

## Investigating the origin of the Mw 5.4 Pohang, Korea, earthquake of November 15, 2017: the investigations and conclusions of the Overseas Research Advisory Committee (ORAC)

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On November 15, 2017 a Mw 5.4 earthquake struck the city of Pohang, Republic of Korea, causing numerous injuries and in excess of \$50 million in damage. Initial estimates of the location of the earthquake placed it near an enhanced geothermal systems (EGS) project that was still under development. The proximity of the earthquake to the project raised question about the possible association between industrial activities and the earthquake, and also led to the termination of the project. The Pohang EGS project was developing a geothermal reservoir by high-pressure hydraulic injection into a pair of wells at depths in excess of 4 km in the crystalline basement. The goal was to create a permeable pathway between the boreholes for the extraction of heat for the production of electricity. As part of the official government investigation into the earthquake, the Geological Society of Korea (GSK) formed an Overseas Research Advisory Committee (ORAC) charged with conducting a comprehensive investigation of the earthquake and any potential involvement of the Pohang EGS project in its origin. Investigations included the analysis of both natural seismicity and earthquakes induced during stimulation of the wells, development of mechanical and hydrogeologic models of the stimulations and comprehensive review of relevant drilling and stimulation data. As part of their investigation, the ORAC has been working closely with university researchers and with the full cooperation of government agencies and the EGS project. The summary report by the GSK and the ORAC will be released in March 2017. This presentation will summarize the findings of the ORAC investigation.

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