

Prediction and Perception of Natural Hazards

J. Nemec, J.M. Nigg and F. Siccardi (Editors)

This collection of articles provides a unique overview of the state-of-the-science in the prediction of and response to natural disaster events. The uniqueness of this volume is that it comprises more than just the physical science perspective.

For each natural hazard included in this text, social scientists have provided research summaries of how public perceptions are related to the actions that are likely to be undertaken when people are confronted with information about the existence of a natural hazard threat.

In this book the reader can find a truly international characterization of both hazard perception and prediction. The American and European contributors provide state-of-the-science overviews of empirically-based research knowledge that expands beyond any national boundaries. This approach has resulted in broader understanding of what is currently known about predicting natural hazard events and predicting how those events, or warnings of them, will be responded to by different types of societies.

ISBN 0-7923-2355-6



9 780792 323556

90000

KLUWER ACADEMIC PUBLISHERS

NTHR 2

ISBN 0-7923-2355-6

TABLE OF CONTENTS

J.M. Nigg and F. Siccardi

Preface to the Workshop Proceedings

xi

SESSION 1

THE EFFECT OF THE UNCERTAINTIES IN NATURAL HAZARD PREDICTION ON THE USER COMMUNITIES

F. Siccardi and D.N. Adom

A Non-Structural Policy for the Mitigation of Flood Effects: The Arno Project

3

A.G. Davenport

The Impact of Structural Damage due to Hurricanes and the Prospects for Disaster
Reduction

13

W.R. Dombrowsky

The Social Dimensions of Warning and the Transition from Folk Wisdom to
Laymanship

23

J.K. Mitchell

Natural Hazard Predictions and Responses in Very Large Cities

29

R. Morchio

The Effect of the Uncertainties in Natural Hazard Prediction on the User
Communities

39

B.N. Porfiriev

Uncertainties in Natural Hazards Prediction and its Effect on User Communities
Perception: Soviet Union Case Study

49

SESSION 2

UNCERTAINTIES IN THE DEVELOPMENT OF PREDICTIONS OF LARGE SCALE ATMOSPHERIC PHENOMENA: DROUGHTS, TORNADOES AND HURRICANES

J.L. Rasmussen

Uncertainties in the Development of Predictions of Large Scale Atmospheric
Phenomena, Droughts, Tornadoes and Hurricanes

57

E.J. Baker Empirical Studies of Public Response to Tornado and Hurricane Warnings in the United States	65
T.M. Carter The Role of Technical Hazard and Forecast Information in Preparedness for and Response to the Hurricane Hazard in the United States	75
SESSION 3 UNCERTAINTIES IN THE DEVELOPMENT OF PREDICTIONS OF FLOODS AND LANDSLIDES	
L. Ubertini Some Remarks on Scientific Activity of Flood Prediction in Italy	85
D.E. Alexander Landslides as Polycasual Phenomena	93
A. Carrara Uncertainty in Evaluating Landslide Hazard and Risk	101
R. Geipel The River Danube Flood of 27 March 1988	111
E. Grunfest A Summary of the State of the Art in Flash Flood Warning Systems in the United States	119
J. Corominas Spatial Prediction of Landslides	125
SESSION 4 UNCERTAINTIES IN THE DEVELOPMENT OF PREDICTIONS OF EARTHQUAKES AND VOLCANOES	
A.S. Karamanos Earthquake Prediction from the Viewpoint of Earthquake Engineering	135
D.S. Mileti Communicating Public Earthquake Risk Information	143
G.F. Panza, P. Suhadolc and P. Harabaglia Uncertainties in the Estimate of Strong Ground Motion in the Surroundings of a Large Earthquake	153

M.K. Lindell and R.W. Perry	
Risk Area Residents' Changing Perceptions of Volcano Hazard at Mt. St. Helens	159
V. Karnik	
Uncertainties in the Development of Predictions of Earthquakes	167
SESSION 5	
THE USE OF SCIENTIFIC INFORMATION BY THE MEDIA	
E.L. Quarantelli	
The Different Worlds of Science and Mass Communication: Implications for Information Flow from the Former to the Latter	175
B. De Marchi	
Effective Communication between the Scientific Community and the Media	183
M. Lombardi	
Ideas for a Global Model of Communication and IDNDR Potential	193
A. Mazur	
Quantity of Reporting about Hazards: The Case of Naturally Occurring Radon	199
R. Meli	
Earthquake Prediction and Information to the Public - A Mexican Perspective	203