APPLICATION

To insure consideration, early application is encouraged. Applications should include information on outdoor experience and adaptability to rugged field conditions; transcripts, evidence of school or university status, a firm academic plan, and letters of recommendation from a supervisory head and two other individuals regarding scholarship, character and compatability.

Make Application to:

Glaciological and Arctic Sciences Institute
Dr. Maynard M. Miller, Dean
College of Mines & Earth Resources (ph. 208-885-6195)
University of Idaho, Moscow, Idaho 83843
or
Foundation for Glacier and Environmental Research
514 E. 1st St., Moscow, Idaho 83843 (ph. 208-882-1237)

STAFF AND RESOURCE SCIENTISTS

DR. MAYNARD M. MILLER, Dean, College of Mines and Earth Resources: Professor of Geology: Director, Glaciological Institute, University of Idaho (applied geomorphology, glaciology, Quaternary geology, mining geology, remote sensing, geologic mapping).

CALVIN E. ANDERSON, Foundation for Glacier and Environmental research, Seattle, WA. Formerly research meteorologist, National Weather Service (climatology, instrumentation & field procedures).

DR. JAMES H. ANDERSON, Institute of Arctic Biology, University of Alaska, Fairbanks, AK (geobotany, palynology, dendroglaciology).

ROBERT A. ASHER, Foundation for Glacier and Environmental Research, Seattle, WA (data acquisition and field instrumentation, deputy leader).

DR. RICHARD L. CARLSON, Department of Geophysics, Texas A and M University, College Station, TX (exploration and glacier geophysics, tectonophysics).

DR. BRADLEY COLMAN, Forecast Center, National Weather Service, Juneau, AK; (atmospheric sciences, synoptic weather data analysis, glacio-climatology).

PROF. JOHN HEATH, Director Sloan Executive Management Program, University of London, UK (leadership training, organization and management techniques).

DR. GEORG KASER, Inst. for Meteorology and Geophysics, & Inst. for Geography, University of Innsbruck, Austria (alpine meteorology, glacier mass and energy balance research).

NORBERT KERTING, University of Federal Armed Forces, Munich, W.Germany (geodesy, surveying, field methods).

DR. DAVID LIETZKE, Agronomy Department, University of Tennessee, Knoxville, TN (arctic soils, periglacial research, geomorphology).

DR. RICHARD MARSTON, Geology Department, University of Texas, El Paso, TX (remote sensing, geomorphology, glacier hydrology).

ROSS McC. MILLER, Foundation for Glacier and Environmental Research, Seattle, WA (environmental science, planning and field methods).

DR. BRUCE MOLNIA, Secretary, Polar Research Board, U.S.G.S., National Academy of Sciences, WA.D.C.(Alaska marine geology, remote sensing, satellite imagery).

JACK G. PETERSON, President and Executive Director, Idaho Mining Association, Boise, ID (natural resources management, resource and mineral economics).

DR. ALFRED PINCHAK (Ph.D. and M.D.), Department of Mechanical and Aerospace Sciences, Case Western Reserve University, Cleveland, OH (continuum mechanics, glaciology).

BARRY W. PRATHER, Foundation for Glacier and Environmental Research, Seattle, WA (seismology, geophysical methods, expedition techniques).

DR. ALAN ROHAY, Geophysicist, Rockwell-Hanford Operations, Richland, WA (geophysical applications, expedition principles and techniques).

DR. CHARLES ROSENFELD, Geography Department, Oregon State University, Corvallis, OR (remote sensing, arctic-alpine terrain analysis).

DR. KENNETH F. SPRENKE, Geology Department, University of Idaho (exploration geophysics).

DR. DOUGLAS N. SWANSTON, U.S. Forest Service, Forestry Sciences Lab, Juneau, AK (mass wastage, landslide mechanics, engineering geology, geologic mapping).

DR. ALYMER H. THOMPSON, Meteorology Department, Texas A and M University, College Station, TX (arctic climatology, glacio-meteorology, mountain wind research).

DR. GEORGE A. WILLIAMS, Professor of Geology and Director, Mining and Mineral Resources Research Institute, University of Idaho (geologic mapping, economic geology, mineral exploration).

DR. DAVID F. WOOLNOUGH, Head, Surveying Department, Nova Scotia Land Survey Institute, Lawrencetown, N.S., Canada (surveying, photogrammetry, field methods).

JOAN W. MILLER, Foundation for Glacier and Environmental Research, Moscow, ID (Administrative Director, logistics, planning, personnel and fiscal management).

Medical, Safety and Terrain/Survival Instructions:

W.M. SMITH, M.D., and T.R. HALEY, M.D., Medical Coordinators: A. Hirsch, M.D., Geo. H. Miller, M.D., A. Pinchack, M.D., Dan Reid, M.D., Chas. J. Sternhagen, M.D.; Marshall Calvert, L. D. Miller, B. Prather, B. Reid, R.N., Jeff Severson, Don Thomas, Doug Toland, and A. Ward.

Administration, Liaison and Logistics:

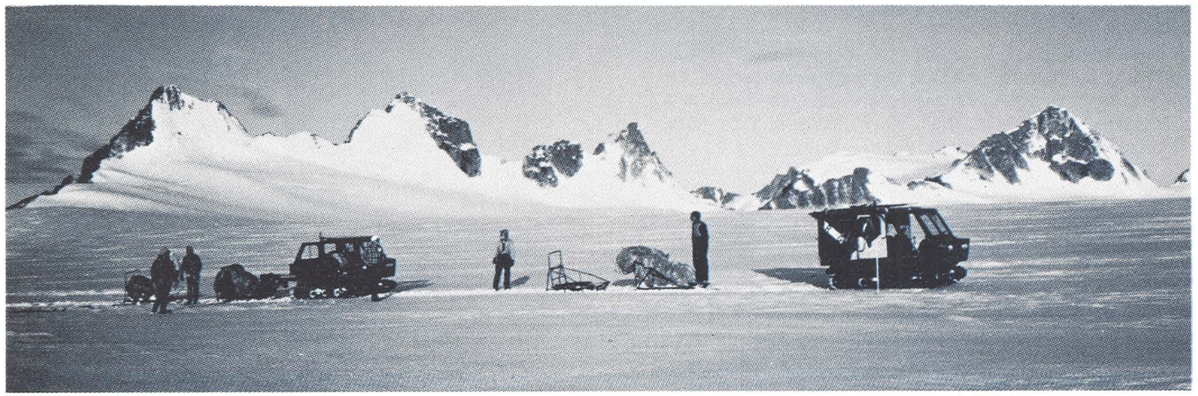
Joan W. Miller, R.S. Miller, M.A. Parke, K. Schoen, C. Thomas, H. Swanke, D. and E. Williams, K. Loken, G. Heynen, B. Thoma, N. Vig, J. Wilson, W. Zeman.

Camp and Field Operations:

R. A. Asher, Steve Carr, D. Enzenbacher, Jack Lamb, Don McCully, R. Campbell, Wray Featherstone, T. Ferrara, Ken Gordon, Dr. Jack Helle, D. Holtz, S. Kindall, A. McIrvin, J. Surgenor, D. Thomas, G., J., and L. Thoma, Alan Ward, Jennifer Ziegler.

Research Associates:

Dr. David Brew, Dr. Arthur Ford, Alaska Branch, U.S. Geological Survey, Menlo Park, CA; Ed Chacho, U.S. Army Corps of Engineers, CRREL, Fairbanks, AK; A. Clough & L.D. Miller, US Bureau of Mines, Juneau, AK; R. Hammond & B. Isbell, Geophysics Program, Univ. of Idaho; Dr. Jack Helle, Nat'l Marine Fisheries Service, NOAA, Auke Bay, AK; Austin E. Helmers, Found. for Glacier Research, Juneau, AK; Dr. V.K. Jones, Dept. of Atmospheric Sciences, Univ. of Missouri, Columbia, MO; W. Brent Liddle, Chief Interpretor, Kluane National Park, Haines Junction, Yukon, Canada; Dr. Falma J. Moye, Geology Dept., Montana St. Univ., Bozeman, MT; Jim Wallis, Mining Engineer, Atlin, B.C., Canada.



Research team on a high plateau of the Juneau Icefield, Alaska-Canada, during August, 1984 (all photos, F.G.E.R.)

University of Idaho

University of Idaho
Glaciological & Arctic Sciences Institute
College of Mines & Earth Resources
Moscow, Idaho 83843

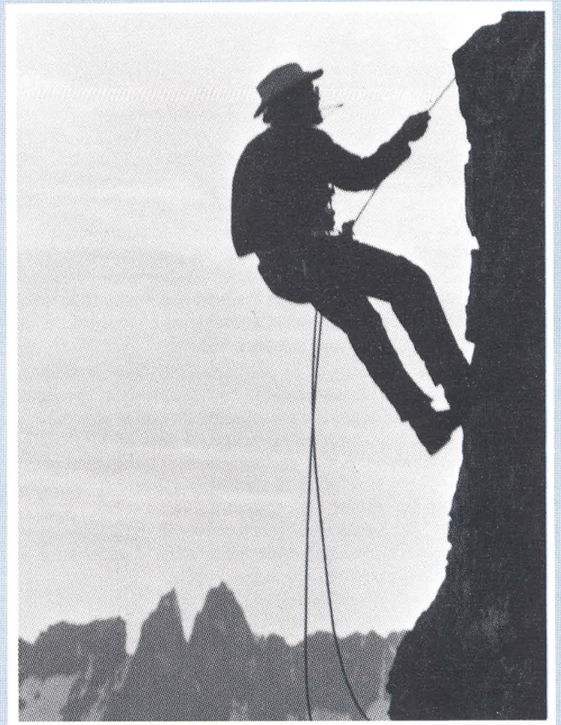
EXPEDITIONARY FIELD TRAINING,
RESEARCH PARTICIPATION
AND SEMESTER CREDITS IN

ARCTIC AND MOUNTAIN SCIENCES

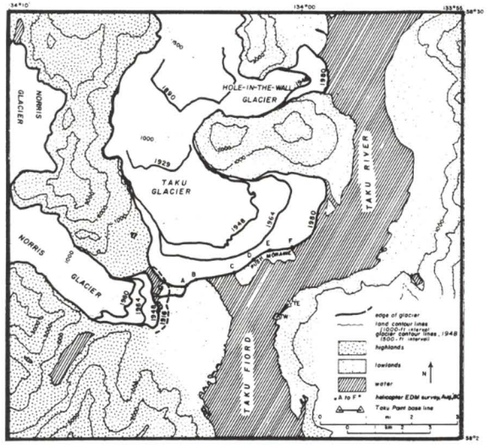
27th Summer Institute of
Glaciological and Arctic Sciences

July 1 - August 24th, 1986
Juneau Icefield, Alaska
and the Atlin Lake Region,
B.C.-Yukon, Canada

The University of Idaho, the University of Alaska-Juneau, the Foundation for Glacier and Environmental Research, Seattle, WA., and the Juneau Icefield Research Program (JIRP)



Rappelling practice during survival training session on the Juneau Icefield. Part of Taku Range in background. (FGER photo)



Advancing Taku and Hole-in-the-Wall Glaciers and receding Norris Glacier, 1890 to 1980.

PURPOSE

The Juneau Icefield Research Program (JIRP) was organized in 1946 to pursue long-term research on interrelationships of scientific disciplines necessary to understand the total environment of arctic and mountain regions. The Summer Institute of Glaciological and Arctic Sciences was organized in 1959 to provide combined academic and field training, both at the graduate and undergraduate level, so essential to the solution of these multi-varied problems. The aim is total systems competence in potential polar and mountain sciences and practical field training for geologists, hydrologists, geophysicists, atmospheric scientists, resource planners, ecologists and surveyors.

Students have the opportunity to observe and study sub-aerial processes in a dynamic region of existing glaciers and rugged mountain terrain, and to appreciate the inter-science investigational approach in the field studies applicable not only to pristine wilderness regions but to scientific assessments of environmental problems even in rural and urban areas.

Participants attend lectures at pertinent field sites, participate in demonstrations with instruments and materials in the field, and take and record scientific measurements under supervision or via their own scientific competence as part of long-range research from high-elevation and continental periglacial areas to low-level temperate and maritime regions. A realistic understanding is gained of glacio-climatological, glacio-geological and glacio-ecological relationships in natural systems. In addition, the Institute provides practical field experience in a variety of personally challenging projects.

DATE

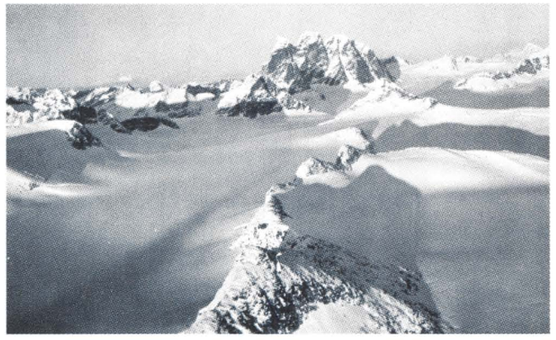
The Institute will be conducted from July 1 to August 24. For qualified students interested in participation in JIRP and allied regional research projects, or for those desiring field work on thesis problems, a period of additional field work may be arranged.

THE PROGRAM

"Nature without learning is a blind thing — and learning without Nature is an imperfect thing." — Plutarch

Emphasis is placed on expeditionary experience and research participation. Courses are offered in field geology, glaciology, geomorphology, surveying and selected environmental sciences, coordinated by D. M.M. Miller with visiting scientists assisting.

Up to 12 academic credits can be arranged through the Geology and Geography Departments, University of Idaho, and the School of Extended and Graduate Studies, University of Alaska-Juneau.



View across the Twin Glacers' source region and S.E. portion of the Juneau Icefield to Devil's Paw (8584')

Fully equipped, a scientist skiis to Camp 14, Juneau Icefield.

Palynology sampling in glacial bogs of the Atlin Lake sector.

Special topics considered are: Environmental Sciences; Terrestrial and Glacial Photogrammetry; Glacier Surveys and Mapping; Glacio-ecology; Lichenometry; Periglacial Geomorphology and Pleistocene Stratigraphy; Continuum Mechanics; Glacio-meteorology; Mountain Climatology; Glacio-hydrology; Exploration Geophysics; Mineral Prospecting; and Bedrock Geological Mapping.

Offerings take advantage of a classical glacial, periglacial and mountain and arctic environment in field and "laboratory" instruction.

The courses are offered under the aegis of the **University of Idaho** and the **University of Alaska-Juneau,** being double listed in each institution's summer catalog.

Lectures, field studies and problem sessions are held on adjunct topics. All offerings are concurrent during a concentrated, five week session on the Juneau Icefield, emphasizing Neoglacial conditions. Participants in the general courses are exposed to all offerings. An initial week is devoted to indoctrination in field methods, and safety and survival techniques. Two to five weeks may be used for work on a field problem, dependent on participant's aim, interest and abilities. The last week can be concentrated in the Atlin area where deglaciated terrain provides opportunities for study of Cordilleran Wisconsinan chronology and Holocene periglacial environments. For those wishing to ally the instructional program with a specific thesis project, or equivalent independent studies, including post-doctoral research, field problems may be developed.

PARTICIPANTSHIPS AND AWARDS

Participantships and field scholarships are available. These include awards for undergraduates (URP category) and graduate level scholarships supported by the University of Idaho, the Foundation for Glacier and Environmental Research, SOHIO Alaska Petroleum Company and the Explorers Club field science training fund. Scholarships and contributions are also available for high school juniors and seniors (SSTP category) via the Foundation, the Academy of Applied Science and the U.S. Army Research Office Research in Engineering Apprenticeship Program (REAP). Research assistantships in ongoing programs are offered to outstanding previous participants or others with equivalent experience.

Places for additional participants in each category are available at the field fee of **$1950** for the 8 week session. All participants cover travel expenses between their home and Juneau, Alaska, and Atlin, B.C., via Whitehorse, Y.T., back home.

LOCATION

The main glacier area lies on or near the Juneau Icefield in the Tongass National Forest and the Atlin Provincial Wilderness Park of the Alaska-Canada Boundary Range between Juneau, Alaska and Atlin, B.C. Emphasis is given to the Lemon Glacier sector on the southern periphery and to the Cathedral Massif in the Atlin District adjacent to the icefield on the north. Here arrays of Wisconsinan deglaciation and periglacial features are observed. A permanent headquarters station is maintained at Atlin, B.C., from which a variety of field trips are made.

FACILITIES AND LOGISTICS

Thirteen main stations and 17 lesser camp and research facilities are located in the field. Permanent aluminum-sheathed and well-insulated wooden buildings exist at some field sites. Temporary shelters and tents are used at trail camps. A 4000-volume library containing pertinent research materials, maps, aerial photos and other basic references is maintained at five main field stations, as well as in the geosciences research library at the Atlin base station. A wide range of field and laboratory equipment for geophysical, glaciological, surveying, photogrammetric, botanical, meteorological, and geological work is available for teaching and research.

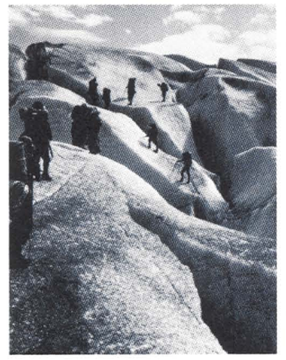
Communication between camps and with the Juneau and Atlin bases is handled by radio. Helicopters, charter aircraft, and ski-planes are used for transportation, with ground transport carried out via foot travel, skis, oversnow vehicles and sometimes a dog team.

Permanent installations are provided by the **Foundation for Glacier and Environmental Research, Pacific Science Center, 200-2nd Ave. N., Seattle, Washington, 98109.** The summer field address is **F.G.E.R., P.O. Box 775, Juneau, Alaska, 99802;** and after August 1, **Subarctic Research Station, P.O. Box 99, Atlin, B.C. Canada VOW 1A0.**

ELIGIBILITY

Participants must be enrolled in, or officially admitted for, work as candidates for a degree at their respective institutions. Exceptions are permitted where students are between programs and institutions in a long-term academic plan. A high scholastic record or potential is expected. Weight is placed on personal character, demonstrated interest and professional motivation. Post-doctoral and senior scientist participantships are available. High ability high school students with university plans can also be included. Experience in mountain and outdoor living is given emphasis in the selection process.

In administering this program the University of Idaho, the University Alaska-Juneau, and the Foundation for Glacier and Environmental Research will not discriminate on the grounds of race, creed, color, sex, or national origin.



On the lower Llewellyn Glacier near Camp 26.

Measuring snow & firn stratigraphy at test pit site.