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Call for an Ethical Framework for Climate Services



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Climate services have the potential to contribute to human security by improving our ability to enhance societal benefits, and reduce losses, related to climate. As natural climate patterns continue to change, society will want more timely and reliable climate services to help them gain an understanding of climate risks and for guidance on how to take advantage of related opportunities.

Climate services offer tools, products and information to help users anticipate and address the immediate, intensifying and potentially dangerous impacts of climate variability and change. Developed in collaboration between information users and providers, climate services are built on human relationships that open the process to a range of ethical conundrums. Climate information providers and the scientific products they generate operate from a position of trust and should be held to the highest ethical standard. Climate service providers that do not consider the consequences of their actions and information may implicitly contribute to poor decision-making and to maladaptation, with all the attendant implications.

This being said, the rapidly developing domain of climate services lacks a cohesive ethical framework to guide its development and application. This article summarizes key points from a white paper prepared by a working group of the Climate Services Partnership and begins an open-ended process toward establishing a set of ethical principles to frame both practice and product.

The intent is to engage the climate services community in considering the ethical responsibilities associated with the provision of information to manage climate risks, realize opportunities and advance human security.

The urgent need for an ethical framework is heightened by the recognition that negative consequences can arise when climate services are not used to robustly translate science into the decision-making context or when services are deployed in ways that (implicitly or explicitly) bias an outcome. The need is intensified by the growing pressure from development investors and implementing agencies to operationalize climate research, which is driving a range of evolving practices of dissimilar rigor. This increases the scope for misuse, malpractice and maladaptation. Hence, there is a time imperative to articulate a set of ethical principles to guide this emerging field.

Foundations of an ethical framework for climate services

The minimization of risk and optimisation of human security both motivate the field of climate services and frame the proposed values and principles for their ethical implementation. These values are also informed by a set of commonly agreed upon reference points (laid out in box on page 52). While these views do not reflect those held by all climate service stakeholders, they are based on diverse experiences encompassing developed and developing countries, fundamental and applied climate research, various sectors, and professional practice in academia, the private sector and government.

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An Ethical Framework for Climate Services

We assume that ethical climate service products and practices should contribute to human security at both individual and collective scales, and minimize negative consequences from climate impacts. We propose an ethical framework based on integrity, transparency, humility and collaboration. Summarized below, these values are seen as integral to the development and delivery of climate services that serve the core motivations of human security and risk management. Derived from these values are a set of practical principles that can provide climate information users and providers with guidelines for ethical behaviour and good practice.

Integrity is about conduct in practice. All too often integrity and honesty can become suppressed in the contexts of personal interests, commercial pressures and competitive practices aimed at gaining advantage. Integrity is essential to ensuring that climate services do not, through perplexity or exaggeration of knowledge, contribute to the disadvantaging of those they seek to serve. It warrants mention that honesty about one's ignorance is central to integrity.

Transparency lies at the heart of building trust between communities. As climate services are inherently about relationships, and as relationships are predicated on

trust, transparency is an integral part of any climate service. Opaqueness about a climate service provider's methods, sources or approaches to interpretation can contribute to inflated perceptions of the value of information. Over time, this can lead to a breakdown of trust in the individual climate service provider, and within the broader services community.

Humility here means presenting information as no more or less than it is, not promising more than can be delivered, nor obscuring an underlying reality of uncertainty. Humility thus reflects a commitment to present the true value of a product, process or service as honestly and transparently as possible. This raises the challenge to the purveyor of a service to be cognisant of its strengths and limitations.

Collaboration is the cornerstone of climate services. As in many other scientific fields, climate information is made useful to society only when fundamental and applied researchers work together with technical actors, government officials and members of civil society. Openness to collaboration entails listening to user needs, allowing for their input and engaging in a process of co-production of climate services to ensure that the outputs of this process address real-world problems, decision contexts and capacities; it also ensures that climate services are based on state-of-the-art products and the exchange of best practices.

Principles of Practice

Climate service providers should communicate value judgments - Value judgments are an implicit but often unacknowledged part of risk analysis. Values inform our choices of data sets, models, methods and analysis techniques. They play a central role in the decision to engage in risk analysis; they condition the sorts of risks examined, the kinds of data considered relevant and valid, the risk management techniques considered, and the optimal response options in the context of other non-climate stressors. Ethical climate service providers should clearly and explicitly give the rationale for value judgments so users can both understand the basis for decisions made, and appropriately assess the extent to which those judgments are consistent with their own worldview or ethical standards.

Climate service providers should communicate principles of practice - Value judgments inform certain practices, including the methods by which climate service providers source, analyse and present information. Making these practices explicit will ensure that climate service users understand the context in which their information

is produced and delivered, and the context in which the provider expects it to be applied. Climate service providers should also encourage users to explore the implications of their own world-view in interpreting and assessing information in their specific contexts. Dialogue is central to this, as is building trust and mutual understanding.

Climate service providers should engage with their own community of practice - Climate services are rapidly developing, which imposes a responsibility for practitioners to continually update their skills and knowledge – including reaching out to their own community to learn about new methodologies and techniques. Service providers who isolate themselves from the larger community run the risk of falling out of touch with new developments and limit opportunities for learning from the positive and negative experiences of others. The services they develop will reflect this and are, thus, less likely to meet user needs.

Climate service providers should engage in the co-exploration of knowledge - Providers will not have experience in the particular context of every user, nor

will they understand the challenges that each user faces or the circumstances that inform their decisions. To accommodate this, climate information providers should be open to learning from users in order to understand the context in which they work and to operate as equal partners in improving user capacity for effective decision-making.

Climate service providers should understand climate as an additional stressor - The risks associated with climate variability and changes are part of a multidimensional suite of threats facing states, businesses, communities and individuals at any one time. Good climate service providers will understand this, embedding a holistic sense of climate-in-context into their analyses and speaking honestly about it when presenting their products. This increases the likelihood that any action taken as a result of the service will maximize benefits and increase resilience to multiple climate/non-climatic pressures.

Climate service providers should provide metrics of the skill of their products - Climate service providers should provide information that allows users to assess the relative usefulness of the product in the users context. Metrics may include information on the skill, bias, and/or uncertainty associated with each product (including contradictions with other sources). The producer should also attempt to illustrate the potential added value of using a product in context, including the implications of choosing one source of information over another.

Climate service providers should communicate appropriately - Climate service providers should choose their words carefully to illuminate and educate, rather than exclude. They have an obligation to communicate with users in terms that are understandable, reducing jargon when possible and offering explanations, in appropriate language, when it is not. It is important, for instance, that climate service providers accurately and appropriately use ambiguous terms such as “prediction,” “forecast,” “scenario,” and “projection.” Exclusionary, manipulative, careless, or confusing language should be avoided.

Appropriate communication also applies to visualisations, one of the most important tools climate service providers employ to communicate information and to guide decision-making. To avoid misleading users, visualisations, such as charts, graphs and maps, should be assessed for ambiguity and potential for misinterpretation, bearing in mind that user experience and technical capacity may be limited. Climate service providers should also consider the means of dissemination. For example, putting maps or information on a website will not be very helpful to reach users with limited or no Internet access. Alternative

methods, such as interactive workshops or alternative media, may be more appropriate.

Climate service providers should articulate processes for refreshing and revising their products and information

- Scientific understanding is always evolving – new methodologies are developed, errors corrected and new data are made available. It is imperative that providers engage in sustained development of products to enhance information content, and address inadequacies and inconsistencies as and where the evolving science supports this.

Climate service providers should have mechanisms for monitoring and evaluation of procedures and products

- The monitoring and evaluation of climate services is not yet common practice. In some cases, additional research is still needed to identify appropriate metrics to assess the extent to which climate services contribute to improved outcomes. Nevertheless, all climate services should maintain a monitoring and evaluation protocol that can allow climate information users and providers to understand the extent to which the service is delivering intended benefits and provide justifications for adjustments to fit changing socioeconomic needs and evolving understanding of climate science. Such protocols may take many forms, including customer satisfaction surveys, periodic reviews or following guidelines produced by technical advisors.

Climate service providers should declare any conflicts of interest and/or vested interests

- Climate service providers should declare any potential conflicts of interest, so that users can understand motivations of their information providers. This may include justifying the dissemination of certain datasets and/or methodological techniques, being transparent about circumstances where providers may stand to gain financially, professionally or otherwise from the decisions that the climate services inform.

Climate service providers who use the guidelines presented here, and who generally act in a way that is consistent with the values of integrity, transparency, humility and collaboration share a measure of accountability for the work they do and for the ultimate outcomes. Nevertheless, it is the user that will turn information into action, affecting lives and livelihoods. As a result, it is the user that will need to take responsibility for understanding the climate information products, for using them in a way that is consistent with their own values and principles, and for putting in place appropriate measures for the apportionment of accountability.

Principles of Product

Climate service products should be credible and defensible - Information on which climate service products are based should be properly sourced, and the provenance of that information must be made clear and easily accessible. The analyses that underpin climate services should rely on appropriate and well-documented methodologies; tools and methods should be justified and comparative analyses should be undertaken and made available when appropriate.

Climate service products should include detailed descriptions of uncertainty - Uncertainty in climate services may derive from different sources, including from technical issues such as initial condition uncertainty, which defines the starting point of a system; structural uncertainty, which reflects inadequacies or design attributes in tools, methods, and models; knowledge uncertainty, which reflects a lack of knowledge regarding the physical mechanisms that condition the climate system; or parameter uncertainty, which includes uncertainties regarding model inputs and boundary conditions. It is essential to describe the size and sources of such uncertainty as best as possible in terms that are meaningful to the intended user, and to be honest about related knowledge gaps.

Climate service products should be fit for purpose - Climate services should be designed to provide users with information that can easily inform the decisions to which they are targeted. Tools and products must be appropriate for specific contexts; this will often require information to be tailored with respect to geographic and temporal scales, derivative attributes of variables, and to match the context and language in which intended users are accustomed to working.

Climate service products should be documented - It is critical that climate services document the information and the methods on which they are based, allowing products to be reproduced and verified by independent third parties. The choices, assumptions and presumptions underlying the development of a product should be clear, as these introduce additional sources of uncertainty and so need to be assessed. Users themselves should also have access to relevant information in order to facilitate learning and decision-making. Climate products should be periodically revised and refreshed so that users can continue to derive benefit from them as data and methodologies improve. Meta-data and version history are important components of product documentation and should be clearly accessible in all climate service products. It should not be presumed that the best information is the latest product version.

Next steps toward an ethical framework

We call on climate service providers (whether they are academics, in the private sector, engaged with national meteorological or hydrological services, or representing other types of organisations) to assess this prototype framework against their own experiences, products, and values. It is only through a process leading to a common acceptance of principles that decision-makers and other users can evaluate the services and products, and so collectively hold both producers and users to agreed standards. Furthermore, international agencies (e.g. GFCS, IPCC, WCRP, Future Earth) can all bring valuable additional perspectives and leadership to the conversation, as well as provide insight into the development and operationalisation of an authoritative framework.

Summary

We have outlined core values that we believe should help guide the development of this emerging field; we have also interpreted these values with respect to the products and the practices of climate services. While we recognise that climate service ethics may have different meanings in different contexts, we see this paper as a necessary first step in growing a community-wide discussion regarding standards and accountability. We are eager to hear others' opinions regarding what we can and should expect from the climate services community and will look forward to continuing this dialogue in a range of venues.

To that end, the white paper on which this article is based is available on the website of the Climate Services Partnership⁸ and the various organisations that have endorsed the process. The white paper will be open to comment through the end of the year and re-released reflecting community feedback in 2016. We welcome your feedback and encourage climate service providers and users to organise their own conversations regarding the ethical challenges posed by climate services. We look forward to hearing more from you.

Readers may also like to read "Ethical principles for climate change: adaptation and mitigation"⁹, which was recently adopted by UNESCO World Commission on the Ethics of Scientific Knowledge and Technology.

⁸ www.climate-services.org/

⁹ <http://unesdoc.unesco.org/images/0023/002345/234529E.pdf>