

CTBT International Monitoring System (IMS) Reaches the Milestone of 300 Certified Facilities

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1. Comprehensive Nuclear-Test-Ban Treaty Organization

The Comprehensive Nuclear-Test-Ban Treaty (CTBT) bans nuclear explosions on the Earth's surface, in the atmosphere, underground and underwater. It is a global deterrent for the development or improvement of nuclear weapons and has 184 States signatories (www.ctbto.org).

The Treaty foresees a verification regime that relies on an International Monitoring System (IMS) comprising four complementary monitoring technologies: seismic, with 50 primary and 120 auxiliary stations monitoring vibrations in the Earth; infrasound, with 60 surface stations that monitor ultra-low frequency sound waves in the atmosphere inaudible to the human ear; radionuclide, with 80 stations measuring radioactivity in particles sampled from the air, of which 40 have additional noble gas detection capability, supported by 16 radionuclide laboratories; and hydroacoustic, with 11 stations (6 hydrophone stations and 5 T-phase stations) monitoring acoustic waves in the oceans.

The first facilities were established and certified in 2000 and progress increased rapidly in the following years. However, the few remaining facilities pose the most difficult logistical and political challenges.

The year 2019 was therefore important for CTBTO and the IMS because another three facilities were certified, namely: RN48 Niger (radionuclide particulate monitoring station), IS01 Argentina (infrasound monitoring station) and RL14 South Africa (radionuclide laboratory). This raises the number of certified facilities to 300 out of 337 planned. This is a major achievement because although the CTBTO's headquarters are in Vienna, Austria, its verification regime includes a global monitoring network of facilities, some of which are located in the most remote places on the planet.

The year 2020 will be equally challenging year as preparations are underway for the installation and certification of remaining IMS facilities leading towards the completion of the entire IMS network. For example, infrasound station IS25 installed in 2009 in Guadeloupe, France is planned to be certified in the first half of 2020 after it has been verified that it meets the necessary requirements and can sustain continued good performance.

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