Prefecture-level dense infrasound observation network in Kochi for preventing tsunami disasters

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Infrasound is known as pressure waves in atmosphere with its frequency lower than the human audible limit of 20 Hz. Due to its distant propagation characteristics without large attenuation, the infrasound can be used as a remote sensing tool for the huge scale geophysical events closely coupled with atmospheric environment. Tsunami is one of the most dangerous geophysical phenomena for human life and the Japanese originated word of TSUNAMI shows Japan is one of the most dangerous regions for tsunami disasters in the world as was known with the 3.11 earthquake disasters in 2011. Since Kochi prefecture is located in Shikoku island along the southern coast faced on the Pacific ocean, we have many dangerous sites of tsunami invasion once a huge earthquake happens in Nankai Trough region located just near the southern coast of Japan. Infrasound observation network for disaster alert information sensing has been constructing in Kochi since 2016, taking account of tsunami disasters. As for the pilot arrangement, we installed 5 sensors in Kuroshio town in western district in Kochi pref. with a separation of about 2 and 8 km, making two-sized triangle arrays there. The installed infrasound sensor was developed by ourselves in 2012 with some built-in MEMS type sensors so as to recognize any disturbances by seismic waves, some noisy artificial sound activities, and some signals due to drastic weather changes with the same sensor on site. The infrasound sensor arrays revealed us some important feature of the detected signals coming from typhoons and a volcanic eruption of Mt. Aso in Kyushu island. Moreover, in 2017, we installed additional 11 more sensors in Kochi pref. with setting 25 km scale arrays to make the densest infrasound observation network in such prefecture scale specific area in Japan. In this talk, we will introduce our observation design of the network and previously obtained datasets for consideration of tsunami disaster prevention.