Status on drilling work of the Quaternary deposits for tracing fault zone

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As the increasing interest that relatively earthquakes greater than M>5 occurred at 2017 and 2018 in Gyeongju and Pohang areas in the southeastern part of Korea, KIGAM has commenced the research on geologic hazard assessment of large fault system focusing on the central region of the Yangsan Fault. Main object of this research is to develop evaluation indexes for seismic risk of fault through the fault map based on the techniques for the fault detection, tracing, characterization by multidisciplinary (geology, Quaternary geology, geophysics, chronology, etc.) in three region along the Yangsan Fault zone over three years. This study introduces the status of drilling for the Quaternary deposits to produce the information on the Quaternary geology as part of this research. In the first year by 2017, the drilling was carried out near the epicenter of the 2017 Gyeongju earthquake, then identified the Quaternary geology and the topographical gradient of the basement rock. In addition, the fault zone regarded to be the Yangsan Fault System was confirmed by oblique drilling work on the great difference over 30 m in elevation of the bedrock below the Quaternary deposits. In this year on the second region Angang area, the drilling work has been performed along the east-west profile from the result of geophysical data to trace basement rock relief as in the case of drilling work in Gyeongju region previously. Especially, the fine-grained sediments interpreted as marine environment in the entirely coarse-gained sediments comprised of thick gravel deposits which could not be correlatable have the potential to be used as a key layer to indicate fault displacement.