

## Detection with Artificial Neural Networks: Reduction of Response Time and Development of Active Learning Techniques in Real Environment

To pursue the goal of substantially reducing the time of classification, it was necessary to collect much less information about the seismic event itself, and focus on the transition between noise and P input phase. In this experiment, the data used in training and validation were the same as in previous work, and the training procedure was identical. The difference was in the feature extraction method. A perfect classifier for the universe of data considered was achieved. The results in real environment evaluation were:  $R = 95,3\%$  and  $S = 98,4\%$  and an average response time of 1.5 s . Although these can be considered good results, the occurrence of false positives, as well as some non-detections, commits to pursue the line of research initiated earlier, which involves the application of active learning techniques after initial training of the classifier. Currently ongoing are experiments based on clustering methods, intended to elect representatives of the segments incorrectly classified in the evaluation of continuous recording, in order to increase the knowledge acquired by the classifier in real environment.

**Primary author:** MACHADO MATOS MADUREIRA, Guilherme Henrique (Instituto do Mar e da Atmosfera)

**Presenter:** MACHADO MATOS MADUREIRA, Guilherme Henrique (Instituto do Mar e da Atmosfera)

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