

**Islamic Azad University-Ahar Branch**

**Geographic Space**

**An Approved Scientific, Research-based Quarterly**

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**The study of ENSO phenomena effect on climatic Parameters of temperature and Precipitation of Ghazvin Plain**

**(Case study of Qazvin Plain)**

Date received: 30 November 2010 Date accepted: 28 September 2011

**Abstract**

Climate change, temperature increase and rain fluctuations are considered as important ecological issues on which a lot of studies have been in recent years.

The increase in average global temperature and rain fluctuations and both of these variations, which are a part of all climate theories, act as indicators of climate change. Climate changes in a region can be traced through the examination of average temperature and precipitation variations.

Estimates suggest that the average temperature of earth will show an increase of *0.7* to *2* degrees centigrade up to the year 2030.

The severe effects of damages resulting from rain fluctuations are not only because of dry periods, but also on occasions which excess rain will cause destroying floods. Elnino will have harmful effects on national economy of different countries Lanina has also different effects on different parts of the earth. The damage caused by Elnino during 1982-1983 has been estimated to be around *8* to *13* billion dollars.

The present paper investigates the climatic parameters of temperature and precipitation of Qazvin plain and the effects of Enso on them using the sequential correlation analysis (SCA) and the common statistical methods. The results show that there is a meaningful sequential correlation between some components of temperature and precipitation of Qazvin plain and the Enso phenomenon, so that when Elnino happened, annual and Autumn precipitation were more than the long term average but the average annual temperature and different seasonal temperatures were less than the long term average. on the contrary in the year when Lanina occurred, annual and Autumn precipitation were less than the long-term average but annual temperature and different seasonal temperatures were more than the long term average.

**Keywords**: Elnino, lanina, Enso, Sequential correlation analysis, Climate variability.

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