

マスマーブメントの 誘因と素因分析

防災科学技術研究所
マルチハザードリスク評価研究部門

特別研究員 陳 麒文

目次

- 学歴と経歴
- 研究成果
誘因－降雨、地震
素因－地質、地形
土砂流出
- 今後の研究

2

学歴と経歴



國立臺灣大學
National Taiwan University



國立臺灣大學 地質科學系暨研究所
Department of Geosciences, National Taiwan University



東京大学
THE UNIVERSITY OF TOKYO



東京大学大学院新領域創成科学研究科
自然環境学専攻
Department of Natural Environment Studies

学士
2003–2007

修士
2007–2009

博士
2012–2015



2015

2016

2017

2018

2019.7

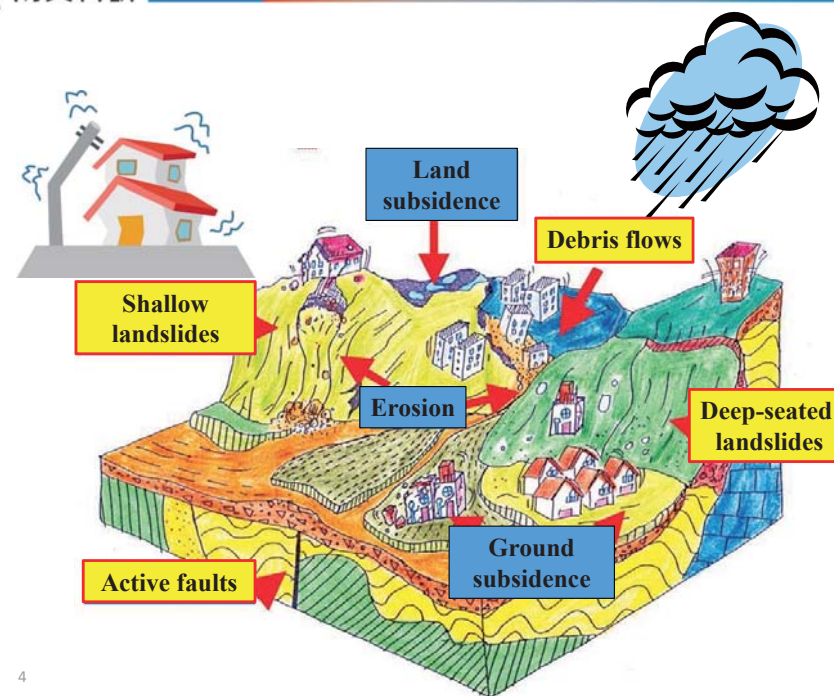
アシスタントスタッフ

アシスタント研究員



行政法人 国家災害防救科技中心
National Science and Technology Center
for Disaster Reduction

3



4

マスマーブメントを引き起こす雨量

Chen et al. Progress in Earth and Planetary Science (2015) 2:14
DOI 10.1186/s40645-015-0049-2

Progress in Earth
and Planetary Science
a SpringerOpen Journal

RESEARCH ARTICLE

Open Access

Rainfall intensity-duration conditions for mass movements in Taiwan

Chi-Wen Chen^{1*}, Hitoshi Saito^{2,3} and Takashi Oguchi^{1,3}

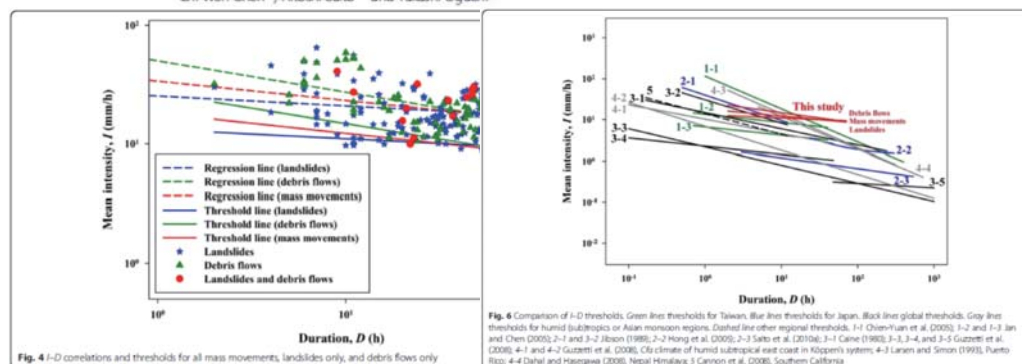


Fig. 6 Comparison of I-D thresholds. Green lines thresholds for Taiwan, blue lines thresholds for Japan, black lines global thresholds. Gray lines thresholds for humid (sub)tropical or Asian monsoon regions. Dashed lines other regional thresholds. 1-1 Chen-Yuan et al. (2003), 1-2 and 1-3 Jan and Chen (2002), 2-1 and 2-2 Jibson (1986), 2-3 Hong et al. (2009), 2-4 Saito et al. (2010a), 3-1 Caine (1980), 3-2, 3-3, 3-4, and 3-5 Guzzetti et al. (2008), 4-1 and 4-2 Guzzetti et al. (2008), C1a climate of humid subtropical east coast in Köppen's system; 4-3 Lavenex and Simon (1993), Puerto Rico; 4-4 Dahal and Hasegawa (2006), Nepal Himalaya; 5 Cannon et al. (2006), Southern California

土壌雨量指数の応用

Original Paper

Landslides (2017) 14:1031–1041
DOI 10.1007/s10346-016-0780-1
Received: 7 July 2016
Accepted: 7 December 2016
Published online: 13 December 2016
© Springer-Verlag Berlin Heidelberg 2016

Chi-Wen Chen · Hitoshi Saito · Takashi Oguchi

Analyzing rainfall-induced mass movements in Taiwan using the soil water index

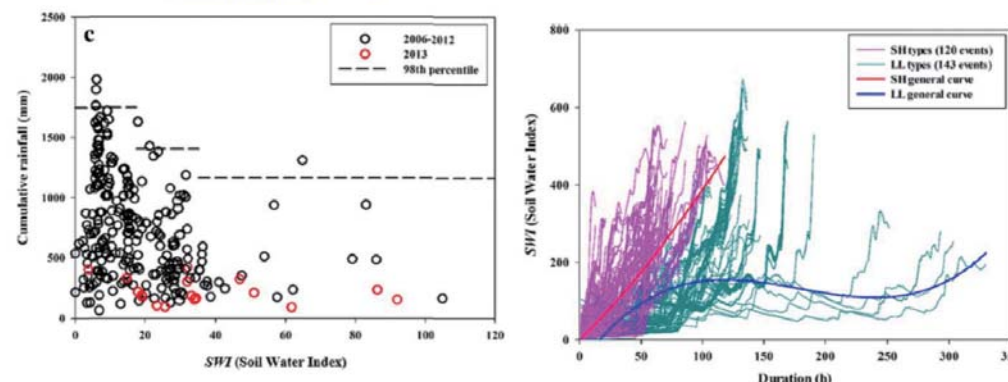
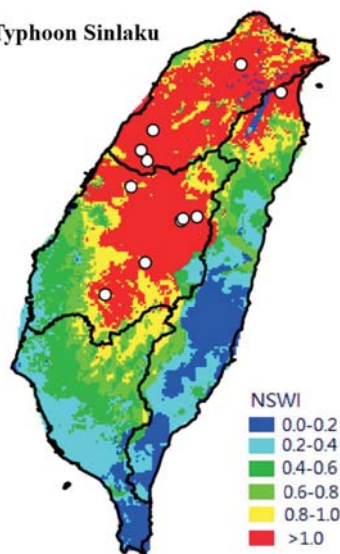


Fig. 8 Hourly changes in the SWI from the beginning of rainfall events to mass movement occurrence between the two types of rainfall condition during 2006–2012

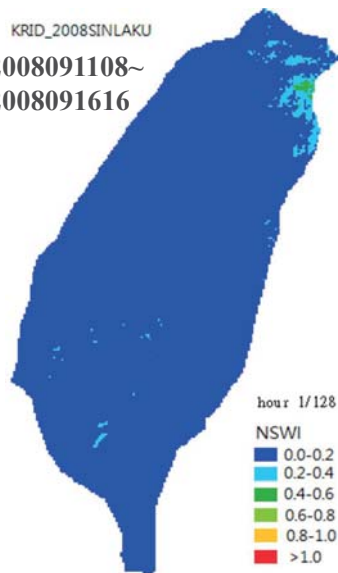
土壌雨量指数の応用

2008 Typhoon Sinlaku



KRID_2008SINLAKU

2008091108~
2008091616



気候変動が斜面崩壊に与える影響

Catena 175 (2019) 263–277

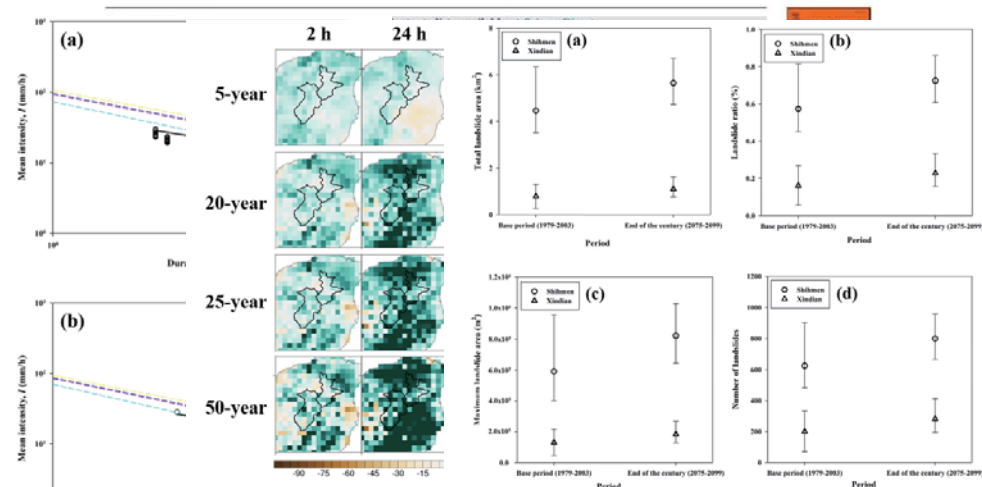


Fig. 6 I-D relationships of landslides and rainfall: (a) Shihong Reservoir catchment and (b) the Xindian Reservoir. The upper and lower bounds are maximum and minimum values, and circles and triangles are average values.

地震による深層崩壊

Geomorphology 295 (2017) 680–689



Contents lists available at ScienceDirect

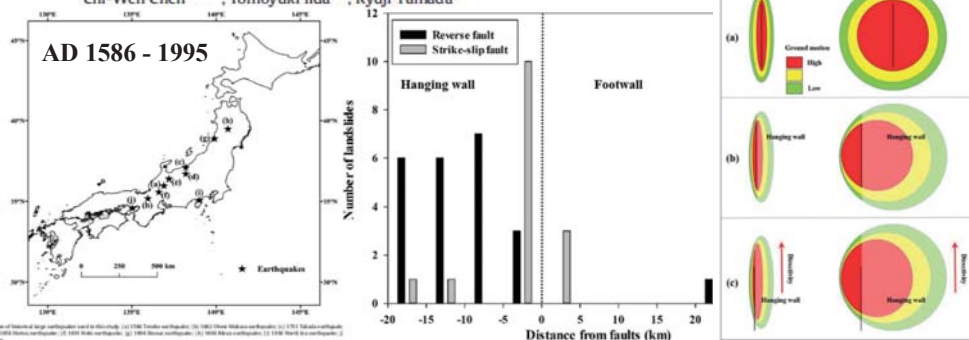
Geomorphology

journal homepage: www.elsevier.com/locate/geomorph

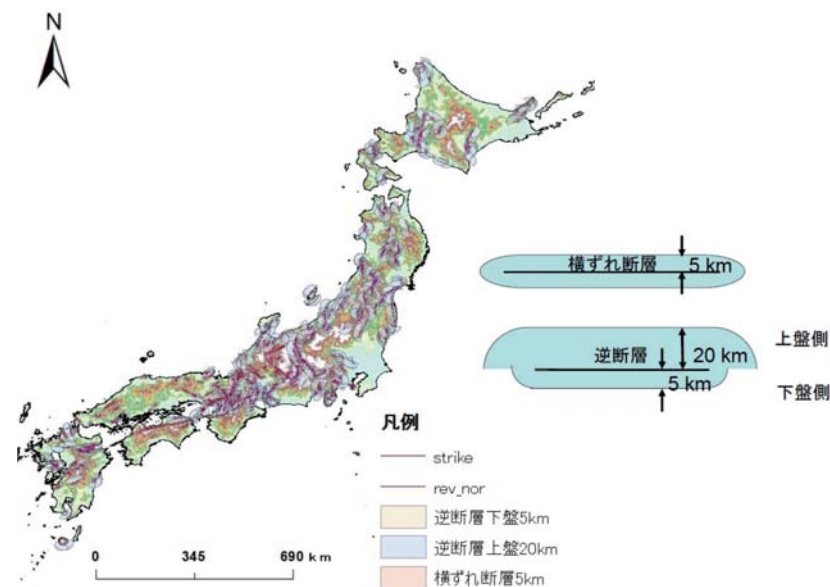


Effects of active fault types on earthquake-induced deep-seated landslides: A study of historical cases in Japan

Chi-Wen Chen^{a,b,c,*}, Tomoyuki Iida^{a,b}, Ryuji Yamada^a



日本全国における深層崩壊危険地域分布図



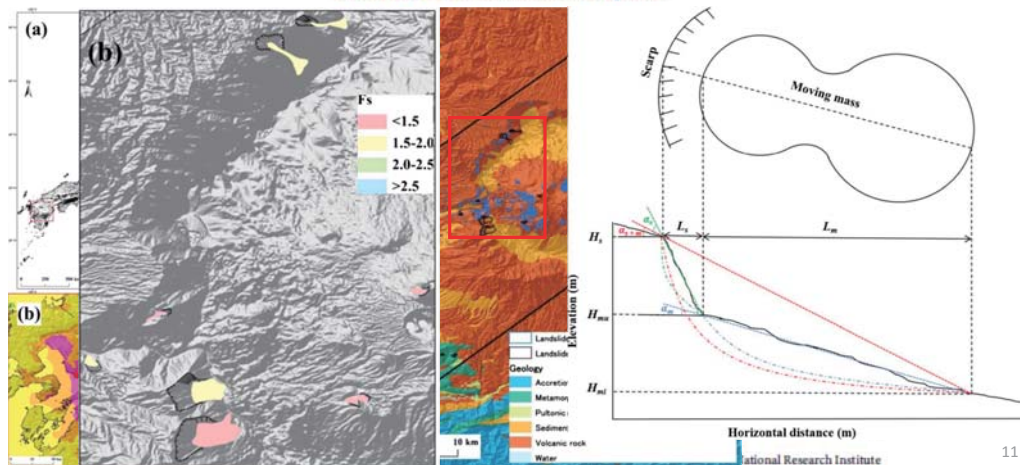
地すべり地形の安定性解析

Recent Landslides

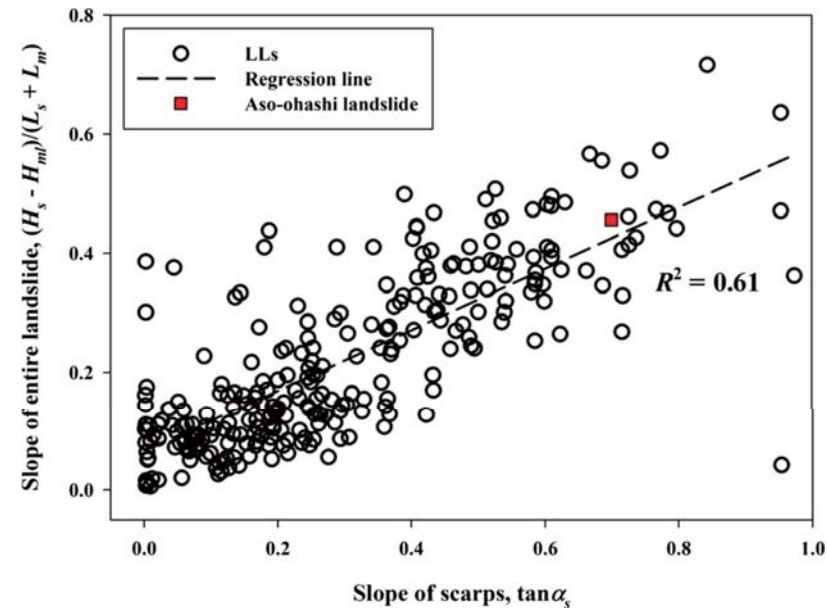
Landslides (2017) 14:1793–1801
DOI: 10.1007/s10346-017-0872-1
Received: 28 December 2016
Accepted: 31 July 2017
Published online: 11 August 2017
© Springer-Verlag GmbH Germany 2017

Chi-Wen Chen · Hongyei Chen · Lun-Wei Wei · Guan-Wei Lin · Tomoyuki Iida · Ryuji Yamada

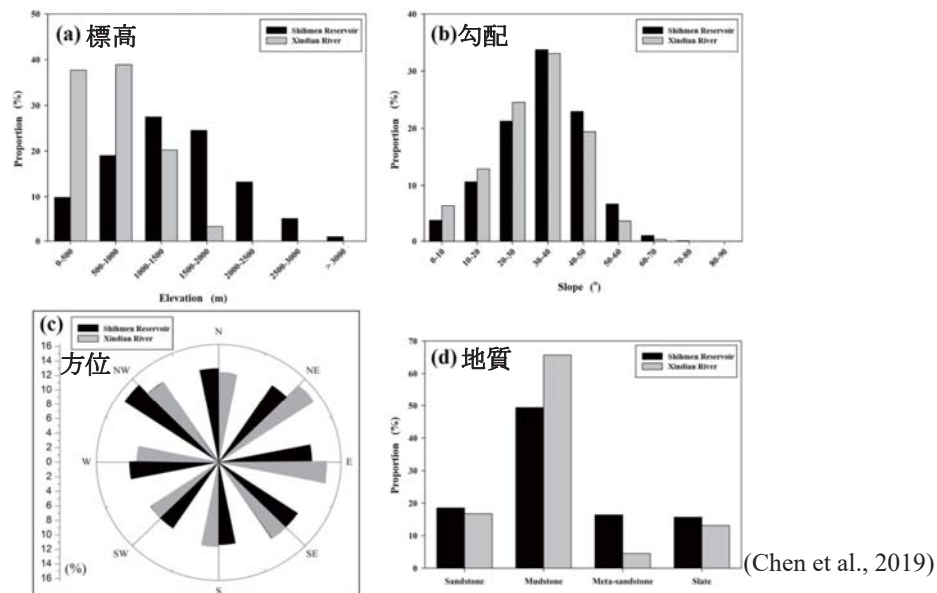
Evaluating the susceptibility of landslide landforms in Japan using slope stability analysis: a case study of the 2016 Kumamoto earthquake



阿蘇大橋の斜面崩壊と比較

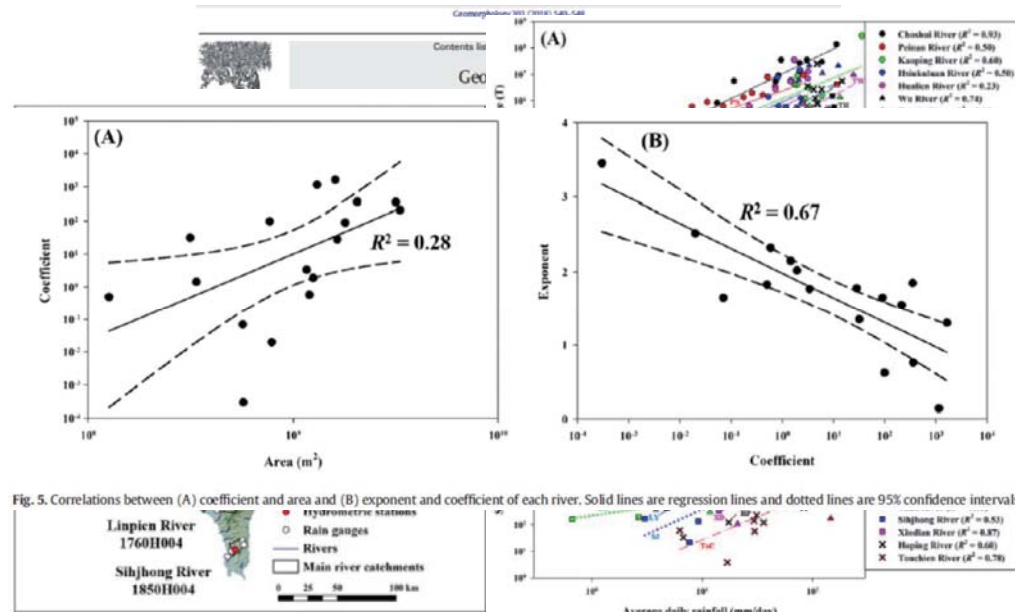


流域の素因（地質・地形）分析



13

土砂流出について



今後の研究

地震誘因の指標を用いた研究

- 水平・垂直の最大速度 (PGV) ・ 最大加速度 (PGA)
- 計測震度
- SI値 (spectral intensity)
- 卓越周期 (フーリエスペクトル分析)

→南海トラフ地震を想定した斜面崩壊分布の推定

15

ご清聴ありがとうございました

16