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## **Lithogeochemical characterization of the Hondekloof Ni deposit, Kliprand area, Garies terrane, Namaqualand, South Africa**

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The Hondekloof deposit represents a family of small, orthomagmatic massive sulphide Ni-Cu-(Co-Zn) deposits occurring in the central part of the Garies terrane, Bushmanland, Namaqualand, South Africa. The study area is located in the Westcoast region of South Africa, in the settlement called Kliprand where various granulite facies rocks of the Namaqua-Natal Metamorphic province ranging from pre-to-syn-tectonic metasedimentary and meta-igneous rocks as well as post-tectonic granitic to charnockitic intrusions are regionally distributed. Since the discovery of this deposit, however, it remains largely unclassified given the limited attention given to the studies of its genesis. Understanding the origin of the deposit is however relevant in many respects as it allows to target other areas where arbitrary deposits of its kind may be found.

Therefore this project seeks to examine the petrography, petrology and geochemistry (particularly whole rock geochemistry) of the host rocks to the deposit to constrain their origin, protolith and tectonic settings. Doing that will further enable us to understand the nature of those rocks, their characteristics and the involvement of deformation and metamorphism or metasomatism on the deposit. The above information, then based on the standard criteria globally used to classified the magmatic Ni mineralization will be employed to characterize this deposit on the basis of: 1. the nature of its sulphide mineralization, 2. the composition of its parental magma (e.g. magma involved in the formation of the deposit), and 3. the tectonic setting where that magma has been deposited.

A selection of six exploration boreholes were logged and examined at the deposit site and seven lithologies encompassing both the metamorphosed sedimentary rocks as well as the meta-magmatic rocks of bi-modal composition were identified. Petrographic study has subsequently been done and still in progress and is followed by the whole rock geochemical analysis. A selection of 42 core (rock) samples were prepared for both XRF (X-ray fluorescence) and ICP (inductively coupled plasma) analysis and both trace and major elements data are heavily involved in process studies.

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