

Jeff Dozier

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Jeff Dozier's research and teaching interests are in the fields of snow hydrology, Earth system science, remote sensing, and information systems. In particular, he has pioneered interdisciplinary studies in two areas: one involves the hydrology, hydrochemistry, and remote sensing of mountainous drainage basins; the other is in the integration of environmental science and computer science and technology. In these fields, he is an author of 20 books and monographs, more than 100 articles in leading journals, and many conference papers and reports.

In addition, he has played a role in development of the educational and scientific infrastructure. He founded the Donald Bren School of Environmental Science and Management at the University of California, Santa Barbara and served as its first Dean for six years. He was the Senior Project Scientist for NASA's Earth Observing System in its formative stages when the configuration for the system was established. He helped found the MEDEA group, which investigated the use of classified data for environmental research, monitoring, and assessment.

Professor Dozier received his B.A. from California State University, Hayward in 1968 and his Ph.D. from the University of Michigan in 1973. He has been a faculty member at UC Santa Barbara since 1974. From 1990–1992 he was Senior Project Scientist for NASA's Earth Observing System. From 1990–1993 he was editor of *Geophysical Research Letters*, and from 1985–1990 he was associate editor of *Water Resources Research*. He is a Fellow of the American Geophysical Union and the American Association for the Advancement of Science, an Honorary Professor of the Chinese Academy of Sciences, a recipient of the NASA Public Service Medal, the 1997 Schneebaum Lecturer at Goddard Space Flight Center, and the recipient of the 2005 William T. Pecora Award from the Department of Interior and NASA.

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RESEARCH INTERESTS

Snow science, Earth system science, radiative transfer in snow, remote sensing and information systems, image processing, and terrain analysis.

EDUCATION

All degrees in Geography

B.A.	1968	California State University, Hayward (now East Bay)
M.Sc.	1969	University of Michigan
Ph.D.	1973	University of Michigan

EMPLOYMENT

1994–present: Professor, Donald Bren School of Environmental Science and Management, University of California, Santa Barbara.

1994–2000: Founding Dean, Donald Bren School of Environmental Science and Management, University of California, Santa Barbara.

1974–1994: Department of Geography, University of California, Santa Barbara (Assistant Professor 1974–1980, Associate Professor 1980–1985, Professor 1985–1994).

1990–1992: Senior Project Scientist, Earth Observing System, NASA Goddard Space Flight Center.

1987–1990: Project Scientist, High-Resolution Imaging Spectrometer (HIRIS), Jet Propulsion Laboratory, California Institute of Technology.

1980: Senior Postdoctoral Research Associate, National Oceanic and Atmospheric Administration.

1971–1974: Lecturer, Department of Geography, California State University, Hayward.

AWARDS AND HONORS

2007: Western Snow Conference, Best Paper (with R. Rice, R. C. Bales, and T. H. Painter).

2005: William T. Pecora Award, Department of Interior and NASA, for “scientific excellence and leadership in snow hydrology, remote sensing, and information systems.”

2002: Fellow, National Institute for Environmental eScience, University of Cambridge.

1999: Fellow, American Association for the Advancement of Science.

1997: Moe I. Schneebaum Lecturer, NASA Goddard Space Flight Center.

1993: NASA Public Service Medal.

1991: Fellow, American Geophysical Union.

1990–1998: Distinguished Visiting Scientist, Jet Propulsion Laboratory, California Institute of Technology.

1989: IEEE Geoscience and Remote Sensing Society, *Transactions* Prize Paper Award.

1988: Honorary Professor, Institute of Remote Sensing Applications, Academia Sinica (Chinese Academy of Sciences).

1980: National Research Council, National Academy of Sciences, Senior Postdoctoral Research Associateship at the National Oceanic and Atmospheric Administration.

1969–1971: Rackham Fellowship, University of Michigan.

1968–1969: NSF Traineeship, University of Michigan.

1968: NCGE Medal, Outstanding Senior Geography Major, California State University, Hayward.

PERSONAL INFORMATION

Date of Birth: August 14, 1944
Stockton, California

Spouse: Linda Tsuyako Dozier

5 Children: Jill, Hayden, Simone,
Jackson, and Grayson

PROFESSIONAL SERVICE AND SPECIAL APPOINTMENTS

Editorial

2007: Guest editor of *Journal of Hydrometeorology*, special issue on Cold Land Processes Experiment.

1991–1993: Editor of *Geophysical Research Letters*.

1992: Co-editor of volume of *Annals of Glaciology* on Remote Sensing of Snow and Ice.

1985–1991: Editorial board of *Journal of Electromagnetic Waves and Applications*.

1985–1990: Associate Editor of *Water Resources Research*.

1987: Co-editor of *Large Scale Effects of Seasonal Snow Cover*, published by International Association of Hydrological Sciences.

National Research Council

2006–2007: Committee on Scientific Accomplishments of Earth Observations from Space.

2005–2007: Water Cycle Panel, Decadal Survey on Earth Science and Applications from Space.

2002–2003: Chair, Committee on Coping with Increasing Demands on Government Data Centers.

2001–2002: Workshop Committee on Intersections between Geospatial Information and Information Technology.

1999–present: Committee on Geophysical and Environmental Data (current chair).

1997–2000: Committee on Climate Research.

1993–1999: Computer Science and Telecommunications Board.

1993–1995: Board on Global Change.

1993–1995: Chair, Steering Committee for the Long-Term Retention of Selected Scientific and Technical Records of the Federal Government, Commission on Physical Sciences, Mathematics, and Applications.

1990–1992: Committee to Assess the Scope and Direction for Computer Science and Technology, Computer Science and Telecommunications Board.

1987–1990: Committee on Opportunities in the Hydrologic Sciences, Water Science and Technology Board.

1985–1991: Committee on Glaciology, Polar Research Board (Chair 1989–1991).

1985–1988: Chair, ad hoc Committee on Remote Sensing, Polar Research Board.

International

2002–present: Chair, Environmental eScience Steering Committee, National Environment Research Council, United Kingdom.

1997: Review committee, Danish National Science Foundation.

1987–1993: U.S. Correspondent, International Commission for Snow and Ice.

Professional Societies

2005–present: Development Committee, American Geophysical Union.

1998–2000: Fellows Committee, Hydrology Section, American Geophysical Union.

1997: Local Arrangements Chair and Host, Sixth Annual Greening of Industry Conference, Santa Barbara

1996: Program Committee, Progress in Electromagnetic Research Symposium, Innsbruck, Austria.

1992–1996: William Bowie Medal Committee, American Geophysical Union.

1994–1995 and 1990–1991: Nominating Committee, Hydrology Section, American Geophysical Union.

1994: Program Committee, 13th IEEE Mass Storage Conference, Annecy, France.

1994: Technical Program Committee, IGARSS '94, Pasadena, CA.

1992–1995, Fellows Committee, Hydrology Section, American Geophysical Union.

1990–1993, Information Technology Committee, American Geophysical Union.

1986–1992: Executive Committee, Hydrology Section, American Geophysical Union.

1986: Chair, Papers Committee, Seventh International Snow Science Workshop, Lake Tahoe.

1983–present: Snow, Ice and Permafrost Committee (Chair, 1988–1990), American Geophysical Union.

1982–1999: Remote Sensing Committee, Hydrology Section, American Geophysical Union.

1973–1986: Expeditions Committee, American Alpine Club.

U.S. Government Agencies

2000: Local Host, NOAA Symposium on Impacts of Climatic Variations on Water Resources: A Focus on Border Regions, Santa Barbara.

1999: Steering Committee, California Regional Assessment of the Impacts of Climate Change, NSF.

1998–2003: NASA Earth System Science and Applications Advisory Committee.

1994–2002: MEDEA (evaluates the use of classified data for environmental purposes).

1994–1999: Scientific and Technical Advisory Panel, Director of Central Intelligence.

1992–1994: Tripartite Chair, Environmental Task Force, Director of Central Intelligence.

1992–1994: Landsat Science Working Group, NASA.

1992–1993: NSF Blue Ribbon Panel on High Speed Computing.

1991–1994: NSF Hydrologic Sciences program.

1990–1998: EOS Payload Advisory Panel, NASA.

1989–2000: Science Advisory Panel for the EOS Data and Information System (EOSDIS) (Chair 1989–1994), NASA.

1986–1987: Imaging Spectrometer Science Advisory Group, Jet Propulsion Laboratory.

1986: Joint EOSAT/NASA Thermal Infrared Working Group.

1984–1986: Committee on the High Resolution Multifrequency Microwave Radiometer (HMMR), NASA EOS Program.

1984–1986: Committee on the First ISLSCP (International Satellite Land Surface Climatology Program) Field Experiment, NASA.

1982: Scientific Study Group on Snow, Soil Moisture and Precipitation, NASA.

1982: Working Group on Remote Sensing of Snowpack Properties, NASA.

1980–1981: Working Group on Basic Research in Remote Sensing, NASA.

University of California System

2002–2007: Science and Technology Panel, oversight committee for the University's Department of Energy laboratories (Berkeley, Livermore, Los Alamos).

2001–2006 and 1986–1990: Advisory Committee, California Space Institute, University of California, San Diego.

2000–2001: Chair, Search Committee for the Dean of Natural Sciences, University of California, Merced.

1996–2001: Advisory Committee, Nonproliferation and International Security Division, Los Alamos National Laboratory.

1996–1997: Chair, Systemwide review committee for the Institute of Geophysics and Planetary Physics.

1993–1994: University Committee on Academic Personnel.

1986–1990: Wildland Resources Center Policy Committee, University of California, Berkeley.

1988: Review Committee for Statewide Air Pollution Research Center, University of California, Riverside.

1986: Chair, Review Committee for Remote Sensing Research Program, University of California, Berkeley.

University of California, Santa Barbara

2004–2006: Committee on Academic Personnel.

2000–2004: Academic Program Review Panel.

2002–2003: Search Committee, Vice Chancellor for Research.

2001–2002: Search Committee, Vice Chancellor for Administrative Services.

1998–2000: Council of Deans and Provosts.

1995–2000: Budget Advisory Committee.

1994–2000: Academic Advisory Council.

1994–2000: Diversity Advisory Committee.

1992–1994: Committee on Academic Personnel.

1976–1978: Committee on Undergraduate Courses.

1975–1976: Committee on Undergraduate Scholarships and Prizes.

Private Sector and Nongovernmental Organizations

2003–present, Member, Board of Directors, Center for Snow and Avalanche Studies.

2002–present, Member, In2Books Science Advisory Board.

2002–2003: Acting Director, Sunnyside Institute, Washington, VA.

2001–present: UCSB Delegate, Consortium of Universities for the Advancement of Hydrologic Science, Inc. (CUASHI) and vice-chair of executive committee 2005–2006.

1996–2002: Board of Directors, International Academy of Santa Barbara.

1997–2001: University Corporation for Atmospheric Research (UCAR), University Relations Committee.

1997–1999: Member of Science Team, Hughes Santa Barbara Remote Sensing, NPOESS (National Polar Orbiting Environmental Satellite System) competition.

1994–1997: Principal Investigator and Chair of Science Advisory Board, TRW's Lewis mission with Hyperspectral Instrument (HSI).

Other Universities

2001–present: Scientific Steering Committee, National Institute for Environmental eScience, University of Cambridge.

1997: Chair, Review Committee, Department of Hydrology and Water Resources, University of Arizona.

1995–1999: Advisory Committee, Desert Research Institute, University of Nevada.

MEMBERSHIP IN PROFESSIONAL SOCIETIES

American Avalanche Association, American Alpine Club, American Association for the Advancement of Science, American Geophysical Union, Association of Environmental Engineering and Science Professors, Electromagnetics Academy, Institute of Electrical and Electronics Engineers, International Glaciological Society, Professional Ski Instructors of America, Western Snow Conference.

PUBLICATIONS

Theses

[1] Dozier, J., Channel adjustments in supraglacial streams, M.S. Thesis, 36 pp., University of Michigan, Ann Arbor, 1969, (M. G. Marcus, Chair).

[2] Dozier, J., An evaluation of the variance minimization principle in river channel adjustment, Ph.D. Thesis, 117 pp., University of Michigan, Ann Arbor, 1973, (University Microfilms Catalog No. 74-15,706, S. I. Outcalt, Chair).

Books and Monographs

- [1] Marsh, W. M., and J. Dozier, *Landscape: an Introduction to Physical Geography*, 637 pp., Addison-Wesley, Reading, MA, 1981.
- [2] Marsh, W. M., and J. Dozier, *Landscape Planning: Environmental Applications*, 356 pp., John Wiley & Sons, New York, 1983.
- [3] EOSAT/NASA Thermal-Infrared Working Group, Commercial Applications and Scientific Research Requirements for Thermal-Infrared Observations of Terrestrial Surfaces, Earth Observation Satellite Company, Lanham, MD, 1986.
- [4] Goetz, A. F. H., J. Dozier, M. Abrams, M. Abbott, J. D. Aber, J. B. Adams, A. Albee, J. E. Anderson, K. L. Carder, S. A. W. Gerstl, L. N. Kanal, H. Kieffer, D. Kimes, D. A. Landgrebe, J. MacDonald, J. A. MacMahon, J. M. Melack, L. C. Rowan, P. N. Slater, J. A. Smith, and R. H. Waring, *HIRIS: High-Resolution Imaging Spectrometry: Science Opportunities for the 1990s*, National Aeronautics and Space Administration, Washington, DC, 1987.
- [5] Goodison, B. E., R. G. Barry, and J. Dozier, *Large Scale Effects of Seasonal Snow Cover*, 425 pp., International Association of Hydrological Sciences Publication No. 166, Wallingford, UK, 1987.
- [6] Murphy, R. E., D. M. LeVine, F. Barath, E. Barrett, R. L. Bernstein, C. A. Clark, J. Dozier, R. Kakar, E. Njoku, E. Runge, V. V. Salomonson, C. T. Swift, T. T. Wilheit, and S. T. Wu, *HMMR: High-Resolution Multifrequency Microwave Radiometer*, National Aeronautics and Space Administration, Washington, DC, 1987.
- [7] Dozier, J., R. J. Barry, K. M. Jezek, R. H. Thomas, and J. Vesecky, *Prospects and Concerns for Satellite Remote Sensing of Snow and Ice*, 55 pp., National Academy Press, Washington, DC, 1989.
- [8] Eagleson, P. S., W. H. Brutsaert, S. C. Colbeck, K. W. Cummins, J. Dozier, T. Dunne, J. M. Edmond, V. K. Gupta, G. Jacoby, S. Manabe, S. E. Nicholson, D. R. Nielsen, I. Rodriguez-Iturbe, J. Rubin, J. L. Smith, G. Sposito, W. T. Swank, E. J. Zipser, and S. J. Burges, *Opportunities in the Hydrologic Sciences*, 368 pp., National Academy Press, Washington, DC, 1991.
- [9] Hartmanis, J., H. Lin, R. Bajcsy, A. K. Chandra, A. van Dam, J. Dozier, J. Gray, D. Gries, A. N. Habermann, R. R. Johnson, L. Kleinrock, M. D. McIlroy, D. A. Patterson, R. Reddy, K. Schulten, C. Seitz, and V. Vyssotsky, *Computing the Future: A Broader Agenda for Computer Science and Engineering*, 288 pp., National Academy Press, Washington, D.C., 1992.
- [10] Singh, R. P., A. Tabbagh, J. F. R. Gower, W. L. Smith, A. E. MacDonald, M. J. Manton, J. Pailieux, K. Tsuchiya, and J. Dozier, *Remote Sensing of the Earth's Surface and Atmosphere*, Pergamon, Oxford, 1992.
- [11] Branscomb, L., T. Belytschko, P. Bridenbaugh, T. Chay, J. Dozier, G. S. Grest, E. F. Hayes, B. Honig, N. Lane, W. Lester Jr., F. J. McRae, J. A. Sethian, B. Smith, and M. Vernon, *From Desktop to Teraflop: Exploiting the U.S. Lead in High Performance Computing*, National Science Foundation, Washington, DC, 1993.
- [12] Asrar, G., and J. Dozier, *EOS: Science Strategy for the Earth Observing System*, 119 pp., American Institute of Physics, Woodbury, NY, 1994.
- [13] Dozier, J., S. Alexander, M. Courain, J. A. Dutton, W. Emery, B. Gritton, R. Jenne, W. Kurth, D. Lide, B. K. Richard, and J. Warnow-Blewett, *Preserving Scientific Data on Our Physical Universe: A New Strategy for Archiving the Nation's Scientific Information Resources*, 80 pp., National Academy Press, Washington, DC, 1995.
- [14] DeGraw, Y., J. Dozier, and R. Chaney, *User's Guide to AOLpress 1.2: Do-it-Yourself Publishing for the Web*, 217 pp., America Online, Dulles, VA, 1996.
- [15] Howard, A., Y. DeGraw, J. Dozier, J. Davidson, D. McKee, and L. Bruns, *AOLserver 2.0 Tcl Developer's Guide: A Software Development Kit for the World Wide Web*, 212 pp., America Online, Dulles, VA, 1996.
- [16] Howard, A., Y. DeGraw, J. Dozier, J. Davidson, D. McKee, and L. Bruns, *AOLserver 2.0 C Developer's Guide: A Software Development Kit*

- for the World Wide Web, 328 pp., America Online, Dulles, VA, 1996.
- [17] Howard, A., Y. DeGraw, J. Dozier, J. Davidson, D. McKee, and L. Bruns, *AOLserver 2.0 Administrator's Guide: A Software Development Kit for the World Wide Web*, 156 pp., America Online, Dulles, VA, 1996.
- [18] Howard, A., Y. DeGraw, J. Dozier, J. Davidson, D. McKee, and L. Bruns, *AOLserver 2.0 CGI Developer's Guide: A Software Development Kit for the World Wide Web*, 44 pp., America Online, Dulles, VA, 1996.
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- [20] Dozier, J., L. Buja, L. Mark, J. Overpeck, M. F. Wheeler, and T. R. Yengst, *Government Data Centers: Meeting Increasing Demands*, 70 pp., National Academy Press, Washington, D.C., 2003.
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- [22] Minster, J. B., J. W. Campbell, J. Dozier, J. R. Fleming, J. C. Gille, D. L. Hartmann, K. Jezek, S. Q. Kidder, N. Ramankutty, A. M. Thompson, S. L. Ustin, and J. A. Yoder, *Earth Observations from Space: The First 50 Years of Scientific Achievements*, 144 pp., National Academies Press, Washington D.C., 2007.
- Journal Articles and Book Chapters**
- [1] Dozier, J., Lost Brother, Northwest Face, *American Alpine Journal*, 38, 177, 1964.
- [2] Dozier, J., American expedition to Nuristan, 1968, *American Alpine Journal*, 43, 330-334, 1969.
- [3] Dozier, J., Koh-i-Marchech, West Ridge, *American Alpine Journal*, 45, 463-464, 1971.
- [4] Marsh, W. M., B. D. Marsh, and J. Dozier, Structure, formation, and geomorphic influence of Lake Superior icefoots, *American Journal of Science*, 273, 48-64, 1973.
- [5] Dozier, J., Channel adjustments in supraglacial streams, in *Icefield Ranges Research Project Scientific Results*, edited by V. C. Bushnell, and M. G. Marcus, pp. 189-206, American Geographical Society, New York, 1974.
- [6] Dozier, J., Koh-i-Bandaka Zeraghau, *American Alpine Journal*, 48, 223-224, 1974.
- [7] Dozier, J., An evaluation of the variance minimization principle in river channel adjustment, *Dissertation Abstracts International*, 35, 341A-342A, 1975.
- [8] Dozier, J., Climbs in the Cirque of the Ibex, Nuristan, *American Alpine Journal*, 49, 61-64, 1975.
- [9] Dozier, J., An examination of the variance minimization tendencies of a supraglacial stream, *Journal of Hydrology*, 31, 359-380, doi: 10.1016/0022-1694(76)90134-7, 1976.
- [10] Dozier, J., B. D. Marsh, and W. M. Marsh, Ice cusp formation on Lake Superior icefoots, *Revue de Geographie de Montreal*, 30, 161-169, 1976.
- [11] Dozier, J., J. Mitchell, and W. M. Marsh, Modeling of backshore slope processes during the cold season, south shore of Lake Superior, *Revue de Geographie de Montreal*, 30, 171-177, 1976.
- [12] Marsh, W. M., M. L. Bryan, and J. Dozier, Aerial imagery of Lake Superior coastal ice, *Revue de Geographie de Montreal*, 30, 179-186, 1976.
- [13] Van Dusen, P., J. Dozier, and W. M. Marsh, Floods and floodplains, in *Environmental Analysis for Land Use and Site Planning*, edited by W. M. Marsh, pp. 135-161, McGraw-Hill, New York, NY, 1978.
- [14] Dozier, J., and S. I. Outcalt, An approach toward energy balance simulation over rugged terrain, *Geographical Analysis*, 11, 65-85, 1979.

- [15] Marks, D., and J. Dozier, A clear-sky longwave radiation model for remote alpine areas, *Archiv für Meteorologie, Geophysik und Bioklimatologie*, B-27, 159-187, 1979.
- [16] Dozier, J., A clear-sky spectral solar radiation model for snow-covered mountainous terrain, *Water Resources Research*, 16, 709-718, 1980.
- [17] Dozier, J., A method for satellite identification of surface temperature fields of subpixel resolution, *Remote Sensing of Environment*, 11 (3), 221-229, doi: 10.1016/0034-4257(81)90021-3, 1981.
- [18] Dozier, J., and J. Frew, Atmospheric corrections to satellite radiometric data over rugged terrain, *Remote Sensing of Environment*, 11, 191-205, doi: 10.1016/0034-4257(81)90019-5, 1981.
- [19] Dozier, J., J. Bruno, and P. Downey, A faster solution to the horizon problem, *Computers and Geosciences*, 7 (2), 145-151, doi: 10.1016/0098-3004(81)90026-1, 1981.
- [20] Dozier, J., S. R. Schneider, and D. F. McGinnis Jr., Effect of grain size and snowpack water equivalence on visible and near-infrared satellite observations of snow, *Water Resources Research*, 17 (4), 1213-1221, 1981.
- [21] Matson, M., and J. Dozier, Identification of subresolution high temperature sources using a thermal IR sensor, *Photogrammetric Engineering and Remote Sensing*, 47, 1311-1318, 1981.
- [22] Dozier, J., and S. G. Warren, Effect of viewing angle on the infrared brightness temperature of snow, *Water Resources Research*, 18 (5), 1424-1434, 1982.
- [23] Gollledge, R. G., R. Church, J. Dozier, J. E. Estes, J. Michaelsen, D. S. Simonett, R. Smith, T. Smith, A. H. Strahler, and W. R. Tobler, Commentary on the highest form of the geographer's art, *Annals of the Association of American Geographers*, 72 (4), 557-558, 1982.
- [24] Dozier, J., and A. H. Strahler, Ground investigations in support of remote sensing, in *Manual of Remote Sensing*, edited by R. N. Colwell, pp. 959-986, American Society of Photogrammetry, Falls Church, VA, 1983.
- [25] Davis, R. E., and J. Dozier, Snow wetness measurement by fluorescent dye dilution, *Journal of Glaciology*, 30 (106), 362-363, 1984.
- [26] Davis, R. E., J. Dozier, and D. Marks, Micrometeorological measurements and instrumentation in support of remote sensing observations of an alpine snow cover, *Proceedings, Western Snow Conference*, 51, 161-164, 1984.
- [27] Dozier, J., Snow reflectance from Landsat-4 Thematic Mapper, *IEEE Transactions on Geoscience and Remote Sensing*, 22 (3), 323-328, 1984.
- [28] Marks, D., J. Dozier, and J. Frew, Automated basin delineation from digital elevation data, *Geo-Processing*, 2, 299-311, 1984.
- [29] Davis, R. E., J. Dozier, E. R. LaChapelle, and R. Perla, Field and laboratory measurements of snow liquid water by dilution, *Water Resources Research*, 21 (9), 1415-1420, 1985.
- [30] Dubayah, R. O., and J. Dozier, Orthographic terrain views using data derived from digital elevation models, *Photogrammetric Engineering and Remote Sensing*, 52 (4), 509-518, 1986.
- [31] Perla, R., J. Dozier, and R. E. Davis, Preparation of serial sections in dry snow specimens, *Journal of Microscopy*, 142 (1), 111-114, 1986.
- [32] Davis, R. E., J. Dozier, and A. T. C. Chang, Snow property measurements correlative to microwave emission at 35 GHz, *IEEE Transactions on Geoscience and Remote Sensing*, 25 (6), 751-757, 1987.
- [33] Davis, R. E., J. Dozier, and R. Perla, Measurement of snow grain properties, in *Seasonal Snowcover: Physics, Chemistry, Hydrology*, edited by W. J. Orville-Thomas, and H. G. Jones, pp. 53-74, D. Reidel, Dordrecht, 1987.
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- [44] Dozier, J., and A. F. H. Goetz, HIRIS: Eos instrument with high spectral and spatial resolution, *Photogrammetria*, 43 (3/4), 167-180, doi: 10.1016/0031-8663(89)90013-6, 1989.
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Physical Geography; Air Environment; Land and Water Environment.

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Introduction to Environmental Optics in Physical Geography and Remote Sensing; Climatology; Computational Concepts in Geography; Hydrology; Meteorology; Physiography (Geomorphology); Snow Hydrology; Alpine Snow Science; Techniques in Geographic Data Analysis.

Graduate

Earth System Science for Environmental Management; Mountain Snowpack; Remote Sensing; Climate Change and Economics; Information Systems for Global Change; Mathematical Models in Physical Geography; Environmental Optics; Seminars in Environmental Optics, Physical Geography, Hydrology and Geomorphology, and Snow Science; T.A. Training; Project Management.

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