# AAAS Symposium on IYPE
# Planet Earth: Lessons Ignored, Lessons Learned
# Friday, February 15, 2008

The United Nations has declared the year 2008 to be the International Year of Planet Earth (IYPE). The aim of the IYPE is to demonstrate new and exciting ways in which earth sciences can help future generations meet the challenges involved in ensuring a safer and more prosperous world. Understanding the Earth and its processes is essential to science literacy in the 21st century. The unequal distribution of resources and human population requires a global view of local solutions. Earth systems are stressed by climate change and demands for water, food, and energy. These demands create competition for earth resources. Geosciences need to be engaged within the discourse of global environmental change and of the conservation and preservation of natural resources. This symposium explores some of the ways to learn more about the Earth and its processes to provide for a sustainable future.

**Symposium Organizer: Lois Peterson**, National Academy of Sciences, Washington, DC
**Symposium Co-Organizers**: **Charles W. Rice**, Kansas State University, Manhattan, KS and
**Farouk El-Baz**, Boston University, Boston, MA
**Moderator: Farouk El-Baz**, Boston University, Boston, MA

**Location:** Hynes Convention Center, Room 210
**Time:** 10:30 A.M. – 12:00 P.M.

### *1) I-Earth: Introduction to Planet Earth:* Rosemary Knight

Many colleges and universities define General Education Requirements. These requirements should represent what we believe to be essential to education. At the start of the 21st century, what can be more essential to education than an understanding of the planet on which we live? Stanford is developing a new program, I-Earth, made up of courses that are designed to explore how Earth works; to grapple with the complex interconnectedness of human systems and natural systems; to think in new ways about sustainability, management of resources and protection of our environment.

### *2) Soil: Sustaining Food, Energy, and Human Health:* Charles W. Rice

Soils are a vital part of the geosciences. In the Year of the Planet Earth the awareness of soil as a resource goes beyond the traditional view as a support for food production. Soils are also involved in biogeochemical cycles, energy production, and the hydrological cycle. Humans are directly exposed to soils, which can adversely impact public health in terms of what we eat, drink, and breathe. Soils are vital to human health through nutritious food but also through a treasure trove of new drug chemistry from microbes that thrive in the soil. Soils aid in regulating climate, flooding and disease. Soils act as an interface between the atmosphere and the groundwater providing a filter for air and water. A change in soil due to global change could result in a loss genetic resource and the ecosystems services supplied through the soil.

### *3) When the Desert was Green*: Farouk-El Baz

The Great Sahara of North Africa, the largest desert belt on Earth, includes some of the driest regions of the Earth where the received solar radiation is capable of evaporating 200-times the amount of received rainfall. This results in a dependence on groundwater resources for human consumption and agricultural activities. Population increases and the attendant food and fiber requirements have exasperated the situation. New and innovative techniques need to be developed to locate additional water resources. Analysis of satellite images from several sources grouped in a GIS, indicates that this area once hosted much wetter climates. Radiocarbon dating and geo-archaeological investigations show that the eastern Sahara experienced a period of greater effective moisture from 10,000 to 5,000 years ago. Surface water during past moist climates led to the formation of lakes in topographic basins. These basins would have stored most of the water in the underlying porous sandstone rocks.