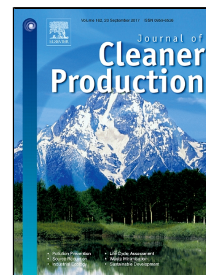


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A simulation program on change trend of pollutant concentration under water pollution accidents and its application in Heshangshan drinking water source area



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1        **A simulation program on change trend of pollutant concentration**  
2        **under water pollution accidents and its application in Heshangshan**  
3        **drinking water source area**

4  
5                Xiaowen Ding<sup>1,2,\*</sup>, Shouyan Wang<sup>1</sup>, Guihong Jiang<sup>1</sup>, Guohe Huang<sup>1,2</sup>  
6

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11        **Abstract:**

12        With the rapid development of the economy in recent years, water pollution accidents have  
13        occurred frequently, and accidents that have occurred in drinking water source areas in  
14        particular have seriously affected public health and social safety. The objective of this study is  
15        to develop a program to predict the diffusion and migration processes of pollutants after water  
16        pollution accidents and apply it to the Heshangshan drinking water source area. Taking Cd as  
17        a typical pollutant, the results indicated that Cd concentrations at the water intake reached a  
18        maximum value of  $1.2490 \times 10^4$  mg/L at 14.08 min after a hypothetical accident, and the time  
19        when the area lost the function of drinking water supply was from 8.35 min to 24.23 min after  
20        the accident. Regarding the drinking water source area, the Cd concentration exceeded the  
21        related standard during the period from 7.29 min to 41.47 min after the accident, which  
22        indicated that it was polluted seriously by the accident for that duration. Moreover, the  
23        pollutant entered into the study area at 7.00 min after the accident and had passed through at  
24        45.63 min after the accident, which demonstrated that emergency measures should be taken  
25        for this duration. The developed simulation program could simulate the spatial distribution

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