

## **Classification of natural and man-made infrasound events**

Infrasound sources could be classified as man-made and natural sources. The first category includes explosions while the second includes earthquakes, volcanoes, fireball, and meteorites. In this paper the different sources are processed using the Progressive Multi-Channel Correlation algorithm (PMCC) which is a very effective technique in array analysis. This technique correlates the signals recorded by the different collocated elements of the array. The obtained correlation function reflects different patterns depending on spectral characteristics of the infrasound source. In this study, we analyzed different infrasound man-made and natural sources, including The October 7, 2008, TC3 meteor fallen over the north Sudan Nubian Desert, the February 15, 2013, Russian fireball, and February 6, 2016, Atlantic meteor near to the Brazil coast. Additionally, the volcanic eruption of Etna, Sakurajima and Hawaii volcanoes. Furthur more the rocket launching events of the Dnepr rocket which launched in 2006 from Baikonur, Kazakhstan. , finally, the earthquake of the Tohoku earthquake in 2011. The study showed a unique signature for each set of events that may be used for an automated algorithm for signal classification

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