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The Value of Field Experience: A Consensus of the American Geological Institute (AGI) Geoscience Associates, March 2001

The participants of the 2001 AGI Geoscience Associates Conference hereby affirm the value and necessity of field experience and training as an essential element of the proper preparation for practicing geology.

A meeting of key geologists, members of the AGI Geosciences Associates, representing industry, academia, government, and professional associations, debated the value of field experience in the preparation of geology students. There emerged a resounding agreement that field experiences are highly valued and a critical part of geologists' training. Field experiences provide a unique and integrated "learn-how-to-learn" experience that cannot be duplicated in the classroom or laboratory. Major field experiences involving the active investigation of geologic processes are integral to a complete geologic education. There must be an emphasis upon the fundamentals of field investigation, particularly exposure to diverse geologic settings and mapping exercises. There was also consensus that geologists should receive the major portion of field training in the university as part of degree requirements.

The assembled practitioners asserted the critical significance of proper field preparation, and then enunciated common obstacles to providing the training at the academic level. These included: out-of-state vs. in-state tuition differences; risk and liability to university and faculty, landowners, and mineral resource producers; higher cost of geology education in comparison to other majors; pressure on faculty to publish; demands upon faculty personal time; inadequate training of faculty in field methods; lack of respect for field-based research; faculty (un)willingness to lead field courses; a question from some administrators and faculty of the need and importance of a true field experience; societal factors which force a change in teaching approaches; and the traditional 6-week summer field camp is no longer feasible for many schools.

The increasing de-emphasis of field training fails to compensate for the loss of practical experience. Field training helps the future geologist to develop observational, data collection, analytical, and interpretation skills as well as an understanding in the fundamentals and basics of geology. Field training develops essential skills in critical thinking, hypothesis testing (i.e., the development and analysis of multiple working hypotheses), the concept of uncertainty in the analysis & interpretation of geologic data (i.e., the recognition of multiple possible realizations based on disparate data), the appreciation of scale (grains to plates), 4-dimensional reasoning, and recognition of the "footprint" of various geological phenomena (i.e., illustration and analysis of the visible record applicable to the interpretation of remotely sensed data of various types).

It is critical to sustain a high level of field training and experience for the geology student. The professional geologic community should promote the establishment of consortia to deliver intense summer field experiences, implementation of a modular approach to delivering field geology, and enhancement of the non-field camp experience within each department's culture. It should foster development of forums to share information about: sources for funds to defray the cost of field camps and courses; optimal cost structures for field camps, e.g. what works best for the customer (the student) and the university; keeping records of field injuries and accidents in order to develop proactive loss-prevention programs; ways to mitigate, transfer or insure against field liabilities; and field course content and design.

The entire geologic community is called upon to reaffirm support for: industry-sponsored and subsidized field excursions for students; professional society-sponsored excursions for students (increase awareness among students); more industry (petroleum, mining, engineering, consulting) and government (federal, state and local) sponsored internships for students; space for students and faculty from disparate universities in field courses and camps; more opportunities for undergraduates to assist graduate students with fieldwork; inviting key stakeholders (university administrators, industry supporters, landowners, and alumni) on field excursions; and including non-majors (with possible emphasis on Education majors) and prospective geology majors on field excursions.

RESOLVED:

1. The AGI Geosciences Associates encourages and defends continuous field education, including major field experience(s), for all geology majors.

2. The AGI Geosciences Associates encourages and insists that academic institutions provide diverse field experiences, including traditional mapping experiences, and include material applicable to societal issues and the diverse career opportunities available today. The emphasis in all such experiences should be on critical thinking, hypothesis testing, and spatial relations.

The AGI Geosciences Associates endorses a goal of specific number of days of field experience for the BS/BA degree. That minimum number is 60 days. The emphasis in all such experiences should be on problem solving, not show and tell trips.
The AGI Geosciences Associates encourages institutions to develop creative, cost-effective, and enrollment-optimizing models

for delivering field experiences.

5. The AGI Geosciences Associates supports the integration of new technologies into the field experience.