**ICRC2019 CORDEX Conference**
**14-18 October 2019, Beijing, China**

**Plenary session 2 – Friday 18 October**

**WCRP Implementation Plan and CORDEX Future - 11:00-12:30**

*Moderateur P. Kabat – Rapporteur: C. Lennard*

*The aim of this panel discussion is to address the following broad topics:*

- *Re-affirm the goals of the new WCRP Strategic Plan and seek community feedback on associated implementation pathway for CORDEX*
- *Review CORDEX fitness for purpose in the context of CMIP and rapid developments in high-resolution and Earth system modeling*
- *Develop and further refine CORDEX science questions and capability requirements for regions*
- *Enhance the CORDEX value cycle from science to societal needs in delivering regional climate information*

***Panel***

Detlef Stammer (Chair WCRP JSC)
Bill Gutowski (CORDEX SAT Co-chair)
Silvina Solman (CORDEX SAT Co-chair)
Fredolin Tangang (CORDEX SAT Members, CORDEX-South-East Asia, on behalf of APN)
Kun Yang (Tsinghua University, China, on behalf of ANSO)
Duan Yihong (President of Chinese Academy of Meteorological Sciences, CMA) China)
Gaby Langendijk (Early Career Scientist, on behalf of YESS)

**Presentations – 35 mins total**

1. Introduction by **P. Kabat** – 5mins
   - Introduced speakers

2. WCRP Implementation Plan and Status by **D. Stammer** – 15 mins including Q&A
   - Introduced precious strategic mission of WCRP and structure over the past 40 years
   - [WMO has 3 sponsors (WMO, ISC and IOC) and the JSC is a “representation” of these 3 sponsors]
   - WCRP needed to align with the outcomes of COP21, SDGs and UN world conference on disaster risk reduction
   - Developed WCRP strategic plan that has a greater integration of information for society (decision makers) through research (WC**R**P) <- not operational functions
   - Develop socially relevant knowledge and information to inform mitigation, adaptation and risk management

- Science questions that are relevant, innovative, integrated and lead to discovery
- There a suite of partners/communities that WCRP needs to work with
- Presented the roadmap of the implementation plan

3. Priorities for CORDEX (CORDEX contribution to the WCRP strategic plan) by **S. Solman & B. Gutowski** – 15 mins including Q&A
   - Presented how CORDEX can contribute to the four themes of the WCRP SP
   - CORDEX currently contributes to 3 of these themes (1,3,4), S2D theme is difficult
   - Highlighted the infrastructure needed to support these objectives
   - Noted there are challenges in providing useful data/information and the coordination of downscaling effort.

**Short statements – 4 mins each (16 mins total)**

1. **Fredolin Tangang** (CORDEX-SEA, on behalf of APN) – capacity building and example on how agencies like APN can support the development of CORDEX in the regions to address vulnerability, impact and adaptation challenges
   - Highlighted the role APN has played in supporting CORDEX activities in the Asia-Pacific region
   - Should investigate synergies between all CORDEX Asia Pacific domains and existing APN projects that facilitate user engagement (MAIRS-FE)

2. **Kun Yang** (Tsinghua University, China) – Earth system science challenges, e.g representing land processes and land use changes and coupling with the atmosphere for climate projections
   - **Emphasized the necessity of improving our understanding of (regional) physical processes and how this should contribute to model improvement to improve regional climate information for stakeholders/end-user.**

3. **Duan Yihong** (President of Chinese Academy of Meteorological Sciences, CMA, China) – atmospheric and Earth system sciences, from modeling to users
   - Emphasized the need of climate information at multiple time scales for end users.

4. **Gaby Langendijk** (Early Career Scientist - YESS) – mobilizing the next generation of Earth system scientists, networking, innovation
   - Introduced YESS and the objectives of YESS
   - Strengthen link with impact communities; Postprocessing data with multidisciplinary context in mind
   - Development of models that have a human component
   - Increase interaction between GCM-RCM communities
   - **How to facilitate ECS careers in the new environment of WCRP SP because ECS are more multidisciplinary which is what is required**

**Panel discussion with the audience – 35 mins**

Question/Comment

1. How will CORDEX engage with other WCRP core projects
    a. Discussions have been initiated with some co-chairs (GEWEX)
    b. Also thinking how to engage with CLIVAR and CLiC
    c. Need to see where the overlap is and engage here first

2. CMIP6 GCM climate sensitivities will be bimodal, take this into account in the downscaling and communication. The downscaling could elucidate the reasons for these increased sensitivities.
    a. Aerosols seem to be the reason, CORDEX could contribute through FPSs to understand the processes behind the enhanced sensitivity.

3. How will WCRP self-assess progress given new SP?
    a. Assess the impact in literature including IPCC for uptake of WCRP work

4. There is a disparity in the number of downscalings for each domains – how will CORDEX address this?
    a. This is a long-recognized problem
    b. Perhaps CORDEX can assist through encouraging funding.
    c. CORDEX CORE trying address this in some way
    d. FPSs are a way to address region-specific issues
    e. It does require funding and the entrainment of ECS into the processes.

5. Who are our users (CORDEX, WCRP)? Need to know our audience, who are the actors?
    a. The “next user”, who can work with data
    b. The “end user”, who requires information, not data.

6. Is the current setting of climate science able to contribute to relevant climate information to other communities?
    a. More enhanced partnerships with end user organizations that are sustainable
    b. Understanding research objectives of these communities and how to deal with uncertainties
    c. Need to be flexible
    d. Communication between communities is essential for clarity and to avoid misunderstandings.
    e. The move to SSPs from RCPs may be a bridge – suggest training workshops to get this right
    f. The NWP community is often skilled in communicating climate information, enhanced collaboration with NWP community could be beneficial

7. What would a (R)ESM look like?
    a. Currently GESMs are ahead of RESMs
    b. Socioeconomic inclusions into the ESMs is complex and perhaps regionally specific

8. How can the community become “seamless” in terms of time scales (from NWP to centennial time scales)?
    a. NWP evaluation and verification techniques could be assessed for some bias assessments
    b. All scales require process verification, not just bias assessments
    c. Suggestion: Can CMIP and CORDEX be core projects in WCRP?

9. Could we improve/update data in regular cycles to address bias?
    a. There is a great need for quality observed data products, because this is our departure point for bias assessment
    b. Often bias adjustment is context specific that could lead to issues on updates; use biases to inform model development

10. What would you do with 1 billion dollars of funding?
    a. Build a reliable observation system for land, atmosphere, oceans.
    b. Entrain other communities into addressing critical questions
    c. Develop RESMs with a human component
    d. Development a climate predictability system at high resolution
    e. Research into decadal prediction time scale because this is extremely relevant for society

**Wrap up - 5 mins**
PK thanked panel and floor for the discussion.