



Event Reporting

- 1) **Name of the organisers:** WCRP CORDEX, Swedish Meteorological and Hydrological Institute, The Abdus Salam International Centre for Theoretical Physics, Ministry of Earth Sciences, Indian Institute of Tropical Meteorology
- 2) **Event name:** International Conference on Regional Climate – Coordinated Regional Climate Downscaling Experiment 2023 (ICRC-CORDEX2023)
- 3) **Event date:** 25- 29 September 2023
- 4) **Event Venue:** Indian Institute of Tropical Meteorology, Pune (IITM Hub) and ICTP Trieste (main conference venue)
- 5) **Presenter from the side of SDMA:** Dr. Shinu Sheela Wilson, Meteorologist
- 6) **Details of the event:** The meteorologist from KSDMA, Dr. Shinu Sheela Wilson, attended the 5-day conference and presented a paper on 'Downscaling of Climate Data for Local Governments in Kerala' in the session 'CORDEX Interaction with Society'. She also participated in a panel discussion in that session and served as a Rapporteur for one of the conference sessions.

Photos:



Video: <https://www.youtube.com/watch?v=hGJ9CG39sag>

Abstract:

Climate change is a pressing issue worldwide, with global average temperatures having risen up to 1.1°C since 1850 due to human-induced activities emitting carbon dioxide and other greenhouse gases. The consequences of climate change in Kerala include an increased occurrence of droughts, floods, landslides, and heatwaves, with extreme events expected to accelerate in severity in the future. To prepare for this future, it is crucial to understand how the climate will change.

In this study, data from atmosphere-ocean coupled general circulation model runs conducted under the CMIP5 for the representative concentration pathway (RCP) scenarios were used. This data was dynamically downscaled to a 0.5°×0.5° resolution using RegCM4 and RCA4 regional climate models (RCM) under the Coordinated Regional Climate Downscaling Experiment (CORDEX) South Asia programme. The monthly precipitation, maximum temperature, and minimum temperature for the historical run and climate scenarios RCP 4.5 and RCP 8.5 were analyzed for the period of 1976-2005, and projected for the near term (2021-2040), medium term (2041-2060), and long term (2061-2099). The downscaled data was then provided to the 1034 local self-governments (LSGs) in Kerala, enabling the generation of climate impact and adaptation assessments at the local level.

It is worth noting that under both the RCP 4.5 and RCP 8.5 scenarios, precipitation, maximum temperature, and minimum temperature are projected to increase in the future. Particularly significant is the faster rate of increase in minimum temperature compared to maximum temperature across all seasons. These changes in precipitation and temperature pose considerable challenges to the natural environment, human health, and the global economy. To mitigate these impacts, it is crucial for each LSG to adopt tailored measures, taking into account the specific agro-ecological characteristics of their region. Solutions need to be identified and implemented in various sectors such as agriculture, biodiversity, health, forestry, tourism, and the economy, enabling local governments to effectively adapt to climate change. Integrating these solutions into both short-term and long-term plans will be instrumental in building resilience and ensuring sustainable development.

This study represents a pioneering initiative in India, as it provides climate change information to local governments, empowering them to engage in adaptation planning and resilience building. By bridging the gap between climate research and local action, this approach sets a precedent for effective climate change governance and supports the sustainable development goals of the region.