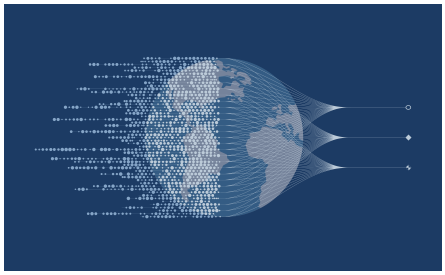

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early-warning alert in Israel due to a 370 T explosion in southern Lebanon, October 26th, 2024

On 26 October 2024, the Israeli Defence Forces (IDF) announced they triggered an explosion of 370 T in an underground Hezbollah facility in southern Lebanon, ~1 km off the Israeli border, generating a seismic moment equivalent to a M3.6 earthquake. Four seconds after detonation, the Geological Survey of Israel's (GSI) Earthquake Early-Warning System, *Truaa*, identified the explosion as a M5.2 event, mislocating the epicentre by ~25 km. Since this exceeded *Truaa*'s warning threshold (M4.5), an alert was automatically sent by IDF's systems up to an epicentral distance of 94 km. Seven seconds after detonation, the location and magnitude estimates were updated and stabilized to the actual location, and below the warning threshold.
The *Truaa* system operated as designed and the magnitude overestimation resulted from an unusually large explosion, short epicentral distances, and to mislocation due to a depth fixed at 8 km.
Real-time discrimination between earthquakes and explosions is still considered a research challenge that is pursued by our research team. Similarly, the Truaa algorithm, EPIC, cannot make such discrimination. Therefore, we examined and tested several manual procedures, to prevent the alerting of such scheduled explosions. Some of these are now part of GSI's procedures.
Consequently, the operational configuration of *Truaa* was not modified.

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