

## Joining the Revolution

---

In June of 2001, a group of highly motivated and deeply dedicated individuals came together at Snowmass, Colorado to plot a revolution. As with any meaningful transformation, this revolution was founded upon a small number of common principles. First, Earth and space science education must be a core component of science education at all grade levels. Second, it is essential that modern instructional techniques produce student learning through personal inquiry. Third, the Earth is an integrated system of astonishing complexity and as educators, we must provide our students with an understanding and appreciation of that complexity. Taken together, these core values define the purpose and the direction of the Earth and space science education revolution.

A complete report the Snowmass meeting, along with a call to action may be found at the Revolution website [[www.EarthScienceEdRevolution.org](http://www.EarthScienceEdRevolution.org)] and I strongly recommend all science educators take a few minutes to review the findings and consider the recommendations of the conference participants.

The first, and most essential step in the advancement of the Revolution is the establishment of state-based alliances for the purpose of promoting Earth and space science education reform. In order to be successful, these alliances must involve the efforts of educators, scientists, and policy makers. The work of these alliances centers on the development and implementation of meaningful reform efforts, designed to produce measurable results. Naturally, state-based efforts must be coordinated nationally, an effort in which NAGT well suited to assist.

Beyond national coordination, there are two other areas within the Revolution that I feel members of NAGT are especially well positioned to affect. First, science faculty must team with our colleagues in schools of education to develop academic centers dedicated to the professional development of educators. By combining cutting edge science content knowledge with the best practices in

pedagogy, we can provide primary and secondary teachers with much needed support. Efforts must be made to establish centers dedicated to Earth science educational reform and NAGT, through the *Journal of Geoscience Education*, can provide a forum within which participants in this effort can provide outlines of successful prototypes.



Additionally, the *Journal* is dedicated to the advancement of the scholarly research on the teaching and learning of Earth science. The key to turning a good idea about teaching into meaningful pedagogical research is assessment. For far too long it has been acceptable to suggest that a particular teaching technique is successful because the students seemed to enjoy it. It is essential that as professional science educators we embrace efforts to assess student learning. Until such a time as we are able to clearly demonstrate meaningful impacts upon student learning, efforts at educational reform are nothing more than unsubstantiated 'just-so' stories. Research—fundamentally sound and scientifically based—is the only way to affect a lasting change in the educational climate. We have a duty to accept nothing but the best from ourselves, our colleagues, and our students.

The Revolution has begun and all our efforts are needed.

Carl N. Drummond, Editor