Sixth Meeting of the Pacific Meteorological Council (PMC-6)

Sustaining Weather, Climate, Water and Ocean Services for a Resilient Blue Pacific

14-16 August 2023, Sofitel Fiji Resort and Spa, Denarau, Nadi, Fiji

Agenda item 17.2: Republic of Korea-Pacific Island Climate Prediction Services (ROK-PI CliPS) 2 Project

Purpose of the paper:
To note background Republic of Korea-Pacific Island Climate Prediction Services (ROK-PI CliPS) 2 Project and contribution to PIMS and the PRSCS.

Background:
1. The ROK-PI CLIPS Phase II project was initiated by the need for further development of the PICASO forecast and PICASO software, the legacy of the ROK-PI CLIPS Phase I project, and we have tried to meet this need. It utilized the structure and advantages of the existing PICASO software and provided a completely new approach to integrating external forecast data with PICASO forecast data. We called this the CoCO function and used it to enable the Pacific Island Meteorological Office to produce new forecasts tailored to their needs. We focused on developing the climate forecasting capabilities of the Pacific Island countries and tried to help them move to the next level of development. In ROK-PI CLIPS Phase II, we completed PICASO version 2.0 software, which can produce 3-month seasonal forecasts for 53 stations in 14 countries for precipitation, with expandability to other climate elements (e.g. temperature) and seasons shorter than 3 months. Further progress and expandability can be expected as the project continues in the future.

Project Title	Republic of Korea-Pacific Islands Climate Prediction Services Project Phase 2 (ROK-PI CliPS-2)
Project Objective	To increase the resilience of the Pacific Islands through strengthening their capacity for the utilization of high-quality climate prediction information.
Donors	ROK-PIF Cooperation Fund (RPCF) − Government of Korea − Pacific Island Forum Secretariat (PIFS)
Implementing Agencies	− APEC Climate Center (APCC) − Secretariat of the Pacific Regional Environment Program (SPREP)
Beneficiary Countries (14)	Cook Islands, Federated States of Micronesia, Fiji, Kiribati, Republic of the Marshall Islands, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, Vanuatu

2. ROK-PI CliPS-2 has completed and successfully delivered all key milestones for the entire project period 2019 – 2023 as outlined in the Implementation Agreement. The initial timeframe for the ROKPICLIPS-2 is from 2019 – 2021, but due to unforeseen delays associated with COVID-19, another one and a half years were added to ensure all project activities were completed and handover to NMHS.

3. At the very beginning of the project, reviews of existing research were carried out. The reviews focused on the status of seasonal forecasting and its systems, and the development of integration techniques.

4. Essentially, the CoCO function was added by upgrading the software based on the PICASO software that was the result of ROK-PI CLIPS Phase 1. This required a thorough understanding of the structure of the existing PICASO software. This was done in close collaboration with the developers of the existing software. As much data as possible was needed to make the CoCO algorithm widely available. The available data was searched for and collected. Using the collected data, we carried out numerous experiments to optimise and stabilise the CoCO algorithm. This allowed us to finalize the coefficients of the CoCO algorithm and verify the benefits of using the CoCO function.

5. Technical work has been carried out to embed the optimized CoCO algorithm as a function in the PICASO software. This work was structured to take advantage of PICASO version 1 (PICASO software form ROK-PI CLIPS phase 1) as much as possible and to make it user friendly.

6. By utilizing the existing structural features of PICASO version 1, the CoCO function was designed to be installed into the existing algorithm in the most efficient way with the least burden on the overall structure.

7. Although the CoCO function was well installed by the previous processes, we have devised various solutions to eliminate the difficulty of using it, as CoCO itself is a novel function for users. By providing built-in forecast data, supporting various SPREP requirements, and increasing the efficiency of the software's operation, we have improved the user experience.

8. We continued to be sensitive to the needs of the Pacific Island countries even after all the development work had been completed. Some of the requests from the training workshop participants were accommodated on-site.

9. In addition, the ROKPICLIPS-2 successfully executed all planned capacity-building activities throughout its duration. It encompassed two regional training sessions, three sub-regional workshops, and seven in-country training programs.

10. The inaugural regional workshop took place in 2019, hosted by New Caledonia. However, due to COVID-19-related delays, the project had to make adjustments to its initial capacity-building activities. Consequently, the remaining two regional training sessions were

merged to accommodate the increased travel and accommodation costs. The second regional training, held in late February 2023, was a collaborative workshop supported by the ROKPICLIPS-2 and UNEP-GCF FP147 projects. This joint endeavor was co-hosted by the Fiji Meteorological Services.

11. The three sub-regional training sessions were effectively implemented for the Polynesian, Melanesian, and Micronesian regions.

12. Furthermore, the training program successfully delivered in-country training for Kiribati, Samoa, Tuvalu, and Vanuatu. Despite the challenges posed by the COVID-19 lockdown, the program managed to provide virtual training for Kiribati Meteorological Services and Tuvalu Meteorological Services, while Samoa Meteorological Services Vanuatu Meteorology and Geo Hazards Department received face-to-face training.

Recommendations

The Meeting is invited to:

➤ **Note** the significant and valued contribution of SPREP and POSTECH, APCC and the PIFS to the support the successful implementation of ROK-PI CLIPS Phase 2 Project
➤ **Acknowledge** the tools such as the PICASO, CoCO function and the CLIK-P developed by the project to support NMHSs to accurately analyse their tools.
➤ **Acknowledge** the continuous funding support from the Government of Korea to support strengthen the capacity of NMHSs in the Pacific on Seasonal prediction.
➤ **Recommend** for further support to the NMHSs on the tools developed under the project to ensure that the tools are integrated to the Pacific RCC and NMHSs capacity are further strengthened