

Mission Report: 3rd Workshop of the Southeast Asia Regional Climate Downscaling SEACLID/CORDEX Southeast Asia Project

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1. Introduction

Father Jose Ramon T Villarin, President of the Ateneode Manila University of the Philippines opened the workshop by congratulating the Project Leader in taking the initiative to develop such a grassroots activity that did not care so much about national borders but brought together a group of interested scientists across Southeast Asia to find solutions to the many problems besetting its communities. He stressed the importance of the social and ethical issues of global to local scales and that it is imperative to localize global change.

The Executive Director of the Manila Observatory, Dr. Ma. Antonia Yulo Loyzaga, stated that finding solutions to our changing climate is critical in terms of managing risk and that collaboration can really lead to knowledge generation for communities of interest. Transboundary issues, she said, are being addressed in a single platform for knowledge on climate and disasters by ASEAN, which is truly a step in the right direction.

Eleanor O'Rourke of WCRP's CORDEX International Project Office also addressed the needs and challenges of people working on climate science; particularly with end users of the vulnerability, impact and adaptation groups. She noted WCRP's engagement with IPCC, GFCS and PROVIA and the need, as well, to identify relevant funding organisations at national/regional levels. She underscored the capacity building needs of the modeling community, particularly in Africa and Asia and how these needs differ from region to region.

The Keynote address by APN's Linda Stevenson highlighted the 20th anniversary of the APN, APN's capacity development agenda, science-policy linkages and the needs of the region, particularly as outlined under the APN's Climate Adaptation Framework in connection with modeling. She also highlighted the APN's 4th Strategic Plan and the main scientific agenda as well as the upcoming call for proposals expected to be launched mid-June 2015 for capacity development (CAPaBLE) and for the APN's new Collaborative Regional Research Programme (CRRP).

2. Regional Downscaling Models and the development of SEACLID

High-resolution climate change scenarios are the basic requirement for climate change impact, vulnerability and risk assessment research at local and regional levels. The generation of such information requires downscaling of general circulation model/global climate model (GCM) outputs. This said, regional downscaling is both time-consuming and resource-absorbing. Given the overlapping domains in many countries in the region, conducting a collaborative effort for Southeast Asia seemed to make much more sense and, with this in mind, SEACLID (Southeast Asia Climate Downscaling Experiment) was formed in 2012 as a collaborative climate downscaling project involving a number of countries in Southeast Asia, with its first workshop being undertaken in Hanoi, Viet Nam in August. SEACLID was established as a platform for scientists within Southeast Asia to collaborate in climate related projects and, following the initial Hanoi workshop, SEACLID secured 3 years of funding from the Asia-Pacific Network for Global Change Research (APN)'s ARCP programme [ARCP2013-17NMY-Tangang] Current member countries include Indonesia, Malaysia, the Philippines, Thailand, Vietnam, Cambodia and Lao PDR and SEACLID aims to increase the network to other countries within the Southeast Asia as well as outside the region.

3. Bringing together SEACLID and CORDEX

Recently SEACLID was streamlined and integrated into the World Climate Research Programme (WCRP)'s Coordinated Regional climate Downscaling EXperiment (CORDEX) and is now known as SEACLID/CORDEX Southeast Asia (CORDEX- SEA) with Prof. Fredolin Tangang of the National University of Malaysia as its current coordinator. In addition to the original member countries, several countries pledged their commitment to participate in the project and include Australia, UK, Republic of Korea and Hong Kong SAR.

SEACLID / CORDEX-SEA aims to downscale a number of CMIP5 GCMs for the Southeast Asia region through sharing-task basis among the institutions and countries involved. The products will be high-resolution climate change scenarios for Southeast Asia.

SEACLID/CORDEX-SEA is providing a platform for capacity building and training especially for young scientists from within the region in regional climate modeling. The SEACLID/CORDEX-SEA outcomes will enhance scientific understanding of regional climate change in the region and, with the availability of high-resolution regional climate change scenarios, the number of climate change impact assessment studies in the region is expected to increase.

4. Some of the Notable Challenges

The challenges of the project were discussed in detail and with significant concern among the sub-regional group and some of the greatest and most serious challenges being faced in the countries participating in the downscaling work included

- **Lack of human resources, particularly those with necessary modeling and computers skills and with a climate background (especially true in Lao, Viet Nam and Cambodia)**

- **Operational priority and office working hours, with the inability to run models continuously on a day to day basis**
- **Lack of infrastructure, instability of electric power and computer instability**

5. Future Activities

The Project Leader, Dr. Fredolin Tangang led a session on the future activities of the group and how the group would proceed with model runs and outputs in the next 18 months of the first phase of this 3-year APN-funded project.

Most of the progress reports from the scientists in the region were highly satisfactory, although future activities created a lot of discussion in terms of what to do with the sheer amount of raw data created to date as well as how to input that into a CORDEX-required format. This also initiates some concern about the significant time required to format data and upload to the CORDEX data portals.

- Eventually, this project is expected to lead to the production of at least 18 peer-review publications in the scientific, impacts and policy-related aspects of regional climate change and will narrow knowledge gaps in the region.
- Discussions are also underway to start Phase 2 of the Project and the country collaborators are now thinking about how this can be done, what would be the needs and how better to penetrate the Vulnerability, Impacts and Adaptation communities in order to make better use of the downscaled information.
- In addition to this, it is clear that the least developed countries such as Lao PDR and Cambodia have been unable to contribute effectively to the work of the project due to a severe lack of human and institutional capacity. It is hoped that Thailand and Viet Nam may be able to assist here somehow, but specifically for these countries, climate downscaling modelers are severely lacking.
- In terms of engaging end users the group noted that:
 - a. Earth System Grade Foundation (ESGF) could/will facilitate how end users can get access to and use the data
 - b. There is another website Climate for Impacts portal....
 - c. National countries can seek out their own end users...
 - d. CORDEX cross-domain knowledge exchange could be useful...
 - e. CORDEX conference May 2016 will bring in the climate modelers and the VIA communities at the same time.
- On issues of funding, it was discussed with the participants that EU's Horizon 2020 may be a good source of funds for future activities in Southeast Asia.
- CORDEX will also apply to the APN for funding its main global conference in Sweden in May 2016 to bring young scientists working on the CORDEX domains in the Asia-Pacific region to join the conference and share their work with other international peers.
- Thailand, with its newly established climate change center (funded by NRCT and TRF) has agreed to be a CORDEX node for Southeast Asia and this will facilitate the transfer of raw data to CORDEX. While this requires long-term commitment, Thailand also discussed their new research centre
 - i. Thailand is setting up a research center on climate modeling (agreed December 2014)

- ii. NRCT providing funds for computer system; 2 meetings rooms, office and data center/computer server room
- Finally, on science-policy linkages and, specifically, policy-relevant publications the group feels that providing information to interested bodies who could communicate the information to decision-makers would be the best way. This could be done through a publication of the results into a policy-friendly publication. They also recognized that there is a growing need for a new generation of communicators and knowledge management, but at the same time, felt that it shouldn't be left to the science community alone to help translate messages to decision-makers for their information and relevance in decision-making processes.