

## ***Interactive comment on “Telling the boiling frog what he needs to know: why climate change risks should be plotted as probability over time” by Simon Sharpe***

**Tebaldi (Referee)**

tebaldi@ucar.edu

Received and published: 1 February 2019

I agree with all that is proposed in this piece, and I think it is important to try and persuade the assessment community to adopt multiple perspectives and multiple communication devices to increase the cogency and relevance of climate change communication. This proposal is one, and a valuable one, and I'd be happy to see this piece published.

Mine are not really requests for specific corrections or changes, I just want to point out a few things. In AR6 WG1 there is going to be a new chapter, chapter 12, which is attempting to facilitate exactly the type of cross-WG efforts the author is highlighting

C1

and wishing for in this piece. The authors of Chapter 12 (I'm one) are trying to identify metrics and thresholds that have impact relevance, and whose changes can be assessed from observations and climate model output from the point of view of WG1 science (i.e. remaining strictly within the boundaries of hazard characterization). It is far from easy, and that may be perhaps better acknowledged in this piece. I think the type of approach that is called for here makes a lot of sense for specific impact analyses, but it is far from straightforward in big, global assessments (or even national ones) given the myriad of metrics/thresholds that are relevant to some sectors/regions and less relevant to others. But an attempt to at least identify some examples, in a multidisciplinary approach, is being made. So hopefully next time around some parts of the IPCC report will have more immediate resonance with what is being wished for here. One thing I would like to see discussed in a more nuanced way is the idea of global warming levels and targets. I appreciate the recognition that these are socio-political constructs: it is in my opinion an important distinction that needs to be made. I agree they have their "aspirational value" and as such they may be taken as the lens through which to carry out this type of communication, but I would like to see an explicit mention of the fact that there is no such thing as an absolute threshold below which we are safe and above which we are toast, at this global scale, and that makes the treatment of such thresholds very different from those that have a physical meaning. Gavin Schmidt had a good piece, a long time ago on RealClimate about this. <http://www.realclimate.org/index.php/archives/2006/07/runaway-tipping-points-of-no-return/> I would be happy if this disclaimer was made explicit here, since at some level I feel as if focusing on this communication for such arbitrary threshold may sometime be less than productive. Lastly, just one point about the (idealized) examples of graphics presented in the paper. It may be good to point out that the type of deterministic relation shown by these single lines is very rarely (if ever) what we have, but that some fuzziness, or shading, communicating uncertainty will also be part of this type of display. I know it is obvious to many of us but all the examples happen to be devoid of uncertainty, and that is possibly misleading for a reader.

C2

