



A geomagnetic precursor to the 1999 high seismicity in Taiwan

K. J. Chen (1), Y. R. Ho (1), J. S. Wang (1), and C. H. Lin (2)

(1) Department of Earth Sciences, National Taiwan Normal University, Taipei, Taiwan, ROC (kjchen@ntnu.edu.tw/Phone:+886-2-29343176), (2) Institute of Earth Sciences, Academia Sinica, Taipei, Taiwan, ROC

In this study, the geomagnetic data of the Luning observatory from 1993 to 2000 are utilized for computing the amplitude variation of short-period geomagnetic total intensity data, by using complex demodulation method (CD method). In order to compare these time changes with seismic energy release, the earthquakes occurred within 150 km from Luning, with magnitude ML greater than 4.0, are located. The related energy releases by those earthquakes, summed month by month, are correlated to the modulus. After removing the seasonal effect, our results show that the modulus of periods 24 hr, 12 hr and 8 hr reveal a remarkable change, appear to be strongly related to the energy release within the whole study period. One significant precursor is found 6 months before the 1999 high seismicity. The modulus for the periods 24 hr, 12 hr and 8 hr increased gradually from the beginning of 1999 to August 1999. After the earthquake occurrence the modulus decreased again to the normal level. We propose that this significant increasing might be related to the preparation process of strong earthquake.