



## **Characterizing carbon accumulation in peatlands of NE China by paleolimnology**

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Peatland ecosystems contain large carbon (C) stocks and are considered to play an important role in global C cycling, thus having potential implications for global climate change. Most studies of peatland C dynamics have been carried out on boreal and subarctic peatlands because of a greater increase in temperature than the global average according to climate models prediction. However, there are significant peatland C stocks at lower latitudes. They are closer to the climatic limit of peatland distribution, and may be more vulnerable to future climate change. Compared to the boreal and subarctic peatlands, current research about C accumulation in temperate peatlands is in its infancy and is gradually being developed. Northeast (NE) China is China's largest wetland region, with extensive peatlands in mountain regions (Changbai Mt, Great and Small Hinggan Mts) and across the plains (Sanjiang Plain and Songliao Plain). Here, we used paleolimnology data from 134 peatland cores from the mountain and plain peatlands to quantify the C accumulation rate over different time scales, including long-term (apparent) rate of C accumulation (LORCA) and recent (apparent) rate of C accumulation (RERCA) and to estimate C storage of peatlands across NE China. The relations between climate and peat accumulation rate as well as the latitudinal patterns of the accumulation rates were also addressed. Our results could provide an insight into the possible future response of the peatland ecosystem in NE China to climate change, and the database would also usefully complement to a global picture of peatland C cycle in the future.