

References

- Abbott, M.B., Bathurst, J.C., Cunge, J.A., O'Connell, P.E. and Rasmussen, J. (1986) An introduction to the European Hydrological System, *Système Hydrologique Européen*, SHE, 1: History and philosophy of a physically-based, distributed modeling system. *J. Hydrology* **87**, 45–59.
- Albergel, J. (1987) *Sécheresse, Désertification et Ressources en Eau de Surface. Application aux Petits Bassins du Burkina Faso*. IAHS Publ. No. 168, pp. 355–65.
- Albergel, J., Carbonnel, J.-P. and Grouzis, M. (1985) *Pejoration climatique au Burkina Faso: Incidences sur les ressources en eau et les productions végétales*. Cah. ORSTOM, sér. Hydrology **XXI**(1), 3–19.
- Albergel, J. and Gioda, A. (1986) *Extensions des surfaces agricoles et modification de l'écoulement. Analyse sur deux bassins de la savane africaine*. 10èmes Journées de l'Hydraulique, SHF Rep. No. 9, Paris.
- Alberty, R., Crum, T. and Toepfer, F. (1991) The NEXRAD Program: Past, present, and future, A 1991 perspective. In *Proceedings of an International Conference on Radar Meteorology*. American Meteorology Society, June 24–28.
- Alley, W.M. (1984) On the treatment of evapotranspiration, soil moisture accounting and aquifer recharge in monthly water balance models. *Water Resources Res.* **20**, 1137–49.
- Anderson, E.A. (1973) *National Weather Service River Forecast System: Snow Accumulation and Ablation Model*. NOAA Technical Memorandum NWS Hydro-17, US Dept. of Commerce, Silver Springs, MD.
- André, J.C., Goutorbe, J.P. and Perrier, A. (1986) A hydrologic atmospheric experiment for the study of water budget and evaporation flux at the climate scale. *Bull. Am. Meteorol. Soc.* **67**, 138–44.
- André, J.C. et al. (1988) Evaporation over land surfaces: first results from HAPEX-MOBILHY special observing period. *Ann. Geophys.* **6**, 477–92.
- Anthes, R.A., Hsie, E.Y. and Kuo, Y.H. (1987) *Description of the Penn State/NCAR Mesoscale Model Version 4 (MM4)*. Tech. Note NCAR/TN-282+STR, National Center for Atmospheric Research, Boulder, CO.
- Arnell, N.W. (1992a) Factors controlling the effects of climate change on river flow regimes in a humid temperate environment. *J. Hydrology* **132**, 321–42.
- Arnell, N.W. (1992b) Impacts of climate change on river flow regimes in the UK. *J. Inst. Water and Environmental Management* **6**, 432–42.
- Arnell, N.W. (1994) Variations over time in European hydrological behaviour: A spatial perspective. In *FRIEND: Flow Regimes from International Experimental and Network Data*. IAHS Publ. No. 221, pp. 179–84.
- Arnell, N.W. (1995) *Impact of Climate Change on Hydrological Regimes and Water Resources in the European Community*. First Progress Report EV5V-CT93-0293. Institute of Hydrology, Wallingford, UK.
- Arnell, N.W., Brown, R.P.C. and Reynard, N.S. (1990) *Impact of Climatic Variability and Change on River Flow Regimes in the UK*. Report 107, Institute of Hydrology, Wallingford, UK.
- Arnell, N.W., Gottschalk, L., Krasovskaia, I. and van der Wateren, B. (1993) Large-scale variations in hydrological characteristics across Europe. In A. Gustard (Ed.) *Flow Regimes from International Experimental and Network Data (FRIEND)*. Institute of Hydrology, Wallingford, UK, pp. 112–37.
- Arnell, N.W. and Reynard, N.S. (1993) *Impact of Climate Change on River Flow Regimes in the United Kingdom*. Institute of Hydrology Report to the Department of the Environment.
- Arnell, N.W. and Reynard, N.S. (1995) *Impact of Climate Change on Water Resources in East Africa*. Institute of Hydrology Report to Overseas Development Administration, UK.
- Assel, R.A. (1991) Implications of CO₂ global warming on Great Lakes ice cover. *Climatic Change* **18**, 377–95.
- Aston, A.R. (1984). The effect of doubling atmospheric carbon dioxide on streamflow: A simulation. *J. Hydrology* **67**, 273–80.
- Australian Bureau of Meteorology (1991) *The Impacts of Climate Change on Hydrology and Water Resources*. Climate Change Impacts Workshop, Melbourne, June 1991.
- Avissar, R. and Pielke, R.A. (1989) A parametrization of a heterogeneous land surface for atmospheric numerical models and its impact on regional meteorology. *Monthly Weather Rev.* **117**, 2113–36.
- Avissar, R. and Verstraete, M.M. (1990) The representation of continental surface processes in atmospheric models. *Rev. Geophys.* **28**, 35–52.
- BALTEX (1995) *Baltic Sea Experiment, BALTEX: Initial Implementation Plan*. International BALTEX Secretariat, Geesthacht, Germany.
- Bao, W.M. (1994) A conceptual flow-sediment coupled simulation model for large basins. *Advances in Water Science* **5**(4) (in Chinese).
- Barros, V., Castañeda, M.E. and Doyle, M. (1995) *Recent Precipitation Trends in Southern South America to the East of the Andes: An Indication of a Mode of Climate Variability*. Proc. Workshop e Seminario Latino Americano sobre Emissões Mundiais de Gases de Efeito Estufa no Setor Energético e seus Impactos. July, COPPE, UFRJ, Rio de Janeiro.
- Barry, R.G. and Chorley, R.J. (1987) *Atmosphere, Weather and Climate*. Routledge, London.
- Barth, H. (1860) *Voyages et Découvertes dans l'Afrique Septentrionale et Centrale Pendant les Années 1849 à 1855*, 4 vols. Bohné, Paris.
- Bates, B.C. et al. (1995) *Impact of Climate Change on Australia's Surface Water Resources*. Proceedings Greenhouse '94 Conference, October 1994, Wellington, New Zealand.
- Bathurst, J.C. and O'Connell, P.E. (1992) Future of parameter modeling: The *Système Hydrologique Européen*. *Hydrological Processes* **6**, 265–77.
- Becker, A. and Serban, P. (1990) *Hydrological Models for Water Resources System Design and Operation*. Operational Hydrology Report No. 34, WMO No. 740, Geneva.
- Bell, B. (1971) The Dark Ages in ancient history: The first Dark Age in Egypt. *Am. J. Archaeology* **75**, 1–36.
- Bergstrom, S. (1976) *Development and Application of a Conceptual Runoff Model for Scandinavian Catchments*. Bulletin Series A-52, Dept. of Water Resources Engineering, Lund Institute of Technology, Swedish Meteorological and Hydrological Institute (Norrköping, Sweden).
- Berndtsson, R., Larson, M., Lindh, G. et al. (1989) Climate-induced effects on the water balance: Preliminary results from studies in the

- Varpinge experimental research basin. In *Proceedings of a Conference on Climate and Water*. Helsinki, Finland, Vol. 1, WMO, Geneva, pp. 437–49.
- Beven, K. (1985) Distributed models. In M.G. Anderson and T.P. Burt (Eds.) *Hydrological Forecasting*. Wiley, Chichester.
- Beven, K. (1989) Changing ideas in hydrology: The case of physically based models. *J. Hydrology* **105**, 157–72.
- Beven, K. and Binley, A. (1992) The future of distributed models: Model calibration and uncertainty prediction. *Hydrological Processes* **6**, 279–98.
- Blyth, E.M., Dolman, A.J. and Noilhan, J. (1994) The effect of forest on mesoscale rainfall: An example from HAPEX-MOBILHY. *J. Appl. Meteorol.* **33**, 445–54.
- Bolle, H.-J., André, J.C., Arrue, J.L. et al. (1993) EFEDA: European Field Experiment in a Desertification-Threatened Area. *Ann. Geophys.* **11**, 173–89.
- Bonell, M. (1998) Possible impacts of climate variability and change on tropical forest hydrology. WWF Conference on the potential impacts of climate change on tropical forest ecosystems, Puerto Rico, April 1995. *Climatic Change*, **39**, 215–72.
- Bonell, M. and Balek, J. (1993) Recent scientific developments and research needs in hydrological processes of the humid tropics. In M. Bonell, M.M. Hufschmidt and J. S. Gladwell (Eds.) *Hydrology and Water Management in the Humid Tropics: Hydrological Research Issues and Strategies for Water Management*. UNESCO/Cambridge University Press, Cambridge, pp. 167–260.
- Brandsma, T. (1995) Hydrological Impacts of Climate Change. PhD thesis, Delft University of Technology, Delft, The Netherlands.
- Brink, H.M. ten (1996) Reduction of solar radiation by aerosols in Europe: 'Dust particles' compensate for the greenhouse effect. *Climatic Change* **30**, 13–14.
- Budyko, M.I. (1948) *Evaporation under Natural Conditions*. Hydrometeoizdat, Leningrad.
- Budyko, M.I. (1972) *The Influence of Man on Climate*. Hydrometeoizdat, Leningrad.
- Budyko, M.I. (1988) Climate at the end of the twentieth century, *Meteorologiya i Hydrologiya*, No. 10 (in Russian).
- Budyko, M., Borzenkova, I., Menzhulin, G. and Shiklomanov, I., eds. (1994) *Gambios Antropogenicos del Climate en America del Sur*. Academia Nacional de Agronomia y Veterinaria.
- Bultot, F., Coppens, A., Dupriez, G.L., Gellens, D. and Meulenberghs, F. (1988) Repercussions of a CO₂-doubling on the water cycle and on the water balance: A case study for Belgium. *J. Hydrology* **99**, 319–47.
- Bultot, F. and Dupriez, G.L. (1976) Conceptual hydrological model for an average-sized catchment area, I: Concepts and relationships. *J. Hydrology* **29**, 251–72.
- Bultot, F., Gellens, D., Schädler, B. and Spreafico, M. (1994) Effects of climate change on snow accumulation and melting in the Broye catchment (Switzerland). *Climatic Change* **28**, 339–63.
- Bultot, F., Gellens, D., Spreafico, M. and Schädler, B. (1992) Repercussions of CO₂ doubling on the water balance: A case study in Switzerland. *J. Hydrology* **137**, 199–208.
- Burgos, J.J., Ponce, H.F. and Molion, L.C.B. (1991) Climate change prediction for South America. *Climatic Change* **18**, 223–39.
- Burnash, R.J.C., Ferral, R.L. and McGuire, R.A. (1973) *A Generalized Streamflow Simulation System: Conceptual Modeling for Digital Computers*. US Dept. of Commerce, National Weather Service, and State of California, Dept. of Water Resources, Sacramento, CA.
- Canadian GEWEX Science Committee (1992) *Canadian GEWEX Programme: A Conceptual Overview*, Ed. G. McBean. National Hydrology Research Centre, Saskatoon, Saskatchewan.
- Campos, S. (1989) *Management of the Zambezi Basin: Social, Political and Economic Considerations*. Working Paper WP89-092, IIASA, Laxenburg, Austria.
- Carter, T.R., Parry, M.L., Harasawa, H. and Nishioka, S. (1994) *IPCC Technical Guidelines for Assessing Climate Change Impacts and Adaptations*. Dept. of Geography, University College, London.
- Casenave, A. and Valentin, C. (1990) *Les États de Surface de la Zone Sahélienne: Influence sur L'infiltration*. Coll. Didactiques, ORSTOM, Paris.
- CCIRG (Climate Change Impacts Review Group) (1991) *The Potential Impacts of Climate Change on the United Kingdom*. HMSO, London.
- CGER (1993) *The Potential Effects of Climate Change in Japan*. Center for Global Environmental Research, Tsukuba, Japan.
- Chang, L.H., Hunsaker, C.T. and Draves, J.D. (1992) Recent research on effects of climate change on water resources. *Water Resources Bull. (AWRA)* **28**(2), 273–86.
- Changnon, S.A. and Huff, F.A. (1991) Potential effects of changed climates on heavy rainfall frequencies in the midwest. *Water Resources Bull.* **27**(5), 753–9.
- Charney, J.G. (1975) Dynamics of deserts and drought in the Sahel. *Q. J. R. Meteorol. Soc.* **101**, 19–202.
- Chunzhen, L. (1989) *Study of Climate Change and Water Resources in Northern China*. Chinese Ministry of Water Resources (unpublished).
- Close, A.F. (1988) Potential impact of the greenhouse effect on the water resources of the River Murray. In G. Pearman (Ed.) *Greenhouse: Planning for Climate Change*. CSIRO, Australia, pp. 312–23.
- Cohen, S.J. (1986) Impacts of CO₂-induced climatic change on water resources in the Great Lakes basin. *Climatic Change* **8**, 135–53.
- Cohen, S.J. (1991) Possible impacts of climatic warming scenarios on water resources in the Saskatchewan River sub-basin, Canada. *Climatic Change* **19**, 291–317.
- Cohen, S.J. and Allsopp, T.R. (1988) The potential impacts of a scenario of CO₂-induced climatic change on Ontario, Canada. *J. Climate* **1**, 669–81.
- Cohen, S.J., Walsh, L.E. and Louie, P.Y.T. (1989) *Possible Impacts of Climate Warming Scenarios on Water Resources in the Saskatchewan River Subbasin*. Canadian Climate Centre Rep. No. 89-9, Atmospheric Environment Service, National Hydrology Research Centre, Saskatoon, Canada.
- COHMAP (Cooperative Holocene Mapping Project) (1988) Climatic changes of the last 18 000 years: Observations and model simulations. *Science* **241**, 1043–52.
- Collins, D.M. (1989) Influence of glacierisation in the response of runoff from Alpine basins to climate variability. In *Conference on Climate and Water*, Helsinki, Finland, Vol. 1, WMO, Geneva, pp. 319–28.
- Conway, D. (1993) The Development of a Grid-Based Hydrologic Model of the Blue Nile and the Sensitivity of Nile River Discharges to Climate Change. PhD Thesis, University of East Anglia, UK (unpublished).
- Conway, D. (1994) *The Implications of Future Climate Change for Water Resources in the Countries of the Nile Basin*. African Studies Association of the UK, Biennial Conference, University of Lancaster, September 1994.
- Conway, D. and Hulme, M. (1993) Recent fluctuations in precipitation and runoff over the Nile sub-basins and their impact on Main Nile discharge. *Climatic Change* **25**, 127–51.
- Cooley, K.R. (1990) Effects of CO₂-induced climatic changes on snow-pack and streamflow. *Hydrological Sci.* **35**(5), 511–22.
- Cooper, D.M., Wilkinson, W.B. and Arnell, N.W. (1995) The effect of climate change on aquifer storage and river baseflow. *Hydrol. Sci. J.* **40**, 615–31.
- Courtier, P. and Geleyn, J.F. (1988) A global numerical weather prediction model with variable resolution: Application to the shallow water equation. *Q. J. R. Meteorol. Soc.* **114**, 1321–46.
- Crane, R.G. (1992) General circulation model studies of global warming. In S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller and L.M. Rosenfeld (Eds.) *Global Climate Change: Implications, Challenges, and Mitigation Measures*. Pennsylvania Academy of Science, Easton, PA, pp. 189–208.
- D'Angelo, A. and Damazio, J.M. (1993) Modelo SIMBAH: modelagem da transpiração e da interceptação vegetal. *Proceedings of the 10th Brazilian Water Resources Symposium*, ABRH, Gramado, pp. 351–60 (in Portuguese).
- Desbois, M. (1994) TROPIQUES, a small satellite for the study of the variability of water and energy cycles in the intertropical band. *Proceedings of a European Symposium on Satellite Remote Sensing*, Rome, September 1994, SPIE-EUROPTO series.
- Dettinger, M.D. and Cayan, D.R. (1995) Large-scale atmospheric forcing of recent trends toward early snowmelt runoff in California. *J. Climate* **8**, 606–23.
- Dickinson, R.E. (1984) Modelling evapotranspiration for three-dimensional global climate Models. In *Climate Processes and Climate Sensitivity*. Geophysics Monographs, LF29, AGU, pp. 58–72.

- Dickinson, R.E. (1988) Climate and hydrologic systems. In *Toward an Understanding of Global Change*. National Academy Press, Washington, DC, pp. 107–32.
- Dickinson, R.E. and Kennedy, J. (1992) Impacts on Regional Climate of Amazon Deforestation. *Geophys. Res. Lett.* 19, 1947–50.
- Dickinson, R.E., Lean, J. and Warrilow, D.A. (1989) Climate impact of Amazon deforestation. *Nature* 342, 311–13.
- Dickinson, R.E. and Rowntree, P. (1993) GCM model studies. In P. Sellers, C. Nobre, D. Fitzjarrald, P. Try and D. Lucid (Eds.) *A Preliminary Science Plan for a Large-Scale Biosphere Atmosphere Field Experiment in the Amazon Basin*. ISLSCP/GEWEX, Washington, DC.
- Dolman, A.J., Kabat, P., Elders, J.A., Bastiaansen, W.G.M. and Ogink-Hendriks, M.J. (1995) Regionalization and parametrization of hydrological processes at the land surface. In J.F.Th. Schulte *et al.* (Eds.) *Scenario Studies for the Rural Environment*. Kluwer, Dordrecht.
- Dooge, J.C.I. (1992) Hydrologic models and climate change. *J. Geophys. Res.* 97(D3), 2677–86.
- Dozier, J. (1992) Opportunities to improve hydrologic data. *Rev. Geophys.* 30(4), 315–31.
- Dracup, J.A. and Kahya, E. (1994) The relationships between U.S. streamflow and La Niña events. *Water Resources Res.* 30(7), 2133–41.
- Dubief, J. (1953) *Essai sur l'hydrologie superficielle au Sahara*. Dir. Serv. Col. Hydraul. Alger.
- Dunne, T. (1983) Relation of field studies and modeling in the prediction of storm runoff. *J. Hydrology* 65, 25–48.
- Dunne, T. and Barker, M. (1997) *The NDBA (Nested Drainage Basin Approach) in the Amazon Basin* (in preparation).
- Easterling, W.E., McKenney, M., Rosenberg, N.S. and Leman, K. (1991) *A Farm Level Simulation of the Effects of Climate Change on Crop Productivity in the MINK Region*. Working Paper 11–13, US Department of Energy.
- Easterling, W.E., Rosenberg, N.J., McKenney, M.S. and Jones, C.A. (1992a) An introduction to the methodology, the region of study, and a historical analog of climate change. *Agric. Forest Meteorol.* 59, 3–15.
- Easterling, W.E., Rosenberg, N.J., McKenney, M.S., Jones, C.A., Dyke, P.T. and Williams, J.R. (1992b) Preparing the erosion productivity impact calculator (EPIC) model to simulate crop response to climate change and the direct effects of CO₂. *Agric. Forest Meteorol.* 59, 17–34.
- Engman, E.T. and Gurney, R.J. (1991) *Remote Sensing Hydrology*. Chapman & Hall, London.
- Espenshade, E.B., Jr and Morrison, J.L. 1978 *Goode's World Atlas*. Rand-McNally, Chicago.
- Evans, T. (1994) History of Nile flows. In P.P. Howell and J.A. Allan (Eds.) *The Nile: Sharing a Scarce Resource*. Cambridge University Press, Cambridge, pp. 27–63.
- Famiglietti, J.S. and Wood, E.F. (1994a) Multiscale modeling of spatially variable water and energy balance processes. *Water Resources Res.* 30, 3061–78.
- Famiglietti, J.S. and Wood, E.F. (1994b) Application of multiscale water and energy balance models of a tallgrass prairie. *Water Resources Res.* 30, 3079–93.
- Famiglietti, J.S., Wood, E.F., Sivapalan, M. and Thongs, D.J. (1992) A catchment scale water balance model for FIFE. *J. Geophys. Res.* 97(D17), 18997–19007.
- Feddema, J.J. and Mather, J.R. (1992) Hydrological impacts of global warming over the United States. In S.K. Majumdar, L.S. Kalkstein, B.M. Yarnal, E.W. Miller and L.M. Rosenfeld (Eds.) *Global Climate Change: Implications, Challenges and Mitigation Measures*. Pennsylvania Academy of Science, Easton, PA, pp. 50–62.
- Feddes, R.A. (Ed.) (1995) *Space and Time Scale Variability and Interdependencies in Hydrological Processes*. International Hydrology Series. Cambridge University Press, Cambridge.
- Feddes, R.A., Menenti, M. and Kabat, P. (1989) *Modelling the Soil Water and Surface Energy Balance in Relation to Climate Models*. European Coordination Group on Land Surface Processes, Hydrology and Desertification in Europe, Barcelona.
- Finkelstein, P.L. and Truppi, L.E. (1991) Spatial distribution of precipitation in the United States. *J. Climate* 4, 373–85.
- Flaschka, I., Stockton, C.W. and Boggess, W.R. (1987) Climatic variation and surface water resources in the Great Lakes basin region. *Water Resources Bull.* 23(1), 47–57.
- Folland, C.K., Palmer, T.N. and Parker, D.E. (1986) Sahel rainfall and worldwide sea temperatures 1901–85. *Nature* 320, 602–7.
- Franchini, M. and Pacciani, M. (1991) Comparative analysis of several conceptual rainfall-runoff models. *J. Hydrology* 122, 161–219.
- Gaffen, D.J., Rosen, R.D., Salstein, D.A. and Boyle, J.S. (1995) Validation of humidity, moisture fluxes, and soil moisture in GCMs: Report of AMIP diagnostic subproject 11, Part 2, Humidity and moisture flux fields. In W.L. Gates (Ed.) *Proceedings 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD No. 732, WMO, Geneva, pp. 91–6.
- Gan, T.Y. and Burgess, S.J. (1990) An assessment of a conceptual rainfall-runoff model's ability to represent the dynamics of small hypothetical catchments. 2. Hydrologic responses for normal and extreme rainfall. *Water Resources Res.* 26(7), 1605–19.
- Gates, W.L. (1992) AMIP: The atmospheric model intercomparison project. *Bull. Am. Meteorol. Soc.* 73(12), 1962–70.
- Gates, W.L. (Ed.) (1995a) *Proceedings of the 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD No. 732, WMO, Geneva.
- Gates, W.L. (1995b) An overview of AMIP and preliminary results. In W.L. Gates (Ed.) *Proceedings of the 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD-No. 732, pp. 1–8.
- Gauzer, B. (1994) Effect of temperature change on the catchment over the Nagymaros section on the flow conditions of the Danube. In *Climate Change Impacts on the Water Resources of Hungary including the Upper Danube Basin*. VITUKI, Budapest/IIASA, pp. 51–82.
- Gellens, D. (1991) Impact of a CO₂-induced climate change on river flow variability in three rivers in Belgium. *Earth Surface Processes and Landforms* 16, 619–25.
- Georgievsky, V.Yu. (1978) Computations and forecasts of changes in water level at the Caspian Sea under the effect of natural climatic factors and man's impact. *Trudy GGI*, 255, 94–112 (in Russian).
- Georgievsky, V.Yu. and Ezhov, A.V. (1990) Prospects for joint control of water and salt balances of the Caspian Sea and Sea of Azov. In *Proceedings of the 5th All-Union Hydrological Congress*, 4, 178–85.
- Georgievski, V.Yu., Shalygin, A.L. and Doganovskaya, T.M. (1993) Modern and future dynamics of crop demand for irrigation in connection with global climate warming. *Meteorology and Hydrology*, No. 12, pp. 81–7.
- Ghan, S.J. (1992) The GCM credibility gap. *Climatic Change* 21, 345–6.
- Ghassemi, F., Jacobsen, G. and Jakeman, A.S. (1991) Major Australian aquifers: Potential climatic change impacts. *IWRA, Water International* 16(1), 38–44.
- Gilyen-Hofer, A. (1994) Impact of potential climate change on long-term discharge data series. In *Climate Change Impacts on the Water Resources of Hungary including the Upper Danube Basin*. VITUKI, Budapest/IIASA, pp. 51–82.
- Giorgi, F. and Mearns, L.O. (1991) Approaches to the sanitation of regional climate change: A review. *Rev. Geophys.* 29(2), 191–216.
- Gleick, P.H. (1987a) The development and testing of a water balance model for climate impact assessment: Modeling the Sacramento basin. *Water Resources Res.* 23(6), 1049–61.
- Gleick, P.H. (1987b) Regional hydrologic consequences of increases in atmospheric CO₂ and other trace gases. *Climatic Change* 10, 137–61.
- Gleick, P.H. (1988) Climatic change and California: Past, present and future vulnerabilities. In M. Glantz (Ed.) *Societal Response to Regional Dynamic Change: Forecasting by Analogy*. Westview Press, Boulder, CO.
- Gleick, P.H. (1990) Vulnerability of water systems. In P.E. Waggoner (Ed.) *Climate Change and U.S. Water Resources*. Wiley, New York, pp. 223–40.
- Gleick, P.H. (1991) The vulnerability of runoff in the Nile Basin to climatic changes. *The Environmental Professional* 13, 66–73.
- Goodrich, D.C. (1994) SALSA-MEX: A large-scale semi-arid land surface atmospheric mountain experiment. In *Proceedings of the International Geoscience and Remote Sensing Symposium*, Vol. 1, Pasadena, CA, pp. 190–3.
- Goutorbe, J.P., Lebel, T., Tinga, A., Bessemoulin, P., Dolman, H., Engman, E.T., Gash, J.H.C., Hoepffner, M., Kabat, P., Kerr, Y.H.,

- Monteny, B., Prince, S., Saïd, F., Sellers, P. and Wallace, J. (1992) *Experimental Plan for HAPEX-SAHÉL*. ORSTOM, Paris.
- Goutorbe, J.P., Lebel, T., Tinga, A., Bessemoulin, P., Brouwer, J., Dolman, H., Engman, E.T., Gash, J.H.C., Hoepffner, M., Kabat, P., Kerr, Y.H., Monteny, B., Prince, S., Saïd, F., Sellers, P. and Wallace, J. (1994) HAPEX-SAHÉL: A large-scale study of land-atmosphere interactions in the semi-arid tropics. *Ann. Geophys.* **12**, 53–64.
- Graham, N.E. (1995) Simulation of recent global temperature trends. *Science* **267**, 666–71.
- Grayson, R.B., Moore, I.D. and McMahon, T.A. (1992) Physically based hydrologic modeling, 2: Is the concept realistic? *Water Resources Res.* **26**(10), 2659–66.
- Griffiths, G.A. (1989) *Water Resources in New Zealand: Report on the Impacts of Climate Change*. North Canterbury Catchment Board, New Zealand.
- Grotch, S.L. (1988) *Regional Intercomparison of General Circulation Model Predictions and Historical Climate Data*. U.S. Dept. of Energy, DOE/NBB-0084.
- Grotch, S.L. and MacCracken, M.C. (1991) The use of general circulation models to predict regional climatic change. *J. Climatology* **4**, 286–303.
- Gustard, A. (Ed.) (1993) *Flow Regimes from International Experimental and Network Data (FRIEND)*. Institute of Hydrology, Wallingford (3 vols).
- Gustard, A., Roald, L.A., Demuth, S., Lumadjeng, H.S. and Gross, R. (1989) *Flow Regimes from Experimental and Network Data (FRIEND)*. Institute of Hydrology, Wallingford (2 vols).
- Hallidin, S., Gottschalk, L., van de Griend, A.A. et al. (1995) *Science Plan for NOPEX*. NOPEX Central Office, Uppsala.
- Hansen, J., Fung, I., Lacis, A., Rind, D., Russell, G., Lebedeff, S., Ruedy, R. and Stone, P. (1988) Global climate changes as forecast by the Goddard Institute for Space Studies three-dimensional model. *J. Geophys. Res.* **93**, 9341–64.
- Hansen, J., Lacis, A., Rind, D., Russell, G., Stone, P., Fung, I., Ruedy, R. and Lerner, J. (1984) Climate sensitivity: Analysis of feedback mechanisms. In J.E. Hansen and T. Takahashi (Eds.) *Climate Processes and Climate Sensitivity*. Geophysical Monograph Series, vol. 29, pp. 130–63.
- Hare, F.K. (1983) *Climate and Desertification: A revised analysis*. WCP44, WMO.
- Hay, L.E., McCabe, Jr, G.J., Wolock, D.M. and Ayers, M.A. (1992) Use of weather types to disaggregate general circulation model predictions. *J. Geophys. Res.* **97**(D3), 2781–90.
- Henderson-Sellers, A., Pitman, A.J., Love, P.K., Irannejad, P. and Chen, T.H. (1995) Project for Intercomparison of Land Surface Parameterization Schemes (PILPS): Phases 2 and 3. *Bull. Am. Meteorol. Soc.* **74**(7), 1335–49.
- Henderson-Sellers, A. and Robinson, P.J. (1992) *Contemporary Climatology*. Longman, Harlow, UK.
- Henderson-Sellers, A., Yang, Z.-L. and Dickinson, R.E. (1993) Project for intercomparison of land surface parameterization schemes. *Bull. Am. Meteorol. Soc.* **74**(7), 1335–49.
- Hinzman, L.D. and Kane, D.L. (1992) Potential response of an Arctic watershed during a period of global warming. *J. Geophys. Res.* **97**(D3), 2811–20.
- Hisdal, H., Erup, J., Gudmundsson, K. et al. (1995) *Historical Runoff Variations in the Nordic Countries*. Nordic Hydrological Programme Report No. 37.
- Hondzo, M. and Stefan, H.G. (1993) Regional water temperature characteristics of lakes subjected to climate change. *Climatic Change* **24**, 187–211.
- Hostetler, S.W. (1994) Hydrologic and atmospheric models: The (continuing) problem of discordant scales. *Climatic Change* **27**, 345–50.
- Hostetler, S.W. and F. Giorgi (1993) Use of output from high-resolution atmospheric models in landscape-scale hydrologic models: An assessment. *Water Resources Res.* **29**(6), 1685–95.
- Hubert, P. and Carbonnel, J.P. (1987) Approche statistique de l'aridification de l'Afrique de l'Ouest. *J. Hydrology* **95**, 165–83.
- Hulme, M. (1990) Global climate change and the Nile Basin. In P.P. Howell and J.A. Allan (Eds.) *The Nile: Sharing a Scarce Resource*. Cambridge University Press, Cambridge, pp. 139–62.
- Hulme, M. (1992) Rainfall changes in Africa, 1931–60 to 1961–90. *Int. J. Climatology* **12**, 685–99.
- Hulme, M., Conway, D., Kelly, M.P., Subak, S. and Downing, T.E. (1994) *The Impacts of Climate Change on Africa*. Stockholm Environment Institute (SEI).
- Hurst, H.E. (1951) Long-term storage capacity of reservoirs. *Trans. ASCE* **116**, 770–99.
- Hurst, H.E. (1965) *Long-Term Storage*. Constable, London.
- Hydrometeoizdat (1987) *Anthropogenic Climate Change*. Moscow, Hydrometeoizdat.
- ICASVR (1992) *Liaison Reports on ICASVR-related Activities*. International Committee on Atmosphere, Soil and Vegetation Relations, International Association of Hydrological Sciences (IAHS), Velp, the Netherlands.
- Idso, S.B. and Brazel, A.S. (1984) Rising atmospheric carbon dioxide concentrations may increase streamflow. *Nature* **312**, 51–3.
- IGPO (1994) *Implementation Plan for the GEWEX Continental-Scale International Project (GCIP)*, Vol. II. International GEWEX Project Office, Washington, DC.
- IHP-ICASVR-IGBP (1995) *State of the Art Report on Land Surface Processes in Regional and Large Scale Hydrology*.
- IPCC (1990a) *Climate Change: The IPCC Scientific Assessment*, Eds. J.T. Houghton, G.S. Jenkins and S.S. Ephraïms. Cambridge University Press, Cambridge, for WMO/UNEP.
- IPCC (1990b) *Policymakers' Summary of the Scientific Assessment of Climate Change*. Report prepared by IPCC Working Group I, Geneva.
- IPCC (1991) *Scientific Assessment of Climate Change: Summary of the IPCC Working Group I Report*. Proc. 2nd World Climate Conference, Eds. J.T. Houghton et al. Cambridge University Press, Cambridge, pp. 23–44.
- IPCC (1992) *Climate Change 1992: Supplementary Report to the IPCC Scientific Assessment*, Eds. J.T. Houghton, B.A. Callender and S.K. Varney. Cambridge University Press, Cambridge.
- IPCC (1995) *Second IPCC Report*, in particular Chapter 10: Hydrology and freshwater ecology, and Chapter 14: Water resources management. Cambridge University Press, Cambridge.
- Issar, A.S. (1995) *Impacts of Climate Variations on Water Management and Related Socio-economic Systems*. Technical Documents in Hydrology, International Hydrological Programme, UNESCO, Paris.
- Jarvis, C.S. (1936) Flood-stage records of the River Nile. *Trans. ASCE* **101**, 1012–71.
- Jones, P.D. and Briffa, K.R. (1992) Global surface air temperature variations during the twentieth century, Part 1: spatial, temporal and seasonal details. *The Holocene* **2**(2), 165–79.
- Jones, R.G., Murphy, R.G. and Noguer, M. (1995) Simulation of climate change over Europe using a nested regional climate model. 1: Assessment of current climate, including sensitivity to location of lateral boundaries. *Q. J. R. Meteorol. Soc.* **121**, 1413–49.
- Kaczmarek, Z. (1990a) *Impact of Climatic Variations on Storage Reservoir Systems*. Working Paper WP-90-20, IIASA, Laxenburg, Austria.
- Kaczmarek, Z. (1990b) *On the Sensitivity of Runoff to Climate Change*. Working Paper WP-90-58, IIASA, Laxenburg, Austria.
- Kaczmarek, Z. and Krasuski, D. (1991) *Sensitivity of Water Balance to Climate Change and Variability*. Working Paper WP-91-047, IIASA, Laxenburg, Austria.
- Kaczmarek, Z., Strzepek, K.M., Somlyódy, L. and Priazhinskaya, V. (1996) *Water Resources Management in the Face of Climatic/Hydrologic Uncertainties*. Water Science and Technology Library 18. Kluwer, Dordrecht, The Netherlands.
- Kahya, E. and Dracup, J.A. (1993) U.S. streamflow patterns in relation to El Niño/Southern Oscillation. *Water Resources Res.* **29**(8), 2491–503.
- Kalinin, G.P., Markov, K.K. and Suetova, I.A. (1966) Fluctuations in the Earth's water bodies in the late geological past. *Oceanology* **VI**, 5–6.
- Kalkstein, L. (ed.) (1991) *Global Comparisons of Selected GCM Control Runs and Observed Climatic Data*. US Environmental Protection Agency, Washington, DC, USA.
- Kane, D.L., Hinzman, L.D., Woo, M.-K. and Everett, K.R. (1992) Arctic hydrology and climate change. In F.S. Chapin III, R.L.

- Jeffries, J.F., Reynolds, G.R., Shaver, J., Svoboda and E.W. Chu (Eds.) *Arctic Ecosystems in a Changing Climate: An Ecophysiological Perspective*. Academic Press, San Diego, CA, pp. 35–57.
- Karl, T.R. and Riebsame, W.E. (1989) The impact of decadal fluctuations in mean precipitation and temperature on runoff: A sensitivity study over the United States. *Climatic Change* **15**, 423–47.
- Katz, R.W. (1996) Use of conditional stochastic models to generate climate change scenarios. *Climatic Change* **32**, 237–55.
- Katz, R.W. and Brown, B.G. (1992) Extreme events in a changing climate: Variability is more important than averages. *Climatic Change* **21**, 289–302.
- Kayano, M.T. and Moura, A.D. (1983) El Niño de 1982–83 e a precipitação sobre a América do Sul. *Rev. Bras. Geofísica*.
- Kimball, B.A., La Morte, P.J., Pinter, L., Wale, G.W. and Garcia, R.L. (1993) Effects of free air CO₂ enrichment (FACE) on the energy balance and evapotranspiration. *Annual Meeting of the American Agronomy Society*, December 1993.
- Kirshen, P.H. and Feunessey, N.M. (1992) *Potential Impacts of Climate Change upon the Water Supply of the Boston Metropolitan Area*. Draft Report to US Environmental Protection Agency.
- Klemeš, V. (1983) Conceptualization and scale in hydrology. *J. Hydrology* **65**, 1–23.
- Klemeš, V. (1985) *Sensitivity of Water Resource Systems to Climate Variations*. WCP No. 98, WMO, Geneva.
- Klemeš, V. (1986) Operational testing of hydrological simulation models. *Hydrological Sci.* **31**, 13–24.
- Klemeš, V. (1992) Implications of possible climate change for water management and development. *Water News: Canadian Water Research Association Newsletter*, April, pp. 2–3.
- Klemeš, V. and Němec, J. (1983) Assessing the impacts of climate change on the development of surface water resources. In *Proceedings of the 2nd International Meeting on Statistical Climate, Lisbon*, 8.21–8.28.
- Klige, R.K. (1985) *Changes in Global Water Exchange*. Nauka, Moscow.
- Klige, R.K. (1994) *Prognostic Estimates Level Fluctuations in the Caspian Sea (Meliatatsia i vodnoje khosiaistvo)*, No. 1, pp. 10–11 (in Russian)
- Kopaliani, Z.D., Shiklomanov, I.A. and Georgievsky, V.Y. (1995) *Hydrological Assessment of the Water Balance of the Caspian Sea, Including Establishment of Hydrological Databanks and an Interrelated System for Monitoring and Transmission of Sea-level Fluctuations*. State Hydrological Institute, St. Petersburg.
- Kousky, V.E., Kayano, M.T. and Cavalcanti, I.F.A. (1984) A review of the Southern Oscillation: Oceanic, atmospheric circulation changes and related rainfall anomalies. *Tellus A* **36**, 490–504.
- Krasovskaia, I. and Gottschalk, L. (1992) Stability of river flow regimes. *Nordic Hydrology* **23**, 137–54.
- Krasovskaia, I., Gottschalk, L. and Arnell, N.W. (1994) Flow regimes in northern and western Europe: Development and application of procedures for classifying flow regimes. In *FRIEND: Flow Regimes from International Experimental and Network Data*. IAHS Publ. 221, pp. 185–92.
- Krauss, T. (1996) Mackenzie GEWEX study science and planning workshop. *GEWEX News* **6**(1), 16.
- Kuhl, S.C. and Miller, J.R. (1992) Seasonal river runoff calculated from a global atmospheric model. *Water Resources Res.* **28**(8), 2029–39.
- Kwadijk, J. (1993) *The Impact of Climate Change on the Discharge of the River Rhine*. Netherlands Geographical Studies 171, University of Utrecht.
- Kwadijk, J. and Middelkoop, H. (1994) Estimation of impact of climate change on the peak discharge probability of the River Rhine. *Climatic Change* **27**, 199–224.
- Kwadijk, J. and Rotmans, J. (1995) The impact of climate change on the River Rhine: A scenario study. *Climatic Change* **30**, 397–425.
- Lachenbruch, A.H. and Marshall, B.V. (1986) Changing climate: Geothermal evidence from permafrost in the Alaskan Arctic. *Science* **234**, 689–96.
- Lamb, P.J. (1978) Large-scale tropical Atlantic circulation patterns associated with Saharan weather anomalies. *Tellus* **30**, 240–51.
- Lamb, P.J. (1985) Rainfall in Subsaharan West Africa during 1941–83. *Z. Gletscherkunde und Glazialgeologie* **21**, 131–9.
- Langbein, W.B. et al. (1949) *Annual Runoff in the United States*. Geological Survey Circular 52, US Department of the Interior, Washington, DC.
- Lau, W.K.-M., Sud, Y.C. and Kim, J.-H. (1995) Intercomparison of hydrological processes in global climate models. In W.L. Gates (Ed.) *Proceedings of the 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD-No. 732, pp. 71–76.
- Laval, K. and Picon, L. (1986) Effect of a change of surface albedo of the Sahel on climate. *J. Atmos. Sci.* **4**, 2418–29.
- Lawford, R.G. (1992) Science plan summary for the Canadian component of the first phase of the GEWEX programme. *GEWEX News*, pp. 5–7.
- LBA Science Planning Group (1996) *Concise Experimental Plan, Large-scale Biosphere–Atmosphere Experiment in Amazonia*. Winand Staring Centre for Integrated Land, Soil and Water Research (SC-DLO), Wageningen, The Netherlands.
- Lean, J., Bunton, C.B., Nobre, C.A. and Rowntree, P.R. (1996) The simulated impact of Amazonian deforestation on climate using measured ABRACOS vegetation characteristics. In J.H.C. Gash, C.A. Nobre, J.M. Roberts and R.L. Victoria (Eds.) *Amazonian Deforestation and Climate*. Chichester, Wiley, pp. 549–76.
- Lean, J. and Rowntree, P.R. (1993) A GCM simulation of the impact of Amazonian deforestation on climate using an improved canopy representation. *Q. J. R. Meteorol. Soc.* **119**, 509–30.
- Lean, J. and Warrilow, D.A. (1989) Simulation of regional climate impact of Amazon deforestation. *Nature* **342**, 411–13.
- Leavesley, G.H., Branson, M.D. and Hay, L.E. (1992) Using coupled atmospheric and hydrologic models to investigate the effects of climate change in mountainous regions. In R. Herrmann (Ed.) *Managing Water Resources during Global Change*. Conf. Proc., American Water Resources Association, Bethesda, MD.
- Lebel, T., Sauvageot, H., Hoepffner, M., Desbois, M., Guillot, B. and Hubert, P. (1992) Rainfall estimation in the Sahel: The EPSAT-NIGER experiment. *Hydrol. Sci. J.* **37**(3), 201–15.
- Lebel, T., Taupin, J.D. and Le Barbé, L. (1995) Space–time fluctuations of rainfall during HAPEX–Sahel. *J. Hydrology*.
- Leese, J.A. (1995) GCIP completes buildup for enhanced observing period. *GEWEX News* **5**(3), 3–5.
- Leichenko, R.M. (1993) Climate change and water resource availability: An impact assessment for Bombay and Madras, India. *Water International* **18**(3), 147–56.
- Lemmelä, R., Liebscher, H. and Nobilis, F., rapporteurs (1990) *Studies and Models for Evaluating the Impact of Climate Variability and Change on Water Resources*. WMO Regional Association VI (Europe), Working Group on Hydrology. Government Printing Centre, Helsinki.
- Lemoalle, J. (1989) *Le Fonctionnement Hydrologique du lac Tchad au Cours d'une Période de Sécheresse (1973–1989)*. ORSTOM, Paris.
- Lettenmaier, D.P. and Gan, T.Y. (1990) Hydrologic sensitivities of the Sacramento–San Joaquin River Basin of California to global warming. *Water Resources Res.* **26**(1), 69–86.
- Lettenmaier, D.P. and Sheer, D.P. (1991) Climatic sensitivity of California water resources. *ASCE J. Water Resources Planning and Management* **117**(1), 108–25.
- Leung, L.R., Wigmosta, M.S., Ghan, S.J., Epstein, D.J. and Vail, L.W. (1996) Application of a subgrid orographic precipitation/surface hydrology scheme to a mountain watershed. *J. Geophys. Res.*
- Lins, H., Shiklomanov, I.A. and Stakhiv, E.Z. (1991) Impacts on hydrology and water resources. In J. Jaeger and H. Ferguson (Eds.) *Climate Change: Science, Impacts and Policy*. Proc. 2nd World Climate Conference, pp. 87–97.
- Liu, C.Z. et al. (1995) *Study of the Impacts of Global Warming on Water Resources in China: Summary of Project Results*.
- Love, P.K. and Henderson-Sellers, A. (1994) *Land Surface Climatologies of AMIP-PILPS Models and Identification of Regions for Investigation*. PCMDI Report.
- Mabbutt, J.A. (1989) Impacts of carbon dioxide warming on climate and man in the semi-arid tropics. *Climatic Change* **15**, 191–221.
- Machenhauer, B., Botzet, M., Jacob, D. and Christensen, J.H. (1996) Regionalization over Europe of global model simulations using the HIRHAM model. In S.J. Ghan, W.T. Pennell, K.L. Peterson, E. Rykiel, M.J. Scott, and L.W. Vail (Eds.) *Regional Impact of Global*

- Climate Change: Assessing Change and Response at Scales that Matter*. Battelle Press, Columbus, OH, pp. 23–50.
- Mahé, G. (1993) Les écoulements fluviaux sur la façade atlantique de l'Afrique. Etude des éléments du bilan hydrique et variations inter-annuelles. Analyse de situations hydroclimatiques moyennes et extrêmes. Coll. Etudes et Thèses, ORSTOM, Paris.
- Maley, J. (1981) Etudes palynologiques dans le bassin du lac Tchad et paléoclimatologie de l'Afrique nord tropicale de 30000 ans BP à l'époque actuelle. Trav. et Doc. 129, ORSTOM, Paris.
- Manabe, S. (1969) Climate and ocean circulation, 1: The atmospheric circulation and the hydrology of the earth's surface, *Monthly Weather Rev.* **97**, 739–74.
- Manabe, S. and Stouffer, R.J. (1980) Sensitivity of a global climate model to increase of CO₂ concentration in the atmosphere. *J. Geophys. Res.* **85**, 5529–54.
- Manabe, S. and Weathersald, R.T. (1987) Large scale changes in soil wetness induced by an increase in carbon dioxide. *J. Atmos. Sci.* **44**, 1211–35.
- Margat, J. (1991) *Ressources en eau des pays africains: Utilisation et problèmes*, 7è Congrès Mondial des Ressources en Eaux, May 1991, Rabat, Morocco.
- Mayo, L.R. and Trabant, D.C. (1984) Observed and predicted effects of climate change on Wolverine Glacier, southern Alaska. In J.H. McBeath (Ed.) *The Potential Effects of Carbon Dioxide-Induced Climate Changes in Alaska*. School of Agriculture and Land Resources Management, University of Alaska-Fairbanks, Misc. Pub. 83-1, pp. 114–23.
- McCabe, G.J., Jr and Dettinger, M.D. (1995) Relations between winter precipitation and atmospheric circulation simulated by the Geophysical Fluid Dynamics Laboratory general circulation model. *Int. J. Climatology* **15**, 625–38.
- McCabe, G.J., Jr and Hay, L.E. (1994) Hydrologic effects of hypothetical climate change in the East River basin, Colorado. *Water Resources Bull.*
- McCabe, G.J., Jr and Legates, D.R., (1995) Relationships between 700 h Pa height anomalies and April snowpack accumulations in the western USA. *Int. J. Climatology* **15**, 517–30.
- McCabe, G.J., Jr and Wolock, D.M. (1992a) Effects of climatic change and climatic variability on the Thornthwaite moisture index in the Delaware River basin. *Climatic Change* **20**, 143–53.
- McCabe, G.J., Jr and Wolock, D.M. (1992b) Sensitivity of irrigation demand in a humid temperate region to hypothetical climate change. *Water Resources Bull.* **28**, 535–43.
- McCabe, G.J., Jr, Wolock, D.M., Tasker, G.D. and Ayers, M.A. (1991) Uncertainty in climate change and drought. In *Hydraulic Engineering 1991*. EE, IR, WW Div/ASCE, Nashville, TN.
- McKnight, D.M. and Weiler, C.S. (1995) *Regional Assessment of Freshwater Ecosystems and Climate Change in North America*. US Government Printing Office, 1995-673-211/00033 Region No. 8.
- Mekong Secretariat (1990) *Study of the Impacts of Climate Change on Water Resources in the Lower Mekong Basin*. Prepared by University of Colorado, Boulder, for the US EPA.
- Miller, S.R. and Russell, G.C. (1992) The impact of global warming on river runoff. *J. Geophys. Res.* **93**(D3), 2757–64.
- Mimikou, M. and Kouvopolous, Y.S. (1991) Regional climate change impacts: 1. Impacts on water resources. *Hydrol. Sci. J.* **36**, 247–58.
- Mimikou, M., Kouvopoulos, Y., Cavadias, G. and Vayianos, N. (1991) Regional hydrological effects of climate change. *J. Hydrology* **123**, 119–46.
- Minnis, P., Harrison, E.F., Stowe, L.L., Gibson, G.G., Denn, F.M., Doelling, D.R., Smith W.L. Jr (1993) Radiative climate forcing by the Mount Pinatubo eruption. *Science* **259**, 1411–15.
- Mitchell, J.F.B. (1989) The 'greenhouse' effect and climate change. *Rev. Geophys.* **27**(1), 115–39.
- Mitchell, J.F.B., Johns, T.C., Gregory, J.M. and Taft, S.F.B. (1995) Climate response to increasing levels of greenhouse gases and sulphate aerosols. *Nature* **376**, 501–4.
- Molion, L.C.B. (1976) *A Climatological Study of the Energy and Moisture Fluxes of the Amazonas Basin with Considerations of Deforestation Effects*. INPE 923-TPT/035, S.J. Campos, SP.
- Molion, L.C.B. (1987) Micrometeorology of an Amazonian rainforest. In R.E. Dickinson (Ed.) *The Geophysiology of Amazonia*. Wiley, New York, pp. 255–72.
- Molion, L.C.B. (1990) Climate variability and its effects on Amazonian hydrology. *Interciencia* **15**(6), 367–72.
- Molion, L.C.B. (1993) Amazonian rainfall and its variability. In M. Bonell, J. Gladwell and M. Hufschmidt (Eds.) *Hydrology and Water Management in the Humid Tropics*. Cambridge University Press/UNESCO, pp. 99–111.
- Molion, L.C.B. (1994) Efeitos de vulcões no clima. *Cadernos de Geociências* **12**, 13–23, IBGE, Rio de Janeiro.
- Molion, L.C.B. (1995) Global warming: A critical review. *Interciencia*.
- Molion, L.C.B. and Moraes, J.C. (1987) Oscilação Sul e descarga de rios na América do Sul tropical. *Rev. Bras. Eng. Caderno de Hidrologia* **5**(1), 53–63.
- Mota, R. and Tucci, C. (1984) *Modelo IPH III*, Rev. Bras. Eng. RBE/CRH, ABRH, Sao Paulo, Brazil.
- Moore, R.J. (1985) The probability-distribution principle and runoff production at point and basin scales. *Hydrol. Sci. J.* **30**, 263–97.
- Murphy, J.M. and Mitchell, J.F.B. (1995) Transient response of the Hadley Centre coupled ocean-atmosphere model to increasing carbon dioxide. Part II: Spatial and temporal structure of response. *J. Climate* **8**, 57–80.
- Nachtigall, G. (1881) *Sahara et Soudan*. Hachette, Paris.
- NASA (1991) *EOS Reference Handbook*. National Aeronautics and Space Administration, Goddard Space Flight Center, Greenbelt, MD.
- Nash, L.L. and Gleick, P.H. (1991) Sensitivity of streamflow in the Colorado Basin to climate changes. *J. Hydrology* **125**, 221–41.
- Nash, L.L. and Gleick, P.H. (1993) *The Colorado River Basin and Climatic Change: The Sensitivity of Streamflow and Water Supply to Variations in Temperature and Precipitation*. EPA 230-R-93-009, U.S. EPA, Office of Policy, Planning and Evaluation, Washington, DC.
- Nathan, R.J., McMahon, T.A. and Finlayson, B.L. (1988) The impact of the greenhouse effect on catchment hydrology and storage-yield relationships in both winter and summer rainfall zones. In G.I. Pearman (Ed.) *Greenhouse: Planning for Climate Change*. Div. of Atmospheric Research, CSIRO, East Melbourne, Australia.
- Němec, J. and Schaake, J. (1982) Sensitivity of water resource systems to climate variation. *Hydrol. Sci. J.* **3**: 327–43.
- Ng, H.Y.F. and Marsalek, J. (1992) Sensitivity of streamflow simulation to changes in climatic inputs. *Nordic Hydrology* **23**, 257–72.
- Nicholson, S.E. (1980) Saharan climates in historic times. In Williams and H. Faure (Eds.) *The Sahara and the Nile*. Balkema, Rotterdam, pp. 173–200.
- Nicholson, S.E. (1981a) The historical climatology of Africa. In T.M.L. Wigley et al. (Eds.) *Climate and History*. Cambridge University Press, Cambridge, pp. 249–70.
- Nicholson, S.E. (1981b) Rainfall and atmospheric circulation during drought periods and wetter years in West Africa. *Monthly Weather Rev.* **109**, 2191–208.
- Nicholson, S.E., Jeeyoung, K. and Hoopingarner, J. (1988) *Atlas of African Rainfall and its Interannual Variability*. Dept. of Meteorology, Florida State University, Tallahassee, FL.
- Nobre, C. (1993) GCM model studies. In P. Sellers, C. Nobre, D. Fitzjarrald, P. Try and D. Lucid (Eds.) *A Preliminary Science Plan for a Large Scale Biosphere-Atmosphere Field Experiment in the Amazon Basin*. ISLSCP/GEWEX, Washington, DC.
- Nobre, C., Fitzjarrald, D. and Sellers, P. (1993) Conceptual plan for LAMBADA BATERISTA. In P. Sellers, C. Nobre, D. Fitzjarrald, P. Try and D. Lucid (Eds.) *A Preliminary Science Plan for a Large Scale Biosphere-Atmosphere Field Experiment in the Amazon Basin*. ISLSCP/GEWEX, Washington, DC.
- Nobre, C., Sellers, P.J. and Shukla, J. (1991) Amazonian deforestation and regional climate change. *J. Climatology* **10**(4), 957–88.
- Nobre, C. and Shuttleworth, J. (1993) Anglo-Brazilian Amazonian Climate Observational Study (ABRACOS). In P. Sellers, C. Nobre, D. Fitzjarrald, P. Try and D. Lucid (Eds.) *A Preliminary Science Plan for a Large Scale Biosphere-Atmosphere Field Experiment in the Amazon Basin*. ISLSCP/GEWEX, Washington, DC.
- Nophadol, L. and Hemanth, E.J. (1992) In: R. Herrmann (Ed.) *Impact Assessment of Global Warming on Rainfall-Runoff Characteristics in a*

- Tropical Region (Sri Lanka)*. AWRA Symp. on Managing Water Resources During Global Change, pp. 547–56.
- Oldekop, E. (1911) *Evaporation from River Basin Surfaces*. Yuriev.
- Olivry, J.-C., Bricquet, J.-P. and Mahé, G. (1993) *Vers un Appauvrissement Durable des Ressources en Eau de l'Afrique Humide?* IAHS Publ. No. 216, Yokohama, pp. 67–78.
- Olivry, J.-C. and Chastanet, M. (1986) *Evolution du Climat dans le Bassin du Fleuve Sénégal (Bakel) Depuis le Milieu du 19ème Siècle*. Coll. Trav. et Doc. No. 197, ORSTOM, Paris, pp. 337–43.
- Ozga-Zielinska, M., Brzezinski, J. and Feluch, W. (1994) *Meso-scale Hydrologic Modelling for Climate Impact Assessments: A Conceptual and a Regression Approach*. Collaborative Report CP-94-10, IIASA, Laxenburg, Austria.
- Palmer, T.N. (1986) Influence of the Atlantic, Pacific and Indian Oceans on Sahel rainfall. *Nature* **320**, 251–3.
- Palutikof, J. (1987) *Some Possible Impacts of Greenhouse Gas Induced Climatic Change on Water Resources in England and Wales: The Influence of Climate Change and Climatic Variability on the Hydrologic Regime and Water Resources*. IAHS Publ. 168, pp. 585–96.
- Panagoulia, D. (1992) Impacts of GISS-modelled climate changes on catchment hydrology. *Hydrological Sci.* **37**(2), 141–63.
- Parry, M.L., Blantran de Rozari, Chong, A.L. and Panich, S. (Eds.) (1991) *The Potential Socio-Economic Effects of Climate Change in South-East Asia*. UNEP, p. 123.
- Piper, B.S., Plinston, D.T. and Sutcliffe, J.V. (1986) The water balance of Lake Victoria. *Hydrol. Sci. J.* **31**(1), 25–38.
- Poiani, K.A. and Johnson, W.C. (1993) Potential effects of climate change on a semi-permanent prairie wetland. *Climatic Change* **24**, 213–32.
- Popper, W. (1951) *The Cairo Nilometer*. University of California Press, Berkeley.
- Porter, J.W. and McMahon, T.A. (1971) A model for the simulation of streamflow data from climatic records. *J. Hydrology* **13**, 297–324.
- Pouyaud, B. (1987) *Variabilité Spatiale et Temporelle des Bilans Hydriques de Quelques Bassins Versants d'Afrique de l'Ouest en Liaison avec les Changements Climatiques*. IAHS Publ. No. 168, pp. 447–61.
- Pouyaud, B. and Colombani, J. (1989) Les variations extrêmes du lac Tchad: l'assèchement est-il possible? *Ann. Géographie, Paris* **98**(545), 1–23.
- Quinn, W.H. and Neal, V.T. (1987) El Niño occurrences over the past four and a half centuries. *J. Geophys. Res.* **92**(C13), 14 449–14 461.
- Randall, D.A. and Gleckler, P.J. (1995) Diagnosis of simulated ocean surface heat fluxes and the implied partitioning of meridional heat transport between the atmosphere and the ocean. In W.L. Gates (Ed.) *Proceedings 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD No. 732, WMO, Geneva, pp. 25–30.
- Rao, V.B. and Hada, K. (1990) Characteristics of rainfall over Brazil: Annual variations and Southern Oscillation, *Theoretical and Applied Climatology*.
- Redmond, K.T. and Koch, R.W. (1991) Surface climate and streamflow variability in the western United States and their relationship to large-scale circulation indices. *Water Resources Res.* **27**(9), 2381–99.
- Revelle, R.R. and Waggoner, P.E. (1983) Effects of a carbon dioxide-induced change on water supply in the Western United States. In *Changing Climate*. National Academy of Sciences, National Academy Press, Washington, DC, pp. 419–32.
- Road, L.A., Nordseth, K. and Hassel, K.A. (Eds.) (1989) *FRIENDS in Hydrology*. IAHS Publ. 187.
- Roback, A.C., Schlosser, C.A., Vinnikov, K.Y. and Liu, S. (1995) Validation of humidity, moisture fluxes, and soil moisture in GCMS: Report of AMIP diagnostic subproject 11 Part 1: Soil moisture. In W.L. Gates (Ed.) *Proceedings 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD No. 732, WMO, Geneva, pp. 1–8.
- Robinson, P.J. and Finkelstein, P.L. (1989) *Strategies for the Development of Climate Scenarios for Impact Assessment*. U.S. Environmental Protection Agency, Research Triangle Park, NC, Phase 1 Final Report.
- Rognon, P. (1989) *Biographie d'un Désert*, Coll. Scientifique SYNTHÈSE, Plon, Paris.
- Rohlf, G. (1874) *Quer durch Africa: Reise vom Mittelmeer nach dem Tschadsee und zum Golf von Guinea*, 2 vols. Leipzig.
- Roots, E.F. (1989) Climate change: High-latitude regions. *Climatic Change* **15**, 223–53.
- Roset, J.-P. (1987) *Néolithisation, Néolithique et Post-néolithique au Niger Oriental*. Congrès INQUA, Ottawa, pp. 203–14.
- Rowell, D.P. and Blondin, C. (1990) The influence of soil wetness distribution on short range rainfall forecasting in the west African Sahel. *Q. J. R. Meteorol. Soc.* **116**, 1471–85.
- Rozari, M.B. et al. (1990) *Socioeconomic Impacts of Climate Change: Indonesian Report*. Report submitted to UNEP.
- Running, S.W. and Coughlan, J.C. (1988) A general model of forest ecosystem processes for regional applications. I: Hydrologic balance, canopy gas exchange, and primary production processes. *Ecological Modelling* **42**, 125–54.
- Running, S.W. and Nemani, R.R. (1991) Regional hydrologic carbon balance responses of forests resulting from potential climate change. *Climatic Change* **19**, 349–68.
- Sælthun, N.R., Bogen, J., Flood, M.H. et al. (1990) *Climate Change Impact on Norwegian Water Resources*. Norwegian Water Resources and Energy Administration Publ. 42.
- Saïd, R. (1994) Origin and evolution of the River Nile. In P.P. Howell and J.A. Allan (Eds.) *The Nile: Sharing a Scarce Resource*. Cambridge University Press, Cambridge, pp. 17–26.
- Salati, E., Marques, J. and Molion, L.C.B. (1978) Origen e distribuição das chuvas na Amazonia. *Interciência* **3**, 200–6.
- Saleh, M., Strzepec, K. and Yates, D. (1994) Potential climate change impacts on the Nile Basin. *Proceedings 8th IWRA World Congress on Water Resources*, Cairo, November 1994.
- Salewicz, K. (1995) Impact of climate change on the Lake Kariba hydro-power scheme. In *Water Resources Management in the Face of Climatic and Hydrologic Uncertainties*. Kluwer, Dordrecht.
- Salinger, M. and Hicks, D. (1989) *Regional Climate Change Scenarios*. New Zealand Ministry for the Environment.
- Sanderson, M. and Wong, L. (1987) Climate change and Great Lakes water levels. In S. Solomon et al. (Eds.) *The Influence of Climatic Change and Climate Variability on Hydrological Regimes and Water Resources*. IAHS Publ. No. 168, pp. 441–87.
- Santer, B.D. et al. (1990) *Developing Climate Scenarios from Equilibrium GCM Results*. Report No. 47, Max Planck Institut für Meteorologie, Hamburg.
- Sato, T. et al. (1989) Effects of implementing the Simple Biospheric Model (SIB) in a general circulation model. *J. Atmospheric Sci.* **46**, 2757–82.
- Schaake, J.C. (1990) From climate to flow. In P.E. Waggoner (Ed.) *Climate Change and U.S. Water Resources*. Wiley, New York, pp. 177–206.
- Schlesinger, M.E. and Zhao, Z. (1987) *Seasonal Climate Changes Induced by Doubled CO₂ as Simulated by the OSU Atmospheric OCM/Mixed Layer Model*. Report 70, Oregon State University Climate Institute, Corvallis, OR.
- Sellers, P.J. and Hall, F.G. (1992) FIFE in 1992: Results, scientific gains and future research directions. *J. Geophys. Res.* **97**(D17), 19 091–109.
- Sellers, P.J. and Hall, F.G. (1994) Boreal forest and climate change. *GEWEX News* **4**(4), 6–7.
- Sellers, P.J., Hall, F.G., Asrar, G., Strelbel, D.E. and Murphy, R.E. (1992) An overview of the First International Satellite Land Surface Climatology Project (ISLSCP) Field Experiment (FIFE). *J. Geophys. Res.* **97**(D17), 18 345–371.
- Sellers, P.J. et al. (1989) Calibrating the Simple Biospheric Model (SIB) for Amazonian tropical forest using field and remote sensing data, Part I: Average calibration with field data. *J. Applied Meteorol.* **28**(8), 727–59.
- Servant-Vildary, S. (1978) *Etude des diatomées et paléolimnologie du bassin du Tchad au Cénozoïque Supérieur*. Coll. Trav. et Doc. No. 84, ORSTOM, Paris.
- Seuna, P., Gustard, A., Arnell, N.W. and Cole, G.A. (Eds.) (1994) *FRIEND: Flow Regimes from International Experimental and Network Data*. IAHS Publ. No. 221.
- Shiklomanov, I.A. (1976) *Hydrological Aspects of the Caspian Sea Problem*. Hydrometeoizdat, Leningrad (in Russian).
- Shiklomanov, I.A. (1988) *Investigation of Land and Water Resources: Conclusions, Problems, Perspective*. Hydrometeoizdat, Leningrad (in Russian).

- Shiklomanov, I. (1989a) Anthropogenic climate change, water resources, and water management problems. In *Proceedings of a Conference on Climate and Water*. Helsinki, Finland, WMO, Geneva.
- Shiklomanov, I. (1989b) *Man's Impact on River Runoff*. Hydrometeoizdat, Leningrad (in Russian).
- Shiklomanov, A.I. (1994) On the effect of the anthropogenic changes in global climate on runoff in the Yenisey basin. *Meteorology and Hydrology*, No. 2, 84–93 (in Russian).
- Shiklomanov, I.A. and Babkin, V.I. (1992) Climate change and water management. *Meteorology and Hydrology*, No. 8, 38–43 (in Russian).
- Shiklomanov, I.A. and Lins, H. (1991) Influence of climate change on hydrology and water management. *Meteorology and Hydrology*, No. 4, 51–66 (in Russian).
- Shiklomanov, I.A., Lins, H. and Stakhiv, E. (1990) Hydrology and water resources. In W. Tegart, G. Sheldon and D. Griffiths (Eds.) *The IPCC Impact Assessment*.
- Shiklomanov, I.A. and Markova, O.L. (1987) *Global Problems of Water Availability and Water Transfers*. Leningrad, Hydrometeoizdat (in Russian).
- Shilo, N.A. and Krivoshei, M.I. (1989) Interrelation between water level fluctuations in the Caspian Sea and tensions in the Earth's crust. *Vestnik AN SSSR*, No. 6, 83–90.
- Shukla, J. Nobre, C. and Sellers, P. (1990) Amazonian deforestation and climate change. *Science* **247**, 1322–5.
- Shuttleworth, W.J. (1987) International investigations on large-scale evaporation. In *Evaporation and Weather*, Proceedings and Information No. 39, TNO Committee on Hydrological Research, The Hague, The Netherlands, pp. 85–93.
- Shuttleworth, W.J. (1989) Micrometeorology of temperate and tropical forest. *Phil. Trans. R. Soc. London, B* **324**, 299–334.
- Simpson, J., Adler, R.F. and North, G.R. (1988) A proposed Tropical Measuring Mission (TRMM) satellite. *Bull. Am. Meteorol. Soc.* **69**, 278–95.
- Sircoulon, J. (1976) *Les données hydropluviométriques de la sécheresse récente en Afrique intertropicale. Comparaison avec les sécheresses 1913 et 1940*. Cah. ORSTOM, sér. Hydrology **XIII**(2), 75, 174.
- Sircoulon, J. (1987) *Variation des Débits des Cours d'Eau et des Niveaux des Lacs en Afrique de l'Ouest Depuis le Début du 20ème Siècle*. IAHS Publ. No. 168, pp. 13–25.
- Sircoulon, J. (1990) *Impact possible des changements climatiques à venir sur les ressources en eau des régions arides et semi-arides. Comportement des cours d'eau tropicaux, des rivières et des lacs en zone sahélienne*. WCAP-12; WMO/TD. No. 380, WMO, Geneva.
- Skiles, J.W. and Hanson, J.D. (1994) Responses of arid and semiarid watersheds to increasing carbon dioxide and climate change as shown by simulation studies. *Climatic Change* **26**, 377–97.
- Solomon, S.I., Beran, M. and Hogg, W. (1987) *The Influence of Climate Change and Variability on Hydrologic Regimes and Water Resources*. Proc. Vancouver Symposium, August 1987, IAHS Publ. No. 168.
- Sorooshian, S. and Gupta, V.K. (1983) Automatic calibration of conceptual rainfall-runoff models: The question of parameter observability and uniqueness. *Water Resources Res.* **19**(1), 260–8.
- Srinivasan, G., Holme, M., Jones, C.G., Jones, P.D. and Osborn, T.J. (1995) An evaluation of the spatial and interannual variability of tropical precipitation as simulated by GCMs. In W.L. Gates (Ed.) *Proceedings 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD No. 732, WMO, Geneva, pp. 193–8.
- Stakhiv, E., Lins, H. and Shiklomanov, I. (1992) Hydrology and water resources. In W. Tegart and G. Sheldon (Eds.) *Supplementary Report to the IPCC Impact Assessment*. Australian Government Publ. Ser.
- Stakhiv, E., Shiklomanov, I. and Lins, H. (1993) *Hydrology and Water Resources*. IPCC Report.
- Stockle, C.O., Dyke, P.T., Williams, J.R., Jones, C.A. and Rosenberg, N.J. (1992b) Estimation of the effects of CO₂-induced climate change on growth and yield of crops. II: Assessing the impacts on maize, wheat, and soybean in the midwestern USA. *Agric. Systems*. **38**, 239–56.
- Stockle, C.O., Williams J.R., Rosenberg, N.J. and Jones, C.A. (1992a) Estimation of the effects of CO₂-induced climate change on growth and yield of crops. I: Modification of the EPIC model for climate change analysis. *Agric. Systems* **38**, pp. 225–38.
- Stockton, C.W. and Bogess, W.R. (1979) *Geohydrological Implications of Climate Change on Water Resources Development*. US Army Coastal Engineering Research Center, Fort Belvoir, VA.
- Stouffer, R.J., Manabe, S. and Bryan, K. (1989) Interhemispheric asymmetry in climate response to a gradual increase of atmospheric CO₂. *Nature* **342**, 660–2.
- Street, F.A. and Grove, A.T. (1979) Global maps of lake level fluctuations since 30000 BP. *Quaternary Res.* **12**, 83–118.
- Sud, Y.C. and Molod, A. (1988) A GCM simulation study of the influence of Saharan evapotranspiration and surface albedo anomalies on July circulation and rainfall. *Monthly Weather Rev.* **116**, 2388–400.
- Sutcliffe, J.V. and Knott, D.G. (1987) *Historical Variations in African Water Resources*. IAHS Publ. No. 168, pp. 463–75.
- Sutcliffe, J.V. and Lazenby, J. (1994) Hydrological data requirements for planning Nile Management. In P.P. Howell and J.A. Allan (Eds.) *The Nile: Sharing a Scarce Resource*. Cambridge University Press, Cambridge, pp. 163–92.
- Szilugyi, F. and Smolyódy, L. (1991) *Potential Impacts of Climate Change on Water Quality in Lakes*. IAHS Publ. No. 205, pp. 79–86.
- Tallaksen, L. and Hassel, K.A. (Eds.) (1992) *Climate Change and Evaporation Modelling*. Seminar on evapotranspiration models for simulating climate change impact on the catchment water balance, Vetre, Norway, March 1992; Nordic Hydrologic Programme, NHP Rep. No. 31, Nordic Coordinating Committee for Hydrology (KOHYNO).
- Thornthwaite, C.W. (1948) An approach toward a rational classification of climate. *Geog. Rev.* **38**, 55–94.
- Thornthwaite, C.W. and Mather, J.R. (1955) *The Water Balance*. Publications in Climatology, Drexel Institute of Technology, Laboratory of Climatology, **VIII**, p. 1.
- Toth, F.L. (1993) *Policy Responses to Climate Change in Southeast Asia*. IIASA, Laxenburg, Austria, pp. 304–23.
- Tucci, C.E.M. and Damiani, A. (1991) International studies on climate change impacts: Uruguay River Basin. *Proceedings of a Workshop on the Analysis of Potential Climate Change in the Uruguay River Basin*. Tech. Rep. No. 25, Institute of Hydraulic Research, Federal University of Rio Grande do Sul, Brazil.
- Tucci, C. and Damiani, A. (1994) *Potencial Impacto da Modificação Climática no Rio Uruguai*. Revista Brasileira de Engenharia, RBE-CRH, vol. 12(2), Associação Brasileira de Recursos Hídricos, pp. 5–34.
- U.S. Department of Commerce (1994) *The Great Flood of 1993*. NOAA Natural Disaster Survey Report, Washington, DC.
- U.S. Environmental Protection Agency (1984) *User's Manual for Hydrological Simulation Program-FORTRAN (HSPF)*, EPA-600/3-84-066, Environmental Research Laboratory, Athens, GA.
- Van Blarcum, S.C., Miller, J.R. and Russell, G.L. (1995) High-latitude river runoff in a doubled CO₂ climate. *Climatic Change* **30**, 7–26.
- Varushchenko, S.I., Varushchenko, A.N. and Klige, R.K. (1987) *Change in the Regime of the Caspian Sea and in Endorheic Water Bodies during Paleotime*. Nauka, Moscow.
- Vehviläinen, B. and Lohvansuu, J. (1991) The effect of climate change on discharges and snow cover in Finland. *Hydrol. Sci. J.* **36**, 109–21.
- Verstraete, M.M. and Dickinson, R.E. (1986) Modeling surface processes in atmospheric general circulation models. *Ann. Geophys.* **B4**(4), 357–64.
- Victoria, R., Mortatti, J., Richey, J., Dunne, T. and Zhang Z. (1993) Carbon in the Amazon River Basin (CAMREX). In P. Sellers, C. Nobre, D. Fitzjarrald, P. Try and D. Lucid (eds.) *A Preliminary Science Plan for a Large-Scale Biosphere Atmosphere Field Experiment in the Amazon Basin*. ISLSCP/GEWEX, Washington, DC.
- Viner, D. and Hulme, M. (1993) *The UK Met. Office High-Resolution GCM Equilibrium Experiment (UKHI): Climate Impacts Link Technical Report 1*. Climate Research Unit, University of East Anglia.
- Walsh, J.E., Meleshko, V., Tao, X. and Kattsov, V. (1995) AMIP model simulations of the polar regions. In W.L. Gates (Ed.) *Proceedings of the 1st International AMIP Scientific Conference*, WCRP-92, WMO/TD-No. 732, pp. 31–6.
- Washington, W.M. and Meehl, G.A. (1984) A seasonal cycle experiment on the climate sensitivity due to a doubling of CO₂ with an atmospheric general circulation model coupled to a simple mixed layer ocean model. *J. Geophys. Res.* **89**, 9475–503.

- Washington, W.M. and Meehl, G.A. (1989) Climate sensitivity due to increased CO₂: Experiments with a coupled atmosphere and ocean general circulation model. *Climate Dynamics* **4**, 1–38.
- Water Assessment (1993) *Joint ADB/IBRD/UNDP Subsaharan Africa Hydrological Assessment (Project RAF/87/030): West African Countries*. Prepared with Mott-MacDonald, BCEOM, SOGREAH and ORSTOM.
- Waterstone, M. *et al.* (1995) *Future Water Resources Management in the Upper Rio Grande Basin*. Report for US Army Institute for Water Resources, Fort Belvoir, VA.
- WCRP (1992) *Science Plan for the GEWEX Continental-Scale International Project (GCIP)*. WCRP-67, WMO/TD No. 461, World Climate Research Programme, WMO, Geneva.
- Weatherald, R.T. and Manabe, S. (1986) An investigation of cloud cover change in response to thermal forcing. *Climatic Change* **8**, 5–24.
- Wigley, T.M.L. and Jones, P.D. (1985) Influence of precipitation changes and direct CO₂ effects on streamflow. *Nature* **314**, 163.
- Wilks, D.S. (1992) Adapting stochastic weather generation algorithms for climate change studies. *Climatic Change* **22**, 67–84.
- Williams, J.R., Jones, C.A. and Dyke, P.T. (1984) A modeling approach to determine the relationship between erosion and soil productivity. *Trans. Am. Soc. Agricultural Engineers* **27**, 129–44.
- Williamson, D.L., Kiehl, J.T., Ramanathan, V., Dickinson, R.E. and Hack, J.J. (1987) *Descriptions of NCAR Community Climate Model (CCM1)*. Tech. Note NCAR/tn-285+str, National Center for Atmospheric Research, Boulder, CO.
- Wilson, C.A. and Mitchell, J.F.B. (1987) A doubled CO₂ climate sensitivity experiment with a GCM including a simple ocean. *J. Geophys. Res.* **92**, 13 315–343.
- Wilson, L.L., Lettenmaier, D.P. and Skillingstad, E. (1992) A hierarchical stochastic model of large-scale atmospheric circulation patterns and multiple station daily precipitation. *J. Geophys. Res.* **97**(D3), 2791–809.
- Winter, T.C. (1989) Distribution of the difference between precipitation and open-water evaporation in North America. In *The Geology of North America*, Vol. O-1. Geological Society of America, Boulder, CO (Plate 2).
- WMO (1975) *Intercomparison of Conceptual Models Used in Operational Hydrological Forecasting*. Operational Hydrology Report No. 7, WMO No. 429, WMO, Geneva.
- WMO (1979) *World Climate Conference*. Abstracts of reports, WMO, Geneva.
- WMO (1985a) *Sensitivity of Water Resource Systems to Climate Variations*. WCP-98, WMO, Geneva.
- WMO (1985b) *Intercomparison of Models of Snowmelt Runoff*. Operational Hydrology Report No. 23, WMO No. 646, WMO, Geneva.
- WMO (1989a) *Proceedings of a Conference on Climate and Water*. Helsinki, Finland, 2 vols, WMO, Geneva.
- WMO (1989b) *Statistics on Regional Networks of Climatological Stations* (based on the INFOCLIMA World Inventory). Vol. II: Region I, Africa, WCDP-7, WMO/TD No. 305, WMO, Geneva.
- WMO (1990) *Studies and Models for Evaluating the Impacts of Climate Variability and Change on Water Resources*. WMO Regional Association VI (Europe), Helsinki, Finland WMO, Geneva.
- WMO (1992a) *Science Plan for the GEWEX Continental-Scale International Project (GCIP)*. WCRP-67, WMO/TD No. 461, WMO, Geneva.
- WMO (1992b) *Scientific Concept of the Arctic Climate Study (ACSYS)*. WCRP-72, WMO/TD No. 486, WMO, Geneva.
- Woo, M.-K., Lewkowicz, A.G. and Rouse, W.R. (1992) Response of the Canadian permafrost environment to climate change. *Physical Geography* **134**, 287–317.
- Wood, E.F., Sivipalan, M., Beven, K. and Band, L. (1988) Effects of spatial variability and scale with implications to hydrologic modeling. *J. Hydrology* **102**, 29–47.
- Wood, E.F., Sivipalan, M. and Beven, K. (1990) Similarity and scale in catchment storm response. *Rev. Geophys.* **28**, 1–18.
- Woolhiser, D.A. and Brakensiek, D.L. (1982) Hydrologic system synthesis. In C.T. Haan, H.P. Johnson and D.L. Brakensiek (Eds.) *Hydrologic Modeling of Small Watersheds*. ASAE Monograph No. 5, American Society of Agricultural Engineers.
- Xue, Y. and Shukla, J. (1993) The influence of land surface properties on the Sahelian climate. Part I: Desertification, *J. Climate* **6**, 2232–45.
- Yamada, T. (1989) *Tasks for River Administration in Relation to Global Environmental Issues*. Japan Ministry of Construction (River Bureau) (unpublished).
- Yasunari, T. (1996) *The GEWEX Asian Monsoon Experiment (GAME)*. Report to the 8th Session of GEWEX SSG, January 15–19, Irvine, CA.
- Zaikov, A. (1946) Water balance of the Caspian Sea and reasons for the fall in water level. *Trudy NIH GUGMS*, Ser. 4, **88**, 19 (in Russian).
- Zillman, J.W. (1989) Climate variability and change: Implications for the Murray–Darling basin. *12th International Symposium on the Murray–Darling Basin: A Resource to be Managed*. Australian Academy of Technology.
- Zwerver, S., van Rompaey, R.S.A.R., Kok, M.T.J. and Berk, M.M. (Eds.) (1995) *Climate Change Research, Evaluation, and Policy Implications*. Proceedings of the International Climate Change Research Conference, Maastricht, The Netherlands, December 1994, Studies in Environmental Science, vols. 65A and 65B. Elsevier, Amsterdam.