Needs for research

Damage by primary landslides is of concern in Japan, a mountainous country.

Preventing the damage by primary landslides is required because primary landslides have great social impact once they occur.

Objectives of research

- Development of techniques for extracting primary landslides and for assessing risks based on the degree of topographic activation
- Development of systems for measuring changes in primary landslides and proposal of methods for predicting the scope and scale of primary landslides

Goals to achieve in the research

1. Development of techniques for extracting primary landslides and for assessing risks based on the degree of topographic activation
2. Development of systems for measuring mass movement in primary landslides and proposal of methods for predicting the scope and scale of primary landslides

Extraction of potential primary landslide slopes focusing on micro-topography

Topographic measurement with laser profiler

Determine the area with a low eigenvalue ratio -> Extract potential primary landslide slopes.

State of the slope at the point shown on the left (after the primary landslide occurred)

Relative risk level of extracted primary landslide?

Risk level evaluation based on the level of topographic activity

Identifying the minute displacement, scope and scale of primary landslides is required

Development of systems for measuring changes in primary landslides and proposal of methods for predicting the scope and scale of primary landslides

Improvement and development of low-cost high-precision systems for measuring ground deformation including IT ground inclinometers

- Development of techniques for measuring minute displacement by primary landslides
- Proposal of methods for identifying the scope and scale of primary landslides based on the area of deformation and the displacement tendency

No movement (low risk level)

Landslide scope and scale are properly determined.