

## A Preliminary Study on the Calculation Method for Residual Sliding Force of Wedge Landslides: Postprint

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### Abstract

Landslide disasters constitute one of the major natural disasters in human history. Understanding the calculation methods for residual sliding force of landslides enables the targeted design of landslide treatment schemes. In view of the relatively limited research and engineering practice concerning wedge-shaped landslides, this paper proposes a calculation method for the residual sliding force of wedge-shaped landslides and validates the rationality of this method through engineering case studies. The results demonstrate that, compared with the residual sliding force calculation values in existing anti-slide pile designs, the values obtained by the proposed method exhibit a difference proportion of 12.9%. This innovative approach provides key technical support for landslide engineering projects, can effectively mitigate landslide disaster risks, and ensures the safety of people's lives, property, and ecological environment.

### Full Text

#### Preamble

#### A Preliminary Study on the Calculation Method for the Residual Sliding Force of Wedge-Shaped Landslides

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### Abstract

Landslides constitute one of the most devastating natural disasters in human history, and understanding how to calculate residual sliding force is crucial

for designing effective mitigation strategies. Despite this importance, research and engineering practice concerning wedge-shaped landslides remain relatively scarce. This paper presents a novel calculation method for determining the residual sliding force of wedge-shaped landslides and validates its reliability through practical engineering case studies. The results reveal that values obtained from the proposed method differ by 12.9% compared to those calculated using conventional anti-slide pile design approaches. This innovative methodology provides essential technical support for landslide engineering projects, offering an effective means to reduce landslide disaster risks and protect lives, property, and ecological security.

**Keywords:** wedge-shaped landslides; residual sliding force; anti-slide pile design; synclinal structure

*Note: Figure translations are in progress. See original paper for figures.*

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