



## **Analysis of microseismicity in the offshore Ulsan area, Korea**

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The offshore Ulsan located in the southeastern the Korean Peninsula appears to have relatively higher seismicity compared to the rest of the peninsula. This study analyzed the seismicity and the tectonic structures of the region affected by a magnitude ( $M_L$ ) 5.0 earthquake occurred on July 5, 2016 in this area. We apply a matched-filter technique to detect missing earthquakes around the region from July 5 to July 25, 2016. We detected 18 times more earthquakes than listed in a Korea Meteorological Administration catalog. We then used the *velellipse* algorithm with an one-dimensional velocity model based on hypoellipse software to locate the mainshock and aftershocks. As a result of the analysis, no foreshock was detected, and a total of 73 aftershocks were detected. The largest earthquake was  $M_L$  2.45 and the smallest earthquake was  $M_L$  0.25. The new earthquake catalog can be an indicator for seismicity of this area and the mechanism of occurrence before and after the mainshock. It is also expected to help interpret more specific results.