

## WCRP My Climate Risk First General Assembly

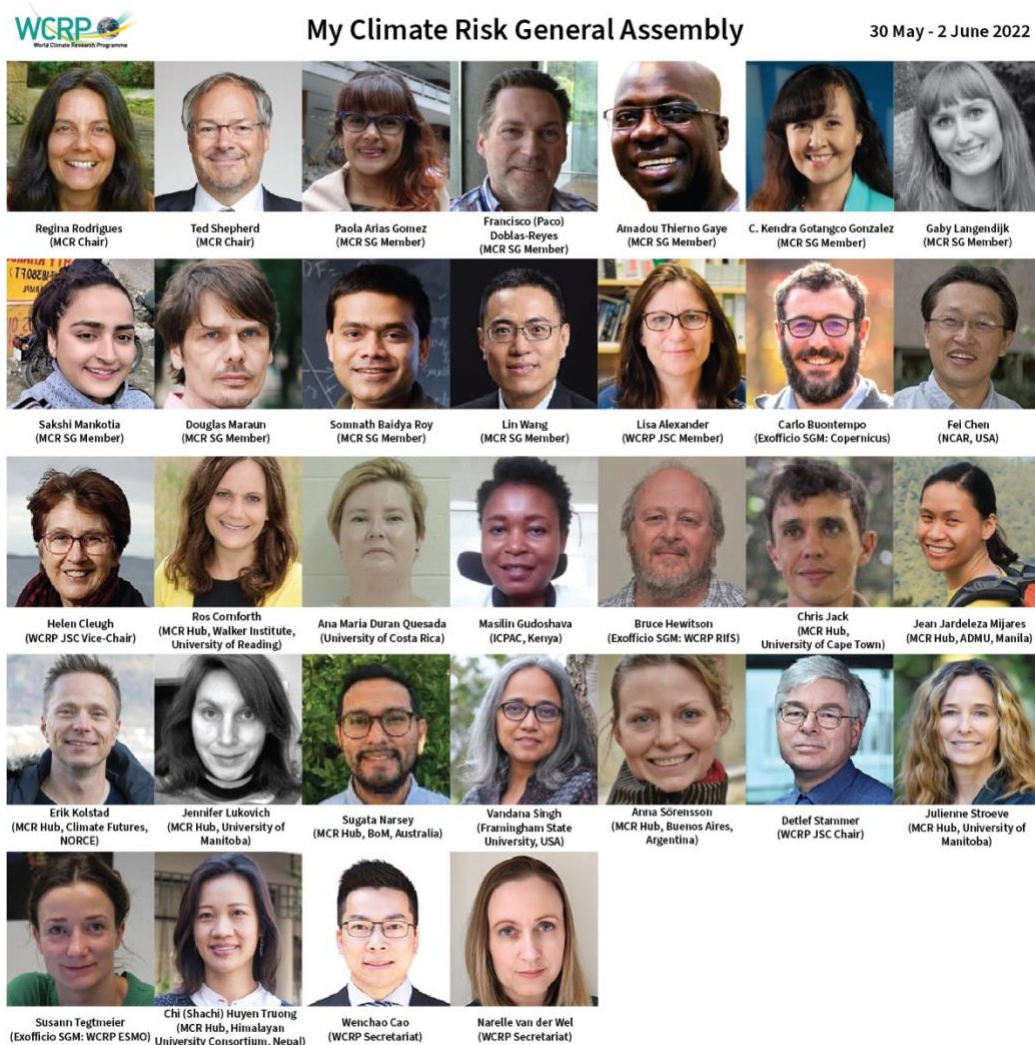
May 30 – June 2, 2022, online

### DRAFT

Report written by Wenchao Cao, Regina Rodrigues, Ted Shepherd, and Narelle van der Wel

### 1. Introduction

The first WCRP My Climate Risk (MCR) General Assembly was held virtually from May 30 to June 2, 2022. This was the first collective meeting of MCR since the meetings of the Science Plan Development Team in early 2021. The MCR Scientific Steering Group (SSG) will only be constituted by the WCRP Joint Scientific Committee (JSC) following its meeting in late June/early July 2022. Nevertheless, it was felt important to move ahead with MCR, especially with the development of the MCR regional hubs. The invited participants consisted of continuing members of the Science Plan Development Team, ex-officio representatives of other bodies, representatives of the eight MCR regional hubs, invited guests, and the Secretariat staff. (A full list of participants is provided in Annex 1.) The meeting took place in five online session blocks of two hours each, spread over four days: a plenary session was followed by two sets of hemispheric breakout sessions, to accommodate time-zone differences. (The General Assembly agenda is provided in Annex 2.)



## 2. Summary of the plenary session presentation

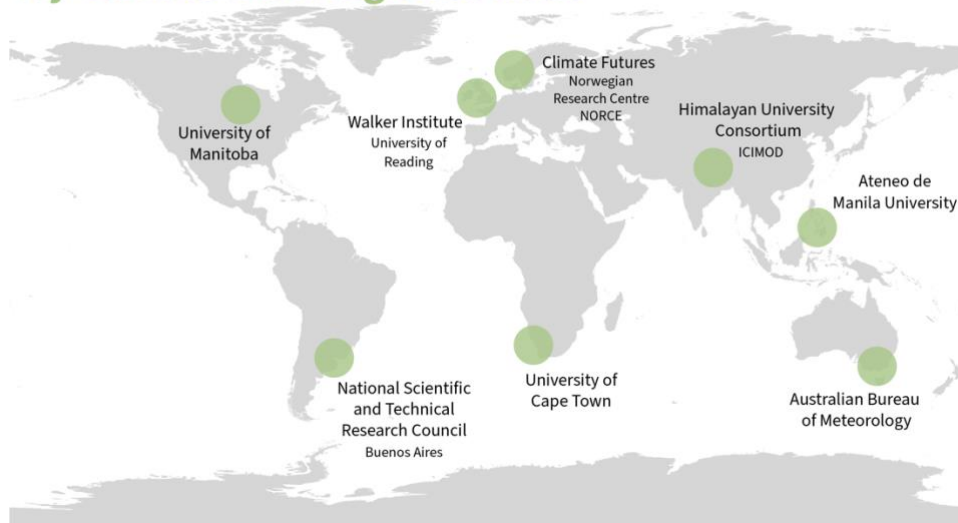
After a round of introductions, Regina Rodrigues and Ted Shepherd, the Chairs of MCR, gave a presentation on the ambition and current status of MCR. Ted started with an overview of the World Climate Research Programme (WCRP), including its mission, vision and activities ([www.wcrp-climate.org/about-wcrp/wcrp-overview](http://www.wcrp-climate.org/about-wcrp/wcrp-overview)), and how the Programme works. He described how the structure of WCRP has evolved in the last couple of years, including the establishment of two new core projects, Regional Information for Society (RIfS) and Earth System Modelling and Observations (ESMO), and the five Lighthouse Activities, including MCR. Ted then gave a brief overview of MCR, including the membership of the Science Plan Development Team and key aspects of the draft Science Plan, emphasizing what the activity does and does not do and how it fits with other WCRP activities. In particular, MCR is not providing a global climate service or attempting to be comprehensive, but as a research effort is trying to develop a new way of working, exemplified through a variety of hubs spread across the world. He outlined some of the challenges facing the ‘bottom-up’ approach to the development of climate information that MCR is pursuing, including:

- Lack of continuity in funding
- Stakeholder exhaustion
- Difficulty in documenting outcomes
- Equity and legitimacy

Regina continued with an overview of the vision of MCR, including grappling with the complexity of local situations, the importance of simplicity, and the need to empower local communities (inspired by Small is Beautiful – [doi.org/10.1093/pnasnexus/pgac009](https://doi.org/10.1093/pnasnexus/pgac009)). MCR will work through a non-hierarchical ecosystem of labs or communities of practice. To help stimulate such an ecosystem, MCR is developing a network of regional hubs. At present there are eight hubs in the process of being established, at the following host institutions:

- Australian Bureau of Meteorology (Melbourne, Australia)
- Ateneo de Manila University (Manila, Philippines)
- Himalayan University Consortium (Kathmandu, Nepal)
- Climate Futures, Norwegian Research Centre (NORCE) (Bergen, Norway)
- National Scientific and Technical Research Council (CONICET) (Buenos Aires, Argentina)
- University of Cape Town (Cape Town, South Africa)
- University of Manitoba (Winnipeg, Canada)
- Walker Institute, University of Reading (Reading, UK)

## My Climate Risk Regional Hubs



Regina outlined the activities that we can expect from the hubs, explained why these institutions were chosen and the process for establishing new hubs (details can be found at [www.wcrp-climate.org/mcr-hubs](http://www.wcrp-climate.org/mcr-hubs)). She also described past MCR activities in 2021 and 2022, and the development of the SSG. All 11 members of the Science Plan Development Team who indicated a desire to continue on the SSG have been nominated for SSG membership. There was an open call from 16 March to 20 April 2022 for new members from all continents except Europe (which was already well represented by the continuing members). There were 34 applications, from which a number have been nominated for SSG membership, to complement the 11 continuing members.

MCR is supported by Narelle van der Wel and Wenchao Cao from the WCRP Secretariat. It is also expected that the regional hubs will be able to provide a certain amount of support in communication and organization of MCR activities.

### 3. Highlights of the subsequent plenary discussion

#### *MCR regional hubs*

There was some discussion about the establishment of additional hubs. There is an open invitation on the MCR website to open a conversation about potential new hubs, and Regina and Ted have been engaged in a number of such discussions over the past year. It is a question of finding the right groups that align with the spirit of MCR and that can help to bring WCRP science to parts of the world that are underrepresented within WCRP. Looking at the map of current hubs, it is apparent that the tropical belt is not yet well represented. It is certainly a priority to rectify this.

It is important to note that the eight hubs are at different stages of evolution, and we need to learn from each other before we expand too much. Over the coming year our focus will primarily be on consolidation of the existing network of hubs. In addition to advancing the MCR agenda within the hubs and growing the local community, this will also involve entraining partner institutions (maybe from within the region, maybe based on existing collaborations at a greater distance) within MCR. These could be seen as ‘branches’, which start as offshoots of an existing hub, and which eventually might reach critical mass and become their own hub. Exactly what form such connections should take will depend on the capacity and structure of each hub; there is no ‘one size fits all’.

Consolidation of the existing network of hubs will also involve knowledge and capacity exchange between the hubs. This can happen either informally, or more formally. Part of the purpose of the first General Assembly was to give the hubs the opportunity to get to know each other, so that they can start to help each other. A series of webinars between hubs, which could either be inward-facing (and limited only to the hubs), or outward-facing (and public), was proposed a few months ago, but so far, only one such webinar has taken place (outward-facing, from the Himalayan University Consortium (HUC) hub).

#### *Structure, and links to other WCRP activities*

At this point, ex-officio representation in the MCR General Assemblies has been offered to the WCRP core projects, as well as to Copernicus (at its request). This can certainly be expanded as needed to other external bodies where it seems appropriate. Although ex-officio representation from other Lighthouse Activities could be useful, there is already a lot of discussion between the Co-Chairs of MCR and the other Lighthouse Activities, e.g., through WCRP leadership meetings, and it is important to limit the number of meetings that people are asked to attend. The WCRP Academy might be an exception, since it seems quite clear that education and training will be an essential component of achieving the ambition of MCR. It will be important to ensure a strong link between MCR and the Academy.

For the most part, we expect linkages with other bodies (both within WCRP, and externally) to occur in the context of specific activities, e.g., those associated with the hubs, as the people leading those activities will be best placed to identify the relevant partners, and the discussions can be very concrete. The General Assembly is really just the business meeting of MCR (essentially, an SSG meeting). Not all linkages have to take place there. The annual WCRP JSC meeting is also a place where MCR can provide feedback on its activities, not only to the entire WCRP but also to all those external partners represented at the JSC meeting.

In short: where there are specific gaps to fill, we can certainly fill them along with appropriate partners, provided we can identify a suitable champion to lead them forward. An example is a proposed working group with RfS on epistemological issues in climate risk, bringing together philosophers of science and climate scientists, to better understand how to navigate what has been characterized as the rational-social dichotomy in the context of climate risk. But just connecting for the sake of it, if it is done at too high a level, risks being too abstract. In line with the focus of MCR on bottom-up activities, anchored primarily in the hubs, we expect most of the connections with partners to occur there, within a particular context.

#### *Top-down vs bottom-up*

There was some discussion around the notion that MCR is taking a bottom-up approach to the construction of climate information at the regional scale. All agreed that it's not really top-down or bottom-up, but both; it's just about striking the right balance between the two. The premise of MCR is that in climate science the balance is currently not right, overall, so our emphasis on bottom-up is intended as a corrective measure. But in any particular application, the right balance will need to be struck for that application. Indeed, much of the climate science that will be brought to bear in particular local situations will involve global modelling initiatives, satellite measurements, reanalyses, and other publicly available global data products, all of which can be regarded as top-down activities.



MCR should endeavour to be a pathfinder for how the appropriate balance between top-down and bottom-up climate science can be found, and for enabling people in local situations to strike that balance themselves. What we are talking about is managing climate risk as if people mattered.

Central to the top-down vs bottom-up perspectives is the interpretation of risk and uncertainty, as the concepts can be perceived very differently from the two perspectives. Risk involves vulnerability and exposure, but those factors (as well as what constitutes the relevant hazard) are highly contextual, and different for different communities. Moreover, climate uncertainty is often a very small part of total uncertainty and of what drives decision-making. The closer one gets to the user, the less relevant aggregated or generalized approaches to risk become. The HUC Webinar mentioned earlier highlighted the fact that for vulnerable communities living on the front line of climate change, uncertainty is just a way of life, and the formal conceptualization of risk sanitizes the real issue. That is a very different framing of uncertainty than the concept of an error bar. A core goal of MCR is to find ways of legitimating such highly contextual approaches to risk. From that perspective, the most important word in ‘My Climate Risk’ is ‘My’.

### *Shifting the paradigm*

There was some discussion of whether a MCR-wide Perspective piece might be useful. The general view was that in order to shift the paradigm, we need to demonstrate the value of the MCR approach, improving the situation in places that don’t have access to good climate services. It is possible that at some point, a special issue of a journal might be a way to document such advances, but it is too early at this stage. In the meantime, members of MCR are encouraged to advocate for the MCR approach in their own ways and within their own communities, or through informal groupings, as opportunities arise. It was suggested that promoting MCR in large international conferences, as was done through both the Sustainability Research & Innovation (SRI) Congress and the American Geophysical Union (AGU) Fall Meeting in 2021, is not an effective way to engage with scientists in the Global South, given the high costs of attending those kinds of meetings.

## **4. Summary of MCR hub presentations**

### **Buenos Aires hub**

The Buenos Aires hub is not strictly at UBA (a range of institutes are involved), but is a mix of meteorologists, anthropologists, physicists, geophysicists, engineers and biologists, from a range of career stages and one from the private sector. The hub is now signed with CONICET. Currently 19 people are involved, and the hub is doing bi-weekly meetings. They are planning to participate in the Argentinian national meteorological conference coming up later in the year, with the theme “Environmental Sciences for Social Transformation”. They are planning to write a white paper on “the Buenos Aires hub take on My Climate Risk” and have a journal paper almost ready for submission. They are starting to discuss objectives for the next years. They don’t have ‘project objectives’ per se but are looking to align current and future financed activities with the MCR philosophy.

### **Ateneo de Manila University hub**

The hub is led by the Ateneo Institute of Sustainability (AIS)-Climate and Disaster Resilience Program. They have reached out to a range of institutes and individuals (very multi-disciplinary).

They run courses on capacity building for teachers and researchers and are involved in a range of projects on building and generating knowledge on and solutions for climate change and disaster risk and resilience. Other groups are also involved in the hub (ARISE, CCaRPH, Manila Observatory). They have reflected on what it means to develop the hub ‘as if people mattered’, starting with listening, understanding what information people need and then looking at how to frame the questions – leading to the storyline methodology. Activities may include: webinars on ‘climate change communication as if people mattered’; a webinar series with perspectives from different stakeholders; an online, multimedia compilation of climate stories in the form of ‘voices from the ground’; piloting of systems-thinking tools for resilience planning; and potential grant applications.

### **Australian Bureau of Meteorology hub**

The hub is not yet established as a group but there are several climate science initiatives already in existence. The landscape in this area is quite developed in Australia and it is hoped that it will be possible to bring all these pieces together to provide good tools to enable climate change information for decisions. The investment in modelling is a top-down approach, leveraging the resources available, investing in regional models, cooperating across multiple agencies to help deal with uncertainty, developing new methods to interpret the overwhelming amount of information, and collaborating across disciplines. In practice, however, this has to work backwards from local decisions to global narratives. A case study on cloud forests (Gondwana rainforests) was presented. They will try and draw on the community in Australia to build new tools, but more importantly, draw on MCR to learn together how to do this.

### **University of Manitoba hub**

The hub is anchored in the Canada 150 (C150) research chair programme at the University of Manitoba, with emphasis on climate-related questions and solutions defined by northern Manitoba and Inuit Nunangat communities. Driven by a long-term goal and vision of the land grant university system, current efforts are focused on making climate science meaningful to local populations through trusted partnerships. These include analysis within the C150 team of station and reanalysis data to complement local knowledge, the development of a questionnaire, newsletter, interactive and training sessions as part of outreach activities, a Climate Science for Community Solutions social media platform, in addition to engagement with climate service providers to facilitate knowledge exchange. In the longer term they would like to hold community townhalls led by student climate ambassadors identified during outreach activities, establish a community engagement coordinator framework, and develop locally tailored dynamic adaptive policy pathways. It was noted that perceptions of weather extremes by the local community did not always match what the meteorological data would indicate, but also involve vulnerability and exposure, and what people are used to, namely impacts on quality of life.

### **Himalayan University Consortium (HUC) hub**

The HUC is a member-led and resource-sharing organization enabling academic cooperation within the Hindu Kush Himalaya region. The MCR hub within HUC has run a number of events so far, with a good response. They are also connecting with other activities within HUC. A key question is how can we rescue the climate-based knowledge from ancient cultures and exchange locally-based knowledge? One of the challenges for HUC has been that the field programmes they run as part of their training have encountered resistance from local communities, who don’t see any return for the

community. This has led to a lack of trust. With Covid-19, it has turned out that virtual engagement with the communities was less intrusive, hence more trust-building. Others commented on the fact that our research does not always give back to the communities where it takes place.

### **Climate Futures hub (NORCE)**

The hub is rather business-oriented, with a focus mainly on physical climate risk on a time horizon from 10 days to 10 years – subseasonal-to-decadal (S2D). This involves high levels of uncertainty, which can be demanding to communicate to users who are used to weather forecasts. Key areas are food production (agriculture and aquaculture), shipping, renewable energy, insurance, finance, and risk management, and all results and methodologies are in the public domain. User partners are involved in all of the approximately 30 ongoing projects, but it is the researchers who mainly drive these projects forward, as it is challenging to engage users. Co-production is key. For instance, every month they meet with about ten different user panels focused on agriculture, where they present the forecasts, and also get feedback. The hub is well resourced and is happy to host researchers from other hubs or centres, co-organize workshops and webinars, and share experiences and lessons learned.

### **Walker Institute hub**

The Walker Institute at the University of Reading is somewhat different from the other hubs in that its main focus is on the Global South, especially Africa. It is motivated by ‘knowledge for people’. A recent example of this kind of work was an OECD study on sweet potato yields in East Africa. Another example, much closer to home, was a workshop on climate adaptation options for drought-vulnerable heritage sites (wetland ecology) in East England. The hub’s goal is to shift the way climate information is produced, which requires long-term trusted partnerships, recognition of multi-stakeholder approaches, and clear pathways of influencing government policy. The driving force must come from stakeholders. Core principles are to learn before doing, and to avoid disrupting already fragile or underfunded institutions, which is especially important in the Global South. Thus, capability must be developed at a pace that can be sustained. The Walker Academy is the capacity building arm of the hub. There is a new Masters program starting up in Climate Change and Artificial Intelligence (AI) at Reading/Walker, which is taking quite an interdisciplinary approach and will feed into the Walker Academy.

### **University of Cape Town hub**

The hub is hosted by the Climate System Analysis Group (CSAG) at UCT, which brings together climate and development research. The group covers core climate science, impacts science, climate services and social/governance aspects. They have numerous international partnerships (including with CORDEX), and run an annual professional level Winter School on climate risk and resilience. CSAG have increasingly challenged the traditional ‘linear’ methods of climate information provision, such as climate information platforms or assessment reports, based on growing evidence that these approaches often fail to shift risk management within their region. The FRACTAL project came out of this experience. It focused on climate resilience in Africa from a people and decision-centred approach that includes diverse perspectives and ways of thinking about risk, and enables otherwise silent voices to be heard. FRACTAL included embedded researchers employed to operate with city governments, many of whom have now moved on to play key roles within their regions, so the partnerships can continue. The hub aims to continue along this path, building the evidence base to motivate shifts in funding mechanisms and in climate science research programming.

## 5. Synthesis of the discussions in the hemispheric breakout sessions

The existing hubs have in common the fact that they are all trying to develop a people-first, decision-oriented approach to addressing climate resilience at the local scale. Yet they differ in many ways. This diversity is a strength and the hubs will learn from and support each other, even as they pursue their goals in their own different ways, appropriate to their local situations. The shared goal is to mainstream the people-first, decision-oriented approach, in order to shift what are considered to be acceptable scientific methodologies, as well as funding mechanisms. It was noted that in some ways we are swimming against the current, with the rapidly changing face of climate services which is becoming increasingly technocratic. However, we have the strength of the climate science community behind us and can engage in the kinds of transdisciplinary collaborations and capacity-building activities that are needed at the local scale, to build long-term, trusting and empowering relationships with local communities.

There was much discussion around the issue of trust because sometimes stakeholders can be regarded as a resource which can be exploited (and poached) by competing groups, hence openness and trust can be in tension with each other. The reality is that climate science is, in many institutional contexts, a business, and the usual metrics of success tend to encourage this sort of exploitive behaviour, which favours those with power. We need to develop a culture where this is not the case, and where interdisciplinary teams with shared achievements are valued. It all comes back to doing our science “as if people mattered”. How much the institutional structures need to change to allow this to happen varies greatly between countries, and within-country. But by mainstreaming the approach, we can help move the needle. The development of an MCR ‘brand’ could potentially help in this respect.

The interest in and use of physical climate storylines is a common element between the hubs, since it provides such a natural vehicle for connecting climate science to local contingencies and contexts, and bringing in the human dimension in a meaningful rather than superficial way. Several participants described resistance they have encountered within the climate science community to the use of storylines. Yet the concept is clearly gaining traction, having been endorsed in the IPCC AR6 WGI report (Chapter 10, and the Glossary). Storylines are just another tool in the toolkit, which is particularly useful for decision-making. How storylines are interpreted by the different hubs, with their very different contexts, and how they are placed within the context of more traditional sources of climate information, will be an interesting question to explore within MCR. Since the concept is a paradigm shift, it will take time for it to become operationalizable, which likely means a broad blueprint with endless possibilities rather than an algorithm.

It was noted that the climate scientists who don’t like storylines tend to also be those who are most resistant to bringing the social dimension into climate science and engaging with users. This reflects the ‘rational-social dichotomy’ referred to earlier. MCR can serve as a space to test and explore novel ways and approaches to connect research to society in the risk domain on the frontiers of research-to-practice (especially on the local scale: Small is Beautiful), and also as a longer-term research(-practice) agenda that would help to connect and serve as an umbrella for shorter-term projects. Note that whilst the Lighthouse Activities are intended to be transdisciplinary, this should not only mean between natural and social sciences and humanities, but also within natural sciences (e.g., climate and geography).

There was further discussion of the role of the hubs within their regions, and what it might mean to be a ‘member’ of a hub. Within MCR we are aiming for a more fluid concept of membership (unlike the traditional WCRP structures, where panels have well-defined memberships), aligned with the vision



of the ‘mycorrhizal network’. This is something that will need to evolve over time. In practice, there will likely be people who are actively involved in some kind of MCR activity, and those who are just part of the wider community, attending webinars and the like. Although the hubs are spread around the world, they are not regional franchises, but exemplars (or perhaps outposts), representing a range of different kinds of institutions and contexts. In general, scientists interested in getting involved in MCR should contact the hub with the closest alignment to their interests, but they would be expected to already have contacts with local stakeholders in their own region, and be seeking to share experiences, knowledge and best practices.

We can also use the WCRP Forums to grow the community.

## 6. Summary

The first MCR General Assembly was an exciting meeting, bringing together representatives of all the hubs for the first time, along with continuing members of the Science Plan Development Team, and many others. It was encouraging to see how the concept of doing our science “as if people mattered” resonated across the hubs, despite their varying local contexts. There are clearly many potential synergies between the hubs, and we can look forward to spontaneous interactions between them, as well as more structured collaborations.

Over the coming year, the following actions were identified:

- Consolidation and maturation of the existing hubs, and development of interactions between them
- Exploration of potential additional hubs in parts of the world that are underrepresented within WCRP
- Identification of opportunities to share or develop training materials, and strengthen linkages with the WCRP Academy
- Initiation of a working group with RIFS on epistemological issues in climate risk

The online format of the meeting, with well-separated two-hour blocks, was found to work reasonably well, although much better for the hemispheric sessions than for the plenary session, because of the range of time zones. A full year seems much too long to wait for the next General Assembly, so we will hold the next one in the October/November time frame. This will also allow the newly constituted SSG to get quickly engaged in MCR. It could be a mix of an open component (where all participants in the hubs could participate, to get to know colleagues in other hubs) and a closed component.

*Annex 1. List of participants*

<b>Continuing members of the Science Plan Development Team</b>
Regina Rodrigues, Universidade Federal de Santa Catarina, Brazil
Ted Shepherd, University of Reading, UK and Jülich Supercomputing Centre, Germany
Amadou Thierno Gaye, Ecole Supérieure Polytechnique (ESP) University, Senegal
C. Kendra Gotangco Gonzalez, Ateneo de Manila University, Philippines
Somnath Baidya Roy, IIT Delhi, India
Sakshi Mankotia, Jamia Millia Islamia University, India
Gaby Langendijk, Climate Service Center Germany (GERICS), Germany
Paola Arias Gómez, Universidad de Antioquia, Colombia
Lin Wang, Institute of Atmospheric Physics, Chinese Academy of Sciences, China
Francisco Doblado-Reyes (Paco), Barcelona Supercomputing Center, Spain
Douglas Maraun, University of Graz, Austria
<b>Ex-officio representatives</b>
ESMO: Susann Tegtmeier, University of Saskatchewan, Canada
RIfS: Bruce Hewitson, University of Cape Town, South Africa
Copernicus: Carlo Buontempo, Germany
<b>Hubs</b>
Bureau of Meteorology, Australia - Sugata Narsey
Ateneo de Manila University, Philippines - C. Kendra Gotangco Gonzales
Ateneo de Manila University, Philippines - Jean Jardeleza Mijares
Himalayan University Consortium, Kathmandu, Nepal - Chi Huyen Truong (Shachi)
CONICET, Buenos Aires, Argentina - Anna Sörensson
University of Cape Town, South Africa - Chris Jack
Walker Institute, University of Reading, UK - Ros Cornforth
University of Manitoba, Canada - Julianne Stroeve
University of Manitoba, Canada - Jennifer Lukovich
Climate Futures, NORCE, Norway - Erik Kolstad
<b>Secretariat</b>
Narelle Van Der Wel, WCRP, Switzerland
Wenchao Cao, WCRP, Switzerland
<b>Invited guests and others</b>
Fei Chen, NCAR, USA
Vandana Singh, Framingham State University, USA
Ana María Durán Quesada, University of Costa Rica, Costa Rica
Masilin Gudoshava, IGAD Climate Prediction and Applications Centre, Kenya
Detlef Stammer, WCRP JSC Chair, University of Hamburg, Germany
Helen Cleugh, WCRP JSC Vice-Chair, CSIRO, Australia
Lisa Alexander, WCRP JSC, University of New South Wales, Australia

*Annex 2. Agenda*

**Agenda for WCRP My Climate Risk 1<sup>st</sup> General Assembly, May 30 – June 2, 2022**

Note that participation is **by invitation only**

Note: invited participants are welcome to attend any of the sessions, however in most cases we expect them to choose between the “Eastern” and “Western” breakout sessions

**Plenary session: Monday May 30, 1200-1400 UTC**

Tour de table (10 mins)

**My Climate Risk Lighthouse Activity (Chairs: Regina and Ted)**

- Update on WCRP and MCR (30 mins)
- Questions and discussion, including guidelines on hubs (20 mins)
- Liaison with other parts of WCRP (15 mins)
- Liaison with external bodies (15 mins)
- Ideas for future activities (30 mins)

**First set of breakout sessions:**

**Tuesday May 31, 0600-0800 UTC (Eastern) and 1400-1600 UTC (Western)**

Tour de table (10 mins)

**My Climate Risk Hubs**

3 hub presentations (3 times 20 mins each, including questions)

UBA, AdM, BoM (Eastern); UoM, HUC, NORCE (Western)

Discussion of potential synergies (30 mins)

Thoughts for how to structure the small-group discussions (20 mins)

**Second set of breakout sessions:**

**Wednesday June 1, 0600-0800 UTC (Eastern); Thursday June 2, 1400-1600 UTC (Western)**

Tour de table (5 mins)

**My Climate Risk Hubs (cont.)**

1 hub presentation (20 mins, including questions): Walker (Eastern); UCT (Western)

Small-group brainstorming (45 mins, in groups of 4-5 people each)

Sharing of ideas (30 mins)

Action items and wrap-up (20 mins)