VIEWpoint podcast transcript:

Challenges of communicating climate change

VIEWpoint brought together experts in the psychology of communicating climate change, environmental risk and international scientific climate research and services to discuss:

- The challenges of translating climate science into plain language for stakeholders and users
- Communicating research into different languages and for different cultures
- Key tips for confident climate communications

Featuring:

- Dr Yim Ling Siu, a lecturer in Environmental Risk Management at Leeds University
- Jennifer Weeks, a Climate Services Scientist in the International Climate Services at the Met Office
- Dr Andrea Taylor, a University Academic Fellow at Leeds University.

Introduced by Sally Stevens, Communications and Engagement Manager at the Institute for Environmental Analytics and recorded by the VIEWpoint project, part of the Climate Science for Services Partnership (CSSP) China project.

Produced and edited by Andy Wan.

(Listening time approx. 30 minutes. Available in English only)

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Sally Stevens (SS): Welcome to this VIEWpoint, CSSP China podcast. We're going to be discussing the challenges of communicating climate challenge, particularly in the context of the Climate Science for Service Partnership China project. My name is Sally Stevens and I'm the Communications and Engagement Manager at the Institute for Environmental Analytics. Keep listening for some expert advice.

So let's hand over to my three guests to hear more about what they do and their advice on how we can be communicating effectively and accurately about climate science.

Dr Yim Ling Siu (YLS): Hi, I'm Yim Ling Siu, Yim Ling is my first name. I'm a lecturer in Environmental Risk Management in the School of Earth and Environment at the University of Leeds. I'm very passionate about what we'd like, like communicating climate change to a set of target audience. I'm also an educator and I teach climate change and environmental impact assessment at undergraduate and postgraduate level. I'm also a leader of MSc Climate Change and Environmental Policy programme at the university since 2016.

Jennifer Weeks (JW): Hello, my name is Jennifer Weeks and I'm a climate scientist working in International Climate Services at the Met Office. So the Met Office is involved actually in a huge range of international climate work, which people might not be aware of. So, this includes the contributions of research and data to the Intergovernmental Panel on Climate Change reports and our

climate model simulations are included in the coupled model intercomparison projects, for example, CMIP6. We also do a lot of work through our national meteorological and hydrological services to the UK. And we engage with intergovernmental organisations to coordinate activities which mutually benefit one another. So, this includes sharing observations of weather, hydrology and oceanography with other countries. And then also a lot of international work we do is through the Foreign, Commonwealth and Development Office. And this may include funded applied science projects. In CSSP China, I'm working to develop climate services for key sectors, including providing an assessment of drought risk for food security in China to the agricultural sector. And we are currently investigating how we can provide climate services for the energy sector, for example, using our research in seasonal forecasts of wind speed.

Dr Andrea Taylor (AT): My name's Andrea Taylor. I am an academic based at the University of Leeds and I hold joint posts within the business school and the School for Earth and Environment. Although my background is actually in cognitive psychology, so, I try to apply insights from the behavioural sciences to address challenges in communicating information about risk and uncertainty in different domains. And in recent years I've been particularly focusing on the communication of risk within the context of weather and climate information services.

SS: Thank you everyone. And thank you for joining us today. Yim Ling, you have more than 30 years' experience in research and teaching. Why is confident and accurate climate communications so important?

YLS: I really think that confident and accurate communication is vital for several key reasons. Firstly, I think it really helps to build trust between people and information providers, such as an organisation like the UK Met Office at the national level or the Intergovernmental Panel on Climate Change at the international level, or even at a personal level, the specialists like climate scientists ourselves. It is because trust is really hard to, to build, but fairly easy to break. As trust increases, I think reliability and credibility of our information, especially climate information provided by climate services or like the Met Office, substantially increases. And therefore, you know, when communication is really confusing or inaccurate, trust, you know, in the provider - like the climate information provider - is substantially diminishing. So I think it is fairly important. Secondly, I also think it helps in the planning – in the planning processes - for industry or different types of businesses, like in agricultural production and also in water consumption, for example, or availability of water, and most important is that governments - whether it is regional, local or national or international governments collaborating together - to enable to have a joint force to adapt to, and also cope with the climate change, becoming more, you know, climate resilient. And may be the last but not the least, I think in my opinion is most important, it does ensure the users of the information are aware of the limitation of the science, the climate science we are at and also helping them to understand the boundary of the science, the current knowledge we have in the field. In so doing I think it really does help set the user's expectations because it sets out what climate scientists or experts actually know rather than what appears in mass media, I would say.

SS: And Jennifer, I'm guessing in your role at the Met Office, as Yim Ling was just mentioning, it's really important for you to have clear, trusted communication routes all around the world.

JW: Yeah, I think that's really important, especially when you're providing information to people who are going to be making serious decisions on that. So for example, in CSSP China, one of our climate services is to provide a seasonal forecast of rainfall for the Yangtze River basin. We provide this to our partners in China, and this can be used to help decision-makers, which in this case may be dam operators, to control the flow of water through the dam and then actually this will help protect communities downstream from hazards such as flooding. So I think it's really important in that case to communicate.

SS: Yeah, that, that leads us on, Andrea, into your sort of area. You work in the psychology of how people perceive the risk of climate change and how to address these climate challenges. You led the CSSP China research into communicating uncertainty and climate information for China. What did that find?

AT: Following on very much from what Yim Ling and Jennifer have just mentioned, something that we know both from the work that we did as part of CSSP China, and from the broader work that's been done on climate information services, we know that people who are making decisions within organisations, and the people who are operating within those organisations - the scientists, technicians, and advisors who provide information to decision makers - these people, even when they are very scientifically literate, very technical people themselves, they're operating in a world, where they're dealing with lots and lots of information from different sources. So it can be easy to have information overload. So from a communication perspective, it's really critical that when providing information, whether that's taking the form of briefings, of visualisations, that we're very careful to present the most important elements of that information, the most important details, the most important uncertainties, to ensure that they are the most salient points and that in that formatting, you don't have any cases where not necessarily irrelevant, but perhaps, less important information is actually more prominent.

So another point that's important to keep in mind is that when decisions within different sectors, different organisations, are being made using climate or weather information as an input, that - wherever it's scientifically possible and feasible to do so - it's good for climate service providers to work towards providing information in a way that actually supports those decisions, as Jennifer was mentioning earlier. So for instance, when we were doing work on seasonal forecast communication, what we find is that this communication, the typical format is to have communications as a percentage likelihood being given of conditions, being above or below the long-term average, which is of course important information, especially from a scientific point of view. However, we found in our interviews with users in China, as well as work that we've done elsewhere in the world, that often the users aren't necessarily that interested in conditions being above or below the long-term average, but they're interested in the likelihoods of extremes or the likelihoods of particular thresholds being crossed that are

important to their organisational decision-making. So one of the key recommendations that we've made as a project is that where it's possible to do so, that climate services do aim to incorporate, these user-defined thresholds.

YLS: So I think it's the end user we need to focus on, or your target audience, who are actually using your information, to what extent your information is clearly delivered and also conveyed to the user.

SS: Sometimes it can feel as if scientists and users, are talking in two separate languages but of course it's when you add in another country's culture as well as another language that can make things even more complicated.

YLS: That is correct, just like in where I come from, I'm from China, so, like the traffic light signals: red, amber and green. Green in the Western society means everything is happy. You can go forward in a traffic jam: oh, you see the traffic light green, I can drive now, start the engine. But red stop, amber ready, ready, ready to stop. But in China, on the other hand, red, does not really by all means signify danger or risk. Sometimes it's happiness, like recently we had our Chinese New Year and it was all happiness, or fortune, good fortune. So we do have cultural differences in interpreting terminologies and certain times a word. So, Sally you're right, users, sometimes in academic term, we can put like different stakeholders and identify it, but in different cultures, users maybe means differently. I'm quite sure my colleagues can mention it more.

JW: I'd just like to add to that actually. I think that's really important actually, when, when you're creating, say graphics to show climate information. So we spent a long time creating an infographic and thinking really carefully about the colours that were included. So for example, when you're showing projections and, and you're highlighting the different emissions pathways, I think you should, yeah, I think it's, it's good to know how different colours are interpreted in different cultures so that you can kind of get that message across in the right way.

SS: So what are some of the most commonly misunderstood or mistranslated terms that you've come across, Jenny?

AT: I think with terms that are verbal probability expressions. So these include terms such as 'likely', 'unlikely' or 'virtually certain', actually even in English there is some discrepancy between how people interpret that, so there have been studies which look at how English-speaking people and how people speaking Mandarin interpret these verbal probability expressions and when they associate them with a number or a probability range, actually it does, there is, a range and, and it shows that isn't really pinned down in English. And actually then translating that into Mandarin, for example, that complexity only multiplies.

AT: Yes, I mean, this is certainly something that we found in our work as well in that when we were discussing issues surrounding uncertainty with, both the climate information providers, climate experts and climate information users in China, we often struggled because we devised our interview protocols and materials in English and then translated them. And we often found that it was difficult to identify analogues to terms that are commonly used in

English when we're talking about, the uncertainties associated with meteorological or climatological information. So how do we talk about likelihood? The difference between reliability and accuracy? Which has different meanings within a technical sense, but even within English, we would often use these words interchangeably in our day-to-day communications with other people.

So I think these times when we've lacked the direct translation from English to Mandarin has been quite challenging, but I would also emphasise, as I say, that in English, we have this problem as well, that what a particular term means in one discipline is not what it means in another discipline. So an example that I would use is for instance, when we're talking about reliability in the context of, say, a seasonal forecast product would be referring to - and Jennifer could certainly correct me if I'm wrong here - how the forecast product is performing relative to chance. Whereas, in my own field of behavioural psychology, we would use the term 'calibration' if this is what we were talking about, whereas 'reliability' to us would mean whether some kind of, personality scale that was devised had good test-retest reliability. So I think being aware of these differences in how we, as specialists in particular disciplines, we have our own terminologies that may differ from one another. And then if you can imagine what happens when we try to communicate with members of the public or people working in non-research, non-academic, non-scientific organisations, that there can be challenges here. So it's important that we're able to clarify things but certainly I think that the work that Jennifer and her Met Office colleagues have been doing on the glossary has been really, really important in terms of the English to Chinese communication.

YLS: Just to add on what Andrea has said. And in our project, Sector-based Climate Services for Water Resources project, we also found out that the terms, like 'long-term', 'longer-term' in particular settings is quite different from what climate scientists, what they use the 'long-term'. The scale is also quite interesting in the sense that in climate science 'longer term' may refer to like 10, 20, 30, or 50 years. But for instance, in the water resources management point of view, 'long-term', they don't look over 12 or more than 12 months' period, because that's their role. So I think it's also very, very important to identify who the target audience or the information users are and who they are using the climate information for.

SS: And Jennifer, this issue has prompted the project to produce an additional resource to support the CSSP China research, hasn't it, that will be available to everyone?

JW: When we are having our material translated from English to Mandarin, our proof-readers also check these scripts. So they read for transcreation so that they read as though they'd been translated by someone who speaks fluent Mandarin. But often they found that there were inconsistencies between the terms used. For example, in the UK, in English, we might say, we might use the term 'crop failure', whereas in, in Mandarin they often use term 'poor harvest'. So it's those kind of subtleties like that, but then there might be other words that people have found quite difficult to translate. For example, 'state' like 'state of the atmosphere' might be translated into a 'state' meaning a nation. So what we've done is we've asked scientists

across the CSSP China to collect terms like these, that they have come across, so terms that are either misunderstood in English already, or climate science terms that are often missed translated. So, using the experience of scientists and CSSP China, we collected this list and we have had it proof-read as well by scientists in China. And we've now been able to combine this into a glossary, which has been published on the VIEWpoint website so it will be available to view there, and this can be used as a guide for anyone translating material or climate science terms from English to Mandarin, or maybe it could be printed out so that translators can also use it as a quick guide.

I think it's really important, when you've provided this climate information in whatever form it may be, whether it's a web interface or an online tool, or whether it's an infographic or a brochure, I think it's quite important to kind of actively seek feedback on those materials, so that you can assess the effectiveness of them and also assess how uncertain climate information is best understood. Another thing to mention is that climate science is constantly evolving as are definitions of words. And so actually the, the climate information that you provide should evolve with that as well.

I just want to mention as well that currently we're working remotely so we can't meet people in person, and we can't communicate this climate information verbally. And so actually we've had to have virtual meetings or communicate these materials virtually as well and so actually I think it's really important to research which platforms for example, are best to use when you're organising meetings and to reach out to your users and to ask which platforms work well for them. And also for example, in China, we have a lot of different platforms. So WeChat for example, is used by over a billion users in China, whereas this isn't really something that we're familiar with in the UK. So we've been looking into how we can share material and we've been able to share our infographics and other articles through WeChat so I think that's also quite a good way of, of reaching out and providing this climate information in a format that people are familiar with.

YLS: I really agree with Jenny what she just said, but maybe I would say that as a teacher educator, as well as a researcher, in order to communicate the climate information, I think the uncertainty is really the inherent property, what we have to deal with, rather than hide it, we need to openly embrace it so I will say that, well, in terms about what we can do further, maybe trying to avoid any pitfalls, I would suggest three interesting or maybe vital tips, if I may.

Maybe the first thing is, just really address that the degree of uncertainty is not static as Jenny and Andrea has mentioned about it. And it does really vary depending on first, timescale - the longer the timescale, the higher level of uncertainty in climate science in, in climate projection of weather forecast is also quite true.

And second tip will be to be aware about that cultural or cross-cultural differences, and they do exist. And therefore there's sometimes - it depends which country and also the end users you are looking for- sometimes don't be afraid, there will be a trade-off between the comprehensiveness. As a scientist we want everything do it right, and also more precise and accurate, even though we know that uncertainty is an inherent property in any climate

projection or forecasts, but sometimes we really need to think how people, especially the end user, to understand [that] your message or the information given to them is more important, especially in a different country, where we have different cultural differences, especially the word or wording or the semantic in the description about like ‘risk’ or ‘uncertainty’. It might mean differently so the look-up table, or the first dictionary that Jenny mentioned about it, it will be very, very useful.

And third tip might be how we can put science into policy and practice. We must realise that all these elements are very important and it depends on the platform and also the means or channel and the way how we communicate the communication are vital, rather than basically the climate information, like statistics or model outputs, are important.

AT: In terms of developing climate communications to be aware of how that information is actually going to be used. So, is it going to be used to inform a particular decision for instance? And as I mentioned earlier, when the product is being developed and subsequently being released to try and aim to contextualise that information, to relate to the decision or the type of action that this is being used to inform. So as per the example that was given earlier to try and identify if we're talking about something like a seasonal forecast, for instance, the particular threshold or extreme that the recipient of that information is interested in, and if providing information about likelihood, to provide information about the likelihood of that particular threshold being exceeded. And this of course could be extrapolated to longer timescales as well if we're thinking about multi-decadal projections.

Secondly, that, when creating any kind of information to be used in decision-making or to be used to inform a particular audience about climate change, that it’s important as, I think, as Jennifer and Yim Ling have both expressed, that this be rigorously, rigorously tested to ensure that people are able to understand and interpret it as intended. And so that you, as a communicator are able to address any misunderstandings or misinterpretations there, as well as identifying whether the information could be made more useful for the person you're providing it to.

And, of course, from an information display perspective, to ensure that if somebody is not able to spend very long looking at the information you're providing, that they will be able to take in those key points, those key messages in a relatively short amount of time. So almost that while you may have the full technical report, which may be of interest to many people, that you have those bullet points, right at the top for the super-busy decision-maker, who is only going to have the time to look at those key bullet points.

JW: So I just wanted to mention or recommend that when using verbal probability expressions, as I mentioned, like ‘likely’ or ‘unlikely’ I'd recommend presenting them with their numerical interpretation. So for example, ‘very likely’, you could mention it with 90 to a 100 per cent, but also, kind of, state the, the lower and upper bounds, instead of just saying ‘it's greater than this number’. That would, I think, be more useful or more recognisable for people. And when presenting climate information, it might be useful to include graphics alongside the text or also carefully selected anecdotes.

And as we mentioned before, when you're doing this consider what colours you use and how they might be interpreted in different cultures, as well as ensuring that they're colour blind-friendly as well. And as Yim Ling mentioned, the red-orange-green might be interpreted differently in China where red means good fortune. And so it's about actively seeking that feedback from people, iterate that product and be able to provide the climate information in the most accessible way as possible.

Involve the users from the start so that they can, so that you can work together to create this product.

SS: That's great. Thank you very much. I think we're all agreed that there is a fantastic willingness, a combined determination, in the world of climate science to do as much as possible to communicate our research to as wide an audience as possible. Particularly as we look ahead to COP26 being hosted in the UK in November this year. I think everyone is so passionate about being able to engage as many people as possible so that the fantastic work that's being done makes a real, meaningful and effective difference to how we approach climate change, how we talk about it and most importantly, how we look to basing climate action policies and initiatives on really good quality climate science. And it's our responsibility to make that as accessible as possible to everyone. And I'd like to thank you all for giving your time and sharing your expertise in enabling this podcast so that we can contribute to that in a small way. And I'd also like to thank Andy Wan, who is our producer.

You can explore the glossary and all the CSSP China resources produced by the VIEWpoint project in accessible language and formats at the website, www.viewpoint-cssp.org.

Thank you to all the contributors and thank you for listening.

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