Areas of basement are located between Belgrano and Halley stations but there is progradation west and north into a major undisturbed sedimentary basin with up to 5 km of deposits. H. M. J. Staff examines similar data gathered in 1982 in the Prydz Bay region on the other side of the continent; a major sedimentary basin with at least 5 km of deposits is recognized, a possible failed rift-arm from Antarctic–India continental separation. L. O. McGinnis and four co-workers analyse seismic profile data and other geophysical measurements gathered in McMurdo Sound, investigating the complex boundary between East and West Antarctica. The Palaeozoic Ross orogen appears to control the deep structures but there is pronounced thinning of the crust to the east. K. Kaminuma, S. Ueki and J. Kienle report present-day seismic activity associated with volcanic earthquake swarms at Mt Erebus on Ross Island. A. Ikami, K. Ito, K. Shibuya and K. Kaminuma use a range of geophysical data to investigate crustal structure of the Mizuho Plateau and Ongul Island area. No velocities less than 6 km s^{-1} were found suggesting no well-developed upper sedimentary horizon. Similar studies, derived from a considerable quantity of seismic data, are reported by A. Guterch, M. Grad, T. Janik, E. Perchuc and J. Pajchel for the complex crustal sections of the western Antarctic Peninsula. D. Gonzalez-Ferran discusses the volcanic and tectonic evolution of northern Antarctic Peninsula since the Late Cenozoic, while R. D. Crabtree, B. D. Storey and C. S. M. Doake, using mainly radio echo sounding bedrock topographic data and known geology, outline the structural evolution of George VI Sound. The final paper by F. J. Davey investigates the possible hydrocarbon potential of the Antarctic continental margin. Reviews of existing geophysical data are presented and in appropriate cases the level of maturation of sediments sufficient for hydrocarbon generation is assessed, using a thermal model. Only the western Weddell Sea and Ross Sea sedimentary basins appear prospective.

The book is well produced and illustrated and will be a useful collection for those seriously interested in polar solid earth geophysics. (David J. Drewry, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

REMOTE SENSING FOR POLAR REGIONS

REMOTE SENSING ICE AND SNOW. Hall, D. K. and Martinec, J. 1985. London, New York, Chapman and Hall. 189 p, illustrated, hard cover. ISBN 0 412 25910 9.

Environmental remote sensing, the observation and measurement of the Earth from space, has developed as an important discipline during the last decade. Active and passive microwave sensors are now routinely flown in aircraft, satellites and spacecraft, and acquire considerable quantities of physical information about our planet. Some satellites such as Meteosat have geostationary orbits many tens of thousands of kilometres above the surface, and, by maintaining pace with the earth's rotation, constantly view the same region of our globe. Others orbit the earth many times each day, and at various inclinations, and with variable precession, may obtain closely or widely spaced ground coverage. For polar regions the benefits of remote sensing are considerable. The hostile environment, long periods of darkness and logistic complexities make observations from space highly attractive. Moreover the coverage from space allows a synoptic view of polar regions, unobtainable by conventional surface or even airborne operations.

This book deals with the remote sensing of snow and ice. Although it is not exclusively devoted to polar regions, the Arctic and Antarctic figure very significantly. In Chapter 1 it provides a brief review of some important physical principles involved in remote sensing of ice and snow (optical and electrical properties) and in Chapter 2 goes on to

describe the more useful sensors which have been flown in recent years. Both imaging and non-imaging systems are described. Chapters 3 and 4 examine the seasonal snow cover of both polar regions and of more temperate, mountainous regions. They discuss important applications such as river flow forecasting as influenced by snow melt. Chapter 5 deals with the remote sensing of lake and river ice, particularly thickness determination and the monitoring of ice break-up. Permafrost is discussed in Chapter 6, especially remote detection of its presence, and of factors that disturb permafrost conditions. The final two chapters examine terrestrial ice, including glaciers, ice caps, ice sheets (shelves), and sea ice including icebergs. The book is extremely well illustrated with clear line diagrams, numerous black and white images, and photographs which have been reproduced to a high standard, and there are eleven colour plates. References are given at the end of each chapter and there is an adequate index. The concept of this book is well-found. Glaciologists and polar workers have actively used remote sensing techniques for over two decades and there is much material to synthesize.

The authors have chosen to describe the high-level products and results of remote sensing within the context of ice and snow studies. Much of the text is concerned with discussing general glaciological issues which are suitable for study or have been remotely investigated, rather than focusing upon the details of remote sensing techniques. In dealing with snow, for instance, many of the 57 pages are devoted more to establishing and justifying hydrological techniques and models (very interesting in their own right) than to explaining the details of the remote sensing such as sensor suitability and algorithm development. General readers will find much to interest them in this book, particularly in the breadth of the topics. For professional glaciologists and those working in the field of remote sensing it will be less rewarding, due to the lack of detail, the inconsistent use of symbols and units, and a few equivocal explanations. Nevertheless those who dip into this very readable book will be left in little doubt as to the immensely valuable contribution of remote sensing to glaciology, the panoply of sophisticated techniques now available, and the exciting future prospects for study of ice and snow. It is no coincidence that the International Glaciological Society should choose to celebrate its 50th Anniversary in 1986 with a symposium on remote sensing! (David Drewry, Scott Polar Research Institute, Cambridge CB2 1ER.)

ANTARCTIC BIOLOGY AND CONSERVATION

ANTARCTICA. Bonner, W. N. and Walton, D. W. H. 1985. Oxford, Pergamon Press, 381 p, illustrated, hard cover. ISBN 0–08–028881–2. £14.95.

Antarctica is seventh in the 'Key Environments' series of Pergamon press. These publications endeavour to provide scientifically accurate, concise and well illustrated accounts covering major environments which are now, or soon will be, under threat. Additionally the series intends to assemble a wide range of information which may otherwise be difficult to collate. The International Union for the Conservation of Nature has collaborated in preparing these works by providing information and advice on the selection of critical environments, and experts to discuss the relevant issues. *Antarctica* contains contributions from eighteen authors, all currently involved in Antarctic research, whose fields of interest cover both conservation in the broader sense and virtually all parts of the continent.

The major sections of the book are introduced concisely, with more specialized monographs following. The particular aspects discussed are; physical geography, terrestrial habitats, marine habitats, birds and mammals, sub-Antarctic islands, food webs and