

References Part D

- Abdul Rahim N (1988) Water yield changes after forest conversion to agricultural land use in Peninsular Malaysia. *J Trop Forest Sci* 1:67–82
- Abdul Rahim N (1992) Impact of forest conversion on water yield in Peninsular Malaysia. *Malays For* 50(3):258–273
- Acocks JPH (1988) Veld types of South Africa. Botanical Research Institute, Pretoria, South Africa. *Mem Bot Surv S Afr* 57, 146 p
- Acreman MC (ed)(2000) *The hydrology of the UK*. Routledge, London, 303 p
- Acreman MC, Adams B (1998) Low flows, groundwater and wetlands interactions – a scoping study, Part 1. Report to Environment Agency (W6–013), UKWIR (98/WR/09/1) and NERC (BGS WD/98/11), 97 p
- Acreman MC, José P (2000) Wetlands. In: Acreman MC (ed) *The hydrology of the UK*. Routledge, London, pp 204–224
- Acreman MC, Barbier EG, Birley MH, Campbell K, Farquharson FAK, Hodgson N, Lazenby J, McCartney MP, Morton J, Smith D, Sullivan CA (1999) Managed flood releases from dams – a review of current problems and future prospects. Institute of Hydrology, Wallingford, UK, Report to DFID-Project R7344, 57 p
- Acreman MC, Farquharson FAK, McCartney MP, Sullivan CA, Campbell K, Hodgson N, Morton J, Smith D, Birley MH, Knott D, Lazenby J, Wingfield R, Barbier EG (2000) Managed flood releases from reservoirs: issues and guidance. Centre for Ecology and Hydrology, Wallingford, UK, Report to DFID and World Commission on Dams, 88 p
- Adewale A (2001) River channel dynamics in response to climatic variations in the Sudano-Sahelian zone (SSZ). In: IGBP, IHDP, WCRP (eds) *Challenges of a changing Earth*. Global Change Open Science Conference, Poster P.3.o.021, Amsterdam
- Ahnert F (1970) Functional relationships between denudation, relief and uplift in large mid latitude drainage basins. *Am J Sci* 268:243–263
- Aitkenhead JA, McDowell WH (2000) Soil C:N ratio as a predictor of annual riverine DOC flux at local and global scales. *Global Biogeochem Cy* 14:127–138
- Albergel J (1987) *Genèse et prédétermination des crues au Burkina Faso. Du m² au km²: étude des paramètres hydrologiques et de leur évolution*. PhD, University of Paris
- Alexander RB, Murdoch PS, Smith RA (1996) Streamflow-induced variations in nitrate flux in tributaries to the Atlantic coastal zone. *Biogeochemistry* 33:149–177
- Alexander RB, Smith RA, Schwarz GE (2000) Effect of stream channel size on the delivery of nitrogen to the Gulf of Mexico. *Nature* 403:758–761
- Alfonso S, Grousset F, Masse L, Tastet J-P (2001) A European lead isotope signal recorded from 6 000 to 3 000 years B.P. in coastal marshes (SW France). *Atmos Environ* 35(21):3595–3605
- Amarasekera KN, Lee RF, William ER, Eltahir EAB (1997) ENSO and the natural variability in the flow of tropical rivers. *J Hydrol* 200:24–39
- Amiotte-Suchet P, Probst JL (1995) A global model for present-day atmospheric/soil CO₂ consumption by chemical erosion of continental rocks (GEM-CO₂). *Tellus* 47B:273–280
- Amon RMW, Benner R (1996) Bacterial utilization of different size classes of dissolved organic matter. *Limnol Oceanogr* 41:41–51
- Anderson MG, Burt TP (1990) Subsurface runoff. In: Anderson MG, Burt TP (eds) *Process studies in hillslope hydrology*. John Wiley & Sons, New York, pp 365–400
- Anderson SP, Dietrich WE, Montgomery DR, Torres R, Loague K (1997) Subsurface flow paths in a steep, unchanneled catchment. *Water Resour Res* 33(12):2637–2653
- Andrews JA, Schlesinger WH (2001) Soil CO₂ dynamics, acidification and chemical weathering in a temperate forest with experimental CO₂ enrichment. *Global Biogeochem Cy* 15:149–162
- Araújo-Lima CARM, Forsberg BR, Victoria R, Martinelli L (1986) Energy sources for detritivorous fishes in the Amazon. *Science* 234:1256–1258
- Arheimer B, Wittgren HB (1994) Modelling the effects of wetlands on regional nitrogen transport. *Ambio* 23:378–386
- Arnell NW (1999) The effect of climate change on hydrological regimes in Europe: a continental perspective. *Global Environ Chang* 9:5–23
- Arnell NW, C Liu (eds)(2001) *Hydrology and water resources*. In: McCarthy JJ, Canziani OF, Leary NA, Dokken DJ, White KS (eds) *Climate change 2001: impacts, adaptation, and vulnerability*. Cambridge University Press, Cambridge
- Artemyev VR (1996) *Geochemistry of organic matter in river-sea systems*. Kluwer Academic Publishers, Dordrecht, 190 p
- Ashton P (2000) *Integrated catchment management: balancing resource utilisation and conservation*. CSIR, Pretoria, RSA, Aquatic Biomonitoring Course Notes, 11 p
- Aumont O, Orr JC, Monfray P, Ludwig W, Amiotte-Suchet P, Probst JL (2001) Riverine-driven interhemispheric transport of carbon. *Global Biogeochem Cy* 15:393–405
- Avisar R, Liu Y (1996) A three-dimensional numerical study of shallow convective clouds and precipitation induced by land-surface forcing. *J Geophys Res* 101:7499–7518
- Bach M, Behrendt H, Huber A, Freude H-G (1999) Input paths and water load of nutrients and plant protection products in Germany. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belser, Lelystad, Netherlands, pp 71–82
- Baker VR, Benito G, Rudoy A (1993) Paleohydrology of late Pleistocene superflooding. *Altay mountains*. *Science* 259: 348–350
- Banasik K (1989) Estimation of the effect of land-use changes on storm-event sediment yield from a small watershed. In: *Sediment transport modeling*. American Society of Civil Engineers, New York; USA, pp 741–746
- Bartlett KB, Crill PM, Banasi JA, Richey JE, Harriss RC (1990) Methane flux from the Amazon River floodplain: emissions during rising water. *J Geophys Res* 95:16733–16738
- Bazemore DE, Eshleman KN, Hollenbeck KJ (1994) The role of soil water in stormflow generation in a forested headwater catchment: synthesis of natural tracer and hydrometric evidence. *J Hydrol* 162:47–75
- Bear J (1979) *Hydraulics of groundwater*. McGraw-Hill, New York
- Becker A (1989) Specific aspects of runoff formation. In: *Proc. Int. Symp. on Headwater Control (Prague, November 1989)*, Vol. I. Prague University, Prague
- Becker A (1995) Problems and progress in macroscale hydrological modelling. In: Feddes (ed) *Space and time scale variability and interdependencies in hydrological processes*. Internat. Hydrology Series, Cambridge University Press, pp 1351–1443
- Becker A, Braun P (1999) Disaggregation, aggregation and spatial scaling in hydrological modelling. *J Hydrol* 217:239–252

- Becker A, McDonnell J (1998) Topographical and ecological controls of runoff generation and lateral flows in mountain catchments. In: Kovar K, Tappeiner U, Peters NE, Craig RG (eds) *Hydrology, water resources and ecology in headwaters*. Proc. HeadWater '98 Conf., Merano, April 1998, IAHS Publ. No. 248, pp 199–206
- Becker A, Pfützner B (1986) Identification and modeling of river flow reductions caused by evapotranspiration losses from shallow groundwater areas. Proc. of the Budapest Symp., July 1986. IAHS Publ. No. 156
- Becker A, Güntner A, Katzenmaier D (1999a) Required integrated approach to understand runoff generation and flow-path dynamics in catchments. In: Leibundgut C, McDonnell J, Schultz G (eds) *Integrated methods in catchment hydrology*. Proc. Int. Symp. at Birmingham, UK, July 1999, IAHS Publ. No. 258, pp 3–9
- Becker A, Wenzel F, Krysanova V, Lahmer W (1999b) Regional analysis of global change impacts: concepts, tools and first results. *Environ Model Assess* 4(4):243–257
- Becker A, Klöcking B, Lahmer W, Pfützner B (2002) The hydrological modelling system ARC/EGMO. In: Singh VP, Frevert DK (eds) *Mathematical models of large watershed hydrology*. Water Resources Publications, Colorado/USA
- Behrendt H, Huber P, Ley M, Opitz D, Schmolli O, Scholz G, Uebe R (1999) Nährstoffbilanzierung der Flussgebiete Deutschlands. Institute for Freshwater Ecology and Inland Fisheries, Berlin, Germany, Report, 288 p
- Belmans C, Wesseling JG, Feddes RA (1983) Simulation model of the water balance of a cropped soil: SWATRE. *J Hydrol* 63(3/4): 271–286
- Bencala KE (2000) Hyporheic zone hydrological processes. *Hydrol Process* 14:2797–2798
- Benito G, Baker VR, Gregory KJ (eds) (1998) *Paleohydrology and environmental change*. John Wiley & Sons, Chichester, pp 215–264
- Benner R, Osphal S, Chin-Leo G, Richey JE, Forsberg BR (1995) Bacterial carbon metabolism in the Amazon River system. *Limnol Oceanogr* 40:1252–1270
- Beven KJ (1996) A discussion of distributed hydrological modeling. In: Abbott MB, Refsgaard JCH (eds) *Distributed hydrological modelling*. Kluwer Academic Publishers, Dordrecht Boston London, pp 255–278
- Beven K (2001) How far can we go in distributed hydrological modelling? *Hydrol Earth Syst Sc* 5:1–12
- Beven K, Freer J (2001) A dynamic TOPMODEL. *Hydrol Process* 15: 1993–2011
- Beven KJ, Germann PF (1982) Macropores and water flow in soils. *Water Resour Res* 18:1311–1325
- Beven K, Lamb R, Quinn P, Romanowicz R, Freer J (1995) TOPMODEL. In: Singh VP (ed) *Computer models of watershed hydrology*. Water Resources Publications, Boulder, USA, pp 627–668
- Bichet V, Campy M, Buonchristiani JF, Digiovanni C, Meybeck M, Richard H (1998) Variations in sediment yield from the upper Doubs River (Jura, France) since the late glacial period. *Quaternary Res* 51:267–279
- Billen G, Garnier J (1999) Nitrogen transfers through the Seine drainage network: a budget based on the application of the “River-strahler” model. *Hydrobiologia* 410:139–150
- Birkett CM (1995) The contribution of TOPEX/POSEIDON to the global monitoring of climatically sensitive lakes. *J Geophys Res-Oceans* 100(C12):25179–25204
- Birkett CM (1998) The contribution of the TOPEX (NRA) radar altimeter to the global monitoring of large rivers and wetlands. *Water Resour Res* 34:1223–1239
- Birkett CM, Murtugudde R, Allan T (1999) Indian Ocean climate event brings floods to East Africa's lakes and the Sudd Marsh. *Geophys Res Lett* 26(8):1031–1034
- Birkhead AL, James CS, Olbrich BW (1996) Developing an integrated approach to predicting the water use of riparian vegetation. Water Research Commission, Pretoria, RSA. Report No. 474/1/97
- Blais JM, France RL, Kimpe LE, Cornett RJ (1998) Climatic changes in northwestern Ontario have had a greater effect on erosion and sediment accumulation than logging and fire: evidence from ²¹⁰Pb chronology in lake sediments. *Biogeochemistry* 43:235–252
- Bluth GJS, Kump LR (1994) Lithologic and climatologic controls of river chemistry. *Geochim Cosmochim Acta* 58:2341–2359
- BMLF (Bundesministerium für Land und Forstwirtschaft) (1996) *Gewässerschutzbericht*
- Boardman J, Ligneau L, de Roo A, Vandaele K (1994) Flooding of property by runoff from agricultural land in northwestern Europe. *Geomorphology* 10:183–196
- Bonell M (1998a) Selected challenges in runoff generation research in forests from the hillslope to headwater drainage basin scale. *J Am Water Resour As* 34(4):765–785
- Bonell M (1998b) Possible impacts of climate variability and change on tropical forest hydrology. *Climatic Change* 39(2–3): 215–272
- Bonell M, Williams J (1986a) The two parameters of the Philip infiltration equation: their properties and the spatial and temporal heterogeneity in a red earth of tropical semiarid Queensland. *J Hydrol* 87:9–31
- Bonell M, Williams J (1986b) The generation and redistribution of overland flow in a massive oxic soil in a eucalypt woodland within the semiarid tropics in north Australia. *Hydrol Process* 1:31–46
- Bonell M, Barnes CJ, Grant CR, Howard A, Burns J (1998) High rainfall response-dominated catchments: a comparative study of experiments in tropical north-east Queensland with temperate New Zealand. In: Kendall C, McDonnell JJ (eds) *Isotope tracers in catchment hydrology*. Elsevier, pp 347–390
- Boorman DB, Sefton CEM (1997) Recognising the uncertainty in the quantification of the effects of climate change on hydrological response. *Climatic Change* 35:415–434
- Bosch JH, Hewlett JD (1982) A review of catchment experiments to determine the effect of vegetation changes on water yield and evapotranspiration. *J Hydrol* 55:3–23
- Bouwer H (1966) Rapid field measurements of air entry value and hydraulic conductivity of soils as significant parameters in flow system analysis. *Water Resour Res* 2:729–738
- Breen CM, Akhurst EGJ, Walmsley RD (1985) *Water quality management in the Umgeni catchment*. Natal Town and Regional Planning Commission, Pietermaritzburg, South Africa. Supplementary Report 12
- Bricker SB, Clement CG, Pirhalla DE, Orlando SP, Farrow DRG (1999) National estuarine eutrophication assessment: effects of nutrient enrichment in the nation's estuaries. National Oceanic and Atmospheric Administration
- Brierley GJ, Murn CP (1997) European impacts on downstream sediment transfer and bank erosion in Cobargo catchment\New South Wales, Australia. *Catena* 31:119–136
- Broecker WS, Sanyal A (1998) Does atmospheric CO₂ police the rate of chemical weathering? *Global Biogeochem Cy* 12:403–408
- Bronstert A (1999) Capabilities and limitations of detailed hillslope hydrological modelling. *Hydrol Process* 13:21–48
- Bronswijk JJB, Hamminga W, Oostindie K (1995) Field-scale solute transport in a heavy clay soil. *Water Resour Res* 31:517–526
- Brooks A (1987) River channel adjustments downstream of channelisation works in England and Wales. *Earth Surf Proc Land* 12:337–351
- Brooks A, Shields FF (1996) *River channel restoration: guiding principles for sustainable projects*. John Wiley & Sons, Chichester
- Brown VA, McDonnell JJ, Burns DA, Kendall C (1999) The role of event water, rapid shallow flowpaths and catchment size in summer stormflow. *J Hydrol* 217L:171–190
- Bunyard P (1987) Dam building in the tropics: some environmental and social consequences. In: Dickinson RE (ed) *The geophysiology of Amazonia*. John Wiley & Sons, Chichester, pp 63–68
- Burns D, Hooper RP, McDonnell JJ, Freer J, Kendall C, Beven K (1998) Base cation concentrations in subsurface flow from a forested hillslope: the role of flushing frequency. *Water Resour Res* 34: 3535–3544
- Buttle J (1998) Fundamentals of watershed hydrology. In: Kendall C, McDonnell JJ (eds) *Isotope tracers in catchment hydrology*. Elsevier Science Publishers, p 816
- Buttle J, Turcotte D (1999) Runoff processes on a forested slope on the Canadian shield. *Nord Hydrol* 30:1–20
- Calder IR (1999) *The blue revolution: land use and integrated water resources management*. Earthscan, London, UK, 192 p

- Canadell J, Jackson RB, Ehleringer JR, Mooney HA, Sala OE, Schulze ED (1996) Maximum rooting depth for vegetation types at the global scale. *Oecologia* 108:583–595
- Caraco NF (1994) Influence of humans on P transfers to aquatic systems: a regional scale study using large rivers. In: Tiessen H (ed) Phosphorus cycles in terrestrial and aquatic ecosystems. SCOPE. John Wiley & Sons, Chichester
- Caraco NF, Cole JJ (1999) Human impact on nitrate export: an analysis using world major rivers. *Ambio* 28:167–170
- Carpenter SR, Caraco NF, Correll DL, Howarth RW, Sharpley AN, Smith VH (1998) Non-point pollution of surface waters with phosphorus and nitrogen. *Ecol Appl* 8:559–568
- Carvalho NO, Baptista da Cunha S (1998) Estimativa da carga sólida do Rio Amazonas e seus principais tributários para a foz e oceano: uma retrospectiva. *A Água em Revista* 6(10):44–58
- Casenave A, Valentin C (1992) A runoff capability classification system based on surface features criteria in semi-arid areas of West Africa. *J Hydrol* 130:231–249
- Cerda A (1997) Soil erosion after land abandonment in a semiarid environment of southeastern Spain. *Arid Soil Res Rehab* 11:163–176
- Cerda A (1998) Soil aggregate stability under different Mediterranean vegetation types. *Catena* 32:73–86
- Changnon SA, Demissie M (1996) Detection of changes in streamflow and floods resulting from climate fluctuations and land use-drainage changes. *Climatic Change* 32:411–421
- Chappell NA, Franks SW, Larenus J (1998) Multi-scale permeability estimation for tropical catchment. *Hydrol Process* 12:1507–1523
- Chase TN, Pielke RA, Kittel TGF, Nemani RR, Running SW (1996) Sensitivity of a general circulation model to global changes in leaf area index. *J Geophys Res* 101(D3):7393–7408
- Chase TN, Pielke RA, Kittel TGF, Nemani RR, Running SW (2000) Simulated impacts of historical land-cover changes on global climate in northern winter. *Clim Dynam* 16:93–105
- Chen C-TA (2002) The impact of dams on fisheries: case of the Three Gorges Dam. In: Steffen W, Jäger J, Carson DC, Bradshaw C: Challenges of a changing Earth. Springer, Berlin, pp 97–99
- Chiew FHS, Whetton PH, McMahon TA, Pittock AB (1995) Simulation of the impacts of climate change on runoff and soil moisture in Australian catchments. *J Hydrol* 167:121–147
- Church TM (1996) An underground route for the water cycle. *Nature* 380:579–580
- Cirimo C, McDonnell JJ (1997) Hydrological controls of nitrogen biogeochemistry and transport in wetland/near-stream zones of forested watersheds. *J Hydrol* 199:88–120
- Clair TA, Ehrman JM, Higuchi K (1999) Changes in freshwater carbon exports from Canadian terrestrial basins to lakes and estuaries under a $2 \times \text{CO}_2$ atmospheric scenario. *Global Biogeochem Cy* 13:1091–1097
- Claussen M, Gayler V (1997) The greening of Sahara during the mid-Holocene: results of an interactive atmosphere-biome model. *Global Ecol Biogeogr* 6:369–377
- Clothier BE (2002) Rapid and far-reaching transport through structured soils. *Hydrol Process* 16(6):1321–1323
- Cluis D (1998) Analysis of long runoff series of selected rivers of the Asia-Pacific region in relation with climate change and El Niño effects, GRDC-Report No. 21, WMO-Global Runoff Data Center, Koblenz, Germany, 58 p
- Coe MT (1998) A linked global model of terrestrial hydrologic processes: simulation of rivers, lakes, and wetlands. *J Geophys Res* 103(D8):8885–8899
- Cole JJ, Peierls BL, Caraco NF, Pace ML (1993) Human influence on river nitrogen. In: McDonnell M, Pickett S (eds) Humans as components of ecosystems: the ecology of subtle human effects and populated areas. Springer-Verlag, Berlin, pp 141–157
- Costa MH, Foley J, J (1997) Water balance of the Amazon basin: dependence on vegetation cover and canopy conductance. *J Geophys Res* 102:23973–23989
- Costa MH, Foley JA (2000) Combined effects of deforestation and doubled atmospheric CO_2 concentrations on the climate of Amazonia. *J Climate* 13:35–58
- Covich AP (1993) Water and ecosystems. In: Gleick PH (ed) *Water in crisis: a guide to the world's fresh water resources*. Oxford University Press, Oxford, pp 40–55
- Creed IF, Band LE, Foster NW, Morrison IK, Nicolson JA, Semkin RS, Jeffries DS (1996) Regulation of nitrate-N release from temperate forests: a test of the N flushing hypothesis. *Water Resour Res* 32:3337–3354
- Crutzen PJ, Stoermer EF (2000) The anthropocene. *IGBP Newsletter* 41:17–18
- Dawdy DR (1991) Problems of runoff modeling which are particular to the area or climate being modeled. In: Bowles DS, O'Connell PE (eds) Recent advances in the modeling of hydrologic systems. Kluwer Academic Publishers, Dordrecht, pp 541–547
- Dawson TE (1996) Determining water use by trees and forests from isotopic, energy balance, and transpiration analyses: the role of tree size and hydraulic lift. *Tree Physiol* 16:263–272
- Dearing JA, Alstrom K, Bergman A, Regnell J, Sandgreen P (1990) Recent and long-term records of soil erosion from southern Sweden. In: Boardman J, Foster IDL, Dearing JA (eds) Soil erosion on agricultural land. John Wiley & Sons, Chichester, pp 173–191
- Degens ET, Kempe S, Richey JE (eds) (1991) Biogeochemistry of major world rivers. John Wiley & Sons, New York, 356 p
- Depetris PJ, Kempe S, Latif M, Mook WG (1996) ENSO-controlled flooding of the Parana River (1904–1991) *Naturwissenschaften* 83:127–129
- De Rosnay P, Polcher J (1998) Modelling root water uptake in a complex land surface scheme coupled to a GCM. *Hydrol Earth Syst Sc* 2:239–255
- De Rosnay P, Bruen M, Polcher J (2000) Sensitivity of surface fluxes to the number of layers in the soil model used in GCMs. *Geophys Res Lett* 27(20):3329–3332
- Desborough CE (1997) The impact of root-weighting on the response of transpiration to moisture stress in land surface schemes. *Mon Weather Rev* 125:1920–1930
- Devol AH, Hedges JI (2001) The biogeochemistry of the Amazon River mainstem. In: McClain ME, Victoria RL, Richey JE (eds) *The biogeochemistry of the Amazon Basin*. Oxford University Press, New York, 365 p
- Devol AH, Richey JE, Forsberg BR, Martinelli LA (1990) Seasonal dynamics in methane emissions from the Amazon River floodplain to the troposphere. *J Geophys Res* 95D:16417–16426
- Devol AH, Forsberg BR, Richey JE, Pimentel TP (1995) Seasonal variation in chemical distributions in the Amazon (Solimões) River: a multiyear time series. *Global Biogeochem Cy* 9:307–328
- Dickinson RE, Henderson-Sellers A (1988) Modeling tropical deforestation: a study of GCM land-surface parameterizations. *Q J Roy Meteor Soc* 114:439–462
- Dickinson RE, Henderson-Sellers A, Kennedy PJ (1993) Biosphere-Atmosphere Transfer Scheme (BATS) version 1E as coupled to the NCAR community climate model. *Tech. Note NCAR/TN-387+STR*, 72 p
- DiGiovanni C, Disnar JR, Macaire JJ (2001) Initial estimations of the annual organic productions of carbonated rocks. *Eur. Union Geosci. Conf. Abst. J. Conf. Abstracts* 4,1,187
- Dillon PJ, Kirchner WB (1975) The effects of geology and land use on the export of phosphorus from watersheds. *Water Res* 9:135–148
- Dingman SL (1981) Planning level estimates of the value of reservoirs for water supply and flow augmentation in New Hampshire. *Water Resour Bull* 17:684–690
- Dingman SL (2001) *Physical hydrology*, 2nd edn. Englewood Cliffs (NJ), Prentice-Hall
- Dirmeyer PA, Zeng FJ (1997) A two-dimensional implementation of the Simple Biosphere (SiB) model. *COLA Report* 48, Center for Ocean-Land-Atmosphere Studies, Calverton, MD, USA, 30 p
- Dirmeyer PA, Zeng FJ, Ducharne A, Morrill JC, Koster RD (2000) The sensitivity of surface fluxes to soil water content in three land surface schemes. *J Hydrometeorol* 1(2):121–134
- DOE-UK (1993) Countryside survey, 1990 summary report. Department of the Environment, HMSO, London, UK
- Donkin AD, Smithers JC, Lorentz SA, Lorentz RE (1995) Direct estimation of total evaporation from a southern African wetland. In: Campbell KL (ed) *Versatility of wetlands in the agricultural landscape*. American Society of Agricultural Engineers, St Joseph MI, USA, pp 501–513
- Douglas I (1967) Man, vegetation and the sediment yield of rivers. *Nature* 215:925–928

- Douglas I (1994) Human settlements. In: Meyer WB, Turner BL (eds) *Changes in land use and land cover*. Cambridge University Press, Cambridge, pp 149–170
- Douglas EM, Vogel RM, Kroll CN (2000) Trends in floods and low flows in the US: impact of spatial correlation. *J Hydrol* 240: 90–105
- Ducharne A, Koster RD, Suarez MJ, Stieglitz M, Kumar P (2000) A catchment-based approach to modeling land surface processes in a general circulation model. 2: Parameter estimation and model demonstration. *J Geophys Res* 105:24823–24838
- Dunne T, Black RD (1970) Partial area contributions to storm runoff in a small New England watershed. *Water Resour Res* 6(5): 1296–1311.
- Dunne KA, Willmott CJ (1996) Global distribution of plant-extractable water capacity of soil. *Int J Climatol* 16:841–859
- Dunne T, Mertes LAK, Meade RH, Richey JE, Forsberg BR (1998) Exchanges of sediment between the floodplain and channel of the Amazon River in Brazil. *Geol Soc Am Bull* 110:450–467
- Durand P, Robson A, Neal C (1992) Modelling the hydrology of submediterranean montane catchments. *J Hydrol* 139:1–14
- DVWK (Deutscher Verband für Wasserwirtschaft und Kulturbau e.V.) (1985) *Bodennutzung und Nitrataustrag – Literaturauswertung über die Situation bis 1984 in der Bundesrepublik Deutschland*. Bonn
- DWAF (Department of Water Affairs and Forestry) (1996) *The philosophy and practice of integrated catchment management: implications for water resource management in South Africa*. Water Research Commission, Pretoria, RSA, WRC Report, TT81/96, 140 p
- DWAF (Department of Water Affairs and Forestry) (1998) *Water law implementation process: a strategic plan for the department of water affairs and forestry to facilitate in the implementation of catchment management in South Africa*. Water Research Commission, Pretoria, RSA, WRC Report, KV107/98, 66 p
- Dyck S, Peschke G (1995) *Grundlagen der Hydrologie*. VEB Verlag für Bauwesen, Berlin
- Dye PJ, Bosch JM (2000) Sustained water yield in afforested catchments – the South African experience. In: Von Gadow K, Putkala T, Tomé M (eds) *Sustainable forest management*. Kluwer Academic Publishers, Dordrecht, pp 99–120
- Dynesium M, Nilsson C (1994) Fragmentation and flow regulation of river systems in the northern third of the world. *Science* 266: 753–762
- Easmus D (1991) The interaction of rising CO₂ and temperatures with water use efficiency: commissioned review. *Plant Cell Environ*, special issue: Elevated CO₂ levels, 14(8):843–852
- Easterling DR, Evans JL, Groisman PY, Karl TR, Kunkel KE, Ambenje P (2000) Observed variability and trends in extreme climate events: a brief overview. *B Am Meteorol Soc* 81(3): 417–425
- Eheart JW, Tornil DW (1999) Low-flow frequency exacerbation by irrigation withdrawals in the agricultural midwest under various climate change scenarios. *Water Resour Res* 35(7):2237–2246
- Ehlers E, Krafft T (eds) (2001) *Understanding the Earth system. Compartments, processes interactions*. Springer-Verlag, Heidelberg, 290 p
- English Nature (1997) *Wildlife and fresh water – An agenda for sustainable management*. English Nature, Peterborough, UK
- Environment Agency (1998) *River habitat quality: the physical character of rivers and streams in the UK and the Isle of Man*. Environment Agency, Bristol, UK
- Ertel JR, Hedges JI, Devol AH, Richey JE, Ribeiro N (1986) Dissolved humic substances of the Amazon River system. *Limnol Oceanogr* 31:739–754
- Fahey BD, Watson AJ (1991) Hydrological impacts of converting tussock grassland to pine plantation, Otago, New Zealand. *J Hydrol New-Zealand* 30:1–15
- Falkenmark M (1997) Society's interaction with the water cycle: a conceptual framework for a more holistic approach. *Hydrolog Sci J* 42:451–466
- Falkenmark M, Chapman T (1989) *Comparative hydrology*. UNESCO, Paris, France, 479 p
- Falkenmark M, Andersson L, Carstenson R, Sundblad K (1999) *Water: a reflection of land use*. Swedish Natural Science Research Council, Stockholm, Sweden, 128 p
- FAO (1999) *State of the world's forests*. UN Food and Agriculture Organization, Rome
- Farrington J, Lobo C (1997) *Scaling up participatory watershed development in India: lessons from the Indo-German Watershed Development Programme*. Overseas Development Institute, London, UK. *Natural Resource Perspectives* 17
- Favis-Mortlock D, Boardman J (1995) Nonlinear responses of soil erosion to climate change: a modelling study on the UK South Downs. *Catena* 25:365–387
- Feddes RA, Kowalik PJ, Zaradny H (1978) *Simulation of field water use and crop yield*. Simulation Monographs, Pudoc, Wageningen, 189 p
- Feddes RA, Menenti M, Kabat P, Bastiaanssen WGM (1993a) Is large-scale inverse modelling of unsaturated flow with areal average evaporation and surface soil moisture as estimated from remote sensing feasible? *J Hydrol* 143:125–152
- Feddes RA, de Rooij GH, van Dam JC, Kabat P, Droogers P, Stricker JNM (1993b) Estimation of regional effective soil hydraulic parameters by inverse modelling. In: Russo D, Dagan G (eds) *Water flow and solute transport in soils*. Adv. Series in Agric. Sciences 20, Springer Verlag, Berlin, pp 211–231
- Feddes RA, Hoff H, Bruen M, Dawson TE, de Rosnay P, Dirmeyer P, Jackson RB, Kabat P, Kleidon A, Lilly A, Pitman AJ (2001) Modelling root water uptake in hydrological and climate models. *B Am Meteorol Soc* 82:2797–2809
- Federer CA, Vörösmarty CJ, Fekete B (1996) Intercomparison of methods for potential evapotranspiration in regional or global water balance models. *Water Resour Res* 32:2315–2321
- Fekete BM, Vörösmarty CJ, Grabs W (1999) Global, composite runoff fields based on observed river discharge and simulated water balances. WMO-Global Runoff Data Center Report No. 22. Koblenz, Germany
- Fekete BM, Vörösmarty CJ, Lammers RB (2001) Scaling gridded river networks for macroscale hydrology: development, analysis, and control of error. *Water Resour Res* 37(7):1955–1967
- Fekete BM, Vörösmarty CJ, Grabs W (2002) High resolution fields of global runoff combining observed river discharge and simulated water balances. *Global Biogeochem Cy* 16(3): Art. No. 1042
- Feller C, Beare MH (1997) Physical control of soil organic matter dynamics in the tropics. *Geoderma* 79:69–116
- Fernald S, Wiggington P, Landers D (2001) Transient storage and hyporheic flow along the Willamette River, Oregon: field measurements and model estimates. *Water Resour Res* 37:1681–1694
- Fetter CW (1988) *Applied hydrogeology*. Prentice Hall, Englewood Cliffs NJ, 691 p
- Field CB, Jackson RB, Mooney HA (1995) Stomatal responses to increased CO₂: implications from the plant to the global scale. *Plant Cell Environ* 18:1214–1225
- Fisher TRJ, Parsley PE (1979) Amazon lakes: water storage and nutrient stripping by algae. *Limnol Oceanogr* 24:547–553
- Flint RF (1971) *Glacial and quaternary geology*. John Wiley & Sons, Chichester, 892 p
- Flint EP, Richards JF (1991) Historical analysis of changes in land use and carbon stock of vegetation in south and South-east Asia. *Can J Forest Res* 2(1):91–110
- Flügel WA (1995) Delineating hydrological response units by GIS analyses. In: Kalma JD, Sivapalan M (eds) *Scale issues in hydrological modelling*. John Wiley & Sons, Chichester, pp 181–194
- Forsberg BR, Devol AH, Richey JE, Martinelli LA, dos Santos H (1988) Factors controlling nutrient concentrations in Amazon floodplain lakes. *Limnol Oceanogr* 33:41–56
- Fournier F (1960) *Climat et érosion*. Presses Universitaires Paris, 201 p
- Fraser AS, Meybeck M, Ongley ED (1995) *Water quality of world river basins*. UNEP Environment Library 14, UNEP, Nairobi, 40 p
- Freer J, Beven KJ, Ambrose B (1996) Bayesian estimation of uncertainty in runoff prediction and the value of data: an application of the GLUE approach. *Water Resour Res* 32(7):2161–2173
- Freer J, McDonnell JJ, Brammer D, Beven K, Hooper R, Burns D (1997) Topographic controls on subsurface stormflow at the hillslope scale for two hydrologically distinct catchments. *Hydrol Process* 11(9):1347–1352
- Freer J, McDonnell JJ, Beven KJ, Peters NE, Burns DA, Hooper RP, Aulenbach B (2002) The role of bedrock topography on subsurface storm flow. *Water Resour Res* 38(12):1269, doi:10.1029/2001WR000872

- Freeze RA (1972) Role of subsurface flow in generating surface runoff; 2. Upstream source areas. *Water Resour Res* 8:1272–1283
- Freeze RA, Witherspoon PA (1967) Theoretical analysis of regional groundwater flow; 2. Effect on water table configuration and subsurface permeability variation. *Water Resour Res* 3:623–634
- Frenzel B (1992) Atlas of paleoclimates and paleoenvironments of the Northern Hemisphere: Late Pleistocene, Holocene. Geographical Res Inst, Hungarian Academy Sci., Budapest
- Frink CR (1991) Estimating nutrient exports to estuaries. *J Environ Qual* 20:717–724
- Fritsch JM (1994) The hydrological effects of clearing tropical rain forest and of the implementation of alternative land uses. IAHS Press, Wallingford, IAHS Publication No. 216, pp 53–66
- Frost PGH (2001) Reflections on integrated land and water management. In: Gash JHC, Odada EO, Oyebande L, Schulze RE (eds) *Freshwater resources in Africa*. BAHG International Project Office, PIK, Potsdam, Germany, pp 49–56
- Gale MR, Grigal DF (1987) Vertical root distributions of northern tree species in relation to successional status. *Can J Forest Res* 17:829–834
- Galea G, Breil P, Ahmad A (1993) Influence du couvert végétal sur l'hydrologie des crues, modélisation à validations multiples. *Hydrologie Continentale* 8:17–33
- Galloway JN, Schlesinger WH, Levy HI, Michaels A, Schnoor JL (1995) Nitrogen fixation: anthropogenic enhancement-environmental response. *Global Biogeochem Cy* 9:235–252
- Gash JHC, Nobre CA (1997) Climatic effects of Amazonian deforestation: some results from ABRACOS. *B Am Meteorol Soc* 78(5): 823–830
- Gataullin V, Mangerud J, Svendsen JI (2001) The extent of the late Weichselian ice sheet in the south eastern Barents Sea. *Global Planet Change* 31:453–474
- Gellens D, Roulin E (1999) Streamflow response of Belgian catchments to IPCC climate change scenarios. *J Hydrol* 210:242–258
- Genereux D (1998) Quantifying uncertainty in tracer-based hydrograph separations. *Water Resour Res* 34(4):915–919
- Gerasimov IP (ed) (1964) *Fiziko-geograficheskiy atlas mira* (physico-geographical atlas of the world). Soviet Acad of Science Moscow, 298 p
- Gibbs MT, Kump LR (1994) Global chemical erosion during the last glacial maximum and the present: sensitivity to changes in lithology and hydrology. *Paleoceanography* 9:529–543
- Giovannini G, Luccchesi S (1992) Effects of fire on soil physico-chemical characteristics and erosion dynamics. In: Tabaud L, Prodon R (eds) *Fire in Mediterranean ecosystems*. Ecosystems Research Report No. 5, Commission of the European Communities, Brussels, Belgium, pp 403–412
- Gleick PH (1987) Regional hydrologic consequences of increases in atmospheric CO₂ and other trace gases. *Climatic Change* 10:137–131
- Gleick PH (1998) *The world's water: the biennial report on freshwater resources (1998–1999)*. Island Press, Washington DC
- Gleick PH (2000) Water futures: a review of global water resources projections. In: Rijsberman FR (ed) *World water scenarios*. EarthscanPages, London, pp 27–45
- Goolsby DA, Battaglin W (2001) Long-term changes in concentrations and flux of nitrogen in the Mississippi River basin, USA. *Hydrol Process* 15:1209–1226
- Goudrian J, Ketner P (1984) A simulation study of the global carbon cycle including man's impact on the biosphere. *Climatic Change* 6:167–192
- Gouy V, Jannot P, Laplana R, Malé, J-M, Turpin N (1999) Country paper of France. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belser, Lelystad, Netherlands, pp 57–70
- Graham D, House A, Hudson J, Leeks G, Williams R (1999a) Impact of agricultural pollution on water systems: country paper of the UK. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belser, Lelystad, Netherlands, pp 209–227
- Graham ST, Famiglietti FS, Maidment DR (1999b) Five minute, 1/2° and 1° datasets of continental watersheds and river networks for use in regional and global hydrologic and climate system modeling studies. *Water Resour Res* 35:583–587
- GRASS (1993) GRASS 4.1 Reference Manual. US Army Corps of Engineers. Construction Engineering Research Laboratories, Champaign, Illinois, 556 p
- Green PA, Vörösmarty CJ, Meybeck M, Galloway JN, Peterson BJ, Boyer EW (2003) Pre-industrial and contemporary fluxes of nitrogen through rivers: a global assessment based on typology. *Biogeochemistry* (in press)
- Grigg NS (1999) Integrated water resources management: who should lead, who should pay? *J Am Water Resour As* 35:527–534
- Grosbois CA, Horowitz AJ, Smith JJ, Febric KA (2001) The effect of mining and related activities on the sediment-trace element geochemistry of the Lake Coeur d'Alene, Idaho, USA. Part III: Downstream effects: the Spokane River basin. *Hydrol Process* 15:855–875
- Groisman PY, Knight RW, Karl TR (2001) Heavy precipitation and high streamflow in the contiguous United States: trends in the twentieth century. *Bull Am Meteorol Soc* 82(2):219–246
- Grosswald MG (1984) Glaciations of the continent shelves. *Polar Geogr J* 8:194–258, 287–351
- Grosswald MG (1998) Late Weichselian ice sheets in Arctic and pacific Siberia. *Quatern Int* 45/46:3–18
- Gunkel G (ed) (1994) *Bioindikation*. Gustav Fischer Verlag, Jena, 540 p
- Gunkel G (2000) Das Ziel heisst: ein "naturnaher" Zustand. *Technische Universität Berlin, Forschung Aktuell* 11:57–60
- Guo S, Ying A (1997) Uncertainty analysis of impact of climate change on hydrology and water resources. In: Rosbjerg D, Bou-tayeb NE, Gustard A, Kundzewicz ZW, Rasmussen PF (eds) *Sustainability of water resources under increasing uncertainty*. Proceedings of an international symposium of the Fifth Scientific Assembly of the International Association of Hydrological Sciences (IAHS), Rabat, Morocco, 23 April to 3 May 1997, IAHS Press, Wallingford, UK, pp 331–338
- Gustafsson A, Hoffmann M, Johnsson H, Krueger J, Kyllmar K, Ulén B (1999) N, P and pesticide pollution of water bodies by agricultural activities under Swedish conditions. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belser, Lelystad, Netherlands, pp 161–184
- Hadley RF, Lal R, Onstad CA, Walling DE, Yair A (1985) Recent developments in erosion and sediment yield studies. Technical Documents in Hydrology, UNESCO/IHP, Paris
- Hagemann S, Dumenil L (1998) A parametrization of the lateral waterflow for the global scale. *Clim Dynam* 14(1):17–31
- Hallgren WS, Pitman AJ (2000) The sensitivity of a global biome Model (BIOME3) to uncertainty in parameter values. *Global Change Biol* 6:483–495
- Harley PC, Thomas RB, Reynolds JF, Strain BR (1992) Modelling photosynthesis of cotton grown in elevated CO₂. *Plant Cell Environ* 15:271–281
- Harris DM, McDonnell JJ, Rodhe A (1995) Hydrograph separation using continuous open-system isotopic mixing. *Water Resour Res* 31:157–171
- Hartig EK, Grozev O, Rosenzweig C, Dixon RK (1997) Climate change, agriculture and wetlands in Eastern Europe: vulnerability, adaptation and policy. *Climatic Change* 36:107–121
- Hartwich R, Behrens J, Eckelmann W, Haase G, Richter A, Roeschmann G, Schmidt R (1995) *Bodenübersichtskarte der Bundesrepublik Deutschland 1:1 000 000*. Hannover
- Hattermann FF, Krysanova V, Wechsung F, Wattenbach M (2003) Macroscale validation of the eco-hydrological model SWIM for hydrological processes in the Elbe basin with uncertainty analysis. In: Fohrer N, Arnold J (eds) *Regional assessment of climate and management impacts using the SWAT hydrological model*. *Hydrol Proc* (in print)
- Hatton TJ, Dawes WR, Vertessey RA (1995) The importance of landscape position in scaling SVAT models to catchment scale hydro-ecological prediction. In: Feddes (ed) *Space and time scale variability and interdependencies in hydrological processes*. *Internat. Hydrology Series*, Cambridge University Press, pp 43–53
- Hedges JJ, Clark WA, Quay PD, Richey JE, Devol AH, Santos U de M (1986a) Compositions and fluxes of particulate organic material in the Amazon River. *Limnol Oceanogr* 31:717–738

- Hedges JJ, Ertel JR, Quay PD, Grootes PM, Richey JE, Devol AH, Farwell GW, Schmidt FW, Salati E (1986b) Organic carbon-14 in the Amazon River system. *Science* 231:1129–1131
- Hedges JJ, Cowie GL, Richey JE, Quay PD (1994) Origins and processing of organic matter in the Amazon River as indicated by carbohydrates and amino acids. *Limnol Oceanogr* 39:743–761
- Hession WC, McBride M, Bennett M (2000) Statewide non-point-source pollution assessment methodology. *J Water Res Pl-Asce* May/June 2000
- Hewlett JD, Hibbert AR (1967) Factors affecting the response of small watersheds to precipitation in humid areas. In: Sopper WE, Lull HW (eds) *International symposium on forest hydrology*. pp 275–271
- Hiernaux P, Biélers CL, Valentin C, Bationo A, Fernandez-Rivera S (1999) Effects of livestock grazing on physical and chemical properties of sandy soils in Sahel rangelands. *J Arid Environ* 41:231–245
- HMSO (Her Majesty's Stationery Office) (1995) *Rural England – a nation committed to a rural countryside*. CM 3016, HMSO, London, UK
- Hobbie J (ed) (2000) *Estuarine science: a synthetic approach to research and practice*. Island Press, Washington DC
- Hobbs RJ (2000) Land-use changes and invasions. In: Mooney HA, Hobbs RJ (eds) *Invasive species in a changing world*. Island Press, Washington DC, pp 55–64
- Hobbs RJ, Hopkins AJM (1990) From frontier to fragments: European impact on Australia's vegetation. *Proceedings of the Ecological Society of Australia* 16:93–114
- Hollis GE, Adams WM, Kano MA (eds) (1993) *The Hadejia-Nguru wetlands: environment, economy and sustainable development of a Sahelian floodplain wetland*. IUCN, Gland, Switzerland, 244 p
- Hoek RL (2000) On the history of humans as geomorphic agents. *Geology* 28:843–846
- Hopkinson CS, Vallino J (1995) The nature of watershed perturbations and their influence on estuarine metabolism. *Estuaries* 18:598–621
- Horne Glasson and Partners (1989) *Water plan 2025*. Umgeni Water, Pietermaritzburg, South Africa
- Houghton JT, Ding Y, Griggs DJ, Noguera M, van der Linden PJ, Xiaosu D (eds) (2001) *Climate change 2001: the scientific basis*. Third Assessment Report, IPCC Working Group I, Cambridge University Press, Cambridge
- Howarth RW, Billen G, Swaney D, Townsend A, Jaworski N, Lajtha K, Downing JA, Elmgren R, Caraco N, Jordan T, Berendse F, Freney J, Kudegarov V, Mardoch P, Zhao-Liang Z (1996) Regional nitrogen budgets and riverine N and P fluxes for the drainages to the North Atlantic Ocean: natural and human influences. *Biogeochemistry* 35:75–139
- Hudson-Edwards KA, Macklin MG, Taylor MP (1999) 2000 years of sediment-borne heavy metal storage in the Yorkshire Ouse basin, NE England UK. *Hydrol Process* 13:1087–1102
- Hughes PJ, Sullivan ME, Yok D (1991) Human-induced erosion in a highlands catchment in Papua New Guinea: the prehistoric and contemporary records. *Z Geomorphol, Suppl.* 83:227–239
- Hulme M, Barrow EM, Arnell NW, Harrison PA, Johns TC, Downing E (1999) Relative impacts of human-induced climate change and natural climate variability. *Nature* 397:688–691
- Humborg C, Ittekkot V, Cociasu A, Bodungen BV von (1997) Effect of the Danube River dam on Black Sea biogeochemistry and ecosystem structure. *Nature* 386:385–387
- IAHS Ad Hoc Group on Global Water Data Sets (2001) *Global water data: a newly endangered species*. Co-authored by Vörösmarty CJ (lead), Askew A, Barry R, Birkett C, Döll P, Grabs W, Hall A, Jenne R, Kitaev L, Landwehr J, Keeler M, Leavesley G, Schaake J, Strzepek K, Sundarvel SS, Takeuchi K, Webster F. An opinion editorial to *AGU Eos Transactions* 82(5):54–58
- ICOLD (International Commission on Large Dams) (1994) *Dams and the environment: water quality and climate*. International Commission on Large Dams, Paris
- Inamdar SP, Mitchell M, McDonnell JJ, McHale M, McHale P (2004) Use of new water ratios and surface saturated area estimates to test TOPMODEL applications to a forested headwater catchment. *J Hydrol* (in review)
- IPCC (Intergovernmental Panel on Climate Change) (1990) *Emission scenarios – IPCC special report*. IPCC Secretariat, c/o WMO, Geneva, Switzerland
- IPCC, Houghton JT, Meira Filho LG, Callender BA, Harris N, Kattenberg N, Maskell K (1995) *Climate change 1995: the science of climate change*. Contribution of working group I to the second assessment of the Intergovernmental Panel on Climate Change. Cambridge University Press, 572 p
- Ittekkot V (1988) Global trends in the nature of organic matter in river suspensions. *Nature* 332:436–438
- Jackson RB, Canadell J, Ehleringer JR, Mooney HA, Sala OE, Schulze ED (1996) A global analysis of root distributions for terrestrial biomes. *Oecologia* 108:389–411
- Jackson RB, Mooney HA, Schulze ED (1997) A global budget for fine root biomass, surface area, and nutrient contents. *P Natl Acad Sci USA* 94:7362–7366
- Jackson RB, Schenk HJ, Jobbágy EG, Canadell J, Colello GD, Dickinson RE, Field CB, Friedlingstein P, Heimann M, Hibbard K, Kicklighter DW, Kleidon A, Neilson RP, Parton WJ, Sala OE, Sykes MT (2000a) Below-ground consequences of vegetation change and their treatment in models. *Ecol Appl* 10:470–483
- Jackson RB, Sperry JS, Dawson TE (2000b) Root water uptake and transport: using physiological processes in global predictions. *Trends Plant Sci* 5(11):482–488
- Jacobson PJ, Jacobson KM, Seely MK (1995) Ephemeral rivers and their catchments: sustaining people and development in Western Namibia. *Desert Research Foundation of Namibia, Windhoek, Namibia*, 160 p
- Jakeman AJ, Hornberger GM (1993) How much complexity is warranted in a rainfall-runoff model? *Water Resour Res* 29(8):2637–2649
- Jakeman AJ, Chen TH, Post DA, Hornberger GM, Littlewood IG, Whitehead PG (1993) Assessing uncertainties in hydrological response to climate at a large scale. In: *Proc. On Macroscale Modelling in Hydrosphere*, 11–23 July 1993, Yokohama, IASH, 15 p
- Jansen JMI, Painter RB (1974) Predicting sediment yield from climate and topography. *J Hydrol* 21:371–380
- Jansson M (1982) *Land erosion by water in different climates*. UNGI Rapport No. 57, Uppsala University, Sweden
- Jansson M, Andersson R, Berggren H, Leonardson L (1994) Wetlands and lakes as nitrogen traps. *Ambio* 23:320–325
- Jarvis G, McNoughton KG (1986) Stomatal control of transpiration: scaling up from leaf to region. *Adv Ecol Res* 15:1–49
- Jaworski NA, Howarth RW, Hetling LJ (1997) Atmospheric deposition of nitrogen oxides onto the landscape contributes to coastal eutrophication in the northeast United States. *Environ Sci Technol* 31:1995–2004
- Jewitt GPW, Görgens AHM (2000) Scale and model interfaces in the context of integrated water resources management for rivers of the Krüger National Park. *Water Research Commission, Pretoria, RSA*. WRC Report, 627/1/00. 184 p
- Jewitt GPW, Kotze DC (2000) *Wetland conservation and rehabilitation as components of integrated catchment management in the Mgeni catchment, KwaZulu-Natal, South Africa*. In: Bergkamp G, Pirot J-Y, Hostettler S (eds) *Integrated wetlands and water resources management*. Proceedings of a Workshop held at the 2nd International Conference on Wetlands and Development held in Dakar, Senegal, November 10–14 (1998) International Publication No. 56, Wageningen, The Netherlands
- Jewitt GPW, Schulze RE (1999) Verification of the ACRU model for forest hydrology applications. *Water SA* 25:483–490
- Johnson SP (1993) *The earth summit: the United Nations Conference on Environment and Development (UNCED)*. Graham and Trotman, London, UK
- Johnsson MJ, Meade RH (1990) Chemical weathering of fluvial sediments during alluvial storage: the Macuapanim Island point bar, Solimoes River, Brazil. *J Sediment Petrol* 60:827–842
- Jordan TE, Correll DL, Peterjohn WT, Weller DE (1986) Nutrient flux in a landscape: the Rhode River watershed and receiving waters. In: Correll DL (ed) *Watershed research perspectives*. Smithsonian Inst. Press, Washington DC
- Jordan TE, Correll DL, Weller DE (1997) Nonpoint sources of discharges of nutrients from Piedmont watersheds of Chesapeake Bay. *J Am Water Resour As* 33(3):631–645

- Junk WJ (1985) Amazon floodplain – a sink or source of organic carbon? In: Degens ET, Kempe S, Herrera R (eds) Transport of carbon and minerals in major world rivers, Part 3. Mitt. Geol. Paläont. Inst. University Hamburg, SCOPE/UNEP Sonderbd. 58:267–283
- Junk WJ, Furch K (1993) A general review of tropical South American floodplains. *Wetlands Ecology and Management* 2:231–238
- Junk WJ, MTF Piedade (1993) Biomass and primary-production of herbaceous plant communities in the Amazon floodplain. *Hydrobiologia* 263:155–162
- Junk WJ, Bayley PB, Sparks RE (1989) The flood pulse concept in river-floodplain systems. *Can J Fish Aquat Sci* 106:110–127
- Justic D, Rabalais NN, Turner RE (1995a) Stoichiometric nutrient balance and origin of coastal eutrophication. *Mar Pollut Bull* 30:41–46
- Justic D, Rabalais NN, Turner RE, Dortch Q (1995b) Changes in nutrient structure of river-dominated coastal waters – stoichiometric nutrient balance and its consequences. *Estuar Coast Shelf S* 40:339–356
- Kabat P, Hutjes RWA, Feddes RA (1997) The scaling characteristics of soil parameters: from plot scale heterogeneity to subgrid parameterization. *J Hydrol* 190(3–4):363–396
- Kao SJ, Lui KK (1996) Particulate organic carbon export from a subtropical mountainous river (Lanyang Hri) in Taiwan. *Limnol Oceanogr* 41:1749–1757
- Kao SJ, Lui KK (1997) Fluxes of dissolved and non-fossil particulate organic carbon from an Oceania small river (Lanyang Hsi) in Taiwan. *Biogeochemistry* 39:255–269
- Kaplan DJ, Bertsch PM, Adriano DC, Miller WP (1993) Soil-borne colloids as influenced by water flow and organic carbon. *Environ Sci Technol* 27:1193–1200
- Karl TR, Knight RW (1998) Secular trends of precipitation amount, frequency, and intensity in the USA. *B Am Meteorol Soc* 79(2): 231–241
- Karl T, Knight RW, Easterling DR, Quayle RG (1996) Indices of climate change for the United States. *B Am Meteorol Soc* 77:279–292
- Keller EA, Valentine DW, Gibbs DR (1997) Hydrological response of small watersheds following the Southern California Painted Cave fire of June 1990. *Hydrol Process* 11:401–414
- Kempe S (1979) Carbon in the freshwater cycle. In: Bolin B, Degens ET, Kempe S, Ketner P (eds) Global carbon cycle. SCOPE rpt 13, John Wiley & Sons, New York, pp 317–342
- Kempe S (1982) Long-term records of the CO₂ pressure fluctuations in freshwaters. In Degens ET (ed) Transport of water and minerals in major world rivers. Mitt Geol-Paläontol Inst Univ Hamburg 52:91–332
- Kempe S (1984) Sinks of the anthropogenically enhanced carbon cycle in surface fresh waters. *J Geophys Res* 89(D3):4657–4676
- Kendall C, McDonnell JJ (eds) (1998) Isotope tracers in catchment hydrology. Elsevier Science Publishers, 839 p
- Kendall K, Shanley J, McDonnell JJ (1999) A hydrometric and geochemical approach to testing the transmissivity feedback hypothesis during snowmelt. *J Hydrol* 219:188–205
- Kendall C, McDonnell JJ, Weizu G (2001) A look inside black box hydrograph separation models: a study at the Hydrohill catchment. *Hydrol Process* 15(10):1877–1903
- Kienzle SW, Lorentz SA, Schulze RE (1997) Hydrology and water quality of the Mgeni catchment. Water Research Commission, Pretoria, South Africa, WRC Report TT87/97, 88 p
- Kim CP (1995) The water budget of heterogeneous areas: impact of soil and rainfall variability. PhD thesis, Wageningen Agricultural University, 182 p
- Kimball BA, Pinter PJ Jr, Garcia RL, Lamorte RL, Wall GW, Hunsaker DJ, Wechsung G, Wechsung F, Kartschall T (1995) Productivity and water use of wheat under free-air CO₂ enrichment. *Global Change Biol* 1:429–442
- Kimball BA, LaMorte RL, Pinter PJ Jr, Wall GW, Hunsaker DJ, Adamsen FJ, Leavitt SW, Thompson TL, Matthias AD, Brooks TJ (1999) Free-air CO₂ enrichment and soil nitrogen effects on energy balance and evapotranspiration of wheat. *Water Resour Res* 35(4):1179–1190
- Kirby C, Newson MD, Gilman K (1991) Plynlimon research: the first two decades. Institute of Hydrology, Wallingford, UK, Institute of Hydrology Report 109
- Kirchner JW, Feng X, Neal C (2000) Fractal stream chemistry and its implications for contaminant transport in catchments. *Nature* 403(6769):524–527
- Kleidon A, Heimann M (2000) Assessing the role of deep rooted vegetation in the climate system with model simulations: mechanism, comparison to observations and implications for Amazonian deforestation. *Clim Dynam* 16:183–199
- Koster RD, Suarez MJ (1992) Modeling the land surface boundary in climate models as a composite of independent vegetation stands. *J Geophys Res* 97:2697–2716
- Koster RD, Suarez MJ, Ducharne A, Stieglitz M, Kumar P (2000) A catchment-based approach to modeling land surface processes in a general circulation model, 1: Model structure. *J Geophys Res* 105:24809–24822
- Kotwicki V (1986) Floods of Lake Eyre. Engineering and Water Supply Dpt. Adelaide, South Australia
- Kotwicki V, Isdale P (1991) Hydrology of Lake Eyre, Australia: El Niño link. *Palaeogeogr Palaeoclimatol* 84:87–98
- Krecek J, Rajwar GS, Haigh MJ (eds) (1996) Hydrological problems and environmental management in highlands and headwaters. A. A. Balkema, Rotterdam, Netherlands, 196 p
- Kreft A, Zuber A (1978) On the physical meaning of the dispersion equation and its solutions for different initial and boundary conditions. *Chem Eng Sci* 33:1471–1480
- Kroeze C, Seitzinger SP (1998) Nitrogen inputs to rivers, estuaries and continental shelves and related nitrous oxides emissions in 1990 and 2050: a global model. *Nutr Cycl Agroecosys* 52:195–212
- Kroeze C, Seitzinger SP, Domingues R (2001) Future trends in worldwide nitrogen transport and related nitrous oxide emissions: a scenario analysis. *The Scientific World* 1
- Krysanova V, Becker A (1999) Integrated modelling of hydrological processes and nutrient dynamics at the river basins scale. *Hydrobiologia* 410:131–138
- Krysanova V, Müller-Wohlfeil DI, Becker A (1998a) Development and test of a spatially distributed hydrological/water quality model for mesoscale watersheds. *Ecol Model* 106:261–289
- Krysanova V, Becker A, Klöcking B (1998b) The linkage between hydrological processes and sediment transport at the river basin scale. In: Summer W, Klaghofer E, Zhang W (eds) Modelling soil erosion, sediment transport and closely related hydrological processes. IAHS Publ 249:13–20
- Krysanova V, Wechsung F, Becker A, Poschenrieder W, Gräfe J (1999a) Mesoscale ecohydrological modelling to analyse regional effects of climate change. *Environ Model Assess* 4(4):259–271
- Krysanova V, Gerten D, Klöcking B, Becker A (1999b) Factors affecting nitrogen export from diffuse sources: a modelling study in the Elbe basin. In: Heathwaite L (ed) Impact of land-use change on nutrient loads from diffuse sources. IAHS Publ 257:201–212
- Krysanova V, Williams J, Bürger G, Österle H (2002) The linkage between hydrological processes and sediment transport at the river basin scale – a modelling study. In: Summer W, Walling DE (eds) Modelling erosion, sediment transport and sediment yield. International Hydrological Programme, Technical Documents in Hydrology, IHP-VI, pp 147–174
- Kubatzki C, Claussen M (1998) Simulation of the global biogeophysical interactions during the last glacial maximum. *Clim Dynam* 14:461–471
- Lahmer W, Becker A, Müller-Wohlfeil D-I, Pfützner B (1999) A GIS-based approach for regional hydrological modelling. In: Diekrüger B, Kirkby MJ, Schröder U (eds) Regionalization in hydrology. IAHS Publ 254:33–43
- Lal M (1994) Water resources of the South Asian region in a warmer atmosphere. *Adv Atmos Sci* 11:239–246
- Lammers RB, Shiklomanov AI, Vörösmarty CJ, Fekete BM, Peterson BJ (2001) Assessment of contemporary Arctic river runoff based on observational discharge records. *J Geophys Res* 106(D4): 3321–3334
- Langbein WB, Schumm SA (1958) Yield of sediment in relation to mean annual precipitation. *EOS Trans Am Geophys Union* 39: 1076–1084
- Lange H, Lischeid G, Hoch R, Hauhs M (1996) Water flow paths and residence times in a small headwater catchment at Gardsjon, Sweden, during steady state storm flow conditions. *Water Resour Res* 32(6):1689–1698

- Laraque A, Mahé G, Orange D, Mariou B (2001) Spatiotemporal variations in hydrological regimes within Central Africa during the XXth century. *J Hydrol* 245:104–117
- Lean J, Warrilow DA (1989) Simulation of the regional climatic impact of Amazon deforestation. *Nature* 342:411–413
- Le Bissonnais Y (1996) Aggregate stability and assessment of crustability and erodibility: 1. Theory and methodology. *Europ J Soil Sci* 47:425–437
- Le Bissonnais Y, Benkahda H, Chaplot V, Fox D, King D, Darousin J (1998) Crusting, runoff and sheet erosion on silty loamy soils at various scales and upscaling from m² to small catchments. *Soil Till Res* 46:69–80
- Leblanc M, Morales JA, Borrego J, Felbaz-Poulichet F (2000) 4500 year old mining pollution in southwestern Spain: long-term implications for modern mining pollution. *Econ Geol* 95:655–662
- Lee JJ, Phillips DL, Dodson RF (1996) Sensitivity of the US corn belt to climate change and elevated CO₂: II. Soil erosion and organic carbon. *Agr Syst* 52:503–521
- Le Houérou HN (1990) Global change: vegetation, ecosystems, and land use in the southern Mediterranean basin by the mid twenty-first century. *Israel J Bot* 39:481–508
- Lemmelä R, Helenius N (eds) (1998) Proc. of the Second International Conference on Climate and Water, Volume 1. Edita Ltd, Helsinki, Finland
- Létolle R, Mainguet M (1993) Aral. Springer, Berlin, 385 p
- Lettenmaier DP, Brettman KL, Vail LW, Yabusaki SB, Scott MJ (1992) Sensitivity of Pacific northwest water resources to global warming. *Northwest Environ J* 8(2):265–283
- Lewis WM, Melack JM, McDowell WH, McClain M, Richey JE (1999) Nitrogen yields from undisturbed watershed in the Americas. *Biogeochemistry* 46:149–162
- Lins HF, Slack JR (1999) Streamflow trends in the United States. *Geophys Res Lett* 26:227–230
- Livingstone DA (1963) Chemical composition of rivers and lakes. Data of chemistry, US Geol Survey Prof Paper 440G, G1–G64
- Loague KM, Freeze RA (1985) A comparison of rainfall-runoff modeling techniques on small upland catchments. *Water Resour Res* 21:229–248
- Loague K, Kyriakidis PC (1997) Spatial and temporal variability in the R-5 infiltration dataset; Déjà vu and rainfall-runoff simulations. *Water Resour Res* 33(12):2883–2895
- Longfield SA, Macklin MG (1999) The influence of recent environmental change on flooding and sediment fluxes in the Yorkshire Ouse basin. *Hydrol Process* 13(7):1051–1066
- Lopez Bermudez F (1990) Soil erosion by water on the desertification of a semi-arid Mediterranean fluvial basin: the Segura basin, Spain. *Agr Ecosyst Environ* 33:129–145
- Lopez Bermudez F, Romero Diaz MA (1989) Piping erosion and badland development in south-east Spain. *Catena, Suppl* 14:59–73
- Lørup JK, Hansen E (1997) Effect of land use on the streamflow in the southwestern highlands of Tanzania. In: Rosbjerg D, Bou-tayeb NE, Gustard A, Kundzewicz ZW, Rasmussen PF (eds) Sustainability of water resources under increasing uncertainty. Proceedings of an international symposium of the Fifth Scientific Assembly of the International Association of Hydrological Sciences (IAHS), Rabat, Morocco, 23 April to 3 May 1997, IAHS Press, Wallingford, UK No. 240, pp 227–236
- LUCIFS (2000) Land use and climate impacts on fluvial systems during the period of agriculture (LUCIFS). Pages Newsletter 8(3):10–19
- Ludwig W (2001) The age of river carbon. *Nature* 409:466–467
- Ludwig W, Probst JL (1996) Predicting the oceanic input of organic carbon by continental erosion. *Global Biogeochem Cy* 10:23–41
- Ludwig W, Probst JL (1998) River sediment discharge to the oceans: present-day controls and global budgets. *Am J Sci* 298:265–295
- Ludwig W, Probst JL, Kempe S (1996) Predicting the oceanic input of organic carbon by continental erosion. *Global Biogeochem Cy* 10:23–41
- L'vovich MI (1979) World water resources and the future. AGU, Washington DC, (English translation edited by Nace RL)
- L'vovich MI, White GF (1990) Use and transformation of terrestrial water systems. In: Turner BL, Clark WC, Kates RW, Richards JF, Mathews JT, Meyer WB (eds) The Earth as transformed by human action. Cambridge University Press, Cambridge, pp 235–252
- LWRRDC (Land and Water Resources Research and Development Corporation) (1998) National dryland salinity program: management plan 1998–2003. Land and Water Resources Research and Development Corporation, Canberra, Australia
- Maas EV, Hoffman GJ (1977) Crop salt tolerance – current assessment. *J Irr Drain Div-Asce* 103:115–134
- Macaire JJ, Bossuet G, Choquier A, Cocirta C, DeLuca P, Dupis A, Gay I, Mathey E, Gueng P (1997) Sediment yield during late glacial and Holocene periods in the Lac Chambon watershed, Massif Central, France. *Earth Surf Proc Land* 22:473–489
- Mackenzie FT, Lerman AB, Ver LMB (2001) Present, past and future of the global carbon cycle. *A.A.P.G. Stud Geol* 47:51–82
- Macklin MG, Hudson-Edwards KA, Dawson EJ (1997) The significance of pollution from historic metal mining in the Pennine ore fields on river sediment contamination fluxes to the North Sea. *Sci Total Environ* 194/195:391–397
- Maidment DR (ed) (1993) Handbook of hydrology. McGraw-Hill Inc.
- Major JJ, Pierson TC, Dinehart RL, Costa JE (2000) Sediment yield following severe volcanic disturbance – A two-decade perspective from Mount Helens. *Geology* 28:819–822
- Maloszewski P, Rauert W, Stichler W, Herrmann A (1983) Application of flow models in an alpine catchment area using tritium and deuterium data. *J Hydrol* 66:319–330
- Marchand M, Toornstra FH (1986) Ecological guidelines for river basin development. Centrum voor Milieukunde, Rijksuniversiteit, Leiden, Netherlands, Report No. 28
- Marengo JA, Nobre CA (2001) On the general characteristics and variability of climate in the Amazon Basin. In: McClain ME, Victoria R, Richey JE (eds) The biogeochemistry of the Amazon Basin. Oxford University Press, 384 p
- Martin C, Lavabre J (1997) Estimation de la part du ruissellement sur les versants dans les crues du ruisseau du Rimbaud (Massif des Maures, Var, France) après l'incendie de forêt d'août 1990. *Hydrolog Sci J* 42:893–907
- Martinelli LA, Ferreira JR, Forsberg BR, Victoria RL (1988) Mercury contamination in the Amazon: a gold rush consequence. *Ambio* 17:252–254
- Martinelli LA, Victoria RL, Dematte JLI, Richey JE, Devol AH (1993) Chemical and mineralogical composition of Amazon River floodplain sediments, Brazil. *Appl Geochem* 8:391–402
- Masiello CA, Druffel ER (2001) Carbon isotope geochemistry of the Santa Clara River. *Global Biogeochem Cy* 15:407–416
- Maslenikova O, Mangerud J (2001) Where was the outlet of ice-dammed Lake Ksmi, Northern Russia. *Global Planet Change* 31:337–346
- Mayorga E, Ballester V, Richey JE, Krusche A, Aufdenkampe A, Victoria R (2000) Towards a mechanistic, remote-sensing driven model of organic matter cycling linking the land surface and river system in the Amazon Basin. Abstract, LBA Science Conference, Belem
- McCabe GJ, Wolock DM (2002) Trends and temperature sensitivity of moisture conditions in the conterminous United States. *Climate Research* 20(1):19–29
- McCartney MP (1998) The hydrology of a headwater catchment containing a dambo. Unpublished PhD thesis, University of Reading, UK, 256 p
- McCartney MP, Acreman MC (2003) Wetlands and water resources. In: Maltby E (ed) The wetlands handbook. Blackwells, Oxford, UK (in press)
- McCartney MP, Sullivan CA, Acreman MC (1999) Ecosystem impacts of large dams. Centre for Ecology and Hydrology, Wallingford, UK, Report to IUCN. 78 p (Draft Report)
- McCartney MP, Acreman MC, Bergkamp G (2000) Freshwater ecosystem management and environmental security. In: IUCN vision for water and nature: a world strategy for conservation and sustainable management of water resources in the 21st century. IUCN, Gland, Switzerland
- McClain ME, Victoria TRL, Richey JE (ed) (2001) The biogeochemistry of the Amazon Basin. Oxford University Press, 364 p
- McCully P (1996) Rivers no more: the environmental effects of dams. In: McCully P (ed) Silenced rivers: the ecology and politics of large dams. International Rivers Network, Zed Books, London, UK, pp 29–64

- McDonnell JJ (1990) A rationale for old water discharge through macropores in a steep, humid catchment. *Water Resour Res* 26: 2821–2832
- McDonnell JJ (1997) Comment on “the changing spatial variability of subsurface flow across a hillside” by Ross Woods and Lindsay Rowe. *J Hydrol New Zealand* 36(1):97–100
- McDonnell JJ, Tanaka T (2001) On the future of hydrology and biogeochemistry of forest catchments. *Hydrol Process* 15(10):2053–2056
- McDonnell JJ, Bonell M, Stewart MK, Pearce AJ (1990) Deuterium variations in storm rainfall: implications for stream hydrograph separation. *Water Resour Res* 26:455–458
- McDonnell JJ, Owens IF, Stewart MK (1991) A case study of shallow flow paths in a steep zero-order basin. *Water Resour Bull* 27(4): 679–685
- McDonnell JJ, Freer J, Hooper R, Kendall C, Burns D, Beven K, Peters N (1996) New method developed for studying flow on hillslopes. *EOS Trans Am Geophys Union* 77:465–472
- McDonnell JJ, Rowe L, Stewart M (1999) A combined tracer-hydrometric approach to assessing the effects of catchment scale on water flowpaths, source and age. *International Association of Hydrological Sciences, Publication* 258:265–274
- McGlynn B, McDonnell JJ, Brammer D (2002) A review of the evolving perceptual model of hillslope flow in a steep forested humid catchment: a review of the Maimai catchment. *J Hydrol* 257:1–26
- McHale MR, McDonnell JJ, Mitchell MJ, Cirimo CP (2002) A field-based study of soil water and groundwater nitrate release in an Adirondack forested watershed. *Water Resour Res* 38(4):1031, doi:10.1029/2000WR00102, 2002
- McIntosh J, McDonnell JJ, Peters NE (1999) Tracer and hydrometric study of preferential flow in large undisturbed soil cores from the Georgia Piedmont, USA. *Hydrol Process* 13:139–155
- McKenzie RS, Craig AR (1998) Evaporation losses from South African rivers. *Water Research Commission, Pretoria, RSA, Report No. 638/1/99*
- MDBC (Murray-Darling Basin Commission) (1997) Salt trends: historic trend in salt concentration and saltload in stream flow in the Murray-Darling Drainage Division. Murray-Darling Basin Commission, Canberra, Australia, Dryland Technical Report 1
- MDBMC (Murray-Darling Basin Ministerial Council) (1999) The salinity audit of the Murray-Darling Basin: a 100-year perspective (1999) Murray-Darling Basin Ministerial Council, Canberra ACT, Australia, 39 p
- Meade RH (1988) Movement and storage of sediment in river systems. In: Lerman A, Meybeck M (eds) *Physical and chemical weathering in geochemical cycles*. Kluwer Academic Publishers, Dordrecht, pp 165–180
- Meade RH (1994) Suspended sediments of the modern Amazon and Orinoco Rivers. *Quatern Int* 21:29–39
- Meade RH, Parker RS (1985) Sediments in rivers of the United States. In: US Geological Survey (ed) *National water summary, 1984*. US Geol Surv Water-Supply Paper 2275, USGS, Reston, pp 49–60
- Meade RH, Dunne T, Richey JE, dos Santos U, Salati E (1985) Storage and remobilization of sediment in the lower Amazon River of Brazil. *Science* 228:488–490
- Meier KB, Brodie JR, Schulze RE, Smithers JC, Mngune D (1997) Modelling the impacts of riparian zone alien vegetation on catchment water resources using the ACRU model. *Proceedings, 8th South African National Hydrology Symposium*, Water Resources Commission, Pretoria, RSA, 13 p
- Melillo JM, McGuire AD, Kiklighter DW, Moore B III, Vörösmarty CJ, Schloss AL (1993) Global climate change and terrestrial net primary production. *Nature* 363:234–240
- Mertes LAK, Smith MO, Adams JB (1993) Estimating suspended sediment concentrations in surface waters of the Amazon River wetlands from Landsat images. *Remote Sens Environ* 43:281–301
- Mertes LAK, Dunne T, Martinelli LA (1996) Channel-floodplain geomorphology of the Solimões-Amazon River, Brazil. *Geol Soc Am Bull* 108:1089–1107
- Messerli B, Hofer T, Chapman GP (1995) Assessing the impact of anthropogenic land-use change in the Himalayas. In: Chapman G, Thompson M (eds) *Water and the quest for sustainable development in the Ganges Valley*. Mansell Publishing, London, *Global Development and the Environment Series*, pp 64–89
- Meybeck M (1976) Total mineral transport by major world rivers. *Hydrol Sci Bull* 21:265–284
- Meybeck M (1979) Concentration des eaux fluviales en éléments majeurs et apports en solution aux océans. *Rev Geol Dyn Geogr* 21:215–246
- Meybeck M (1981) River transport of organic carbon to the oceans. In: US Dep of Energy (ed) *Flux of organic carbon by rivers to the oceans*. NTIS Rep. CONF 8009140UC-11, Washington DC
- Meybeck M (1982) Carbon, nitrogen, and phosphorous transport by world rivers. *Am J Sci* 282:401–450
- Meybeck M (1986) Composition chimique naturelle des ruisseaux non pollués en France. *Sci Geol Bull* 39:3–77
- Meybeck M (1987) Global chemical weathering estimated from river dissolved loads. *Am J Sci* 287:401–428
- Meybeck M (1988) How to establish and use world budgets of river material. In: Lerman A, Meybeck M (eds) *Physical and chemical weathering in geochemical cycles*. Kluwer Academic Publishers, Dordrecht, pp 247–272
- Meybeck M (1993a) Riverine transport of atmospheric carbon: sources, global typology and budget. *Water Air Soil Poll* 70:443–463
- Meybeck M (1993b) C, N, P, and S in rivers: from sources to global inputs. In: Wollast R, Mackenzie FT, Chou L (eds) *Interactions of C, N, P, and S biogeochemical cycles and global change*. NATO ASI Series, Vol. 14, Springer-Verlag, Berlin, pp 163–193
- Meybeck M (1994) Global lake distribution. In: Lerman A, Imboden D, Gat J (eds) *Physics and chemistry of lakes*. Springer-Verlag, Heidelberg, pp 1–35
- Meybeck M (1998) The IGBP Water Group: a response to a growing global concern. *Global Change Newsletters* 36:8–13
- Meybeck M (2002) Riverine quality at the Anthropocene: propositions for global space and time analysis, illustrated by the Seine River. *Aquatic Sciences* 64:376–393
- Meybeck M (2003) Global analysis of river systems: from Earth system controls to Anthropocene syndromes. *Philos T Roy Soc B* (in press)
- Meybeck M, Helmer R (1989) The quality of rivers: from pristine stage to global pollution. *Palaeogeogr Palaeoclimatol (Global Planet Change Section)* 75:283–309
- Meybeck M, Ragu A (1996) River discharges to the oceans. An assessment of suspended solids, major ions, and nutrients. *Environment Information and Assessment Rpt. UNEP, Nairobi*, 250 p
- Meybeck M, Ragu A (1997) Presenting the GEMS-GLORI, a compendium for world river discharge to the oceans. *Int Ass Hydrol Sci* 243:3–14
- Meybeck MM, Vörösmarty CJ (1999) Global transfer of carbon by rivers. *IGBP Global Change Newsletter* 37:18–19
- Meybeck M, Green P, Vörösmarty CJ (2001) A new typology for mountains and other relief classes: an application to global continental water resources and population distribution. *Mt Res Dev* 21:34–45
- Meybeck M, Laroche L, Dürr HH, Syvitski JPM (2003) Global variability of daily total suspended solids and their fluxes in rivers. *Global and Planetary Change* 39:65–93
- Meyer WB, Turner BL (1992) Human population growth and global land-use/land-cover change. *Annu Rev Ecol Syst* 23:39–61
- Middelkoop H (2002) Reconstructing flood plain sedimentation rates from heavy metal profiles by inverse modelling. *Hydrol Process* 16:47–64
- Milliman JD (1991) Flux and fate of fluvial sediment and water in coastal seas. In: Mantoura RFC, Martin JM, Wollast R (eds) *Ocean margin processes in global change*. John Wiley & Sons, Chichester, pp 69–89
- Milliman JM, Meade RH (1983) World-wide delivery of river sediment to the oceans. *J Geol* 91:1–21
- Milliman JM, Meade RH (1995) River flux to the sea: impact of human intervention on river systems and adjacent coastal areas. In: Eisma D (ed) *Climate change: impact on coastal habitation*. CRC Press Inc., pp 57–83
- Milliman JM, Syvitski JPM (1992) Geomorphic/tectonic control of sediment discharge to the ocean: the importance of small mountainous rivers. *J Geol* 100:525–544
- Milliman JM, Rutkowski C, Meybeck M (1995) River discharge to the sea. A global river index (GLORI). *LOICZ reports and studies No. 2*, Texel, The Netherlands, 125 p

- Milly PCD (1994) Climate, soil water storage, and the average annual water balance. *Water Resour Res* 30, 2143–2156
- Milly PCD, Dunne KA (1994) Sensitivity of the global water cycle to the water-holding capacity of land. *J Climate* 7:506–526
- Mitsch WJ, Gosselink JG (1993) *Wetlands*, 2nd ed. Van Nostrand Reinhold, New York
- Moerdyk MR, Schulze RE (1991) Impacts of forestry site preparation on surface runoff and soil loss. *Agr Eng S Afr* 23:319–325
- Molicova H, Bonell M, Grimaldi M, Hubert P (1997) Using TOPMODEL towards identifying and modelling the hydrological patterns within a headwater humid tropical catchment. *Hydrol Process* 11(9):1169–1196
- Montgomery DR, Dietrich WE, Torres R, Anderson SP, Heffner JT, Loague K (1997) Hydrologic response of a steep unchanneled valley to natural and applied rainfall. *Water Resour Res* 33(1): 91–109
- Moore T (1989) Dynamics of dissolved organic carbon in forested and disturbed catchments, Westland, New Zealand, 1. *Maimai. Water Resour Res* 25(6):1321–1330
- Moore WS (1996) Large ground water inputs to coastal waters revealed by ²²⁶Ra enrichments. *Nature* 380:612–614
- Moore TR, Mark RK (1986) World slope map. *AGU Eos Transactions* 67:1353–1356
- Morehead MD, Syvitski JP, Hutton EWH, Peckham SD (2003) Modeling the temporal variability in the flux of sediment from ungauged river basins. *Global and Planetary Change* 39(1–2):95–110
- Mosley MP (1979) Streamflow generation in a forested watershed, New Zealand. *Water Resour Res* 15:795–806
- Mozzherin VI (1992) The recent global suspended sediment yield and prognosis of its change. In: Chalov RS (ed) *Problems of erosion, fluvial and mount. processes*. Izhevsk, pp 63–85 (in Russian)
- Muller AMM, Keuris H, Roux le F (1985) Die bepaling van rivierverliese in die Wilgerivier tussen Sterkfonteindam en Vaaldam. Department of Water Affairs, Pretoria, RSA. Directorate of Hydrology Report, 13 p
- Murphy JH, Mitchell JFB (1995) Transient response of the Hadley Centre coupled ocean-atmosphere model to increased carbon dioxide. Part 2. Spatial and temporal structure of the response. *J Climate* 8:57–80
- Nash JE, Sutcliffe IV (1970) River flow forecasting through conceptual models, 1. A discussion of principles. *J Hydrol* 10:282–290
- Ne'eman G, Perevolotsky A, Schiller G (1997) The management implications of the Mt. Carmel research project. *Int J Wildland Fire* 7:343–350
- Neill M (1989) Nitrate concentrations in river waters in the southeast of Ireland and their relationship with agricultural practices. *Water Res* 23:1339–1355
- Nepstad DC, Klink C, Uhl C, Vieira IC, Lefebvre P, Pedlowski M, Matricardi E, Negreiros G, Brown IF, Amaral E, Homma A, Walker R (1997) Land-use in Amazonia and Cerrado of Brazil. *Cienc Cult* 49:73–86
- NERI (Natural Environment Research Institute of Denmark) (1997) Technical report 210. Cited in: Olesen (1999) (in Danish)
- Nespack/MMI (National Engineering Services Pakistan (Pvt) Ltd./Mott MacDonald) (1993) Feasibility study on national drainage program 1. Executive summary. NESPAK and Mott MacDonald, Pakistan
- Newson MD (1997) *Land, water and development: sustainable management of river basin systems*. 2nd ed. Routledge, London
- Newson MD, Gardiner JL, Slater SJ (2000) Planning and managing for the future. In: Acreman MC (ed) *The hydrology of the UK: a study of change*. Routledge, London, pp 244–269
- Nilsson C, Jansson R (1995) Floristic differences between riparian corridors of regulated and free-flowing boreal rivers. *Regul River* 11:55–66
- Nixon S (2003) Replacing the Nile – Are anthropogenic nutrients providing the fertility once brought to the Mediterranean by a great river? *Ambio* 32(1):30–39
- Nyberg R, Rapp A (1998) Extreme erosional events and natural hazards in Scandinavian mountains. *Ambio* 27(4):292–299
- Ohmori H (1983) Erosion rates and their relation to vegetation from the viewpoint of worldwide distribution. *Univ of Tokyo, Dept of Geography Bull* 15:77–91
- Oki T, Musiak K, Matsuyama H, Masuda K (1995) Global atmospheric water balance and runoff from large river basins. *Hydrol Process* 9:655–678
- Oki T, Nishimura T, Dirmeyer P (1999) Validating land surface models by runoff in major river basins of the globe using Total Runoff Integrating Pathways (TRIP). *J Meteorol Soc Jpn* 77: 235–255
- Olesen US (1999) Agriculture in Denmark, a source of nutrient pollution of the water environment. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belser, Lelystad, pp 33–44
- Olivera F, Famiglietti J, Asante K (2000) Global-scale flow routing using a source-to-sink algorithm. *Water Resour Res* 36:2197–2207
- O'Loughlin EM, Short DL, Dawes WR (1989) Modelling the hydrological response of catchment to land-use change. In: *Hydrology and water resources symposium, comparisons in Austral hydrology*. Inst. Engrs., Canberra, Australia, 28–30 Nov. 1989, Christchurch, New Zealand, pp 335–340
- Onda Y, Komatsu Y, Tsujimura M, Fujihara J-I (2001) The role of subsurface runoff through bedrock on storm flow generation. *Hydrol Process* 15:1693–1706
- Oyebande L (1995) Effects of reservoir operation on the hydrological regime and water availability in northern Nigeria. In: Petts G (ed) *Man's influence on freshwater ecosystems and water use*. IAHS Publ. No. 230, IAHS Press, Wallingford
- Panagoulia D, Dimou G (1997) Sensitivity of flood events to global climate change. *J Hydrol* 191:208–222
- Perks LA (2001) Refinement of modelling tools to assess potential agrohydrological impacts of climate change in Southern Africa. PhD thesis, School of BEEH, University of Natal, South Africa. 463 p
- Pernetta JC, Milliman JD (eds) (1995) *Land-ocean interactions in the coastal zone implementation plan*. Global Change Report No. 33, IGBP, Stockholm, 215 p
- Peters DL, Buttle JM, Taylor CH, LaZerte BD (1995) Runoff production in a forested, shallow soil, Canadian Shield basin. *Water Resour Res* 31(5):1291–1304
- Peterson BJ, Wollheim WM, Mulholland PJ, Webster JR, Meyer JL, Tank JL, Marti E, Bowden WB, Valett HM, Hershey AE, McDowell WH, Dodds WK, Hamilton SK, Gregory SV, Morrall DD (2001) Control of nitrogen export from watersheds by headwater streams. *Science* 292:86–90
- Peterson BJ, Holmes RH, McClelland JW, Vörösmarty CJ, Lammers RB, Shiklomanov AI, Rahmstorf S (2002) Increasing river discharge to Arctic Ocean. *Science* 298:2171–2173
- Petts GE (1984) *Impounded rivers: perspectives for ecological management*. John Wiley & Sons, Chichester, 326 p
- Piccolo A, Teshale AZ (1998) Soil processes and responses to climate changes. In: *Climate change impact on agriculture and forestry*. European Commission, EUR 18175, Luxembourg, pp 79–92
- Pielke RA, Lee TJ, Copeland JH, Eastman JL, Ziegler CL, Finley CA (1997) Use of USGS-provided data to improve weather and climate simulations. *Ecol Appl* 7:3–21
- Pinet P, Souriau M (1988) Continental erosion and large scale relief. *Tectonics* 7:563–582
- Pitman A, Zhao M (2000) The relative impact of observed change in land cover and carbon dioxide as simulated by a climate model. *Geophys Res Lett* 27:1267–1270
- Pitman AJ, Henderson-Sellers A, Yang Z-L, Abramopoulos F, Boone A, Desborough CE, Dickinson RE, Gedney N, Koster R, Kowalczyk E, Lettenmaier D, Liang X, Mahfouf J-F, Noilhan J, Polcher J, Qu W, Robock A, Rosenzweig C, Schlosser C, Shmakin AB, Smith J, Suarez M, Verseghy D, Wetzel P, Wood E, Xue Y (1999) Key results and implications from phase 1(c) of the Project for Inter-comparison of Land-surface Parameterization Schemes. *Clim Dynam* 15:673–684
- Planchon O, Valentin C (2004) Soil erosion in West Africa: present and future. In: Favis-Mortlock D, Boardman J (eds) *Soil erosion and climatic change*. Oxford University Press (in press)
- Postel SL, Daily GC, Ehrlich PR (1996) Human appropriation of renewable fresh water. *Science* 271:785–788
- Pretoria, RSA, NWA (1998) *National Water Act of South Africa*. Act No. 36 of 1998. Government Printer, Pretoria, RSA. 200 p

- Probst JL (1992) *Geochimie et Hydrochimie de l'érosion continentale. Mécanismes, bilan global actuel et fluctuations au cours des 500 derniers millions d'années*. Sciences Géologique Mem-oirs 94. Strasbourg 161 p
- Probst JL, Tardy Y (1989) Global runoff fluctuations during the last 80 years in relation to world temperature change. *Am J Sci* 289: 267–285
- Quay PD, Wilbur DO, Richey JE, Hedges JI, Devol AH, Victoria RL (1992) Carbon cycling in the Amazon River: implications from the ^{13}C composition of particles and solutes. *Limnol Oceanogr* 37:857–871
- Quay PD, Wilbur DO, Richey JE, Devol AH, Benner R, Forsberg BR (1995) The $^{18}\text{O}/^{16}\text{O}$ of dissolved oxygen in rivers and lakes in the Amazon Basin: a tracer of respiration and photosynthesis. *Limnol Oceanogr* 40:718–729
- Qureshi RH, Barrett-Lennard EG (1998) Saline agriculture for irrigated land in Pakistan: a handbook. ACIAR Monograph 50, 142 p
- Rabouille C, Mackenzie FT, Ver LM (2001) Influence of human perturbation on carbon, nitrogen and oxygen biogeochemical cycles in the global coastal ocean. *Geochim Cosmochim Acta* 65:3615–3641
- Rai SC, Sharma E (1998) Land use/cover change and hydrology were studied in a watershed in the Sikkim Himalaya, India. *Hydrol Process* 12:2235–2248
- Rasmussen T, Baldwin R, Dowd J, Williams A (2000) Tracer vs. pressure wave velocities through unsaturated saprolite. *Soil Sci Soc Am J* 64:75–85
- Raymond PA, Bauer JE (2001) Riverine export of aged terrestrial organic matter to the North Atlantic Ocean. *Nature* 409:497–500
- Rekolainen S (1990) Phosphorus and nitrogen load from forest and agricultural areas in Finland. *Aqua Fenn* 19:95–107
- Renard KG, Foster GR, Weesies GA, McCool DK (1991) Predicting soil erosion by water. A guide to conservation planning with the Revised Universal Soil Loss Equation (RUSLE). USDA Agricultural Research Service, Tucson AZ, USA
- Revenga C, Brunner J, Henninger N, Kassem K, Murray S (2000) Global freshwater ecosystem assessment. World Resources Institute, Washington DC
- Richards JF (1990) Land transformation. In: Turner BL, Clark WC, Kates RW, Richards JE, Mathews JT, Meyer WB (eds) *The Earth as transformed by human action*. Cambridge University Press, Cambridge, pp 163–178
- Richey JE, Victoria RL (1993) C, N and P export dynamics in the Amazon River. In: Wollast R, Mackenzie FT, Chou L (eds) *Interactions of C, N, P, and S biogeochemical cycles and global change*. Springer-Verlag, Berlin, pp 123–140
- Richey JE, Victoria RL (1996) Continental-scale biogeochemical cycles of the Amazon River system. *Verh Int Ver Theor Angew Limnol* 26:219–226
- Richey JE, Meade RH, Salati E, Devol AH, Nordin CF, dos Santos U Jr (1986) Water discharge and suspended sediment concentrations in the Amazon River: 1982–1984. *Water Resour Res* 22:756–764
- Richey JE, Mertes LA, Victoria RL, Forsberg BR, Dunne T, Oliveira F, Tancredi A (1989a) Sources and routing of the Amazon River floodwave. *Global Biogeochem Cy* 3:191–204
- Richey JE, Nobre C, Deser C (1989b) Amazon river discharge and climate variability: 1903 to 1985. *Science* 246:101–103
- Richey JE, Hedges JI, Devol AH, Quay PD, Victoria R, Martinelli L, Forsberg BR (1990) Biogeochemistry of carbon in the Amazon River. *Limnol Oceanogr* 35:352–371
- Richey JE, Wilhelm SR, McClain ME, Victoria RL, Melack JM, Araujo-Lima CARM (1997) Organic matter and nutrient dynamics in river corridors of the Amazon Basin and their response to anthropogenic change. *Cienc Cult* 49:98–110
- Rijsberman FR (ed) (2000) *World water scenarios*. Earthscan, London
- Rillig MC, Wright SF, Allen MF, Field CB (1999) Rise in carbon dioxide changes in soil structure. *Nature* 400:628
- Roberts G (1998) The effects of possible future climate change on evaporation losses from four contrasting UK water catchment areas. *Hydrol Process* 12:727–739
- Robinson M, Boardman J, Evans R, Heppell K, Packman JC, Leeks GJL (2000) Land-use change. In: Acreman MC (ed) *The hydrology of the UK*. Routledge, London, pp 30–54
- Robock A, Vinnikov KY, Srinivasan G, Entin JK, Hollinger SE, Speranskaya NA, Liu SX, Namkhai A (2000) The global soil moisture data bank. *B Am Meteorol Soc* 81(6):1281–1299
- Robson AJ (2002) Evidence for trends in UK flooding. *Phil T Roy Soc A* 1796:1327–1343
- Rodhe A (1987) *The origin of streamwater traced by oxygen-18*. Doctoral Thesis, Dept. of Physical Geography, Uppsala University, 260 p
- Ronov AB (1976) Global carbon geochemistry, volcanism, carbonate accumulation and life. *Geochem Int* 13:172–195
- Rooseboom A, Verster E, Zietsman HL, Lotriet HH (1992) The development of the new sediment yield map of southern Africa. Water Research Commission, Pretoria, South Africa, WRC Report 297/2/92
- Rosenberg DM, McCully P, Pringle CM (2000) Global-scale environmental effects of hydrological alterations: introduction. *Bioscience* 50:746–751
- Rotmans J, den Elzen MGJ (1993) Modelling feedback mechanisms in the carbon cycle: balancing the carbon budget. *Tellus* 45B:1–20
- Rotmans J, de Vries B (1997) *Perspectives on global change. The TARGET approach*. Cambridge University Press, Cambridge, 462 p
- Roulet M, Lucotte M, Canuel R, Rheault I, Tran S, Gog YGD, Farella N, doVale RS, Passos CJS, daSilva ED, Mergler D, Amorim M (1998) Distribution and partition of total mercury in waters of the Tapajós River basin, Brazilian Amazon. *Sci Total Environ* 213:203–211
- Rouse WR (1998) A water balance model for a subarctic sedge fen and its application to climatic change. *Climatic Change* 38: 207–234
- Rudoy A (1998) Mountain ice-dammed lakes of Southern Siberia and their influence on the development and regime of the intracontinental runoff system of North Asia in the late Pleistocene. In: Benito G, Baker VR, Gregory KJ (eds) *Paleohydrology and environmental change*. John Wiley & Sons, Chichester, pp 215–234
- Ruecker G, Schad P, Alcubilla MM, Ferrer C (1998) Natural regeneration of degraded soils and site changes on abandoned agricultural terraces in Mediterranean Spain. *Land Degrad Dev* 9: 179–188
- Ruiz-Flano P, Garcia-Ruiz JM, Ortigosa L (1992) Geomorphological evolution of abandoned fields. A case study in the central Pyrenees. *Catena* 19:301–308
- Russell MA, Maltby E (1995) The role of hydrologic regime on phosphorus dynamics in a seasonally waterlogged soil. In: Hughes JMR, Heathwaite AL (eds) *Hydrology and hydrochemistry of British wetlands*. John Wiley & Sons, Chichester
- Russell MA, Walling DE, Webb RW, Bearne R (1998) The composition of nutrient fluxes from contrasting UK river basins. *Hydrol Process* 12:1461–1482
- Sahagian D, Schwartz FW, Jacobs DK (1994) Direct anthropogenic contributions to sea level rise in the twentieth century. *Nature* 367:54–56
- Said R (1993) *The River Nile*. Pergamon Press, Oxford
- Saito Y, Yang Z, Hori K (2001) The Huang He (Yellow River) and Changjiang (Yangtze River) deltas: a review of their characteristics, evolution and sediment discharge during the Holocene. *Geomorphology* 41:219–231
- Sajjapongse A, Syers JK (1995) Tangible outcomes and impacts from the ASIALAND management of sloping lands network. IBSRAM Proceedings No. 14, Bangkok, pp 3–14
- Salati E, Dall'Olio A, Matsui E, Gat JR (1979) Recycling of water in the Amazon Basin: an isotopic study. *Water Resour Res* 15:1250–1258
- Salomons W, Turner RK, de Lacerda LD, Ramachandran S (eds) (1999) *Perspectives on integrated coastal zone management*. Springer-Verlag, Heidelberg, 386 p
- Sarwar A (2000) A transient model approach to improve on-farm irrigation and drainage in semi-arid zones. PhD Thesis, Wageningen University and Research Center, Wageningen, Netherlands. 147 p
- Saxton KE, Rawls WJ, Romberguer JS, Papendick RI (1986) Estimating generalized soil-water characteristics from texture. *Soil Sci Soc Am J* 50(4):1031–1036

- Schellnhuber H-J (2001) Earth system analysis and management. In: Ehlers E, Krafft T (eds) *Understanding the Earth system. Compartments, processes and interactions*. Springer-Verlag, Heidelberg, pp 17–55
- Schlesinger WH (1997) *Biogeochemistry: an analysis of global change*. 2nd ed. Academic Press, San Diego
- Schlesinger WH, Melack JM (1981) Transport of organic carbon in the world's rivers. *Tellus* 33:172–187
- Schmidt GW (1973) Primary production of phytoplankton in the three types of Amazonian waters. III. Primary production of phytoplankton in a tropical floodplain lake of central Amazonia, Lago do Castanho, Amazonas, Brazil. *Amazoniana* 4:379–404
- Schulze RE (1979) *Hydrology and water resources of the Drakensberg*. Natal Town and Regional Planning Commission, Pietermaritzburg, RSA, 179 p
- Schulze RE (1995) Hydrology and agrohydrology – a text to accompany the ACRU 3.00 agrohydrological modelling system. Water Research Commission, Pretoria, RSA, WRC Report TT69/95, 552 p
- Schulze RE (1997) South African atlas of agrohydrology and climatology. Water Research Commission, Pretoria, RSA, Report TT82/96, 276 p
- Schulze RE (1998) *Hydrological modelling: concepts and practice*. IHE, Delft, 134 p
- Schulze RE (1999) Integrated catchment management: summary of a CEH workshop on ICM. Centre for Ecology and Hydrology, Wallingford, UK, 11 p (available from author)
- Schulze RE (2000) Transcending scales of space and time on impact studies of climate and climate change on agrohydrological responses. *Agr Ecosyst Environ* 82:185–212
- Schulze RE (2001) Hydrological responses at river basin scale. School of Bioresources Engineering and Environmental Hydrology, University of Natal, Pietermaritzburg, South Africa, ACRUcons Report 38, 105 p
- Schulze RE, George WJ (1987) A dynamic, process-based user-oriented model of forest effects on water yield. *Hydrol Process* 1: 293–307
- Schulze RE, Chapman RA, Angus GR, Schmidt EJ (1987) Distributed model simulation of impacts of upstream reservoirs on wetlands. In: Walmsley RD, Botten ML (eds) *Proceedings, Symposium on Ecology and Conservation of Wetlands in South Africa*. Ecosystems Programme, FRD-CSIR, Pretoria, RSA, pp 115–123
- Schulze RE, Summerton MJ, Meier KB, Pike A, Lynch SD (1997) The ACRU forest decision support system to assess hydrological impacts of afforestation practices in South Africa. *Proceedings, 8th South African National Hydrology Symposium*, Water Research Commission, Pretoria, RSA, 13 p
- Schulze RE, Horan MJC, Shange SN, Ndlela RM, Perks LA (1998) Hydrological impacts of land use practices in the Pongola-Bivane catchment – Phase 3. University of Natal, Pietermaritzburg, RSA, School of Bioresources Engineering and Environmental Hydrology. ACRUcons Report 26, 58 p
- Scott DF, Maitre Le DC, Fairbanks DHK (1998) Forestry and streamflow reductions in South Africa: a reference system for assessing extent and distribution. *Water SA* 24:187–199
- Sear DA, Wilcock DN, Robinson M, Fisher K (2000) River channel modification in the UK. In: Acreman MC (ed) *The hydrology of the UK*. Routledge, London, pp 55–81
- SEARCH SSC (2001) *SEARCH: Study of Environmental Arctic Change*, Science Plan. Seattle: Polar Science Center, University of Washington, 89 p, (available at: <http://psc.apl.washington.edu/search/>)
- Seibert J, McDonnell JJ (2002) On the dialog between experimentalist and modeler in catchment hydrology: use of soft data for multicriteria model calibration. *Water Resour Res* 38(11): 1241, doi:10.1029/2001WR000978
- Seibert J, Bishop K, Rodhe A, McDonnell JJ (2003) Groundwater dynamics along a hillslope: a test of the steady state hypothesis. *Water Resour Res* 39(1):1014, doi:10.1029/2002WR001404
- Seitzinger SP, Kroeze C (1998) Global distribution of nitrous oxide production and N inputs in freshwater and coastal marine ecosystems. *Global Biogeochem Cy* 12:93–113
- Seitzinger SP, Kroeze C, Bouwman AF, Caraco N, Dentener F, Styles RV (2002) Global patterns of dissolved inorganic and particulate nitrogen inputs to coastal ecosystems: recent conditions and future projections. *Estuaries* 25(4B):640–655
- Semiletov IP, Savelieva NI, Weller GE, Pipko II, Pugach SP, Gukov AY, Vasilevskaya LN (2000) The dispersion of Siberian river flows into coastal waters: meteorological, hydrological, and hydrochemical aspects. In: Lewis EL, Jones EP, Lemke P, Prowse TD, wadhams P (eds) *The freshwater budget of the Arctic Ocean*. NATO Advanced Study Institute Series. Kluwer Academic Publishers, Dordrecht, pp 281–296
- Serreze MC, Walsh JE, Chapin FS III, Osterkamp T, Dyurgerov M, Romanovsky V, Oechel WC, Morison J, Zhang T, Barry RG (2000) Observational evidence of recent change in the northern high latitude environment. *Climatic Change* 46:159–207
- Servais P, Billen G, Garnier J, Ildafkih Z, Mouchel JM, Seidl M, Meybeck M (1998) Carbone organique: origines et biodegradabilité. In: Meybeck M, de Masily G, Fustec E (eds) *La Seine en son bassin*. Elsevier Paris, pp 483–529
- Sherwood M (1999) Impact of agricultural pollution on water systems: Ireland. In: Van der Kraats JA (ed) *Farming without harming: the impact of agricultural pollution on water systems*. Drukkerij Belsler, Lelystad, Netherlands, pp 137–149
- Shiklomanov IA (1996) Assessment of water resources and water availability in the world: scientific and technical report. State Hydrological Institute, St. Petersburg, Russia, 127 p
- Shiklomanov IA (1997) Comprehensive assessment of the freshwater resources and water availability in the world: assessment of water resources and water availability in the world. WMO, Geneva
- Shiklomanov IA (2000) World water resources and water use: present assessment and outlook for 2025. In: Rijsberman FR (ed) *World water scenarios*. Earthscan, London, pp 160–203
- Shiklomanov I, Krestovskiy OI (1988) Influence of forests and forest reclamation practice on streamflow and water balance. In: Reynolds ERC, Thompson FB (eds) *Forests, climate and hydrology: regional impacts*. United Nations University Press, Tokyo
- Shotyk W, Weiss D, Appleby P, Cheburkin A, Frei R, Glor M, Kramers J, Reese S, van de Knaap W (1998) History of atmospheric lead deposition since 12370 ¹⁴C yr B.P. from a peat bog, Jura Mountains, Switzerland. *Science* 281:1635–1940
- Shukla J, Nobre C, Sellers P (1990) Amazon deforestation and climate change. *Science* 247:1322–1325
- Shumway SE (ed) (1988) *Toxic algal blooms: hazards to shellfish industry*. J Shellfish Res 7:587–705
- Sidorchuk AY (1991) Sedimentation of the small rivers on the Russian Plain during the period of intensive agriculture. In: Larinov GA (ed) *Erosional studies: theory, experiment, practice*. Moscow University Publ, pp 140–42, (in Russian)
- Sidorchuk A (1994) Modeling of sediment budgets through the fluvial system. In: Prelim. Proc. IGBP Inter-Core Project Workshop on Modeling the Delivery of Terrestrial Material to Freshwater and Coastal Ecosystems. UNH, Durham, NH
- Sidorchuk A, Borisova O, Panin A (2001) Fluvial response to the Late Valdai/Holocene environmental change on the East European Plain. *Global Planet Change* 28:303–318
- Sioli H (1950) *Das Wasser im Amazonasgebiet*. *Forsch Fortschr* 26: 274–280
- Sklash MG (1990) Environmental isotope studies of storm and snowmelt runoff generation. In: Anderson MG, Burt TP (eds) *Processes in hillslope hydrology*. John Wiley & Sons, Chichester, pp 401–435
- Sklash MG, Farvolden RN (1979) The role of groundwater in storm runoff. *J Hydrol* 43:45–65
- Skole D, Tucker C (1993) Tropical deforestation and habitat fragmentation in the Amazon: satellite data from 1978 to 1988. *Science* 260:1905–1910
- Smith CT (1969) The drainage basin as an historical basis for human activity. In: Chorley RJ (ed) *Water, Earth and man*. Methuen, London, pp 101–110
- Smith RE (1983) Approximate soil water movement by kinematic characteristics. *Soil Sci Soc Am J* 47:3–8
- Smith RA, Alexander RB, Tasker GD, Price CV, Robinson KW, White DW (1993) Statistical modelling of water quality in regional watersheds. Watershed '93, A National Conference on Watershed Management, pp 751–754
- Smith SV, Renwick WH, Buddemeier RW, Crossland CJ (2001) Budgets of soil erosion and deposition for sediments and sedimentary organic carbon across the conterminous United States. *Global Biogeochem Cy* 15:697–708

- Sparks RE (1995) Need for ecosystem management of large rivers and their floodplains. *Bioscience* 45:168–182
- Spitters CJT, van Keulen H, van Kraalingen DWG (1989) A simple and universal crop growth simulator. In: Rabbinge R, Ward SA, van Laar HH (eds) *Simulation and systems management in crop protection*. Simulation Monographs, Pudoc, Wageningen, pp 147–181
- Stallard RF (1998) Terrestrial sedimentation and the carbon cycle: coupling weathering and erosion to carbon burial. *Global Biogeochem Cy* 12:231–257
- Stallard RF, Edmond JM (1983) Geochemistry of the Amazon: 2. The influence of geology and weathering environment on the dissolved load. *J Geophys Res* 88:9671–9688
- Stewart MK, McDonnell JJ (1991) Modeling base flow soil residence times from deuterium concentrations. *Water Resour Res* 27:2681–2693
- Stewart JB, Engman ET, Feddes RA, Kerr Y (1998) Scaling up in hydrology using remote sensing: summary of a Workshop. *Int J Remote Sens* (19)1:181–194
- Strahler AN (1957) Quantitative analysis of watershed geomorphology. *Trans Am Geophys Union* 38:913–920
- Subcommittee on Global Change Research (SGCR) (2000) *Our changing planet: the FY2001 US Global Change Research Program*. Supplement to the President's FY 2001 Budget. National Science and Technology Council, Washington DC, 74
- Syvitski JPM (2003) Sediment discharge variability in Arctic rivers: implications for a warmer future. *Polar Res* 21(2):323–330
- Syvitski JP, Morehead MD (1999) Estimating river-sediment discharge to the ocean: application to the Eel margin, northern California. *Mar Geol* 154:13–28
- Tanakamaru H, Kaodya M (1993) Effects of climate change on the regional hydrological cycle in Japan. In: *Exchange processes at the land surface for a range of space and time scales*. Proceedings of the Yokohama Symposium, July 1993, IAHS Publ. No. 212, pp 535–542
- Tani M (1997) Runoff generation processes estimated from hydrological observations on a steep forested hillslope with a thin soil layer. *J Hydrol* 200:84–109
- Thiede J, Bauch HA, Hjort C, Mangerud J (eds) (2001) *The late Quaternary stratigraphy and environments of Northern Eurasia and the adjacent Arctic seas*. New contributions from QUEEN, *Global Planet Change* 31, No. 1–4, VII–X Sp. Iss.
- Thompson MW (1996) A standard land-cover classification scheme for remote sensing applications in South Africa. *S Afr J Sci* 92:34–42
- Tiffen M, Mortimore M, Gichuku F (1994) *More people, less erosion: environmental recovery in Kenya*. African Centre for Technology Studies Press, Nairobi, 311 p
- Torres R, Dietrich WE, Montgomery DR, Anderson SP, Loague K (1998) Unsaturated zone processes and the hydrologic response of a steep, unchanneled catchment. *Water Resour Res* 34(8):1865–1879
- Trimble SW (1977) The fallacy of stream equilibrium in contemporary denudation studies. *Am J Sci* 277:876–887
- Tsirkunov VV (1998) Salinisation. In: Kimstach V, Meybeck M, Baroudy E (eds) *A water quality assessment of the former Soviet Union*. E&FN Spon, London, pp 112–136
- Turner JV, Barnes CJ (1998) Modeling of isotopes and hydrochemical responses in catchment hydrology. In: Kendall C, McDonnell JJ (eds) *Isotope tracers in catchment hydrology*. Elsevier, Amsterdam, pp 723–760
- Turner RE, Rabalais N (1991) Changes in the Mississippi water quality during this century and implications for coastal food webs. *Bioscience* 41:140–147
- Turner RE, Rabalais N (1994) Coastal eutrophication near the Mississippi River delta. *Nature* 368:619–621
- Turner JV, Macpherson DK, Stokes RA (1987) The mechanisms of catchment flow processes using natural variations in deuterium and oxygen-18. *J Hydrol* 94:143–162
- Turner BL, Clark WC, Kates RW, Richards JF, Mathews JT, Meyer WB (eds) (1991) *The Earth as transformed by human action*. Cambridge University Press, Cambridge
- Turner BL, Moss RH, Skole DL (1993) Relating land use and global land-cover change: a proposal for an IGBP-HDP core project. IGBP, Stockholm, Sweden, IGBP Report 24, 65 p
- Uhlenbrook S, Leibundgut CH (1999) Integration of tracer information into the development of a rainfall-runoff model. In: Leibundgut C, McDonnell J, Schultz G (eds) *Integrated methods in catchment hydrology*. Proc. Int. Symp. at Birmingham, UK, July 1999, IAHS Publ. No. 258, pp 93–100
- Uhlenbrook S, Frey M, Leibundgut C, Maloszewski P (2002) Residence time based hydrograph separations in a meso-scale mountainous basin at event and seasonal time scales. *Water Resour Res* 38(6):1–14
- Uhlenbrook S, McDonnell J, Leibundgut C (2003) Preface: runoff generation and implications for river basin modelling. *Hydrol Proc* 17(2):197–198
- UNEP/UNESCO (United Nations Environment Program, United Nations Educational, Scientific Cultural Organization) (1986) *The impact of large water projects on the environment*. UNEP/EMINWA, UNESCO/IH, Paris
- UNESCO (United Nations Educational, Scientific Cultural Organization) (1993) *Integrated water resource management: meeting the sustainability challenge*. IHP Humid Tropics Programme, Series 5. UNESCO Press, Paris
- United Nations (1997) *Comprehensive assessment of the freshwater resources of the world*. UN, UNDP, UNEP, FAO, UNESCO, WMO, UNIDO, World Bank, SEL. WMO, Geneva, 33 p
- United Nations (1999) *Agenda 21: programme of action for sustainable development*. Rio declaration on environment and development; statement of forest principles; the final text of agreements negotiated by governments at the United Nations Conference on Environment and Development (UNCED), 3 June 1992, Rio de Janeiro, Brazil. Department of Public Information, United Nations, Geneva (reprint)
- US EPA (US Environmental Protection Agency) (1989) *Report to congress: water quality of the Nation's Lakes*. EPA 440/5–89–003. US Environmental Protection Agency, Washington DC
- US National Assessment (2000) *Climate change impacts on the United States: the potential consequences of climate variability and change: overview and foundation reports*. Cambridge University Press, Cambridge
- USGS (US Geological Survey) (1984) *National water summary – hydrologic events and issues*. US Geological Survey Water Supply Paper #2250. US Department of the Interior, Washington DC
- USGS-EDC (US Geological Survey EROS Data Center) (1998) *HYDRO 1K: elevation derivative database*. US Geological Survey, Earth Resources Data Center, Sioux Falls SD, (see <http://edcwww.cr.usgs.gov/landdaac/gtopo30/hydro/index.html>)
- Valentin C (1996) *Soil erosion under global change*. In: Walker BH, Steffen WL (eds) *Global change and terrestrial ecosystems*. Cambridge University Press, Cambridge, pp 317–338
- Valentin C, Bresson L-M (1992) Morphology, genesis and classification of surface crusts in loamy and sandy soils. *Geoderma* 55:225–245
- Valentin C, d'Herbès J-M (1999) Niger tiger bush as a natural water harvesting system. *Catena* 37:231–256
- Valentin C, Collinet J, Albergel J (1994) Assessing erosion in West African savannas under global change: overview and research needs. 15th Intern. Congress of Soil Science, Acapulco, Mexico, Vol. 7a, pp 253–274
- Valentin C, Rajot J-L, Mitja D (2004) Responses of soil crusting, runoff and erosion to following in the savannas of West Africa. *Agr Ecosyst Environ* (in press)
- Valette-Silver N (1992) Historical reconstructions of contamination using sediment cores: a review. NOAA Technical Memorandum NOS/ORG 65. US Dept Commerce, 37 p
- Van Dam JC (2000) *Field-scale water flow and solute transport: SWAP model concepts, parameter estimation and case studies*. Doctoral Thesis Wageningen University, ISBN 90–5808–256–3, 166 p
- Van Dam JC, Feddes RA (2000) Numerical simulation of infiltration, evaporation and shallow groundwater levels with the Richards equation. *J Hydrol* 233:72–85
- Van Genuchten MTh (1980) A closed form equation for predicting the hydraulic conductivity of unsaturated soils. *Soil Sci Soc Am J* 44:892–898

- Van Genuchten MTh, Leij FJ (1992) On estimating the hydraulic properties of unsaturated soils. In: Van Genuchten MTh, Leij FJ, Lund LJ (eds) Indirect methods for estimating hydraulic properties of unsaturated soils. Proc. Int. Workshop, Riverside, California, October 11–13, 1989, University California, California, CA, pp 1–14
- Vannoy JR (1991) La Géographie de l'Océan. Oceanis Paris, 214 p
- Vannote RL, Minshall GW, Cummins KW, Sedell JR, Cushing CE (1980) The river continuum concept. *Can J Fish Aquat Sci* 37:130–137
- Vehviläinen, B, Lohvansuu J (1991) The effects of climate change on discharges and snow cover in Finland. *Hydrolog Sci J* 36:109–121
- Velichko AA (ed) (1984) Late Quaternary environment of the Soviet Union. Longman Group Ltd., London, 327 p
- Vellinga P (ed) (1996) The environment, a multidisciplinary concern. Inst for Environmental Studies, Vrije Universiteit, Amsterdam, 538 p
- Ver LMB, Mackenzie FT, Lerman A (1994) Modeling preindustrial C-N-P-S biogeochemical cycling in the land coastal margin system. *Chemosphere* 29:855–887
- Verstappen GGC, Steenvoorden JHAM, van Liere L (1999) The influence of agricultural nutrients and pesticides on Dutch surface waters. In: Van der Kraats JA (ed) Farming without harming: the impact of agricultural pollution on water systems. Drukkerij Belsler, Lelystad, pp 199–208
- Vertessy RA, Elsenbeer H (1999) Distributed modeling of storm flow generation in an Amazonian rain forest catchment: effects of model parameterization. *Water Resour Res* 35(7):2173–2187
- Vlotman WF, Sufi AB, Sheikh IA (1990) Comparison of three subsurface pipe drainage projects in Pakistan. In: Proceedings of the Symposium on Land Drainage for Salinity Control in Arid and Semi-Arid Regions, Cairo, Egypt
- Von Bodungen B, Turner K (eds) (2001) Science and integrated coastal management. Dahlem Conf Series, John Wiley & Sons, Chichester
- Vörösmarty CJ (2002a) Global change, the water cycle, and our search for Mauna Loa. *Hydrol Process* 16:1335–1339
- Vörösmarty CJ (2002b) Global water assessment and potential contributions from Earth System Science. *Aquatic Sciences* 64: 328–351
- Vörösmarty CJ, Meybeck MM (1999) Riverine transport and its alteration by human activities. *IGBP Global Change Newsletter* 39:24–29
- Vörösmarty CJ, Moore BI (1991) Modeling basin-scale hydrology in support of physical climate and global biogeochemical studies: an example using the Zambezi River. *Studies in Geophysics* 12: 271–311
- Vörösmarty CJ, Peterson BJ (2000) Macro-scale models of water and nutrient flux to the coastal zone. In: Hobbie J (ed) Estuarine science: a synthetic approach to research and practice. Island Press, Washington DC, pp 43–80
- Vörösmarty CJ, Sahagian D (2000) Anthropogenic disturbance of the terrestrial water cycle. *Bioscience* 50:753–765
- Vörösmarty CJ, Gildea MP, Moore B, Peterson BJ, Berquist B, Melillo JM (1986) A global model of nutrient cycling: II. Aquatic processing, retention, and distribution of nutrients in large drainage basins. In: Correll D (ed) Watershed research perspectives. Smithsonian Institution Press, Washington DC
- Vörösmarty CJ, Moore B, Gildea MP, Peterson B, Melillo J, Kicklighter D, Raich J, Rastetter E, Steudler P (1989) A continental-scale model of water balance and fluvial transport: application to South America. *Global Biogeochem Cy* 3:241–265
- Vörösmarty CJ, Willmott CJ, Choudhury BJ, Schloss AL, Stearns TK, Robeson SM, Dorman TJ (1996a) Analyzing the discharge regime of a large tropical river through remote sensing, ground-based climatic data, and modeling. *Water Resour Res* 32:3137–3150
- Vörösmarty CJ, Fekete B, Tucker BA (1996b) River discharge database, version 1.0 (RivDIS v1.0). Volumes 0 through 6. A contribution to IHP-V Theme 1. Technical Documents in Hydrology Series, UNESCO, Paris
- Vörösmarty CJ, Wasson R, Richey JE (eds)(1997a) Modeling the transport and transformation of terrestrial materials to freshwater and coastal ecosystems. Workshop Report and Recommendations for IGBP Inter-Core Project Collaboration, IGBP Report 39, IGBP, Stockholm, Sweden, 84 p
- Vörösmarty CJ, Sharma K, Fekete B, Copeland AH, Holden J, Marble J, Lough JA (1997b) The storage and aging of continental runoff in large reservoir systems of the world. *Ambio* 26: 210–219
- Vörösmarty CJ, Meybeck M, Fekete B, Sharma K (1997c) The potential impact of neo-Castorization on sediment transport by the global network of rivers. In: Walling D, Probst J-L (eds) Human impact on erosion and sedimentation. IAHS Press, Wallingford, pp 261–272
- Vörösmarty CJ, Federer CA, Schloss A (1998a) Potential evaporation functions compared on US watersheds: implications for global-scale water balance and terrestrial ecosystem modeling. *J Hydrol* 207:147–169
- Vörösmarty CJ, Li C, Sun J, Dai Z (1998b) Emerging impacts of anthropogenic change on global river systems: the Chinese example. In: Galloway J, Melillo J (eds) Asian change in the context of global change: impacts of natural and anthropogenic changes in Asia on global biogeochemical cycles. Cambridge University Press, Cambridge, pp 210–244
- Vörösmarty CJ, Birkett C, Dingman SL, Lettenmaier D, Kim Y, Rodriguez E (1999) HYDRA-SAT, HYDrological Radar Altimetry SATellite. NASA Post-2002 Land Surface Hydrology Mission Component for Surface Water Monitoring. NASA, Washington. (<http://lshp.gsfc.nasa.gov/Post2002/hydrasat/hydrasatz.html>)
- Vörösmarty CJ, Fekete BM, Meybeck M, Lammers R (2000a) Geomorphometric attributes of the global system of rivers at 30-minute spatial resolution (STN-30). *J Hydrol* 237:17–39
- Vörösmarty CJ, Fekete BM, Meybeck M, Lammers R (2000b) A simulated topological network representing the global system of rivers at 30-minute spatial resolution (STN-30). *Global Biogeochemical Cycles* 14:599–621
- Vörösmarty CJ, Green P, Salisbury J, Lammers R (2000c) Global water resources: Vulnerability from climate change and population growth. *Science* 289:284–288
- Vörösmarty CJ, Hinzman L, Peterson BJ, Bromwich DL, Hamilton L, Morison J, Romanovsky V, Sturm M, Webb R (2001) The hydrologic cycle and its role in Arctic and global environmental change: a rationale and strategy for synthesis study. ARCUS, Fairbanks AK, 84 p
- Vörösmarty CJ, Hinzman L, Peterson BJ, Bromwich DL, Hamilton L, Morison J, Romanovsky V, Sturm M, Webb R (2002) Arctic-CHAMP: a program to study Arctic hydrology and its role in global change. *AGU Eos Transactions* 83, 241, 144, 249
- Vörösmarty CJ, Meybeck M, Fekete B, Sharma K, Green P, Syvitksi J (2003) Anthropogenic sediment retention: major global-scale impact from the population of registered impoundments. *Global and Planetary Change* 39:169–190
- Walker BH (1994) Global change strategy options in the extensive agriculture regions of the world. *Climatic Change* 27(1): 39–47
- Walling DE (1983) The sediment delivery problem. *J Hydrol* 65: 209–237
- Walling DE (1990) Linking the field to the river: sediment delivery from agricultural land. In: Boardman J, Foster IDL, Dearing JA (eds) Soil erosion on agricultural land. John Wiley & Sons, Chichester
- Walling DE, Fang D (2003) Recent trends in the suspended loads of the world's rivers. *Global and Planetary Change* 39:111–126
- Walling DE, Webb BW (1983) Patterns of sediment yield. In: Gregory KJ (ed) Background to palaeohydrology. John Wiley & Sons, New York, pp 69–100
- Ward PRB (1980) Sediment transport and a reservoir siltation formula for Zimbabwe, Rhodesia. *Die Siviele Ingenier in Suid-Afrika*, Januarie 1980, pp 9–15
- Ward RC, Robinson M (1990) Principles of hydrology, 3rd ed. McGraw-Hill, London
- Ward JV, Stanford JA (1995) Ecological connectivity in alluvial river ecosystems and its disruption by flow regulation. *Regul River* 11:105–119
- Webb RH, Schmidt JC, Marzolf GR, Valdez RA (eds)(1999) The controlled flood in Grand Canyon. AGU, Washington DC, 367 p
- Webb RH, Wegner DL, Andrews ED, Valdez RA, Patten DT (1999) Downstream effects of Glen Canyon Dam on the Colorado River in Grand Canyon: a review. In: Webb et al. (1999), pp 1–21

- Wechsung F, Krysanova V, Flechsig M, Schaphoff S (2000) May land-use change reduce the water deficiency problem caused by reduced brown coal mining in the state of Brandenburg? *Landscape Urban Plan* 51/2–4:105–117
- Werner PC, Gerstengarbe FW (1997) A proposal for the development of climate scenarios. *Climate Change* 8(3):171–182
- Werner W, Wodsak H-P (1994) Stickstoff- und Phosphoreintrag in Fließgewässer Deutschlands unter besonderer Berücksichtigung des Eintragungsgeschehens im Lockergesteinbereich der ehemaligen DDR. *Agrarspektrum* 22, 241 p
- Werner W, Olfs H-W, Auerswald K, Isermann K (1991) Stickstoff- und Phosphoreintrag im Oberflächengewässer über adiffuse Quellen. In: Hamm A (ed) *Studie über Wirkungen und Qualitätsziele von Nährstoffen in Fließgewässern*. Academia Verlag, St Augustin, pp 665–764
- Williams JR (1975) Sediment yield prediction with a universal equation using runoff energy factor. In: *Present and prospective technology for predicting sediment yields and sources*. USDA-ARS 40, pp 244–252
- Williams JR, Berndt HD (1977) Sediment yield prediction based on watershed hydrology. *Trans ASAE* 20(6):1100–1104
- Williams J, Bonell M (1988) The influence of scale of measurement on the spatial and temporal variability of the Philip infiltration parameters – an experimental study in an Australian savannah woodland. *J Hydrol* 104:33–51
- Williams MAJ, Faure H (eds)(1980) *The Sahara and the Nile – Quaternary environments and prehistoric occupation in northern Africa*. A.A. Balkema, Rotterdam, 623 p
- Williams JR, Singh VP (1995) The EPIC model. In: *Computer models of watershed hydrology*. Water Resources Publications, Colorado, pp 909–1000
- Williams JR, Renard KG, Dyke PT (1984) EPIC – a new model for assessing erosion's effect on soil productivity. *J Soil Water Conserv* 38(5):381–383
- Williams R, Burt T, Brighty G (2000) River water quality. In: Acreman MC (ed) *The hydrology of the UK*. Routledge, London, pp 134–149
- Wilson L (1973) Variations in mean annual sediment yield as a function of mean annual precipitation. *Am J Sci* 273:335–349
- Wilson GV, Jardine PM, Luxmoore RJ, Zelazny LW, Todd DE (1991a) Hydrogeochemical processes controlling subsurface transport from an upper Walker Branch Watershed during storm events. 1. Hydrologic transport processes. *J Hydrol* 123:297–316
- Wilson GV, Jardine PM, Luxmoore RJ, Zelazny LW, Todd DE (1991b) Hydrogeochemical processes controlling subsurface transport from an upper Walker Branch Watershed during storm events. 2. Solute transport processes. *J Hydrol* 123:317–336
- Wollheim WM, Peterson BJ, Deegan LA, Hobbie JE, Hooker B, Bowden WB, Edwardson KJ, Arscott DB, Hershey AE, Finlay J (2001) Influence of stream size on ammonium and suspended particulate nitrogen processing. *Limnol Oceanogr* 46:1–13
- Wolters W, Bhutta MN (1997) Need for integrated irrigation and drainage management: example of Pakistan. *Proceedings of ILRI Symposium Towards Integrated Irrigation and Drainage Management*, Wageningen, The Netherlands
- Wösten JHM, Lilly A, Nemes A, Le Bas C (1999) Development and use of a database of hydraulic properties of European soils. *Geoderma* 90:169–185
- WRI (World Resources Institute) (1998) *World resources: a guide to the global environment 1998–1999*. World Resources Institute, Washington DC
- Young GJ, Dooge JI, Rodda JC (1994) *Global water resource issues*. CUP, Cambridge
- Yu B, Neil DT (1993) Long-term variations in regional rainfall in the south-west of Western Australia and the difference between average and high intensity rainfalls. *International Journal of Climatology* 13:77–88
- Yue S, Pilon P, Phinney B (2003) Canadian streamflow trend detection: impacts of serial and cross-correlation. *Hydrol Sci J* 48(1): 51–63
- Zaret TM, Devol AH, Santos AD (1981) Nutrient addition experiments in Lago Jacaretinga, central Amazon Basin, Brazil. *Verh Internat Verein Limnol* 21:721–724
- Zeng X (2001) Global vegetation root distribution for land modeling. *J Hydrometeorol* 2:525–530
- Zhang J, Zhang ZF, Liu SM, Wu Y, Xiong H, Chen HT (1999) Human impacts on the large world rivers: would the Chang Jiang (Yangtze River) be an illustration? *Global Biogeochem Cy* 13:1099–1105

