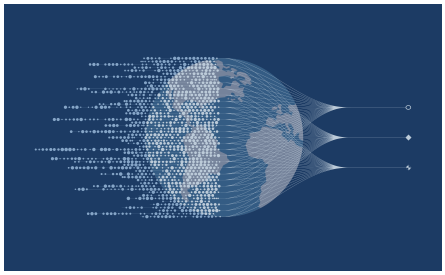

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cast mine explosion confirmation in South Africa with infrasound waves recorded at station I47

Seismic events in South Africa are recorded by the national seismograph network and located with the SeisComp software. Seismic events include earthquakes, mining-related events associated with deep gold and platinum mining, and explosions that occur in opencast mines. Suspected explosions are identified through their geographical association with opencast mines and the time-of-day. From April 2024 onward, open cast mine blasts whose infrasound waves are recorded at station I47, South Africa, are analysed and if they meet the acceptance criteria confirmed as explosions. The confirmation criteria for the analysed waves are: (1) the back azimuth from station to explosion epicentre is within 8 degrees, (2) predicted travel time is within 7 minutes assuming a constant velocity of 330 m/s and (3) waves have an apparent velocity between 220 m/s to 440 m/s. Infrasound signal analysis is undertaken with the Infrapy infrasound analysis software. A total of 27 of 176, 31 of 191, 26 of 132, 57 of 351 and 61 of 507 suspected explosions were confirmed for April, May, June, July and August, respectively, with more events expected to be confirmed as the routine seismic analysis continues. Once confirmed the event type is updated from 'suspected' to 'confirmed' explosion.

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