



Contribution ID: 176 Contribution code: P2.5-176

Type: e-Poster

Large chemical explosions of the Soviet period on the territory of Kazakhstan as ground truth events

Wednesday, 30 June 2021 10:30 (15 minutes)

In Soviet times, large chemical explosions were conducted on the territory of Kazakhstan with different purposes (industrial, investigative, military). The parameters of these explosions are quite well known, but can be further elaborated by special investigations using contemporary methods. Furthermore, these explosions can be used as ground-truth events for the calibration of regional seismic networks in Central Asia.

These explosions are: 1 – investigative explosions in the south of Kazakhstan, Arys 19.12.1957, yield 1000t; 2 – double explosions for construction of a mud dam near Almaty: Medeo 21.10.1966, (1689t and 3604t) and Medeo 14.04.1967 (3940 and 1944t); 3 – investigative explosion “Massa” near Almaty, 28.11.1981 (251t); 4 – investigative explosions in Central Kazakhstan of 9 ton yield Chemex-1 2.09.1987, Chemex-2 3.09.1987. In addition, on the territory of Semipalatinsk Test Site there were 175 chemical explosions conducted for military and scientific purposes; the parameters are known for ~30 explosions. For these explosions, using the archive and published data, the source parameters were specified, the catalogue and seismic bulletin were compiled. The kinematic and dynamic parameters of records were investigated, regional travel-time curves were constructed. The seismic effect of the investigated explosions was compared with that of other large chemical explosions conducted in Central Asia.

Promotional text

We collected information about large chemical explosions were conducted on the territory of Kazakhstan. These explosions can be used as ground-truth events for the calibration of regional seismic networks in Central Asia.

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Session Classification: T2.5 e-poster session

Track Classification: Theme 2. Events and Nuclear Test Sites: T2.5 - Historical Data from Nuclear Test Monitoring