

# Research of Infrasound Background Characteristics for Estimation of Threshold Sensitivity of Infrasound Method for Nuclear Test Monitoring (ISTC project #1341)

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## 1. The main objective of the project and expected results.

It is expected in the Project, that experimental data, revealing the dependence of the signal level and the noise level on season and weather phenomena and on atmospheric conditions at different altitudes, will be obtained by a long-term observation of technological sources of infrasound (industrial chemical explosion events, etc.) and natural phenomena. In addition, it is planned to process and collect in a common archive the available experimental data in the Russian research institutions, as well as to explore the possibility of improving of the signal/noise ratio and of the accuracy of direction by hardware improving.

Experimental data will be obtained by using seismic mini array in Apatity.

The Project promotes the realization of the following goals:

- Database of infrasound signals;
- Estimation of the mean level of infrasound background in the concerned regions;
- Catalog of processed infrasound signals, including a classification of signals and spectra;
- Results of calibration of infrasound measuring equipment;
- Results of the conducting of joint experiments for infrasound recording at the time of calibration and mining explosions, results of analysis of observations, and information, required for use the conditions of distant spreading of infrasound, and for use the seismic information in work, which is expected to be in continuation of project.

## 2 Summary of Work Performed (before September 2002).

The main Subtask of the first year of the Work Plan (A-1.2) was the completion of preparation of the sites for equipment installation, cable laying, equipment assembling and engineering setup, adjustment of the whole system, and starting of infrasound event recording.

Thus, infrasound array including microbarographs installed along the inner ring of 200 m radius has been put into operation in Apatity. Microbarographs on the exterior ring haven't been installed because of the delay in the delivery of imported equipment.

Specialists of the GS of RAS in Obninsk have done preparations for installation of MB2000 Microbarograph, Digitizer and Meteorological Station.

The analysis of recording archives for infrasound signals generated by explosions of small power is executed.

New software for joint transmitting of infrasound and seismic data to Data Processing Centre and for data GPS timing has been worked out, program package for simultaneous display of seismic and infrasound data has been developed.

Annual Report on the work done will be represented at the workshop in Obninsk on 12-13 November, 2002 as it is agreed with the collaborators.