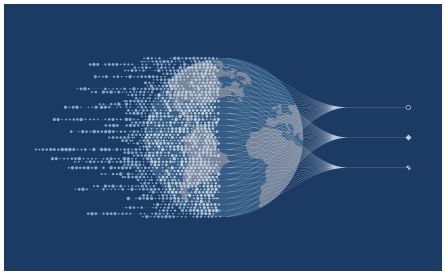

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determination of the detection threshold of CTBTO seismological network

The effective detection threshold of the CTBTO seismological network is a key tool for prioritizing repairs of primary and auxiliary seismic stations. However, many seismic networks implement it manually or semi-manually, using programs that delay the calculation and visualization process and are prone to errors.

This study aims to develop an algorithm to automate the calculation of the effective detection threshold, generating maps in seconds and allowing updates whenever a station goes offline, evaluating its evolution against the desired theoretical threshold.

The algorithm will be validated with local networks and compared to previous CTBTO studies and other networks. The results will determine the minimum detectable magnitude globally, i.e., the smallest seismic event detectable by at least three CTBTO seismic stations.

This automation optimizes time, reduces errors, and strengthens the CTBTO's seismic monitoring capabilities, significantly contributing to the global detection of seismic events.

E-mail

jleonel78@uasd.edu.do

In-person or online preference

Primary author: Mr LEONEL, Jottin (Centro Nacional de Sismología de Republica Dominicana (CNSS-UASD))

Presenter: Mr LEONEL, Jottin (Centro Nacional de Sismología de Republica Dominicana (CNSS-UASD))

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