

# **LANDSLIDE RECOGNITION**

*Report No. 1 of the European Commission Environment Programme  
Contract No. EV5V-CT94-0454*

## **Identification, Movement and Causes**

*Edited by*

RICHARD DIKAU  
*Universität Bonn, Germany*

DENYS BRUNSDEN  
*King's College London, UK*

LOTHAR SCHROTT  
*Universität Bonn, Germany*

MAÏA-LAURA IBSEN  
*King's College London, UK*



JOHN WILEY & SONS  
Chichester · New York · Brisbane · Toronto · Singapore

## *Contents*

<b>List of Contributors</b>	<b>vii</b>	
<b>Foreword</b>	<b>ix</b>	
<b>Preface</b>	<b>xi</b>	
<b>Acknowledgements</b>	<b>xiii</b>	
<b>Chapter 1</b>	<b>Introduction</b>	<b>1</b>
	<i>R. Dikau, D. Brunsden, L. Schrott and M.-L. Ibsen</i>	
<b>Chapter 2</b>	<b>Fall</b>	<b>13</b>
	<i>J. C. Flageollet and D. Weber</i>	
<b>Chapter 3</b>	<b>Topple</b>	<b>29</b>
	<i>R. Dikau, L. Schrott and M. Dehn</i>	
<b>Chapter 4</b>	<b>Slide (rotational)</b>	<b>43</b>
	<i>J. Buma and T. van Asch</i>	
<b>Chapter 5</b>	<b>Slide (translational)</b>	<b>63</b>
5.1	Introduction	63
5.2	Block slide	64
	<i>M.-L. Ibsen, D. Brunsden, E. Bromhead and A. Collison</i>	
5.3	Slab slide	78
	<i>M.-L. Ibsen, D. Brunsden, E. Bromhead and A. Collison</i>	
5.4	Rock slide	85
	<i>M. Sorriso-Valvo and G. Gullà</i>	
5.5	Debris slide	97
	<i>J. Corominas</i>	
5.6	Mudslide	103
	<i>D. Brunsden and M.-L. Ibsen</i>	
<b>Chapter 6</b>	<b>Lateral spreading</b>	<b>121</b>
6.1	Introduction	121
6.2	Rock spreading	122
	<i>A. Pasuto and M. Soldati</i>	

6.3	Soil (debris) spreading <i>J. Buma and T. van Asch</i>	137
<b>Chapter 7</b>	<b>Flow</b>	<b>149</b>
7.1	Introduction	149
7.2	Rock flow (sackung) <i>C. Bisci, F. Dramis and M. Sorriso-Valvo</i>	150
7.3	Debris flow <i>J. Corominas, J. Remondo, P. Farias, M. Estevao, J. Zézere, J. Díaz de Terán, R. Dikau, L. Schrott, J. Moya and A. González</i>	161
7.4	Soil flow (mudflow) <i>L. Schrott, R. Dikau and D. Brunsden</i>	181
<b>Chapter 8</b>	<b>Complex</b>	<b>189</b>
8.1	Introduction	189
8.2	Rock avalanche <i>M. G. Angelis, P. Gasparetto, R. M. Menotti, A. Pasuto, S. Silvano and M. Soldati</i>	190
8.3	Flow slide <i>M.-L. Ibsen, D. Brunsden, E. Bromhead and A. Collison</i>	202
<b>Appendix 1</b>	<b>Landslide classification</b>	<b>213</b>
<b>Appendix 2</b>	<b>The multilingual landslide glossary</b>	<b>217</b>
<b>Appendix 3</b>	<b>Slope stability modelling: an overview</b> <i>E. Bromhead</i>	<b>231</b>
<b>Glossary</b>		<b>237</b>
<b>Index of Place Names</b>		<b>245</b>
<b>Subject Index</b>		<b>247</b>