



Seismic anisotropy in the southeastern China and its tectonic implications from shear wave splitting measurements

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The tectonics of southeastern China and its surrounding regions are very complex, which involve two active subduction systems (the Manila and Ryukyu subductions) and one collision system (the Taiwan orogen). In this study, we use SKS/SKKS splitting as a tool for investigating seismic anisotropy and the results of the splitting parameters, fast-polarization azimuth (φ) and delay time (δt), will provide us a new understanding of the geodynamic process in this region. Measurements of δt and φ can be used as indicators for the information of the product of deformed layer thickness and strain directions. Teleseismic events recorded in the temporary seismic network in Fujian (16 stations) are used to obtain the splitting parameters from shear wave. Two methods (minimum energy and splitting intensity) are applied to obtain the splitting parameters for testing the reliability of the results. As a result, the average delay time is 2.4 s, and the fast directions can be divided in three parts from north to south along the Fujian coastline. The predominant polarizations in the northern part are in the E-W and NNW-SSE directions. In the middle part, the predominant polarizations are NNE-SSW direction, which are parallel to the Fujian coastline. In contrast, the predominant polarizations in the southern part are NW-SE directions, which are perpendicular to the coastline. The variations of fast-polarizations could relate to the mantle flow from western China, influenced by the Taiwan orogen (the collision between Eurasian and Philippine sea plates).