PRECONCENTRATION OF NOBLE METALS ANALYZED BY INDUCTIVELY COUPLED PLASMA MASS SPECTROMETRY WITH FLOW INJECTION ANALYSIS. Madison Langley, Michael Trolio, Diane Beauchemin. Queen’s University, Department of Chemistry, 90 Bader Lane, Kingston ON K7L 3N6, Canada. (madison.langley@queensu.ca)

Analytical boundaries are present in the determination of noble metals in environmental samples such as their occurrence at low concentrations and complex matrices. With the increasingly high demand for these metals, their low abundance, and no suitable substitutes analytical techniques must be developed to overcome these boundaries. Inductively coupled plasma mass spectrometry (ICP-MS) was coupled with flow injection analysis (FIA) to optimize a preconcentration method for the analysis of noble metals Ag, Au, Ir, Os, Pd, Pt, Re, Rh, and Ru. The samples were preconcentrated through the formation of chloro-complexes using 0.01 M HCl, loaded onto an alumina column, eluted with a mixture of thiourea and aqua regia and then analysed using coupled ICP-MS and FIA. Through the use of alumina as a sorbent and a mixture of thiourea and aqua regia as eluents, recovery of all the noble metals were possible and 3-25 times preconcentration was observed which can be used for the accurate determination in geological samples. Validity of the method was confirmed through the analysis of CDN-PGMS-19 ore reference material.