



## **Study on China's National Height Datum based on Analyzing The Dagang Tidal Data**

Fumei WU (1), Ziqing WEI (2), and Yingchun LI (3)

(1) Xi'an Research Institute of Surveying and Mapping, Xi'an, China (wfm8431812@163.com), (2) Xi'an Research Institute of Surveying and Mapping, Xi'an, China (ziqingw@sina.com), (3) Xi'an Research Institute of Surveying and Mapping, Xi'an, China (yingchunlee@sina.com)

China's current National Height Datum, 1985 National Height Datum, was defined by the mean sea level at Dagang tidal gauge, which was obtained by averaging 10 mean sea levels of a 19 year period analyzing 1952~1979 tidal data. In order to investigate the stability of the 1985 National Height Datum, we have studied the changes in the mean sea level by analyzing the 1980~2011 Dagang tidal data. First the frequencies and amplitudes of main tides are determined by the Fourier transform. Then the actual amplitudes and variations are obtained by the harmonic analysis. Next the changes of the mean sea level at Dagang tidal gauge during the period of 1952~2011 are studied by the harmonic analysis and the shifting averaging of 18.61 year period. And finally by averaging 18.61 year period during the period of 1952~1979, the mean sea level is achieved.