

CTBTの検証制度を担うインフラサウンド観測網への期待

The Infrasound Observation Network for the CTBT's verification regime and its expectations for scientific studies

新井 伸夫^{1*}

Nobuo Arai^{1*}

¹ 日本気象協会

¹Japan Weather Association

The purpose of the verification regime of the Comprehensive Nuclear-Test-Ban Treaty (CTBT) is to monitor countries' compliance with the CTBT which bans all nuclear explosions on the planet. The CTBT's global alarm system is designed to detect any nuclear explosion conducted on Earth ? in the underground, underwater or in the atmosphere. The CTBT Organization is establishing and operating the International Monitoring System (IMS) which consists of 337 facilities located all over the world. The IMS uses four different technologies, which are seismic, hydroacoustic, infrasound and radionuclide, to monitor the planet for nuclear explosions. Atmospheric waves with very low frequencies are called infrasound and the CTBTO is establishing its observation network which has 60 stations in 35 countries around the world. Each station is composed of an array of infrasound sensors with an aperture of about 2 km. Infrasound sensors measure micropressure changes in the atmosphere which are produced by a variety of natural and man-made sources, for example, exploding volcanoes, earthquakes, meteors and storms in the natural world and nuclear, mining and large chemical explosions in the man-made arena. Nowadays, 45 stations have been installed and are sending data to the International Data Centre in Vienna in real time basis. And observed data are available for CTBT member states. The Infrasound Observation Network is unique by its global and homogeneous coverage and its data quality and has considerable potential for civil and scientific applications.

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