

# The application of radiochemical and isotopic studies to inform on the impact of acidic effluent discharges from the Caldas Uranium Mine into neighboring surface waters

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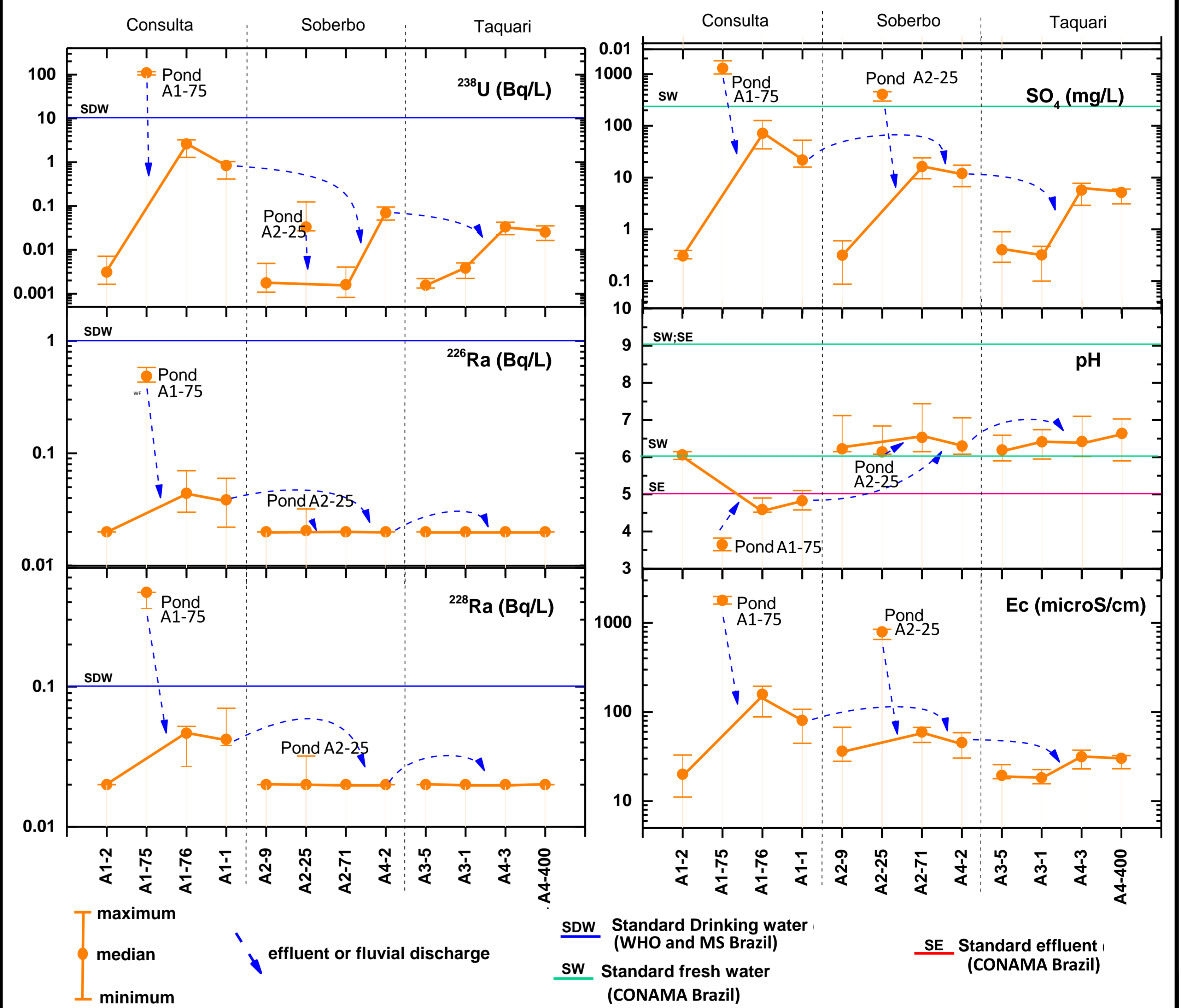
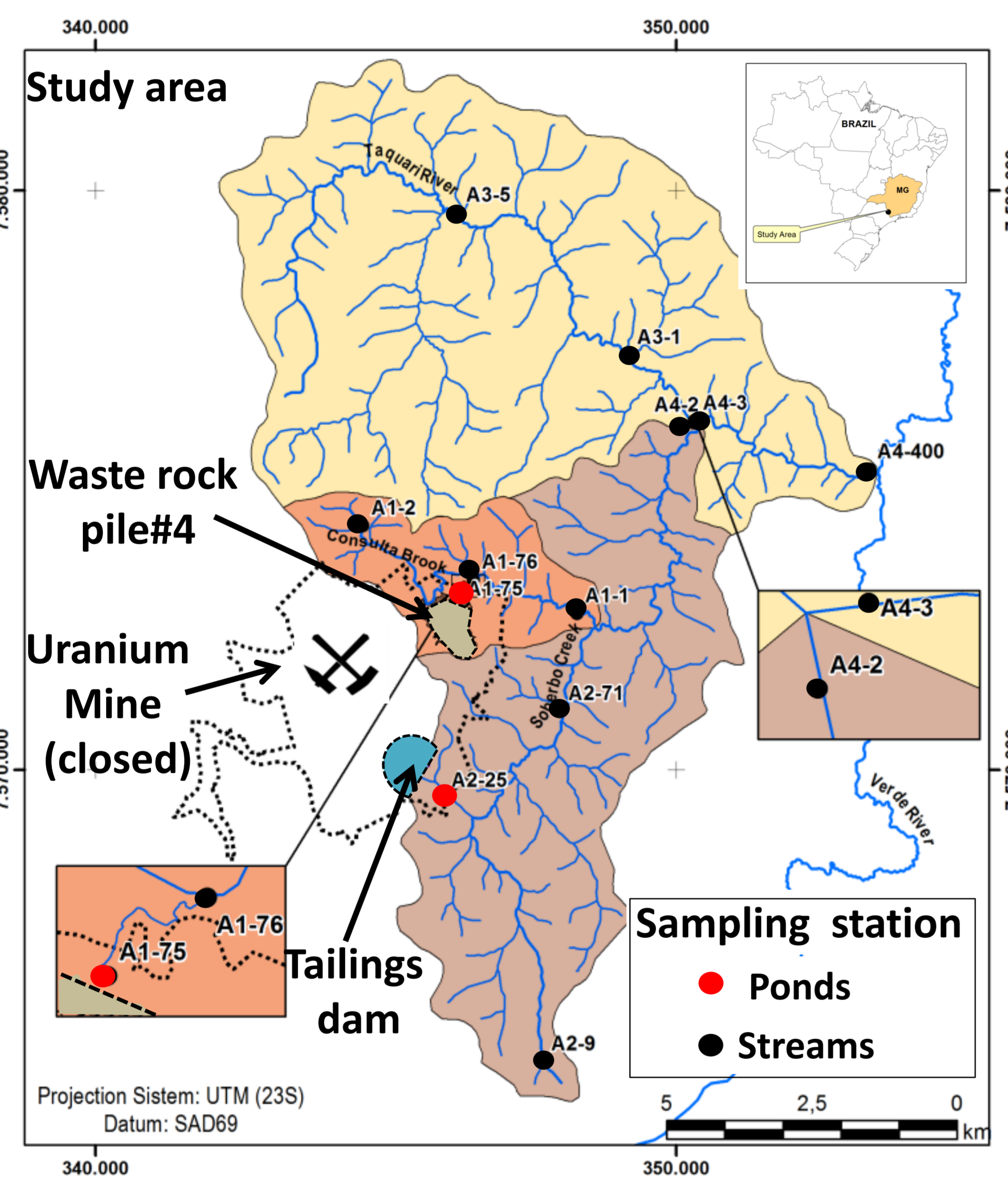
**Introduction**

24 to 28 April 2017, Vienna, Austria

**Results**

The Caldas Uranium Mine (Brazil) is undergoing a decommissioning process. The work aimed to evaluate the influence of effluents from this mine on six downstream sampling stations.

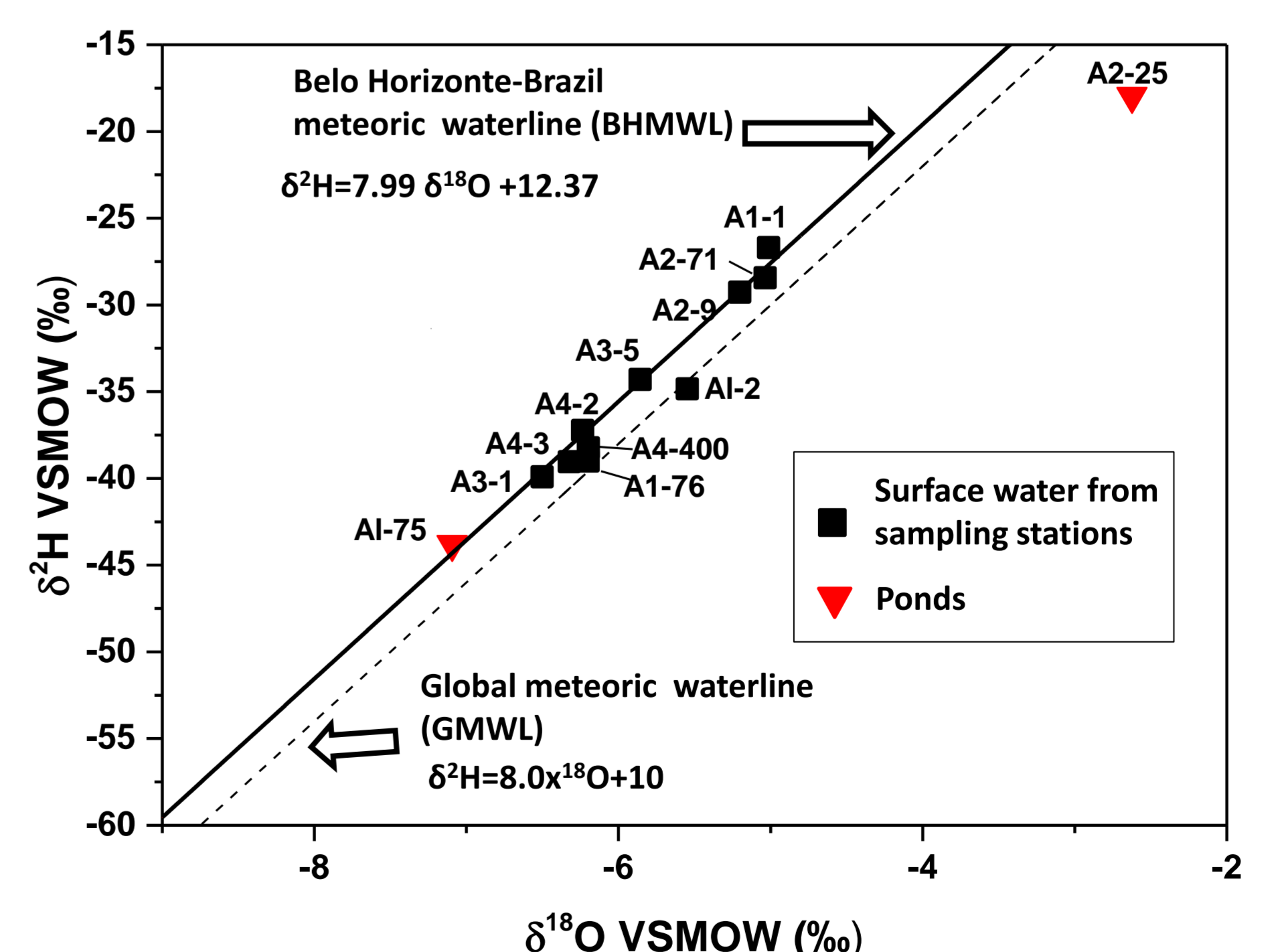
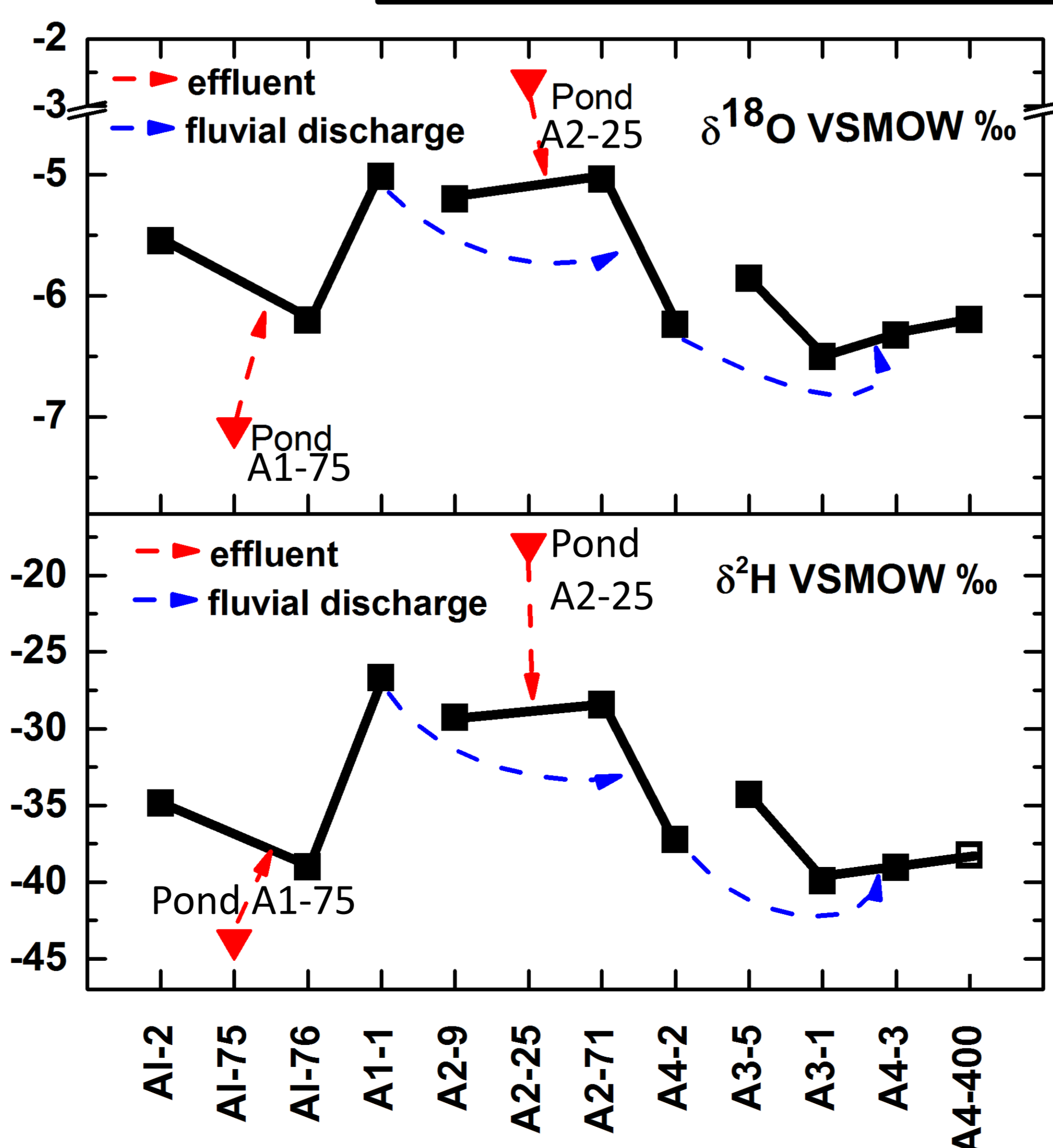
Mine effluents (ponds) were causing an increase in the acidity, Ec, sulfate concentration, and  $^{238}\text{U}$ ,  $^{226}\text{Ra}$  and  $^{228}\text{Ra}$  activity concentrations, in downstream watercourses.



**Results**

Waste pile #4 effluent discharges (A1-75 pond) caused a depletion of  $^2\text{H}$  and  $^{18}\text{O}$  in the waters downstream.

Tailings dam effluent discharges (A2-25 pond) caused an enrichment on both isotopes.



**Conclusion: The Work showed that mine effluents are interfering on the radionuclides concentrations downstream.**