

In Recognition of Earth Science Week - Oct 10-16, 2004

From: The U.S. Geological Survey (USGS)
and the National Oceanic and Atmospheric Administration (NOAA)

To: The American Public

Subject: A Statement on the Importance of Earth Science Education



Make Earth Science Education As Dynamic As Earth Itself

The images of rivers spilling over their banks and washing away entire towns, buildings decimated to rubble by the violent shaking of Earth's plates, and molten lava flowing up from inside Earth's core are constant reminders of the power of the Earth. Humans are simply at the whim of the forces of Mother Nature – or are we?

Whether it is from a great natural disaster, a short-term weather event like El Niño, or longer-term processes like plate tectonics, earth processes affect us all. Yet we are only beginning to scratch the surface of our understanding of earth sciences. We believe the day will come when our understanding of these dynamic earth processes will prompt better policies and decisions about saving lives and property. One key place to start is in America's classrooms.

There is growing support to boost earth science education in K-12 curriculum. In the National Research Council's National Science Standards, a wide range of scientists in fields from chemistry to life sciences stressed the importance of educating students on the basics of earth science. They understand that in addition to contributing significantly to many issue-based concerns, earth science provides important context and meaning for further knowledge in life and physical sciences. The upcoming report of the U.S. Commission on Ocean Policy devotes an entire chapter to the importance of ocean education.

Earth science is a powerful tool because it offers experience in a diverse range of interrelated scientific disciplines. Because Earth itself is made up of countless interconnected and dynamic systems, it takes exactly this kind of broad focus to begin to understand it. In fact, complementary U.S. and global earth observation systems are now emerging to take Earth's pulse everywhere it beats — which is all over the globe. Only technology and information that is as linked and interrelated as our land, sea and atmosphere will enable us to do this effectively. Until the gaps in our scientific knowledge are addressed, there will always be blind spots and uncertainties in our understanding of Earth and how best to address accelerating 21st century challenges.

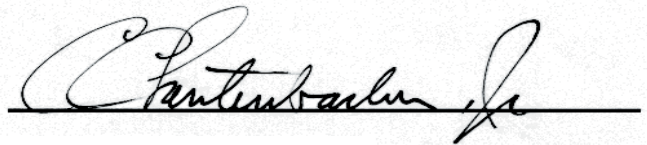
Furthermore, earth science is related closely to students' natural surroundings. It offers students subject matter that has direct application to their lives and the world around them. It offers many opportunities to collect data, hypothesize, experiment, and draw conclusions, both within school and outside environments. It can be both a teacher's and a student's dream.

Fortunately, many state science frameworks across the country recognize that earth science is necessary for all students and that schools should include earth science topics in the curriculum from kindergarten through grade 12. Nearly half of all states include earth science content in state-mandated high school exams and 37 states apply earth science courses toward high school graduation requirements. Yet in some states and school districts we find students without the opportunity to study this important science discipline. In 2001, a report issued by the Council of Chief State School Officers indicated that of this country's roughly 13 million high school students, less than seven percent, or 860,000, are taking a high school earth and space science course, a number far fewer than the 88 percent of students taking biology. In 1962, about 8.5 percent of students took a high school earth and space science course. Enrollment is going down at the same time earth science challenges are escalating.

By 2025, eight billion people will live on Earth. If we are to continue to maintain a high quality of life, we need to delve much more deeply into our planet — its processes, its resources and its environment. Only through earth science education can students come to understand and appreciate our complex planet and how to use its fragile, finite resources wisely. As the role of earth science in meeting society's needs continues to grow, it is essential that all students be given the opportunity to study earth science as an integral part of their education. It is time to recognize just how vital earth science education is to the future stewards of this planet — and to the planet itself.



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