

Synthesis of top-down and bottom-up estimations of terrestrial CO₂ budget in Asia

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In the framework of Environment Research and Technology Development Funds (2-1401) from the Ministry of the Environment of Japan, we initiated synthesis analysis toward better estimations and understandings of terrestrial CO₂ budget in Asia. We used multiple different data products such as atmospheric inverse analysis (top-down estimation), terrestrial ecosystem models, remote sensing data, and data-driven models (bottom-up estimation). Our analysis focuses on (1) inter-decadal changes in terrestrial CO₂ fluxes at continental scales (Asia and Siberia), (2) testing consistency of terrestrial sink magnitude between top-down and bottom-up estimations in Asia, and (3) detection and analysis of 'hotspot' of terrestrial CO₂ budget changes in Siberia and tropical Asia. We will show these progresses, and discuss future direction of these studies.

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