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Jürgen Herget · Alessandro Fontana
Editors

Palaeohydrology

Traces, Tracks and Trails of Extreme
Events

 Springer

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Preface

This book is written in the framework of the Focus Group “Palaeohydrology and Fluvial Archives—Extreme and Critical Events (HEX)” of the International Union for Quaternary Research (INQUA) and is edited by the coordinators of the group (Fig. 1). The idea for a temporal focus on extreme events in palaeohydrological research was developed during the conference “HEX 2014—Hydrological EXtreme events in historic and prehistoric times” which took place in Bonn, Germany, in June 2014. This group was active during the period 2015–2019 and continued the successful work of the previous INQUA commission on “GLobal COntinental PalaeoHydrology (GLOCOPH)” (Fig. 2).

Some of the chapters of this book deal with palaeohydrological extreme events, which also have been the main topic of the project “EX-AQUA”, sustained by the Focus Group and sponsored by the TERPRO Commission of INQUA. The other branch of the Focus Group consists of the community of “FLAG”, dealing with fluvial archives.

The aim of this book is to provide a review on the state of the art of palaeohydrological research, presenting recent progress, attractive new key studies of general interest, methodological updates, remaining challenges and promising perspectives in the early twenty-first century. The contributions to the book consist of invited review articles written by leading experts in the field. They were invited to share their knowledge and experiences with the readers or inspire them to initiate new projects such as the key studies they prepared and present here. The contributions provide a reliable state of the art on the individual topic as the authors are qualified to discuss and summarize different perspectives on their themes with related references to publications for further reading. Consequently, the compilation of the articles represents



Fig. 1 Logo of the INQUA Focus Group “Palaeohydrology and Fluvial Archives—Extreme and Critical Events”

Fig. 2 Logo of the previous INQUA commission “Global Continental Palaeohydrology”



an excellent introduction for non-experts and review material and references for the experienced reader. Such reference character of a publication cannot be achieved by a special issue of a journal focussing on innovation and the research frontier alone.

Both floods and droughts, as prominent extreme hydrological events, are topics here. Their traces, tracks and trails are followed and investigated. These terms have some similarities but differ in nuances. As illustrated by the key studies presented in this book, singular events tend to become periods on the longer timescale also due to decreasing temporal resolution. On the other hand, periods of time are characterized by events, e.g. the time of the temporary formation of exceptional large river meanders.

The book consists of three parts: I—Studies with Temporal Focus, II—Studies with Regional Focus and part III with contributions dealing with methodical and technical issues. Even with this broad structure, the book does not aim to be a manual of encyclopaedic character documenting the discipline completely, but provide inspiring views on a variety of topics.

All contributions were reviewed by colleagues who kindly found the time to provide some independent comments on the contributions of the book and therefore supported the clarity and balanced content of the manuscripts. As most of them preferred to remain anonymous, we are not able to acknowledge them individually. Last, but not least, we appreciate the efforts of Michael Leuchner who during his time as an editor at Springer contacted us with the invitation to preparation the book.

Bonn, Germany
Padua, Italy
April 2019

Jürgen Herget
Alessandro Fontana

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