

# Hydrological Transport and Biological Degradation of Dissolved Organic Carbon in a Headwater Tributary of the Yangtze

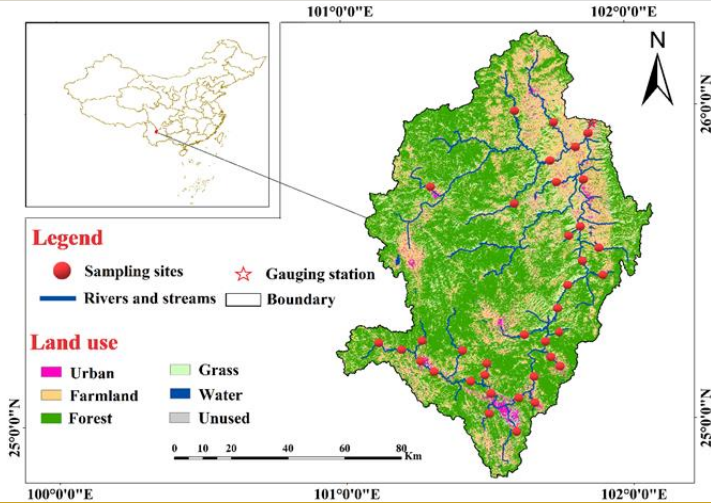
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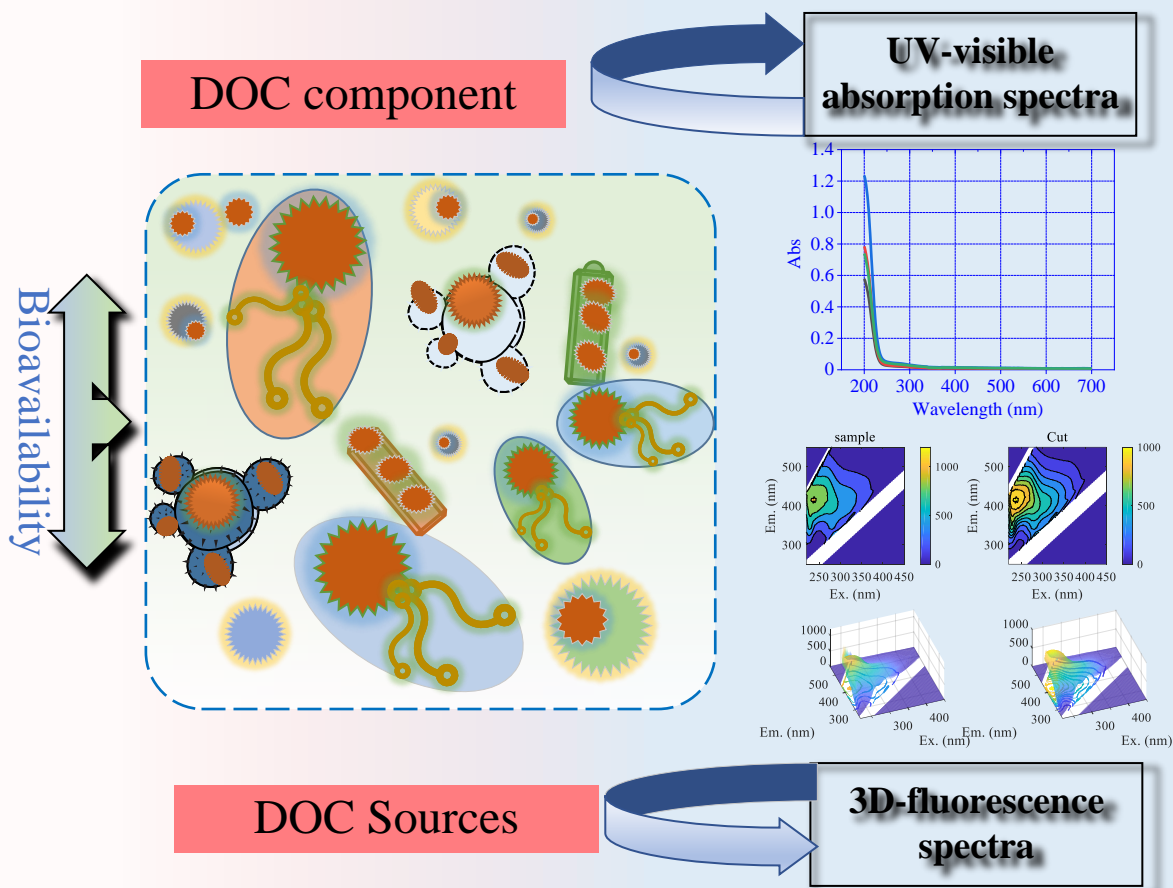
## Background

River systems represent important drivers of carbon loading, utilization and storage. However, underlying controls of hydrological transport and biological degradation on fluvial dissolved organic carbon (DOC) have yet to be revealed. Here, we explored spatiotemporal variability of DOC concentrations, components and sources, as well as its biodegradability in a headwater tributary of the Yangtze.

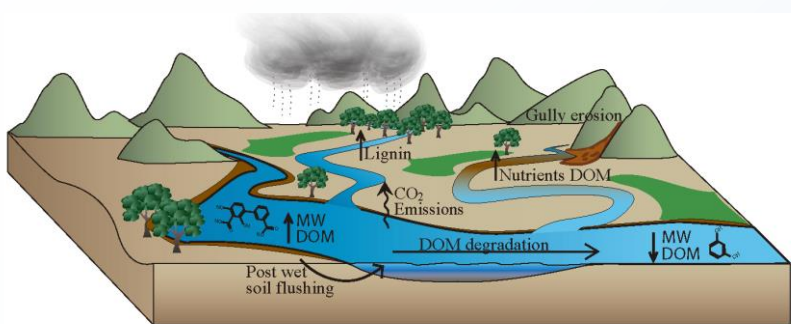


## Method

1. Riverine DOC was determined by multi N/C 2100S (Analytik Jena, Germany).
2. UV-visible absorption spectra was measured using a double-beam scanning spectrophotometer (UV-5500PC, Shanghai).
3. Excitation-emission matrices (EEMs) fluorescence spectra was scanned using a fluorescence spectrophotometer (F-7000 FL Spectrophotometer, Japan).
4. The modified laboratory incubations were conducted for 56 days at the temperatures of 20°C and 30°C.

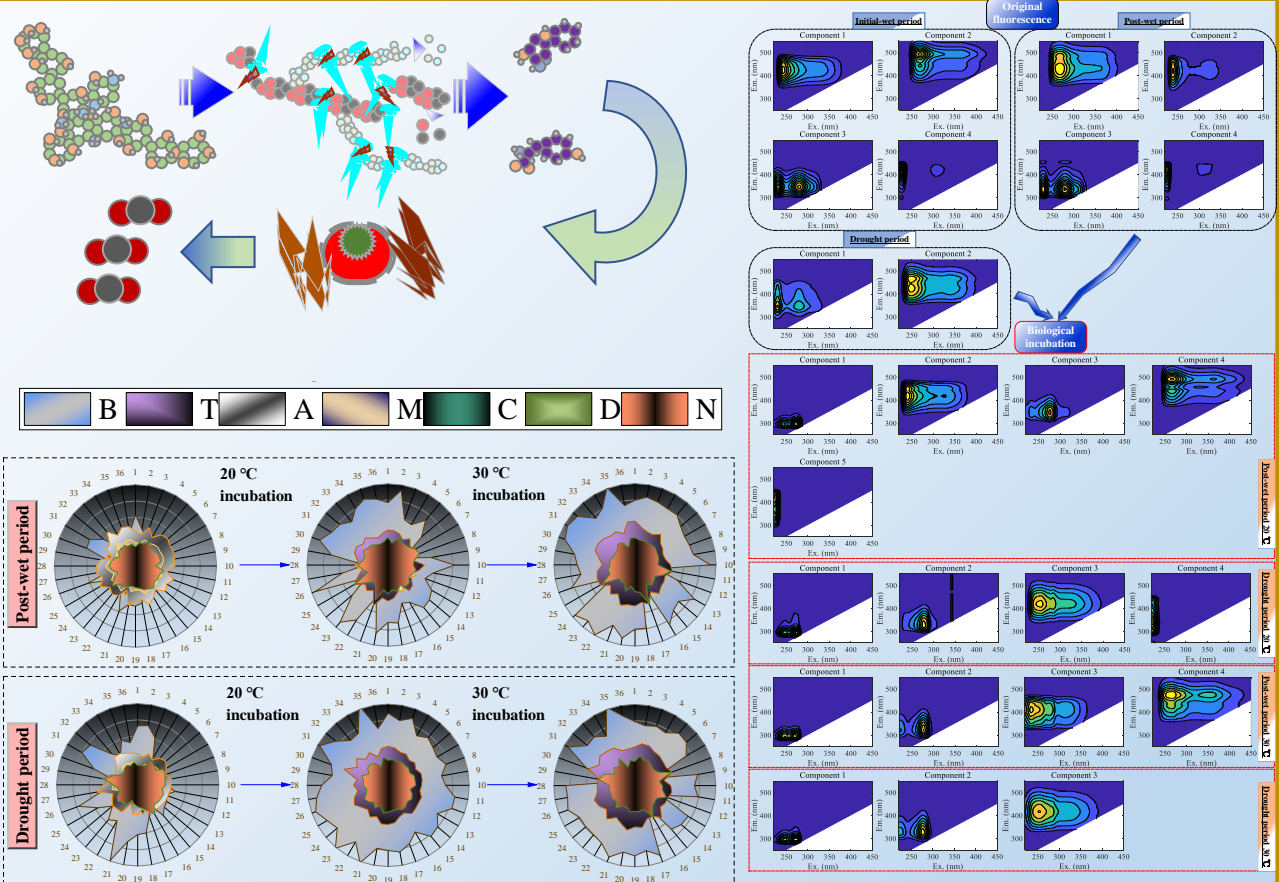


## Results



**Fig. 1** Riverine dissolved organic carbon dynamic and fate in response to CO<sub>2</sub> outgassing

1. Optical parameters were the useful indicators for the CO<sub>2</sub> sources and DOM biodegradation
2. Ultraviolet humic-like component contributes to riverine dissolved organic matter biodegradation



**Fig. 2** Changes of dissolved organic carbon components after DOM incubation and its conceptual framework

## Reference

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3. Ni maofei, et al. Linking riverine partial pressure of carbon dioxide to dissolved organic matter optical properties in a Dry-hot Valley Region[J]. Sci Total Environ, 2020.