

# The GPS Data Campaign for the Slip Surface Estimation Ciloto Landslide Zone Case Study, West Java, Indonesia

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## SUMMARY

Landslide is a disaster that often occurs in the rainy season in Indonesia. One in Ciloto West Java has hilly terrain, which continues movement of soil. The effort to carry out disaster prevention is finding a stable material layer by means to find the location of the slip surface, where slip surface is delaminates between sliding material and stable slope material. In the limit equilibrium method, the slip surface is used as surface reference for safety factor calculation. The GPS data campaign provides horizontal and vertical soil movement at each monitoring point in landslide zone. First, the landslide area is divided into several sections based on the same direction of horizontal movement monitoring points. The similarity direction of horizontal movement at several monitoring points indicates that the monitoring points located at the same slip surface. Second, the intersection point of velocity movement trend lines from each monitoring points, can provide slip surface location as the estimation result. The vertical movement could give estimation of scarp position also. Locations of scarp in vertical section to ensure compatibility with result of geology research at same study area. Ciloto landslide zone is classified to very slow velocity movement ( $5 \times 10^{-5}$  -  $5 \times 10^{-7}$  mm/second). The characteristic of horizontal displacement has diversity directions. Those characteristic gives indications that landslide zone have many slip surfaces. From this research, the landslide type at Ciloto zone has multiple compound (rotational and translational) slip surfaces.