G1: ARTIFICIAL RECHARGE

Groundwater recharge with reclaimed municipal wastewater and waters of impaired quality .......................... 1-5
Asano T

Artificial recharge tests in a sandy aquifer ................................................................. 7-12
Barbieri G & Ghiglieri G

Review of international experience in injecting water into aquifers for storage and reuse ....................... 13-19
Hickinbotham M R, Dillon P J & Pavelic P

Replenishment of an urban dune system by stormwater recharge .............................................. 21-25
Martin R R & Gerges N

Artificial recharge of a limited aquifer: description of the outlet process ..................................... 27-31
Russo-Spena A, Todisco M T, Totani G & Cordeschi M

The artificial recharge of stormwater into a dual porosity aquifer and the fate of selected pollutants ................................................................. 33-38
Telfer A L & Emmett A J

Artificial recharge of urban wastewater, the key component in the development of an industrial town on the arid west coast of South Africa .............................................. 39-41
Wright A & Parsons R

G2: FLOW AND SOLUTE TRANSPORT MODELS

Coupled air-water flow and contaminant transport in the unsaturated zone: a numerical model .............. 45-50
Binning P & Celia M A

Field validation of a water and solute transport model for the unsaturated zone ................................ 51-55
Bond W J, Smith C J & Ross P J

Investigation of irrigation areas: data requirements, calibration techniques and choice of models ...................................................... 57-61
Carr R, Punthakey J & Storm B

First results in identification of aquifer parameters by statistical analysis of water-well data reports ................................................................. 63-68
Cerutti P, Bonomi T, Rotondaro G & Cavellin A

First order methods for estimating uncertainty in groundwater model predictions ................................ 69-74
Connell L

An accurate transient calibration for a detailed 3D model of a highly heterogeneous aquifer ................. 75-80
Dassargues A

Management of a shallow water table aquifer for potable water supply: conceptual and predictive modelling ................................................................. 81-85
Evans S L, Narayan K A & Power N A

Solute movement in unsaturated sand under unstable (finger) flow conditions: tracer results .............. 87-92
Gierke J S, Wojick C L & Hutzler N J

The interaction of groundwater and surface water studied by loosely coupled models ...................... 93-98
Haagsma I J & Johanns R D

Using HST3D to model flow and tracer transport in an unconfined sandy aquifer with large drawdowns ................................................................. 99-104
Laslett D & Davis G B

Estimation of solute transport parameters in heterogen groundwater system of Karstic aquifer using artificial tracer experiments ................................................................. 105-111
Maloszewski P, Benischke R, Harum T & Zojer H

A groundwater flow model of the Botany Basin ........................................................................... 113-118
Merrick N P

Density dependent groundwater flow and solute transport below a saline lake bed ................................ 119-124
Narayan K A & Simmons C T

Modelling of mass transport in heterogeneous porous formations using indicator geostatistics .......... 125-131
Ptak T
G3: MICROBIOLOGY AND HYDROCHEMISTRY

Long term average recharge of a shallow groundwater system in Botswana - a hydrochemical and isotope physical approach ........................................... 157-162
Beekman H E & Selaolo E T
Cluster and discriminant analyses of groundwater hydrochemical data in north-east Bulgaria .......... 163-168
Dimitrov D, Velikov B & Machkova M
Control of iron biofouling in submersible pumps in the Woolpunda salt interception scheme in South Australia ................................................................. 169-174
Forward P
Mean residence times of groundwater in shallow fissured rock aquifers - test site Lindau, Germany ................................................................. 175-181
Himmelsbach T, Hoetzl H, Stichter W, Trimborn P & Rank D
Modelling of redox processes during transport of solutes in pore water and groundwater .......... 183-187
Isenbeck-Schroter M, Kolling M, Schulz H D & Zabel M
The age and origin of fresh groundwater in the south-west Murray Basin ............................. 189-194
Leaney F W, Herczeg A L, Love A J & Robinson M
Isotope geochemistry & TEM to define low salinity lenses, Eyre Peninsula, South Australia .......... 195-201
Love A J, Smith P C, Dodds A R & Dennis K J
Fouling of groundwater injection-recovery systems ............................................................ 203-208
Assessment of naturally occurring radionuclides in groundwater at Katherine, Northern Territory, Australia ................................................................. 209-214
Qureshi H & Noller B N
Hydrogeology of the mineral springs of central Victoria ......................................................... 215-221
Shugg A & Knight M J
Hydrochemistry of a nearshore limestone reservoir ........................................................... 223-227
Tavitian C
Drought-water quality relation of a coastal karstic spring .................................................... 229-232
Tavitian C, Tiniakos L, Papageorgopolous G & Spanos C

G4: URBAN/INDUSTRIAL GROUNDWATER CONTAMINATION & CLEANUP

Improved contamination assessment of a domestic landfill using integrated geophysical, geochemical and hydrogeological methods .............................................. 235-240
Acworth I, Kelly B & Jankowski J
Using numerical models to optimise an extraction well field ............................................. 241-246
Attanayake P M, Feng H T, Lee M C, Stenzel R A & Hankins D A
Evaluation of the relationship between land-use changes and groundwater quality in a water supply catchment using GIS technology: the Gwelup well-field WA .............................................. 247-251
Investigation and prediction of organics contaminated groundwater and its impact on a surrounding environment ......................................................... 253-260
Barker C & Mirkov P
Groundwater contamination by Trichloroethene (TCE) in a residential area of Perth: distribution, mobility and implications for management .......................................................... 261-266
Benker E, Davis G B, Appleyard S, Barry D A & Power T R
Impacts on groundwater resources by urban expansion: the Brisbane case ........................................... 267-270
Cox M & Hillier J
Limitations to in-situ aquifer remediation of organic contaminants .................................................... 271-276
Enfield C G
Removal of pollutant in groundwater by pumping ........................................................................ 277-281
Fujino K
Contaminant Recovery using Artificial Recharge Barriers ................................................................... 283-287
Joseph J B
Urban groundwater issues in the UK ................................................................................................. 289-293
Lerner D N
Identification, weathering and degradation of petroleum hydrocarbons in groundwater ................... 295-301
Neill G, Gilligan M A & Skoric A
The assessment of waste disposal sites based on geohydrological considerations .............................. 303-308
Parsons R P & Jolly J L
Nutrient discharge beneath urban lawns to a sandy aquifer ............................................................... 309-315
Sharma M L, Herne D E & Byrne J D
Landfill co-disposal of liquid and non-putrescible industrial waste Tullamarine: a case example ........ 317-324
Shugg A
Water resource management conflicts in a shallow fractured rock aquifer underlying Auckland City New Zealand ............................................................................................................ 325-328
Smaill A
Hydrogeology and hydraulic field test in Musashino Diluvial Terrace, Japan ....................................... 329-334
Yamada Keiichi & Ishikawa Masahiro

G5: DRYLAND (NON-IRRIGATED) SALINITY

Mapping and monitoring dryland salinity Integration of remote sensing, geophysics and topography ........................................................................................................................................... 337-341
Calvert T & Acworth I
Saline land reclamation - now with confidence .................................................................................. 343-348
Coad A R
Regional salt balances and implications for dryland salinity management ........................................ 349-354
Evans W R
Groundwater systems responsible for dryland salinity in the Lake Towerrinning catchment Western Australia ..................................................................................................................... 355-360
George R J, Cochrane D L & Bennett D L
Economic implications of managing dryland salinisation on a catchment level - a mathematical model approach ....................................................................................................................... 361-365
Greiner R
The hydrogeology and hydrogeochemical processes associated with the occurrences of dryland salinity in the Strontian Road basin NSW ................................................................................ 367-372
Jankowski J, Acworth I & Little W A
Development of saline seeps in southwestern United States ................................................................ 373-378
Johnson K S
Hydrologic assessment of vegetation in catchments affected by dryland salinity in southwestern Australia ........................................................................................................................... 379-384
Mauger G
Enhanced groundwater discharge using low-yielding pumping systems in the Victorian mallee, Australia ........................................................................................................................................... 385-389
McAuley C & Robinson M
Linked enhanced discharge - evaporation disposal systems for the control of dryland salinity .................................................. 391-395
Otto C & Salama R

Integrated groundwater flow and agronomic modelling for improved dryland salinity management .......................................................... 397-402

Catchment hydrogeological characterisation and evaluation: an hierarchical approach ................................................................. 403-408
Salama R B

Will greening the brown land reverse salinity trends and save country towns from drowning .................................................. 409-414
Salama R B, Farrington P & Williamson D R

G6: IMPACT OF AGRICULTURAL PRACTICES ON GROUNDWATER QUALITY

The effect of non-point agricultural pollution sources on unconfined aquifer in Kurpie Sands area, Northern Poland .................................................. 417-422
Baginska B

Groundwater quality in irrigation areas of Australia: interaction of agriculture and hydrogeology ................................................................. 423-428
Bauld J

Source identification of nitrate contamination in shallow groundwater in Nebraska USA .................................................. 429-432
Exner M E

Pesticides in groundwater in the lower Namoi valley, NSW .................................................. 433-437
Jiwan J S & Gates G

Nutrient loss via drainage from the major agricultural industries on the wet tropical coast of Queensland .................................................. 439-443

Agricultural practices and groundwater contamination in the low Andarax Basin (Almeria, Spain) .................................................. 445-449
Pulido-Bosch A, Sanchez Martos F, Navarrete F & Martinez Vidal J L

Nitrogen isotope ratios of natural and anthropogenic nitrate in the subsurface .................................................. 451-457
Rolston D E, Fogg G E, Decker D L & Louie D T

Areal source transport in a karst system .................................................. 459-463
Sauter M

Agricultural management effects on groundwater quality .................................................. 465-468
Spalding R F

G7: RECHARGE AND DISCHARGE ESTIMATION

The time factor in arid-zone groundwater recharge .................................................. 471-478
Jacobson G, Barnes C J, Fifield L K & Cresswell R G

Estimating groundwater recharge rates following clearing of native vegetation: the CARE model .................................................. 479-484
Jayatilaka C J, Lakey R C & Elder G M

The impact of change in agricultural land management on the groundwater and salt balances in a regional groundwater discharge zone .................................................. 485-489
Kennett-Smith A K, Narayan K A & Walker G R

Role of transpiration in the recharge-discharge process of an aquifer system underlying open Eucalypt forest in wet-dry north Australian tropics .................................................. 491-496
Pidsley D, Kerle E, Williams D, Hatton T & Myers B

Groundwater yield from agricultural watershed as influenced by soil and water conservation measures .................................................. 497-499
Rama Mohan Rao M S, Chandrappa M & Adhikari R N

Chloride deposition and recharge rates for shallow groundwater basins in Botswana 501-506
Selaolo E T, Gieske A S M & Beekman H E
Recharge estimations based on transient temperature-depth profiles ........................................ 507-510
Taniguchi M

Groundwater recharge to paleochannel aquifers in the eastern goldfields of WA ................. 511-516
Turner J, Townley L, Rosen M & Milligan N

The Study of Methods for the Estimation of Rainfall Recharge to and Evaporation from shallow Groundwater systems .............................................................. 517-523
Weizhen Zhang, Yufang Zhang & Jinquan Wu

G8: MINING AND GROUNDWATER PROTECTION

Salinisation of mined out pits in Western Australia ................................................................. 527-532
Commander D P, Mills C H & Waterhouse J D

The development of monitoring systems and response plans for mine tailings storages in Western Australia ................................................................. 533-538
Cooper D E H & Waterhouse J D

Evaluation of the potential of artificial soil covers to reduce infiltration ................................ 539-544
Crees M R, Smettem K & Orr M

Pyrite weathering in coal mine tailings ............................................................................... 545-550
Kolling M & Schuring J

An environmental hydrogeological study near Mt Bruce, Pilbara region of Western Australia 551-556
Waterhouse J D & Howe P J

Water management - Mae Moh mine ...................................................................................... 557-561
Weeks W D & Somacha P

Multi-element scanning of groundwater for environment monitoring associated with mining 563-569
Woods P H, Noller B N & Milne F J

Hydrogeological investigation for the Jemalong and Wyldes Plains irrigation districts’ land and water management plan for the sustainability of agriculture ................................................. 571-576
Anderson J & Gates G W B

G9: SUSTAINABLE IRRIGATION WITH GROUNDWATER

Irrigation and global water outlook .......................................................................................... 579-588
Bouwer H

Estimating groundwater leakage rates for input into land and water management plans ........ 589-594
Brodie R

Use of large diameter wells (agrowells) for supplementary irrigation in the dryzone of Sri Lanka 595-599
De Silva C S & Weatherhead K

Management of a coastal aquifer with the threat of saltwater intrusion, Bundaberg Queensland 601-606
Dempster D

Wetetable rise and the expansion of land and water resources salinisation: a global view ...... 607-610
Ghassemi F, Jakeman A J & Nix H A

The character of the groundwater resource of the Rochedale basin, Brisbane ....................... 611-616
McGarry-Heaton P & Cox M E

Groundwater considerations for transferable water rights along the Murray in SA .......... 617-620
Newman R J, Smith K G A & Watkins N

The role of groundwater pumping in reclaiming farming land in the Goulburn Valley, Victoria 621-626
Norman C P

Management of a Shallow Aquifer System in New Zealand - The Motueka-Riwaka Plains Case Study .............................................................. 627-633
Thomas J T

The Use of Groundwater Pumping to Increase Agricultural Production and Reduce Land Degradation on the Huand-Huai-Hai Plain, China .......................................................... 635-637
Zhirong Xu
Application of a water balance model to optimization of aquifer withdrawal ........................................ 641-644
Airila J, Granlund K & Ronka E

Velocity scaling of nonequilibrium solute transport in heterogeneous soils: numerical and experimental results .......................................................... 645-648
Barry D A, Bajracharya K & Li L

Categorisation of aquifers being pumped to control salinity through conjunctive water use .................... 649-652
Bethune MG & Prendergast JB

Causes and chemistry of dryland salinity in granitic terrain, Gayndah, SE QLD ...................................... 653-656
Douglas BR & Cox ME

Chemical composition of groundwater in the Estonian oil shale basin .............................................. 657-659
Erg K

Groundwater contamination in a basalt aquifer - transport and attenuation of pollutants ....................... 661-667
Finegan JM

Concepts for a hydraulic aquifer clean-up beneath a landfill ................................................................. 669-672
Forkel C, Eiken G, Rouve G & Birkholzer J

Identification and development of sandplain seeps as water supplies in the wheatbelt of Western Australia ........................................................................... 673-676
Horwood W

The fractal nature of porosity in porous media .......................................................................................... 677-678
Hu Zunguo

Fresh water hazards and their management along the coastal areas of the gulf of Cambay ....................... 679-682
Islam Md Badrul

Groundwater level forecasting of Upper Vellar Basin, South India ......................................................... 683-686
Jayakumar R

Salt balances in a semi-arid floodplain and consequences for riparian vegetation health ...................... 687-690
Jolly I, Walker G & Thorburn P

Modelling of groundwater quantity and quality in Jiamusi City, China .............................................. 691-694
Kerang Sun, Xueyu Zhu & Shaohui Xu

Effect of rock type on groundwater chemistry in an area of dryland salinity, Rockhampton, Queensland ................................................................................. 695-698
Lane JL & Cox ME

Influence of the waste water irrigation on the shallow groundwater quality in Zhenzhou City Li Guanghe, Liu Xiang & Zhu Kun

Remediation of groundwater pollution by petrochemical compounds ................................................. 703-706
Liu Zhaochang, Li Guanghe, Liu Xiang & Zhu Kun

Anthropogenic effects on shallow groundwaters in the Munsterland Region FRG ................................. 707-709
Loehnert EP

Measurement of irrigation channel seepage in Northern Victoria .......................................................... 711-714
McLeod AJ, Earl GC, McMahon TA & Moore PJ

Reducing groundwater recharge on the Aeolian soils of the Murray Geological Basin, NSW, Australia ........................................................................................................... 715-718
Murphy S & Vai J

Hydrochemical study on forested land adjacent to farm land on the Tsukuba upland, Japan ..................... 719-722
Onodera S, Kato M & Kobayashi M

Shallow groundwater in Sweden - a vulnerable resource ...................................................................... 723-726
Pousette J

The influence of agricultural activities in the Polje of Zafarraya on the water quality of the Karstic aquifer of the Sierra Gorda (Southern Spain) ........................................... 727-730
Pulido-Bosch A, Lopez Chicano M, Morell I, Castillo A, Gamez Conde A & Cherif L
Removal of hydrocarbons from a shallow aquifer - a case study ......................................................... 731-734
Purtill J & Douglas B R

Analytical solutions for seepage face lengths and contaminant advection in layered hillslopes ............... 735-738
Read W W & Volker R E

Contamination of drinking wells in tobacco areas of Kelantan, Malaysia .............................................. 739-741

Contamination of shallow and deeper aquifer system by industrial wastewater in Ludhiana area, Punjab State, India ..................................................................................................................... 743-744
Singh K P

Dryland salinity hazard mapping - Northern Territory .................................................................................. 745-748
Tickell S J

A simple model of changes in soil surface moisture for use with Richard's equation .................................... 749-753
Totoev Y Z & Kleeman P W

Simulation of variable density flow and contaminant transport in two and three dimensions
Turner J R, Volker R E, Demetriou C & Johnston A J

Thermal transport in aquifer - a non-linear three dimensional model and its applications .......................... 759-762
Zhihui Zhang, Yuqun Xue, Chunhong Xie & Jichun Wu