



## **Calibration of ECMWF SEAS5 precipitation forecasts in Java (Indonesia) using statistical post-processing of precipitation and climate indices**

Dian Ratri (1,2), Kirien Whan (), and Maurice Schmeits ()

(1) KNMI, The Netherlands, Research and Development, Wageningen, Netherlands (dianuratri@gmail.com), (2) Indonesian Agency for Meteorology, Climatology and Geophysics (BMKG)

Climate indices have strong relationships with seasonal rainfall in Java and therefore they are natural candidates for use as potential predictors in a statistical post-processing application. In this study we explore the added value of a more advanced statistical post-processing method to improve precipitation forecasts from the ECMWF Seasonal Forecast System 5 (ECMWF-SEAS5), compared to the empirical quantile mapping (EQM) that has been previously applied by us. It is also expected that the skill of the ECMWF-SEAS5 precipitation forecasts in capturing extreme events, such as those occurring during El Nino and La Nina years, could be improved by statistical post-processing. In this study, a parametric statistical post processing method is applied. We use a variety of potential predictors, such as, ECMWF-SEAS5 precipitation, and indices of ENSO (such as Nino 3.4), the Madden Julian Oscillation (MJO), and the Indian Ocean Dipole (IOD). The ECMWF-SEAS5 forecast that we use is for the period of 1981-2010. This seasonal forecast system runs for a 7-month lead time, with 25 ensemble members on a 35 km horizontal grid. We conduct an objective predictor selection and use the best predictors to correct the precipitation of SEAS5. We show the improved forecast skill in a comparative verification of raw, bias-corrected (using EQM) and post-processed seasonal precipitation forecasts, based on several verification metrics such as the continuous ranked probability skill score (CRPSS) and the Brier skill score (BSS).