

# Investigation on Appropriate Surveying Method Following the Establishment of national Disaster Damage Investigation System

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## SUMMARY

Since the Titanic sunk in 1912, a similar accident occurred in Korea on 15th of April 2014, over 300 passengers sunk together with the ship and passed away. This accident was one of the major causes to lead the President to be resigned for the first time in Korea. Afterwards, several other national-level natural disasters occurred, such as an earthquake in Gyeongju city (May 2016), measuring at 5.8 Richter scale, and a flood in Cheongju city (July 2017), all caused life and property damage.

In order to protect the lives of people and their property, the national disaster damage investigation system was designed on the basis of this study, which also was implemented by the most appropriate surveying method that should be applied during a disaster investigation through the two case studies for landslides and earthquakes.

Case Study 1) four different methods were compared and analyzed. The methods are tracking method using applications for a detailed investigation of landslide area, direct observation utilizing Total Station, disaster investigation utilizing RTK, and utilizing UAV. The analysis showed that utilizing UAV is the fastest and safest method for various disaster investigations.

Case Study 2) The Mobile Mapping System (MMS) and UAV methods for earthquake area investigation were compared and analyzed. As a result, a precise 3D mapping result could be produced using the MMS method, but it was not possible to obtain data in certain areas such as earthquake area, roof tops and upper section of buildings where vehicles are not able to approach. Therefore, it could be concluded that both of methods utilizing UAV and MMS should be applied in appropriate

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combination.

This study has identified the most reasonable method for prompt and accurate investigation when a specific disaster takes place. It could be expected that this method could contribute to minimize the damage from natural disasters in Korea.

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