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Wallace S. Broecker

1931–2019

It is with great sadness and even greater respect that we mourn the passing of Wallace S. Broecker. To say that Wally's work led to significant advancements in ocean sciences and climate change is a gross understatement. It is hard to imagine oceanography without Wally as a source of ideas beyond count, a voice to bring understanding of the ocean and the carbon cycle to the forefront of public policy, and a spirited antagonist who goaded the rest of us to work both more creatively and more rigorously.

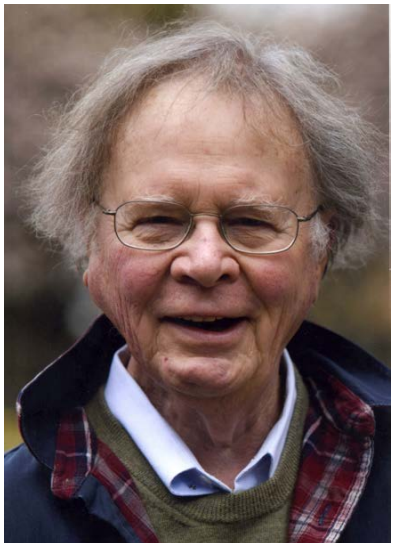


Photo credit: Lamont-Doherty Earth Observatory

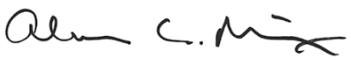
Wally's career started in the 1950s—the early days of isotope geochemistry—with key contributions in radiocarbon and uranium series dating. He provided early chronological evidence in favor of the astronomical theory of glaciation, a theory then out of favor but now broadly accepted as one of the cornerstones of paleoclimatology, and a key to understanding the high sensitivity of global climate to radiative forcing.

Wally's kinetic model of ocean chemistry, which nearly 50 years ago defined the ocean as a dynamic chemical system defined by inputs and outputs and response times rather than one at equilibrium, transcends his own work, and it changed how we think about the world.

With this dynamical framework in hand, Wally took on the task of understanding the mechanisms of natural CO_2 variations, and especially the marine carbon cycle. He promoted the idea that the role of CO_2 in natural climate oscillations preserved in the geologic record would yield insights into future consequences of polluting our atmosphere with greenhouse gases. Wally's inference of multiple stable states of the ocean-atmosphere system suggested the possibility of "unpleasant surprises" in global greenhouse warming should the system shift toward a new mode of operation. These concepts continue to provide a stark warning to policymakers regarding what may be irreversible consequences of humanity's propensity to pollute.

Many wonder how Wally accomplished so much. He revealed his secret during a public talk on ocean chemistry and carbon dioxide when he started with, "This morning in the shower I had an idea…." After the laughter died down, he said, "Well, what do YOU think about in the shower?" Clearly, the rest of us can learn to be more efficient with our time. Wally inspired generations of students and fellow scientists to think harder, faster, and better. Few of us in the field have escaped a battle with Wally at one time or another. He was often right, but again revealing his greatness, he was the first to admit publicly when he was wrong.

All ocean scientists have been influenced by Wally's ideas, and now we mourn the end of an era.



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