American Geophysical Union Fall Meeting

by Michael J. Passow
Earth Sciences Correspondent

The American Geophysical Union (AGU) Fall Meeting has evolved into one of the most important gatherings for Earth Systems scientists in the world. This year's convention proved why this is so: more than 12,000 participants in hundreds of sessions presenting more than 13,000 oral talks and posters about cutting-edge investigations. While these provide opportunities for researchers from across the globe to exchange information and ideas, the true highlights are the "Union" Lectures that cross all disciplines.

There was no doubt this year about the main attraction: "Climate Change: The Role of Science and the Media in Policymaking," presented by the Hon. Al Gore before more than 7,000 people in two huge ballrooms at the Marriott. Speaking before many of the people whose research forms the basis for *An Inconvenient Truth*, the former Vice President received standing ovations before and after his remarks, in which he challenged scientists to become more proactive in shaping public opinion and decisions.

Other "Union" themes included "Climate Change" and "The Earth's Core and Mantle." As more evidence indicates that Earth's climate is changing and that the long-term influence of these changes will be profound for Earth's habitability, the AGU meeting provided multiple sessions to examine these questions. Coupled systems involving the cryosphere, biosphere, atmosphere, and hydrological, oceanographic, and terrestrial regimes were discussed, especially with regard to feedback systems, temporal scales from decades to millennia and longer, and societal impacts.

Understanding the core-mantle boundary does not seem to be on the same level of potential impact as climate variability, but rapid advances have been made in the last few years utilizing new techniques in seismic studies and high-pressure geochemistry. The core-mantle boundary region plays an essential role in the thermal changes that affect core cooling and mantle heating, which, in turn, affect the crust-mantle convection and tectonics.

Much of the conference was devoted to the upcoming International Polar Year (www.ipy.org), which officially commences in March. Dozens of sessions focused on past research in the Arctic and Antarctic, and plans for the next steps. These sessions bring together investigators from around the world who usually communicate only through e-mail and published papers.

Additional major themes explored in highlighted sessions include such questions as: "Is Earth dimmer now than it was during the early 20th Century?" "What caused the record-setting 2004-2005 hurricane season?" "What really is happening in the Near-Surface (101 - 102 meters deep) geophysics zone?" "How well can we model global monsoons and climate change?" "What have we learned from the 2005 Java earthquake and tsunami?"

Posters by the thousands filled two huge halls of the Moscone Conference Center, providing opportunities for researchers to share their latest findings with colleagues, and also the first chance for students in undergraduate and high school research programs to present at a scientific meeting. Many students engaged in authentic research projects ranging from local water resources to NASA Mars exploration described what they have learned. One high school senior from Utah told me, "I'm amazed by how many intelligent people there are here!" For students who often encounter only a few others in their school with such deep passion for science, coming to this meeting can be a life-defining experience.

Among my personal meeting highlights was the opportunity to participate once again in the Geophysical Information for Teachers (GIFT) Workshop on Wednesday and Thursday. This year's theme was "Earthquakes and Tsunamis," organized by IRIS (Incorporated Research Institutions for Seismology, www.iris.edu). The Earth2Class Workshops for Teachers at Lamont-Doherty Earth Observatory (www.earth2class.org) was able to sponsor five teachers for this meeting: James Signorelli (Englewood, NJ); Sarah Sterling-Ladlee (Paterson, NJ); Carolina Castro (Bronx, NY); Jeffrey Williams (Bronx, NY); and Gregory Hofer (Queens, NY). They joined about twenty middle and high school teachers from California and elsewhere to learn more about what causes quakes, how they can be detected, impacts on the locations where they occur, historic events, and classroom applications.

In recent years, much has been learned about a 1700 "megathrust" event in the Pacific Northwest, which contains some serious potential for major destruction in the Seattle-Portland region so heavily populated today. We also learned about the effect across the Pacific in Japan, where the "orphan tsunami" struck with no forewarning tremors. Japanese seismologists shared what that nation has been doing to cope with its long history of seismic activity, including development of the earliest observation and warning systems.

The AGU Fall Meeting is always held in San Francisco in the second week of December. Even if you cannot attend in person, membership in AGU is one of the best bargains in science education professional development: only $20 per year will bring you lots of information.

Online versions of the scientific abstracts and other information are available through (www.agu.org/meetings/fm06/).

(*Editor's Note*: Mike Passow's report about the 2005 AGU Fall Meeting is found in our Winter/Spring 2006 issue.)