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Progress in research of earthquake prediction in China

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The researches on the mechanism and forecast of continental strong earthquakes in China are funded by National Basic Research Program of China. With continuous work for about eight years, the project proposes “active crustal block” hypothesis to describe mechanism of present-day tectonic deformation, and to exploit mechanism and methods of predicting large earthquakes in Chinese Mainland. And this project is to develop a comprehensive physics-based understanding of earthquake processes on boundaries of active crustal blocks in the southwestern Sichuan region through integrative, multidisciplinary studies of active fault systems.

The relationship between strong earthquakes and dynamic crustal movement are studied by using GPS observation data. The crustal movement, tectonic deformation and strain field background in Mainland China are researched by the observation of campaign GPS, and also their relation with the occurring places of the strong earthquakes are discussed. The micro-dynamic change of the crustal movement and earthquake are researched by analyzing the continuous observing data from fiducial GPS stations.

Application of digital seismology in earthquake forecast is advanced by waveform analysis, including picking up parameters of hypocenter such as environment stress τ_0, apparent stress $\overline{\sigma}$, stress drop from digital seismogram, and medium parameters such as Q values and shear wave splitting.

A new project on Constructing Earthquake Prediction Study Area is planning in Capital Region and Sichuan-Yunnan area in China. It is in applying for the support of Chinese government. The goal of the project is to provide the natural locations and *science and technology* conditions for physic and numerical earthquake forecast.