

1994 Fiscal Year Final Research Report Summary

Development of evaluation of the risk concerning the rock-shed based on the bearing capacity at the failure

Research Project

Project/Area Number

05555126

Research Category

Grant-in-Aid for Developmental Scientific Research (B)

Allocation Type

Single-year Grants

Research Field

構造工学・地震工学

Research Institution

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Keywords

IMPACT / ROCK FALL / ROCK SHED / FAILURE / RISK / LOAD FACTOR / DISTINCT ELEMENT METHOD

Research Abstract

Rock-sheds are normally constructed by reinforced concrete, prestressed concrete or steel members. For most of them concrete materials are used. The behavior of concrete member up to complete failure has not been clear under dynamic load like rock falls.

In this study, the distinct element method are developed to simulate the complex behavior of steel reinforced concrete member under the impact load. Several examples are shown under some kinds of loading conditions. The characteristics of loads, failure modes and energy dispersions are discussed.

In the other hand, the simplification of rock shed for modeling, the method of the treatment of load by rock falls, the probability of failure of rock shed under the some assumptions concerning limit states. Consequently, the load factor design method are shown for the rock shed in heavy snow area.

Research Products (9 results)

All Other

All Publications (9 results)

[Publications] 榎谷浩: "スイスにおける落石問題の現状について" 落石等による衝撃問題に関するシンポジウム. 2. 150-155 (1993) ▼

[Publications] 榎谷浩,F.Descoedres Cl.-Al.Schmidhalter: "スイス産氷河砂利をクッション材として用いた落石衝撃実験" 落石等による衝撃問題に関するシンポジウム. 2. 156-160 (1993) ▼

[Publications] 榎谷浩,梶川康男,玉村茂樹: "個別要素法による鉄筋コンクリート部材の衝撃挙動解析" 構造工学における数値解析法シンポジウム論文集. 18. 7-10 (1994) ▼

[Publications] 榎谷浩,梶川康男,黒川敏弘: "落石覆工への荷重係数設計法の適用について" 構造工学論文集. Vol.41A. (1995) ▼

[Publications] 榎谷浩他35名: "構造工学シリーズ6 建造物の衝撃挙動と設計法" 土木学会, 312 (1994) ▼

[Publications] H.Masuya: "The state of art of protection for rock falls in Switzerland" Proceedings of symposium on impact problem. Vol.2. 150-155 (1993) ▼

[Publications] H.Masuya, F.: "Descoedres, Cl.-Al.Schmidhalter Experimental study of rock blocks falling down on a absorbing glacier cushions" Proceedings of symposium on impact problem. Vol.2. 156-160 (1993) ▼

[Publications] H.Masuya, Y.Kajikawa, S.Tamamura: "Analysis of behavior reinforced concrete beam under impact by the distinct element method" Proceedings of symposium on computational methods in structural Engineering and related fields. Vol.18. 1-6 (1994) ▼

[Publications] H.Masuya, Y.Kajikawa, T.Kurokawa: "Application of load resistance factor design to rock-sheds" Journal of structural engineering. Vol.41A. 7-10 (1995) ▼

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