



Co-located IMS Infrasound and Seismic Sensors at Trafelberg, Austria

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The International Monitoring System (IMS) of the Preparatory Commission of the Comprehensive Nuclear Test-Ban Treaty Organization (CTBTO) has built an infrasound and seismic test facility at the Conrad Observatory in Trafelberg, Austria. The equipment was installed in July 2009 and since then it is operational. The purpose of the installation is to assess the efficiency of different geometries of wind noise reducing systems, and the added value deriving from the co-location of infrasound and broadband seismic sensors. The infrasound array consists of four elements (two overlapping 36-m diameter and 18-m diameter elements) located in two vaults separated by 45 meters. Located in the bottom of each vault is a recording pier for the MB2005 and Guralp CMG-3T broadband seismometers (One vault contains a 50Hz-120s sensor and the other a 50Hz-360s sensor. Both sensors are flat to velocity).

The Conrad Observatory is further equipped with broadband sensors in a 150-m horizontal tunnel, a 50-m borehole, and an external vault from the Austrian National Seismic Network.

Results from the infrasound and seismic sensors suggest a strong correlation of long period horizontal seismic signals with infrasonic traces associated to the 36-m diameter pipe arrays. We investigate the possibility of coupling between the seismic and infrasound sensors (separated by less than 1 meter) and exclude the presence of mechanical or electronic coupling of the two sensors. We further investigate whether the local topography might cause the correlation, since the array is located at less than 300 meters from the topographic edge of the Trafelberg.