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TV meteorologists as Climate Communicators

Amalie K. Holm, Anders D. Sivle, Jelmer Jeuring, Mai-Linn F. Svehagen

TV meteorologist Kristian Gislefoss and news anchor at the NRK Evening News. Screenshot by author.

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Abstract

Like most National Meteorological and Hydrological Services (NMHSs), MET Norway is primarily known for forecasting the weather. Still, there is also a high degree of trust among the public in our climate research and in our TV meteorologists as climate change communicators. The TV meteorologists are experienced science communicators, speak a language that people understand, and already have a well established audience. With this background, we initiated the project “TV meteorologists as climate communicators” in 2019.

The main objective is to integrate research-based, localized climate content in the weather presentation, to inform and engage the public about climate change. By training TV meteorologists as climate communicators, we reach a large part of the population through well-established channels. The goal is to link knowledge of climate change with people's everyday lives and their experience of the weather. Research on climate change communication points to several advantages of such an approach. In this report, we especially call attention to the reports from the Center for Research on Environmental Decisions (CRED), Climate Visuals, and Center for International Climate Research (CICERO). Summarized, the three most relevant research-based principles of climate change communication for MET Norway are as follows:

- **Make climate change relevant: Local rather than global picture**
- **Current changes are more engaging than future scenarios**
- **Focus on impact rather than solutions**

We claim that TV meteorologists have an important role in climate change communication, with a potential that is often not yet fully realized. NMHSs’ with both climate scientists and meteorological communication experts can combine this knowledge to inform societies about local impacts of climate change. The project described here builds on such existing expertise at MET Norway, and paves the way for a strategic implementation of meaningful climate communication for the Norwegian public.

Keywords
Climate, communication, TV meteorologist

Disiplinary signature

Responsible signature

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Meteorologisk institutt Meteorological Institute Org.no 971274042 post@met.no	**Oslo** P.O. Box 43 Blindern 0313 Oslo, Norway T. +47 22 96 30 00	**Bergen** Allégaten 70 5007 Bergen, Norway T. +47 55 23 66 00	**Tromsø** P.O. Box 6314, Langnes 9293 Tromsø, Norway T. +47 77 62 13 00	www.met.no

1. Introduction

Like most National Meteorological and Hydrological Services (NMHSs), MET Norway is primarily known for forecasting the weather. User surveys indicate that the Norwegian Meteorological Institute (MET Norway) enjoys a very high level of trust in the Norwegian population, being the state agency with the best reputation in Norway 15 years in a row[1]. Yet, while our climate research is less well known, in our latest annual polling close to 85 percent say they have a high degree of trust in our climate research, while 82 percent have a high degree of trust in our TV meteorologists as climate change communicators. Our climate communication is a-political, and should naturally be science-based to maintain the high level of trust we enjoy today. The combined climate science and communication expertise within MET Norway can capitalize on these high levels of trust to advance climate communication for Norwegian society. This is the backdrop for the project *TV meteorologists as climate communicators* initiated in spring 2019, inspired by similar projects in other countries, especially *Climate Matters* in the USA.

The main objective is to integrate research-based, localized climate content in the weather presentation, to inform and engage the public about climate change. By training TV meteorologists as climate communicators, we reach a large part of the population through well-established channels. The goal is to link knowledge of climate change with people's everyday lives and their experience of the weather. Climate change ought to be a natural part of the weather conversation on TV, radio and social media.

"Our TV meteorologists have professional knowledge of both weather and climate, they are known to the general public and they are skilled communicators. They can explain how the weather we experience is related to climate and climate change in a trustworthy way". Roar Skålin, Director General of MET Norway.

[1]https://www.met.no/nyhetsarkiv/pa-omdommetoppen-for-15.ar-pa-rad

As the Director General of MET Norway states, TV meteorologists are the key communicators of weather and climate information for the general public. Firstly, they enjoy a high degree of trust as familiar faces on the screen. The weather forecast tends to be perceived as politically neutral information. Secondly, they are experienced science communicators and speak a language that people understand. Finally, TV meteorologists already have a well established audience. These advantages have been used successfully in the USA and Australia (Corner, 2019).

Research on climate change communication points to several advantages of such an approach, which is confirmed by our experiences in this project, as reported below. We claim that TV meteorologists have an important role in climate change communication, with a potential that is often not yet fully realized. NMHSs' with both climate scientists and meteorological communication experts can combine this knowledge to inform their public about current and future impacts of human-induced climate change.

2. Overview of projects and literature

2.1. Projects in other countries

2.1.1. USA: Climate Matters

Climate Matters[2] is a climate reporting programme set up at The Centre for Climate Change Communication at George Mason University in the United States in 2010. It originally centred around one TV meteorologist and a few climate researchers and communication advisers. The goal was to create newsworthy content for TV and social media about climate change, based on the latest science and adapted to a local audience. The project has grown to include all American states and a great number of TV channels and research institutions. Run by Climate Central, it now produces weekly tailormade climate content for both journalists and meteorologists.

In addition to the public climate content, Climate Matters has published several scientific papers[3] evaluating the use of weather presenters as climate communicators.

A recent study published in *Bulletin of the American Meteorological Society* found that exposing the TV audience to climate reporting by the weather presenter enhanced their understanding of climate change as a local problem. Further, the results were the same across the political spectrum of the audience: “Our findings demonstrate that watching even a brief amount of localized climate reporting (less than 6 minutes) delivered by TV weathercasters helps viewers develop a more accurate understanding of global climate change as a locally and personally relevant problem, and offer strong support for this promising approach to promoting enhanced public understanding of climate change through public media” (Feygina et al., 2020, p. 1092).

In a national assessment of the role of TV meteorologists as climate change communicators, the scientists involved with Climate Matters invited all American broadcast meteorologists to respond. The survey was conducted in 2015, 2016

[2] https://medialibrary.climatecentral.org/about-us/
[3] https://www.climatecentral.org/research-other-reports

and 2017 and the results were published in *Bulletin of the American Meteorological Society* in 2020. The survey showed that a majority of TV meteorologists have taken on the role as climate change educators in their local community. Not only on TV, but on social media, through school visits or community events. More than half of the respondents said they were "moderately or very interested in reporting about climate change, especially using local historical climate information". Almost two-third of the weather forecasters that had reported on climate change indicated that they either received little, or positive feedback from the audience. Interestingly, of the TV meteorologists who had not yet reported on climate change, 44 percent expected to receive mainly negative feedback if they were to do so (Timm et al., 2020). These findings show that there is strong support among TV meteorologists to include climate information in their presentations, but that they are not always sure how to do that.

2.1.2. Australia: Climate Communicators

Climate Communicators[4] is a program by the Monash Climate Change Communication Research Hub (MCCCRH) at Monash University in Australia. It shares similarities with Climate Matters, and was initiated by climate researchers at Monash University. They partnered with TV weather presenters to explain climate change implications within cities, rather than as a global phenomena. The content seeks to "avoid advocacy and let the facts speak for themselves"[5]. After launching in Melbourne in 2018, the program expanded to Queensland in 2019. Climate Communicators reach an audience of hundreds of thousands with each broadcast. A panel of climate change communication, media and meteorological experts give guidance and advice to the program.

Prior to its launch, the MCCCRH surveyed the TV audiences' views on climate change as TV is the main source of weather information for the Australians. The report found that 88 percent of respondents were interested in learning about the impacts of climate change in a weather bulletin. Most important for the audience was information about extreme weather events, and they preferred local climate projections over national and global data (Holmes et al., 2017a). Weather presenters were seen as impartial and trusted sources, in contrast to general climate information which was viewed as "too politicized in Australia".

[4] https://www.climatecommunicators.com/
[5] https://www.monash.edu/mcccrh/projects/tv-weather-presenters-as-climate-communicators

The audience was also asked about how they preferred climate information to be presented to them. They showed equal preference towards maps, photos and diagrams, while graphs were less popular. A stand-alone reportage with a reporter and climate footage was also favoured.

The MCCCRH also surveyed Australian weather presenters in order to understand their collective view on climate change and assess whether they were interested in including climate change information in their news bulletins. Almost all respondents (91 percent) were comfortable with presenting local historical climate statistics and just under 70 percent said they were comfortable presenting future local climate projections. As many as 97 percent of the weather presenters thought that their audience would be interested in learning about the impacts of climate change (Holmes et al., 2017b). Overall, this program shows the large support for and interest in climate information, as long as it fits certain formats that facilitate understanding.

2.2 MET Norway's project: TV meteorologists as climate communicators

MET Norway provides meteorologists to forecast the weather at the Norwegian Broadcasting Corporation (NRK). According to NRK's annual report, 53 percent of the population over the age of 12 use their TV channels daily, while 37 percent of the population use their radio channels daily. In addition, MET Norway and NRK co-produce the digital weather service Yr. Journalism on weather and climate is published through the Yr website[6], while similar content is made available by MET Norway on Yr's social media channels on Twitter, Instagram and Facebook.

The concept behind using our TV meteorologists as climate communicators is to expose the public through a combination of these well-established channels to educational and tailor-made climate content - using credible and familiar faces. A key to engagement is to provide a local angle to the often abstract and global phenomenon of climate change. All the content is based on climate research, mainly MET Norway's own. A clear goal is to make it known to the audience that MET Norway is a trustworthy source of climate change information and for journalists to use our expertise regularly.

[6] www.yr.no

The results so far are very promising. Since spring 2019 we have produced 31 climate stories on the national TV-news, to positive feedback from the broadcaster and the press[7]. The stories have been shared on social media and through press releases to reach beyond TV and radio users. The TV meteorologists have included climate communication in the regular weather forecast format, and they have been interviewed by the news hosts live in the studio. NRK have also made news reportages based on the climate input from the project, using the TV meteorologist as a source. The climate news stories have been about topics such as local temperature changes, Arctic sea-ice, flash-floods, and changes in snow cover. The criteria for the stories are specific: They should include a local angle, be topical and ideally linked to people's everyday lives. We have also aimed to provide a balanced account of the consequences of climate change in Norway, e.g. the increase in summer days (which many welcome in Scandinavia) is presented in a neutral way.

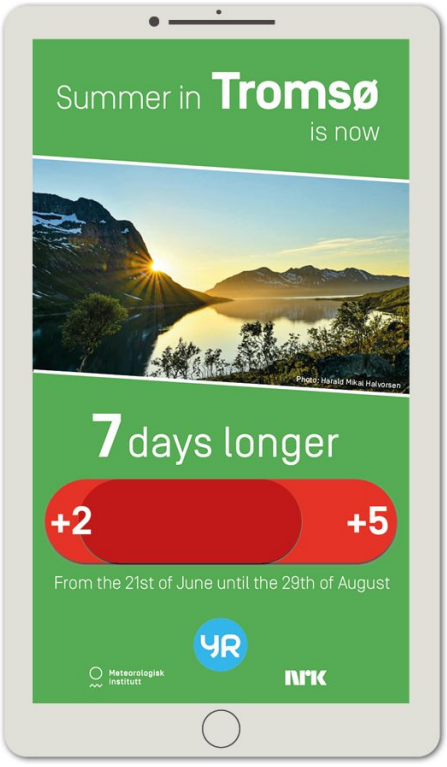

Figure 1: *The message about increased summer days in Norway was presented both as a story in Social Media and on the news. Graphics: Mai-Linn Finstad Svehagen, MET Norway.*

[7] https://www.vl.no/meninger/kommentar/what-would-kristen-gislefoss-do-1.1589607; https://www.aftenposten.no/viten/i/GGm8mV/vi-trenger-en-vaermelder-for-aa-vite-hvordan-klimaet-endrer-seg-ole-ja

Central to the project has been the training of the TV meteorologists in climate communication, to enable them to gain knowledge and confidence in their new role. Much inspiration and knowledge was drawn primarily from Climate Matters when MET Norway set up the project “TV meteorologists as climate communicators” in 2019. However, a key to success has been to constantly adapt the content and its presentation to the audience and different formats.

The estimated impact of these communication efforts is substantial. Norway's population is 5.4 million and 600.000-800.000 watch the evening news and the weather forecast at NRK. Yr (and hence MET Norway) has 124.300 followers on Facebook, 51.800 on Twitter and 25.100 on Instagram. Most of the climate change stories have been shared (e.g. retweeted) by multiple users, and they are also picked up and used by journalists. Based on these numbers we estimate that we potentially reach about 20 percent of Norway's population.

It is interesting to see that in our annual polling for 2020, 85 percent say they have a high degree of trust in our climate research, a six percent increase from 2019. Similarly, there was a five percent increase (from 77 to 82 percent) in trust in our TV meteorologists as climate change communicators from 2019 to 2020. We can only speculate that the increase in trust at least partly is due to the increased focus on climate communication by our TV meteorologists.

2.3 The research literature

The climate-related decisions people face are typically complex, and it is not easy to provide the required information without knowing what is on their minds. According to Fischhoff (2007), scientifically sound communication requires coordinating different kinds of experts: climate scientists, to get the facts right and represent the research about climate change and effects; decision scientists, to identify the facts that should matter most; and social scientists, to identify barriers to communicating that information and to create and evaluate attempts to overcome those barriers. It also requires designers to implement the communication. Thus, “...climate scientists should attest communication to its accuracy, decision scientists to its relevance, social scientists to its clarity, and designers to its format. Failing any of these tests can undermine a message’s accuracy, tone, or comprehensibility” (Fischhoff, 2007, p. 5).

Theory and practice of successful climate communication has over the years become a research field in its own right. Some general challenges of communicating climate change are well known and relate to the fact that climate change tends to be distant both in time and place (e.g., Poortvliet et al., 2020). It is also difficult for people to see a clear connection between their own actions and reduced emissions. Some of the conclusions from MET Norway's project as well as Climate Matters and Climate Communicators, resonate well with three particularly relevant reports which will be discussed here. The three reports build on a combination of climate science, decision science and social science, as recommended by Fischhoff (2007) to facilitate sound communication.

The Center for Research on Environmental Decisions (CRED) at The Earth Institute, Columbia University, and ecoAmerica, a nonprofit that works to build public support for climate solutions, are key institutions in climate communication research. Their publication "Connecting on climate: A guide to effective communication on climate change" (Markowitz et al., 2014) synthesizes their research and that of others on climate communication. Many of their findings correspond well with the report "Climate Visuals: Seven principles for visual climate change communication (based on international social research)" by Climate Outreach, a charity building cross-societal acceptance of the need to tackle climate change and Global Call for Climate Action[8]. Their report summarises the research underpinning the Climate Visuals website[9] and presents seven key findings based on research in America, Germany and the UK (Corner et al., 2015).

The third relevant report is by CICERO Center for International Climate Research, published in Norwegian: "Effektiv klimakommunikasjon – Trender og fakta 2018" (Arnslett et al., 2018). This publication summarises international research on effective climate communication, and includes interviews with leading communication experts on climate messaging. CICERO summarises their findings in five guidelines, while CRED operates with ten key findings. Climate Outreach uses seven principles. Several of these guidelines concur and will be discussed below.

[8] A network of more than 450 non-profit organizations in more than 70 countries with a shared goal – a world safe from runaway climate change
[9] www.climatevisuals.org

3. Recommendations and challenges

3.1 Summary of recommendations and challenges

Here, a summary of recommendations and challenges learnt from the different projects and the research literature are presented.

1. Make climate change relevant: Local rather than global picture

Perhaps the most important research-based principle of effective climate change communication for MET Norway is about bringing the message "home". This principle is based on reducing the 'psychological distance' to climate change, which has both spatial and temporal dimensions (Spence, Poortinga & Pidgeon, 2012). In order to engage the public along the spatial dimension, the content has to relate to their own experience of the weather and how their local climate is changing. This is also the very basic principle for both Climate Matters in the USA and Climate Communicators in Australia. The three reports all highlight it: Climate Outreach suggest to "Show local (but serious) climate impacts" (Corner et al., 2015, p. 32), CRED highlights the need to "Bring Climate Impacts Close to Home (Markowitz et al., 2014, p. 29) and CICERO simply says: "It's all about the local" (Arnslett et al., 2018, p. 10).

In order to reach a broad audience and not just the interested few, climate change communication ought to use people's livelihoods, interests and needs as a starting point, rather than the big questions and global picture (Arnslett et al., 2018). Such a strategy could be to link climate change to extreme weather events that people recognize. According to CRED, historical and concrete examples are easier to grasp than future probability: "Communicators should focus on the consequences of particular impacts or events (such as a drought or major flood) rather than on the probability or likelihood that such an impact will occur within a particular period of time" (Markowitz et al., 2014, p. 32). Hence it is important to avoid expressions such as "a hundred-year flood" because it might give the audience the impression that it *only* occurs every hundred years. In a rapidly changing climate, a hundred-year flood in ten years might not even be the same as a hundred-year flood today. A recent study from

the United States on awareness of winter warming (Hamilton & Burakowski, 2020) reports that the perceived reference point for “normal” conditions is typically weather that will be experienced within two to eight years: considerably shorter than the 30-year climate normal.

Focusing on events that people recognize is a view supported by Lin et al. (2018), in their examination of storm naming and potential heuristic effects. They suggest that the iconic, concrete and emotionally arousing depictions of storms in the media, such as images or videos, are what are remembered. This is because people often prefer representations that are cognitively easier to store than abstract depictions such as statistics or measurements. Therefore, concrete and iconic information is what is available from memory and used to inform decision-making. However, Lin et al. (2018) also found that older individuals were more likely to report lower perceptions of severity. If a person has lived through more events, and were not adversely affected, they are likely to feel more comfortable with the risk. Contrary, younger individuals with fewer experiences have higher uncertainty about how they will be affected.

The CRED report also cautions against attributing specific extreme weather events to climate change. Even though this is a valid concern, much scientific progress has been made in recent years. Initiatives such as World Weather Attribution[10], initiated in 2014 and hosted by The Environmental Change Institute at The University of Oxford, have concluded that extreme event attribution could be implemented, and used as a basis to communicate about climate change.

Climate Visuals emphasise that a local angle is more likely to engage the audience and to create the emotional impact for people to support action. However, they warn of the danger of trivialising climate change by making it local. Interestingly, in the international survey which their report is based on, respondents seemed to think local climate change such as flooding was less serious than climate change elsewhere, because they assumed Western infrastructure is well prepared (Chapman et al., 2016; Corner et al., 2015). This is a reaction we could very well witness in Norway. Nevertheless, our aim is to raise awareness, not to be alarmist.

[10] https://www.worldweatherattribution.org/about/

Figure 2: *Example of how local angles on climate change can be visualized. Graphics: Mai-Linn Finstad Svehagen, MET Norway.*

Meteorologists have a natural advantage when it comes to identifying what is relevant for their audience. The weather is an effective content frame for communicating climate change. TV meteorologists are familiar with the smallest nooks of their country and its weather particularities, and they are used to framing the weather forecast in a newsworthy and localized way, such as linking it to a major sports event or a national holiday. That is an excellent starting point for tailoring local climate change content and to prevent the audience from distancing themselves from the message.

2. Current changes are more engaging than the future

A second principle of effective climate change communication is that of focusing on the present rather than the future. This relates to the temporal dimension of psychological distance to climate change (Spence, Poortinga & Pidgeon, 2012). The CRED report claims that “People tend to perceive immediate threats as more relevant and of greater urgency than future problems” (Markowitz et al.,

2014, p. 38). The authors recommend highlighting impacts that are already happening or are likely to occur in the near future: “Communicators should frame climate change as a local issue, both in terms of consequences and possible solutions. In part, this is because local impacts and solutions are more vivid and thus easier to contemplate for most people. Additionally, research has found that the more traditional approach of highlighting the global scale of the problem without also highlighting local impacts may actually increase political polarization (Markowitz et al., 2014, p. 40). The wish to avoid politicizing climate change is reflected in the attitudes of the TV meteorologists surveyed both by Climate Matters in the USA and the ones in Australia by Climate Communicators (see section 2.1); they were more comfortable presenting local historical climate statistics than future climate projections.

While MET Norway has yet to survey the climate communication conducted by our TV meteorologists, there is still a tendency that stories based on future projections create more negative feedback from viewers than historical statistics. While this should not impede on making newsworthy content from our solid climate projections, it is worth noting that it is more challenging making such content engaging and effective.

3. Focus on impact rather than solutions

A third principle of effective climate change communication emerging from the body of research scrutinized here is about impact. That ought to be an advantage for us as a nonpartisan NMHS: MET Norway's science is focused on the consequences and impact of both weather and climate change, rather than on how climate change should be solved. Our communication rests solidly on the Paris agreement but is not to prescribe solutions. Nonetheless, it also gives us a particular responsibility to help people understand the effects of climate change, as pointed out by the Cicero report (Arnslett et al., 2018). Proximity in both time and place to the effects of climate change increase engagement and understanding. Such effects might be extreme weather or a general increase in precipitation, drought or heat waves. However, it is difficult for most people to assess whether such events are due to climate change or simply natural variations. The challenge with communicating the effects and the impact of climate change is that the audience tends to make their own interpretations based on personal assumptions (Arnslett et al., 2018.). This means that MET

Norway and arguably other meteorological services have a particular responsibility to frame weather events as consequences of climate change when relevant. In order to remain trustworthy, the opposite is of course also the case: not all extreme weather events can be attributed to climate change.

Both Climate Visuals and the CRED report highlight the emotional effectiveness of climate change impacts. People appear to be responding stronger to climate impacts such as floods and extreme weather than to information about causes of, or solutions to climate change. At the same time, caution is required: while images of climate impacts were most motivating and can prompt a desire to respond, because they are emotionally powerful, they can also be overwhelming (Chapman et al., 2016; Corner et al., 2015). So, in order to avoid such “emotional numbing”, according to both the CRED report and Climate Visuals, it is important to link impacts to solutions. This might represent a challenge for MET Norway, as earlier discussed.

Furthermore, the three principles discussed above are in line with Fischhoff (2007), stating that non-persuasive communication lets the science speak for itself. Non-persuasive communication recognizes that individuals may reach different conclusions - even if it is undertaken in the hope that most individuals will make similar, desired choices (e.g. fly less). People tend to make reasonable choices if they get key facts in a credible, comprehensible form; have control over themselves and their environment; are judged by their own goals; and have basic decision-making competence (Fischhoff, 2007). Still, in each case, informed, caring people might have defensible reasons for declining the climate-related action (e.g. they want to fly less but have families living far away).

3.2 Conclusion

Based on the above recommendations, the three most relevant research-based principles of climate change communication for MET Norway are as follows:

- **Make climate change relevant: Local rather than global picture**
- **Current changes are more engaging than the future**
- **Focus on impact rather than solutions**

These principles lead to specific challenges and opportunities. Firstly, we aim to inform rather than influence, but we do naturally want to engage our audience. Nevertheless, as a NMHS, trusted by the Norwegian people, our climate information will be part of and inform many people's decision-making processes. Still, we cannot focus on solutions, political debate or emotional impact. Instead we give climate change a local perspective, by showing how our climate is changing in different parts of the country. We aim to link these changes to the current weather situation and how these changes impact people's everyday lives and activities. A particularly mild January is a good opportunity to look at how the temperature in January has increased over time, and how it is affecting popular activities such as skiing.

As discussed here, numerous studies on effective climate communication highlight the importance of giving the audience a local perspective on climate change. Moreover, being made aware of experiencing climate change is beneficial since the personal experience will remove or decrease the “psychological distance” of the topic and make it more personally relevant (Perkins et al., 2020). Hence, the localised angle gives us an advantage that outweighs the challenges. As a NMHS we are in a clearly favourable position. We have a natural focus on the local and national perspective and enjoy trust, popularity and a broad audience built over time. Few other research institutions are similarly positioned.

"The weather tells us something about the impact of climate change in our daily lives. In terms of weather, 2019 varied greatly, but it also showed how climate change affects the weather. We had warmer winter months than usual and that confirms the climate trends of global warming. In 2020 and the years to come, we meteorologists and others who work at MET Norway hope to explain better the close connection between weather and climate change." Bente Marie Wahl, TV meteorologist at MET Norway.

It is encouraging that TV meteorologists worldwide increasingly present both weather and climate information. In 2017, *Climate without Borders*[11] was founded. This is an international network to educate, inspire and enable weather presenters (on-air broadcasters) to enhance the general public's climate awareness. In contrast to MET Norway, Climate without Borders is also aimed at creating a broad public support for climate action. The network now consists of around 140 weather presenters from 110 countries, and with a daily reach of 375 million people.

To secure future success for TV meteorologists on climate communication it is important to acknowledge that the audience is constantly changing. Who are they, and where are they to be reached in the years to come? In addition to resolving these challenges, there is a need to keep telling new stories, not just repeat the messages that have already been told many times. Our annual polling showed that 82% have a high degree of trust in our TV meteorologists as climate change communicators. In one year that number increased by 5 percent. If ongoing and future initiatives can also focus on interdisciplinary collaborations, the future for TV meteorologists as climate communicators looks bright.

At MET Norway the use of TV meteorologists as climate communicators will continue as an operational service, building on the strategies and plans made throughout the project discussed in this report.

[11] http://climatewithoutborders.org/about

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