

EARTHQUAKE, GROUND CRACKS AND METEOROLOGICAL DISASTERS

Guo Zengjian, Qin Baoyan

(*The Earthquake Research Institute of Lanzhou, SSB*)

The problem using some meteorological phenomena to predict large earthquake has been discussed by many scientists before. But the problem using earthquakes and ground cracks to predict meteorological disasters has not been studied. In this paper, the latter problem is briefly discussed.

In the Nationwide Geophysical Disasters Symposium of 1988, we pointed out that in the south-eastern coast of our country, three catastrophic storm surges occurred in 1922, 1937 and 1969, before them a strong earthquake group ($M=6-7.25$) and two strong earthquakes occurred in 1918-1921, 1936 and 1969, respectively.

We consider that before strong earthquakes, co-earthquakes and after earthquakes, in is much larger area including epicentral area, the tectonic movements became into stronger than before. In this case, a lot of vapour flow from the large numbers of small cracks, openings, holes and springs into the low layer atmosphere. Those vapour may make contribution on decreasing atmospheric pressure and attracting typhoon.

The process forming a lower pressure can be attributed to that original atmospheric low pressure pumps the vapour from the earth, the vapour from the earth decreases the original atmospheric low pressure. The lower pressure pumps further the vapour from the earth, such a process repeatedly goes on, the atmospheric pressure becomes lower than before. Of course, the vapour may also offer some energy to typhoons and strengthen it. So, the above-mentioned catastrophic storm surge disasters on the south-eastern coast of our country are very violent. About 70000 people were killed by the storm surges of 1922, about 10000 and several thousands people were killed by the storm surge of 1937 and 1969,

In the Nationwide Natural Disaster Consultation Meeting of 1989, we pointed out that in the northern coast of Beibuwan (北部湾) there were two earthquakes ($M=5$) to occur on November 10, 1988, which occurred four days after the Lancang (澜沧) earthquake ($M=7.6$).

It is the same as above-stated reason, we consider that in the region between the Lancang (澜沧) earthquake epicenter and the Beibuwan (北部湾) earthquake epicenters, the tectonic movement becomes into stronger than before, and predict that there will be many strong storm surges to occur along the south-eastern coast of our country. In the past several months, the facts are coincided with the prediction.

Besides, the Typhoon of 1975 penetrated deeply into inner land, Henan (河南) province, and several ten thousands people were killed by it. It is similar to the above-mentioned explanation, we consider that the typhoon penetrates toward Henan (河南) may be associated with the large numbers of cracks in Henan (河南), Jiangsu (江苏), Anhui (安徽) and Shandong (山东) during the period from 1974 to 1976. Those ground cracks were reported by Gao Weiming (高维明).

The above-stated discussion is only preliminary one, many question need to be studied in future.

We found that strong earthquakes dominantly occur in some places during the Jieqi time and two days before and after it. The correlation is due to that in this duration sharp and sudden changes of atmospheric processes are more met, which may trigger earthquakes to occur. The trigger mechanisms are possibly as follows: load change of ground, pumping and injecting fluid from and into crust, explosive boiling of overheat fluid under ground, stress-chemic erosion at the end of crack, microseismic waves and so on. These factors triggering earthquakes are caused by the sharp and sudden changes of atmospheric processes.