

## Toward a U.K. Climate Service Code of Ethics

Marina Baldissera Pacchetti, Jillian Schacher, Suraje Dessai, Marta Bruno Soares, Rob Lawlor, and Joseph Daron

### 2020 Climate Services Code of Ethics Workshop

**What:** Over 30 international participants, mostly academics with different disciplinary backgrounds, climate service providers, government science advisors, and consultants, joined four daily 6-h remote sessions, discussing the ethics of climate services. Following a unanimous vote in favor of creating a code of ethics on the first day, the workshop spent the next three days discussing ethical issues in climate services, debating a code of ethics' structure and content, and considering different methods for its implementation and enforcement.

**When:** 9–12 November 2020

**Where:** Online

**KEYWORDS:** Data processing/distribution; Data quality control; Adaptation; Climate services

<https://doi.org/10.1175/BAMS-D-21-0137.1>

Corresponding author: Marina Baldissera Pacchetti, [m.baldisserapacchetti@leeds.ac.uk](mailto:m.baldisserapacchetti@leeds.ac.uk)

In final form 26 May 2021

© 2022 American Meteorological Society

For information regarding reuse of this content and general copyright information, consult the [AMS Copyright Policy](#).

**AFFILIATIONS:** Baldissera Pacchetti, Dessai, and Bruno Soares—Sustainability Research Institute, and Economic and Social Research Council Centre for Climate Change Economics and Policy, School of Earth and Environment, University of Leeds, Leeds, United Kingdom; Schacher—Sustainability Research Institute, and Economic and Social Research Council Centre for Climate Change Economics and Policy, School of Earth and Environment, and Inter-Disciplinary Ethics Applied Centre, University of Leeds, Leeds, United Kingdom; Lawlor—Inter-Disciplinary Ethics Applied Centre, University of Leeds, Leeds, United Kingdom; Daron—Met Office, Exeter, and Faculty of Science, University of Bristol, Bristol, United Kingdom

Climate services is a growing field that “involves the generation, provision and contextualization of information and knowledge derived from climate research for decision-making at all levels of society” (Vaughan and Dessai 2014, p. 587). Even if greenhouse gas mitigation targets, as defined by the 2015 Paris Agreement, are met, Earth will experience some degree of climate change over the twenty-first century (IPCC 2018). Informing the decisions that need to be made in order to prepare for future climate risks is particularly urgent and requires the understanding of the complex interactions across fields of research and policy-making (Moss et al. 2013).

However, current knowledge on how to effectively develop, implement, and sustain climate services is limited. This is due to a number of factors, including the heterogeneity of definitions of what constitute climate services, the range of approaches required to develop adequate services, the influence of funding bodies in shaping the development of this field, the quality and standards of the products and information produced, and a lack of evaluation activities to understand what works, where, how, and for whom (Lourenço et al. 2016; Vaughan et al. 2017, 2018; Bruno Soares and Buontempo 2019; Weichselgartner and Arheimer 2019). The complexity of these issues is exacerbated by the rise of the privatization and commercialization of climate services (Webber and Donner 2017), their perception among end users, and how services are governed, accessed, and used (Haigh et al. 2018; Bruno Soares and Buontempo 2019).

Climate scientists, environmental social scientists, and philosophers alike have suggested that more attention should be paid to the potential issues that arise as climate services develop as a field. There have been calls to start a conversation around the ethics of climate services locally and internationally (Adams et al. 2015; Vogel et al. 2019; Haines 2019), philosophers of science have discussed the possible consequences of privatizing and commercializing scientific research (e.g., see chapter 8 in de Melo-Martín and Intemann 2018) and others have provided an analysis of such consequences specifically in the context of climate services (Webber 2017; Webber and Donner 2017; Keele 2019).

To address these concerns, and promote good practice in the development of climate services, a group of academics with different disciplinary backgrounds, climate service providers, government science advisors and consultants met at the U.K. Climate Services Code of Ethics Workshop<sup>1</sup> in November 2020. The workshop aimed to assess interest in developing a code of ethics for U.K. climate service actors, initiate the sharing of knowledge across interested stakeholders and disciplines to catalyze its development, and discuss possible ramifications for international climate service activities and collaborations.

The workshop was held over four days. Sessions included short presentations by ethicists to introduce key concepts and past experiences in creating codes of ethics, breakout discussions,

<sup>1</sup> The workshop was organized by an interdisciplinary group of environmental social scientists and philosophers from the University of Leeds as part of the project Responsible Evidence and Advice for Climate and Technology (REACT), developing a framework for responsible evidence and fair provision of climate services.

## Your perceptions of the field



Fig. 1. Initial poll of workshop participants' perception of the field on a scale from 1 to 10 ( $n = 17$ ). The number represents the average, while the shaded areas in the different colors represent the distribution of the votes.

and thematic plenary discussions. Participants were polled on key issues throughout the workshop (e.g., perceptions on prevalence of ethical practice in climate services—Fig. 1). At the end of the workshop, participants were asked to discuss a road map for the development of a U.K. climate service code of ethics.

The breakout discussions were moderated by philosophers and social scientists, and the discussions were guided by a set of questions established by the organizers ahead of the workshop. During the breakout discussion, however, new questions emerged and not all questions established in advance were answered. The content of the breakout discussions was shared by the moderators with the rest of the workshop participants as a start for plenary discussion. The next section reflects the main themes and perspectives that emerged during the breakout and plenary discussions. The themes were distilled from the notes that were taken by the moderators during the breakout discussions and plenary sessions as well as the chat transcript of the Zoom meeting.

### Key outcomes and perspectives

**Where do we start?** A key realization of the workshop participants was that more clarity is needed on whether a definition of climate services is needed to determine the scope and goals of a climate service code of ethics. For example, questions were raised about what kind of information falls under the scope of “climate services,” and what kind of decisions they support. Answers to these questions may help, for example, determine how much of the information and decision-making chain would be targeted by a code of ethics. One possible solution to the fuzziness of what counts as “climate services” was to make adherence to a code of ethics voluntary. Clarifying the type of information and types of decisions that climate services provide and support would also help determine the goals and scope of a code of ethics, and whether there are other professional codes that could provide some guidance and/or already regulate relevant practices, such as the code of conduct of the United Kingdom’s Royal Meteorological Society ([www.rmets.org/code-conduct](http://www.rmets.org/code-conduct)).

A related issue that arose is to have a clear distinction between quality standards (e.g., an International Organization for Standardization standard) and ethical standards (e.g., the code of conduct for research in resource-poor settings: [www.globalcodeofconduct.org](http://www.globalcodeofconduct.org)). As climate services are still a developing area, it was considered difficult to imagine how to formally relate these two different types of standards. Furthermore, issues related to the language that a code



Rank these values and value-adjacent elements for a code of ethics:

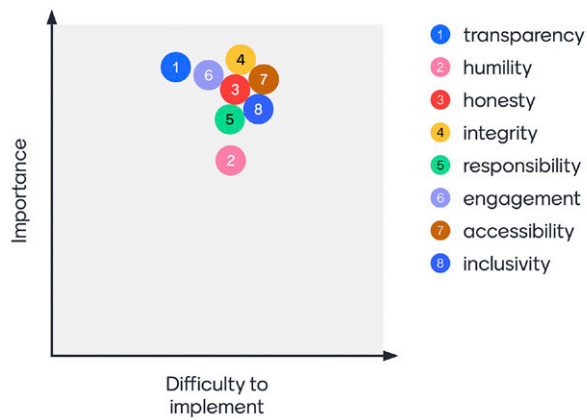


Fig. 3. Poll conducted on the last day of the workshop ( $n = 11$ ), regarding the perceived importance of particular values, as well as the perceived difficulty in implementing them. The location of the different values along the axes represents the average value, but individual choices varied considerably. The values considered were taken from the word cloud (Fig. 2). Note that the numbers next to the values do not reflect their ranking.

**Relationships between actors.** The relationship between actors of climate services, e.g., producers, users, intermediaries, and beneficiaries, was the topic that was covered the most during the workshop. Understanding the context of the users and beneficiaries is a key component of ethical climate service provision. Cultures, practices, and values are likely to be different across disciplines, sectors, and societal groups. Test cases (or worked examples) applying ethical principles and their impact should inform elements which are more universal. Colleagues from South Africa, who participated in the workshop, already distilled some of the key challenges to develop a code of ethics for climate services in a highly diverse context.<sup>2</sup>

<sup>2</sup> [www.csag.uct.ac.za/wp-content/uploads/2021/04/Ethical-challenges-in-climate-services-Final-Report.pdf](http://www.csag.uct.ac.za/wp-content/uploads/2021/04/Ethical-challenges-in-climate-services-Final-Report.pdf) (accessed 18 May 2021)

A code should also be sensitive to different levels of capability of stakeholders and beneficiaries. For example, it was questioned whether users have the appropriate skill to use climate data and act on the basis of these data. Participants raised the need for considering different knowledge bases (e.g., not just scientific but also traditional knowledge), and for guidance or signposting to help providers consider the relationship between actors that have different backgrounds. The role of different knowledge bases was also discussed in the context of the responsibilities of producers and users of information provided by climate services, suggesting that users also share responsibility. For example, users need to be educated to know what to look out for, and what they can get, as users are not always clear about what they need and what they are getting.

This discussion was linked to considerations about “honesty” and how to understand this value in the context of actors with different expertise. For example, climate service providers may not have expertise in adaptation decision-making, as this requires detailed expertise of the climate-sensitive sector for which the decision needs to be taken (e.g., agriculture, water resources, health). But lack of expertise is not dishonesty: providers may not intentionally want to mislead the users, but providers may nevertheless not be aware of how their assumptions affect the kind of service they provide.

The relationship between different actors is complicated by the fact that different actors have different access to resources and training—not just at the international but also at the local level. It is in this context that values such as “empowerment” were mentioned. One participant

suggested that when knowledge is transferred and/or coproduced, power should be equally distributed. In the context of knowledge transfer and coproduction, the climate service provider has limited knowledge of the decision context: the climate information is only one piece of a puzzle and the expertise of producing climate data should not be equated with expertise in decision-making, as access to appropriate resources, gender, power dynamics across institutions, etc., may affect the way climate services are received and used. These considerations raised the following questions: What is the responsibility of the provider in these cases? How can we work to build the capacity of users? Is it the service provider's responsibility to build capacity?

Finally, the discussion focused on possible tensions between interests of private companies and public interests: a code of ethics should help the climate service community navigate tensions between private interests and other, broader interests (e.g., those of the vulnerable, those of future generations). One possible solution that was suggested was that one of the fundamental features of a code of ethics should be its ability to evolve. A feedback mechanism that accommodates for an action-learning process should be incorporated in a code of ethics, which is then reviewed at regular intervals (e.g., 5 years).

***Information supply chain in climate services.*** It was noted that the climate service supply chain is still discussed in very linear terms, and that this approach should change, e.g., by organizing information needs as a function of the types of decisions that need to be taken. This focus not only highlights how different decision types have different information needs. It might also help the development of a code of ethics: decision types may more clearly individuate the value judgments that have ethical implications. This approach may highlight the need for all immediate actors to be involved throughout the process.

This approach also speaks to the abovementioned value of “doing no harm” by conceptualizing harm in terms of consequences of error. For example, what is the harm of not acting in the interest of the client, or of the misuse of data/services and therefore risking maladaptation? Being explicit about the intended use of information may help mitigate against misuse of information.

***National and international codes of ethics.*** Questions about how to develop a code of ethics that considers the details of the relationship between different actors become more salient because a U.K. climate services code of ethics may be used internationally. It was also widely recognized that transboundary issues should be explicitly addressed in a code of ethics for climate services, as climate services can contain information beyond the United Kingdom and have international users, as well as international climate service provider organizations supplying services for U.K. users. So a code of ethics should consider how to mitigate any negative effects that stem from accidentally imposing a U.K. cultural context and U.K. values internationally. For example, it was suggested that the code of ethics look at codes from other institutions that have international reach, and it was suggested that it should be explicitly stated that if the code were to be used internationally, it would be essential to include international drafters in its extension.

It was noted that while international adoption of a U.K.-based code of ethics could occur by choice (e.g., other countries deciding to use this code of ethics for their own climate services), this is also likely to indirectly occur by force as the United Kingdom is a major international development funder. It was asked whether it should be explicitly stated that the code should not be forced onto people without their involvement, and that it should be clear that a code of ethics should not give a false sense that all ethical issues are being taken into consideration—as the above discussion noted, context is recognized as an important component that should be taken into account, especially to avoid what some participants called “moral (and scientific) colonialism.”

**Table 1. Road map for the development of a U.K. climate service code of ethics.**

Time frame	Within 1 year	Within 5 years	Within 10 years
Actions to be taken to develop a U.K. climate services code of ethics	Apply for funding	Formalization of the group that oversees the uptake and implementation of the ethics code	Broad recognition and uptake
	Create a working group that leads the effort, a steering group, and select a set of expert advisors	Launch of a code in time to have a first assessment of its uptake and impact for revision and updating	Established accreditation scheme and quality oversight body
	Draft of code/guidelines	Uptake	Legal instruments
	Examples of ethical and unethical behavior: Real examples will help us think concretely about ethics for non-ethics experts	Training on adoption/implementation	International alignment and examples that it can work successfully at the international level
	Session at COP 26	Demonstration of value of the code	Further regular update

### Looking forward

During the last day, participants drafted a road map for the development of a U.K. climate service code of ethics. Table 1 shows actions and milestones suggested by workshop participants over time.

The workshop clearly showed that there is an increased interest in developing practical ethical guidelines and standards for climate services in the United Kingdom, with the possibility of extending this work internationally.

There was also an interest in developing interdisciplinary collaborations nationally, with the U.K. Climate Resilience Programme and the Met Office currently making inroads through several cross-cutting and interlinked projects:

- An examination of the merits of a national framework for climate services, relevant for ethical and general quality standards ([www.ukclimateresilience.org/projects/improving-climate-services/](http://www.ukclimateresilience.org/projects/improving-climate-services/))
- An examination of current and emergent information needs that can be used to guide investment in and production of new datasets and information, as well as research directions ([www.ukclimateresilience.org/projects/climate-information-to-inform-uk-decision-making/](http://www.ukclimateresilience.org/projects/climate-information-to-inform-uk-decision-making/))
- Working with users to establish coherent sets of standards for climate services, as well as a model for monitoring and valuing climate services ([www.ukclimateresilience.org/projects/climate-services-standards-and-value/](http://www.ukclimateresilience.org/projects/climate-services-standards-and-value/))

There was also interest in developing collaborations internationally, e.g., with the Climate System Analytics Group ([www.csag.uct.ac.za/climate-services/](http://www.csag.uct.ac.za/climate-services/)) where other workshops about the ethics of climate services have taken place ([www.csag.uct.ac.za/wp-content/uploads/2021/04/Ethical-challenges-in-climate-services-Final-Report.pdf](http://www.csag.uct.ac.za/wp-content/uploads/2021/04/Ethical-challenges-in-climate-services-Final-Report.pdf)).

This workshop highlighted ongoing challenges and discussions in the field of climate services and their intricate relationship with wider ethical aspects, e.g., quality, standards, and adequacy of the information, the relationship between actors, and processes underpinning the production and use of climate services. It also opened up the discussion around some of the key values that should be considered in a potential code of ethics, such as transparency, responsibility, honesty, and empowerment. This workshop was a first step in opening up an urgent conversation on climate services and related ethical considerations, which warrant further research and discussion as we move forward in this field.

**Acknowledgments.** This workshop was supported by the U.K. Economic and Social Research Council (ES/R009708/1) Centre for Climate Change, Economics and Policy (CCCEP).

## References

- Adams, P., E. Eitland, B. Hewitson, C. Vaughan, R. Wilby, and S. E. Zebiak, 2015: Toward an ethical framework for climate services: A white paper of the Climate Services Partnership Working Group on Climate Services Ethics. Climate Services Partnership Paper, 12 pp., [www.climate-services.org/wp-content/uploads/2015/09/CS-Ethics-White-Paper-Oct-2015.pdf](http://www.climate-services.org/wp-content/uploads/2015/09/CS-Ethics-White-Paper-Oct-2015.pdf).
- Bruno Soares, M., and C. Buontempo, 2019: Challenges to the sustainability of climate services in Europe. *Wiley Interdiscip. Rev.: Climate Change*, **10**, e587, <https://doi.org/10.1002/wcc.587>.
- de Melo-Martín, I., and K. Intemann, 2018: *The Fight Against Doubt: How to Bridge the Gap Between Scientists and the Public*. Oxford University Press, 248 pp.
- Haigh, T., and Coauthors, 2018: Provision of climate services for agriculture: Public and private pathways to farm decision-making. *Bull. Amer. Meteor. Soc.*, **99**, 1781–1790, <https://doi.org/10.1175/BAMS-D-17-0253.1>.
- Haines, S., 2019: Managing expectations: Articulating expertise in climate services for agriculture in Belize. *Climatic Change*, **157**, 43–59, <https://doi.org/10.1007/s10584-018-2357-1>.
- IPCC, 2018: *Global Warming of 1.5°C*. Masson-Delmotte et al., Eds., IPCC, 562 pp.
- Keele, S., 2019: Consultants and the business of climate services: Implications of shifting from public to private science. *Climatic Change*, **157**, 9–26, <https://doi.org/10.1007/s10584-019-02385-x>.
- Lourenço, T. C., R. Swart, H. Goosen, and R. Street, 2016: The rise of demand-driven climate services. *Nat. Climate Change*, **6**, 13–14, <https://doi.org/10.1038/nclimate2836>.
- Moss, R. H., and Coauthors, 2013: Hell and high water: Practice-relevant adaptation science. *Science*, **342**, 696–698, <https://doi.org/10.1126/science.1239569>.
- Vaughan, C., and S. Dessai, 2014: Climate services for society: Origins, institutional arrangements, and design elements for an evaluation framework. *Wiley Interdiscip. Rev.: Climate Change*, **5**, 587–603, <https://doi.org/10.1002/wcc.290>.
- , ———, C. Hewitt, W. Baethgen, R. Terra, and M. Berterretche, 2017: Creating an enabling environment for investment in climate services: The case of Uruguay's National Agricultural Information System. *Climate Serv.*, **8**, 62–71, <https://doi.org/10.1016/j.cliser.2017.11.001>.
- , ——— and ———, 2018: Surveying climate services: What can we learn from a bird's-eye view? *Wea. Climate Soc.*, **10**, 373–395, <https://doi.org/10.1175/WCAS-D-17-0030.1>.
- Vogel, C., A. Steynor, and A. Manyuchi, 2019: Climate services in Africa: Reimagining an inclusive, robust and sustainable service. *Climate Serv.*, **15**, 100107, <https://doi.org/10.1016/j.cliser.2019.100107>.
- Webber, S., 2017: Circulating climate services: Commercializing science for climate change adaptation in Pacific islands. *Geoforum*, **85**, 82–91, <https://doi.org/10.1016/j.geoforum.2017.07.009>.
- , and S. D. Donner, 2017: Climate service warnings: Cautions about commercializing climate science for adaptation in the developing world. *Wiley Interdiscip. Rev.: Climate Change*, **8**, e424, <https://doi.org/10.1002/wcc.424>.
- Weichselgartner, J., and B. Arheimer, 2019: Evolving climate services into knowledge–action systems. *Wea. Climate Soc.*, **11**, 385–399, <https://doi.org/10.1175/WCAS-D-18-0087.1>.