NZ Rainfall and Runoff?

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rivers GROUP

A joint technical interest group of IPENZ & Water NZ

IPENZ ENGINEERS NEW ZEALAND

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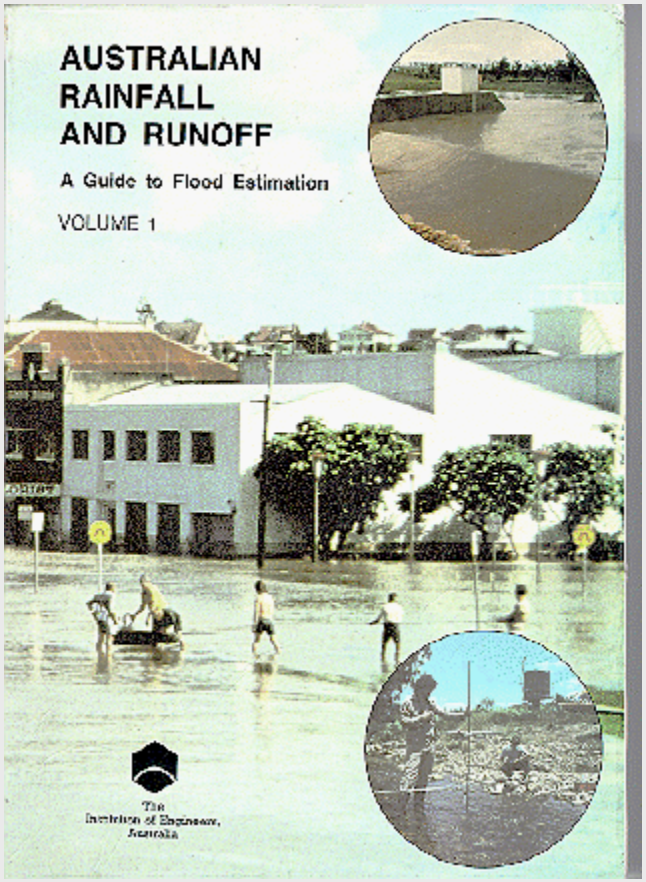
The New Zealand Water & Wastes Association Wairoa Aotearoa

The Purpose of AR&R

Since its first publication in 1958, Australian Rainfall and Runoff (ARR) has remained one of the most influential and widely used guidelines published by Engineers Australia (EA). The current edition, published in 1987, retained the same level of national and international acclaim as its predecessors.

With nationwide applicability, balancing the varied climes of Australia, the information and the approaches presented in Australian Rainfall and Runoff are essential for policy decisions and projects involving:

≈ infrastructure such as roads, rail, airports, bridges, dams, stormwater and sewer systems
≈ town planning
≈ mining
≈ developing flood management plans for urban and rural communities
≈ flood warnings and flood emergency management
≈ operation of regulated river systems
≈ estimation of extreme flood levels



Revision of ARR

There have been significant technological advances in many areas of rainfall runoff assessment since the 1987 update as such 21 revision projects will be undertaken with the aim of filling knowledge gaps.

The outcomes of the projects will assist the ARR editorial team compiling and writing of the chapters of ARR.
The 21 projects are to be undertaken over four years.

Australian Rainfall and Runoff (ARR) is a national guideline document for the estimation of flood flows in Australia. It is produced by Engineers Australia. The current 1987/1999 Edition is now being revised. The current and proposed layouts of ARR are:
1987 Version (2nd edition): 14 chapters in one book
1999 Version (3rd edition): 14 chapters split over 8 books
4th Edition – 2012: 39 Chapters distributed over 9 books.

http://www.ncwe.org.au/arr/index.html

Australian Rainfall and Runoff

4th Edition

Draft Chapters (as at June 2007)

BOOK I - SCOPE AND PHILOSOPHY	1 2 3	INTRODUCTION RANGE OF APPLICATIONS RISK BASED DESIGN
BOOK II - APPROACHES TO FLOW ESTIMATION	1 2 3 4	INTRODUCTION HYDROLOGIC DATA RANGE OF TECHNIQUES SELECTION OF AN APPROACH
BOOK III RAINFALL ESTIMATION	1 2 3 4	INTRODUCTION SYNTHETIC RAINFALL BURSTS SYNTHETIC STORMS CONTINUOUS RAINFALL SEQUENCES
BOOK IV - PEAK FLOW ESTIMATION	1 2 3	INTRODUCTION AT-SITE FLOOD FREQUENCY ANALYSIS REGIONAL METHODS
BOOK V - HYDROGRAPH ESTIMATION	1 2 3 4	INTRODUCTION EVENT BASED MODELS CONTINUOUS RUNOFF ESTIMATION HYDROLOGIC MODELS
BOOK VI - FLOW HYDRAULICS	1 2 3 4 5	INTRODUCTION BASIC ASPECTS OF OPEN CHANNEL HYDRAULICS HYDRAULIC STRUCTURES UNSTEADY FLOW AND NUMERICAL MODELS ISSUES IN APPLICATION OF HYDRAULIC MODELS
BOOK VII – APPLICATION OF CATCHMENT MODELLING SYSTEMS	1 2 3 4	INTRODUCTION CATCHMENT MODELLING PRINCIPLES PARAMETER ESTIMATION TECHNIQUES UNCERTAINTY DETERMINATION
BOOK VIII – LARGE TO EXTREME FLOOD ESTIMATION		
BOOK IX – RUNOFF IN URBAN AREAS	1 2 3 4 5 6 7 8 ?	INTRODUCTION ASPECTS OF URBAN HYDROLOGY URBAN DRAINAGE CONCEPTS ESTIMATION OF STORM FLOWS DRAINAGE SYSTEM HYDRAULICS RUNOFF DETENTION AND RETENTION SAFETY DESIGN CRITERIA URBAN DRAINAGE MODELLING RATIONAL METHOD

Revision Projects

No.	Project Name
1	Development of intensity-frequency-duration information across the country
2	Spatial patterns of rainfall
3	Temporal patterns of rainfall
4	Continuous rainfall sequences at a point
5	Regional flood methods
6	Loss models for catchment simulation
7	Baseflow for catchment simulation
8	Use of continuous simulation for design flow determination
9	Urban drainage system hydraulics
10	Appropriate safety criteria for people
11	Blockage of hydraulic structures
12	Selection of an approach
13	Rational Method developments
14	Large to extreme floods in urban areas
15	Two-dimensional simulation in urban areas
16	Storm patterns for use in design events
17	Channel loss models
18	Interaction of coastal processes and severe weather events
19	Selection of climate change boundary conditions
20	Risk assessment and design life
21	IT Delivery and Communication Strategies

What to do in NZ?

Nothing?
Something?

1) Research current methods in use across NZ, collate
2) Collate relevant standards and (parts of) acts that would be applicable
3) Source applicable (NZ) guidelines and the like that are currently in circulation
4) Liaise with CRI's, consultants and industry (eg power companies)
5) Source other international guidelines that may be relevant and/or are currently used in NZ
6) Look at the tables of contents of relevant documents from other countries – AR&R, FEH, etc. Start with a first cut at what a NZ document should, ideally, contain
7) Cross match the items from 1, 2, 3 and 5 above with 6, and identify areas of overlap and/or conflict, and also identify gaps
8) Report this to the technical community

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