



A comparative study of classifiers based on HMM, GMM and SVM for the VT, LP and Noises discrimination task.

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Volcano-tectonic earthquakes (VT) and Long Period events (LP) are two types of seismic signals originated by different source mechanisms that provide relevant information about the state and potential evolution of the volcano. Monitoring active volcanoes generates an enormous amount of signals difficult to process manually due to its size. For this reason, the availability of reliable algorithms to automatically classify in a short time the signals registered by the seismograph, eases considerable the work of the volcanologist.

This work proposes firstly a comparative study of different types of classifiers to discriminate the seismic events VT, LPs and noise. Secondly, it aims to study the response of classifiers trained with events generated by a certain Volcano A, to classify the same types of events generated by a different Volcano B.

The classifiers proposed are based on Support Vector Machines (SVM), Gaussian Mixture Models (GMM) and Hidden Markov Models (HMM), and have already been used by the scientific community for the automatic classification of seismic signals.

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