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Practical Hydroinformatics

Computational Intelligence and Technological Developments in Water Applications

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Preface

Hydroinformatics has emerged over the last decade to become a recognised and established field of independent research activities within the hydrological and environmental science communities. Hydroinformatics is not just an application of Information and Communications Technologies (ICT) to water resources, hydraulics, hydrology or environment. It strives to provide an amalgamation of water science with modern technologies for the purposes of satisfying social requirements. The European Geosciences Union (EGU) held its first dedicated session on Hydroinformatics in 2005 at the Vienna Meeting; that same meeting voted to establish the Hydroinformatics Sub-Division and Technical Committee (part of the Hydrological Sciences Division). The aim of that original session was to provide an active forum in which to demonstrate and discuss the integration and appropriate application of emergent computational technologies in a water modelling context. The initial proposal for this book arose at that meeting out of a desire to collect together a range of different contributions from academics and practitioners working in various sectors across the field; there were no other published compendiums at that point which attempted to span the latest set of methods or topics of hydrological interest that were presented at our meeting. The starting point for the selection of authors was the session itself. Further contributors were invited to submit papers in order to bolster particular sections and provide a representative selection of research across the main thematic areas: neural networks, fuzzy logic, global and evolutionary optimisation, emerging technologies and model integration.

This book is aimed at hydrologists, scientists, students and practitioners interested in a set of techniques derived largely from artificial and computational intelligence to solve a range of problems in hydrology. We hope that this book will promote the field of Hydroinformatics and bridge the gap between theory and practice.

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