

Extraordinary Session of the WCRP Joint Scientific Committee

30 November - 3 December 2020

Update on development of the science plan for the 'My Climate Risk' LHA (MCR)

1. Progress to date

The initial composition of the MCR science plan development team was formalized in late October. Ted Shepherd (UK) had agreed to be chair; he asked Regina Rodrigues (Brazil) to be co-chair, and she agreed. The initial group comprises 14 people, all except Ted nominated from within WCRP, spanning all WCRP homes with the exception of CliC. The regional representation is very deficient, with only 2 of the 14 from a non-Western country, only 1 from Asia, and Africa completely unrepresented. (On the positive side, the gender and career-stage diversity of the group is reasonable.) It was nevertheless felt that before expanding the group further, and in light of the close proximity of JSC-41B, it was best to take stock of the collective knowledge within the initial group. We accordingly held two 90-minute telecons, on November 2 and November 9, in order to get to know each other. Following introductions, we went around the group over the course of the two meetings, allowing 10 minutes (including discussion) for each member to make some initial comments regarding what they saw as the greatest challenges, and potential structures, for MCR. Everybody made the first meeting, and most people made the second meeting. A written record of the meetings was posted on Slack. Subsequently, the group split into four subgroups of 3 or 4 members each, who worked in parallel on the draft template for the science plan, to a deadline of November 20. This was done in order to give everybody the chance to contribute their detailed thoughts. The co-chairs will synthesize this input into an interim document.

The new science that is envisaged within MCR is not around models, or observations, or process understanding, but on how they are all used together within a context of deep uncertainty (i.e. with conflicting information and disagreement on which aspects of the information are most important). Specifically, MCR aims to develop and mainstream a 'bottom-up' approach to regional climate risk, which starts from the decision context (and the decision scale), and enables relevant climate information to be brought into that context. By developing a new framework for assessing and explaining regional climate risk using all the available sources of climate information (observations, reanalyses, model simulations, better understanding, etc.), climate information will be made meaningful at the local scale. Whilst any application of the framework will inevitably be specific and tailored to local concerns, the framework itself will be generic, hence flexible and applicable across a number of region types (large scale, urban, typical SREX region, etc.) and intended to become a much-needed scientific support for the development of climate services. At the same time, MCR can identify needs to be addressed by the WCRP homes and other LHAs (e.g. implications of model biases).

The initial consultation within the science plan development team fully endorsed the concept behind MCR, and its importance. However, three major challenges were identified through this process. We briefly discuss them, and our proposed approaches to dealing with them.

The first challenge is that whilst the whole point of MCR is to take a risk perspective on climate variability and change, the non-hazard aspects of risk represent a huge (and very complex) scope, largely beyond WCRP expertise. The solution, in our view, is *not* to tackle the entire climate risk landscape in partnership with other bodies; there are simply too many other bodies working in this space, and this would be unworkable. Moreover it would all too easily become ‘top down’, which is what we are trying to avoid. Rather, we suggest a more focused goal of enabling climate scientists to bring climate knowledge to bear in specific local decision contexts, drawing on the expertise from across the WCRP. These local decision contexts, which is where the applications to risk would occur (and in which the climate scientists would typically be a minority), would not be coordinated; they would emerge in a bottom-up manner, as opportunities arise. Since many WCRP scientists are already working in specific risk applications, there are many potential points of contact with local decision contexts and this bottom-up approach should be eminently workable.

The second challenge is how to coordinate with the 'Regional Information for Society' (RiFS) home, given the significant potential overlap in scope. The key here is not to see this question as territorial. We anticipate that most of the organizational structure within WCRP will continue to lie within the homes (including RiFS), and that most participants in WCRP will identify with a home, *as well as with a LHA*. This should avoid any sense of competition. The role of MCR is to draw on all relevant parts of WCRP in its efforts, and to fill gaps, building on what is already working well. Whilst RiFS is part of this, it is far from being the only part. Having all parts of WCRP represented on the MCR science plan development team is key to making this happen.

The third challenge is how to make progress, given all the demands on people’s time. We are keenly aware that time pressures have increased, often quite unevenly, during the COVID-19 pandemic. We suspect that this increased pressure may become a permanent situation, for a number of reasons, as there are long-term trends pushing in the same direction. Thus, approaches that might have been feasible even 10 years ago may no longer be so. The rise of virtual meetings over the last year does offer opportunities, though can also increase expected work rates. We suggest that MCR be realistic, and very practical, following the principle of E.F. Schumacher’s “small is beautiful” concept. In particular, it is essential to distinguish between what needs to be done, in terms of research in general, and the role of the WCRP within that. The latter is generally only a small subset of the former; not everything in climate science requires international coordination! Finally, it is essential to seek and cultivate leadership from early-to-mid-career researchers, including in developing countries, who can provide the kind of driving force that is needed to make MCR a success, whilst being mentored and ‘given cover’ by the more senior researchers. They need to be incentivized to do so, part of which involves minimizing the ‘price of entry’ in terms of bureaucratic obligations.

2. Partners

Because MCR spans across all parts of WCRP, the first set of partners is within WCRP itself. There has been strong engagement in this respect (with the exception of CliC) in the activities of the science plan development team so far, and this will continue. Liaison with other LHAs, especially EPESC and the Academy, will also be essential. A particularly important element for MCR will be the WCRP regional research fora, currently under development.

We have had initial (very positive) discussions with the Future Earth Risk KAN, but otherwise have not yet reached out to other potential partners, such as WMO (especially regional climate outlook fora), GCOS, WWRP, CSP and WASP. Although we could certainly envisage a few more members of

the science plan development team, we are concerned that if partnerships are established at too high a level, they will rely on over-committed individuals who are only able to take a broad view. (It could also work against our need to increase the regional diversity in the team.) Given that our approach will be highly focused, we think it better if partnerships are mainly established at more of a grass-roots level, in the context of particular activities (expected to mainly be in the form of labs, or case studies), rather than across MCR as a whole. Having said that, we will certainly engage with external partners in the development of the science plan, and rely on existing members of the team (many of whom wear multiple hats) to connect with external partners.

3. Funding : too early to say, but we will certainly require secretariat support.

4. Timeline : too early to say much, but one way to initiate activity quickly would be to replicate virtual workshops like ARRCI (<https://homepage.uni-graz.at/en/douglas.maraun/regional-climate-information/>), which involved several members of the science plan development team.

5. Diversity

Of the initial 14 members of the science development team, 7 are senior researchers (PhD before 2000) with a long involvement in WCRP. One is a PhD student, and the other 6 have PhDs between 2004 and 2009. 6 of the 14 are female. The main diversity issue at the present time concerns regional representation, as discussed earlier. Going forward, the intention is that the more senior researchers will step down sooner rather than later, having served in a transitional role to get MCR going, and that we grow the number of early-to-mid-career researchers playing a leadership role.

The upcoming WCRP regional research fora should be a good opportunity to expand our regional representation, including people who have not previously been much involved in WCRP. However we need to make sure not to ask too much of people too quickly, especially during the present time, or we may lose them. Burnout is a real danger. We also should not expand the numbers too quickly until we have a better idea of the structure, and hence of how people can meaningfully contribute. Leadership of the labs would be a natural means of engagement.

6. Governance, structure etc.

We seek to operate in as non-hierarchical a manner as possible, recognizing that part of the problem in the past has been the siloed nature of WCRP structures, which do not work for regional climate risk. We anticipate the main activity to occur through 'labs' (understood to be dynamic, exploratory, transdisciplinary environments, rather than physical infrastructure), which take a case-study approach and become 'communities of practice'. Importantly, the labs would be bottom-up, i.e. community-driven, rather than being coordinated or endorsed by MCR — although MCR could certainly stimulate them as needed. It is essential in this to mitigate the North-South power imbalance. As Vincent et al. (2020, doi: 10.1038/s41558-020-00910-w) say: "...inequitable North–South partnerships [are] borne out of a paradigm of knowledge deficit and capacity development that runs the risk of entrenching existing inequalities....Creating frameworks that enable the establishment of equitable partnerships requires a shift in perspectives on, and processes related to, the design, implementation and evaluation of success." We still need to think through how best to make this happen. One model that has been suggested is the Himalayan University Consortium (<https://www.icimod.org/initiative/huc/>).