*Chapter 26*

# ESCAPING THE DOUBLE BIND: FROM THE MANAGEMENT OF UNCERTAINTY TOWARD INTEGRATED CLIMATE RESEARCH

*WERNER KRAUSS*

**Draft. Please do not quote.**

Climate change has made for a spectacular career, culminating in the Nobel Prize for Peace in 2007 awarded to the Intergovernmental Panel on Climate Change (IPCC) and Al Gore. But there has been a price to pay for establishing an ongoing master narrative based on scientific consensus, tipping points, and thresholds; so-called climate skeptics have hijacked the basic scientific concepts of uncertainty and skepticism and turned them into an argument against the implementation of climate politics. As a consequence, climate science has increasingly become politicized; the close vicinity of climate research and politics has raised suspicion concerning the objectivity and neutrality of science. Controversies surrounding the iconic hockey stick curve, the hacked e-mails from climate scientists (Climategate), and errors in the IPCC report (Himalayagate) have not helped. Under pressure, climate science has deployed diverse strategies to regain public trust, such as the inclusion of uncertainty into the working reports of the IPCC and in public communication. But there is more to politicization and uncertainty than a management problem; the debate about their role in the climate debate has left its traces in climate science and raised new questions: how do climate scientists deal with this permanent double bind of maintaining fidelity to scientific standards, while the object of their research is politically charged? If the linear model of science speaking truth to

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power is a failed conception of science communication, then what are the alternatives? Using the example of climate science in Hamburg, this chapter presents an ethnographic account of the concepts and strategies deployed by a group of scientists who actively face the challenges imposed by this double bind.

From early on, climate science in Hamburg established a loose network with social scientists; they embraced concepts informed by policy advice and social science studies—namely, "the honest broker" and post-normal science. The implementation of an interdisciplinary climate blog served (and still serves) as a testing ground and as a form of extending the conversation about climate change. Based on my ethnographic account, in this chapter I argue that climate science as a social practice is changing and situates itself differently in society. Adjusting climate science in a highly politicized environment is an often ambiguous and open process, and, more often than not, new double binds emerge and replace old ones. But there is no way back to an innocent state of science, and in the future social sciences will play a greater role in the production of knowledge.

In what follows, I take the double bind inherent in climate communication as a starting point to situate my own ethnographic approach in the current anthropological debate about climate research. After presenting my research site and the main actors, I follow the process of networking that resulted in the adoption of the concepts of the honest broker and post-normal science. On this basis, I critically discuss the potentials and restrictions of these concepts. In the conclusion, I argue that despite the idiosyncrasies of this specific example, climate science may well increasingly accept politicization and uncertainty as part and parcel of its mode of existence.

## [H1] Escaping the Double Bind

Throughout his career, the late climate scientist Stephen Schneider discussed the problem of advocacy and climate science; how can one stay loyal to scientific standards and add value in science communication? Scientific knowledge serves as the legitimization of climate politics and its goals; as a consequence, climate science comes increasingly under pressure and ends up in a permanent double bind. Once the object of research is politically charged, scientific statements immediately turn into political arguments. In anthropology, the issue of the "double bind" has a long history that goes back to Gregory Bateson. He was interested in the question of how sciences deal with paradoxes and uncertainty, and he moved on to research the effects of double binds in family interaction. Throughout the history of their discipline, anthropologists were faced, for example, with the problem of changing the very cultures they were at the same time representing. Only recently, Sarah Green (2014) reflected on these "anthropological knots" and recounted a classical Zen *koan* that goes back to Bateson; it exemplifies a typical double bind and how to get out of it:

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> [A Zen Buddhist master] holds a stick over the head of the student and says, 'If you say this stick is real, I will strike you with it; if you say it is not real, I will strike you with it; if you say nothing, I will strike you with it.' A student can escape the double bind by reaching up and taking the master's stick away." (Green 2014: 8)

In more recent environmental research, Kim Fortun used the concept of double bind as her starting point in *Advocacy after Bhopal*; she finds the victims of the industrial disaster, the "enunciatory groups," permanently challenged with impossible alternatives by corporations and nation-states as potential addresses for compensation; as an anthropologist, she is familiar with facing permanent double binds herself:

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> Double binds proliferated. I learned languages of law and bureaucracy, while learning how badly these languages represent everyday life. I learned to speak in terms of environmentalism, while learning how badly environmentalism represents the Third World poor. I learned the many truths of theoretical critiques of representation, on the ground—while producing one representation after another. (Fortun 2001: 53)

Fortun actively deals with this double bind in turning advocacy consciously into her way of fieldwork while permanently exposing the inherent contradictions. In her book *How Climate Change Comes to Matter: The Social Life of Facts*, Candis Callison builds on the work of Fortun and their mutual advisors:

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> This book uses multisited ethnographic methods suggested and pioneered by Marcus, Fischer, and Fortun to get inside how climate change becomes meaningful in diverse and specific groups and how this underlying double bind *of maintaining fidelity to science and expanding beyond it* is negotiated by groups that are both central and peripheral to evolving discussions about how to communicate climate change. (Callison 2014: 5)

Callison's study reflects this shift of perspective in recent anthropological research from improving science communication toward the question of how "the meanings of climate change are established through attention to multiple discourses, assemblages (institutions, actors, networks), and vernaculars where situated knowledge, advocacy, activism, ethics, and morality become apparent" (2014: 12). In this context climate change is understood as an emergent form of life, and the research focus shifts toward the inquiry of how climate change comes to matter in diverse social formations; in her book she discusses science journalism, religious groups, scientists, and carbon managers.

In this chapter I present at the example of climate research in Hamburg, the emergence of a specific social formation in climate science that deviates from mainstream science. This group of scientists is sometimes labeled as "climate realists" or "climate pragmatics," and they set themselves apart from what they call "alarmism" or "climate catastrophism" as well as from climate skepticism; instead, they situate science differently by applying the concepts of "the honest broker" (Pielke, Jr. 2007) and of "post-normal science" (Funtowicz and Ravetz 1993) as their trademark. In various functions as "their" anthropologist, as a collaborator, coblogger and coauthor, I accompanied this process over a long period of time, starting in 2001. Needless to say, working in this interdisciplinary field creates double binds, too—anthropology and its qualitative and interpretative methods serve as "the other" of scientific research; once you gain credibility on the one side, you easily lose it on the other. Nonetheless, I interpreted my task as being an interlocutor to my informants or, more optimistically, as a diplomat between different modes of existence as suggested by Latour (2013).

## [H1] The Research Site and Fieldwork

Hamburg has a long tradition in meteorology and is today one of the hot spots in international climate research. The major contributors of the University of Hamburg's Cluster of Excellence "Integrated Climate System Analysis and Prediction" (CliSAP) are the Max-Planck-Institute for Meteorology, the German Climate Computing Center, and the Helmholtz Research Center with its Institute for Coastal Research. The director of the Institute, Hans von Storch, is also one of the speakers of this Cluster of Excellence, and he advocated early on for the participation of social sciences in climate research. At the beginning of the new millennium, he willingly opened the doors of his institute for my research on "the tribe of climate scientists"; from here we developed, over several years, various forms of

collaboration and engaged in a continuous conversation about the politics of climate research. The concepts of the honest broker and of post-normal science served as a common field of interest, with the establishment of a climate blog, *Die Klimazwiebel* ("climate onion"), as a test ground for the extension of the debate and the inclusion of new publics. The German North Sea coastline as field site for coastal, climate, and ethnographic research is our common point of reference. In workshops and common publications, as lead and contributing authors for the IPCC (Jones et al. 2014) and as authors of a book on "the dangerous vicinity of climate research and politics" entitled *Die Klimafalle (The Climate Trap)* (von Storch and Krauß 2013), we discussed the prospects and contours of a new understanding of integrated climate research. As an anthropologist, I became an active member of a mostly informal and loose network bringing together climate science with social and political scientists, political analysts and philosophers of science, policy advisors and journalists.

Hans von Storch started his career at the Max-Planck-Institute for Meteorology, and he soon developed a critical stance toward his colleagues in respect to the undifferentiated interpretation of climate change as "catastrophe." From early on, he distanced himself from premature interpretations of individual weather events as signs of climate change, and he was critical about an increasing tendency in climate science to link each and every event to climate change. Obviously, there were social drivers informing scientific studies and changing the interpretation of the results accordingly.

His collaboration with the sociologist Nico Stehr was a major turning point and intensified his latent interest in climate science as a social practice; in the 1990s they started to work on the cultural history of climate change and of climate research. The main contribution of this continuing collaboration was putting climate research into a cultural, historical, and political perspective and consistently calling for the participation of social sciences. They wrote about the long tradition of climate determinism in geography and the political abuse of climate alarmism in history; in doing so, they tried to put current climate

science and its practices into context. As one of the main protagonists of the hockey stick controversy and the discussion about Climategate, von Storch showed himself to be concerned about the loss of public trust in science and its diminishing integrity in respect to Mertonian norms.

The contact with social science helped von Storch to situate himself and his institute differently in the field of climate science. He created his own niche in the polarized climate debate, with the stereotypical camps of "alarmists" on the one and "skeptics" or "deniers" on the other side. Hans von Storch never hesitates to speak to the media, and he maintains close relationships with journalists. Like many leading climate scientists he is a good interviewee; he polarizes consistently while developing a position of his own as a "climate realist." Establishing a loose network with social sciences helps to define and to maintain this niche; as it turned out, the concepts of "the honest broker" and of post-normal science served well to outline the contours of his position and finally turned into a trademark of the integrated climate science in Hamburg.

## [H1] The Honest Broker

The polarized climate debate was easily diagnosed in this framework: catastrophism and raising the alarm on the one side and scientific ignorance on the other—a view that daily newspapers often reinforce in their reporting on climate change. But how to ban such hysterical voices, and how can science be protected from being used as a support for these respective agendas? For the appropriation of a niche between skeptics and alarmists, theories and concepts from the social sciences play an important role. The honest broker is a traveling concept that is precise enough to be applied in specific situations and broad enough to cover diverse interests and fields. Furthermore, it has almost magical qualities in providing forms of classification to order the cacophonic choir of voices in the climate debate.

The concept of the honest broker comes from the political scientist Roger Pielke, Jr., one of the leading and most disputed researchers in the emerging field of interdisciplinary climate research. He is well known for opposing, using statistical means, the often premature link between extreme weather events and rising costs of disaster to climate change; especially in the United States, this is a highly politicized issue, with Pielke as one of the most prominent protagonists. This position made him an almost natural candidate for the Eduard Brückner prize, named after a famous German climate researcher from the turn of the 19th to the 20th century and awarded from the German association of climate scientists. Hans von Storch was the main initiator of this prize and head of the committee in 2006, when the prize was awarded to Pielke for outstanding achievements in interdisciplinary climate research, thus setting another milestone in the integration of social sciences into climate research. Both profited in equal terms from this long-term relationship, with Pielke providing the conceptual foundations for the emerging field of integrated climate research as initiated in Hamburg.

His main contribution is his typology of five modes of engagements of science in society (Pielke 2015). This typology is highly idealized and abstract, but the individual categories perfectly illustrate the different positions in the politicized field of climate research. As in a theatre, the figures of the *pure scientist*, the *issue advocate*, the *science arbiter*, and the *honest broker* are ideally suited to stage the drama of climate science. The fifth category, the *stealth advocate*, is perfect to begin with. This is a scientist who presents scientific data in a way that fits his hidden political agenda. But who is this bad guy in reality? Is it the skeptic paid by the oil industry who fakes data, or is it the climate scientist who denies uncertainties and preaches evidence to the public? In any case, this schematic typology bears a considerable tension. This is also true for the *pure scientist*, who is interested only in science and research—a state of science that is highly idealized among scientists but hardly achievable. Pielke wisely adds that once the objects of research are highly politicized a

neutral stance is no longer possible; without including the political context, even pure equations automatically gain political traction and turn into open or stealth advocacy.

The *science arbiter* is perhaps the most common figure in expert advisory committees; science arbitration provides answers that can be addressed empirically with the tools of science. This role is familiar in many situations and highly accepted in society. The *issue advocate* is perhaps the most prominent role and can easily be imagined as a Greenpeace activist or a scientist working for an oil company—both often dismissed as not trustworthy in terms of proper science. Pielke is more indulgent when it comes to the *issue advocate* who seeks to reduce the scope of available choice, often to a single preferred outcome among many possible outcomes; that is, the scientist argues openly in favor of a specific solution or agenda. Callison (2014) introduces the related term of the "near-advocate," probably one of the most prevalent roles assumed by climate scientists. Finally, there is the *honest broker of policy alternatives*, who seeks "to clarify the scope of possible action so as to empower the decision maker." This mode of engagement changes the role of the climate scientist in society, and it does so in a fundamental way: science no longer takes the lead in defining how to deal with the challenges imposed by climate change but serves to project the possible outcomes, the feasibility and the range of possibilities in the framework set by political and societal decisions. The main idea is to integrate science into a democratic framework.

For von Storch and the Hamburg school of climate research, the honest broker is one of the central nodes in the emerging network of climate science, policy advice, and social sciences. The schematic way of this characterization of five modes of engagement leaves enough room for natural sciences to adopt the concept and to interpret it in their own way without risking losing the authority attributed to the hard sciences and big data; climate change is still science-based, but the categorization of the multitude of voices serves as a magical ban: conversation about climate change can both be extended and controlled. Science

does no longer determine the political debate, but it still is in power by defining the scope and thus framing the debate.

## [H1] The Honest Broker as Patron Saint: Extending the Combat Zone into the Blogosphere

One of the main features of the climate debate is the extension of the combat zone into the blogosphere; blogs have played a central role in the climate discussion ever since the hockey stick debate (Krauss 2012), providing a public for dissenting voices or those from outside climate science. In 2009, the year of Climategate and the failed climate summit COP 15 in Copenhagen, von Storch implemented a climate blog on the Internet, *Die Klimazwiebel*; "Following the paradigm of the 'honest broker' we write about climate research and its interaction with politics" (http://klimazwiebel.blogspot.com/). The honest broker as the patron saint provides safe ground both for steering a conversation and motivating the extension of the conversation about climate change beyond the narrow confines of science as well as the polarized climate debate. For me, "the risk of diplomacy" as mentioned by Latour (2013: 52) became a full reality when I was asked to participate as one of the editors of the blog, together with the sociologists Dennis Bray and Rainer Grundmann and the climate scientist Eduardo Zorita. Starting a climate blog marked an important step from the conceptual approach to its performance in the semi-official world of the blogosphere. It is unknown terrain in science communication and as such a real test field for future developments. *Die Klimazwiebel* intends to bridge not only the gap between science and politics but also the one between social and natural sciences as well as between science and the public. In terms of the polarized climate debate, the main feature of *Die Klimazwiebel* is to provide a space for skeptical voices as part of the strategy to overcome the polarized debate and to extend the conversation.

Unavoidably, the modes of engagement provided by the honest broker concept are easily transformed into moral categories in these discussions; Pielke himself is fully aware that the word "honest" easily catches attention. In the heat of the discussion, dissenting opinions are automatically disqualified as "dishonest" or as "stealth activism." In these cases, *die Klimazwiebel* develops specific group dynamics that gain their own traction, creating a new double bind. Hans von Storch, as globally renowned German climate scientist, professor, and founder of the blog, is almost automatically identified by non-academic commentators as the impersonation of the honest broker; dissenting views are easily dismissed as dishonest or stealth advocacy. These semantic dynamics are deeply rooted in German national culture where academic education has great symbolic value and is identified with high social status. Linking climate and questions of cultural identity heats up the discussions and is one of the causes of elevated blood pressure as typical health risk for bloggers.

In any case, the application of the concept of the honest broker has opened up the climate debate and situated climate science differently in society; furthermore, it has helped uncertainty and skepticism to find their way back into the climate debate. When applied as in the context of *Die Klimazwiebel*, climate science rubs with society, causes frictions, and finally becomes a case for post-normal science (Hulme 2007).

## [H1] POST-NORMAL SCIENCE: MANAGING UNCERTAINTY

How to manage uncertainty effectively? How to deal with the politicization of climate science, and how to get rid of the permanent paradoxes and double binds? The concept of post-normal science was suggested by Sylvio Funtowicz and Jerry Ravetz to provide answers to these questions, and like all traveling concepts it is based on a catchy credo: post-normal science applies when knowledge is uncertain, stakes are high, values are in play, and

decisions are urgent. When Jerry Ravetz promoted post-normal science as a means of managing uncertainty and politicization, the concept already had a long history.

In her article about the origins of the concept of post-normal science, Silvia Tognetti (1999) goes back to the anthropologist Gregory Bateson, who found normal science in the Kuhnian sense in a state of permanent double bind. Problem and policy-driven science like climate science has difficulties in dealing with new sources of uncertainty that "typically fall outside the paradigm" and thus limit their relevance for "real world problem solving" (Tognetti: 700). She argues that science cannot be defined "in isolation of social context"; like a person, science exists in relation to a social context and thus is permanently confronted with new sources of uncertainty. The management of uncertainty is at the heart of post-normal science; according to Jerry Ravetz (2010), this was the case with climate science. After Climategate, rumors abounded: allegedly, there was a witch-hunt on skeptics; scientific journals practiced gate-keeping, trying to keep skeptical views out, and peer-review in climate science turned out to be pal-review. These were strong accusations, and there was hardly a chance to provide evidence for one or the other side. The evangelical tone and the attitude of "the science is settled" of many scientists , thus excluding uncertainty from the debate, indeed prevailed especially before climate summits such as COP 15; Jerry Ravetz sarcastically spoke of a "war on climate" comparable to the war on terror or drugs.

In 1999, Dennis Bray and Hans von Storch argued that climate science is "an empirical example of post-normal science" (Bray and von Storch 1999); they stated that, based on their surveys among climate scientists, consensus on anthropogenic climate change is as much a result of normative assumptions as of science. One decade later, Climategate was the incentive for the founders of the concept of post-normal science, Jerry Ravetz and Silvio Funtowicz, to turn their attention to climate science. Ravetz chose a skeptical blog to publish his highly controversial statement *Climategate: Plausibility and the Blogosphere in the Post-*

*Normal Age* (2010). For him, the hacked e-mails offered a shocking insight into the scientific production of policy-relevant knowledge. With a reference to Pielke he stated:

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> There are deep problems of the management of uncertainty in science in the policy domain that will not be resolved by more elaborate quantification. In the gap between science and policy, the languages, their conventions and their implications, are effectively incommensurable. It takes determination and skill for a scientist who is committed to social responsibility, to avoid becoming a "stealth advocate" (in the terms of Roger Pielke, Jr.). When the policy domain seems unwilling or unable to recognise plain and urgent truths about a problem, the contradictions between scientific probity and campaigning zeal become acute. It is a perennial problem for all policy-relevant science, and it seems to have happened on a significant scale in the case of climate science. The management of uncertainty and quality in such increasingly common situations is now an urgent task for the governance of science. (2010)

In 2012 Ravetz organized a workshop in Lisbon about "Reconciliation in the Climate Debate." His intention was to invite skeptics and advocates alike to find out if there is a common ground both sides can agree on. While prominent skeptical bloggers such as Steve McIntyre and Judith Curry joined the workshop, there were only a few participants who represented the mainstream, with von Storch and I representing the middle ground, dubbed by skeptical colleagues as "lukewarmers." The result of the workshop was that skeptics do not consider themselves necessarily as a group, so they refused to make a common statement. They agreed only on "the monster of uncertainty" (van der Sluijs 2005) as being an integral part of climate science that cannot be excluded or exorcised. Following Lisbon, the networking continued, and we organized a follow-up workshop in Hamburg entitled "Climate

Science in a Democratic Society." The workshop served well as an example for integrated climate research with social scientists, policy advisers, anthropologists, and journalists outnumbering climate scientists. The focus was on discussing uncertainty in respect to practical applications such as regional climate services, adaptation, and the IPCC. Instead of politicizing climate science and depoliticizing adaptation (Beck 2011), climate science was brought back into democracy—at least, in theory. Post-normal science is simultaneously theory, method, and ethnographic description; while its real nature remains diffuse, it serves perfectly to outline the contours of an integrated climate science.

## [H1] CONCLUSION

Climate change is not a monolithic fact; instead, it is permanently negotiated between science and other systems of knowledge. This is an insight that anthropology can contribute to climate science, with the anthropologist as an informed interlocutor and a diplomat between different systems of knowledge and modes of existence (Latour 2013).

It is a long way from Stephen Schneider's discussion of the double-ethical-bind to the polarized and heated debate following the scandals, controversies, and failures of the linear model of science communication. When climate science and the IPCC finally started to manage uncertainty, they did so without challenging the overall framework of science leading the climate debate and framing climate politics. But as I have shown with the example of climate research in Hamburg, there are also attempts to escape the double bind and to define climate research in the framework of an integrated science.. In Hamburg, the tentative adoption of traveling concepts such as the honest broker and post-normal science is an attempt to situate science differently in society and to understand climate as both physically and culturally constituted. Of course, this is a highly idealized version of my ethnographic account. In everyday reality, my interlocutors from climate science still want both to purify

science and to integrate social sciences and the public, thus permanently repeating the double bind: the more they want to keep science pure and free of context, the more climate science becomes politicized. Furthermore, governance strategies and international programs still favor natural over social sciences and humanities. Thus, climate science still takes the lead and defines climate change primarily as a physical phenomenon, while social sciences are mandated to communicate this knowledge and to incite transformation on this basis. But the honest broker as a patron saint and post-normal science as illegitimate child will constantly provide encouragement to finally escape the double bind and to move from managing uncertainty toward integrated science In any case, the future of both climate and its science is still uncertain.

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