## REFERENCES

- ACCORD, 2000: Atmospheric Circulation Classification and Regional Downscaling, Final Report to the European Commission (DXII), Brussels, January 2000, available on-line at <u>http://www.cru.uea.ac.uk/cru/projects/accord/contents.htm</u>.
- Alpert, P., Neeman, B.U. and Shay-El, Y., 1990: 'Climatological analysis of Mediterranean cyclones using ECMWF data', *Tellus*, **42A**, 65-77.
- Bardossy, A., 1994: 'Downscaling from GCMs to local climate through stochastic linkages', in G. Paoli (ed.), *Climate Change, Uncertainty and Decision Making*, Institute for Risk Research, Waterloo, USA, 33-46.
- Bardossy, A. and Caspary, H.J., 1990: 'Detection of climate change in Europe by analyzing European atmospheric circulation patterns from 1881 to 1989', *Theoretical and Applied Climatology*, **42**, 155-167.
- Bardossy, A. and Plate, E.J., 1991: 'Modeling daily rainfall using a semi-Markov representation of circulation pattern occurrence', *Journal of Hydrology*, **122**, 33-47.
- Bardossy, A. and Plate, E.J., 1992: 'Space-time model for daily rainfall using atmospheric circulation patterns', *Water Resources Research*, **28**, 1247-1259.
- Bardossy, A., Muster, H., Duckstein, L. and Bogardi, I., 1994: 'Knowledge based classification of circulation patterns for stochastic precipitation modelling', in K.W. Hipel *et al.* (eds.), *Time Series Analysis in Hydrology and Environmental Engineering*, **3**, Kluwer Academic Publishers, Dordrecht, 19-32.
- Bardossy, A., Duckstein, L. and Bogardi, I., 1995: 'Fuzzy rule-based classification of atmospheric circulation patterns', *International Journal of Climatology*, **15**, 1087-1097.
- Barrow, E., Hulme, M. and Semenov, M., 1996: 'Effect of using different methods in the construction of climate change scenarios: examples from Europe', *Climate Research*, **7**, 195-211.
- Bartzokas, A., 1989: 'Annual variation of pressure over the Mediterranean area', *Theoretical and Applied Climatology*, **40**, 135-146.
- Bates, B.C., Charles, S.P. and Hughes, J.P., 1998: 'Stochastic downscaling of numerical climate model simulations', *Environmental Modelling and Software*, **13**, 325-331.
- Bellone, E., Hughes, J.P. and Guttorp, P., 2000: 'A hidden Markov model for downscaling synoptic atmospheric patterns to precipitation amounts', *Climate Research*, **15**, 1-12.
- Biau, G., Zorita, E., von Storch, H. and Wackernagel, H., 1999: 'Estimation of precipitation by kriging in the EOF space of the sea level pressure field', *Journal of Climate*, 12, 1070-1085.
- Blair, D., 1998: 'The Kirchofer technique of synoptic typing revisited', *International Journal of Climatology*, **18**, 1625-1635.
- Bogardi, I., Matyasovszky, I., Bardossy, A. and Duckstein, L., 1993: 'Application of a space-time stochastic model for daily precipitation using atmospheric circulation patterns', *Journal of Geophysical Research*, **98**, 16653-16667.
- Brandsma, T. and Buishand, T.A., 1997: 'Statistical linkage of daily precipitation in Switzerland to atmospheric circulation and temperature', *Journal of Hydrology*, **198**, 98-123.
- Brandsma, T. and Buishand, T.A., 1998: 'Simulation of extreme precipitation in the Rhine basin by nearest-neighbour resampling', *Hydrology and Earth System Sciences*, **2**, 195-209.
- Brandt, C.J. and Thornes, J.B. (eds.), 1996: *Mediterranean Desertification and Land Use*, Wiley, London.
- Buishand, T.A. and Brandsma, T., 1999: 'Dependence of precipitation on temperature at

Florence and Livorno (Italy)', Climate Research, 12, 53-63.

- Busuic, A., von Storch, H. and Schnur, R., 1999: 'Verification of GCM-generated regional seasonal precipitation for current climate and of statistical downscaling estimates under changing climate conditions', *Journal of Climate*, **12**, 258-272.
- Cantú, V., 1977: 'The climate of Italy', in C.C. Wallén (ed.), *Climates of Central and Southern Europe*, Elsevier Publishing Company, Amsterdam, 127-183.
- Carnell, R.E., Senior, C.A. and Mitchell, J.F.B., 1996: 'An assessment of measures of storminess: simulated changes in northern hemisphere winter due to increasing CO<sub>2</sub>', *Climate Dynamics*, **12**, 467-476.
- Cavazos, T., 1999: 'Large-scale circulation anomalies conducive to extreme precipitation events and derivation of daily rainfall in northeastern Mexico and southeastern Texas', *Journal of Climate*, **12**, 1506-1523.
- Carter, T.R., Hulme, M. and Viner, D. (eds.), 1999: *Representing Uncertainty in Climate Change Scenarios and Impact Studies*, ECLAT-2 Workshop Report No. 1, Helsinki, Finland, 14-16 April 1999, Climatic Research Unit, UEA, Norwich, UK, 128pp.
- Charles, S.P., Bates, B.C. and Hughes, J.P., 1999: 'A spatiotemporal model for downscaling precipitation occurrence and amounts', *Journal of Geophysical Research*, 104, 31657-31669.
- Christensen, J.H., Machenhauer, B., Jones, R.G., Schär, C., Ruti, P.M., Castro, M. and Visconti, G., 1997: 'Validation of present-day regional climate simulations over Europe: LAM simulations with observed boundary conditions', *Climate Dynamics*, 13, 489-506.
- Conway, D. and Jones, P.D., 1998: 'The use of weather types and air flow indices for GCM downscaling', *Journal of Hydrology*, **212-213**, 348-361.
- Conway, D., Wilby, R.L. and Jones, P.D., 1996: 'Precipitation and air flow indices over the British Isles', *Climate Research*, **7**, 169-183.
- Corte-Real, J., Zhang, X. and Wang, X., 1995a: 'Downscaling GCM information to regional scales: a non-parametric multivariate regression approach', *Climate Dynamics*, 11, 413-424.
- Corte-Real, J., Zhang, X. and Wang, X., 1995b: 'Large-scale circulation regimes and surface climatic anomalies over the Mediterranean', *International Journal of Climatology*, 15, 1135-1150.
- Corte-Real, J., X., H. and Qian, B., 1999a: 'A weather generator for obtaining daily precipitation scenarios based on circulation patterns', *Climate Research*, **13**, 61-75.
- Corte-Real, J., Qian, B. and Xu, H., 1999b: 'Circulation patterns, daily precipitation in Portugal and implications for climate change simulated by the second Hadley Centre GCM', *Climate Dynamics*, **15**, 921-935.
- Crane, R.G. and Barry, R.G., 1988: 'Comparison of the MSL synoptic pressure patterns of the Arctic as observed and simulated by the GISS general circulation model', *Meteorology and Atmospheric Physics*, **39**, 169-183.
- Crane, R.G. and Hewitson, B.C., 1998: 'Doubled CO<sub>2</sub> precipitation changes for the Susquehanna Basin: down-scaling from the Genesis general circulation model', *International Journal of Climatology*, 18, 65-76.
- Cubasch, U., Waszkewitz, J., Hegerl, G. and Perlwitz, J., 1995: 'Regional climate changes as simulated in time-slice experiments', *Climatic Change*, **31**, 273-304.
- Cubasch, U., von Storch, H., Waszkewitz, J. and Zorita, E., 1996: 'Estimates of climate change in Southern Europe derived from dynamical climate model output', *Climate Research*, **7**, 129-149.
- Dalu, G.A. and de Gregorio, S., 1987: 'Some simple solutions for the low-pressure anomaly observed over the Mediterranean Sea', *Annales Geophysicae*, **5B**, 461-467.
- Déqué, M. and Piedelievre, J.P., 1995: 'High resolution climate simulation over

Europe', *Climate Dynamics*, **11**, 321-339.

- Déqué, M., Marquet, P. and Jones, R.G., 1998: 'Simulation of climate change over Europe using a global variable resolution general circulation model', *Climate Dynamics*, **14**, 173-189.
- Dessouky, T.M. and Jenkinson, A.F., 1975: 'An objective daily catalogue of surface pressure, flow and vorticity indices for Egypt and it's use in monthly rainfall forecasting', *Meteorological Research Bulletin, Egypt*, **11**, 1-25.
- Easterling, D.R., 1999: 'Development of regional climate scenarios using a downscaling approach', *Climatic Change*, **41**, 615-634.
- Enke, W. and Spekat, A., 1997: 'Downscaling climate model outputs into local and regional weather elements by classification and regression', *Climate Research*, **8**, 195-207.
- Esteban-Parra, M.J., Rodrigo, F.S. and Castro-Diez, Y., 1998: 'Spatial and temporal patterns of precipitation in Spain for the period 1880-1992', *International Journal of Climatology*, **18**, 1557-1574.
- Fernández Mills, G., 1995: 'Principal component analysis of precipitation and rainfall regionalization in Spain', *Theoretical and Applied Climatology*, **50**, 169-183.
- Frei, C., Schär, C., Lüthi, D. and Davies, H.C., 1998: 'Heavy precipitation processes in a warmer climate', *Geophysical Research Letters*, **25**, 1431-1434.
- Frey-Buness, F., Heimann, D. and Sausen, R., 1995: 'A statistical-dynamical downscaling procedure for global climate simulations', *Theoretical and Applied Climatology*, 50, 117-131.
- Gates, W.L., 1985: 'The use of general circulation models in the analysis of the ecosystem impacts of climatic change', *Climatic Change*, **7**, 267-284.
- Gates, W.L., Henderson-Sellers, A., Boer, G.J., Folland, C.K., Kitoh, A., McAvaney, B.J., Semazzi, F., Smith, N., Weaver, A.J. and Zeng, Q.-C., 1996: 'Climate models –evaluation', in J.T. Houghton, L.G. Meira Filho, B.A. Callander, N. Harris, A. Kattenberg and K. Maskell (eds.), 1996: *Climate Change 1995: The Science of Climate Change*, Cambridge University Press, Cambridge, 229-284.
- Geeson, N.A. and Brandt, C.J. (eds.), 2000: *Mediterranean Desertification: A Mosaic of Processes and Responses*, Wiley, London, in press.
- Giorgi, F. and Francisco, R., 2000: 'Uncertainties in regional climate change prediction: a regional analysis of ensemble simulations with the HADCM2 coupled AOGCM', *Climate Dynamics*, **16**, 169-182.
- Giorgi, F. and Mearns, L.O., 1991: 'Approaches to the simulation of regional climate change: A review', *Reviews of Geophysics*, **29**, 191-216.
- Giorgi, F. and Mearns, L.O., 1999: 'Introduction to special section: Regional climate modeling revisited', *Journal of Geophysical Research*, **104**, 6335-6352.
- Giorgi, F., Marinucci, M.R. and Visconti, G., 1990: 'Use of a limited-area model nested in a general circulation model for regional climate simulation over Europe', *Journal* of Geophysical Research, **95**, 18413-18431.
- Giorgi, F., Marinucci, M.R. and Visconti, G., 1992: 'A 2xCO<sub>2</sub> climate change scenario over Europe generated using a limited area model nested in a general circulation model. 2. Climate change scenario', *Journal of Geophysical Research*, 97, 10011-10028.
- Goodess, C.M. and Palutikof, J.P., 1998: 'Development of daily rainfall scenarios for southeast Spain using a circulation-type approach to downscaling', *International Journal of Climatology*, **18**, 1051-1083.
- Goodess, C.M. and Palutikof, J.P., 2000: 'Local and regional responses to global climate change in S.E. Spain', in N.A. Geeson and C.J. Brandt (eds.), *Mediterranean Desertification: A Mosaic of Processes and Responses*, Wiley, London, in press.

- Gordon, C., Cooper, C., Senior, C.A., Banks, H., Gregory, J.M., Johns, T.C., Mitchell, J.F.B. and Wood, R.A., 2000: 'The simulation of SST, sea ice extents and ocean heat transports in a version of the Hadley Centre coupled model without flux adjustments', *Climate Dynamics*, **16**, 147-168.
- Gregory, J.M. and Mitchell, J.F.B., 1995: 'Simulation of daily variability of surface temperature and precipitation over Europe in the current and 2xCO<sub>2</sub> climates using the UKMO climate model', *Quarterly Journal of the Royal Meteorological Society*, **121**, 1451-1476.
- Gregory, J.M., Wigley, T.M.L. and Jones, P.D., 1993: 'Application of Markov models to area-average daily precipitation series and interannual variability in seasonal totals', *Climate Dynamics*, **8**, 299-310.
- Grotch, S.L. and MacCracken, M.C., 1991: 'The use of general circulation models to predict regional climatic change', *Journal of Climate*, **4**, 286-303.
- Gumbel, E.J., 1958: *Statistics of Extremes*, Columbia University Press, New York, 375pp.
- Gyalistras, D., von Storch, H., Fischlin, A. and Beniston, M., 1994: 'Linking GCMsimulated climatic changes to ecosystem models: case studies of statistical downscaling in the Alps', *Climate Research*, **4**, 167-189.
- Hansen, A.R. and Sutera, A., 1990: 'Weather regimes in a general circulation model', *Journal of the Atmospheric Sciences*, **47**, 380-391.
- Hay, L.E., McCabe, G.J., Wolock, D.M. and Ayers, M.A., 1991: 'Simulation of precipitation by weather type analysis', *Water Resources Research*, **27**, 493-501.
- Hay, L.E., McCabe, G.J., Wolock, D.M. and Ayers, M.A., 1992: 'Use of weather types to disaggregate general circulation model predictions', *Journal of Geophysical Research*, **97**, 2781-2790.
- Hayhoe, H.N., 2000: 'Improvements of stochastic weather data generators for diverse climates', *Climate Research*, **14**, 75-87.
- Hennessy, K.J., Gregory, J.M. and Mitchell, J.F.B., 1997: 'Changes in daily precipitation under enhanced greenhouse conditions', *Climate Dynamics*, **13**, 667-680.
- Hewitson, B. and Crane, R.G., 1992a: 'Regional climates in the GISS global circulation model: synoptic-scale circulation', *Journal of Climate*, **5**, 1002-1011.
- Hewitson, B.C. and Crane, R.G., 1992b: 'Regional scale climate prediction from the GISS GCM', *Global and Planetary Change*, **97**, 249-267.
- Hewitson, B.C. and Crane, R.G., 1992c: 'Large-scale atmospheric-controls on local precipitation in tropical Mexico', *Geophysical Research Letters*, **19**, 1835-1838,
- Hewitson, B.C. and Crane, R.G., 1994: 'Precipitation controls in southern Mexico', in B.C. Hewitson and R.G. Crane (eds.), *Neural Nets: Applications in Geography*, Kluwer Academic Publishers, Dordrecht, 121-143.
- Hewitson, B.C. and Crane, R.G., 1996: 'Climate downscaling: techniques and application', *Climate Research*, **7**, 85-95.
- Hess, P. and Brezowsky, H., 1969: *Katalog der Großwetterlagen Europas, Berichte des Deutschen Wetterdienstes*, **113**, Selbstverlag des DWD, Offenbach am Main.
- Heyen, H., Zorita, E. and von Storch, H., 1996: 'Statistical downscaling of monthly mean North Atlantic air-pressure to sea level anomalies in the Baltic Sea', *Tellus*, 48A, 312-323.
- Hostetler, S.W., 1994: 'Hydrologic and atmospheric models: the (continuing) problem of discordant scales', *Climatic Change*, **27**, 345-350.
- Houghton, J.T., Jenkins, G.J. and Ephraums, J.J. (eds.), 1990: *Climate Change: The IPCC Scientific Assessment*, Cambridge University Press, Cambridge, 365pp.
- Houghton, J.T., Callander, B.A. and Varney, S.K. (eds.), 1992: *Climate Change 1992: The Supplementary Report to the IPCC Scientific Assessment*, Cambridge University

Press, Cambridge, 198pp.

- Houghton, J.T., Meiro Filho, L.G., Callander, B.A., Harris, N., Kattenberg, A. and Maskell, K. (eds.), 1996: *Climate Change 1995: The Science of Climate Change*, Cambridge University Press, Cambridge, 572pp.
- Hughes, J.P. and Guttorp, P., 1994: 'A class of stochastic models for relating synoptic atmospheric patterns to regional hydrologic phenomena', *Water Resources Research*, **30**, 1535-1546.
- Hughes, J.P. and Guttorp, P., 1999: 'A non-homogeneous hidden Markov model for precipitation occurrence', *Applied Statistics*, **48**, 15-30.
- Hughes, J.P., Lettenmaier, D.P. and Guttorp, P., 1993: 'A stochastic approach for assessing the effect of changes in synoptic circulation patterns on gauge precipitation', *Water Resources Research*, **29**, 3303-3315.
- Hulme, M., Briffa, K.R., Jones, P.D. and Senior, C.A., 1993: 'Validation of GCM control simulations using indices of daily airflow types over the British Isles', *Climate Dynamics*, 9, 95-105.
- Hurrell, J.W., 1995: 'Decadal trends in the North Atlantic Oscillation: regional temperatures and precipitation', *Science*, **269**, 676-679.
- Hurrell, J.W. and van Loon, H., 1997: 'Decadal variations in climate associated with the North Atlantic Oscillation', *Climatic Change*, **36**, 301-326.
- Huth, R., 1996: 'An intercomparison of computer-assisted circulation classification methods', *International Journal of Climatology*, **16**, 893-922.
- Huth, R., 1997: 'Continental-scale circulation in the UKHI GCM', *Journal of Climate*, **10**, 1545-1561.
- Jacobeit, J., 1987: 'Variations of trough positions and precipitation patterns in the Mediterranean area', *Journal of Climatology*, **7**, 453-476.
- Jenkinson, A.F. and Collison, P., 1977: An Initial Climatology of Gales over the North Sea, Synoptic Climatology Branch Memorandum No. 62, Meteorological Office, London, 18pp.
- Jenne, R.L., 1975: *Data Sets for Meteorological Research*, NCAR Technical Note NCAR-TN/1A-111, 194pp.
- Johns, T.C., Carnell, R.E., Crossley, J.F., Gregory, J.M., Mitchell, J.F.B., Senior, C.A., Tett, S.F.B. and Wood, R.A., 1997: 'The second Hadley Centre coupled oceanatmosphere GCM: model description, spinup and validation', *Climate Dynamics*, 13, 103-134.
- Jones, P.D., 1987: 'The early twentieth century Arctic high fact or fiction?', *Climate Dynamics*, 1, 63-75.
- Jones, P.D., Hulme, M. and Briffa, K.R., 1993. 'A comparison of Lamb circulation types with an objective classification scheme', *International Journal of Climatology*, **13**, 655-663.
- Jones, R.G., Murphy, J.M. and Noguer, M., 1995: 'Simulation of climate change over Europe using a nested regional-climate model. I: Assessment of control climate, including sensitivity to location of lateral boundaries', *Quarterly Journal of the Royal Meteorological Society*, **121**, 1413-1449.
- Jones, R.G., Murphy, J.M., Noguer, M. and Keen, A.B., 1997: 'Simulation of climate change over Europe using a nested regional-climate model. II: Comparison of driving and regional model responses to a doubling of carbon dioxide', *Quarterly Journal of the Royal Meteorological Society*, **123**, 265-292.
- Kalnay, E., Kanamitsu, M., Kistler, R., Collins, W., Deaven, D., Gandin, L., Iredell, M., Saha, S., White, G., Woollen, J., Zhu, Y., Leetmaa, A., Reynolds, R., Chelliah, M., Ebisuzaki, W., Higgins, W., Janowiak, D., Mo, K.C., Ropelewski, C., Wang, J., Jenne, R. and Joseph, D., 1996: 'The NCEP/NCAR 40-year Reanalysis project', *Bulletin of the American Meteorological Society*, **77**, 437-471.

Kanji, G.K., 1993: 100 Statistical Tests, SAGE Publications, London, 216pp.

- Karl, T.R., Wang, W.-C., Schlesinger, M.E., Knight, R.W. and Portman, D., 1990: 'A method of relating general circulation model simulated climate to the observed local climate. Part I: seasonal statistics', *Journal of Climate*, 3, 1053-1079.
- Kattenberg, A., Giorgi, F., Grassl, H., Meehl, G.A., Mitchell, J.F.B., Stouffer, R.J., Tokioka, T., Weaver, A.J. and Wigley, T.M.L., 1996: 'Climate models – projections of future climate', in J.T. Houghton, L.G. Meira Filho, B.A. Callander, N. Harris, A. Kattenberg and K. Maskell (eds.), 1996: *Climate Change 1995: The Science of Climate Change*, Cambridge University Press, Cambridge, 285-357.
- Katz, R.W., 1996: 'Use of conditional stochastic models to generate climate change scenarios', *Climatic Change*, **32**, 237-255.
- Katz, R.W. and Parlange, M.B., 1996: 'Mixtures of stochastic processes: application to statistical downscaling', *Climate Research*, **7**, 185-193.
- Katz, R.W. and Zheng, X., 1999: 'Mixture model for overdispersion of precipitation', *Journal of Climate*, **12**, 2528-2537.
- Kidson, J.W., 1997: 'The utility of surface and upper air data in synoptic climatological specification of surface climatic variables', *International Journal of Climatology*, 17, 399-413.
- Kidson, J.W., 2000: 'An analysis of New Zealand synoptic types and their use in defining weather regimes', *International Journal of Climatology*, **20**, 299-316.
- Kidson, J.W. and Wattersen, I.G., 1995: 'A synoptic climatological evaluation of the changes in the CSIRO nine-level model with doubled CO<sub>2</sub> in the New Zealand region', *International Journal of Climatology*, **15**, 1179-1194.
- Kidson, J.W. and Thompson, C.S., 1998: 'A comparison of statistical and model-based downscaling techniques for estimating local climate variations', *Journal of Climate*, 11, 735-753.
- Kilsby, C.G., Cowpertwait, P.S.P., O'Connell, P.E. and Jones, P.D., 1998: 'Predicting rainfall statistics in England and Wales using atmospheric circulation variables', *International Journal of Climatology*, **18**, 523-539.
- Kim, J-W., Chang, J-T., Baker, N.L., Wilks, D.S. and Gates, W.L., 1984: 'The statistical problem of climate inversion: determination of the relationship between local and large-scale climate', *Monthly Weather Review*, **112**, 2069-2077.
- Kirchofer, W., 1974: *Classification of European 500 mb Patterns*, Arbeitsbericht der Schweizerischen Meteorologischen Zentralanstalt, **43**, Zurich.
- Köppen, W., 1936: 'Das geographische system der klimate', *Handbuch der Klimatologie* **3**, W. Köppen and R. Geiger (eds.), Gebrüder Borntraeger, Berlin, 46pp.
- Kutiel, H., Maheras, P. and Guika, S., 1996: 'Circulation indices over the Mediterranean and Europe and their relationship with rainfall conditions across the Mediterranean', *Theoretical and Applied Climatology*, **54**, 125-138.
- Laita, M. and Grimalt, M., 1997: 'Vorticity and pressure anomalies in the western Mediterranean during El Niño/Southern Oscillation extremes', *International Journal* of Climatology, 17, 475-482.
- Lamb, H.H., 1972: British Isles Weather Types and a Register of Daily Sequence of Circulation Patterns, 1861-1971, Geophysical Memoir, **116**, HMSO, London, 85pp.
- Lawson, J.S., 1989: 'The wet spell in southern Spain, mid-October 1988', *Weather*, 44, 475-478.
- Liang, X-Z., Wang, W-C. and Dudek, M.P., 1996: 'Northern Hemispheric interannual teleconnection patterns and their changes due to the greenhouse effect', *Journal of Climate*, **9**, 465-479.
- Linés Escardó, A., 1970: 'The climate of the Iberian Peninsula', in C.C. Wallén (ed.), *Climates of Northern and Western Europe*, World Survey of Climatology, Volume

5, Elsevier Publishing, Amsterdam, 195-239.

- Lüthi, D., Cress, A., Davies, H.C., Frei, C. and Schär, C., 1996: 'Interannual variability and regional climate simulations', **53**, 185-209.
- Machenhauer, B., Windelband, M., Botzet, M., Jones, R. and Déqué, M., 1996: Validation of Present-day Regional Climate Simulations over Europe: Nested LAM and Variable Resolution Global Model Simulations with Observed or Mixed Layer Ocean Boundary Conditions, Technical Report 191, Max-Planck-Institut für Meteorologie (MPI).
- Maheras, P., 1988: 'Changes in precipitation conditions in the western Mediterranean over the last century', *Journal of Climatology*, **8**, 179-189.
- Maheras, P., Balafoutis, C. and Vafiadis, M., 1992: 'Precipitation in the central Mediterranean during the last century', *Theoretical and Applied Climatology*, **45**, 209-216.
- Makrogiannis, T.J., Sahsamanoglou, H.S., Flocas, A.A. and Bloutsos, A.A., 1991: 'Analysis of the monthly zonal index values and long-term changes of circulation over the North Atlantic and Europe', *International Journal of Climatology*, **11**, 493-503.
- Mariani, L., 1999: 'Classification of weather types', Project 3, Module 10.3, Final report of the MEDALUS (Mediterranean Desertification and Land Use) III project, available online at <a href="http://www.medalus.leeds.ac.uk/index.html">http://www.medalus.leeds.ac.uk/index.html</a>.
- Martin-Vide, J. and Gomez, L., 1999: 'Regionalization of peninsular Spain based on the length of dry spells', *International Journal of Climatology*, **19**, 537-555.
- Mearns, L.O., Rosenzweig, C. and Goldberg, R., 1996: 'The effect of changes in daily and interannual climatic variability on CERES-wheat: a sensitivity study', *Climatic Change*', **32**, 257-292.
- Mearns, L.O., Rosenzweig, C. and Goldberg, R., 1997: 'Mean and variance change in climate scenarios: methods, agricultural applications, and measures of uncertainty', *Climatic Change*, **35**, 367-396.
- Mearns, L.O., Bogardi, I., Giorgi, F., Matyasovszky, I. and Palecki, M., 1999: 'Comparison of climate change scenarios generated from regional climate model experiments and statistical downscaling', *Journal of Geophysical Research*, **104**, 6603-6621.
- Meteorological Office, 1962: *Weather in the Mediterranean*, Volume 1, General Meteorology, HMSO, London, 362pp.
- Mitchell, J.F.B. and Johns, T.C., 1997: 'On modification of global warming by sulfate aerosols', *Journal of Climate*, **10**, 245-267.
- Mitchell, J.F.B., Johns, T.C., Gregory, J.M. and Tett, S.F.B., 1995: 'Climate response to increasing levels of greenhouse gases and sulphate aerosols', *Nature*, **376**, 501-504.
- Mitchell, J.F.B., Johns, T.C., Eagles, M., Ingram, W.J. and Davis, R.A., 1999: 'Towards the construction of climate change scenarios', *Climatic Change*, **41**, 547-581.
- Montanari, A., Rosso, R. and Taqqu, M.S., 1996: 'Some long-run properties of rainfall records in Italy', *Journal of Geophysical Research*, **101**, 29431-29438.
- Moses, T., Kiladis, G.N., Diaz, H.F. and Barry, R.G., 1987: 'Characteristics and frequency of reversals in mean sea level pressure in the North Atlantic sector and their relationship to long-term temperature trends', *Journal of Climatology*, **7**, 13-30.
- Moulin, C., Lambert, C.E., Dulac, F. and Dayan, U., 1997: 'Control of atmospheric export of dust from North Africa by the North Atlantic Oscillation', *Nature*, **387**, 691-694.
- Murphy, J.M., 1995a: 'Transient response of the Hadley Centre coupled oceanatmosphere model to increasing carbon dioxide. Part I: control climate and flux adjustment', *Journal of Climate*, **8**, 36-56.

- Murphy, J.M., 1995b: 'Transient response of the Hadley Centre coupled oceanatmosphere model to increasing carbon dioxide. Part III: analysis of global-mean response using simple models', *Journal of Climate*, **8**, 496-514.
- Murphy, J., 1999: 'An evaluation of statistical and dynamical techniques for downscaling local climate', *Journal of Climate*, **12**, 2256-2284.
- 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', *Journal of Climate*, **8**, 57-80.
- Nicholson, S.E., 1983: 'Subsaharan rainfall and the years 1976-80: evidence of continued drought', *Monthly Weather Review*, **111**, 1646-1654.
- Noguer, M., 1994: 'Using statistical techniques to deduce local climate distributions. An application for model validation', *Meteorological Applications*, **1**, 277-287.
- Osborn, T.J., 1997: 'Areal and point precipitation intensity changes: Implications for the application of climate models', *Geophysical Research Letters*, **24**, 2829-2832.
- Osborn, T.J. and Hulme, M., 1997: 'Development of a relationship between stations and grid-box rainday frequencies for climate model evaluation', *Journal of Climate*, **10**, 1885-1908.
- Osborn, T.J. and Hulme, M., 1998: 'Evaluation of the European daily precipitation characteristics from the Atmospheric Model Intercomparison Project', *International Journal of Climatology*, **18**, 505-522.
- Osborn, T.J., Briffa, K.R., Tett, S.F.B., Jones, P.D. and Trigo, R.M., 1999a: 'Evaluation of the North Atlantic Oscillation as simulated by a coupled climate model', *Climate Dynamics*, **15**, 685-702.
- Osborn, T.J., Conway, D., Hulme, M., Gregory, J.M. and Jones, P.D., 1999b: 'Air flow influences on local climate: observed and simulated mean relationships for the United Kingdom', *Climate Research*, **13**, 173-191.
- Özelkan, E.C., Ni, F. and Duckstein, L., 1996: 'Relationship between monthly atmospheric circulation patterns and precipitation: Fuzzy logic and regression approaches', *Water Resources Research*, **32**, 2097-2103.
- Palmieri, S., Siani, A.M. and D'Agostino, A., 1991: 'Climate fluctuations and trends in Italy within the last 100 years', *Annales Geophysicae*, **9**, 769-776.
- Palutikof, J.P., Conte, M., Casimiro Mendes, J., Goodess, C.M. and Espirito Santo, F., 1996:

'Climate and climatic change', in C.J. Brandt and J.B. Thornes (eds.) *Mediterranean Desertification and Land Use*, Wiley, London, 43-86.

- Palutikof, J.P., Winkler, J.A., Goodess, C.M. and Andresen, J.A., 1997: 'The simulation of daily temperature time series from GCM output. Part I: Comparison of model data with observations', *Journal of Climate*, **10**, 2497-2513.
- Palutikof, J.P., Brabson, B.B., Lister, D.H. and Adcock, S.T., 1999: 'A review of methods to calculate extreme wind speeds', *Meteorological Applications*, 6, 119-132.
- Perica, S. and Foufoula-Georgiou, E., 1996: 'Model for multiscale disaggregation of spatial rainfall based on coupling meteorological and scaling descriptions', *Journal* of Geophysical Research, **101**, 26347-26361.
- Perry, P., 1981: 'Mediterranean climate a synoptic reappraisal', *Progress in Physical Geography*, **5**, 107-113.
- Piervitali, E., Colacino, M. and Conte, M., 1997: 'Signals of climatic change in the central-western Mediterranean Basin', *Theoretical and Applied Climatology*, 58, 211-219.
- Prezerakos, N.G., Michaelides, S.C. and Vlassi, A.S., 1990: 'Atmospheric synoptic conditions associated with the initiation of north-west African depressions', *International Journal of Climatology*, 10, 711-729.

- Reddaway, J.M. and Bigg, G.R., 1996: 'Climatic change over the Mediterranean and links to the more general atmospheric circulation', *International Journal of Climatology*, **16**, 651-661.
- Richardson, C.W., 1981: 'Stochastic simulation of daily precipitation, temperature, and solar radiation', *Water Resources Research*, **17**, 182-190.
- Riha, S.J., Wilks, D.S. and Simoens, P., 1996: 'Impact of temperature and precipitation variability on crop model predictions', *Climatic Change*, **32**, 293-311.
- Risbey, J.S. and Stone, P.H., 1996: 'A case study of the adequacy of GCM simulations for input to regional climate change assessments', *Journal of Climate*, **9**, 1441-1467.
- Rocha, A., 1999: 'Low-frequency variability of seasonal rainfall over the Iberian Peninsula and ENSO', *International Journal of Climatology*, **19**, 889-901.
- Rodo, X., Baert, E. and Comin, F.A., 1997: 'Variations in seasonal rainfall in Southern Europe during the present century: relationships with the North Atlantic Oscillation and the El Niño-Southern Oscillation', *Climate Dynamics*, **19**, 275-284.
- Rodriguez-Puebla, C., Encinas, A.H., Nieto, S. and Garmenia, J., 1998: 'Spatial and temporal patterns of annual precipitation variability over the Iberian Peninsula', *International Journal of Climatology*, 18, 299-316.
- Rogers, J.C., 1997: 'North Atlantic storm track variability and its association to the North Atlantic Oscillation and climate variability of Northern Europe', *Journal of Climate*, **10**, 1635-1647.
- Romero, R., Guijarro, J.A., Ramis, C. and Alonso, S., 1998: 'A 30-year (1964-1993) daily rainfall data base for the Spanish Mediterranean regions: First exploratory study', *International Journal of Climatology*, **18**, 541-560.
- Romero, R., Ramis, C. and Guijarro, J.A., 1999a: 'Daily rainfall patterns in the Spanish Mediterranean area: An objective classification', *International Journal of Climatology*, **19**, 95-112.
- Romero, R., Sumner, G., Ramis, C. and Genovés, A., 1999b: 'A classification of the atmospheric circulation patterns producing significant daily rainfall in the Spanish Mediterranean area', *International Journal of Climatology*, **19**, 765-785.
- Sahsamanoglou, H.S., Makrogiannis, T.J. and Kallimopoulos, P.P., 1991: 'Some aspects of the basic characteristics of the Siberian anticyclone', *International Journal of Climatology*, **11**, 827-839.
- Saunders, I.R. and Byrne, J.M., 1996: 'Generating regional precipitation from observed and GCM synoptic-scale pressure fields, southern Alberta, Canada', *Climate Research*, **6**, 237-249.
- Saunders, I.R. and Byrne, J.M., 1999: 'Using synoptic surface and geopotential height fields for generating grid-scale precipitation', *International Journal of Climatology*, 19, 1165-1176.
- Schär, C., Frei, C., Lüthi, D. and Davies, H.C., 1996: 'Surrogate climate-change scenarios for regional climate models', *Geophysical Research Letters*, 23, 669-672.
- Schnur, R. and Lettenmaier, D.P., 1998: 'A case study of statistical downscaling in Australia using weather classification by recursive partitioning', *Journal of Hydrology*, **212-213**, 362-379.
- Schubert, S., 1994: 'A weather generator based on the European 'Grosswetterlagen'', *Climate Research*, **4**, 191-202.
- Schubert, S., 1998: 'Downscaling local extreme temperature changes in south-eastern Australia from the CSIRO Mark2 GCM', *International Journal of Climatology*, **18**, 1419-1438.
- Schubert, S. and Henderson-Sellers, A., 1997: 'A statistical model to downscale local daily temperature extremes from synoptic-scale atmospheric circulation patterns in the Australian region', *Climate Dynamics*, **13**, 223-234.
- Semenov, M.A. and Barrow, E.M., 1997: 'Use of a stochastic weather generator in the

development of climate change scenarios', Climatic Change, 35, 397-414.

- Semenov, M.A. and Brooks, R.J., 1999: 'Spatial interpolation of the LARS-WG stochastic weather generator in Great Britain', *Climate Research*, **11**, 137-148.
- Semenov, M.A., Brooks, R.J., Barrow, E.M. and Richardson, C.W., 1998: 'Comparison of the WGEN and LARS-WG stochastic weather generators for diverse climates', *Climate Research*, **10**, 95-107.
- Serrano, A., García, J.A., Mateos, V.L., Cancillo, M.L. and Garrido, J., 1999: 'Monthly modes of variation of precipitation over the Iberian Peninsula', *Journal of Climate*, 12, 2894-2919.
- Skelly, W.C. and Henderson-Sellers, A., 1996: 'Grid box or grid point: what types of data do GCMs deliver to climate impacts researchers?', *International Journal of Climatology*, 16, 1079-1086.
- Skiles, J.W. and Richardson, C.W., 1998: 'A stochastic weather generation model for Alaska', *Ecological Modelling*, **110**, 211-232.
- Stedinger, J.R., Vogel, R.M. and Foufoula-Georgiou, E., 1993: 'Frequency analysis of extreme events', Chapter 18 in *Handbook of Hydrology*, McGraw Hill, New York.
- Sumner, G., Ramis, C. and Guijarro, J.A., 1993: 'The spatial organization of daily rainfall over Mallorca, Spain', *International Journal of Climatology*, **13**, 89-109.
- Tett, S.F.B., Johns, T.C. and Mitchell, J.F.B., 1997: 'Global and regional variability in a coupled AOGCM', *Climate Dynamics*, **13**, 303-323.
- Tout, D.G., 1991: 'A very wet autumn-early winter in southern Spain in 1989', *Weather*, **46**, 11-15.
- Tout, D.G. and Wheeler, D.A., 1990: 'The early autumn storms of 1989 in eastern Spain', *Journal of Meteorology*, **15**, 238-248.
- Trenberth, K.E., 1995: 'Atmospheric circulation climate changes', *Climatic Change*, **31**, 427-453.
- Trenberth, K.E. and Paolino, D.A., 1980: 'The Northern Hemisphere sea-level pressure data set: trends, errors and discontinuities', *Monthly Weather Review*, **108**, 855-872.
- Trenberth, K.E. and Olson, J.G., 1988: 'An evaluation and intercomparison of global analysis from NMC and ECMWF', *Bulletin of the American Meteorological Society*, **69**, 1047-1057.
- Trigo, I.F., Davies, T.D. and Bigg, G.R., 1999: 'Objective climatology of cyclones in the Mediterranean region', *Journal of Climate*, **12**, 1685-1696.
- Trigo, R.M. and Palutikof, J.P., 1999: 'Simulation of daily temperatures for climate change scenarios over Portugal: a neural network model approach', *Climate Research*, **13**, 45-59.
- van Loon, H. and Rogers, J.C., 1978: 'The seesaw in winter temperatures between Greenland and Northern Europe. Part I: General description', *Monthly Weather Review*, **106**, 296-310.
- Venugopal, V., Foufoula-Georgiou, E. and Sapozhnikov, V., 1999: 'A space-time downscaling model for rainfall', *Journal of Geophysical Research*, **104**, 19705-19721.
- Verdecchia, M., Visconti, G., D'Andrea, F. and Tibaldi, S., 1996. 'A neural network approach for blocking recognition', *Geophysical Research Letters*, **23**, 2081-2084.
- von Storch, H., 1999: 'On the use of "inflation" in statistical downscaling', *Journal of Climate*, **12**, 3505-3506.
- von Storch, H., Zorita, E. and Cubasch, U., 1993: 'Downscaling of global climate change estimates to regional scales: an application to Iberian rainfall in wintertime', *Journal of Climate*, **6**, 1161-1171.
- von Storch, H. and Zwiers, F.W., 1999: *Statistical Analysis in Climate Research*, Cambridge University Press, Cambridge, 494pp.
- Wallén, C.C. (ed.), 1970: Climates of Northern and Western Europe, Elsevier

Publishing Company, Amsterdam.

- Weichert, A. and Bürger, G., 1998: 'Linear versus nonlinear techniques in downscaling', *Climate Research'*, **10**, 83-93.
- Wheeler, D., 1988: 'The Barcelona storm :1<sup>st</sup>-5<sup>th</sup> October 1987', *Journal of Meteorology*, **13**, 79-86.
- Wheeler, D., 1990: 'Majorca's severe storms of September 1989: a reminder of Mediterranean uncertainty', *Weather*, **45**, 21-26.
- Wheeler, D. and Martin-Vide, J., 1992: 'Rainfall characteristics of mainland Europe's most southerly stations', *International Journal of Climatology*, **12**, 69-76.
- Wibig, J., 1999: 'Precipitation in Europe in relation to circulation patterns at the 500 hPa level', *International Journal of Climatology*, **19**, 253-269.
- Widmann, M. and Schär, C., 1997: 'A principal component and long-term analysis of daily precipitation in Switzerland', *International Journal of Climatology*, **17**, 1333-1356.
- Wigley, T.M.L. and Farmer, G., 1982: 'Climate of the eastern Mediterranean and Near East', in J.L. Bintliff and W. Van Zeist (eds.), *Palaeoclimates, Palaeoenvironments* and Human Communities in the Eastern Mediterranean Region in Later Prehistory, BAR International Series, 133, 3-37.
- Wigley, T.M.L., Jones, P.D. and Kelly, P.K., 1986: 'Empirical climate studies: warm world scenarios and the detection of climatic change induced by radiatively active gases', in B. Bolin, B.R. Doos, J. Jäger and R.A. Warrick (eds.), *The Greenhouse Effect, Climatic Change and Ecosystems*, SCOPE 26, Wiley, New York, 271-322.
- Wigley, T.M.L., Jones, P.D., Briffa, K.R. and Smith, G., 1990: 'Obtaining sub-gridscale information from coarse-resolution general circulation model output', *Journal* of Geophysical Research, 95, 1943-1953.
- Wilby, R.L., 1993: 'The influence of variable weather patterns on river water quantity and quality regimes', *International Journal of Climatology*, **13**, 447-459.
- Wilby, R.L., 1997: 'Non-stationarity in daily precipitation series: implications for GCM down-scaling using atmospheric circulation indices', *International Journal of Climatology*, **17**, 439-454.
- Wilby, R.L., 1998: 'Statistical downscaling of daily precipitation using daily airflow and seasonal teleconnection indices', *Climate Research*, **10**, 163-178.
- Wilby, R.L. and Wigley, T.M.L., 1997: 'Downscaling general circulation model output: a review of methods and limitations', *Progress in Physical Geography*, **21**, 530-548.
- Wilby, R.L. and Wigley, T.M.L., 2000: 'Precipitation predictors for downscaling observed and general circulation model relationships', *International Journal of Climatology*, 20, 641-661.
- Wilby, R.L., Greenfield, B. and Glenny, C., 1994: 'A coupled synoptic-hydrological model for climate change impact assessment', *Journal of Hydrology*, **153**, 265-290.
- Wilby, R.L., Barnsley, N. and O'Hare, G., 1995: 'Rainfall variability associated with Lamb Weather Types: the case for incorporating weather fronts', *International Journal of Climatology*, 15, 1241-1252.
- Wilby, R.L., Wigley, T.M.L., Wilks, D.S., Hewitson, B.C., Conway, D. and Jones, P.D., 1996: *Statistical Downscaling of General Circulation Model Output*, a report prepared by the National Center for Atmospheric Research on behalf of the Electric Power Research Institute, Palo Alto, CA, 730pp.
- Wilby, R.L., Wigley, T.M.L., Conway, D., Jones, P.D., Hewitson, B.C., Main, J. and Wilks, D.S., 1998a: 'Statistical downscaling of general circulation model output: A comparison of methods', *Water Resources Research*, 34, 2995-3008.
- Wilby, R.L., Hassan, H. and Hanaki, K., 1998b: 'Statistical downscaling of hydrometeorological variables using general circulation model output', *Journal of Hydrology*, **205**, 1-19.

- Wilby, R.L., Hay, L.E. and Leavesley, G.H., 1999: 'A comparison of downscaled and raw GCM output: implications for climate change scenarios in the San Juan River basin, Colorado', *Journal of Hydrology*, **225**, 67-91.
- Wilks, D.S., 1989: 'Conditioning stochastic daily precipitation models on total monthly precipitation', *Water Resources Research*, **25**, 1429-1439.
- Wilks, D.S., 1992: 'Adapting stochastic weather generation algorithms for climate change studies', *Climatic Change*, **22**, 67-84.
- Wilks, D.S., 1995: *Statistical Methods in the Atmospheric Sciences: An Introduction*, Academic Press, San Diego, 467pp.
- Wilks, D.S., 1998: 'Multisite generalization of a daily stochastic precipitation generation model', *Journal of Hydrology*, **210**, 178-191.
- Wilks, D.S., 1999a: 'Interannual variability and extreme-value characteristics of several stochastic daily precipitation models', *Agricultural and Forest Meteorology*, **93**, 153-169.
- Wilks, D.S., 1999b: 'Multisite downscaling of daily precipitation with a stochastic weather generator', *Climate Research*, **11**, 125-136.
- Wilks, D.S., 1999c: 'Simultaneous stochastic simulation of daily precipitation, temperature and solar radiation at multiple sites in complex terrain', *Agricultural and Forest Meteorology*, **96**, 85-101.
- Wilks, D.S. and Wilby, R.L., 1999: 'The weather generation game: a review of stochastic weather models', *Progress in Physical Geography*, **23**, 329-357.
- Wilson, L.L., Lettenmaier, D.P. and Wood, E.F., 1991: 'Simulation of daily precipitation in the Pacific Northwest using a weather classification scheme', *Surveys in Geophysics*, **12**, 127-142.
- Wilson, L.L., Lettenmaier, D.P. and Skyllingstad, E., 1992: 'A hierarchical stochastic model of large-scale atmospheric circulation patterns and multiple station daily precipitation', *Journal of Geophysical Research*, **97**, 2791-2809.
- Winkler, J.A., Palutikof, J.P., Andresen, J.A. and Goodess, C.M., 1997: 'The simulation of daily temperature time series from GCM output. Part II: Sensitivity analysis of an empirical transfer function methodology', *Journal of Climate*, **10**, 2514-2532.
- Yarnal, B., 1993: Synoptic Climatology in Environmental Analysis. A Primer, Studies in Climatology Series, Belhaven Press, London, 195pp.
- Zenone, E., 1959: *Klimatologie und Meteorologie des Mittelmeergebietes*, Meteorologische Zentralanstalt, Zurich, 21pp.
- Zhang, X., Wang, X.L. and Corte-Real, J., 1997: 'On the relationships between daily circulation patterns and precipitation in Portugal', *Journal of Geophysical Research*, 102, 13495-13507.
- Zorita, E., Kharin, V. and von Storch, H., 1992: 'The atmospheric circulation and sea surface temperature in the North Atlantic area in winter: their interaction and relevance for Iberian precipitation', *Journal of Climate*, **5**, 1097-1108.
- Zorita, E., Hughes, J.P., Lettenmaier, D.P. and von Storch, H., 1995: 'Stochastic characterization of regional circulation patterns for climate model diagnosis and estimation of local precipitation', *Journal of Climate*, **8**, 1023-1042.
- Zorita, E. and von Storch, H., 1999: 'The analog method as a simple statistical downscaling technique: comparison with more complicated methods', *Journal of Climate*, **12**, 2474-2489.