

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

- [GLACIER FLUCTUATION.] Trudy mezhdunarodnogo seminar "Mekhanizm kolebaniy lednikov": Proceedings of the international workshop [on] dynamics of glacier variations. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 32, 1978, p. 81-286. [Took place in Alma-Ata and Moscow, 30 September to 11 October 1976. Part of proceedings published in Russian (p. 81-199) and English in this issue; rest in Vyp. 33. Items listed separately.]
- [GLACIER FLUCTUATION.] Trudy mezhdunarodnogo seminar "Mekhanizm kolebaniy lednikov": Proceedings of the international workshop on mechanism of glacier variations. *Materialy Glyatsiologicheskikh Issledovaniy. Khronika. Obsuzhdeniya*, Vyp. 33, 1978, p. 43-191. [Continuation of publication of papers presented at meeting held 30 September to 11 October 1976 in Alma-Ata and Moscow, with illustrations and references, p. 43-130. Items listed separately. Other papers published *ibid.*, Vyp. 32, 1978, p. 81-286.]
- IVES, J. D., and ZIMINA, R. P., ed. Mountain geocology and land-use implications. Proceedings of the symposium of the International Geographical Union Commission on High-Altitude Geocology, Caucasus Mountains, USSR, July 1976. *Arctic and Alpine Research*, Vol. 10, No. 2, 1978, p. 159-548. [Contents include: H. Kienholz, "Maps of geomorphology and natural hazards of Grindelwald, Switzerland: scale 1 : 10,000", p. 169-84; J. D. Ives and M. J. Bovis, "Natural hazard maps for land-use planning, San Juan Mountains, Colorado, U.S.A.", p. 185-212; J. D. Ives and P. V. Krebs, "Natural hazards research and land-use planning responses in mountainous terrain: the town of Vail, Colorado Rocky Mountains, U.S.A.", p. 213-22; K. V. Akifveva, N. A. Volodicheva, Ye. S. Troshkina, V. I. Turmanina, and G. K. Tushinskiy, "Avalanches of the USSR and their influence on the formation of natural-territory complexes", p. 223-33; R. [I.] Perla, "Artificial release of avalanches in North America", p. 235-40; V. S. Chuyenkov and V. P. Vlasov, "Snow avalanches and forest interaction in the alpine region of the Caucasus, USSR (abstract)", p. 241-42; M. Ch. Zalikhanov, "A change of the upper boundary of forest in the greater Caucasus, USSR, under the influence of avalanches (abstract)", p. 243-42; B. Messerli, P. Messerli, C. Pfister, and H. J. Zumbühl, "Fluctuations of climate and glaciers in the Bernese Oberland, Switzerland, and their geocological significance, 1600 to 1975", p. 247-60; B. H. Luckman, "Geomorphic work of snow avalanches in the Canadian Rocky Mountains", p. 261-76; G. N. Golubev and V. M. Kotlyakov, "Glacial landscapes and their spatial variability in the temperate and subpolar latitudes", p. 277-82; A. P. Gorbunov, "Permafrost investigations in high-mountain regions", p. 283-94; S. A. Khapayev, "Dynamics of avalanche natural complexes: an example from the high-mountain Teberda state reserve, Caucasus Mountains, USSR", p. 335-44; V. F. Perov, "Modern exogenous processes in the mountainous territories of the USSR (abstract)", p. 345-46.]
- STEWART, R. H., ed. I[nter-]U[nion] C[ommission on] R[adio] M[eteorology] colloquium on 'radio oceanography' held at Hamburg, [Federal Republic of Germany,] 29 September to 6 October, 1976. *Boundary-Layer Meteorology*, Vol. 13, Nos. 1-4, 1978, 429 p. [Contents include the following papers of particular interest to sea-ice specialists: W. Düing, "Spatial and temporal variability of major ocean currents and mesoscale eddies", p. 7-22; C. Elachi, "Radar imaging of the ocean surface", p. 165-79; R. A. Shuchman and J. S. Zelenka, "Processing of ocean wave data from a synthetic aperture radar", p. 181-91; A. M. Reece, Jr, "Modulation of short waves by long waves", p. 203-14; T. T. Wilhelm, Jr, "A review of applications of microwave radiometry to oceanography", p. 277-93; W. J. Campbell [and 19 others], "Microwave remote sensing of sea ice in the AIDJEX main experiment", p. 309-37; P. Gloersen, H. J. Zwally, A. T. C. Chang and D. K. Hall, W. J. Campbell and R. O. Ramseier, "Time-dependence of sea-ice concentration and multilayer ice fraction in the Arctic basin", p. 339-59; M. Tiuri, M. Hallikainen, and A. Lääperi, "Radiometer studies of low-salinity sea ice", p. 361-71; J. A. Dunne, "The experimental oceanographic satellite Seasat-A", p. 393-404; P. Gudmandsen [and 7 others], "Radio observations of polar regions", p. 413-16.]
- WILLIAMS, P. J., and FRÉMOND, M., ed. *Soil freezing and highway construction*. Ottawa, Carleton University, Paterson Centre; Paris, École Nationale des Ponts et Chaussées, [1978]. ix, 105 p. [Seminar-course held in Ottawa, 17-21 October 1977. Includes: P. J. Williams, "General properties of freezing soils", p. 7-12; J. Aguirre-Puente, "Laboratory research and simulation", p. 13-19; M. W. Smith, "Principles of surface energy and soil thermal regime", p. 20-26; J. Aguirre-Puente, "Problems of the interface—microscopic and macroscopic mechanisms of freezing", p. 27-33; P. J. Williams, "Thermal properties of soils", p. 34-39; L. Caniard, "Winter statistics—characterisation and principal types of winters in France", p. 40-44; L. Caniard, "Frost susceptibility of soils. Experimental method for classification of soils according to their degree of frost susceptibility", p. 50-56; D. Gorlé, "Frost susceptibility of soils; effect of thermal variables, of interstitial pressure, and of degree of saturation", p. 57-63.]

GENERAL GLACIOLOGY

- CHUNG-KUO K'E-HSÜEH-YÜAN LAN-CHOU PING-CH'UAN TUNG-T'U SHIA-MO YEN-CHIU-SO PING-CH'UAN YEN-CHIU-SHIH [and] LAN-CHOU TA-HSÜEH TI-CHIH TI-LI HSI [GLACIER RESEARCH LABORATORY OF THE CHINESE ACADEMY OF SCIENCES RESEARCH INSTITUTE INTO GLACIERS, FROZEN SOIL, AND DESERTS AT LAN-CHOU AND THE DEPARTMENT OF GEOLOGY AND GEOGRAPHY, LAN-CHOU UNIVERSITY]. *Ping-hsieh shih-chieh* [The world of ice and snow]. Peking, K'e-hsüeh ch'u-pan-shu, 1978. vi, 164 p.
- GRANBERG, H. B. Some effects of multiple reflections between ground and sky. *McGill University. Dept. of Geography. Climatological Bulletin*, No. 23, 1978, p. 1-14. [Computer simulation model used to examine effects of multiple reflections over surface of different albedo (such as snow cover, permafrost, glaciers) under different sky conditions.]
- HIGUCHI, K. Outline of the glaciological expedition of Nepal (2). *Seppyō*, Vol. 39, Special Issue, 1977, p. 1-2. [Describes objectives of 1975 expedition which follows on 1973 and 1974 expeditions.]
- HIGUCHI, K. Outline of the glaciological expedition of Nepal (3). *Seppyō*, Vol. 40, Special Issue, 1978, p. 1-3. [Describes objectives of 1976 expedition, which follows yearly expeditions since 1973.]
- KIEFFER, H. H., and others. Thermal albedo mapping of Mars during the Viking primary mission, by H. H. Kieffer, T. Z. Martin, A. R. Peterfreund and B. M. Jakosky, E. D. Miner and F. D. Palluconi. *Journal of Geophysical Research*, Vol. 82, No. 28, 1977, p. 4249-91. [Among many results, evidence for presence of daily local ice fogs is given.]
- LIST, F. K., and STÄBLEIN, G. Satellitenbild. Diskobugt/Westgrönland. Polares Meer und arktische Landschaft zwischen Diskoinsel und Inlandeis. *Erdkunde*, Jahrg. 109, Ht. 2, 1978, p. 122-35. [Interprets geological and geomorphological conditions and land and sea ice around Disko Bugt, Vestgrönland, from two small-scale Landsat satellite images.]
- McMILLAN, R. S. Are long wavelengths of maximum interstellar polarization due to water ice mantles on grains? *Astrophysical Journal*, Vol. 225, No. 2, Pt. 1, 1978, p. 417-21. [Width of absorption feature in the spectrum rules out this possibility.]
- MARSHUNOVA, M. S., and CHERNIGOVSKIY, N. T. *Radiation regime of the foreign Arctic. Translated from Russian.* New Delhi, Indian National Scientific Documentation Centre for the Office of Polar Programs and the National Science Foundation, Washington, D.C., 1978. vi, 189 p. (TT 72-51034.) [Translation of *Radiatsionnyy rezhim zarubezhnoy Arktiki*. Leningrad, Gidrometeorologicheskoye Izdatel'stvo, 1971.]
- MEAD, K. L., comp. *Bibliography of international dry valley publications 1907-1977*. Christchurch, Dept. of Scientific and Industrial Research, Antarctic Division, 1978. i, 162 p. [Comprises references to papers by authors from all Antarctic treaty nations who have carried out research in this area of Victoria Land. Includes glaciology section, p. 73-87.]
- NIKITENKO, F. A., ed. *Nauchnyye problemy sooruzheniya Baykalo-Amurskoy zheleznodorozhnoy magistrali* [Scientific problems in the construction of the Baykal-Amur main line]. *Novosibirskiy Institut Inzhenerov Zheleznodorozhnogo Transporta. Trudy*, Vyp. 176, 1976, 198 p. [Collection of articles on problems arising from severity of climate, permafrost, and avalanches.]
- NYE, J. F. Remote sensing in glaciology and the physics of echoes. (In Peel, R. F., and others, ed. *Remote sensing of the terrestrial environment. Proceedings of the twenty-eighth Symposium of the Colston Research Society, held in the University of Bristol, April 5th to 9th, 1976*. Edited by R. F. Peel, L. F. Curtis, and E. C. Barrett. London, etc., Butterworths, [1977], p. 189-97.) [Outlines general applications of remote sensing in glaciological studies and describes in some detail radio echo-sounding of polar ice masses.]
- OMMANNEY, C. S. L. *Bibliography of Canadian glaciology, 1975—bibliography no. 1*. Ottawa, Environment Canada. Inland Waters Directorate. Water Resources Branch, 1978. vii, 117 p. (Glacier Inventory Note No. 10; Report Series No. 59.) [Lists all snow and ice studies in Canada published or printed in 1975.]
- PARKER, B. C., and others. Ross Ice Shelf Project environmental impact statement, July, 1974, by B. C. Parker, M. A. McWhinnie, D. Elliott, S. Reed, R. H. Rutford. (In Parker, B. C., and Holliman, M. C., ed. *Environmental impact in Antarctica. Select papers by scientists addressing impact assessment, monitoring, and potential impact of man's activities in the Antarctic*. Blacksburg, Va., Biology Dept., Virginia Polytechnic Institute and State University, [1978], p. 7-36.) [Summarizes RISP programme and discusses effect on environment, suggesting remedial and protective measures.]
- SMOLUCHOWSKI, R. Amorphous ice on Saturnian rings and on icy satellites: its formation, stability, and observability. *Science*, Vol. 201, No. 4358, 1978, p. 809-11. [Discusses possibility of amorphous rather than crystalline layer on surface, and how one could detect this.]
- SWITHINBANK, C. W. M., and LANE, C. Antarctic mapping from satellite imagery. (In Peel, R. F., and others, ed. *Remote sensing of the terrestrial environment. Proceedings of the twenty-eighth Symposium of the Colston Research Society, held in the University of Bristol, April 5th to 9th, 1976*. Edited by R. F. Peel, L. F. Curtis, and E. C. Barrett. London, etc., Butterworths, [1977], p. 212-21.) [Discusses value of Landsat imagery which has led to publication of seven 1 : 250 000 scale map sheets of Antarctica.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- ABE, O. Kogata seppyō shiryō no seikeigu futatsu [Two kinds of tool for cutting ice and compressed snow into a precisely rectangular shape]. *Kokuritsu Bōsai Kagaku Gijyutsu Sentā Kenkyū Hōkoku: Report of the National Research Center for Disaster Prevention*, No. 19, 1978, p. 251-60. [English abstract, p. 251.]
- ADAMS, W. A., and FLAVELLE, P. A. *Low temperature adapted submersible spectrophotometers for use in floating ice research*. Ottawa, Environment Canada. Inland Waters Directorate. Water Resources Branch, 1978. v, 15 p. (Scientific Series No. 82.) [Describes apparatus and its operation, with examples of systems used for various ice conditions.]

- ARYA, V. K., and HOLDEN, H. D. Deconvolution of seismic data—an overview. *IEEE Transactions on Geoscience Electronics*, Vol. GE-16, No. 2, 1978, p. 95–98. [Four techniques described.]
- BOZOUK, M., and BAKER, T. H. W. Measuring total volumetric strains during triaxial tests on frozen soils: a new approach. *Canadian Geotechnical Journal*, Vol. 15, No. 4, 1978, p. 620–21. [Comments on paper by M. J. O'Connor and R. J. Mitchell, *ibid.*, Vol. 15, No. 1, 1978, p. 47–53.]
- COX, L. M., and others. The care and feeding of snow pillows, by L. M. Cox, L. D. Bartree, A. G. Crook, P. E. Farnes, and J. L. Smith. *Proceedings of the Western Snow Conference*, 46th annual meeting, 1978, p. 40–47. [Describes correct maintenance of these devices for measurement of snow water equivalent.]
- FOEHNER, O. H. Developing techniques for measuring precipitation. *Proceedings of the Western Snow Conference*, 46th annual meeting, 1978, p. 26–32. [Emphasis on precipitation as snow-fall.]
- GOODISON, B. E., and MCKAY, D. J. Canadian snowfall measurements: some implications for the collection and analysis of data from remote stations. *Proceedings of the Western Snow Conference*, 46th annual meeting, 1978, p. 48–57. [Evaluates accuracy of several types of snow gauges.]
- GOODRICH, L. E. Efficient numerical technique for one-dimensional thermal problems with phase change. *International Journal of Heat and Mass Transfer*, Vol. 21, No. 5, 1978, p. 615–21. [Technique for calculating depth of frost or thaw penetration.]
- GREY, T. Fieldwork in the Y.E.T. *Yetmag* (Young Explorers' Trust, London), 5, 1978, p. 24–25. [Describes new method, based on diffraction of light, for measuring short-term glacier movement.]
- HOEKSTRA, P. Electromagnetic methods for mapping shallow permafrost. *Geophysics*, Vol. 43, No. 4, 1978, p. 782–87. [Two techniques, radiohm and magnetic induction, evaluated for ability to delineate and measure thickness of permafrost.]
- HUDSON, J. A. Melt-water gauge (snow gauge). (In *Selected measurement techniques in use at Plynlimon experimental catchments*. Wallingford, Oxon., Institute of Hydrology, 1977, p. 28–32. (Report No. 43.)) [Describes assembly, materials, and costs of gauge. Used on mountain-side in North Wales.]
- KOVACS, A. A radar profile of a multi-year pressure ridge fragment. *Arctic*, Vol. 31, No. 1, 1978, p. 59–62. [Evaluates use of this technique, presenting and discussing results from near Narwhal Island, Alaska.]
- KOZIAR, A. Applications of audio frequency magnetotellurics to permafrost, crustal sounding, and mineral exploration. *Dissertation Abstracts International*, B, Vol. 39, No. 4, 1978, p. 1679-B–80-B. [Describes technique which was applied to measuring thickness of permafrost at Tuktoyaktuk, Mackenzie River delta, N.W.T., Canada. Abstract of Ph.D. thesis, University of Toronto, 1976.]
- KOZIAR, A., and STRANGWAY, D. W. Permafrost mapping by audiofrequency magnetotellurics. *Canadian Journal of Earth Sciences*, Vol. 15, No. 10, 1978, p. 1539–46. [Describes technique, used successfully near Tuktoyaktuk, N.W.T., Canada.]
- LETVAK, D. B. Metrication of field equipment and operations for British Columbia snow surveys. *Proceedings of the Western Snow Conference*, 46th annual meeting, 1978, p. 21–25. [Describes how this change was achieved.]
- NAKAMURA, H. Shinsetsu seizō sōchi no sakusei [A new apparatus to produce fresh snow]. *Kokuritsu Bōsai Kagaku Gijyutsu Sentō Kenkyū Hōkoku: Report of the National Research Center for Disaster Prevention*, No. 19, 1978, p. 229–38. [Describes apparatus "Shimo-bako" (frost box) for making frost which may be used instead of snow in model experiments.]
- POPOV, I. K., and others. Ispol'zovaniye gidrolokatora bokovogo obzora dlya issledovaniya podvodnykh poverkhnostey [The use of side-looking sonars for underwater surface studies]. [By] I. K. Popov, V. N. Roslyakov, P. V. Bogorodskiy. *Problemy Arktiki i Antarktiki*, Vyp. 54, 1978, p. 88–92. [Evaluates method for study of floating ice in Antarctic waters.]
- RAISBECK, G. M., and others. Beryllium-10 mass spectrometry with a cyclotron, [by] G. M. Raisbeck, F. Yiou, M. Fruneau, J. M. Loiseaux. *Science*, Vol. 202, No. 4364, 1978, p. 215–17. [Describes technique for measuring isotopic beryllium, which has been applied to polar ice.]
- RAISBECK, G. M., and others. Measurement of ^{10}Be in 1,000- and 5,000-year-old Antarctic ice, [by] G. M. Raisbeck, F. Yiou, M. Fruneau, M. Lieuvin, J. M. Loiseaux. *Nature*, Vol. 275, No. 5682, 1978, p. 731–33. [Describes technique for measuring isotopic beryllium by nuclear accelerator spectrometry.]
- TURNER, F. M., and others. Optical techniques for counting ice particles in mixed phase clouds, [by] F. M. Turner, L. F. Radke, and P. V. Hobbs. *Atmospheric Technology*, No. 8, 1976, p. 25–31. [Describes the University of Washington's automatic ice particle counter and the Mee Industries Model 120 ice crystal counter.]
- WHITLEY, W. E. Two dredges for use through drill holes in ice. *NZOI Records* (New Zealand Oceanographic Institute), Vol. 4, No. 1, 1978, p. 1–8. [For sampling sea-floor biota and sediment.]
- ZUZEL, J. F., and COX, L. M. A review of operational water supply forecasting techniques in areas of seasonal snowcover. *Proceedings of the Western Snow Conference*, 46th annual meeting, 1978, p. 69–77. [Discusses and reviews several forecast models.]

PHYSICS OF ICE

- AZOUNI, M. A. Instabilités hydrodynamiques au voisinage de l'interface eau-glace. *Lecture Notes in Physics*, Vol. 72, 1978, p. 54–60. [Ice formed by upwards vertical freezing of various aqueous solutions shows helical segregation of impurities due to thermoconvective instabilities in the water induced by the density maximum at 4 °C.]
- BERGREN, M. S., and others. The OH stretching region infrared spectra of low density amorphous solid water and polycrystalline ice Ih, [by] M. S. Bergren, D. Smith, M. G. Secats, and S. A. Rice. *Journal of Chemical Physics*, Vol. 69, No. 8, 1978, p. 3477–82. [Transmission spectra measured and complex refractive index deduced and discussed.]

- BERTIE, J. E., and JACOBS, S. M. Infrared spectra from 300 to 10 cm^{-1} of structure II clathrate hydrates at 4.3°K. *Journal of Chemical Physics*, Vol. 69, No. 9, 1978, p. 4105-13. [Measurements reported. Density of translational vibrational states of water molecules is similar to, but with more pronounced features than, that of structure I hydrates.]
- BROTO, F., and others. Détermination par microscopie électronique de la granulométrie d'une émulsion d'eau et corrélation entre la cristallisation des gouttes et leur diamètres, par F. Broto, D. Clause, L. Babin, et M. Mercier. *Journal de Chimie Physique*, Tom. 75, No. 10, 1978, p. 908-10. [Electron microscopy used to study kinetics of crystallization of water droplets emulsified in oil.]
- DAVIDSON, D. W., and others. NMR behavior of the clathrate hydrate of tetrahydrofuran. II. Deuterium measurements, [by] D. W. Davidson, S. K. Garg, and J. A. Ripmeester. *Journal of Magnetic Resonance*, Vol. 31, No. 3, 1978, p. 399-410. [Line shapes, spin-echo signal shapes, and spin-lattice and spin-spin relaxation times measured from 6 to 277 K. Results interpreted in terms of inequivalence of orientations of engaged molecules below 200 K when water molecules do not reorient.]
- DESCAMPS, M., and COULON, G. Series expansion calculation of the elastic neutron diffuse scattering: ice Ih. *Chemical Physics*, Vol. 25, No. 1, 1977, p. 117-30. [Theoretical systematic method for calculating coherent diffuse elastic scattering which agrees well with experiment.]
- DYRKHEYEV, V. V., and others. Izucheniye infrakrasnykh spektrov vodnogo klatrata CF_3I [Study of the infrared spectra of a clathrate hydrate of CF_3I]. [By] V. V. Dyrkheyev, D. Yu. Stupin, V. N. Tezikov. *Zhurnal Fizicheskoy Khimii*, Tom 52, Vyp. 8, 1978, p. 2096-97. [Study of spectra in OH and OD stretching region. English translation in *Russian Journal of Physical Chemistry*, Vol. 52, No. 8, 1978, p. 1208-10.]
- EDMONDS, D. T., and WHITE, A. A. L. Double transitions in deuterium quadrupole resonance. *Journal of Magnetic Resonance*, Vol. 31, No. 1, 1978, p. 149-59. [Includes results on D_2O ice.]
- FOROUHI, A. R., and BLOOMER, I. A quantum mechanical approach to the velocity of dislocations in ice. *Physica Status Solidi (B)*, Vol. 89, No. 1, 1978, p. 309-12. [Quantum-mechanical tunnelling of kinks on dislocation line through the barrier formed by misoriented protons can explain plastic deformation of ice.]
- FUJIOKA, T. Study of ice growth in slightly undercooled water. *Dissertation Abstracts International*, B, Vol. 39, No. 3, 1978, p. 1438B-39-B. [Experiments on the growth of ice crystals from the tip of a capillary tube and comparison with theoretical models. Abstract of Ph.D. thesis, Carnegie-Mellon University, Pittsburgh, Pa., 1978. University Microfilms order no. 78-15199.]
- EVANS, D. C. B., and others. The kinetic friction of ice, by D. C. B. Evans, J. F. Nye, and K. J. Cheeseman. *Proceedings of the Royal Society of London*, Ser. A, Vol. 347, No. 1651, 1976, p. 493-512. [Measurements using various temperatures and velocities and sliders of various materials. Results compared with theory; for mild steel and polymethylmethacrylate heat loss is mainly through ice, for copper both materials contribute significantly.]
- GILPIN, R. R. A study of factors affecting the ice nucleation temperature in a domestic water supply. *Canadian Journal of Chemical Engineering*, Vol. 56, No. 4, 1978, p. 466-71. [Amount of supercooling measured to be between 4 and 7 deg. Discussion of significance of this in affecting the way a water-pipe freezes.]
- HAJDU, F. The structural model of water, II. The structure of amorphous ice and structural relations between water and some ice polymorphs on the basis of the tetragonal cluster model. *Acta Chimica Academiae Scientiarum Hungaricae*, Tom. 96, Fasc. 4, 1978, p. 355-71. [Tetragonal cluster model of water used to explain results on amorphous ice and its transformation into ice Ic and ice Ih.]
- JOHNSON, J. E., and MOULTON, G. C. ESR study of ice irradiated at 4.2 K, a thermally reversible radical. *Journal of Chemical Physics*, Vol. 69, No. 7, 1978, p. 3108-11. [New radical observed in ice irradiated with 3 MeV X-rays and subsequently warmed.]
- KEVAN, L. On the solvation shell geometry for silver atom solvation and desolvation in ice matrices. *Journal of Chemical Physics*, Vol. 69, No. 7, 1978, p. 3444-46. [Letter. Recent results interpreted to give geometrical arrangement of water molecules around silver atom formed from a silver ion and subsequent thermal rearrangement.]
- KISHORE, K., and others. Radiation chemistry of nitrate ices, by K. Kishore, P. N. Moorthy, and K. N. Rao. *Radiation Physics and Chemistry*, Vol. 11, No. 5, 1978, p. 239-47. [Yields of NO_2^- , H_2O_2 , O_2 , and H_2 measured at different nitrate concentrations and results interpreted in terms of scavenging effects of primary species.]
- LANGER, G., and others. Ice nucleation mechanisms of submicron monodispersed silver iodide, 1,5-dihydroxynaphthalene, and phloroglucinol aerosol particles, [by] G. Langer, G. Cooper, C. T. Nagamoto, and J. Rosinski. *Journal of Applied Meteorology*, Vol. 17, No. 7, 1978, p. 1039-48. [First two nucleated by contact only, whereas phloroglucinol and AgI-NaCl mixed particles acted by condensation freezing as well.]
- LEBEDEV, D. P., and others. Issledovaniye teplofizicheskikh svoystv l'da metodom impul'snogo istochnika tepla [Study of the thermophysical properties of ice by a pulsed-heat-source method]. [By] D. P. Lebedev, V. N. Men'shov, V. V. Uvarov. *Elektronnaya Obrabotka Materialov*, 1978, No. 4, p. 64-68.
- LEVI, L., and others. Crystal structure of ice accretions, [by] L. Levi, L. Lubart, and E. M. de Achaval. *Nuovo Cimento della Società Italiana di Fisica*, Vol. 1C, Ser. 1, No. 1, 1978, p. 86-92. [Wind-tunnel experiments and application to study of hailstones.]
- LOCH, J. P. G. Thermodynamic equilibrium between ice and water in porous media. *Soil Science*, Vol. 126, No. 2, 1978, p. 77-80. [Derivation of equation for difference between pressure of the ice phase and the total potential of the water phase.]
- MCGRAW, R., and others. A theoretical study of the OH stretching region of the vibrational spectrum of ice Ih, [by] R. McGraw, W. G. Madden, M. S. Bergren and S. A. Rice, M. G. Sceats. *Journal of Chemical Physics*, Vol. 69, No. 8, 1978, p. 3483-96. [Model results in predicted spectra in rather good agreement with observation. Intermolecular coupling comparable in strength to intramolecular coupling.]
- MADDEN, W. G., and others. A conjectured interpretation of the OH stretching spectrum of low density amorphous solid water, [by] W. G. Madden, M. G. Bergren, R. McGraw and S. A. Rice, M. G. Sceats. *Journal of*

- Chemical Physics*, Vol. 69, No. 8, 1978, p. 3497-501. [Model developed for ice Ih extended to amorphous phase. Differences in vibrational spectrum arise from larger variation in O-O bond distances.]
- MAÏ, C., and others. Vitesse des dislocations dans la glace dopée avec HF, [par] C. Maï, J. Perez, J. Tatibouët, et R. Vassolle. *Journal de Physique, Lettres*, Tom. 39, No. 17, 1978, p. 307-10. [Measurement by X-ray topography shows increased dislocation velocity and increased non-linearity of stress dependence of velocity compared with pure ice. A model with non-crystalline cores can explain the results.]
- MARTIN, P. F., and others. Experiments in ice physics, [by] P. F. Martin, A. J. Murkett, and W. C. Roe. *Physics Education*, Vol. 13, No. 7, 1978, p. 420-23. [Suggests two experiments suitable for an undergraduate physics laboratory. The first measures the variation of electrical conductivity with temperature, the second measures the dielectric dispersion.]
- MICHEL, B. The strength of polycrystalline ice. *Canadian Journal of Civil Engineering*, Vol. 5, No. 3, 1978, p. 285-300.
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FROST ACTION ON ROCKS AND SOIL. FROZEN GROUND. PERMAFROST

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