



Cycling of Black Carbon in the Ocean

Alysha I. Coppola and Ellen R.M. Druffel

Department of Earth System Science, University of California, Irvine, Croul Hall, Irvine CA, 92697-3100 United States
(acoppola@uci.edu)

Black Carbon (BC) is a byproduct of biomass burning and fossil fuel combustion and is a slow-cycling component of the carbon cycle. Whether BC accumulates and ages on millennial timescales in the world's oceans has remained unknown. Here, we quantified dissolved BC (DBC) in marine dissolved organic carbon (DOC) isolated by solid phase extraction (SPE) and determined its residence time. The range of DBC structures and ^{14}C ages indicates that DBC is not homogeneous in the ocean. We conclude that there are at least two distinct pools of marine DBC, a younger pool that cycles on centennial timescales and an ancient pool that cycles on >105 year timescales.