

Development of multi-tracer method for evaluation of water cycle process in urban area

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The water cycle in urban areas has been changing quantitatively and qualitatively by urbanization. Urbanization such as reducing of croplands, covering of ground surface by concrete and asphalt, covering of riverbed, and development of sewer system reduces the flux of water cycle. Contrary, leakage from the water pipes and sewers increases the flux. On the other hand, groundwater development is possible to change the groundwater flow system. These kinds of water environment change occur in variety depending on the stage of urbanization.

Enormous hydrological studies have been done widely to evaluate the water cycle in urban areas using various kinds of tracers such as dissolved ions and environmental isotopes. However, it still is difficult to evaluate the water cycle, because the water cycle has been changed continuously with the development of urban areas. We focus on the PPCPs and artificial sweeteners as new tracers to develop a multi-tracers method in this study. In Japan, various artificial sweeteners have been used and the major kinds of them have been changed with the times. Thus, it is expected that the artificial sweeteners are useful not only for tracers but also indicators of the groundwater age. We will show the outline of this study in the presentation. This work was supported by JSPS KAKENHI Grant Number 19K12293-00.

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