Geophysical Research Abstracts
Vol. 12, EGU2010-6644, 2010
EGU General Assembly 2010

Some results of recording infrasonic signals from explosions in Finland, 2009

S. Kulichkov (1), E. Kremenetskaya (), Yu. Vinogradov (), V. Asming (), O. Popov (), G. Bush (), E. Golikova (2), and D. Drob ()

(1) Institute Of Atmospheric Physics Russian Academy of Sciences, Moscow, Russia (snk@ifaran.ru), (2) Institute Of Atmospheric Physics Russian Academy of Sciences, Moscow, Russia (e.v.golikova@gmail.com)

The results of recording infrasonic signals from series of explosions in Finland in 2009 are presented. The explosions were carried out by Finish militaries for destruction of outdated weapon. Explosions yield about 10 t tnt. It was performed about twenty explosions in 2009, August–September. The distance between the source and the receiver was 304 km. It was detected infrasonic waves corresponding to sound propagation along earth surface and in stratospheric and thermospheric acoustic waveguides. The significant difference in azimuths for surface, stratospheric, thermospheric arrivals of infrasound signals is obtained. These differences are due to the influence of transverse wind propagation. The theoretical calculation of the waveform of recorded infrasonic signals is produced. The calculation is done using the TDPE (Time Domain Parabolic Equation Code) method and the G2S temperature and wind profile. The temperature and wind profile are taken from balloon sounding data up to the height of 17 km. A satisfactory agreement between the results of calculations and experimental data is obtained.