

## Investigation of the Possible Correlation of Earthquakes with a Red Tide Occurrence in the Persian Gulf and Oman Sea

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**Abstract :** The red tide is a kind of algae blooming, caused different problems at different sizes for the human life and the environment, so it has become one of the serious global concerns in the field of Oceanography in few recent decades. This phenomenon has affected on Iran's water, especially the Persian Gulf's since last few years. Collecting data associated with this phenomenon and comparison in different parts of the world is significant as a practical way to study this phenomenon and controlling it. Effective factors to occur this phenomenon lead to the increase of the required nutrients of the algae or provide a good environment for blooming. In this study, we examined the probability of relation between the earthquake and the harmful algae blooming in the Persian Gulf's water through comparing the earthquake data and the recorded Red tides. On the one hand, earthquakes can cause changes in seawater temperature that is effective in creating a suitable environment and the other hand, it increases the possibility of water nutrients, and its transportation in the seabed, so it can play a principal role in the development of red tide occurrence. Comparing the distribution spatial-temporal maps of the earthquakes and deadly red tides in the Persian Gulf and Oman Sea, confirms the hypothesis, why there is a meaningful relation between these two distributions. Comparing the number of earthquakes around the world as well as the number of the red tides in many parts of the world indicates the correlation between these two issues. This subject due to numerous earthquakes, especially in recent years and in the southern part of the country should be considered as a warning to the possibility of re-occurrence of a critical state of red tide in a large scale, why in the year 2008, the number of recorded earthquakes have been more than near years. In this year, the distribution value of the red tide phenomenon in the Persian Gulf got measured about 140,000 square kilometers and entire Oman Sea, with 10 months Survival in the area, which is considered as a record among the occurred algae blooming in the world. In this paper, we could obtain a logical and reasonable relation between the earthquake frequency and this phenomenon occurrence, through compilation of statistics relating to the earthquakes in the southern Iran, from 2000 to the end of the first half of 2013 and also collecting statistics on the occurrence of red tide in the region as well as examination of similar data in different parts of the world. As shown in Figure 1, according to a survey conducted on the earthquake data, the most earthquakes in the southern Iran ranks first in the fourth Gregorian calendar month In April, coincided with Ordibehesht and Khordad in Persian calendar and then in the tenth Gregorian calendar month In October, coincided in Aban and Azar in Persian calendar.

**Keywords :** red tide, earth quake, persian gulf, harmful algae bloom

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