ICRC-CORDEX 2019 International Conference on Regional Climate
Session: C1
Theme: High impact regional phenomena
Day and time: Thursday 17th October 2019; Time: 08.30-11.30
Chair(s): Dr. Faye Cruz and Dr. Izidine Pinto
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Summary

High impact weather events pose serious threats to lives, livelihoods, and ecosystems. In this session, recent work on future changes in extreme events and associated risks are discussed, including efforts to improve representations and projections of extreme events in weather and climate models.

The risks of extreme events, such as heat stress, flooding, and compound events, will likely increase in the forthcoming decades as projected by GCMs and RCMs (e.g. from CORDEX output from different domains, CORDEX-CORE, etc.) under future scenarios (*Im; J. Wang; Loarca; Weber*). Model projections also indicate changes in the frequency of tropical cyclones, wherein the direction of change (positive or negative) depends on the ocean basin (*Torres*). These future changes in climate extremes (e.g. significant changes in the annual number of compound events involving heatwaves, droughts and extreme precipitation in Africa *(Weber)*, significant increase in 1-in-50-year extreme flooding and high winds in southeast US (*J. Wang*), projected increase in the hydrological cycle over La Plata Basin (*Pantano*)) require appropriate adaptation strategies for sectors, such as health, infrastructure and agriculture.

There are continued efforts in improving model estimations. Some studies have explored tuning parameterization schemes (e.g. aging parameterization for black carbon (*Ghosh*)), and selecting optimal physics options (*S. Wang*), and risks of coastal floods with sand erosion (*Loarca*)). Bias adjustment methods have also been applied in other work, given the potential implications of model biases on affected sectors such as crops (*Pantano*).

Furthermore, there is a need to consider how best to build capacity and co-generate climate information for decision-makers/policymakers to minimize the knowledge gap and improve uptake of regional climate information. Effective forecast and advanced warning systems can help reduce harm caused by these extreme events (*Harrison*). A suggested way forward is communicating high impact climate and weather to improve warnings and aid decision-making processes.

Oral presentations:

Im, Eun-Soon. Ubiquitous increase of extreme heat stress under global warming from CORDEX-CORE climate projections.

Harrison, Benjamin. Putting distillation into practice: co-developing climate services to build resilience across South Asia.

Weber, Torsten. Compound climate extremes and exposed population in Africa at different global warming levels using CORDEX-CORE projections.

Ghosh, Sudipta. Implementation of a new aging parameterization scheme in RegCM4.

Wang, Shuyu. Evaluation of the effects of a multiphysics ensemble on the simulation of an extremely hot summer in 2003 over the CORDEX-EA-II Region.

Wang, Jiali. Using dynamically downscaled output for climate change risk analysis: results from an application to southeastern USA.

Torres, José. Future projections in tropical cyclone activity over multiple CORDEX domains using RegCM4.7.

Pantano, Vanesa. Hydroclimatological variables in the South America CORDEX domain for La Plata River Basin.

Loarca, Andrea Lira. Coastal flooding due to extreme events in the Mediterranean coast of Spain.