**Abstract**

Climate change is the biggest challenge that affects human society. The consequences of this phenomenon will have different effects on the development of water resources and the various aspects of human life. It is necessary to examine the effects and changes of changes on water resources seriously. In this research, the climate prediction of North Khorasan stations with general atmospheric circulation models under the IPCC 4th and 5th reports with A1B, A2, B1 and RCP2.6 emission scenarios using the LARS model of weather-induced exponential clustering -WG and exponential microdisplay of delta change factor. For this purpose, climatic parameters of minimum and maximum temperature, precipitation and sunshine were simulated in the period 2040-2011. The results of the LARS-WG model and the small-scale exponential expansion of the Dollar factor for North Khorasan stations showed that rainfall and temperature would decrease and increase in stations of Shirvan, Bojnurd and Quchan, respectively. For estimating future Dubai, several artificial intelligence methods were used with different scenarios. After comparing them with statistical and graphical tests of artificial neural network (ANN), the best method was chosen. The amount of runoff decreased in September and October, and in May and March, the highest annual runoff is due. All climate change scenarios show runoff reductions, which implies climate change in the area in question. In order to investigate the effect of climate change on the allocation of Barzu dam water, the Water Assessment and Planning (WEAP) model was used. The results of the assessment of the water allocation model according to the reliability index indicate that A2 scenario of the HADCM3 and A2 model of the NACRPCM model have the lowest and highest reliability index, respectively. The highest water intake upstream of the A2 scenario of the NACRPCM model is 30.83 and the lowest input is CCSM4 RCP2.6 of 24.44. The maximum evaporation for the scenario A2 of the NACRPCM model is 2.44 and the lowest value for the A2 scenario of the HADCM3 model is 2.6. The highest evaporation rate occurs in August, under all scenarios, and these values indicate the effect of variability in the period The future.

University of Zabol
Graduate school
Faculty Of Engineering
Department Of Civil Enginering

The Thesis Submitted for the Degree of M.Sc (In the field of Civil Engineering – Water Engineering)

# Evaluating the Effect of Changes on Optimal Water Allocation in the Goljiakh River Basin of North Khorasan Province

**Supervisor:**
Dr. M. Molaienia

**Advisor**:
Mr. A. Eskandari Nasab

**By:**
A. Akbari Motlagh

Spring 2017