

EGU21-6271

<https://doi.org/10.5194/egusphere-egu21-6271>

EGU General Assembly 2021

© Author(s) 2022. This work is distributed under the Creative Commons Attribution 4.0 License.



Regional infrasound monitoring in Ukraine

Oleksandr Liashchuk¹, Yevheniy Kariahin¹, Yuriy Andrushchenko¹, Ivan Tolchonov¹, and Leonid Kolesnykov²

¹Main Center of Special Monitoring, Gorodok, Ukraine (alex_liashchuk@ukr.net)

²CTBTO, IDC, Vienna, Austria

The infrasound network in Ukraine is represented by three infrasound arrays in Kamenets-Podilsky, Malin, and Gorodok. Also, additional single sensors are installed near Odesa, Kharkiv, and Zhytomyr. A total of 6 infrasound arrays are expected to be deployed. Condenser-type microbarographs are installed everywhere, a wind noise reduction system is available for each. The main task of the network is to monitor technogenic and natural activity and emergencies. At the same time, such a dense enough network can be successfully used to study the characteristics of the atmosphere. All registered digital data is sent to the server of the National Data Center, where it is automatically processed using algorithms F-statistics. The results of processing are available to the analyst in the operational database, where he rejects signals according to the criteria of speed, duration, and period. Also, at this stage provided a comparison between acoustic signals and seismic events. If necessary, additional processing of infrasound data is carried out using the PMCC. For powerful events, data from IMS CTBTO stations are also taken into account. If it is possible to identify an event using additional information, this is done (for example, media monitoring, reports of mining enterprises). As a result, the final bulletin is formed. The overwhelming number of registered signals of an explosive origin due to the work of the mining industry, technogenic accidents, and military operations. A number of signals from fireballs were recorded. Refinements using atmospheric models had not been carried out before, this practice started only this year. The results obtained can be used for a preliminary assessment of the potential of the regional infrasound network.