



CDIAC data management and archival support for a high-frequency atmospheric and seawater pCO₂ data set from 14 open ocean moorings

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Rising atmospheric carbon dioxide (CO₂) and climate change are increasing ocean temperatures and affecting ocean chemistry (e.g., ocean acidification). Monitoring these important changes using ships and other platforms generates large amounts of data from heterogeneous sources. Since its inception in 1993, when it became a member of the DOE/NOAA Ocean Carbon Science Team engaged in the World Ocean Circulation Experiment (WOCE), the CDIAC Ocean Carbon Data Management Project has been organizing, quality assuring, documenting, archiving and distributing ocean carbon-related data collected via a number of U.S. and international ocean-observing programs. CDIAC's ocean carbon data collection includes discrete and underway measurements from a variety of platforms (e.g., research ships, commercial ships, buoys) in all oceans from the surface to seafloor. One important project at CDIAC is the data management support for the Global CO₂ Time-series and Moorings Project. This poster will describe the collaboration between NOAA/PMEL Mooring group and CDIAC in the data management and archival of a high-frequency atmospheric and seawater pCO₂ data from 14 open ocean sites using moored autonomous systems. Advancements in the ocean carbon observation network over the last decade, such as the development and deployment of Moored Autonomous pCO₂ (MAPCO₂) systems, have dramatically improved our ability to characterize ocean climate, sea-air gas exchange, and biogeochemical processes. The Moored Autonomous pCO₂ (MAPCO₂) system provides high-resolution surface seawater and atmospheric CO₂ data that can help us understand inter-annual, seasonal, and sub-seasonal dynamics and provide constraints on the impact of short-term biogeochemical variability on CO₂ fluxes. CDIAC NDP-092 provides a description of the data as well as the methods and data quality control involved in developing an open-ocean MAPCO₂ data set including over 100,000 individual atmospheric and seawater pCO₂ measurements on 14 surface buoys from 2004 through 2011. The climate-quality data provided by the MAPCO₂ have allowed for the establishment of open-ocean observatories to track surface ocean pCO₂ changes around the globe. Data are available at [doi:10.3334/CDIAC/OTG.TSM_NDP092](https://doi.org/10.3334/CDIAC/OTG.TSM_NDP092) and <http://cdiac.ornl.gov/oceans/Moorings/ndp092>.