

# Measuring the risk of landslides in areas dominated by granite using relative abundance of minerals and permeability coefficients

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During the 2015-16 academic year, we studied the relationship between the presence of granite and the occurrence of landslide disasters and concluded the weathering of granite increased the risk of disasters. However, geology is not currently taken into consideration by the Hyogo prefectural government when making landslide hazard map. We think that measuring risk by considering the degree of weathering in granites should be used when drawing new hazard maps. We evaluate the risk of landslides by measuring permeability coefficients and relative abundance of minerals in soil samples from Mt.Ofuji, Hyogo.

Keywords: granite, landslide disasters, permeability coefficients

図1 全国の土砂災害発生場所の地質別割合[98件]

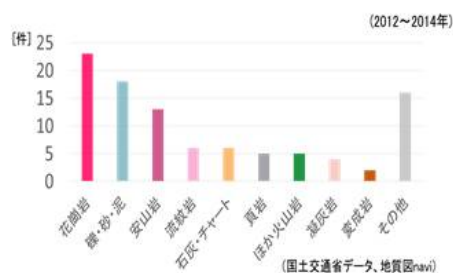


図2 土砂災害発生危険度の分布表

土砂災害発生危険度の分布表

土砂層の崩れやすさ

	1	2	3	4	5
1	E	D	D	C	
2	E	D	C	B	B
3	D	D	C	B	B
4		C	B	A	A
5		C	B	A	A

岩体の崩れやすさ

土砂災害発生危険度

小 ← E D C B A → 大

図3 ユールストローム図

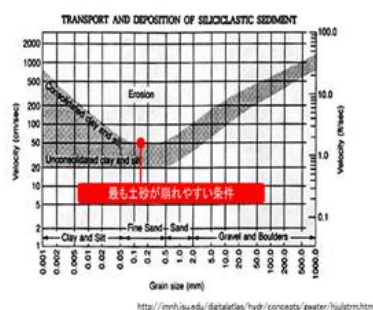


図4 クレーガー表

粒径[mm]	透水係数[cm/h]	粒径[mm]	透水係数[cm/h]
0.005	$3.90 \times 10^{-8}$	0.18	$6.85 \times 10^{-2}$
0.01	$1.85 \times 10^{-5}$	0.2	$8.90 \times 10^{-2}$
0.02	$4.80 \times 10^{-5}$	0.25	$1.40 \times 10^{-1}$
0.03	$8.85 \times 10^{-5}$	0.30	$2.20 \times 10^{-1}$
0.04	$1.75 \times 10^{-4}$	0.35	$3.20 \times 10^{-1}$
0.05	$2.80 \times 10^{-4}$	0.40	$4.50 \times 10^{-1}$
0.06	$4.60 \times 10^{-4}$	0.45	$5.80 \times 10^{-1}$
0.07	$6.50 \times 10^{-4}$	0.50	$7.50 \times 10^{-1}$
0.08	$9.80 \times 10^{-4}$	0.60	$1.10 \times 10^{-1}$
0.09	$1.40 \times 10^{-3}$	0.70	$1.60 \times 10^{-1}$
0.1	$1.75 \times 10^{-3}$	0.80	$2.15 \times 10^{-1}$
0.12	$2.80 \times 10^{-3}$	0.90	$2.80 \times 10^{-1}$
0.14	$3.90 \times 10^{-3}$	1.00	$3.60 \times 10^{-1}$
0.16	$5.10 \times 10^{-3}$	2.0	$1.80 \times 10^{-1}$

最も土砂層が崩れやすい透水係数

http://endeavor.ingrady.ac.jp/~white/solbest/permeability.pdf p14-15

図5 透水係数装置

