



## **Analysis of land and ocean carbon cycle feedback to future climate change using an earth system modeling approach**

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An earth system model was developed to analyze the terrestrial carbon cycle feedback to future climate change. The model comprised of atmospheric (Arpege) and oceanic (Micom) general circulation and terrestrial (Lpj) and oceanic (Hamocc) carbon cycle components. The earth system model is integrated for the 1850-2100 time period and is forced by historical emission and IPCC emission scenario A2. When the LPJ model is ran offline, it was able to generate the plant functional type reasonably well compared to the Köppen classification. In order to evaluate the oceanic and terrestrial sink of anthropogenic carbon with and without the climate feedbacks, two sets of simulation were performed. In this study, the terrestrial and oceanic accumulated carbon uptake and the regional variability simulated by the model will be analyzed, quantified, and compared with other studies.