

Climate Model Selection

A total of five models were selected from the 112 downscaled general circulation models (GCM) available for the study area. Key parameters used to select the models were:

1. Incorporate a wide array of model run results without being extreme.
2. Make sure the selection process was simple and easily repeatable.

Five qualitative points (QP) were developed to meet the above qualifications by mathematically characterizing the temperature and precipitation data using the percentiles below.

Scenario	Characteristic T	Characteristic P
Hot and Dry	90 th Percentile	10 th Percentile
Hot and Wet	70 th Percentile	70 th Percentile
Warm and Dry	30 th Percentile	30 th Percentile
Warm and Wet	10 th Percentile	90 th Percentile
Median	50 th Percentile	50 th Percentile

Starting from a set of normalized annual temperature change and precipitation percent change data, the QPs were depicted graphically. The method used to select the model run which will represent each QP is as follows:

- Identify the five nearest runs to each QP.
- Plot the precipitation monthly trend pattern for the representative five nearest runs, as well as their mean.
- Evaluate the monthly patterns using root-mean squared analysis to find the pattern with the lowest error as compared with the mean pattern.

Once the specific GCM run has been selected, average monthly precipitation and temperature offsets will be computed for each grid point over the study area for use in the hydrologic simulation.