

ABSTRACT

Automatic First Arrival Picking is a system that can get a P-Wave or the first wave that comes in an earthquake wave. Because the P-Wave is the first wave to come, it needs research that can get the existence of P-Wave automatically. The development of the Automatic First Arrival Picking system greatly assisted research on earthquakes.

In this research, the aim is to create an Automatic First Arrival Picking system and test the performance of methods that will later get P-Wave Picking results and the accuracy of the Support Vector Machine (SVM) classification method. Earthquake sample data must go through the Feature Extraction stage first so that the results can be used as input to the SVM classification method. To test the performance of this method requires a lot of sample data from earthquake events. In this study sample data S-Wave and Noise are considered as No P-Wave, so there are only two classifications in SVM, namely P-Wave and No P-Wave.

Testing scenarios in Automatic First Arrival Picking after going through the feature extraction and classification stages using the SVM method get performance results. The results of this final project research get an Automatic First Arrival Picking system with an accuracy performance of 88.00%, precision of 90.00%, recall of 73.50%, f1-score of 78.00%.

Keyword : *Seismic Signal, First Arrival Picking, P-Wave, SVM, Accuracy*