Bibliography

- Aber, J. S., Spellman, E. E. and Webster, M. P. (1993) Landsat remote sensing of glacial terrain. In Glaciotectonics and Mapping Glacial Deposits.

 Proceedings of the INQUA Commission on Formation and Properties of Glacial Deposits. (Ed, Aber, J.) Canadian Plains Research Center, University of Regina.
- Agassiz, L. (1840) On the evidence of the former existence of glaciers in Scotland, Ireland and England. *Proceedings of the Geological Society of London*, **3**, 327-332.
- Aronoff, S. (1989) Geographic Information Systems: a management perspective. WDL Publications, Ottawa.
- Arthurton, R. S. (1981) *Geology of the country around Penrith.* British Geological Survey.
- Arthurton, R. S. (1988) *Geology of the country around Settle.* British Geological Survey.
- Benn, D. I. and Evans, D. J. A. (1998) Glaciers and Glaciation. Arnold, London.
- Black, S. M. (1995) *The development of a lineament identification/analysis* technique in Northern Scotland. Unpublished PhD Thesis, Department of Geography, University of Sheffield.
- Boardman, J. (Ed.) (1981) *Field guide to Eastern Cumbria*. Quaternary Research Association, Oxford.
- Boardman, J. (1991) Glacial deposits of the English Lake District. In *Glacial deposits in Great Britain and Ireland.* (Eds, Ehlers, J., Gibbard, P. L. and Rose, J.) Balkema, Rotterdam.
- Boulton, G. S. and Clark, C. D. (1990) The Laurentide Ice Sheet through the last glacial cycle: the topology of drift lineations as a key to the dynamic behaviour of former ice sheets. *Transactions of the Royal Society of Edinburgh: Earth Sciences*, **81**, 327-347.
- Boulton, G. S., Dongelmans, P., Punkari, M. and Broadgate, M. (2001)

 Palaeoglaciology of an ice sheet through a glacial cycle: the European ice sheet through the Weichselian. *Quaternary Science Reviews*, **20**, 591-625.
- Brandon, A. (1998) *Geology of the country around Lancaster.* British Geological Survey.

- Broadgate, M. L. (1997) An integrated approach to palaeoenvironmental reconstruction using a GIS. Unpublished PhD Thesis, Department of Department of Geology and Geophysics, University of Edinburgh.
- Burgess, I. C. (1979) *Geology of the country around Brough-under-Stainmore*. British Geological Survey.
- Campbell, J. (1984) *Introductory Cartography*, Prentice-Hall, London.
- Catt, J. A. (1991) The Quaternary history and glacial deposits of East Yorkshire.
 In *Glacial deposits in Great Britain and Ireland*. (Eds, Ehlers, J., Gibbard, P. L. and Rose, J.) Balkema, Rotterdam.
- Chrisman, N. R. (1983) The role of quality information in the long-term functioning of a GIS. In *Proceedings of AUTOCARTO*, Vol. 2 Falls Church, pp. 303-321.
- Chrisman, N. R. (1994) The Error Component in Spatial Data In *Geographic Information Systems Volume 1: Principles* (Eds, Maguire, D. J., Goodchild, M. F. and Rhind, D. W.) Longman, London.
- Clark, C. D. (1993) Mega-scale glacial lineations and cross-cutting ice-flow landforms. *Earth Surface Processes and Landforms*, **18**, 1-29.
- Clark, C. D. (1997) Reconstructing the evolutionary dynamics of palaeo-ice sheets using multi-temporal evidence, remote sensing and GIS.

 Quaternary Science Reviews, 16, 1067-1092.
- Clark, C. D. (1999) Glaciodynamic context of subglacial bedform generation. *Annals of Glaciology*, **28**, 23-32.
- Clark, C. D., Evans, D. J. A., Mitchell, W.A., Jordan, C., Merritt, J. and Bradwell, T. (2002) BRITICE: a GIS database of palaeoglaciological evidence of the last British Ice Sheet. Final progress report to the British Geological Survey. pp. 19.
- Clark, C. D. and Knight, J. K. (1994) ERS SAR data as a tool for landform and lineament identification in previously glaciated areas. In *Proceedings of* the First ERS-1 Pilot Project Workshop, Vol. 356 European Space Agency Special Publication, Toledo, Spain, pp. 211-215.
- Clark, C. D., Knight, J. K. and Gray, J. T. (2000) Geomorphological reconstruction of the Labrador Sector of the Laurentide Ice Sheet. Quaternary Science Reviews, 19, 1343-1366.

- Clark, C. D. and Meehan, R. T. (2001) Subglacial bedform geomorphology of the Irish Ice Sheet reveals major configuration changes during growth and decay. *Journal of Quaternary Science*, **16**, 483-496.
- Close, M. H. (1867) Notes on the general glaciation of Ireland. *Journal of the Royal Geographical Society of London Dublin*, **1**, 207-242.
- Colwell, R. N. (Ed.) (1960) *Manual of Photographic Interpretation*. American Society of Photogrammetry, Falls Church, Virginia, USA.
- Colwell, R. N. (Ed.) (1983) *Manual of Photographic Interpretation*. American Society of Photogrammetry.
- Cox, N. (2001) Analysing circular data in Stata [online]. No 5.3 in North American Stata Users' Group Meetings 2001. Available from: http://fmwww.bc.edu/RePEc/nasug2001/nasugnjc.pdf [Accessed: 3rd February 2003].
- Dongelmans, P. (1996) *Glacial dynamics of the Fennoscandian ice sheet: a remote sensing study*. Unpublished PhD Thesis, Department of Department of Geology and Geophysics, University of Edinburgh.
- Douglas, R. (1991) Glacial deposits of Northumbria. In *Glacial deposits in Great Britain and Ireland.* (Eds, Ehlers, J., Gibbard, P. L. and Rose, J.)

 Balkema, Rotterdam.
- Estes, J. E., Hajic, E. J. and Tinney, L. R. (1983) Fundamentals of image analysis: analysis of visible and thermal infrared data. In *Manual of Remote Sensing* (Ed, Colwell, R. N.) American Society of Photogrammetry, Falls Church, Virginia.
- Evans, I. S. (1972) General Geomorphometry, derivatives of altitude and descriptive statistics. In *Spatial Analysis in Geomorphology* (Ed, Chorley, R. J.) Harper and Row, New York, pp. 17-90.
- Eyles, C. H., Eyles, N. and Miall, A. D. (1985) Models of glaciomarine sedimentation and their application to the interpretation of ancient glacial sequences. *Palaeogeography*, *Palaeoclimatography*, *Palaeoecology*, **51**, 15-84.
- Eyles, N. and McCabe, A. M. (1989) The late Devensian Irish Sea basin: a sedimentary record of a collapsed ice-sheet margin. *Quaternary Science Reviews*, **8**, 307-352.

- Fahnestock, J. D. and Schowengerdt, R. A. (1983) Spatially variant contrast enhancement using local range modification. *Optical Engineering*, **22**, 378-381.
- Florinsky, I. V. (1998) Accuracy of local topographic variables derived from digital elevation models. *International Journal of Geographic Information Science*, **12**, 47-62.
- Foley, J. D., van Dam, A., Feiner, S. K. and Hughes, J. F. (1990) *Computer Graphics: Principles and Practice*. Addison-Wesley, Wokingham.
- Ford, J. P. (1981) Mapping of glacial landforms from Seasat radar images. Quaternary Research, **22**, 314-327.
- Goodchild, M. F. and Kemp, K. K. (Eds) (1990) NCGIA Core Curriculum in GIS. [online]. National Center for Geographic Information and Analysis, University of California, Santa Barbara CA. Available from: http://www.geog.ubc.ca/courses/klink/gis.notes/ncgia/toc.html [Accessed: 3rd February 2003].
- Goodwillie, D. (1995) *Two cross-cutting drumlin swarms in northern Sweden:*geomorphology as a key to palaeoglaciology. Unpublished report,
 Department of Geography, Stockholm University,
- Graham, D. F. and Grant, D. R. (1991) A test of airborne, side-looking synthetic-aperture radar in central Newfoundland for geological reconnaissance.

 Canadian Journal of Earth Sciences, 28, 257-265.
- Guzzetti, F. and Reichenbach, P. (1994) Towards a definition of topographic divisions for Italy. *Geomorphology*, **11**, 57-74.
- Hättestrand, C. (1997) Ribbed moraines in Sweden distribution pattern and Palaeoglaciological implications. *Sedimentary Geology*, **111**, 41-56.
- Hill, A. R. and Prior, D. B. (1968) Directions of ice movement in north-east Ireland. *Proceedings of the Royal Irish Academy*, **66B**, 71-84.
- Hollingworth, S. E. (1931) Glaciation of western Edenside and adjoining areas and the drumlins of Edenside and the Solway Plain. *Quarterly Journal of the Geological Society of London*, **87**, 281-357.
- Huddart, D. (1994) The Late Quaternary glacigenic sequence: landforms and environments in coastal Cumbria. In *Cumbria: field guide.* (Ed, Boardman, J.) Quaternary Research Association, Oxford.

- Huddart, D. and N. F. Glasser (Ed.) (2002). *Quaternary of Northern England*. Peterborough, JNCC.
- Hull, E. (1878) Physical geology and geography of Ireland. Stanford, London.
- Irons, J. R. and Peterson, G. W. (1981) Texture transforms of remote sensing data. *Remote Sensing of the Environment*, **11**, 359-370.
- Jackson, P. and Steyn, D. (1994) Gap winds in a fjord. Part II:Hydraulic analog. *Monthly Weather Review*, **122**, 2668-2667.
- Jones, C. (1997) *Geographical information systems and computer cartography.*Longman, Singapore.
- King, C. A. M. (1976) Northern England. Methuen.
- Kitmitto, K., Cooper, M., Venters, C. C., Muller, J. P., Morley, J. G., Walker, A. and Rana, S. (2000) LANDMAP: Serving satellite imagery to the UK academic community. In *RSS2000: Adding Value to Remotely Sensed Data*, University of Leicester.
- Kleman, J. (1990) On the use of glacial striae for reconstruction of palaeo-ice sheet flow patterns. *Geograska Annaler*, **72A**, 217-236.
- Kleman, J. (1994) Preservation of landforms under ice sheets and ice caps. *Geomorphology*, **9**, 19-32.
- Kleman, J. and Borgström, I. (1996) Reconstruction of palaeo-ice sheets: the use of geomorphological data. *Earth Surface Processes and Landforms*, **21**, 893-909.
- Kleman, J., Hätterstrand, C., Borgström, I. and Stroeven, A. (1997)

 Fennoscandian palaeoglaciology reconstructed using a glacial geological inversion model. *Journal of Glaciology*, **43**, 283-299.
- Knight, J. (1997) Morphological and morphometric analyses of drumlin bedforms in the Omagh Basin, north central Ireland. *Geografiska Annaler*, **79A**, 255-266.
- Knight, J. (2001) Glaciomarine deposition around the Irish Sea basin: some problems and solutions. *Journal of Quaternary Science*, **16**, 405-418.
- Knight, J. and McCabe, A. M. (1997) Drumlin evolution and ice sheet oscillations along the NE Atlantic margin, Donegal Bay, western Ireland. Sedimentary Geology, 111, 57-72.

- Knight, J. and McCabe, A. M. (1997) Identification and significance of ice-flow-transverse subglacial ridges (Rogen moraines) in northern central Ireland. *Journal of Quaternary Science*, **12**, 519-524.
- Knight, J. K. (1996) A geographical information system-based synthesis of the Labrador sector of the Laurentide Ice Sheet. Unpublished PhD Thesis, Department of Geography, Sheffield University.
- Lambeck, K. (1996) Glaciation and sea-level change for Ireland and the Irish Sea since Late Devensian/Midlandian time. *Journal of the Geological Society of London*, **153**, 853-872.
- Letzer, J. M. (1978) The glacial geomorphology of the region bounded by Shap Fells, Stainmore and the Howgill Fells in east Cumbria. Unpublished MPhil Thesis, Department of Geography, London University.
- Lidmar-Bergström, K., Elvhage, C. and Ringberg, B. (1991) Landforms in Skane, south Sweden. *Geografiska Annaler*, **73A**, 61-91.
- Lillesand, T. M. and Kiefer, R. W. (2000) Remote Sensing and Image Interpretation. Wiley.
- Lundqvist, J. (1989) Rogen (ribbed) moraine identification and possible origin. Sedimentary Geology, **62**, 281-292.
- McCabe, A. M., Knight, J. and McCarron, S. G. (1998) Ice-flow stages and glacial bedforms in north central Ireland: a record of rapid environmental change during the last glacial termination. *Journal of the Geological Society of London*, **155**, 63-72.
- McCarroll, D. (2001) Deglaciation of the Irish Sea Basin: a critique of the glaciomarine hypothesis. *Journal of Quaternary Science*, **16**, 393-404.
- Menzies, J. and Rose, J. (Eds.) (1987) *DrumlinSymposium*. Balkema, Rotterdam.
- Merritt, J. W. and Auton, C. A. (2000) An outline of the lithostratigraphy and depositional history of Quaternary deposits in the Sellafield district, west Cumbria. *Proceedings of the Yorkshire Geological Society*, **53**, 129-154.
- Mitchell, W. A. (1994) Drumlins in ice sheet reconstructions, with reference to the western Pennines, northern England. *Sedimentary Geology*, **91**, 313-331.

- Mitchell, W. A. and Clark, C. D. (1994) The last ice sheet in Cumbria. In *The Quaternary of Cumbria: Field Guide*. (Eds, Boardman, J. and Walden, J.)

 Quaternary Research Association, Oxford, pp. 4-14.
- Muller, E. H. and Pair, D. L. (1992) Comment and reply on "Evidence for large scale subglacial meltwater flood events in southern Ontario and northern New York State." *Nature*, **20**, 90-91.
- Muneer, T. (1997) Solar radiation and daylight models for the energy efficient design of buildings. Butterworth-Heinemann, Oxford.
- Olson, C. E. (1960) Elements of photographic interpretation common to several sensors. *Photogrammetric Engineering*, **26**, 651-656.
- Ordnance Survey (1995) Ordnance Survey Digital Map Data and Customised Services. Ordnance Survey, Southampton.
- Podwysocki, M. H., Moik, J. G. and Shoup, W. C. (1975) Quantification of geologic lineaments by manual and machine processing techniques. In *Proceedings of the NASA Earth Resources Survey Symposium*, Vol. TMX-58168 v1B NASA, Greenbelt, Maryland, pp. 885-905.
- Pohl, C. and Van Genderen, J. L. (1998) Multisensor image fusion in remote sensing: concepts, methods and applications. *International Journal of Remote Sensing*, **19**, 823-885.
- Prest, V. K., Grant, D. R. and Rampton, V. N. (1968) *The Glacial Map of Canada*. Geological Survey of Canada.
- Punkari, M. (1982) Glacial geomorphology and dynamics in the eastern parts of the Baltic Shield interpreted using Landsat imagery. *Photogrammetric Journal of Finland*, **9**, 77-93.
- Punkari, M. (1985) Glacial geomorphology and dynamics in Soviet Karelia interpreted by means of satellite imagery. *Fennia*, **163**, 287-307.
- Punkari, M. (1989) Glacial dynamics and related erosion-deposition processes in the Scandinavian ice sheet in south-western Finland: A remote sensing fieldwork and computer modelling study. Research Council for the Natural Sciences, Academy of Finland, Helsinki, pp. 86.
- Punkari, M. (1993) Modelling of the dynamics of the Scandinavian ice sheet using remote sensing and GIS methods. In *Glaciotectonics and Mapping Glacial Deposits* (Ed, Aber, J.) Proceedings of the INQUA Commission

- on Formation and Properties of Glacial Deposits, Canadian Plains Research Center, University of Regina, pp. 232-250.
- Punkari, M. (1995) Glacial flow systems in the zone of confluence between the Scandinavian and Novaya Zemlya ice sheets. *Quaternary Science Reviews*, **14**, 589-603.
- Punkari, M. (1996) *Glacial dynamics of the northern European ice sheets.*Unpublished PhD Thesis, Department of Geology, University of Helsinki.
- Raistrick, A. (1933) The glacial and post-glacial periods in west Yorkshire.

 Proceedings of the Yorkshire Geological Society, **44**, 263-269.
- Rhoads, B. L. and Thorn, C. E. (1993) Geomorphology as science: the role of theory. *Geomorphology*, **6**, 287-307.
- Riley, J. M. (1987) Drumlins of the southern Vale of Eden, Cumbria, England. In *DrumlinSymposium* (Eds, Menzies, J. and Rose, J.) Balkema, Rotterdam, pp. 323-333.
- Rolando, L. J., Edward, R. C., Yunjin, K. and Yushen, S. (1996) Design of Shuttle Radar Topography Mapper (SRTM). JPL-NASA, Pasadena.
- Siegal, B. S. (1977) Significance of operator variation and the angle of illumination in lineament analysis of synoptic images. *Modern Geology*, **6**, 75-85.
- Slaney, V. R. (1981) Landsat images of Canada a geological appraisal. Paper 80-5, Geological Survey Canada.
- Smith, M.J., Clark, C.D. and Wise, S.M. (2001) Mapping glacial lineaments from satellite imagery: an assessment of the problems and development of best procedure. *Slovak Geological Magazine*, **7**, 263-274
- Stokes, C.R. (2001) The geomorphology of palaeo-ice streams: identification, characterisation and implications for ice stream functioning. Unpublished PhD Thesis, Department of Geography, University of Sheffield.
- Stokes, C.R. and Clark, C.D. (1999) Geomorphological criteria for identifying Pleistocene ice streams. *Annals of Glaciology*, **28**, 67-74.
- Sugden, D. and John, B. S. (1976) *Glaciers and Landscape*. Edward Arnold, London.
- Sugden, D. E. (1978) Glacial erosion by the Laurentide Ice Sheet at its maximum. *Journal of Glaciology*, **20**, 367-391.

- Syverson, K. M. (1995) The ability of ice flow indicators to record complex, historic deglaciation events, Burroughs-Glacier, Alaska. *Boreas*, **24**, 232-244.
- Tragheim, D. and Westhead, K. (1996) Seeing the lie of the land: digital photogrammetry aids geological mapping. *Mapping Awareness*, **10**, 34-37.
- Vencatasawmy, C. (1997) Statistical assessment and development of tools for mapping lineaments and landforms from synthetic aperture radar (SAR) images. Unpublished PhD Thesis, Department of Geography, University of Sheffield.
- Vencatasawmy, C. P., Clark, C. D. and Martin, R. J. (1998) Landform and lineament mapping using radar remote sensing. In *Landform Monitoring* and *Analysis* (Eds, Lane, S. N., Richards, K. S. and Chandler, J. H.) Wiley, Chichester.
- Vincent, P. (1985) Quaternary geomorphology of the southern Lake District and the Morecambe Bay area. In *The geomorphology of north-west England* (Ed, Johnson, R. H.), Manchester University Press, Manchester.
- Warren, W. P. (1992) Drumlin orientation and the pattern of glaciation in Ireland. Sveriges Geologiska Undersökning, **81**, 359-366.
- Whiteman, C.A. (1981) "19" in *Field guide to Eastern Cumbria* (Ed. Boardman, J.). Quaternary Research Association, Oxford.
- Wilson, J. P. and Gallant, J. C. (Eds.) (2000) *Terrain Analysis*. John Wiley and Sons, New York.
- Yallop, B. D. (1992) A simple algorithm to calculate times of sunrise and sunset.

 Technical Note 70, Nautical Almanac Office.
- Zevenbergen, L. W. and Thorne, C. R. (1987) Quantitative Analysis of Land Surface Topography. *Earth Surface Processes and Landforms*, **12**, 47-56.