

Tuesday 22nd March 2022, 9.00 am – 10.45 am

Speciation and Sediment Associations of Antimony and Arsenic in A Freshwater System.

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ABSTRACT. The Macleay River Catchment of New South Wales, Australia, hosts one of the largest known dispersions of antimony (Sb) and arsenic (As) in the world. This contamination, sourced from historic mine waste from the Hillgrove Mineral Field, stretches over 320km of the Bakers Creek – Macleay River waterway. While the severity and extent of the contamination has been well-delineated in past studies little work had been undertaken to quantify the speciation and solid-state associations of Sb and As in the system. Given these aspects of metalloid geochemistry directly influence the mobility and toxicity of Sb and As, some quantification of these parameters is needed to develop effective risk management strategies. As such, the speciation and sediment associations of Sb and As were analysed at key sites throughout the catchment to address this knowledge gap and provide real-world data on metalloid transformations in a complex co-contaminated system. The study identified important contrasts in metalloid behaviour across varied environments, and found metalloid associations varied throughout the catchment largely as a function of distance from primary mineral sources. The results of the study can be used to develop localised risk management plans for the catchment tailored to the underlying metalloid associations, while informing the management of similarly co-contaminated environments around the world.

BIO. Steven is in the final stages of submitting a PhD through the University of New England on the geochemistry of Sb and As in co-contaminated freshwater environments. Steven currently holds a joint position between UNE and the Legacy Mines Program undertaking preliminary assessments of historic mine sites, having previously completed numerous investigations and research projects on mine contaminated soils.

You are welcome to attend virtually in the [Zoom seminar room](#) (Meeting ID: 661 2561 8101, psw: 123456).

The presentation will be followed by a talk by Ursina Morgenthaler, PhD candidate from the Soil Science Group, on the topic:

“Antimony Release from Flooded Swiss Shooting Range Soil.”

