

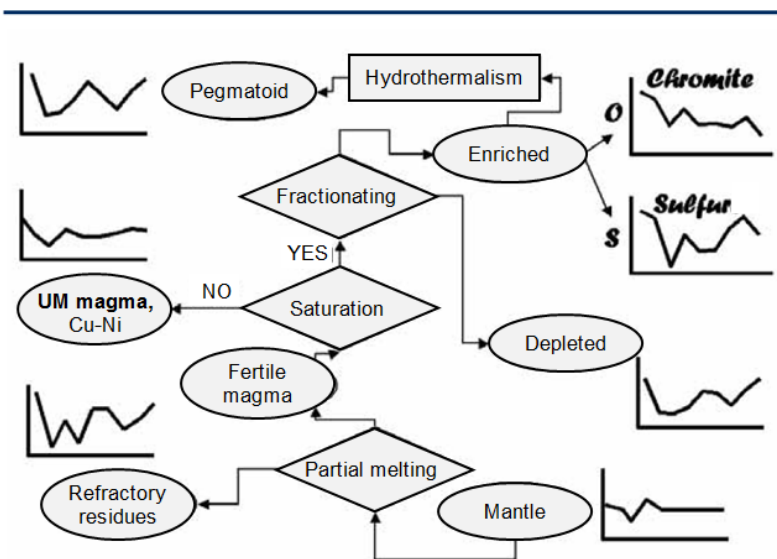
2003-09: A new exploration tool for platinum group elements exploration - the RA-PGE diagram

A new exploration tool applicable to platinum group elements has been developed. The EGP spider-ratio diagram (RA-PGE) can highlight the different magmatic sources and their fertility status or PGE depletion. Simple and effective, it aims to maximize the use of the information contained in the traditional binary diagrams and reduce the subjectivity associated with the interpretation of the variation in interelement ratios.

The parameters of the RA-PGE diagram correspond to the factor $1000 \cdot \Sigma(\text{Pd}+\text{Pt})$ and Pd/S, Ni/Pd, Ni/Cu, Cu/Pd, Cu/Pt, Pd/Pt, Pd/Ir and Cu/Ir normalized ratios relative to the primitive mantle.

The use and characteristics of the PGE spider-ratio profiles were developed from the literature. Subsequently, mantle signatures, refractory residues from partial melting of the mantle, ultramafic magmas saturated in Cu-Ni, depleted magmas, magmas enriched in sulfur and oxides, and pegmatoids were determined.

The basic principles behind the diagrams were described in project 2002-2. As part of the current project, a reference database of worldwide PGE mineralisation contexts was completed and an assessment and decision-making software was created to compare with these different environments.



Organigram summarizing the different signatures of RA-EGP in relation with the petrogenetic environments.

Summary: Project 2003-9	
Objectives	<ul style="list-style-type: none"> To develop new tools for PGE exploration. To create a definitive version of PGE-spider ratio diagrams.
Results	<ul style="list-style-type: none"> PGE-spider ratio diagram using a small group of six elements that allow the classification of igneous signatures and the identification of fertility states, depletion, and/or hydrothermal mobilisation. Designing a user-friendly interface (Access) for interpretation.
Innovations	<ul style="list-style-type: none"> Production of an evaluation and decision-making support software using the PGE-spider ratio diagram.
Special Collaboration	<ul style="list-style-type: none"> Sarah-Jane Barnes, UQAC.