from (1) 'Strongly disagree' to (5) 'Strongly agree'.

Statements are ranked in the following table by mean score.

	N		Mean	Std. Deviation
	Valid	Missing		
It is wrong for scientists to advocate for a particular policy position on climate change	174	4	2.09	1.22245
There are no 'good' or 'bad' ways to communicate about climate change: audiences have to come to their own conclusions	171	7	2.17	1.18342
Scientists should be neutral about any response to climate change and just 'stick to the facts'	177	1	2.29	1.26200
Sometimes you need to scare people to get their attention on climate change	176	2	2.80	1.21570
There are no clear guidelines available for how to communicate climate change	168	10	2.90	1.21685
It is more important to consider people's personal responses to climate change than to focus on the science	173	5	3.38	1.22137
Communicating issues relating to climate change is emotionally difficult	174	4	3.45	1.29278
If people understood more about climate science they would care more about the issue	174	4	3.55	1.20939
Being positive about action on climate change is more effective than emphasising its negative impacts	172	6	3.94	1.00959

ENDNOTES AND REFERENCES

Endnotes

1. https://theclimatecommsproject.org/
2. Leadership team: Professor Piers Forster, Dr Harriet Richardson, Dr Adam Corner, Dr Catherine Muller, Dr Sam Illingworth, Dr Alice Bell, Dr Stuart Capstick, Dr Rosie Leigh, Dr Emily Shuckburgh. Details of affiliations and project partners: https://theclimatecommsproject.org/our-team/
3. Illingworth *et al.* (2018)
4. Only participants who completed the survey were considered in the statistical analysis.
5. See: appendix A for full details. Please note, we allowed practitioners to select multiple answers to the question on profession, meaning sum of percentages exceeds 100%.
6. See: appendix B For full details about the respondents' specialisms.
7. See: appendix C for full details about number of typical activities per year.
8. See: appendix D for full details on question wording and qualitative analysis.
9. See for instance: https://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf and http://www.ipcc.ch/organization/organization_procedures.shtml
10. Full details of these propositions and statements can be found in appendix E.
11. 'Don't know' responses were not included in this analysis. Note that 72 out of 178 respondents gave a score for the 'other' category, whilst on average 174 responded to the predetermined question options. See appendix H for details of statistics.
12. A number of principles here overlapped with Climate Outreach's recommendations for IPCC authors (Corner, Shaw, and Clarke,2018)
13. See: Corner, Lewandowsky, Phillips, and Roberts (2015) for guidance around communicating uncertainties in ways that make sense for general audiences.
14. See: appendix F for full details about channels utilised.
15. See: appendix G for full details about groups targeted.
16. 'Don't know' responses were not included in this analysis. See appendix I for details on descriptive statistics.
17. Sprujit *et al.* (2014) review the complexity of this topic, illustrating the differences in roles, norms and values of scientific experts and policy makers.
18. Pielke (2007, 2015) details models for science engagement with policy that is particularly relevant to this debate.
19. This is also aligned with numerous principles in Corner, Shaw, and Clarke (2018), especially principles 3 - 'Connect with what matters to your audience', 4 - 'Tell a human story' and 6 - 'Use the most effective visual imagery'.
20. See: Dahlstrom (2014) for a discussion of the use of storytelling in science communication.

21. See: www.climatevisuals.org and Corner, Webster, & Teriete. (2015).
22. The IPCC (2018a, 2018b) illustrate how change is required on every level to keep warming within 1.5 °C of pre industrial levels, with behaviour change firmly in the mix alongside other transformations.
23. See: Van der Linden *et al.* (2015)
24. See: Cook and Lewandowsky (2011)

References and further reading

Cook, J., Lewandowsky, S. (2011), The Debunking Handbook. St. Lucia, Australia: University of Queensland. November 5. ISBN 978-0-646-56812-6. https://www.skepticalscience.com/docs/Debunking_Handbook.pdf

Corner, A., Shaw, C. and Clarke, J. (2018). Principles for effective communication and public engagement on climate change: A Handbook for IPCC authors. Oxford: Climate Outreach. https://wg1.ipcc.ch/AR6/documents/Climate-Outreach-IPCC-communications-handbook.pdf

Corner, A., Lewandowsky, S., Phillips, M. and Roberts, O. (2015) The Uncertainty Handbook. Bristol: University of Bristol. https://climateoutreach.org/resources/uncertainty-handbook/

Corner, A., Webster, R. & Teriete, C. (2015). Climate Visuals: Seven principles for visual climate change communication (based on international social research). Oxford: Climate Outreach https://www.climatevisuals.org/sites/default/files/2018-03/Climate-Visuals-Report-Seven-principles-for-visual-climate-change-communication.pdf

Dahlstrom, M. F. (2014). Using narratives and storytelling to communicate science with nonexpert audiences. Proceedings of the National Academy of Sciences, 111 (Supplement 4), 13614-13620. https://doi.org/10.1073/pnas.1320645111

Illingworth, S., Bell, A., Capstick, S., Corner, A., Forster, P., Leigh, R., Loroño Leturiondo, M., Muller, C., Richardson, H., and Shuckburgh, E.: Representing the majority and not the minority: the importance of the individual in communicating climate change, Geosci. Commun., 1, 9-24, https://doi.org/10.5194/gc-1-9-2018, 2018

IPCC (2018a) GLOBAL WARMING OF 1.5 °C: Summary for policymakers, IPCC SR1.5 http://report.ipcc.ch/sr15/pdf/sr15_spm_final.pdf

IPCC (2018b) GLOBAL WARMING OF 1.5 °C, IPCC SR1.5 http://www.ipcc.ch/report/sr15/

IPCC (n.d.) Principles and Procedures. Retrieved from: http://www.ipcc.ch/organization/organization_procedures.shtml

Mastrandrea, M.D., C.B. Field, T.F. Stocker, O. Edenhofer, K.L. Ebi, D.J. Frame, H. Held, E. Kriegler, K.J. Mach, P.R. Matschoss, G.-K. Plattner, G.W. Yohe, and F.W. Zwiers, 2010: Guidance Note for Lead Authors of the IPCC Fifth Assessment Report on Consistent Treatment of Uncertainties. Intergovernmental Panel on Climate Change (IPCC). https://www.ipcc.ch/pdf/supporting-material/uncertainty-guidance-note.pdf

Pielke Jr, R. A. (2007). *The honest broker: making sense of science in policy and politics.* Cambridge University Press.

Pielke, R (2015) Five Models of Science Engagement. Retreived from: http://rogerpielkejr.blogspot.com/2015/01/five-modes-of-science-engagement.html

Spruijt, P., Knol, A. B., Vasileiadou, E., Devilee, J., Lebret, E., & Petersen, A. C. (2014). Roles of scientists as policy advisers on complex issues: a literature review. *Environmental Science & Policy, 40*, 16-25. https://doi.org/10.1016/j.envsci.2014.03.002

Van der Linden, S. L., Leiserowitz, A. A., Feinberg, G. D., & Maibach, E. W. (2015). The scientific consensus on climate change as a gateway belief: Experimental evidence. *PloS one, 10*(2), e0118489. https://doi.org/10.1371/journal.pone.0118489

CLIMATE outreach

CLIMATE COMMUNICATION

THE CLIMATE COMMUNICATION PROJECT

NERC SCIENCE OF THE ENVIRONMENT