

NOTE

Chinese Records on the Correlation of Heliocentric Planetary Alignments and Earthquake Activities

W-H. IP

Department of Applied Physics and Information Science, University of California, San Diego, La Jolla, California 92093

Received January 6, 1976; revised February 3, 1976

A short account of the correlation of heliocentric planetary alignments and the earthquake activities in Northern China is given. It appears that such arrangement of planetary orbital positions has no effect on the triggering of earthquakes.

Recently, there have been renewed debates on whether the so-called *Jupiter effect*, a name coined for the heliocentric alignment of all the planets on the same side of the Sun (Gribbin and Plagemann, 1974), can cause abnormal solar activity and trigger earthquakes (Gribbin and Plagemann, 1975; Meeus, 1975a,b). The planetary theory of sunspots has been studied in detail by Okal and Anderson (1974). From their calculations, these authors conclude that such heliocentric planetary alignment has no significant effects on the tides, and also that the peaks of the planetary tidal effect do not correlate with the peaks of the sunspot activity. This seems to be a strong argument against the theory of the Jupiter effect by Gribbin and Plagemann. But it would be even better still, as far as evaluation of the planetary theory is concerned, if we can compare the data of seismic activity with the occurrence of heliocentric planetary alignment. This problem has been investigated, going through the Chinese records of earthquakes in

the past. A popular account has been given by Shen (1975) in Chinese. Since no reference has been made to these materials it seems useful to give a brief summary of Shen's article to the reader here. It is hoped that this will help us in settling the controversy of *Jupiter effect*.

In Fig. 1 we present the time intervals defined as disturbed periods of seismic activities in the northern region of China since A.D. 1000. The years of the heliocentric alignment of all the planets separated in intervals of ≈ 179 yr are also marked. It is observed that only the alignment in 1624 took place within a disturbed period. To be more specific, since 780 B.C. there have been 15 to 16 total heliocentric planetary alignments; out of 125 recorded earthquakes with intensities corresponding to 6 on the Richter scale, only the one that occurred in 1624 coincided with a heliocentric planetary alignment. Also, beginning from A.D. 1000 there were 11 earthquakes with intensities corresponding to 8; none of them coincided with any heliocentric planetary align-

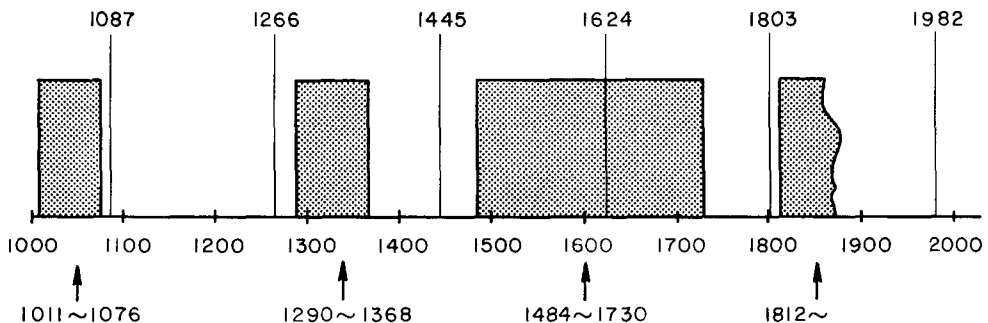


FIG. 1. Distribution of quiet and disturbed periods of earthquake activities in Northern China since A.D. 1000. The disturbed periods are marked by shaded areas. The years of heliocentric planetary alignment in intervals of ≈ 179 yr are also indicated.

ments. All these data lead to the conclusion that heliocentric planetary alignments have nothing to do with the triggering of earthquakes, at least in Northern China.

Admittedly, the material presented here is too sketchy for detailed investigation. In any case, we hope that it will suffice to draw attention to the seismic records in the Chinese literature available for the study of long-term phenomena in geophysics.

Acknowledgments. I thank the referee for useful comments. This work was supported in part by NASA and NSF.

REFERENCES

- GRIBBIN, J., AND PLAGEMANN, S. (1974). *The Jupiter Effect*. Macmillan, London.
- GRIBBIN, J., AND PLAGEMANN, S. (1975). Response to Meeus. *Icarus*. **26**, 268–269.
- MEEUS, J. (1975a). Comments on the Jupiter effect. *Icarus*. **26**, 257–267.
- MEEUS, J. (1975b). Reply to Gribbin and Plagemann. *Icarus*. **26**, 270.
- OKAL, E., AND ANDERSON, D. L. (1975). On the planetary theory of sunspots. *Nature*. **253**, 511–513.
- SHEN, YU. (1975). Would planetary alignment cause the destruction of the Earth? *Ke Xue Shi Yan (Scientific Experiments)*, May 1975, pp. 24–26.