

## GLACIOLOGICAL LITERATURE

THIS is a selected list of glaciological literature on the scientific study of snow and ice and of their effects on the Earth; for the literature on polar expeditions, and also on the "applied" aspects of glaciology, such as snow ploughs, readers should consult the bibliographies in each issue of *Recent Polar Literature* (supplement to the *Polar Record*). For Russian material the system of transliteration used is that agreed by the U.S. Board on Geographic Names and the Permanent Committee on Geographical Names for British Official Use in 1947. Readers can greatly assist by sending reprints of their publications to the Society, or by informing Dr J. W. Glen of publications of glaciological interest. It should be noted that the Society does not necessarily hold copies of the items in this list, and also that the Society does not possess facilities for microfilming or photocopying.

### CONFERENCES

- CARLSON, R. F., and MORGENSTERN, N. R., ed. *Report of the joint U.S.-Canadian northern civil engineering research workshop. A report of a workshop held at the University of Alberta, Edmonton on March 20, 1978.* Edmonton, Alberta, University of Alberta. Boreal Institute for Northern Studies, [1978]. viii, 72 p. (IWR Report No. 96; Boreal Institute for Northern Studies Miscellaneous Publication.) [Report divided into six topic areas: ice and snow engineering, p. 6-20; frozen ground engineering, p. 21-32; hydrotechnical engineering, p. 33-41; environmental engineering, p. 42-51; municipal facilities, design and construction, p. 52-61; resource and transport facilities, design and construction, p. 62-72.]
- KLEIN, D. A., ed. *Environmental impacts of artificial ice nucleating agents.* Stroudsburg, Penn., Dowden, Hutchinson, and Ross, Inc., [1978]. vi, 256 p. [Based on papers presented at workshop held 10-11 November 1976 at Vail, Colorado, U.S.A. Contents: "Introduction", p. 1-4; D. A. Klein and G. Mulvey, "Amounts of silver-derived agents used in weather modification in relation to contributions from other sources", p. 5-8; G. Mulvey, "Atmospheric transport processes", p. 9-23; W. L. Lindsay and M. Sadiq, "Theoretical solubility relationships of silver in soils", p. 25-40; E. A. Jenne, D. C. Girvin, J. W. Ball, and J. M. Burchard, "Inorganic speciation of silvers in natural waters—fresh to marine", p. 41-61; D. A. Klein, "Biochemical effects of silver", p. 63-72; D. A. Klein, "Effects on microorganisms", p. 73-91; D. A. Klein, "Soil microbiological processes", p. 93-108; D. A. Klein, "Plant effects", p. 109-26; D. A. Klein, "Potential impacts on aquatic systems", p. 127-47; P. H. Davies and J. P. Goettl, Jr, "Evaluation of the potential impacts of silver and/or silver iodide on rainbow trout in laboratory and high mountain lake environments", p. 149-61; D. A. Klein, "Sewage treatment processes", p. 163-68; D. A. Klein, "Effects on humans", p. 169-75; D. A. Klein, "Silver effects: other terrestrial organisms", p. 177-86; W. R. Barchet, "Other seeding agents: alternatives to silver iodide", p. 187-207; "Summary", p. 209-14; "Research recommendations", p. 215-16; "References", p. 217-50; "Index", p. 251-56.]
- [PERMAFROST.] *Abstracts of papers; third International Conference on Permafrost, 10-13 July, 1978, Edmonton, Alberta, Canada. Sponsored by National Research Council of Canada.* [Ottawa, National Research Council of Canada, 1978.] 181 p.
- [PERMAFROST.] *Proceedings of the third International Conference on Permafrost, July 10-13, 1978, Edmonton, Alberta, Canada. Vol. 1. Sponsored by the National Research Council of Canada.* Ottawa, National Research Council of Canada, 1978. xlv, 947 p. [For details of individual papers see elsewhere in this list.]
- PITTOCK, A. B., and others, ed. *Climatic change and variability: a southern perspective. Based on a conference at Monash University, Melbourne, Australia, 7-12 December 1975 which was co-sponsored by the Australian Academy of Science. Editors: A. B. Pittock, L. A. Frakes, D. Jensen, J. A. Peterson, J. W. Zillman on behalf of the Australian Branch, Royal Meteorological Society.* Cambridge, etc., Cambridge University Press, [1978]. [xxiii], 455 p. [Includes the following sections: B. V. Hamon and J. S. Godfrey, "The role of oceans", p. 31-52; L. A. Frakes, "Cenozoic climates: Antarctica and the Southern Ocean", p. 53-68; D. Jensen, "Climatic and topographic changes from glaciological data", p. 77-81; H. Flohn, "Abrupt events in climatic history", p. 124-34; R. G. Barry, "Climatic fluctuations during the periods of historical and instrumental record", p. 150-66; J. Chappell, "Theories of upper Quaternary ice ages", p. 211-25; W. F. Budd and B. McInnes, "Modelling surging glaciers and periodic surging of the Antarctic ice sheet", p. 228-33; J. R. Bray, "Volcanic eruptions and climate during the past 500 years", p. 256-62.]
- POSER, H., ed. *Formen, Formengesellschaften und Untergrenzen in den heutigen periglazialen Höhenstufen der Hochgebirge Europas und Afrikas zwischen Arktis und Äquator. Bericht über ein Symposium. Abhandlungen der Akademie der Wissenschaften in Göttingen. Mathematisch-physikalische Klasse, Dritte Folge, Nr. 31, 1977, 355 p.* [Altitudinal distribution of periglacial forms in the high mountains of Europe and Africa from the Arctic to the equator. Proceedings of a symposium held in Göttingen, Federal Republic of Germany, 19-23 September 1976. Papers presented include: G. Stäblein, "Periglaziale Formengesellschaften und rezente Formungsbedingungen in Grönland", p. 18-33; A. Semmel, "Untersuchungen zur periglazialen Formung auf Spitzbergen", p. 34-38; E. Schunke, "Periglazialformen und -formengesellschaften in der europäisch-atlantischen Arktis und Subarktis", p. 39-62; H. Svensson, "Observations on polygonal fissuring in non-permafrost areas of the Nordic countries", p. 63-76; K. Garleff, "Formen und Pflanzengesellschaften der periglazialen Höhenstufe. Beispiele aus Sogn und Oppland (Norwegen)", p. 75-91; S. Rudberg, "Periglacial zonation in Scandinavia", p. 92-104; D. Kelletat, "Die rezente periglaziale Höhenstufe in den Gebirgen der nördlichen Mittelbreiten Europas", p. 105-17; D. Barsch, "Alpiner Permafrost — ein Beitrag zur Verbreitung, zum Charakter, und zur Ökologie am Beispiel der Schweizer Alpen", p. 118-41; A. Pissart, "Apparition et évolution des sols structuraux périglaciaires de haute montagne. Expériences de terrain au Chambeyron (Alpes, France)", p. 142-56; H. Karrasch, "Die klimatischen und aklimatischen Varianzfaktoren der periglazialen Höhenstufe in den Gebirgen West- und Mitteleuropas", p. 157-77; K.-U. Brosche,

- "Formen, Formengesellschaften, und Untergrenzen in den heutigen periglazialen Höhenstufen der Hochgebirge der Iberischen Halbinsel", p. 178–202; D. Kelletat, "Die rezente periglaziale Höhenstufe des Apennin: geomorphologische Ausstattung, gegenwärtige Formungsprozesse und Probleme der Abgrenzung", p. 203–22; J. Hagedorn, "Probleme der periglazialen Höhenstufung in Griechenland", p. 223–37; P. Höllermann, "Die periglaziale Höhenstufe der Gebirge in einem West-Ost-Profil von Nordiberien zum Kaukasus", p. 238–60; W. Klačer, "Zur Morphogenese und Formungsdynamik innerhalb des periglazialen Stockwerkes der Hochgebirge Vorderasiens", p. 261–74; R. Raynal, "Étalement comparé en altitude des processus périglaciaires actuels dans les hauts massifs du Maroc et d'Iran", p. 275–89; H. Mensching, "Bemerkungen zum Problem einer 'periglazialen' Höhenstufe in den Gebirgen der Ariden Zone im nördlichen Afrika", p. 290–99; J. Spönemann, "Die periglaziale Höhenstufe Ostafrikas", p. 300–32; P. Höllermann and H. Poser, "Grundzüge der räumlichen Ordnung in der heutigen periglazialen Höhenstufe der Gebirge Europas und Afrikas. Rückblick und Ausblick", p. 333–54.]
- [SNOW.] *Śnieg i pokrywa śnieżna. Materiały z sympozjum w Zakopanem 15–17.III.1973r.* [Snow and snow cover. Subject of a symposium at Zakopane 15–17 March 1973]. Warszawa, Instytut Meteorologii i Gospodarki Wodnej, 1977. 189 p. (Materiały Badawcze. Seria Meteorologia.) [Contents include: K. Chomicz, "Osobliwości i anomalie opadów śnieżnych w górach [Peculiarities and anomalies of snow precipitation in mountains]", p. 5–29 (English summary, p. 28); F. Šamaj and S. Valovič, "Prawdopodobieństwo występowania oraz maksymalnej grubości pokrywy śnieżnej na Słowacji [Probability of duration and maximum depth of snow in Slovakia]", p. 31–62 (English summary, p. 61–62); M. Sadowski, "Pokrywa śnieżna w Karkonoszach [Snow cover in the Karkonosze mountains]", p. 63–75 (English summary, p. 75); B. Głowicki, "Struktura przestrzenna pokrywy śnieżnej w górnej części zlewni Potoku Szrenickiego [Spatial structure of the snow cover in the upper part of the watershed of the Potok Szrenicki]", p. 77–95 (English summary, p. 94–95); S. Paczos, "Pokrywa śnieżna w województwie rzeszowskim ze szczególnym uwzględnieniem obszarów górskich [Snow cover in the Rzeszów voivodship with particular respect to the mountain regions]", p. 97–123 (English summary, p. 122); S. Myczkowski, "Wpływ śniegu na drzewa i krzewy w obszarze górnej granicy lasu w Tatrach [The influence of snow on trees and shrubs in the region of the higher mountain forest zone in the Tatra mountains]", p. 125–34 (English summary, p. 132–33); J. Szkutnicki, "Wstępne wyniki pomiarów parowania i sublimacji z pokrywy śnieżnej w Tatrach [Results of measurements of evaporation and sublimation from snow cover in the Tatra mountains]", p. 135–44 (English summary, p. 144); M. Kłapowa, "Fizyczne właściwości śniegu na Hali Gasienicowej [Physical properties of snow in Hala Gasienicowa]", p. 145–63 (English summary, p. 162); S. Baranowski, "Próba ilościowej oceny powolnych ruchów masowych w pokrywie śnieżnej [Attempt at the quantitative evaluation of the creep of snow cover]", p. 165–75 (English summary, p. 175); M. Kłapowa, "Wyniki badań nad lawinami śnieżnymi w Tatrach [Results concerning snow avalanches in the Tatra mountains]", p. 177–88 (English summary, p. 187).]
- UNION GÉOGRAPHIQUE INTERNATIONALE. COMITÉ DE COORDINATION DES RECHERCHES PÉRIGLACIAIRES [et] COMITÉ NATIONAL FRANÇAIS DE GÉOGRAPHIE. COMMISSION D'ÉTUDES DES PHÉNOMÈNES PÉRIGLACIAIRES. *Colloque sur le périglaciaire d'altitude du domaine méditerranéen et abords, Strasbourg—Université Louis Pasteur, 12–14 mai 1977.* [Strasbourg, Association Géographique d'Alsace, 1978. 366 p. [Contents include: J. Nicod, "Phénomènes glacio-karstiques et nivo-karstiques sur la carte géomorphologique du Devoluy méridional, plateaux de Bure et d'Aurouze", p. 11–20; Y. Dewolf and F. Joly, "Héritages périglaciaires comparés (Mont Lozère-Aigoual-Ventoux)", p. 21–30; M. Jorda, "Les formations à blocs des milieux subalpains et alpins des Alpes de Haute Provence. Essai d'interprétation génétique et chronologique", p. 31–44; M. Julian, "Âges et origine des glaciers rocheux des Alpes-Maritimes", p. 45–52; T. Vogt, "Place des croûtes calcaires dans les séquences morphogénétiques des périodes froides quaternaires en France méditerranéenne", p. 53–60; S. Daveau, "Le périglaciaire d'altitude au Portugal", p. 63–73; A. Morales Gil, F. Martin Galan, and F. Quirantes Gonzalez, "Formas périglaciales en Las Canadas del Teide (Tenerife)", p. 79–90; P. Höllermann, "Soil movements in the sub-tropical mountain environment of high Tenerife (Canary Islands)", p. 91–112; G. Couvreur, "Les limites de l'action du froid, actuelles et quaternaires, dans le Haut Atlas Central (Maroc)", p. 115–21; A. Hentati, "Caractéristiques du périglaciaire hérité dans la partie occidentale de la dorsale tunisienne", p. 123–33; G. Soutate, "Réponse du modèle d'altitude à la déprise pastorale à l'Est des Pyrénées", p. 137–45; D. Serrat, "Quelques aspects des éboulis stratifiés fossiles des Pyrénées orientales espagnoles", p. 147–56; S. Llobet, "Dépôts périglaciaires dans le Massif du Montseny", p. 157–60; M. Sala, "Présence de formes et formations périglaciaires dans le Massif du Montnegre (chaîne côtière catalane)", p. 161–67; B. Bomer, "Les phénomènes périglaciaires dans le bassin de l'Ebre (Espagne septentrionale)", p. 169–76; I. Asensio Amor and J. A. Gonzalez, "Contribución al estudio de acciones periglaciaires en el borde S.W. del sistema ibérico (Cifuentes-Maranchon, Guadaljara)", p. 177–85; K. Brosche, "Der vorzeitliche periglaziale Formenschatz auf der Iberischen Halbinsel. Möglichkeiten zu einer klimatischen Auswertung", p. 187–98; M. Panizza, "Héritages périglaciaires würmiens dans l'Apennin Emilien", p. 205–08; J. Demangeot, "L'étage périglaciaire au Gran Sasso (2 912 m), Italie centrale", p. 209–20; D. Kelletat, "Periglaziäre Schuttbildung in Küstenbereich des östlichen Mittelmeeres", p. 221–29; J. Besancon, "Remarques sur le périglaciaire du Liban", p. 231–42; J. Dresch, "Rôle des montagnes dans la morphogenèse actuelle et quaternaire au Moyen-Orient", p. 245–52; W. Klačer, "Periglaziale Hangformung in den Hochgebirgen Vorderasiens", p. 253–61; H. Hagedorn, W. Haars, J. Grunert, and D. Busche, "Periglazialerscheinungen im Shir-Kuh Massiv (Zentral-Iran)", p. 263–78; R. Raynal, "Les grands versants réglés des montagnes iraniennes: un type régional particulier de modèle cryo-nival", p. 279–86; C. Rathjens, "Klima und Formung in der Solifluktionstufe des afghanischen Hindukusch (résumé)", p. 287; M. Kuhle, "Über Periglazialerscheinungen im Kuh-i-Jupar (SE-Iran) und im Dhaulagiri-Himalaya (Nepal) sowie zum Befund einer Solifluktionsobergrenze", p. 289–309; M. Fort, "Sur quelques aspects périglaciaires du versant tibétain de la haute chaîne himalayenne: exemple de la haute vallée de Gya (Centre-Ouest Népal)", p. 311–20; J. Hövermann and M. Kuhle, "Verbreitung und Bildung von Frostmusterböden in den Gebirgen

- des Vorderen Orients und der Sahara", p. 321-31; B. Messerli, "Probleme des Periglazials in den Gebirgen der ariden Zone", p. 333-45; P. Rognon, "Formes périglaciaires dans le Massif de l'Atakor (Hoggar)", p. 347-64; A. Pissart, "Paroles de clôture", p. 365-66. Some papers include discussions, and there is a discussion of papers on the Pyrenean-Iberian region, p. 199-202.]
- ZINDEREN BAKKER, E. M. VAN, *sr, ed.* *Antarctic glacial history and world palaeoenvironments. International Council of Scientific Unions. Scientific Committee on Antarctic Research. Proceedings of a symposium held on 17th August, 1977 during the Xth INQUA Congress at Birmingham, U.K.* Rotterdam, A. A. Balkema, 1978. [x], 172 p. [Contents include: H. Flohn, "Comparison of Antarctic and Arctic climate and its relevance to climatic evolution", p. 3-13; A. T. Wilson, "Glacial history of New Zealand and the Ross Dependency, Antarctica", p. 15-23; D. J. Drewry, "Aspects of the early evolution of West Antarctic ice", p. 25-32; A. T. Wilson, "Past surges in the West Antarctic ice sheet and their climatological significance", p. 33-39; J. P. Kennett, "Cainozoic evolution of circumantarctic palaeoceanography", p. 41-56; J. D. Hays, "A review of the late Quaternary climatic history of Antarctic seas", p. 57-71; J. H. Mercer, "Glacial development and temperature trends in the Antarctic and in South America", p. 73-93; C. M. Clapperton, D. E. Sugden, R. V. Birnie, J. D. Hanson, and G. Thom, "Glacier fluctuations in South Georgia and comparison with other island groups in the Scotia Sea", p. 95-104; K. J. Hall, "Evidence for Quaternary glaciation of Marion Island (sub-Antarctic) and some implications", p. 137-47; J. M. Bowler, "Glacial age aeolian events at high and low latitudes: a southern hemisphere perspective", p. 149-72.]

## GENERAL GLACIOLOGY

- BARANOWSKI, S., and HENOCH, W. E. S. *Glacier and landform features in the Columbia Icefield area, Banff and Jasper National Parks, Alberta, Canada. Supplementary report on a study carried out for Parks Canada by Glaciology Division, Inland Waters Directorate, Environment Canada.* [Ottawa, Fisheries and Environment Canada. Inland Waters Directorate. Glaciology Division], 1978. ix, 158, 17 p.+separate folder of maps. [Appendix by B. H. Luckman and M. S. Kearney, "Analysis and interpretation of a Holocene deposit from Castleguard Meadows, Banff National Park, Alberta", 17 p.]
- BARRY, R. G., and others. World Data Center A activities, [by] R. G. Barry, R. L. Weaver, M. J. Shartran. *Glaciological Data. Report GD-3*, 1978, p. 1-52. [Includes: R. G. Barry, "Overview of the functions of WDC-A", p. 1-3; R. L. Weaver, "The development of an inventory of ice core data", p. 5-22; M. J. Shartran, "The bibliographic data file of WDC-A", p. 23-30; M. J. Shartran, "Results of a survey on WDC-A activities", p. 31-34; R. G. Barry and R. L. Weaver, "An outline of glaciological data categories", p. 35-52.]
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## LAND ICE. GLACIERS. ICE SHELVES

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## FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

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