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National Association of Geoscience Teachers

High School Earth Science Instruction

Drafting Team: Susan Buhr (Cooperative Institute for Research in Environmental Sciences) and Jennifer Wright (School of the Art Institute of Chicago)

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> The core mission of the National Association of Geoscience Teachers (NAGT) is *"to foster improvement in the teaching of the earth sciences at all levels of formal and informal instruction, to emphasize the cultural significance of the earth sciences and to disseminate knowledge in this field to the general public."*

The constant presence of climate, energy and natural disaster stories in the media testify to the interest of the US population in these topics, and to the increasing need for citizens to have a basic understanding of the Earth systems. Yet, most Americans' formal education in this vital science ends by the eighth grade. Virtually all of the issues facing human society surrounding sustainability have roots in the Earth sciences. This suggests that a population literate in the geosciences (that is, able to understand and communicate fundamental concepts and make informed and responsible decisions) is essential.

Although the geosciences are of vital national and public interest, and job growth in the geosciences outpaces supply, most U.S. learners end their formal Earth science learning in middle school. College admissions acceptance of high school Earth science courses as a "laboratory-based course" varies (American Geological Institute, 2011), which leads to a lack of perceived value. Less than a quarter of high school students receive instruction in Earth science in high school (compare to Biology at 91-94%) and only about 1% identify physical science or interdisciplinary science (such as geophysics) as their intended major (Gonzales, 2011). Students from racial and ethnic minority groups are not attracted into geosciences degree programs in proportion to their numbers in the population. The number of geosciences jobs is rising while the geosciences workforce nears retirement age and the number of conferred degrees is steady.

The NAGT supports robust Earth science instruction in high school and rigorous training of Earth science K-12 teachers. To that end, NAGT holds the following positions:

- Instruction should be inquiry-based, rigorous and empirical, and should prepare students as decision-makers in society.
- Completion of a rigorous geosciences course should be required by state departments of education at the high school level.
- An Advanced Placement Earth Science course that is rigorous, empirical, inquiry-based and relevant should be established in the geosciences.
- College Boards of Admissions and Requirements should admit demonstrably rigorous Earth science courses as fulfilling "laboratory-based course" admissions requirements.
- Teacher certification programs should include significant preparation in Earth sciences.
- High school guidance counselors must be made aware of geosciences as a viable career option for a wide range of students, and should be aware of colleges and programs for which high school geosciences courses fulfill admission requirements.

Works Cited

American Geological Institute. (2011, May 20). Geoscience Currents #44. Retrieved September 22, 2011, from http://www.agiweb.org/workforce/Currents/Currents-044-CollegeAdmissions.pdf

Gonzales, L. and Keane, C. (2011). Status of the Geoscience Work Force 2011. Alexandria, VA: American Geological Institute.