



Ten Years of Infrasound Observation in Korea

hee-il LEE, il-young CHE, and tae sung KIM

Korea Institute of Geoscience and Mineral Resources, Daejeon, Korea (leel@kigam.re.kr)

Over the ten years after the installation of our first seismo-acoustic array station (CHNAR) in September 1999, Korea Institute of Geoscience and Mineral Resources (KIGAM) has been continuously observing infrasound with an infrasound array network, named KIN (Korean Infrasound Network) in Korea. This network consists of seven seismo-acoustic arrays (BRDAR, KMPAR, CHNAR, YAGAR, KSGAR, ULDAR and TJIAR). The aperture size of the smallest array (KMPAR and TJIAR) is about 300m and the largest is about 1.4km. The number of acoustic gauges are between 4 (TJIAR) and 18 (YAGAR), and 1 or 5 seismometers are collocated at the center of the acoustic array. All seismic and infrasonic signals of the arrays are digitized at 40 samples/sec and transmitted to KIGAM in real time. Many interesting infrasound signals associated with different kind of anthropogenic source as well as natural one are detected by KIN. Ten years of seismo-acoustic data are analyzed by using PMCC program, and identified more than five thousand of infrasonic events and catalogued in our infrasound database. This database is used to study characteristics of seasonally dependent propagation of the infrasound wave in local scale, as well as to better understand how atmospheric condition affects the detection ratio at a specific station throughout the year. It also played a valuable role in discriminating the anthropogenic events such as the second nuclear test on 25 May 2009 in North Korea, from natural earthquakes, which is important in estimating the seismicity in Korea.