

ROGER LeBARON HOOKE

Professor

Born: 3 January 1939 Glen Ridge, New Jersey

### Education

B.A. 1961 Harvard College (Engineering and Applied Physics)  
Ph.D. 1965 California Institute of Technology (Geology, minor Hydraulics)

### Positions

1961-1965 Teaching Assistant, California Institute of Technology  
1965-1969 Assistant Professor, University of Minnesota  
1969-1979 Associate Professor, University of Minnesota  
1972-1973 Research Associate, University of Uppsala, Sweden (Sabbatical Leave)  
1978 Visiting Professor, Institute of Arctic and Alpine Research  
1979-1999 Professor, University of Minnesota  
1980-1981 Guest Researcher, University of Stockholm, Sweden (Sabbatical Leave)  
1981-1995 Associate Director of Research, Tarfala field station, Sweden and Adjunct  
Professor, University of Stockholm  
1983 Visiting scientist, US Geological Survey, Project Office Glaciology, Tacoma, WA  
May 16- June 17  
1988 Consultant (1/4 time) for Glaciology Office, Norwegian Water Resources and  
Energy Administration.  
1990-2000 Adjunct Professor, Department of Geological Sciences and Quaternary Research  
Center, University of Maine  
1992, 3 Consultant (3 weeks) for Glaciology Office, Norwegian Water Resources and  
Energy Administration and the University of Oslo  
1994 Taught Advanced Glaciology course at University of Tromsø, Norway, Nov. 1-12  
1998 Taught advanced glaciology short course for the Geological Survey of Ireland,  
March 18-23.  
2000-present Research Professor, Department of Geological Sciences and Climate Change  
Institute, University of Maine

### Professional Society of Memberships

American Geophysical Union  
Geological Society of American (Fellow)  
Glaciological Society

### Honors and Awards

Bachelor's degree from Harvard granted cum-laude in general studies (the highest honors  
attainable in this field)  
National Science Foundation Fellowship, 1962-1965  
American Men of Science

Wiley Award for Best Paper in *Earth Surface Processes & Landforms* in 1992 (received in 1993)

Award for best paper published in the Canadian Journal of Earth Sciences in 2013.

### Teaching Functions

#### Courses taught at Minnesota

Qtr/Yr	Number	Title	Credits	Enrollment
1972-73	Sabbatical Leave			
F'73	3101	Surficial Geological Processes	5	21
	8259	Res in Geomorphology	2	2
W'74	1001	Intro Physical Geology	5	137
	5255	Glaciology	3	2
	8259	Res in Geomorphology	2	1
S'74	5251	Geomorphology	4	1
F'74	1001	Intro Physical Geology	5	81
	3101	Surficial Geological Processes	5	29
	8258	Seminar in Geomorphology	2	2
W'75	1001	Intro Physical Geology	5	79
	5252	Advanced Geomorphology	3	9
	5255	Glaciology	3	4
	8258	Seminar in Geomorphology	2	1
S'75	5251	Geomorphology	4	10
	8258	Seminar in Geomorphology	5	1
F'75	3101	Surficial Geological Processes	5	44
	8258	Seminar in Geomorphology	3	4
W'76	1001	Intro Physical Geology	5	
	5100	Regional Geology Seminar	2	50?
	5255	Glaciology	3	3
	8259	Res in Geomorphology	3	1
S'76	5251	Geomorphology	4	12
	8259	Res in Geomorphology	3	1
F'76	3101	Surficial Geological Processes	5	38

W'77	1001	Intro Physical Geology	5	258
	5252	Advanced Geomorphology	3	12
	5255	Glaciology	3	4
S'77	8258	Seminar in Geomorphology	1	5
F'77	3101	Surficial Geological Processes	5	32
	5251	Geomorphology	4	18
W'78	Single Quarter Leave			
S'78	5100	Regional Geology Seminar	3	15
	8258	Seminar in Geomorphology	1	3
F'78	3101	Surficial Geological Processes	5	49
	5251	Geomorphology	4	15
W'79	5253	Sediment Transport Mechanics	3	5
	5255	Glaciology	4	4
	8098	Seminar	2	
S'79	3099	Problems in Geology/Geophysics	3	26
F'79	3101	Surficial Geological Processes	5	
	5251	Geomorphology	4	15
W'80	5255	Glaciology	4	5
1980-81	Sabbatical Leave, Stockholm, Sweden			
F'81	5251	Geomorphology	4	23
W'82	3101	Surficial Geological Processes	5	47
	5255	Glaciology	4	1
F'82	5251	Geomorphology	4	9
W'83	5255	Glaciology	4	5
	8098	Seminar	2	3
F'83	5251	Geomorphology	4	17
W'84	5255	Glaciology	4	2
	8098	Seminar	2	4?
F'84	5251	Geomorphology	4	9

W'85	5255	Glaciology	4	3
	8098	Seminar	2	4
F'85	5251	Geomorphology	4	13
	1001	Intro Geology	4	195
W'86	5252	Arid Regions Geomorphology	3	10
	8098	Seminar	2	4
F'86	5251	Geomorphology	4	13
W'87	5255	Glaciology	4	4
	8098	Seminar	2	4
F'87	5251	Geomorphology	4	12
Qtr/Yr	Number	Title	Credits	Enrollment
W'88-F'89	Sabbatical Leave, Oslo, Norway			
W'89	5252	Regional Geomorphology	3	9
S'89	5255	Glaciology	4	4
	8098	Seminar	2	10
F'89	5251	Geomorphology	3	11
W'90	5252	Regional Geomorphology	3	6
S'90	5255	Glaciology	4	4
	5255	Regional Geomorphology (Hawaii)	2	8
	8098	Seminar	2	8
F'90	Single Quarter Leave			
W'91	5252	Regional Geomorphology	3	8
S'91	5251	Geomorphology	4	11
	8098	Seminar	2	1
66% time since 1991-1992 academic year				
W'92	8098	Seminar	2	2
S'92	5251	Geomorphology	4	12

S'92	5252	Regional Geomorphology	3	5
W'93	5252	Regional Geomorphology	3	5
	5255	Glaciology	4	3
S'93	5252	Regional Geomorphology	3	6
	5251	Geomorphology	4	13
W'94	5252	Regional Geomorphology	3	9
	5255	Glaciology	4	3
S'94	5251	Geomorphology	4	12
	8098	Seminar	1	
W'95	5255	Glaciology	4	2
	8098	Seminar	1	3
S'95	5251	Geomorphology	4	13
	5252	Regional Geomorphology	3	8
W'96	5252	Regional Geomorphology	3	4
	5255	Glaciology	4	2
S'96	5251	Geomorphology	4	9
	8098	Seminar	2	1
W'97	3004	Human Geomorphology	3	7
	5255	Glaciology	4	2
S'98	5251	Geomorphology	4	6
	1001	Introductory Geology	4	135

## Courses taught at Maine

Qtr/Yr	Number	Title	Credit	Enrollment
F'99	GES 601	Seminar in Geomorphology	1	1 registered 4 others participated
F'00	GES 601	Seminar in Geomorphology	2	4
F'01	GES 552	Geomorphology	2	5
F'02	GES 602	Seminar in Geomorphology	2	5

Graduate Theses Completed, Minnesota

*Doctoral*

Baker, R., 1977. The influence of ice crystal size and dispersed solid inclusions on the creep of ice.

Brugger, K., 1992. A comparative study of the response of Rabot's Glaciär and Storglaciären to recent climatic change.

Cohen, D., 1998. Rheology of basal ice at Engabreen, Norway.

Cutler, P., 1997, Water input and subglacial tunnel evolution at Storglaciären, Northern Sweden

Hanson, B., 1984. Climate sensitivity of a numerical model of ice-sheet dynamics. (R. Skaggs, co-advisor)

Holmlund, P., 1988, Studies of the drainage and the response to climatic change of Mikkaglaciären and Storglaciären. (University of Stockholm, where I was adjunct professor).

Iverson, N.R., 1989. Theoretical and experimental analyses of glacial abrasion and quarrying

Jansson, P., 1993. Interpretation of short-term variations in ice dynamics, Storglaciären, Sweden.

Kohler, J., 1992. Glacial Hydrology of Storglaciären, northern Sweden.

Mooers, H., 1988, Quaternary history and ice dynamics of the late Wisconsin Rainy and Superior Lobes, Central Minnesota (H. Wright, co-advisor)

Pizzuto, J., 1982. The effects of sediment type on the cross-sectional shape of straight rivers.

Rohrer, W., 1982. Migration of meanders in alluvial rivers.

*Masters*

Catania, G., A physical model of pressurized flow over an unconsolidated bed: Implications for subglacial braided channels.

Dahlin, B., 1974. A contribution to the study of meandering.

Regine Hock, 1991. (University of Freiburg, Germany) Aspects of the internal drainage system of Storglaciären, Sweden, as indicated by dye-trace studies

Patterson, C., 1989. Glaciological variables in drumlin formation

Zimmerer, S., 1987. A study of the englacial and subglacial hydrology of Storglaciären, northern Sweden.

### Service Functions

#### Professional

American Geophysical Union Committee on Snow and Ice	1974-1975
Committee on Glaciology, Polar Research Board, National Research Council	1976-1980
Ross Ice Shelf Project Evaluation Committee	1977
Editorial Board, Earth Surface Processes and Landforms	1978-1989
Elected Member of the Council, International Glaciological Society	1986-89
Co-opted member of the Council, International Glaciological Society	1991
Chief Scientific Editor, International Glaciological Society Symposium, Lanzhou, China	1991-92
Committee to Review the Glen Canyon Environmental Studies (National Academy of Sciences, National Research Council, Washington D.C.)	June 21, 1991
Scientific Editor, Journal of Glaciology	1992-2001

Manuscript Reviews for: (number in parentheses indicates number of reviews: 1973 - 5/03)

Arctic and Alpine Research (3)  
 Arctic Research Consortium (1)  
 American Journal of Science (2)  
 Annals of Glaciology (1)  
 Canadian Journal of Earth Sciences (2)  
 Boreas (3)  
 Cold Regions Science and Technology (1)  
 Earth and Planetary Science Letters (1)  
 Earth Surface Processes and Landforms (13)  
 Geografiska Annaler (7)  
 Geological Society of America Bulletin (7)  
 Geophysical Research Letters (2)  
 Geology (5)  
 Greenland Commission for Scientific Research (1)  
 IUGG General Assembly, Vancouver (1)  
 Journal of Sedimentary Petrology  
 Journal of Geology (6)  
 Journal of Fluid Mechanics (1)

Journal of Glaciology (32) [Does not include 38 (through MS 97-013 inclusive) papers handled in my capacity as scientific editor for the *Journal*. I read and commented on all these papers at least once, as well as soliciting outside reviews]

Journal of Geophysical Research (8)

Journal of Mathematical Geology (1)

Maine Department of Conservation (2)

Nature (2)

New Zealand Ministry of Works (1)

Polar Geography (1)

Polar Research (Norsk Polarinstitutt) (2)

Quaternary Research (2)

Sedimentology (2)

Society of Economic Paleontologists and Mineralogists (3)

United States Geological Survey Professional Paper (1)

Proposal Reviews for: (number in parenthesis indicates number of reviews: 1984 – 5/03)

Australian Research Council (1)

Department of Science and Technology (Australia) (2)

ETH, Zürich (1)

National Science Foundation (67)

NATO Scientific Affairs Division (2)

Natural Environmental Research Council (England) (16)

Petroleum Research Fund (5)

Research Corporation (1)

U.S. Army Research Office, Geosciences Division (1)

#### NSF Panels

Division of Polar Programs Antarctic Glaciology panel, September 15-16, 1998

Division of Polar Programs Interdisciplinary panel (Glaciology, Geology, and Geophysics), September 16-17, 1998

#### Document Reviews

National Research Council (USA) report: Alluvial Fan Flooding (200 pp).

National Environmental Research Council (UK): Water Storage, drainage evolution and water quality in alpine glacial environments (64 pp).

Glacier surging and fast flow ( ) pp)

#### External Examiner

Russell-Head, D.S., 1979, Ice sheet flow from borehole and laboratory studies: M.Sc.

Thesis presented to the University of Melbourne, Australia

Gao, X-Q, 1989, Laboratory studies of the development of anisotropic crystal structure and the flow properties of ice: Ph.D. Thesis presented to the University of Melbourne, Australia.

## Departmental

Class A (Heavy time commitment)	
Program Review Committee	1975-1976
Graduate Studies Committee	1977-1991

## Class B (Moderate time commitment)

Seminar Committee	1966-1967, 1974-1975
Committee on Future Faculty Positions	1976-1977
Editor of Newsletter	1984-1986
Committee to review performance of chairman	1988 (June)
Awards Committee	1990-1992

## Class C (Light time commitment)

Library Committee	1974-1975
Sedimentology Search Committee	1974-1975
Structural Geology Search Committee	1984-1985

## University

## Class B

Graduate School Fellowship Committee	1997
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## Class C

College English Committee	1966-1969
Student Personnel Council	1969-1972
All College Council	1969-1972
Natural Sciences Divisional Council	1969-1972
OIP Small Grants Program Screening Committee	1980
Physical Sciences Policy and Review Committee	1990-1991

## Public

Consultant for Minnesota Zoological Gardens	1974-1975
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Consultant for Norwegian Electricity Board, Oslo, Norway	
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Water flow through and under glaciers	1984-1988
Austdalsbreen project	1988

Leader of merit badge class for Boy Scouts of America Troop 144	Nov.-Dec. 1992 Oct.-Nov. 1993
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Have given a public lecture and led two ½ day field trips on the geology of Deer Isle, ME, annually. Also prepared a ca 20 page pamphlet on the Geology of Deer Isle for lay persons	1999-present
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## Publications

### **Books**

1. Hooke, R. LeB., 1998, *Principles of Glacier Mechanics*, Prentice Hall, 248 p.
2. Hooke, R. LeB., 2005, *Principles of Glacier Mechanics*, 2<sup>nd</sup> ed, Cambridge University Press, 429 p

### **Journal Articles**

1. Hooke, R. LeB., 1967. Processes on arid-region alluvial fans. *Journal of Geology*, v. **75**, p. 438-460.
2. Hooke, R. LeB., 1968. Laboratory study of the influence of granules on flow over a sand bed. *Geological Society of America Bulletin*, v. **79**, p. 495-500.
3. Hooke, R. LeB., 1968. Model geology: laboratory and prototype streams: a discussion. *Geological Society of America Bulletin*, v. **79**, p. 391-394.
4. Hooke, R. LeB., 1968. Steady-state relationships on arid-region alluvial fans in closed basins. *American Journal of Science*, v. **266**, p. 609-629.
5. Hooke, R. LeB., Yang, H-Y. and Weiblen, P.W., 1969. Desert varnish: an electron probe study. *Journal of Geology*, v. **77**, p. 275-288.
6. Hooke, R. LeB., 1968. Discussion of paper by R.A. Souchez, The formation of shear moraines: an example from South Victoria Land, Antarctica. *Journal of Glaciology*, v. **7**, p. 351-352.
7. Hooke, R. LeB., 1969. Crystal shape in polar glaciers and the philosophy of ice fabric diagrams. *Journal of Glaciology*, v. **8**(53), p. 324-326.
8. Hooke, R. LeB., 1970. Morphology of the ice-sheet margin near Thule, Greenland. *Journal of Glaciology*, v. **9**, No. 57, p. 303-324.
9. Hooke, R. LeB., 1970. Discussion of "Sediment measurement techniques: A. Fluvial Sediment." *Journal of the Hydraulics Division, American Society of Civil Engineers*, v. **96**, p. 1073-1074.
10. Hooke, R. LeB., 1972. Geomorphic evidence for late-Wisconsin and Holocene tectonic deformation, Death Valley, California. *Geological Society of America Bulletin*, v. **83**, p. 2073-2098.
11. Hooke, R. LeB., Dahlin, B.B. and Kauper, M.T., 1972. Creep of ice containing dispersed fine sand. *Journal of Glaciology*, v. **11**, p. 327-336.

12. Hooke, R. LeB., 1973. Structure and flow in the margin of the Barnes Ice Cap, Baffin Island, N.W.T., Canada. *Journal of Glaciology*, v. 12, No. 66, p. 423-438.
13. Hooke, R. LeB., 1973. Flow near the margin of the Barnes Ice Cap, and the development of ice-cored moraines. *Geol. Soc. Amer. Bull.*, v. 84, p. 3929-3948.
14. Hooke, R. LeB., 1974. Distribution of sediment and shear stress in a meander bend. Uppsala Universitet Naturgeografiska Institutionen Rapport No. 30, 58 pp. (Also published in *Jour. Geol.*, v. 83, p. 543-565.)
15. Hooke, R. LeB., 1975. University of Minnesota Ice Drill. in Splettstoesser, J., (ed.) Ice-Core Drilling. Proceedings of a Symposium, University of Nebraska, Lincoln, 28-30 August 1974, University of Nebraska Press, p. 47-57.
16. Hooke, R. LeB., 1976. Pleistocene ice at the base of the Barnes Ice Cap, Baffin Island, N.W.T., Canada. *Journal of Glaciology*, v. 17, No. 75, p. 49-60.
17. Schlager, W., Hooke, R. LeB. and James, N.P., 1976. Episodic erosion and deposition in the Tongue of the Ocean (Bahamas). *Geol. Soc. Amer. Bull.*, v. 87, p. 1115-1118.
18. Hooke, R. LeB., 1976. Near-surface temperatures in the superimposed ice zone and lower part of the soaked zone of polar ice sheets. *Jour. Glac.*, v. 16, p. 302-304.
19. Hooke, R. LeB. 1977. Basal temperatures in polar ice sheets: a qualitative review. *Quaternary Research*, v. 7, p. 1-13.
20. Hooke, R. LeB. and Rohrer, W.L., 1977. Relative erodibility of source area rock types as determined from second order variations in alluvial-fan size. *Geol. Soc. Amer. Bull.*, v. 88, p. 1177-1187.
21. Hooke, R. LeB. and Hudleston, P.J., 1978. Origin of foliation in glaciers. *Jour. Glac.*, v. 20, No. 83, p. 285-299.
22. Hooke, R. LeB. and Koci, B.R., 1978. Temperature measurements on the Barnes Ice Cap, Baffin Island, Canada, and on Sukkertoppen Iskappe, Greenland. *Jour. Glac.*, v. 20 No. 83, p. 441-443.
23. Hooke, R. LeB. and Chase, C.G., 1978. Bed topography in a meander: a discussion. *Earth Sur. Proc.*, v. 3, p. 421-422.
24. Hooke, R. LeB. and Rohrer, W.L., 1979. Geometry of alluvial fans: effect of discharge and sediment size. *Earth Surface Processes*, v. 4, p. 147-166.
25. Hooke, R. LeB. and Hudleston, P.J., 1979. Origin of foliation in glaciers: reply to comments by M.J. Hambrey (Letter). *Jour. Glac.*, v. 22, p. 559.

26. Hooke, R. LeB., Raymond, C.F., Hotchkiss, R.L. and Gustafson, R.J., 1980. Calculations of velocity and temperature in a polar glacier using the finite element method. *Jour. Glac.*, v. 24, p. 131-146.
27. Hooke, R. LeB. and Schlager, W., 1980. Geomorphic evolution of the Tongue of the Ocean and the Providence Channels, Bahamas. *Marine Geol.*, v. 35, p. 343-366.
28. Hooke, R. LeB. and Hudleston, P.J., 1980. Ice fabrics in a vertical flow plane, Barnes Ice Cap, Canada. *Jour. Glac.*, v. 25, p. 195-214.
29. Hudleston, P.J. and Hooke, R. LeB., 1980. Cumulative deformation in the Barnes Ice Cap and implications for the development of foliation. *Tectonophysics*, v. 66, p. 127-146.
30. Moran, S.R., Clayton, L., Hooke, R. LeB., Fenton, M.M. and Andriashek, L.D., 1980. Glacier bed landforms of the prairie region of North America. *Jour. Glac.*, v. 25, p. 457-476.
31. Hooke, R. LeB., Alexander, A.C. and Gustafson, R.J., 1980. Temperature profiles in the Barnes Ice Cap, Baffin Island, Canada and heat flux from the subglacial terrane. *Can. Jour. Earth Sci.*, v. 17, p. 1174-1188.
32. Hooke, R. LeB. and others, 1980. Mechanical properties of polycrystalline ice: an assessment of current knowledge and priorities for research. Report of the International Commission on Snow and Ice/National Science Foundation Working Group on Ice Mechanics by Mellor, M., chairman; Hooke, R. LeB., secretary; Jones, S.J., Martin, R.T., Meier, M.F. and Weertman, J., *Cold Regions Science and Technology*, v. 3, p. 263-275.
33. Hooke, R. LeB., 1980. Shear-stress distribution in stable channel bends: discussion. *Jour. Hy. Div., Amer. Soc. Civil Engineers*, v. 106, p. 1271-1272.
34. Hooke, R. LeB., Gustafson, R.J., Raymond, C.F., and Hotchkiss, R.L., 1980. Computer programs for calculating temperatures and velocities in polar glaciers using the finite-element method. University of Minnesota Geomorphology Laboratory Report UM-GMPH-2, 95p.
35. Hooke, R. LeB., 1981. Flow law of polycrystalline ice: comparison of theoretical predictions, laboratory data, and field measurements. *Reviews of Geophysics and Space Physics*, v. 19, p. 664-672.
36. Hooke, R. LeB. and Hudleston, P.J., 1981. Ice fabrics from a borehole at the top of the south dome, Barnes Ice Cap, Baffin Island. *Geol. Soc. Amer. Bull.*, v. 92, p. 274-281.
37. Hooke, R. LeB., 1981. (Contributions to General Discussion at Symposium on Processes of Glacier Erosion and Sedimentation, Geilo, Norway, 25-30 August, 1980): *Annals of Glaciology*, v. 2, p. 187.

38. Brzozowski, J., and Hooke, R. LeB., 1981. Seasonal variations in surface velocity of the lower part of Storglaciären, Kebnekaise, Sweden. *Geog. Annaler*, v. 63, Ser. A, p. 233-240.
39. Hooke, R. LeB., and Clausen, H.B., 1982. Wisconsin and Holocene  $^{18}\text{O}$  variations - Barnes Ice Cap, Canada. *Geol. Soc. Amer. Bull.*, v. 93, p. 784-789.
40. Holmlund, P., and Hooke, R. LeB., 1983. High water pressure events in moulins, Storglaciären, Sweden. *Geografiska Annaler*, v. 65A, no. 1/2, p. 19-25.
41. Hooke, R. LeB., Brzozowski, J., and Bronge, C., 1983. Seasonal variations in surface velocity, Storglaciären, Sweden. *Geografiska Annaler*, v. 65, Ser. A, no. 3-4, p. 263-277.
42. Hooke, R. LeB., Gould, J.E., and Brzozowski, J., 1983. Near-surface temperatures near and below the equilibrium line on polar and subpolar glaciers. *Zeitschrift für Gletscherkunde und Glazialgeologie*, Bd 19, Heft 1, s. 1-25.
43. Hooke, R. LeB., 1984. On the role of mechanical energy in maintaining subglacial water conduits at atmospheric pressure. *Journal of Glaciology*, v. 30, no. 105, p. 180-187.
44. Hooke, R. LeB., Wold, B., and Hagen, J.O., 1985. Subglacial hydrology and sediment transport at Bondhusbreen, southwest Norway. *Geol. Soc. Amer. Bull.*, v. 96, no. 3, p. 388-397.
45. Hooke, R. LeB., and Iverson, N.R., 1985. Experimental study of ice flow around a bump: comparison with theory. *Geografiska Annaler*, v. 67, p. 187-197.
46. Hooke, R. LeB., and Hanson, B., 1986. Borehole deformation experiments, Barnes Ice Cap, Canada. *Cold Regions Science and Technology*, v. 12, p. 261-276.
47. Östling, M., and Hooke, R. LeB., 1986. Water storage in Storglaciären, Kebnekaise, Sweden. *Geografiska Annaler*, v. 68A, no. 4, p. 279-290.
48. Hooke, R. LeB., Johnson, G.W., Brugger, K.A., Hanson, B., and Holdsworth, G., 1987. Changes in velocity and surface profile along a flowline on Barnes Ice Cap, 1970-1984, *Can. J. Earth Sci.*, v. 24, p. 1550-1561.
49. Hooke, R. LeB., 1987. Chapter 16, "Mass movement on semi-arid environments and the morphology alluvial fans." in Anderson, M.G., and Richards, K.S., (eds) *Slope Stability, Geotechnical Engineering, and Geomorphology*, J. Wiley and Sons, England, p. 505-529.
50. Hooke, R. LeB., Holmlund, P., and Iverson, N.R., 1987. Extrusion flow demonstrated by borehole deformation measurements over a riegel, Storglaciären, Sweden. *Journal of Glaciology*, v. 33, no. 113, p. 72-78.
51. Brand, G., Pohjola, V., and Hooke, R. LeB., 1987. Existence of a layer of deformable till at the base of Storglaciären, Sweden, revealed by electrical resistivity measurements. *Journal of Glaciology*, v. 33, no. 115, p. 311-314.

52. Seaberg, S.Z., Seaberg, J.Z., and Hooke, R. LeB., 1988. Character of the englacial and subglacial drainage system in the lower part of the ablation area of Storglaciären, Sweden, as revealed by dye trace studies. *Journal of Glaciology*, v. 34, no. 117, p. 217-227.
53. Hooke, R. LeB., Miller, S.B., and Kohler, J., 1988. Character of the englacial and subglacial drainage system in the upper part of the ablation area of Storglaciären, Sweden. *Journal of Glaciology*, v. 34, no. 117, p. 228-231.
54. Hooke, R. LeB., Gao, X.Q., Jacka, T.H., and Souchez, R.A., 1988, Rheological contrast between Pleistocene and Holocene ice in Barnes Ice Cap, Baffin Island, N.W.T., Canada: a new interpretation. *Journal of Glaciology*, v. 34, no. 118, p. 364-365.
55. Hooke, R. LeB., 1989. Englacial and subglacial hydrology: A qualitative review. *Arctic and Alpine Research*, v. 21, no. 3, p. 221-233.
56. Jansson, P. and Hooke, R. LeB., 1989. Short-term variations in strain and surface tilt on Storglaciären, Kebnekaise, northern Sweden. *Journal of Glaciology*, v. 35, no. 120, p. 201-208.
57. Hooke, R. LeB., Calla, P., Holmlund, P., Nilsson, M., and Stroeven, A., 1989. A three-year record of seasonal variations in surface velocity, Storglaciären, Sweden. *Journal of Glaciology*, v. 35, no. 120, p. 235-247.
58. Hooke, R. LeB., Laumann, T., and Kennett, I.M., 1989. Austdalsbreen, Norway: Expected reaction to a 40 m increase in water level in the lake into which the glacier calves. *Cold Regions Science and Technology*, v. 17, p. 113-126.
59. Hooke, R. LeB., Laumann, T., and Kohler, J., 1990. Subglacial water pressures and the shape of subglacial conduits. *Journal of Glaciology*, v. 36, no. 122, p. 67-71.
60. Hooke, R. LeB., 1990, Discussion of "Use of multiparameter relative-age methods for age estimation and correlation of alluvial fan surfaces on a desert Piedmont, Eastern Mojave Desert, California: *Quaternary Research*, v. 34, p. 262.
61. Hooke, R. LeB., 1991. Positive feedbacks associated with erosion of glacial cirques and overdeepenings. *Geol. Soc. Amer. Bulletin*, v. 103, p. 1104-1108.
62. Hooke, R. LeB. and Dorn, R.T., 1992. Segmentation of alluvial fans in Death Valley, California: New insights from surface exposure dating. *Earth Surface Processes and Landforms*, v. 17, p. 557-574.
63. Hooke, R. LeB., Pohjola, V.A., Jansson, P., and Kohler, J., 1992. "Intraseasonal changes in deformation profiles revealed by borehole studies, Storglaciären, Sweden.", *Journal of Glaciology*, v. 38, No. 130, p. 348-358.

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*Papers in press*

*Papers in advanced stages of preparation (manuscripts exist)*

120. de Fleurian, B., Werder, M.A., Beyer, S., Brinkerhoff, D.J., Delaney, I., Dow, C.F., Downs, J., Gagliardini, O., Hoffman, M.J., Hooke, R.LeB., Seguinot, J., Sommers, A., 2018?, SHMIP The Subglacial Hydrology Model Intercomparison Project. *Journal of Glaciology*, v.
121. Hooke, R. LeB., 20xx, Will we collapse?
122. Hooke, R. LeB., 20xx, The Katahdin esker system, Maine:

*Papers Presented at Scientific Meetings* (since Sept. 1983)

1983	Dec	Research program on Storglaciären, northern Sweden	Northwest Glaciologists meeting, Seattle
		Changes in flow of Barnes Ice Cap from 1970 to 1982	Northwest Glaciologists, meeting, Seattle
1984	Dec	Seasonal variations in surface velocity, Storglaciären	Northwest Glaciologists, meeting, Tacoma
1985	Sept	Seasonal and spatial in variations surface velocity, Storglaciären Sweden	Symposium on Hydraulic Effects at the Glacier Bed, Zurich, Switzerland
1986	June	Character of the southern part of the Laurentide Ice Sheet in the midcontinent area: Problems and possible avenues for Research (Invited). (with H. Mooers)	AMQUA meeting, Champaign, Ill.
1986	Dec	Recent research on Storglaciären Sweden	Northwest Glaciologists meeting, Tacoma

1987	Dec	Water flow through a glacier in an overdeepening	Northwest Glaciologists meeting, Tacoma
1988	Feb	Water flow through a glacier situated in an overdeepening: cause or consequence of a till layer at the base	Symposium on Ice Dynamics, Hobart, Australia
1988	Dec	Austdalsbreen Project	Northwest Glaciologists Meeting, Boulder, CO
1990	Dec	Calving mechanics	Northwest Glaciologists Meeting, Boulder, CO
1991	Dec	Correlation between water pressure and short term velocities	Northwest Glaciologists Meeting, Boulder, CO
1991	Dec	Multi-branched arborescent channel networks beneath Storglaciären	Northwest Glaciologists Meeting, Tacoma, WA
1992	Apr	Drainage through an overdeepening	Midwest Glaciologists Meeting, Minneapolis, MN
1993	Dec	Role of melting in calving	Northwest Glaciologists Meeting, Seattle, WA
1994	Apr	Water inputs and flow of Storglaciären (Brian Hanson co-author and presenter)	Association of American Geographers
1994	Dec	Role of grain fracture in the size distribution of subglacial tills	Northwest Glaciologists Meeting, Tacoma, WA
1996	Oct	Shoreline features in the Mojave Desert, California, possibly from Lake Manly in Death Valley, suggest tectonic warping	Geological Society of America Annual Meeting, Denver
2001	June 25	Time constant for equilibration of erosion with tectonic uplift	International Meeting, Edinburgh, Scotland
2001	Nov 8	Irreversible widening of a small estuary: Why?	GSA Annual Meeting, Boston (Accepted and printed, but not presented due to medical emergency)
2005	April 1	Thermal conditions at the bed of the Laurentide Ice Sheet in Maine during deglaciation: Implications for landforms	Midwest Glaciologists Durham, NH

2005	April 12	Where was the Southern End of Lake Manly during the Blackwelder Stand?	Workshop on Late Cenozoic drainage history of the southwestern great basin and lower Colorado River region: Geologic and biotic perspectives
2005	August	Thermal conditions at the bed of the Laurentide Ice Sheet in Maine during deglaciation: Implications for landforms	International Conference on Glacial Sedimentary Processes and Products, Aberystwyth, Wales

*Invited Lectures Since 1990*

1990	Nov	Origin of overdeepenings in glacial valleys	Univ. of Maine
1990	Dec	Morphology of alluvial fans in Death Valley: New insights from surface exposure dating	Univ. of Maine
1991	Nov	A geomorphologist's observations on a trip from Beijing to Kathmandu	Univ. of Maine
1991	Dec 16	A geomorphologist's observations on a trip from Beijing to Kathmandu	Univ. of Stockholm
1991	Dec 17	Drainage within and beneath Storglaciären: New Insights	Univ. of Oslo
1992	June	A geomorphologist's observations on a trip from Beijing to Kathmandu	Univ. of Minnesota, Geography
1992	Nov 11	The premier geomorphic agent	Univ. of Maine
1992	Nov 12	Drainage in and beneath Storglaciären: new insights	Univ. of Maine
1993	Dec	A geomorphologist's observation on a trip from Beijing to Kathmandu	Univ. of Delaware Geography
1993	Dec	Evacuation of sediment from a fjord	Univ. of Maine Geology
1994	Sept 28	Water flow through and beneath glaciers: Implications for the origin of some glacial landforms	Rutgers University

1994	Oct 1	Water flow through and beneath glaciers: Implications for the origin of some glacial landforms	Univ. of Delaware Geography
1994	Oct 20	Water flow through and beneath glaciers: Implications for the origin of some glacial landforms	Univ. of Maine Geology
1995	Jan 23	Water flow through and beneath glaciers: Implications for the origin of some glacial landforms	Univ. of Vermont Geology
1995	Feb 21	Quantifying the role of humans as geomorphic agents	AAAS Meeting, Atlanta, GA
1995	Dec 6	Till Rheology	University of Maine Geology
1996	Mar 6	Water flow through and beneath glaciers: Implications for the origin of some glacial landforms	UMN - Morris
1997	Oct 15	What controlled the level of Lake Manly in Death Valley	U-Maine
1998	Feb 14	Human Impact on the Landscape: Changes Through Time	AAAS-Philadelphia
1999	Mar 8-10	Series of 5 lectures delivered as "Visiting Professor"	University of Wisconsin at River Falls
1999	Oct	Human Impact on the Landscape: Changes Through Time	GSA Annual Meeting, Denver
2001	Mar	Predictive modeling in geomorphology: An oxymoron? (Invited keynote address)	GSA NE Section meeting, Burlington, VT
2002	Nov	The Katahdin Esker: Simultaneous or sequential formation?	UMe Brown Bag
2004	Nov	Earth moving can be dangerous to our health (invited paper)	GSA Annual Meeting, Denver, Pardee Symposium
2007	June	Thermal conditions at the bed of the Laurentide Ice Sheet in Maine during deglaciation: Implications for Esker Formation	Canadian Quaternary Association Meeting

2007	Oct	Quantitative analysis of eskers (invited paper)	GSA Annual Meeting, Denver
2008	July 2	Unintended consequences of human's enormous ability to move earth (invited)	Madrid, Spain
2008	Oct 9	Unintended consequences of human's enormous ability to move earth (invited)	GSA Annual Meeting, Houston
2008	Nov 8	Unintended consequences of human's enormous ability to move earth (invited)	Boston University
2011	Aug 30	Water: the key to landforms of the subglacial environment	CANQUA, GeoHydro 2011

### Book Reviews

Hooke, R. LeB., 1977, Review of *Random Processes in Geology*, Springer Verlag, 1976, Review published in *Earth Surface Processes*, v. 2, no. 4, p. 443.

Hooke, R. LeB., 1985, Review of Robin, G. de!., (ed), 1983, *The climate Record in Polar Ice Sheets*, Cambridge Univ. Press, Review published in *Earth-Science Reviews*, v. 22, p. 246-7.

Hooke, R. LeB., 2011, Review of *Glossary of Glacier Mass Balance and Related Terms* by the International Association of Cryospheric Sciences Working Group on Mass balance terminology and methods. Review in press in the *Journal of Glaciology*

### PUBLICATIONS OF THE UNIVERSITY OF MINNESOTA GLACIOLOGICAL RESEARCH GROUP ON WHICH I AM NOT A CO-AUTHOR.

(These papers were an outgrowth of the Barnes Ice Cap Project, which I directed, and related glaciological activities.)

1. Parker, G., 1975. Meandering of supraglacial melt streams. *Water Resources Res.*, v. 11, p. 551-552 (plus microfiche).
2. Hudleston, P.J., 1976. Recumbent folding in the base of the Barnes Ice Cap, Baffin Island, Northwest Territories, Canada, *Geol. Soc. Am. Bull.*, v. 87, p. 1684-1692.
3. Hudleston, P.J., 1977. Similar folds, recumbent folds, and gravity tectonics in ice and rock. *Jour. Geol.*, v. 85, p. 113-122.

4. Hudleston, P.J., 1977. Progressive deformation and development of fabric across zones of shear in glacial ice. in Saxena and Bhattacharji (eds.) Energetics of Geological Processes, Festschrift for Hans Ramberg, Springer Verlag, p. 121-150.
5. Baker, R.W., 1978. The influence of ice crystal size on creep of ice. *Jour. Glaciology*, v. 21, no. 85, p. 485-500.
6. Baker, R.W. and Gerberich, W.W. 1980. The effect of crystal size and dispersed solid inclusions on the activation energy for creep of ice. *Jour. Glaciology*, v. 24, no. 90, p. 179-194.
7. Hudleston, P.J., 1980. The progressive development of inhomogeneous shear and crystallographic fabric in glacial ice. *J. Structural Geology*, v. 2, no. 1/2, p. 189-196.

## Research

### Research Interests

Hooke is interested in a variety of geomorphological and glaciological problems. He developed an early and continuing interest in deposition on alluvial fans, and playas in arid regions, and in the affect of recent tectonic movements on depositional patterns on fans. In the general area of fluvial geomorphology he has been involved in research on the mechanics of flow in meander bends. His more recent work is in the field of glacial geology and glaciology. In this area he has studied the mechanics of moraine formation at the margins of polar ice sheets, and the temperature distribution and mechanics of deformation in such ice sheets. He has also carried out experimental and field work on processes at the glacier-rock interface. Relatively recent papers have been on the formation of eskers and drumlins, and on the genesis of indicator trains in till. Over the past two decades he has also published papers on the impact of humans on the landscape and on the limited capacity of Earth to sustainably support our present population of humans with a comfortable standard of living.

### Research Support While at Minnesota

Year	Project Title	Granting Agency	Amount
1965	Funds for setting up geomorphology laboratory	Univ. Minn. Grad. School	\$2,000
1967	Relationship between alluvial fan morphology and recent tectonic history in Death Valley, California	NSF	\$28,600 for 3 years
1968	Glaciological studies on the Greenland Ice Sheet	Univ. Minn. Grad. School	\$2,208

1968	Factors controlling the form of the ice cap margin near Thule, Greenland	NSF, Arctic Inst.	\$5,000
1970	Glaciological studies on the Barnes Ice Cap	Univ. Minn. Grad. School	\$2,560
1970	Flow law of polar ice and flow field at the margin of the Barnes Ice Cap, Baffin Island, Canada	NSF	\$26,900 for 2 years
1971	Shear stress and sediment distribution in a meander bend	NSF	\$37,900 for 2 years
1972	Continued glaciological studies on the Barnes Ice Cap	Univ. Minn. Grad. School	\$4,000
1972	Continued glaciological studies on the Barnes Ice Cap, Baffin Island, Canada	NSF	\$20,000
1973	Continued glaciological studies on the Barnes Ice Cap, Baffin Island, Canada (with P. Hudleston)	NSF	\$27,000
1973	Deformation processes in dirty ice	Univ. Minn. Grad. School	\$2,400
1974	Continued glaciological studies on the Barnes Ice Cap, Baffin Island, Canada (with P. Hudleston)	NSF	\$60,000 for 2 years
1975	Studies of arid-region alluvial fans and playas	Univ. Minn. Grad. School	\$3,000
1976	Deformation, temperature, and fabric studies along a flow line, Barnes Ice Cap, Baffin Island, Canada (with R. Hotchkiss)	NSF	\$86,400 for 2 years
1976	Temperature and deformation studies along a flow line near the margin of the Greenland Ice Sheet near Sondre Stromfjord	Univ. Minn. Grad. School, McMillan Fund	\$6,000
1976	Studies of meandering rivers and arid region alluvial fans	Univ. Minn. Grad. School	\$300
1977	Migration of meanders in alluvial rivers (with R. Gustafson)	NSF	\$25,000 for 2 years

1977	Continued study of deformation, temperature, and fabric along a flow line, Barnes Ice Cap, Baffin Island, Canada (with R. Gustafson and R. Hotchkiss)	NSF	\$100,000 for 2 years
1978	Sampler for use on DSRV Alvin in Tongue of the Ocean, Bahamas	Univ. Minn. Grad. School	\$2,000
1979	Laboratory study of mechanics of glacier and ice-sheet sliding	NSF	\$50,000 for 2 years
1979	Support for workshop to review research on ice rheology	NSF	\$4,000 for 6 months
1980	Deformation, temperature, and fabric studies along a flow line, Barnes Ice Cap, Baffin Island, Canada (with R. Gustafson and R. Hotchkiss)	NSF	\$12,000 supplement
1980	U-series dating of late Wisconsin and Holocene tectonic deformation, Death Valley, CA (with R. Lively and M. Walton)	NSF	\$9,000 for 2 years
1981	Effect of subglacial water pressure on sliding speed, Storglaciären, Kebnekaise, Sweden (with V. Schytt and J. Brzozowski)	Swedish Natural Science Research Council	\$15,000 for one year
1981	Response of a glacier to changes in mass balance (with W. Karlén)	Carl Mannerfelt's Fund, Sweden	\$1,500 for one year
1981	Studies of glacier sliding and ice rheology	NSF	\$68,170 for 2 years
1981	Glaciological research at Tarfala, Sweden	Swedish Natural Science Research Council	\$12,000 for 1 year
1981	Relation between roughness of a glacier bed and sliding velocity (G. Johnson, Co-P.I.)	Univ. Minn. Grad School	\$3,050 for 1 year
1982	Glaciological research at Tarfala, Sweden	Swedish Natural Science Research Council	\$23,000 for 1 year
1983	Non-synchronicity of glacier fluctuations: A result of differences in local climate or glacier dynamics?	NSF	\$50,500 for 2 years

1984	Glaciological studies on Barnes Ice Cap, Canada (G. Johnson, Co-P.I.)	NSF	\$42,825 for 1 year
1984	Purchase of Geodimeter 140	NSF	\$8,350 for 1 year
1984	Studies of the interaction between a temperate glacier and its bed	NSF	\$125,588 for 2 years
1984	Effect of water pressure on glacier dynamics, Storglaciären, Sweden (V. Schytt, Co-P.I.)	Swedish Natural Science Research Council	\$24,000 for 1 year
1986	Stability analysis of conditions of formation of glacial drumlins	Univ. of Minn Graduate School	\$ 3,850
1986	Basic Research in Glaciology Storglaciären, Kebnekaise (W. Karlén, Co-P.I.)	Swedish Natural Science Research Council	\$ 21,500 for 1 year
1986	Studies of the role of water in glacier dynamics	NSF	\$ 73,300 for 3 years
1987	Glaciological Research Equipment for Tarfala Field Station (W. Karlén, Co-P.I.)	Wallenberg Foundation, Sweden	\$ 30,600
1987	Basic research in Glaciology, Storglaciären, Kebnekaise (W. Karlén, Co-P.I.)	Swedish Natural Science Research Council	\$ 27,000 for 1 year
1987	The effect of water-saturated deformable basal till on glacier dynamics	NSF (Div. of International Programs)	\$ 25,300 for 2 years
1987	Glaciological studies of cirques and overdeepenings in glacier beds at Tarfala Field Station, Kebnekaise	Swedish Natural Science Research Council	\$ 93,000 for 3 years
1988	Study of the conditions at the base of Storglaciären using a television camera in boreholes	Swedish Natural Science Research Council	10,000 for 1 year
1989	Relation between water drainage and short-term strain/velocity events of Storglaciären, Sweden, and geomorphic implications	NSF (Division of Polar Programs)	\$303,130 for 3 years

1990	Continued study of water flow through Storglaciären	Swedish Natural Science Research Council	\$27,000 for 3 years
1992	Relation between water input, water pressure, surface speed, and basal till deformation, Storglaciären, Sweden	Swedish Natural Science Research Council	\$25,000 for 1 year
1993	Relation between water input, water pressure, surface speed, and basal till deformation, Storglaciären, Sweden	NSF (Division of International Programs)	\$20,000 for 2 years
1993	Relation between water input, water pressure, surface speed, and basal till deformation, Storglaciären, Sweden	NSF (Division of Polar Programs)	\$442,182 for 4 years
1994	Rheology of subglacial till, Storglaciären, Sweden	Swedish Natural Science Research Council	\$79,000 for 2 years
1995	Rheology of basal ice	NSF (Division of Polar Programs)	\$147,676 for 2 years
1995	Research Opportunity Award to Dr. Robert Baker to participate in 1993 "Relation between water input, water pressure, surface speed, and basal till deformation, Storglaciären, Sweden" proposal above for 1 year	NSF (Division of Polar Programs)	\$50,000 for 1 year
1998	Rheology of basal ice (continuation)	NSF (Office of Polar Programs)	\$43,144
Research Support at Maine			
2005	Terraces of the Penobscot River valley	US Geol. Survey EdMap Program	\$11,989