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Changing precipitation regimes and photosynthetic performance of the East-Siberian taiga

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Observational and experimental evidence demonstrated that CO_2 uptake by a mature larch forest in eastern Siberia was sensitively, strongly, and frequently limited by air and soil drought. These results challenge the previously accepted concept that soil drought causes little limitation in CO_2 uptake because thawing soil in the deep active soil layer supplies sufficient water. Current decreases in precipitation will accelerate soil moisture losses and cause drier atmospheric conditions, creating positive feedback between increasing atmospheric CO_2 concentrations and reduced CO_2 uptake by the carbon sink.