



Asia Regional Resilience to a Changing Climate (ARRCC) Met Office Partnership newsletter

June 2020



Welcome

Welcome to the latest edition of our ARRCC Met Office Partnership newsletter. This edition covers the period from April to June 2020, highlighting some of our key activities and events during this time. We hope you will find the articles informative.

If you have been forwarded this email and would like to receive ARRCC newsletters direct in future, please [**email us**](#) with your details and consent.

The Met Office ARRCC team

[Impact-based forecasting \(IBF\) - work package 1](#)



Interpreting and applying Numerical Weather Prediction in Pakistan

In March, the Met Office and ICIMOD, in collaboration with the Pakistan Meteorological Department (PMD) - organised a three-day **training** course on numerical weather prediction (NWP) and its application in order to strengthen the capacity of PMD meteorologists in this field. Find out more in this **[report](#)**.

Enhancing capacity for communicating forecasts and early warning in Nepal

Since May this year, the Met Office has been delivering an innovative training programme to support the Department of Hydrology and Meteorology (DHM), National Disaster Risk Reduction and Management Authority (NDRRMA) and media sector in Nepal. Due to COVID-19 travel restrictions, face-to-face learning has not been possible, but **[this report](#)** details how remote training has been developed to improve capacity and collaboration for communication of forecasts and risk prior to onset of the forthcoming monsoon season.



Blast and rust forecast

New emerging strains of wheat rust disease in South Asia, in combination with changes to climate, pose a threat to farmers' livelihoods. An ARRCC pilot project is adapting an early warning system operational in Ethiopia to South Asia through a collaboration between the Met Office, CIMMYT (the International Maize and Wheat Improvement Center), the University of Cambridge and national institutions for agriculture and meteorology in Bangladesh and Nepal.

In April, the International Maize and Wheat Improvement Center (CIMMYT) published a blog post about an early warning system being piloted in Bangladesh and Nepal.

Wheat disease predictions will be delivered directly to farmer's phones to help encourage early action. Read the blog post **[here](#)** to find out more.

Strengthening Climate Information Partnerships South Asia (SCIPSA) - work package 2

Seasonal forecast videos

A series of explainer videos on 'Seasonal forecasts: from Science to Services' have been developed as part of the **[WISER ASPIRE](#)** and **[ARRCC SCIPSA](#)** projects, with the aim of enhancing the uptake and understanding of seasonal forecasts. The videos provide an accessible source of information with introductory explanations of key topics, including what a seasonal forecast is, how they are generated, understanding terciles, forecast skill, the Regional



Climate Outlook Forum process and case studies of their application.

Met Office presenter Alex Deakin interviews experts from across the Met Office who provide clear and concise explanations, delving into technical detail where necessary. The target audiences are primarily those new to seasonal forecasting and people who are making use of seasonal forecasts, such as those working in the agriculture, water, energy and humanitarian sectors, with a focus on regions located in the tropics, including South Asia.

The videos are in their final stage of editing and should be completed very soon. They will be freely accessible to all through the **SCIPSA** and **ASPIRE** project pages, as well as the **Met Office Science and Services YouTube channel**. If you would like more information, please contact **Jessica Stacey**.



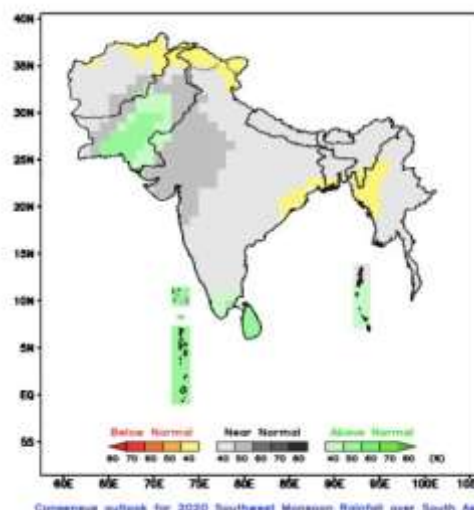
SASCOF-16 hosted virtually for the first time opens new opportunities for collaboration

The 16th South Asia Seasonal Climate Outlook (SASCOF) session was hosted online for the first time due to COVID-19. SASCOF-16 successfully produced a regional consensus outlook for the 2020 summer monsoon season during these challenging times.

(Image source: WMO)

The forum was jointly led by Regional Climate Centre Pune, RIMES and the SCIPSA Met Office team, with over 60 participants attending. This was a brilliant opportunity to test run the event virtually, which could eventually allow for more frequent updates of the forecast in the future. SASCOF-17 is likely to be hosted virtually in September, providing an opportunity to act on lessons learned from the virtual facilitation of SASCOF-16. Specifically, there will be a focus on improved user engagement on the forecast application, and clearly documenting the objective forecasting procedure.

(Image source: WMO)



Climate Analysis for Risk Information & Services in South Asia (CARISSA) - work package 3

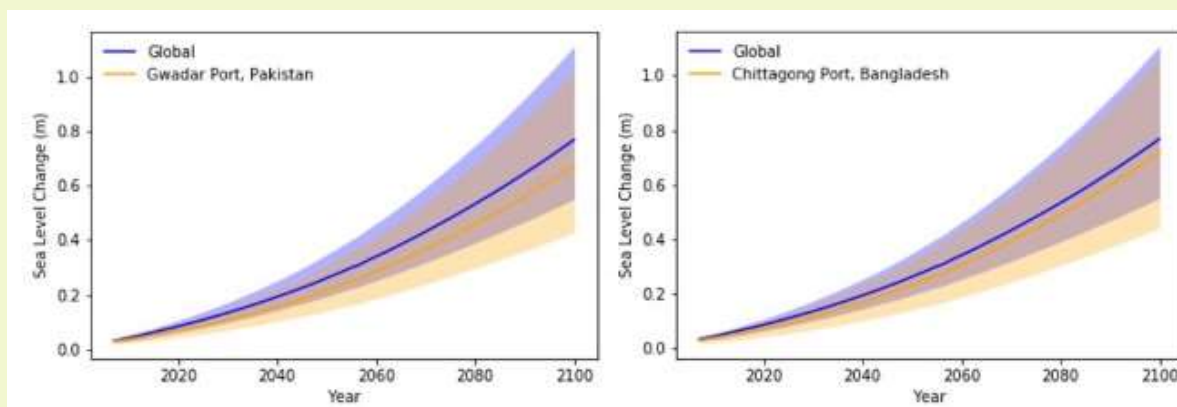
Climate model evaluation for sectoral applications

Progress has been made on technical work to underpin sector-specific activities of CARISSA aimed at the water, hydropower and food security sectors. The work builds on current understanding and best practice to evaluate a range of climate models over South Asia, including analysing regional model simulations produced

through CORDEX and global model simulations from CMIP5. Model simulations are assessed against reanalysis datasets over the baseline period (1981-2010) for a range of variables to help understand which models may provide plausible future climate scenarios for assessing sectoral impacts and informing adaptation actions. This work has initially focused on Afghanistan and Nepal to inform and feed into the sector-specific activities planned in these countries this year, and further analysis, including process-based evaluation, is ongoing for the wider region.

ARRCC develops new South Asia regional sea level projections to help assess future coastal risks

Sea level rise threatens coastal populations and infrastructure in South Asia. Until recently, coastal risk assessments have been restricted to using global sea level projections and trends from short-duration tide gauge records. Under ARRCC, a new set of sea level projections for locations across South Asia has been produced using state-of-the-art science from the Met Office Hadley Centre and recent observation studies by regional partners.



A report describing the methods and findings of these projections (see figure for examples) is being finalised and will be available in July 2020: a shorter document summarising the key findings is available now on the [ARRCC website](#).

The CARISSA team are working with regional partners, including the Institute for Water Modelling (IWM) in Bangladesh, to integrate the projections with local vulnerability and exposure datasets for coastal decision-makers. In parallel, training materials and guidance on the use of sea level rise projections are being produced. For more information, please contact [Ben Harrison](#).

Figure. Mean sea-level projections for Karachi, Pakistan (left) and Chittagong, Bangladesh (right) for climate scenario RCP8.5. Shaded areas show the 5th to 95th percentile range and solid lines the central estimate for the location (yellow) and global average (blue).

VALUE - work package 4

Evaluation of a Weather and Climate Information Service

Over the last few weeks, University of Leeds colleagues, in partnership with ICIMOD, have embarked on a collaboration with the Pakistan Meteorological Department (PMD). The collaboration will see the wider ARRCC Met Office Partnership team work alongside PMD to implement an evaluation of a Weather and Climate Information Service (WCIS) that is currently being provided by PMD. Over the next few weeks, the team will work together to identify which WCIS will be the focus of evaluation. The WCIS will fall under the

broad categories of Agrometeorological Services (such as daily, weekly and seasonal forecasts for farmers) and Disaster Risk Reduction (such as national wide weather alerts and warnings).

The use of weather and climate information and services can deliver enormous benefits to society by enabling organisations and individuals across scales to make informed decisions to adapt to, and reduce the impacts of, weather and climate. However, there is still limited empirical evidence of the scope and scale of the potential benefits of WCIS in the region. The work detailed above will help advance an area where there is limited evidence and existing studies and also better equip PMD to assess and identify benefits of their services and communicate these to national ministries and funders.

The ARRCC programme

The UK aid-funded ARRCC programme is being led by the Met Office and the World Bank and aims to strengthen weather forecasting systems across Asia. The programme is delivering new technologies and innovative approaches to help vulnerable communities use weather warnings and forecasts to better prepare for climate-related shocks.

Asia is highly vulnerable to natural disasters and this vulnerability is expected to increase. The ARRCC Met Office Partnership (MOP) programme is targeting the most vulnerable countries in the region, primarily Bangladesh, Pakistan, Nepal and Afghanistan, and will support:

1. enhancing regional collaboration and capability for provision of weather and climate services;
2. development of regional and sub-regional forecasting and early warning systems;
3. improving capacity in focus countries to develop and disseminate impact based forecasting (across multiple timescales) to climate sensitive sectors and vulnerable communities;
4. development of new technologies to deliver climate information to vulnerable groups; and
5. the mobilisation of additional resources for building climate and environmental resilience.

The Met Office is working closely with a number of key partner organisations in the region to support delivery of ARRCC, including:

- UN bodies such as the World Meteorological Organization (WMO), the World Food Programme (WFP) and the United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP);
- existing regionally mandated organisations involved in development of weather and climate services, including the International Centre for Integrated Mountain Development (ICIMOD) and Regional Integrated Multi-Hazard Early Warning Systems (RIMES) and research organisations such as the International Maize and Wheat Improvement Center (CIMMYT);
- NGOs such as the Red Cross Climate Centre (RCCC); and
- National Meteorological and Hydrological Services (NMHS) and related agencies with responsibility for disaster risk management.

Find out more on the [**ARRCC Met Office Partnership webpages**](#).

Meet the Met Office ARRCC team



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