

IUGG session: Impact of CO2 Changes on Biogeochemical Processes and Ecosystem Functioning

Dear Colleagues:

We should like to draw your attention to a session entitled **Impact of CO2 Changes on Biogeochemical Processes and Ecosystem Functioning** at the IUGG general assembly in Perugia, Italy, on July 2 - 17, 2007 and we welcome your participation. Details of the session description are given below and further information about the assembly can be found at <http://www.iugg2007Perugia.it> .

Deadline for Abstracts (electronic submission): 28 February 2006.

The International Union of Geodesy and Geophysics (IUGG) is the international organization dedicated to advancing, promoting, and communicating knowledge of the Earth system, its space environment, and the dynamical processes causing change. It is sponsored by NSF, CIRES and national earth science bodies throughout the world.

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Best wishes,
Denise, Jim, and Jorge

PS009: Impact of CO2 Changes on Biogeochemical Processes and Ecosystem Functioning

This symposium will bring together a multidisciplinary approach to consider the impact of a high CO2 world on the biological and biochemical processes within the ocean. There is now clear scientific consensus that the increasing atmospheric levels of CO2, resulting mainly from human activities, are causing environmental change. While we understand the chemical processes involved when CO2 from the atmosphere dissolves in seawater, we know little about the impact.

A range of coupled climate models has been developed to investigate the response of the physical ocean-atmosphere system to increased greenhouse gases and aerosols. These simulations predict increases in ocean temperatures, more salty water in the subtropics and fresher water at high latitudes, increased oceanic stratification and a reduction in the mixed layer depth, and changes in cloud cover and sea ice. In turn, these changes are highly likely to cause significant alteration in nutrient and light availability and the length of the growing season and, taken together, will severely alter biological community structure. For example, warmer more oligotrophic conditions could result in increases in cyanobacteria, while increases in dust will induce more nitrogen-fixers.

In addition, there is now increasing concern about ocean acidity. The surface ocean pH is already 0.1 unit lower than pre-industrial levels and, by the end of the century, it will become another 0.3 - 0.4 units lower under the IS92a "business as usual" scenario. Experimental evidence suggests that if trends in ocean acidity continue, key marine organisms such as corals and coccolithophores will have difficulty in maintaining their calcium carbonate skeletons. Contributions that address all the above issues are welcomed.

Conveners

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