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A Review of the Most Frequently Applied Seismic P-Wave Picking Algorithms

Seismic phase arrival picking has been firstly carried out manually by qualified analysts. However, the introduction of digital seismic monitoring systems and the increasing volume of data collected by large seismic networks, as well as the need for providing fast earthquake location led to the necessity of developing automatic-picking schemes. A reliable automatic picking task considerably reduces the effort required and makes picking faster and more objective with consistency in error estimation. A literature review shows that many automatic methods have been investigated, ranging from simple to sophisticated procedures. Each procedure has advantages and disadvantages. The choice of an appropriate algorithm depends on the performance required of the picker and the type of signal expected (low/high SNR, emergent, impulsive). Furthermore, many algorithms have been developed for a specific data type or for a particular application. In this study, we are interested in discussing the most popular and frequently applied automatic picking algorithm, particularly for P-wave identification.

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