

## **Compiling Estimates of Cenozoic CO<sub>2</sub> from Multiple Proxies**

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Atmospheric CO<sub>2</sub> concentrations are known in the present day from observations at Mauna Loa, but for the majority of Earth's history atmospheric CO<sub>2</sub> concentrations are estimated using proxies. There are multiple proxies able to reconstruct atmospheric CO<sub>2</sub>, both marine and terrestrial, organic and inorganic. Reconciling these records is difficult due to differences in methodology. Synthesising multiple proxy records into a single atmospheric CO<sub>2</sub> curve is made additionally challenging because, while paleo CO<sub>2</sub> data have been compiled in the past, compilations have not included all auxiliary data required to perform proxy to CO<sub>2</sub> calculations with comparable uncertainties.

To resolve this problem, we have collated all known Cenozoic paleo CO<sub>2</sub> data into a single compilation, incorporating available contributory information. This synthesis contains a record of what was originally published, as well as a revised version that has been vetted. Vetting was performed by proxy experts, who established which of the data are still considered scientifically sound, and worked to standardise the reporting of uncertainties between proxies.

Building on these newly available data, we have created the paleo-co2.org website. The website provides access to the data through interactive figures, as well as detailed information describing each atmospheric CO<sub>2</sub> proxy.

Here we show excerpts from both the database and website, discuss the difficulties we encountered in collating and standardising these data, and outline the benefits this new resource will provide.

We envisage that this website and data compilation will become the primary resource for provisioning paleo CO<sub>2</sub> data.