Training on Spatial and temporal climate change analysis using CORDEX regional climate models for Bangladesh

On behalf of the team, 13 December 2021
TRAINING ON
Spatial and temporal climate change analysis using CORDEX regional climate models over South Asia
7–11 June 2021 | Microsoft Teams

Organized by Met Office – UK and International Centre for Integrated Mountain Development (ICIMOD)
“If you can’t measure it, you can’t manage it”

Peter Drucker
Why climate change data is important

It tells us future climate projections

To understand change in major climatic parameters (heat waves)
To understand impacts on different sectors (water, floods, drought)
To design adaptation plans against climate change impacts
Scientific knowledgebase
## Objective
To build underpinning knowledge and skills for analysing regional climate change projections using CORDEX regional climate model simulations

### Program agenda

<table>
<thead>
<tr>
<th>Date</th>
<th>Agenda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day 1, 13 June</td>
<td>Opening and key presentations CORDEX data extraction and management</td>
</tr>
<tr>
<td>Day 2, 14 June</td>
<td>Selection of representative CORDEX models (APHRODITE-reference datasets) Seasonal and annual biases estimation</td>
</tr>
<tr>
<td>Day 4, 15 June</td>
<td>Future climate change estimation Visualization of future scenario based on selected models, Uncertainty analysis</td>
</tr>
</tbody>
</table>
Present challenges of climate change assessment

Global climate models - coarse resolution

Downscaling generates high resolution climate datasets for impact assessment

Climate datasets are huge in size and require high computational facilities

Lack of datasets readily available for impact assessment

Lack of required skill and capacity
Challenges...

17 CORDEX model (pr, tas) : 350 GB

10 GB  17 RCM x 4 climate variables (pr, tas, tasmax, tasmin)

.nc format
17 CORDEX model runs were extracted for the Koshi basin.

The dataset is already shared.
Expectation from this training

Climate change science and projections

Extraction of CORDEX datasets

Analyze data using R programming language

Select relevant CORDEX model using reference data

Analyse the data for the historic period

Understand the change in the future periods

Temporal aggregation (monthly, yearly)

Plot relevant maps

Uncertainty analysis
Work flow

Climat

Change in annual temperature for RCP8.5

Change in annual temperature for RCP4.5
Co-creating knowledgebase

Learning together  Working together  Building together

Institutional capacity building
Resource persons

ICIMOD
UK Met Office
IITM - Pune
BUET, Bangladesh
SMHI

Resource persons

Santosh Nepal
Saurav Pradhananga
Kabi Raj Khatiwada
Mandira Singh Shrestha
Saiful Islam, BUET
Grigory Nikulin, SMHI
Iréne Lake, CORDEX Office
J Sanjay
Thank you

Let’s protect the pulse