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Titolo	Flash Floods : Forecasting and Warning / / by Kevin Sene
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Edizione	[1st ed. 2013.]
Descrizione fisica	1 online resource (394 p.)
Classificazione	RB 10432
Disciplina	363.3493 551.48 551.48/909764
Soggetti	Atmospheric sciences Meteorology Quality control Reliability Industrial safety Physical geography Atmospheric Sciences Quality Control, Reliability, Safety and Risk Physical Geography
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction -- -Causes of flash flooding -- -Flood risk management -- -Flash Flood Warning Systems -- -Organisational Issues -- -Technological Developments -- -Summary -- Precipitation measurement -- -Introduction -- -Raingauges -- -Weather radar -- -Satellite precipitation estimates -- -Multi-sensor precipitation estimates -- -Summary -- Catchment monitoring -- -Introduction -- -River monitoring -- -Catchment conditions -- -Observation networks -- -Summary -- Rainfall forecasting -- -Introduction -- -Flash flood climatology -- -Forecasting techniques -- -Operational Considerations -- -Summary -- Flood forecasting -- -Introduction -- -Forecasting techniques -- -Operational Considerations -- -Summary -- Flood warning -- -Introduction -- -Flood warning procedures -- -Warning

dissemination -- -Warning messages -- -Decision support systems -- -Summary -- Preparedness -- -Introduction -- -Flood risk assessment -- -Flood response plans -- -Post-event reviews -- -Performance monitoring -- -Emergency response exercises -- -Improvement plans -- -Summary -- Rivers -- -Introduction -- -Flood risk assessments -- -Warning systems -- -Complicating factors -- -Summary -- Debris flows -- -Introduction -- -Debris flow risk assessments -- -Warning systems -- -Summary -- Urban flooding -- -Introduction -- -Flood risk assessments -- -Warning systems -- -Summary -- Dams and levees -- -Introduction -- -Flood risk assessments -- -Warning systems -- -Summary -- Research -- -Introduction -- -Monitoring -- -Forecasting -- -Flood warning -- -Summary.

Sommario/riassunto

The book describes flash floods - one of the most devastating of natural hazards, which develop in a period of minutes to a few hours. Floods of this type are often characterised by fast flowing deep water and a high debris content which - combined with the short lead time available for warnings - add to the risk to people and property. The main cause of flash flooding is usually heavy rainfall; other causes can include the break- up of ice jams, dam breaches, and the failure of flood defenses and levees. The volume discusses the increasing use of meteorological observation and forecasting techniques to extend the lead time available for warning, combined with hydrological models for the river response. It also presents probabilistic techniques and some current areas of research which include the use of weather radar and satellite data in improving meteorological forecasts, the development of improved forecasting and observation techniques for mountainous regions, and the use of distributed hydrological models specifically adapted for flash flood modelling. This book reviews recent developments in this active research area, with a focus on events caused by heavy rainfall (including debris flows and landslides), but also considering other types of flash flooding, such as that caused by ice jams and dam and levee breaches. The topics covered include meteorological forecasting and monitoring techniques, rainfall-runoff and river modelling, approaches to issuing flood warnings, and some of the societal and behavioural aspects of providing an effective emergency response. A number of international examples of the application of these techniques are also provided. The book is potentially useful on civil engineering, water resources, meteorology and hydrology courses (and for post graduate studies) but is primarily intended as a review of the topic for a wider audience.