

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 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

[UNION GÉODÉSIQUE ET GÉOPHYSIQUE INTERNATIONALE. ASSOCIATION INTERNATIONALE D'HYDROLOGIE SCIENTIFIQUE.] [*International Council of Scientific Unions. Scientific Committee on Antarctic Research. International Association of Scientific Hydrology. Commission of Snow and Ice.*] *International Symposium on Antarctic Glaciological Exploration (ISAGE)*, Hanover, New Hampshire, U.S.A., 3-7 September 1963. [Gentbrugge, [Association Internationale d'Hydrologie Scientifique]; Cambridge, Scientific Committee on Antarctic Research, 1970.] xvi, 543 p. [(Publication No. 86 [de l'Association Internationale d'Hydrologie Scientifique].)] [Proceedings of conference. For details of individual papers see elsewhere in this list.]

GENERAL GLACIOLOGY

- BARRERA, H., V. Problemas físicos y geofísicos de la Antártida. *Publicaciones de la Real Sociedad Geográfica*, Ser. B, No. 477, 1969, 36 p. [Account of Chilean work in the Antarctic during the I.G.Y., including glaciology.]
- BOROVINSKIY, B. A. *Elektro-i seismometricheskiye issledovaniya mnogoletnemerzlykh gornykh porod i lednikov* [Electro- and seismometric studies of frozen soil and glaciers]. Moscow, Izdatel'stvo "Nauka", 1969. 184 p.
- CORBEL, J., and GALLO, G. Cryokarsts et chimie des neiges en zone polaire. *Revue Géographique des Pyrénées et du Sud Ouest*, Tom. 41, Fasc. 2, 1970, p. 123-38. [Similarity between karst and glacier forms; discovery of gypsum deposits on snow; exploration of a cave in a Svalbard glacier.]
- DILLY, N. East Greenland: Kristians Glacier area, 1968. *Alpine Journal*, Vol. 74, No. 318, 1969, p. 276-81. [Summary of results of the British Army East Greenland Expedition, 1968.]
- HEINE, A. J. Glaciological work at Vanda. *Antarctic*, Vol. 5, No. 6, 1969, p. 276-77. [Note on preliminary glaciological work from New Zealand's "Vanda" station, Victoria Land.]
- HENOCH, W. E. S. Topographic maps of Canada in glaciological research. *Canadian Cartographer*, Vol. 6, No. 2, 1969, p. 118-29. [Suitability of existing maps and suggestions for improvement.]
- KIEFFER, H. Interpretation of the Martian polar cap spectra. *Journal of Geophysical Research*, Vol. 75, No. 3, 1970, p. 510-14. [Existing observations inconclusive on whether caps are primarily H₂O or CO₂.]
- LEWIS, J. S. Ice clouds on Venus? *Journal of the Atmospheric Sciences*, Vol. 27, No. 2, 1970, p. 333-34. [Criticism of paper by N. Fukuta, T.-L. Wang and W. F. Libby, *ibid.*, Vol. 26, No. 5, Pt. 2, 1969, p. 1142-45 on grounds that HCl on Venus has been underestimated and will prevent ice formation. Reply by authors, p. 334-35.]
- LLIBOUTRY, L. A. Current trends in glaciology. *Earth Science Reviews*, Vol. 6, No. 3, 1970, p. 141-67. [Survey of important developments of the last five years.]
- SAGAN, C., and POLLACK, J. B. On the structure of the Venus atmosphere. *Icarus*, Vol. 10, No. 2, 1969, p. 274-89. [Results of Mariner 5 and Venera 4 spacecraft measurements not incompatible with presence of ice clouds.]
- SEBERT, L. H. Topographic maps of glaciated areas: a cartographer's reply to W. E. S. Hensch. *Canadian Cartographer*, Vol. 6, No. 2, 1969, p. 129-31. [Reply to criticisms of Canadian maps from a glaciological point of view.]

GLACIOLOGICAL INSTRUMENTS AND METHODS

- AAMOT, H. W. C. Self-contained thermal probes for remote measurements within an ice sheet. (*In* [Union Géodésique . . .] . . . *International Symposium on Antarctic Glaciological Exploration (ISAGE)*, . . . 1963, 1970, p. 63-68.) [Describes thermal probes now available for penetrating polar ice sheets to depths of 3 000 m for remote measurements of *in situ* temperature and stress conditions. Presents some results from Greenland.]
- LATHAM, J., and SMITH, M. H. A ground-based instrument for the continuous measurement of charges on cloud particles. *Quarterly Journal of the Royal Meteorological Society*, Vol. 96, No. 408, 1970, p. 309-12. [Instrument which measures charge and dimensions of ice crystals in clouds at ground level.]
- LESCA, C. Impiego della fotogrammetria per il rilievo di aree glaciali. *Bollettino della Società Italiana di Fotogrammetria e Topografia*, No. 1, 1970, p. 35-51. [Use of photogrammetry in glacier studies. Discussion, p. 51.]
- LINKLETTER, G. O. The use of cationic ratios in determining annual stratigraphic layers in polar ice. (*In* [Union Géodésique . . .] . . . *International Symposium on Antarctic Glaciological Exploration (ISAGE)*, . . . 1963, 1970, p. 16-18.)
- MCTAGGART-COWAN, J. D., and others. The design, construction, and use of an ice crystal counter for ice crystal cloud studies by aircraft, [by] J. D. McTaggart-Cowan, G. G. Lola and B. Vonnegut. *Journal of Applied Meteorology*, Vol. 9, No. 2, 1970, p. 294-99.

- MEIER, S. Terrestrial photogrammetry on an Arctic glacier during the polar night. *Surveying News*, No. 21, 1969, p. 45-49. [Describes method used for tracing movement of Kongsvegen, Svalbard, during entire year, i.e. including period of winter darkness. Problems of these conditions discussed.]
- REGULA, H. Satellitenaufnahmen vom Nordpolargebiet. *Polarforschung*, Bd. 6, Jahrg. 39, Nr. 1, 1969 [pub. 1970], p. 246-50. [Use of weather satellites to determine snow and ice coverage in polar regions. English summary.]
- THOMAS, R. H. Survey on moving ice: a sixty kilometres long triangulation net across an Antarctic ice shelf. *Survey Review*, Vol. 20, No. 157, 1970, p. 322-38. [Techniques used on Brunt Ice Shelf and deduction of velocities.]
- TOLLAN, A. Experiences with snow pillows in Norway. *Bulletin de l'Association Internationale d'Hydrologie Scientifique*, 15^e An., No. 2, 1970, p. 113-20.
- UEDA, H. T., and GARFIELD, D. E. Deep core drilling at Byrd station, Antarctica. (In [Union Géodésique . . .] . . . *International Symposium on Antarctic Glaciological Exploration (ISAGE)*, . . . 1969, 1970, p. 53-62.) [Describes method and equipment used in drilling to 2 164 m depth.]

PHYSICS OF ICE

- ALKEZWEENY, A. J. The fragmentation of freezing water droplets in free fall. *Dissertation Abstracts International*, B, Vol. 30, No. 2, 1969, p. 782-B-83-B. [Abstract of Ph.D. thesis, University of Washington, 1968. University Microfilms order no. 69-13532.]
- ALKEZWEENY, A. J. Freezing of supercooled water droplets due to collision. *Journal of Applied Meteorology*, Vol. 8, No. 6, 1969, p. 994-95. [Brief note on observations from field work.]
- ÁRNASON, B. The exchange of hydrogen isotopes between ice and water in temperate glaciers. *Earth and Planetary Science Letters*, Vol. 6, No. 6, 1969, p. 423-30. [Isotopic exchange in temperate glaciers and its effect on D concentration and its homogeneity.]
- AŽMAN, A., and others. A CNDO calculation of ring models of polywater [by] A. Ažman, J. Koller and D. Hadži. *Chemical Physics Letters*, Vol. 5, No. 3, 1970, p. 157-58. [Theoretical calculation shows six-molecule ring to be more stable structure.]
- BARRETT, J. S., and others. Perturbed angular correlation study of the environment of ¹¹¹Cd nuclei in ice, by J. S. Barrett, J. A. Cameron, P. R. Gardner, L. Keszthelyi, and W. V. Prestwich and M. Kaplan. *Journal of Chemical Physics*, Vol. 53, No. 2, 1970, p. 759-63. [Variation in behaviour with temperature.]
- BASSETT, D. R. The surface chemistry of ice nucleation. *Dissertation Abstracts*, B, Vol. 29, No. 5, 1968, p. 1619-B-20-B. [Study of surface properties required for effective ice nucleation. Abstract of Ph.D. thesis, Lehigh University, 1968. University Microfilms order no. 68-15893.]
- BENNETT, H. F. An investigation into velocity anisotropy through measurements of ultrasonic wave velocities in snow and ice cores from Greenland and Antarctica. *Dissertation Abstracts*, B, Vol. 29, No. 2, 1968, p. 662-B. [Abstract of Ph.D. thesis, University of Wisconsin, 1968. University Microfilms order no. 68-9055.]
- BILGRAM, J. H. Segregation of hydrogen fluoride in ice single crystals. *Physik der kondensierten Materie*, Bd. 10, Ht. 4, 1970, p. 317-25. [Study of processes by which HF is distributed in ice crystals, and how its distribution changes with ageing.]
- BLINC, R., and others. Rotating frame spin-lattice relaxation in hexagonal ice, [by] R. Blinc, G. Lahajnar, I. Zupancic and H. Gränicher. *Chemical Physics Letters*, Vol. 4, No. 6, 1969, p. 363-64. [Proton spin-lattice relaxation is order of magnitude faster than dielectric relaxation, and is ascribed to molecular vacancy diffusion.]
- BOX, H. C., and others. ENDOR study of X-irradiated single crystals of ice, [by] H. C. Box, E. E. Budzinski, K. T. Lilga and H. G. Freund. *Journal of Chemical Physics*, Vol. 53, No. 3, 1970, p. 1059-65. [Electron nuclear double resonance used to determine hyperfine coupling of OH radicals.]
- BRENE, R. G. jr., and others. Interpretation of OV₁₋₅ spectrometric observations, by R. G. Brene, Jr., J. S. Swant and L. P. Marcotte. *Journal of Quantitative Spectroscopy and Radiative Transfer*, Vol. 9, No. 9, 1969, p. 1239-49. [Scattering and absorption by water or ice particles in cloud: theory and application to sample scans.]
- BURROWS, D. A., and HOBBS, P. V. Charging of ice spheres due to collisions with ice crystals and the electrification of thunderstorms. *Journal of the Atmospheric Sciences*, Vol. 26, No. 3, 1969, p. 560-65. [Theory for interpreting experiments in which ice sphere is charged as it rotates through particle cloud. Applied to measurements in natural snowfalls, and to electrification of thunderstorms.]
- CAMERON, J. A., and others. Dynamical effects on ¹⁸¹Ta nuclei in ice, by J. A. Cameron, P. R. Gardner, L. Keszthelyi and W. V. Prestwich. *Chemical Physics Letters*, Vol. 4, No. 5, 1969, p. 229-30. [Temperature dependent increase of asymmetry in angular correlation of ¹⁸¹Ta nuclei in ice found between -110°C and -60°C, showing lively motion of water molecules around Ta ions.]
- CHERKIN, A. "Anomalous" water: a silica dispersion? *Nature*, Vol. 224, No. 5226, 1969, p. 1293. [Evidence that "polywater" is a dispersion of material leach from capillaries.]
- DAVY, J. G., and BRANTON, D. Subliming ice surfaces: freeze-etch electron microscopy. *Science*, Vol. 168, No. 3936, 1970, p. 1216-18. [Vacuum sublimation of ice watched by electron microscopy. Pits attributed to dislocations seen as well as extreme roughening.]
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- DRAKE, J. C. Electrification accompanying the melting of ice particles. *Quarterly Journal of the Royal Meteorological Society*, Vol. 95, No. 403, 1969, p. 203. [Discussion of the same author's paper with same title in *ibid.*, Vol. 94, No. 400, 1968, p. 176-91.]

- EISELE, I., and KEVAN, L. Photoconductivity in γ -irradiated alkaline ice. *Journal of Chemical Physics*, Vol. 53, No. 5, 1970, p. 1867-75. [Study of photoconductivity due to trapped electrons in glassy alkaline ice at 77 K.]
- ELLIOTT, E., and others. Charge build-up in ice layers condensing on liquid nitrogen traps, [by] E. Elliott, T. I. Pritchard, M. J. Hampshire and R. D. Romlinson. *Vacuum*, Vol. 19, No. 8, 1969, p. 366. [Observations and explanation.]
- ERSHOV, B. G., and PIKAYEV, A. K. The detection of hyperfine structure in the EPR spectrum of a trapped electron in γ -irradiated alkaline glassy ice at 77° K. *Radiation Effects*, Vol. 2, No. 2, 1970, p. 135-36. [Evidence that electron is localized in a trap formed by protons of water molecules.]
- FERNANDEZ, R., and BARDUHN, A. J. Growth rate of ice crystals. *Desalination*, Vol. 3, No. 3, 1967, p. 330-42. [Measurement in flowing supercooled water. No evidence of kinetic control.]
- GEERING, G. T. The role of dendrites in spherulitic crystallization. *Dissertation Abstracts*, B, Vol. 29, No. 11, 1969, p. 4126-B. [Study of freezing process in glycerol-water solutions. Abstract of Ph.D. thesis, Stanford University, 1968. University Microfilms order no. 69-8183.]
- GOEL, A., and others. Molecular orbital calculations on the structure of "polywater", by A. Goel, A. S. N. Miorthy, and C. N. R. Rao. *Chemical Communications (Journal of the Chemical Society, Section D)*, 1970, No. 7, p. 423-24. [Theoretical calculation to decide most likely structure.]
- GOL'DANSKIY, V. I., and others. Izucheniyе elektronnogo obmena mezhdu ionami Fe^{2+} i Fe^{3+} vo l'du metodom gammarezonansnoy spektroskopii [γ -resonance spectroscopic study of the electron exchange between Fe^{2+} and Fe^{3+} ions in ice]. [By] V. I. Gol'danskiy, R. A. Stukan, A. N. Tolmachev. *Doklady Akademii Nauk SSSR*, Tom 191, No. 2, 1970, p. 380-83. [Deduction of activation energy for the exchange.]
- GOUGH, S. R., and DAVIDSON, D. W. Dielectric behavior of cubic and hexagonal ices at low temperatures. *Journal of Chemical Physics*, Vol. 52, No. 10, 1970, p. 5442-49. [Ice formed from ice II and ice IX near -110°C has longer relaxation time initially.]
- GOUGH, S. R., and others. Dielectric properties of the hydrates of argon and nitrogen, [by] S. R. Gough, E. Whalley and D. W. Davidson. *Canadian Journal of Chemistry*, Vol. 46, No. 10, 1968, p. 1673-81. [Experiments show behaviour similar to that of pure ice but with smaller activation energies and entropies due perhaps to substitutional defects.]
- HOLMES, D. E., and others. Effects of dissolved oxygen on the electron spin resonance signal intensities of trapped hydrogen atoms and some of their reactions in acidic ice matrices, by D. E. Holmes, N. B. Nazhat, and J. J. Weiss. *Journal of Physical Chemistry*, Vol. 74, No. 7, 1970, p. 1622-26.
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- JONES, S. J. X-ray topographic evidence for prismatic dislocations in ice. *Journal of Applied Physics*, Vol. 41, No. 6, 1970, p. 2738-39. [Dislocation loops with Burgers vector parallel to c -axis on basal plane in ice.]
- KAHANE, A., and FAURE, P. K. Study of dynamical model of ice lattice in order to interpret the low-frequency Raman spectrum. (In Wright, G.B., ed. *Light scattering spectra of solids. Proceedings of the international conference on . . . held at New York University, New York, September 3, 4, 5, 6, 1968*. [New York], Springer Verlag New York Inc., 1969, p. 151-55.)
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- KHEYISIN, D. YE., and CHEREPANOV, N. V. Preobrazovaniye formy i peremeshcheniye vozdushnykh vklucheniye vo l'du [Transformation and movement of air inclusions in ice]. *Problemy Arktiki i Antarktiki*, Vyp. 32, 1969, p. 100-05.
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- LATHAM, J., *and SAUNDERS*, C. P. R. Experimental measurements of the collection efficiencies of ice crystals in electric fields. *Quarterly Journal of the Royal Meteorological Society*, Vol. 96, No. 408, 1970, p. 257-65. [Aggregation of small ice crystals on an ice sphere.]
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- NAKAMURA, T., *and JONES*, S. J. Softening effect of dissolved hydrogen chloride in ice crystals. *Scripta Metallurgica*, Vol. 4, No. 2, 1970, p. 123-26. (HCl, like HF, causes softening of ice which is more marked at lower temperatures.)
- NAMIOT, A. YU., *and GORODETSKAYA*, L. YE. Rastvorimost' gazov vo l'du [Solubility of gases in ice]. *Doklady Akademii Nauk SSSR*, Tom 190, No. 3, 1970, p. 604-06. [Measurement of solubility of various gases in ice at high pressures.]
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- PRODI, F., *and others*. Distribution of contaminants in ice grown by accretion, [by] F. Prodi, V. Prodi and G. Fiore. *Journal of Applied Meteorology*, Vol. 9, No. 2, 1970, p. 283-88. [Analysis of ice artificially grown from supercooled droplets of contaminated water and possible implications for hail.]
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- WHALLEY, E. Absorption of light by the sound waves in orientationally disordered crystals. *U.S. Dept. of Commerce. National Bureau of Standards Special Publication* 301, 1969, p. 323-26. [Summary of general theory and application to ice.]
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LAND ICE. GLACIERS. ICE SHELVES

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