

## **Research about plan, design, and construction method of landslide countermeasure construction**

### **[ Point ]**

In this research, development of ground displacement detection sensor that used optical fiber was attempted for conducting linear ground displacement measurement at landslide sites at lower cost. Microbending that generated in optical fiber used the intensity decrease of Rayleigh backscattered light; therefore, two types of mechanism were studied, in which displacement that occurred in the ground was added to optical fiber as bending. As a result of studying relationship between ground displacement and transmission loss amount in an interior test, it was confirmed that approximately 5mm of ground displacement could be detected. Furthermore, as a result of verifying applicability in the actual landslide sites, a certain degree of tendency was revealed between displacement and transmission loss amount, and the possibility of ground displacement detection of landslide sites by optical fiber sensor was shown.

Keywords: landslide, optical fiber, microbending loss, OTDR, displacement detection sensor