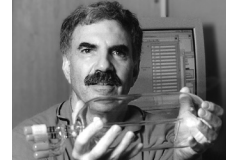


# Michael Bender

Professor of Geosciences  
Ph.D., Columbia University, 1970



## Research Interests

Bender's research involves studies of biogeochemistry and paleoclimate. Much of his work involves measuring the changing concentration and isotopic composition of  $O_2$  in air on various timescales, and using the results to characterize the fertility of ecosystems and to study Earth's climate history.

Bender's group measures the  $O_2$  concentration of air in samples collected for them biweekly at remote sites between Antarctica and Alaska. Rapid mixing in the atmosphere allow them to use  $O_2$  concentration changes as measures of rates of net production (photosynthesis minus respiration) on the scale of a hemisphere. Seasonal variations in the  $O_2$  concentration primarily reflect the productivity of the ocean biosphere. The change in the  $O_2$  concentration from one year to the next reflects the fate of fossil fuel  $CO_2$  which does not remain in the atmosphere: how much dissolves in the oceans, how much is incorporated into land plants?  $O_2$  is relevant because it is produced when plants grow, but not when  $CO_2$  dissolves in seawater.

## Areas of Expertise

Biogeochemistry and paleoclimate

## Contact Information

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