

## 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

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- DUNBAR, MAXWELL J., ed. *Polar oceans. Proceedings of the Polar Oceans Conference held at McGill University, Montreal, May, 1974. Sponsored by the Scientific Committee on Oceanic Research (SCOR) and by the Scientific Committee on Antarctic Research (SCAR), of the International Council of Scientific Unions.* Calgary, Alberta, Arctic Institute of North America, [c1977]. ix, 681 p. [Includes the following articles: P. Tchernia, "Étude de la dérive antarctique est-ouest au moyen d'icebergs suivis par le satellite Eole", p. 107-20; R. A. Heath, "Circulation across the ice shelf edge in McMurdo Sound, Antarctica", p. 129-49; K. Hunkins, "Oceanographic aspects of the Arctic Ice Dynamics Joint Experiment (AIDJEX)", p. 209-18; S. F. Ackley and W. D. Hibler III, "Measurements of Arctic Ocean ice deformation and fracture patterns from satellite imagery", p. 227-38; E. L. Lewis and A. R. Milne, "Underwater sea ice formation", p. 239-45; A. Foldvik and T. Kvinge, "Thermohaline convection in the vicinity of an ice shelf", p. 247-55; F. G. Barber and T. S. Murty, "Perennial sea ice: speculations concerning physical and biological consequences", p. 257-68; R. A. Horner, "History and recent advances in the study of ice biota", p. 269-83; E. H. Grainger, "The annual nutrient cycle in sea-ice", p. 285-99; V. Kh. Buynitskiy, "Organic life in sea ice", p. 301-06; T. Hoshiai, "Seasonal change of ice communities in the sea ice near Syowa station, Antarctica", p. 307-17; G. H. Petersen, "Biological effects of sea-ice and icebergs in Greenland", p. 319-29; A. N. Golikov and V. G. Averintsev, "Distribution patterns of benthic and ice biocoenoses in the high latitudes of the polar basin and their part in the biological structure of the world ocean", p. 331-64; J. Chappell, "Aspects of ocean circulation in Quaternary glaciations", p. 581-84; W. Dansgaard, N. Gundestrup, C. Hammer, S. J. Johnsen and N. Reeh, "The climatic significance of stable isotopes in polar glaciers", p. 585-88; W. D. Hibler III and C. C. Langway, Jr., "Ice core stratigraphy as a climatic indicator", p. 589-601; J. H. Cragin, M. M. Herron, C. C. Langway, Jr., and G. Klouda, "Interhemispheric comparison of changes in the composition of atmospheric precipitation during the late Cenozoic era", p. 617-31; L. H. N. Cooper, "An hypothesis of a continuous ice dam between Greenland and Scotland during the Quaternary", p. 633-41; O. Orheim, "Global glacier mass balance variations during the past 300 years", p. 667-81.]
- MALAURIE, J., ed. *Les problèmes posés par la gélification. Recherches fondamentales et appliquées (roches et matériaux artificiels de construction). Débats et rapports du VI<sup>e</sup> Congrès International de la Fondation Française d'Études Nordiques, Le Havre, 23, 24 et 25 avril 1975. Vol. 1: Débats.* Paris, Centre d'Études Arctiques, Fondation Française d'Études Nordiques, 1977. 305 p. (Actes et Documents, No. 6.) [This volume contains speeches, oral presentation of papers, and discussions from this meeting on problems raised by frost action on rocks and on building materials. Full text of papers in Vol. 2.]
- MUGGERIDGE, D. B., ed. *Proceedings of the fourth International Conference on Port and Ocean Engineering under Arctic Conditions. Memorial University of Newfoundland, St. John's, Newfoundland, Canada, September 26-30, 1977.* St. John's, Newfoundland, Memorial University of Newfoundland, 1978. 2 vols.: xvii, 606 p.; vii, 607-1157 p. [Contents include: K. R. Croasdale, "Ice engineering for offshore petroleum exploration in Canada", p. 1-32; W. D. Hibler III, "Model simulation of near shore ice drift, deformation and thickness", p. 33-45; J. Schwarz, "New developments in modelling ice problems", p. 45-61; J. V. Danys, "Ice forces on old and new offshore lighthouses in the St. Lawrence waterway", p. 115-38; D. V. Reddy, D. S. Sodhi, M. Arockiasamy and A. K. Halder, "Response of an offshore LPG storage platform to simulated ice and wind forces", p. 185-99; P. R. Kry, "Ice rubble fields in the vicinity of artificial islands", p. 200-11; T. Carstens, "Maintaining an ice-free harbour by pumping of warm water", p. 347-57; B. E. Davison, J. W. Rooney and R. F. Carlson, "Use of thermal piles for offshore frozen embankments", p. 358-69; J. E. Cowley and A. B. Cammaert, "Navigation delays due to ice conditions—analysis and case studies", p. 414-24; S. T. Culshaw, "An examination of marine transport in the ice season off the Labrador and north Newfoundland coasts", p. 425-39; M. Dunne, P. Noble, R. Y. Edwards, Jr., and C. Pellegrin, "Results of full scale ice impact load studies aboard C.C.G.S. *Norman McLeod Rogers*", p. 440-52; T. Kotras, J. Lewis and R. Etsel, "Hydraulic modeling of ice-covered waters", p. 453-63; D. S. Sodhi, L. Button, R. Boetes and M. Arockiasamy, "Estimation of ice forces on the hull of M.V. *Arctic Explorer* by strain gauge measurements",

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- [SNOW HYDROLOGY.] Tokushū "seppiyōsui bungaku ni okeru sokutei gijutsu shinpojiuma" [Proceedings of the symposium on techniques in the study of snow hydrology, Tokyo, 26 May 1977]. *Seppiyō*, Vol. 39, No. 4, 1977, p. 173-225. [Includes following papers: Z. Yosida [i.e. J. Yoshida], "Seppiyō sokutei ni okeru shomon-dai [Various problems on the measurement of snow]", p. 174-75; C. Magono, "Kōsetsu yōso sokuteihō no tenbō [A review on techniques in the study of solid precipitation elements]", p. 176-78; T. Kimura, "Seki-setsu keisokuhō saikin no tenbō [Recent development of techniques on snow measurements]", p. 179-82; J. Komai, "Kōkūki (chinyō) rimōto-senshingu no seppiyōgaku e no ōyō [Application of remote sensing techniques in the study of snow and ice]", p. 183-93; K. Tsuchiya, "Jinkōcisei ni yoru seppiyō sokutei [Measurements of snow and ice through artificial satellites]", p. 194-202; H. Aburakawa, "Gurasufaibā-shiki seppiyō shinkei [A snow depth recorder using optical fibres]", p. 203-06; M. Kodama, "Uchūsen setsuryōkei [A cosmic-ray absorption snow gauge]", p. 207-11; Y. Suzuki, "Aisusonde (Philberth sonde) [Ice sonde (Philberth sonde)]", p. 212-14; E. Akitaya, "Sekisetsu no eizōka [Video and photographic techniques in the study of surface morphology of snow]", p. 215-21. Also includes comments on different sessions. No English summaries.]

## GENERAL GLACIOLOGY

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- BENTLEY, C. R., and JEZEK, K. C. Ross Ice Shelf geophysical survey, 1976-1977. *Antarctic Journal of the United States*, Vol. 12, No. 4, 1977, p. 142-44. [Describes geophysical programme of the Ross Ice Shelf Geophysical and Glaciological Survey, 1976-77 (RIGGS III).]
- CLOUGH, J. W. Ross Ice Shelf Project, 1976-1977. *Antarctic Journal of the United States*, Vol. 12, No. 4, 1977, p. 142. [Brief progress report.]
- DAVIES, D. W., and others. Behavior of volatiles in Mars' polar areas: a model incorporating new experimental data, [by] D. W. Davies and C. B. Farmer, D. D. LaPorte. *Journal of Geophysical Research*, Vol. 82, No. 26, 1977, p. 3815-22. [Interpretation of Viking 2 orbiter data from the water detector implies north-polar ice thickness  $> 1$  m and ice albedo of 0.34.]
- GADSDEN, M. The polarization of noctiluculent clouds. *Annales de Géophysique*, Tom. 33, No. 3, 1977, p. 363-66. [Degree of elliptical polarization measured and results interpreted as due to needle-like ice crystals being aerodynamically favoured in the clouds.]
- GADSDEN, M. The scattering of sunlight from noctiluculent cloud particles. *Annales de Géophysique*, Tom. 33, No. 3, 1977, p. 357-61. [Physical properties of the atmosphere in which such clouds form are used to estimate kind of ice particles to be expected and whether observations support this.]
- GLOERSEN, P., and STROME, W. M. Ice reconnaissance by satellite. (In Thompson, G. E., ed. *Third Canadian Symposium on Remote Sensing*. Hotel Macdonald, Edmonton, Alberta, September 22-24, 1975. Ottawa, Canadian Aeronautics and Space Institute, [1976], p. 93-94.) [Reviews briefly present and future uses of satellites in monitoring and studying behaviour of snow and ice.]
- GOVORUKHA, L. S. Operatsiya "Kupol-74" [Operation "Ice dome-74"]. *Chelovek i Stikhiya*, [Vyp. 14], 1976 [pub. 1975], p. 149-50. [Describes glaciological expedition in 1974 using new research station on Lednik Vavilova, Ostrov Oktyabr'skoy Revolyutsii, Novaya Zemlya.]
- KOTLYAKOV, V. A., ed. K sozdaniyu atlasa snezhno-ledovykh resursov mira [On the compilation of a world atlas of snow and ice resources]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 29, 1977, p. 53-186. [As well as detailing course of events leading to production of atlas, which was first discussed in 1973, appendices show symbols to be used, rough drawings of special maps, and contents. Includes account of second editorial meeting, held 20 January 1977, by N. N. Dreyer.]
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- POLLACK, J. B., and others. Properties of aerosols in the Martian atmosphere, as inferred from Viking lander imaging data, [by] J. B. Pollack, D. Colburn, R. Kahn, J. Hunter, W. Van Camp, C. E. Carlston and M. R. Wolf. *Journal of Geophysical Research*, Vol. 82, No. 28, 1977, p. 4479-96. [Study of aerosols in the Martian atmosphere from Viking lander sky-brightness data, including night-time ice fog, ice clouds and rapidly falling particles of dust, ice, and solid CO<sub>2</sub>.]

## GLACIOLOGICAL INSTRUMENTS AND METHODS

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- BUSHUYEV, A. V., and VOLKOV, N. A., ed. Distantionnyye izmereniya parametrov ledyanogo pokrova [Remote measurements of ice cover parameters]. *Trudy Arkticheskogo i Antarkticheskogo Nauchno-Issledovatel'skogo Instituta*, Tom 343, 1977, 160 p. [Articles dealing with methods of observing and reporting floating ice. Contents include: A. V. Bushuyev, N. A. Volkov, Z. M. Gudkovich, Yu. R. Novikov and V. A. Prokof'yev, "Automatizirovannaya ledovo-informatsionnaya sistema dlya Arktiki (ALISA) [An automated ice survey system for the Arctic (ALISA)]", p. 6-16; A. V. Bushuyev, "Opredeleniye elementov vneshnego oriyentirovaniya snimkov skaniruyushchikh radiometrov ISZ [Determination of elements of outer orienting of photographs of satellite scanning radiometers]", p. 17-25; A. D. Masanov, "Opredeleniye kharakteristik ledyanogo pokrova po sputnikovym snimkam skaniruyushchikh infrakrasnykh radiometrov [Determination of ice cover characteristics from satellite photographs taken by infra-red scanning radiometers]", p. 26-33; A. V. Provorkin, "Ispol'zovaniye snimkov, poluchennykh s meteorologicheskikh sputnikov v kachestve osnovy dlya sostavleniya ledovykh kart [The use of photographs from meteorological satellites as a source for compiling ice maps]", p. 34-39; V. S. Loshchilov, "Ispol'zovaniye mikrovolnovykh sputnikovykh izmereniy dlya kartirovaniya morskikh l'dov [The use of microwave satellite measurements for mapping sea ice]", p. 40-45; A. V. Bushuyev, "Analiticheskoye koordinirovaniye ploshchadnykh i marshrutnykh radiolokatsionnykh s'yemok [Analytical co-ordination of areal and traverse radar surveys]", p. 46-57; R. A. Borisov and Yu. D. Bychenkov, "Tochnost' geograficheskoy privyazki snimkov radiolokatsionnoy stantsii bokovogo obzora 'Toros' [Accuracy of the geographical survey of photographs of the side-looking radar station 'Toros']", p. 58-64; R. A. Borisov and V. S. Loshchilov, "Operativnyy analiz dreyfa i deformatsiy ledyanogo pokrova po materialam povtornykh radiolokatsionnykh ploshchadnykh s'yemok [Operational analysis of the drift and deformation of ice cover from repeated radar areal surveys]", p. 65-74; Yu. A. Gorbunov and S. M.

- Losev, "Nekotoryye dannyye o srednemashtabnoy deformatsii ledyanogo pokrova arkticheskikh morey [Some data on mesoscale deformation of the ice cover of Arctic seas]", p. 75-91; S. M. Losev and Yu. A. Gorbunov, "Ob issledovanii nekotorykh morfometricheskikh kharakteristik ledyanogo pokrova v arkticheskikh moryakh v letniy period [Research on some morphometric characteristics of summer ice cover in Arctic seas]", p. 92-103; M. I. Finkel'shteyn and E. I. Lazarev, "Radiolokatsionnyy videoimpul'snyy izmeritel' tolshchiny morskogo l'da kak novoye perspektivnoye sredstvo ledovoy razvedki [Radar video-impulse meter of sea ice thickness as a prospective means of ice survey]", p. 104-113; A. V. Bushuyev, E. I. Lazarev and M. I. Finkel'shteyn, "Nekotoryye rezul'taty ispol'zovaniya radiolokatsionnogo videoimpul'snogo izmeritelya tolshchiny morskogo l'da dlya ledovoy razvedki [Some results of the use of a radar videoimpulse meter of sea ice thickness for an ice survey]", p. 114-21; A. A. Kurskaya, "Issledovaniye morskikh l'dov Belogo morya s pomoshch'yu letayushchey laboratorii [Research on ice in the White Sea using a flying laboratory]", p. 122-26; S. M. Losev and Yu. A. Gorbunov, "Izucheniye stamukh po aerofototsnimkam [The study of floes from air photography]", p. 127-32; I. L. Appel', Z. M. Gudkovich and K. A. Teytel'baum, "Rezul'taty ispytaniya chislennoy skhemy rascheta raspredeleniya l'da v arkticheskikh moryakh zimoy [Results of testing a numerical method for calculating winter distribution of ice in Arctic seas]", p. 141-50; V. Yu. Aleksandrov and A. V. Bushuyev, "Ispol'zovaniye statisticheskikh kharakteristik radiolokatsionnykh izobrazheniy l'dov dlya ikh raspoznavaniya [The use of statistical characteristics of radar pictures of ice to distinguish ice categories]", p. 151-54.]
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## LAND ICE. GLACIERS. ICE SHELVES

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- LUNDQVIST, J. Till in Sweden. *Boreas*, Vol. 6, No. 2, 1977, p. 73–85. [Defines main types of till and moraine forms occurring in Sweden and describes till stratigraphy.]
- MACHIDA, H. Chiri koshō chitai to Nyū Jūrando no dai-yonki kenkyū—toku ni Nihon no kenkyū to kanren no fukai shomondai ni tsuite [Some problems concerning the late Quaternary history of the southern Chilean lake district and New Zealand]. *Dai-yonki Kenkyū: Quaternary Research*, Vol. 15, No. 4, 1977, p. 156–67. [Reviews and compares glacial geologic features relating to extent of Quaternary in these two countries. English abstract, p. 156.]
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- SEREBRYANNYY, L. R., and others. Paleoglyatsiologicheskkiye issledovaniya na vysokogornom Kavkaze [Palaeoglaciological studies in the alpine Caucasus]. [By] L. R. Serebryannyy [and 11 others]. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 29, 1977, p. 221–32. [Field studies, especially of moraines, in Cherek-Bezengi river basin enable some conclusions to be made about Holocene glaciation. English summary, p. 232.]
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- WHITTEGAR, G. R. Sequence of till deposition and erosion in drumlins. *Boreas*, Vol. 6, No. 2, 1977, p. 213–17. [Study of structure and composition of 17 drumlins in Wisconsin, U.S.A. Distinguishes between types of till and suggests sequence of events leading to deposition.]
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## FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

- BLACK, R. F. Features indicative of permafrost. *Annual Review of Earth and Planetary Sciences*, Vol. 4, 1976, p. 75–94. [For the general reader.]
- CHERKASHIN, V. A. *Razrabotka merzlykh gruntov* [The working of frozen ground]. Leningrad, Stroyizdat, 1977. 216 p. [Construction in the U.S.S.R.]
- CRAMPTON, C. B. The distribution and thickness of icy permafrost in northeastern British Columbia. *Canadian Journal of Earth Sciences*, Vol. 15, No. 4, 1978, p. 655–59. [Presents results of survey. Rarely more than 200 cm depth.]
- DANIEL, E. A fossil ice wedge at Perstorp, Skåne. *Geologiska Föreningens i Stockholm Förhandlingar*, Vol. 99, Pt. 4, No. 571, 1977, p. 420–23. [Description.]
- DYKE, A. S. Qualitative rates of frost heaving in gneissic bedrock on southeastern Baffin Island, District of Franklin. *Canada. Geological Survey. Paper* 78-1A, 1978, p. 501–02. [Points out potential of morphostratigraphic method of establishing rates of frost heaving, whereby statistical study is made of amounts of block displacement on number of morphologic units of known age.]

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