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## Groundwater anomaly related to the 2018 Hokkaido Eastern Iburi earthquake in Northern Japan

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In order to study groundwater anomaly related to the 2018 Hokkaido Eastern earthquake (Mw6.6) occurred on 6<sup>th</sup> September, we have measured  $\delta D$  and  $\delta^{18}O$  values of commercial bottled mineral water at two sites in Iburi region, Hokkaido, Northern Japan from June 2015 to May 2019. At the Uenae site, 21km west of the epicenter, both  $\delta D$  and  $\delta^{18}O$  values are constant from June 2015 to February 2018. Then these values have decreased substantially from April 2018 to December 2018 with significant fluctuations. These variations may be attributable to a mixing of groundwater with light  $\delta D$  and  $\delta^{18}O$  values. At the Eniwa site 34km northwest of the epicenter,  $\delta D$  values have decreased slightly and monotonically, while  $\delta^{18}O$  values are constant from June 2016 to October 2018. Observed isotopic variations of the Uenae site are different from those found at the 2016 Tottori earthquake where the  $\delta^{18}O$  value of groundwater increased a couple of months before the seismic event, while the  $\delta D$  value was constant. These data were attributable to water-rock interaction in the aquifer. Thus, the mechanism of groundwater isotopic anomaly may be different between Tottori and Hokkaido earthquakes. In addition to the M6.7 earthquake, CO<sub>2</sub> injection by CCS project at Tomakomai, 13km southwest of the Uene site may be another factor to induce such variations. In order to evaluate the environmental impact of CO<sub>2</sub> injection, we should measure total carbonate concentration and  $\delta^{13}C$  value of carbonate at both sites. Then we will discuss mechanism of groundwater anomaly.