

## ***Interactive comment on “An improved ARIMA model for hydrological simulations” by H. R. Wang et al.***

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### General Comment

The authors developed and improved ARIMA model to predict precipitation data in Lanzhou precipitation station, China. According to the authors, the improved model accounts for both the inter-annual and inter-monthly variation in the precipitation. Although, the problem of improving an ARIMA model is not new, but the architecture the authors follow is less popular. Therefore, the submitted manuscript might be very interesting and useful for readers of NPGD.

### Major Issues

The authors proposed an improved ARIMA model which has higher prediction accu-

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racy than the other conventional ARIMA model as they discussed. Clustering analysis was first applied to the monthly data to group the months with similar hydrological variation. Three data sets corresponding to maximum, minimum, and truncated mean were extracted from each class for ARIMA modelling. However, the architecture of the methodology involves building linear regression model, can the authors clarify to readers the link between the two techniques.

### Minor

1. In line 11 page 843- “A hydrological time series  $\{f(t) \ t = 1, 2, \dots, n\}$  can be divided into stationary and nonstationary. . .”, the statement might be confusing to a layman because of the word “divided”, -paraphrase. 2. In line 22 page 844 – better write P as seasonal autoregressive parameter.

Otherwise the paper is good.

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Interactive comment on Nonlin. Processes Geophys. Discuss., 1, 841, 2014.