There are 84 distribution maps, divided into four sections: physical and environmental characteristics, including geology, climate and floating ice; biological characteristics, including plankton, fish, birds, and mammals; existing human activities, such as settlement, tourism, transport, hunting, fishing, trapping, and mineral extraction; and potential human activities, which are projections into the future of the previous section. Compilation of the material was undertaken by a team of specialists from federal government departments, and the cartography by a team from James Dobbin Associates.

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GLACIOLOGY AND CLIMATE; THE RECORD OF THE ICE SHEETS

THE CLIMATIC RECORD IN POLAR ICE SHEETS. Robin, Gordon de Q. (editor). 1983. Cambridge, Cambridge University Press. 212 p, illustrated, hard cover. ISBN 0 521 25087 0. £32.50

This volume represents results evolving from a workshop held in Cambridge, England in 1973, dealing with one of the most fascinating aspects of modern glaciological research. Ten years have passed since the workshop, but the book incorporates or gives reference to all important scientific results obtained during the interim period, and is thus thoroughly up to date.

The volume deals mainly with reconstruction of palaeoclimatic records, based on measurements of temperatures and isotopic ratios of glacier ice samples. Today it is well recognized that the two large polar ice sheets of Greenland and Antarctica contain, well preserved in layered stratigraphic sequence, the precipitation of the last one thousand centuries. The isotopic composition of hydrogen and oxygen in the water molecules of a given snow-fall depends on the condensation temperature at the time of precipitation. Firn temperature measured 10 m below the snow surface reflects the local mean annual surface temperature. Changes of temperature with depth are due to such influences as geothermal heat and deformation pressures of overlying strata, which can be calculated. In principle it is therefore possible to reconstruct, from boreholes augered in glaciers, the surface air temperatures of past epochs, based on analyses of isotopic ratios and measurements of temperature at depth. The principle is simple but the accurate reconstruction process is complicated and full of pitfalls. In this volume, the analytical methods employed and the model calculations used for interpretation are very carefully discussed.

Of the volume's six chapters, the first is an excellent introduction which explains the main concepts and familiarizes the reader with some of the problems and open questions involved. The second describes variations in size and behaviour of ice sheets in the past. The third chapter deals with techniques for measuring such single parameters as ice temperature, depth and movement, accumulation rates and total gas content, and with the significance of these parameters in the behaviour of ice sheets. Chapter four presents observations on the principal isotopic and temperature profiles that are currently available, and chapter five discusses and interprets these results, comparing them with calculated profiles. In the final chapter, the correlations of present day temperature records are compared with isotopic records of ice cores. Most of the chapters are written by several authors, all of whom are well-known in their fields.

This volume focuses essentially on palaeotemperatures and physical variations and behaviour of ice sheets. While reading it one must keep in mind that glaciers have a deal of other information on palaeoclimatic environmental conditions preserved in their layered deposits. These aspects are well known to the authors and are often mentioned in the text; however, the title might lead one to expect more discussion of recent research on such other important climatic parameters as atmospheric composition and circulation, sea ice cover, volcanism and solar luminosity. Overall this is a comprehensive work of detailed information on current glaciological concepts, which the main editor has integrated with introductory comments. Uniform scientific symbols are used throughout. The volume reads well, and will be a great help to students, professional glaciologists, and others working in disciplines related to glaciology.

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SOVIET–AMERICAN CO-OPERATION IN ARCTIC RESEARCH

USSR/USA BERING SEA EXPERIMENT. Proceedings of the final symposium on the results of the joint Soviet American Expedition, Leningrad May 12–17 1974. Kondrat'ev, K. Ya. (editor in chief). 1982. Translated from Russian by P. Datta. Rotterdam, Balkema. 316 p, illustrated, hard cover. ISBN 90 6191 403 5. US$20.00, £11.00.

In the world of polar research there is an interesting asymmetry between the two hemispheres. In the Antarctic, the Soviet Union co-operates freely with the west in international scientific programmes; there are free exchanges of data and even of scientists. In the Arctic no such freedom exists. Co-operation is minimal, exchanges seldom going beyond such basic elements as meteorological data. Proposals for co-operative programmes like the World Meteorological Organization's Polar Experiment (POLEX) wither on the vine. The reason is clear; both super-powers view the Arctic as an area for the strategic disposition of submarines and missiles, and every resurgence of the Cold War worsens the situation. Yet for a short time in the early 1970s a hopeful period of detente led to some genuine co-operative work. One such project was the Bering Sea Experiment (BESEX), a joint Soviet–American expedition which, following preliminary negotiations in 1971 on scientific co-operation in space meteorology, took the field from 15 February to 7 March 1973.

A decade later we finally have an English-language version of the scientific results, in the form of a translation of the proceedings of the Soviet–American symposium held in May 1974. Most of the US contributions have already appeared in National Aeronautics Space Agency (NASA) reports, some almost a decade ago; many of the Soviet contributions have also been published, albeit in Russian. Yet this book has a value in interleaving the American and Soviet papers, in a way that demonstrates the considerable achievements of BESEX. Despite the short duration of the expedition, the two ships (USCG *Staten Island* and Soviet icebreaker *Priboi*) and the US and Soviet aircraft involved collaborated very effectively in investigating the microwave properties of sea ice, the application of remote sensing methods to meteorology,and the oceanographic and ice properties of the Bering Sea itself. The knowledge gathered has proved valuable in more recent