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Contributions of the Instituto de Geociências, Universidade de São Paulo, for Geoscience Education in Brazil

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Ever since the extinction of the undergraduate degree in Natural History in Brazil nearly 50 years ago and the concomitant creation of degrees in Biology and Geology, the natural sciences have been taught in elementary, middle and high schools practically solely by teachers trained in biology with little knowledge of geology. As a result, few Brazilians have much of an idea about how the Earth works or how its dynamics affect our society. And even fewer have any sort of holistic view of Nature or an understanding of the interdependence between the history of life and the history of the Earth. During this same period, the many advances and discoveries in the Earth Sciences have circulated within the relatively closed community of geologists and related scientists such that Brazilian students have been largely deprived of contact with integrated modern concepts in this field. This tendency has had a negative influence on the formation of a populace capable of expressing knowledgeable opinions and assuming responsibility with regard to the relationship between Nature and Society.

Admittedly, there are governmental regulations as to the science curriculum in schools, which deal with aspects of Biology, Chemistry, Physics, and Geography broadly related to the Earth Sciences. Even so, the dispersed and fragmentary nature of these topics within the curriculum may produce an undesirable utilitarian and urgent approach to the dynamics of Nature that is counterproductive in the development of a more constructive attitude toward the environment. Moreover, there are really not enough teachers prepared to teach these topics.

The Instituto de Geociências of the Universidade de São Paulo is consciously attempting to change science education in Brazil and to change the attitude of Brazilians towards problems of the occupation of the land and the use of natural resources. Some of the initiatives that have been taken recently include:

- Improvement of conditions and displays in the Institute's Museum of Geosciences for

teaching purposes. In the past year more than 20,000 elementary, middle and high school students and their teachers visited the Museum where they participated in practical activities and short talks adapted to the level of each group of visitors.

- Creation of a one-week summer course Designed for teachers on Geology dealing with global dynamics but also emphasizing critical aspects of land use and occupation and resource utilization.
- Publication of the first comprehensive textbook on Geology in Portuguese in 30 years, *Decifrando a Terra*, Honorable Mention in the 2002 edition of the Brazilian National Book Award in the category of Exact Sciences.
- Increased support for the presentation by undergraduate students of Geology as a science and as a profession in middle and high schools.
- Creation of the "Oficina de Réplicas" (Fossil replica workshop) for the production of teaching sets of replicas of a wide range of fossils.
- Creation of a new four-year teaching degree in Earth Sciences and Environmental Education to furnish more teachers with a broad knowledge and perspective of Nature and considerable practical experience capable of teaching modern Natural History.

The course in Earth Sciences and Environmental Education will graduate competent teachers and educators competent to take advantage of both formal and informal opportunities in education. At the formal level they will be able to teach basic Natural Sciences, such as Physics, Chemistry, Biology and Geography, and will also be ideally adapted for teaching Environmental Education, recently instituted nationally as a required course in public schools. Within the scope of informal and alternative forms of teaching, they will also be ideally suited for educational positions in museums, large companies concerned with the environment, ecotourism, scientific societies, private schools and the like.