Seasonal and vertical variability of molecular weight of dissolved organic matter (DOM) in Lake Hongfeng water column

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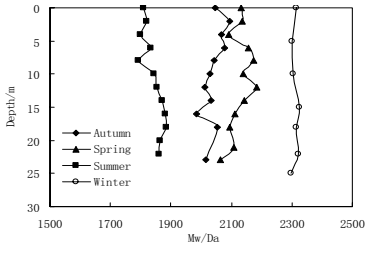
Materials and Method

Water samples were collected from Lake Hongfeng in a carbonate region in the Southwestern Plateau of China. The method is similar to that described by Chin et al. (1994). The results were list in the figure below.

Results and Discussion

The main reason makes this result is the weather and the DOM source. The rain took lot of soil DOM into lake in spring with high weight-averaged molecular weight (Mw). The DOM in water underwent degradation because of solar irradiation and microbe, especially in summer. So the large DOM made some middle and small DOM. At the same time, the middle and small DOM were transformed into CO_2 and H_20. At the other hand, the large Mw DOM occupied the large part of DOM. Therefore, the DOM has a relatively larger Mw in autumn than that in summer. This interpretation is useful for DOM in winter water.



The vertical distribution of Mw showed several form in different season. The soil DOM is relatively large part Mw DOM. These DOM led to the Mw is higher in upper water in spring. The large Mw DOM in autumn water mainly came from decomposition of particulate DOM. Exposing to strong sunlight, the DOM had a relatively smaller Mw in upper summer water. In winter, the water was mixed equally. It had a similar content and composition of DOM in the whole water column. Therefore, the Mw of DOM remained relatively constant in water column.

Reference

Chin, Y. P., Aiken, G., and O'Loughlin, E., (1994). *Envir. Sci. Tech.*, **28**,1853-1858.