The Application of GNSS to Monitoring Fault Deformation

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SUMMARY

Strong earthquakes often occur along or near active faults. Thus, the monitoring and researches on fault deformation are quite important. Methods have been used to monitor fault activities for many years, such as short-leveling, short-baseline and integrated monitoring profile across fault belts. GNSS observations are mainly used to obtain horizontal velocity fields in large areas and to research on activities and deformation of major blocks. GNSS technology has been used in different ways to monitor and study deformation of faults. In this paper, some applications and new explorations of GNSS are discussed in the aspects as follows: 1. Researches on and monitoring strike-slip activities of faults. 2. Researches on and monitoring vertical activities of faults. 3. Setting up strain models of blocks on both sides of faults based on the deformation of each block, according to which activities and deformation of faults can be deduced. Then, a comparison can be made between the deduced results and the actual measurements. And it is concluded that the larger discrepancy between these two results indicates stronger impacts between the blocks, which could be important to the prediction of the locations of strong earthquakes, seismic risk analysis, as well as the trend of seismicity in a particular area.