

# SciAps ApNotes

May 2020



## Gold Pathfinders with SciAps XRF

### Introduction

Gold has evoked fascination over the course of history, sought after for its beauty and value as currency for trade. This remains true today, and the increased desire for the precious yellow metal combined with reduced discovery rates continues to drive the value of gold higher. Novel methods for accelerating discovery and improving efficiency in the extraction and processing of gold and other valuable commodities present opportunities to optimise projects.

**Handheld portable XRF (pXRF) has become a common tool in the arsenal of field geoscientists in a range of applications from cradle to grave in mining operations today.** Used in conjunction with a well-planned laboratory analysis program, XRF can provide real-time information to improve decision making related to these projects. The body of work that now exists related to using this type of analytical device has established a solid knowledge of suggested methodologies that should be employed to achieve fit-for-purpose data for a range of applications including gold exploration.

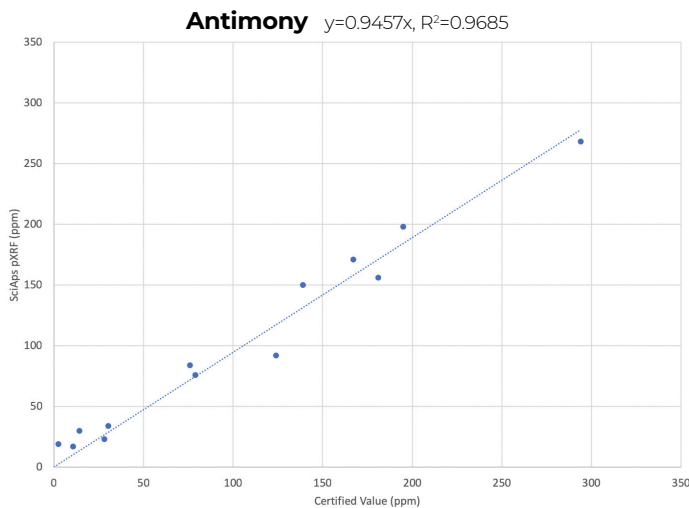
### Data and Discussion

The technique of measuring and mapping the concentrations and combination of elements associated with gold mineralisation can not only potentially identify targets for gold mineralisation but inform geologists on the style of mineralisation. These elements and their unique signatures are often referred to as pathfinder elements. The detection limits for gold are similar to

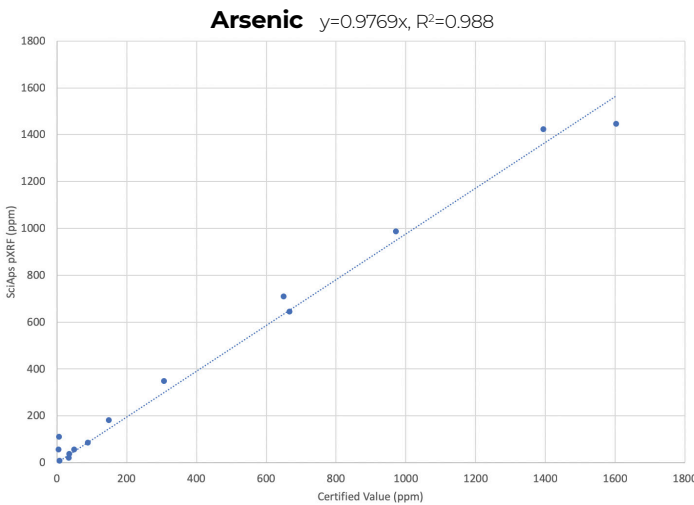
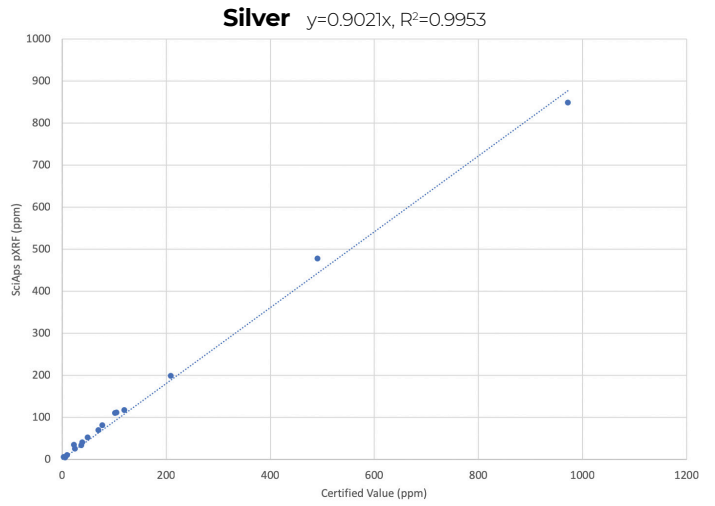
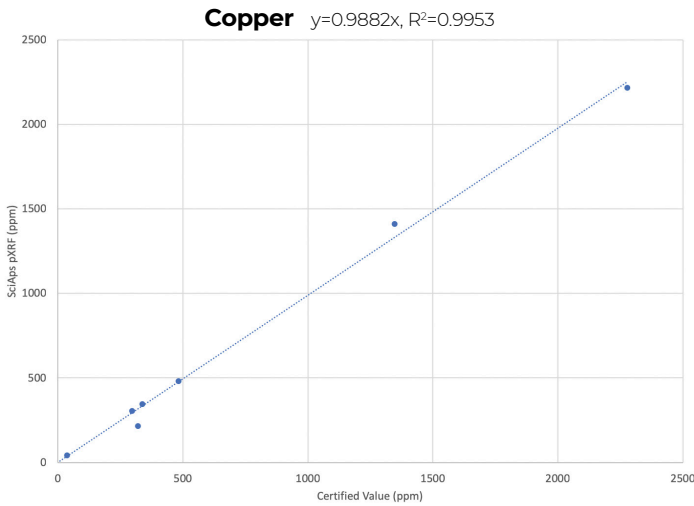


many other base metal and pathfinder elements in the range of 1-10 ppm. The detection and subsequent measurement of gold and concentrations is often not feasible using XRF in an exploration setting due to the concentrations related to anomalies typically being sub-ppm.

SciAps X-200 Rh anode LODs		
	60s	120s
Ag	3	2
As	3	2
Bi	3	2
Cu	12	8
Mo	1	1
Sb	9	6
Sn	5	4
Te	9	6
Zn	7	5



27 CRMs of varying matrix types and mineralogy were selected for their low concentrations of pathfinder elements. The CRMs were analyzed by SciAps XRF and results were compared to the certified values. The SciAps XRF performed quite well as compared to the certified values for elements Ag, As, Cu, Sb with R2 values of 0.99, 0.97, 0.99 and 0.95 respectively



### Summary

SciAps offers a range of XRF analyzers that provide cost-effective solutions for the mineral exploration and mining industries. The X Series is developed and built by experienced industry professionals who have been in the business of hand-held XRF from the beginning. With options of anode choice and carefully selected element suites that deliver industry leading analytical performance, combined with flexible and intuitive Android user interface, SciAps is a natural choice for the serious explorer or miner.



**XRF Test Stand**  
*allows you to turn your X-200 handheld into a bench-top analyzer. Fully shielded with hardware interlocks for ultimate X-ray safety.*

 XRF demos at [YouTube.com/SciAps](https://www.youtube.com/SciAps)



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