

Climate Change and Groundwater

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Preface

The concept of 'Climate Change' (basically implying global warming) has been with us for two to three decades. Not a day passes without a new story on climate change, and often the evidence and the hypotheses offered are uncertain and conflicting. This suggests that there is still much to learn about the causes, the magnitude and the persistence of the processes that are going on; however, in spite of all the uncertainties, the reality of global warming is no longer questioned.

Global warming will impact the hydrological cycle, and there is evidence that this is already occurring, with many countries facing more frequent droughts than in the past, whilst rainfall and flooding have intensified in some areas. Climate change will directly affect groundwater recharge, timing of recharge events, storage in aquifers, the quality of groundwater and the freshwater/seawater interface. These impacts are of paramount importance for many reasons, not least that groundwater is, and will be, the main solution to water scarcity during droughts and in permanently arid or semi-arid areas. It is imperative, therefore, to establish rational management and conservation plans.

With this in view, the IAH Working Group on Groundwater and Climate Change organized a

special session on 'Impact of Climate on Groundwater Resources' during the XXXII International Geological Congress (held in August 2004, in Florence, Italy). Those research workers, expert in climate change and groundwater, who were unable to participate in the conference have also contributed to this volume. It contains thirteen papers covering a variety of topics related to change in climate and groundwater resources.

This volume provides only a glimpse of some of the more important aspects associated with the general theme of *Climate Change and Groundwater*. The book will, however, stimulate interest and research into some of the topics covered which hopefully will help towards developing tools for coping with the environmental problems anticipated in the coming decades.

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WALTER DRAGONI
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