Bibliografía sobre Climatología urbana: la "isla de calor", II*

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2. "Isla de calor": estudios teóricos y aplicados

2.1. Estudios teóricos

BACH, W. (1971): "Seven steps to better living on the urban heat island". *Landscape architecture*, 141, pp. 136-138.

BÖHM, R. (1979): "Stadtentwicklung und trend der wärmeinselintensität (Town development and trend of the urban heat island intensity)". *Archives of Meteorology, Geophysics and Bioclimatology. Ser. B.*, 27, pp. 31-46.

BRÜNDL, W. y HÖPPE, P. (1984): 'Advantages and disadvantages of the urban heat island –an evaluation according to the hygro-thermic effects". *Archives of Meteorology, Geophysics and Bioclimatology. Ser. B.*, 35, pp. 55-66.

BUECHLEY, R.W. *et al.* (1972): "Heat Island = Death Island?" *Environmental Research*, 5, pp. 85-92.

ERIKSEN, W. (1976): "Die städtische wärmeinsel neure erkenntinisse zur gliederung, genese und bedentung der innerstädtischen temperaturfeldes (The urban heat island. New information about spatial pattern, genesis amd implication of the intraurban temperature gradients)". *Geographische Rundschau*, 28 (9), pp. 368-373.

GARSTANG, M. *et al.* (1975): "The structure of heat islands". *Rev. Geophys. Space Phys.*, 13, pp. 139-165.

GOWARD, S.N. (1981): "Thermal behavior of urban landscapes and the urban heat island". *Physical Geography*, 2 (1), pp. 19-33.

HANNELL, F.G. (1976): "Some features of the heat island in an equatorial city. *Geografiska Annaler. Ser. A.*, 58 (1-2), pp. 95-110.

HUTCHEON, R.J. *et al.* (1967): "Observations of the urban heat island in a small city". *Bulletin of American Meteorological Society*, 48, pp. 7-9.

KOPEC, R.J. (1970): *Further observations of the urban heat island in a small city.* American Meteorological Society, 602 pp.

KRAUS, H. (1979): "Die wärmeinsel (The heat island)". *D. Wetter.*, 9, pp. 7-11.

OKE, T.R. (1969): "Towards a more rational understanding of the urban heat island". *McGill Univ. Climatol. Bull.*, 5, pp. 1-20.

OKE, T.R. (1973): "City size and the urban heat island". *Atmospheric Environment*, 7, pp. 769-779.

OKE, T.R. (1982): "The energetic basis of the urban heat island (Symons Memorial Lecture, 20 may 1980)". *Quarterly Journal of Royal Meteorological Society*, 108 (455), pp. 1-24.

*Todo el texto de la presentación y la parte 1.ª de las referencias bibliográficas del presente trabajo han sido publicadas en el volumen XXIV, 1990, pp. 99-109 de la "Revista de Geografía".

PARRY, M. (1967): "The urban 'heat island'". *Biometeorology*, 2, pp. 616-624.
PAZERA, E. Jr. (1976): "A ilha de calor da cidade: fatores e atributos". *Boletim Geográfico*, 34 (249), pp. 51-57, Rio de Janeiro.
PIGGIN, I.G. (1982): "Measurement of the heat island above an aluminium smelter". *Boundary-Layer Meteorology*, 23 (3), pp. 317-324.
REISS, N.M. (1982): "Heat island effect" en *Pollution and water resources.* Columbia University seminar series, vol. 15, part 1, pp. 17-19, ed. G.J. Halasi-Kun, Pergamon.
SEKIGUTI, T. y KAWAKAMI, K. (1975): "Heat island formation at concentrated new residence towns" *Japanese Progress in Climatology*, pp. 82-83.
SHARON, D. y KOPLOWITZ, R. (1972): "Observation of the heat island of a small town". *Met. Rund.*, 25, pp. 143-146, Heidelberg.
SUCKLING, P.W. (1981): "Nocturnal heat island observations for small urban centers". *Geographical Perspectives*, 48, pp. 35-40.
TAMIYA, H. y MUTO, S. (1974): "Nocturnal heat island in small residential town". *Kishökenkyu-Note*, 119, pp. 196-205.
TAMIYA, H. y OHYAMA, H. (1981): "Nocturnal heat island of small town, its manifestation and mechanism". *Geographical Review of Japan*, 54 (1), pp. 1-21.

2.2. Estudios aplicados

ACKERMAN, B. (1985): "Temporal march of the Chicago heat island". *Journal of Applied Climatology and Meteorology*, 6, pp. 547-554.
BAHL, H.D. y PADMANABHAMURTY, B. (1979): "Heat island studies at Delhi". *Mausam*, 30, pp. 134-138.
BORNSTEIN, R. (1968): "Observations of the urban heat island effect in New York City". *Journal of Applied Meteorology*, 7, pp. 575-585.
BOWLING, S.A. y BENSON, C.S. (1978): *Study of the subartic heat island at Fairbanks, Alaska.* Alaska Univ. College, Geophysical Inst., 168 pp.
COLACINO, M. (1980): "Some observations or the urban heat island in Rome during the summer season". *Il Nuovo Cimento*, 3C, pp. 165-179. Bologna.
COLACINO, M. y CAVAGNINI, A. (1982): "Evidence of the urban heat island in Rome by climatological analyses". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.*, 31 (1-2), pp. 87-97.
CHANDLER, T.J. (1961): "The changing form of London's heat island". *Geography*, 46, part 4, n.° 213.
CHANDLER, T.J. (1962): "Diurnal, seasonal and annual changes in the intensity of London's heat-island". *Meteorological Magazine*, 91, pp. 146-153.
CHANDLER, T.J. (1967): "Night-time temperatures in relation to Leicester's urban form". *Meteorological Magazine*, 96, pp. 244-250.
CHOU SHU-ZHEN Y ZHANG CHAO (1982): "On the Shanghai urban heat island effect". *Acta Geographica Sinica*, 37 (4), pp. 372-382.
DEAR, R.C. (1974): "London's heat island". *Weather*, 29, pp. 41.
ENDLICHER, W. (1981-83): "L'îlot de chaleur urbain d'Annecy. Quelques remarques sur le climat local d'une ville alpine". *Revue de Géographie Alpine*, LXIX.
FONDA, R.W. *et al.* (1971): "Heat islands and frost pockets in Bellingham Washington". *Bulletin of American Meteorological Society*, 52, pp. 552-555.
GOLDREICH, Y. (1970): "Computation of the magnitude of Johannesburg's heat island". *Motos*, 19, pp. 95-106, Weath. Bur., Pretoria.
HASKE, S.J. *et al.* (1981): "Characteristics of heat-island at Pune". *Vayu Mandal*, 11 (1-2), pp. 56-59, Indian Met. Soc., New Delhi.
JAUREGUI, E. (1979): "La isla de calor en Toluca, México". *Boletín del Instituto de Geografía de la UNAM*, 9, pp. 27-37.
JAUREGUI, E. (1987): "Urban heat island development in medium and large urban areas in Mexico". *Erdkunde.*
KARTLEY, M. (1977): "Glasgow as an urban heat-island". *Scottish Geographical Magazine*, 93 (2), pp. 80-89.

LANDSBERG, H.E. y BRUSH, D.A. (1980): *Character of the heat island in Baltimore, Maryland.* Tech. Note BN-948, Inst. Phy. Sci. Tech., Univ. Maryland, pp. (i)+5.

LOMBARDO, M.A. (1985): *Ilha da calor nas metrópoles. O exemplo de São Paulo.* Hucitec. São Paulo. 244 pp.

LYALL, I.T. (1977): "The London heat-island in june-july 1976". *Weather,* 32 (8), pp. 296-302.

MARTIN, F.P. y POWELL, G.L. (1977): "The urban heat island in Akron, Ohio". Tech. Rep. NE-25, Upper Darby, Pa., pp. 94-97.

McELROY, J.L. (1973): "A numerical study of the nocturnal heat island over a medium-sized mid-latitude city (Colombus, Ohio)". *Boundary-Layer Meteorology,* 3 pp. 442-453.

MORAWSKA-HORAWSKA, M. y CEBULAK, E. (1981): "Badania pionowego zasiegu miejskiej ciepla nad Krakowem (Investigations of the vertical range of the urban heat island over Cracow)". *Folia Geographica. Series Geographica-Physica,* 14, pp. 43-50.

NICHOLAS, F.W. (1971): "The changing form of the urban heat island of Metropolitan Washington". Tech. Paper. *American Congress of Surveying and Mapping* (Washington, march 7-12).

NKENDIRIM, L.C. (1977): "Urban heat island in Calgary: diurnal pattern and time trends" en *Applications of Climatology: proceedings of the workshop and annual meeting sponsored by the Alberta Climatological Committee,* ed. J.M. Powell, pp. 69-77, Edmonton.

OKE, T.R. y HANNELL, F.G. (1970): "The form of the urban heat island in Hamilton, Canada" en *Urban Climates,* Tech. Note 108, pp. 113-126, World Meteorological Organization, Geneve.

OKE, T.R. y MAXWELL, G.B. (1975): "Urban heat island dynamics in Montréal and Vancouver". *Atmospheric Environment,* 9, pp. 191-200.

OKOOLA, R.E. (1979): *The Nairobi heat island.* E. African Inst. Met. Train. Res., Rep. n.° 4/79, pp. v+30, Nairobi.

OUJEXDY, T.W. (1973): *Diurnal and seasonal change of the urban heat island in Austin, Texas.* Univ. Texas, Coll. Eng., Atmos. Sci. Group, Rep. n.° 34, pp. vii+52, Austin.

OWADA, M. (1973): "Distribution of heat island in Asahikawa City". *Geographical Report Aichi University of Education,* 40, pp. 7-11.

PADMANABHAMURTY, B. y BAHL, H.D. (1982): "Some physical features of heat and humidity islands at Delhi". *Mausam,* 33 (2), pp. 211-216, Poona.

PERKINS, W.A. (1964): "A map of London's heat island". *New Scientist,* 23, pp. 576.

SHENG-I HSU (1984): "Variation of an urban heat island in Phoenix". *Professional Geographer,* 36 (2), pp. 196-200.

TAPPER, N.J. *et al.* (1981): "Modelling the winter urban heat island over Christchurch, New Zealand". *Journal of Applied Meteorology,* 20 (4), pp. 365-376.

TYSON, P.D. *et al.* (1972): "Temperature structure above cities: review and preliminary findings from the Johannesburg urban heat island project". *Atmospheric Environment,* 6, pp. 533-542.

UNWIN, D.J. (1980): "The synoptic climatology of Birmingham's urban heat island 1965-74". *Weather,* 35 (2), pp. 43-50.

VON GOGH, R.G. (1979): "A note on the Pretoria urban heat island, 15-16 june, 1977". *South African Geographical Journal,* 61 (1), pp. 29-34.

VUKOVICH, F.M. y DUNN, J.W. (1978): "A theoretical study of the St. Louis heat island: some parameter variations". *Journal of Applied Meteorology,* 17 (11), pp. 1585-1594.

WOOD, J.L. (1971): *The nocturnal urban heat island in Austin, Texas.* Univ. Texas, Coll. Eng., Atmos. Sci. Group, Rep. n.° 28, pp. vi +55, Austin.

3. Modelos e "isla de calor"

BENISTON, M. (1980): "Effects dynamiques et thermodynamiques d'un îlot de chaleur dans un modèle de couche limité à meso-échelle". *Journal de Recherches Atmospheriques,* 14 (2), pp. 109-128.

CLARKE, J.F. y PETERSON, J.T. (1973): "An empirical model using eigenvectors to calculate the temporal and spatial variations of the St. Louis heat island". *Journal of Applied Meteorology,* 12, pp. 195-210.

JENDRITZKY, G. y NÜBLER, W. (1981): "A model analysing the urban thermal environment in physiologically significant terms". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 29, pp. 313-326.

LEE, R.L. y OLFE, D.B. (1974): "Numerical calculations of temperature profiles over an urban heat island". *Boundary-Layer Meteorology*, 7, pp. 39-52.
MYRUP, L.O. (1969): "A numerical model of the urban heat island". *Journal of Applied Meteorology*, 8, pp. 908-918.
NAPPO, C.J. (1972): "A numerical study of the urban heat island" en *Conf. Urban Environment and 2nd Conf. Biomet. Philadelphia, oct.31-nov.2, 1972*, pp. 1-14.
OKE, T.R. (1981): "Canyon geometry and the nocturnal urban heat island: comparison of scale model and field observations". *Journal of Climatology*, 1 (3), pp. 237-254.
PRESTON-WHYTE, R.A. (1970): "A spatial model of an urban heat island". *Journal of Applied Meteorology*, 9, pp. 571-573.
SEKIGUITI, T. y TAKANO, K. (1975): "Mathematical simulation of heat island model". *Japanese Progress in Climatology*, pp. 80-81.
SETHURAMAN, S. y CERMAK, J.E. (1973): *Stratified shear flows over a simulated three-dimensional urban heat island.* Colorado State University, Coll. Eng., Fluid Dynam. Diff. Lab., Tech. Rep. n.º 23, pp. xxi + 186, Fort Collins.
SUMMERS, P.W. (1964): *An urban ventilation model applied to Montréal.* McGill University, Ph. D. Dissertation.
TERJUNG, W.H. y O'ROURKE, P.A. (1980): "Simulating the casual elements of urban heat islands". *Boundary-Layer Meteorology*, 19, pp. 93-118.
WAGNER, N.K. y TSANN-WANG YU (1972): "Heat island formation: a numerical experiment" en *Conf. Urban Environment and 2nd Conf. Biomet. (Philadelphia, oct.31-nov.2, 1972)*, pp. 83-88.

4. Capa límite urbana, convección urbana e "isla de calor"

AHRENS, D. (1981): "Untersuchungen über die wärmeinsel und die mischungsschicht einer grobstadt (Study concerning the heat island and the mixing height of a city)". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.*, 29, pp. 29-36.
CLARK, E.C. *et al.* (1985): "Current and potential anthropogenic moisture effects on the New York City planetary boundary layer". *Journal Air Pollution Control Association.*
CLARKE, J.F. (1969): "The nocturnal urban boundary layer over Cincinnati, Ohio". *Monthly Weather Review*, 97, pp. 582-589.
CLARKE, J.F. y McELROY, J.L. (1970): "Experimental studies of the nocturnal urban boundary layer" en *Urban Climates*, Tech. Note 108, pp. 108-112, World Meteorological Organization, Geneve.
CLARKE, J.F. *et al.* (1978): "Turbulent structure of the urban surface boundary layer" en *Proc. 9th international technical meeting on air pollution modelling and its application (Toronto, august 1978)*, ed. C. Morawa, (NATO Committee on the challenges of modern society, Brussels; Report 103), pp. 187-196.
DeMARRAIS, G.A. (1975): "Nocturnal heat island intensities and relevance to forecasts of mixing heights". *Monthly Weather Review*, 103 pp. 235-245.
HILDEBRAND, P.H. y ACKERMAN, B. (1984): "Urban effects on the convective boundary layer". *Journal of the Atmospheric Sciences*, 41 (1), pp. 76-91.
KALMA, J.D. (1974): "An advective boundary layer model applied to Sydney, Australia". *Boundary-Layer Meteorology*, 6, pp. 351-361.
KIMURA, R. (1976): "Effects of general flows on a heat island convection". *Journal of Meteorology Society of Japan*, Tokyo.
LEAHEY, D.M. y FRIEND, J.P. (1971): "A model for predicting the depth of the mixing layer over an urban heat island with applications to New York City". *Journal of Applied Meteorology*, 10, pp. 1162-1173.
LEE, R.L. *et al.* (1976): "Workshop on modelling the urban boundary layer, Las Vegas, Nevada 5 may". *Bulletin of American Meteorological Society*, 57, pp. 313-314.
OKE, T.R. (1976): "The distinction between canopy and boundary layer urban heat islands". *Atmosphere*, 14, pp. 268-277.
OKE, T.R. y EAST, C. (1971): "The urban boundary layer in Montreal". *Boundary-Layer Meteorology*, I, pp. 411-437.
OLFE, D.B. y LEE, R.L. (1971): "Linearized calculations of urban heat island convection effects". *Journal of the Atmospheric Sciences*, 28, pp. 1374-1388.

SORBJAN, Z. (1978): "Numerical simulation of dynamic structure of the atmospheric boundary layer in urban areas". *Acta Geophysica Polonica,* 26 (2), pp. 165-171.

SORBJAN, Z. y ULIASZ, M. (1982): "Some numerical urban boundary-layer studies". *Boundary-Layer Meteorology,* 22 (4), pp. 481-502.

SPANTON, A.M. y WILLIAMS, M.L. (1988): "A comparison of the structure of the atmospheric boundary layers in Central London and a rural/suburban site using acoustic sounding". *Atmospheric Environment,* 22 (2), pp. 211-225.

SURRIDGE, A.D. y GOLDREICH, Y. (1988): "On the spatial characteristics of the nocturnal stable boundary layer over a complex urban terrain". *Atmospheric Environment,* 22 (1), pp. 1-7.

VISKANTA, R. *et al.* (1977): "Radiactive transfer in a polluted urban planetary boundary layer". *Journal of Atmospheric Science,* 34, pp. 1091-1103.

YONETANI, T. (1983): "Enhancement and initiation of a cumulus by a heat island". *Journal of Meteorology Society of Japan,* 61, pp. 244-253.

5. Relación entre la "isla de calor" y algunos parámetros meteorológicos

5.1. Balance de energía y de radiación

BACH, W. y PATTERSON, W. (1969): "Heat budget studies in Greater Cincinnati". *Proceedings of the Association of American Geographers,* vol. 1, pp. 7-11.

CRADDOCK, J.M. (1965): "Domestic fuel consumption and winter temperatures in London". *Weather,* 20 pp. 257-258.

DODD, J.K. (1979): *Determination of surface characteristics and energy budget over an urban-rural area using satellite data and a boundary layer model.* Dept. of Meteorol., Penn. State University, M.S. Thesis.

GARNETT, A. y BACH, W. (1965): "An estimation of the ratio of artificial heat generation to natural radiation heat in Sheffield". *Monthly Weather Review,* 93, pp. 383-385.

HARRISON, R. y McGOLDRICK, B. (1981): "Mapping artificial heat release in Great Britain". *Atmospheric Environment,* 15, pp. 667-674.

HORIE, G. y HIROKAWA, Y. (1978): "Effect of energy consumption on urban air temperature". *Japanese Progress in Climatology,* march 1979, pp. 10-15.

KOBAYASHI, M. (1979): "Comparative observation of long-wave radiation balance on ground-surface and on roof-level in the urban area". *Geographical Review of Japan,* 52 (5), pp. 251-260.

MASARU, A. (1981): "On the urban surface albedo". *Japanese Progress in Climatology,* march 1982, pp. 4-5.

MORKEL, S. (1980): "The use of an energy balance model to estimate the effects of urbanization and topography on the distribution of temperature over Pretoria". *South African Geographical Journal,* 62 (1), pp. 33-43.

NAKAMURA, S. *et al.* (1973): "Effect of energy consumption on urban air temperature. Part I". *Japan Journal of Biometeorology,* september.

NUÑEZ, M. y OKE, T.R. (1977): "The energy balance of an urban canyon". *Journal of Applied Meteorology,* 16, pp. 11-19.

NUÑEZ, M. y OKE, T.R. (1980): "Modelling the daytime urban surface energy balance". *Geographical Analysis,* 12, pp. 373-386.

OKE, T.R. *et al.* (1981): "Parameterization of heat storage in urban areas". *Urban Ecology,* 5 (1), pp. 45-54.

PADMANABHAMURTY, B. y MANDAL (1982): "Urban-rural radiation differences at Delhi". *Mausam,* 33, pp. 509.

SUCKLING, P.W. (1981): "Nocturnal observations of incoming longwave radiation and the urban heat island for a small prairie city". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 29, pp. 23-27.

TERJUNG, W.H. y LOUIE, S.S.F. (1973): "Solar radiation and urban heat island". *Annals of American Geographers,* 63 (2), pp. 181-190.

TSUKAMOTO, N. *et al.* (1973): "Effect of energy consumption on urban air temperature. Part II". *Japan Journal of Biometeorology,* september.

YAMASHITA, S. (1979): "Shortwave radiation climatonomy of the urban atmosphere at Toronto". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 27, pp. 193-203.

YAP, D. (1975): "Seasonal excess urban energy and the nocturnal heat island - Toronto". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.*, 23, pp. 69-80.
YAP, D. y OKE, T.R. (1974): "Sensible heat fluxes over an urban area-Vancouver, B.C." *Journal of Applied Meteorology*, 13, pp. 880-890.

5.2. Viento

BERNHOFER, C. (1984): "Jahreszeitliche und tagliche variationen einer stadtischen wärmeinsel auf grund von topographie und windverhaltnissen (Seasonal and daily variations of an urban heat-island caused by topographie and wind, Vienna)". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.*, 34 (1-2), pp. 121-139.
CHANDLER, T.J. (1961): "Surface breeze effects of Leicester's heat islands". *E. Middland Geog.*, 15, pp. 32-38, Nottingham Univ.
DELAGE, Y. y TAYLOR, P.A. (1970): "Numerical studies of heat island circulations". *Boundary-Layer Meteorology*, 1, pp. 201-226.
DRAXLER, R.R. (1986): "Simulated and observed influence of the nocturnal heat island on the local wind field". *Journal of Climate and Applied Meteorology*, 25 (8), pp. 1125-1133.
FUJIBE, F. y ASAI, T. (1980): "Some features of a surface wind system associated with the Tokyo heat island". Tokyo.
GOLDREICH, Y. (1979): "A possible heat island effect on Bezuidenhout Valley air circulation and temperature distribution". *South African Geographical Journal*, 61 (2), pp. 123-127.
LEE, D.O. (1975): *A study of the influence of the surface roughness and temperature of cities on urban airflow.* University of London, Ph. D. Tesis.
LEE, D.O. (1979): "The influence of atmospheric stability and the urban heat island on urban-rural wind speed differences". *Atmospheric Environment*, 13 (8), pp. 1175-1180.
NKENDIRIM, L.C. (1980a): "A test of a lapse rate/wind speed model for estimating heat island magnitude in an urban airshed". *Journal of Applied Meteorology*, 19 (6), pp. 748-756.
NKENDIRIM, L.C. (1980b): "Cold air drainage and temperature fields in an urban environment: a case study of topographical influence on climate". *Atmospheric Environment*, 14 (3), pp. 375-381.
NKENDIRIM, L.C. y LEGGAT, K. (1978): "The effect of chinook weather on urban heat islands and air pollution". *Water, Air and Soil Pollution*, 9 (1), pp. 53-68.
SHREFFLER, J.H. (1978): "Detection of centripetal heat island circulations from tower data in St. Louis". *Boundary-Layer Meteorology*, 15, pp. 229-242.
SHREFFLER, J.H. (1979): "Heat island convergence in St. Louis during calm periods". *Journal of Applied Meteorology*, 18 (12), pp. 1512-1520.
VUKOVICH, F.M. (1971): "Theoretical analysis of the effect of mean wind and stability on a heat island circulation characteristic of an urban complex". *Monthly Weather Review*, 99, pp. 919-926.
VUKOVICH, F.M. (1975): "A study of the effect of wind shear on a heat island circulation characteristics of an urban complex". *Monthly Weather Review*, 103, pp. 27-33.
VUKOVICH, F.M. y KING, W.J. (1980): "A theoretical study of the St. Louis heat island: comparisons between observed data and simulation results on the urban heat island circulation". *Journal of Applied Meteorology*, 19 (7), pp. 761-770.
VUKOVICH, F.M. *et al.* (1976): "A theoretical study of the St. Louis heat island: the wind and temperature distribution". *Journal of Applied Meteorology*, 15 (5), pp. 417-440.
VUKOVICH, F.M. *et al.* (1979): "Observations and simulations of the diurnal variation of the urban heat island circulation and associated variations of the ozone distribution: a case study". *Journal of Applied Meteorology*, 18 (7), pp. 836-854.
YAMAMOTO, C. y SHIMANUKI, A. (1964): "Profiles of wind and temperature in the lowest 250 meters in Tokyo". *Geophysics*, 5 (15), pp. 111-114, Tohoku Univ.

5.3. Contaminación atmosférica

BENNETT, M. y SAAB, A.E. (1982): "Modelling of the urban heat island and of its relation with pollution dispersal". *Atmospheric Environment*, 16 (8), pp. 1797-1822.

FUKUOKA, Y. *et al.* (1980): "Urban climate and quality of Hiroshima City. 1st Report". *Japanese Progress in Climatology,* march 1981, pp. 5-12.
FUKUOKA, Y. y TAKEUCHI, N. (1980): "Urban climate and quality of Hiroshima City. 2nd Report". *Japanese Progress in Climatology,* march 1981, pp. 13-20.
GALLEGO, L.P. (1972): *Tipos de tempo e poluição atmosférica no Rio de Janeiro (Um ensaio em Climatologia Urbana).* Dep. de G.ª de Faculdade de Filosofia, Letras e Ciências Humanas de la Unid. de São Paulo. (Tese de Doutoramento).
LEAHEY, D.M. (1972): "An advective model for predicting air pollution within an urban heat island with applications to New York City". *Journal of Air Pollution Control Association,* 22, pp. 548-550.
NKENDIRIM, L.C. *et al.* (1975): "Pollutant concentration and stratification in urban heat island". *Water, Air, Soil, Pollution,* 4, pp. 99-112.
NORWINE, J.R. (1971): *Cities, air pollution and regional climate (a quantitative analysis of the relationships between climatological parameters and urban influences primarily atmospheric pollution in the six-state region of the United States Gulf of Mexico coastline).* Indiana State University.
PADMANABHAMURTY, B. y HIRT, M.S. (1974): "The Toronto heat island and pollution distribution'. *Water, Air, Soil, Pollution,* 3, pp. 81-89.
ROUSE, W.R. *et al.* (1973): "Radiation, temperature and atmospheric emissivities in a polluted urban atmosphere at Hamilton, Ontario". *Journal of Applied Meteorology,* 12. pp. 798-807.
TSUCHIYA, I. (1972): "Thermal pollution of urban atmosphere". *Water Science,* 16 (5), pp. 41-71.
TSUCHIYA, I. (1974): "Thermal pollution of urban atmosphere and its influence". *Environmental Res.,* 6, pp. 33-41.
VISKANTA, R. y DANIEL, R.A. (1980): "Radioactive effects of elevated pollutant layers on temperature structure and dispersion in an urban atmosphere". *Journal of Applied Meteorology,* 19 (1), pp. 53-70.
YAMASHITA, S. (1974): "A comparative study of turbidity in an urban and a rural environment at Toronto". *Atmospheric Environment,* 8, pp. 507-518.

6. Relación entre la "isla de calor" y algunos parámetros de carácter geográfico-urbano

6.1. Densidad de edificación y materiales de construcción

ASAI, T. y OHTA, N. (1974): "The distribution of the temperature in the middle height building in summer and winter –the thermal problems of east and west wall–". *Meteorological Research Note,* 119, pp. 318-330.
MARTIN, F.P. y EVANS, P.M. (1975): "The heat island effect of a large shopping mall in Akron, Ohio". *Weatherwise,* 28, pp. 254-255.
NISHIZAWA, T. (1958): "The influence of buildings on urban temperature". *Miscell. Rep. Res. Inst. Nat. Resour.,* 48, pp. 40-47.
NORWINE, J.R. (1973): "Heat island properties of an enclosed multi-level suburban shopping center". *Bulletin of American Meteorological Society,* 54. pp. 637-641.
SHITARA, H. (1957): "Effects of buildings upon the winter temperature in Hiroshima City". *Geographical Review of Japan,* 30, pp. 468-482.
TAKAHASHI, M. (1959): "Relation between the air temperature distribution and the density of houses in small cities of Japan". *Geographical Review of Japan,* 32, pp. 305-313.
TAKAHASHI, M. (1964): "Temperature distribution and density of houses in medium-sized cities in Japan". *Tokyo Journal of Climatology,* 1, pp. 45-47.

6.2. Areas verdes y parques urbanos

BERNATZKY, A. (1982): "The contribution of trees and green spaces to a town climate" en *The impact of climate on planning and building,* ed. A. Bitan, Elsevier, pp. 301-310.

KAWAMURA, T. y SUZUKI, J. (1983): "Air temperature difference between park and the surrounding urban area". *Inst. Geosci. Univ. Tsukuba,* 9, pp. 30-41.

O'ROURKE, P.A. y TERJUNG, W.H. (1981): "Urban parks, energy budgets and surface temperatures". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 29 (4), pp. 327-344.

RAUNER, J.L. y CERNAVSKAJA, M.M. (1972): "Heat balance of a city and the effect of landscape gardening on the temperature regime". *Izv. Ser. Geog.,* 5, pp. 46-53, Akad. Nauk, Moscow.

TERJUNG, W.H. y O'ROURKE, P.A. (1981): "Relative influence of vegetation on urban energy budgets and surface temperatures". *Boundary-Layer Meteorology,* 21, pp. 255-263.

TSUCHIYA, I. (1972): "Greens and urban climate thermal characteristics of natural and artificial greens, and rivers in urban area". *Water Science,* 16 (1), pp. 29-56.

WILMERS, F. (1972): "Temperaturstudien in Gartenhöfen". *Das Gartenamt,* 12, pp. 2-6.

6.3. Usos del suelo

ADEBAYO, Y.R. (1987): "Land-use approach to the spatial analysis of the urban 'heat island' in Ibadan, Nigeria". *Weather,* 42 (9), pp. 273-280.

CECH, I. *et al.* (1976): "Relative contribution of land uses to the urban heat problem in the coastal subtropics". *International Journal of Biometeorology,* 20 (1), pp. 9-18.

CLARKE, J.F. y PETERSON, J.T. (1972): "The effect of regional climate and land use on the nocturnal heat island". *Prepints Conf. Urban Environment and 2nd Conf. on Bioclimatology,* pp. 147-152, American Meteorological Society, Boston.

OUTCALT, S.I. (1972): "A synthetic analysis of seasonal influences in the effects of land use on the urban thermal regime". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 20, pp. 253-260.

SAMPAIO, A.H.L. (1981): *Correlaçôes entre uso do solo e ilha de calor no ambiente urbano: o caso de Salvador.* Dep. de G.ª de Faculdade de Filosofia, Letras e Ciências Humanas de Univ. de Saõ Paulo.

7. Percepción remota e "isla de calor"

CARLSON, T.M. *et al.* (1977): "Potential application of satellite temperature measurements in analysis of land use over urban areas". *Bulletin of American Meteorological Society,* 58, pp. 1301-1303.

COLACINO, M. (1978): "Infrared radiometric measurements for the study of Rome urban heat island". *Archives for Meteorology, Geophysics and Bioclimatology. Ser. B.,* 26, pp. 207-217.

LOMBARDO, M.A. *et al.* (1981): *Estudos radiométricos da ilha de calor.* São José dos Campos, INPE.

LOMBARDO, M.A. *et al.* (1983): "Use of infrared images in the delimitation of São Paulo's heat island". *Seventeenth International Symposium on Remote Sensing of Environment (Ann Arbor, Michigan, may 9-13).*

MATSON, M. *et al.* (1978): "Satellite detection of urban heat islands". *Monthly Weather Review,* 106 (2), pp. 1725-1734.

MATSON, M. y LEGECKIS, R.V. (1980): "Urban heat islands detected by satellite". *Bulletin of American Meteorological Society,* 61, pp. 212.

PRICE, J.C. (1979): "Assesment of the urban heat island effect through the use of satellite data". *Monthly Weahter Review,* 107, pp. 1554-1557.

RAO, P.K. (1972): "Remote sensing of urban 'heat islands' from an environmental satellite". *Bulletin of American Meteorological Society,* 53, pp. 647-648.

SEKIGUTI, T. y TAMIYA, H. (1978a): "Comparison of 11 channel intensity level between urban and rural area –Niigata City and her neighbourhood–". *Japanese Progress in Climatology,* march 1979.

SEKIGUTI, T. y TAMIYA, H. (1978b): "Discrimination of urban area from rural area by MSS 11 channel data –in the area including Niigata City and her neighbourhood". *Japanese Progress in Climatology,* march 1979.

SEKIGUTI, T. y TAMIYA, H. (1978c): "Heat island analysis of Tokyo by remote sensing". *Japanese Progress in Climatology,* march 1979.

TSUCHIYA, I. (1973): "Some features on the ground surface temperatures at summer daytime in Tokyo by thermal mapping". *Weather Bull.*, 40, pp. 165-178.

TSUCHIYA, I. (1974a): "Remote sensing of the urban ground surface temperature". *Remote Sensing*, pp. 149-164.

TSUCHIYA, I. (1974b): "Some features of the urban environment of Tokyo by remote sensing of ground surface temperature". *Pap. Met. Geophys.*, 25, pp. 147-158.

8. "Isla de calor": estudios en España

ALMENDROS, M.A. (1990): *Aspectos climáticos de los parques y jardines de Madrid.* Dep. de Geografía. Universidad Autónoma de Madrid. 3 vols. Tesis de Doctorado (inédita).

BRUNET, M. (1989): *Los efectos de la urbanización en el clima local. Un ensayo de Climatología urbana: el caso de Tarragona.* Area de Geografía de la Universidad de Barcelona (Tarragona). 3 vols. Tesis de Doctorado (inédita).

CARRERAS, C. *et al.* (1990): "Modificaciones térmicas en las ciudades. Avance sobre la 'isla de calor' en Barcelona". *Documents d'Anàlisi Geogràfica*, 17, pp. 51-77, Universitat Autònoma de Barcelona.

DORTA, P.; MARZOL, M.V. y RODRIGUEZ, J. (en prensa): "Estudio del clima urbano en una ciudad del litoral. El caso de Santa Cruz de Tenerife". *Actas de les Trobades Científiques de la Mediterrània (Maó, 19-21 septiembre 1990)*, CIRIT y Societat Catalana de Física.

GARCÍA CODRON, J.C. (1990): "Los microclimas urbanos y las ciudades cantábricas; papel de los factores locales" en *Cambio climático y medio ambiente. XX Jornadas de la Asoc. Meteorológica Española (San Sebastián, mayo 1989)*, pp. 55-79.

GARCÍA RUIZ, J.M. *et al.* (1989): "Organización espacial de las temperaturas en la ciudad de Logroño". *Cuadernos de Investigación Geográfica*, 15 (1-2), pp. 87-98, Colegio Universitario de La Rioja.

LÓPEZ GÓMEZ, A. y FERNÁNDEZ GARCÍA, F. (1984): "La isla de calor en Madrid: avance de un estudio de clima urbano". *Estudios Geográficos*, 174, pp. 5-34.

LÓPEZ GÓMEZ, A. (dtor.) *et al.* (1988): *El clima urbano de Madrid: la isla de calor.* Instituto de Economía y Geografía aplicadas. CSIC. Madrid. 199 pp.

MARTÍN VIDE, J. y MORENO GARCÍA, M.C. (en prensa): "Avance de resultados sobre la isla de calor de Barcelona y de otras ciudades catalanas". *Actas de les Trobades Científiques de la Mediterrània (Maó, 19-21 setembre 1990)*, CIRIT y Societat Catalana de Física.

MORENO GARCÍA, M.C. (1990): *Estudio del clima urbano de Barcelona: la "isla de calor".* Dep. de Geografía Física y A.G.R. Universidad de Barcelona, 2 vols. Tesis de Doctorado (inédita).

Bibliografía terminada en mayo 1991