



Surface ocean CO₂ global dataset

B. Pfeil (1), A. Olsen (1), D. Bakker (2) and N. Dittert (3)

1. Bjerknes Centre for Climate Research, Bergen, Norway
2. University of East Anglia, UK
3. World Data Center for Marine Environmental Sciences, Bremen, Germany

For the past decades underway carbon dioxide data have been reported heterogeneously. Differences in derivations and missing essential parameters made a direct comparison of data difficult and sometimes impossible.

Underway data from approximately 1300 cruises were compiled to a common data set while missing data was extracted from standard data sets (World Ocean Atlas 2005, NCEP/NCAR). The fugacity for carbon dioxide for air in equilibrium with seawater at sea surface temperature was calculated. The data set now contains more than 6 million quality controlled measurements all in the same format from 1972 - 2007 including detailed metadata. Besides the calculated $f\text{CO}_2$ it contains the reported carbon dioxide parameters, salinity, sea surface temperature and other important reported or added parameters.

About 5 million measurements are public and the rest of the data will go public as soon as being published. All scripts for converting data to a common format and calculations are publicly available. The transparency of our work is essential for assuring the best quality data product in the future since everybody can directly see the changes we made to the data.